An-Najah National University
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Liquidity Risk Management Practices: A comparative study between Islamic and Conventional Banks in Palestine

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الاقرار

انا الموقع ادناه مقدم الرساله التي تحمل العنوان:

Liquidity Risk Management Practices: A comparative study between Islamic and Conventional Banks in Palestine

ممارسات ادارة مخاطر السيوله: دراسه مقارنه بين البنوك التقليديه والاسلاميه في فلسطين

أقر بأن ما اشتملت عليه هذه الرساله انما هي نتاج جهدي الخاص،باستثناء مـــا تمـــت الاشاره اليه حيثما ورد، وأن هذه الرسالهككل، أو أي جزء منها لم يقدم لنيل أي درجة علميه او لقب علمي او بحثي لدى اية مؤسسة تعليميه اخرى

Declaration

The work provided in this thesis, unless otherwise referenced, is the researcher's own work and has not been submitted elsewhere for any other degree or qualification

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Liquidity Risk Management Practices: A comparative study between Islamic and Conventional Banks in Palestine

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Abstract

Banks face numerous kinds of risks including liquidity risk. The issue of liquidity is the most important issue in the banking sector (conventional and Islamic), where the bank may lose customers as a result of the lack of sufficient liquidity, or the inability to meet their withdrawals in a timely manner. Moreover, banks are accountable toward the supervisory authorities, which affects the reputation of the financial institution in case of liquidity shortage. On the other hand, the bank may maintain more liquidity than it needs, resulting in a situation of inefficient use of available resources. Therefore the existence of proper liquidity management increases the confidence of the supervisory authorities and depositors. With the financial institutions, conventional banks can utilize numerous devices to manage this sort of hazard. Islamic banks, however, are constrained in utilizing portion of these instruments. In this manner, it is critical to comprehend the idea of liquidity risk in Islamic and conventional banks and what variables can influence it. A mixed research approach methodology was used in this thesis. The qualitative approach was conducted with a sample of 3 Islamic banks and 3 conventional banks. Open questions were used to collect data from Islamic and conventional bankers. A quantitative research methodology was used to model the

liquidity risk in Islamic and conventional banks of Palestine. Capital adequacy ratio (CAR), return on equity (ROE), deposits to assets (DA), bank size (BS), and bank nationality has been used to test their impact on liquidity risk for both Islamic and conventional banks over the period 2009-2018. The finding of this thesis has revealed that there is a positive relation between deposits to assets and liquidity risk, a negative and significant relation between capital adequacy ratio and liquidity risk for the banks in Palestine. While the effect of interaction variable “Islamic bank” on the effect of DA, ROE and CAR on liquidity were found to be significant. Findings of this paper will help banks' management to decrease liquidity risk and keep their banks at a better liquidity position. Banks managers should be increasingly cautious when financing their customers as expanding financing can deteriorate liquidity. Some recommendations of this thesis involve that banks should have integrated liquidity management framework and increase their investment portfolio because the existence of the liquidity issue with banks means not to fully employ the sources of funds. Moreover, banks should have a specialized liquidity division. Furthermore, Palestine Monetary Authority, though stand prepared to help and bailout any bank confronting liquidity issues, should enforce Israeli side to remit the Shekel currency; hence, it must review the current relationships with Israeli banks and find a new sustainable mechanism that serves the interests of the Palestinian banking.

Chapter One

Introduction

Chapter One
Introduction

1.1 Overview

The financial markets in general and the banking industry in particular, have been generally perceived as indicators of the state of the development of any country by government officials and academics. The rise of modern Islamic banking started with the experience of a local savings bank that appeared in Egypt in 1963 by Dr. Ahmed Al-Najjar. This attempt was based on collecting personal savings from depositors and investing them (Soylu, 2019).

The formal Islamic banking business started in 1975, when Dubai Islamic Bank (DIB) was established in the United Arab of Emirates. At the same year, the Islamic Development Bank (IDB) was established in Jeddah (Soylu, 2019). After 1975, the number of Islamic banks increased dramatically. By the year of 2019, number of Islamic banks was 520, number of Takaful operation was330, number of Sukuk issuances was 12000, number of Islamic funds was 1700 and number of Islamic finance was 960. With a total asset of 2.524 trillion USD (IFSB, 2019).

The banking sector performs a very crucial financial intermediation. Through facilitating the flow of capital to various sectors of the economy Arif and Anees (2012). The Palestinian banking sector experienced a rapid development, due to technological changes, competition, liberalization, and restructuring introduced by the Palestinian Monetary Authority (PMA), to

improve the regulatory framework and ensure the well-being of the banking sector.

