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A Comparative Study of Risk Management Practices between Islamic and Conventional Banks in Pakistan

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Declaration

I declare that this thesis and the work presented in it is my own achievement, except where otherwise indicated. I further confirm that this work has not been submitted to any other institution for any degree or other qualifications.

I hereby give consent for my thesis, if accepted, to be available for inter-library loan, and for the title and abstract to be made available to other Institutions.

Asma Abdul Rehman

*Dedicated to My Parents and My Loving Brother
'Saud Abdul Rehman' (May his soul rest in peace)*

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Abstract

Purpose: The purpose of this research study is to investigate the extent to which banks are using risk management practices in dealing with various risks and to compare risk management practices between Islamic and Conventional banks operating in Pakistan.

Methodology: This is an empirical research study which has employed quantitative research methods. This study has used two sources of data, i.e. primary and secondary data. Secondary data is collected by using content analysis through annual reports of five Islamic and conventional banks for the six year time period from 2008 to 2013. The content analysis was performed by using frequency analysis and un-weighted index scoring. And primary data was collected through questionnaire from the senior managers, risk managers and CRO of Islamic and conventional banks. The sample size was consisting of 150 respondents from banks. The data was analysed by using descriptive statistics, regression analysis and Mann-Whitney U test.

Findings: Islamic banks are found to be significantly different from their conventional counterparts in risk identification, risk management practices, liquidity risk analysis and risk governance. Moreover, risk identification, risk assessment and analysis, credit risk analysis and risk governance are most influencing and contributing variables in risk management practices of banks operating in Pakistan. Also, credit, liquidity, market and operational risk are found to be the most important risks faced by both conventional and Islamic banks.

Practical Implication: Considering the importance of risk management practices in Islamic and conventional banks; Bankers, investors, regulators, and policymakers are likely to benefit from the results of the study as a guide, when developing and reforming the existing risk management practices.

Originality: This study has extended the risk management practices model of banks by incorporating two more variables, i.e. liquidity risk analysis and risk governance into the model. Also, it is adding value methodologically, as data triangulation is used to draw a valid inference. So, this study will add value to literature and will be useful for Islamic banks, conventional banks, practitioners as well as for academic point of view.

Key Words: Islamic banks, Conventional Banks, Risks, Risk Management Practices, risk management process, Risk Governance, Pakistan

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Islamic Terms Glossary

Al-Rahn	Property as collateral for a deferred debt.
Al Wadiah	Principle to keep or deposit something in custody.
Bai Bithaman Ajil	It is an Islamic financing product involving sale of goods where the sale price is payable on instalment basis. This type of transaction is best referred to as "deferred payment sale".
Fatwa	An authoritative legal opinion issued by a Shariah Supervisory Board/ single Shariah scholars, based on the Shariah.
Fiqh	Practical Islamic jurisprudence.
Ijarah	A contract determining a leasing agreement/ A lease-purchase agreement.
Istisna'	A contract of sale of specified goods to be manufactured
Mudarib	The entrepreneur or manager in a Mudarabah contract.
Mudarabah	A partnership contract in which one partner contributes capital and the other partner invests time and effort.
Murabahah	The resale of goods with an agreed upon profit mark-up on the cost.
Musharakah	A partnership contract in which both parties contribute capital and may form a joint management.
Qard-e-Hasana	A benevolent (interest-free) loan.
Rab-ul-Mal	The partner in a Mudarabah agreement providing the funds.
Salaam	A contract determining a pre-paid purchase.
Shariah	Islamic religious law derived from the Holy Qur'an and the Hadith.
Sukuk	Participation securities, coupons, investment certificate.
Wakalah	An agency contract.

List of Abbreviations

AAOIFI	Accounting and Auditing Organization for Islamic Financial Institutions
ABL	Allied Bank Limited
AIRB	Advanced Internal Rating based
ALCO	Asset Liability Management Committee
BCBS	Basel Committee on Banking Supervision
BCG	Boston Consulting Group
BIS	Bank for International Supervision
BNM	Bank Negara Malaysia
BoD	Board of Directors
CB	Conventional banks
CEO	Chief Executive Officer
CET1	Common Equity Tier 1
CFO	Chief Financial Officer
COSO	Committee of Sponsoring Organizations
CRA	Credit risk analysis
CRO	Chief Risk Office
CSR	Corporate Social Responsibilities
EaR	Earning at Risk
FIRB	Foundation Internal Rating Based
FSB	Financial Stability Board
GCC	Gulf Cooperation Council
HBL	Habib Bank Limited
IB	Islamic banks
ICAEW	Institute of Chartered Accountants in England and Wales
IFA	International Federation of Accountants
IFSB	Islamic Financial Services Board
IFRS	International Financial Reporting Standards

IIF	Institute of International Finance
IIFS	Islamic Financial Services
IRM	Institute of Risk Management
IT	Information Technology
LCR	Liquidity Coverage ratio
LRA	Liquidity Risk Analysis
MCB	Muslim Commercial bank
MIS	Management Information System
NBP	National Bank of Pakistan
NPL	Non-performing Loan
NPV	Net Present Value
NSFR	Net Stable Funding Ratio
OECD	The Organization for Economic Co-operation and Development
PACRA	The Pakistan Credit rating Agency
PVBP	Present Value of a Basis Point
PWC	PricewaterhouseCoopers
RAA	Risk Assessment and Analysis
RAROC	Risk adjusted rate of return on Capital
RD	Risk Disclosure
RG	Risk Governance
RI	Risk Identification
RMDP	Risk management disclosure Practices
RMP	Risk Management Practices
RMR	Risk Monitoring and Reporting
ROR	Rate of Return
SA	Standardized Approach
SBP	State Bank of Pakistan
SIV	Special Investment Vehicle
SPV	Special Purpose Vehicle

SSG	Senior Supervisors Group
UBL	United Bank Limited
URRM	Understanding Risk and Risk Management
VaR	Value at Risk

Chapter 1

Introduction

1.0. Background of the Study

Islamic banking is one of the fastest growing segments in the financial industry, which has shown an incredible growth in terms of assets and number of financial institutions. The total assets of the Islamic financial institutions have reached US 1.8 trillion dollars, with the 375 Islamic financial institutions working globally. The annual growth rate of the Islamic banking industry has been 17.6% over the last four years between 2009 and 2013¹. It has been growing faster than banking assets as a whole.

Banks are consistently facing various types of risks that may have potentially negative consequences on their business. The objective of risk management is to minimize negative effects that risks can have on the financial outcomes and capital of a bank. The importance of the study arises from the need to examine risk management practices in the banking sector from time to time, as risk management is ever evolving practices due to the inclusion of complex business models, increased risk taking and introduction of new regulatory requirements. The thesis attempts to investigate the impact of the aspects of risk management process on the risk management practices of banks.

Banks act as a financial intermediary between two parties (i.e. depositor and lender). There are two important reasons for the establishment of banks, i.e. they provide liquidity, and financial services to the customers. Banks accept the deposits of the customers and invest that money in granting loans to those who are in need of money, while providing liquidity

¹ Ernst & Young, MENA, 2013; World Islamic Banking Competitiveness Report 2013–14

for withdrawal of the deposits. Hence, banks are in role of transforming short-term deposits into long-term loans while charging an interest rate, some portion of that is granted to the depositor on their deposited amount.

Risk management is fundamental to sound banking practice. Undoubtedly, nowadays all banking institutions are facing a large number of risks such as credit risk, liquidity risk, foreign exchange risk, market risk and interest rate risk which may cause failure of a banking system. Therefore, efficient risk management is absolutely obligatory for the survival and success of the banks.

Risk management consists of the activities that aim to minimize adverse effects or damage. The basic purpose for creation of a bank and financial institution is to provide the citizens of a country with the best and most reliable economic and financial management, which can boost their revenue, while minimizing losses for the shareholders. The improvement of shareholder value requires a strategy and policy for significant risk management, which can enable them to survive with minimal capital loss during the critical phase (Nocco and Stulz, 2006).

Risk management is considered important and used to be carried out in financial institutions rather than any other part of the economy (Carey, 2001). Meyer (2000) asserts that the basic reasons of the risk management practices are to avoid and eliminate the future failure of a financial system. But risk management is costly in terms of resources.

Iqbal and Mirakhor (2011) stated that three decades ago, banks were only facing credit and market risk, but now the banking business has changed over the period of time and it is now exposed to many risks because of the new products which were not present previously. The need for risk management is considered due to the following factors and changes in the market:

Firstly, the increased market volatility after the breakdown of Bretton Woods's system of foreign exchange rates, resulted in the instability in foreign exchange rate and interest rate. Secondly, the increased development of new products in the derivative market has raised

the need for risk management system in financial institutions to control risks attached to new products. Thirdly, the banking system is changing from a traditional lending model to fee-earning activities. The increased role of money and capital market has played a role in changing the nature of intermediation by moving it from formal financial institutions towards the market directly. As a result mutual funds have taken an increased share in market from traditional banks. Fourthly, it is difficult for small banks to survive in the market due to increased cost associated with managing risks and doing business. As a result, many mergers have taken place since the 1990s. Lastly, there have been a number of financial crises from third world debt crisis (1980) to East Asian crisis (1990) which have given rise to the need of having coordinated regulations and supervisions for the whole financial system with a focus on risk management and capital requirements globally.

Risk management is getting increased attention after the financial crisis globally and risk management tools, techniques and methods used by conventional and Islamic banks are certainly becoming an important issue for discussion. The market turmoil has increased the need to reassess the financial systems of developed and emerging economies. Also, it is essential to understand the causes that have led to the financial crisis. It was considered after the financial crisis that the failure of many financial institutions was due to inadequate risk management practices, shortcomings in the risk models, measuring and mitigation techniques. Moreover, the whole financial system was based on greed and lack of morality (Chapra, 2009). Islamic finance is considered an alternative after the credit crunch, which emphasizes on the Shariah principles related to the debt, equity and risks (Alaro and Hakeem, 2011).

Academics, practitioners and regulators are of the view that effective risk management is needed for managing banks' business. This reality has given rise to a comprehensive approach to deal with risk exposures of banks. For this reason, the Basel Committee on banking supervision has provided different accords (Basel I, Basel II, and now Basel III) to support risk management practices of banks. In addition, Sensarma and Jayadev (2009) stated that risk management has an effect on the returns of the bank's stock. Good quality risk management is needed to provide better profits to the stockholders (Akkizidis and Khandelwal, 2007; Al-Tamimi and Al-Mazrooei, 2007).

Risk is a phenomenon which is connected to and causes the improbabilities, uncertainties and repetition in case of business activities. For this, capital is kept as a cushion that safeguards the depositors' money within a bank. There are several risks which are interdependent and can have implications for the other kinds of risks. The various financial crises have pointed out the failure of the Basel I and II regulations. Moreover, these crises have initiated the needs and significance for several reforms in the risk management practices of the banks. This rethinking has created a need to create a dynamic risk management framework within banks.

There have been many studies conducted on risk management practices in conventional and Islamic banks in different emerging economies (UAE, Brunei Darussalam, Bahrain, Bangladesh, Pakistan, Malaysia) over the years like (Al-Tamimi, 2002; Al-Tamimi and Al-Mazrooei, 2007; Rosman, 2009; Hassan, 2009; Hussain and Al-Ajmi, 2012; Khalid and Amjad, 2012; Shafiq and Nasr, 2010; Nazir et al., 2012 etc.).

The current research study provides an up to date overview of the risk management practices, issues and trends in Islamic and conventional banks operating in Pakistan. It also focuses on the practical implementation and examines the various risk and risk management practices by banks from the perspective of different risk managers and practitioners. This study also discloses the weaknesses in the risk management practices and processes of the banks operating in Pakistan. Pakistan has a dual banking system whereby, Islamic and conventional banks are working side by side. It would be significant to compare risk management practices of both banking systems.

1.1. Study Aim

The aim of this study is to investigate empirically the extent to which banks are using risk management practices and techniques in dealing with different types of risk and to compare risk management practices of conventional and Islamic banks operating in Pakistan.

This research attempts to fill the gap in the empirical literature on risk management in conventional and Islamic banking. It also recognizes upfront that Islamic banking offers its

own unique approach to risk management. Following a structured approach, first the research aim was set and objectives were identified and then research questions were developed within the context of the broader aims and objectives.

1.2. Contribution to Knowledge

The current research study attempts to investigate the risk management practices of banks operating in Pakistan. This makes it a significant and valuable source for both the banking system, i.e. Islamic and conventional banking policy makers, investors, researchers, consultants, as well as for academic personnel. The risk management is getting more attention, especially after the credit crunch in 2007 to 2009 globally. This research study has contributed in three ways to the literature and knowledge.

Firstly, this study has proposed an addition to the risk management practices model by suggesting the need to consider risk governance and liquidity risk analysis. There have been many studies published by well-known international bodies highlighting causes of the financial crisis. Inappropriate and weak risk governance is considered a major cause for failure of risk management in financial crisis (FSB, 2013; IIF and Ernst and Young, 2012; EIU, 2009; SSG, 2009; KPMG, 2009). This argument is further supported by a group of researchers (Holland, 2010; Sabato, 2010; and Hashagen et al., 2009).

Furthermore, poor governance will lead to lack of confidence from stakeholders in a bank's ability to manage its assets and liabilities which results in triggering liquidity risk and crisis. This liquidity crisis can be severe and might lead to systematic risk and financial crisis all over the country (BCBS, 2005²; Alexander, 2006; Garcia-Marco & Robles-Fernandez, 2008). This argument is further supported by Derwall and Verwijmeren (2007); they have empirically shown that good governance is associated with minor systematic risk.

Credit risk, high leverage and liquidity, and funding risk are the factors that have contributed to the crisis (sub-prime crisis). Hence, lessons should be learned from the latest

² Enhancing corporate governance for banking organizations, October 2005.

crisis and prudent risk management should be in place, so that history would not be repeated (Brown and Davis, 2008). The crisis of 2007-2009 has highlighted clear deficiencies in the liquidity risk management by banks. As a result, there exists a serious risk to financial stability of the banking industry and to the economy (Jenkinson, 2008). Liquidity risk is also the most significant risk as this is focused in Basel III. Basel III has introduced minimum leverage ratio and two liquidity standards for the banks, i.e. Liquidity Coverage Ratio and Net Stable Funding Ratio.

Claessens (2006) stated that the weak governance structure and financial scandals involving the owner and the management resulted in the collapse of banks during the financial crisis, which has impacted the economy systematically. In the case of Islamic banks, more attention should be given to Islamic banks since they are exposed to more non-compliance risks and weak institutional environments of the developing markets in which they are operating mostly. Therefore, it will be significant to examine the effect of risk governance and liquidity risk analysis on risk management practices of banks operating in Pakistan.

Also, previous empirical research studies (Al-Tamimi and Al-Mazrooei, 2007; Hassan, 2009; Khalid and Amjad, 2012; Shafiq and Nasr, 2010) conducted on the risk management practices of conventional and Islamic banking system statistically show that the value of R-square is less than 50%, which means that the model they have applied to measure risk management practices is weak because 50% variation in risk management practices is explained by understanding risk management, risk identification, risk assessment and analysis, credit risk analysis, and risk monitoring; the remaining 50% of the variation in the model is explained by the unknown or other factors. This is strong evidence that highlights the need to add more variables in the model to make a risk management model effective and stronger. In addition, literature and previous events are also leading to the addition of more variables in a risk management model.

Secondly, this study has contributed to the literature of Islamic banking. Islamic banking is considered a new phenomenon in the financial market as compared to the conventional banking system. There is an extensive amount of literature available on Islamic finance and banking. This large portion of the literature is based on perception about Islamic banking

(Saeed et al., 2012; Dusuki, 2008; Baba and Amin, 2009; Rehman and Masood, 2012), Islamic banking products (Aris et al., 2013; Naser et al., 2013; Karim, 2012; Hosen and Nahrawi, 2012; Hussain and Zurbruegg, 2007), instruments (Smolo and Kabir, 2011; Razali, 2012), contracts and their structure (Siddiqui, 2008; Archer and Karim, 2012), regulatory challenges (Ariss and Saredidine, 2007; Abu Umar and Hassan, 2009; Volk and Pudelko, 2010; Alam, 2013), efficiency of Islamic banks (Sufian, 2007; Ahmad et al., 2008; Said, 2012; El-Moussawi and Obeid, 2011; Sufian and Mohamad Akbar, 2009; Jamal et al., 2012; Hassine and Limani, 2014; Shafitranata and Hosen, 2014) and comparison between Islamic and conventional banks (Ismail et al., 2013; Yahya et al., 2012; Quresh et al., 2012; Ali et al., 2013; Rahman, 2011; Abdul-Majid et al., 2010). But, there is a significant gap in the literature on coverage of the topics related to the risk management and risk governance in Islamic banks. As, Islamic banking is in its developing phase and there is still a need to explore this phenomenon with time. So, this study will be considered a significant contribution in terms of Islamic banking, which is an under-researched area in terms of risk management.

Thirdly, the current research study has amalgamated the risk disclosure practices with risk management practices in order to validate the research findings. Also, the risk disclosure practices presented in the annual reports of the bank are considered an authentic source of risk related information by the banks. The research on risk disclosure practices is considered important, because banks are considered to be risk management entities as their business is to take risks and to provide liquidity to its stakeholders. The current research study also contributes to the knowledge as this study is being conducted in the Pakistani context, and there is not a single study which has been conducted in the Pakistani banking context covering risk disclosure practices of banks; although studies conducted by Haniffa and Hudaib (2007); Hassan and Harahap (2010); and Darmidi (2013) provide insights in different economies. Moreover, this empirical study on risk disclosure practices of the banks is based on information disclosed in annual reports of the bank, are relatively limited in the literature. This part of the current research will help in investigating the greater picture of risk management practices in Islamic and conventional banks. The induction of content analysis authenticates the current research study.

Hence, this study has proposed an addition to the risk management model. This inclusion is based on the need for two more variables i.e. risk governance and liquidity risk analysis. These two aspects have never been introduced under risk management process of banks. So, this study will add value to literature and will be useful for Islamic and conventional banks, new entrants, and practitioners, as well as for the academic point of view. This study extends the work on risk management practices in following ways:

1. This study will be an addition in terms of risk management practices in banks. As there will be addition of new variables in the risk management process of banks like, risk governance; and liquidity risk analysis.
2. This research study is adding value methodologically as data triangulation is used to draw a valid inference. As previous studies have used quantitative research design and employed a questionnaire technique to investigate risk management practices of banks (Al-Tamimi and Al-Mazrooei, 2007; Hassan, 2009; Khalid and Amjad, 2012; Shafiq and Nasr, 2010, Hussain and Al-Ajmi, 2012). Employing content analysis and questionnaire technique which has not been used previously in studying the risk management discipline. Hence, this gives a very unique dimension to the whole thesis, contributing to literature on Islamic and conventional banking, risk management and disclosure practices worldwide and especially in emerging economies like Pakistan.
3. This study will be exploring the differences between risk management practices of conventional and Islamic banks of Pakistan. Because, the studies conducted in the context of one economy is important since one particular economy has its own unique culture, features and characteristics.

1.3. The Purpose Statement

The intent of this study is to investigate empirically the extent to which banks operating in Pakistan are using risk management practices to deal with different risks and to compare risk management practices of conventional and Islamic banks. Quantitative research methods are used with triangulation of secondary and primary data. The data is analysed in two steps. The first step relates to the secondary data which is collected from annual reports of Islamic and conventional banks to examine the disclosure practices on risk profile, risk management profile, risk control activities, risk control environment, and risk management process. In the second step, primary data is collected by using a structured questionnaire from the risk managers, Personnel of risk management department, Managers and Senior management working in Islamic and conventional banks operating in Pakistan, to assess whether aspects of the risk management process (i.e. Understanding risk and risk management, Risk identification, Risk assessment and analysis, risk monitoring and reporting, credit risk analysis, liquidity risk analysis, and risk governance) relates to the risk management practices. Triangulation is considered helpful for drawing a valid inference from the data analysis.

1.4. Research Objectives

1. To analyse and compare the volume and extent of disclosure practices of Islamic and conventional banks on risk profile, risk management profile, risk control activities, risk control environment, and risk management process.
2. To investigate risk measuring techniques and risk mitigation tools used by Islamic and conventional banks operating in Pakistan.
3. To compare and contrast risk management practices of Islamic and conventional banks operating in Pakistan.
4. To evaluate the effect of risk governance and liquidity risk analysis on risk management practices of Islamic and conventional banks of Pakistan.

1.5. Research Questions

This research study attempts to answer the following research questions:

- RQ1:** What is the volume and extent of risk disclosure practices between Islamic and conventional banks operating in Pakistan?
- RQ2:** What are risk measuring techniques and risk mitigation tools used by Islamic and conventional banks in Pakistan?
- RQ3:** Do risk management practices in Islamic banking differ from conventional banking in Pakistan?
- RQ4:** What is the effect of the risk management process on risk management practices of Islamic and conventional banks?
- RQ5:** What is the effect of risk governance and liquidity risk analysis on risk management practices of Islamic and conventional banks operating in Pakistan?

1.6. Summary of the Research Study

This dissertation is divided into nine chapters: following this introductory chapter, the thesis continues with the remaining eight chapters, which are closely interrelated. Chapter two, three and four are based on the review of the previous research studies.

Chapter Two (Literature review- Risk Management in Banks) will provide a literature review of the risk management. It will explain the concepts of risks and risk management, its process, including risk mitigation and measurement techniques, risk governance, liquidity risk management, and credit risk management. In addition, this chapter will elaborate the risk management at different hierarchical levels, risk control environment, and regulatory requirements of Basel I to Basel III. This chapter will explain the literature based on studies conducted on the banking industry in different countries. Furthermore, this chapter concluded and presents the conceptual framework designed for the current research study.

Chapter Three (Literature review- Islamic banking and Risk Management) introduces the Islamic banking and risk management concepts within Islamic banks. This chapter will explain the sources of Islamic law, Islamic financial instruments, Islamic financial intermediation, and the risks surrounding Islamic banks. Moreover, this chapter will highlight the risk overview in Islamic banks, risk matrix of Islamic and conventional banks, risk management in Islamic banks, risk governance, credit risk management including credit risk mitigation techniques, liquidity risk management and operational risk management in Islamic banks. This chapter will also discuss the differences between Islamic and conventional banks.

Chapter Four (Literature Review: Risk Disclosure Practices in Banks) will provide empirical studies conducted within different economies on the risk disclosure practices. It will explain why risk disclosure is important, risk profile and risk management disclosure practices, mandatory and voluntary risk disclosure, risk disclosure practices in Islamic banking, risk control activities and risk disclosure analysis.

Chapter Five (Economy and Banking Industry of Pakistan) will explain the economy of Pakistan, and the impact of the financial crisis on Pakistan economy. Also, it will illustrate the banking statistics of conventional banks, non-performing loans, Islamic banking in Pakistan, industry progress and market share of Islamic banks, products offered by banks and asset quality of the Islamic banking industry.

Chapter Six (Research Design and Methodology) will discuss the research philosophies, design and methodology adopted for the data collection process. It presents in great detail the recommended research procedures for content analysis and primary data analysis by making reference to the various research methodology textbooks. The rationale and justifications for each of the data analysis tools and techniques used throughout this study are also presented. In addition, the chapter also presents hypothesis statements, which are to be tested in the analysis chapter.

Chapter Seven (Quantitative Content Analysis and Discussion) will provide content analysis of risk disclosure practices of conventional and Islamic banks in two sections. Section 1 will be based on frequency analysis of risk disclosure practices, whereas, section 2 will be based on scoring index to examine the extent of differences between Islamic and conventional banks. This chapter is considered important because risk disclosure practices will provide the overview of the risk management practices of banks, which will further help to conclude and triangulate the results with the primary data analysis chapter.

Chapter Eight (Primary Data Analysis and Discussion) is based on the primary data analysis collected through a structured questionnaire. This chapter consists of three sections. Section one, will provide reliability analysis, and frequency analysis of demographic variables. Section two will present a graphical representation of data related to risk and risk management techniques used by banks. Section three will explain inferential statistics including regression analysis and Mann-Whitney U test. The results of the analysis are discussed, interpreted and justified in great detail. The aim is to explain the results in as much detail as possible from the data in order to respond to the research questions. The results of the study are also linked to the literature discussed in chapter 2 and 3.

Chapter Nine (Conclusions and Recommendations) will present a summary of the major findings, recommendations, study contribution; practical implication for Islamic banks, conventional banks, central bank and regulatory authorities, policy makers and academia, study limitations, and offer suggestions for the future research study.

Chapter 2

Literature Review: Risk Management in Banks

2.0. Introduction

This chapter discusses the banking risks and risk management in depth. It aims to review various research studies conducted by different researchers in different countries regarding risk management in banks. The literature review is presented theme by theme, starting from the general perspective of risk and its management, which is specified by examining the aspects of risk management process, risk management at hierarchical level, risk control environment, and discussion on regulatory requirements of Basel I, II and III. The chapter is concluded with a conceptual framework driven out from the gaps in the previous research studies.

There are many studies that have been conducted extensively on risks and risk management factors of conventional banks (Khan and Ahmed, 2001; Khambata and Bagdi, 2003; Linbo Fan, 2004; Hahm, 2004; Niinimäki, 2004; Wetmore, 2004; Fatemi and Fooladi, 2006; Arunkumar and Kotreshwar, 2006; Kanchu and Kumar, 2013; Arora and Agarwal, 2009; Feridun, 2006; Kumah and Sare, 2013). As Islamic banking is a new and growing phenomenon globally and there are only a few studies that are documented on risk management practices in Islamic banks (Khan, 1997; Hassan, 2003; Muljawan et al., 2004; Hassan, 2009). Whereas, there is a very little research specifically on risk management practices of Islamic banks in Pakistan, such as Khalid and Amjad (2012), there are a few research studies conducted on comparing risk management practices of conventional and Islamic banks of Pakistan such as; Shafique and Hassan (2013), and Nazir et al. (2012). There exists a need to explore risks and risk management practices in Islamic banks from

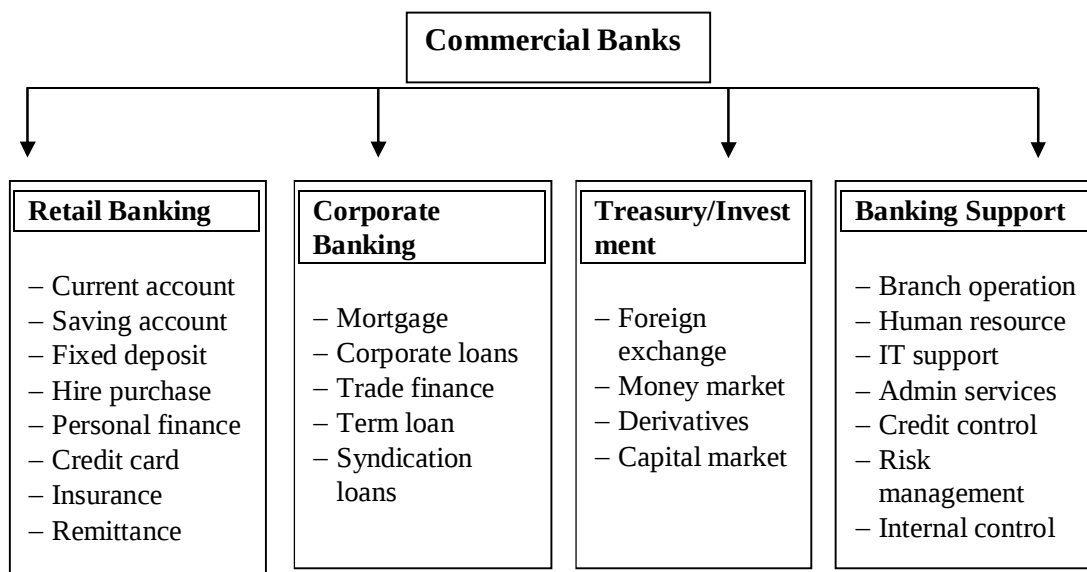
time to time as the nature of Islamic banking is dissimilar to conventional banking and is facing specific risks that are unique from conventional banking.

Today, there are unstable circumstances in Pakistan that have put banks both Islamic banks and conventional banks to face numerous barrier to grow. So, there is need to explore and analyse both banking systems from time to time and especially in regard to risk management of banks, as risk management is a critical factor for the success of the banks.

2.1. Structure of Conventional Banks

Basically, conventional banking structure includes four of banking activities, i.e. commercial retail banking, corporate banking, treasury/ investment banking, and banking support. These activities are further categorised as shown in figure 2.1.

Figure 2.1: Activities of Commercial Banks



Source: Developed by the Author

2.1.1. Conventional Banking Products

Conventional banking products are basically divided into the following two broad categories: (1) liability products; and (2) loan products. Liability products include, saving accounts, current accounts and fixed deposits accounts of the customers. Whereas, loan products includes fixed loan, trade finance, and term loans.

2.2. Banking Risks

Risk in simple words is uncertainties arising due to adverse fluctuation of profits and losses. The main risks faced by conventional banks include credit risk, liquidity risk, operational risk, market risk, interest rate risk, foreign exchange risk, and mismatch risk (Bessis, 2002).

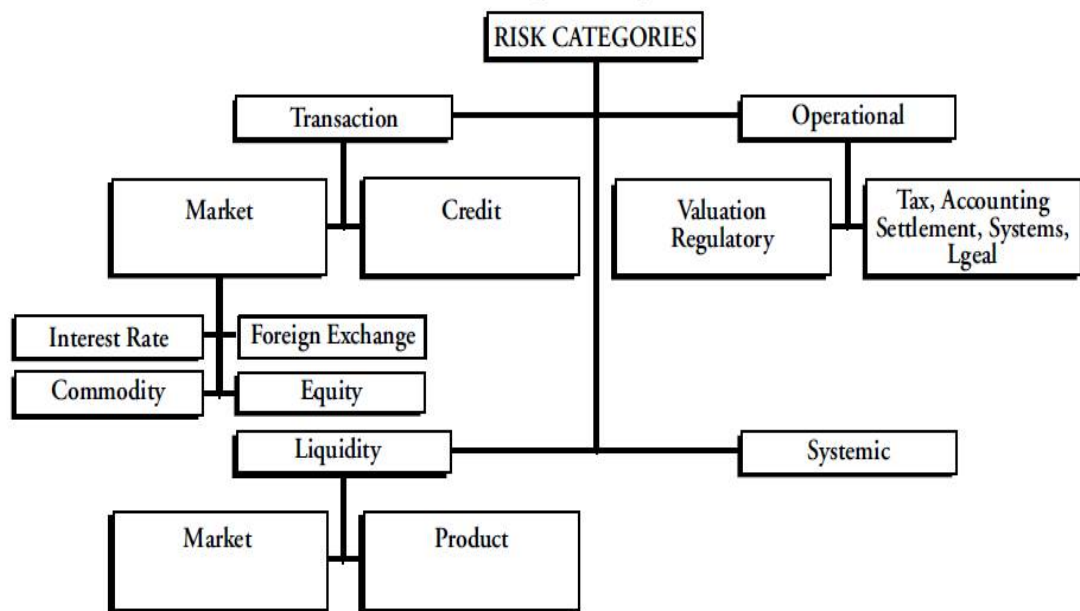
Risk is classified into two broad categories, systematic risk and unsystematic risk. Systematic risk is related to the market and economy of a country. It could be mitigated in a large diversified portfolio. Whereas, unsystematic risks are related to unique assets or a specific company. These risks cannot be diversified, but it can be minimized by the use of risk mitigation and transferring techniques (Santomero, 1997). Unsystematic risk is also known as diversified risk. Risk mitigation techniques are helpful for reducing the effect of systematic risks. Moreover, Oldfield and Santomero (1997) mentioned that there are three risk-mitigation strategies generally: “(1) Eliminate or avoid risks by simple business practices; (2) Transfer risks to the other participants; and (3) Actively managing risks at the bank level (acceptance of risk)”.

The commercial banks are facing the following risks: credit risk, operational risk, liquidity risk, market risk, interest rate risk, foreign exchange risk, solvency risk, counter-party risk, compliance risk, sovereign risk and legal risk (Bhattachariya, 2010; Al-Tamimi, 2002; Santomero, 1997; Oldfield and Santomero, 1997; and Bessis, 1996; 2011)

According to Vyas and Singh (2010), the risks are classified into the following three broad categories: transaction risk, systematic risk, and operational risk. Transaction risks consist

of market and credit risk. Systematic risk is related to liquidity risk of market and product. Figure 2.2 shows the categorization of risks, which is presented as below.

Figure 2.2: Categories of Banking Risks



Source: Vyas and Singh (2010)

2.2.1. Transactional Risks

These risks create hurdles for individuals and companies in dealing with different foreign currencies as exchange rates of currencies might change over a short time-period. This effect can be decreased by using currency swaps and other similar securities.

2.2.1.1. Credit Risk

Credit risk is the most prominent risk in the banking industry. According to Drzik et al., (1998), Credit risks comprised 60% of total risks in commercial banks. Credit risk refers to defaulting of counterparty on debt payment or meeting contractual obligation. Credit risk is an important part of fixed-income investment that is why rating agencies evaluate credit risks of corporate issuers and companies.

Credit risk is divided into following credit risk component: (Bessis, 2011, p.28)

- i. **Default risk:** when a borrower defaults in paying back the full or partial amount of loan. There are several default situations such as delay in loan payment, insolvency of the borrower, reorganizing the debt structure due to decline in the credit standing of the borrower etc.
- ii. **Migration risk:** refers to the direct loss due to the internal and external rating of bond and stock issuer as well as the potential indirect losses due to credit migration event. Such decline does not mean a default of payment, but the chances of non-payment increases.
- iii. **Exposure risk:** refers to loss of the amount due to the future value of money lend to the party.
- iv. **Loss under the default:** refers to a part of the loan amount which is not paid back by borrower. The partial payment might be due to recoveries from collateral.
- v. **Counterparty risk:** this risk arises due to the non-performance of the trading partner.

2.2.1.2. Market Risk

BCBS define market risk as a risk of losses in on and off balance sheet positions arising from the fluctuation in the market prices (Ghosh, 2012). Risks that arise due to the changes in the market value of the interest rates, exchange rate or even changes in the prices of bonds, equities and commodities. Banks are facing market risks in regards to management of balance sheet and trading operation. The following are the market risk factors:

- i. **Interest Rate Risk:** Risk that occurs due to the change or fluctuation of the interest rate on assets such as bond or loan. For example, as interest rises, the value of the bond falls and if the interest rate falls, the price of the bond rises. But generally, interest rate risk is commonly measured by the duration of the bond. Banks are involved in following types of interest rate risks:

- a. **Basis risk:** basis risk occurs when the yield on assets and cost of liabilities are measured on different rates i.e. Bases for example, LIBOR (London interbank offered rate) vs. US prime rate. These various bases will shift in different directions and at different rates in some situations which is a cause of inconsistent changes in income and expenses (Bhattacharya, 2010).
- b. **Yield curve risk:** the interest rate on the short-term investment is lower than interest rate on long-term investment. The bank usually takes short-term loans at low interest rates and invests that money in long-term assets, which gives higher rates. Although, the short-term rate and long term rate can fluctuate to a large extent, which can cause instability in income and expenses of the banks (Ghosh, 2012).
- c. **Reprising risk:** this risk happens due to reprising of assets and liabilities at various point of times and rates. For example, if a loan has a variable interest rate, it will generate more income for the lender if the interest rate increases, but on the other hand it will be a loss if the interest rate decreases (Vyas and Singh, 2010).
- d. **Option Risk:** this risk arises due to the choice available in some assets and liabilities. For example, in mortgage loan, the option risk arises if the payment is made early because of the changes in the interest rate. This will result in loss of income for the lender. This type of risk is difficult to measure and control (Vyas and Singh, 2010).

The interest rate is influenced by the liquidity condition in the financial market, price movements, fiscal and monetary policy, exchange rate movements, development in local and international financial markets and asset holding preferences. It is challenging to forecast the interest rate movements that may increase, decrease or remain constant over a time period. It is the responsibility of the economists of the bank to analyse the interest rate movements critically and draw a guideline on interest rate movements for a bank (Ghosh, 2012, p. 370).

ii. Foreign Exchange Risk: the risk of incurring loss due to the fluctuation in exchange rates (Bessis, 2011). Changes in the earnings because of the outcome of indexation of revenues and expenses to exchange rates or variation in the value of assets and liabilities denominated by foreign currencies. Foreign exchange risk is also known as exchange rate risk or currency risk. This type of risk generally occurs in import and export businesses (Vyas and Singh, 2010).

iii. Equity Risk: the risk of depreciation in the value of investment due to stock market dynamics is causing some individual or corporation to lose money.

iv. Commodity Risk: this risk occurs due to the uncertainties in the future market value of commodities, which cause fluctuation in the prices of the commodities. These commodities include grains, metals, minerals, electricity etc. (Vyas and Singh, 2010). The following risks are presented in commodity risks:

- Price risk
- Quantity risk
- Cost risk
- Political risk

2.2.2. Liquidity Risk

Liquidity risk is considered the main risk in banks. Liquidity risk arises when a bank is unable to pay its liabilities due to the mismatch of the assets and liabilities maturity. Banks having large number of off-balance sheet items are more exposed to liquidity risk. The financial risks are potentially inclusive that is the reason liquidity risk does not arise alone in the bank, it is the result of consequences of risks such as credit risk, market risk, interest rate risk, etc. According to Bhattacharya (2010, p. 17), effective liquidity risk management helps in developing the confidence of the market, maintaining relationship with borrowers by meeting their loan requirement on time, preventing the sale of assets at low prices in order to generate funds. Liquidity risk includes the following risks:

- *Funding risk*: Risk of replacing the net cash flow due to unexpected withdrawals or deposits not renewed by the depositors.
- *Time risk*: Risk of compensating of non-receipt of expected inflows of funds, i.e. when performing assets revolving into non-performing assets.
- *Call risk*: Risk of acquiring contingent liabilities and incapability to acquire beneficial business opportunities, when desirable.

2.2.3. Operational Risk

Operational risk is the risk of direct and indirect loss due to non-performance of internal processes, employees and system or from the external events³. These risks arise from failure of information system, reporting system, internal risk monitoring rules and internal procedures designed to implement corrective actions on time. Bessis (2011) explains that operational risks exist at following levels:

- Human errors/ frauds: this category includes lack of expertise, internal or external frauds and employee practices that result in a loss to the bank;
- Processes: Processes risk includes the inadequate procedure and controls for reporting, monitoring, decision-making, organizational and management deficiencies, technical inefficiency, etc., which cause losses to the bank;
- Technical: Technical risk includes the modeling error, implementation of the technical processes, and lack of adequate tools for measuring risk that is present in banks;
- Information technology: Risk of loss due to system failure or the insufficient information system;

³ Basel Accord (January 2007)

2.2.4. Residual Risks

2.2.4.1. Reputational risk

Reputational risk is related to the risk of damage to the goodwill of the bank which will destroy shareholders' value. Negative image of the bank, share price decline, less revenue, lawsuit, loss of customers and trade partners etc., are the consequences of reputational risk.

2.2.4.2. Compliance risk

Compliance risk occurs due to failure in performing lawful activities, rules and regulations, and ethical and legal standards

2.2.4.3. Country risk

Country risk is also called sovereign risk. This risk arises due to the interference of the foreign government in non-payment of a loan by the foreign borrower.

2.2.4.4. Off-balance sheet risk

This risk occurs due to contingent (conditional) assets and liabilities. For instance, letter of credit, future, option, forward contract, and swaps.

2.3. Banking Risk Profile

Al-Tamimi (2002) conducted a research study on risk management practices of UAE commercial banks. His findings reveal that credit risk is the most prominent risk in local and foreign banks and risk is identified by using "Inspection by Branch Manager". In addition, there exists no difference between risk management practices of local and foreign banks.

A research study has found that credit risk consists of 70% of the total risks faced by the banks, whereas the remaining 30% constitute of market and operational risk (Arunkumar and Kotreshwar, 2005). Credit risk is considered the most influencing risk, which causes instability in the banks, although an adequate amount of capital is kept as an effective source of security against the insolvency of the bank (Khan, 2003).

Al-Tamimi and Al-Mazrooei (2007) identified the most important risks faced by UAE banks such as “foreign exchange risk, credit risk, operating risk and liquidity risk”. But, they disagree with their findings and state that foreign exchange risk is not one of the prominent risks in UAE banks and UAE banks are not facing a liquidity problem, because the liquidity ratio was 76% in 2004, which was sufficient. Whereas, Hassan (2009) has conducted a research study on risk management practices of Islamic banks of Brunei Darussalam and reported the same risk as identified by Al-Tamimi and Al-Mazrooei (2007). But, Hussain and Al-Ajmi (2012) found out that the major risks faced by Islamic and conventional banks of Bahrain are “credit risk, liquidity risk, operational risk, legal risk, regulatory risk and reputational risk” which contradict with the findings of previous research studies, such as Al-Tamimi and Al-Mazrooei (2007) and Hassan (2009). Moreover, a study conducted by Ahmad et al. (2013) found that the main risks faced by the banks operating in Pakistan, Bahrain and UAE include, operational risk, credit risk, liquidity risk, foreign exchange risk and counter-party risk.

Ariffin et al. (2009) conducted a study on Islamic banks in 14 countries. Their findings revealed that credit risk is the major risk that is faced by Islamic banks, followed by liquidity risk and foreign exchange risk. Furthermore, Salam and Istisna’a are riskier than Murabaha and Ijarah; whereas, Mudarabah and Musharakah is considered more risky than Murabaha, Ijarah and Istisna’a. Hussain and Al-Ajmi (2012) found that there is no significant difference in the risk profile of Islamic and conventional banks operating in Bahrain.

Islamic banks are facing a higher level of risks compared to conventional banks (Hussain and Al-Ajmi, 2012). Similarly, Cihak and Hesse (2008) is of the view that Islamic banks are exposed to some additional risks due to difference in financial contracts that are offered by them, their governance, liquidity structure and legal requirements. Mounira and Anas (2008) suggested that there exists a need to strengthen risk management practices, as Islamic banks have a deficiency in risk hedging gears that are available in the market.

Islamic banks are mainly exposed to liquidity risk due to the following reasons: (1) Islamic banks are lacking active money market for Shariah compliant money market instrument (2)

Islamic banks are not allowed to have access towards short-term financing options from conventional banks, as well as from central banks (3) Islamic banks need to maintain a high level of cash balances out of the current account balances in order to meet customer's demand for withdrawal of deposits from their account. (Bellalah and Masood, 2010; Iqbal and Mirakhor, 2011; Hussain and Al-Ajmi, 2012)

2.4. Risk Management in Banks

Risk management is defined as “the performance of activities designed to minimize negative possible losses” (Schmit and Roth, 1990). Cummins et al. (1998) define risk management as “any set of actions taken by individuals or corporations in an effort to adjust the risk arising from their primary lines of business”.

Oldfield and Santomers (1997) describe three risk mitigation strategies: risk elimination, risk transferring to other parties, and risk acceptance. Similarly, Talwar (2011) stated four risk treatments for the identified risks: risk avoidance, risk transfer, risk reduction and risk acceptance.

IRM (2002, p. 2) defines risk management as “A central part of the organisation's strategic management. It is the process, whereby organisations methodically address the risks attaching to their activities with the goal of achieving sustainable benefit within each activity and across the portfolio of all activities.”

According to Bessis (2002), risk management includes the following four aspects (1) risk identification (2) risk mitigation (3) risk monitoring and reporting, and (4) risk measurement. Whereas, the Basel Committee on Banking Supervision (2001) asserts that risk management has four main aspects which include (1) identification of the risk into defined categories of market risk, credit risk, operational risk or sub-categories of risks, (2) assessment and analysis of risk through risk models, (3) risk monitoring and assessment on time, and (4) controlling risk by the senior management.

According to Ardrey et al. (2009, p. 2), risk management is a set of policies to control and monitor business transactions which can negatively impact banking operations, and to apply effective measures to identify, manage and mitigate these risks.

Risk management is the most important activity for any financial institution and it includes all activities which affect risk profile. Generally, risk management includes risk identification, measurement, monitoring and control to ascertain that risk is understandable by the personnel who are managing risks, the risk exposure of the company is within the said limit, i.e. decided by Board of Directors, risk taking decisions are according to the objectives and business strategy of the company, expected return on risk taken must pay off, risk decisions must be clear and sharp, and there must be availability of sufficient funds as a risk buffer.

Risk management depends on the internal and external environment of the banks, that is why constant consideration should be given to risk identification and control (Hussain and Al-Ajmi, 2012; Tchankova 2002), so that risk should be identified and a decision should be taken whether to mitigate, transfer or accept the identified risk depending upon the situation. A volatile macroeconomic environment with uneven economic performance, unstable exchange rate and asset price are causing volatility in the financial system. Such an environment makes it difficult for banks to evaluate their assets and financial risks realistically, such as unstable macroeconomic conditions causing higher probability of credit risk exposure to the banks. Furthermore, unstable local currency, which is lacking in external convertibility, shows a higher level of risk exposure (Van Greuning and Bratanovic, 2009).

Risk management is well-defined as a process of identification, evaluation and determination of the risks that are present in banks and to formulate and implement the actions that are necessary to manage the risk. Risk management in a bank can be seen from two perspectives i.e. (1) Regulatory requirements for risk management practices (2) Voluntary risk management by banks. Under regulatory requirements, banks have been given guidelines on risk management practices, supervision, and control by the local

regulatory bodies. Banks also need to have a well-developed risk management process and well-defined risk appetite and risk management procedures (Talwar, 2011).

Al-Tamimi (2002) has identified researchers (e.g. Baldoni, 1998; Harrington and Niehaus, 1999) who have identified a risk management process in eight steps: “(1) exposure identification, (2) data collection on risk and quantification of risk (3) management objectives (4) product and control guidelines (5) risk management evaluation (6) strategy development (7) implementation plan (8) performance evaluation”.

The risk management process has two steps, including; (1) identifying the nature and sources which have caused these risks to arise; (2) to plan out the technique to minimize risks through quantitative models in regard to understanding risk profile. Once the general framework of risk identification and management is developed, then it can be applied in different situations, products, contracts and instruments. Moreover, this framework will help Islamic banks to reduce risk exposure and will enable them to compete in the market. It is vital for the Islamic banks to have a comprehensive risk management process for identifying, monitoring, managing, reporting and controlling different risks by paying attention to Shariah rules and regulations (Iqbal and Mirakhor, 2011).

BCBS (2006)⁴ requires that supervisors, the Shariah Board and upper management to be satisfied with the risk management processes. Identification, evaluation, monitoring, controlling or mitigation of all material risks and assessment of capital adequacy in regard to the bank’s risk profile is to be conducted by the senior management and by the board.

Islamic banks should have comprehensive risk management and reporting process which includes the board of directors and senior management oversight for identifying, measuring, monitoring, reporting and controlling risks and where necessary they should hold adequate capital against exposed risks. The risk management process should consider the proper steps to follow Shariah rules and principles and it should report relevant risk to the supervisory authority (IFSB, 2005).

⁴ International Convergence of Capital Measurement and Capital Standards. A Revised Framework. Comprehensive Version. June 2006

Risk management will be considered effective if there is a proper flow of timely, meaningful and relevant information in regards to facilitate decision making and monitoring process of business activities, and operational health of the company (ICAEW, 2002).

2.4.1. Bank Risk Appetite

Risk appetite is defined by COSO (2012) as: “The amount of risk, on a broad level, an entity is willing to accept in pursuit of value. It reflects the entity’s risk management philosophy, and in turn influences the entity’s culture and operating style. Risk appetite guides resource allocation. It [assists the organisation] in aligning the organisation, people, and processes in [designing the] infrastructure necessary to effectively respond to and monitor risks”.

KMPG have characterised risk appetite as it should be documented as a formal risk appetite statement approved by the board and should be reflective of the strategies, policies, business objectives and plans, and stakeholder’s expectations. It should acknowledge the willingness to take a risk within the set capacity. There is a need to periodically review and reconcile the risk appetite statement based on the changing industry and market conditions (KPMG, 2008)⁵. Risk appetite is considered a cornerstone of the risk management framework of the organisations. Table 2.1 below, demonstrates the link between risk appetite and risk management framework.

The Basel Committee on Banking Supervision (2013a) has described risk appetite in a document “Principles for effective risk aggregation and risk reporting” that a risk appetite is a level and type of risk that a company is willing to take in its exposures and business activities given its business and obligations to the stakeholders. Generally, risk appetite is conveyed through qualitative and quantitative information (Laycock, 2013).

⁵ KPMG: Understanding and Articulating Risk Appetite (Advisory), 2008.

Table 2.1: How does Risk Appetite links with the risk management framework

Framework Element	Linkage to Risk Appetite	Risk Culture
Risk Governance	Clear risk appetite statement approved by board and embodied in risk policy and delegated authorities. This sets the ‘tone from the top’ and a foundation for the risk culture.	
Risk Assessment	Frequent risk assessment process to identify new and changing risk landscape in context of risk appetite.	
Risk Quantification and aggregation	Regular quantification and aggregation of risk to priorities focus of risk management and control.	
Monitoring and Reporting	Monitoring and reporting of performance against risk based limits based on risk appetite.	
Risk and Control Optimisation	Framework of controls calibrated in line with risk appetite to optimise cost/ benefit.	

Source: KPMG (2008). Understanding and articulating risk appetite

The risk appetite statement should disclose both qualitative and quantitative considerations, it should establish individual and aggregate level of risk profile that the bank is willing to undertake in order to achieve its business activities within its risk capacity. The risk appetite statement should set boundaries for its business operations, when following the business strategy. Also, it should communicate the risk appetite set by the board of directors across the bank, linking the day to day decision making operations and developing the ways to raise risk issues throughout the bank (BCBS, 2014a)⁶.

Risk appetite should be motivated from top-down board leadership and bottom-up management participation. It is initiated by the senior management and its success is based on the communication between the board of directors, board level committees, risk management and business units including CFO (BCBS, 2014a, p.9).

2.4.1.1. Difference between Risk Appetite, Risk Tolerance and Risk Profile

The Institute of Risk Management (2011) has defined risk appetite and risk tolerance as risk appetite being the amount and type of risk an organisation is willing to accept in pursuit of

⁶ BCBS: Corporate Governance Principles for banks, October 2014.

its business objectives. Whereas, risk tolerance is the specific maximum risk that an organisation is ready to take regarding each relevant risk. It is a typical measure of risks used to monitor exposure in comparison to the stated risk appetite (KPMG, 2008). Risk profile referred to all those risks that are present or faced by financial institutions in carrying out their business activities.

2.5. Risk Management Process

Baldoni (1998) and Harrington and Niehaus (1999) stated that comprehensive risk management process includes the following eight aspects which include: exposure identification, data collection on risk and quantification of risk, management objectives, product and control guideline, risk management evaluation, strategy development, implementation plan and performance evaluation. This process is suggested for commercial banks.

IBBM (2010) suggested that there are four steps in the risk management process, which include risk identification (identify, understand and analyse risk), risk assessment and measurement (quantify and assess impact of risk), risk control and mitigation (measure and mitigate risk) and risk monitoring (examines and report the progress). Whereas, Bhattacharya (2010, p.22) states that the risk management process includes seven aspects: risk identification, risk measurement, risk analysis and evaluation, risk monitoring, risk control, risk mitigation and risk avoidance. IRM (2002) report that the following are the broad categories which are included in risk management process i.e. risk assessment (including risk identification, risk analysis, risk description, and risk estimation), risk reporting against threats and opportunities, decision on risk, risk treatment, residual risk reporting and risk monitoring.

In addition, many researchers, such as; Al-Tamimi and Al-Mazrooei (2007), Rosman (2009), Hassan (2009), Shafiq and Nasr (2010), Khalid and Amjad (2012), Hussain and Al-Ajmi (2012), and Shafique et al. (2013), have studied risk management practices and processes. These researchers have investigated the association between risk management practices and aspects of the risk management process, i.e. understanding risk and risk

management, risk identification, risk assessment and analysis, risk monitoring and credit risk analysis.

BCBS (2010a) asserted in their “principles for enhancing corporate governance” that the independent risk management function is responsible for managing risk management framework across the organisation. It is the responsibility of the risk management function to ensure that the risk profile is within the set limits and approved by the board of directors. They are also responsible for risk identification, measuring, monitoring, recommending strategies to mitigate present risks and reporting on risk exposure to senior management.

Abdul Rehman et al. (2013) stated that banks’ ability to understand, identify, assess, analyse, control and monitor risks are contributing efficiently in the risk management process. Beegun and Pascale (2009) pointed out that the effectiveness of the risk management process depends on the existence of a proper risk management framework, including: risk governance, risk assessment, quantification and aggregation, monitoring and reporting and control optimisation. Exposure identification is a continuous discovery process where alternative scenarios are explored as the operating environment changes over time. The operating environment includes external legal, regulatory and payment system factors, customer behaviour patterns, and internal bank policies, procedures and product features. Exposure identification is an on-going “what-if” analysis to understand the dynamics of exposure creation.

Risk management refers to “risk identification, risk assessment and risk prioritization followed by economical application of funds for minimizing, monitoring and controlling the effect of disaster”. It will be wastage of resources and time if risk is not assessed and prioritized accurately (Njogo, 2012).

BCBS (2010a) asserted that risk management includes the following processes: identifying the key risks, assessing and measuring these risks, monitoring risk exposure and determining capital planning, monitoring and assessing judgments to accept certain risk, risk mitigation methods and to check whether risk decisions are in line with risk tolerance level that is approved by the board, and risk reporting to senior management and board

when appropriate. The Financial Stability Board (2013) stated that the risk management function and CRO are responsible for “identifying, measuring, monitoring, recommending strategies to control and mitigate risk and reporting on risk exposures”. Khan and Ahmed (2001) suggested that Islamic banks need to ensure that their risk management techniques including risk identification and management should be in accordance with the Shariah law and principles.

Al-Tamimi and Al-Mazrooei (2007), Hussain and Al-Ajmi (2012), Shafiq and Nasr (2010), Hassan (2009), and Khalid and Amjad (2012) have conducted research studies by using a questionnaire technique on risk management practices of banks in different countries like UAE, Brunei Darussalam, Bahrain, and Pakistan. Their results showed that UAE banks are efficient in “risk identification, risk assessment and analysis, and risk monitoring” but there exists a difference between local and foreign banks among risk assessment and analysis, understanding risk management and risk monitoring (Al-Tamimi and Al-Mazrooei, 2007). Whereas, Islamic banks of Brunei Darussalam showed a significant relationship between risk identification and risk assessment and analysis with risk management practices (Hassan, 2009). But, the findings of the study conducted by Hussain and Al-Ajmi (2012) somewhat contradict with the previous studies and show that banks are efficient in “risk assessment and analysis, risk monitoring, risk identification”. However, there exists a difference between understanding risk and risk management between Islamic and conventional banks of Bahrain due to compliance of Islamic banks with Shariah laws and principles.

Hussain and Al-Ajmi (2012) have targeted all the staff working in banks as the population and sample for their study, as every employee of the bank is not aware of what is happening in risk management department about risk identification, assessment, analysis, monitoring and credit risk analysis. Their sample size was 534 questionnaires which were collected fully filled by the respondents of Islamic and conventional banks of Bahrain. That is the reason it was considered that all the employees do not know what is happening in risk management department; for example front desk officer, customer service representatives, or cashiers will be unaware of the risk management process and practices of the bank. The sample size of the study conducted by Al-Tamimi and Al-Mazrooei (2007) was 157

questionnaires which were collected from the branch managers, senior risk management officers and senior credit officers. That is why the sample of Hussain and Al-Ajmi (2012) is inconsistent with the sample of Al-Tamimi and Al-Mazrooei (2007).

Shafiq and Nasr (2010) have studied risk management practices of commercial banks in Pakistan by using primary and secondary data. They found that risk monitoring is the most influential variable in risk management practices of Pakistani commercial banks. In addition, understanding risk management, risk identification, risk assessment and analysis, risk monitoring and credit risk analysis showed a significant and positive relationship with risk management practices, when regression analysis is applied separately on each variable. One of the interesting findings of this study showed that there exists a difference between public sector commercial banks and private local banks on understanding risk and risk management and risk monitoring. Similarly, one more study conducted on Pakistani banks by Khalid and Amjad (2012) affirm that risk monitoring, understanding risk and risk management, and credit risk analysis are influential variables in risk management practices of Islamic banks of Pakistan.

Rosman (2009) has conducted theoretical study on risk management practices and the risk management process of Islamic banks. His study has highlighted the positive relationship between “risk management practices and aspects risk management process, i.e. understanding risk and risk management, risk identification, risk analysis and assessment, and risk monitoring”. Because, significant risk understanding, risk identification, risk assessment and analysis and risk monitoring results in efficient and effective risk management practices.

Ahmad et al. (2013) have conducted a research study on risk management practice of Pakistan, UAE and Bahrain. Their results revealed that risk management understanding, risk assessment and analysis, identification of risk and credit risk analysis have statistically significant relationships with risk management practices of banks operating in Bahrain. But, the risk monitoring in Bahraini banks has a positive and insignificant relationship with risk practices of banks. The finding of banks operating in UAE showed that risk management understanding, identification of risk and risk assessment and analysis have a

positive and significant relationship with risk practices of banks and risk management understanding is most influential variable in the model. The results of Pakistani banks revealed that risk management understanding, risk assessment and analysis, identification of risk, risk monitoring and credit risk analysis have statistically significant relationship with risk practices.

Table 2.2: Unit of Analysis of Key Research Articles

Citation	Aim & Objective	Methodology	Data analysis techniques	Findings
Al-Tamimi & Al-Mazrooei (2007)	To investigate risk management practices and techniques in dealing with different types of risks and to compare risk management practices between National and foreign banks operating in UAE.	Primary data was collected by employing questionnaire technique. Data was collected from Senior credit managers, senior risk management officers, and branch managers. Sample size consists of 157 respondents.	Frequencies, descriptive statistics, regression analysis and one way ANOVA	UAE banks are somewhat efficient in assessing and analysing risk, risk management practices and risk monitoring and risk identification. And there is significant difference between national and foreign Banks of UAE in practicing risk assessment and analysis, and risk monitoring.
Shafiq & Nasr (2010)	To investigate about risk management practices within banking sector of Pakistan. And to investigate the difference between financial indicators between public, local private and foreign banks.	Mixed researcher method is used. Primary data is collected by using questionnaire whereas secondary data is collected from the quarterly report of State bank of Pakistan on performance review of banking system.	Descriptive statistics, correlation, regression analysis, and one way ANOVA was used to analyse data.	Results illustrated that there is a difference between application of risk management aspects among public commercial bank and private local bank. Also, the financial indicators differ in value for each type of commercial bank.
Hassan (2009)	To assess risk management practices of Islamic banks operating in Brunei Darussalam in dealing with different	Primary data is collected by using questionnaires, which is sent to the staff of head offices and branches of Islamic banks. 156 questionnaires were collected.	Frequencies, descriptive analysis, Correlation and Regression analysis.	Results reveal that Islamic banks of Brunei Darussalam are efficient in risk assessment and analysis and risk identification.

	risks.			
Hussain & Al-Ajmi (2012)	To examine risk management practices with type of bank and to examine the influence of aspects of risk management process on risk management practices.	A modified questionnaire is used to gather primary data. 534 questionnaires were collected in full from respondents.	Frequencies, descriptive statistics, correlation, regression analysis and ANOVA	There exists a difference in understanding risk and risk management between Islamic and conventional bank operating in Bahrain. Furthermore, risk management practices are determined by understanding risk management, risk identification, risk assessment and analysis, risk monitoring and credit risk analysis.
Nazir et al. (2012)	To examine risk management practices of banks and to compare risk management practice of local and foreign banks, Islamic and conventional banks, public and private banks.	Primary data is collected by using modified questionnaire used by (Al-Tamimi & Al-Mazrooei, 2007) from 250 respondents. Respondents were credit managers, and branch managers from the local branches and head offices.	Descriptive statistics, correlation, one-way ANOVA and regression analysis.	Results illustrate that understanding risk management; risk monitoring and credit risk analysis is significantly contributing in risk management practices of Islamic and conventional banks. And there exists a difference between Islamic and conventional banks in risk monitoring methods.

Khalid & Amjad (2012)	To evaluate risk management practices of Islamic banks operating in Pakistan.	Standardized questionnaire (Al-Tamimi & Al-Mazrooei, 2007; Hassan, 2009) was used to collect data from the senior staff of head offices and branches. The sample size was 90 respondents. A random sampling technique was used.	Descriptive statistics; correlations; regression analysis.	Findings revealed that understanding risk and risk management, risk monitoring and credit risk analysis are most influential variables which are contributing significantly in risk management practices of Islamic banks.
Ahmad et al (2013)	The aim of the study was to explore the remodelling framework of risk measurement strategies in order to manage the challenges of post global financial crisis in the banking sector of Bahrain, UAE and Pakistan.	This is cross-sectional study where two sources of primary data were collected i.e. close ended questionnaires from the relevant staff and open ended interviews from selected risk officers. A multistage sampling technique was used and includes 3 foreign banks, 3 Islamic banks and 4 commercial banks based on the convenience. A modified questionnaire from Hassan (2009) was used to collect data. Sample size was 102, 153 and 168 respondents from Bahrain, UAE and Pakistan.	Descriptive statistics were used to evaluate each aspect of risk management process. Whereas regression was estimated to investigate the relationship between risk management practices and risk understanding, identification of risk, risk assessment and analysis, risk monitoring and credit risk analysis.	Results reveal that risk management understanding (RMU) Identification of Risk (IOR), risk assessment an analysis (RAA), and credit risk analysis (CRA) is significantly contributing in risk management practices of Bahrain. Whereas, RMU, IOR and RAA is significantly contributing in RMP of Banks of UAE. Results of RMP of Pakistani banks reveal that all independent variables are significant. Furthermore, the results signified that all banks persistently reshaping their risk modelling and financial conditions in order to absorb uncertain financial shocks.

Ariffin and Kassim (2011) conducted a study on risk management practices of Islamic banks of Malaysia. Their findings showed that the role of the board of directors is to approve the overall policies and role of management to implement these policies is important. Results further demonstrated that Islamic banks use risk measurement practices regularly to measure profit and loss and risk monitoring system of Islamic banks are efficient followed by risk mitigation practices and the internal control system. Overall, the risk management practices of Islamic banks in Malaysia are efficient, but there is still need to improve the risk management systems of Islamic banks.

Wasiuzzaman and Gunasegavan (2013) have conducted a comparative study on the performance of Islamic and conventional banks operating in Malaysia. The aim of their study was to investigate the differences between Islamic and conventional banks' characteristics on the basis of capital adequacy, liquidity, operational efficiency, corporate governance and asset quality. The data has been collected from 14 banks, comprising of 9 conventional banks and 5 Islamic banks over the period of 2005-2009. They have highlighted that return on assets, bank and board size of conventional bank is higher than Islamic banks. Whereas, the operational efficiency, asset quality, liquidity, capital adequacy and board independence of Islamic bank is higher than conventional banks, and there exists a significant difference between Islamic and conventional banks in capital adequacy, liquidity, operational efficiency, corporate governance and asset quality.

Ariffin et al. (2009) conducted a research to identify perceptions of Islamic bankers about risk, its management and measurement. The findings of the study showed that the majority of Islamic banks do not use advanced risk measuring techniques in order to manage risks, such as; VaR analysis, simulation techniques, risk adjusted return on capital, and internal based rating system. Moreover, Islamic banks are using risk mitigation techniques like conventional banks in order to manage risks. Collateral and guarantees are mostly used by Islamic banks in respect to manage credit risk. Similarly, Tafri et al. (2011) tried to identify risk management tools that are used by Islamic and conventional banks in Malaysia. Their results revealed that there exists a significant difference between risk management practices

of conventional and Islamic banks of Malaysia, especially in respect of usage of market risk management tools, such as; VaR analysis and stress testing, credit risk mitigation methods and operational risk management tools. Islamic banks are not efficiently using these techniques. They further recommended that Islamic banks need to develop Shariah compliant tools to accommodate their needs.

A study conducted by Shafique et al. (2013) found that there is no specific difference in risk management practices of “credit risk, equity investment risk, market risk, liquidity risk, rate of return risk and operational risk” between Islamic and conventional banks of Pakistan. But, Islamic banks are using operational risk management practices more rigorously than conventional banks in Pakistan. The findings of Shafique et al. (2013) contradict with the results of Tafri et al. (2011). One of the reasons of this contradiction may be because these studies have been carried out in two different countries.

It is important for the staff of a bank to know about what risk and risk management are. Understanding risk is important at all the hierarchy levels as first line officers are directly involved in the risk as they are taking risks on behalf of the bank. Boston Consulting Group (2001) also found that the mindset regarding the risk management philosophy of employees and management needs to be changed, whereby they understand that risk management is crucial for the success of business. There is a need for intensive training and defined structure so that employees can understand their responsibilities in regard to their commitment to change the system. Hassan and Dicle (2006) recommends that Islamic banks must give priority to risk management practices as understanding risk and application of risk management techniques is a crucial aspect.

2.5.1. Risk Identification

Williams et al. (1998) explain that risk identification is a continuous practice that exposes the risks and its conditions that are present in an organisation. Risk identification helps to determine the activities and places where organizational resources are exposed to risks.

Conversely, Tchankova (2002) argued that risk identification is the first phase in the risk management process and this is the beginning point for other steps like risk assessment, analysis and control of risk. Risk management would be effective, if risk identification is authentic. He further added that risk managers need to see what is happening at all levels of the organisation. For example, research and development, administration, technological department, etc. This will help them to know where a peril is present and how an action taken in one department can create a hazard for another. Sources of risk (negative and positive outcomes from organisational environment), hazard factors (circumstances that increase chances of loss or gain), peril (cause of unpredictable loss), and resources exposure (objects that are facing losses or gain) are elements of risk identification.

After identification of the risk, the next step is related to its management. The higher risks are related to the higher returns. But, the risk management practices create a balance between risks and rewards to capture a successful position in the future (Fatemi and Fooladi, 2006).

Risk identification is the crucial step and there is a need to spend more time on this activity. Risk identification is essential to point out uncertainties that are prevailing within the organization. There is a need to understand the market in which the organisation is dealing, the social, legal, political and cultural environments, and understanding the risk originating activities. This understanding is required to evaluate the magnitude of the risk, the time period for which risk is present and the implications of its impact on accounting aspects.

It comprises of summing up risk exposures from all the business activities, transactions, locations and affiliated units. The risk identification process is complex and not constant. It requires banks to set up procedures that assure capturing of all risks faced by the

organisation. The set procedures need to be updated from time to time, especially when the business policies and strategies are changing or new activities are added in the business. Failure to identify all the risks or partial capture of risk exposures will lead to inaccurate risk profile of the bank. Inaccuracy to identify the true risk profile will further lead to breach of the capital adequacy norm. Ghosh (2012) has explained few issues related to the risk identification, such as the following.

Firstly, the banks need to investigate that one transaction has several risks which need to be identified. For example, the loan granting transactions carry credit risk, liquidity risk, and earning risks. Credit risk will arise in the case of non-payment of the principal and interest amount by the debtor, which will result in loan loss for the bank. The liquidity risk arises as a result of non-performing loans as the defaulted loan amount falls at different time intervals over the life of the loan. The sum of non-performing loan from a group of customers can create an imbalance of liquidity for the bank. Moreover, if the amount of the defaulted loan is huge, then the banks are required to make substitute arrangements for the funds with the higher cost to pay its obligations on the due dates. Earning risk for the banks will arise due to non-payment of interest amount. The accounting standards suggest banks should not accumulate interest income on defaulted loans. Similarly, an investment made on the bonds of a domestic corporation leads to interest rate risk, credit risk, earning risk and liquidity risk and if the investment is made on the bonds of an international corporation, then it will further lead to country risk and foreign exchange risk.

Secondly, banks also need to consider the level of risks related to certain types of transactions while identifying risks. For example, term loans and financing in debt instruments have a difference in the maturity term of the loan. The longer the term period of the loan, the more chances of default there are as compared to a short-term loan. It is necessary for the banks to decide rules related to the level of risks, keeping in-line with the maturity period of the term loan.

Thirdly, the bank requires assessing the circumstance of the work culture and system of corporate governance in the bank. For example, if the work culture is insensitive to risk and management authorise to take excessive risk without having a proper checks and control

systems. This will lead to increase in the incidents of risk. Whereas, if the control system is inefficient, it will result in increased operational risk for the banks.

The risk identification process is a comprehensive activity, including sources and causes of risks, and whether risks are due to internal or external factors for the organization. It is not possible for an organisation to prevent the occurrence of external causes, but they can mitigate those causes with planning. If a risk is missed during the risk identification activity, then it would not be possible to identify it in later process (Laycock, 2013, p.84).

2.5.2. Risk Assessment and Analysis

Risk quantification is important for assessing risk impact and controlling risks. Effective risk assessment helps the management to decide future action plans. The bank needs modelling for assessment and measurement of risk profile, but some risks cannot be quantified quantitatively like operational risk. Operational risk can be measured by using qualitative techniques. Quantitative techniques are considered more efficient and appropriate for decision making (SBP, 2003; 2010).

The scope of the risk assessment is determined by understanding the objectives of the organisations and types of possible risks that can arise in the course of business. The objectives of the organisations are broad and narrow. The broad objectives are based on strategic, operational, compliance and reporting, whereas narrow objectives are related to products, processes and functions. Similarly, possible risks are related to market, credit, liquidity and operational risk. Also, the scope can be limited to the business unit, or a specific area or enterprise wide. Once the scope is determined, possible risks of the organisation are rated in relation to the impact (in terms of severity of the risk) and likelihood (chances of occurrence). This result provides the risk profile of the business, which will be used to see the willingness of the organisation to take such risks. Moreover, this scope and results are used to establish appropriate response strategies by allocation of resources. Risk assessment is a continuous process in which risk response, scope, objectives, and controls are reassessed on a regular basis. Risk assessment starts from the qualitative assessment and later with time sufficient data is extracted which helps in making

risk informed decisions and allocation of resources. Qualitative risk assessment is the basic form of assessment which categorizes the potential risks based on scales, i.e. nominal and ordinal (PWC, 2008a).

Quantitative risk assessment is carried out with the help of benchmarking, probabilistic and non-probabilistic models. For these models, data is taken out from internal and external events such as; transaction errors, complaints from customers and legal action against the company. Whereas, external events are related to loss events recorded by the peer organisations. This sort of data supports better analysis of current and future risk exposures and establishment of appropriate indicators which are followed on a daily basis, and it also provides rapid response to the risk exposures. Benchmarking is carried out with the help of comparison of risk information among different organisations within a given industry. Benchmarking analysis needs relevant and timely information from peer organisations. Probabilistic models are used to measure the likelihood and impact of the events with the help of “value at risk models”, assessment of loss events, and back testing. Whereas, non-probabilistic models only measure the impact of the event, such models include sensitivity analysis, scenario analysis and stress testing. Other techniques are used together with non-probabilistic techniques to measure the likelihood of the event. Non-probabilistic technique is used, when limited data is available for analysis (PWC, 2008a).

PWS (2008b) illustrated that execution of a risk assessment needs defining the scope and a plan for the organization with objectives, responsibilities of the personnel, timing of the events, input and output requirements. Risk assessment responsibility is assigned to personnel who can provide some meaning to the relevant risk, i.e. cross-functional management persons and line managers. The prior assessment, loss data information, key risk indicators, and lesson learned from the past financial crises are considered as input sources of data. Whereas, output requirements are based on the needs of the sponsors and the stakeholders, i.e. senior management, board of directors, regulators, business partners, investors, shareholders, etc. The risk assessment process includes the following aspects: identification of the relevant business objectives with the help of SWOT analysis, identification of the internal and external events which may affect the successful accomplishment of the objectives, establishing risk tolerance level, assessment of

likelihood and impact of the risk events with the help of risk map, evaluation of the risks profile and defining the risk response strategies, and assessment of residual likelihood and impact of risks exposures. A risk map gives a risk portfolio that encourages analysis and action plan. A risk map helps in evaluating which risk exposures are more significant and need detailed assessment and analysis. It also helps in prioritising the risks, and defining the risk responses.

2.5.3. Risk Evaluation

Risk evaluation is related to segregation of major and minor risks. After risk measurement, the next step is prioritising the risks after receiving data on risk. After risk analysis, estimated risks are compared with the established risk criteria. Risk criteria may include environmental, legal, economic and social factors, and associated costs and benefits for the institutions. At this stage the bank has to decide about risk level and risk type that is acceptable and manageable. In addition, the bank also needs to clarify which risks are needed to be eliminated, transferred to the third party and mitigated (IRM, 2002).

2.5.4. Risk Monitoring

Risk monitoring is the responsibility of risk management department, who is responsible to implement risk policies set by the top management (i.e. the board of directors and its committees) related to the credit, market and liquidity risks arising from day to day business activities. It is essential to place risk managers within each business unit, who are responsible to report directly to risk management department on a day to day basis, so that a link between the risk management department and business units should be maintained (Bhattacharya, 2010, p. 29). Risk monitoring is the most significant variable in risk management practices, as if it is eliminated from risk management practices model r-square will decrease by 10 percent (Khalid and Amjad, 2012).

2.5.5. Risk Control and Mitigation

For effective risk management, a bank needs to formulate the strategies and methodologies through which they can control their risk that are present in the portfolio. It is compulsory that banks decide the risk tolerance level, which would be helpful in controlling risks. The tolerance level set by the bank should not be too high that it goes beyond the bank's capacity to manage it and not too low that it result in lower profitability. If an understanding about risks is efficient than risk mitigation will be quick, and this will result in effective risk management practices (Bhattacharya, 2010).

2.6. Risk Measurement and Mitigation Techniques

Risk measurement deals with the quantification of risks faced by financial institutions. Risk management is defined as a process for defining business strategy to identify, quantify, understand and control the nature of risks faced by financial institutions (Cumming and Hirtle, 2001).

Basically, there are two approaches to measure and quantify risks faced by financial institutions. The first approach relates to quantify risks in a segmented way, i.e. GAP analysis is used to measure interest rate risk, whereas the VaR method is used to assess market risks faced by financial institutions. The second approach, is related to measuring risk with a consolidated way of assessing the overall level of risk exposure faced by a company, i.e. risk adjusted rate of return and risk adjusted return of capital for aggregating risk on company level.

2.6.1. Gap Analysis

This tool is used to measure and control the on balance sheet interest rate risk. This tool targets the risk of volatility of net interest income over the specified periods. For this technique, a program of the maturity / re-pricing that distributes interest-sensitive assets, liabilities and contingent liabilities positions in the time slots according to their maturity (if fixed rate) or remaining time to their next reassessment (if floating rate) is prepared. These

timings are then used to produce indicators of sensitivity to interest rates on both income and economic value to floating interest rates. After selecting the time intervals, assets and liabilities of the organisations are clustered into these time slots according to their maturity based on fixed rates or the first re-pricing time for the flexible rates. The re-priced assets and liabilities are known as rate sensitive assets and rate sensitive liabilities. Following is the formula for the calculation of the interest sensitivity gap between assets and liabilities (Khan and Ahmad, 2001; Makkar and Singh, 2013):

$$\text{Gap} = \text{Risk Sensitive Assets} - \text{Risk Sensitive Liabilities} \dots\dots\dots (2.1)$$

This formula gives the information to the management of the banks about the effect of the change in the interest rate on the net-income of the bank. Positive balance will show that an increase in the future interest rate will cause an increase in the net interest income and vice versa (Cumming and Hirtle, 2001; Alam and Masukujjaman, 2011).

2.6.2. Duration Gap Analysis

Duration gap analysis is another technique to measure the sensitivity to the interest rate risk of the bank. Duration gap analysis measures the percentage change in the economic value to the percentage change in the interest rate (Ghosh, 2012, p.356). Duration gap is a powerful interest rate risk management tool, which is used to minimize the effect of fluctuating interest rate on the financial position of a bank. The net financial position of a bank is equal to the market value of its assets minus the market value of its liabilities. A bank will be more sensitive to the interest rate risk, if there is a difference between the assets and liabilities maturity duration.

Duration analysis measures how well the timings of the cash inflows from the assets and cash outflows from the liabilities are matched in response to the change in the interest rate. It represents the average time needed to recover the invested funds. Following is the formula to calculate the duration gap:

$$\text{Duration Gap} = DA - DL \times (PL/EA) \dots\dots\dots (2.2)$$

Where, **DA** is the duration of the earning assets, **DL** is the duration of the paying liabilities, **PL** is paying liabilities, and **EA** is earning assets.

When the duration of an earning asset is more as compared to the duration of the paying liability, the duration gap will be positive. If the interest rate increases, then the asset will lose more value than liabilities and results in reducing the bank's equity and vice versa. On the other hand, if the duration of an earning asset is less as compared to the duration of the paying liability then the duration gap will be negative. Also, if interest rate increases, liabilities will lose more value than assets and results in increasing the value of bank's equity and vice versa (Cumming and Hirtle, 2001). But if the duration gap is zero, then the bank is immunized against the interest rate risk.

When the interest rate has a changing and unstable scenario, but it remains within the set tolerance level, then it is advisable to target a short duration of maturity for both the assets and liabilities. The banks are required to run sensitivity analysis on the basis of the market value of its equity under different interest rate scenarios. There is a need to reset the duration of assets and liabilities infrequently to hedge the interest rate shocks, because the duration of financial instruments varies over time (Ghosh, 2012, p.361).

2.6.3. Simulation Analysis

Simulation analysis is an effective tool to estimate the sensitivity of a balance sheet of a bank under different interest rate scenarios. It evaluates the effect on the net income of the bank and the equity price based on the market value. This technique is carried out in regard to the differences in the potential path of the interest rates, the shape of the yield curves, variations in the business strategies related to funding, hedging, product pricing etc. Simulation analysis is complicated as compared to the gap analysis and duration gap analysis, and the reliability of the results of simulation analysis depends on the validity of its assumptions and the dependability of the data. But, if these two conditions are not fulfilled the results will be considered ambiguous. The simulation analysis is most significantly used by the larger financial institutions that are exposed to the interest rate risk (Ghosh, 2012, p.362).

2.6.4. Value at Risk

Value at Risk (VaR) is one of the latest tools used to measure the loss that arises from the investment portfolio, foreign exchange portfolio and commodity portfolio due to instability in the normal market conditions. Banks are required to calculate VaR on various portfolios at frequent time slots to measure the loss on assets values and to assess the capital adequacy that is needed to cover the market risk. VaR is a method used to calculate the potential loss on an asset or portfolio due to unfavourable movements in the market conditions and it is measured by time slots and at a certain confidence level. The instability in the asset values, time period selected to assess the risk, and assumed confidence level are the inputs for the calculation of VaR. The time period selected for VaR can be a day, a week, a month or a year, but the new Basel accord requires banks to estimate VaR model based on at least 10 working days. Moreover, it is considered that the holding time slot will be determined with the bank's risk appetite, regulatory requirement or by the standard accounting practices. The instability in the asset value can be determined by how rapidly the prices of the securities, stocks, options are changing or how much are the variation in the income on investments in bonds within a selected time slot. The value of VaR will change based on the time chosen, i.e. holding time period. The longer the holding period, the larger will be the VaR indicating a significant portion of potential loss (Ghosh, 2012, pp.362-365).

The confidence level selection is based on the risk philosophy and risk bearing capacity of the bank. The banks with liberal approach will select a confidence level of 95%, whereas, banks with conservative approach will chose 99.9%, as a confidence level for VaR calculation.

The State Bank of Pakistan (2010) encouraged banks to calculate their risk profile by using the value at risk model. Banks are required to adopt at least simple risk measurement methodologies such as maturity mismatches, sensitivity analysis, etc.

There is need to use different tests with the VaR model to ensure the effectiveness of the results. Back testing needs to be carried out to check that VaR predictions matched to the

observed market volatility. Whereas, a stress test is used to assess the consequences of risk that can occur in abnormal market conditions (Asian Institute of Finance, 2013)⁷.

Mokni et al. (2014) found that Islamic banks are not using VaR method extensively with 33.3% of sampled banks are engaged in using this technique, in order to cover credit derivatives, asset backed securities, for commodity, equity, fixed income and foreign exchange rates.

2.6.5. Earnings at Risk (EaR)

There are different sources of earning for banks, among which one is related to earning from the interest rate. Earnings at risk refers to the loss of earnings (interest income) due to adverse movements in the interest rate. It is assessed with regard to a selected time period i.e. monthly, quarterly, semi-annually and annually. The banks calculate the difference between the rate-sensitive assets and liabilities based on time slots and then multiply the positive or negative difference amount with the supposed changes in the interest rate for the calculation of EaR. The time slot for the EaR analysis is selected based on the size of the assets and liabilities. If a bank has large assets and liabilities that are based on a short time period, the EaR should be assessed on a weekly or fortnightly basis. Conversely, if a bank has long-term assets and liabilities, then they should calculate EaR monthly, quarterly or semi-annually. Following is the formula for calculation of EaR:

$$\text{EaR} = (\text{Rate-sensitive Assets} - \text{Rate-sensitive Liabilities up to selected time slot}) \times \text{change in interest rate.} \dots\dots\dots (2.3)$$

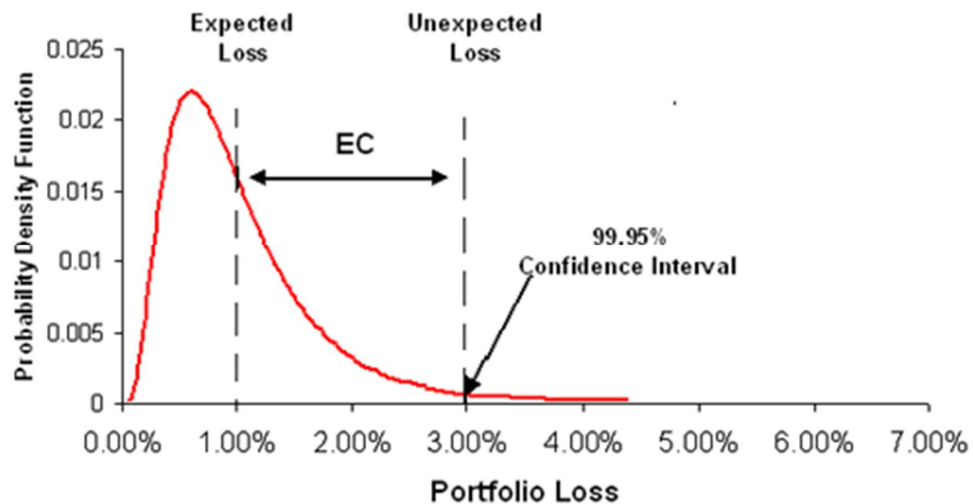
The EaR is computed by choosing the reprising time period for measuring the interest rate sensitivity of assets and liabilities, distributing the rate-sensitive assets and liabilities into various time slots based on reprising time period, calculating the net exposures within the selected time slots, and multiplying the net exposure with the change in the interest rate (Ghosh, 2012, pp.367-370).

⁷ AIF; Risk Management in Islamic banks, 2013

2.6.6. Risk Adjusted Rate of Return on Capital (RAROC)

Risk-adjusted rate of return on capital (RAROC) quantifies the risk by considering the trade-off between risk and reward in the various assets by the bank managers. In late 1990, this technique was considered to measure the efficient performance and best practice among financial institutions. The purpose of the economic capital is to protect the financial institution from the unexpected losses. Economic capital referred to the methods and practices that allow financial institutions and banks to attribute capital to cover the economic effects of risk taking activities (Bank for International Settlements, 2008).

Figure 2.3: Economic Capital⁸



So, it is important to allocate capital for different risk exposure to protect against losses. The RAROC analysis provides the total capital needed to cover the unexpected losses and the total return on the capital of a bank. This technique is a comprehensive risk management tool, which is used to measure the capital requirements for the credit, market,

⁸ <http://www.investopedia.com/articles/economics/08/economic-capital.asp>

and operational risk (Crouhy and Robert, 2001). Bhattacharya (2010) indicated that RAROC is a powerful risk measuring tool that helps the banks and financial institutions to measure the solvency and evaluate the performance of different business activities. The management of the bank can use the RAROC technique to evaluate performance of the capital budgeting and as an input to the compensation system.

RAROC = Expected profit/ Economic capital (2.4)

Where, expected profit = Return – Expected Loss – Expenses

2.6.7. Stress Testing

The Basel Committee on Banking Supervision (2009)⁹ stated that stress test is a vital risk management tool that is used by bankers. It is a part of internal risk management with the capital adequacy framework defined by Basel II. Stress testing alerts about the adverse unexpected consequence related to the risk exposure of the bank. It also indicates how much capital is required to absorb the losses caused by large shocks. Stress testing illustrates a warning for the appropriate level of capital necessary to tolerate the worst economic conditions. This tool provides help to other risk management and measurement approaches. Stress testing provides information on forward-looking risk assessments, overcomes limitations of the models and historical data, supports internal and external communication, serving procedures of capital and liquidity planning, advising the bank on setting risk tolerance level, assisting the risk mitigation developments and contingency plans across various stressed situations.

The reports by Senior Supervisors Group (SSG)¹⁰ and Institute of International Finance (IIF)¹¹ have revealed that the financial crisis has disclosed weaknesses in the use of stress testing and integration of risk governance, stress testing methodologies and stress test related to specific products and risks.

⁹ BCBS: Principles for sound stress testing practices and supervision

¹⁰ Senior supervisory Group (2009)

¹¹ Institute of International Finance (2013)

A stress test can be applied with various methods. Complexity of the test varies from simple sensitivity test to complex stress test which is used to provide the assessment of the impact of a macroeconomic stress conditions, like earnings and economic capital (Drehmann, 2008). The stress test is performed for the risks such as, credit, market, liquidity and operational risks.

A stress test is used to generate information related to summarising the risk exposure of a company to the possible and extreme conditions. It is the responsibility of risk managers to assemble and summarise the information related to the strategic relationship between the risk taking and risk appetite for the senior management. The stress test should be computed on a regular basis and should be monitored over a specified time period. It is used to address the huge movements in the main market variables beyond the day to day risk monitoring activity. The stress testing process includes the identification of potential movements, as well as the market variables that are needed to be stressed, how much to stress them and the time frame to run the test. As soon as the assumptions and market conditions have been decided, shocks are applied to the portfolio of the company, to evaluate the effect of an individual market movement on the portfolio value and overall profits and losses of the company (Bhattacharya, 2010).

2.6.8. Securitisation

Securitisation is the procedure in which certain assets are pooled so that they can be reissued in the form of interest bearing securities. The interest amount and the principal amount is given to the purchasers of these securities. This method is used by many financial institutions to transfer the credit risk to other institutions such as banks, insurance companies, and hedge funds. The purpose of securitising an asset is to raise funds at a cheaper cost (Jobst, 2008). In simple words, securitisation is the transformation of the illiquid asset into a security.

Bessis (2011) defined securitisation as, special transactions in which assets are sold to investors. For example, in a traditional securitisation of loan, a bank sold the loan to a special purpose vehicle (SPV, which is an independent company). The SPV in return issues

a series of bonds and notes based on various maturity periods. Also, ranks are given to these notes, based on the risks associated with them by rating agencies. These notes are sold to different investors. The pool of assets that is financed through a series of notes rather than a single loan-backed note is known as “tranching”, whereas, a single note is known as “tranche” of total financing provided by the investors. Each tranche has a different level of risk associated with it and is sold separately. The loan amount, (i.e. principle and interest rate payment) and probability of loss is assigned to each of these tranches based on the maturity time period. The more secured tranche has first call on income generated by the corresponding assets, whereas, the riskiest tranche has less claim on the income.

One of the benefits of securitisation is that the asset is not evaluated on the basis of the ranking of the company instead credit worthiness of the asset is evaluated and ranks are given to specified assets. It is an alternative source of financing other than the bank’s borrowing and provides off-balance sheet source of funding for the banks.

2.6.9. Derivatives

In recent years, derivatives have been able to play an important role not only as a tool to mitigate risk, but, also to generate income. Derivatives are instruments whose value depends on the value of something else. The main types of derivatives are futures, options and foreign exchange derivatives (Hull, 1995; Kolb, 1997). Derivatives allow the transfer of risk among different parties in the form of futures (via financial Exchange) or based on the swaps (over the counter) between the investors. Derivatives (future or options) are used to hedge risks (Crawford et al., 2010, p.135).

2.6.10. Credit Derivatives

Credit derivatives are used to sell credit risk. Firstly, the original credit risk is separated from the credit itself and then it is sold to a potential investor who is interested to buy these risky products, based on its risk profile. This sale is done by packaging, securitisation and marketing credit risk exposures with a variety of credit risk features (Crouhy et al., 2001,

p.442). According to some Islamic scholars, Islamic banks are not allowed to operate such instrument, because the sale of debt is illegal in Shariah. Whereas, some Islamic scholars suggest that the sale of debt is prohibited, but the owner of the debt can appoint a person who acts as a debt collector. This arrangement is based on the agency contract, i.e. Wakalah or Ju'alah (service contract) (Hassan and Lewis, 2007, p.151).

Credit derivatives are the tools used to mitigate the credit risk exposures. Credit derivatives can take many forms, such as swaps, options and credit linked notes (Caouette et al., 1998, pp.307- 309; and Crouhy et al., 2001, pp.448-61; Crawford et al., 2010).

2.7. Risk Management at Hierarchy Level

As discussed above that risk management process includes identification, measurement, monitoring and managing different risks, but these aspects cannot be implemented effectively unless there is a proper comprehensive framework in place. Risk culture should be in place, engaging all the departments and sections of the financial institution in the risk management process. It should be noted that the risk management process of a financial institution is dependent on its business activities and the size of the company.

BCBS (1999; 2001) have pointed out that the risk management process should proceed with the components such as the following: developing appropriate risk management environment with sound policies and procedures, maintaining an appropriate risk measurement, mitigation and monitoring process, and having an adequate internal control system within the financial institutions.

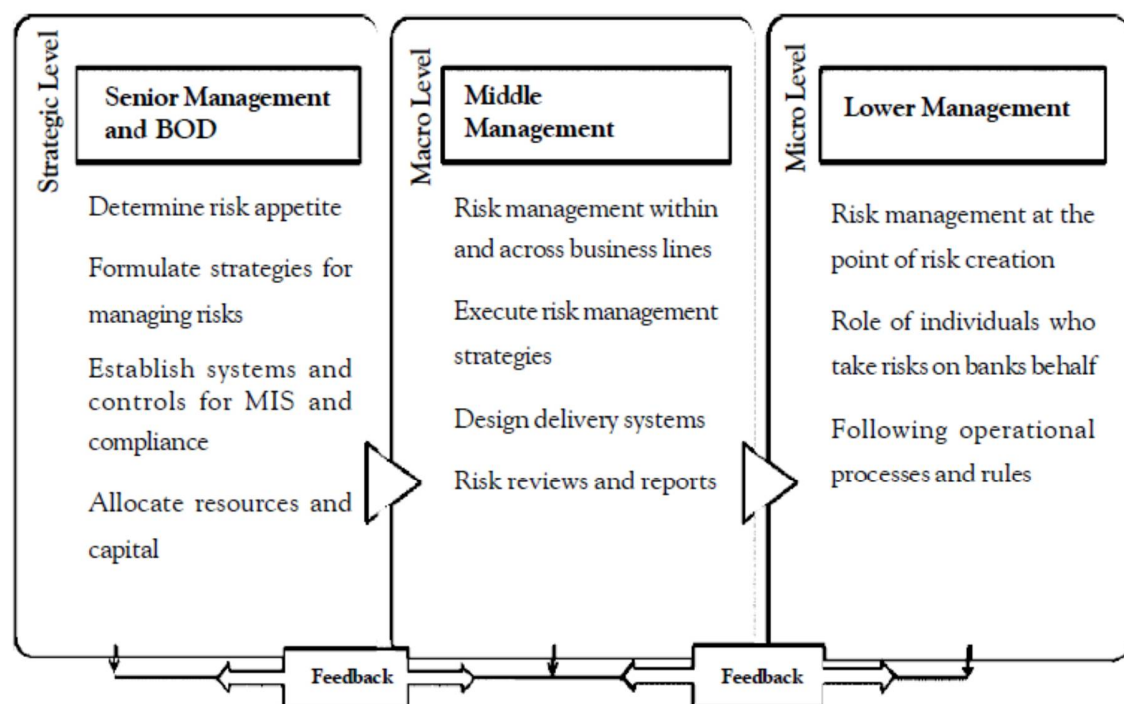
Risk management activities take place on the following hierarchy levels in a bank:

- 1. Strategic Level/ Higher Management Level:** includes risk management activities carried out by the senior management and board of directors. They are engaged in formulating risk strategies, defining risks, developing and controlling activities to ensure that risk level remains within the tolerable limit. At this level the board of directors and their executive committees, such as risk committee and audit committee are involved in overseeing risks and their management (SBP, 2010).

2. **Macro Level/ Middle Management Level:** consists of risk management across the business lines. At this level the risk management activities are carried out by middle management, or a department to whom risk review responsibility is assigned, and the internal audit team. For example, risk management, finance, compliance, information technology, human resource, operations and legal department. Risk management is responsible for making risk related decisions and formulating risk guidelines. Risk executives are responsible for assessing and managing credit risk, market risk, and operational risk. Whereas, the finance department is liable of managing liquidity risk, mismatch risk and interest rate risk.
3. **Micro Level/ Front Line Level:** It includes on-the-line risk management where risk is created, such as by issuing loans. These front line officers take risks on behalf of the organisation and generally include the loan officer and cashier. Bessis (2011, p61) asserts that the front line of defence is responsible for “identifying, quantifying, mitigating and managing all risks” that exist within their business unit. Large banks are embedding risk managers within the business-lines who report directly to the risk management department about the transactions and risks that are taking place. Sometimes, embedded risk managers report to both, i.e. business line and risk management department. Usually, business-line personnel prepare periodical reports, which categorise the risk issued with the mitigation plan; these reports are handed-over to the risk management department and executives. It is a standard practice to take approval from the credit committee for large transactions by line officers.

Figure 2.4 below, explains the risk management activities at senior, middle and lower management level and there interaction and feedback process with in an organisation.

Figure 2.4: Risk management at Different Hierarchical Levels



Source: Talwar (2011)

2.7.1. Three Lines of Defence

The first line of defence is a business line who has ownership of the risk. They are responsible for managing risks incurring in day to day business activities. The independent risk management function is a second line of defence, who is responsible for identifying, measuring, monitoring and reporting risk on the firm level. The compliance department also supports as an integral part of the second line of defence. The third line of defence is related to internal audit function, which is in charge of conducting audits and reviews for ensuring that the risk governance framework is effective and processes and system are adequately working and applied (BCBS, 2014b)¹². Hashagen et al. (2009) provided that governance structure for risk management includes the three lines of defence: the first line of business is business units, the second line is related to the independent risk management

¹² BCBS: Review of the principles for the sound management of operational risk, October 2014.

function and the third line includes the internal audit. This approach provides appropriate checks and balances to the system.

2.8. Risk Control Environment

The term board of directors refers to the oversight function, whereas, senior management refers to the management function. Following are the parts of the risk control environment.

2.8.1. Role of the Board of Directors

The board of directors is responsible for setting the overall objectives, and approving the policies and strategies of risk management for the financial institution. The risk objectives set by them should be communicated from top to bottom. The board of directors is also responsible for ensuring that the management is taking necessary actions for identifying, measuring, monitoring and controlling the risk exposures. They should be informed on a timely basis on the status of various risks through reports from the senior management (FSB, 2013; Ghosh, 2012; Khan and Ahmad, 2001). It is the responsibility of the board of directors to ensure that the operations and activities of the banks are safe and sound and there is no threat to the solvency of the financial institution. Also, the board is required to set up checks to protect the unwanted risk exposures.

The board needs to promote the sound corporate culture in order to set a tone at the top level by setting corporate values, promoting risk awareness within risk culture, and communicating the corporate values with supporting policies from the top to bottom (BCBS, 2014a).

The Basel Committee on Banking Supervision (2010a) has established certain “principles for enhancing the corporate governance” that should be followed by banks. They have explained the responsibilities of the board of directors and senior management, which are as follows:

- The board of directors is responsible for approving and overseeing the implementation of objectives, risks strategies, including risk tolerance and appetite

level, corporate governance and values. They are also responsible for overseeing the senior management as part of the banks check and balance activities;

- The board of directors should be qualified for their positions through training and they should have an understanding of their role and responsibilities regarding governance and they should be able to exercise sound judgments about the activities of the bank;
- The board should describe appropriate governance practices and should set up the means to ensure that such practices are followed appropriately and they should review these practices periodically and take remedial actions for ongoing improvements;
- The board of directors should have regular meetings to oversee the performance of the banking activities and system, and they should have regular meetings with the senior management;
- The board of directors has established certain board level committees. The number and nature of committees are based on the size of the bank and board, the nature of business areas, and risk profile of the bank.
- Each committee of the board should have a charter stating their roles and responsibilities within the bank.

Furthermore, according to BCBS (2014a), the board of directors is also accountable for developing risk appetite, taking into consideration the regulatory requirements, long-term interests and exposure to risk and the ability to manage risk effectively along with the involvement of the senior management of the banks and the CRO. They should approve and oversee the implementation process of the capital adequacy assessment, internal controls, and liquidity plan of the bank. The board also oversees the compensation system of the bank and monitors it in order to ensure its consistency with the desired risk culture and risk appetite. In addition, they should make clear all the disciplinary actions that would be taken in the case of breach of risk limits, excessive risk taking, and escalation procedures.

The role of senior management is to implement the policies approved by the board. They are also responsible for developing the policies and procedures for managing risk, i.e. the risk management review process, setting appropriate limits for risk taking, risk measurement systems, comprehensive reporting line system within an organisation, and effective internal controls. Also, senior management is responsible for describing the procedures related to approvals, limits and mechanisms designed for assuring that the objectives set by the board are achieved. Senior management should clearly identify the line of responsibility and authority across the bank.

2.8.2. Responsibilities of Risk Committee

Many large and international banks are having a board level risk committee or equivalent. Risk committee refers to a specialised board committee which is responsible for advising the board of directors on overall current and potential risk tolerance, risk appetite and risk strategy. Also, they advise the board on overseeing the implementation of risk strategies by senior management. These risk strategies are based on credit, market, liquidity, operational, compliance, reputational and other related risks. The risk committee has a communication line with risk management function and Chief risk officer (CRO) (BCBS, 2010a, p.13). FSB (2013) stated in its document named as “thematic review on risk governance” that risk committee should have regular meetings with senior management and CRO to discuss the performance of the business units and their compliance with the risk appetite statement, and risk limits set by the board of directors. Furthermore, the risk committee is responsible for reviewing and recommending the risk strategy and oversees the implementation of the risk management framework.

2.8.3. Responsibilities of Audit Committee

The BCBS (2010a, p.12) provided in their “principles for enhancing corporate governance” that the audit committee is responsible for financial reporting process; providing oversight of internal and external audit of the bank; recommending to the board of directors and shareholders about appointment, dismissal and compensation of the external auditors; reviewing and approving the audit function; ensuring that senior management is taking

remedial actions to control flaws in the system; non-compliance of policies by the employees, laws, and other problems identified by the auditors. They are also responsible for monitoring the accounting policies and practices of the bank.

Moreover, the audit committee should consist of an independent non-executive member. The audit committee should have appropriate experience and together have a combination of various skills and knowledge equivalent to the banking business activities.

2.8.4. Role of Risk Management Function

The risk management function is responsible for identifying, measuring, monitoring, controlling, mitigating and reporting risk exposures to the senior management (FSB, 2013, p.A6). In addition, the Basel Committee on Banking Supervision (2010) provided that the risk management function is an independent function, which is responsible for the implementation of the risk management framework across the whole organization and for ensuring that the risk profile of the company is within specified limits set by the board of directors. Furthermore, Bhattacharaya (2010) asserted that the risk management function is responsible for day to day activities, including risk monitoring, risk measurement and evaluation. Their role is to implement the risk policies related to the credit, market and liquidity risk arising from the trading and investment activities. Risk managers should be appointed within each business unit of the bank in order to support the risk management unit in its daily activities. The risk managers will report to the risk management function on a day to day basis. Also, the risk managers will act as a bridge between business units and the risk management department.

2.8.5. Responsibilities of CRO

The BCBS (2010a, p.18) revealed within its principle no. 6 about the role of chief risk officer (CRO). According to the BCBS, this is a distinct and independent senior executive, known as chief risk officer, who is responsible for the risk management function and comprehensive risk management framework across the bank.

Moreover, FSB (2013, p.31) stated that the CRO is responsible for monitoring the risk management and risk-related processes and to ensure that senior management and board have explained the risk profile and relevant risk issues in a timely manner. The CRO is independent of business lines and he directly reports to the CEO and has a diverse role as compared to other executives. Also, they have a direct communication with the board of directors and risk committee. The CRO meets with the risk committee and the board periodically and without the presence of the executive members. The CRO is appointed and terminated with the approval of the board or risk committee and this selection is disclosed publicly. They are responsible for ensuring that risk management function is properly resourced and following the risk appetite framework, and strategic business plan. The CRO is also involved in the fundamental decisions related to the setting of risk related performance indicators, strategic planning related to various risks, new product's approval, stress testing, funding and liquidity management, recovery of funds, etc. They have the power to challenge the decisions and recommendations made by the management of banks.

2.8.6. Internal Audit

All the financial organisations are required to have a permanent internal audit function which is an independent body from the business lines, support functions and risk management function. They have a direct reporting line with the board of directors (FSB, 2013). Moreover, internal audit function should provide independent assurance on the quality and effectiveness of the internal control, risk management and governance system and processes, to the board of directors and senior management. Due to this, the internal audit function helps in reducing the reputational risk and risk of loss to the bank (BCBS, 2012)¹³. Internal audit is considered a vital mechanism for improving the operations of the bank. It is a part of the ongoing monitoring process of the internal control and it helps the employees in the effective discharge of their duties and responsibilities. Internal audit is independent from the internal control system and has an appropriate standing within the bank to carry out its responsibilities with objectivity and impartiality. Traditionally, the

¹³ The Internal Audit Function in banks, Basel Committee on Banking supervision, June 2012 <http://www.bis.org/publ/bcbs223.pdf>

internal audit function was responsible for checking the reliability and accuracy of accounting records and financial reports. But now with evolving financial risk profiles of the banks, internal audit is repositioned with having a responsibility to capture the application of risk management procedures and risk assessment methodology with checking the effectiveness of the internal control systems (Bhattacharya, 2010, pp. 267-268).

2.9. The Basel Accords

A group of central banks has established an organisation named as the “Bank for International Settlement” (BIS) in 1930, which is also known as the central banker of the central banks of the member countries. BIS is based in Basel, a city of Switzerland, that is why it is also referred to as Basel. The Basel Committee on Banking Supervision (BCBS) is a club of the Bank for International Settlement, which deals with the issues of banking regulation and supervision. BCBS provides a forum for regular cooperation on banking supervisory matters and for developing guidelines and regulations which are then applied by the international jurisdiction partially or fully.

The financial crises (oil price shocks) of 1973 and 1979 and enlarged competition between national and international banks had raised the need for the issue of regulatory supervision of the internationally active banks (Dobson and Hufbauer, 2001). In 1988, the Basel Accord I was introduced with a focus on credit risk rather than other risks. The 30 page document “International Convergence of Capital Measurement and Capital Standards¹⁴” was issued for the Basel Capital Accord I (BCBS, 1988). The Basel Accord I was considered simple in its structure and provides modest aims. Moreover, the aim of the Basel I was to strengthen the soundness and stability of the international banking system and providing the same level of field to the banks in order to diminish the competition among international banks. The Basel I has the following components: firstly, it has provided the definition of regulatory capital, which requires the bank to hold one half of the capital of the bank as Tier-1 capital (equity capital and reserves) and the remaining as Tier-2 with the debt instruments; secondly, it has introduced a risk weighted approach, where risk weights are

¹⁴ BCBS, 1988: <http://www.bis.org/publ/bcbs04a.pdf>

assigned to the one to five risk buckets: 0%, 10%, 20%, 50%, 100%. This approach is considered more accurate than the simple gearing approach as various assets have different risk associated with them. The table below shows the summary of risk weights given to various loans and investments by the Basel I:

Table 2.3: Summary of Risk Weights

Risk weights	Loans and Investments
0%	Cash and OECD sovereign debts, short term and rolling unfunded commitments
10%	Few public sector Companies
20%	Banks operating in OECD and short term loans to Non-OECD banks
50%	Residential mortgages, long-term unfunded commitments
100%	Other assets including corporate and retail lending, non-OECD government and long-term loans to non-OECD banks; real estate and equity exposures.

Source: Docherty and Viort (2013)

Thirdly, it has introduced the deduction regime in which adjustments are made between accounting and prudential approach such as; removing the account value of goodwill from the equity measure. Fourthly, it has provided the minimum capital to risk weighted assets ratio to be maintained at 8% standard (Docherty and Viort, 2013, pp. 117-121). The Basel I Accord was obligatory to be executed by all the banks for ensuring a minimum capital of 8% before the 31st of December 1992 (AIF: Disclosure Sub-committee, 2004).

The original version of the Basel Accord I was revised in 1996 with the inclusion of market risk within the regulation. As previously discussed that Basel I focused on the credit risk, which was considered the most significant and important risk for the commercial banks. But this accord has ignored the capital requirements for the securities trading activities. So, the modification to Basel I was developed with the introduction of the 56 page document

named “Market Risk Amendment”¹⁵, which required banks to evaluate their trading assets at the current market price. Also, the banks have been given a choice to apply either “standardised measurement approach” or “internal modeling” for measuring market risks associated with their trading activities. The internal models are based on the historical data of the bank covering a time period of at least one year. So, that the potential variations are estimated based on the trading book assets. The potential losses are adjusted at 99% confidence level with the value at risk model (VaR), which means that one case of stress will occur within 100 scenarios (Docherty and Viort, 2013, p.121; BCBS, 1996). Moreover, banks are required to hold the trading assets for at least 10 trading days, which results in increasing the risks significantly.

It was indicated by the Basel Committee on Banking Supervision (2001a)¹⁶ that the risk management and customer oriented practices of the financial institutions are getting complex during the 90s decade. So, it became necessary to upgrade the Basel Accord to cover the current issues related to enhanced risk management practices. Also, a couple of studies have highlighted the deficiencies in the Basel Accord I such as: Basel I was insensitive towards differentiating between credit risk and other risks (Hai et al., 2007), Basel I was based on “one size fit for all” method for risk management (Ong, 2004), it has weak risk categories as compared to the actual banking risks such as 100% risk weight is given to the exposure of the corporate sectors irrespective of their risk ratings (Cumming and Nel, 2005), and the globalisation and integrated financial markets have exposed banks to various diversified risks which is also a reason for the need of a new Basel accord (Hai et al., 2007).

Based on the need for a new regime for international banking regulations, national regulators and the Basel committee started working in 1997 and they came up with drafted new regulations in 1999 and finally a framework was proposed in 2001 which was considered more risk sensitive than Basel I. The Basel II was introduced for improving the safety and soundness of the financial system by emphasizing on the internal control system,

¹⁵ BCBS, 1996: <http://www.bis.org/publ/bcbs24.pdf>

¹⁶ BCBS: Amendments to the capital accord to incorporate market risks

supervisory review and market discipline. The Basel II framework was based on a three pillar approach: pillar one was related to the minimum capital standard need to be maintained by the banks based on credit, market and operational risk; pillar two was related to the supervisory review and pillar three explained the need for the market discipline. The BCBS (2001) stated that pillar one strengthens the minimum capital requirement revealed by Basel I, whereby, pillar two and three are creative additions to the supervision of the capital.

2.9.1. Pillar One: Minimum Capital Requirement

Pillar one assesses the risk based on the bottom up approach and converts that into the minimum capital requirement. The capital requirement of pillar one is fulfilled by summing up credit, market and operational risk. The objective of pillar one was to align the capital requirement closely with the actual risk of the bank (Bailey, 2005).

The minimum capital requirement of the banks needs to be at least 8% of the capital to risk weighted assets with the guidelines closely related to the actual risk of economic loss of a bank. The minimum capital requirement is calculated as follows:

$$\text{Bank's Capital Ratio (Minimum 8\%)} = \text{Total Capital} / (\text{Credit risk} + \text{Market Risk} + \text{Operational Risk}) \dots\dots\dots (2.5)$$

Credit risk: credit risk capital requirement can be calculated by different ways, such as with “Advanced Internal ratings based” (AIRB), “Foundation Internal Rating based” (FIRB) and “Standardized approach” (SA) (Docherty and Viort, 2013, pp. 124-127).

In the AIRB approach, banks are required to determine their probable loss for a risk exposure. This assessment of the loss is made on the five dimensions, i.e. default probability, exposure at defaults, loss given defaults, maturity of the exposure, and type of the lending (BCBS, 2006). These five inputs are placed in the formula for calculating the risk weighted exposure. Each of the assets has its own risk based rating. Based on the historical data, the AIRB approach is applied. If any bank lacks in historical data, then they should use the alternative approach for calculation of capital requirement.

In the FIRB approach, the banks use their own assessment to calculate the probability of default, but the input for calculating risk weights are provided by the regulator on a flat basis, i.e. two and half year of maturity of all the loans.

In the “Standardized Approach”, no input (Subjective or model) is required by the bank for calculation of risk weights. This approach is alike the approach used in Basel I, but the standardized approach has many more risk buckets as compared to Basel I, such as; 20%, 50%, 100%, and 150% (BCBS, 2006; Cumming and Nel, 2005). Risk weights are assigned to the asset buckets based on the exposures associated with them (BCBS, 2001b)¹⁷. Table 2.4 below presents the risk weights based on the credit rating of the corporation under the standardized approach.

Table 2.4: Risk-Weights Based on the Credit Rating under Standardized Approach

Credit ratings of Corporate	Risk weights of exposure under Standardized Approach
AAA to AA-	20%
A+ to A-	50%
BBB+ to BB-	100%
Below BB-	150%
Unrated	100%

Source: Docherty and Viort, (2013)

It has been reported that most of the large banks are using internal risk based approaches for calculating credit risk weights, whereas the small banks are operating with a standardized approach (BCBS, 2006a)¹⁸.

Market Risk: the calculation of market risk remains the same as prescribed under Basel I by using a simple weighting approach as per class of trading assets and the use of VaR models. But, the VaR model has some limitations, such as it does not provide reliable

¹⁷ The New Basel Capital Accord: an explanatory note, Basel Committee On Banking Supervision

¹⁸ Result of Fifth Quantitative Impact Study (QIS 5), BCBS, June 2006
<https://www.bis.org/bcbs/qis/qis5results.pdf>

results under abnormal market conditions. This model is considered weak under stressed market scenarios as it cannot measure the risk associated with trading portfolios.

Operational Risk: Under Basel II, operational risk is calculated by three approaches, i.e. “Basic Indicator Approach, Standardized Approach and Advanced Measurement approach”. In the basic indicator approach, Basel has provided a simple metric of 15% of the annual revenues as a capital requirement for the operational risk. Whereas, under the standardized approach, the metrics are built on the percentages based on the business lines. In the advanced measurement approach, banks use their own experience of losses occurred due to operational risk for the calculation of capital requirement (Docherty and Viort, 2013, p.129).

2.9.2. Pillar Two: Supervisory Review

Pillar two emphasises the need to have sound internal processes in order to assess the capital adequacy with the detailed evaluation of the risk profile of the bank. This pillar stresses the need to develop the internal capital assessment process and setting the capital limits that are in line with the risk profile and control environment of the bank. The supervisors are considered responsible for evaluating the effectiveness of the capital adequacy together with the risk profile (BCBS, 2001b; Docherty and Viort, 2013, p.130)¹⁹. After evaluation, supervisors of the banks are required to make decision on whether the bank must hold higher levels of capital than 8% prescribed under Pillar one of Basel II. The supervisory review and interventions need to be done in internal processes, when considered necessary (BCBS, 2001b).

2.9.3. Pillar Three: Market Discipline

This pillar can contribute to a safe and sound banking environment as the regulatory authorities have recognized that the capital market players are the key evaluator for the risk management and capital disciplines of the bank (BCBS, 2006). The Basel Committee on

¹⁹ The New Basel Capital Accord: An Explanatory note, BCBS, January 2001, <https://www.bis.org/publ/bcbsca01.pdf>

Banking Supervision (2004)²⁰ illustrated that market discipline will provide the disclosure information to the market participants based on capital, risk exposures, risk assessment processes and capital adequacy of the bank. This information will help to maintain transparency and also will help market participants to assess the key information of the bank. BCBS (2006) provides that banks are required to disclose qualitative information on risk management objectives, policies and techniques and quantitative information based on scope of application, capital structure of the bank, capital adequacy, minimum capital requirement based on pillar one application and interest rate risk in the banking books.

After the financial crisis of 2007, changes to the Basel accord was the crying need of the time as Basel II had ignored the liquidity risk management completely. Basel III was not a revolution in the banking regulation, but few additions were made in the Basel II accord such as:

Basel III has not rejected the major principles of Basel II, i.e. self-measurement of the risk; it has also focused on the capital as the main source of resilience; it has indicated the weaker points in the definition of capital and has made additions in terms of introduction of liquidity risk management (Docherty and Viort, 2013, p.142). Unlike Basel II, Basel III has proposed changes to the definition of the capital introduced in Basel I. Basel III is introduced to ensure that the banks should have more financial resources and capital to operate in normal and stress condition in order to have the capacity to absorb shocks arising from the financial and economic stress, so that the effect of risks does not impact on the real economy (Basel Committee on Banking Supervision, 2011)²¹.

2.9.4. Minimum Capital Requirements and Buffer

This capital accord has emphasized on the equity capital as a primary source of shock absorber in the time of stress for the banks. Basel III has given a definition of capital with a greater focus on the common equity (i.e. considered highest quality component for a capital

²⁰ BCBS, Basel II: international convergence of capital measurement and capital standards: A revised Framework, BIS, June 2004

²¹ BCBS. Basel III: A global regulatory framework for more resilient banks and banking system, June 2011.

of a bank). According to the new Basel regulation, a bank's capital comprises the Tier 1 Capital and Tier 2 capital.

Tier 1 capital, which includes *Common Equity Tier 1* and *Additional Tier 1*. Common equity tier 1 capital consists of the common shares issued by the bank, stock surplus, i.e. Share premium, retained earnings, accumulated other comprehensive income such as, interim profits or loss, common shares issued by the consolidated subsidiaries of the bank and held by the third party having minority interest, and regulatory adjustments in calculation of common equity Tier 1 capital. Whereas, additional tier 1 capital consists of the instruments issued by the bank that are included in additional Tier 1 capital, stock surplus subsequent of issue of instruments under additional tier 1 capital, and instruments issued by the consolidated subsidiaries of the bank (BCBS, 2011, pp.13-15).

Banks are required to maintain common equity Tier 1 (CET1) at least 4.5% of risk weighted assets at all the times, also, tier 1 capital must be maintained at 6% at least of risk weighted assets at all the times. Whereas, the total capital of the bank must be maintained at least at 8% of risk weighted assets at all the times.²²

Tier 2 capital consists of the instruments that are issued by the bank and qualifies under Tier 2 capital, stock surplus as an outcome of instruments included in Tier 2 capital, instruments issued by consolidated subsidiaries held by third parties and meet the criteria of Tier 2 capital, certain loan loss provisions and regulatory adjustments applied for calculating Tier 2 capital.

2.9.4.1. Banks Regulatory Requirements and Deductions

The following deductions and adjustments will be made for the calculation of regulatory capital, such as: goodwill and all other intangible assets will be deducted from the CET1 capital, deferred tax assets due to the tax loss carry forward are to be deducted from CET1, cash flow from the hedge reserves that are associated with the hedged items that are not

²² Basel III: A global Regulatory framework for more resilient banks and banking system, BCBS, 2011 <http://www.bis.org/publ/bcbs189.pdf>

valued accurately on the balance sheet should be treated as if the balance is positive should be deducted from CET1 and if it is negative than it should be added back in CET1 capital, shortfall in the provisions to expected losses (under internal risk based approach) should be deducted from CET1, gain on the sale on securitisation should be deducted, defined pension fund assets and liabilities should be adjusted. See appendix 3, for the detail on Basel III implementation phase from 2013 to 2019 as prescribed by the Basel Committee on Banking Supervision.

Basel III has also introduced various new layers of capital requirements or buffers, which are designed to encourage the banks to maintain the capital discipline in case of a shortage of capital; by finding a way to stop the cyclicity of risk becoming damagingly procyclical; and to make big banks more resilient which are considered too big to fail (Docherty and Viort, 2013, p.149).

The first layer of capital is known as “capital conservation buffer” which raises the capital ratio of the bank by 2.5%. Banks should hold a capital buffer above than the regulatory capital requirement during the period of normal business.

The second buffer is known as “Counter Cyclical Buffer” which should be imposed by the national regulatory authority in terms of high credit growth time period and it should be relaxed in the low growth time period or low stress time. The counter cyclical buffer should be maintained as high as 2.5% of risk weighted assets.

2.9.5. Leverage Ratio

One of the major causes of the financial crisis was the build-up of excessive on and off balance sheet leverage in the banking system. In the most crucial part of the subprime mortgage crisis, the banks were forced to decrease their leverage in a manner that improved downward pressure on the prices of assets, also intensifying the positive feedback loop between losses, reduction in capital of banks and declines in credit availability. So, the Basel Committee on Banking Supervision decided to introduce a transparent and non-risk based leverage ratio that is considered as a credible supplementary measure to the risk

based capital requirements. The leverage ratio is set at 3% of the Tier 1 capital from the 1 January 2013 to 1 January 2017. The Basel Committee has proposed a slow implementation timeline for the leverage ratio and indicated this ratio as a mandatory requirement from 2018.

As stated earlier, that financial crisis has shown lack of liquidity structure in the banks, which resulted in weak financial profiles of many banks so the liquidity and funding became a focus in the Basel III capital accord. So, the Basel Committee has introduced two new ratios, i.e. *Liquidity coverage ratio* and *Net Stable Funding Ratio*.

2.9.5.1. Liquidity Coverage Ratio (LCR)

The LCR aims to ensure that banks are financially sound by holding an adequate amount of liquid assets to cover all their cash needs for a period of 30 days. The liquidity coverage ratio is calculated with the assumption of stress environments faced under the financial crisis (BCBS, 2013). The LCR is calculated in order to promote the short-term resilience of the liquidity risk profile of the bank and it is considered as a key component of the supervisory approach to liquidity risk.²³

The banks must hold a stock of high quality liquid assets more than the estimates of its cash net outflow over a time period of 30 days and the liquidity coverage ratio must be more than 100%. The high quality assets include the cash reserves as a major sources, unpledged assets are also considered liquid in the market at the time of stress. The LCR is calculated as follows:

$$\text{LCR} = \frac{\text{Stock of high Quality Liquid Assets}}{\text{Total net cash outflows over the next 30 days}} \geq 100 \dots\dots\dots (2.6)$$

²³ Basel III: the liquidity coverage ratio and liquidity risk monitoring tool, Basel committee on banking supervision (2013). <http://www.bis.org/publ/bcbs238.pdf>

The high quality liquid assets that must be held by a bank should consist of 60% of cash and government securities (level 1 assets), whereas the remaining 40% must comprise of high grade corporate bond rated not less than AA- (level 2 assets) and covered bond and even up to a 15% of total high quality liquid assets (level 2B assets).

2.9.5.2. Net Stable Funding Ratio

The maturity term of deposits and loans are important for the banks. Few bankers consider this maturity transformation as a problem. During the crisis, banks have taken massive funding from the capital markets and the short-term element of these have proven to be unreliable as the market seized due to a shortage of liquidity. In simple words, there were excessive transformation risk and there was a need to look into it closely, so the Basel Committee has designed and introduced a standard. This standard measure is known as “Net Stable Funding Ratio”, which aims to ensure the improvement in the traditional loan to deposit ratio and promoting resilience over the long term ²⁴ (Docherty and Viort, 2013). This ratio requires banks to maintain a stable funding profile in association with the combination of their assets and off balance sheet items.²⁵

It is a ratio between long-term funding sources and long-term assets, the time period for calculation of this ratio is set at one year by the Basel Committee. The formula for calculating NSFR is as follows:

$$\text{NSFR} = \frac{\text{Available amount of stable funding}}{\text{Required amount of stable funding}} \geq 100\% \dots\dots\dots (2.7)$$

The portion of capital and liabilities that is expected to be stable at least for a period of one year is defined as “Available stable funding”. While, the amount of stable funding needed by a financial institution is a function of liquidity characteristics and residual maturities of the different assets held by that institution together with the off balance sheet exposures is

²⁴ International framework for liquidity risk measurement, standards and monitoring, Basel Committee on Banking Supervision (2010). <http://www.bis.org/publ/bcbs188.pdf>
²⁵ Basel III: the Net Stable Funding Ratio, January 2014 <http://www.bis.org/publ/bcbs271.pdf>

known as “Required amount of stable funding” (Basel Committee on Banking Supervision, 2014).

2.10. Operational Risk Management

Ghosh (2012, p.399) stated that the bank needs to treat its operational risk management as a separate and independent risk management function for identifying, assessing, monitoring, controlling, and mitigating the operational risk faced by banks. The operational risk management framework depends on the size and complexity of banking business. It should also be in line with risk appetite, working environment and targeted capital level. The operational risk management framework should include the design of the reporting and communication lines that will help to promote understanding of operational risk within staff and will facilitate risk awareness and control culture within the organisation. It should also explain the role of different business lines; describe guidelines for responsibilities and accountability. In addition, the operational risk framework should at least state the following aspects in defining its framework:

- The bank needs to present policies, processes and procedures in regards to operational risk management into a document and they should communicate this document to staff, who are involved in day to day activities. Furthermore, operational risk management’s document should reveal strategies for implementation of policies and it should define risk tolerance limits and reporting levels in case of breach of said limits.
- The bank should decide on the process related to identification and assessment of operational risk considering the potential and the historical record of events. Banks should track operational risk loss data and categorise it based on severity and frequency and should map them on the basis of priority of remedial action.
- Banks should develop an effective process for monitoring and detection of deficiencies in the operational risk management system and procedures. They should also identify early warning indicators to identify potential costly operational hazards.

- Banks should map out the products and activities within the business lines for managing operational risks.
- Banks should develop policies, procedure, and processes to control and mitigate material operational risks. They should review the effectiveness of operational risk strategies on a timely basis and revisions should be made in case of deficiencies.

2.11. Credit Risk Management

Credit risk is considered one of the significant risks among other risks in the banking sector (Al-Tamimi and Al-Mazrooei, 2007; Lin, 2009; Richard et al., 2008). Researchers, such as Barnhill et al. (2002) and Van Greuning and Bratanovic (2003), stated that weak credit risk management is one of the vital causes of failure of a bank.

Credit risk analysis is considered as a variable in the risk management process model by some researchers (Al-Tamimi and Al-Mazrooei, 2007; Shafiq and Nasr, 2010; Khalid and Amjad, 2012, Hussain and Al-Ajmi, 2012; Hassan, 2009; Nazir et al., 2012). Because credit risk is found to be the most significant risk as this is evident in calculating “Capital Adequacy Ratio” according to requirements of Basel II (Hussain and Al-Ajmi, 2012).

Fraser et al. (2001) pointed out that credit risk is considered the major reason of bank failures in recent years, and it is most evident risk that is faced by banks. Some researchers (Heffernan, 2005; Richard et al., 2008; Jesswein, 2008; Strischek, 2009) have indicated that the “5 Cs” (cash flow, capital, collateral, character, conditions) are the most well-known system to assess credit risk. The experts of credit risk investigated the five factors and make a judgement based on the subjective balance between the 5 Cs.

Effective credit risk management involves developing an environment that is suitable for credit risk, establishing sound credit granting process, having an appropriate credit administration, including the process of monitoring credit risk and controlling that risk (BCBS, 1999; and Van Greuning and Bratanovic, 2003).

Richard et al. (2008) concluded that Tanzanian banks use credit limits, inspection, review rescheduling and other recovery procedure for controlling credit risk. Credit risk is assessed and analysed by using quantitative and qualitative review. Qualitative review involves a checklist method whereas the aging method is used in quantitative review.

A study conducted by Machiraju (2008, p.198) has proposed three principles for the credit risk management, i.e. selection, limitation and diversification. Selection is related to the description of the process for considering a loan application describing information on the amount of loan, purpose of loan, repayment and collateral. Limitation relates to the set of different type and categories of lending limits. Diversification is related to the spread of loan over different type of borrowers, various sectors and also to the different geographical areas.

Masood et al. (2012) attempts to investigate any differences between the Islamic and non-Islamic banks in UAE on credit risk management. Their findings show that the managers in Islamic banks now do not rely only on personal experiences and simple credit risk analysis. The Islamic banks appear to be developing and practicing the newer and robust techniques (inter-bank exposure, and derivatives) in addition to the traditional methods to manage their credit risk as compared to non-Islamic banks, which indicates a possibility of further improvement in their credit risk management. Raghavan (2003) highlighted that the following tools should be used to manage credit risk: exposure ceilings, review or renewal, risk rating model, risk based scientific pricing, portfolio management and loan review mechanism.

A study highlighted factors that are considered for directions of the policies on credit risk management by banks. The findings of the study have provided that the success of credit risk management depends on the maintenance of the proper credit risk environment, credit strategy, and policies. The ultimate objectives of the bank are to improve the quality of loan provided and to protect it (Muninarayanappa and Nirmala, 2004). Kristijadi et al. (2013) found that credit risk management policies and strategy, information technology and moral hazard are important to support the credit risk management process.

2.12. Liquidity Risk Management

Financial intermediation theory says that the provision of liquidity and financial services are the two most important reasons for the presence of financial institutions, especially banks. On the subject of liquidity provision, banks receive the deposits from the persons having excess money and extend them as funds to the real sector or persons having need of money, while managing the liquidity for any withdrawal of deposit. On the other hand, banks perform the function of transforming the short-term deposits into long-term loans, making them intrinsically vulnerable to liquidity risk (Basel Committee on Banking Supervision, 2008a)²⁶.

The banks need to maintain regular and irregular demand for liquidity of the depositors. Regular demand of the depositors is a result of daily business activities of the depositors, whereas irregular demand is the outcome of predictable and unpredictable demand for the liquidity from depositors. This arises due to irregular business activities of depositors, for example, withdrawals from fiscal operations by the government, and execution of immature time deposits (Basel Committee on Banking Supervision, 2008b)²⁷.

Regular demand of liquidity can be managed or mitigated by the following techniques: firstly, the bank can make an investment in more liquid assets which can easily be converted into cash; secondly, for diversification, the bank should maintain expanded sources of funds from different depositors; Thirdly, the bank should use the central bank as a lender of last resort to meet the regular demand of liquidity (Greenbaum and Thakor, 2007).

It is required by the banking regulations provided by Basel II, III and central banks of countries that banks should keep a separate standby account to meet the regular demand of the depositors. The bank can keep these funds within the following ways: currencies kept with the central bank, central bank certificates, and deposits with commercial banks and

²⁶ Principles for Sound Liquidity Risk Management and Supervision,

²⁷ Liquidity Risk: Management and Supervisory Challenges, (February 2008),

cash items, such as outstanding cheques which are not yet cleared through the clearing house (Hempel et al., 1994).

The twin deficit problem in the US (2004-2005), the global financial crisis of 2007-2009 and financial developments have raised a potential problem of liquidity risk for all financial institutions, including Islamic banks. Moreover, the recent turmoil in financial markets has made obvious the significance of liquidity risk management for the stability of banks.

The financial crisis of 2007 to 2009 has created anxiety among regulators globally. The Basel Committee has concluded that the crisis happened due to the excessive leverage, weak capital bases, poor funding policies and insufficient liquidity buffers. As a consequence, the market lost confidence in the majority of the bank's solvency, which have directly impacted the real economy of many countries (BCBS, 2011)²⁸.

The Senior Supervisors Group (2009) has recommended that banks need to develop a comprehensive approach for the liquidity risk management to ensure that it is consistent with the bank's risk appetite. Also, BCBS (2008a) have recommended banks to categories the liquidity risk management process through identifying, measuring, monitoring and controlling. The liquidity risk management process has the following elements; liquidity management policies by the board of directors (BOD), the role and responsibility of the asset and liability management committee (ALCO), the effective management information system, and the roles of internal control systems for managing liquidity.

Ismal (2013, p.79) illustrated that gap analysis technique is used to analyse the performance of assets and liability in the banking business. This technique forces the banks that the assets side should be higher than the liabilities side of the balance sheet then it will show a positive difference which is favourable for banks. This technique helps in the assessment of the output on the asset side and the liability side of the balance sheet of banks over a specified time period (Heffernan, 2001). It is suggested that the bank should maintain a positive difference from the assets and liability sides of the balance sheet (higher return

²⁸ Basel III: A global regulatory framework for more resilient banks and banking system, June 2011

means more of the assets of banks). If in some case, the difference in return is negative, then the bank needs to either increase its total equity, or increase the interest rates on its investment in order to avoid asset-liability imbalance risk.

IIF and Ernst and Young (2010, p.3)²⁹ have conducted a survey on 62 large banks. The findings of their survey demonstrated that 92% of the largest banks have changed their approach to managing liquidity risk. Liquidity risk has become a major area for banks, systems, regulatory uncertainty and data quality. Also, its consistency is one of the primary challenges to liquidity management.

Liquidity management has become a focused area for regulatory authorities after the global financial crisis. The Basel Committee on Banking Supervision has come up with Basel III, which has proposed two standard liquidity ratios, i.e. liquidity coverage ratio and net stable funding ratio. The liquidity coverage ratio helps to measure that the bank has enough liquid resource to cover the net cash outflow for 30 days, while net stable funding ratio is used to encourage medium to long-term liquidity funding (BCBS, 2011).

Liquidity risk management is a major part of risk management in banks, irrespective of whether it is an Islamic or conventional bank (Iqbal, 2012). The weak liquidity situation of a bank may expose it towards more risks, such as fiduciary risk, displaced risk and other risks which can affect the overall financial stability of a bank (Sulaiman et al., 2013).

Jasienie et al. (2012) with the help of previous studies (Kancerevyjeius, 2009; Bessis 2008) have suggested a liquidity risk management model for commercial banks, explaining liquidity on the basis of time period, i.e. Short-term liquidity (for the period of one month) and long-term liquidity (Over the period of one year). They have measured short-term liquidity of banks by liquidity ratios of bank, obligatory reserves, and short-term liquidity realization. Whereas, long-term liquidity of banks is measured by *liquidity gap, forecasting of deposits, loans and liquidity needs, and long-term liquidity limit realisation*. This model

²⁹ IIF and Ernst and young 2010: Making Strides in financial services risk management.

will help in judging the liquidity risk that is handled by a commercial bank, and will help in identifying lapses in liquidity risk management and to manage it efficiently by banks.

A group of studies show that Islamic banks are in a better position for managing their liquidity risk as compared to conventional banks (Islam and Chowdhury, 2007; Ika and Abdullah, 2011; Jaffar and Manarvi, 2011; Usman and Khan, 2012). On the other hand, findings of a study conducted on liquidity risk management conclude that conventional banks in Pakistan are performing better in respect to liquidity risk management and profitability when compared to Islamic banks (Akhtar et al., 2011).

Jaffar and Manarvi (2011) have compared the performance of conventional and Islamic banks in Pakistan. They have used the CAMEL test to measure the performance taking into account data from the period 2005 to 2009. The findings of their study highlighted that Islamic banks are efficient in handling capital adequacy and shows a better liquidity position as compared to conventional banks.

Dahduli (2009) conducted an empirical study on Islamic and conventional banks in the GCC market. The aim of the study was to analyse the difference between Islamic and conventional banks on the basis of liquidity, credit, profitability and efficiency. The data was taken from 76 banks that were working in GCC countries, comprising 54 conventional banks and 22 Islamic banks over the period of 2000-2007. Results showed that Islamic banks were less exposed to credit risk as compared to conventional banks with better credit performance. Moreover, Islamic banks were more exposed to liquidity risk than conventional banks, and statistical findings showed that Islamic banks were investing more of their funds in lending, and that is the reason they were facing liquidity risk. One of the interesting findings of Dahduli (2009) is that when he has taken statistical data for the year 2008 to show the effect of the credit crunch on both banking system, then results bring both banking systems at par and the liquidity ratio difference disappeared. This difference vanished because total asset investment values of conventional banks were declining, whereas they were increasing for Islamic banks in terms of cash and reserves in assets.

Abdulle and Kassim (2012) have studied the impact of financial crises on the performance of Islamic and conventional banks in Malaysia. The ratio analysis was conducted on 5 year data from the year 2006 to 2010. Their results highlighted that there was no difference between Islamic and conventional banks in term of credit risk and profitability, but there was a difference with respect to liquidity risk. Islamic banks tend to hold more liquid assets (such as, Sukuks, Interbank commodity Murabahah, Ijarah contract, diminishing Musharakah etc.) than conventional banks due to lack of Shariah compliant investment opportunities in the financial market. Furthermore, their results illustrated that during financial crisis time, Islamic banks were performing somewhat better than conventional banks.

The importance of liquidity risk management and its analysis has also been discussed under headings, i.e. contribution to knowledge (chapter 1) and the Basel Accords (chapter 2). Also, as the previous empirical research studies have not engaged liquidity risk management as a significant aspect of the risk management process, so, this study will add value to the literature and theory by the inclusion of liquidity risk analysis in the risk management process model of the banks.

2.13. Risk Governance

The Basel Committee on Banking Supervision (2014a)³⁰ affirm that an effective risk governance framework, consists of a strong risk culture, a well-developed risk appetite framework which is presented within the risk appetite statement, and a well-defined responsibility for risk management in particular, and control function in general. It is the responsibility of a board to oversee the risk governance framework.

The FSB (2013) has set out sound practices for effective risk governance, such as the role and responsibilities of the board of directors, the CRO, risk management unit, and independent assessment of risk governance framework. This study illustrated an integrated and comprehensive list of sound practices based on the expectations of supervisory

³⁰ BCBS: Corporate Governance Principles for Banks, Bank for international settlement, October 2014

authorities for the responsibilities of the board of directors, as well as size, resources, authority and independence of the risk management and internal audit functions, and for the board meetings. Similar kinds of expectations based on board engagement and on size, resources, authority and independence extend to the compliance function, which plays an important role to control risks and compliance. The governance processes should be developed to work beside the destruction of risk management practices through changing business and economic environments.³¹

KPMG (2013) indicated that risk governance includes: mandates, responsibilities and accountability, board level committees and their structure, overall organisational structure, stature and authority, policies, limits, processes, control, oversight of particular risks, performance management, incentives and reinforcing by HR.

KPMG (2009) reported the analysis of a survey conducted by EIU in 2008. The data was collected from 500 senior managers that are involved in risk management from the leading banks around the world. The findings highlighted that weakness in risk governance of the bank, lack of expertise at the board and senior level, and weak communication and reporting lines between business units and functions are contributing factors in credit crisis.

Economist Intelligence Unit (2009) has carried out a study on behalf of SAS to see how risk management is changing in financial institutions. For that purpose, data is collected from 334 respondents from the financial service institutions. Their findings identified that respondents said that the key areas of their focus includes improvement in data quality, strengthening of risk governance, improvement in firm-wide approach to risk, deep integration of risk within business lines. Moreover, respondents pointed out that lack of expertise and lack of risk culture, poor data quality, and lack of communication are barriers to the improvement in risk management in their organisation.

BCBS (2014a) provided in its document named “corporate governance principles for banks” that the risk governance framework should be based on well-defined organisational

³¹ Thematic review (2013) http://www.financialstabilityboard.org/wp-content/uploads/140407.pdf?page_moved=1

responsibilities for managing risks, which consist of three lines of defence, i.e. business units (first line of defence); risk management function and compliance department (second line defence); and internal audit function (third line of defence).

Adnan et al. (2011) conducted a research study on corporate governance and risk by using panel data of Malaysian banks. The data has been taken from 12 banks over the period of 10 years from 1996-2005. Their findings illustrated that risk will be lower if banks have a separate board leadership structure, higher proportion of independent directors, small size of the board, lower director ownership, higher institutional ownership, and higher block ownership. Similarly, Boujelbene and Nabila (2011) found that the characteristics of board of director and ownership of the banks have an impact on risk-taking activities of a bank. Public banks are more exposed to risks, whereas an independent board of directors reduces the risk taking of the bank.

Strong risk culture across the institution is a major element of effective risk management. Risk culture helps in creating comprehensive (including all risks, and business lines) and independent risk management function under control of either the chief risk officer (CRO) or senior management. The CRO is responsible for coordinating activities related to risk management in the entire organisation covering all units. The CRO should have direct access to executive members of the board. Furthermore, risk governance must be properly documented and should be up to date, including responsibilities, risk tolerance level and risk appetite structure of banks (CEBS, 2010). In addition, Mongiardino and Plath (2010) presented requirements for sound risk governance at large banks. According to them, there should be a risk committee at the board level that are covering all risks and are meeting frequently, i.e. at least bimonthly, some of the board members should be independent with risk expertise, and CRO report to the CEO and board jointly.

Sarens and Christopher (2010) concluded that weaker focus of corporate governance plans on risk management and internal control leads to less developed risk management and weaker internal control. Sahut and Baulerne (2010) have mentioned flaws in banking governance that are revealed by the subprime crisis with the help of previous studies. They have identified that risk control, independence and ability of board members, compensation

system for executives and the way strategy is defined, are the area where the governance mechanism is found to be weak which have contributed to the subprime crisis.

Hashagen et al. (2009) reported in their article that the credit crisis has forced many financial institutions, especially banks, to consider how they have managed their risks. Furthermore, these crises have brought up many weaknesses in the risk management of banks, such as; weakness in risk culture and governance, lack of risk expertise in the non-executive board level, lack of responsibility and accountability of those who are on the first line of business, problems in compensation structure of executives, and over reliance on the market liquidity business model. Similarly, risk governance structure has also played a major role in failure of risk management practices at most banks during the financial crisis. Additionally, the risk appetite framework should be used to elaborate on capital allocation strategy for the short and long term. The risk appetite framework should indicate the bank's risk capacity, including maximum risk tolerance and risk appetite with desired risk tolerance level (Sabato, 2010).

There are many policy documents issued by different authorities (Walker, 2009; Financial Services Authority, 2008; Institute of International Finance, 2007; Basel Committee on Banking Supervision, 2008a) which have outlined a comprehensive risk management framework with recommended governance structure. They suggested to keeping risk on the highest level on the organisation's agenda. Whereas, Sabato (2010) suggested having risk committee and CRO, who are responsible for overseeing all risk exposures within the organisation.

Mangiardino and Plath (2010) surveyed 20 large banks and found that large banks have a risk committee, but they did not meet frequently. Furthermore, the members of risk committee are not independent and did not have appropriate knowledge. Their results showed that most of the banks have a CRO, but their reporting line is not clear with lack of influence on the CEO and board of directors. They also suggested that large banks need to improve risk governance by having a dedicated broad risk committee with independent executives and also CRO should be present at the executive board of banks.

Ellul and Yerramilli (2011) suggested that strong internal risk controls could be effective in restricting risk-taking activities of the banking institutions. Ellul and Yerramilli (2013) found that before the start of the financial crisis, bank holding companies with stronger risk management functions were having lower risks with less non-performing loans, improved operating performance, and better annual returns during the crisis time period. They suggested that a strong and independent risk management function could restrain risk exposures at banks and enhance companies' value during financial crisis years.

Aebi et al. (2012) illustrated that if the chief risk officer is a member of the executive board, then he can exercise more authority and power as compared to a CRO who is part of third level management. Their results showed that 49 out of 372 banks have a chief risk officer as a member of the executive board. Furthermore, the presence of a risk committee was considered important for monitoring and managing risk exposures in banks and it was perceived that if any bank did not have a risk committee then its audit committee would be considered responsible to oversee risk management function. It was expected by them that the presence of a risk committee would indicate strong risk management and improved corporate governance structure.

Aebi et al. (2012) investigated the impact of risk governance characteristics on the performance of banks throughout the crisis time period. Their results have shown the significance of risk governance within banks. Their findings showed that banks in which the CRO has a direct reporting line with directors perform significantly better in the crisis time than those in which the CRO has a direct reporting line with the CEO. Moreover, they suggested that banks need to improve quality and profile of risk management in order to face the next financial crisis and they should set the appropriate risk governance framework.

FSB (2013) has conducted a thematic review on the 36 banks across the G20 region and found that the banks have shown some improvements after the financial crisis in the risk governance. But, the banks still lack in assessing and considering the skills and experience of the board of directors, frequent meetings and review by the board, setting up a stand-alone risk committee, and establishing a group wide chief risk officer (CRO). The findings

also demonstrated that banks have made less progress in defining and implementing the risk appetite statement, illustrating the roles and responsibilities of the risk committee and its communication with the audit committee, strengthening the risk management function in the banks with IT infrastructure and creating links with the risk data effectively.

As, the empirical literature highlighted that understanding risk management, risk identification, risk assessment and analysis, risk monitoring and credit risk analysis are important aspects of the risk management process, but none of the studies included “risk governance” and “liquidity risk analysis” in the risk management process of banks as literature and financial events have explained their importance in risk management. So, there is a need to include new aspects (i.e. risk governance, and liquidity risk analysis) in the process model to evaluate the risk management practices of the banks.

2.14. Conceptual Framework for the Research Study

Based on the previous research studies discussed in this chapter, below is the conceptual framework for the current research study, which is based on the interaction between the risk management process and risk management practices. Following is the function of risk management practices (RMP) which is proposed and tested in the current research study:

$$\text{RMP} = f(\text{URRM}, \text{RI}, \text{RAA}, \text{RMR}, \text{CRA}, \text{LRA}, \text{RG}, \text{Bank type})$$

The conceptual framework consists of the dependent, independent and control variables used in this research study. The dependent and independent variables are discussed in detailed earlier in this chapter (see page 28 to 42; and 71 to 82).

2.14.1. Dependent Variable

Risk Management Practices (RMP): RMP is a dependent variable which will be evaluated on the following aspects: Experienced and knowledgeable staff working in the risk management department of banks, training in risk management, written risk management (RM) policies, guidelines and procedures to manage risks, bank’s objective

includes risk management as one of their main objectives, and application of the Basel Accord and regulatory principles by banks.

2.14.2. Independent Variables

Independent variables are those that cause changes in another variable. In this model, understanding risk and risk management; risk identification; risk assessment and analysis; risk monitoring and reporting; credit risk analysis; liquidity risk analysis; and risk governance are independent variables. Because all of these are causing change in risk management practices of banks, each of these variables is important to measure to examine the risk management practices of banks. According to Rosman (2009), these variables have a positive relationship with risk management practices. The positive relationship is expressed as any change (increase/ decrease) in independent variables that will cause changes (increase/ decrease) in the risk management practices in the same direction. A study by Al-Tamimi and Al-Mazrooei (2007) supports the use of such approach and shows positive relationship between RMP and aspects of risk management process. Following are the independent variables:

1. **Understanding Risk and Risk Management (URRM):** URRM is measured on the following aspects: understanding of risk and risk management in banking staff, risk management responsibility, and the importance of risk management in banks.
2. **Risk Identification (RI):** RI is assessed by the following: identifying and prioritizing risks, risk identification at the transaction or portfolio level, and systematic identification of investment opportunities.
3. **Risk Assessment and Analysis (RAA):** RAA is measured by following: analysis of likelihood of risks, assessment of cost and benefit, and application of quantitative and qualitative techniques to analyse risk.
4. **Risk Monitoring and Reporting (RMR):** RMR is estimated by evaluation of risk management and control system within the bank, implementation of action plan, communication and reporting lines within a bank.

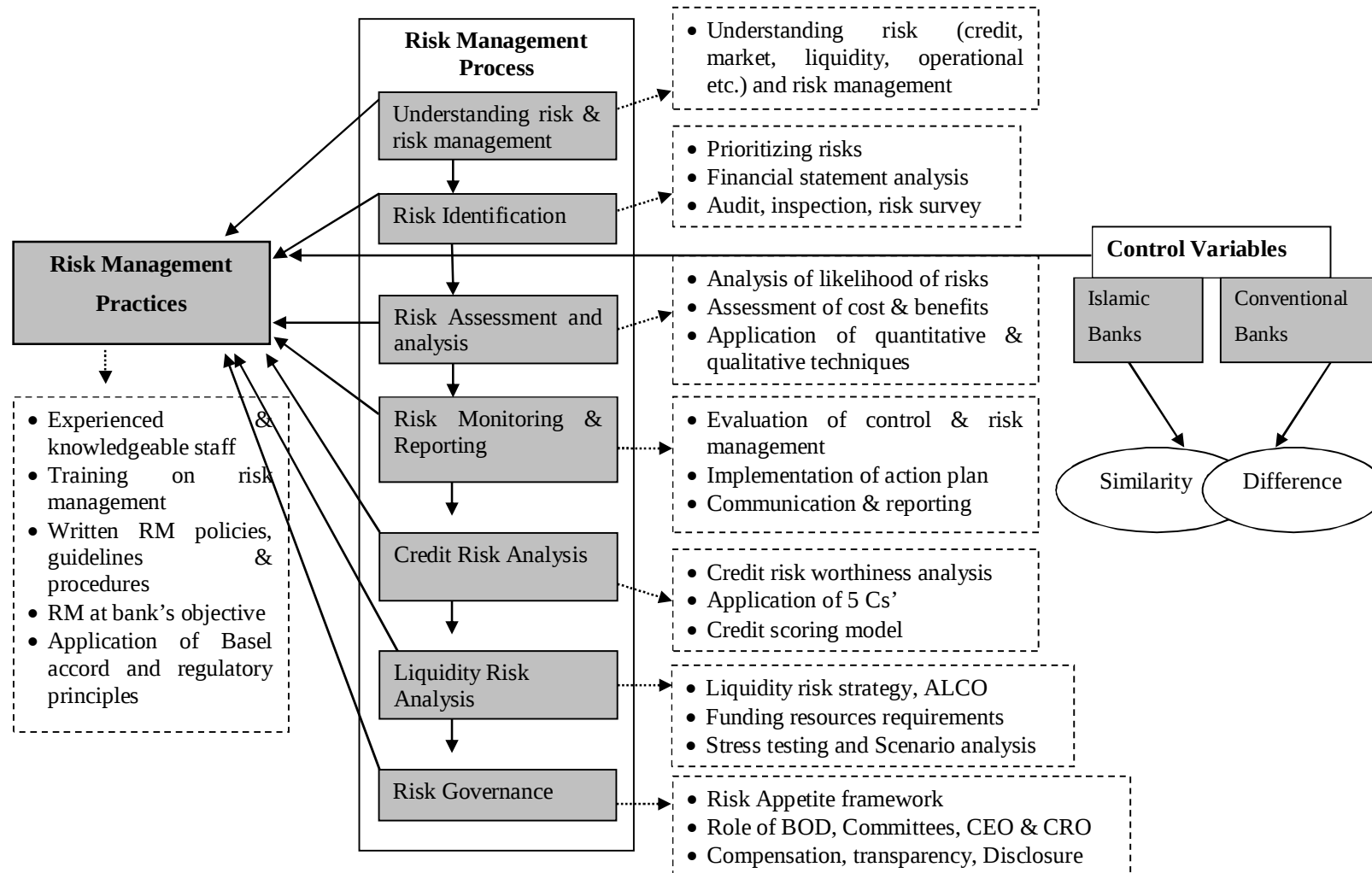
5. **Credit Risk Analysis (CRA):** CRA is assessed with the following aspects: credit worthiness analysis, application of the 5 Cs, and the credit-scoring model.
6. **Liquidity Risk Analysis (LRA):** LRA is measured based on liquidity risk strategy, role of asset and liability management committee, funding resource requirements, stress testing and scenario analysis techniques used by banks.
7. **Risk Governance (RG):** RG is assessed on aspects such as a risk appetite framework in the bank, the role of the board of directors, and executive committees i.e. risk committee, audit committee, the role of the CEO and CRO, compensation of executives, transparency and disclosure of bank information.

2.14.3. Control Variables

Islamic banks and conventional banks are considered as a control variables in the current research study. Based on the conceptual framework below, the hypothesis statement has been formulated, which are disclosed in Chapter 6 - Research Design and Methodology. These hypothesis statements are tested in Chapter 8 - Primary Data Analysis and Discussion.

Figure 2.5 below shows the association between dependent (risk management practices), independent (URRM, RI, RAA, RMR, CRA, LRA, and RG), and control (Islamic banks, conventional banks) variables. The literature already discussed in this chapter, have explained the risk management process (refer to page 29-44) and the role and responsibilities of senior, middle and lower management (page 53-61) in carrying out risk management activities. Such as the risk management department being responsible for risk identification, and risk assessment and analysis; the CRO is responsible for risk monitoring and reporting to the senior management; credit risk analysis is the responsibility of credit risk committee and risk management committee; liquidity risk analysis is the responsibility of asset and liability management; and risk governance is the responsibility of board of directors, audit committee, risk management committee, CRO and CEO.

Figure 2.5: Conceptual Framework



2.15. Summary

This chapter provides the theoretical discussion on the concepts of risks and risk management in detail. The risk management process in banks is also explained in light of previous empirical studies. Based on that, the gaps are identified and conceptual framework for the current research study is developed.

As seen in the existing empirical studies on risk management practices that they lack in exemplifying the role and responsibilities of the board of director, and board level committees in managing risk exposures. Also, in the previous studies, the concept of monitoring is said to be the responsibility of the senior management. Whereas, the roles of independent risk management function, internal audit and CRO was undermined. Furthermore, the risk management process model lacks in explaining practices for controlling risk from the top to the bottom across the financial institutions. The previous risk management model also lacks in elaborating on the voice from the top for managing risks, i.e. risk appetite framework and risk culture.

The current study contributes in the risk management practices of Islamic and conventional banks in many ways. Firstly, the study has identified the weaknesses in the risk management process of banks, which needs to be considered by the banks. Secondly, the banks need to set the tone from the top to manage risk exposure, for that purpose the current study has emphasized on the risk governance framework. Also, based on the importance of liquidity risk management in the financial institutions, especially after the financial crisis of 2007 to 2009 and introduction of Basel III. It has been added to the risk management model.

The next chapter (Literature Review: Islamic Banking and Risk Management) provides the literature review based on Islamic banking. As Islamic banking is unique in nature, for better understanding, it has been discussed in a separate chapter in relation to the risk management.

Chapter 3

Literature Review: Islamic Banking and Risk Management

3.0. Introduction

The aim of this chapter is to review the previous research studies that are conducted on risk management practices of Islamic banks. Because this research compares Islamic and conventional banks in terms of their risk management practices, it is important to analyse and discuss the terminology and ideology of Islamic banks in this area and elucidate how they differ to those of conventional banks. It is also significant to understand Islamic banking instruments which are shariah compliant and to examine the potential risks attached with these instruments. And how these risks are managed, measured and mitigated in Islamic banks.

This chapter discusses Islamic banking in depth by explaining Islamic law, rules and regulations, it further explores the Islamic financial instruments, risk surrounding Islamic banks, risk overview in Islamic banks, risks specific to Islamic banking, risk matrix of Islamic and conventional banking, risk management in Islamic banks, credit risk management, liquidity risk management, operational risk management, risk mitigation techniques used by Islamic banks, risk governance and differences between conventional and Islamic banks.

3.1. Islamic Finance

The Islamic banking system has the same purpose as conventional banking, i.e. to earn profit on capital by investing a proportion of its earnings while adhering to Islamic law. But, Islamic banks do not operate its activities on an interest-based system. It claims to

work in accordance with the Shariah principles, known as Fiqh Al-Muamalat (Islamic guidelines for transactions). The basic belief of Islamic banking is to share profit and loss and the prevention of Riba (interest). The main argument against Riba (interest) is that money is not to be considered as a commodity with which one can earn profits, but it should be earned on sale of goods and services rather than control of money itself.

Among the common Islamic finance theories and models, following products are commonly used by Islamic banks, such as profit and loss sharing (Mudarabah), a joint venture (Musharakah), cost plus (Murabahah), safekeeping (Wadia) leasing (Ijarah) and Islamic insurance (Takaful).

Prohibitions of interest, gambling, excessive risk, etc. support the social equality and defend the benefits of all parties involved in market transactions (Ahmad, 2000; and Chapra, 2000). According to the Iqbal and Molyneux (2005), Islamic banking is constructed upon the norms of brotherhood and mutual aid, which stands for a system of sharing equity, risks and profits. Islamic finance promotes a system of sharing and cooperation between the investors and users of the funds.

3.2. Sources of Islamic Law

Shariah is the Arabic word meaning ‘the right path to be followed’³². Following are the principal sources of Islamic law (Shariah) such as **1)** Quran (the holy book for Muslims considered as words of ALLAH), **2)** Sunnah (the practices and precepts of the Prophet Muhammad S.A.W) or hadith (the narratives related to the deeds and statements of Prophet Muhammad S.A.W), **3)** Ijma (consensus of classical Islamic scholars about explicit issues not envisaged in the Quran or Sunnah), **4)** Qiyas (methods of analogy to provide judgment on matters that are not referred in the Quran or Sunnah). While, some scholars have

³² **Source:** Mohammad Hashim Kamali, Oxford History of Islam, “Law and Society: The Interplay of Revelation and Reason in the Shariah”, Oxford, 2000.

grouped Ijma and Qiyas in a one category named as ‘Ijtihad’ meaning agreement and reasoning of Islamic scholars (Hassan, 1989; Masood, 2011, p. 229).

There are four principal schools of Shariah thought³³ 1) Shaffi School 2) Maliki School 3) Hanafi School 4) Hanbali School. All of these schools of thought consider and accept the Quran and Sunnah as a basic source of Shariah.

3.3. Growth of Islamic Financial Institutions

Islamic banking is one of the fastest growing industries and has shown tremendous growth in terms of the assets base and number of Islamic financial institutions globally. It is estimated that by the end of 2013, the total assets of the Islamic financial institution will reach US 1.8 trillion dollars. Islamic banking is a dominant segment in the Islamic financial industry with 80% of total Islamic financial assets. The Islamic financial industry has shown 17% growth rate between the years 2009 to 2013³⁴. Islamic banking is considered a suitable alternative not only by Muslim countries, but also by non-Muslim countries (SBP, 2014). There are 375 Islamic financial institutions which are working globally, while 110 conventional banks are also offering Islamic windows services. Moreover, the listed and traded Sukuk market has shown splendid growth in the last 7 years and has reached 500 Billion US dollars (SBP, 2013b)³⁵.

Islamic financial institutions are growing over the time period due to the following aspects stated by Elasrag (2011);

1. The flow of funds within the Muslim oil-producing states such as Middle Eastern countries and Gulf Arab States;

³³ These four schools of thought are under Sunni Sect.

³⁴ *Source:* Islamic Financial Services Industry Stability Report, 2014. Islamic Financial Services Board.

³⁵ Statistics on Scheduled banks in Pakistan, June 2013

2. There is a growing political and social need in Muslim countries for the establishment of Islamic financial system as an alternative to banks and investment system adopted and suggested by Western countries;
3. The failure of the banking system and multinational companies in financial crisis have raised a question of credibility on the conventional banking system;
4. The growth of sovereign wealth funds in Arab countries and their desire to invest these funds in the Shariah compliant instrument;
5. Muslims are keen to invest their funds in Shariah compliant system instead of investment in the conventional banking system.

3.3.1. Islamic Banking

Islamic banks are considered direct investors rather than the financial intermediaries between depositor and borrowers. As the operations of Islamic banking are based on profit and loss sharing between involved parties, the relationship between debtor and investor is redefined in Islamic banks as opposite to conventional banks (Grassa, 2012).

According to Henry and Wilson (2004) and Iqbal and Mirakhor (2007), Islamic banks execute the same financial activities as performed by other conventional banks, except that the transactions of Islamic banks are according to the Shariah rules and principles.

Hussein (2010) said that conventional banks are evolving and operated over several centuries, whereas Islamic banks are purposely developed to operate within Shariah rules and regulation over the last 30 years (Choong and Liu, 2009; Ainley et al., 2007; Safieddine, 2008; Sole, 2007; Iqbal and Molyneux, 2005).

Many researchers (Sundararajan and Erico, 2002; Fiennes, 2007; Akkizidis and Khandelwal, 2008; Khan and Bhatti, 2008) asserted a general opinion regarding Islamic banking is that Islamic institutions are less risky due to elimination of interest-based transactions. And more common Islamic banking instruments are based on “trade financing instruments” based on mark-up arrangements. Fiennes (2007) is of the point of view that many risks that Islamic banks face are like conventional banks, e.g. credit risk, market risk, and operational

risks. Islamic banking instruments are more risky because these are latest in nature. Some researchers (Khan and Ahmed, 2001; Sundararajan and Errico, 2002; Fiennes, 2007; Sundararajan, 2007) have asserted that Islamic banks are facing a unique nature of risks due to particular structure of its balance sheets.

Sarker (1999) stated that products of Islamic banks have different features and risks; therefore, there is a need to develop different prudential regulation for Islamic banks. Siddique (2008) stated that Islamic banks do not have a large portion of their assets in fixed-income or interest bearing assets as compared to conventional banks. As a result, Islamic banks require large capital adequacy and liquidity ratio. Also, based on this argument, the Basel Committee has required higher minimum capital requirement for Islamic banks.

Islamic banking is based on the following ethical values which are perceived as rules for governing investment behaviour in Islamic banking (El-Gamal, 2000; Warde, 2000; Lewis and Algaoud, 2001; Gait and Worthington, 2007; and Hussein, 2010).

The absence of *Riba* in transactions; the prohibition of *Maysir*, which is gambling; avoidance of *Gharar* (uncertainty) in a transaction; the introduction of Islamic tax, which is known as *Zakat*; the prohibition of investment in the *Haram* (unlawful) activities, which contradict with the values of Islam, such as trade of alcohol, prostitution, gambling, pork, etc.

Riba

It refers to the gain or additional money earned on principal amount lent as a loan to a person. Islam forbids predetermination of return on loan amount. It supports a view to have a share in profits and losses borne by the borrower through its business venture instead of a fixed return on the loan amount, which is considered as an unfair practice.

Maysir

Maysir refers to the gambling or games of pure chance (Hassan and Lewis, 2007). Maysir is prohibited in Quran based on the idea that an apparent agreement between two parties is the outcome of unclean and immoral incentive, which is best on the hope of making profit at the expense of the other party in the agreement (Kamali, 2000, p.152).

Gharar

It refers to uncertainty with the subject matter of the contract, and terms and conditions of the contract (Schoon, 2009). For example, selling of merchandise that is not owned by a seller; selling a house whose price is subject to be decided on some future date, or when the specification of the contract is known. Gabbi (2004) has studied Gharar (uncertainty) and stated, that risk means uncertainty which is prohibited in Islamic law of banks. Uncertainty results in making the contract invalid in Islamic banks. He further added that uncertainty is a physical thing, for example, if date, price, duration, quality, quantity, method of delivery of a contract is uncertain then the contract is also uncertain.

Zakat

Zakat is an Islamic tax, which means ‘purity’ and it refers to a mechanism for redistribution of wealth which can help in providing a fair standard of living to every Muslim. This tax is a compulsory levy on Muslim’s annual saving in cash or kind from all forms of assessed wealth based on Shariah requirements by 2.5%.

Islamic banks are required by law to establish a zakat fund for collecting this Islamic tax from depositors and to distribute it among poor Muslim people directly or through Islamic institutions and organisations. This tax is also imposed on the capital, profits and reserves of Islamic banks on annual basis as discussed in the handbook of Islamic banking (Masood, 2013, p.134).

Haram

Haram refers to forbidden investment in unlawful activities declared by Shariah law, such as investment in a casino, brewery, night clubs, gambling or any other undertakings clearly

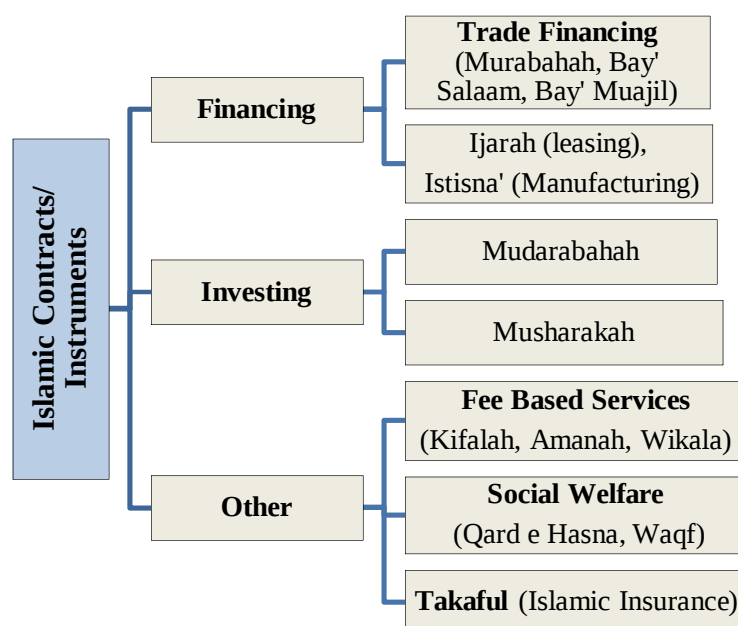
forbidden by Islam and is known to be unlawful for society (Belabes, 2010). In order to ensure that Islamic banks are dealing with in Islamic ethical standard, Islamic banks are required to establish a Shariah supervisory board which acts as a Shariah advisor for the banks.

3.4. Islamic Financial Instruments

Siddiqui (2008) asserts that there are seven Islamic banking instruments which include: Murabahah (cost plus mark-up), Mudarabah (profit and loss sharing), Musharakah (joint venture or partnership business), Salaam and Istisna' (forward contract), Ijarah (leasing), Qard-e-Hasna (interest free loan).

Researchers (El Qorchi, 2005; Chong et al., 2009) have divided Shariah instruments into the following broad categories, namely (i) Debt-creating instruments, e.g. *Salaam*, *Istisna'*, *Murabahah* and *Kifalah*, and (ii) Non-debt creating instruments, e.g. *Mudarabah* and *Musharakah*. Van Greuning and Iqbal (2008) have divided Islamic instruments into three categories, namely: (i) financing (*Murabahah*, *Salaam*, *Istisna'*, and *Ijarah*), (ii) investing (*Mudarabah* and *Musharakah*) (iii) other (*Takaful*, *Qard-e-Hasna*, *Wakalah*, and *Kifalah*).

Figure 3.1: Islamic Contracts and Instruments



3.4.1. Murabahah

Murabahah is the most commonly used financial instrument in Islamic banking. Large amounts of transactions are based on this mode of financing where Islamic banks trade on cost plus profit on sale contracts. Henry and Wilson (2004) revealed that 45% to 67% of the financial transactions of Islamic banks are based on Murabahah financing.

A-Rahman (2010) pointed out that Islamic banking institutions are mainly engaged in short-term financing for Murabahah contracts. “Consumer goods, raw materials, real estates, machinery, equipment and letters of credit” are mostly used in Murabahah contracts. In this mode of financing, the bank purchases an asset and resales it to the client at an agreed price plus profit margin that may be based on deferred payment or flexible payment term. Before the contract, both parties, i.e. the bank and the client, are agreed on the price and payment term and if the client fails to pay back in term, no extra charges will be demanded from him.

The basic features of Murabahah contract include following: Firstly, goods and commodities must be clearly identified and classified according to the accepted standards and must occur at the time of sale. Secondly, the cost price of the product should be identified at the time of sale and this should be clearly mentioned to the customer. Thirdly, goods or property must be in the ownership of the bank at the time of sale and fourthly, time of payment and delivery of the goods must be clearly specified (Iqbal and Molyneux, 2005; Obaidullah, 2005; Lewis and Algaoud, 2001).

Al-Omar and Iqbal (2000) stated that Murabahah and Ijarah contracts constitute a major part of an Islamic bank’s assets, because of the fact that they can fairly predict return on these instruments. Moreover, these two instruments provide with regular cash flows, which support Islamic banks to meet their liquidity requirements.

3.4.1.1. Bay' Al-Muajjal

It is a form of credit sale. Theoretically, it is a financing technique adopted by Islamic banks that takes the form of Murabahah Muajjal. It is an agreement in which the bank makes a profit on his buying price and permits the purchaser to pay the price of the goods at a future date in a lump sum or in instalments.

3.4.2. Musharakah

Siddiqui (2008) explained that generally Musharakah financing is used for trade financing; imports and issuing letters of credit; and in agriculture and industry by the banks. In this mode of financing Islamic banks participate in equity and share risk with the customer. Earning is distributed among the partners as per pre-agreed proportion and if any loss is faced by a business that should be divided among the partners according to their equity ratio.

Ayub (2007) asserted that in Musharakah, partners may decide that administration will be run by one partner and no other partner will participate in the business. It is a contract under which Islamic bank offers funds, which are used together with the funds of the business enterprise and others (Rammal and Zurbruegg, 2007).

Following are the features of the Musharakah contract:

- It is a limited time contract for a specific project.
- Profits should be shared on the basis of pre-agreed ratio, whereas; losses should be shared according to the contribution of capital.

3.4.3. Mudarabah

In this mode of Shariah contract, two parties are gathered to share the profits and losses in the process of carrying out the business, where they unite human and financial resources. One party is known as Rab-ul-Mal (financer) and other is Mudarib (entrepreneur). According to this contract, a party invests in the project and other manages the project with

its expertise. The profit ratio is pre-determined between the parties; however, losses are only borne by financier apart from in the case of any carelessness or misconduct by the Mudarib in handling funds (Henry and Wilson, 2004; Siddiqui, 2008). Profit and loss account is the most common example of this mode of financing, where the client deposits money in bank for investment and bank invest that money in projects to earn profit.

Following are the general rules for Mudarabah transactions:

- The profits must be shared between parties in a pre-agreed proportion. But, it cannot be a guaranteed return or lump sum amount on the investment.
- The investor is not liable to bear losses beyond his invested capital.
- The Mudarib is not liable for financial losses until it is due to his negligence.

It must be noted that Mudarabah is considered a high-risk instrument for Islamic banks because the bank provides financing to the entrepreneur who undertakes the management of the business. The Islamic bank usually mitigates this risk by taking necessary precautions to guarantee a better implementation of the proposed business plan and follow this plan with seriousness (Elasrag, 2011).

3.4.3.1. Two Tier Mudarabah

It is the initial concept of Islamic banking in which Islamic bank engages in two types of Mudarabah contracts, i.e. one with the depositor and the other with the person to whom bank provides financing. The initial Mudarabah is between the bank and the customer having excess money, i.e. the depositor and the latter is between the bank and the customer who requires financing. In the first-tier Mudarabah, the depositor acts as a Rab-ul-Mal (financier) whereas, the bank acts as a Mudarib. The depositor places their funds in the bank with no surety of return of principal amount and profitability on investment made on their behalf by the bank. But the depositor bears all the losses and shares in the profit based on the pre-agreed ratio with the bank.

The second-tier Mudarabah is between the bank and those taking finance from the bank. In this case, the bank acts as a Rab-ul-Mal and the lender acts as a Mudarib. The bank is liable

for all the losses incurred by the business, except in case of fraudulent activities by the Mudarib, and shares profits with the customer according to the pre-agreed ratio (Kettell, 2011).

3.4.3.2. Restricted versus Unrestricted Mudarabah

El Tiby (2011) illustrated that Mudarabah contracts are divided into two types, i.e. restricted investment account, and unrestricted investment account.

Restricted investment account: In this type of Mudarabah contract, the depositor (investor) has a right to authorise Islamic banks to invest their funds based on agency contracts with certain restrictions as to where, how and for what purpose their funds are to be invested.

Unrestricted investment account: In this case, the depositor did not restrict Islamic banks to any condition for investing their funds. The bank can invest these funds in Mudarabah or Wakalah contracts without any restriction. This is convenient for banks to merge these funds with others and to invest them in a pooled portfolio.

3.4.4. Wakalah

It is kind of Mudarabah contract where the depositor puts funds with the bank and the relationship between client and bank is of custodian and in this contract bank charges a fee for his services at a fixed rate.

It is an agency contract where one party (investor) appoints another party (bank) as an agent (wakeel) by paying a certain fee. The bank makes investments on behalf of the investor on pre-agreed asset and charges a fee against profit earned from the investment of funds and the bank pays back remaining profit to the investor (muwakil).

There are many types of Wakalah contract like; Wakalah in the purchase, Wakalah in sale, restricted Wakalah, unrestricted Wakalah, general Wakalah and special Wakalah. According to Van Greuning and Iqbal (2008), restricted and unrestricted Wakalah are two

major types of Wakalah contracts. In unrestricted Wakalah contracts, the bank is not restricted, and can invest funds in any type of assets without any restriction, and the bank only charges fees from the investor instead of becoming a partner in profit and loss sharing (Hassan et al., 2013).

3.4.5. Ijarah

Ijarah is the Islamic mode of leasing or hiring, where some tangible asset is given on rent. Ijarah is a contract in which right to use an asset is sold to the client for a specific time period. Generally, it is a contract of renting out a tangible asset (e.g. Property or merchandise), but it also refers to the hiring of services for a specific fee.

Ijarah is of two types, i.e. (i) ***Simple Ijarah (operating Ijarah)***: In this form of Ijarah, the financier purchases the asset and rents it out to the client for a specific time period (ii) ***Ijarah wa iqtina (financial Ijarah)***: In this type of Ijarah, there is a contract between the financier and client to transfer the possession of an asset at the end of Ijarah term. The client is liable to pay rent and gradual payment for the ownership of the asset (Van Greuning and Iqbal, 2008).

An Ijarah contract is like a conventional bank's leasing agreement. But the difference is that in Ijarah contract, the leasing agency is required to hold the ownership of the leased object for the duration of the term period and the second difference is the absence of compound interest in the case of defaulter of client in making timely payment based on the terms of Ijarah contract (Masood, 2011).

3.4.6. Salaam

Salaam is the commodity sale contract in which cash is paid in advance to the seller and goods or merchandises are delivered at some future date to the customer. Iqbal and Mirakhor (2007) argued that in a Salaam contract quantity and quality of the product is fully specified at the time of agreement.

Salaam is the purchase of commodities at a deferred delivery. Salaam contracts are the same as conventional forward contracts in terms of functionality but these are different in terms of the payment agreement, as in Salaam contracts, full payment is made in advance for a specified product that has to be delivered at some future date. The basic advantage of this contract is that the manufacturer gets the full price in advance to invest in the production, whereas the buyer is free from uncertainty of the future price of the commodity (Masood, 2011).

3.4.7. Istisna'

Istisna' is an Islamic mode of financing in which a specific quantity of goods at a specific price is sold at some future date. It is like Salaam, but the difference is in the condition of Istisna' contract is that the buyer did not pay the whole price of the products in advance (Iqbal and Llewellyn, 2002; Vogel and Hays, 1998).

Iqbal and Mirakhor (2007) explains three conditions for Istisna' contracts, (i) the underlying asset or product is required to be manufactured (ii) there should be flexibility in payment and delivery time of the product; (iii) the contract can be cancelled before products are manufactured.

3.4.8. Qard -e-Hasana

Siddiqui (2008) has stated that this type of financing is provided to the poor people of the society. It is basically interest free financing. These loans have a negative net present value (NPV) of the financier.

3.4.9. Sukuk

Sukuk is an Islamic bond, which is issued by a receiver (beneficiary) as a proof of funds collected permitting some rights in assets. Now, Sukuk bonds have become a viable source of funding in Pakistan (Khan and Bhatti, 2008). The Sukuk bonds are similar to an asset-backed securitisation.

Sukuk is divided into three categories, i.e. leased based Sukuk, Equity based Sukuk, and Sale based Sukuk. These are like bonds in conventional banks, but the difference is that Sukuk are assets backed and indicates the ownership of tangible assets for Sukuk-holder. There are many types of Sukuk, which are based on Shariah compliant instruments, such as Mudarabah, Musharakah, Murabahah, Wakalah, Bay' Bithamin Ajil, Ijarah, and Istisna' (Kamil, 2008). The most important and widely used Sukuk are equity based which are issued against tangible assets. They are like a note or certificate which shows the ownership of an asset. The return of Sukuk depends on the result of the earnings generated by an asset and this earning is distributed among Sukuk-holders at the end of the term. Sukuk are established for Islamic banks in the year 2000 by the central banks of Islamic countries for investing their spare funds (Awan, 2009; Hassan et al., 2013). Banks used Sukuk as a medium to hedge risks. Awan (2009) stated that during 2004 and 2006 years, the cash and bank balances, of banks were 25%, which were reduced to 17% in year 2008 because of the introduction of Sukuk in the market.

There are 14 different types of Sukuk that are being operated in the Scripless Securities Trading System (SSTS) in Malaysia (Anas and Mounira, 2008). Whereas, there are limited numbers of private and government Sukuk, available in Islamic money and capital market. Islamic scholars have developed the short-term Sukuk certificate recently (Ismal, 2010a).

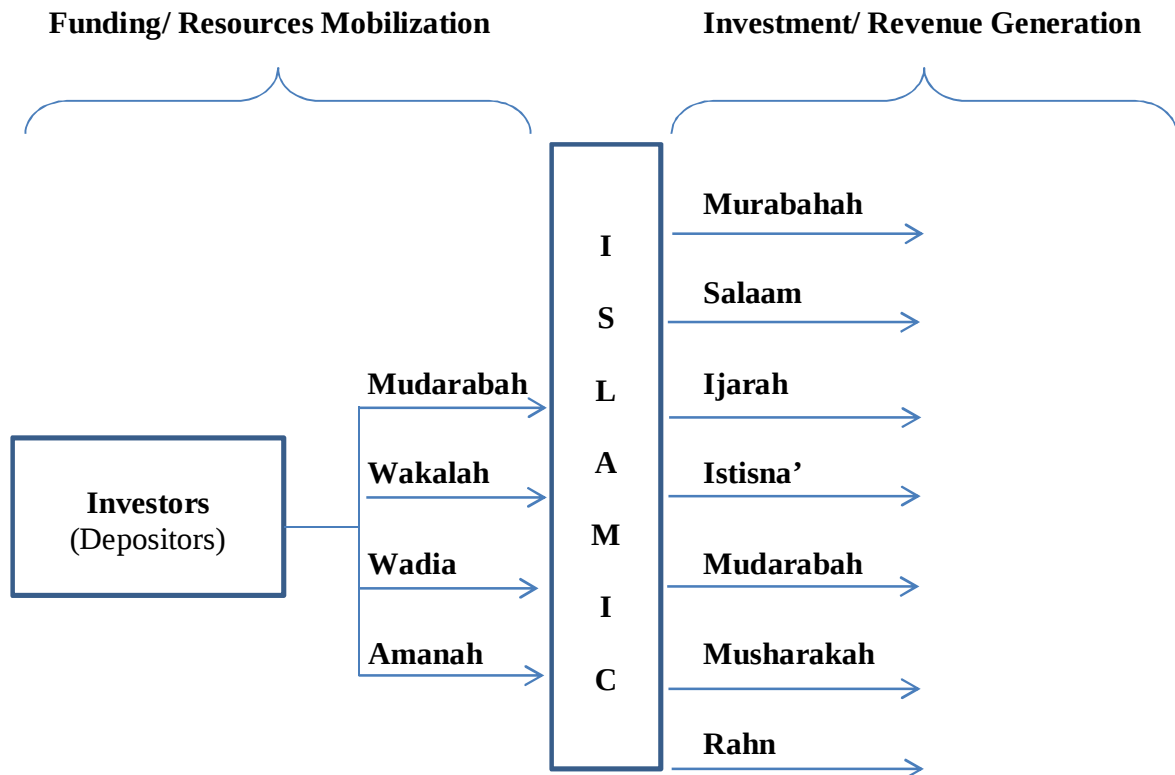
It was stated by Khan and Bhatti (2008) that Sukuk constitute about 85% of the Middle East capital market. Also, US 13 billion Dollar value of Sukuk was issued with an average growth rate of 45% during 2002 to 2007 time period. Furthermore, Khaleej times (2007) illustrated that Middle East and Asian region are relying on Sukuk to meet their requirements of infrastructure valuing US 1.5 trillion dollars over the next five year time period.

3.5. Islamic Financial Intermediation

Figure 3.2, shows how a typical Islamic bank is structured to mobilise funding from depositors and invest it in various Shariah compliant instruments. The bank holds the relationship with depositors based on Mudarabah, Wakalah, Amanah or Wadia basis, and

these instruments are shown on the liability side of the balance sheet of an Islamic bank. On the other hand, Islamic bank investments or financing (i.e. Murabahah, Salaam, Ijarah, Istisna', Mudarabah, Musharakah, and Rahn) are shown on the assets side of the balance sheet of an Islamic bank.

Figure 3.2: Islamic Financial Intermediation



Source: Adapted from Iqbal and Mirakhor (2011, p. 134)

3.5.1. Risks Surrounding Islamic Banks

Kahef (2006) asserts that effective and efficient risk management and analysis is required due to the nature of Islamic banking laws, processes and types of financing opportunities. Mudarabah is a practical type of financing, yet it has many risks to the shareholders and depositors of the bank, because losses should be borne by all the parties involved in the

business. This risk is more significant for the Islamic banks because the loss is only borne by the investor (bank). Administration of Mudarabah financing and its strategy are more complex in nature as compared to the conventional financing.

In Mudarabah contracts, Islamic banks also face risks due to the legal restriction of no say in the venture. The entrepreneur is wholly responsible for the venture or business (Kahef, 2005). The Musharakah mode of financing is more secure, because of the involvement of both parties in the management decisions and supervision. Hence, Musharakah contracts are less risky and provide both the parties a right that is pre-agreed in nature (Kahef, 2006).

In Murabahah contracts, banks are exposed to credit risk (in case of defaulter of the client), price risk and market risk (when the client has a right to cancel the contract or refuse to take delivery of the product due to change in the market price of the corresponding product), mark-up risk (when the present mark-up rate prevailing in the market may increase beyond the rate set under the contract will result in mark-up risk for the bank), and liquidity risk (when the contract is cancelled by the client) (Van Greuning and Iqbal, 2008).

3.6. Islamic Banking- Risks Overview

Iqbal and Mirakhor (2007) have divided risk of Islamic financial institutions into mainly four types of risks: financial risk, business risk, treasury risk³⁶, and governance risk. Financial risk includes credit, market, and equity risks. Whereas, the rate of return and solvency risks are part of business risk. Governance risks comprise of operational risk, reputation risk, Shariah risk, transparency risk, and fiduciary risks.

³⁶ Treasury risk arises from the management of financial resources in terms of cash management; equity management; short-term liquidity management and assets and liabilities management.

Mainly risks faced by Islamic financial institutions are divided into the following four broad categories:

1. Financial Risks
2. Operational Risks
3. Business Risks
4. Shariah Risks

3.6.1. Financial Risks

Risks that are associated with financial losses to assets and liabilities of the banks are termed as financial risks. The financial risks increase the overall risk profile of an Islamic bank, and it includes liquidity risks, credit risks, market risks and repricing risks.

3.6.1.1. Credit Risk

Risks associated with non-payment or inability of the borrower to pay back funds is termed as credit risk. Credit risk arises in the following Islamic financial instruments; such as credit risks are higher in *Murabahah* contracts due to the nature of the contract and its compliance with Shariah rules and regulation. Credit risk arises when a client defaults on paying back its due obligation after receiving assets from the bank. Also, in *Murabahah* contracts, the buyer has a right to refuse the delivery of the product purchased by the bank, then the bank is also exposed to market and price risk as a result of credit risk. Vogel and Hays (1998) argue that a client becomes a defaulter due to the following reasons: the bank has not provided merchandise on time; or the quality of the goods is low; or no supply of goods in case of *Salaam and Istisna'* contract. Hassan and Lewis (2007) explained that credit risk arises in the *Mudarabah* contract when a bank act as a financier of the project and cannot take part in the management of the project due to the nature of *Mudarabah* contract, also Islamic banks cannot participate in business to assess and manage credit risk. This situation will lead to enhanced credit risks for the Islamic banks. But in case of *Musharakah* contracts, if the client or entrepreneur does not pay the profit from the business to the bank then this will lead to credit risk for the Islamic banks.

Islamic banks have qualitatively similar credit risk like conventional banks; as such, the processes of the calculation of the minimum capital requirement for credit risk exposures are not different from the methodologies adopted by the conventional banks (Kahef, 2005).

3.6.1.2. Market Risk

Iqbal and Mirakhor (2007) and Van Greuning and Iqbal (2008) stated that market risks are associated with the negative price trend in the rate of return, foreign exchange rate risks, mark-up rate risk, equity risks and risks related to commodity prices. Islamic banks are free from interest rate risks as they do not deal with various government and public financial instruments. Market risks arise due to instability in current and potential market prices of specific assets. Market risks are also present in a derivative instrument like options, interest derivatives, currency derivatives, and equity derivatives.

3.6.1.3. Foreign Exchange Rate Risk

According to Van Greuning and Bratanovic (2009), bank experience exchange rate risks due to change in the exchange rate between home and foreign currencies. Foreign exchange risk arises in those contracts in which an Islamic bank has to receive the payments in another currency and whose exchange rate decreases in time or in case of payment made by Islamic banks in foreign currency, the currency rate increases.

3.6.1.4. Commodity Price Risk

According to Akkizidis and Khandelwal (2008), commodity price risk arises when the banks are the holder of different assets with a view to sale them in future. If the commodity price of the assets goes down and the bank has to deliver that commodity at a low price then it is known as commodity price risk. Hassan and Lewis (2007) stated that the commodity price risk is present in Salaam, Istisna', Ijarah, Mudarabah and Musharakah types of Islamic financing.

3.6.1.5. Mark-up Risk

Islamic banks charge a mark-up at a fixed rate on the loan provided to the client. The mark-up rate is identified with the help of LIBOR, as there is no benchmark in Islamic banking to decide on the mark-up rate. In case of Mudarabah, the mark-up risk arises if the benchmark rate increased from the previous rate, as the bank cannot charge more from the existing client according to a new rate. As in Islamic banking, mark-up has been decided once for the whole time period. Similarly, in case of Musharakah, Islamic banks practice LIBOR as a benchmark for deciding profit and loss sharing ratio, if benchmark rate is increased, then the bank cannot enjoy the increased return on the previous contracts as rates are previously decided (Iqbal and Mirakhor, 2007; Hassan and Lewis, 2007).

3.6.1.6. Equity Investment Risk

Van Greuning and Iqbal (2008) asserted that Islamic banks are also involved in equity investment in the following: shares of stock market, private equity funds, contribution in specific projects etc. These equities are also exposed to liquidity, credit and market risks. In case of these risks, bank will face the instability in the financial earnings and may also lead to loss of the capital invested in that equity. The aspect of equity investment risk includes the following:

- Enhanced monitoring is required to reduce the informational asymmetries. Islamic banks have to play active roles in monitoring, proper financial disclosure, reporting, and supervision of the projects.
- Proper monitoring and assessment of the Mudarabah and Musharakah contracts is compulsory to avoid the equity losses. The degree of risk is high in these contracts, so extra care is needed for evaluating and selecting the project to minimize the future equity losses.
- Investments in other equities except stock market are risky due to non-availability of organized and proper secondary markets, which raises the cost of prior exit.

3.6.2. Operational Risks

Operational risks are associated with the failure of the system, technology related issues and functioning, including policies, procedures and weak internal processes of the Islamic banks, which lead to potential losses for the banks. Operational risk arises because of failure of internal and external processes which result in direct and indirect losses to the Islamic banks (Bessis, 2002; Iqbal and Mirakhor, 2007; Ahmed and Khan, 2007).

Sundararajan (2005) asserted that operational risk arises in the Islamic banks due to following aspects, cancellation of Murabahah and Istisna' contract, dilemmas in internal control system for managing problems in operational processes and back office functions, technology risks, potential risk related to the enforcement of Islamic contract in a big legal environment, the risk of non-compliance with Shariah rules and regulations, and potential cost for monitoring equity based contracts and legal risks associated with these contracts (Van Greuning and Iqbal, 2008).

In addition, operational risk consists of other risks, such as legal risk (Archer and Abdullah, 2007; Djojosedjito, 2008; Fiennes, 2007; Khan and Ahmed, 2001; Sundararajan, 2005), Shariah non-compliance (IFSB, 2007; IFSB, 2005), fiduciary risks (IFSB, 2005) and reputational risk (Archer and Abdullah, 2007; Akkizidis and Bouchereau, 2005; Fiennes, 2007; Standard and Poor's, 2008).

At the list of risk exposures, operational risks are considered significant and one of the prominent risks faced by Islamic banks. Khan and Ahmed (2001) found that managers at Islamic banks believed that operational risks are more significant after mark-up risks. It has been found in the survey conducted by Khan and Ahmed (2001) that operational risks are higher in Salaam and Istisna' mode of Islamic financing and is lower in Murabahah and Ijarah contracts. The highest ranking of the risks in the instruments showed that the banks consider it difficult to implement these contracts.

3.6.3. Business Risks

Van Greuning and Iqbal (2008) asserted that business risks arise due to macroeconomic and policy concerns, legal and regulatory factors, and the infrastructure of the financial sector. Business risk includes the risk related to rate of return, withdrawal risk, liquidity risk, and reputational risk.

3.6.3.1. Rate of Return (ROR) Risk

The rate of return risk arises due to uncertainty in returns on the investments of the Islamic banks. Rate of return is different in respect with the interest rate risk. Iqbal and Mirakhor (2007) stated that Islamic banking is dissimilar to non-Islamic banking as these banks deal with a fixed interest rate on securities so they face less risk in rate of return on securities. Whereas, the case is different in Islamic banking, this deals in securities whose result of return is disclosed at the end of the holding-term period. These results of investment cannot be exactly pre-determined. So, the Islamic bank has to wait for the result to determine the rate of return for depositors. This uncertainty can cause variance in the return which is expected by depositors on their investment. The larger the variance the bigger the rate of return risk for the banks (Van Greuning and Iqbal, 2008).

For example, an Islamic bank expected to earn a profit of 10% on its investment and they have communicated this information to their depositors. Meanwhile, the market rate increases up to 12% (that is higher than expected return on its investment), the depositors will be expecting to earn the increased rate on their investments. This rate of return risk might lead an Islamic bank to withdrawal risk at the same time.

Khan and Ahmad (2001) stated that the rate of return risk is the most critical risk in Islamic banks as compared to other risks, i.e. operational and liquidity risk. In addition, How et al. (2005) illustrated that rate of return risk is high for banks who are offering Islamic financing as compared to those who are not offering Islamic financing. Rosly (1999) argued that Islamic banks have less flexibility in investments (asset side of the balance sheet) as compared to conventional banks, because Islamic banks mostly invest in Murabahah

financing and Bai Bithaman Ajil which are insensitive to market interest rates. Whereas, all the liabilities of Islamic banks are market risk sensitive that cause negative fund gaps between assets and liability sides of Islamic banks.

3.6.3.2. Withdrawal Risk

Withdrawal risk arises due to the lower rate of return offered to the depositors. If an Islamic bank is paying a lower rate of return to its customer then the customer will withdraw their money and invest it in some other banks who are offering more rate of return on their investment. Iqbal and Mirakhor (2007) asserted that withdrawal risk arises from the competitive pressure faced from both pure Islamic banks and the Islamic windows of the conventional banks.

3.6.3.3. Liquidity Risk

This risk is present when banks have inadequate funds to meet its financial obligations on time. These are the consequences of poor fund management by banks and the complexity in acquiring the funds at an acceptable cost. As banks are involved in the business of transforming short term liabilities into long-term loans and assets, as a result there exists differences between maturity level of funds and with these differences banks are exposed to liquidity risk.

Liquidity of Islamic banks is of two types: (1) unavailability of the funds to access by the Islamic bank. When there is a deficiency of liquidity in the financial markets, it gets difficult to convert illiquid assets into liquid form to meet the financial liability of the bank. (2) When there is a shortage of funding in the market, the Islamic bank becomes unable to raise the funds at an acceptable cost price (Iqbal and Mirakhor, 2007).

Lack of sufficient liquidity in Islamic instruments is the main reason of liquidity risk. Ariffin et al. (2009) stated that it is unacceptable to convert the financial instruments into transferable financial instruments. If a debt has been arisen, it became non-transferable to other person but at par value.

Liquidity risk arises in Islamic banking due to the following reasons:

- Inadequacy of availability of Shariah money market
- Unavailability of an effective inter-bank money market due to Shariah prohibition of interest rate on transactions.
- Few secondary markets are also a big reason for liquidity risk. Shariah law permits transaction and borrowing in which real estate is involved. Hence, there is a need to develop assets backed tradable securities, like: Sukuk bonds for Islamic financial institutions.

3.6.3.4. Reputational Risk

Van Greuning and Iqbal (2008) asserted that reputational risk, also termed as a “headline risk”, arises due to the irresponsible behaviour of the management or non-compliance of system that result in damage to the reputation of the Islamic bank and can result in shattering the trust of the clients of the Islamic bank.

Negative publicity about the Islamic bank can also cause damage to the reputation of the bank and have a negative impact on market share, liquidity, and profitability of the bank. All Islamic banking institutions are exposed to reputational risk, as the Islamic finance industry is new in the market. So, any damage to a single institution can cause damage to the whole industry (Iqbal and Mirakhor, 2007).

Reputational risk is mitigated by the consensus built among influential religious scholars and by ensuring Shariah compliance, which is the essence of the Islamic banking (Shaikh and Jalbani, 2009).

3.6.4. Shariah Non-compliance Risk

Shariah non-compliance risk is related to the disobedience of Shariah rules and regulation set by the Shariah Board of the Islamic financial institution or the relevant jurisdiction of an Islamic financial institution (IFSB, 2005). Shariah risks are of two types: (1) risk arising from non-standard practices by different jurisdictions and (2) Risks arising due to failure in

obeying the Shariah rules and regulations (Iqbal and Mirakhor, 2007; Van Greuning and Iqbal, 2008; El Tiby, 2011). Different school of thoughts have different opinions about the interpretation of Shariah rules that result in different practices in terms of financial reporting, auditing, and accounting treatment. For example, some scholars consider Murabahah and Istisna' contracts are binding and compulsory on the buyer. While, some scholars contradicts with this statement and argue that these contracts are not compulsory to follow by buyer after placing a purchase order to the bank. The risk of the Islamic bank is high in the non-binding contracts, and may cause litigation in the court against the client.

The relation between customers (depositor) or banker is of the principal and agent. Islamic banking is diverse from conventional banking in this regard, as investor deposits his funds in bank with full trust in the bank that they will deal in accordance with Shariah compliance. If a bank breaks the trust of the customer and are involved in non-Shariah compliance, then the risk of the bank is breaking the trust and confidence of the investor or depositor. Some scholars stated that any income derived from the non-compliance of the Shariah should not be distributed among investors and depositors.

3.6.5. Risks Specific to Islamic Banking

3.6.5.1. Displaced Commercial Risk

The Accounting and Auditing Organization for Islamic Financial Institutions (AAOIFI) has described displaced commercial risk as the risk that arises when an Islamic bank is under pressure to pay investors and depositors a higher return than would be paid under "real" terms of the investment contract. This can happen when a bank has underperformed for a period and remains incapable to generate enough profits for distribution to account holders (IFSB, 2005).

To mitigate displaced commercial risks, Islamic banks might decide to give up a portion of their profits in order to prevent the depositors from withdrawing their funds. Islamic banks often engage in this voluntary practice. Islamic financial institutions should adopt a uniform

practice, and they should clearly state and explain the rights of investment account holders of these reserves to applicants.

3.6.5.2. Transparency Risk

Transparency is defined as "the disclosure of reliable and timely information that enables users of the information to make an accurate assessment of the situation of a bank, its financial performance, business activities, risk profile, and risk management practices." Lack of transparency creates the risk of losses due to bad decisions based on incomplete or inaccurate information (BCBS, 1998).

3.6.5.3. Governance Risk

This risk arises as a result of a failure to govern the institution, negligence in the performance of contracts and corporate compliance with low internal and external environment of institutions, including legal risk, where banks are not able to implement their contracts (Van Greuning and Iqbal, 2008, p.179).

3.6.5.4. Fiduciary Risk

Fiduciary risk arises from the inability of an institution to perform according to explicit and implicit standards of fiduciary responsibility (IFSB, 2005). This risk involves the risk of litigation (legal action) if the bank violates the responsibility of fiduciary to depositors and shareholders. As fiduciary agents, Islamic banks are anticipated to act in the best interest of investors, depositors and shareholders. If and when the objectives of investors and shareholders differ from the actions of the bank, the bank faces fiduciary risk.

Moreover, the negligence or misconduct to comply with Shariah will deteriorate the reputation of the bank (Hamidi, 2006; Izhar, 2010). Even a financially sound bank facing this risk will lose the trust of potential depositors or investor which in result, reduces the deposits of the depositors (Ali, 2002). Fiduciary risk also exposes shareholders and depositors on investment for the risk of economic losses because they receive their share of the profits.

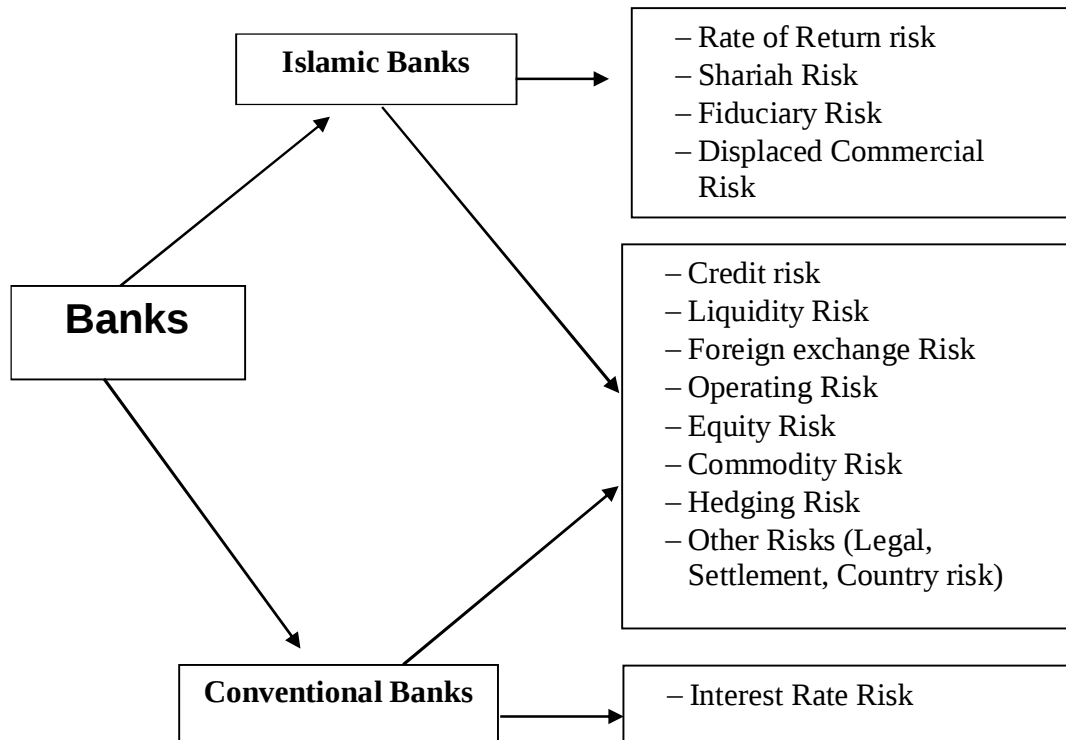
Following are the consequences of fiduciary risk which are discussed in literature: withdrawal of deposits by depositors due to lack of confidence in Islamic financial institution, which is known as withdrawal risk; legal risk in case of negligence or misconduct of funds of investors (depositors); reputational risk, when a bank breaches the code of conduct provided by Shariah; insolvency risk, when Islamic banks fail to meet the requirements of customer; also it can affect market price of the shareholder's equity (Iqbal and Mirkhor, 2007; Van Greuning and Iqbal, 2008 cited by El Tiby, 2011).

3.7. Risk Matrix of Islamic and Conventional Banking

Vogel and Hayes (1998), Karim (1999), Obaidullah and Wilson (1999), Khan and Ahmad (2001), Iqbal and Mirakhor (2007), Van Greuning and Iqbal (2007) have studied in detail about the risk management in Islamic banking. They affirm that Islamic banks are exposed to some diverse type of risks because they have a different structure of assets and liabilities as compared to conventional banks.

Khan and Ahmad (2001) highlighted that the Islamic bank faces unique type of risks due to its compliance with Shariah law. Al-Janabi (2008) argued that the Islamic bank faced foreign exchange risk and equity risks, because Islamic banks do not have efficient and sufficient tools and techniques to handle these risks. Figure 3.3 below, shows the risks that are present in Islamic and conventional banks.

Figure 3.3: Banking Risks: Similarities and Difference between Islamic and Conventional Banks



Source: Developed by the Author

3.8. Risk Management in Islamic banks

IFSB issued a document in 2005 based on 15 principles for Islamic financial institutions on risk management³⁷. The aim of these principles was to ensure that Islamic banks should act in accordance with Shariah rules and regulations, i.e. prohibition of Riba, implementation of the shariah compliant risk mitigation techniques, and to help the guidelines of the Basel Committee on Banking Supervision on risk management to provide guidance to the unique nature of risks faced by Islamic banks (El Tiby, 2011).

³⁷ Guiding Principles of Risk Management for institutions (other than insurance institutions) offering only Islamic financial services, December 2005, <http://www.ifsb.org/standard/ifsb1.pdf>

IFSB (2005) issued general risk management principles for the Islamic financial institutions which are as follows: Islamic financial institutions should have a comprehensive risk management framework and reporting process with the appropriate board of directors and senior management oversight for identifying, measuring, monitoring, reporting and controlling various types of risks and where necessary, they should maintain capital adequacy against such risks. The process should take appropriate steps to comply with Shariah rules and regulations, and also to ensure the adequacy of relevant risk reporting to the supervisory authority.

Arrifin et al. (2009) found that both types of bank, i.e. Islamic and conventional banks are facing the same types of risks, but the difference lies in the levels of risks. Furthermore, Islamic banks are employing technically less advanced risk measurement techniques, i.e. VaR, Simulation technique, estimates of worst case and RAROC. They are most commonly using gap analysis, maturity matching analysis and credit ratings to measure risk exposures, because Islamic banks are new in the market and do not have sufficient resources and systems to use sophisticated techniques.

3.8.1. Credit Risk Management in Islamic banks

The techniques used by Islamic banks to mitigate credit risk are somehow similar to the techniques adopted by conventional banks. However, banks use client track record with the banks and the creditworthiness of the client by using informal links, in case of absence of credit rating agencies (Van Greuning and Iqbal, 2008).

The Islamic Financial Services Board (2005) has provided following principles for managing credit risks in the Islamic financial institutions:

- They should have in place a strategy for financing by using Shariah compliant instruments, also they should recognise the potential credit risks that may arise at various stages of financial instruments;
- Islamic financial institutions should carry out a review of all the parties involved before deciding on the appropriate choice of Islamic financing instrument;

- They should adopt appropriate monitoring and reporting methods for credit exposures arising among Islamic financial instruments;
- They should develop appropriate credit risk mitigation techniques, which can deal with each and every Islamic financial instrument.

Credit risk management has provided the following three policies, which are needed to be considered, such as first policy is related to examining the diversification of loan, lending to related companies, and over exposure to the geographic areas or economic sector. The second policy is related to measuring the risk by classifying assets into different categories; the third policy aims to ensure that banks should keep an adequate amount of capital as a provision to absorb loan losses (El Tiby, 2011; Masood, 2011; Van Greuning and Iqbal, 2008).

Van Greuning and Iqbal (2008) illustrated that credit risk management for Islamic banks is complicated because they are compliant with Shariah regulations which impede them from charging accrued interest or penalties in case of delay or non-payment of the loan. As a result, the client takes advantage of this by delaying payments to Islamic banks. The capital of Islamic banks is struck due to unproductive use of their capital and this causes pressure on banks due to non-payment of return to depositors which will raise the rate of return risk for the bank.

Whereas, in the case of Mudarabah and Musharakah contracts, if the negligence of the mudarib or managing partner (in case of Musharakah contract) is proved, then they are liable to pay back the capital amount invested by the bank. But in case of default, Islamic banks are exposed to credit risk.

Usually, collateral and pledges are used against credit risk by Islamic banks. It may be possible that the Islamic bank asks its client (in Murabahah contract) to provide additional collateral before the transaction. In few cases, the subject matter of the contract is considered as collateral for the transaction. But, collateral is considered as illiquid or it might be difficult for bank to determine fair market value of collateral for sale over the time period, or it might carry hindrance in possession of the collateral. Moreover, personal and

institutional guarantees can also be used to mitigate credit risk faced by banks. The key objective of guarantee and collateral is to ensure the ability of client to meet financial obligations on time (Van Greuning and Iqbal, 2008).

3.8.2. Liquidity Risk Management in Islamic banks

A study conducted by Samad and Hassan (1999) examined the liquidity and solvency risk of Malaysian banks for the period of 1984 to 1997. The findings of their study revealed that Islamic banks are more liquid as compared to conventional banks. Whereas, Bashir (1999) conducted a research study on 14 Islamic banks from 8 Middle Eastern countries for the period of 1993-1998. The results of his study showed that Shariah compliant banks have more liquidity than non-Shariah compliant banks. Similarly, another study conducted on financial performance and liquidity of Islamic and conventional banks in Bahrain for the period 1991-2001. Findings exhibited that liquidity ratios of Islamic banks are higher than conventional banks (Samad, 1999).

The Basel Committee on Banking Supervision (2008a) suggests that banks should clearly state their liquidity risk tolerance that is suitable for their business strategy and their role in the financial system. Moreover, senior management of the banks should develop strategies, policies and practices to manage liquidity risk in accordance with risk tolerance level. It is also required that senior management should review information on the bank's liquidity development on a continuous basis and reports it to the board of directors. The board of directors should review and approve the strategies, policies and practices that are related to liquidity management at least on an annual basis and they should ensure that senior management manages liquidity risk effectively.

IFSB (2012) provided guiding principles on liquidity risk management for institutions offering Islamic financial services (IIFS). General principle provides that, "An IIFS should have a sound and comprehensive liquidity risk management framework joined with risk process, in order to maintain a sufficient amount of liquidity to meet daily requirements and to cover expected and unexpected deviations from normal operation for a reasonable time. Moreover, IIFS should have a governance process consisting of the board of directors and

senior management oversight, in order to identify, measure, monitor, report and control the liquidity risk in line with Shariah rules and regulations and within the context of available Shariah compliant instruments and markets. Supervisory authorities should have a rigorous process for evaluating the liquidity risk management position and framework of IIFS and requiring timely action in case of any deficiency”.

Siddique (2008) conducted a research study on Islamic banks of Pakistan to examine the financial contracts, risk and performance of banks for the period 2002 to 2003. The results highlighted that Islamic banks have higher liquidity and cash balances as compared to conventional banks.

3.8.2.1. Liquidity Risk Mitigation Techniques

As stated above, Islamic banking depositors withdraw their money from an Islamic bank due to the lower rate of return on their deposits, their concern about the financial position of the Islamic bank, and when the practices of an Islamic bank is non-compliant with Shariah rules and regulations. In this scenario, Shariah principles ensure few liquidity risk mitigation techniques which help to minimize following conditions, such as the regular demand for liquidity, predictable and unpredictable irregular demand for liquidity.

3.8.2.2. Liquidity Reserves

Central Banks have directed banks (both Islamic and conventional) to maintain a specified amount of reserve to meet daily liquidity demand from depositors. There is no reward paid on these reserves to the Islamic banks, because any reward on utilization of this money is Riba, which is prohibited in Shariah.

3.8.2.3. Regulating the Redemption Time of Deposit

In this technique, the constructive liquidation technique is used; in which Islamic financing is involved in a project that needs specified time period. In this method, net asset value of the project is calculated by subtracting all liabilities from the assets and based on this amount, redemption (recovery) time of deposits is organised and matched with the time of

constructive liquidation, so that the regular demand of liquidity is well managed (Obaidullah, 2005).

3.8.2.4. Mitigation of Business Losses in Equity Based and Debt Based Financing

As mentioned above in this chapter, equity based financing is based on Mudarabah, Musharakah and Kifalah; while, the debt financing is related to Ijarah, Salaam, Istisna', and Murabahah.

Ismael (2013, p.76) provided that in equity based financing, Islamic banks are liable to bear the business losses arisen as a result of Mudarabah financing. Whereas, in the case of Musharakah, the financing bank and the business partner bear losses in agreed proportion. Islamic banks need to ensure the prevention of losses by auditing, monitoring and evaluating the performance of the project. If the mudarib (entrepreneur) is the defaulter and not sharing profits of the project with the bank, the bank could penalize him and this amount will be used for charity purposes as per Shariah rules. Or the bank can reschedule the payment structure and can sell the assets of the project at the end of the contract time period. Also, the bank can ask for collateral and third person guarantee (Kifalah) from the entrepreneur (Iqbal and Mirakhor, 2008).

Whereas, in case of debt based financing, financing is provided on the basis of an asset. In case of Ijarah, an asset is provided on the basis of Amanah to the lessee. There is no compensation for the bank in case of destruction in the asset (in Ijarah) except in case of negligence by the lessee. On the other hand, in case of Murabahah financing, the ownership of the asset is transferred to the buyer as the terms of the contract is agreed between parties. Therefore, the loss or any destruction in the value of an asset is transferred to the buyer.

In addition, in the case of default in Ijarah and Murabahah contract, an Islamic bank can either sell the asset to recover the funds in Murabahah contract, or gives extra time to the debtor to pay back funds in case of Murabahah and Ijarah contracts. Also, an Islamic bank can insure the asset used in Ijarah and Murabahah financing with the help of Takaful.

3.8.2.5. Liquidity Agreement with Parent Company

Many of the conventional banks have opened an Islamic window instead of full-fledged Islamic banks. These Islamic windows can borrow funds from their parent company in order to mitigate regular demand of liquidity (IFSB, 2005). This structure is considered most efficient for obtaining funds, but Islamic windows are required to use these funds with caution due to the fact that the parent company is dealing with interest rate, which is forbidden in Islamic banks (Ismal, 2013, p.77).

3.8.2.6. Sale of the Short-term Financing Instruments

This technique is used to mitigate the predictable irregular demand for the liquidity. In this case, short-term liquid instruments are sold in the Islamic money market for arranging liquidity for the Islamic banks. The following instruments are used to sell within the Islamic money market (Ismal, 2013, pp.77-79);

- *Mudarabah Redeemable Certificate of Deposit*: a mutual agreement between Islamic banks with redemption facility. In this instrument, the owner of the instrument sells the Mudarabah certificate to obtain liquidity through a repurchase commitment or the issuer provides liquidity and keeps the project ongoing (Ahmed, 2001).
- *Islamic Banker's Acceptance*: a guarantee provided by bank for future payment on behalf of the Islamic bank's acceptance holder. In this instrument, Islamic bank act as an agent and charge fixed commission for the provided services from the holder (Ahmad, 2001). Also, if bank urgently requires liquidity, then the Islamic bank's acceptance can be sold in the secondary market.
- *Wakalah instrument*: In this instrument, the bank also acts as an agent (wakeel) of the investor (Muwakil) to invest money in pre-agreed assets and charges fixed fee from the investors. Furthermore, Wakalah contracts are also classified as unrestricted Wakalah in which funds are invested in a pool of assets without any restriction. This contract does not need any parties. It can easily be sold in the

money market to conventional, as well as to Islamic banks for obtaining liquidity. This instrument is re-saleable to the new holder.

- *Commodity Murabahah*: This instrument is considered as permissible by few Islamic scholars. Whereas, the others argued that this instrument is not allowed in Islamic banks (Ayub, 2007), because the commodity is sold (without obtaining its ownership by the seller) to the third party and debt obligation is left on the first party from a second party. Even so, Murabahah contract is dominant and considered as a favourite by many Islamic banks in the money market and bought and sold with ease.
- *Islamic Currency Swap Instrument*: This instrument is used to mitigate the foreign exchange rate risk in Islamic banks (Ismal, 2010a; 2013). This instrument consists of two parties to exchange an amount of principal and profit payments in one currency for the other amount of principal and profit payment within another currency over the different time periods. It is helpful in enabling an Islamic bank to obtain funding in one currency and swap it with another currency for reducing the cost.

3.8.2.7. Sale of the Long-term Financing Instruments

This method is used to mitigate predictable irregular liquidity demand (Ismal, 2013, p.79). Islamic banks invest their funds in long tenor certificates issued by a government or central bank, which are known as Islamic investment certificates. These certificates can be bought or sold in the secondary market, if the certificate-holder wants to acquire short-term liquidity. Kahf (2000) said that Islamic leasing investment fund is an example of long-term financing instruments. They are easily tradable within money market and the profit is given to the holder from the project.

Other examples of long-term financing instruments are: Sukuk bonds issued by government, and certificates issued by the central bank known as central deposits. Sukuk bonds are based on Islamic contracts, i.e. Mudarabah, Musharakah, Ijarah and Salaam contracts. Whereas, central deposits are based on equity and debt based financing

instruments and they are used as an Islamic monetary policy instrument (Al-Jarhi, 2004, cited by Ismal, 2013).

3.8.2.8. Funds Borrowing from Islamic Money Market

Ismal (2013, p.79) has described that there are some Islamic contracts which can be used to borrow funds from the local Islamic money market. For example, interbank Mudarabah agreement, this instrument allows Islamic banks to borrow funds from other banks under Mudarabah contract. Moreover, this instrument is used by Indonesian banks. Malaysian banks are also practicing the same type of instrument known as commodity Murabahah. Also, Islamic banks have an option to borrow funds from the international Islamic money market provided by the International Islamic financial market and the liquidity Management Centre (Iqbal and Mirakhor, 2007).

3.8.2.9. Unpredictable Irregular Demand for Liquidity Mitigation Techniques

Ismal (2013, pp.79-80) stated that this type of demand for liquidity can be met by the following methods by Islamic banks:

- They can borrow funds from their parent company in order to meet unpredictable irregular demand for liquidity;
- Islamic banks can issue more shares in the market or can borrow funds from the shareholders;
- They can further borrow emergency funds from the central bank of the country; and
- Borrowing from the government to meet the unpredictable demand for liquidity.

3.8.2.10. Liquidity Risk Management Process

The Bank of International Settlement has suggested the following four elements as a process for managing liquidity risk: 1) Liquidity management policies set by the board of directors, 2) the role and responsibilities of asset liability management committee, 3)

monitoring and reporting liquidity risk with the help of effective information technology, and 4) internal control system for managing liquidity.

Role of the Board of Directors in Managing Liquidity

The board of directors is responsible for formulation of liquidity policies. The BCBS (2008a) suggested three requirements for the board of directors to follow, 1) the board of directors should understand the liquidity risk profile of the bank with internal and external environment and set the liquidity tolerance level, 2) the board of directors are responsible for determining and approving liquidity risk management policies, strategies and practices, 3) they are liable to communicate and direct the senior management to manage liquidity efficiently, 4) they have to join liquidity cost and reward, risks related to internal pricing, performance measurement and approval of new products.

It is suggested that the board of directors at least should consider the following policies: policies related to objectives of managing liquidity consisting of short and long-term strategies; policies related to the roles and responsibilities of the management, who are involved in the liquidity management process, i.e. asset liability management committee and other regulatory authorities; policies specifying liquidity risk identification, reporting, monitoring and reviewing its conditions; also policies should specify the liquidity mitigation techniques and should prepare a contingency plan for controlling liquidity pressures (Greenbaum and Thakor, 1995, pp.521-559).

Role of Asset Liability Management Committee

The asset liability management committee (ALCO) is responsible for implementing liquidity management policies assigned by the board of directors. They are also responsible for the development of strategic planning and control process that affect the volume, maturity time period and liquidity position by comparing assets and liabilities of the bank. Key responsibilities of the asset liability committee include:

- They are liable to manage and monitor the day to day liquidity position of the banks by comparing assets and liabilities in term of amount and maturity dates;

- They are liable to detect differences and imbalances between assets and liabilities
- ALCO needs to maintain a fair relationship with external parties in order to manage the anticipated future liquidity pressures;
- They are responsible to ensure that appropriate strategies are there for liquidity risk mitigation.

In order to implement liquidity management policies and strategies, the asset liability management committee consults with the board of directors, risk management committee, financial risk committee and operational risk committee (Ismal, 2010b). This information system helps in monitoring, reporting and controlling the liquidity risk exposures and enables banks in determining funding requirements within and outside the bank.

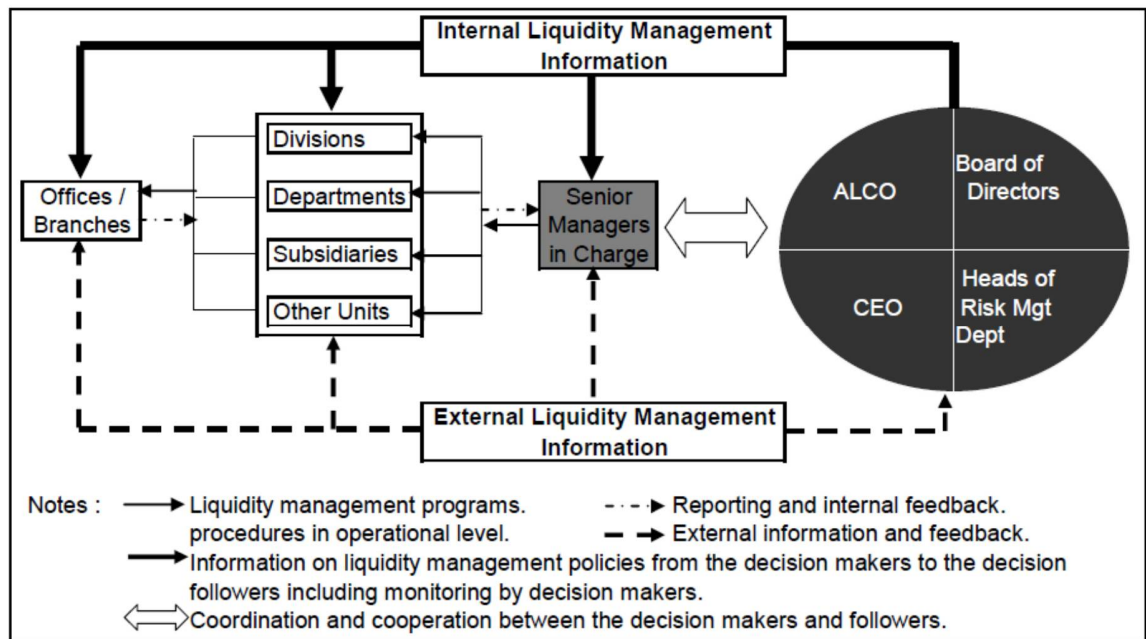
Role of Information Technology System

The effective information system is needed to support the liquidity management process within the organisation (Basel Committee on Banking Supervision, 2008b). Figure 3.4, shows the role of information system and communication between different parties in regards to the liquidity management process.

ALCO, board of directors, CEO, and head of risk management department provides the liquidity management policies and guidelines to be followed by senior management and their subordinates at the middle and lower management level. The senior management monitors their subordinates and get reports from them on implementation of liquidity management policies. Senior management further provides internal reports about liquidity risk dilemmas, and internal and external liquidity management information to the board of directors, ALCO, CEO, and the head of risk management department.

The management of the bank as per instructions given by BCBS (2008a) publishes liquidity management implementation process for the public disclosure in the annual report of the bank, which enables the market participants to make sound decisions on banks' financial position (Ismal, 2010b).

Figure 3.4: Liquidity Risk Management Process



Source: Ismal (2010b, p.51)

Internal Control System

The internal control system is a regular function for auditing the liquidity management process, evaluating the liquidity position of the bank and for proposing revisions to the board of directors related to the liquidity management process. Moreover, banks can consult liquidity management framework with the external supervisors and government level bodies for the assessment of the adequacy of the bank's position (BCBS, 2008a).

3.8.3. Operational Risk Management

The Basel Accord II requires banks to maintain capital for their operational risk exposure in addition to the credit risk. This requirement is introduced due to the following reasons: banks are facing many risks due to the probability of failure of human and computer systems; and regulators require banks to give more importance to internal control system in order to avoid losses. The Basel accord requires a minimum capital, which needs to be calculated against credit, market and operational risks. The regulatory capital based on

operational risk can be calculated with three approaches, namely; *Basic indicator approach*, *Standardized approach*, and *Advanced measurement approach* (BCBS, 2001; 2003). The practice of these approaches is based on the complexity of the bank (Abdullah et al., 2011).

The **Basic Indicator Approach** is organised so that banks can hold 12% on average, of their total regulatory capital for operational risk. This ratio is based on a widespread survey conducted on current practices by large banks worldwide (Izhar and Asutay, 2010, p.32). In this approach operational risk capital is calculated on the basis of gross income of the bank. Gross income is calculated as follows:

$$\text{Gross Income} = \text{Net Interest Income} + \text{Net Non-Interest Income} \dots\dots\dots (3.1)$$

Alpha (α) is used as an indicator for the basic indicator approach which is set at 15% as per calculation given by BCBS. This indicator (α) will generate enough amount of operational risk capital as this amount will be 12% of its regulatory capital against credit, market and operational risks. The regulatory capital for operational risk is calculated as follows:

$$\text{Operational Risk Capital based on Basic Indicator Approach} = \alpha \times \text{Gross Income} \dots\dots (3.2)$$

The problem with the basic indicator approach is that it is ‘top-down’ approach, and it does not differentiate between different business lines and areas in which operational risks occur. Moreover, the calculated regulatory capital for operational risk might decline as the bank’s income and size increases.

Sundararajan (2005) argued that the use of gross income in the basic indicator approach is misleading for Islamic banks, because the large number of transactions is based on commodities and the use of structured finance has increased the operational risk exposure for banks, which cannot be captured with the gross income. Moreover, a study found that use of the gross income as a proxy in the basic indicator approach does not reflect the actual operational risk exposures (Sundmacher, 2007).

BCBS have introduced another approach known as “**Standardized Approach**”, which is also a top-down approach, but it is different from the basic indicator approach, because it divides business activities into eight units. Each business unit indicates the volume of business within the corresponding area of the bank. This approach is related to an indicator, which is presented by gross income for that particular business unit. Gross income is used as a proxy for operational risk within each unit. The regulatory capital based on operational risk is calculated by multiplying indicator (β) with the gross income of that particular business unit and summing the results of these eight business units. The β indicates the importance of each business unit in the bank. β is set by regulatory authorities and is calculated from the average industry figures from sampled banks (Izhar and Asutay, 2010).

The regulatory capital for operational risk based on standardized approach is calculated as follows:

$$\text{Operational Risk Capital}_{\text{Specific business unit of the bank}} = \beta \times \text{Gross Income of Specified business unit of the bank} \dots\dots\dots(3.3)$$

The third approach for regulatory capital for operational risk is the “**Advanced measurement approach**”. In this approach, the bank relies on the internal data based on supervisory approval. The banks are required by supervisors to estimate its regulatory capital requirement by summing the expected and unexpected losses for each type of event. The operational risk measures must be based on internal loss data for at least three year observational time period for the calculation of regulatory capital. Internal loss data might be used directly to build the loss measure or to validate it. This data should be comprehensive with all material activities and exposures from all sub-systems and geographical areas. Then, this calculated risk measures are summed for the purpose of estimating the minimum regulatory capital requirement (Izhar and Asutay, 2010).

The results of the study conducted by Mokni et al. (2014) revealed that 47.83 % of sampled Islamic banks are using the basic indicator approach, whereas, 26.02% of sampled Islamic banks are using standardized approach and 26.02% are using advanced measurement approach for calculating capital requirements for operational risk. Furthermore, Islamic

banks are using identification methods for various risks, collecting relevant data, following standardized documentation of processes and control systems, conducting formal training programs on operational risk and developing metrics for each type of operational risk.

3.9. Risk Mitigation Techniques

Mokni et al. (2014) stated that Islamic banks are not using extensively advanced techniques for mitigating risk exposures. The most used credit risk mitigation techniques are collateral and guarantees, because these two methods are considered more Shariah compliant. Also, these are easily convertible in the form of cash, tangible goods, money, treasury bills, and stocks, which are interest-free products. Whereas, asset securitisation vehicles, on balance sheet netting, off balance sheet netting, syndication, credit derivative and credit insurance programs are used by few Islamic financial institutions.

Risk mitigation methods adopted by Islamic banks are not different than conventional banks. Risk is measured by maintaining historical data of the counterparties and also by evaluating the probability of default. However, there is a lack of formal institutions to maintain credit data in developing countries. In that case, banks use the track record of the client with the bank and tries to approach informal sources to examine the credit worthiness of the client (Iqbal and Mirakhor, 2011, p.281).

3.9.1. Loan Loss Reserves

Sufficient reserves for bad loans provide protection against losses due to credit defaults. The effectiveness of these reserves depends on the reliability of the existing systems for the calculation of expected losses. The current progress in the techniques of credit risk management of banks has permitted the traditional big banks to determine the expected losses precisely. The Islamic banks are also required to maintain mandatory loan loss reserves with subject to regulatory requirements in several countries. Though, as mentioned above the Islamic modes of financing are more diverse than an interest based system. So, Islamic financing systems require a more rigorous and credible account for the calculation of the expected losses. Moreover, for the comparison purposes among different institutions

on risks, there is also a need for identical standards for the recognition of losses in all modes of financing, financial institutions and the financial regulators. The AAOIFI Standards No. 1³⁸ has provided the basis of income and loss recognition for the Islamic modes of financing. Although, only a few financial institutions follow these standards (Hassan and Lewis, 2007, p.156).

In addition to the mandatory reserves, a few Islamic banks have developed “investment protection reserves”. For example, the Jordan Islamic Bank is a pioneer in establishing these reserves. These reserves are contributions by the investment depositors and owners of the bank. The purpose of these reserves is to provide capital protection and safety of the investment deposits from all risks of loss, including default (Hassan and Lewis, 2007, p.156).

3.9.2. Collateral

A-Rahman (2010) asserts that it is one of the most important protections against credit losses. Islamic banks demand or require collateral to protect funding, as Al-Rahn (property as collateral for a deferred debt obligation) is allowed in the Shariah law. According to the principles of Islamic finance, a debt owed by a third party, perishable goods or anything that is not covered by Islamic law is an asset, for example, interest-based financial instruments is not allowed for use as a collateral. On the other hand, cash, assets, gold, silver and other precious commodities, the shares in the equities, and other debt owed by the funding agency for the finance-user are eligible as collateral under Islamic finance (Hassan and Lewis, 2007, p.155). Whereas, Iqbal and Mirakhor (2011, p.281) provided that the collateral and pledges are the basic practice used by Islamic banks in order to mitigate their credit risk.

³⁸ AAOIFI: Accounting and Auditing Organization for Islamic Financial Institutions (1999). Statement on the Purpose and calculation of Capital Adequacy Ratio for Islamic banks, Bahrain.

3.9.3. On-Balance Sheet Netting

This method suggests the matching of mutual gross financial debts and accounting for the net positions of the mutual debts. For instance, Bank X is a debtor of £3 Million to bank Y as a result of previous transactions. Independent of this debt obligation, Bank Y owes to Bank X an amount of £3.3 Million. In a netting arrangement, the £3 million mutual debts are settled down so that another £0.3 million will be settled by bank Y as a net amount. It should be noted here that this mutual arrangement will also depend on the maturity of the two debt obligations, the currencies and financial instruments involved. However, this netting arrangement will also consider the discounts, selling and swapping of the gross debts. This on-balance sheet netting method helps to minimize the exposure of risk to the net amount between receivables and payables to the counterparty. This method is appropriate between two subsidiaries for the payments. Whereas, in the case of non-subsidiary counterparties, the receivables and payables are matched based on the currency positions in order to minimize the mutual exposures to the risks. On-balance sheet netting helps to minimize the credit risk exposures between parties with the involvement of a third party, who is acting as a clearing house between two parties (Hassan and Lewis, 2007, pp.150-151).

3.9.4. Guarantees

Guarantees supplement collateral for the improvement of credit quality. Guarantees are considered a very important tool to control the credit risk in the conventional banks. Some of the Islamic banks also accept commercial guarantees. But, according to Ahmed and Khan (2007) and A-Rahman (2010) understanding of Fiqh, a guarantee is not considered appropriate, but, if a third party provides a guarantee as a benevolent act and charges a service fee for an actual expense. Because of this lack of consensus, this tool is not effectively used in the Islamic banking sector (Hassan and Lewis, 2007, p.156).

3.9.5. Islamic Swaps

Swap is an agreement in which parties agree to exchange the set of cash flow based on the future time period (Kolb, 1997, p.613; Hassan and Lewis, 2007, p.152). The use of swaps results in the net financial gain as the cash flow becomes reliable based on asset and liability structures. One of the mostly used swaps is swapping fixed return with the variable, such as the fixed-rent and adjustable-rent Sukuk recently being introduced in the markets. Following are further types of swaps:

Debt-Asset Swap: As mentioned above, debt cannot be sold in Islamic banking, but it can be used to pay off the price of real asset purchased (Hassan and Lewis, 2007, p.152). For example, bank X is obliged to pay £2 million to bank Y, which is due after one year. In the meantime, bank Y is in need of liquidity to purchase a real asset worth of £2 million from a Supplier Z on a deferred basis for one year. In this scenario, with the acceptance by the supplier Z, the payment of instalments for bank Y for the purchase can be paid by the bank X. But, as the sale is on instalment based from Z to Y, Z will charge Murabahah profit from Y, let us suppose 10%. This Murabahah profit can be adjusted by two methods. In the first method, the supplier will supply the real assets worth £1.8 million to Y and will charge £2 million from X in one year. Whereas, in the second method, Z will receive £2 million from Bank X at present date by paying 10% profit and delivers the real asset to Y. In simple words, we can say that Y receives £1.8 million today for £2 million after one year. So, the arrangement facilitates a Fiqh compatible discount facility and this is used to mitigate liquidity risks.

Swap of Liabilities: In this instrument, the liabilities are exchanged to minimize the exposure to the foreign exchange risk (Hassan and Lewis, 2007, p.152). For example, a Chinese company wants to import cotton from Pakistan, and a Pakistani company wants to import carpets from China. These two companies can agree to purchase the commodities for each other, avoiding the currency markets. But, if the dollar amount of the two commodities is alike, this transaction will eliminate the transaction risk for both companies.

3.9.6. Options

Options are also considered as a powerful risk management tool. The Islamic Fiqh Academy considers options as an illegal form of trading. Therefore, the scope for the use of options is limited in Islamic banks.

Bai' Al-Tawrid with Khiyar Al-Shart: This is a kind of option instrument in which two parties are exposed to the price risks. The price risk incurs, if after signing the contract of a fixed price and quantity, the market price of the commodity varies. If the market price of commodity decreases, the buyer will be exposed to price risk with the continuing of the contract. Whereas, if the market prices increases, the seller will be bearing loss by continuing with the contract. Therefore, in this kind of contract with the continuous supply purchase, A Khiyar al-Shart (option of condition) for cancelling the contract will reduce the risk for both the parties. The parties involved also have an option to cancel the contract. Moreover, another way to reduce the risk of price fluctuation of the commodities is by using Salaam contracts.

3.9.7. Urban/ Arboun

This is a contract where the buyer makes a down payment as a part of sale price for the future delivery (Ariffin et al., 2009). This is a kind of option contract, which is offered in combination with the Murabahah contract. The provider (bank) buys a real asset for the client, with an agreement to sell it at a particular price on some future date (Crawford et al., 2010, p.135). Under this instrument, a deposit is paid in advance by the client to the bank for the purchase of an asset on some future date. The deposit submitted by the client is non-refundable and the investor has the option to buy the asset at a specified price at any time until the contract matures.

3.9.8. Parallel Contracts

The price risk occurs as a result of two situations, first is the increase or decrease in the market price of the commodities or the non-financial assets, whereas, the latter is the

increase or decrease in the inflation level. The inflation causes a risk to the real value of the debt, which is created as an outcome of the Murabahah transactions. Conversely, as a consequence of inflation, the prices of the commodities acquired by the bank based on salaam transactions will be increased. These opposite movements have the potential to mitigate the price risk underlying Salaam and Murabahah transactions. Even though, the permanent change in the prices of assets cannot be hedged, but the composition of receivable assets under balance sheet can be adjusted in order to minimize the adverse impact of inflation. For instance, An Islamic bank made sales amounting £1000 based on Murabahah for the period of six months, it can fully hedge the price risk by purchasing the £1000 worth of the same commodities under salaam contract. If the price of the commodity is decreased by 10% due to inflation, then the salaam based commodities will become valuable by the 10%. In addition to the salaam contract, it can be hedged by the Islamic bank by adopting an equivalent parallel salaam contract as a supplier (Hassan and Lewis, 2007, p.155).

3.9.9. Risk-Adjusted Return on Capital (RAROC)

This tool is used to provide a decision rule for the allocation of capital for the project or investment based on the risk associated with it (Thomson, 2001). This technique can also be used to allocate capital among various classes of the assets and business units by observing risk-return factors associated with these assets and business units. RAROC is used by Islamic banks to assign capital to the different modes of Islamic financing as Islamic financial instruments have various risk profiles, such as Murabahah is considered less risky mode as compared to Mudarabah and Musharakah (Hassan and Lewis, 2007, p.156).

3.9.10. Stress testing

Mokni et al. (2014) found that Islamic banks are using stress tests to report to the senior management, board of directors, to understand the risk profile, to set limits, to inquire from rating agencies and regulators, trigger further analysis and to conduct strategic planning.

3.9.11. Contractual Risk Mitigation

Hassan and Lewis (2007, p.149) asserted that some kinds of risks of Islamic banks should be mitigated by the proper documentation of the financing product. According to them, Gharar (uncertainty about the results obtained under mysterious circumstances in deferred swaps) can be mild and unavoidable; likewise, it could be excessive and cause injustice, the failure of the contract and defaults. Appropriate contractual agreements between parties can work as techniques to control risk, such as:

- If the price of the product changes after signing Salaam contract, it becomes a problem to fulfil contractual obligations. Therefore, if the price is increasing, for example, wheat is estimated significantly after the signing of the contract and if the price increases, wheat producers have an incentive to default on the contract. This type of risk can be reduced by having a clause in the contract, i.e. establishing an agreement between the two parties to agree on a certain level of price fluctuation, but beyond this point the gaining party would compensate the other party that carried out by a movement in the price. This contractual clause is known as Band Al-Ihsān (beneficence clause) and it is now a regular feature of Salaam contract.
- In Istisna', the enforceability of the contract is a particular problem in achieving qualitative standards. To address these risks of the counterparty, the scholars of Fiqh have permitted Band Al-Jaza (penalty clause). Again, funding Istisna' contract, "disbursement of funds" may be agreed upon a progressive basis of the construction. This could reduce the credit risk for the Islamic bank significantly, aligning payment with the progress of the project.
- In Murabahah, to overcome the counterparty risks arising from the nature of non-binding contract, an advance payment of substantial commissions on the commitment has become a regular feature of the contract.
- In many contracts, an incentive is given on the outstanding mark-up value for enhancing the repayment of financing.

- Due to the non-presence of a formal dispute settler among Islamic banks, dispute resolution is one of the major risk factors for the Islamic banking. To address these risks, counterparties may contractually agree to a procedure where disputes are inevitable. So, it is important that Islamic financial contracts should have a clause for settlement of dispute in case of default (Vogel and Hayes, 1998, p.51).
- It may be suggested that to avoid the default by the customer to take possession of the goods ordered (in Murabahah Contract), the contract is binding for the customer and is not binding for the banker. This proposal assumes that the bank will honour the contract and the provision of goods as agreed in the contract, even if the contract is not binding on it. An alternative could be to establish a market clearing Murabahah (CCA) to solve cases that cannot be discharged due to non-binding contract of Murabahah.
- Since the Murabahah contract is approved on condition that the bank will take possession of assets, at least theoretically, i.e. the bank holds the assets for some time. This holding period is virtually eliminated from the Islamic banks, because they ask client to join them as an agent of the bank for purchasing the asset. However, the contract is the responsibility of the bank because of the approval given by them.

All these features of contracts used to reduce the risk of default by a party. Similar features can improve the quality of credit agreements under different conditions. It is desirable to make the maximum benefit from these features while making new contracts.

3.10. Risk Governance in Islamic Banking

The new Basel accord has given importance for the need of understanding and implementing corporate governance. The Basel Committee has also recommended a governance structure with a board of directors and senior management. In addition to the discussion on risk governance in chapter 2 (Literature review: Risk Management in banks),

Islamic banks are also liable to be governed by the Shariah Supervisory Board and Shariah advisors. The risk governance in Islamic banks is discussed as here.

BNM³⁹ (2005) has issued a Shariah governance framework for Islamic banks. BNM has divided governance framework in six elements which includes: accountability; responsibility of the board; independence of the board; oversight of board; confidentiality, competency, consistency with the Shariah rules; and research function. Wan Amalina et al. (2013) revealed that Islamic banks are subject to provide an additional layer of governance presented by the Shariah Supervisory Board, which is an independent body who is assuring the compliance with Shariah rules and regulations (Grais and Pellegrin, 2006; Besar et al., 2009).

Hassan (2009) is of the view that the responsibility of the Shariah Supervisory Board is to advise the board of the bank on Shariah matters to ensure Shariah compliance of transactions, validation of documents related to product and services offered by banks, internal matters and on marketing issues. Whereas, Grais and Pellegrini (2006) suggested that the Shariah Supervisory Board is responsible for five main elements, such as they provide fatwas (certification of acceptable financial instruments according to Islamic rules and regulation), verification of transactions with fatwas that are issued, calculation of zakat, removal of non-Shariah payment, and advocating for the distribution of income and expenses among stakeholders.

3.11. Difference between Conventional and Islamic banks

Islamic and conventional banks are different in many ways. One of the major differences lies in the ideology of the two banking systems. As, Islamic banking is based on principles of Shariah law which guides Islamic banks to refrain from interest-based transactions, speculation, gambling, dealing in illegal and prohibited products like alcohol, pork, prostitution, etc. Whereas, there is no such restriction on the conventional banks. Moreover, conventional banks deal with an interest rate and this is a basic source of their income,

³⁹ Bank Negara Malaysia

while Islamic banks are working on profit and loss sharing concept. The basic aim of conventional bank is to maximize profits while Islamic banks are subject to maximizing profit within limits specified by Shariah law. Conventional banks deal in lending money at higher cost and getting it back at compound interest rates, whereas Islamic banks function as a partner in the business of the customer / lender. Conventional bank charges penalty in the case of defaulters but an Islamic bank is prohibited from charging penalties from defaulters. For lending money, conventional bank gives importance to the creditworthiness of the customer whereas Islamic bank gives importance to the feasibility of the project.

The relationship between conventional bank and its customer is of lender and borrower, whereas in the Islamic bank's relationship between customers and a bank are of partners, investor, trader, buyer and seller. Conventional banks can borrow money easily from the money market, whereas Islamic banks need to have a Shariah approved transaction. Conventional bank gives little importance to develop expertise in project appraisal and evaluation because of fixed income from advances. Whereas, Islamic banks give greater consideration to project appraisal and assessment, because of the profit and loss sharing concept (Hanif, 2011; Rahman, 2007). Hence, Islamic banks are operating on Shariah rules and law, which is specified in the Quran and Sunnah and conventional banks are following the capitalist system. Below is the Table 3.1, which presents the differential analysis based on the product mix for the Islamic and conventional banks.

Table 3.1: Differential Analysis of Product Mix between Islamic and Conventional Banks

S.no	Islamic Banks	Conventional banks
1	Each product and service offered by Islamic banks is shariah compliant and approved by the shariah board of Islamic banks.	Products and services offered by conventional banks are purely based on market competition and demand of customers. Product development is subject to approval from the bank's board of directors.
2	The aim of the product mix of Islamic bank is to create balance between profit maximization.	The aim of the product mix of conventional bank is value creation and maximization of profits.
3	Islamic banking financing is based on either equity financing with risk sharing or backed by assets.	Conventional banking financing instruments are based on interest and results in market speculation.
4	Deposit products of Islamic banks are compensated by profit and loss sharing.	Whereas, deposits of Conventional banks are compensated only on profits.
5	Defaulters are not penalised (but now in some countries penalty is charged as a punishment and directed to charity).	Defaulters are charged with cumulative interest rate and this is recognised as another source of income for conventional bank.
6	Islamic bank cannot finance non-shariah compliant activities, such as piggeries, breweries, casinos, clubs etc.	Whereas, conventional banks are not bounded by any such restriction.

Source: Adapted from Dusuki (2008) and Hussein (2010).

3.12. Summary

The purpose of this chapter was to examine and understand the Islamic banking in the context of risk and risk management. As, Islamic banking operations have unique characteristics related to risk management. This chapter explains the terminology and ideology of Islamic banking and how risk is defined and managed under Islamic banking. Also, the empirical studies conducted on risk management in Islamic banks and studies on

the comparison between Islamic and conventional banks have been discussed in this chapter. Reviewing the relevant literature about the Islamic banks and risk management has provided the theoretical background and foundation for the current research study.

The next chapter (chapter 4: Literature on Risk Disclosure) provides the insight on the importance of the risk disclosure practice in the context of financial institutions. A literature review based on empirical studies has been conducted in order to understand its significance for the current research study.

Chapter 4

Literature Review: Risk Disclosure Practices in Banks

4.0. Introduction

The purpose of this chapter is to examine the previous studies based on the risk disclosure practices in banks, in order to build the base for investigating risk disclosure practices in the current research study. As discussed in previous chapters (2 and 3), the importance of risk management for the banks in order to achieve sustained growth, banks are required to disclosed their risk management policies in their annual reports (Wong, 2012).

The literature on risk disclosure practices vary in terms of sample size and geographical context. Such as, Reynolds et al. (2008) have conducted research on the 100 top banks from various countries in order to portray the global view of the risk disclosure practices of banks. Conversely, Wood et al. (2009) have taken 25 banks as a sample size for studying risk disclosure of banks. Also, the study conducted by KPMG (2009a) has further contracted the sample size up to 16 banks working in Europe. Whereas, a study conducted by Woods and Marginson (2004) has carried out their research on 9 banks that were listed in the UK financial market.

There is a group of studies which was conducted on risk disclosure practices of conventional banks, such as Hossain (2008); Linsley et al. (2006); Harahap (2003); Frolov (2006); Kbibat et al. (2013); Linsley and Shrives (2005; 2006); and Sharma (2013). On the other hand, there are few studies that was conducted on risk disclosure practices of Islamic financial institutions, such as Darmadi (2013); Ismail et al. (2013); Ariffin et al. (2009); Sundararajan and Errico (2002), but there is no such study which has compared the disclosure practices of Islamic and conventional banks. Thus, the current research study

attempts to examine and compare risk management disclosure practices of Islamic and conventional banks operating in Pakistan from the year 2008 to 2013.

The purpose of risk disclosure in the annual reports is to enable stakeholders, users and potential investors to assess the risk and risk management of an organisation. Adamu (2013a) reported that risk disclosure practices enhance transparency, help to maintain effective risk management practices, reduces the problem of stock valuation, and it also facilitates financial analyst to make accurate earnings forecasts.

The Asian financial crisis of 1997 and global financial crisis in 2007 and 2008 had a huge impact on corporations, as many financial and non-financial institutions collapsed during that time period. It was considered that poor governance system and weak risk disclosure on transparency of risk reporting were root causes of the crisis (Ismail et al., 2013). The findings of a report (IFA⁴⁰, 2003), stated that disclosure deficiencies have played crucial role in the Asian financial crisis. The deficiencies in internal control and risk management practices are caused by lack of appropriate disclosure requirements. Rahman et al. (2013) pointed out that poor risk disclosure information is considered as a major cause of corporate collapse. Also, poor risk disclosure information restricts investors to assess accurate risk position of a company. Whereas, FSB (2011)⁴¹ stated that high quality risk disclosure practices contribute to the financial stability of the firm by providing a better understanding of risk exposures and risk management practices to the market participants and investors.

The third pillar of the Basel II framework requires the banks to promote market discipline by disclosing regulatory requirements. These requirements permit the market participants to evaluate the key information related to the regulatory capital and risk exposures in order to maintain confidence on the bank's exposure to risks and overall capital adequacy. The focus of the Pillar 3 was to disclose information based on Pillar 1, which is related to the measurement of capital requirement by using different approaches for credit, market and operational risks and their associated resulting risk weighted assets and capital

⁴⁰ International Federation of Accountants

⁴¹ Thematic review on Risk disclosure practices, March 2011

requirements. The financial crisis of 2007-2009 has exposed that the pillar 3 framework has failed to support the early identification of the risk profile and have not provided sufficient information to the market participants to assess the capital adequacy of the banks. Hence, revisions were made in the pillar 3 requirements for the banks (BCBS, 2014c).

It has been argued that corporate disclosure and risk reporting is considered vital for managing the effect of risks on future financial position of an organisation (Dobler, 2008). Moreover, poor governance and lack of transparency in risk management disclosure practices among major multinational companies were the causes of U.S. subprime mortgage crisis (Foong, 2009). Also, pillar 3 of Basel II requires disclosure on following, such as risk profiling, capital adequacy, risk measurement and management, capital transparency, scope of application, and risk assessment process⁴² in an effort to ensure that stakeholders, potential investors, customers, rating agencies can evaluate risk and reward of banks (Baumann and Nier, 2004). Hence, it is important for financial institutions to pay special attention to risk disclosure.

4.1. Risk Disclosure

There are different means by which corporations can disclose their information, such as annual reports, interim reports, websites, prospects, press releases, etc. The increasing demands of stakeholder on timely and speedy information on corporate disclosure have craved a role of internet as a speedy mean of disclosure (Aly et al., 2010). Now, it is easy for stakeholders to get disclosure information from the websites of the corporations through internet.

⁴² http://en.wikipedia.org/wiki/Basel_II ;
http://www.princeton.edu/~markus/teaching/Eco467/10Lecture/Basel2_last.pdf and;
<https://www.bis.org/bcbs/cp3part4.pdf>

The annual reports of the organisations are considered a vital source of information for various stakeholders as well as for prospective investors in making investment decisions (Botosan, 1997). Their decision is based on expected return and risk considerations (Cabedo and Tirado, 2004).

Organisations try to satisfy their users by disclosing more information on risk faced by them and sustainability of their operations. This type of information is considered helpful for users in assessing current and potential risks, which are critical to improve their revenues from diversified portfolios (Abraham and Cox, 2007). Lajili and Zeghal (2005) stated that risk disclosure information is helpful for users in identifying managerial problems, opportunities and in assessing effectiveness of management in dealing with these issues. Risk disclosure information also supports corporations by reducing the possibility of financial failure (Beretta and Bozzolan, 2004).

Aly et al. (2010) stated about signaling theory, which suggests that companies within the same industry are likely to release the same level of disclosure information. If any company fails to follow the disclosure practices adopted by other companies in corresponding industry than it might be considered as a signal of bad news (Craven and Marston, 1999). Whereas, agency theory suggests that large companies are required to disclose more information to their users (Inchausti, 1997). Previous researchers (Beretta and Bozzolan, 2004; Elshandidy et al., 2011; and Vandemele et al., 2009) highlighted that the company size and level of risk disclosure information are positively related to each other. In addition, Elzahar and Hussainey (2012) showed that large firms are likely to disclose more risk related information.

Firms having a high level of risk might be disclosing more risk information, because it is highly required and it is management's responsibility to explain the risk drivers (Linsley and Shrives, 2006). Management might disclose more about how they assess and manage risks.

It is argued that highly liquid companies provide more risk disclosure which is a positive signal to stakeholders and potential investors (Marshall and Weetman, 2007; Elshandidy et

al., 2011). Taylor et al. (2010) suggested that companies who have strong corporate governance are more efficient in financial risk management, which is shown by improved risk management disclosure practices.

Literature shows that there exists a significant association between the size of the bank and level of disclosure (Kahl and Belkaoui, 1981). Hossain (2001) highlighted that size and profitability of the banks are major determining factors in their disclosure levels. Chipalkatti (2002) indicated that more transparency is disclosed in the annual reports of larger banks. Also, Linsley et al. (2006) have studied risk disclosure practices from the annual reports of UK and Canadian banks. They have used content analysis technique to measure the volume on disclosure of risk and risk management information. Their results highlighted that there is a positive association between risk level disclosure with bank size and number of risk definitions; and there exists no difference between risk disclosure practices of UK and Canadian banks.

Zadeh and Eskandari (2012) have conducted a research on financial risk disclosure information in Malaysian firms. The purpose of their study was to focus on following risks, such as: foreign exchange risk, interest rate risk, credit risk, liquidity risk and commodity risk. The content analysis technique was used to score 100 items. Their results revealed that financial risk disclosure is very low with a score of 38 out of 100 items in the Malaysian context.

Financial disclosure is related to providing information quantitatively in the financial statements of the organisation, also providing financial information based on business segment; financial review; foreign currency; and stock prices. Non-financial information is also provided in regards to directors, employees, and tangible assets (Williams, 2008). A group of research studies suggested that banks with more assets, disclose more risk exposures information (Beretta and Bozzolan, 2004; Linsey et al., 2006; and Lopes and Rodrigues, 2007).

Basel Committee on Banking Supervision (2014) has provided guiding principles on the pillar 3 risk disclosure practices for the banks. The first principle states that the disclosure

should be clear and presented in an understandable form, which have some meaning for the stakeholders. It should be communicated through an accessible source and important information should be highlighted. Also, the risk related information should be composed together. The second principle provides that the disclosure should be comprehensive, which should describe the main activities of the bank with all significant risks and related data. Disclosure should present information in quantitative and qualitative form on the risk management processes and procedures for identifying, measuring and managing risk profile. Also, the risk disclosure approach should be flexible to present how senior management and board of directors are assessing and managing risk and strategy. It enables stakeholders to understand risk tolerance limit and risk appetite. The third disclosure principle reveals that it should be meaningful to users and provides all information related to the emerging risks and how these risks are managed by the bank. The fourth principle reveals that disclosure should be consistent over time which provides trends of risk profile across all business areas of the bank to the stakeholders. The last principle includes that the disclosure should be presented in some specific format so that it can be compared across banks.

4.2. Risk Profile and Risk Management Disclosure Practices in Banks

Asongu (2013) has investigated the liquidity risk management disclosure after crisis in top 20 world banks. He has applied content analysis technique to investigate if banks are using Basel II pillar 3 based risk disclosure of liquidity risk management. Content information is sourced from World Wide Web service which is considered as a source of information on financial statements and annual reports of banks. His findings illustrated that 25% of the sampled banks provides information on liquidity risk management to the stakeholders of banks. Whereas, still there are many banks which are not taking Basel II disclosure requirements seriously.

Savvides and Savvidou (2012) have studied market risk disclosure of banks in ten different countries. They have performed content analysis to produce qualitative and quantitative

data across countries to examine if there exists a difference between banks and countries. Their results illustrated that there is no harmonization across countries in disclosure of risk management practices, especially in case of market risk disclosure, which means there is significant difference across countries. Moreover, only a few banks provided detail on risk management methods and rather more banks present their risk position on interest rate risk, foreign exchange risk, and equity risk. In addition, VaR method and its numerical values are reported by most of the sampled banks.

It is required by Basel II in pillar 3 (BCBS, 2005)⁴³ that banks disclose information on risk exposures on credit risk, market risk, operational risk and interest rate risk; their measurement system; and internal and external factors that are affecting measurement system of risks. Pillar 3 provides suggestions for disclosure with respect to nature, frequency, materiality, and means of disclosure. It also outlines disclosure on capital requirement by financial institutions (Savvides and Savvidou, 2012).

Oliveira et al. (2011) studied voluntary risk reporting practices in Portuguese banks. For that purpose, they have conducted content analysis of annual reports of 111 sampled banks. They have examined Basel II requirements in term of operational risk, capital adequacy and capital structure in terms of voluntary disclosure practices. The results concluded that monitoring by stakeholder and company reputation are important factors in explaining risk reporting practices. Furthermore, risk related disclosure has a positive relationship with the following: company age, size, company listing status, depositors' confidence in company, and risk management ability. Whereas, there is no relationship between risk related disclosure and ownership structure of Portuguese banks.

Baumann and Nier (2003) conducted a study based on Basel II, pillar 3. The purpose of the study was to examine disclosure requirements that improve the ability of market participants to assess bank's value. They have taken data for 8 years from 1993 to 2000 across 31 countries from 729 banks. Their results reveal that increased disclosure practice

⁴³ International Convergence of Capital Measurement and Capital Standards – A Revised Framework, November 2005

results in increasing market value and usefulness of corporation accounts in predicting valuations and decreasing stock volatility.

4.3. Mandatory and Voluntary Risk Disclosure

Jain and Nangia (2014) have studied corporate governance disclosure practices in Indian Banks for a 7 year time period from 2006 to 2012. They have performed a content analysis on 57 mandatory parameters and index of 80 additional voluntary parameters. The purpose of study was to investigate the differences in corporate disclosure practices among public sector banks, new private banks and old private banks. Their results revealed that new private banks are more efficient in providing disclosure on 57 and 80 mandatory and voluntary items as compared to public banks and old private banks.

Kribat and Crawford (2013) have conducted research disclosure practices on annual reports of Libyan banks. The annual reports have been taken for 7 years from 2000 to 2006 year. Their results revealed that Libyan banks have failed to comply with mandatory disclosure requirements. Also, on average, the overall disclosure level is scored 54.5% out of 126 disclosure items in a sampled bank. They also highlighted that this score is relatively higher than previous studies conducted in developing countries such as Abdulkarim (2005).

Wong (2012) pointed out that information on following aspects such as; risk management structure; risk assessment and management by the board and senior management; risk objectives and policies; risk exposures, measurement, mitigation and control are supposed to be disclosed in the annual reports of banks.

It is suggested by a research study that more risk disclosure is related to efficient risk taking in the organisation (Hirtle, 2007). Homolle (2009) pointed out that more risk disclosure helps stakeholders to assess objectives of a business before investment; moreover, it helps to restrict more risk taking.

Adamu (2013b) said that annual reports are considered as major sources of disclosure of corporate information to a large extend of community. Moreover, inclusion of corporate risk disclosure is demanded by active users of the annual report because of the occurrence

of business failure, and investment risk. Also, Htay et al. (2011) asserted that disclosure in annual reports of the corporations is considered as an important aspect of good corporate governance.

4.4. Risk Disclosure Practices in Islamic Banking

Darmadi (2013) has examined the corporate governance disclosure practices of Islamic banks operating in Indonesia. His results of content analysis highlighted that board of commissioners and board of directors is most frequently disclosed dimensions in sample Islamic banks, which shows their attention to disclose more information on profile of board members. Whereas, Indonesian Islamic banks disclosed lowest information on internal control and external audit, which shows lack of awareness among bank managers for disclosing such important issues in their annual reports.

Chapra and Ahmed (2002) have suggested tools that are required to maintain the confidence of depositors in Islamic banks, such as sufficient regulation, proper supervision, sound risk management and efficient corporate governance. When Islamic banks' management failed to protect the funds of depositors and investors, they will protect their rights by withdrawing funds themselves from the banks.

Nienhaus (2007) stated that the Shariah Supervisory Board is an independent authority in Islamic banks and it is free from influence of management of banks, the board of directors and shareholders of the bank.

It is the responsibility of the Shariah Supervisory Board to ensure that activities of Islamic banks are consistent with Shariah rules and regulations (Safieddine, 2009). Haniffa and Hudaib (2007) stated that the Shariah supervisory board in Islamic banks acts as an internal control mechanism.

As stated by Chapra and Ahmed (2002), it is highly important for Islamic financial institutions to have an effective internal control system to ensure oversight of management and for the development of efficient control culture within the organisation. Internal audit is considered an important part of internal control system. Internal audit should act as an

independent and strong body, who can directly report to the board and senior management of the organisation. Few studies (Jensen and Meckling, 1976; Imhoff, 2003) argued that the audit function helps in keeping an independent check on the information provided by the managers of an organisation and plays an important role in establishing confidence in financial reporting and reducing agency cost.

Darmadi (2013) suggested that the board of directors should establish an independent risk management unit. And Islamic banks, who are having complex business, should manage legal risk, compliance risk, strategic risk and reputation risk in line with main risks faced by banks, i.e. credit risk, liquidity risk, operational risk and market risk. Banks failure to manage such risks will result in shaking the confidence of depositors as well as systematic impact on the economy. It is the responsibility of the board and senior management to know the inherent risk in banking business and develop sound risk management practices within the bank (Chapra and Ahmed, 2002). Disclosures on sound risk management practices will ensure depositors and investors that the bank is prepared for uncertainties in the future and have adequate capital to mitigate risks inherent in banking business. It is highly important to disclose timely information on risks faced by banks in their annual report (Amran et al., 2009).

Haniffa and Hudaib (2004) indicated that disclosure of Shariah supervisory board in Islamic banks provides assurance that banking business is conducted in accordance with Shariah principles. Darmadi (2013) argued that it is important to disclose information on the board committee member who has relevant expertise and experience to support the effectiveness of that committee.

Moreover, Information disclosure on top management is considered important, because stakeholders may need to evaluate the profile of those who are managing their funds and banking business (Haniffa and Hudaib, 2004). Darmadi (2013) affirm that disclosure of internal control system is important as it will enable stakeholders to assess that management is effectively supervised and funds of the shareholders, depositors and creditors are secure with the bank.

Table 4.1: Summary of Previous Studies on Risk Disclosure Practices of Banks

Citation	Country & Institution	Sample & Methodology	Findings
Darmadi (2013)	- Indonesia - Islamic banks	- 7 banks were selected as a sample. - Annual reports for the year 2010. - The content analysis technique was used for data collection and analysis. - Scoring index was used based on Dichotomous approach.	- Disclosure on board member and risk management is strong. - Disclosure on internal control, external Audit and board committees is weak.
Asongu (2013)	- Countries who are member of the Basel Committee - Banks	- 20 banks were selected out of 33 top banks of the world as a sample. - The World Wide Web is used to search contents based on Basel II pillar 3 disclosures on liquidity risk. - The qualitative Content analysis technique is used to draw inferences.	- Only 25% of the sampled banks provide disclosure on liquidity risk management and remaining banks are not taking disclosure requirement seriously even after the post era of crisis.
Ismail, Rahman and Ahmad (2013)	- Malaysia - Islamic banks	- 17 Islamic banks were chosen as sample and 4 years annual reports from year 2006 to 2009 were used. - Content analysis was performed for collecting and analyzing data on risk disclosure	- Credit risk was scored highest as most disclosed risk; followed by market risk, interest rate risk and liquidity risk. - Control activities are ranked highest involuntary risk disclosure; followed by information and

		practices of banks. - Scored checklist was developed to rate the disclosure practices based on percentages.	communication, risk framework and control environment.
Hassan & Harahap (2010)	- Research is carried out in 7 countries, i.e. Bahrain, Bangladesh, Indonesia, Malaysia, Saudi Arabia, Kuwait, and UAE. - Islamic Banks	- 7 banks were considered as sample and annual reports of banks for the year 2006 was used as sample for data collection. - Content analysis was performed to measure the CSR (Corporate social responsibility disclosure of banks.	- The results highlighted that there is lack of adoption on corporate social responsibilities of Islamic banks. - Sampled banks do not disclose information on the board of directors and top management. - Out of seven, five Islamic banks have disclosed risk management practice and there is a lack of governance structures in sampled banks.
Hossain (2008)	Indian Banks	- 38 banks were taken as sample and annual reports were selected for a year 2002-2003. - Un-weighted disclosure index was used to code mandatory and voluntary disclosure practices of banks.	- His findings illustrated that size, profitability, composition of the board and market discipline have a significant relationship with level of disclosures; whereas, age, assets and complexity of business have an insignificant relationship with the level of disclosure.
Lipunga	Malawi	- 7 banks were	- Results revealed that

(2014)	commercial banks	considered as sample for the study. - Content analysis was performed on annual reports for the year 2012. - Checklist of 34 disclosure items was prepared in accordance with Basel II, IFRS and regulations by Reserve bank of Malawi. - Un-weighted index method was used for scoring checklist items.	there is a high level of risk disclosure in sampled Malawian banks. However, there is still need to improve disclosure on the board of directors, management structure related to risk management categories. - Results of regression analysis showed that profitability has an insignificant determinant of the level of risk disclosure.
Savvides & Savvidou (2012)	- Ten countries including USA, Canada, UK, Germany, Japan, Italy, Netherlands, France, Greece and Cyprus - Banks	- Content analysis was performed on annual reports for a year 2008 from 30 banks. - Checklist of 28 market risk disclosure items was constructed. - The dichotomous scoring system was used to code the data. - Regression and correlation matrix was applied to draw a conclusion.	- Results highlighted that there is a difference in disclosure practices among different countries - UK and USA banks are good in risk reporting. - Banks that are good at disclosing quantitative risk information are also good at disclosing qualitative risk information.

Linsley, Shrives and Crumpton (2006)	- Canada and UK Banks	- Content analysis was performed on 18 banks; - annual report for the year 2001 was used; - Word count was used for data analysis.	- Results revealed that there were no relationship between risk disclosure and profitability; and the level of risk within the bank. - There exists a positive relationship between risk disclosure and bank size; and number of risk definitions. And there was no significant difference found on the risk disclosure level between Canadian and UK banks.
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4.5. Risk Control Activities

Risk control activities comprised of policies and procedure to assure that risk activities are carried out effectively and efficiently within the prescribed regulations (Ismail et al., 2013). On the other hand, it was reported by previous research studies (Ismail and Rahman, 2011; Othman and Ameer, 2009) that control activities were ranked least in disclosure among companies due to absence of policies and procedure. These results are inconsistent with study of Ismail et al. (2013), who found that control activities are ranked highest among other disclosure attributes of Malaysian Islamic financial institutions. Lajili (2009) said that disclosure on risk profile, risk appetite and risk management are key elements in making sound investment decisions from the stakeholder's point of view.

Saha and Arifuzzaman (2011) have studied disclosure practices based on internal control system of banks in Bangladesh. 7 banks have been taken as sample and annual report for the year 2009 have been analysed to examine disclosure on internal control of banks. Their results highlighted that disclosure on internal control is considered voluntary initiative in

the management report of banks. Also, there is no consistency in disclosure level, method and presentation between companies. Furthermore, 71% of the sampled bank revealed that nature, purpose and component of internal control are included in director's reports, 57% highlighted the role of internal audit, and 71% presented loyalty with policies and procedures.

The IFRS (International Financial Reporting Standards) requires qualitative and quantitative disclosure information about risk exposures on credit, liquidity and market risks. Qualitative disclosure provides information on objectives, policies, procedures and processes to manage risks prescribed by management of the organisation. Where, quantitative disclosure provides information on the extent of risk exposure of the company. This disclosure information is useful to examine financial instruments and risk exposure possessed by entities (Pucci and Tutino, 2013).

Basel Committee on Banking Supervision (2008a) illustrated in its principle 13 that banks are required to publicly disclose information on its liquidity risk management framework and liquidity position that will enable market participants to make informed decisions about the soundness of the bank. A bank should disclose information based on the organisational structure and framework for the liquidity risk management. Specifically the roles and responsibilities of the relevant committees needed to be disclosed, as well as the role of the functional and business units. Furthermore, principle 10 provides that a bank should conduct stress test based on short-term, long-term, and market wise stress scenarios to identify the causes of potential liquidity risk and to ensure that current liquidity position is in line with the liquidity risk tolerance level. The results of stress test should be used to adjust liquidity risk management strategies, policies and positions and to establish contingency plans by the bank.

According to the Basel Committee on Banking Supervision, the purpose of the Basel II, pillar 3 (market discipline) is to complement the pillar 1 (the minimum capital adequacy requirement) and pillar 2 (supervisory review process).

The pillar three of Basel II accord imposes the disclosure requirement for the market discipline for the objective and policies related to risk management of credit, market, operational, interest rate risk in the banking book, disclosure on equities, strategies and processes, structure and organisation of the relevant risk management functions, the content of risk reporting and measurement system including its extent, risk management and mitigations strategies, and risk monitoring process based on the risk mitigation strategies. These disclosure requirements encourage market participants to evaluate and assess the scope of application of capital adequacy requirements, risk exposures, risk assessment processes of the financial institution (KPMG, 2010).

Risk disclosure information assists the board of director of financial companies to achieve their responsibilities of over sighting the material risks and by providing timely information to the users of annual reports (Caldwell, 2012).

Lipunga (2014) has examined the risk disclosure level of commercial banks operating in Malawi. The content analysis technique was used to score checklist consist of 34 items divided into the following categories, i.e. board and management structure related to risk management, market risk, credit risk, liquidity risk, operational and other risks, and capital management. Results revealed that 82% of risk disclosure information is disclosed in annual reports of sampled banks. Board and management structure related to risk management is scored lowest, followed by operational risk and other risks. Moreover, credit, liquidity and market risk are scored highest (1.00).

4.6. Risk Disclosure Analysis

The table 4.2 below presents the themes and sub-themes taken out from the previous research studies. These themes and sub-themes are vital part of the risk management practices of the banks. The diagram based on the risk disclosure practices is presented in Chapter 6 (Research Design and Methodology), in connection with the themes and sub-themes discussed in this chapter. There are five major themes for the current research study, i.e. risk profile, risk management profile, risk control activities, risk control environment

and risk management process. These five themes are evaluated in order to assess the risk management practices of the banks.

Table 4.2: Themes and sub-themes taken from literature

S.No	Research Studies	Themes/ sub-themes
1	Darmadi (2013) Chapra and Ahmed (2002) Safieddine (2009) Haniffa and Hudaib (2007)	- Shariah Supervisory Board - Board of directors - Internal control - Risk management - Board committees
2	Asongu (2013)	- Role of directors - Stress testing - Internal Control - Assets Liability Committee
3	Savvides and Savvidou (2012)	- Stress testing - Market risk - Foreign exchange risk - Interest rate risk - Risk control
4	Hassan and Harahap (2010)	- Audit committee - Board of director - Governance structure including committees under highest governance body responsible for setting strategy or organisational oversight - Risk management practices - Shariah Supervisory Board
5	Arif and Tuhin (2013)	- Risk Management
6	Wood et al. (2009)	- Stress testing - Market risk - Risk Control
7	Aebi et al. (2012)	- Chief Risk Officer - Risk Committee - Board of directors - Chief Executive officer
8	Lajili (2009)	- Risk profile - Risk appetite - Risk management

9	Lipunga (2014)	- Market risk - Credit risk - Liquidity risk - Operational and other risks - Board and management structure
10	Beretta and Bozzolan (2004) Linsley and Shrives (2006)	- Risk assessment - Control environment - Monitoring - Operational Risk

4.7. Summary

Risk disclosure practices are expected to engage in the effectiveness of risk management and control system to increase the shareholder's value. The discussion on the importance of quality disclosure practices is a significant topic in banking supervision. As, disclosure deficiencies had played crucial role during Asian financial crisis. These deficiencies include inappropriate disclosure in internal control and risk management practices due to lack of appropriate disclosure requirements. Risk disclosure practices enhance transparency, aid to maintain effective risk management practices, mitigate the problem of stock valuation and facilitates financial analyst to make accurate earning forecasts.

In this chapter, the development of risk disclosures has been provided to determine the nature and extent of risk disclosure in the various corporate reports in different countries. These empirical studies have shown that there is not a single research study which has been conducted on risk disclosure practices in the context of banking sector of Pakistan. Hence, this chapter has helped us to build up a framework that will enable us to capture the quality and characteristics of risk disclosure in order to estimate risk and risk management practice in banks operating in Pakistan. This part will also support in order to understand the bigger picture of risk management practices implemented by banks operating in Pakistan.

Chapter 5

Economy and Banking Industry of Pakistan

5.0. Introduction

This chapter aims to introduce and examine the economy and the financial sector, or more specifically, the banking sector, of Pakistan. As, this study is based on Pakistan, it is important to develop understanding about facts and figures of banking industry before conducting data analysis.

This chapter presents the overview of economy and banking industry of Pakistan. It illustrates the financial statistics of overall banking sector and Islamic banking industry; it also discloses the non-performing loan ratio and gives detail of the financial statistics of the selected banks for the purpose of data collection.

5.1. The Economy of Pakistan

Pakistan is a developing country with low income in the South Asian region. It has been suffering from the internal political issues, lack of foreign direct investment, worsening energy crisis, decline in the exports of industry products, and national security issues in last ten years. Pakistan is an agriculture-based country, employing more than the half of country's labour force. The manufacturing industrial area is developing with time.

The year 2013 was a tough year for the Pakistan's economy because of the slow GDP growth rate of 3.6% for the fiscal year 2013 due to several factors like economic problems, social and political instability and one of the biggest challenges of energy crisis. These challenges include the shortage of electricity and gas supply (energy crisis), weak national

security situation, the loss-bearing public sector companies, worst business climate, inflationary pressures and problematic election time period which have contributed in slow growth of GDP. The foreign reserves held by State bank of Pakistan have declined with a decrease in the value of Pakistani currency against US Dollar⁴⁴. The year 2013 was considered challenging for the economy as a whole, and also effected the growth and profitability of the banking sector. The discount rate policy for the banks was changed with the 250 basis point (bps), i.e. 2.5% decline by the State bank of Pakistan in year 2012. This decline has had a negative impact on the businesses resulting in deterioration of industry financing portfolio (Burj bank, 2013).

5.2. The Impact of Financial Crisis on Pakistani Economy

5.2.1. Before the Financial Crisis

The economy of Pakistan was performing well in the year 2000⁴⁵. The gross domestic product growth rate reached to 9%. This growth was mainly due to the contribution and performance of manufacturing and service industry. The manufacturing industry was growing with 9.5% annual rate, whereas the service industry was growing by 8.2% in year 2008⁴⁶. The financial sector was the key contributor in the growth of the service industry. The financial sector was flourishing with an average growth rate of 15% due to the introduction of new reforms for the sector such as the requirement of minimum paid up capital for the banks (Khawaja et al., 2013).

There was a steep change in the commodity prices all over the world during the global recession time period. Pakistan is the importer of fuel oil which causes inflation, as the

⁴⁴ The Pakistani Rupee against US dollar (PKR USD) as on 31 December 2013 was 1 PKR= 0.0095 USD

⁴⁵ The foreign exchange rate of Pakistan Rupee (PKR) against US dollar (USD) as on 31 May 2000, was 1 USD= 51.9 PKR

⁴⁶ The foreign exchange rate of Pakistan Rupee (PKR) against US dollar (USD) as on 30 May 2008, was 1 USD= 67 PKR

relationship between inflation and oil prices is that of cause and effect and both variable move in the same direction.

In the year 2007, the commodity prices and the oil prices increased intensely. As 2007 was the election year in Pakistan so it was decided by the government that the increase in prices will not pass to the consumers. The major part of the electricity is produced with the furnace oil in Pakistan and with the increase in the prices of oil the cost of the produced electricity also increased but the government decided not to pass this increase in the price to ultimate consumer due to the elections which have deteriorated the fiscal deficit of the country. This sharp increase in the fiscal deficit have caused sharp decline in the capital account of the country. This deficit had become quite large even before the start of the financial crisis. The shortage of current account was handled by taking foreign grants, sovereign debt issues in the international financial market and earnings from the privatization of public sector companies.

5.2.2. During the Financial Crisis

The financial crisis has its impact on the developed and underdeveloped countries through the following ways: import and export of the goods, capital flow, remittances and equity values. Pakistan is a major exporter of the textiles to the USA and European countries. Due to the crisis and its impact on Europe and United States, the demand of the products declined which have result a decrease in the exports of Pakistan by 6.4% in year 2009. Also, the imports of Pakistan declined by 10.3% due to slow economic growth. So, the net effect through the imports and exports has not largely affected the country. A research study conducted on the textile industry data in Pakistan, illustrated that the financial crisis directed a decline in the exports of textile products by approximately 20% (Shaikh et al., 2011).

The foreign direct investment was \$ 5078 million in year 2008 with an increase from \$5026 million in the year 2007⁴⁷. However, this increase declined sharply in year 2009 to \$3209 million. This decline has caused a major decline in the stock market of Pakistan with 60% from a market capitalization of Rs. 4.57 trillion to Rs. 1.85 trillion in January 2009. Yet, the outflow of the Pakistan investment portfolio was amounting \$510 million which is a sign of non-integration of domestic and international market. However, there was a fear that the labour importing countries will sack the foreign workers during the recession time because they were more concerned for their citizens. This dismissal of labour will cause the decrease in the remittances of the home country and will increase the unemployment rate in the country. The remittances are considered a vital source of foreign exchange for a country and any decline in remittances will affect the foreign exchange reserves and also have an impact on the value of the currency of a country. Then, this entire situation will have an impact on the macroeconomic factors such as inflation and fiscal deficit (Khawaja et al., 2013).

The remittances received from overseas Pakistanis amounted to US\$ 7.8 billion during the fiscal year 2009⁴⁸. These remittances consist of the 70% of the remittance received from United States, United Kingdom, United Arab Emirates, and Saudi Arabia. The inflow of remittance from overseas Pakistanis working in these countries has not shown decline except from the United States.

The economy of Pakistan was affected by the global financial crises in two ways: Firstly, the export balance declined as Pakistan is the major export of textile to USA and Europe during the crisis and secondly, due to increase in the commodity and fuel oil prices it was difficult to manage macroeconomic factors like inflation and fiscal deficits during the crisis.

⁴⁷ The foreign exchange rate of Pakistan Rupee (PKR) against US dollar (USD) as on 31 May 2007, was 1 USD= 60.83 PKR

⁴⁸ The foreign exchange rate of Pakistan Rupee (PKR) against US dollar (USD) as on 31 May 2009, was 1 USD= 80.45 PKR

5.3. Banking Industry in Pakistan

The banking sector of Pakistan showed a strong and resilient growth between 2002 to 2007 with the total assets above \$60 billion with high profitability and low non-performing loans. The major portion (81%) of the banking sector was held by the private banks; whereas, the profitability of the banking sector declined due to macroeconomic conditions of the country (discussed above under economy of Pakistan heading) in the year 2008. The profits of the 22 banks declined to Rs. 50 billion from Rs. 64 billion in year 2008. These 22 banks are major contributors in the banking industry with market capitalization of 96% and total assets of 82% of the overall banking industry.⁴⁹

The banking sector of Pakistan is contributing positively to the growth of the economy. The central bank i.e. State Bank of Pakistan is playing an important role in the growth and development of the banking sector by vigilant supervision. The top five banks (Allied Bank Limited, Habib Bank Limited, Muslim Commercial Bank Limited, National Bank of Pakistan, and United Bank Limited) hold half of the banking sector's total assets. The capital adequacy requirement for the banks has tightened up with 10% of risk-weighted assets during the year 2013 with paid-up capital of Rs. 10 billion by the State Bank of Pakistan. As the government of Pakistan is running with a huge amount of fiscal deficit which needs to be financed from the banks, the banks are capable of offering credit to the government for 10 to 12% interest rate depending on the time period. Mostly, The National bank of Pakistan lent money to the government which reached to 52% of the loan to assets ratio, whereas United Bank Limited reached a loan to asset ratio of 47%. While the MCB, Allied Bank and Habib Bank Limited remain below 40% in term of loan to asset ratio. The State Bank of Pakistan has revealed that the National Bank of Pakistan's financial condition is weak during year 2013 due to flaws in the controls and corporate governance. Muslim Commercial Bank is having the highest return on assets as compared to other to banks, whereas the National Bank of Pakistan is having the lowest return on assets among others (Russell-Walling, 2014). There are 38 listed banks licensed with the State Bank of Pakistan,

⁴⁹ <http://economicpakistan.wordpress.com/2008/01/17/financial-services-sector/>

in Pakistan including 7 foreign banks, 9 public sector and 22 domestic private banks with the branch network of 10295 (State Bank of Pakistan, 2013c).

Table 5.1 indicates the financial position of overall banking sector of Pakistan. The total assets of the banking industry are increasing positively with growth rate of 8% from year 2012 to 2013. The net investment, net advances, deposits and equity is also increasing over time and showing a positive growth rate of 7.4%, 7.6%, 13.9%, and 6.4% for the year 2013. Whereas, the profit before and after tax is showing positive trend from the year 2008 to 2012. While, the profits decreased for the year 2013 from 179 billion rupees in 2012 to 165 billion rupees and 178 billion rupees in 2012 to 111 billion rupees. Moreover, the NPL is also showing decreasing trend in the year 2013 by 30 billion rupees and 50 billion rupees on net non-performing loan (NPL).

Table 5.1: Banking facts and figures, 2008 - 2013

	Pak Rupees in Billion					
	2008	2009	2010	2011	2012	2013
Total Assets	5628	6516	7117	8171	9711	10537
Net Investments	1087	1737	2157	3055	4013	4305
Net Advances	3173	3240	3358	3349	3804	4047
Deposits	4218	4786	5451	6244	7294	8318
Equity	563	660	695	784	882	939
Profit Before Tax	63	81	105	170	179	165
Profit After Tax	43	54	65	112	178	111
NPL	359	446	556	592	615	585
Net NPL	109	134	185	182	176	126

Source: State Bank of Pakistan 2013

5.3.1. Non-Performing Loans in Pakistani Banks

The non-performing loan percentage shows the health of the banking sector of a country. The higher percentage of non-performing loan indicates the difficulty for banks in

collecting interest and principal amounts on loan that cause less profits for the banks and alternatively liquidity crisis for the bank.

NPL are increasing in the Pakistani banking sector. According to the World Bank data, Pakistan stood in the top 15 on the basis of NPL ratio for the year 2013 among 98 countries worldwide⁵⁰. The increasing non-performing loan can be incurable for the banking industry, as well as for the economy of Pakistan. This rising trend is hampering the profitability of the banking industry and also indicating the weakness in the financial conditions of the economy.

Table 5.2: Non-Performing Loans in Banks of Pakistan

Years	NPL as Percentage of all bank loans	Years	NPL as Percentage of all bank loans
2000	19.5	2007	7.4
2001	23.4	2008	9.1
2002	21.8	2009	12.2
2003	17	2010	14.7
2004	11.6	2011	16.2
2005	9	2012	14.5
2006	7.3	2013	14.3

*Source: The World Bank data (2000-2013)*⁵¹

Table 5.2 indicates the non-performing loan as a percentage of total loans for the years 2000 to 2013. The NPL was 19.5% and 23.4% for the year 2000 and 2001. Whereas, NPL shows a decreasing trend from the year 2003 which is 17% until the year 2006 with NPL of 7.3%. The NPL started increasing from the year 2007 with 7.4% until the year 2012 with 14.5%. The rising non-performing loans (NPL) continue to threaten the capital base of the banking system; whereas, the NPL decreases by 0.2% and reached to 14.3% in the year 2013. The factors that are positively contributing in the NPL include the interest rate,

⁵⁰ http://www.theglobaleconomy.com/rankings/Nonperforming_loans/ [Accessed 6 January 2015]

⁵¹ http://www.theglobaleconomy.com/Pakistan/Nonperforming_loans/ [Accessed 6 January 2015]

energy crisis, unemployment rate, inflation and exchange rate. Moreover, bad performance of the energy sector of Pakistan and poor economic growth are the most contributing factors in non-performing loans in Pakistani banking industry (Farhan et al., 2012). Also, a study conducted by Haneef et al. (2012) stated that one of the reasons of increasing non-performing loan is the lack of the risk management practices, which is a threat to the profitability of the banks.

Table 5.3 below presents the financial soundness indicators of the overall banking sector of Pakistan from the year 2008 to 2013. The capital adequacy ratio is increasing from 2008 to 2012 as banks were following Basel II regulatory requirements. Whereas, banks have started following Basel III requirements as per the direction of the State Bank of Pakistan for the year 2013. The State Bank of Pakistan has prescribed the banks and development of financial institutions to have minimum paid up capital of Rs. 10 billion as of the year ended December 2013 (through its BSD Circular No. 07 dated April 15, 2009). Whereas, the foreign banks (that are operating in Pakistan) are authorized to have at least 300 million US dollars as paid up capital with capital adequacy ratio of 8% or the minimum CAR prescribed by the home country regulatory authority with the prior approval from the State Bank of Pakistan. The return on assets has increased to 1.7% in year 2013 from 1.2% in the year 2008 due to the decrease in the return (gross income) of the bank as compared to previous years. Likewise, the return on equity has decreased to 18.4% from 21.4% in year 2013 due to the decrease in the return of the banks. The liquid asset to total deposit ratio has also decreased to 60% from 64.5% in the year 2013. The advances to deposit ratio of banks has decreased to 48.6% from 52.2% in the year 2013, due to increase in the deposits being higher than advances.

Table 5.3: Key Financial Soundness Indicators for Pakistani Banking Industry

		In percentage					
		2008	2009	2010	2011	2012	2013
Capital Adequacy Ratio*		12.2	14.0	13.9	15.1	15.6	14.9
Capital to Total Assets		10.0	10.1	9.8	9.6	9.1	8.9
Return on Assets (before tax)		1.2	1.3	1.5	2.2	2.0	1.7
Return on Equity (before tax)		11.4	13.2	15.5	23.0	21.4	18.4
Liquid Assets/ Total Deposits		37.7	44.5	47.1	59.5	64.5	60.0
Advances to Deposit Ratio		75.2	67.7	61.6	53.6	52.2	48.6
* CaR is based on Basel III for year 2013 and data from 2008 to 2012 is based on Basel II							

Source: State Bank of Pakistan, 2013

Table 5.4: Conventional Banking Statistics for the Year 2013

S.no	Conventional Banks	Branch Network	No. of Islamic Windows	Total Assets (millions)	Capital Adequacy Ratio	Return on Assets	Return on Equity	NPL ratio	Credit rating	
									Short	Long
1	Habib Bank Ltd.	1594	48	1,612,657,805	14.32%	1%	18%	1.85%	A1+	AAA
2	National Bank of Pakistan	1365	20	1364341.256	15.24%	0.6%	5.4%	N/A	A1+	AAA
3	United Bank Ltd	1301	22	1,009,739	13.3%	2.0%	22.3%	12.1%	A1+	AA+
4	Muslim Commercial Bank Ltd	1200	27	815,508	22.25%	2.72%	23.09%	8.68%	A1+	AAA
5	Allied Bank Ltd	950	No IB	754,158	17.85%	2.14%	30.0%	6.8%	A1+	AA+
6	Bank Alfalah Limited	500	139	610,614	12.06%	0.82%	17.39%	8.6%	A1+	AA
7	Bank Al-Habib Ltd	439	17	406,726,918	14.60%	n/a	n/a	n/a	A1+	AA+
8	Askari Bank Ltd	281	39	394,827,000	10.39%	n/a	n/a	n/a	A1+	AA
9	Faysal bank Ltd	269	53	355,280	11.29%	0.55%	9.40%	13.5%	A1+	AA
10	Standard Chartered Bank (Pakistan) Ltd	116	10	399,438	17.01%	2.67%	19.14%	14.3%	A1+	AAA
11	Bank of Khyber	100	44	108170	24.03%	1.07%	10%	n/a	A1	A
12	Barclays Bank PLC (Pakistan Branches)	7	No IB	52402.656	31.70%	n/a	n/a	n/a	A1	A-
N/a: not available in annual report and websites; No IB: not offering Islamic banking; Source: Developed by Author from the Annual reports of the corresponding banks for the year 2013										

Table 5.4 represents the branch network, number of Islamic banking branches, total assets, capital adequacy ratio, return on assets, return on equity, non-performing loan ratio and credit rating of the conventional banks selected as a same for the current research study. The data presented in table 5.4 is taken from the unconsolidated annual reports of the corresponding conventional banks for the year 2013. The banking ratings are given by PACRA, JCR-VIS, and Standard and Poors as there is not a standard rating mentioned by State Bank of Pakistan.

Habib Bank Limited is ranked first among the selected bank based on the branch network and total assets for the year 2013. The Habib Bank Limited is operating in Pakistan with 1594 branches across different cities including 48 Islamic windows. The total assets of the bank are Rs. 1,612,657,805 million with 1% return on assets and 18% return on equity. The capital adequacy ratio of the bank is 14.32% which is higher than the regulatory requirement of SBP i.e. 10%. The NPL ratio of the bank is 1.85% which is quite low and an indication of strong risk management structure. JCR-VIS (Credit Rating Agency of Pakistan) has assigned A1+ and AAA for short and long-term entity ratings.

National Bank of Pakistan is ranked second on the basis of the branch network with 1365 branches working all over Pakistan including 20 Islamic windows. The bank has total assets of amounting Rs. 1364341.256 million as of December 2013 with 0.6% return on assets and 5.4% return on equity respectively. The NPL ratio for year 2013 is not available neither in the annual report of the bank nor on the website of the bank. However, NPL was 12.1% for the year 2012⁵². JCR-VIS Credit Rating Company Limited has assigned the bank with AAA and A1+ credit rating respectively with stable outlook.

United Bank Limited (UBL) is having a branch network of 1301 branches working all over the Pakistan including 22 Islamic windows. The UBL have total assets of Rs. 1,009,739 million with 2% on return on asset ratio and 22.3% of return on equity ratio. The capital adequacy ratio stood at 13.3%, which is higher than prescribed ratio set by state

⁵² Banking survey 2012 commercial banks operating in Pakistan by KPMG (2013)

bank of Pakistan. The NPL ratio is 12.1% for the bank, which is quite high. The JCR-VIS have assigned UBL with A1+ and AA+ for the short and long-term entity rating which is the highest rating denoting the greatest certainty of timely payments by a financial institution.

Muslim Commercial Bank Limited is ranked fourth by the KMPG (2013) report on the basis of the total assets. MCB has a large network of 1200 branches all over Pakistan with 27 Islamic windows. The total assets of the bank stood at Rs. 815508 million with 2.72% return on assets and 23.09% return on equity. The capital adequacy ratio is 22.25% for the bank which is higher than regulatory requirement. The NPL of the bank is 8.68%. The Pakistan Credit Rating Agency (PACRA) has re-affirmed the Bank's long-term entity rating at AAA and A1+ for the short term entity rating.

Allied Bank Limited is operating in Pakistan with branch network of 950 branches across different cities. Allied Bank Limited is not offering Islamic banking operations till now. The bank has total assets amounting Rs. 754,158 million as of December 2013 with 2.14% return on assets and 30% return on equity ratio. The capital adequacy ratio of the bank is 17.85% and non-performing loan ratio is 6.8%. The Pakistan Credit Rating Agency (PACRA) has reaffirmed bank with credit rating of AA+ and A1+ for the long and short-term rating respectively.

Bank Alfalah Limited is operating in Pakistan with the branch network of 500 branches all over the country with 139 Islamic windows which are higher than all other conventional banks. The total assets of the bank are Rs. 610,614 million as per December 2013 with 0.82% of return on assets ratio and 17.39% of return on equity. The capital adequacy ratio of the bank is 12.06%, which is in accordance with the regulatory requirements. The non-performing loan ratio stood at 8.6%. The PACRA has rated the bank with AA for long-term entity and A1+ for the short-term entity. These ratings indicates a low expectation of credit risk, a strong capacity to make payments on time in longer run and highest capacity to make payments on short term basis.

Bank Al-Habib Limited is working in Pakistan with branch network of 439 branches including 17 Islamic windows. The bank is having total assets of Rs. 406,726,918 million. The equity on assets ratio, equity on return ratio, and non-performing loan ratio is not available in the annual report of the bank for the year 2013. However, the NPL ratio is 2.4% in year 2012 (KPMG, 2013), which is used as a proxy, is quite low as compared to other banks. The capital adequacy ratio of the bank is 14.60%, which is in line with the regulatory requirement by the State Bank of Pakistan.

Askari Bank Limited is operating in Pakistan with a branch network of 281 including 39 Islamic windows all across Pakistan. Askari Bank Limited is having total assets of Rs. 394,827,000 million. The return on assets, return on equity and NPL ratio is not available in the annual report of the bank for the year 2013. However, the NPL ratio of the bank was 16.3% as per December 2012 (KPMG, 2013), which is used as a proxy. The capital adequacy ratio of the bank is 10.39%, which is calculated on the basis of the guidelines provided by State Bank of Pakistan on Basel III by using standardized approach for the credit and market risk and basic indicator approach for the operational risk. The Pakistan Credit Rating Agency (PACRA) has rated the bank's long-term entity and short-term entity with AA and A1+, respectively, which is an indication of stable outlook.

Faysal Bank Limited is operating in Pakistan with 269 branches all over the country. Faysal Bank Limited is also offering Islamic banking services with 53 Islamic windows. The total assets of the bank were Rs. 355,280 million as per the end of December, 2013, with return on assets and return on equity of 0.55% and 9.40%, respectively. The capital adequacy of the bank stood at 11.29%. The non-performing loan ratio was 13.52% which is an indication of infected portfolio which is higher than most of the banks. The Pakistan Credit Rating Agency Limited (PACRA) and JCR-VIS Credit Rating Company Limited have rated Faysal bank with AA and A1+ for long and short-term entity, respectively.

Standard Chartered Bank (Pakistan) Limited is operating in Pakistan with 116 branches in 22 cities. The bank is also offering Islamic banking services within Pakistan with 10 Islamic windows as of end of 2013. The total asset of the bank was Rs. 399438 million with

2.67% return on asset and 19.14% return on equity. The bank is maintaining 17.01% capital adequacy, which is adequately higher than the prescribed regulator requirement of 10%. The nonperforming loan ratio of the bank is quite high 14.3%, which is an indication of lack of risk management practices. The Pakistan Credit Rating Agency (PACRA) has re-affirmed the Bank's long-term entity rating at AAA and short term rating at A1+ in 2013.

Bank of Khyber is operating in Pakistan with 100 branches working all over the country. Bank of Khyber is also offering Islamic banking services with 44 branches. The total assets of the bank were Rs. 108170 million with 1.07% and 10% return on assets and return on equity ratio respectively in year 2013. The capital adequacy ratio of the bank is quite high i.e. 24.03%, as compared to regulatory requirement by the State Bank of Pakistan. The non-performing loan ratio was unavailable for the year 2013 in the annual report and web page of the bank. The NPL for the year 2012 was 14.6%, which is used as a proxy. The NPL for the year 2012 was high and that is an indication of lack of risk management practices and infections in the financing portfolio of the bank. The PACRA and JCR-VIS have rated bank with A and A1 for long-term and short-term entity.

Barclays Bank PLC (Pakistan Branches) is a foreign bank operating in Pakistan with 7 conventional banking branches. The bank is having total assets of Rs. 52402.656 million. The return on assets, return on equity and non-performing loan ratio is unavailable in the annual report of the bank for the year 2013. However, NPL for year 2012 was 4.7%, which is used as a proxy for comparison with other banks (KPMG, 2013). The capital adequacy ratio of the bank stood at 31.07% of its risk-weighted exposure, which is higher than all the selected banks under current study. The standard and Poor's has rated bank with A- and A1 for long term and short-term entity rating.

5.4. Islamic Banking in Pakistan

The asset base of Islamic banking industry has reached Rs. 1 trillion constituting more than 10% of the overall banking assets and deposits by March 2014. There is a potential in Islamic banking industry to positively grow and it is estimated that by 2020 the market share of the Islamic banking will be double (State Bank of Pakistan, 2014). The total assets held by full-fledged Islamic bank and Islamic windows have showed positive growth rate based on quarterly basis. But the Islamic windows have relatively higher growth rate of assets by 13.3% as compared to full-fledged Islamic bank (7.4%) (State Bank of Pakistan, 2013a). The gross infection ratio (Non-performing financing) of the Islamic banking industry is 9% by the end of 2013 (Burj Bank, 2013). The market share of the Islamic banking industry in contrast to overall banking industry stood at 12.1% in 2013 as compared to 9.7% in 2012 (State Bank of Pakistan, 2013a). Islamic banks are operating in Pakistan with 19 banks including 5 full-fledged Islamic banks and Islamic windows offered by the remaining conventional banks, with the branch network of more than 1300 branches all across the Pakistan as of June 2014 (State bank of Pakistan, 2014).

Table 5.5: Industry Progress and Market Share of Islamic Banks

	Industry Progress*		Growth (yearly)		Share in Industry	
	2012	2013	2012	2013	2012	2013
Total Assets	837	1014	30.5%	21.2%	8.6%	9.6%
Deposits	706	868	35.6%	22.8%	9.7%	10.4%
Net Financing	626	709	31.9%	13.4%	8.1%	8.5%
Net Non-performing Assets	7.0	5.6	-	-20.7	-	-
Net Non-performing Finance	6.2	4.8	-	-22.3	-	-
* Industry Progress in Billion rupees						
<i>Source: Statistics taken from the Islamic banking bulletin, December 2013 by State Bank of Pakistan</i>						

Table 5.5 shows the industry progress of Islamic banking industry with growth rate in percentage and market share in the banking industry. The total assets of the bank have increased to Rs. 1014 Billion from 836 in the year 2013 as compared to the year 2012.

Total assets of the Islamic banking industry constitute of 9.6% of the banking industry, which has increased by 1% from last year. The growth rate of the total assets of the Islamic banking industry is 21.2% for the year 2013. The deposits of the Islamic banking are increased to Rs. 868 Billion from Rs. 706 Billion in 2013 from last year with the growth rate of 22.8%. The deposits of Islamic banking sector constitute of 10.4% of the market share in the year 2013. The net financing of the Islamic banks have reached to Rs. 709 billion from Rs. 626 billion with a growth of 13.4% in 2013. The non-performing assets of the Islamic banks have decreased to Rs 5.6 billion from Rs 7 billion in the year 2013. Moreover, the non-performing financing has also decreased to Rs 4.8 billion in 2013, as compared to the previous year.

5.4.1. Products Offered by Banks

Islamic banks are offering a comprehensive range of products and services to their customers in accordance with the Shariah law and principles in following areas:

- Corporate, and small and medium enterprise banking;
- Investment banking;
- Trade financing;
- Consumer banking; and
- General banking;

The new products are approved by the Shariah advisor of the Islamic bank as per the notification (IBD Circular 2 of 2008) issued by the State Bank of Pakistan. Moreover, all the mode of investment and should be made in the Halal mode of investment under the supervision of the Shariah advisor.

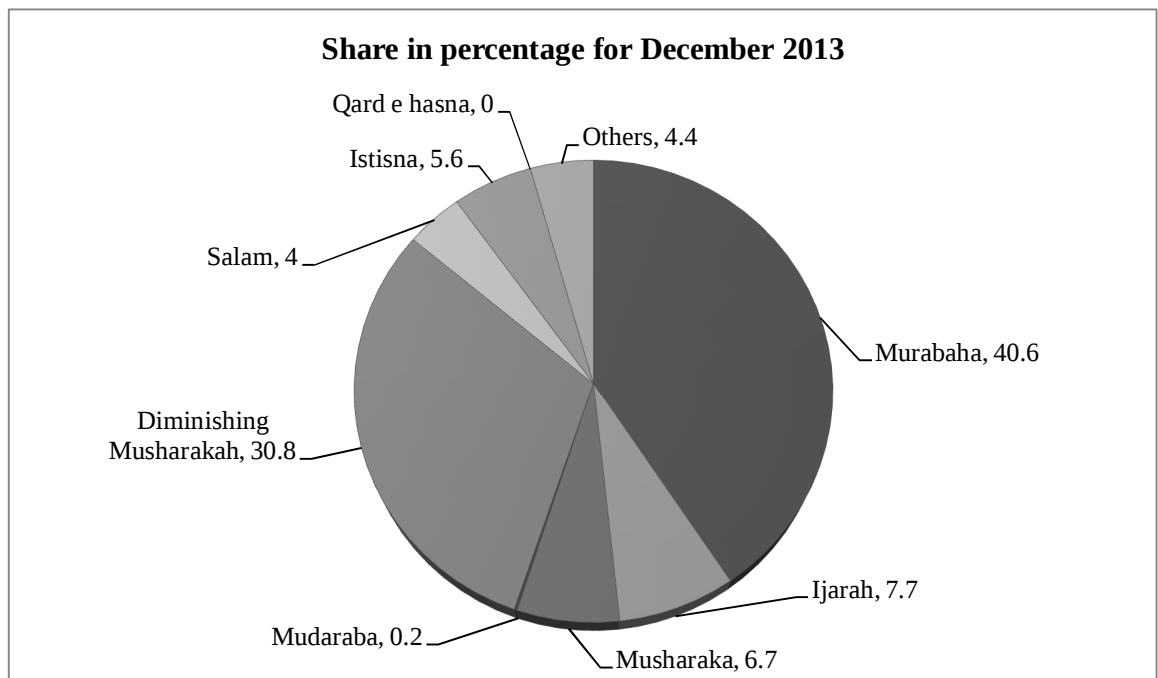
The assets side of the balance sheet of the Islamic banks includes the Shariah modes of investment in the form of Murabahah, Mudarabah, Ijarah, salaam, Istisna', Wikala, Islamic export refinance, Musharakah and diminishing Musharakah to corporate, commercial, and agriculture sector, also to the SME sector, consumers, commodity financing, and treasury and financial institutions. On the other hand, the liability side of the banking includes the

Shariah compliant deposits in form of current account, basic banking account, saving account, term deposits certificates based on different maturities, certification of investment, etc. The Murabahah mode is used to offer saving accounts, term deposit certificates and investment certificates to the customers, whereas, the current account is being offered under Qard-e-hasna basis.

Islamic banks are also offering other services such as financial advisory, private placement, syndication, underwriting, trusteeship, structured financing, project financing, mergers and acquisitions, issue of letter of credit, online banking, lockers for financial safety, ATM, debit card, collection of export bills, E-statement facility, deposit accepting ATMs, phone banking through 24/7 call centre service, international and local remittance transfer, bonds and guarantees.⁵³

⁵³ For further details on the products and services offered by individual banks read “handbook of Islamic banking Products and services” issued by State bank of Pakistan. Available at: <http://www.sbp.org.pk/ibd/Handbook-IBD.pdf>

Figure 5.1: Financing portfolio of Islamic banks



Source: Developed by the author based on the data of Islamic banking Bulletin, SBP for the period of December 2013

Figure 5.1 shows the financing portfolio of the Islamic banks for the year December 2013. The financing portfolio of Islamic banks is based on the percentage share of each of the product. Murabaha is mostly used by Islamic banks with 40.6% of share in the financing portfolio followed Diminishing Musharakah with 30.8%, Ijarah with 7.7%, Musharaka with 6.7%, Istisna with 5.6% Salam with 4%, Mudaraba with 0.2% and Qard-e-hasna with 0% (State Bank of Pakistan, 2013a).

Table 5.6: Asset Quality of the Islamic Banking Industry in Pakistan

	2012	2013	Industry share
Return on Assets	1.2%	0.9%	1.1%
Return on Equity	14.1%	12.0%	12.4%
Net NPF to net financing	2.7%	1.5%	3.1%
Net NPA to total Capital	11.1%	7.9%	13.9%
<i>Source: Statistics taken from the Islamic banking bulletin, December 2013 by State Bank of Pakistan</i>			

Table 5.6 indicates the return on assets, return on equity, net NPF to net financing and net NPA to total capital ratio of the Islamic banking industry. The return on assets ratio of the Islamic banks have declined to 0.9% from 1.2% in the year 2013, having industry share of 1.1%. The return on equity has also declined by 1.9% from 14.1% to 12.0% in the year 2013, with industry share of 12.4%. Moreover, the net NPF to net financing ratio of the Islamic banks has declined to 1.5% from 2.7% having 3.1% share in the industry. Whereas, the net NPA to total capital ratio has shown decline to 7.9% from 11.1% with the 13.9% share in the industry in the year 2013, reflecting better assets quality of the Islamic banks as compared to previous years.

Table 5.7: Islamic Banking Statistics for the Year 2013

S. no.	Islamic banks	Branch network	Total Assets (millions)	Capital Adequacy Ratio	Return on Assets	Return on equity	NPL ratio	Credit Rating*	
								Short	long
1	Al-Baraka Bank (Pakistan) Limited	110	87759.404	11.97%	N/A	N/A	N/A	A1	A
2	Bank Islami Pakistan Limited	201	86856	15.37%	0.23%	3.38%	2.85%	A1	A
3	Burj bank Limited	75	53389	20.76%	2.25%	20.06%	5.77%	A1	A
4	Dubai Islamic bank (Pakistan) Limited	125	80256.612	14.59%	N/A	N/A	N/A	A1	A
5	Meezan Bank Limited	351	329725	12.48%	1.31%	23.69%	3.6%	A1+	AA
N/A= not available in financial statements as well as on websites									
* See Appendix 7: (Standard Rating Scale and Definition by PACRA) for the definitions of the Credit rating (short and long term entity)									
Source: Developed by author from the Annual reports of the corresponding banks for the year 2013									

Table 5.7 shows the full-fledged Islamic banking statistics for the year 2013 including branch network, total assets, capital adequacy ratio, return on assets, return on equity, non-performing loan ratio, and credit rating based on short and long-term entity.

Al-Baraka Bank (Pakistan) Limited is operating in Pakistan with branch network of 110 across different cities in Pakistan. The total assets of the bank were Rs. 87759.404 million as on December 2013. The capital adequacy ratio of the bank was 11.97%, which is in line with the regulatory requirement based on Basel III guidelines provided by the State Bank of Pakistan. The return on assets, return on equity and non-performing loan ratio was unavailable for the year. However, the NPL ratio of the bank was 19.3% in 2012 (KPMG, 2013), which is used as a proxy for comparison with other banks. The NPL ratio of the bank is high, which indicates that bank has a lack of risk management practices. The bank is rated A and A1 for long and short term entity by The Pakistan Credit Rating Agency (PACRA).

Bank Islami Pakistan Limited is the second largest Islamic bank based on deposit and branch network operating in Pakistan with 201 branches in 77 cities of the Pakistan. The total assets of the bank were Rs. 86856 million with return on assets and return on equity ratio of 0.23% and 3.38%, respectively for the year 2013. The capital adequacy of the bank is 15.37%, which is higher than the prescribed capital adequacy requirement by the State Bank of Pakistan. The non-performing ratio of the bank is quite low, i.e. 2.85%, which is a hint of efficient risk management practices and policies. The Pakistan Credit Rating Agency (PACRA) has rated bank with A and A1 for long and short-term entity.

Burj Bank Limited is operating in Pakistan with branch network of 75 branches operating across different cities. The total assets of the banks were Rs. 53389 million, with 2.25% return on assets and 20.06% return on equity ratio. The capital adequacy ratio of the bank stood at 20.76%, which is higher than all other full-fledged Islamic banks operating in Pakistan. The non-performing loan ratio of the bank was 5.77% in 2013, which is increased from year 2012, i.e. 4.3%. The bank is rated A and A1 for long and short-term entity by the Pakistan Credit Rating Agency (PACRA).

Dubai Islamic Bank (Pakistan) Limited is operating in Pakistan with a branch network of 125 branches across various cities and towns. The bank was having total assets of Rs. 80256.612 million as of the end of 2013. The return on assets, return on equity and non-performing loan ratio of the bank is not available in the annual report of the bank. As a proxy, NPL ratio is taken from a report presented by KPMG (2013). The NPL ratio of the bank was 9.2% in year 2012, which is higher and showing lack of adequate risk management practices. The JCR-VIS rating company has rated bank with A and A1 for the long and short-term entity with a positive and stable outlook of the bank.

Meezan Bank Limited is operating in Pakistan as a full-fledged Islamic bank with a largest branch network of 351 branches within 103 cities of the country. The bank is having total assets of Rs. 329725 million with 1.31% of return on assets and 23.66% of return on equity, which is higher than other full-fledged Islamic banks. The bank had a non-performing loan ratio of 3.6%. The JCR-VIS credit rating limited has rated the bank with AA and A1+ with sound performance of the bank.

The following Islamic windows have been selected for the collection of primary data for the current research study:

Table 5.8: Islamic Windows Statistics for the Year 2013

S. no.	Islamic Windows	Total Assets	Total deposits	Branch Network	Profit before tax	Islamic financing & related assets
1	Faysal Bank Limited	30278.936	26599.307	53	264.197	9257.26
2	MCB Limited	16358.299	11164.729	27	257.952*	11207.333
3	Standard Chartered Bank	46529.475	34580.263	10	1868.598	27921.996
4	Bank Alfalah Limited	115197.363	98683.598	140	1318.671	28088.654
5	Habib bank Limited	51246.1	47997.214	48	556.58	7285.755
6	Askari Bank Limited	18753.768	17467.766	40	(434.633)	5315.393
7	United bank Limited	17616.352	16794.33	22	37.9	5183.08
Amounts of Total assets, total deposits, profit before tax, Islamic financing & related assets, in Million Rupees;						
* Profit after tax						

Table 5.8 presents the financial statistics of the Islamic windows of the conventional banks for the year 2013. According to the results of total assets, Bank Alfalah Limited is ranked first as having highest total assets followed by Standard Chartered Bank, Habib Bank Limited, Faysal Bank Limited, Askari Bank Limited, United Bank Limited and MCB Limited.

According to the financial statistics, Faysal Bank Limited is operating in Pakistan with the branch network of 53 Islamic windows with the name Barkat Islamic Bank having total assets of Rs 30278.936 million, total deposits of Rs 26599.307 million, with profit before tax of Rs 264.197 ,million and total Islamic financing and related assets of Rs. 9257.26 million.

MCB Islamic Bank is operating with 27 Islamic windows in Pakistan. The total assets of the bank are of Rs. 16358.299 million, with total deposits amounting to Rs. 11164.729 million and total Islamic financing and related assets amounting Rs. 11207.333 million. The profit after tax for the bank is Rs. 257.952 million for the year 2013.

Standard Chartered Bank Pakistan Limited is operating Islamic banking business with the name “Saadiq Standard Chartered Bank Pakistan Limited”. The bank is operating with 10 branches, having total assets of Rs. 46529.475 million, total deposits of Rs. 34580.263 million, total Islamic financing and related assets of Rs. 27921.996 million with the profit before tax amounting of Rs. 1868.598 million.

Bank Alfalah Islamic Bank is operating with 140 branches having total assets of Rs. 115197.363 million, total deposits of Rs. 98683.598 million, Islamic financing and related assets amounting of Rs. 28088.654 million, and with the profit before tax amounting Rs. 1318.671 million.

Habib Bank Limited Islamic banking is operating in Pakistan with branch network of 48 Islamic windows. The total assets of the bank are of Rs. 51246.1 million with total deposits of Rs. 98683.598 million, Islamic financing and related assets amounting to Rs. 7285.755 million. The profit before taxation is of Rs. 556.58 million as of the year 2013.

Askari Islamic Banking is operating in Pakistan with branch network of 40 Islamic windows as of the end of the year 2013. The bank is having total assets of Rs. 18753.768 million, with total deposits amounting to Rs. 17467.766 million, and Islamic financing and related assets amounting to Rs. 5315.393 million. The Islamic windows are running in losses amounting to Rs. 434.633 million.

United Bank Limited is offering Islamic banking with the name UBL amen. The bank is operated with 22 Islamic windows having total assets of Rs. 17616.352 million, with total deposits amounting to Rs. 16794.33 million, Islamic financing and related assets amounting to Rs. 5183.08 million. The bank is having profit before tax of Rs. 37.9 million.

5.5. Summary

The purpose of this chapter was to examine the economy and banking sector of Pakistan. The banking sector is discussed in terms of Islamic and conventional banks. Also, the financial statistics of the banks are disclosed which have been undertaken as a sample for the current research study.

The banking sector plays a fundamental role in the economic development of a country. The banking sector of Pakistan is contributing positively in the economy of the country. Whereas, the Islamic banking segment of the financial sector is the fastest growing sector with growth rate above 30% during the few years since 2001. However, the conventional banking system has been operating for the last 65 years in Pakistan and has strong roots as compared to Islamic banks, but the competition has increased as the Islamic banks are having less non-performing loan and better quality assets as compared to conventional banks.

Chapter 6

Research Design & Methodology

6.0. Introduction

The aim of this chapter is to describe research philosophies and strategies briefly and to elaborate the research methods adopted to carry out this research study.

This chapter describes the methodology used for analysing and comparing risk management practices between Islamic and conventional banks operating in Pakistan. This study is based on the “Quantitative research method”. The study has used secondary and primary data for analysis. The research methodology is discussed in two sections. The first section is related to secondary data, which is collected from the annual reports of banks for past six years from the year 2008 to 2013. Content analysis is carried out quantitatively on secondary data to investigate risk management disclosure practices between Islamic and conventional banks operating in Pakistan and to test whether there exists a difference between Islamic and conventional banks on risk disclosure practices. For this purpose, five full-fledged Islamic banks have been compared to five conventional banks. Descriptive and inferential statistics have been applied to draw a conclusion. This research technique is helpful in achieving the first research objective, i.e. *to analyse and compare the volume and extent of disclosure practices of Islamic and conventional banks on risk profile, risk management profile, Risk control activities, risk control environment, and risk management process*. Descriptive statistics and charts are used to analyse the risk disclosure practices of Islamic and conventional banks. Whereas, Mann-Whitney U test is used for comparing risk disclosure practices.

Second section is related to primary data analysis, which was collected through questionnaires from senior management of Islamic and conventional banks operating in Pakistan. 12 banks were taken from each type of bank as a sample and 150 filled

questionnaires were gathered from the head of risk management department, senior management who takes part in managing risks, implementing risk policies, strategies and procedures and the members of board committees. Descriptive and inferential statistics were applied to draw a conclusion. This part is helpful in achieving research objective 2, 3, and 4. Frequency tables and bar charts are used to achieve second research objective (i.e. *To investigate risk measuring techniques and risk mitigation tools used by conventional and Islamic banks operating in Pakistan*). Whereas, Research objective 3 (i.e. *To compare and contrast risk management practices of conventional and Islamic banks operating in Pakistan*) is achieved with the help of descriptive statistics, regression analysis and Mann-Whitney U test analysis. And, fourth research objective is achieved by applying regression analysis test.

6.1. Research Philosophies

6.1.1. Research Definition

Research is a structured inquiry that utilizes acceptable scientific inquiry and methodology to solve problems and create new knowledge that is generally acceptable (Saunders et al, 2009).

Creswell (2012) argues that research is a systematic and organized course of gathering and analysing data to find a solution of the problem. Researcher further explained the research and argued that typically research process consist of three main steps: defining the question which you need to answer, collecting data to answer that question and then to answer that particular question through organizing and analysing the collected data (Creswell, 2012). Kumar (2010) made an argument that there are several ways to answer the question; it could be extremely informal or extremely formal (where researchers strongly stick with the well-defined ways and procedures of defining the problem and finding the solution). Researcher further argues that whenever research is designed it should be considered keenly that:

- It is being undertaken within a framework of a set of philosophies

- It uses procedures, methods and techniques that have been tested for their validity and reliability.
- It should be unbiased and objective.

6.1.2. Research Philosophical Assumptions⁵⁴

Understanding research philosophies is not only important for social researchers but also for scientists. Easterby-Smith et al. (1997) suggest that understanding research philosophies can benefit the researcher in choosing, filtering and identifying appropriate research methods and strategies to be used in the study. Before conducting any research it is necessary to consider research paradigms, ontological and epistemological assumptions, as these understandings and considerations would help researcher to understand all the stages and phases of the research from assumptions and nature of the reality to the conclusion of the research. Blaikie (2000) argued that if the chosen philosophies and aims and objectives are not well interlinked then the research report will be challengeable due to lack of appropriate logic and coherence.

According to Saunders et al. (2009), there are three major philosophical assumptions known as Ontology, Epistemology and Axiology. In addition to these assumptions Creswell (1994) has added one more assumption i.e. Rhetoric. However, the majority of the writers considered only two of these philosophical assumptions, Ontology and Epistemology (Blaikie, 1993 and Hatch and Cunliffe, 2006).

Saunders et al. (2009) regarded ontology as the nature of reality and later discussed the two aspects of ontology (objectivism and subjectivism). Both of these aspects are considered appropriate for producing a valid knowledge by many researchers. Saunders et al. (2009) added that in objectivism researchers is always separate and external to the reality, however

⁵⁴ For further detail see Saunders et al. (2009)

in subjectivism, phenomena is developed from the perceptions and consequent actions of social actors who are concerned with their existence.

Holden and Lynch (2004) characterized objectivism and subjectivism according to their paradigms and methodologies by arguing that ‘Objectivists’ are Positivists, Scientific, Experimentalists, Traditionalists and Functionalists. However, ‘Subjectivists’ are Phenomenological, Interpretivist or constructivists and humanistic.

Easterby-Smith, Thorpe and Jackson (2008) argued that Epistemology is closely paired with Ontology which is the way to measure reality. Eriksson and Kovalainen (2008) further argued that the epistemological approach refers to the methodological approach and epistemological position which helps researchers in defining his or her methods which should be adopted for data collection either qualitatively or quantitatively.

Axiology is also being discussed by many authors in past (Guba & Lincoln, 1988; McCracken, 1988; and Saunders et al. 2007). Axiological assumptions discuss the role of values. As values play an important part in our routine life’s decision process, likewise researchers’ values should also be considered intensely as they play a significant role in each and every part of the research process. Research has declared that researchers’ values are important to understand as these values are the roadmaps for researchers’ actions and these are the values which direct researchers to choose a specific research approach (Saunders et al. 2007).

Creswell (1994) argued that rhetorical philosophy informs the language of the research, which is also one of the significant parts of the research. He postulated that the chosen language for quantitative methodology is formal and based on set definitions, the researcher uses impersonal voice along with static design. However, the language for qualitative methodology is informal and evolved around researchers’ personal decisions.

6.1.3. Research Paradigms

According to the definition given by Saunders et al. (2009), paradigm is a way of thinking about conducting a research and it is not strictly a methodology, but more of a ‘philosophy’ that guides how the research is to be conducted.

Crossan (2003) mentioned that positivism and interpretivism are the extremes and therefore methods are also different e.g. positivist’s methods are quantitative and interpretivist’s method is qualitative and the differences are mentioned a lot in the literature,

6.1.3.1. Positivism

This paradigm is derived from the natural sciences, as it enforces the belief that reality is not related to us and the basic aim is to discover different theories based on testing and observation. Deductive process is used under this paradigm to enforce the point of view about the explanatory theories to establish the social phenomenon. Methodologies like experimental surveys, cross-sectional studies and longitudinal studies, come under this paradigm (Saunders et al, 2009). Positivist’s assumes that reality is objective and it is quantifiable (numeric data). The positivist’s attempts to test theory in order to predict the understanding of the phenomena.

6.1.3.2. Interpretivism

It is the second major philosophical paradigm, aims to understand and interpret how people create and maintain themselves in their social world. The interpretive researchers assume that access to reality is through social construction such as language, consciousness and shared meaning. The interpretive research is about how people view an object and the meaning they give to it. The aim of this research approach is not to test a hypothesis, but to discover and describe the interaction between the various independent social factors (Anna et al, 2009). Inductive process is used in this paradigm. It includes different methodologies such as, ethnography, participative enquiry, case studies, grounded theory, ethnicity, etc.

6.1.4. Research Approach

Research approach is divided into two approaches, i.e. Deductive and inductive approach.

Research has determined that in deductive approach an established model or theory is being adapted into particular research whereas that established theory or model is general (Hussey and Hussey, 1997). That mean deductive approach move researcher from general to specific or particular area.

Inductive approach works the opposite way, moving from specific observations to broader generalizations and theories. This is sometimes called a “bottom up” approach. The researcher begins with specific observations and measures, begins to then detect patterns and regularities, formulate some tentative hypotheses to explore, and finally ends up developing some general conclusions or theories (Saunders et al., 2009).

6.2. Research Design

This research study is based on positivism research philosophy and quantitative research methods. The quantitative research technique is used to answer the research question and illustrates the pattern that is present in the research. Positivist approach adopts a scientific method of collecting factual data and testing relationship among them, as to make valid and generalisable conclusions (Anderson, 2009). Quantitative research design is used to test objective theories by investigating the relationship and association between variables (i.e. dependent, independent and control variables). These variables are estimated on an instrument, so that data in numerical form can be collected and analysed using statistical procedures (Creswell, 2008).

Generally, quantitative method is used on a large scale than qualitative research methods. Quantitative research method uses the large sample size and illustrates the results in a statistical way (West, 1999). The research approach used in the current study is deductive in nature. Deductive research is also defined as a top-down strategy. This research approach is used to start work from general perspective and narrowed down to a specific perspective.

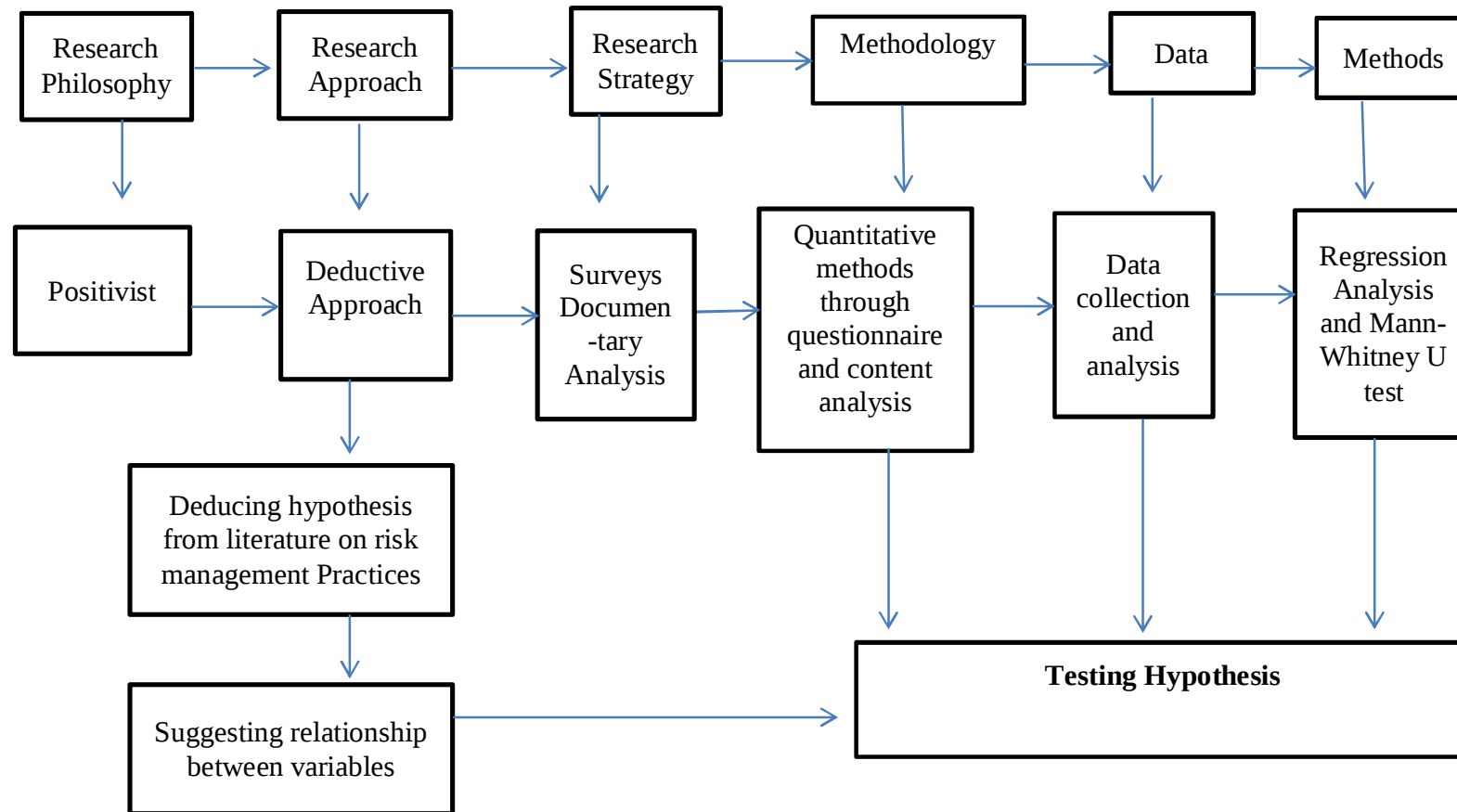
Also, it is based on a theory that is used to test hypothesis based on the previous research or theory, and draws a valid conclusion (Saunders et al., 2009; 2003).

Secondary and primary data sources were used in the current research study. Employing two data sources in research are known as data triangulation. Secondary data is second hand information, which is collected by any other person for some other purpose. This data can be collected from different sources, such as: documentary sources, i.e. books, reports, newspaper, transcripts, journal articles, annual reports of companies, etc.; survey based data which are collected through interviews or questionnaires by some other person; and multiple sources, i.e. combination of documentary and survey based data (Saunders et al., 2009). The survey is considered a prominent method for collecting quantitative data by using standardised questionnaire for conducting empirical research in social science (Vehovar and Manfreda, 2008).

In this current study, annual reports of Islamic and conventional banks which are source of secondary data, has been downloaded from the websites of banks from the year 2008 to 2013. The current research study has also used primary data that was collected by using questionnaire technique. Ghauri and Gronhaug (2005) define primary data as ‘original data collected by a researcher for the research problem at hand’. The means of collecting primary data are experiments, observations and communications and the latter including questionnaire surveys and interviews (Ghauri and Gronhang, 2005).

Quantitative data analysis was conducted in two steps. In the first step of analysis, content analysis technique was used to examine the risk management disclosure practices of Islamic and conventional banks based on frequency distribution and un-weighted scoring index through annual reports of the banks from the year 2008 to 2013. Whereas, in the second step of data analysis, a questionnaire was designed and used to investigate risk management practices of Islamic and conventional banks.

Figure 6.1: The Research Design Framework



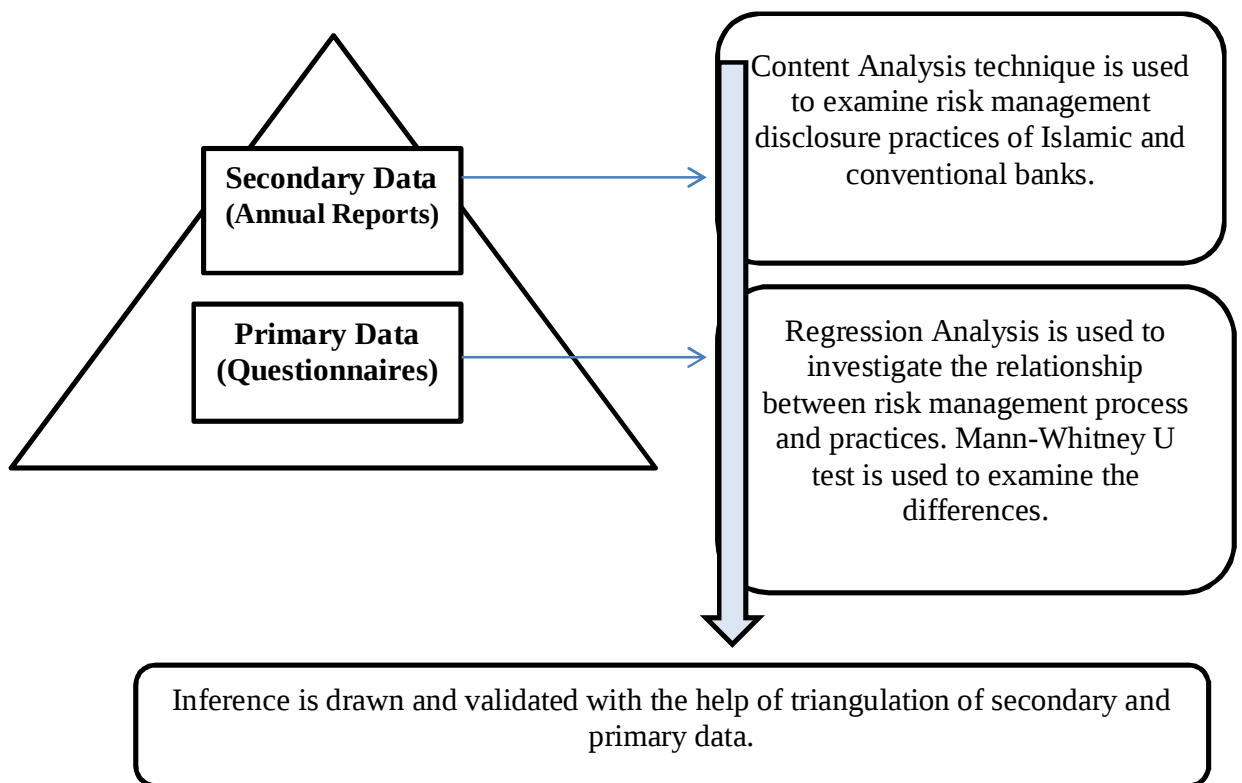
Source: Developed by the Author

6.2.1. Data Triangulation

Triangulation is defined as, using different sources or more than one method to collect data, such as primary and secondary data, interviews, observations, questionnaires and documents to understand the phenomenon under consideration (Denzin, 2006). This is one of the ways of assuring the validity of research through different methods to collect data on the same topic.

The Data Triangulation was applied to gather data on risk management practices of banks operating in Pakistan. Annual reports and survey technique were used to collect data for analysis.

Figure 6.2: Data Triangulation Process



Source: Developed by the Author

One of the advantages of using data triangulation is to draw results based on two data sources. Moreover, this research design will complement each step of the analysis in order to minimize limitations of one method; and using additional sources for data analysis gives more insight into the topic; furthermore, using different sources of data provides validity, while complementing similar data.

6.3. Justification of Research Methods

In this research study, the content analysis technique is used, based on risk disclosure practices through annual reports of financial institutions among different countries. This method is justified with the help of other empirical studies (Ismail et al., 2013; Darmadi, 2013; Asongu, 2013; Suttipun and Stanton, 2012; Hassan and Harahap, 2010; Rajab and Handley, 2009). Previous studies (Lajili and Zeghal, 2005; Linsley and Shrives, 2006; and Amran et al., 2009) have used content analysis in collecting and analysing risk management disclosure practices from annual reports of the banks. Content analysis is a technique with the sets of procedure used to make valid inferences from the text. This method is considered appropriate by Lajili and Zeghal (2005) for analysing the extent and volume of risk management disclosure practices.

Questionnaire technique is used to collect primary data, because previous empirical studies have carried out quantitative research design and have employed a questionnaire technique to investigate risk management practices of banks (Al-Tamimi and Al-Mazrooei, 2007; Ariffin et al., 2008; Hassan, 2009; Shafiq and Nasr, 2010, Hussain and Al-Ajmi, 2012; Khalid and Amjad, 2012; Nazir et al., 2012).

Secondary data analysis is conducted in the first phase of this research study, because it is considered broader in sense and based on more general concepts of risk management practices. The first phase of study has helped to narrow it down to more specific areas of risk management process and practices of banks, which is considered helpful for the second phase of the study, i.e. questionnaires. Triangulation of methods is used to draw a valid

inference by employing two sources of data in the current study. This methodology has never been used previously in risk management discipline.

6.4. Content Analysis

The Content analysis is defined as “objective, systematic and quantitative technique for a description of the manifest content of communication” (Berelson, 1952, p.18). It is a method used to code the text of a piece of writing in different categories or themes depending on the criteria that have been set (Krippendorff, 1980, p.21; Weber, 1988). This technique is discussed as a quantitative method by Silverman (1993, p.59). Krippendorff (2004, p.18) defined it as “content analysis is a research technique for making replicable and valid inferences from texts to the contexts of their use”.

Content analysis is a powerful data reduction technique, used to discover patterns in data that helps in understanding a phenomenon. In simple words, content analysis is a method which looks for the occurrence of the words, phrases and concepts in a given text and aid in understanding their meaning and association with each other. The notion of using frequency of words is that the most used words are likely to be the most significant words. Word count is considered vital, but with the passage of time the technique for counting words have changed from manual to computerised system (Matthews and Ross, 2010).

In this study, the aim of the content analysis is to examine risk management disclosure practices of Islamic and conventional banks over the past six years from 2008 to 2013 and to make recommendations for potential follow up. This research study has examined the disclosure practices on following themes; risk profile, risk management profile, risk control activities, risk control environment, and risk management process of banks from the annual reports of sample banks. The selection of themes and sub-themes is made with the understanding of risk disclosure literature, previously discussed under chapter 4 (Literature review: Risk Disclosure Practices in banks). Figure 6.3 below explains themes and sub-themes of the study.

The conceptual framework of content analysis includes: **text** (comprises of books, chapters, reports, documents, interviews, etc. In this study, annual reports are considered as text); **coding unit** (which could be a number of words, sentences, pages, themes, concepts, etc. In this research study, coding units are illustrated in figure 6.3); **coding mode** (which is defined as a human aid or a computer aid to code text. In this research study, Nvivo 10 is considered as a coding mode); and **coding scheme** (coding scheme for this research study is frequency distribution and un-weighted disclosure index of coding units).

Annual reports are considered important source for conveying a certain corporate image and message to stakeholders and investors (Preston et al., 1996). Annual reports of the banks are selected for content analysis, because banks operating in Pakistan usually do not disclose detailed notes on financial statements in monthly, quarterly and semi-annual reports.

In this research study, “Content” referred to the frequency word count and un-weighted dichotomous indexing based on information available on following themes (sub-themes): *risk profile of banks* (including credit risk, liquidity risk, operational risk, market risk, interest rate risk, yield/profit risk, foreign exchange risk, equity price risk, equity position risk, reputation risk, regulatory risk, Shariah risk, settlement risk, country risk), *risk management profile* (credit risk management, liquidity risk management, market risk management, operational risk management, interest rate risk management, foreign exchange risk management, equity price risk management, profit/ yield risk management and equity position risk management), *risk control activities* (including internal control, risk appetite, stress testing, risk management framework, internal audit, risk management, Basel II and III, risk management policies and procedure, role of State Bank of Pakistan), *risk control environment* (including role of Board of directors, audit committee, risk management committee, credit risk committee, market risk committee, operational risk committee, assets liability management committee, chief risk officer, chief executive officer, Chief financial officer, risk management department, Shariah supervisory committee, and Shariah advisor) and *risk management processes* (such as risk identification, risk assessment, risk analysis, risk monitoring, risk measurement, risk

mitigation, risk reporting, and risk governance). Content analysis was used with the help of word count to determine the risk disclosure practices of banks (Suttipun and Stanton, 2012).

Content analysis was performed in two parts in this research study. Part 1 is related to the content analysis based on frequency distribution to determine the level and volume of risk disclosure practices. This approach is consistent with previous studies conducted by a group of researchers (Lajili and Zeghal, 2005; Linsley et al., 2006; Elzahar and Hussainey, 2012). Whereas, part 2 is related to un-weighted scoring index which is used to examine the extent of risk disclosure practices adopted by banks operating in Pakistan.

Figure 6.3: Themes and sub-themes of Content Analysis



Source: Developed by the Author

6.4.1. Process of Quantitative Content Analysis

As, mentioned previously that content analysis is carried out in two parts. The first part is based on frequency analysis and the other part is related to un-weighted scoring index. Following is the explanation of quantitative content analysis process:

6.4.1.1. Analysis Based on Frequencies

The annual reports selected for each bank covered the six year time period from 2008 to 2013. The purpose of the selection of six year sample period was to assess whether risk management disclosure practices of Islamic and conventional banks remained static or evolved over time.

This research has used unconsolidated financial statements, audit report, director reports, Shariah report, statement of internal control, and compliance statement for data collection. The data was collected from each bank and aggregated on a yearly basis for Islamic and conventional banks. Annual reports of the banks were electronically downloaded from the websites of banks. Annual reports of the banks were reprinted by using software named as “Nuance power PDF standard” for making all annual reports consistent. This activity was carried out because annual reports were not consistent for all banks. As most of the annual reports consisted of consolidated financial statements, and unconsolidated financial statements. Whereas, few banks did not have any other company or business, thus only provides unconsolidated financial statement. This practice was considered helpful to make all annual reports consistent for quantitative content analysis.

To identify disclosure on risk management practices of banks, “Nvivo 10” software was used to scrutinise annual reports of banks over the time period from 2008 to 2013. Different “text search” queries were run through Nvivo 10 software to find out risk management disclosure in the annual reports of banks. Annual reports for the year 2008 was unavailable on the website of the Muslim commercial bank, Bank Islami Pakistan limited and Burj Bank Limited.

All the annual reports were read before the coding procedure as there was a possibility that synonyms may be used by different banks to disclose a phenomena, which can cause underestimation of the concept (Weber, 1990). Weber (1990) stated that when a researcher is conducting word frequency count, it is important to consider that some words have multiple meanings. In this research study, frequency counts were used to identify words of interest. Nvivo 10 has helped to pull up the sentences in which those words were used, in order to examine that they are used in the same context.

Frequencies of coding units were determined by content analysis, which has helped in comparing elements of Islamic and conventional banks' risk management disclosure practices and it was considered suitable to present them with the help of pie charts. Microsoft Excel 2010 was used to create pie charts from the data. Moreover, the data was coded in SPSS, for running non-parametric test⁵⁵ to examine the difference between Islamic and conventional banks.

6.4.1.2. Risk Management Disclosure Measurement Framework

The study has also used un-weighted scoring index with a dichotomous scale to determine the extent of risk disclosure practices of banks. The dichotomous scale was used to score items; where, 1 is given when information on an item or a theme is disclosed and 0 when it is not. This scoring index is in line with previous research studies (Darmadi, 2013; Lipunga, 2014; Savvides and Savvidou, 2012; Hossain, 2008; Haniffa and Hudaib, 2007; Hassan and Harahap, 2010; Wood et al., 2009). In this approach, all the items are equally weighted and no penalty is charged if information is not disclosed. Following formula is used to calculate the index on five main themes and sub-themes presented in Figure 6.3.

$$\text{RMDP Index} = \frac{\sum_{i=1}^n X_{dbt}}{N}$$

⁵⁵ Non-parametric test do not rely on assumptions that the data are drawn from a given probability distribution (See page 223 for further explanation)

Where,

RMDP index= Risk management disclosure practices index

n=number of items expected to be disclosed in an annual report by bank

N=total number of items in a theme

d=dimension or sub-themes; **b**=bank-type; **t**=time

X_{dbt}= Variable X (main theme) from 1 up to n for dimension d of bank-type b and time period t.

The resulting score from the above mentioned formula ranges between 0 and 1. For example, maximum disclosure score on theme 1 i.e. risk profile of banks is 14 and if the expected disclosure score is 7 then RMDP index score will be $7/14=0.5$ (See Appendix 8: RMDP index score).

The mean value was calculated based on risk management disclosure practices index of each sub-theme under the main theme for Islamic and conventional banks. This approach was considered helpful for comparing the extent of disclosure practices between Islamic and conventional banks. Mann-Whitney U test was performed to examine if there exists a difference between Islamic and conventional banks on major themes of risk disclosure practices, i.e. Risk profile, risk management profile, risk control activities, risk control environment, risk management process.

6.4.2. Justification of Sample Banks

The sample population of the study consists of five full-fledged Islamic banks, which were compared with five conventional banks. Conventional banks shown in the table 6.1 are leading banks in banking industry based on total assets (KPMG, 2012)⁵⁶ and very popular

⁵⁶ Banking survey 2012, Commercial Banks Operating in Pakistan

among people of Pakistan. Leading conventional banks were chosen to compare with full-fledged Islamic banks, because they will help us in estimating the true picture of risk disclosure practices of conventional banking industry instead of comparing small to medium sized conventional banks with Islamic banks of Pakistan.

Following are the sample banks for the current study.

Table 6.1: List of Banks Selected as a Sample

Islamic Banks	Conventional Banks
Albarakah Bank Limited	Allied Bank Limited
Bank Islami Pakistan Limited	Habib Bank Limited
Burj Bank Limited	Muslim Commercial Bank Limited
Dubai Islamic Bank Ltd	National Bank of Pakistan
Meezan Bank Limited	United Bank Limited

6.4.3. Justification of Selected Time Period

The selection of time period for the annual reports was based on two reasons. Firstly, the tenure selected for the current study was considered important, because the profitability of Pakistan's banking industry was declined sharply in 2008 due to deterioration in economic conditions of the economy⁵⁷; the profits of the major banks (22 listed banks) were declined by 21 percent who holds 96 percent of the sector's market capitalization and holds 82 percent of total assets in the banking industry. According to World Bank report, the economy of Pakistan declined sharply in 2008 as inflation was increased; oil and food prices were rising due to mounting of current account and fiscal deficit of the country. Political turmoil and ongoing security concerns also dented the economy of Pakistan, while the global financial crisis added pressure to a substantial decline in the financial markets⁵⁸.

⁵⁷ For details, See Chapter 5 (Economy and Banking Industry of Pakistan)

⁵⁸ Global Economic Prospects 2009 by World bank
http://books.google.co.uk/books?id=wIFsXXYbJ1QC&pg=PA167&lpg=PA167&dq=global+economic+prospects+2009+pakistan&source=bl&ots=3zEmVMxEfr&sig=angMaCyQqdB8CR4oWF_0Pb39QkE&hl=en&sa=X&ei=t_gvVOqCGcnkaLSJgaAL&sqi=2&ved=0CDsQ6AEwAw#v=onepage&q=global%20economic%20prospects%202009%20pakistan&f=false

Secondly, annual reports of selected banks were available from the year 2008 to 2013.

6.4.4. Strengths and Weaknesses of Content Analysis

Content analysis is widely used and understood method which provides valuable insights on the phenomena under consideration over time through the analysis of documents, texts, videos, sounds, pictures, etc. One of the advantages of using this method is that the reliability of data is assured as data analysis procedure can be repeated easily. Content analysis is unobtrusive as it does not require collecting first hand data.

This method is time consuming method, when data is analysed by hand and costly when software is used to analyse data. It is purely descriptive technique which states what is there, but does not discuss why it is there. Content analysis provides limited information based on availability of data.

6.4.5. Reliability and Validity of Content Analysis

For drawing valid inferences from the content analysis, it is vital to have reliable and valid classification procedures (Beattie et al., 2004; Weber, 1985). Procedures will be reliable if data is coded in a consistent manner for all the items by one or more researchers. Whereas, procedures will be considered valid if coding will represent what it is intended to present by the researcher.

Reliability of content analysis was ensured as text was coded by one person and there were no chances of coding text differently. Also, it was checked by repeating the process of data collection from the annual reports by the researcher.

Validity was ensured by construction of themes and sub-themes for risk disclosure practices with the help of previous empirical studies (Darmadi, 2013; Asongu, 2013; Ismail et al., 2013; Savvides and Savviduo, 2012; Hassan and Harahap, 2010; Safieddine, 2009; Haniffa

and Hudaib, 2007; Chapra and Ahmad, 2002) and regulatory requirements (Basel II and Basel III).

6.4.6. Hypothesis Statement for Content Analysis

Based on the results of prior research studies discussed under chapter 4 (Literature review: Risk Disclosure Practices in banks) and in the context of data availability, Following hypothesis statement is developed and tested under chapter 7 (quantitative content analysis):

H₁: There exists a difference between Islamic and conventional banks on disclosure practices of risk profile, risk management profile, risk control activities, risk control environment and risk management process.

6.5. Primary Data Collection

Primary data were collected by using a self-administrated questionnaire method from the senior management of banks. Questionnaire as a survey approach is considered most appropriate technique for obtaining primary data (Tufano, 1996). It is an economical way of collecting data from a potentially large number of respondents to allow statistical analysis of the results (Miller, 1983). This research methodology is in line with the previous research studies conducted on risk management practices by different researchers (Al-Tamimi and Al-Mazrooei, 2007; Hassan, 2009; Khalid and Amjad, 2012; Shafiq and Nasr, 2010, Hussain and Al-Ajmi, 2012).

One of the advantages of using survey is that it consists of speedy and economical collection of a variety of generalisable data (Scheuren, 2004). Neuman (2003) stated that quantitative analysis is applied to data collected through questionnaire for testing hypotheses, drawing inferences and generalising the findings. The questionnaire is an easy way of approaching the research subject for analysing its objectives, characteristics, attitudes, beliefs and behaviours. It is a simple and quick way for the respondent to complete. It allows the respondents to maintain their privacy while answering to some

sensitive questions and it is free from biasness of the investigator during data collection. It also helps to gather responses in a standardized manner. Using a questionnaire survey technique is more objective certainly, than interviews. Based on the research experience of the researcher it was considered that respondents from banks were very familiar and comfortable to participate in a questionnaire based survey rather than other forms of survey like interviews.

The questionnaire is designed keeping in mind the demographic factors and elements of the risk management process mentioned in the conceptual framework discussed under chapter 2 (Literature review: Risk Management in Banks). The 7-point Likert scale was used to get responses on the risk management practices and process ranging from (1= strongly disagree to 7= strongly agree). Selection of 7-point Likert scale was made based on previous researches conducted by Al-Tamimi and Al-Mazrooei (2007), Hassan (2009), and Hussain and Al-Ajmi (2012). Whereas, Ariffin et al. (2008), Nazir et al. (2012), and Khalid and Amjad (2012) have used a 5-point Likert scale to measure responses of respondents. Diefenbach et al., (1993) stated that 7-point Likert scale perform better than 5-point Likert scale.

Data was collected by targeting the area and regional branches of the selected banks from the branch managers, senior credit managers, senior management (including, Executive Vice President, Financial Controller, CRO, Group Chief Commercial and Retail Banking, Area Credit risk manager, Senior Executive Vice President, Senior Vice President, Regional Manager), and Experts from the risk management department of the Islamic and conventional banks operating in Pakistan, specifically in the city Lahore. These people were targeted as they were considered the one to provide knowledgeable responses on risk management practices of banks.

Lahore is the capital of Punjab province and the second largest city in the country having population of more than 12.5 million. It is ranked 25th and 8th in term of most populated urban areas and largest city with in Organisation of Islamic Cooperation. The importance of the city is also depends on the presence of Lahore stock exchange which is the second

largest stock exchange of Pakistan. Also, this city is a hub of many multi-national and national companies operating in Pakistan. Selection of the city is based on the following reasons: Lahore is one of the biggest financial cities of Pakistan, Access to the information was easy for the researcher, and to save time and cost. Data was collected in approximately four months' time period, i.e. from the November 2013 to February 2014.

Ethical approval was taken from the Ethical Committee of Cardiff Metropolitan University prior to data collection. Also, the letter of introduction for organisations was taken from the school.

Data was collected by making prior appointments with the respondents. They were asked to answer the questionnaire according to their own experiences, perceptions, observations and thoughts on some of the issues regarding risk management practices in their banks.

6.5.1. Population and Sampling technique

The universe of this study was all banks that were working in Pakistan. Whereas, the population of this study includes senior managers, executives, personnel associated with risk management department and board level committees of Islamic and conventional banks operating in Pakistan.

In this research “purposive sampling technique” was used. Purposive sampling involves the researcher to make a conscious decision about the participants and research sites that would provide best desired information to answer the research questions (Saunders et al., 2009, p. 237). This type of non-probability sampling was selected in order to provide researcher with the most useful data.

The questionnaires were handed over to the senior risk managers and personnel from the risk management department. These personnel were asked to guide the researcher with most knowledgeable and experienced people (at least having 3 to 5 years' experience in dealing risk management) who can provide most useful responses related to risk management practices. Then the researcher has made a decision to select the respondents

from referred persons based on their experience and knowledge. Also, respondents were selected based on their willingness to participate in the current research study.

The biasness associated with purposive sampling technique is mitigated by selecting respondents based on their experience in dealing risk management with the help of senior risk managers. Also, the questionnaires were completed without the intervention of the researcher.

The sample size was 150 respondents comprising of 75 respondents from each type of bank (i.e. Islamic bank and conventional bank). Initially, 180 questionnaires were distributed among the employees of banks, out of which 162 questionnaires were returned. In total, 12 questionnaires were eliminated, because of missing data. The resulting response rate was 83.3 percent, which was considered very high. Appendix 2 provides the detail of the conventional and Islamic banks operating in Pakistan. Primary data were collected from 12 conventional banks, 5-full-fledged Islamic banks and 7 Islamic windows of conventional banks.

Since this research study looks into the risk management practices of Islamic and conventional banks. It was considered essential that the survey would only be collected from the senior management and personnel, who plays a vital role in managing risks and are directly involved in the risk management process. Table 6.2 below, presents the questionnaires gathered from respondents of Islamic and conventional banks operating in Pakistan.

Table 6.2: List of Questionnaire Collected from Banks

S. no.	Conventional Banks	No. of questionnaire	Islamic Banks	No. of questionnaire
1	Bank Alfalah Limited	9	Albarakah Bank Pakistan Limited	7
2	Allied Bank Limited	6	Bank Islami Pakistan Limited	6
3	Faysal Bank Limited	10	Burj Bank Limited	6
4	Muslim Commercial Bank Limited	6	Dubai Islamic Bank Pakistan Limited	6
5	Standard chartered bank (pakistan)	6	Meezan bank Limited	8
6	National bank of Pakistan	6	Muslim Commercial bank Limited	6
7	United Bank Limited	6	Faysal bank Limited	6
8	Askari Bank Limited	7	Standard chartered bank (Pakistan) Limited	6
9	Habib Bank Limited	6	Bank Alfalah limited	6
10	Barclays bank PLC	6	Habib Bank Limited	6
11	Bank of Khyber	4	Askari Bank Limited	6
12	Bank Al-Habib limited	3	United Bank Limited	6

6.5.2. Research Instruments

A questionnaire was prepared in the light of previous studies conducted on risk management practices (Al-Tamimi and Al-Mazrooei, 2007; Hassan, 2009). It was modified by adding more items, statements, and aspects in risk management process. The questionnaire consists of 11 sections, i.e. describing company's profile, respondent's profile, understanding risk and risk management (URRM), risk identification (RI), risk assessment and analysis (RAA), risk measuring and mitigation tools, risk management practices (RMP), risk monitoring and reporting (RMR), credit risk analysis (CRA), liquidity risk analysis (LRA), and risk governance of banks (RG) (See, Appendix 1: Questionnaire).

The first section of the questionnaire was about banks profile stating ownership of the bank, type of bank, risk identification method, and main risks faced by respondent's bank. Second section consists of the respondent's profile, which includes their gender, age, education, qualification background, and designation in the bank.

The third section was related to the understanding risk and risk management, which consists of the 9 close-ended statements to be answered on a 7-Likert scale from 1 to 7 (1= Strongly Disagree, 2=Disagree, 3=Somewhat Disagree, 4=Undecided, 5= Somewhat Agree, 6=Agree, 7= Strongly Agree). Section 4 consists of the 6 close-ended statements about the risk identification methods which are based on 7-Likert scale. Section 5 relates to the risk assessment and analysis, which includes 8 closed-ended statements that are answered on a 7-Likert scale. Section 6 relates to the risk management practices. 15 closed-ended questions were asked based on 7-Likert scale. Section 7 was related to risk measuring techniques and risk mitigation tools used by banks in their daily operations. Section 8 relates to the risk monitoring and reporting. This section consists of 9 closed-ended questions to be answered on a 7-Likert scale. Section 9 relates to the credit risk analysis. This section consists of 10 closed-ended statements to be answered on 7-point Likert scale.

Section 10 was related to liquidity risk analysis. This section consists of two parts. Part 1 consists of 11 closed-ended statements to be answered on a 7-point Likert scale and part 2 is related to liquidity risk management instruments. Section 11 was related to the risk governance of banks. This section consists of two parts. Part 1 consists of three questions and part two consists of 18 closed-ended questions to be answered on a 7-Likert scale.

6.5.3. Pilot study

A pilot study was conducted by sending 15 questionnaires to the senior bankers of Islamic and conventional banks and academic persons in Lahore (Pakistan) to comment on the content validity of the questionnaire. A close-ended questionnaire was tested based on the following aspects:

Length of the questionnaire, design and instructions to fill the questionnaire, were any ambiguity in the statements asked, sensitivity and complexity of the statements asked, comments and suggestions related to questionnaire.

The pilot testing was carried out in August 2013. The feedback on the questionnaires was taken through telephone calls with the respondents. After receiving comments and feedback, modifications were made in the wording and scaling of certain questions, in order to create a flawless questionnaire. The final version of questionnaire used under this research study is presented in Appendix 1.

6.5.4. Reliability and Validity of Primary Data

The questionnaire was planned with two aims in mind, i.e. relevance and accuracy. A questionnaire is appropriate and relevant if the required data is collected. Accuracy means that the information is reliable and valid. Thus the arrangement, structure and wording of the questions were designed in such a manner as to encourage correct and informative responses from the respondents. Efforts were made to make the statements as short and clear to avoid uncertainty, misperception and confusion.

Quantitative data were validated by using statistical measures such as R-square and F-statistics. Moreover, the content and construct validity of the questionnaire was tested by conducting a pilot study. The validity of data was also ensured with the help of triangulation i.e. by using other data source such as annual reports of the banks.

Reliability is measured by the following two ways: firstly with test-retest reliability, in which data is collected second time from the same respondents on the same research instrument at some other time period. In this research study, the test-retest reliability approach cannot be used because of limited time period. Second is internal consistency, which is measured with the help of coefficient alpha. Either or both of the ways can be used to test the reliability of the instrument. Reliability enables researchers to estimate the error within the data. The larger the reliability, the smaller the error and vice versa. Measures

with high reliability will provide scores that are close to true scores (Punch, 2005, pp. 95-98).

In this study, reliability of primary data was ensured with the help of Cronbach's alpha, which was applied to each variable. Cronbach's alpha helped to measure internal consistency of the results within the scale. Data is considered reliable if coefficient value is equal or greater than 0.70 (Nunnally, 1978; Nunnally and Bernstein, 1994; De Vaus, 2002; Hair et al., 2010). Overall, findings will be validated by cross checking the results from two different types of data sources.

6.5.5. Ethical Issues and Confidentiality

There was no physical risk to the respondents, researcher and the organisation from this type of research study. The questionnaire was distributed by meeting respondents within the business premises of banks during working hours. The ethical approval was taken prior to conducting this research from the Research Ethical Committee of Cardiff Metropolitan University. Also, it was ensured that the study is conducted within the ethical boundaries set by Cardiff Metropolitan University.

The participation of the respondents was voluntary and they were fully informed about the research aims and objectives of the study. Also, the respondents were allowed to quit anytime from the study without telling the reason. The completion and return of the questionnaire was an indication of the willingness and consent of the participant in this research study. The questionnaire that was answered fully was considered as completed and used for the data analysis. Also, there was no compensation for participating in this research, nor there was any risk to the respondents, because the results of the study were concluded collectively. The research work of the others used in this study was properly referenced by using Harvard Referencing style.

The confidentiality was assured by coding the personal information of the respondents in numbers and refusing to disclose their information to any other person except the researcher. It was also ensured that all the data will be analysed and inference will be drawn

on a collective basis instead of individual basis. Also, data will be used for academic and research purposes only. It was also ensured that questionnaire will be available to relevant personnel after taking permission from the respondents.

6.5.6. Generalization of the Study

Generalization refers to the extent to which research findings are applicable to other population and samples (Ryan and Bernard, 2000). The results of the current research study are considered generalizable, because the adequate amount of response rate has been achieved on questionnaire. The questionnaire has been developed with care and tested and validated by conducting a pilot study before data collection. The response rate of the questionnaire is adequately high, i.e. 83.3% which is quite high for generalizing the results of the study.

6.5.7. Data Analysis

Data collected from the questionnaire was analysed by using SPSS 16.0 software. This statistical package for social sciences (SPSS) is possibly the most widely used computer software for the analysis of quantitative data. Using this powerful software, all data collected through questionnaires were coded by the researcher. Statements in the questionnaire were based on the 7-Likert scale, whereas a few questions have the appropriate options to answer. A statement with the 7-Likert scale is coded as follows:

Strongly Disagree= 1, Disagree =2, Somewhat Disagree = 3, Undecided = 4, Somewhat Agree = 5, Agree = 6, Strongly Agree =7.

Data analysis was performed in three sections for primary data of the study. Section 1 explains the reliability analysis, frequency analysis of bank and respondent's profile and descriptive statistics on all aspects of risk management process and risk management practices. Descriptive statistics are computed to estimate the differences in characteristics of two types of banks i.e. Islamic and conventional banks.

Section 2 is based on graphical presentation of types of risks that are present in Islamic and conventional banks, risk identification methods, bank type and ownership status, risk measuring techniques, risk mitigation methods, instruments to manage liquidity, involvement of the board of directors in the risk management process, involvement of managerial or board committees in risk management issues, and implementation of risk management regulations in Islamic and conventional banks.

Section 3 illustrates inferential statistics, including correlation matrix, scatter plot, regression analysis and Mann-Whitney U test. Inferential statistics help to generalize results to the larger population from which the sample is drawn. It also helps to assess the strength and direction of relationship of independent and dependent variables. Inferential statistics are all about making deductions and drawing conclusion (McQueen and Knussen, 2002). Spearman Rho correlation is used to check the direction and strength of the relationship among variables. Pearson correlation was not used, because of the violation of assumption of parametric test which is discussed below. Whereas, regression analysis was carried out to analyse the effect of independent variables⁵⁹ on the dependent variable⁶⁰. The Mann-Whitney U test was applied to determine whether there exists a difference between conventional and Islamic banks operating in Pakistan and whether these differences are significant or not.

6.5.7.1. Assumptions of Parametric Tests

Following are the assumptions which need to be fulfilled before applying parametric tests, such as independent sample t-test and Pearson's correlation test:

1. Level of measurement should be interval or ratio (more than ordinal) such as Likert scale.

⁵⁹ In this study, Independent variables are understanding risk and risk management; risk identification; risk assessment and analysis; risk monitoring; credit risk analysis; liquidity risk analysis; and risk governance.

⁶⁰ Dependent variable is risk management practices

2. The scores on each variable should be normally distributed.
3. The variances within groups should be relatively similar.

When one or all of the assumptions of parametric test are violated, then non-parametric tests are used.

6.5.7.2. Assumptions of Independent Sample t-test (Parametric test)

The independent t - test is applied when the following assumptions are fulfilled.

Independence of Observations: Dependent variable should be measured on continuous scale, whereas; independent variable should be based on two categorical independent groups. There should be no relationship between the observations in each group and between the groups.

Homogeneity of Variance: The variances of the dependent variable between two populations are equal. The assumption of homogeneity of variance is tested with the help of Levene's test results for equal variance (refer to Appendix 5: Independence Sample T-test to check variance assumption). If the significance level is greater than 5%, then it means that we failed to reject the null hypothesis (H_0 : the variance between two variables is equal). Results on the significance level of Levene's test of all the variables except liquidity risk analysis (LRA) fulfil the first assumption.

Normality: The dependent variable should be normally distributed within each population. The assumption of normality is violated (refer to appendix 6: Test of Normality) as all variables are statistically significant at the 5% level, which means we accept the alternative hypothesis (H_1 : the sample data is significantly different than a normal data).

Hence, we cannot apply the independent sample t-test in a current research study to determine the difference in risk management practices of Islamic and conventional banks.

6.5.8. Research Hypothesis Statements

As illustrated earlier (in chapter 2: Literature Review) about risk management process and practices in banks in order to understand the nature of such relationship between risk management practices and aspects of risk management process, the following hypothesis statements are established and discussed with previous studies to support the hypothesis development. The previous empirical studies provide mixed results which are disclosed to support the hypothesis statements.

Hypothesis 1: *There exists a significant relationship between risk management practices (RMP); and understanding risk and risk management (URRM), risk identification (RI), risk assessment and analysis (RAA), risk monitoring and reporting (RMR), credit risk analysis (CRA), liquidity risk analysis (LRA), and risk governance (RG).*

Al-Tamimi and Al-Mazrooei (2007) illustrated that understanding risk and risk management is an indication of the ability of banks to manage risk efficiently in the future. Also, risk identification and risk assessment and analysis is the most significant and important variables in risk management practices of UAE banks. The findings of their studies showed that understanding risk and risk management, risk monitoring and reporting and credit risk analysis has a positive, but insignificant relationship with risk management practices. Rosman (2009) has proposed a framework which stated that there is a positive relationship between understanding risk and risk management; risk identification; risk assessment and analysis; risk monitoring and report; and credit risk management with risk management practices of banks.

Risk monitoring is used to make sure that risk management practices are consistent and it also supports banks to determine mistakes at early stages (Al-Tamimi and Al-Mazrooei, 2007). Effective and efficient risk management requires a reporting system to ensure that risks are effectively identified; assessed and appropriate controls are in place to cope with these uncertainties. A study conducted by Nazir et al (2012) has also tested a relationship between aspects of risk management process and risk management practices. Their findings revealed that credit risk analysis; risk monitoring; and understanding risk and risk

management are significantly contributing in risk management practices of Islamic and conventional banks operating in Pakistan.

Whereas, a study conducted by Hussain and Al-Ajmi (2012) on conventional and Islamic banks of Bahrain has rejected the null hypothesis i.e. (there is no effect of URRM, RI, RAA, RMR and CRA on RMP of banks). Their findings demonstrated that URRM, RI, RAA, RMR and CRA have a positive and significant relationship with RMP of banks.

Ahmad et al (2013) have studied re-modelling of risk management in banks of gulf and sub-continent countries i.e. Bahrain, Pakistan and UAE. Their findings demonstrated that banks operating in Bahrain are efficient in risk management understanding, identification of risk, risk assessment and analysis and credit risk analysis and these are significantly contributing in risk management practices of banks. Whereas, banks of UAE showed that risk management understanding, risk identification and risk assessment and analysis is significantly contributing in risk management practices. The findings of Pakistani banks revealed that risk management understanding, identification of risks, risk assessment and analysis, risk monitoring and credit risk analysis are efficiently contributing in risk management practices of banks.

Therefore, the first hypothesis is set to examine the effect of aspects of risk management process (URRM, RI, RAA, RMR, CRA, LRA and RG) on risk management practices of banks operating in Pakistan.

Hypothesis 2: There exists a difference between Islamic and conventional banks in regards to effect of understanding risk and risk management (URRM), risk identification (RI), risk assessment and analysis (RAA), risk monitoring and reporting (RMR), credit risk analysis (CRA), liquidity risk analysis (LRA), and risk governance (RG) on risk management practices (RMP).

The study conducted by Hassan (2009) on risk management practices of Islamic banks of Brunei Darussalam have tested hypothesis that there is a positive relationship between aspects of risk management process and risk management practices. His findings showed

that Islamic banks are efficient in risk identification; and risk assessment and analysis and these are significantly contributing in risk management practices of banks. Whereas, a study conducted by Khalid and Amjad (2012) showed that understanding risk and risk management; and risk monitoring are significantly contributing in risk management practices of Islamic banks operating in Pakistan. Whereas, risk identification, risk assessment and analysis, risk monitoring, credit risk analysis and understanding risk and risk management has a positive and insignificant relationship with risk management practices. A study conducted by Shafiq and Nasr (2010) illustrated that understanding risk and risk management has a negative and insignificant relationship with RMP; whereas, risk identification, risk assessment and analysis, and credit risk management has a positive and insignificant relationship with risk management practice of banks operating in Pakistan. In addition risk monitoring has a positive and significant relationship with RMP of commercial banks.

Therefore, the second hypothesis is developed to investigate the differences between Islamic and conventional banks and to see the effect of risk management process on risk management practices of banks operating in Pakistan.

Hypothesis 3: There exists a difference between Islamic and conventional banks in understanding risk and risk management (URRM).

This hypothesis is tested by Hussain and Al-Ajmi (2012) and their findings revealed that there exists a difference between Islamic and conventional banks in understanding risk and risk management. The findings of Al-Tamimi and Al-Mazrooei (2007) illustrated that there exists no difference between UAE national and foreign banks in understanding risk and risk management. Whereas, findings of a study conducted by Nazir et al (2012) have rejected this hypotheses (there exists a difference between Islamic and conventional bank in the understanding risk and risk management).

Hypothesis 4: There exists a difference between Islamic and conventional banks in risk identification (RI).

The findings of Hussain and Al-Ajmi (2012) indicated that there exists no difference between Islamic and conventional banks of Bahrain in identifying risk. Also, findings of Nazir et al (2012) supported the findings of Hussain and Al-Ajmi (2012) related to the above-mentioned hypothesis.

Hypothesis 5: There exists a difference between Islamic and conventional banks in risk assessment and analysis (RAA).

The findings of Al-Tamimi and Al-Mazrooei stated that there exists a difference between national and foreign banks in risk assessment and analysis. Whereas, the findings of Hussain and Al-Ajmi (2012) and Nazir et al (2012) rejected this hypothesis and failed to show a significant difference between Islamic and conventional banks related to RAA.

Hypothesis 6: There exists a difference between Islamic and conventional banks in risk management practices (RMP).

The findings of Hussain and Al-Ajmi (2012) showed that there exists a significant difference between Islamic and conventional banks in risk management practices at 10% significance level. Whereas, the findings of Nazir et al (2012) rejects the above mentioned hypothesis and shows an insignificant difference between two types of banks in practicing risk management. The findings of Shafiq and Nasr (2010) illustrated an insignificant difference between public and private banks in practicing risk management. Also, the findings of Al-Tamimi and Al-Mazrooei (2007) illustrated that there is no difference between national and foreign banks in risk management practices.

Hypothesis 7: There exists a difference between Islamic and conventional banks in risk monitoring and reporting (RMR).

A study conducted by Nazir et al (2012) has confirmed that there exists a difference between Islamic and conventional banks in risk monitoring methods. The findings of Hussain and Al-Ajmi (2012) affirm that there exists no difference between Islamic and conventional banks in risk monitoring and reporting. Al-Tamimi and Al-Mazrooei (2007)

illustrated that there exists a difference between national and foreign banks operating in UAE in risk monitoring and controlling.

Hypothesis 8: There exists a difference between Islamic and conventional banks in the practices of credit risk analysis (CRA).

The findings of Nazir et al (2012) and Hussain and Al-Ajmi (2012) are consistent and showed that there exists no difference between Islamic and conventional banks in credit risk analysis. Whereas, findings of Al-Tamimi and Al-Mazrooei (2007) also showed that there is no difference between national and foreign banks in credit risk analysis. The findings of Shafiq and Nasr (2010) are also consistent with Al-Tamimi and Al-Mazrooei (2007).

Hypothesis 9: There exists a difference between Islamic and conventional banks in the practices of liquidity risk analysis (LRA).

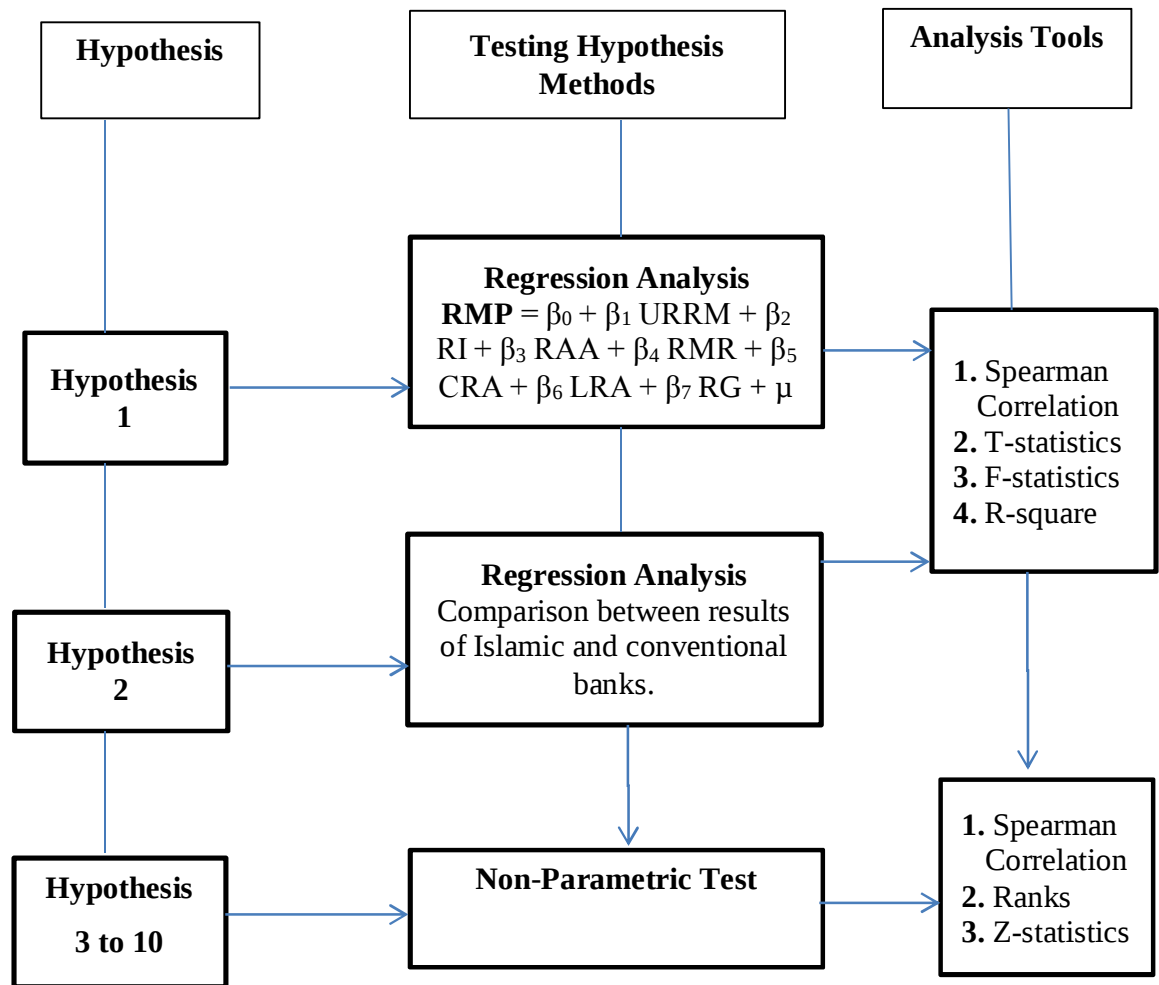
As mentioned earlier, in Chapter 1 and Chapter 2, liquidity risk analysis is a new variable, added in the risk management practices model based on the causes of financial crises in 2007 and introduction of Basel III. This hypothesis is developed based on the previous studies conducted in different economies which show that there is a difference between Islamic and conventional banks in relation to liquidity risk.

The findings of Jaffar and Manavari (2011) showed that Islamic banks show a better liquidity position in comparison with conventional banks operating in Pakistan. Also, a group of researchers has investigated and proved that Islamic banks are performing efficiently as compared to conventional banks with respect to liquidity risk (Islam and Chowdhury, 2007; Ika and Abdullah, 2011; Usman and Khan, 2012). Findings of the study conducted by Abdulle and Kassim (2012) illustrated that there exists a significant difference between Islamic and conventional banks of Malaysia with respect to liquidity risk analysis.

Hypothesis 10: There exists a difference between Islamic and conventional banks in the practices of risk governance (RG).

As stated earlier in chapter 1 and 2, the importance of risk governance arises after the financial crises as it was highlighted by the international bodies (EIU, 2008; KPMG, 2009; SSG, 2009; IIF and Ernst and Young, 2012; FSB, 2013) that weak risk governance was the root cause of failure of risk management in banks during the financial crisis. Based on the evidence discussed under chapter 1, 2 and 3 following hypothesis is developed. It is considered important to incorporate risk governance into the aspects of risk management process while we are measuring risk management practices of banks, because it is important to set the tone for risk management from the top management of the banks. As, risk governance is a responsibility of board of directors, and senior management including, risk committee, audit committee, asset and liability management committee, credit committee and operational risk committee, CFO, CEO and CRO.

Figure 6.4: Inferential Statistics Analysis Procedure



Source: Developed by the Author

6.5.9. Regression Analysis

Regression analysis is a tool to test the relationship between variables. It usually tests the cause and effect relationship between variables. The purpose of regression analysis is to estimate the net effect of the independent variable on the dependent variable.

Stepwise regression analysis technique was used in the current research study. Stepwise regression analysis is a useful and widely used technique. It means dropping out variables from the regression equation, one at a time or stepwise dropping of variables. This

technique helps to examine the variance created by a variable in the regression equation with the help of R-square. Elimination of each variable from the model is considered a new regression equation and model. Then, the R-square of each model is used to compare variance created by the independent variable in the dependent variable. This method helps us to examine the importance of a variable that we have dropped from the model (Punch, 2005, p.121).

In the current study, regression analysis was carried out to investigate the effect of explanatory variables, i.e. understanding risk and risk management, risk identification, risk assessment and analysis, risk monitoring and reporting, credit risk analysis, liquidity risk analysis and risk governance on risk management practices. Stepwise regression analysis is carried out to investigate the contribution of each independent variable in the dependent variable. For this purpose the following different regression equations were regressed on Islamic and conventional banking data:

$$\mathbf{RMP} = \beta_0 + \beta_1 \text{URRM} + \beta_2 \text{RI} + \beta_3 \text{RAA} + \beta_4 \text{RMR} + \beta_5 \text{CRA} + \beta_6 \text{LRA} + \beta_7 \text{RG} + \mu \dots (1)$$

$$\mathbf{RMP} = \beta_0 + \beta_1 \text{RI} + \beta_2 \text{RAA} + \beta_3 \text{RMR} + \beta_4 \text{CRA} + \beta_5 \text{LRA} + \beta_6 \text{RG} + \mu \dots (2)$$

$$\mathbf{RMP} = \beta_0 + \beta_1 \text{URRM} + \beta_2 \text{RAA} + \beta_3 \text{RMR} + \beta_4 \text{CRA} + \beta_5 \text{LRA} + \beta_6 \text{RG} + \mu \dots (3)$$

$$\mathbf{RMP} = \beta_0 + \beta_1 \text{URRM} + \beta_2 \text{RI} + \beta_3 \text{RMR} + \beta_4 \text{CRA} + \beta_5 \text{LRA} + \beta_6 \text{RG} + \mu \dots (4)$$

$$\mathbf{RMP} = \beta_0 + \beta_1 \text{URRM} + \beta_2 \text{RI} + \beta_3 \text{RAA} + \beta_4 \text{CRA} + \beta_5 \text{LRA} + \beta_6 \text{RG} + \mu \dots (5)$$

$$\mathbf{RMP} = \beta_0 + \beta_1 \text{URRM} + \beta_2 \text{RI} + \beta_3 \text{RAA} + \beta_4 \text{RMR} + \beta_5 \text{LRA} + \beta_6 \text{RG} + \mu \dots (6)$$

$$\mathbf{RMP} = \beta_0 + \beta_1 \text{URRM} + \beta_2 \text{RI} + \beta_3 \text{RAA} + \beta_4 \text{RMR} + \beta_5 \text{CRA} + \beta_6 \text{RG} + \mu \dots (7)$$

$$\mathbf{RMP} = \beta_0 + \beta_1 \text{URRM} + \beta_2 \text{RI} + \beta_3 \text{RAA} + \beta_4 \text{RMR} + \beta_5 \text{CRA} + \beta_6 \text{LRA} + \mu \dots (8)$$

$$\mathbf{RMP} = \beta_0 + \beta_1 \text{RI} + \beta_2 \text{RAA} + \beta_3 \text{RMR} + \beta_4 \text{CRA} + \beta_5 \text{LRA} + \mu \dots (9)$$

$$\mathbf{RMP} = \beta_0 + \beta_1 \text{URRM} + \beta_2 \text{RI} + \beta_3 \text{CRA} + \beta_4 \text{LRA} + \beta_5 \text{RG} + \mu \dots (10)$$

$$\mathbf{RMP} = \beta_0 + \beta_1 \mathbf{URRM} + \beta_2 \mathbf{RI} + \beta_3 \mathbf{RMR} + \beta_4 \mathbf{CRA} + \beta_5 \mathbf{LRA} + \mu \dots\dots\dots(11)$$

$$\mathbf{RMP} = \beta_0 + \beta_1 \mathbf{RI} + \beta_2 \mathbf{RAA} + \beta_3 \mathbf{CRA} + \beta_4 \mathbf{LRA} + \beta_5 \mathbf{RG} + \mu \dots\dots\dots(12)$$

Where,

β_0 is a slope intercept of dependent variable, β = Regression coefficient, μ = Error term,

RMP= Risk Management Practices, **URRM**= Understanding Risk and Risk Management, **RI**= Risk Identification, **RAA**= Risk Assessment and Analysis, **RMR**= Risk Monitoring and Reporting, **CRA**= Credit Risk Analysis, **LRA**= Liquidity Risk Analysis, **RG**= Risk Governance.

Fleming and Nellis (1994) have discussed four principle aspects that need to be considered, while applying multiple regression analysis: firstly, interpretation of individual regression coefficient that is beta value (β); secondly, the statistical significance of regression coefficient that is T-statistics; thirdly, the overall explanatory power of the estimated equation that is R-square (R^2); lastly, the statistical significance of the overall explanatory power that is The F-statistic.

6.5.10. Problems of Multiple Linear Regression

Multiple linear regression is associated with the following limitations and problems which need to be considered when applying multiple regression analysis.

When two or more explanatory variables are correlated with each other, then there is a problem of correlation which is referred to as a problem of *Multicollinearity*. A high degree of correlation among independent variables can cause problems in determination of true regression coefficients; estimates of coefficients may vary markedly between samples due to correlation. Ho and Wong (2001, p.148) asserted that a serious multicollinearity problem arises when the correlation coefficient exceeds the value 0.8. The classic way to deal with the problem of multicollinearity is to discard variables from regression model which are highly correlated or either considers one of correlated explanatory variable in each

regression model to capture their effect separately on the dependent variable. The current research study has used this technique to eliminate the correlation among independent variables (see model 9 to 12).

When the observations on the dependent variable are correlated with each other it is referred to as a problem of *autocorrelation* or *serial correlation*. The problem of autocorrelation is present when we are conducting time series analysis. As this research is conducted at a single time period, there is no problem of autocorrelation between data. Another limitation of the multiple regression analysis is *heteroscedasticity*. It is the possibility of inconstant prediction error which correlates with the size of independent variable. This problem is common in cross sectional data. This problem can be solved by transforming one or more independent variables.

6.5.11. Assumptions of Mann-Whitney U test (Non-Parametric test)

Non-parametric test is used when the assumptions of parametric test are violated and questionable. Non-parametric techniques have been studied by numerous authors (Gravertter and Wallnau, 2004; Peat, 2001; Pett et al., 2003) to show the difference between two independent groups. Abdulle and Kassim (2012) studied the impact of financial crisis on the performance of Islamic and conventional banks in Malaysia. They have performed the Mann-Whitney U-test to examine differences between Islamic and conventional banks. Also, the Mann-Whitney U test is used by Nangia and Jain (2014) and Oliveria et al. (2011).

Mann-Whitney U test can be applied when following assumptions are fulfilled: The dependent variable used is measured at the ordinal or continuous level such as Likert items (e.g. 7-point Likert scale from strongly agree to strongly disagree); the independent variable should consist of two categorical, independent groups (In this research study, there are two independent groups, i.e. Islamic banks, conventional banks); there should be independence of observations, which means that there should be no relationship between the observations in each group and between groups, i.e. there should be a different participant within each group. Moreover, the Mann-Whitney U test will be applied when the data are not normally

distributed. In this study, the Mann-Whitney U test was performed. The Z-value of the test, was used to assess if there is a significant difference between Islamic and conventional banks with respect to risk management process and practices.

All of the assumptions of the Mann-Whitney U test were fulfilled, as data was measured on an ordinal scale (Likert scale), there were two independent groups, i.e. Islamic bank and conventional bank for comparison, there was no relationship between observation of each group and between groups, and data were not normally distributed as tested by the test of normality (see Appendix 6: Test of Normality).

6.6. Conclusions

This chapter has discussed the research design and methodology for the current study to investigate the differences between risk management practices of Islamic and conventional banks operating in Pakistan. For this purpose, data triangulation was carried out with the help of secondary and primary data. Annual reports were used to examine the risk management disclosure practices of Islamic and conventional banks. Content analysis was used for analysing annual reports of banks. Moreover, a questionnaire was used as a primary source to collect data from senior management of banks on aspects related to the risk management process and practices. Descriptive and inferential statistics were applied as the main tool for this research study to draw a valid inference. This research study is adding value methodologically as content analysis and questionnaire have not been used previously in studying the risk management discipline. This gives a very unique dimension to the whole thesis, contributing to the empirical literature on Islamic and conventional banking, and risk management and disclosure practices worldwide and especially in the context of emerging economies.

Chapter 7

Quantitative Content Analysis & Discussion

7.0. Introduction

The aim of this chapter is to examine the volume and extent of risk disclosure practices of Islamic and conventional banks operating in Pakistan. This chapter helps to answer our first research question. The literature based on risk disclosure practices is discussed earlier in Chapter 4 (risk disclosure practices in banks) and themes are drawn from the previous studies (Darmadi, 2013; Chapra and Ahmed, 2002; Safieddine, 2009; Haniffa and Hudaib, 2007; Asongu, 2013; Savvides and Savvidou, 2012; Hassan and Harahap, 2010; Wood et al., 2009; Lajili, 2009; Lipunga, 2014; Linsely and Shrives, 2004). These themes and sub-themes providing framework and detail on how the content analysis technique is employed, are given in Chapter 6 (Research Design and Methodology).

This chapter is organized in two sections. Section 1 is based on frequencies of risk disclosure items to examine the volume of disclosure practices of Islamic and conventional bank operating in Pakistan. It shows descriptive analysis over the six year time period from year 2008 to 2013 and inferential statistics on disclosure of risk management practices of Islamic and conventional banking data. The Mann-Whitney U test is a non-parametric test, which is used to examine if there exists a difference between Islamic and conventional banks in regards to checklists of following main themes: risk profile, risk management profile, risk control activities, risk control environment and risk management process.

Section 2 is based on an un-weighted scoring index to examine the extent of disclosure information provided by Islamic and conventional banks based on 5 main themes. It

provides descriptive statistics such as the mean and standard deviation of checklist based on the main themes and inferential statistics with the help of the Mann-Whitney U test to investigate differences between Islamic and conventional banks in terms of risk disclosure practices based on the five themes discussed under chapter 4 and 6.

SECTION 1: DESCRIPTIVE & INFERENTIAL STATISTIC BASED ON FREQUENCIES

The content analysis technique is used to measure the level and importance of risk information that is disclosed in the annual reports of banks. Frequencies are used to examine the volume of risk disclosure practices on following themes: risk profile, risk management profile, risk control activities of banks, risk control environment, and risk management process of banks over the time period of 2008 to 2013.

7.1. Frequency Analysis of Banks

Content Analysis of Islamic Banks

Table 7.1 shows frequencies of the risk profile of Islamic banks from the year 2008 to 2013. The results highlight that disclosure of credit risk is higher among all risks from the year 2008 to 2013 with 150% change from 2008 to 2013. This result is consistent with the previous studies conducted by Hassan (2009) and Arrifin et al. (2009), who stated that credit risk is the most important risk in Islamic banks. Whereas, market risk is the second highest disclosed risk, among other risks, except for the year 2011. As, operational risk is the second highest disclosed risk in the corresponding year. The market risk disclosure shows 119.44% change from the year 2008 to 2013. Whereas, operational risk shows 169.23% change from the year 2008 to 2013. Operational risk disclosure is the third highest risk disclosed in the Islamic banks from 2008 to 2013. Foreign exchange risk is disclosed 23 times in the year 2013 with a 64.28% increase from the year 2008. Whereas, yield/profit rate risk shows 200% change from the year 2008 to 2013. Disclosure of equity price risk, reputation risk, regulatory risk, hedge risk, settlement risk and country risk is very low. However, disclosure of Shariah risk is very low over the selected time period. This

result is consistent with the results of a study conducted by Ariffin et al. (2009), who revealed that Shariah non-compliance risk is ranked least important risk by Islamic banking respondents. Disclosure of Shariah in the annual reports of Islamic banks provides assurance that the bank is working within Shariah guidelines. Disclosure of Shariah non-compliance risk is very low in all the selected years. Hamidi (2006) stated that Islamic bank's failure to comply with Shariah will result in a decline in the reputation of the banks and that will encourage customers to withdraw their funds which will further lead to the liquidity crisis for the banks. There is a need for more development and disclosure of Shariah non-compliance risk in order to assure stakeholders that Islamic banks are complying with the Shariah law (Besar et al., 2009). Darmadi (2013) suggested that Islamic banks who have a complex business cycle should manage following four risks: legal risk, compliance risk, strategic risk and reputation risk.

Table 7.1: Frequencies of Risk Profile of Islamic banks

S.no	Risk Profile	% change 2008-2013	2008	2009	2010	2011	2012	2013
1	Credit risk	150%	48	66	77	85	88	120
2	Liquidity risk	46.15%	13	19	18	19	18	19
3	Market risk	119.44%	36	47	54	56	56	79
4	Yield/ profit rate risk	200%	3	4	6	6	6	9
5	Foreign exchange risk	64.28%	14	17	18	21	21	23
6	Operational risk	169.23%	26	45	51	60	55	70
7	Equity position risk	62.5%	8	10	12	13	10	13
8	Equity Price risk	0	1	2	1	1	1	1
9	Reputational risk	0	0	0	0	1	1	1
10	Regulatory risk	0	0	0	0	0	0	0
11	Hedge risk	0	0	0	0	0	0	2
12	Settlement risk	0	0	1	1	1	1	1
13	Country Risk	0	0	1	1	3	3	3
14	Shariah non- compliance risk	0	0	2	2	1	2	2

Table 7.2 indicates the frequencies of the risk management profile of the banks. The results show that Islamic banks disclose slight information on the management of different risks. Credit risk management is disclosed 9 times in the year 2013, liquidity risk management is disclosed 1 time in an Islamic bank, market risk management is disclosed 3 times, and there is no information disclosed on yield/ profit rate risk management, equity price risk management and equity position risk management. Whereas, foreign exchange risk management is disclosed 3 times. Also, information disclosure on operational risk management is more than other risks. But, the disclosure of operational risk management declined in the year 2013. Whereas, percentage change from year 2008 to 2013 of operational risk management is 140%, which is relatively high. The findings of risk

management profile lack in terms of guiding principles of risk disclosure presented by the Basel Committee on Banking Supervision (2014c), which stated that banks should disclose information on emerging risks and how they manage these risks.

Table 7.2: Risk Management Profile of Islamic banks

S.no	Risk Profile	% change 2008 -2013	2008	2009	2010	2011	2012	2013
1	Credit risk management	125%	4	3	5	5	9	9
2	Liquidity risk management	0	1	1	1	1	1	1
3	Market risk management	0	3	3	4	4	3	3
4	Yield/ profit rate risk management	0	0	0	0	0	0	0
5	Foreign exchange risk management	0	0	0	1	1	2	3
6	Operational risk management	140%	5	9	13	16	15	12
7	Equity position risk management	0	0	0	0	0	0	0
8	Equity Price risk management	0	0	0	0	0	0	0

Table 7.3 indicates frequencies on risk control activities of Islamic banks from the year 2008 to 2013. The results illustrate that disclosure on central bank i.e. State Bank of Pakistan is more than other aspects, because the State Bank of Pakistan is providing guidelines to Islamic banks from time to time on capital management, liquidity management, Shariah law and risk management policies for banks. The second highest disclosure is on “Risk management” from the year 2008 to 2013. Whereas, Basel III is disclosed 91 times in the year 2013, which was disclosed 1 time in year 2012 and 2011. Information on Basel II, internal audit and internal control is disclosed 36 times in the year 2013. Disclosure on internal control shows 414.28% increase from the year 2008. Risk

appetite is disclosed 12 times and stress testing is disclosed 13 times in the year 2013 by showing a steady increase from year to year. Risk management policies and procedures are disclosed 38 times and risk management framework is disclosed 22 times in the year 2013. The results of percentage change from the year 2008 to 2013 show an increase of 311% in the State Bank of Pakistan disclosure from the year 2008. Whereas, risk appetite, stress test, Basel II, internal audit, risk management policies and procedures, risk management framework, and risk management shows an increase of 100%, 160%, 71.43%, 157.14%, 52%, 120%, 97.59%, respectively, in the year 2013 as compared to the year 2008.

Table 7.3: Risk Control Activities of Islamic banks

S.no		% change 2008-2013	2008	2009	2010	2011	2012	2013
1	Internal control	414.28%	7	38	44	39	43	36
2	Risk appetite	100%	6	11	10	11	10	12
3	Stress testing	160%	5	7	9	10	11	13
4	Basel III	0	0	0	0	1	1	91
5	Basel II	71.43%	21	33	38	39	37	36
6	Internal Audit	157.14%	14	19	24	19	38	36
7	Risk management policies/procedure	52%	25	31	33	34	39	38
8	Risk management framework	120%	10	17	19	24	22	22
9	Risk management	97.59%	83	128	139	147	169	164
10	SBP	311%	136	224	327	329	423	559

Table 7.4 below highlights frequencies based on the risk control environment of Islamic banks from the year 2008 to 2013. The risk control environment consists of the board of directors; its committees and lines of defence in banks. The frequency result shows that disclosure on board of directors is more than the other committees. The board of directors is disclosed 340 times in the year 2013. Whereas, disclosure on the risk committee, audit committee, the assets and liability management committee is disclosed by 27, 52 and 39 times, respectively, in the year 2013. The results show that there is no existence of the market risk management committee in Islamic banks because, market risk is managed by assets and liability committee together with the help of risk management committee. Operational risk management committee is disclosed 12 times in 2013; Shariah supervisory board is disclosed 32 times; whereas Shariah advisor is disclosed 41 times in the annual report of the year 2013. Information on a CEO is disclosed by 118 times in the year 2013 followed by CFO 25 times, whereas, CRO disclosure is very low with a frequency of 2, which is an alarming fact. The frequency of risk management function/ department is 36 in the year 2013, which shows 140% increase in disclosure from the year 2008. Whereas, disclosure on the CRO shows that there is no CRO in most of the Islamic banks.

Hence, disclosure on the board of directors, risk management committee, audit committee, asset and liability management committee, credit risk committee, operational risk committee, Shariah supervisory board and Shariah advisory have increased from 2008 to 2013. The presence of the Shariah supervisory board in the Islamic bank ensures that banking activities are in line with Shariah rules and regulations (Safieddine, 2009). The role of the Shariah supervisory board is important in the internal control mechanism (Haniffa and Hudaib, 2007).

Table 7.4: Risk Control Environment in Islamic banks

S.no		% change 2008 -2013	2008	2009	2010	2011	2012	2013
1	Board of directors/ board	206.31%	111	223	226	248	313	340
2	Risk management committee	125%	12	15	19	23	31	27
3	Audit committee	205.88%	17	32	35	32	49	52
4	Assets liability management committee (ALCO)	160%	15	23	19	27	34	39
5	Credit risk committee	100%	7	9	9	10	11	14
6	Market risk management committee	0	0	1	0	0	0	0
7	Operational risk management committee	0	0	2	2	2	3	12
8	Shariah supervisory board	68.42%	19	24	27	31	29	32
9	Shariah Advisor	70.83%	24	30	29	30	36	41
10	CEO	436.36%	22	54	55	69	84	118
11	CFO	177.78%	9	15	14	13	25	25
12	CRO	100%	1	3	2	3	2	2
13	Risk management department/ function	140%	15	23	27	27	29	36

Table 7.5 illustrates aspects of the risk management process with the percentage change from the year 2008 to 2013. The results show that Islamic banks disclose more information on the risk mitigation (33) followed by risk reporting (23), and risk monitoring (22) in the year 2013; whereas, Islamic banks disclose more information on risk monitoring (24) followed by risk mitigation (19) and risk assessment (14) in the year 2012. The results indicate that from the year 2008 to 2013, Islamic banks disclosed more information on risk monitoring and risk mitigation, whereas there is a lack of disclosure on risk analysis, risk assessment, risk reporting and risk governance. The results of percentage change from the year 2008 to 2013 show that disclosure on risk assessment has increased by 650%, followed by risk measurement, risk identification, risk reporting, risk control, risk monitoring, risk mitigation and risk governance has increased by 50%, 83.33%, 2200%, 75%, 37.5%, 230% and 50%, respectively. Hence, in the year 2013, more information is disclosed on the aspects of risk management process than previous years, which is an indication of improvement in the risk management practices.

Table 7.5: Risk Management Process Islamic Banks

S.no		% change 2008-2013	2008	2009	2010	2011	2012	2013
1	Risk Assessment	650%	2	2	6	10	14	15
2	Risk Analysis	0	0	1	0	0	0	0
3	Risk Measurement	50%	8	8	8	8	7	12
4	Risk Identification	83.33	6	6	8	8	6	11
5	Risk Reporting	2200%	1	3	5	6	7	23
6	Risk Control	75%	4	4	5	7	9	7
7	Risk Monitoring	37.5%	16	19	21	24	24	22
8	Risk Mitigation	230%	10	14	17	20	19	33
9	Risk Governance	50%	2	5	3	3	4	3

Content Analysis of Conventional Banks

Table 7.6 illustrates the risk profile of conventional banks over the time period of 2008 to 2013. The results also show that the percentage changes in the risk profile disclosure from the year 2008 to 2013. The results highlight that from the year 2008 to the year 2013, credit risk is the most disclosed risk followed by market, operational and liquidity risks. According to the frequency results for the year 2013, conventional banks are giving importance to the disclosure of credit risk (156) followed by the market risk (104), operational risk (102), and liquidity risk (47). Because, banks are required to disclose detail about their four main risks, credit risk, market risk, liquidity risk and operational risk by the Basel II regulations. Also, Credit risk is considered most important risk in the banking industry due to its nature of business of borrowing and lending. Ahmad and Ahmad (2004) recommended that credit risk is higher in the financial institution due to a general expectation of its exposure to loss. They also stated that credit risk is important for both banking system i.e. Islamic and conventional banks due to different reasons such as; regulatory capital requirement, loan loss provision, risk-weighted assets, management efficiency of bank and loan exposure to risky sectors. Most of the researchers have found that credit risk is mostly faced risk in the banking business (Al-Tamimi and Al-Mazrooei, 2007; Hussain and Al-Ajmi, 2012).

According to the results of percentage change from the year 2008 to 2013, yield/ interest rate risk (333%), liquidity risk (213%), reputational (125%) and operational risk (121.73%) disclosure have increased more than other risks, followed by foreign exchange risk (72.72%), country risk (72.72%), credit risk (65.95%), equity price risk (50%), settlement risk (40%), market risk (26.83%), equity position risk (22.22%) and interest rate risk (17.86%).

Table 7.6: Risk Profile of Conventional Banks

S.no	Risk Profile	% change 2008- 2013	2008	2009	2010	2011	2012	2013
1	Credit risk	65.95%	94	112	136	141	140	156
2	Liquidity risk	213%	15	18	31	38	38	47
3	Market risk	26.83%	82	82	88	92	92	104
4	Interest rate risk	17.86%	28	22	36	36	38	33
5	Yield/ interest rate risk	333%	3	3	20	6	24	13
6	Foreign Exchange risk	72.72%	11	13	17	15	17	19
7	Operational risk	121.73%	46	62	74	90	82	102
8	Equity position risk	22.22%	9	7	12	10	11	11
9	Equity Price risk	50%	8	8	13	13	12	12
10	Reputational risk	125%	4	6	5	6	11	9
11	Regulatory risk	0	0	0	0	0	1	4
12	Hedge risk	0	0	1	1	2	3	3
13	Settlement risk	40%	5	4	7	4	7	7
14	Country Risk	72.72%	11	12	14	18	17	19

Table 7.7 reveals the results of the risk management profile of conventional banks from the year 2008 to the year 2013. According to the frequency results of the year 2013, conventional banks disclose operational risk management (30), credit risk management (16), market risk management (15), and liquidity risk management (12) in their annual reports. Conventional banks did not disclose any information on equity position risk management, equity price risk management and yield/ interest rate risk management. Whereas, interest risk management and foreign exchange risk management is disclosed 2 times in the year 2013. Table 7.7 also illustrates the percentage change in risk management profile of conventional banks from the year 2008 to the year 2013. Disclosure on credit risk management is increased by 128.57% from year 2008 to 2013 followed by liquidity risk management, Market risk management and operational risk management by 500%, 50% and 233.33%.

Table 7.7: Risk Management Profile of Conventional Banks

S. no		% change 2008-2013	2008	2009	2010	2011	2012	2013
1	Credit risk management	128.57%	7	10	10	13	11	16
2	Liquidity risk management	500%	2	4	8	8	9	12
3	Market risk management	50%	10	15	15	22	17	15
4	Interest risk management	0	2	1	3	3	3	2
5	Yield/ interest rate risk management	0	0	0	1	1	1	0
6	Foreign exchange risk management	0	0	2	2	2	2	2
7	Operational risk management	233.33%	9	20	20	32	20	30
8	Equity position risk management	0	0	0	0	0	0	0
9	Equity Price risk management	0	0	0	0	0	0	0

Table 7.8 discloses the risk control activities information based on following aspects: internal control, risk appetite, stress testing, Basel II and III, internal audit function, risk management policies and procedure, risk management framework, risk management, and State Bank of Pakistan. Results reveal that conventional banks are giving more importance to the disclosure of State Bank of Pakistan, which is the central bank of Pakistan followed by the risk management, Basel III and internal control in the year 2013. State bank of Pakistan term is mostly commonly used in the annual reports to discuss rules and regulations issued by State Bank of Pakistan for the conventional banks. Basel III was first disclosed in the year 2011 in the annual reports of conventional bank. Basel II disclosure is getting lower with the adoption and implementation of the Basel III in the year 2013 as compared to the year 2012. Disclosure on Stress testing is gradually increasing over the time period from 2008 to 2013. Whereas, internal audit disclosure in the conventional banks has decreased in year 2013 as compared to 2012. Disclosure on risk appetite is still low as compared to other risk areas over the time period of 6 years. Risk appetite is the base for formulation of risk strategies and policies (Lentino, 2012); establishing systems, processes and controls to ensure that overall risk remains within the acceptable level described in the risk appetite. On the other hand, a well formulated policy and procedure is important for the risk management framework in the banks, which is needed to be reinforced through a control environment that supports the sound risk governance in the banks.

Table 7.8: Risk Control Activities in Conventional Banks

S.no		% change 2008- 2013	2008	2009	2010	2011	2012	2013
1	Internal control	52%	50	55	72	85	83	76
2	Risk appetite	240%	5	8	9	10	15	17
3	Stress testing	142.85%	14	14	24	22	33	34
4	Basel III	0	0	0	0	4	7	110
5	Basel II	90%	30	36	55	54	73	57
6	Internal Audit	175%	16	20	32	34	45	44
7	Risk management policies & procedure	47.05%	34	40	41	48	46	50
8	Risk management framework	223.07%	13	20	26	30	39	42
9	Risk management	145.6%	125	181	237	293	272	307
10	State Bank of Pakistan/ SBP	88.88%	252	274	351	335	400	476

Table 7.9 highlights risk control environment in the conventional banks operating in Pakistan. Disclosure on “board of directors” of conventional banks has increased from the year 2008 to 2013. The frequency of disclosure on board of director was 185 in year 2008, whereas, 309 times in year 2009, followed by 423 times in year 2010, 507 times in year 2011, 530 times in year 2012, and 546 times in the year 2013. The table also shows a percentage change in the disclosure of board of directors from the year 2008 to 2013, which is 195%. Disclosure on the role of “Risk committee” has also increased in banks with a frequency of 97 times in the year 2013, which was 21 times in the year 2008. Haniffa and Hudaib (2004) suggested that disclosure on profile of board of director is important as stakeholders need to assess the profile of those who are managing their funds and resources. Disclosure on the members of board committees is important, because board committees are established to support the board of directors in making policies, decision making processes, supervising and monitoring roles on management of the bank. The Board committee members are required to have expertise in their area to maintain the effectiveness of their committee (Financial Reporting Council, 2012).⁶¹

Disclosure on “audit committee” has increased by 233.33% in the year 2013 from 2008. As, the role of the audit committee is getting much obvious in the banks with time. The Audit committee is required to review the financial statements, business review, corporate governance relating to audit, and risk management (Financial Reporting Council, 2012), and bank’s internal control function including the process of identifying, assessing, managing and monitoring financial risks. Whereas, the results show that disclosure on the role of “assets and liability management committee” is slowly increasing over time (from the year 2008 to 2013) by 73.91% change from the year 2008 to 2013. Disclosure on “credit risk committee” and “market risk committee” has decreased in year 2013 as compared to the year 2008. Whereas, disclosure on the operational risk committee remains

⁶¹ Guidance on Audit committee, 2012 <https://www.frc.org.uk/Our-Work/Publications/Corporate-Governance/Guidance-on-Audit-Committees-September-2012.aspx>

constant from the year 2008 to 2010 and in the year 2011 it shows frequency of 7 but in the year 2013 it shows a decline and reports frequency of 2. Disclosure on the role of “CEO” has increased tremendously from the year 2008 to year 2013. Whereas, disclosure on the presence of CRO is also increasing in conventional banks with time. Disclosure on the risk management department shows a 107.14% increase from the year 2008 to 2013. The credit risk committee is responsible for approving and monitoring all financial transactions and formulation of credit risk policy for monitoring the risk profile of the bank. Market and liquidity risk is monitored by assets and liability management committee (ALCO). It is the responsibility of CFO to manage capital, balance sheet, Assets and liabilities, treasury and funding across the bank. The responsibility of a Chief Risk Officer (CRO) is authorized by the board of directors to supervise the risk management division in implementing risk management framework across the bank.

Table 7.9: Risk Control Environment in Conventional Banks

S.no		% change 2008 -2013	2008	2009	2010	2011	2012	2013
1	Board of Directors/ board	195.14%	185	309	423	507	530	546
2	Risk Management Committee	361.90%	21	19	40	43	70	97
3	Audit Committee	233.33%	24	46	61	60	60	80
4	Assets Liability management committee (ALCO)	73.91%	23	28	37	49	44	40
5	Credit Risk Management Committee	-50%	8	7	18	13	4	4
6	Market Risk Management Committee	-28.57%	14	6	6	6	10	10
7	Operational Risk Management Committee	100%	1	1	1	7	3	2
8	CEO	210.52%	38	77	84	91	121	118
9	CFO	108.33%	12	24	27	29	29	25
10	CRO	700%	2	3	5	18	17	16
11	Risk Management Department/ Function	107.14%	14	24	34	42	26	29

Table 7.10 highlights disclosure frequencies on the aspects of risk management process in the conventional banks from the year 2008 to 2013. Results show that risk reporting (35), risk control (23), and risk mitigating (17) are most disclosed aspects in the annual report of 2013 in the conventional banks. Whereas, in year 2008, disclosure on risk control (20), risk mitigation (17) and risk assessment (11) was more than other aspects of the risk management process, which is the indication of their importance in conventional banking than other aspects. In the year 2009, disclosure on risk control (17), risk reporting (16) and risk mitigation (13) and risk assessment (13) was more than other aspects of the risk management process. The focus on risk reporting has started from 2009 in conventional banks with a percentage change by 288.89% from the year 2008 to 2013. From the year 2010, disclosure on risk reporting (22) was higher than other aspects of the risk management process. Risk governance and risk analysis is least disclosed aspects of the risk management process from the year 2008 to 2013.

Table 7.10: Risk Management Process Conventional Banks

S.no		% change 2008-2013	2008	2009	2010	2011	2012	2013
1	Risk Assessment	27.27%	11	13	13	18	16	14
2	Risk Analysis	0	0	0	1	2	2	4
3	Risk Measurement	114.28%	7	5	17	16	13	15
4	Risk Identification	140%	5	11	10	13	11	12
5	Risk Reporting	288.89%	9	16	22	32	34	35
6	Risk Control	15%	20	17	21	21	33	23
7	Risk Monitoring	77.78%	9	9	13	15	18	16
8	Risk Mitigation	0	17	13	16	16	12	17
9	Risk Governance	0	0	0	1	2	3	5

7.1.1. Discussion on Descriptive Statistics

The results show that disclosure on the risk profile is higher in conventional banks as compared to Islamic banks from the year 2008 to 2013, except foreign exchange risk and equity position risk as disclosure on these risks is higher in Islamic banks.

Results also highlight that disclosure on a risk management profile of conventional banks is higher than Islamic banks. Operational risk management is seen as most focused area of disclosure followed by credit risk management, market risk management and liquidity risk management in banks from 2008 to 2013.

Findings reveal that disclosure of the risk control activities of conventional banks is higher as compared to disclosure of risk control activities of Islamic banks, except disclosure on State Bank of Pakistan (SBP). Disclosure on State Bank of Pakistan (SBP) has increased in Islamic banks since 2012, as compared to conventional banks. Results also illustrate that disclosure on “risk appetite” was higher in Islamic banks from year 2008 to 2011 as compared to conventional banks in the corresponding years. As, It is considered that disclosure on risk profile, risk appetite, and risk management are the key aspects for stakeholders in making investment decisions (Lajili, 2009).

Results show that disclosure on the risk control environment of conventional banks is higher as compared to Islamic banks on areas such as the board of directors, risk management committee, audit committee, assets and liability management committee (ALCO), market risk management committee, and chief risk officer (CRO) from 2008 to 2013. Whereas, disclosure of Islamic banks on the credit risk management committee (in year 2013, 2011, 2009), and operational risk management committee (in year 2013, 2012, 2010, 2009, 2008) is higher as compared to conventional banks in the corresponding years. One of the reasons behind having more focus on “operational risk management committee” by Islamic banks is that Islamic banks face unique risk known as Shariah non-compliance risk and Islamic banks consider Shariah non-compliance risk as part of operational risk. For managing Shariah non-compliance risk and other operational risks Islamic banks disclose more information on operational risk management committee. Furthermore, disclosure on

risk management group/ department/ division is more in Islamic banks as compared to conventional banks in the year 2013, 2012, and 2008. The results also demonstrate that disclosure of the risk management process of Islamic and conventional banks from the year 2008 to 2013. The results reveal that disclosure on the risk management process of Islamic banks is higher on risk monitoring (2008 to 2013); risk mitigation (2009 to 2013); risk governance (2012, 2011, 2010, 2009 & 2008); risk assessment (2013); risk measurement (2008 & 2009); and risk identification (2008) as compared to conventional banks in corresponding years. Whereas, disclosure on risk assessment (2008 to 2012); risk analysis (2009 to 2013); risk measurement (2010 to 2013); risk identification (2009 to 2013); risk reporting (2008 to 2013); risk mitigation (2008); and risk governance (2013) is higher in conventional banks as compared to Islamic banks in corresponding years.

7.2. Inferential Statistics

This section of the study investigates the difference between Islamic and conventional banks on a level of disclosure on risk profile, risk management profile, risk control activities of banks, risk control environment, and risk management process.

Mann-Whitney U Test

Table 7.11 is very useful as it indicates that which group (Islamic or conventional) has the highest level of disclosure on the risk profile of banks. The results of mean rank reveal that disclosure of Credit risk, liquidity risk, market risk, foreign exchange risk, operational risk, equity price risk, reputational risk, hedge risk, settlement risk and country risk is significantly higher in conventional banks as compared to Islamic banks operating in Pakistan. Whereas, disclosure of yield or interest / profit risk, equity position risk, and regulatory risk does not show significant difference between Islamic and conventional banks. Whereas, the test statistics shows U value, as well as the asymptotic significance (2-tailed), i.e. p-value. From above table it can be concluded that disclosure on Credit risk (U=191.5, P-value= 0.000), Liquidity risk (U=252.0, P-value=0.003), operational risk (U=234.5, P-value=0.001), equity price risk (U=261.5, P-value=0.002), reputational risk (U=283.5, P-value=0.002), hedge risk (U=320.0, P=0.004), and country risk (162.00, P-value=0.000) shows significant difference between Islamic and conventional banks at 1%; whereas, Market risk (U=320.5, P-value=0.055), Foreign exchange risk (U=297.0, P-value=0.021), and settlement risk (U=310.00, P-value=0.10) is statistically different at 5% level of significance between Islamic and conventional banks operating in Pakistan. Whereas, disclosure of yield or interest/ Profit rate risk (U=336.0, P-value=0.082), equity position risk (U=408.0, P-value=.522) and regulatory risk (U=420.0, P-value=.154) is not statistically different between Islamic and conventional banks.

Table 7.11: Mean Rank & Test Statistics of Risk Profile of Banks

	Bank type	N	Mean Rank	Sum of Ranks	Test Statistics
Credit risk	Islamic Bank	30	21.88	656.50	Mann Whitney U= 191.5
	Conventional Bank	30	39.12	1173.50	Sig.= .000**
	Total	60			
Liquidity risk	Islamic Bank	30	23.90	717.00	Mann Whitney U=252.0
	Conventional Bank	30	37.10	1113.00	Sig.= .003**
	Total	60			
Market risk	Islamic Bank	30	26.18	785.50	Mann Whitney U= 320.5
	Conventional Bank	30	34.82	1044.50	Sig.= .055*
	Total	60			
Yield/ interest/ profit risk	Islamic Bank	30	26.70	801.00	Mann Whitney U= 336.0
	Conventional Bank	30	34.30	1029.00	Sig.= .082
	Total	60			
Foreign exchange risk	Islamic Bank	30	35.60	1068.00	Mann Whitney U= 297.0
	Conventional Bank	30	25.40	762.00	Sig.= .021*
	Total	60			
Operational risk	Islamic Bank	30	23.32	699.50	Mann Whitney U= 234.5
	Conventional Bank	30	37.68	1130.50	Sig.= .001**
	Total	60			
Equity position risk	Islamic Bank	30	31.90	957.00	Mann Whitney U= 408.0
	Conventional Bank	30	29.10	873.00	Sig.= .522
	Total	60			
Equity price risk	Islamic Bank	30	24.22	726.50	Mann Whitney U= 261.5
	Conventional Bank	30	36.78	1103.50	Sig.= .002**
	Total	60			

Reputational risk	Islamic Bank	30	24.95	748.50	Mann Whitney U= 283.5
	Conventional Bank	30	36.05	1081.50	Sig.= .002**
	Total	60			
Regulatory risk	Islamic Bank	30	29.50	885.00	Mann Whitney U=420.0
	Conventional Bank	30	31.50	945.00	Sig.= .154
	Total	60			
Hedge risk	Islamic Bank	30	26.17	785.00	Mann Whitney U= 320.0
	Conventional Bank	30	34.83	1045.00	Sig.= .004**
	Total	60			
Settlement risk	Islamic Bank	30	25.83	775.00	Mann Whitney U= 310.0
	Conventional Bank	30	35.17	1055.00	Sig.= .010*
	Total	60			
Country risk	Islamic Bank	30	20.90	627.00	Mann Whitney U= 162.0
	Conventional Bank	30	40.10	1203.00	Sig.= .000**
	Total	60			
Grouping Variable: Bank type, * significant at 5% ** significant at 1%					

Table 7.12 indicates the mean rank and test statistics of disclosure on the risk management profile of Islamic and conventional banks. Results show that disclosure on credit risk management, liquidity risk management, market risk management and operational risk management is significantly high in the conventional banks as compared to Islamic banks operating in Pakistan. Whereas, disclosure on equity price management, and equity position management is same in Islamic and conventional banks. Moreover, disclosure on foreign exchange risk management, and yield risk management is insignificant and shows a slight difference between Islamic and conventional banks. Test statistics for disclosure on a risk management profile of banks. Results show that disclosure on Credit risk management ($U=233.5$, $P\text{-value}=0.001$), Liquidity risk management ($U=282.5$, $P\text{-value}=0.003$), Market risk management ($U=130.0$, $P\text{-value}=0.000$) shows statistically significant difference between Islamic and conventional banks at 1% and operational risk management ($U=290.0$, $P\text{-value}=0.016$) is statistically significant at 5%. This means disclosure on credit risk management, liquidity risk management, market risk management and operational risk management is significantly different between Islamic and conventional banks.

Table 7.12: Mean Ranks & Test Statistics of Risk Management Profile of Banks

	Bank type	N	Mean Rank	Sum of Ranks	Test Statistics
Credit risk management	Islamic Bank	30	23.28	698.50	Mann Whitney U= 233.5
	Conventional Bank	30	37.72	1131.50	Sig.= .001**
	Total	60			
Liquidity risk management	Islamic Bank	30	24.92	747.50	Mann Whitney U= 282.5
	Conventional Bank	30	36.08	1082.50	Sig.= .003**
	Total	60			
Market risk management	Islamic Bank	30	19.83	595.00	Mann Whitney U= 130.0
	Conventional Bank	30	41.17	1235.00	Sig.= .000**
	Total	60			
Yield risk management	Islamic Bank	30	29.00	870.00	Mann Whitney U= 405.0
	Conventional Bank	30	32.00	960.00	Sig.= .078
	Total	60			
Foreign exchange risk management	Islamic Bank	30	30.92	927.50	Mann Whitney U= 437.5
	Conventional Bank	30	30.08	902.50	Sig.= .791
	Total	60			
Operational risk management	Islamic Bank	30	25.17	755.00	Mann Whitney U= 290.0
	Conventional Bank	30	35.83	1075.00	Sig.= .016*
	Total	60			
Equity position risk management	Islamic Bank	30	30.50	915.00	Mann Whitney U= 450.0
	Conventional Bank	30	30.50	915.00	Sig.= 1.000
	Total	60			
Equity price risk management	Islamic Bank	30	30.50	915.00	Mann Whitney U= 450.0
	Conventional Bank	30	30.50	915.00	Sig.= 1.000
	Total	60			
Grouping Variable: Bank type, * significant at 5% ** significant at 1%					

Table 7.13 indicates mean ranks and test statistics on disclosure of risk control activities of Islamic and conventional banks. The results show that the mean rank on disclosure of risk management policies, risk management framework, risk management, internal control, stress testing, and Basel II is significantly higher in conventional banks as compared to Islamic banks operating in Pakistan. Whereas, test statistics affirms that disclosure of risk management (U=158.0, P-value=0.000), internal control (U=176.5, P-value=0.000), stress testing (U=200.5, P-value=0.000) shows a significant difference at 1%; whereas, risk management policies (U=296.0, P-value=0.022), risk management framework (U=309.5, P-value=0.036), and Basel II (U=297.0, P-value=0.023) is significantly different between Islamic and conventional banks at 5%. Whereas, disclosure on risk appetite, internal audit, Basel III and State bank of Pakistan do not show a statistically significant difference between Islamic and conventional banks operating in Pakistan.

Table 7.13: Mean Ranks & Test Statistics of Risk Control Activities of Bank

	Bank type	N	Mean Rank	Sum of Ranks	Test Statistics
Risk management policies	Islamic Bank	30	25.37	761.00	Mann Whitney U= 296.0
	Conventional Bank	30	35.63	1069.00	Sig.= .022*
	Total	60			
Risk management framework	Islamic Bank	30	25.82	774.50	Mann Whitney U= 309.5
	Conventional Bank	30	35.18	1055.50	Sig.= .036*
	Total	60			
Risk appetite	Islamic Bank	30	28.02	840.50	Mann Whitney U= 375.5
	Conventional Bank	30	32.98	989.50	Sig.= .257
	Total	60			
Risk management	Islamic Bank	30	20.77	623.00	Mann Whitney U= 158.0
	Conventional Bank	30	40.23	1207.00	Sig.= .000**
	Total	60			
Internal control	Islamic Bank	30	21.38	641.50	Mann Whitney U= 176.5
	Conventional Bank	30	39.62	1188.50	Sig.= .000**
	Total	60			

Internal audit	Islamic Bank	30	26.37	791.00	Mann Whitney U= 326.0
	Conventional Bank	30	34.63	1039.00	Sig.= .065
	Total	60			
Stress testing	Islamic Bank	30	22.18	665.50	Mann Whitney U= 200.5
	Conventional Bank	30	38.82	1164.50	Sig.= .000**
	Total	60			
Basel III	Islamic Bank	30	28.92	867.50	Mann Whitney U= 402.5
	Conventional Bank	30	32.08	962.50	Sig.= .377
	Total	60			
Basel II	Islamic Bank	30	25.40	762.00	Mann Whitney U= 297.0
	Conventional Bank	30	35.60	1068.00	Sig.= .023*
	Total	60			
State Bank of Pakistan	Islamic Bank	30	28.93	868.00	Mann Whitney U= 403.0
	Conventional Bank	30	32.07	962.00	Sig.= .487
	Total	60			
Grouping Variable: Bank type, * significant at 5% ** significant at 1%					

Table 7.14 shows mean ranks and test statistics on disclosure of risk control environment in Islamic and conventional banks operating in Pakistan. Results reveal that disclosure on board of director, risk management committee, Audit committee, market risk committee and the CFO is significantly higher in conventional banks as compared to Islamic banks. Whereas, disclosure on the credit risk committee is insignificantly high in Islamic banks than conventional banks. Moreover, disclosure on the Assets liability management committee, CEO, CRO and risk management department is insignificantly high in conventional banks as compared to Islamic banks. Whereas, test statistics affirms that board of director (U=252.0, P-value=0.003) and Risk management committee (U=259.0, p-value=0.005) is statistically significant at 1%; Audit committee (U=284.5, P-value= 0.014), market risk Committee (U=273.0, P-value=0.010), and CFO (U=320.5, P-value=0.054) is statistically significant at 5% which means there exists a difference between disclosure of conventional banks and Islamic banks on board of directors, risk management committee, audit committee, market risk management committee, and CFO. In contrast, results do not show statistically significant difference on disclosure of assets and liability management

committee (U=365.0, P-value=.206), credit risk committee (U=399.0, P-value=.437), operational risk committee (U=387.0, P-value=.934), CEO (U=336.5, P-value=0.093), CRO (U=353.50, P-value=353.5, P-value.109) and risk management department (U=412.5, P-value=.577) between Islamic and conventional banks operating in Pakistan.

Table 7.14: Mean Ranks and Test Statistics of Risk Control Environment of Banks

	Bank type	N	Mean Rank	Sum of Ranks	Test Statistics
Board of Directors	Islamic Bank	30	23.90	717.00	Mann Whitney U= 252.0
	Conventional Bank	30	37.10	1113.00	Sig.= .003**
	Total	60			
Risk Management Committee	Islamic Bank	30	24.13	724.00	Mann Whitney U= 259.0
	Conventional Bank	30	36.87	1106.00	Sig.= .005**
	Total	60			
Audit Committee	Islamic Bank	30	24.98	749.50	Mann Whitney U= 284.5
	Conventional Bank	30	36.02	1080.50	Sig.= .014*
	Total	60			
Assets Liability Committee	Islamic Bank	30	27.67	830.00	Mann Whitney U= 365.0
	Conventional Bank	30	33.33	1000.00	Sig.= .206
	Total	60			
Credit Risk Committee	Islamic Bank	30	32.20	966.00	Mann Whitney U= 399.0
	Conventional Bank	30	28.80	864.00	Sig.= .437
	Total	60			
Market Risk Committee	Islamic Bank	25	23.92	598.00	Mann Whitney U= 273.0
	Conventional Bank	30	31.40	942.00	Sig.= .010*
	Total	55			

Operational Risk Committee	Islamic Bank	26	28.62	744.00	Mann Whitney U= 387.0
	Conventional Bank	30	28.40	852.00	Sig.= .934
	Total	56			
CEO	Islamic Bank	30	26.72	801.50	Mann Whitney U= 336.5
	Conventional Bank	30	34.28	1028.50	Sig.= .093
	Total	60			
CFO	Islamic Bank	30	26.18	785.50	Mann Whitney U= 320.5
	Conventional Bank	30	34.82	1044.50	Sig.= .054*
	Total	60			
CRO	Islamic Bank	30	27.28	818.50	Mann Whitney U= 353.5
	Conventional Bank	30	33.72	1011.50	Sig.= .109
	Total	60			
Risk Management Department	Islamic Bank	30	29.25	877.50	Mann Whitney U= 412.5
	Conventional Bank	30	31.75	952.50	Sig.= .577
	Total	60			
Grouping Variable: Bank type, * significant at 5% ** significant at 1%					

Table 7.15 reveals mean ranks and test statistics of disclosure on the risk management process of Islamic and conventional banks operating in Pakistan. According to the results, disclosure of risk assessment, risk analysis, risk control, and risk reporting is significantly high in conventional banks as compared to Islamic banks. Whereas, the results show that Islamic banking disclosure of risk monitoring is significantly higher than that of conventional banks. Moreover, disclosure on risk mitigation and risk governance is insignificantly higher in Islamic banks as compared to conventional banks operating in Pakistan. Results also indicate that disclosure on risk identification and risk measurement is insignificantly high in conventional banks as compared to Islamic banks. In addition, test statistics affirm that risk control (U=169.5, P-value= 0.000) and risk reporting (U=145.5, P-value=0.000) shows significant difference between Islamic and conventional banks at 1%;

whereas, risk assessment (U=293.5, P-value=0.018), risk analysis (U=344.5, P-value=0.012), and risk monitoring (U=296.5, P-value=0.022) shows statistically significant difference between Islamic and conventional banks at 5%. Also, disclosure on risk identification (U=385.0, P-value=.324), risk measurement (U=402.0, P-value=.464), risk mitigation (U=363.0, P-value=.191) and risk governance (U=397.5, P-value .328) shows statistically insignificant difference between Islamic and conventional banks.

Table 7.15: Mean Ranks & Test Statistics of Risk Management Process of Banks

	Bank type	N	Mean Rank	Sum of Ranks	Test Statistics
Risk Identification	Islamic Bank	30	28.33	850.00	Mann Whitney U= 385.0
	Conventional Bank	30	32.67	980.00	Sig.= .324
	Total	60			
Risk Assessment	Islamic Bank	30	25.28	758.50	Mann Whitney U= 293.5
	Conventional Bank	30	35.72	1071.50	Sig.= .018*
	Total	60			
Risk Analysis	Islamic Bank	30	26.98	809.50	Mann Whitney U= 344.5
	Conventional Bank	30	34.02	1020.50	Sig.= .012*
	Total	60			
Risk Measurement	Islamic Bank	30	28.90	867.00	Mann Whitney U= 402.0
	Conventional Bank	30	32.10	963.00	Sig.= .464
	Total	60			
Risk Mitigation	Islamic Bank	30	33.40	1002.00	Mann Whitney U= 363.0
	Conventional Bank	30	27.60	828.00	Sig.= .191
	Total	60			
Risk Control	Islamic Bank	30	21.15	634.50	Mann Whitney U= 169.5
	Conventional Bank	30	39.85	1195.50	Sig.= .000**
	Total	60			
Risk Reporting	Islamic Bank	30	20.35	610.50	Mann Whitney U= 145.5
	Conventional Bank	30	40.65	1219.50	Sig.= .000**
	Total	60			
Risk Monitoring	Islamic Bank	30	35.62	1068.50	Mann Whitney U= 296.5
	Conventional Bank	30	25.38	761.50	Sig.= .022*
	Total	60			
Risk Governance	Islamic Bank	30	32.25	967.50	Mann Whitney U= 397.5
	Conventional Bank	30	28.75	862.50	Sig.= .328
	Total	60			
Grouping Variable: Bank type, * significant at 5% ** significant at 1%					

SECTION 2: DESCRIPTIVE & INFERENTIAL STATISTICS OF RISK DISCLOSURE PRACTICES BASED ON UN- WEIGHTED SCORING INDEX

This section is based on un-weighted scoring index which is used to examine the extent of disclosure information based on risk profile, risk management profile, risk control activities, risk control environment and risk management process provided by Islamic and conventional banks in their annual reports. The un-weighted risk disclosure scoring index technique is discussed in detail under chapter 6 (Research Design and Methodology).

7.3. Descriptive Statistics

Table 7.16 shows the descriptive statistics based on a dichotomous scoring index on the risk profile of Islamic and conventional banks. Results show that overall mean value of conventional bank is 0.704 which is higher than the overall mean value of the risk profile of Islamic banks (0.507). The Mean value of credit risk, liquidity risk, market risk, foreign exchange risk, operational risk, and equity position risk is 0.9333 in Islamic banks. Whereas, mean value of credit risk, liquidity risk, foreign exchange risk, operational risk and interest rate risk are 0.93 in conventional banks. The results also reveal that market risk disclosure has scored highest with the mean value of 0.96. Least disclosed risks are settlement and reputation risk in conventional banks. Whereas, hedge risk (0.033), Shariah risk and equity price risk (0.233) are scored least disclosed risks in Islamic banks. These results are in line with the previous studies conducted by Ariffin and Kassim (2011). Their results stated that Islamic banks are lacking in disclosing Shariah non-compliance risk, commodity risk and equity risk, because Islamic banks do not concentrate on equity based financing as compared to debt based financing.

Table 7.16: Disclosure Index on Risk Profile of banks

	Islamic banks			Conventional banks	
	N	Mean	Std. Deviation	Mean	Std. Deviation
Credit risk	30	.9333	.2537	.9333	.2537
Liquidity risk	30	.9333	.2537	.9333	.2537
Market risk	30	.9333	.2537	.9667	.1826
Yield interest/profit rate risk	30	.5667	.5040	.7667	.4302
Foreign exchange risk	30	.9333	.2537	.9333	.2537
Operational risk	30	.9333	.2537	.9333	.2537
Equity position risk	30	.9333	.2537	.8333	.3791
Equity price risk	30	.2333	.4302	.5667	.5040
Reputational risk	30	.1000	.3051	.4333	.5040
Regulatory risk	30	.0000	.0000	.0667	.2537
Hedge risk	30	.0333	.1826	.3333	.4795
Settlement risk	30	.1667	.3791	.4333	.5040
Country risk	30	.1667	.3791	.8000	.4842
Shariah risk	30	.2333	.4302	-	-
Interest rate risk	30	-	-	.9333	.2537
Mean		0.507		0.704	

Table 7.17 shows the results of the disclosure index on a risk management profile of Islamic and conventional banks. The results show that credit risk management and market risk management are most disclosed with a mean value of 0.6667 in Islamic banks followed by operational risk management with a mean value of 0.5333. Also, in case of conventional banks, credit risk management and market risk management (0.9333) and operational risk management (mean=0.8333) are the most disclosed items, because, it is required by Basel II and III that banks must disclose information on credit, market and operational risk and

their management. The overall mean value of disclosure is higher for conventional banks (0.4333) than Islamic banks (0.283), which means that conventional banks disclose more information on risk management profile of banks than Islamic banks. The overall mean value of both Islamic and conventional banks are lesser than or far from 1 (which refers to highest disclosure), this is an indication that disclosure on a risk management profile of Islamic and conventional banks is weak in the annual reports. It can be improved by disclosing more information on individual risks and their management practices by the banks, as disclosure on risk management is critical information for stakeholders and market participants for making investment decisions (Lajili, 2009).

Table 7.17: Disclosure Index on Risk Management Profile of Banks

		Islamic bank		Conventional Bank	
	N	Mean	Std. Deviation	Mean	Std. Deviation
Credit risk management	30	.6667	.4795	.9333	.2537
Liquidity risk management	30	.1667	.3791	.4667	.5074
Market risk management	30	.6667	.4795	.9333	.2537
Yield risk management	30	.0000	.0000	.1000	.3051
Foreign exchange risk management	30	.2333	.4302	.1667	.3791
Operational risk management	30	.5333	.5074	.8333	.3791
Equity position risk management	30	.0000	.0000	.0000	.0000
Equity price risk management	30	.0000	.0000	.0000	.0000
Interest rate risk management	30	-	-	.4667	.50742
Mean		0.283		0.4333	

Table 7.18 shows the descriptive statistics on risk control activities of Islamic and conventional banks operating in Pakistan. Results illustrate that mean value of disclosure on Basel II, risk management policies, risk management framework, risk management and State Bank of Pakistan scored highest, i.e. 0.9333 in the Islamic banks. Whereas, in the case of conventional banks, the more disclosed items are internal control (mean=0.9667); risk management (mean=0.9655); stress testing, Basel II, internal audit; risk management policies is scored higher (0.9333) than other items in this table. The mean value disclosure on Basel III is least in both banks because data are taken from year 2008 to 2013, and adoption and implementation of Basel III started from the year 2012 in banks. Disclosure on risk appetite is low in Islamic banks with a mean value of 0.4667. This indicates that there is a lack of awareness among senior managers of Islamic banks for communication of such important issues in annual reports.

Overall, the mean value of risk control activities is 0.773 in Islamic banks, which is lower than a mean value of conventional banks, i.e. 0.869. This is an indication that conventional banks are disclosing more information than Islamic banks. One of the reasons of more disclosure in conventional banks is that they have been working since many years and Islamic banks are still a growing industry and developing its practices with time.

Table 7.18: Disclosure Index on Risk Control Activities of bank

	Islamic bank			Conventional bank	
	N	Mean	Std. Deviation	Mean	Std. Deviation
Internal Control	30	.9000	.3051	.9667	.1826
Risk Appetite	30	.4667	.5074	.8333	.3791
Stress Testing	30	.7333	.4498	.9333	.2537
Basel III	30	.2333	.4302	.3333	.4795
Basel II	30	.9333	.2537	.9333	.2537
Internal Audit	30	.7333	.4498	.9333	.2537
Risk Management Policies	30	.9333	.2537	.9333	.2537
Risk Management Framework	30	.9333	.2537	.9310	.2579
Risk Management	30	.9333	.2537	.9655	.1857
State bank of Pakistan	30	.9333	.2537	.9310	.2579
Mean	30	0.773		0.869	

Table 7.19 below provides descriptive statistics on the risk control environment of Islamic and conventional banks. Results reveal that disclosure on board of director, assets liability committee, the role of CEO, and the risk management department is more than other items with a mean value of 0.9333 in Islamic banks. Whereas, in the case of conventional banks mean value of disclosure on board of director and audit committee is 0.9667 followed by the role of CEO (0.9655), the role of CFO, assets liability committee and risk management committee is 0.9333. The mean value of the role of CRO is 0.3667 and 0.4667 in Islamic and conventional banks, which is far lower than 1 and is an indication of absence of CRO in banks. The market risk committee scored least with a mean value of 0.0333, which means absence of a market risk committee, because market risks are handled and managed by assets and liability committee in Islamic banks of Pakistan. Also, the mean value of the operational risk committee is low (0.1667) because operational risks are managed and control by a separate unit under the risk management department or compliance department. Likewise, the operational risk committee in conventional banks has the lowest mean value i.e. 0.2000 followed by market risk committee (mean= 0.3000). Overall, the

mean value of disclosure on the risk control environment is higher in conventional banks (0.748) than Islamic banks (0.682), which is a signal of more risk disclosure practices by the conventional banks.

Table 7.19: Disclosure index on Risk Control Environment of Banks

	Islamic Banks			Conventional banks	
	N	Mean	Std. Deviation	Mean	Std. Deviation
Board of Directors	30	.9333	.2537	.9667	.1826
Risk management committee	30	.9000	.3051	.9333	.2537
Audit Committee	30	.7333	.4498	.9667	.1826
Assets liability committee	30	.9333	.2537	.9333	.2537
Credit risk Committee	30	.7667	.4302	.7000	.4661
Market risk committee	30	.0333	.1826	.3000	.4661
Operational risk committee	30	.1667	.3791	.2000	.4068
CFO	30	.6667	.4795	.9333	.2537
CEO	30	.9333	.2537	.9655	.1857
CRO	30	.3667	.4901	.4667	.5074
Risk management department	30	.9333	.2537	.8621	.3509
Shariah supervisory board (IB)	30	.7333	.4498	-	-
Shariah advisor	30	.7667	.4302	-	-
Total	30	0.682		0.748	

Table 7.20 below highlights descriptive statistics on the risk management process of Islamic and conventional banks. The results show that the mean value of disclosure on risk mitigation and risk monitoring (0.9000) is higher in Islamic banks than other items of risk management process followed by risk assessment (0.7333); risk control (0.7000); risk measurement and risk identification (0.6667). Whereas, the mean value of disclosure on

risk reporting (0.9333); risk control (0.9000); risk assessment and risk measurement (0.8966) is more than other items of the risk management process in conventional banks. Risk governance scored least with a mean value of 0.3333 and 0.2333 in Islamic and conventional banks, but Islamic banks' mean value is higher than conventional banks, meaning they disclose more information on risk governance in their annual reports. Disclosure on risk reporting is weak in Islamic banks with a mean value of 0.4333. This result is in contradiction with a previous study conducted by Ariffin and Kassim (2011) who stated that disclosure on risk reporting is important to enhance transparency in Islamic banks. The results also show that disclosure on risk analysis is weak in Islamic and conventional banks, because most of the banks consider risk assessment and analysis as one and the same process. The overall mean value of risk management process is 0.596 and 0.695, respectively, for Islamic and conventional banks. Hence, we can say that conventional banks are disclosing more information on risk management process than Islamic banks.

Table 7.20: Disclosure Index on Risk Management Process of Banks

	Islamic Bank			Conventional Bank	
	N	Mean	Std. Deviation	Mean	Std. Deviation
Risk Assessment	30	.7333	.4498	.8966	.3099
Risk Analysis	30	.0333	.1826	.2667	.4498
Risk Measurement	30	.6667	.4795	.8966	.3099
Risk Identification	30	.6667	.4795	.7667	.4302
Risk Reporting	30	.4333	.5040	.9333	.2537
Risk Control	30	.7000	.4661	.9000	.3051
Risk Monitoring	30	.9000	.3051	.7333	.4498
Risk Mitigation	30	.9000	.3051	.6333	.4901
Risk Governance	30	.3333	.4795	.2333	.4302
Mean	30	0.596		0.695	

7.4. Inferential Statistics on Risk Disclosure Practices

Mann-Whitney U test

Table 7.21 illustrates the mean rank of risk disclosure practices of Islamic and conventional banks operating in Pakistan based on un-weighted index scoring. The results reveal that risk disclosure practices of conventional banks have more mean value than Islamic banks. This is an indication that conventional banks disclose more information than Islamic banks on risk profile, risk management profile, risk control activities, risk control environment and the risk management process. In addition, test statistics affirm that there is a significant difference between the extent of risk disclosure information on risk profile ($U = 121.5$; $p\text{-value} = 0.000$); risk management profile ($U = 225.0$; $p\text{-value} = 0.001$); risk control activities ($U = 239.0$; $p\text{-value} = 0.001$) and the risk management process ($U = 324.0$; $p\text{-value} = 0.056$) between Islamic and conventional banks.

The hypothesis statement (H_1) set for the content analysis is partially accepted. As, the results of test statistics have confirmed that there is a significant difference between disclosure practices of risk profile, risk management profile, risk control activities and risk management process between Islamic and conventional banks operating in Pakistan.

Table 7.21: Mean Ranks & Test Statistics of Risk Disclosure Practices of Banks

	Bank Type	N	Mean Rank	Sum of Ranks	Test Statistics
Risk Profile	Islamic Bank	30	19.55	586.50	Mann Whitney U= 121.5
	Conventional Bank	30	41.45	1243.50	Sig.= .000*
	Total	60			
Risk Management Profile	Islamic Bank	30	23.00	690.00	Mann Whitney U= 225.0
	Conventional Bank	30	38.00	1140.00	Sig.= .001*
	Total	60			
Risk Control Activities	Islamic Bank	30	23.47	704.00	Mann Whitney U= 239.0
	Conventional Bank	30	37.53	1126.00	Sig.= .001*
	Total	60			
Risk Control Environment	Islamic Bank	30	28.37	851.00	Mann Whitney U= 386.0
	Conventional Bank	30	32.63	979.00	Sig.= .340
	Total	60			
Risk Management Process	Islamic Bank	30	26.30	789.00	Mann Whitney U= 324.0
	Conventional Bank	30	34.70	1041.00	Sig.= .056**
	Total	60			
Grouping Variable: Bank type, * Significant at 1% level, ** Significant at 10% level					

7.4.1. Discussion on Inferential Statistics

Results reveal that disclosure of conventional banks is significantly higher than Islamic banks on risk profiles, such as credit risk, liquidity risk, market risk, foreign exchange risk, operational risk, equity price risk, reputational risk, hedge risk, settlement risk and country risk. It is required by Basel II that banks should disclose detail about their four main risks: credit risk, market risk, liquidity risk and operational risk. Credit risk is considered the most important risk in banking industry due to its nature of business of borrowing and lending. Ahmad and Ahmad (2004) recommended that credit risk is higher in financial institutions due to a general expectation of its exposure to loss. They also stated that credit risk is important for both banking system, i.e. Islamic and conventional banks due to different reasons, such as regulatory capital requirement, loan loss provision, risk-weighted assets,

management efficiency of banks and loan exposure to risky sectors. Most of the researchers have found that credit risk is the mostly faced risk in the banking business (Hassan, 2009; Arrifin et al., 2009; Al-Tamimi and Al-Mazrooei, 2007). Also, the results are consistent with the findings of Lipunga (2014), who found that disclosure on credit, liquidity and market risk scored highest in the Malawian commercial banks.

The results of the study show that disclosure of conventional banks on credit risk management, liquidity risk management, market risk management and operational risk management is significantly higher than Islamic banks operating in Pakistan, as a study conducted by KPMG (2010) stated that pillar three of Basel II imposes a requirement to disclosure objectives and policies related to the risk management for credit, market, operational, and interest rate risk.

The findings illustrate that disclosure of conventional banks is significantly higher than Islamic banks on following risk control activities: risk management policies, risk management framework, risk management, internal control, stress testing, and Basel II. Moreover, disclosure on risk appetite, internal audit, Basel III, and the State Bank of Pakistan is insignificantly high in conventional banks as compared to Islamic banks operating in Pakistan. Disclosure on internal control will assist stakeholders to examine that the management of their stake is effectively supervised (Darmadi, 2013). Internal audits should be independent and directly report to the board of directors and senior management (Chapra and Ahmad, 2002). Amran et al., (2009) state that disclosure of sound risk management practices on timely manner will ensure stakeholders that the bank is prepared for uncertainties and have adequate capital to mitigate and manage risks.

Disclosure on risk appetite is important as it is the base for formulation of risk strategies and policies (Lentino, 2012); establishing systems, processes and controls to ensure that overall risk remains within the acceptable level described in risk appetite. On the other hand, a well formulated policy and procedure is important for risk management framework in a bank which is needed to be reinforced through a controlled environment that supports sound risk governance in banks.

The results show that conventional bank's disclosure on the board of director, risk management committee, audit committee, market risk committee and the CFO is significantly higher than Islamic banks operating in Pakistan. Whereas, disclosure on the credit risk committee is insignificantly higher in Islamic banks than conventional banks.

Haniffa and Hudaib (2004) suggested that disclosure on the profile of board of director is important as stakeholders need to assess the profile of those who are managing funds and resources. Disclosure on members of board committees is important, because board committees are developed to support the board of directors in making policies, decision making processes, supervising and monitoring roles on the management of the bank. The board committee members are required to have expertise in their area to maintain the effectiveness of their committee (Financial Reporting Council, 2012).⁶² The audit committee is required to review the financial statements, business review, corporate governance relating to audit, risk management (Financial Reporting Council, 2012), and bank's internal control function including the process of identifying, assessing, managing and monitoring financial risks.

The credit risk committee is responsible for approving and monitoring all financial transactions and formulation of credit risk policy for monitoring the risk profile of the bank. Market and liquidity risk is monitored by the asset and liability management committee (ALCO). It is the responsibility of CFO to manage capital, balance sheet, assets and liabilities, treasury and funding across the bank. The responsibility of a chief risk officer (CRO) is authorized by the board of directors to supervise the risk management division in implementing the risk management framework across the bank.

The results on disclosure of the risk management process shows that conventional banks disclose significantly more information on risk assessment, risk analysis, risk control, and

⁶² Guidance on Audit committee, 2012 <https://www.frc.org.uk/Our-Work/Publications/Corporate-Governance/Guidance-on-Audit-Committees-September-2012.aspx>

risk reporting as compared to Islamic banks. In contrast, Islamic bank disclose significantly more information on risk monitoring as compared to conventional banks. Moreover, disclosure on risk mitigation and risk governance is insignificantly high in Islamic banks as compared to conventional banks operating in Pakistan. Wong (2012) described that information on risk management structure; risk assessment and management by the board and senior management; risk objectives and policies; risk exposures, measurement, mitigation and control are supposed to be disclosed in the annual reports of banks.

7.5. Conclusion

This research study evaluates the risk disclosure level of the banks operating in Pakistan through their annual reports. The aim of this chapter was to compare risk disclosure practices between Islamic and conventional banks operating in Pakistan. The data have been taken from the annual reports of five conventional and five Islamic banks for the six years from 2008 to 2013. The results of inferential statistics reveal that conventional banks are disclosing significantly more information on the risk profile of banks, risk management profile, risk control activities, and risk management process of banks as compared to Islamic banks. In contrast, results of frequency analysis show that risk management disclosure practices of Islamic banks are improving over the time.

Hence, it can be concluded that disclosure of risk management practices is higher in conventional banks as compared to Islamic banks in Pakistan because of certain reasons: firstly, risk management is widely practiced by conventional banks all over the world, but it is an underdeveloped area in Islamic banks. Islamic banks are progressing to improve their risk management practices. Islamic banking is a small part of the banking industry and a growing phenomena in the emerging economies like Pakistan. Now, Islamic banks are focusing more on risk management practices and have shown tremendous growth in that area over the time. Secondly, conventional banks are disclosing more risk information because they are having more assets; profitability and market share in the banking industry of Pakistan. This fact is justified by previous researchers. Previous studies (Beretta and Bozzolan, 2004; Linsey et al., 2006; and Lopes and Rodrigues, 2007) suggested that banks

who have more assets, disclose more information on risk exposures. Whereas, Kahl and Belkaoui (1981) suggested that there exists a relationship between the size of the bank and level of disclosure in annual reports of financial institutions. In addition, Hossain's (2001) study concluded that there is a relationship between company size (Zadeh and Eskandari, 2012), and profitability (Hossain, 2008), with the level of disclosure in banks.

The findings of the study also reveal that risk disclosure is not that effective in Islamic, as well as in conventional banks, as that could be in helping stakeholders and investors to make decisions for investment. The disclosure on understanding of the risk management policy should be in line with the risk appetite of the banks. It is recommended that banks should disclose more detailed information on risk appetite, risk management policies and procedure, risk management framework, risk management processes, and risk governance in their annual reports for better clarity on the banking business.

Chapter 8

Primary Data Analysis & Discussion

8.0. Introduction

This chapter is an empirical chapter which summarises the findings from the primary data collected through self-administrated questionnaires. The questionnaire follows the structure which is explained in the “Research Design & Methodology” with the aim of empirically answering the research questions. The chapter begins with descriptive analysis and then the research hypothesis and questions explained in chapter 6 are tested and findings are interpreted with respect to the literature review.

As mentioned earlier in Chapter 6 “Research Design & Methodology”, the data analysis chapter employs several inferential statistics for regression analysis, correlation, scatter plot, non-parametric data analysis. Each of these statistical analyses will be used in the relevant section of the chapter, a brief description of it will be presented prior to its application and results will be interpreted in detail.

This chapter is divided into three sections. Section 1, explains the reliability analysis, frequency analysis of bank and respondent’s profile and descriptive statistics on all aspects of risk management practices and risk management process. Section 2 (risks and risk management techniques used by banks) is based on graphical presentation of types of risks that are present in Islamic and conventional banks, risk identification methods, bank type and ownership status, risk measuring techniques, risk mitigation methods, instruments to manage liquidity, involvement of the board of directors in the risk management process, involvement of management or board committees in risk management issues, and

implementation of risk management regulations in Islamic and conventional banks. Section 3, illustrates inferential statistics on overall bank's data and specifically stepwise regression analysis on Islamic and conventional banking data. The Mann Whitney U test is applied to see the difference between Islamic and conventional banks in practicing risk management aspects.

Descriptive statistics is computed to understand the differences in characteristics and attributes of Islamic and conventional banks operating in Pakistan. Secondly, regression analysis is carried out to analyse the effect of explanatory variables on risk management practice of Islamic and conventional banks. Thirdly, the Mann-Whitney U test is carried out to determine whether differences between Islamic and conventional banks are statistically significant.

Section 8.1: Reliability Analysis, Frequency Analysis of Bank and Respondent's Profile and Descriptive Analysis

8.1.1. Reliability Analysis

Reliability analysis is assessed on all aspects of the risk management process individually and collectively. Understanding risk and risk management is assessed based on 9 statements. Whereas, risk identification is assessed based on 6 statements, risk assessment and analysis is estimated with 7 statements, risk management practices is estimated with 15 statements, risk monitoring and reporting is based on 9 statements, credit risk analysis is based on 10 statements, liquidity risk analysis is based on 11 statements and risk governance is based on 19 statements.

Table 8.1 shows the reliability analysis of the variables used in the study. Reliability analysis is used to check the consistency of the data. Generally, the coefficient of

Cronbach's alpha⁶³ greater than or equal to 0.70 is considered acceptable and an indication of consistent data (Nunnally, 1978). Cronbach's alpha applies to the individual aspects, e.g. understanding risk and risk management, risk identification, risk assessment and analysis, risk management practices, risk monitoring and reporting, credit risk analysis, liquidity risk analysis, and risk governance are (0.693), (0.417), (0.761), (0.849), (0.707), (0.785), (0.586), and (0.795), respectively (see appendix 4). The overall Cronbach's alpha for eight aspects of the risk management process is 0.894. It means there is an acceptable level of consistency among responses against each item of the aspects of the risk management process.

Table 8.1: Reliability Analysis

S.no.	Variables	Cronbach's Alpha	No. of items
1	Understanding risk and risk management	.693	9
2	Risk Identification	.417	6
3	Risk Assessment and Analysis	.761	7
4	Risk Management Practices	.849	15
5	Risk Monitoring and Reporting	.707	9
6	Credit Risk Analysis	.785	10
7	Liquidity Risk Analysis	.586	11
8	Risk Governance	.795	19
	All Variables	.894	8

⁶³ Cronbach's alpha provides a measure of the internal consistency of a test or scale; it is expressed as a number between 0 and 1. Internal consistency describes the extent to which all the items in a test measure the same concept or construct and hence it is connected to the inter-relatedness of the items within the test.

8.1.2. Frequency Analysis

Table 8.2: Sample Characteristics

The first section of the survey instrument was designed to gather information about the respondents' demographic characteristics. These characteristics are illustrated in order to examine the respondent's profile and characteristics. This is in line with previous studies, for example, Ariffin and Kassim (2011) have measured characteristics of the sample used in their research study. They have included demographic variables of respondents, such as age, gender, occupation, and work experience. Whereas, Hussain and Al-Ajmi (2012) have also included the type of job, highest qualification, type of license of bank and type of bank as characteristics of respondents and bank.

Table 8.2 (a) shows the profile of banks. Results for overall banks show that 118 out of 150 (78.7%) banks are domestic banks whereas 32 out of 150 (21.3%) banks are foreign banks. Results of Islamic banks show that 60 out of 75 (80%) banks are domestic whereas 15 out of 75 are foreign banks. Results of conventional banks show that 58 out of 75 (77.3%) banks are domestic banks whereas 17 out of 75 (22.7%) banks are foreign banks.

Table 8.2 (a) Bank Profile

S.no.			Overall banks		Islamic banks		Conventional banks	
			Frequency	%	Frequency	%	Frequency	%
1.	Bank ownership	Domestic	118	78.7	60	80.0	58	77.3
		Foreign	32	21.3	15	20.0	17	22.7
			150	100	75	100	75	100

Table 8.2 (b) shows the attributes of the respondents. The results of table 8.2 (b) show that the gender of 127 out of 150 (84.7%) respondents is male, whereas 23 out of 150 (15.3%) respondents are females. 66 out of 75 (88%) respondents of Islamic banks are male, whereas 61 out of 75 (81%) respondents of conventional banks are male. 9 out of 75 (12%) respondents of Islamic banks are female, whereas 14 out of 75 (19%) respondents of conventional banks are female.

Results show that 58% of the respondents belong to the age group of 35 to 44 in all banks followed by approximately 31% of the respondents belong to the age group of 25 to 34. Results of Islamic banks and conventional banks show that approximately 57% and 59% of the respondents belongs to the age group of 35 to 44 followed by 35% of Islamic banks respondents belong to the age group of 25 to 34 whereas 28% respondents of conventional banks belong to the age group of 25 to 34. 7% of the respondents of Islamic banks are aged 45 to 55 whereas 12% of the respondents of conventional banks are aged 45 to 55.

The results of the education variable show that approximately 91% of the respondents hold a Master's Degree followed by 4% holding a PhD Degree. 89% and 92% of the respondents of Islamic and conventional banks hold a Master's Degree, respectively.

Results of the "Field of study" variable was analysed to examine the educational specialization of the respondents who were responding to risk management practices questionnaire. It shows that approximately 48% of the bank's respondents are related to finance, followed by 29% in business administration, 12% in economics, 5% in accounting, and 3% in statistics. The results of Islamic and conventional banks show that 52% and 44% of the respondents are related to finance field. The results of 'professional qualification' variable show that only 19% of the respondents have a professional qualification like CFA, ACCA, and chartered accountancy.

Table 8.2 (b): Respondents Profile

S. no			Overall Banks		Islamic Banks		Conventional Banks	
			F	%	F	%	F	%
1.	Respondent's Gender	Male	127	84.7	66	88.0	61	81.3
		Female	23	15.3	9	12.0	14	18.7
			150	100	75	100	75	100
2.	Respondent's Age	25-34	47	31.3	26	34.7	21	28.0
		35-44	87	58.0	43	57.3	44	58.7
		45-54	14	9.3	5	6.7	9	12.0
		55-64	2	1.3	1	1.3	1	1.3
		65+	0	0	0	0	0	0

			150	100	75	100	75	100
3.	Education	Diploma	3	2.0	3	4.0	0	0
		Bachelor	5	3.3	3	4.0	2	2.7
		Masters	136	90.7	67	89.3	69	92.0
		PhD	6	4.0	2	2.7	4	5.3
			150	100	75	100	75	100
4.	Field of study	Finance	72	48.0	39	52.0	33	44.0
		Accounting	7	4.7	5	6.7	2	2.7
		Economics	18	12.0	7	9.3	11	14.7
		Business Administration	44	29.3	22	29.3	22	29.3
		Statistics	4	2.7	2	2.7	2	2.7
		Financial engineering	1	0.7	0	0	1	1.3
		IT	1	0.7	0	0	1	1.3
		Others	3	2.0	0	0	3	4.0
			150	100	75	100	75	100
5.	Professional qualification	Chartered Financial Analyst	5	3.3	1	1.3	4	5.3
		Financial risk manager	1	0.7	1	1.3	0	0
		Certified risk professional	0	0	0	0	0	0
		Actuarial (FSA/ ASA/ FIA)	0	0	0	0	0	0
		Chartered Accountancy	4	2.7	1	1.3	3	4.0
		Others	19	12.7	11	14.7	8	10.7
		Not Applicable	121	80.7	61	81.3	60	80.0
			150	100	75	100	75	100
Note: F is for frequency								

8.1.3. Descriptive Statistics

Table 8.3 shows the mean value based on responses on a 7-point likert scale to nine statements about understanding risk and risk management (URRM) is 5.8356 and 5.8504 for Islamic and conventional banks, respectively. The overall average does not show any significant difference between Islamic and conventional bank's responses. The highest mean for Islamic bank (6.2933 with a standard deviation of 0.5396) and conventional bank (6.3200 with a standard deviation of 0.5963) is given to the statement 5 which states that 'risk management is important for the success and performance of the bank'. The lowest mean is given to statement 7 which states that 'The objective of your bank is to expand the applications of the advanced risk management technique' by Islamic (5.0267 with a standard deviation of 1.5419) and conventional banks (5.4533 with a standard deviation of 1.1185). This statement shows that conventional banks are more likely to expand their existing risk management techniques with advanced techniques than Islamic banks.

Statement 2 which states 'risk management responsibility is clearly set out and understood throughout the bank' shows a difference in the mean value of Islamic (5.7067 with a standard deviation of 0.7492) and conventional banks (5.8667 with a standard deviation 0.7593). It seems that risk management responsibility is more clearly understood by conventional bank staff than Islamic banking staff. Whereas statement 9 'Applications of risk management techniques to reduce costs or expected losses' shows that mean responses given by the Islamic bank (6.1333 with a standard deviation of 0.7039) is higher than that of conventional banks (5.9733 with a standard deviation of 1.0523). Likewise, statement 8 shows a high mean response by Islamic bank's respondents (6.2800 with a standard deviation of 0.7270) than conventional bank's respondents (6.1467 with a standard deviation of 0.7831). It is obvious from this statement that Islamic banks focus more on continuous review and evaluation of the techniques used in risk management.

Table 8.3: Responses to Statements about Understanding Risk and Risk Management (URRM)

S.no		Islamic banks		Conventional banks	
		Mean	Standard deviation	Mean	Standard deviation
1	There is a common understanding of risk management across the bank.	5.7067	0.6733	5.6533	0.7621
2	Risk management responsibility is clearly set out and understood throughout the bank.	5.7067	0.7492	5.8667	0.7593
3	Risk management policy is communicated down the line and well understood by all concerned parties (risk takers, risk reviewers etc.).	5.7600	0.6943	5.7467	0.8557
4	Accountability for risk management is clearly set out and understood throughout the bank.	5.8667	0.8274	5.8400	1.0531
5	Risk Management is important for the success and performance of the bank.	6.2933	.53960	6.3200	0.5963
6	Application of the most sophisticated techniques in risk management is vital.	5.7467	.63869	5.6533	0.9514
7	The objective of your bank is to expand the applications of the advanced risk management technique.	5.0267	1.5419	5.4533	1.1185
8	It is significant for your bank to emphasize on continuous review and evaluation of the techniques used in risk management.	6.2800	0.7270	6.1467	0.7831
9	Applications of risk management techniques to reduce costs or expected losses.	6.1333	0.7039	5.9733	1.0523
Average		5.8356		5.8504	

Table 8.4 presents the mean and standard deviation on six statements about risk identification by two groups' i.e. Islamic and conventional banks. The overall average shows that the mean value of conventional banks (5.4867) is higher than Islamic banks (5.2489) on risk identification. The highest mean is given to statement 2 by Islamic banks (6.1867 with a standard deviation of 0.8002), which states 'Risk identification is a continuous process in your bank at transactional and portfolio levels'. Where, the highest mean is given to statement 1 by conventional banking respondents (6.3333 with a standard deviation of 0.6224), which indicate that 'Your bank carries out a comprehensive and systematic identification of its risk relating to each of its declared aims and objectives'. The lowest response is given to statement 3 which indicates that 'The bank finds it difficult to identify, and prioritize its main risk' by Islamic (3.4667 with a standard deviation of 1.5538) and conventional banks (3.5733 with a standard deviation of 1.9602). Which means that both types of banks somewhat disagree to the statement. Responses on all statements of risk identification show a higher mean value for conventional banks than those of Islamic banks except statement 6.

Table 8.4: Responses to Statements about Risk Identification (RI)

S.no.		Islamic banks		Conventional banks	
		Mean	Standard deviation	Mean	Standard deviation
1	Your bank carries out a comprehensive and systematic identification of its risk relating to each of its declared aims and objectives.	6.0400	0.7959	6.3333	0.6224
2	Risk identification is a continuous process in your bank at transactional and portfolio levels.	6.1867	0.8002	6.3067	0.6570
3	The bank finds it difficult to identify, and prioritize its main risk.	3.4667	1.5538	3.5733	1.9602
4	Changes in risk are recognized and identified with the bank's rules and responsibilities.	5.4667	0.9054	5.8000	1.0654
5	Your bank is aware of the strengths and weaknesses of the risk management systems of the other banks.	4.3067	1.4884	4.8933	1.5384
6	Your bank has developed and applied procedures for the systematic identification of investment opportunities.	6.0267	0.7706	6.0133	0.8620
Average		5.2489		5.4867	

Table 8.5 below, provides the mean and standard deviation of risk assessment and analysis, which is computed by seven statements. Overall, the mean (average) shows that mean response of Islamic banks (5.9143) is higher than conventional banks (5.8362). The highest mean value (6.2533 with a standard deviation of 0.9167) is given to statement 3 which shows that 'Your bank assesses risk by using quantitative analysis method' by Islamic banks. Whereas, the highest mean value (6.1200 with a standard deviation of 0.6358) is given to statement 4 which indicate 'Your bank analyses and evaluates the opportunities that it has to achieve objectives' by conventional banks. Results of statement 1, 2, 3 and 5 shows the higher mean value for Islamic bank than conventional banks. Whereas, the

results of statement 4 and 7 show the higher mean value for conventional banks as compared to Islamic banks.

Table 8.5: Responses to Statements about Risk Assessment and Analysis (RAA)

S.no.		Islamic banks		Conventional banks	
		Mean	Standard deviation	Mean	Standard deviation
1	Your bank assesses the likelihood of risk occurrence.	6.0800	0.5872	5.7200	1.1337
2	Your bank assesses risks by using qualitative analysis methods (e.g. High, moderate, and low).	5.3600	1.2262	5.2400	1.4781
3	Your bank assesses risk by using quantitative analysis method.	6.2533	0.9167	6.0133	1.2246
4	Your bank analyzes and evaluates the opportunities that it has to achieve objectives.	5.9867	0.7442	6.1200	0.6358
5	Your bank's response to analyzing risk includes an assessment of the costs and benefits of each relevant risk.	5.8800	0.6567	5.8400	0.7359
6	Your bank's response to analyzing risk includes prioritizing of risk and selecting those that need an application of active management.	6.0400	0.6665	6.0400	0.6459
7	Your bank's response to analyzing risk includes prioritizing risk treatments where there are resource constraints on risk treatment implementation.	5.8000	0.6367	5.8800	0.6142
Average		5.9143		5.8362	

Table 8.6 presents mean responses on fifteen statements about risk management practices of Islamic and conventional banks. The overall average shows the mean response of conventional bank (5.9964) is higher than the mean response of Islamic banks (5.7493), which is indicative of better risk management practices by conventional banks. The highest mean value (6.3867 with a standard deviation of 0.6127) is given to statement 10 which states that ‘Your bank finds it too risky to invest funds in one specific sector of the economy’ by Islamic banks. Whereas, the highest mean value (6.3867 with a standard deviation of 0.5903) for conventional banks is given to statement 4 which shows that ‘Executive management of your bank regularly reviews the bank's performance in managing its business risk’. The lowest mean value is given to statement 7 which shows that ‘Your bank emphasizes the recruitment of highly qualified people with knowledge of risk management’ by Islamic (4.7333 with a standard deviation of 1.3288) and conventional banks (5.2800 with a standard deviation of 1.0725). Results of Islamic bank’s mean responses on statement 6 and 7 are very low which indicate that Islamic banks are not efficient in providing risk management training to their staff and do not emphasise recruitment of risk specialists. The mean responses of statement 12, 13 and 14 shows that both banking systems give consideration to the Basel accord as mean value is higher than 6, which indicates that Islamic and conventional banking staff are aware of the Basel capital accord which is introduced to improve efficiency of risk management in banks and the standard deviation of statement 12, 13 and 14 is low which indicates that the data points are closer to mean values. Results of statement 1 show that respondents of both banking systems agree with the statement that ‘Risk management policy of the bank clearly define the roles and responsibilities of various functionaries of the bank’. Whereas, results of statement 5 and 8 shows that respondents of both banks somewhat agree about the documentation of risk management practices in their bank and top-down communication of risk management procedure in the bank. The results of statement 15 show that the mean response of conventional bank is close to 6 which show that respondents of conventional banks are more satisfied with risk management practices of their bank. Where, the results of the mean value of Islamic bank is 5.74 which means respondents of Islamic banks are somewhat satisfied with risk management practice, but they consider that there is possibility for improvement in risk management practices.

Table 8.6: Responses to Statements about Risk Management Practices (RMP)

S.no.		Islamic banks		Conventional banks	
		Mean	Standard deviation	Mean	Standard deviation
1	Risk management policy of the bank clearly defines the roles and responsibilities of various functionaries of the bank.	6.0000	0.7352	6.1733	0.6012
2	One of the objectives of your bank is effective risk management.	5.2533	1.3161	5.9600	0.7248
3	Your bank is highly effective in continuous review/feedback on risk management strategies and performance.	5.9467	0.9137	6.1333	0.6003
4	Executive management of your Bank regularly reviews the bank's performance in managing its business risk.	6.2000	0.5927	6.3867	0.5903
5	Your bank's risk management procedures and processes are documented and provide guidance to staff about managing risks.	5.4533	1.0817	5.7867	0.9485
6	Your bank's policy encourages training programs in the risk management and ethics areas.	4.9333	1.5275	5.8933	0.7635
7	Your bank emphasizes the recruitment of highly qualified people with knowledge of risk management.	4.7333	1.3288	5.2800	1.0725
8	Risk management policy is communicated from top to down level in your bank.	5.6800	0.7562	5.6667	0.9909
9	Your bank has a comprehensive risk management process (including Board and senior management) oversight to identify, measure, evaluate, monitor, report and control all material risks on timely basis.	6.2000	0.7352	6.3200	0.6186
10	Your bank finds it too risky to invest funds in one specific sector of the economy.	6.3867	0.6127	6.2800	0.9803
11	Risk management strategy of your bank is flexible enough to deal swiftly and adequately with all risks.	5.3200	1.2644	5.4400	1.0557
12	Application of Basel II and Basel III Accord will improve the efficiency and Risk Management Practices in the banks in general and particularly in your bank.	6.1067	0.9237	6.2000	0.5927

13	The bank is successfully implementing the Basel Committee and Central Bank guidelines/principles in regard to risk management.	6.0933	0.5243	6.1600	0.5462
14	Your bank assesses the adequacy of their capital and liquidity in relation to their risk profile, market and macro-economic conditions.	6.1733	0.6232	6.2933	0.5875
15	I consider the level of Risk Management Practices of my Bank to be excellent.	5.7600	0.9703	5.9733	0.6969
Average		5.7493		5.9964	

Table 8.7 shows the mean responses of risk monitoring and reporting based on nine statements. The overall average shows that there is not a big difference between risk monitoring and reporting between Islamic (5.9482) and conventional (5.9630) banks. The highest mean value (6.1067 with a standard deviation of 0.5345) is given to statement 1 ‘Monitoring the effectiveness of risk management is an integral part of routine management reporting in your bank’ and statement 8 (6.1067 with a standard deviation of 0.7635) stating ‘The organizational structure of your bank strengthens monitoring and control over the risks being taken by Islamic banks. Whereas, the highest mean value (6.1067 with a standard deviation of 0.7959) for conventional bank is given to statement 6 which states ‘Management of your bank monitor implementation of risk management policy and make necessary adjustments’. The lowest mean value is given to statement 2 by Islamic banks (5.8133 with a standard deviation of 0.8806) whereas lowest mean for conventional bank (5.8267 with a standard deviation of 1.0574) is given to statement 9.

Table 8.7: Responses to Statements about Risk Monitoring and Reporting (RMR)

S.no.		Islamic banks		Conventional banks	
		Mean	Standard deviation	Mean	Standard deviation
1	Monitoring the effectiveness of risk management is an integral part of routine management reporting in your bank.	6.1067	0.5345	5.8800	0.6358
2	Level of control by the bank is appropriate for the risk that it faces.	5.8133	0.8806	5.9467	0.6127
3	Reporting and communication processes within your bank support the effective management of risks.	5.9467	0.6757	5.9467	0.6344
4	The bank's response to risk includes an evaluation of the effectiveness of the existing controls and risk management responses.	5.8400	0.7173	5.8533	0.6301
5	The bank's response to risk includes action plans in implementing decisions about identified risk.	5.8400	0.6786	5.9733	0.5688
6	Management of your bank monitors implementation of risk management policy and make necessary adjustments.	5.9600	0.7959	6.1067	0.6056
7	Management of your bank regularly monitors the effectiveness of risk management system.	5.9600	0.6865	6.0400	0.6459
8	The organisational structure of your bank strengthens monitoring and control over the risks being taken.	6.1067	0.7635	6.0933	0.6189
9	Chief Risk Officer/ Risk management function is responsible for risk monitoring within your bank.	5.9600	0.9363	5.8267	1.0574
Average		5.9482		5.9630	

Table 8.8 below shows the mean responses of 10 statements about credit risk analysis. The overall average shows that the mean value of conventional banks (6.3520) is slightly higher than that of Islamic banks (6.2987). The highest mean for Islamic bank (6.5067 with a standard deviation of 0.5294) is given to statement 2 which states ‘Before granting loans your bank undertake a specific analysis including the client’s characters, capacity, collateral, capital and conditions’ whereas, the highest mean value for conventional bank (6.5067 with a standard deviation of 0.6232) is given to statement 4 which indicate that ‘Credit policy commensurate with the overall risk management policy’. The lowest mean value is given to statement 3 for Islamic banks (5.9733 with a standard deviation of 0.6969) whereas the lowest mean value of conventional bank (5.9600 with a standard deviation of 0.7059) is given to statement 5. It is obvious from all credit risk analysis statements that the mean value is greater or closer to 6 which means that respondents agree with all of the statements. It is also an indication of efficient credit risk analysis in Islamic and conventional banks.

Table 8.8: Responses to Statements about Credit Risk Analysis (CRA)

S.no.		Islamic banks		Conventional banks	
		Mean	Standard deviation	Mean	Standard deviation
1	Your bank undertakes a credit worthiness analysis before granting loans.	6.2667	0.5773	6.3067	0.6570
2	Before granting loans your bank undertake a specific analysis including the client's characters, capacity, collateral, capital and conditions.	6.5067	0.5294	6.4667	0.6224
3	Borrowers are classified according to a risk factor (risk rating) in your bank.	5.9733	0.6969	6.4400	0.5982
4	Credit policy commensurate with the overall risk management policy.	6.2000	0.5927	6.5067	0.6232
5	Your bank obtains information about the borrowers from credit information bureau.	6.2800	0.6053	5.9600	0.7059
6	Management of your bank has set out credit limits for different client segments, economic sectors, and geographical locations to avoid concentration of credit.	6.3867	0.5669	6.4000	0.8542
7	Credit risk is monitored on regularly basis and reported to senior management.	6.4800	0.5291	6.3200	0.6401
8	Your bank has credit risk management committee to oversee credit risk management function.	6.2800	1.4571	6.4400	0.6826
9	Credit administration ensures proper approval, completeness of documents, receipt of collateral and approval of exceptions before credit disbursement.	6.3200	0.5732	6.4400	0.5751
10	Board periodically reviews the credit risk strategy and credit policy.	6.2933	0.6529	6.2400	0.5890
Average		6.2987		6.3520	

Table 8.9 provides the mean responses, based on 11 statements about the liquidity risk analysis of Islamic and conventional banks. The overall average shows that the mean value of Islamic banks (6.0424) is higher than the mean value of conventional banks (5.9455), which means Islamic banks are more efficient in managing liquidity risk than conventional banks. This result is supported by previous studies, such as Islam and Chowdhury (2007); Ika and Abdullah (2011); Jaffar and Manarvi (2011); Usman and Khan (2012). The highest mean value is given to statement 8 which states that ‘Asset Liability Management Committee is responsible for reviewing and recommending liquidity risk policies in your bank’ by Islamic (6.2933 with a standard deviation of 0.6930) and conventional (6.4400 with a standard deviation of 0.5982) bank’s respondents, which is an indication of importance of asset liability management committee. Whereas, the lowest mean is given to statement 11 which indicates that ‘Your bank applies stress test based on the value at risk (VaR) technique as a market risk management tool’ by Islamic (5.5867 with a standard deviation of 1.0792) and conventional (4.8133 with a standard deviation of 1.5218) banks. It is obvious from the findings that conventional banks do not give importance to stress testing based on the VaR technique, whereas Islamic banks are using sophisticated techniques in dealing with market risks. Most of the responses based on statements of liquidity risk analysis shows more than 6 mean value except statements 1, 5 and 11 for Islamic banks, and statements 2, 4, 10 and 11 for conventional banks. This means that respondents somewhat agree with the above mentioned statements about liquidity risk analysis in their banks.

Table 8.9: Responses to Statements about Liquidity Risk Analysis (LRA)

S. no.		Islamic banks		Conventional banks	
		Mean	Standard deviation	Mean	Standard deviation
1	Liquidity is a key determinant of the soundness of banking sector.	5.9200	0.6098	6.1333	0.7039
2	The “Management Board” defines liquidity risk strategy, and in particular bank’s tolerance for liquidity risk based on recommendation made by Treasury and Risk Committee.	6.1467	0.6716	5.9067	1.0023
3	Management of your bank gives due consideration to external and internal factor posing liquidity risk while formulating the liquidity policy.	6.1200	0.6770	6.3200	0.7005
4	Your bank’s policy defines general liquidity strategy (short and long term).	6.2667	0.6844	6.1867	0.6301
5	Policy is flexible enough to deal with the unusual liquidity pressures.	5.6533	0.9078	5.6533	0.8300
6	Board of Directors and Senior Management review liquidity policy regularly in your bank.	6.0667	0.7039	6.2000	0.6778
7	Asset Liability Management Committee comprises of senior management from each key area of operations in your bank.	6.2267	0.6692	6.2800	0.6273
8	Asset Liability Management Committee is responsible for reviewing and recommending liquidity risk policies in your bank.	6.2933	0.6930	6.4400	0.5982
9	Your bank has identified the means and ways to meet its funding requirements.	6.1467	0.5857	6.2400	0.6543
10	Stress Testing and Scenario Analysis plays a central role in a liquidity risk management framework of your bank.	6.0400	0.9647	5.2267	1.4101
11	Your bank applies Stress Test based on Value at Risk (VaR) technique as market risk management tool.	5.5867	1.0792	4.8133	1.5218
Average		6.0424		5.9455	

Table 8.10 shows the mean responses based on 18 statements about risk governance in Islamic and conventional banks. The overall average shows that the mean value of conventional bank (5.8744) is higher than the mean value of Islamic banks (5.6983). The highest mean (6.4000 with a standard deviation of 0.9004) response is given to statement 12 ‘Internal auditors are independent and directly accountable to the board of directors’ by Islamic banks. Whereas, highest mean response (6.4267 with a standard deviation of 0.5966) for conventional banks is given to statement 18a which shows ‘bank disclosure includes information on financial and operating results’. The lowest mean rank is given to statement 9 which indicates that ‘chief risk officer develops, monitors and reports on risk metrics to reflect risk appetite statement to the risk committee’ by Islamic (4.0400 with a standard deviation of 1.9413) and conventional (4.8933 with a standard deviation of 1.7977) banks followed by statement 8 which shows ‘chief risk officer oversees the risk management function of your bank’. This result is an indication of the weak role of chief risk officer in Islamic and conventional banks. Lack of visibility of the chief risk officer (CRO) is considered as a reason for weak risk governance structure in banks in the financial crisis (Sabato, 2010). The results of most of the statements are between 5 and 6.50 except statement 8 and 9 for Islamic and conventional banks which shows that Islamic and conventional banks are emphasizing on risk governance structures within their banks but there is scope for improvement. For example, Islamic banking respondents have given low mean value (5.2000 with a standard deviation of 1.2080) to statement 2 which states that ‘your bank’s board of directors has relevant skills related to financial industry and risk management, as well as time commitment with bank’. This is alarming information, as lack of relevant knowledge, skill and time was considered as a reason for the credit crisis (Hashagen et al., 2009; Ard and Berg, 2010). Statement 18b shows that the mean value of Islamic banks (5.4933 with a standard deviation of 1.2010) is less than the mean value of conventional banks (5.5467 with a standard deviation of 1.4265) which means that Islamic bank’s disclosure on remuneration of board and senior management is weaker than that of conventional banks.

Table 8.10: Responses to Statements about Risk Governance (RG)

S.no.		Islamic banks		Conventional banks	
		Mean	Standard deviation	Mean	Standard deviation
1	Your bank's Board of director approves and oversees risk appetite framework; policies and processes to implement risk management framework in the bank.	5.8267	1.0183	6.0800	0.6928
2	Your bank's Board of Directors has relevant skills related to financial industry and risk management as well as time commitment with the bank.	5.2000	1.2080	5.6800	0.9885
3	Board of Director formulates and defines the mandate and responsibilities of board-level committees (Risk committee; Audit committee) dealing with Risk Governance.	5.8000	0.5694	6.0933	0.7008
4	Risk management committee members of your bank are independent and qualified.	6.2933	0.8182	6.2533	0.6386
5	Risk Management Committee provides sufficient policies and strategies for risk management.	6.1467	0.6716	6.2133	0.6836
6	Risk Committee reviews and recommends risk strategy to Board of Directors and oversees implementation of risk management framework.	6.0533	0.6954	6.1467	0.5376
7	CEO develops and recommend overall business strategy, risk strategy, risk appetite statement and risk tolerance.	5.5867	1.2954	5.7333	0.7228
8	Chief Risk Officer oversees risk management function of your bank.	4.3867	1.8808	4.9333	1.7578
9	Chief Risk Officer develops, monitor and reports on risk metrics to reflect Risk appetite statement to risk Committee.	4.0400	1.9413	4.8933	1.7977
10	Internal auditors ensure that risk management processes are in compliance with the bank policies.	5.8933	0.6487	5.9200	0.6928
11	Internal auditors evaluate the effectiveness and efficiency of risk management processes.	5.9467	0.7514	5.8933	0.7635

12	Internal auditors are independent and directly accountable to the Board of Directors.	6.4000	0.9004	6.2667	0.5773
13	The role of central bank is effective in supervising the risk management process in your bank.	5.7867	0.9766	5.9733	0.7347
14	Your bank's Board and Senior management review internal audit reports, prudential reports, and external experts report as a part of Risk Governance framework.	6.0400	0.7248	6.2133	0.6429
15	Your bank's compensation policies and practices are consistent with bank's corporate culture, long-term objectives and strategy and control environment.	5.8267	0.7046	5.8267	0.9497
16	Your bank avoids compensation policies that create incentives for excessive risk taking.	5.4667	1.1310	5.6000	1.0266
17	Your bank is governed in a transparent manner.	5.9867	0.6876	5.9200	1.0102
18	Your bank disclosure includes the information on the following matters:				
	a) Financial and operating results	6.0933	1.1528	6.4267	.5966
	b) Remuneration of Board and Senior management	5.4933	1.2010	5.5467	1.4265
	Average	5.6983		5.8744	

Section 8.2: Graphical Representation of Risks and Risk Management Techniques Used by Banks

Table 8.11 presents frequencies and ranks of risk identification methods used by Islamic and conventional banks. According to the results, ‘Risk survey’ is mostly used by Islamic banks to identify their risks followed by ‘inspection by bank staff, financial statement analysis, scenario analysis and stress testing’. Whereas, results show that ‘financial statement analysis’ is the mostly used risk identification method in conventional banks followed by ‘risk survey, audit and physical inspection, stress testing, scenario analysis and inspection by the bank staff’. The least used methods for risk identification is ‘SWOT analysis’ in Islamic banks because this method is used to evaluate the business performance but not for the risk identification and ‘benchmarking’ in conventional banks.

Table 8.11: Frequency Analysis and Ranking of Risk Identification Methods Used by Islamic and Conventional Banks

Risk Identification Methods	Frequency of Islamic Banks	Ranks	Frequency of Conventional Banks	Ranks
Inspection by the Bank Staff	51	2	40	5
Audit and Physical Inspection	41	6	48	2
Financial Statement Analysis	47	3	51	1
Risk Survey	53	1	48	2
Process Analysis	24	9	21	7
SWOT Analysis	16	11	16	8
Inspection by Shari'ah Board (IB)	29	8	0	0
Benchmarking	30	7	8	9
Scenario Analysis	43	4	43	4
Internal Communication	20	10	25	6
Stress Testing	42	5	45	3
Others	4	12	5	10

Table 8.12 summarises the result of the types of risk faced by Islamic and conventional banks operating in Pakistan. The top five ranks are given to following risks; ‘credit risk, liquidity risk, market risk, operational risk and rate of return risk’ by Islamic banks of Pakistan. Whereas, the top five ranks are given to following risks; ‘credit risk, market risk, liquidity risk, operational risk and interest rate of risk’ by conventional banks of Pakistan. As with conventional banks, credit risk is seen as the most relevant type of risk which is faced by Islamic banks in Pakistan. This is justified by the fact that the most popular source of finance provided by Islamic banks is Murabaha which carries high default levels (Rosly, 2011). Islamic banks are facing higher liquidity risk because there is lack of active Shariah compliant money markets which can deal in Shariah instrument (Masood and Bellalah, 2010; Iqbal and Mirakhor, 2011; Hussain and Al-Ajmi, 2012). Overall, there seems no major difference between Islamic and conventional banks in the ranking of types of risks faced by them. The increased operational risk is an intimation of lack of education, training and weak internal control system or it might be possible that there is a lack of understanding among the bank staff. Also, the foreign exchange risk is ranked at sixth by both Islamic and conventional bank. The presence of foreign exchange risk is a hint of instability of Pakistani economy due to political, economical and financial conditions.

Table 8.12: Frequencies and Ranking of Types of Risks present in Islamic and Conventional Banks

Types of Risks	Islamic Banks	Ranks	Conventional Banks	Ranks
Credit risk	75	1	71	1
Operational Risks	58	4	45	4
Liquidity Risk	66	2	52	3
Foreign Exchange Rate Risk	32	6	34	6
Rate of Return Risk (IB)	34	5	0	-
Interest Rate Risk (CB)	0	-	41	5
Market Risk	62	3	58	2
Strategic Risk	17	12	19	10
Solvency Risk	21	11	16	11
Regulatory Risks	22	10	20	9
Legal risk	13	13	24	8
Reputation Risk	30	7	29	7
Shariah Risk (IB)	23	9	0	-
Equity Risk	27	8	16	11
Hedging Risk	6	15	11	12
Transparency Risk	11	14	16	11
Others	2	16	0	-

Table 8.13 summarises the result of risk measurement techniques used by Islamic and conventional banks in Pakistan. The top five risk measuring techniques used by Islamic banks are: ‘Gap analysis, credit rating of prospective investors, value at risk (VaR), internal rating system, and estimate of worst case scenario’. These findings are somewhat similar to those reported by Ariffin and Kassim (2011); they stated that Islamic banks are using credit ratings, gap analysis, duration analysis and maturity matching techniques more commonly. In addition, Noraini et al. (2009) asserted that Islamic banks are not using technically advanced risk measurement techniques except “internal based risk rating technique” and “estimate of worst case scenario”. The findings of the study are also consistent with the findings of Rosman and Rahman (2010) who have concluded that Islamic banks are not

using technically advanced techniques to measure risk exposures. The results of Mokni et al. (2014) illustrated that the Islamic banks use VaR technique for credit derivatives, asset backed securities, fixed income, foreign exchange, equity, commodity and catastrophe event driven instruments.

Whereas, the top five risk measuring techniques used by conventional banks are ‘credit ratings of prospective investors, internal rating system, duration analysis, simulation techniques, and gap analysis’. The least ranked risk measurement techniques used by Islamic and conventional banks are ‘earnings at risk’; and ‘risk adjusted rate of return on capital’ techniques. Overall, a significant change is noticed in risk measurement techniques used by Islamic and conventional banks in Pakistan. Ahmed (2011) stated that the credit rating of prospective investors is the most commonly used risk measuring techniques in commercial banks. The maturity matching analysis technique is commonly used to manage liquidity risks in banks. Moreover, duration analysis is used to manage markup or interest rate risk. RAROC is used to determine overall risk and performance of the banks. Islamic banking respondents said that they also use PVB, notional amounts, sensitivity analysis, the combination of various limits as other risk measurement techniques; whereas conventional banking respondents said they use portfolio analysis, ICAAP and credit rating by external rating agencies as other risk measurement techniques.

Table 8.13: Frequencies and Ranking of Risk Measurement Techniques used by Islamic and Conventional Banks

Risk Measurement Techniques	Conventional			
	Islamic Banks	Ranks	Banks	Ranks
Credit ratings of prospective investors	52	2	58	1
Gap Analysis	57	1	39	5
Duration Analysis	38	5	53	3
Maturity Matching Analysis	27	6	30	7
Earnings at Risk	19	9	13	10
Value at risk	43	3	25	8
Simulation Techniques	21	8	40	4
Internal Rating System	42	4	56	2
Estimate of worst case scenario	38	5	35	6
Risk Adjusted Return on Capital	25	7	17	9
Other	9	10	3	11

Table 8.14 shows the frequencies and ranking of risk mitigation techniques used by Islamic and conventional banks in Pakistan. ‘Collateral arrangement’ is ranked first by Islamic and conventional banking respondents among other techniques. The internal risk rating is ranked second by Islamic banking users, whereas ‘guarantees’ are ranked second by respondents of conventional banks. The third most used technique by Islamic banking respondents is ‘guarantees’, whereas ‘internal risk rating’ is ranked third by conventional banks. ‘Securitisation’ is ranked fourth by the Islamic bank’s respondents. While, ‘loan loss provision’ is ranked fourth by the conventional bank’s respondents. ‘Off balance sheet netting’ and ‘on balance sheet netting’ is ranked as the fifth most used risk mitigation technique by Islamic and conventional banks. The least used risk mitigation techniques by respondents of Islamic and conventional banks are profit rate swaps and credit rate default swaps. The findings of Islamic bank are consistent with the results of a study conducted by Ariffin and Kassim (2011). Conventional banking respondents also said that they use

‘derivatives; security; hedging strategies; and mark to market valuation’ as risk mitigation techniques; whereas, Islamic banking respondents said that they use ‘currency swaps; third currency foreign exchange options; and Islamic insurance (takaful)’ as other risk mitigation methods.

Table 8.14: Frequencies and Ranking of Risk Mitigation Techniques used by Islamic and Conventional Banks

Risk Mitigation Techniques	Islamic banks	Ranks	Conventional banks	Ranks
Collateral arrangement	70	1	61	1
Third Party Arrangement	29	7	22	9
Loan Loss Provision	29	7	39	4
On Balance Sheet Netting	38	6	36	5
Off Balance Sheet Netting	42	5	33	6
Guarantees	53	3	59	2
Internal Risk Ratings	57	2	49	3
Urban (Islamic derivatives)	14	8	0	-
Profit rate swaps	4	9	14	10
Securitisation	44	4	32	7
Credit Default Swap	14	8	12	11
Credit Derivatives	0	-	25	8
Other	1	10	7	12

Figure 8.1 presents the results of liquidity management instruments used by Islamic and conventional banks. 96% (72 out of 75) and 83% (62 out of 75) of respondents from Islamic and conventional banks use ‘cash reserve ratio’. 27% (20 out of 75) and 57% (43 out of 75) respondents of Islamic and conventional bank, respectively, use ‘discount window operations’ to manage liquidity in their banks. 27% (20 out of 75) of Islamic banking respondents and 68% (51 out of 75) of conventional banking respondents use ‘open market operation’ to manage their liquidity. 72% (54 out of 75) of Islamic and 80% (60 out of 75) of conventional banks’ respondents said they use liquidity ratios to manage liquidity in their banks. Whereas, 12% (9 out of 75) of respondents from Islamic banks said they also use other methods to manage liquidity, such as viable funding mix, depositors concentration, reviewing contingency plan, net stable funding ratio, and deposit mobilizations.

Figure 8.1: Instruments to Manage Liquidity in Islamic and Conventional Banks

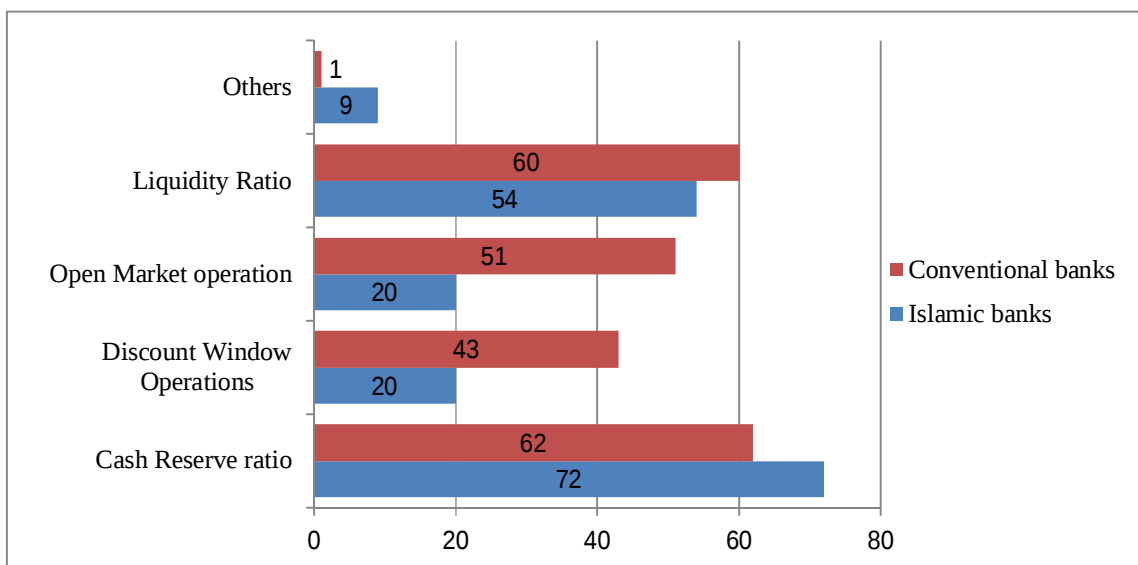


Figure 8.2 represents the result, when it is asked from the respondents whether board of directors are involved in the risk management process. 74 out of 75 respondents of Islamic banks said that the board of directors of their bank are involved in the risk management process, whereas, 69 out of 75 respondents of conventional banks said their board of directors are involved in the risk management process.

Figure 8.2: Board of Directors Involvement in Risk Management Process

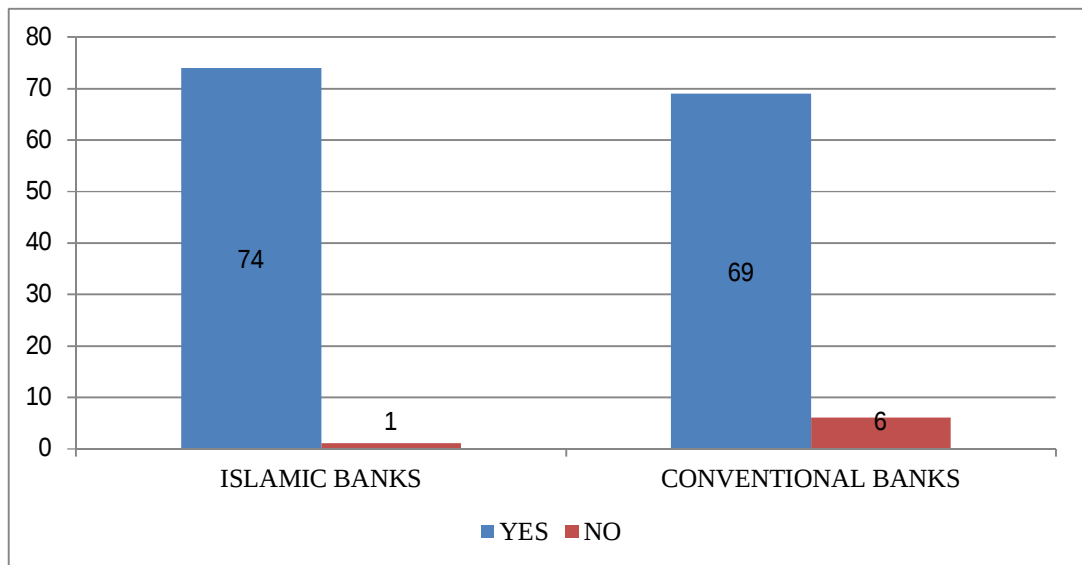


Figure 8.3 presents the managerial and board committees' involvement in risk management of Islamic and conventional banks of Pakistan. The results reveal that 75 respondents of Islamic and 74 respondents of conventional banks said that their risk management committee is involved in risk management process, 32 and 29 respondents of Islamic and conventional banks said that their 'Audit Committee' is involved in risk management issues. 46 respondents of Islamic and conventional banks said that there 'Executive Committee' is also involved in the risk management process. Whereas, 67 and 71 out of 75 respondents of Islamic and conventional banks said that there 'Asset and Liability Management Committee' is involved in the risk management process. 'Management Risk Committee; Market Risk Management Department, Credit Risk Management Committee, Risk Management Group, Risk Management Division' are other managerial or board committees that deal with risk management issues in conventional banks whereas, 'Management Credit Committee, Internal Audit, and Shariah Committee' are other board committees that deal with risk management issues in Islamic banks.

Figure 8.3: Bank's Managerial and/or Board Committees Involvement in Risk Management process

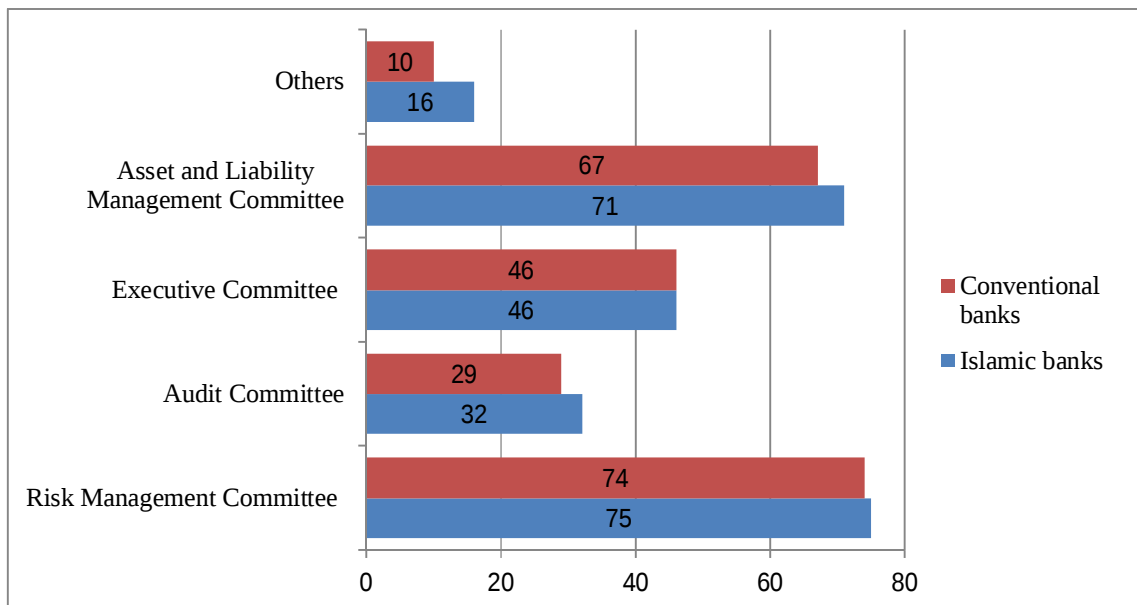
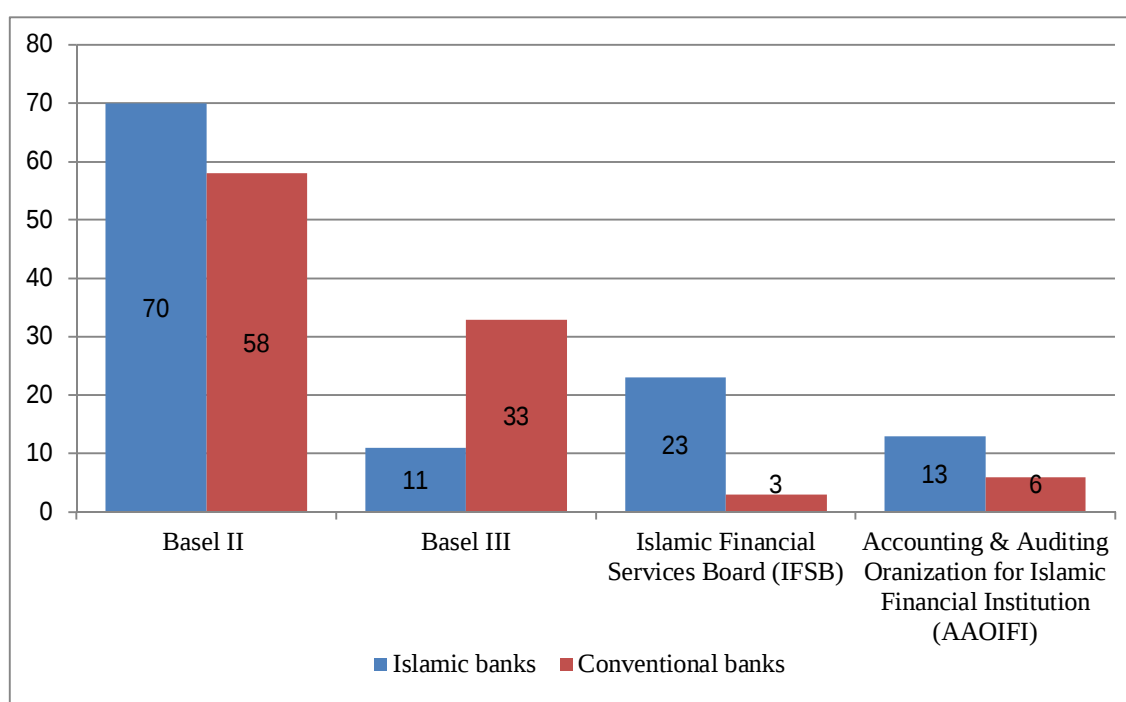


Figure 8.4 presents the result of the implementation of risk management regulations in Islamic and conventional banks. 70 and 58 out of 75 respondents of Islamic and conventional bank practices Basel II as risk management regulation. Whereas, 11 and 33 respondents of Islamic and conventional banks are implementing Basel III regulations for risk management. The response rate for implementation of Basel III is low because the State Bank of Pakistan has required all banks and financial institutions to measure their capital adequacy based on Basel III instructions and it is intended to be implemented fully in 2019⁶⁴. 23 and 3 out of 75 respondents of Islamic and conventional banks, respectively, said that they are implementing regulations of ‘Islamic Financial Services Board’. Whereas, 13 and 6 respondents of Islamic and conventional banks, respectively, said that they are implementing AAOIFI regulations in their banks to manage risks.

Figure 8.4: Implementation of Risk Management Regulations in Islamic and Conventional Banks



⁶⁴ BPRD circular no. 06 dated August 15, 2013 by State Bank of Pakistan

Section 8.3: Inferential Statistics

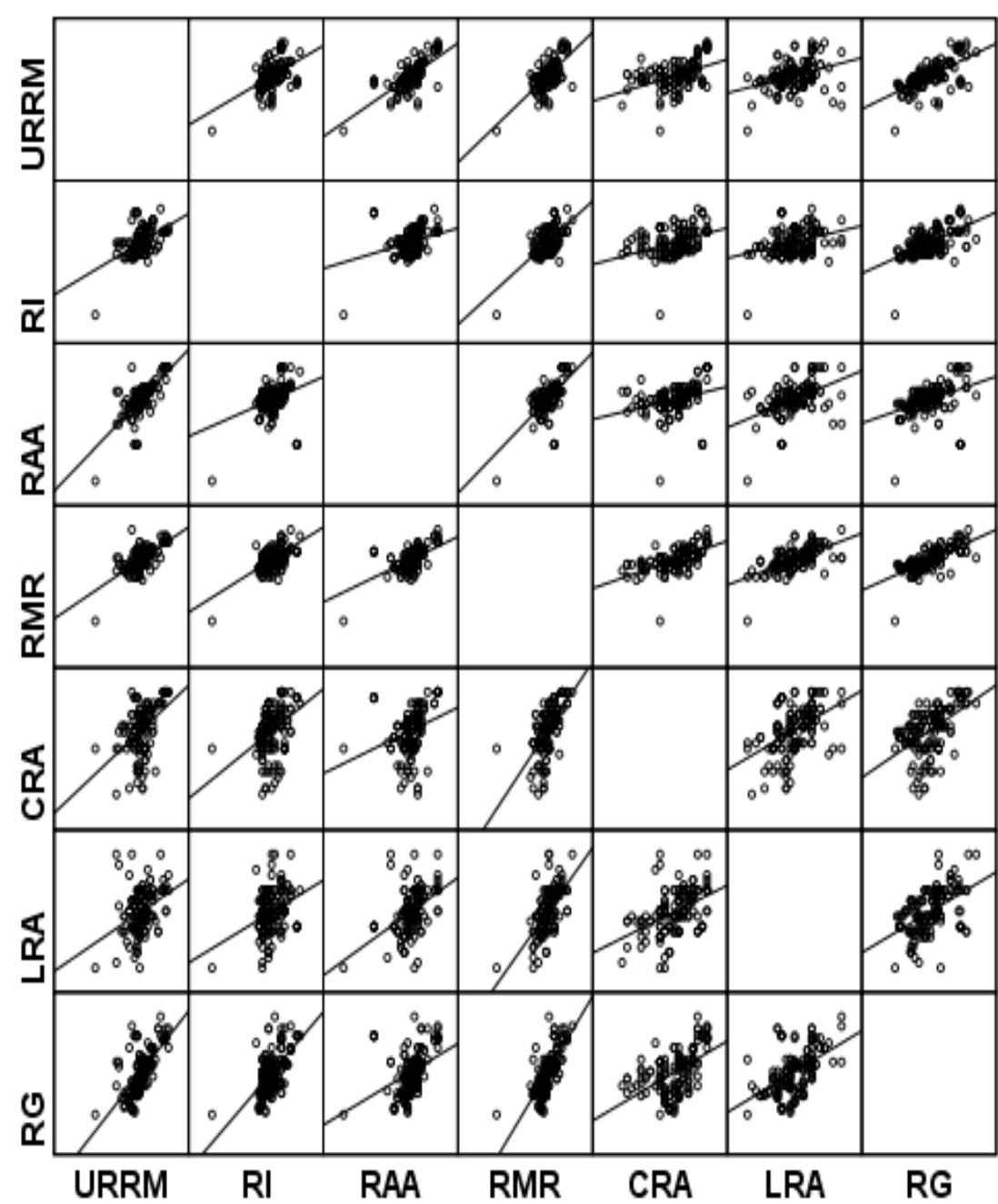
8.3.1. Scatter Plot of Explanatory Variables

Figure 8.5 presents the scatter plot matrix of independent variables. Scatter plot matrix allows us to see the relationship among all combinations of different variables. A scatter plot is used to show how scores for an individual on one variable is associated with the score of another variable. If the correlation is high and positive, the plotted points will be close to the straight line (linear regression line) from the lower left corner to the upper right corner.

Scatter plot matrix shown in figure 8.5 shows that there is no correlation among URRM, RI, RMR, CRA, LRA, RG which is shown, through row 1 with column 2, 4, 5, 6 and 7. Whereas, the results of row 1 with column 3 shows the existence of correlation between URRM and RAA. There exists no correlation among RI, RAA, RMR, CRA, LRA, and RG (refer to row 2 with column 3 to 7). Results of row 3 with column 4, 5, 6 and 7 show that there is no correlation among RAA, RMR, CRA, LRA and RG as plotted points are far from the linear line. Results of row 4 with column 5, 6 and 7 shows that there is no correlation among RMR and CRA and LRA whereas RMR is related to RG because plotted points are close to linear line (refer to row 4 with column 7). Results of row 5 with column 6 and 7 are indicative of no correlation among CRA, LRA and RG. The output of row 6 with column 7 presents no correlation between LRA and RG.

Hence, the scatter plot matrix shows that all variable points are far away from linear line except risk governance (RG) and risk monitoring and reporting (RMR); understanding risk and risk management (URRM) and risk assessment and analysis (RAA). This means that there exists no correlation among variables except risk governance (RG) and risk monitoring and reporting (RMR); and understanding risk and risk management (URRM) and risk assessment and analysis (RAA).

Figure 8.5: Scatter Plots Matrix of Independent Variables



8.3.2. Correlation Matrix

Spearman's Rho Correlation

Spearman correlation is used when the assumptions of parametric test are violated. Spearman correlation is applied when the data are ordinal, such as Likert scales and data is not normally distributed.

Table 8.15 shows the result of correlation coefficient among variables. Anderson et al. (1990) suggest the rule of thumb to see if there exists a correlation between variables. According to them, a correlation coefficient exceeding 0.70 indicates a potential problem. On the other hand, Bryman and Cramer (1994); Judge et al. (1985); Bryman and Cramer (1997) and Ho and Wong (2001, p.148) indicated that the correlation coefficient between each pair of independent variables should not exceed 0.80 otherwise that will be an indication of multicollinearity among pairs of variables.

Results reveal that there is a positive relationship among all variables. And there exists no problem of multicollinearity among URRM and RI ($r=0.461$), URRM and RMR ($r=0.616$), URRM and CRA ($r=0.402$), URRM and LRA ($r=0.306$), URRM and RG ($r=0.657$), RI and RAA ($r=0.403$), RI and RMR ($r=0.548$), RI and CRA ($r=0.414$), RI and LRA ($r=0.310$), RI and RG ($r=0.586$), RAA and RMR ($r=0.572$), RAA and CRA ($r=0.450$), RAA and LRA ($r=0.519$), RAA and RG ($r=0.508$), RMR and CRA ($r=0.657$), RMR and LRA ($r=0.625$), CRA and LRA ($r=0.471$), CRA and RG ($r=0.521$), and LRA and RG ($r=0.507$). However, results indicate that there exists a minor problem of multicollinearity (Anderson et al., 1990) between URRM and RAA ($r=0.703$); and RMR and RG ($r=0.763$). This problem can be handled by eliminating each of these variables from the model when regression analysis will be applied. For example, when URRM is added in regression equation, we will eliminate RAA from the model to reduce the influence of RAA on URRM and when we add RMR, we will eliminate RG from the model to cut the effect of RG on RMR and vice versa. Whereas, with reference to Bryman and Cramer (1994), Judge et al. (1985); Bryman and Cramer (1997) and Ho and Wong (2001, p.148) the result of the correlation matrix

does not show any potential problem of multicollinearity as the value of coefficient is less than 0.80.

Table 8.15: Spearman's Rho Correlation Matrix on aspects of Risk Management Process of all banks

	URRM	RI	RAA	RMR	CRA	LRA	RG
URRM	1						
RI	.461	1					
RAA	.703	.403	1				
RMR	.616	.548	.572	1			
CRA	.402	.414	.450	.657	1		
LRA	.306	.310	.519	.625	.471	1	
RG	.657	.586	.508	.763	.521	.507	1
Where, URRM= Understanding risk and risk management, RI= Risk Identification, RAA= Risk Assessment and analysis, RMR= Risk Monitoring and Reporting, CRA= Credit Risk Analysis, LRA= Liquidity Risk Analysis, RG= Risk Governance							

Table 8.16 shows the results of non-parametric Spearman correlation on Islamic banking data. A correlation coefficient exceeding 0.70 shows the problem of multicollinearity. The results show that there exists no strong correlation between URRM and RI ($r=.590$), RAA and URRM ($r=.677$), URRM and CRA ($r=.450$), URRM and LRA ($r=.285$), RI and RAA ($r=.604$), RI and RMR ($r=.562$), RI and CRA ($r=.384$), RI and LRA ($r=.480$), RI and RG ($r=.607$), RAA and RMR ($r=.666$), RAA and CRA ($r=.579$), RAA and LRA ($r=.572$), RAA and RG ($r=.605$), RMR and CRA ($r=.630$), RMR and LRA ($r=.569$), CRA and LRA ($r=.569$), CRA and RG ($r=.530$), LRA and RG ($r=.573$). However, the results show that there exists correlation between URRM and RMR ($r=.720$), URRM and RG ($r=.767$), and RMR and RG ($r=.776$) as per rule of thumb given by Anderson et al. (1990). This problem can be controlled by eliminating each of these variables from the model when regression analysis will be estimated. For example, when URRM is added in regression equation, RMR and RG will be eliminated to reduce the influence of RMR and RG on URRM, whereas, when RMR is added in regression equation, URRM and RG will be eliminated from the model to reduce the effect of URRM and RG on RMR. And lastly, when RG is

added in the regression equation, URRM and RMR is eliminated from the model to reduce their effect on RG. Conversely, according to a study of Bryman and Cramer (1994) there exists no correlation among a pair of independent variables. Hence, we can use all independent variables in the regression equation to see their effect on risk management practices of Islamic banks.

Table 8.16: Spearman's Rho Correlation Matrix on Aspects of Risk Management Process of Islamic Banks

	URRM	RI	RAA	RMR	CRA	LRA	RG
URRM	1						
RI	.590	1					
RAA	.677	.604	1				
RMR	.720	.562	.666	1			
CRA	.450	.384	.579	.630	1		
LRA	.285	.480	.572	.569	.569	1	
RG	.767	.607	.605	.776	.530	.573	1
Where, URRM= Understanding risk and risk management, RI= Risk Identification, RAA= Risk Assessment and analysis, RMR= Risk Monitoring and Reporting, CRA= Credit Risk Analysis, LRA= Liquidity Risk Analysis, RG= Risk Governance							

Table 8.17 shows the results of non-parametric Spearman correlation on conventional banking data. A correlation coefficient exceeding 0.70 shows the problem of correlation among explanatory variables. Results show that there exists no strong correlation between URRM and RI ($r=.336$), RAA and URRM ($r=.698$), URRM and RMR ($r=.511$), URRM and CRA ($r=.338$), URRM and LRA ($r=.430$), URRM and RG ($r=.549$), RI and RAA ($r=.220$), RI and RMR ($r=.553$), RI and CRA ($r=.449$), RI and LRA ($r=.326$), RI and RG ($r=.556$), RAA and RMR ($r=.480$), RAA and CRA ($r=.310$), RAA and LRA ($r=.488$), RAA and RG ($r=.408$), RMR and CRA ($r=.669$), CRA and LRA ($r=.446$), CRA and RG ($r=.525$), LRA and RG ($r=.554$). However, results also show that there exists a correlation between RMR and LRA ($r=.713$), and RMR and RG ($r=.733$) according to the correlation coefficient given by Anderson et al. (1990). This problem can be handled by eliminating each of these variables from the model when regression analysis is estimated. For example,

when RMR is added in regression equation, LRA and RG will be eliminated from the model to cut the influence of the LRA and RG on RMR. Whereas, when LRA and RG are included in the regression equation, then RMR is eliminated to reduce the influence of RMR on LRA and RG. Whereas, according to Bryman and Cramer (1994) there exists no potential problem of multicollinearity among pair of variables as correlation coefficient is less than 0.80.

Table 8.17: Spearman's Rho Correlation Matrix on aspects of Risk Management Process of Conventional Banks

	URRM	RI	RAA	RMR	CRA	LRA	RG
URRM	1						
RI	.336	1					
RAA	.698	.220	1				
RMR	.511	.553	.480	1			
CRA	.338	.449	.310	.669	1		
LRA	.430	.326	.488	.713	.446	1	
RG	.549	.556	.408	.733	.525	.554	1
Where, URRM= Understanding risk and risk management, RI= Risk Identification, RAA= Risk Assessment and analysis, RMR= Risk Monitoring and Reporting, CRA= Credit Risk Analysis, LRA= Liquidity Risk Analysis, RG= Risk Governance							

8.3.3. Stepwise Regression Analysis

8.3.3.1. Regression Equations

The following regression equations are regressed to see the effect of independent variables (i.e. understanding risk and risk management, risk identification, risk assessment and analysis, risk monitoring and reporting, credit risk analysis, liquidity risk analysis and risk governance) on dependent variable (i.e. risk management practices):

$$\text{RMP} = \beta_0 + \beta_1 \text{URRM} + \beta_2 \text{RI} + \beta_3 \text{RAA} + \beta_4 \text{RMR} + \beta_5 \text{CRA} + \beta_6 \text{LRA} + \beta_7 \text{RG} + \mu \quad (1)$$

$$\text{RMP} = \beta_0 + \beta_1 \text{RI} + \beta_2 \text{RAA} + \beta_3 \text{RMR} + \beta_4 \text{CRA} + \beta_5 \text{LRA} + \beta_6 \text{RG} + \mu \quad (2)$$

$$\mathbf{RMP} = \beta_0 + \beta_1 \text{URRM} + \beta_2 \text{RAA} + \beta_3 \text{RMR} + \beta_4 \text{CRA} + \beta_5 \text{LRA} + \beta_6 \text{RG} + \mu \dots\dots\dots (3)$$

$$\mathbf{RMP} = \beta_0 + \beta_1 \text{URRM} + \beta_2 \text{RI} + \beta_3 \text{RMR} + \beta_4 \text{CRA} + \beta_5 \text{LRA} + \beta_6 \text{RG} + \mu \dots\dots\dots (4)$$

$$\mathbf{RMP} = \beta_0 + \beta_1 \text{URRM} + \beta_2 \text{RI} + \beta_3 \text{RAA} + \beta_4 \text{CRA} + \beta_5 \text{LRA} + \beta_6 \text{RG} + \mu \dots\dots\dots (5)$$

$$\mathbf{RMP} = \beta_0 + \beta_1 \text{URRM} + \beta_2 \text{RI} + \beta_3 \text{RAA} + \beta_4 \text{RMR} + \beta_5 \text{LRA} + \beta_6 \text{RG} + \mu \dots\dots\dots (6)$$

$$\mathbf{RMP} = \beta_0 + \beta_1 \text{URRM} + \beta_2 \text{RI} + \beta_3 \text{RAA} + \beta_4 \text{RMR} + \beta_5 \text{CRA} + \beta_6 \text{RG} + \mu \dots\dots\dots (7)$$

$$\mathbf{RMP} = \beta_0 + \beta_1 \text{URRM} + \beta_2 \text{RI} + \beta_3 \text{RAA} + \beta_4 \text{RMR} + \beta_5 \text{CRA} + \beta_6 \text{LRA} + \mu \dots\dots\dots (8)$$

Stepwise regression analysis is carried out. In equation 1, all the independent variables are added to see their mutual effect on the dependent variable. Whereas, from equation 2 to 8, each variable is eliminated step by step from the equation to examine the contribution of corresponding variable in R-square of regression model.

Regression equations 9 to 12 are estimated based on correlation coefficient results. The correlation coefficient for URRM and RAA; and RMR and RG is slightly greater than 0.70, which shows the problem of multicollinearity. For that reason, equation 9 is regressed by eliminating URRM and RG variables. Whereas, equation 10 is applied by eliminating RAA and RMR variables, equation 11 is applied by excluding RAA and RG variables, and equation 12 is regressed by eliminating URRM and RMR variables.

$$\mathbf{RMP} = \beta_0 + \beta_1 \text{RI} + \beta_2 \text{RAA} + \beta_3 \text{RMR} + \beta_4 \text{CRA} + \beta_5 \text{LRA} + \mu \dots\dots\dots (9)$$

$$\mathbf{RMP} = \beta_0 + \beta_1 \text{URRM} + \beta_2 \text{RI} + \beta_3 \text{CRA} + \beta_4 \text{LRA} + \beta_5 \text{RG} + \mu \dots\dots\dots (10)$$

$$\mathbf{RMP} = \beta_0 + \beta_1 \text{URRM} + \beta_2 \text{RI} + \beta_3 \text{RMR} + \beta_4 \text{CRA} + \beta_5 \text{LRA} + \mu \dots\dots\dots (11)$$

$$\mathbf{RMP} = \beta_0 + \beta_1 \text{RI} + \beta_2 \text{RAA} + \beta_3 \text{CRA} + \beta_4 \text{LRA} + \beta_5 \text{RG} + \mu \dots\dots\dots (12)$$

Where, β_0 is intercept, β = Regression coefficient, μ = Error term, **RMP**= Risk Management Practices, **URRM**= Understanding Risk and Risk Management, **RI**= Risk Identification,

RAA= Risk Assessment and Analysis, **RMR**= Risk Monitoring and Reporting, **CRA**= Credit Risk Analysis, **LRA**= Liquidity Risk Analysis, **RG**= Risk Governance.

Table 8.18 shows the result of stepwise regression analysis. Regression analysis estimates on data from 150 respondents. Regression analysis is applied separately on the above stated regression equations.

Model 1 show that R^2 is 65.9%, which means that 65.9% of the variation in the dependent variable that is RMP is due to the explanatory variables (i.e. URRM, RI, RAA, RMR, CRA, LRA and RG) and the remaining 34.1 % due to other factors. F value is significant at 1%, hence, we can say that overall Model 1 is a good fit. Where, value of beta (β) explains the contribution of independent variable within dependent variable. CRA and RG show the largest beta value which means their contribution is more than other independent variables in RMP. The results also reveal that all independent variables have a positive relationship with RMP. The positive relationship means that with the increase in explanatory variable, there is also an increase in dependent variable (i.e. RMP) and vice versa. Results of t-value show that RI ($t=3.822$, $\text{sig}=.000$) and CRA ($t=4.777$, $\text{sig}=.000$) have a significant relationship with RMP at 1% significance level. Whereas, t-value of RAA ($t=2.056$, $\text{sig}=.042$) and RG ($t=3.076$, $\text{sig}=.003$) has a significant relationship with RMP at 5% significance level⁶⁵.

Model 2 indicates the result of regression analysis fitted on six independent variables (i.e. RI, RAA, RMR, CRA, LRA, and RG). The value of R^2 is 65.8%, which means that 65.8% variation in RMP is due to RI, RAA, RMR, CRA, LRA and RG and remaining 34.2% variation is due to other factors. F-statistic is significant at 1%, which shows that model 2 is a good fit. The results for the value of beta (β) show that all variables have a positive relationship with RMP. Where, the t-value of RI, RAA, CRA and RG has a significant relationship with RMP at 1% significance level.

⁶⁵ The probability of rejecting the null hypothesis in a statistical test when it is true.

Model 3 illustrates the result of regression analysis fitted on six independent variables (i.e. URRM, RAA, RMR, CRA, LRA, and RG) to see their effect on dependent variable (i.e. RMP). R^2 shows that 62.4% of variation in RMP is due to URRM, RAA, RMR, CRA, LRA and RG and remaining 37.6% variation is due to other factors. The F-statistic is statistically significant at 1% significance level, which indicates that the model is a good fit. The results of beta (β) value show that all variables have a positive relationship with RMP except LRA. Where, t-value of CRA and RG show a statistically significant relationship with RMP at 1%.

Model 4 estimates the effect of URRM, RI, RMR, CRA, LRA, and RG on RMP. The result of R^2 is 64.9%, which means that 64.9% of variation in RMP is due to URRM, RI, RMR, CRA, LRA and RG and remaining 35.1% variation is due to other factors. The F-statistic is significant at 1%, which means the model is a good fit. The beta (β) value of CRA, RG and RI is large, which means they contribute more in RMP of banks. All independent variables show a positive relationship with RMP. The T-value of RI and CRA shows a statistically significant relationship with RMP at 1%, whereas, URRM and RG shows a significant relationship with RMP at 5%.

Model 5 estimates the effect of URRM, RI, RAA, CRA, LRA and RG on RMP. The results of R^2 is 65.9%, which means 65.9% of variation in RMP is explained by URRM, RI, RAA, CRA, LRA and RG and remaining 34.1% variation in RMP is due to other factors. The F-statistic is significant at 1%, which means the model is a good fit. The beta (β) value of CRA and RG is large and contributes more in RMP than any other independent variable. All variables show a positive relationship with RMP. Where, t-value of RI, CRA and RG shows a significant relationship at 1%, whereas, RAA shows a statistically significant relationship at 5%.

Model 6 shows the effect of URRM, RI, RAA, RMR, LRA and RG on RMP. The results of R^2 is 60.5%, which means 60.5% variation in RMP is explained by URRM, RI, RAA, RMR, LRA and RG and the remaining 39.5% variation in RMP is due to other factors. F-statistic is significant at 1%, which means the model is a good fit. The beta (β) value of RG,

RI and RMR is large which means they contribute more in RMP than other variables (i.e. URRM, RAA, LRA). All variables show a positive relationship with RMP. Where, RI and RG show a significant relationship with RMP at 1%.

Model 7 shows the effect of URRM, RI, RAA, RMR, CRA, and RG on RMP of banks. R^2 is 65.9%, which means 65.9% of variation in RMP is explained by URRM, RI, RAA, RMR, CRA and RG and remaining 34.1% variation in RMP is due to other factors. The F-statistic is significant at 1%, which means the model is a good fit. The beta (β) value of CRA, RG and RI is large and contribute more in RMP than other variables (i.e. URRM, RAA, RMR). All variables show a positive relationship with RMP. Where, t-value of RI, CRA and RG show a significant relationship with RMP at 1% and RAA shows a statistically significant relationship with RMP at 5%.

Model 8 estimates the effect of URRM, RI, RAA, RMR, CRA, and LRA on RMP of Islamic and conventional banks. R^2 is 63.7%, which means 63.7% of variation in RMP is explained by URRM, RI, RAA, RMR, CRA and LRA and remaining 36.3% variation in RMP is due to other factors. The F-statistic is significant at 1%, which means the model is a good fit. The beta (β) value of CRA, RI and URRM is larger which means they contribute more in RMP than other variables (i.e. RAA, RMR and LRA). All variables show a positive relationship with RMP. Where, t-value of RI and CRA show a significant relationship with RMP at 1% and URRM shows statistically significant relationship with RMP at 5%.

Model 9 estimates the effect of RI, RAA, RMR, CRA and LRA on RMP of banks. Results reveal that R^2 is 62.5%, which means that 62.5% variation in RMP is due to RI, RAA, RMR, CRA and LRA and remaining 37.5% variation is due to other factors. The F-statistic is significant at 1%, which means the model is a good fit. The beta (β) value of CRA, RI and RMR is higher, which means they contribute more in RMP of banks. T-statistics show that RI, RAA and CRA are statistically significant at 1%.

Model 10 shows the effect of URRM, RI, CRA, LRA and RG on RMP of conventional and Islamic banks of Pakistan. R^2 is 64.8%, which means that 64.8% variation in RMP is due to

URRM, RI, CRA, LRA and RG and remaining 35.2% variation is due to other factors. The F-statistic is significant at 1%, which means the model is a good fit. The beta (β) value of CRA, RG, and RI is high which means they contribute more in RMP than other variables (i.e. URRM, LRA). All variables show a positive relationship with RMP. T-test shows that URRM, RI, CRA and RG have a statistically significant relationship with RMP of banks at 1%.

Model 11 shows the effect of URRM, RI, RMR, CRA and LRA on RMP of banks. R^2 is 63.4%, which means that 63.4% variation in RMP is due to URRM, RI, RMR, CRA and LRA and remaining 36.6% variation is due to other factors. The F-statistic is significant at 1%, which means the model is a good fit. The beta (β) value of CRA, URRM and RI is higher than other variables (i.e. RMR and LRA), which means they contribute more in RMP of banks than other variables. Results of t statistics show that URRM, RI and CRA have a statistically significant relationship with RMP at 1% and all variables show a positive relation with RMP of Islamic and conventional banks.

Model 12 estimates the effect of RI, RAA, CRA, LRA, and RG on RMP of banks. Results show that R^2 is 65.8%, which means that 65.8% variation in RMP is due to RI, RAA, CRA, LRA and RG and remaining 34.2% variation is due to other factors. The F-statistic is significant at 1%, which shows that model 12 is a good fit. The results of the value of beta (β) show that all variables have a positive relationship with RMP. Where, t-value of RI, RAA, CRA and RG shows a statistically significant relationship with RMP at 1%.

In conclusion, we can say that RI, RAA, CRA and RG are the most influencing variables in risk management practices of banks of Pakistan. Our results are somewhat similar to earlier studies, such as Al-Tamimi and Al-Mazrooei (2007) and Hussain and Al-Ajmi (2012); they found that risk identification (RI) and risk assessment and analysis (RAA) have a positive and significant relationship with risk management practices (RMP). However, the finding of CRA is similar to those of Hussain and Al-Ajmi (2012); Khalid and Amjad (2012); they found that CRA has a positive and significant relationship with RMP.

Results of all models show that among all the independent variables removed, there is a 5.4% decrease in R^2 value by removing the independent variable CRA from the model (refer to model 6). Moreover, results of model 3 shows a decrease of 3.5% in R^2 value with the removal of RI variable from the model. This excessive decrease in the value of R^2 shows the importance of the CRA and RI in the model.

Table 8.18: Stepwise Regression Analysis of Banks Operating in Pakistan

Model		Constant	URRM	RI	RAA	RMR	CRA	LRA	RG	
1	B	-.757	.063	.221	.148	.007	.382	.022	.279	R ² = .659
	St. Error	.476	.101	.058	.072	.128	.080	.091	.091	F=39.266
	t-value	-1.590	.631	3.822	2.056	.056	4.777	.244	3.076	Sig.=.000
	Sig.	.114	.529	.000*	.042**	.955	.000*	.808	.003*	
2	B	-.697	-	.223	.176	.014	.389	.004	.304	R ² =.658
	St. Error	.465	-	.057	.055	.127	.079	.087	.081	F=45.938
	t-value	-1.498	-	3.885	3.199	.114	4.928	.050	3.751	Sig.=.000
	Sig.	.136	-	.000*	.002*	.909	.000*	.960	.000*	
3	B	-.756	.091	-	.119	.180	.369	-.014	.359	R ² = .624
	St. Error	.498	.105	-	.075	.125	.084	.095	.092	F=39.606
	t-value	-1.518	.864	-	1.599	1.435	4.413	-.143	3.883	Sig.=.000
	Sig.	.131	.389	-	.112	.154	.000*	.886	.000*	
4	B	-.831	.196	.209	-	.077	.351	.082	.219	R ² = .649
	St. Error	.480	.078	.058	-	.125	.079	.088	.087	F= 44.11
	t-value	-1.732	2.494	3.590	-	.622	4.422	.937	2.521	Sig.=.000

	Sig.	.085	.014**	.000*	-	.535	.000*	.350	.013**	
5	B	-.755	.064	.222	.149	-	.383	.024	.280	R ² = .659
	St. Error	.473	.100	.054	.069	-	.076	.087	.087	F=46.131
	t-value	-1.595	.640	4.120	2.157	-	5.063	.273	3.220	Sig.=.000
	Sig.	.113	.523	.000*	.033**	-	.000*	.785	.002*	
6	B	-.007	.132	.209	.083	.197	-	.092	.306	R ² = .605
	St. Error	.482	.107	.062	.076	.130	-	.097	.097	F=36.445
	t-value	-.014	1.233	3.373	1.103	1.511	-	.946	3.152	Sig.=.000
	Sig.	.989	.219	.001*	.272	.133	-	.346	.002*	
7	B	-.709	.056	.219	.153	.016	.385	-	.285	R ² = .659
	St. Error	.432	.095	.057	.068	.122	.079	-	.088	F=46.104
	t-value	-1.640	.586	3.830	2.258	.133	4.894	-	3.249	Sig.=.000
	Sig.	.103	.559	.000*	.025**	.894	.000*	-	.001*	
8	B	-.891	.201	.262	.076	.113	.397	.092	-	R ² = .637
	St. Error	.488	.093	.058	.070	.127	.082	.091	-	F=41.763
	t-value	-1.827	2.160	4.522	1.094	.888	4.840	1.013	-	Sig.=.000
	Sig.	.070	.032**	.000*	.276	.376	.000*	.313	-	

9	B	-.705	-	.286	.165	.179	.431	.047	-	R ² =.625
	St. Error	.486	-	.057	.058	.125	.082	.090	-	F=47.960
	t-value	-1.449	-	4.987	2.863	1.437	5.283	.520	-	Sig.=.000
	Sig.	.149	-	.000*	.005*	.153	.000*	.604	-	
10	B	-.819	.213	.221	-	-	.365	.105	.230	R ² =.648
	St. Error	.478	.073	.055	-	-	.076	.080	.085	F=53.081
	t-value	-1.712	2.904	4.050	-	-	4.789	1.312	2.705	Sig.=.000
	Sig.	.089	.004*	.000*	-	-	.000*	.192	.008*	
11	B	-.917	.260	.249	-	.140	.378	.118	-	R ² = .634
	St. Error	.487	.075	.057	-	.124	.080	.088	-	F=49.808
	t-value	-1.882	3.444	4.391	-	1.127	4.712	1.342	-	Sig.=.000
	Sig.	.062	.001*	.000*	-	.262	.000*	.182	-	
12	B	-.693	-	.226	.179	-	.392	.007	.308	R ² = .658
	St. Error	.462	-	.053	.050	-	.074	.083	.076	F=55.503
	t-value	-1.498	-	4.226	3.597	-	5.275	.085	4.052	Sig.=.000
	Sig.	.136	-	.000*	.000*	-	.000*	.932	.000*	

Dependent variable: RMP= Risk Management Practices

Where, Independent Variables are: URRM= Understanding risk and risk management, RI= Risk Identification, RAA= Risk Assessment and analysis, RMR= Risk Monitoring and Reporting, CRA= Credit Risk Analysis, LRA= Liquidity Risk Analysis, RG= Risk Governance

* Significant at 1% ** Significant at 5%, *** Significant at 10% - Excluded from the model.

Note: Regression models 9 to 12 are estimated based on correlation coefficient results (See Table 8.15). The correlation coefficient for URRM and RAA; and RMR and RG is slightly greater than 0.70 which shows the problem of multicollinearity.

Table 8.19 shows the results of stepwise regression analysis on Islamic banking data. Model 1 is estimated to see the effect of all independent variables (URRM, RI, RAA, RMR, CRA, LRA, and RG) on RMP of Islamic banks. Results show that R^2 is 75.9%, which means that 75.9% of the variation in the dependent variable that is RMP is due to the explanatory variables (i.e. URRM, RI, RAA, RMR, CRA, LRA and RG) and remaining 24.1% variation is due to other factors. F value is significant at 1%, hence we can say that overall Model 1 is a good fit. Where, the value of beta (β) explains the contribution of independent variable in dependent variable. RAA, CRA and RG show the largest beta value which means their contribution is more than other independent variables in RMP. The results also reveal that RI, RAA, CRA and RG have a positive relationship with RMP. The positive relationship means that with the increase in explanatory variable, there is also an increase in dependent variable (i.e. RMP) and vice versa. Results of t-value show that RAA ($t=3.978$, $\text{sig}=.000$), CRA ($t=4.635$, $\text{sig}=.000$); RI ($t=1.948$, $\text{sig}=.056$), and RG ($t=1.689$, $\text{sig}=.096$) are statistically significant at 1% and 10%.

Model 2 is estimated to see the effect of RI, RAA, RMR, CRA, LRA and RG on RMP of Islamic banks. The value of R^2 is 75.2%, which means that 75.2% variation in RMP is due to RI, RAA, RMR, CRA, LRA and RG and remaining 24.8% variation is due to other factors. The F-statistic is significant at 1%, which shows that model 2 is a good fit. Results for the value of beta (β) show that RI, RAA, CRA, LRA and RG have a positive relationship with RMP. Where, RMR shows a negative relationship with RMP which is the indication of weak risk monitoring and reporting (RMR) in Islamic banks. Where, t-value of RI (at 10%), RAA, and CRA has a statistically significant relationship with RMP at 1%.

Model 3 illustrates the result of regression analysis fitted on six independent variables (i.e. URRM, RAA, RMR, CRA, LRA, and RG) to see their effect on dependent variable (i.e. RMP). R^2 shows that 74.5% of variation in RMP is due to URRM, RAA, RMR, CRA, LRA and RG and remaining 25.5% variation is due to other factors. The F-statistic is statistically significant at 1% significance level which indicates that the model is a good fit. Results of beta (β) value show that RAA, RMR, CRA, LRA and RG have a positive relationship with

RMP except URRM. Whereas, t-value of RAA and CRA show a statistically significant relationship with RMP at 1%.

Model 4 estimates the effect of URRM, RI, RMR, CRA, LRA, and RG on RMP of Islamic banks. Result of R^2 is 70.2%, which means that 70.2% of variation in RMP is due to URRM, RI, RMR, CRA, LRA and RG and remaining 29.8% variation is due to other factors. The F-statistic is significant at 1%, which means the model is a good fit. The beta (β) value of CRA, RI and LRA is large which means they contribute more in RMP of banks. All independent variables show a positive relationship with RMP. The t-value of RI and CRA show a statistically significant relationship with RMP at 5% and 1%.

Model 5 estimates the effect of URRM, RI, RAA, CRA, LRA and RG on RMP of Islamic banks. The results of R^2 is 75.9%, which means 75.9% of variation in RMP is explained by URRM, RI, RAA, CRA, LRA and RG and remaining 24.1% variation in RMP is due to other factors. The F-statistic is significant at 1%, which means the model is a good fit. The beta (β) value of RAA, CRA and RG is large and contribute more in RMP than any other independent variable. Where, t-value of RI and RG shows a statistically significant relationship at 10%; RAA and CRA show positive and statistically significant relationship with RMP at 1%.

Model 6 shows the effect of URRM, RI, RAA, RMR, LRA and RG on RMP of Islamic banks. Results of R^2 is 68.2%, which means 68.2% variation in RMP is explained by URRM, RI, RAA, RMR, LRA and RG and remaining 31.8% variation in RMP is due to other factors. The F-statistic is significant at 1%, which means the model is a good fit. The beta (β) value of the RAA and RG is large which means they contribute more in RMP than other variables (i.e. URRM, RI, RMR and LRA). All variables show a positive relationship with RMP except URRM which means that understanding of risk and risk management is weak in Islamic banks. Where, t-value of RAA shows statistically significant relationship with RMP at 1%.

Model 7 shows the effect of URRM, RI, RAA, RMR, CRA, and RG on RMP of Islamic banks. R^2 is 75.8%, which means 75.8% of variation in RMP is explained by URRM, RI,

RAA, RMR, CRA and RG and remaining 24.2% variation in RMP is due to other factors. The F-statistic is significant at 1%, which means the model is a good fit. The beta (β) value of RAA, CRA, and RG is large and contributes more in RMP than other variables (i.e. URRM, RI, RMR). All variables show a positive relationship with RMP except URRM and RMR. Where, t-value of RI and RG show a statistically significant relationship with RMP at 10% and RAA and RG show a statistically significant relationship with RMP at 1%.

Model 8 estimates the effect of URRM, RI, RAA, RMR, CRA, and LRA on RMP of Islamic banks. R^2 is 74.9%, which means 74.9% of variation in RMP is explained by URRM, RI, RAA, RMR, CRA and LRA and remaining 25.1% variation in RMP is due to other factors. The F-statistic is significant at 1%, which means the model is a good fit. The beta (β) value of RAA, CRA, and RI is larger which means they contribute more in RMP than other variables (i.e. URRM, RMR and LRA). All variables show a positive relationship with RMP except URRM and RMR. Where, t-value of RAA and CRA shows a significant relationship with RMP at 1% and RI shows a statistically significant relationship with RMP at 10%.

Model 9, 10 and 11 is based on the results of table 8.16 (results of correlation matrix).

Model 9 estimates the effect of URRM, RI, RAA, CRA and LRA on RMP of Islamic banks. Results reveal that R^2 is 74.9%, which means that 74.9% variation in RMP is due to URRM, RI, RAA, CRA and LRA and the remaining 25.1% variation in RMP is due to other factors. The F-statistic is significant at 1%, which means the model is a good fit. Beta (β) value of the RAA and CRA is higher which means they contribute more in RMP of Islamic banks. All variables show a positive relationship with RMP whereas URRM shows a negative relationship with RMP of Islamic banks. This negative sign indicates the weakness of Islamic banking staff in understanding risk and risk management. T-statistics show that RAA and CRA are statistically significant at 1% where, RI is statistically significant at 10%.

Model 10 shows the effect of RI, RAA, RMR, CRA, and LRA on RMP of Islamic banks of Pakistan. R^2 is 74.8%, which means that 74.8% variation in RMP is due to RI, RAA, RMR,

CRA and LRA and remaining 25.2% variation is due to other factors. The F-statistic is significant at 1%, which means the model is a good fit. Beta (β) value of CRA and RAA is high which means they contribute more in RMP than other variables (i.e. RI, RMR and LRA). All variables show a positive relationship with RMP except RMR. T-test shows that RAA and CRA have a statistically significant relationship at 1% where, RI has statistically significant relationship at 10% with RMP of Islamic banks.

Model 11 shows the effect of RI, RAA, CRA, LRA and RG on RMP of Islamic banks. R^2 is 75.1%, which means that 75.1% variation in RMP is due to RI, RAA, CRA, LRA and RG and remaining 24.9% variation is due to other factors. The F-statistic is significant at 1%, which means the model is a good fit. The beta (β) value of CRA, RAA and RI is higher than other variables (i.e. RG and LRA), which mean they contribute more in RMP of banks than other variables. Results of t statistics show that RAA and CRA have a statistically significant relationship with RMP at 1% and all variables show a positive relation with RMP of Islamic banks.

Table 8.19: Stepwise Regression Analysis of Islamic banks in Pakistan

Model		Constant	URRM	RI	RAA	RMR	CRA	LRA	RG	
1	B	-1.017	-.274	.182	.615	-.047	.510	-.078	.231	R ² =.759
	St. Error	.858	.201	.093	.155	.170	.110	.195	.136	F=30.151
	t-value	-1.185	-1.363	1.948	3.978	-.276	4.635	-.401	1.689	Sig=.000
	Sig.	.240	.177	.056***	.000*	.784	.000*	.690	.096***	
2	B	-1.535	-	.163	.489	-.108	.495	.058	.124	R ² =.752
	St. Error	.774	-	.093	.125	.165	.110	.169	.112	F=34.432
	t-value	-1.982	-	1.758	3.916	-.652	4.494	.342	1.100	Sig=.000
	Sig.	.051	-	.083***	.000*	.517	.000*	.733	.275	
3	B	-1.244	-.217	-	.681	.006	.457	.002	.230	R ² =.745
	St. Error	.868	.203	-	.154	.171	.109	.195	.139	F=33.179
	t-value	-1.433	-1.071	-	4.425	.037	4.198	.010	1.649	Sig=.000
	Sig.	.156	.288	-	.000*	.971	.000*	.992	.104	
4	B	-2.436	.202	.263	-	.086	.518	.234	.077	R ² =.702
	St. Error	.862	.178	.100	-	.184	.121	.197	.145	F=26.714

	t-value	-2.828	1.132	2.619	-	.468	4.262	1.189	.535	Sig.=.000
	Sig.	.006	.262	.011**	-	.641	.000*	.239	.595	
5	B	-1.021	-.288	.177	.606	-	.504	-.088	.227	R ² =.759
	St. Error	.852	.192	.091	.151	-	.107	.191	.135	F=35.648
	t-value	-1.198	-1.498	1.942	4.029	-	4.717	-.462	1.682	Sig.=.000
	Sig.	.235	.139	.056***	.000*	-	.000*	.646	.097***	
6	B	-.371	-.182	.074	.627	.122	-	.167	.237	R ² =.682
	St. Error	.966	.228	.103	.176	.190	-	.214	.156	F=24.283
	t-value	-.384	-.800	.716	3.558	.645	-	.779	1.523	Sig.=.000
	Sig.	.702	.426	.476	.001*	.521	-	.439	.132	
7	B	-1.266	-.233	.174	.590	-.059	.498	-	.208	R ² =.758
	St. Error	.590	.172	.091	.141	.166	.105	-	.124	F=35.588
	t-value	-2.145	-1.356	1.919	4.196	-.357	4.731	-	1.681	Sig.=.000
	Sig.	.036	.180	.059***	.000*	.722	.000*	-	.097***	
8	B	-1.379	-.079	1.81	.541	-.020	.512	.055	-	R ² =.749

	St. Error	.842	.167	.094	.150	.172	.112	.181	-	F=33.780
	t-value	-1.637	-.475	1.916	3.601	-.118	4.590	.307	-	Sig.=.000
	Sig.	.106	.637	.060***	.001*	.906	.000*	.760	-	
9	B	-1.378	-.087	.179	.538	-	.509	.050	-	R ² = .749
	St. Error	.836	.153	.093	.147	-	.108	.174	-	F= 41.120
	t-value	-1.648	-.568	1.936	3.664	-	4.709	.289	-	Sig.= .000
	Sig.	.104	.572	.057***	.000*	-	.000*	.774	-	
10	B	-1.530	-	.173	.502	-.052	.505	.087	-	R ² = .748
	St. Error	.776	-	.092	.125	.158	.110	.167	-	F= 40.950
	t-value	-1.973	-	1.873	4.025	-.329	4.593	.523	-	Sig.= .000
	Sig.	.053	-	.065***	.000*	.743	.000*	.603	-	
11	B	-1.611	-	.151	.452	-	.477	.051	.101	R ² = .751
	St. Error	.762	-	.090	.111	-	.106	.168	.107	F= 41.579
	t-value	-2.113	-	1.666	4.080	-	4.492	.306	.950	Sig.= .000
	Sig.	.038	-	.100	.000*	-	.000*	.760	.346	

Dependent variable: RMP= Risk Management Practices

Where, independent variables are: URRM= Understanding risk and risk management, RI= Risk Identification, RAA= Risk Assessment and analysis, RMR= Risk Monitoring and Reporting, CRA= Credit Risk Analysis, LRA= Liquidity Risk Analysis, RG= Risk Governance

* Significant at 1% ** Significant at 5%, *** Significant at 10% (Significance level means probability of rejecting null hypothesis)

- Excluded from the model

Note: Regression Models 9 to 11 are estimated based on correlation coefficient results (see table 8.16). The correlation coefficient for URRM and RMR; URRM and RG; and RMR and RG are slightly greater than 0.70 which shows the problem of multicollinearity.

In conclusion, we can say that RI, RAA and CRA have a strong relationship with RMP in Islamic banks. Our results are partially similar to those indicated by Hassan (2009). He found that risk identification and risk assessment and analysis are efficient in Islamic banks. Moreover, our finding of CRA is similar to those indicated by Khalid and Amjad (2012) in Islamic banks.

Whereas, understanding risk and risk management (URRM) and risk monitoring and reporting (RMR) shows a negative relationship with RMP. Results of all models show that among all the independent variables removed, there is a 7.7% decrease in R^2 value by removing the independent variable CRA from the model (refer to model 6). Moreover, results of model 4 shows a decrease of 5.7% in R^2 value with the removal of RAA variable from the model. This extensive decrease in the value of R^2 shows the importance of the CRA and RAA in the model of risk management practices of Islamic banks.

Table 8.20 summarises the results of stepwise regression analysis, which is estimated on conventional banking data.

Model 1 estimates the effect of URRM, RI, RAA, RMR, CRA, LRA and RG on RMP of conventional banks. The value of R^2 is 65.2%, which means that 65.2% variation in RMP is due to URRM, RI, RAA, RMR, CRA, LRA and RG and the remaining 34.8% variation is due to other factors. The F-statistic is significant at 1%, which shows that the model 2 is a good fit. Results of beta value (β) show that URRM, RI, RMR, CRA, LRA and RG have a positive relationship with RMP. Where, RAA shows a negative relationship with RMP, which is the indication of weak risk assessment and analysis (RAA) in conventional banks. Where, t-value of URRM and CRA has a statistically significant relationship with RMP at 5%, whereas, RG has a statistically significant relationship with RMP at 10%.

Model 2 illustrates the result of regression analysis fitted on six independent variables (i.e. RI, RAA, RMR, CRA, LRA, and RG) to see their effect on dependent variable (i.e. RMP). R^2 shows that 61.9% of variation in RMP is due to RI, RAA, RMR, CRA, LRA and RG and the remaining 38.1% variation is due to other factors. The F-statistic is statistically

significant at 1% significance level, which indicates that the model is a good fit. The beta value of RG and CRA has a higher value which means that they contribute more in RMP. The results of beta (β) value show that RI, RAA, RMR, CRA, LRA and RG have a positive relationship with RMP. Where, t-value of CRA and RG show a statistically significant relationship with RMP at 5%.

Model 3 illustrates the result of regression analysis fitted on six independent variables (i.e. URRM, RAA, RMR, CRA, LRA, and RG) to see their effect on dependent variable (i.e. RMP). R^2 shows that 64.6% of variation in RMP is due to URRM, RAA, RMR, CRA, LRA and RG and the remaining 35.4% variation is due to other factors. The F-statistic is statistically significant at 1% significance level, which indicates that the model is a good fit. The results of beta (β) value show that all variables (i.e. URRM, RMR, CRA, LRA and RG) have a positive relationship with RMP except RAA. Where, t-value of URRM and RG show a statistically significant relationship with RMP at 5% and CRA is statistically significant at 10%.

Model 4 estimates the effect of URRM, RI, RMR, CRA, LRA, and RG on RMP of conventional banks. R^2 is 64.6%, which means that 64.6% of variation in RMP is due to URRM, RI, RMR, CRA, LRA and RG and the remaining 35.4% variation is due to other factors. The F-statistic is significant at 1%, which means the model is a good fit. The beta (β) value of RG, CRA and URRM is large, which means they contribute more in RMP of conventional banks. All independent variables show a positive relationship with RMP. T-value of RI and CRA is statistically significant at 5% and RG shows a statistically significant relationship with RMP at 1%.

Model 5 estimates the effect of URRM, RI, RAA, CRA, LRA and RG on RMP of conventional banks. R^2 is 64.9%, which means 64.9% of variation in RMP is explained by URRM, RI, RAA, CRA, LRA and RG and the remaining 35.1% variation in RMP is due to other factors. The F-statistic is significant at 1%, which means the model is a good fit. The beta (β) value RG, URRM and CRA is large and contributes more in RMP than any other independent variable. Where, the t-value of URRM, CRA and RG shows a positive and

statistically significant relationship with RMP at 5%. Whereas, RAA shows a negative relationship with RMP of conventional banks.

Model 6 presents the effect of URRM, RI, RAA, RMR, LRA and RG on RMP of conventional banks. R^2 is 63.6%, which means 63.6% of variation in RMP is explained by URRM, RI, RAA, RMR, LRA and RG and the remaining 36.4% variation in RMP is due to other factors. The F-statistic is significant at 1%, which means the model is a good fit. The beta (β) value of URRM, RG and RMR is large which means they contribute more in RMP than other variables (i.e. RI, RAA and LRA). All variables show a positive relationship with RMP except RAA, which means that risk assessment and analysis is weak in conventional banks. Where, t-value of URRM and RG shows statistically significant relationship with RMP at 1% and 5%.

Model 7 illustrates the effect of URRM, RI, RAA, RMR, CRA, and RG on RMP of conventional banks. R^2 is 64.4%, which means 64.4% of variation in RMP is explained by URRM, RI, RAA, RMR, CRA and RG and the remaining 35.6% variation in RMP is due to other factors. The F-statistic is significant at 1%, which means the model is a good fit. The beta (β) value of RG, URRM and RMR is large and contributes more in RMP than other variables (i.e. RI, RAA, and CRA). All variables show a positive relationship with RMP except RAA. Where, the t-value of URRM and RG shows a statistically significant relationship with RMP at 5% and CRA show a statistically significant relationship with RMP at 10%.

Model 8 estimates the effect of URRM, RI, RAA, RMR, CRA, and LRA on RMP of conventional banks. R^2 is 62.6%, which means 62.6% of variation in RMP is explained by URRM, RI, RAA, RMR, CRA and LRA and the remaining 37.4% variation in RMP is due to other factors. The F-statistic is significant at 1%, which means the model is a good fit. The beta (β) value of URRM, RMR, and CRA is large which means they contribute more in RMP than other variables (i.e. RI, RAA and LRA). All variables (URRM, RI, RMR, CRA, and LRA) show a positive relationship with RMP except RAA. Where, the t-value of

URRM shows a significant relationship with RMP at 1% and RAA and LRA shows a statistically significant relationship with RMP at 10%.

The results of model 5 and 9 are based on the results of table 8.17.

Model 9 estimates the effect of URRM, RI, RAA, RMR, and CRA on RMP of conventional banks. R^2 is 61.0%, which means that 61.0% of variation in RMP is due to URRM, RI, RAA, RMR and CRA and the remaining 39.0% variation in RMP is due to other factors. The F-statistic is significant at 1%, which means the model is a good fit. The beta (β) value of URRM and RMR is high which means they contribute more in RMP of conventional banks. All variables show a positive relationship with RMP whereas RAA shows a negative relationship with the RMP of conventional banks. This negative sign indicates the weakness of conventional banking staff in risk assessment and analysis. T-statistics show that URRM and RMR are statistically significant at 1% where, CRA is statistically significant at 10%. Our results are similar to those reported by Nazir et al. (2012); they found that understanding risk and risk management, risk monitoring and credit risk analysis have a significant relationship with risk management practices of banks. In addition, our results are partially similar to those reported by Al-Tamimi and Al-Mazrooei (2007); Hussain and Al-Ajmi (2012); Shafiq and Nasr (2010), found that risk monitoring is the most influencing variable in risk management practices of banks.

Table 8.20: Stepwise Regression Analysis of Conventional Banks in Pakistan

Model		Constant	URRM	RI	RAA	RMR	CRA	LRA	RG	
1	B	.486	.260	.076	-.081	.123	.176	.121	.252	R ² =.652
	St. Error	.563	.104	.074	.077	.174	.103	.098	.114	F= 17.902
	t-value	.862	2.506	1.030	-1.060	.705	1.714	1.236	2.203	Sig.= .000
	Sig	.392	.015**	.307	.293	.483	.091***	.221	.031**	
2	B	.648	-	.092	.041	.090	.235	.064	.374	R ² = .619
	St. Error	.581	-	.077	.062	.180	.104	.099	.107	F=18.410
	t-value	1.116	-	1.194	.658	.498	2.266	.650	3.494	Sig.= .000
	Sig	.268	-	.237	.513	.620	.027**	.518	.001*	
3	B	.552	.268	-	-.103	.185	.178	.102	.278	R ² = .646
	St. Error	.560	.130	-	.074	.163	.103	.096	.111	F= 20.691
	t-value	.986	2.598	-	-1.390	1.133	1.738	1.061	2.490	Sig.= .000
	Sig.	.327	.011**	-	.169	.261	.087***	.292	.015**	
4	B	.406	.190	.098	-	.063	.203	.097	.290	R ² = .646
	St. Error	.559	.080	.072	-	.165	.099	.095	.108	F= 20.661

	t-value	.727	2.369	1.367	-	.380	2.046	1.015	2.672	Sig.= .000
	Sig.	.470	.021**	.176	-	.705	.045**	.314	.009*	
5	B	.542	.254	.095	-.064	-	.204	.146	.282	R ² = .649
	St. Error	.555	.103	.069	.072	-	.094	.091	.106	F= 20.958
	t-value	.976	2.469	1.364	-.881	-	2.166	1.612	.112	Sig.= .000
	Sig.	.332	.016**	.177	.381	-	.034**	.112	.010**	
6	B	.770	.300	.079	-.115	2.39	-	.136	.250	R ² = .636
	St. Error	.546	.102	.075	.075	.163	-	.099	.116	F= 19.830
	t-value	1.411	2.937	1.054	-1.520	1.467	-	1.372	2.159	Sig.= .000
	Sig.	.163	.005*	.295	.133	.147	-	.175	.034**	
7	B	.613	.230	.059	-.059	.202	.187	-	.284	R ² = .644
	St. Error	.556	.101	.073	.075	.163	.103	-	.112	F= 20.472
	t-value	1.104	2.273	.809	-.789	1.240	1.823	-	2.541	Sig.= .000
	Sig.	.274	.026**	.421	.433	.219	.073***	-	.013**	
8	B	.372	.358	.112	-.135	.266	.174	.170	-	R ² = .626

	St. Error	.576	.096	.074	.075	.166	.105	.098	-	F= 19.000
	t-value	.645	3.714	1.511	-1.799	1.600	1.651	1.735	-	Sig.= .000
	Sig.	.521	.000*	.136	.076***	.114	.103	.087***	-	
9	B	.540	.332	.094	-.112	.410	.190	-	-	R ² = .610
	St. Error	.577	.097	.075	.075	.146	.106	-	-	F= 21.569
	t-value	.936	3.441	1.255	-1.496	2.807	1.785	-	-	Sig.= .000
	Sig.	.353	.001*	.214	.139	.006*	.079***	-	-	
Dependent variable: RMP= Risk Management Practices										
Where, independent variables are: URRM= Understanding risk and risk management, RI= Risk Identification, RAA= Risk Assessment and analysis, RMR= Risk Monitoring and Reporting, CRA= Credit Risk Analysis, LRA= Liquidity Risk Analysis, RG= Risk Governance										
* Significant at 1% ** Significant at 5%, *** Significant at 10%										
- Excluded from the model										
Note: Regression models 5 and 9 are estimated based on results of correlation coefficient (See table 8.17). The Correlation coefficient for RG and RMR and RMR and LRA are slightly greater than 0.70 which shows the problem of multicollinearity.										

Hence, results of stepwise regression show that URRM, RMR, CRA and RG have a strong and positive relationship with RMP of conventional banks. Whereas, RAA shows a negative relationship with RMP of conventional banks, which means conventional banking staff are not efficient in risk assessment and analysis. Results of all models show that among all the independent variables removed, there is a 3.3% decrease in R^2 value by removing the independent variable URRM from the model (refer to model 2). Moreover, results of model 9 show a decrease of 4.2% in R^2 value with the removal of the LRA and RG variables from the model of risk management practices of conventional banks. This extensive decrease in the value of R^2 shows the importance of URRM, LRA and RG in the model. Overall, our findings are partially similar to those reported by Hussain and Al-Ajmi (2012); and Nazir et al. (2012); they found that understanding risk and risk management, credit risk analysis and risk monitoring show a positive and significant relationship with risk management practices of banks.

Table 8.21 is the inference of table 8.19 and 8.20. The results of table 8.21 summarise the findings of the effect of URRM, RI, RAA, RMR, CRA, LRA, and RG on RMP (risk management practices) of Islamic and conventional banks. It also indicates the similarity and differences among significant variables.

The results of model 1 interpret that risk identification, risk assessment and analysis, credit risk analysis and risk governance are significantly contributing in risk management practices of Islamic banks. Whereas, understanding risk and risk management, credit risk analysis and risk governance are efficiently contributing in risk management practices of conventional banks. Results reveal that CRA and RG are efficiently contributing in risk management practices of Islamic and conventional banks while, there is difference in findings of RI, RAA and URRM between Islamic and conventional banks.

Model 2 shows that URRM is eliminated from the risk management process model. Results indicate that risk identification, risk assessment and analysis, and credit risk analysis are the most contributing variables in risk management practices of Islamic banks whereas, credit risk analysis and risk governance are significantly contributing in risk management

practices of conventional banks. There is similarity in the results of credit risk analysis between Islamic and conventional banks, while, there exists a difference between Islamic and conventional banks in risk identification, risk assessment and analysis, and risk governance.

Model 3 indicates the results when risk identification (RI) is eliminated from the risk management process model. Findings reveal that risk assessment and analysis, and credit risk analysis is significant in Islamic banks, whereas understanding risk and risk management, credit risk analysis, and risk governance is significantly contributing in risk management practices of conventional banks. There exists a similarity in the results of 'credit risk analysis (CRA)' between Islamic and conventional bank. While, they differ in risk assessment and analysis, understanding risk and risk management, and risk governance practices.

Model 4 indicates the results when risk assessment and analysis (RAA) is eliminated from the risk management process model. Findings reveal that risk identification (RI), and credit risk analysis is significant in Islamic banks whereas understanding risk and risk management (URRM), credit risk analysis (CRA), and risk governance (RG) are significantly contributing in risk management practices of conventional banks. There exists a similarity in results of 'credit risk analysis (CRA)' between Islamic and conventional bank. While, they differ in risk identification (RI), understanding risk and risk management (URRM), and risk governance (RG) practices.

Model 5 indicates the results when risk monitoring and reporting (RMR) is eliminated from the risk management process model. Findings show that risk identification (RI), risk assessment and analysis (RAA), credit risk analysis (CRA) and risk governance (RG) is significantly contributing in risk management practices (RMP) of Islamic banks whereas understanding risk and risk management (URRM), credit risk analysis (CRA), and risk governance (RG) are significantly contributing in risk management practices of conventional banks. There exists a similarity in the results of 'credit risk analysis (CRA) and risk governance (RG)' between Islamic and conventional banks. Although, they differ

in risk identification (RI), risk assessment and analysis (RAA) and understanding risk and risk management (URRM) practices.

Model 6 indicates the results when credit risk analysis (CRA) is eliminated from the risk management process model. Findings show that risk assessment and analysis (RAA) is significantly contributing in risk management practices (RMP) of Islamic banks whereas understanding risk and risk management (URRM), and risk governance (RG) are significantly contributing in risk management practices of conventional banks. There exists no similarity in the results of regression between Islamic and conventional banks. Though, they vary in risk assessment and analysis (RAA), understanding risk and risk management (URRM), and risk governance (RG) practices.

Model 7 shows the results when liquidity risk analysis (LRA) is eliminated from the risk management process model. The findings of model 7 are similar to findings of model 5 in which risk monitoring and reporting is eliminated from the model.

Model 8 indicates the results when risk governance (RG) is eliminated from the risk management process model. Findings show that risk identification (RI), risk assessment and analysis (RAA) and credit risk analysis (CRA) are significantly contributing in risk management practices (RMP) of Islamic banks, whereas understanding risk and risk management (URRM), risk assessment and analysis (RAA) and liquidity risk analysis (LRA) are significantly contributing in risk management practices of conventional banks. There exists similarity in the results of risk assessment and analysis (RAA) of regression between Islamic and conventional banks. Whereas, they differ in risk identification (RI), credit risk analysis (CRA), understanding risk and risk management (URRM), and liquidity risk analysis (LRA) practices.

In conclusion, we can say that RI, RAA and CRA are the more influencing variables in risk management practices of Islamic banks operating in Pakistan. These findings are somehow identical to the findings of Hassan (2009). Whereas, URRM, CRA and RG are the most influencing variables in risk management practices of conventional banks operating in

Pakistan. Our results of conventional banks are somewhat similar to those reported by Nazir et al. (2012) and Hussain and Al-Ajmi (2012).

Table 8.21: Comparison of Regression Results between Islamic and Conventional Banks

Model	Eliminated Variables from regression model	Islamic bank	Conventional bank	Similarities between IB and CB	Difference in Significant variables	
					IB	CB
1	-	RI, RAA, CRA, RG	URRM, CRA, RG	CRA, RG	RI, RAA	URRM
2	URRM	RI, RAA, CRA	CRA, RG	CRA	RI, RAA	RG
3	RI	RAA, CRA	URRM, CRA, RG	CRA	RAA	URRM, RG
4	RAA	RI, CRA	URRM, CRA, RG	CRA	RI	URRM, RG
5	RMR	RI, RAA, CRA, RG	URRM, CRA, RG	CRA, RG	RI, RAA	URRM
6	CRA	RAA	URRM, RG	-	RAA	URRM, RG
7	LRA	RI, RAA, CRA, RG	URRM, CRA, RG	CRA, RG	RI, RAA	URRM
8	RG	RI, RAA, CRA	URRM, RAA, LRA	RAA	RI, CRA	URRM, LRA
Dependent variable- RMP= Risk management practices Where, independent variables are: URRM= Understanding risk and risk management, RI= Risk Identification, RAA= Risk Assessment and analysis, RMR= Risk Monitoring and Reporting, CRA= Credit Risk Analysis, LRA= Liquidity Risk Analysis, RG= Risk Governance IB= Islamic bank, CB= Conventional bank						

8.3.4. Non-Parametric Test

Table 8.22 is very useful because it indicates the difference between Islamic and conventional banks on the variables under study. The results show that understanding risk and risk management shows an insignificant mean difference between Islamic (Mean rank= 74.74) and conventional banks (mean rank= 76.26). It is concluded that understanding risk and risk management ($U=2755.5$, $p\text{-value}=0.8296$) is not statistically different in Islamic and conventional banks. The mean rank value of 'risk identification' in Islamic bank is 68.03 which is significantly less than that of conventional bank (82.97), which is further verified with test statistics results ($U= 2252.5$, $p\text{-value}= 0.034$) at 5%. It means that conventional banks are performing better than Islamic banks in risk identification. The mean rank of risk assessment and analysis shows an insignificant difference between Islamic (77.24) and conventional banks (73.76), which is further tested with significance level at 5% ($U= 2682$, $p\text{-value}= 0.621$). It means that Islamic and conventional banks are using the same practices in risk assessment and analysis. The results of 'risk management practices' (RMP) show a statistically significant ($U=2106$, $p\text{-value}= 0.007$) difference between Islamic and conventional banks at 5%, where, conventional banks are performing better than Islamic banks. Risk monitoring and reporting (RMR) ($U=2106$, $p\text{-value}=0.903$); and credit risk analysis (CRA) ($U=2624$, $p\text{-value}=0.476$) do not show a significant difference between Islamic and conventional banks based on mean rank values and test statistics. According to mean rank results, Islamic banks are performing better than conventional banks in the liquidity risk analysis, because their mean rank value (82.77) is greater than the mean rank value of conventional bank (68.23). The statistical results of 'liquidity risk analysis' (LRA) reveal that it is significantly different between Islamic and conventional banks operating in Pakistan ($U=2267.5$, $p\text{-value}= 0.039$). This result is justified by the fact that Islamic banks hold more of the liquid assets than that of conventional banks because of limited scope of Islamic banking investment which further results in lower returns for Islamic banks (Abdulle and Kassim, 2012). Also, this result is consistent with the findings of a study conducted by Wasiuzzaman and Gunasegavan (2013), who found that liquidity is higher in Islamic banks as compared to conventional banks. This notion is also supported by Samad and Hassan (1999), Bashir (1999), Samad

(1999), and Siddique (2008). The results of 'risk governance' (RG) presents a significant mean difference between Islamic (69.09) and conventional banks (81.91) operating in Pakistan. It is significant at 10% significance level ($U=2332$, $p\text{-value}= 0.071$) and conventional banks shows higher value than Islamic banks in Pakistan. Our findings are somewhat similar to Hussain and Al-Ajmi (2012) statistical results. Their study showed that there exists a difference between Islamic and conventional bank in practicing risk identification and risk management practices at 10 percent significance level.

In conclusion, we can say that conventional banks are identifying risks, and performing efficiently in dealing with risk management practices, and risk governance as compared to Islamic banks operating in Pakistan.

Table 8.22: Mann-Whitney U Test

Mean Ranks & Test Statistics					
	Type of bank	N	Mean Rank	Sum of Ranks	Test Statistics
URRM	Islamic bank	75	74.74	5605.50	Mann Whitney U= 2755.5
	Conventional bank	75	76.26	5719.50	Sig.= 0.8296
	Total	150			
RI	Islamic bank	75	68.03	5102.50	Mann Whitney U= 2252.5
	Conventional bank	75	82.97	6222.50	Sig.= 0.034*
	Total	150			
RAA	Islamic bank	75	77.24	5793.00	Mann Whitney U= 2682
	Conventional bank	75	73.76	5532.00	Sig.= 0.621
	Total	150			
RMP	Islamic bank	75	66.08	4956.00	Mann Whitney U= 2106
	Conventional bank	75	84.92	6369.00	Sig.= 0.007*
	Total	150			
RMR	Islamic bank	75	75.93	5694.50	Mann Whitney U= 2780.5
	Conventional bank	75	75.07	5630.50	Sig.= 0.903
	Total	150			
CRA	Islamic bank	75	72.99	5474.00	Mann Whitney U= 2624
	Conventional bank	75	78.01	5851.00	Sig.= 0.476
	Total	150			
LRA	Islamic bank	75	82.77	6207.50	Mann Whitney U= 2267.5
	Conventional bank	75	68.23	5117.50	Sig.= 0.039*
	Total	150			
RG	Islamic bank	75	69.09	5182.00	Mann Whitney U= 2332
	Conventional bank	75	81.91	6143.00	Sig.= 0.071**
	Total	150			
Variables: RMP= Risk management practices, URRM= Understanding risk and risk management, RI= Risk Identification, RAA= Risk Assessment and analysis, RMR= Risk Monitoring and Reporting, CRA= Credit Risk Analysis, LRA= Liquidity Risk Analysis, RG= Risk Governance					
Grouping Variable: Type of bank i.e. Islamic bank, Conventional bank					
* Significant at 5% , ** Significant at 10%					

8.4. Research Hypothesis Results

1. Hypothesis 1 is partly accepted as results of table 8.18, shows that there exists a significant relationship between RI, RAA, CRA and RG with RMP of banks in Pakistan.
 2. Hypothesis 2 is partly accepted as results of table 8.19 and 8.20, show that there exists a difference between Islamic and conventional banks in regards to effect of aspects of the risk management process on risk management practices. The results show that RI, RAA, CRA and RG have a statistically significant relationship with RMP of Islamic banks. Whereas, URRM, CRA and RG have a statistically significant relationship with RMP of conventional banks.
 3. Hypothesis 3 is rejected, as table 8.22 shows that there is no significant difference between Islamic and conventional banks of Pakistan in understanding risk and risk management. Because most of the Islamic banks are Islamic windows of conventional banks.
 4. Hypothesis 4 is accepted; as table 8.22 shows that risk identification is statistically significant, which means there exists a difference between Islamic and conventional banks in risk identification.
 5. Hypothesis 5 is rejected as table 8.22 shows that the significance level of risk assessment and analysis is greater than 5%, which means there is no significant difference between Islamic and conventional banks in practicing risk assessment and analysis.
 6. Hypothesis 6 is accepted; as table 8.22 shows that risk management practices is statistically significant which means there is a significant difference between Islamic and conventional banks in risk management practices.
 7. Hypothesis 7 and 8 are also rejected (see table 8.22), which means there is no significant difference between Islamic and conventional banks in practices of risk monitoring and reporting; and credit risk analysis.
 8. Hypothesis 9 is accepted as shown in table 8.22, which means that there exists a significant difference between Islamic and conventional banks in practicing
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liquidity risk analysis. This result is similar to previous research studies which show that Islamic banks are in a better position for managing their liquidity risk as compared to conventional banks (Islam and Chowdhury, 2007; Ika and Abdullah, 2011; Jaffar and Manarvi, 2011; Usman and Khan, 2012). Also, Islamic banks are holding a higher proportion of liquid assets than conventional banks (Ali, 2013).

9. Hypothesis 10 is accepted as the significance level is less than 5% (see table 8.22), which means there exists a significant difference between Islamic and conventional banks in practices of risk governance. Conventional banks in Pakistan are performing efficiently in practicing risk governance. The reason might be that conventional banks are having strong footprints in the banking industry as they are working in Pakistan for more than 60 years. Whereas, Islamic banks are a developing industry which is facing serious challenges, also they are small in size as compared to conventional banks in Pakistan and they are going through mergers and acquisition phase since 2010.

Following are the findings based on types of risks faced by banks, risk mitigation and measuring techniques, risk identification methods used by Islamic and conventional banks operating in Pakistan:

1. The main risks faced by Islamic banks are credit risk, liquidity risk, market risk, operational risks, the rate of return risk and foreign exchange rate risk; whereas, conventional banks are facing credit risk, market risk, liquidity risk, operational risks, interest rate risk and foreign exchange risk.
2. Islamic banks are using following risk measuring techniques such as: gap analysis, credit rating of the prospective investor, value at risk, internal rating system, and duration analysis. Whereas, conventional banks are using credit rating of prospective investors, internal rating system, duration analysis, simulation technique, and gap analysis to measure risks.
3. Islamic banks are using collateral arrangements, internal risk rating, guarantees, securitisation, off balance sheet netting and on balance sheet

netting to mitigate risks; whereas, conventional banks are using collateral arrangement, guarantees, internal risk rating, loan loss provision, on balance sheet netting and off balance sheet netting to mitigate risks.

4. Islamic banks are using risk survey, inspection by bank staff, financial statement analysis, scenario analysis and stress testing, whereas, conventional banks are employing financial statement analysis, audit and physical inspection, risk survey, stress testing, and scenario analysis to identify their risks.
5. Regression results show that URRM, CRA and RG are the most contributing variables in risk management practices of conventional banks operating in Pakistan.
6. Regression results show that RI, RAA, CRA and RG are the most efficient and influencing variables in risk management practices of Islamic banks operating in Pakistan.

Chapter 9

Conclusions and Recommendations

9.0. Introduction

The aim of this chapter is to summarise the main study findings, study limitations, practical implementations, recommendations, and future research areas. The chapter is divided into eight sections. The first section explains the research summary, the second section illustrates the contextual discussion of the findings. The third section draws a conclusion based on overall findings of the current research study. The next section explains the contribution of the study. The fifth section provides practical implications followed by recommendations, study limitation and future research areas.

9.1. Research Summary

The aim of this study was to investigate empirically, the risk management practices of Islamic and conventional banks operating in Pakistan and to compare and contrast their findings. This study is based on quantitative research methods. The data triangulation is carried out with the help of secondary and primary data, to examine the risk management practices of Islamic and conventional banks operating in Pakistan.

Secondary data is taken from the annual reports of the banks for the six years from 2008 to 2013. Whereas, the primary data is collected through self-administered questionnaires. Primary data is collected from 150 respondents, consisting of 75 questionnaires from each type of bank (i.e. Islamic and conventional banks). The data analysis is conducted in two phases. Secondary data has helped to explore the broader

perspective of the risk management framework, which is narrowed down with the help of primary data.

The content analysis technique is used to analyse the secondary data based on risk disclosure practices of Islamic and conventional banks. Content analysis is carried out to examine the volume, and extent of risk disclosure practices of banks. Frequency analysis is used to investigate the volume of risk disclosure practice. Whereas, un-weighted scoring index is conducted to explore the extent of disclosure practices by Islamic and conventional banks. The Mann-Whitney U test has helped to compare the results between Islamic and conventional banks.

On the other hand, primary data is analysed by using descriptive and inferential statistics. Linear regression analysis is carried out to investigate the impact of aspects of the risk management process on the risk management practices of Islamic and conventional banks. Whereas, the Mann-Whitney U test has helped in comparing risk management practices between Islamic and conventional banks operating in Pakistan.

The **first research objective** is achieved by conducting a content analysis through annual reports of Islamic and conventional banks operating in Pakistan. Chapter 7 (Quantitative content analysis and discussion) shows the detailed analysis of risk disclosure practices of Islamic and conventional banks. The volume of the risk disclosure practices is measured by using frequency analysis, whereas the extent of risk disclosure practices is measured by using the un-weighted scoring index.

The findings of the frequency analysis were based on the time period, which revealed risk disclosure practices based on the components of following aspects, i.e. risk profile, risk management profile, risk control activities, risk control environment, and risk management process. The analysis of volume of the risk profile showed that Islamic banks are disclosing extensive information on foreign exchange risk and equity position risk than conventional banks. Whereas, conventional banks are disclosing extensively high information on credit, market, liquidity, operational, yield rate, reputational, country, regulatory and equity price risk than Islamic banks. One of

the alarming facts for the Islamic banks is that they have paid little attention in disclosing information on the Shariah non-compliance risk in their annual reports. The volume of disclosure practices on the risk management profile of conventional banks is higher as compared to Islamic banks. The volume of disclosure practices on “risk control activities” illustrated that conventional banks are disclosing extensive amounts of information on internal control, stress testing, Basel III and II, internal audit, risk management policies, risk management framework, and risk management. On the other hand, Islamic banks are disclosing more information on State Bank of Pakistan and risk appetite (from 2008 to 2011) in contrast to the conventional banks. The disclosure on “risk control environment” showed that conventional banks are efficient in disclosing more information on the board of directors (BoD), risk management committee, audit committee, asset liability management committee, market risk committee, chief risk officer (CRO), chief executive officer (CEO), and chief financial officer (CFO); whereas, Islamic banks disclosed more information on the credit risk management committee for the years 2013, 2012 and 2009, followed by operational risk committee for 2013, 2011, 2010 and 2009 years, and risk management function for the year 2013, 2012, and 2008. The disclosure on the “risk management process” revealed that Islamic banks have disclosed a larger volume of information on risk monitoring, risk mitigation and risk governance, whereas conventional banks have disclosed a larger volume of information on risk identification, risk assessment, risk analysis, risk measurement, risk reporting, and risk control activities. Hence, we can say that the volume of disclosure information of conventional banks is higher than Islamic banks, but Islamic banks are improving their disclosure practices over time.

The findings of the extent of risk disclosure practices showed that there is a difference between Islamic and conventional banks on disclosing information on risk profile, risk management profile, risk control activities and risk management process. The extent of risk disclosure information of conventional banks is significantly higher than that of Islamic banks. Moreover, there is no significant difference in the extent of disclosure information on risk control environment between Islamic and conventional banks.

The **second research objective** was set to investigate what the risk measurement techniques and risk mitigation tools used by Islamic and conventional banks operating in Pakistan. The answer of this research question is found with the help of data collected through questionnaires. The discussion and analysis of this research objective were carried out under chapter 8 (primary data analysis).

The findings revealed that both banking systems are using the following techniques: “credit ratings of prospective investors, gap analysis, duration analysis, maturity matching analysis, earning at risk, value at risk, simulation technique, internal rating system, estimate of worst scenario, risk adjusted return on capital, and other techniques”. According to the results of top five ranks of Islamic banks, they are measuring their risk exposures by using ‘gap analysis, credit rating of prospective investors, value at risk (VaR), internal rating system, and an estimate of worst case scenario’. This result is consistent with previous research studies conducted by Ariffin and Karim (2011), Rosman and Rahman (2010) and Noraini et al. (2009).

In contrast, the results of top five ranks showed that conventional banks are employing ‘credit ratings of prospective investors, internal rating system, duration analysis, simulation techniques, and gap analysis’ technique for measuring their risk exposures.

The results of risk mitigation tools showed that both banks are using collateral management, third party arrangement, loan loss provision, on and off balance sheet netting, guarantees, internal risk ratings, profit rate swaps, securitisation, credit default swap and other tools. The findings of the top five ranks of Islamic banks illustrated that collateral arrangement, internal risk ratings, guarantees, securitisation, and off balance sheet netting techniques are used to mitigate risk exposure across the bank. Whereas, the top five risk mitigation techniques used by conventional banks are collateral arrangement, guarantees, internal risk ratings, loan loss provision and on balance sheet netting.

The **third research objective** is linked to the research question 3, 4 and also with the hypothesis statements presented under chapter 6 (Research Design and Methodology).

The research hypotheses (H_3 to H_{10}) related to research question 3, are tested by using the Mann-Whitney U test and their results are presented under chapter 8: Primary Data Analysis (see table 8.22 and 8.23). The findings highlighted that there exists a significant difference between Islamic and conventional banks in risk identification, risk management practices, risk governance and liquidity risk analysis. The former is performing efficiently in liquidity risk analysis, whereas, the latter is efficient in risk identification, risk management practice, and risk governance.

The research question number 4 (which is presented under chapter 1: Introduction, i.e. What is the effect of the risk management process on risk management practices of Islamic and conventional banks?) is answered by employing regression analysis. As stated in previous chapters, the risk management process is based on the following aspects, i.e. understanding risk and risk management, risk identification, risk assessment and analysis, risk monitoring and reporting, credit risk analysis, liquidity risk analysis and risk governance.

To answer this research question, regression analysis was conducted to examine the effect of the aspects of the risk management process on the risk management practices of banks. The regression analysis was conducted in three parts. In the first part, (see table 8.18) regression analysis was applied on the overall data set, including data from Islamic and conventional banks operating in Pakistan. Secondly, regression analysis was employed on the Islamic banking data set (refer to table 8.19) to examine the effect of the risk management process on the risk management practice. Lastly, the regression analysis was carried out on the conventional banking data set (see table 8.20).

The findings of regression analysis conducted on overall banking data showed that risk identification, risk assessment and analysis, credit risk analysis and risk governance are significantly contributing to risk management practices of banks operating in Pakistan. Overall, the model is a good fit which explains approximately 66% of variation in risk management practices due to aspects of the risk management process undertaken in the current study. The results are consistent with previous

studies conducted by Al-Tamimi and Al-Mazrooei (2007), and Hussain and Al-Ajmi (2012).

The findings of Islamic banking data showed that the model presented is a good fit which explains approximately 76% variation in the risk management practices due to the aspects of the risk management process. Moreover, risk identification, risk assessment and analysis, credit risk analysis and risk governance have a statistically significant relationship with the risk management practices of Islamic banks of Pakistan. These results are to some extent consistent with the findings of Hassan (2009), and Khalid and Amjad (2012).

The findings of regression analysis conducted on conventional banking data showed that understanding risk and risk management, credit risk analysis and risk governance have a statistically significant relationship with the risk management practices. The model is a good fit and explains that the 65% variation in the risk management practices is due to aspects of the risk management process. These results are to some extent consistent with the research study conducted by Khalid and Amjad (2012).

The following table shows the expected relationship (signs) and actual results of the current study based on the regression analysis:

Table 9.1: Expected and Actual Regression Results of the Empirical Research Study

Explanatory variable	Description	Expected signs	Actual results	
			Islamic Bank	Conventional Banks
URRM	Understanding Risk & Risk Management	Positive	Negative	Positive
RI	Risk Identification	Positive	Positive	Positive
RAA	Risk Assessment & Analysis	Positive	Positive	Negative
RMR	Risk Monitoring & Reporting	Positive	Negative	Positive
CRA	Credit Risk Analysis	Positive	Positive	Positive
LRA	Liquidity Risk Analysis	Positive	Negative	Positive
RG	Risk Governance	Positive	Positive	Positive

The results of the Islamic banks show the same results as expected, except for the following variables, i.e. understanding risk and risk management, risk monitoring and reporting, and liquidity risk analysis. Understanding of risk and risk management is a weak area in Islamic bank due to lack of risk management trainings and weak knowledge of risk and risk management tools and techniques among front line officers of the banks.

Risk monitoring and reporting is contributing negatively in risk management practices of Islamic banks in Pakistan, as many Islamic banks do not have a chief risk officer who is directly involved in risk monitoring activity of the risk management function of banks. With the weak risk monitoring systems, Islamic banks are exposed to higher risks.

The liquidity risk analysis is showing negative relationship with risk management practices of Islamic banks. Because, Islamic banks have limited sources of funding, this leads to concentrated liabilities, imbalanced funding combinations and stressed capital management strategies. So, the Islamic banks' funding groups remain

imbalanced, which is filled by use of capital. Also, it is difficult for Islamic banks to raise capital funds at a reasonable cost when needed (Iqbal and Mirakhor, 2011).

The risk assessment and analysis is weak in conventional banks operating in Pakistan. The risk assessment is critical for the success of risk management in banks as it assess the exposures of the banks to the volatility of their underlying risk drivers. Also, the banks need to learn from the strengths and weaknesses of the other banks for assessing and managing risk exposures.

The **fourth research objective** is based on the significant contribution made by the current research study. This contribution is based on the addition of two variables in the risk management process, i.e. 'risk governance' and 'liquidity risk analysis' for the banks. The explanation and significance of these variables are discussed under Chapter 1 (Introduction) and Chapter 2 (Literature Review: Risk Management in Banks). The results showed that the risk governance has a significant and positive relationship with the risk management practices of banks. Whereas, liquidity risk analysis has an insignificant relationship with risk management practices of the banks. It might be possible that the reason behind weak liquidity risk analysis is that the banks are still in the process of adoption and implementation of regulatory regulations provided by Basel III, which is related to the liquidity risk management. Also, the liquidity risk becomes a secondary concern for the business managers of banks in the growing and profitable money lending business. Aggressive funding through securitisation of loan portfolios helped the banks to further disregard the liquidity risk and expand the asset portfolio even on thin capital base (Ali, 2013).

The results of the questionnaire also showed that Islamic banks are using the following risk identification methods: risk survey method, inspection by the bank staff, financial statement analysis, scenario analysis, and stress testing. On the other hand, conventional banks are using financial statement analysis, risk survey method, audit and physical inspection, stress testing, scenario analysis and inspection by the bank staff as risk identification methods. Moreover, according to Islamic banking respondents, the main risks faced by them includes, credit risk, liquidity risk, market

risk, operational risk, rate of return risk and foreign exchange risk. Conversely, conventional banking respondents illustrated that credit risk, market risk, liquidity risk, operational risk, interest rate risk and foreign exchange risk are the main risk for them.

9.2. Contextualising the Findings

It is important to discuss who is involved in the risk management process of the bank. The answer to this question is that all levels of management from the board of directors (BoD) to the frontline staff have a role to play in this process. For example, the board of directors is responsible for approving the overall risk appetite and strategies for the bank and overseeing the implementation of the risk strategies and policies.

Senior management is responsible for overseeing day to day activities of the employees. They oversight the risk management activities in order to ensure that they are consistent with the risk appetite, and risk strategies approved by the board of directors. They report to the board of directors about the changes in the risk appetite, breach of risk limits and strategies, and performance of bank.

The risk management function is an independent function that is an integral part of second-line of defence. They are responsible for overseeing the risk taking and risk managing activities of the business units across the bank. They are responsible for identifying, assessing and monitoring of the risk exposures to ensure that they are consistent with the board-approved risk appetite. They establish early warnings for the breach of risk limits and also, they report to senior management, risk committee and board committees. Whereas, the CRO is responsible for overseeing the risk management function, and monitoring and reporting risk related information to the top management in a timely manner, so that decisions are taken in order to mitigate and manage risk exposures.

There is a need to evidently identify the roles and duties of the personnel across the banks related to the risk management practices. And it is essential to set clear risk governance framework within the banks in order to create an efficient defence and governance base for the banks in order to guard banks from uncertainties.

Risk appetite is considered a starting point for the risk management activities within any financial institution. It is the responsibility of the board of director and board level committees to define the risk appetite statement (RAS) with risk limits and tolerance level. Risk appetite serves as a guideline for all the employees across the bank, including, the risk management team, business units and board level committees. The RAS is considered as a tone from the top to manage risk exposures by the staff within the bank.

The results of both content analysis and primary data analysis showed the consistent results in terms of risk profile, and risk control environment which is related to the role of managerial committees in dealing with risk management activities. The risk disclosure information on the risk management process lacks detail in the annual reports of the banks that is why the reasons of differences between Islamic and conventional banks cannot be found from the annual reports. But, overall results of both the analysis show that there is a difference between Islamic and conventional banking in practicing risk management.

9.3. Conclusions

The findings of the data analysis showed that risk identification, risk assessment and analysis, credit risk analysis and risk governance are more efficient and influential variables in contributing to the risk management practices of Islamic banks operating in Pakistan. On the other hand, understanding risk and risk management, credit risk analysis, and risk governance are the most significant and contributing variables in the risk management practices of the conventional banks. In addition, there exists a difference between Islamic and conventional banks in regards to risk identification, risk management practices, liquidity risk analysis, and risk governance.

The liquidity risk analysis, understanding risk and risk management, and risk monitoring and reporting are weak in Islamic banks. Whereas, risk assessment and analysis is inadequate in conventional banks. These factors are negatively contributing in banks' risk management practices in Pakistan. Banks should analyse further why these aspects of risk management processes are not positively associated with the risk management practices.

9.4. Study Contribution

The current empirical research study contributes to the theory, practices and methodology which are discussed as below.

9.4.1. Contribution to Theory

This study contributes to the knowledge in many ways. Firstly, this study is conducted on Islamic banks. The research on risk management practices in Islamic banks is still an under researched area, as the Islamic banking industry is flourishing over time not only in Islamic countries, but also in Western and African countries. Secondly, the risk management practices of banks are evolving rapidly, especially after the recent financial crisis, as the recent financial crisis has confirmed that many companies and financial institutions were having inadequate policies and processes to deal with major risks. Companies from all sectors were affected by the unexpected events, such as a decline in the demand of their products, commodity prices, extreme changes in the currency exchange rate and a wide liquidity crunch.

Thirdly, the current research study was conducted in the context of the Pakistani banking industry. The fact of the matter is that there exists several differences in practicing risk management among different economies due to cultural and regulatory differences. The current study has introduced a risk management model which can be used to investigate risk management practices of the banks.

There is a group of studies (Al-Tamimi and Al-Mazrooei, 2007; Rosman, 2009; Hassan, 2009; Khalid and Amjad, 2012; Shafiq and Nasr, 2010; Hussain and Al-Ajmi, 2012; Nazir et al., 2012; Abdul Rehman et al., 2013) which have investigated the risk management practices of banks by examining the effect of aspects of the risk management process on the risk management practices of banks. These aspects include the following: understanding risk and risk management, risk identification, risk assessment and analysis, risk monitoring and credit risk analysis. These studies lack in many aspects which are highlighted in the light of the financial crisis. The previous studies based on the risk management process model lack in identifying the role of top and senior management in managing risk exposures, as the comprehensive risk management involves all the personnel from the board of directors to the frontline officers across the banks. Also, they have ignored the role of CRO in monitoring and reporting the risk management activities to the board of directors and board level committees.

There have been many studies published by well-known international bodies highlighting causes of the financial crisis. Inappropriate and weak risk governance is considered a major cause for failure of risk management in financial crisis (FSB, 2013; IIF and Ernst and Young, 2012; EIU, 2009; SSG, 2009; KPMG, 2009). This argument is further supported by a group of researchers (Holland, 2010; Sabato, 2010; and Hashagen et al., 2009).

Furthermore, poor governance structure and framework will lead to lack of confidence of stakeholders in banks' ability to manage its asset and liabilities, which results in triggering liquidity risk and crisis. This liquidity crisis can be severe and might lead to systematic risk and financial crisis all over the country (BCBS, 2005; Alexander, 2006; Garcia-Marco and Robles-Fernandez, 2008). This argument is further supported by Derwall and Verwijmeren (2007). They have empirically shown that good governance is associated with minor systematic risks.

Credit risk, high leverage and liquidity, and funding risk are the factors that have contributed to the crisis (sub-prime crisis). Hence, lessons should be learned from the

latest crisis and prudent risk management should be placed so that history would not be repeated (Brown and Davis, 2008).

Jenkinson (2008) stated that the crisis of 2007-2009 has highlighted clear deficiencies in the liquidity risk management by banks. As a result, there exists a serious risk to financial stability of the banking industry and to the economy. Liquidity risk is also the most significant risk as this is focused in Basel III. Basel III has introduced minimum leverage ratio and two liquidity standards for the banks, i.e. liquidity coverage ratio and net stable funding ratio.

Therefore, it was significant to examine the effect of risk governance and liquidity risk analysis on risk management practices of banks. The current research study has contributed in the risk management theory, by identifying the need to introduce an addition to the aspects of risk management process of banks. This addition is based on the need for two more variables, i.e. risk governance and liquidity risk analysis in examining the risk management practices of banks. These two aspects have never been introduced previously under risk management process of banks.

This study has contributed to the risk management model by explaining the governance framework and its impact on making clear roles and responsibilities across the organisation, i.e. ‘setting tone from the top’ for managing risk exposures by the board of directors and implementation of the risk management framework by the senior management. For example, previous studies have ignored the role of the board of directors, internal audit, board level committees and CRO in managing risk exposures. Whereas, the board and its committees are responsible to set risk appetite, risk tolerance level, and risk limits for the banks.

Furthermore, the majority of risk disclosure work has been conducted in the developed economies of the world and a little work has been done in emerging markets like sub-continent. According to the knowledge of the researcher, there is not a single study which has examined the risk disclosure practices of banks operating in

Pakistan. This study has contributed to the literature by conducting a research on risk disclosure practices of Pakistani banks.

9.4.2. Contribution to Practices

The current study contributes in the practices of Islamic and conventional banks in many ways. Firstly, the study has identified the weaknesses in the risk management process of Islamic and conventional banks, which needs to be considered for improving the risk management practices. For example, the findings of this study revealed weaknesses in the risk assessment and analysis process of risk management, which is negatively contributing in the risk management practices of conventional banks. Whereas, the findings showed that Islamic banks need to strengthen their practices on “understanding risk and risk management” and “risk monitoring and reporting”.

Also, the results have revealed that the banks often do not have a CRO, especially in case of full-fledged Islamic banks. There is a need to appoint the CRO, who should be independent and responsible for overseeing the risk management function of the bank. Also, Islamic banks need to emphasise on training their employees in regards to Shariah rule and regulation, but also in terms of risk management methods. The Islamic banks need to focus on the use of advanced risk measuring techniques. Also, the disclosure practices of Islamic banks are weak in terms of risk management profile, and risk management process.

Moreover, the study has contributed in practice by explaining the need and importance of having CRO, risk appetite, risk culture and risk governance mechanism for the banks, which will help the banks for making effective and efficient risk management practices. Hence, the banks should improve risk management practices to ensure long term success and survival.

9.4.3. Contribution to Methodology

As previous studies have used quantitative research design and employed questionnaire technique to investigate risk management practices of banks (Al-Tamimi and Al-Mazrooei, 2007; Hassan, 2009; Khalid and Amjad, 2012; Shafiq and Nasr, 2010, Hussain and Al-Ajmi, 2012), the current study has contributed in terms of methodology by employing different sources of data, i.e. primary and secondary data. The use of two sources of data has not been used in this field of study and hence, this is also contributing in methodology by use of content analysis and regression analysis for drawing valid inferences from the study.

9.5. Practical Implications

Based on what has been stated in this study, a number of policy implications can be suggested for the development of risk management in the Islamic financial institutions and conventional banks.

This research study is of the interest and value for the risk managers, practitioners, conventional banks, Islamic banks and policy makers as well as for academic point of view. The findings of the study will be helpful for improving the risk management practices of banks operating in Pakistan. It facilitates the academicians, scholars and bankers to have a depiction about banking developments in risk management practices of banks.

As they can use these research findings of this research to improve their risk management and risk disclosure practices. By doing so, they would be able to build confidence of the stakeholders and market participants, which will enhance their reputation, strengthen their ratings and improve their profitability.

9.5.1. Implications for Islamic Banks

This study has implications for Islamic banks by pointing out the weaknesses in the risk management practices of banks. This may help them to improve their current practices, processes and procedures related to risk measuring, mitigation, monitoring, reporting and risk disclosure practices.

9.5.2. Implications for Conventional Banks

The current study has implementations for conventional banks by emphasizing the need to improve risk assessment and analysis procedures for the bank. Also, conventional banks need to strengthen their liquidity risk management framework.

9.5.3. Implications for Central Bank and Regulatory Authority

The State Bank of Pakistan needs to provide guidelines based on risk management, risk disclosure, risk governance, internal control systems, liquidity risk management, market risk management, credit risk management, and Basel III to Islamic and conventional banks from time to time. As, risk management is rapidly changing and these guidelines should be in line with the international regulatory authorities, such as, Basel Committee on Banking Supervision, IFC, AAOIFI, IIFM, and IFSB. Moreover, the Islamic banking department of the State Bank of Pakistan needs to develop new Shariah instruments for managing different risk exposure.

9.5.4. Implications for Academics

The current study has practical implications for academicians by opening up new areas of study, i.e. by introducing the risk governance mechanism and framework. Moreover, the addition in risk management model will be helpful to conduct further research studies in other economies.

9.6. Study Recommendations

Generally, this research suggests that Islamic banks, conventional banks, the State Bank of Pakistan and banking regulatory authority should improve the current risk management practices in the banking industry of Pakistan. This study has highlighted the weaknesses and flaws in the risk management practices of Islamic and conventional banks operating in Pakistan. This study is considered helpful for the Pakistani banking industry as a better way for managing risk exposures based on standard banking concepts. However, there is still a need that one should consider that the implementation of the comprehensive risk management practices require strong commitment, involvement, and cooperation of the board of directors to the front line officers. Particularly, following recommendations are suggested by the current research study:

1. There is a need to train the banking staff from time to time, because risk management in an ever evolving topic. New regulations have been introduced by the regulatory authorities, especially after the financial crisis of 2008. Also, the quality of the training needs to be critically evaluated and revised with time. As, the managers of Islamic banks have asserted their concern related to the lack of training programmes for Islamic banks' staff.
2. Disclosure on Shariah non-compliance risk is not clear in the annual reports of Islamic banks, which is a question mark on the credibility of Islamic banks, as Islamic banks are supposed to do their business activities based on Shariah laws and principles. Moreover, Islamic windows of conventional banks should elaborate on risk management practices in their annual reports as Islamic banks are based on Shariah rules and regulations.
3. It has been seen that many financial institutions have disclosed the same information qualitatively over time and there is a need to follow a risk disclosure framework, which is needed to be up to the date as financial markets evolve.
4. Banks need to provide details on the risk management process, risk appetite, risk governance and risk culture in their annual reports. As there is a lack of

information on these subjects, which is considered misleading and inadequate for the stakeholders and potential investors.

5. Islamic and conventional banks need to focus on the risk identification and prioritization processes. As they have mentioned through questionnaires that it is difficult for them to identify and prioritise their main risks. There is a need to make identification systems based on risk aggregation and risk decomposition.
6. As findings illustrated that most of the Islamic and conventional banks are not having a chief risk officer (CRO), there is a need to appoint CRO in the banks with clear roles and responsibilities related to overseeing and monitoring the risk management function. The reporting lines between the CRO and board of directors should be directed by and without the presence of executive directors.
7. There is a need to strengthen the risk management framework by employing step by step processes and systems with adequate internal controls at different levels.
8. The banks need to give priority to increase the capacity of the board of directors to oversee risk exposure. This will require improving the skills, experience and leadership of directors, which will result in high performing board.
9. Results showed that risk monitoring process of the Islamic banks is weak. There is need to build up a risk monitoring system by employing an independent authority to monitor the risk management function, who has direct access to the board of directors, as lack of a proper risk monitoring system leads to higher risk exposures for the banks.
10. Islamic banks are perceived to be using technically less advanced risk measurement techniques. So, there is a need to devote adequate resources for risk measurement techniques by Islamic banks.
11. The findings asserted that risk assessment and analysis process of conventional banks are weak. So, it is recommended that conventional banks should strengthen their risk assessment process.

9.7. Research Limitations

This study extends the understanding of risk management practices of banks and empirical knowledge of the risk management process and risk disclosure practices based on quantity and quality. Moreover, it extends knowledge on the determinants of risk management practices and specifically contributing to the role of risk governance and liquidity risk analysis. There is no research which can be considered perfect and without limitations. This study has certain limitations:

The first limitation of the study is related to cultural aspects of risk management practices which have an impact on the perceptions of the respondents. As, the current research study was conducted in the context of the Pakistani banking industry. Each country has its unique culture and characteristics, which forms its risk management function. In future, this study can be conducted in the context of other economies.

Secondly, the current research study has the limited time frame for its completion. So sample size, in spite of being large enough is still relatively limited and would not be increased, because senior management of banks were considered as sample who are not available all the time. Also, due to the limited time period of data collection, data was collected from one city of Pakistan, i.e. Lahore. In future data can be collected based on the suggested model from different cities.

Thirdly, the research might not be able to generalise on all parts of the world, because of the difference in regulatory reforms, rules and practices in other countries. So, it is limited to the risk management practices of banks operating in Pakistan.

The fourth limitation is that this research has not used other reports such as quarterly and semi-annual financial statements, corporate responsibility reports and sustainability report, which might contain risk-related information. Also, the sample for the study was full-fledged Islamic banks, which was compared to five conventional banks. Islamic windows were ignored, because of lack of information on disclosure of risk management practices in Islamic windows apart from their parent

company, i.e. conventional bank. Furthermore, this research study has only surveyed the presence of the risk management aspects, and not the intensity of disclosure of the same. It does not tell about the causal connections between themes and sub themes under study. It is still helpful as a method to enhance the findings of mainstream research design i.e. survey research.

9.8. Future Research

There is a need to conduct a comprehensive analysis of each of the risks for better and detailed understanding of the aspects of the risk management process, i.e. risk identification, assessment, analysis, monitoring, reporting, mitigating and measurement.

As the current study was conducted on the risk management practices of banks working in Pakistan. This kind of research study can be conducted in different countries individually using the same research model. It is expected that different economies will have various findings due to the cultural and regulatory difference, which will be interesting to know as these practices are affected by several factors. Moreover, panel study can also be conducted by using proposed risk management practices model among different countries. This will be of interest to compare and contrast the risk management practices of different countries.

As risk management practices are an ever evolving issue in the banking industry worldwide, especially after the credit crunch and financial crisis. So, there is a need to conduct a detailed research study from time to time as changes are taking place in terms of rules and regulations, and innovation of new Shariah products in the case of Islamic banks.

Comparative studies can also be conducted which will relate to the specific risks and their management practices. Furthermore, future studies can also be extended to other financial institutions, such as insurance companies, and private companies.

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Appendix 1: Questionnaire

Dear Participant,

I am Asma Abdul Rehman, a PhD student at **Cardiff Metropolitan University, UK**. I am currently conducting a research project on **“Comparative Study of Risk Management Practices between Islamic and Conventional banks in Pakistan”**.

The main objective of my study is to get an insight into the practices of the banks in managing their risk. This questionnaire may be answered by Bank Managers, Senior Credit managers, Senior management, and Experts from risk management department, Risk Committee, Audit Committee of your bank.

The questionnaire consists of following sections:

- Section A- Company's Profile
- Section B- Respondent's Profile
- Section C- Understanding Risk Management
- Section D- Risk Identification
- Section E- Risk Assessment and Analysis
- Section F- Risk Management Practices
- Section G- Risk Measurement and Mitigation Tools
- Section H- Risk Monitoring and Reporting
- Section I- Credit Risk Analysis
- Section J- Liquidity Risk Analysis
- Section K- Risk Governance

The following questionnaire will take 35-45 minutes to complete. The name of the respondents will remain confidential. If you choose to participate in the Survey, please answer all questions.

Many thanks for your time in completing the survey. The data collected will provide useful information on risk management practices of banks operating in Pakistan. If you require additional information or have questions, please do not hesitate to contact me to my Email address given below.

asmaabdul1@live.com

Yours Sincerely,
Asma Abdul Rehman

Section A: Company's Profile

Part 1

Bank Name: -----

1. Ownership: ☐ Domestic
☐ Foreign
2. Type of bank: ☐ Islamic Bank
☐ Conventional Bank

Part 2

1. Which of the following risk identification methods are used by your bank (you can choose more than one option)
- | | |
|--|--|
| ☐ Inspection by the bank staff | ☐ Audit and Physical Inspection |
| ☐ Financial Statement Analysis | ☐ Risk Survey |
| ☐ Process Analysis | ☐ SWOT Analysis |
| ☐ Inspection by Shari'ah Board Members (Islamic banks only) | ☐ Benchmarking |
| ☐ Scenario Analysis | ☐ Internal Communication |
| ☐ Stress Testing | ☐ Others _____ |
2. Main risks faced by your bank are:
- | | |
|---|---|
| ☐ Credit Risk | ☐ Operational Risks |
| ☐ Liquidity Risk | ☐ Foreign Exchange Rate Risk |
| ☐ Rate of Return Risk (Islamic banks only) | ☐ Interest rate risk (Conventional banks only) |
| ☐ Market Risk | ☐ Strategic Risk |
| ☐ Solvency Risk | ☐ Regulatory Risks |
| ☐ Legal risk | ☐ Reputation Risk |
| ☐ Shariah Risk (Islamic banks) | ☐ Equity Risk |
| ☐ Hedging Risk | ☐ Transparency Risk |
| ☐ Others _____ | |

Section B: Respondent's Profile

I would appreciate if you could complete the following short answers about yourself. All information will be held confidential and will be used for research purposes only. Please tick (✓) the appropriate box.

Your Name (optional): _____

Your Designation in Bank: _____

1. Gender

☐ Male

☐ Female

2. Age range

☐ 25-34

☐ 35-44

☐ 46-54

☐ 55-64

☐ 65+

3. Highest level of education achieved

☐ Diploma

☐ Bachelor's Degree

☐ Master's Degree

☐ PhD

☐ Other (please specify) _____

4. Qualification background (*Please tick as appropriate*).

☐ Finance

☐ Accounting

☐ Economics

☐ Business Administration

☐ Statistics

☐ Financial Engineering

☐ Shari'ah

☐ Information Technology

☐ Other (please specify) _____

5. Professional Qualification (*Please tick as appropriate*)

☐ Chartered Financial Analyst (CFA)

☐ Financial Risk Manager (FRM)

☐ Certified Risk Professional

☐ Actuarial (FSA/ASA/FIA)

☐ Accounting

☐ Others _____

Section C: Understanding Risk Management (URM)

Questions 1-9 relate to understanding risk management with regards to the risk management practices in your bank. Please indicate the extent of your agreement with each statement by circling/highlighting the appropriate number based on the following scale.

Strongly Disagree	Disagree	Disagree Somewhat	Undecided	Agree Somewhat	Agree	Strongly Agree
1	2	3	4	5	6	7

1	There is a common understanding of risk management across the bank.	1 2 3 4 5 6 7
2	Risk management responsibility is clearly set out and understood throughout the bank.	1 2 3 4 5 6 7
3	Risk management policy is communicated down the line and well understood by all concerned parties (risk takers, risk reviewers etc.).	1 2 3 4 5 6 7
4	Accountability for risk management is clearly set out and understood throughout the bank.	1 2 3 4 5 6 7
5	Risk Management is important for the success and performance of the bank.	1 2 3 4 5 6 7
6	Application of the most sophisticated techniques in risk management is vital.	1 2 3 4 5 6 7
7	The objective of your bank is to expand the applications of the advanced risk management technique.	1 2 3 4 5 6 7
8	It is significant for your bank to emphasize on continuous review and evaluation of the techniques used in risk management	1 2 3 4 5 6 7
9	Applications of risk management techniques reduce costs or expected losses.	1 2 3 4 5 6 7

Section D: Risk Identification

Questions 1-6 relate to the risk identification system adopted in your bank. Please indicate the extent of your agreement by circling/highlighting the appropriate number based on the following scale.

Strongly Disagree	Disagree	Disagree Somewhat	Undecided	Agree Somewhat	Agree	Strongly Agree
1	2	3	4	5	6	7

1	Your bank carries out a comprehensive and systematic identification of its risk relating to each of its declared aims and objectives.	1 2 3 4 5 6 7
2	Risk identification is a continuous process in your bank at transactional and portfolio levels.	1 2 3 4 5 6 7
3	The bank finds it difficult to identify, and prioritize its main risk.	1 2 3 4 5 6 7
4	Changes in risk are recognized and identified with the bank's rules and responsibilities.	1 2 3 4 5 6 7
5	Your bank is aware of the strengths and weaknesses of the risk management systems of the other banks.	1 2 3 4 5 6 7
6	Your bank has developed and applied procedures for the systematic identification of investment opportunities.	1 2 3 4 5 6 7

Section E: Risk Assessment and Analysis

Questions 1-7 relate to the risk assessment and analysis adopted in your bank. Please indicate the extent of your agreement by circling/highlighting the appropriate number based on the following scale.

Strongly Disagree	Disagree	Disagree Somewhat	Undecided	Agree Somewhat	Agree	Strongly Agree
1	2	3	4	5	6	7

1	Your bank assesses the likelihood of risk occurrence.	1 2 3 4 5 6 7
2	Your bank assesses risks by using qualitative analysis methods (e.g. high, moderate, and low).	1 2 3 4 5 6 7
3	Your bank assesses risk by using quantitative analysis method.	1 2 3 4 5 6 7
4	Your bank analyzes and evaluates the opportunities that it has to achieve objectives.	1 2 3 4 5 6 7
5	Your bank's response to analyzing risk includes an assessment of the costs and benefits of each relevant risk.	1 2 3 4 5 6 7
6	Your bank's response to analyzing risk includes prioritizing of risk and selecting those that need an application of active management.	1 2 3 4 5 6 7
7	Your bank's response to analyzing risk includes prioritizing risk treatments where there are resource constraints on risk treatment implementation.	1 2 3 4 5 6 7

Section F: Risk Management Practices

Questions 1-15 relate to the risk management practices in your bank. Please indicate the extent of your agreement by circling/highlighting the appropriate number based on the following scale.

Strongly Disagree	Disagree	Disagree Somewhat	Undecided	Agree Somewhat	Agree	Strongly Agree
1	2	3	4	5	6	7

1	Risk management policy of the bank clearly defines the roles and responsibilities of various functionaries of the bank.	1	2	3	4	5	6	7
2	One of the objectives of your bank is effective risk management.	1	2	3	4	5	6	7
3	Your bank is highly effective in continuous review/feedback on risk management strategies and performance.	1	2	3	4	5	6	7
4	Executive management of your Bank regularly reviews the bank's performance in managing its business risk.	1	2	3	4	5	6	7
5	Your bank's risk management procedures and processes are documented and provide guidance to staff about managing risks.	1	2	3	4	5	6	7
6	Your bank's policy encourages training programs in the risk management and ethics areas.	1	2	3	4	5	6	7
7	Your bank emphasizes the recruitment of highly qualified people with knowledge of risk management.	1	2	3	4	5	6	7
8	Risk management policy is communicated from top to down level in your bank.	1	2	3	4	5	6	7
9	Your bank has a comprehensive risk management process (including Board and senior management) oversight to identify, measure, evaluate, monitor, report and control all material risks on timely basis.	1	2	3	4	5	6	7
10	Your bank finds it too risky to invest funds in one specific sector of the economy.	1	2	3	4	5	6	7

11	Risk management strategy of your bank is flexible enough to deal swiftly and adequately with all risks.	1	2	3	4	5	6	7
12	Application of Basel II and Basel III Accord will improve the efficiency and Risk Management Practices in the banks in general and particularly in your bank.	1	2	3	4	5	6	7
13	The bank is successfully implementing the Basel Committee and Central Bank guidelines/principles in regard to risk management.	1	2	3	4	5	6	7
14	Your bank assesses the adequacy of their capital and liquidity in relation to their risk profile, market and macro-economic conditions.	1	2	3	4	5	6	7
15	I consider the level of Risk Management Practices of my Bank to be excellent.	1	2	3	4	5	6	7

Section G: Risk measurement and mitigation tools

- 1. Please indicate the metric(s) that your organization uses to measure the risk that are inherent in your bank by ticking (√) in the appropriate boxes. (Please tick as appropriate)**

a.	Credit ratings of prospective investors	
b.	Gap Analysis	
c.	Duration Analysis	
d.	Maturity Matching Analysis	
e.	Earnings at Risk	
f.	Value at risk	
g.	Simulation Techniques	
h.	Internal Rating System	
i.	Estimate of worst case scenario	
j.	Risk Adjusted Return on Capital (RAROC)	
k.	Other (please specify):	

- 2. Please indicate the tool/instruments that your organization uses to mitigate risks that are inherent in the products by ticking (√) in the appropriate boxes. (Please tick as appropriate)**

a.	Collateral arrangement	
b.	Third Party Arrangement	
c.	Loan Loss Provision	
d.	On Balance Sheet Netting	
e.	Off Balance Sheet Netting	
f.	Guarantees	
g.	Internal Ratings	
h.	Urboun (over the counter Islamic derivatives)	
i.	Profit rate swaps	
j.	Securitisation	
k.	Credit Default Swap	
l.	Credit Derivatives	
m.	Other (please specify):	

Section H: Risk Monitoring and Reporting

Questions 1-9 relate to the risk monitoring and reporting with regards to the risk management practices in your bank. Please indicate the extent of your agreement by circling/highlighting the appropriate number based on the following scale.

Strongly Disagree	Disagree	Disagree Somewhat	Undecided	Agree Somewhat	Agree	Strongly Agree
1	2	3	4	5	6	7

1	Monitoring the effectiveness of risk management is an integral part of routine management reporting in your bank.	1	2	3	4	5	6	7
2	Level of control by the bank is appropriate for the risk that it faces.	1	2	3	4	5	6	7
3	Reporting and communication processes within your bank support the effective management of risks.	1	2	3	4	5	6	7
4	The bank's response to risk includes an evaluation of the effectiveness of the existing controls and risk management responses.	1	2	3	4	5	6	7
5	The bank's response to risk includes action plans in implementing decisions about identified risk.	1	2	3	4	5	6	7
6	Management of your bank monitor implementation of risk management policy and make necessary adjustments.	1	2	3	4	5	6	7
7	Management of your bank regularly monitors the effectiveness of risk management system.	1	2	3	4	5	6	7
8	The organizational structure of your bank strengthens monitoring and control over risks being taken.	1	2	3	4	5	6	7
9	Chief Risk Officer/ Risk management function is responsible for risk monitoring with in your bank.	1	2	3	4	5	6	7

Section I: Credit Risk Analysis

Questions 1-10 relate to the credit risk analysis in your bank. Please indicate the extent of your agreement by circling/highlighting the appropriate number based on the following scale.

Strongly Disagree	Disagree	Disagree Somewhat	Undecided	Agree Somewhat	Agree	Strongly Agree
1	2	3	4	5	6	7

1	Your bank undertakes a credit worthiness analysis before granting loans.	1	2	3	4	5	6	7
2	Before granting loans your bank undertake a specific analysis including the client's characters, capacity, collateral, capital and conditions.	1	2	3	4	5	6	7
3	Borrowers are classified according to a risk factor (risk rating) in your bank.	1	2	3	4	5	6	7
4	Credit policy commensurate with the overall risk management policy.	1	2	3	4	5	6	7
5	Your bank obtains information about the borrowers from credit information bureau.	1	2	3	4	5	6	7
6	Management of your bank has set out credit limits for different client segments, economic sectors, geographical locations etc. to avoid concentration of credit.	1	2	3	4	5	6	7
7	Credit risk is monitored on regularly basis and reported to senior management.	1	2	3	4	5	6	7
8	Your bank has credit risk management committee to oversee credit risk management function.	1	2	3	4	5	6	7
9	Credit administration ensures proper approval, completeness of documents, receipt of collateral and approval of exceptions before credit disbursement.	1	2	3	4	5	6	7
10	Board periodically reviews the credit risk strategy and credit policy.	1	2	3	4	5	6	7

Section J: Liquidity Risk Analysis

Part 1

Questions 1-11 relate to the Liquidity risk analysis in your bank. Please indicate the extent of your agreement by circling/highlighting the appropriate number based on the following scale.

Strongly Disagree	Disagree	Disagree Somewhat	Undecided	Agree Somewhat	Agree	Strongly Agree
1	2	3	4	5	6	7

1	Liquidity is a key determinant of the soundness of banking sector.	1	2	3	4	5	6	7
2	The "Management Board" defines liquidity risk strategy, and in particular bank's tolerance for liquidity risk based on recommendation made by Treasury and Risk Committee.	1	2	3	4	5	6	7
3	Management of your bank gives due consideration to external and internal factor posing liquidity risk while formulating the liquidity policy.	1	2	3	4	5	6	7
4	Your bank's policy defines general liquidity strategy (short and long term).	1	2	3	4	5	6	7
5	Policy is flexible enough to deal with the unusual liquidity pressures.	1	2	3	4	5	6	7
6	Board of Directors and Senior Management review liquidity policy regularly in your bank.	1	2	3	4	5	6	7
7	Asset Liability Management Committee comprises of senior management from each key area of operations in your bank.	1	2	3	4	5	6	7
8	Asset Liability Management Committee is responsible for reviewing and recommending liquidity risk policies in your bank.	1	2	3	4	5	6	7
9	Your bank has identified the means and ways to meet its funding requirements.	1	2	3	4	5	6	7
10	Stress Testing and Scenario Analysis plays a central role in liquidity risk management framework of your bank.	1	2	3	4	5	6	7
11	Your bank applies Stress Test based on Value at Risk (VaR) technique as market risk management tool.	1	2	3	4	5	6	7

Part 2

Please indicate which instrument your bank uses to manage Liquidity.

- | | |
|--|---|
| ☐ Cash Reserve ratio | ☐ Discount Window Operations |
| ☐ Open Market operation | ☐ Liquidity Ratio |
| ☐ Others _____ | |

Section K: Risk Governance

Part 1

1. Does the board of directors of your bank involved in risk management process?

- | | |
|------------------------------|-----------------------------|
| ☐ Yes | ☐ No |
|------------------------------|-----------------------------|

2. Please indicate your bank's managerial and/or board committees that regularly deal with risk management issues. (please tick as appropriate)

- | | |
|---|---|
| ☐ Risk Management Committee | ☐ Audit Committee |
| ☐ Executive Committee | ☐ Others (please specify)----- |
| ☐ Asset and Liability Management Committee | |

3. The implementation of regulation for risk management in your bank is based on: (please tick as appropriate)

- | | |
|--|---|
| ☐ Basel II | ☐ Islamic Financial Service (IFSB) |
| ☐ Basel III | ☐ Accounting & Auditing of Islamic Finance (AAOIF) |
| ☐ Other (please Specify)_____ | |

Part 2

Questions 1-18 relate to the Risk Governance in your bank. Please indicate the extent of your agreement by circling/highlighting the appropriate number based on the following scale.

Strongly Disagree	Disagree	Disagree Somewhat	Undecided	Agree Somewhat	Agree	Strongly Agree
1	2	3	4	5	6	7

1	Your bank's Board of director approves and oversees risk appetite framework; policies and processes to implement risk management framework in the bank.	1 2 3 4 5 6 7
2	Your bank's Board of Directors has relevant skills related to financial industry and risk management as well as time commitment with the bank.	1 2 3 4 5 6 7
3	Board of Director formulates and defines the mandate and responsibilities of board-level committees (Risk committee; Audit committee) dealing with Risk Governance.	1 2 3 4 5 6 7
4	Risk management committee members of your bank are independent and qualified.	1 2 3 4 5 6 7
5	Risk Management Committee provides sufficient policies and strategies for risk management.	1 2 3 4 5 6 7
6	Risk Committee reviews and recommends risk strategy to Board of Directors and oversees implementation of risk management framework.	1 2 3 4 5 6 7
7	CEO develops and recommend overall business strategy, risk strategy, risk appetite statement and risk tolerance.	1 2 3 4 5 6 7
8	Chief Risk Officer oversees risk management function of your bank.	1 2 3 4 5 6 7
9	Chief Risk Officer develops, monitor and reports on risk metrics to reflect Risk appetite statement to risk Committee.	1 2 3 4 5 6 7
10	Internal auditors ensure that risk management processes are in compliance with the bank policies.	1 2 3 4 5 6 7
11	Internal auditors evaluate the effectiveness and efficiency of risk management processes.	1 2 3 4 5 6 7
12	Internal auditors are independent and directly accountable to the Board of Directors.	1 2 3 4 5 6 7

13	The role of central bank is effective in supervising the risk management process in your bank.	1	2	3	4	5	6	7
14	Your bank's Board and Senior management review internal audit reports, prudential reports, and external experts report as a part of Risk Governance framework.	1	2	3	4	5	6	7
15	Your bank's compensation policies and practices are consistent with bank's corporate culture, long-term objectives and strategy and control environment.	1	2	3	4	5	6	7
16	Your bank avoids compensation policies that create incentives for excessive risk taking.	1	2	3	4	5	6	7
17	Your bank is governed in a transparent manner.	1	2	3	4	5	6	7
18	You bank disclosure includes the information on the following matters: c) Financial and operating results d) Remuneration of Board and Senior management	1	2	3	4	5	6	7
		1	2	3	4	5	6	7

===== END OF SURVEY QUESTIONS =====

If there is anything else that you would like to tell us about this survey or any other comments you wish to make on risk management practices in your bank please provide them in the space provided below.

THANK YOU FOR YOUR PARTICIPATION IN THE SURVEY

Appendix 2: List of Banks

Public Sector Bank			
1	First women bank www.fwbl.com.pk	2	National Bank of Pakistan www.nbp.com.pk
3	Sindh Bank Limited www.sindhbankltd.com	4	The bank of Khyber www.bok.com.pk
5	The bank of Punjab www.bop.com.pk		
Specialized Banks			
1	Industrial Development bank limited www.idbp.com.pk	2	SME bank Limited www.smebank.org
3	The Punjab Provincial Cooperative Bank Ltd www.ppcbl.punjab.gov.pk	4	Zarai Taraqati Bank Limited www.ztbl.com.pk
Private Banks			
1	Allied bank Limited www.abl.com	2	Askari Bank Limited www.askaribank.com.pk
3	Bank Alfalah Limited www.bankalfalah.com	4	Bank Al Habib Limited www.bankalhabib.com
5	Faysal Bank limited www.faysalbank.com	6	Habib bank limited www.hbl.com
7	Habib Metropolitan Bank www.hmb.com.pk	8	JS bank Limited www.jsbl.com
9	MCB bank Limited www.mcb.com.pk	10	NIB bank Limited www.nibpk.com
11	Samba Bank Limited www.samba.com.pk	12	Silk Bank Limited www.silkbank.com.pk
13	Soneri Bank Limited www.soneribank.com.pk	14	Standard Chartered Bank (Pakistan) Limited www.standardchartered.com.pk
15	Summit bank limited www.summitbank.com.pk	16	United Bank Limited www.ubl.com.pk
Islamic Banks			
1	AlBarakah Bank www.albaraka.com.pk	2	Bank Islami Pakistan limited www.bankislami.com.pk
3	Burj bank Limited www.burjbankltd.com	4	Dubai Islamic Bank Pakistan Limited www.dibpak.com
5	Meezan Bank Limited www.meezanbank.com		

Foreign Banks			
1	Barclays Bank PLC www.barclays.pk	2	Citibank N.A.- Pakistan Operations www.citibank.com.pk
3	Deutsche Bank Ag- Pakistan Operations www.db.com/pakistan	4	Industrial and commercial bank of china Limited- Pakistan Branches
5	The Bank of Tokyo-Mitsubishi UFJ Limited- Pakistan Operations www.bk.mufig.jp	6	HSBC Bank Oman S.A.O.G- Pakistan Operations www.oiboman.com
Micro Finance Banks / Institutions			
1	FINCA Microfinance Bank Limited www.kmfbank.com	2	Khushhali Bank Limited www.khushhalibank.com.pk
3	APNA Microfinance Bank Limited www.apnabank.com.pk	4	NRSP Microfinance Bank Limited www.nrspbank.com
5	Pak Oman Microfinance Bank limited www.pomicro.com	6	U Microfinance Bank Limited www.ubank.com.pk
7	Tameer Micro Finance Bank Limited www.tameerbank.com	8	The First Micro Finance Bank Limited www.mfb.com.pk
9	Waseela Microfinance Bank Limited www.waseelabank.com	10	ADCANS Pakistan Microfinance Bank Limited www.advansgroup.com
Development Finance Institutions			
1	House Building finance Company Limited www.hbfc.com.pk	2	Pak Brunei Investment Company Limited www.pakbrunei.com.pk
3	Pak-China Investment company Limited www.pakchinainvest.com	4	PAIR Investment Company Limited www.pairinvestment.com
5	Pakistan Kuwait Investment Company Limited www.pkic.com	6	Pak Libya holding company Limited www.paklibya.com.pk
7	Pak Oman Investment Company Limited www.pakoman.com	8	Saudi Pak Industrial and Agricultural Investment Company limited www.saudipak.com
Source: State Bank of Pakistan , Available at: http://sbp.org.pk/f_links/index.asp			

Appendix 3:

Basel III phase-in Arrangements (All dates are as of 1 January)⁶⁶

Capital	Phase	2013	2014	2015	2016	2017	2018	2019	
	Leverage Ratio		Parallel run 1 Jan 2013-1 Jan 2017, disclosure start 1 Jan 2015				Migrati on to Pillar 1		
	Minimum common equity capital ratio	3.5%	4.0%	4.5%				4.5%	
	Capital Conservation buffer				6.25%	1.25%	1.875%	2.5%	
	Minimum common equity plus capital conservation buffer	3.5%	4.0%	4.5 %	5.125%	5.75%	6.375%	7.0%	
	Phase-in of deductions from CET1*		20%	40%	60%	80%	100%	100%	
	Minimum tier 1 capital	4.5%	5.5%	6.0%				6.0%	
	Minimum total Capital		8.0%						8.0%
	Minimum total capital plus conservation buffer		8.0%		8.625%	9.25%	9.875%	10.5 %	
	Capital Instruments that no longer Qualify as non-core Tier 1 capital or Tier 2 capital		Phased out over 10 year horizon beginning 2013						
Liquidity	Liquidity coverage ratio-minimum requirement			60%	70%	80%	90%	100%	
	Net stable funding ratio						Introdu ced minimu m standar d		
----- transition periods									
* Including amounts exceeding the limit for deferred tax assets (DTAs), mortgage servicing rights (MSRs) and financials.									

⁶⁶ Basel Committee on Banking supervision:
http://www.bis.org/bcbs/basel3/basel3_phase_in_arrangements.pdf

Appendix 4: Reliability Analysis of Primary data

Overall Reliability of data

Case Processing Summary

		N	%
Cases	Valid	150	100.0
	Excluded ^a	0	.0
	Total	150	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.894	8

Reliability Analysis of Individual Variables

1. Understanding risk management

Case Processing Summary

		N	%
Cases	Valid	150	100.0
	Excluded ^a	0	.0
	Total	150	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.693	9

2. Risk Identification

Case Processing Summary

		N	%
Cases	Valid	150	100.0
	Excluded ^a	0	.0
	Total	150	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.417	6

3. Risk Assessment and analysis

Case Processing Summary

		N	%
Cases	Valid	150	100.0
	Excluded ^a	0	.0
	Total	150	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.761	7

4. Risk management practices

Case Processing Summary

		N	%
Cases	Valid	150	100.0
	Excluded ^a	0	.0
	Total	150	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.849	15

5. Risk Monitoring and reporting

Case Processing Summary

		N	%
Cases	Valid	150	100.0
	Excluded ^a	0	.0
	Total	150	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.707	9

6. Credit Risk Analysis

Case Processing Summary

		N	%
Cases	Valid	150	100.0
	Excluded ^a	0	.0
	Total	150	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.785	10

7. Liquidity Risk Analysis

Case Processing Summary

		N	%
Cases	Valid	150	100.0
	Excluded ^a	0	.0
	Total	150	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.586	11

8. Risk Governance

Case Processing Summary

		N	%
Cases	Valid	150	100.0
	Excluded ^a	0	.0
	Total	150	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.795	19

Appendix 5: Independent Sample T-Test to Check Variance Assumption

Independent Samples Test						
Variables		Levene's Test for Equality of Variances		t-test for Equality of Means		
		F	Sig.	t	df	Sig. (2-tailed)
URRM	Equal variances assumed	1.734	.190	-.194	148	.847
	Equal variances not assumed			-.194	147.826	.847
RI	Equal variances assumed	.330	.567	-2.508	148	.013
	Equal variances not assumed			-2.508	147.906	.013
RAA	Equal variances assumed	2.139	.146	.831	148	.407
	Equal variances not assumed			.831	146.191	.407
RMP	Equal variances assumed	1.912	.169	-3.052	148	.003
	Equal variances not assumed			-3.052	138.681	.003
RMR	Equal variances assumed	.001	.978	-.231	148	.818
	Equal variances not assumed			-.231	145.683	.818
CRA	Equal variances assumed	1.676	.197	-.798	148	.426
	Equal variances not assumed			-.798	147.009	.426
LRA	Equal variances assumed	16.446	.000	1.583	148	.116
	Equal variances not assumed			1.583	124.925	.116
RG	Equal variances assumed	.453	.502	-2.309	148	.022
	Equal variances not assumed			-2.309	147.470	.022

Appendix 6: Test of Normality

Tests of Normality						
	Kolmogorov-Smirnov ^{a*}			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
URRM	.142	150	.000	.949	150	.000
RI	.117	150	.000	.906	150	.000
RAA	.159	150	.000	.891	150	.000
RMP	.099	150	.001	.975	150	.008
RMR	.102	150	.001	.929	150	.000
CRA	.092	150	.003	.967	150	.001
LRA	.094	150	.003	.981	150	.034
RG	.080	150	.019	.978	150	.018
a. Lilliefors Significance Correction, sig at 5% *more than 30 sample						

Appendix 7: Standard Rating Scale and Definition by PACRA

LONG TERM RATING

AAA – HIGHEST CREDIT QUALITY:

‘AAA’ ratings denote the lowest expectation of credit risk. They are assigned only in case of exceptionally strong capacity for timely payment of financial commitments. This capacity is highly unlikely to be adversely affected by foreseeable events.

AA –VERY HIGH CREDIT QUALITY:

‘AA’ ratings denote a very low expectation of credit risk. The capacity for timely payment of financial commitments. This capacity is not significantly vulnerable to foreseeable events.

A –HIGH CREDIT QUALITY:

‘A’ ratings denote a low expectation of credit risk. This capacity for timely payment of financial commitments is considered strong. This capacity may, nevertheless, be more vulnerable to changes in circumstances or in economic conditions than is the case for higher ratings.

BBB –GOOD CREDIT QUALITY:

‘BBB’ ratings indicate that there is currently a low expectation of credit risk. The capacity for timely payment of financial commitments is considered adequate, but adverse changes in circumstances and in economic conditions are more likely to impair this capacity. This is the lowest investment grade category.

BB –SPECULATIVE:

‘BB’ ratings indicate that there is a possibility of credit risk developing, particularly as a result of adverse economic change over time; however, business or financial alternatives may be available to allow financial commitments to be met. Securities rated in this category are not investment grade.

B –HIGH SPECULATIVE:

‘B’ ratings indicate that significant credit risk is present, but a limited margin of safety remains. Financial commitments are currently being met; however, capacity for continued payment is contingent upon a sustained, favorable business and economic environment.

CCC, CC, C–HIGH DEFAULT RISK:

Default is a real possibility. Capacity for meeting financial commitments is solely reliant upon sustained, favorable business or economic developments. A ‘CC’ rating indicates that default of some kind appears probable. ‘C’ ratings signal imminent default.

SHORT TERM RATING

A1+: Obligations supported by the highest capacity for timely repayment.

A1: Obligations supported by a strong capacity for timely repayment.

A2: Obligations supported by a satisfactory capacity for timely repayment, although such capacity may be susceptible to adverse changes in business, economic, or financial conditions.

A3: Obligations supported by an adequate capacity for timely repayment. Such capacity is more susceptible to adverse changes in business, economic, or financial condition than for obligations in higher categories.

B: Obligations for which the capacity for timely repayment is susceptible to adverse changes in business, economic, or financial conditions.

C: Obligations for which there is an inadequate capacity to ensure timely repayment.

D: Obligations which have a high risk of default or which are currently in default.

Appendix 8: RMDP Un-weighted index score

Islamic Banks 2008						
S.no		Risk Profile	Risk management profile	Risk control activities	Risk control environment	Risk management process
1	Albarakah bank	6/14= 0.428	2/8= 0.25	7/10= 0.7	10/13= 0.769	6/9= 0.667
2	Bank Islami Pakistan limited	0/14= 0	0/8= 0	0/10= 0	0/13= 0	0/9= 0
3	Burj bank limited	0/14= 0	0/8= 0	0/10= 0	0/13= 0	0/9= 0
4	Dubai Islamic bank	7/14= 0.5	4/8= 0.5	6/10= 0.6	5/13= 0.385	7/9= 0.778
5	Meezan Bank	7/14= 0.5	1/8= 0.125	9/10= 0.9	10/13= 0.769	5/9= 0.556

Islamic Banks 2009						
S.no		Risk Profile	Risk management profile	Risk control activities	Risk control environment	Risk management process
1	Albarakah bank	6/14= 0.428	2/8= 0.25	7/10= 0.7	10/13= 0.769	6/9= 0.667
2	Bank Islami Pakistan limited	10/14= 0.714	0/8= 0	9/10= 0.9	8/13= 0.615	4/9= 0.444
3	Burj bank limited	7/14= 0.5	0/8= 0	9/10= 0.9	10/13= 0.769	1/9= 0.111
4	Dubai Islamic bank	7/14= 0.5	4/8= 0.5	8/10= 0.8	7/13= 0.538	7/9= 0.778
5	Meezan Bank	7/14= 0.5	2/8= 0.25	8/10= 0.8	11/13= 0.846	5/9= 0.556

Islamic Banks 2010						
S.no		Risk Profile	Risk management profile	Risk control activities	Risk control environment	Risk management process
1	Albarakah bank	6/14= 0.428	2/8= 0.25	7/10= 0.7	11/13= 0.846	5/9= 0.556
2	Bank Islami Pakistan limited	10/14= 0.714	0/8= 0	9/10= 0.9	9/13= 0.692	5/9= 0.556
3	Burj bank limited	8/14= 0.571	4/8= 0.5	8/10= 0.8	10/13= 0.769	6/9= 0.667
4	Dubai Islamic bank	7/14= 0.5	4/8= 0.5	8/10= 0.8	7/13= 0.538	7/9= 0.778
5	Meezan Bank	6/14= 0.428	2/8= 0.25	8/10= 0.8	11/13= 0.846	4/9= 0.444

Islamic Banks 2011						
S.no		Risk Profile	Risk management profile	Risk control activities	Risk control environment	Risk management process
1	Albarakah bank	6/14= 0.428	2/8= 0.25	7/10= 0.7	11/13= 0.846	5/9= 0.556
2	Bank Islami Pakistan limited	11/14= 0.786	0/8= 0	10/10= 1	10/13= 0.769	6/9= 0.667
3	Burj bank limited	8/14= 0.571	4/8= 0.5	9/10= 0.9	10/13= 0.769	6/9= 0.667
4	Dubai Islamic bank	7/14= 0.5	4/8= 0.5	8/10= 0.8	9/13= 0.692	7/9= 0.778
5	Meezan Bank	6/14= 0.428	2/8= 0.25	8/10= 0.8	11/13= 0.846	4/9= 0.444

Islamic Banks 2012						
S.no		Risk Profile	Risk management profile	Risk control activities	Risk control environment	Risk management process
1	Albarakah bank	6/14= 0.428	2/8= 0.25	7/10= 0.7	10/13= 0.769	7/9= 0.778
2	Bank Islami Pakistan limited	11/14= 0.786	1/8= 0.25	10/10= 1	9/13= 0.692	6/9= 0.667
3	Burj bank limited	8/14= 0.571	4/8= 0.5	8/10= 0.8	10/13= 0.769	5/9= 0.556
4	Dubai Islamic bank	7/14= 0.5	3/8= 0.375	8/10= 0.8	8/13= 0.615	7/9= 0.778
5	Meezan Bank	6/14= 0.428	3/8= 0.375	8/10= 0.8	11/13= 0.846	6/9= 0.667

Islamic Banks 2013						
S.no		Risk Profile	Risk management profile	Risk control activities	Risk control environment	Risk management process
1	Albarakah bank	7/14= 0.5	4/8= 0.5	8/10= 0.8	10/13= 0.769	6/9= 0.667
2	Bank Islami Pakistan limited	11/14= 0.786	1/8= 0.25	10/10= 1	9/13= 0.692	8/9= 0.889
3	Burj bank limited	9/14= 0.642	4/8= 0.5	9/10= 0.9	11/13= 0.846	7/9= 0.778
4	Dubai Islamic bank	7/14= 0.5	4/8= 0.5	9/10= 0.9	8/13= 0.615	6/9= 0.667
5	Meezan Bank	8/14= 0.571	3/8= 0.375	10/10= 1	11/13= 0.846	7/9= 0.778

Conventional Banks 2008						
S.no		Risk Profile	Risk management profile	Risk control activities	Risk control environment	Risk management process
1	Allied bank limited	11/14=0.785	2/9= 0.222	9/10=0.9	8/11= 0.727	6/9= 0.667
2	Habib bank limited	9/14=0.642	5/9=0.556	9/10=0.9	10/11=0.909	6/9= 0.667
3	Muslim Commercial bank	N/A=0	N/A=0	N/A=0	N/A=0	N/A=0
4	National bank of Pakistan	8/14=0.571	4/9= 0.444	8/10=0.8	8/11= 0.727	7/9=0.778
5	United bank limited	11/14=0.785	3/9= 0.333	9/10=0.9	9/11= 0.818	6/9=0.667

Conventional Banks 2009						
S.no		Risk Profile	Risk management profile	Risk control activities	Risk control environment	Risk management process
1	Allied bank limited	11/14=0.785	3/9= 0.333	9/10=0.9	8/11= 0.727	5/9= 0.556
2	Habib bank limited	9/14=0.642	5/9= 0.556	9/10=0.9	9/11= 0.818	5/9= 0.556
3	Muslim Commercial bank	10/14=0.714	5/9= 0.556	9/10=0.9	7/11= 0.636	7/9=0.778
4	National bank of Pakistan	7/14= 0.5	0/9= 0	2/10=0.2	6/11= 0.545	1/9= 0.111
5	United bank limited	11/14=0.785	3/9= 0.333	9/10=0.9	9/11= 0.818	6/9=0.667

Conventional Banks 2010						
S.no		Risk Profile	Risk management profile	Risk control activities	Risk control environment	Risk management process
1	Allied bank limited	11/14=0.785	3/9= 0.333	9/10=0.9	9/11= 0.818	7/9=0.778
2	Habib bank limited	10/14=0.714	5/9= 0.556	9/10=0.9	9/11= 0.818	5/9= 0.556
3	Muslim Commercial bank	11/14=0.785	5/9= 0.556	9/10=0.9	8/11= 0.727	8/9= 0.889
4	National bank of Pakistan	9/14=0.642	4/9= 0.444	8/10=0.8	9/11= 0.818	5/9= 0.556
5	United bank limited	9/14=0.642	5/9= 0.556	9/10=0.9	9/11= 0.818	8/9= 0.889

Conventional Banks 2011						
S.no		Risk Profile	Risk management profile	Risk control activities	Risk control environment	Risk management process
1	Allied bank limited	11/14=0.785	2/9= 0.222	9/10=0.9	9/11= 0.818	6/9= 0.667
2	Habib bank limited	9/14=0.642	5/9= 0.556	9/10=0.9	10/11=0.909	5/9= 0.556
3	Muslim Commercial bank	10/14=0.714	5/9= 0.556	10/10=1	7/11= 0.636	8/9= 0.889
4	National bank of Pakistan	9/14=0.642	4/9= 0.444	8/10=0.8	8/11= 0.727	6/9=0.667
5	United bank limited	11/14=0.785	5/9= 0.556	10/10=1	9/11= 0.818	8/9= 0.889

Conventional Banks 2012						
S.no		Risk Profile	Risk management profile	Risk control activities	Risk control environment	Risk management process
1	Allied bank limited	11/14=0.785	2/9= 0.222	9/10=0.9	7/11= 0.636	6/9=0.667
2	Habib bank limited	12/14=0.857	5/9= 0.556	9/10=0.9	11/11= 1	6/9=0.667
3	Muslim Commercial bank	13/14=0.928	5/9= 0.556	10/10=1	7/11= 0.636	9/9= 1
4	National bank of Pakistan	10/14=0.714	5/9= 0.556	10/10=1	9/11= 0.818	6/9=0.667
5	United bank limited	11/14=0.785	6/9= 0.667	10/10=1	8/11= 0.727	8/9= 0.889

Conventional Banks 2013						
S.no		Risk Profile	Risk management profile	Risk control activities	Risk control environment	Risk management process
1	Allied bank limited	11/14=0.785	3/9= 0.333	10/10=1	7/11= 0.636	7/9= 0.778
2	Habib bank limited	12/14=0.857	5/9= 0.556	10/10=1	11/11= 1	6/9=0.667
3	Muslim Commercial bank	13/14=0.928	5/9= 0.556	10/10=1	9/11= 0.818	9/9= 1
4	National bank of Pakistan	10/14=0.714	5/9= 0.556	10/10=1	9/11= 0.818	7/9= 0.778
5	United bank limited	11/14=0.785	3/9= 0.333	10/10=1	8/11= 0.727	9/9= 1