Every bank faces operational risk that is related to the internal operations of the bank. Business risk, on the other hand, is associated with the industry risk, which relates to the external business environment of the banks. Lastly, financial risk is related to the probability of default of a bank. The financial risk of banks can be further divided into three categories: market operational risk, credit risk and liquidity risk (Keramati & Shaeri, 2014).

Rosely (2008) stated that liquidity and profitability both are most bulbous issues in the realm of corporate finance. The term of liquidity is defined by Ibe (2013) as the degree of convertibility to cash or in other words, the ease with which any assets can be converted to cash is called liquidity in financial literature. Durrah (2016) reported that liquidity of banks refers the banks' ability to satisfy its short terms financial obligations and requirements when they come due.

Liquidity risk is the potential loss to a bank arising from its inability either to meet its obligations, or to fund increase in assets as they fall due without incurring unacceptable costs (IFSB, 2012). The main reason that lead the bank inherently faces liquidity risk is the maturity mismatch between the bank's assets and liabilities due to transforming short term deposits into long term loans and investments.

The fact that Basel standards regarding liquidity management were inconsistent with Islamic banks, led to introducing special standards by Islamic Financial Services Board. Because of the importance of a sound liquidity risk management framework for any well-functioning institution offering Islamic financial services. Islamic Financial Institutions have often found management of liquidity risk a very challenging part of their operations. These challenges can be observed at all tiers of the liquidity risk management framework of an IIFS – institutional, interbank and central bank levels.

Based on the existence of such standards and through reviewing previous literature, we are not aware of studies that dealt with the difference in liquidity risk management between Islamic and conventional banks, or the factors that impact the liquidity risk in the banking sector in Palestine.

With regard to the issue of managing liquidity risk, previous literature from Palestine dealt with the role of accounting and financial information in managing liquidity risk for commercial banks in Gaza. The study found that commercial banks use accounting and financial information in forecasting liquidity risk. Commercial banks use special reports and financial ratios to identify the liquidity available. Senior management and regulators use follow-up and monitoring reports on a regular basis to help in detecting deviations concerning liquidity position and correct it (Ahlasa & Ramadan, 2013).

Another study dealt with the impact of risk management on the degree of safety in the Palestinian banking system. The study showed that there was a direct proportion between the banking security level, on the one hand, and all risks related to liquidity level, lack of capital, fluctuation of interest rates and return on assets, on the other hand (Shaheen, Sabah & Misbah, 2011). Some other studies dealt with the effect of the variables used in this thesis on profitability and on credit risk (Abbadi & Karash, 2013; Abugamea, 2018; Rosman,2009, Al-Darraji, 2015).

The studies conducted in Palestine related liquidity risk in Islamic and conventional banks are slightly limited. Abdelkarim and Burbar (2007) focus on concepts in risk management and financial risk management in Palestinian conventional and Islamic banks. The study showed that banks in Palestine have poor risk management system for monitoring, measuring, and mitigating risks. There is no department responsible to identify, monitor, and manage financial risks. Most banks do not have formally written approved and circulated work policies. Banks in Palestine lack adequate instruments for managing the risks they faced.

Bayyoud and Sayyad (2015) focus on the role of risk management on banks in Palestine. The findings showed that overall internal control and risk management system in Palestine have positive effect on bank's performance.

Therefore, the literature in the Palestinian context lacks empirical evidence on the differences in liquidity risk management practices between

Palestinian Islamic and conventional banks. The objective of this thesis is to fill the gap in the literature through investigating the differences between liquidity risk management in Islamic and conventional banks and provide guidelines to manage such risk across these banks.

1.2 Problem of the Study and Research Questions

The differences between the business models of Islamic and their conventional counterparts play an important role in managing liquidity risk. However, do these differences in Islamic and conventional bank's business model translated into differences in risk management practices related to liquidity risk? To answer this main research question, we need to answer the following sub questions:

1. How banks measure and manage liquidity risk in Palestine?
2. What kind of liquidity risk exists in Palestinian Islamic and conventional banks?
3. What are the factors contributed to liquidity risk management in Palestinian banks?
4. How the type of bank, whether Islamic or conventional, affect the relationship between factors determine liquidity and liquidity risk management practices?

1.3 Research objectives

This thesis aims to achieve the following objectives:

1. Defining the differences in liquidity risk measurement and management between Islamic and conventional banks.
2. Exploring the types of liquidity risk in Palestinian Islamic and conventional banks.
3. Investigating the factors contributed to liquidity risk management in Palestinian banks?
4. Investigating the effect of the type of bank, whether Islamic or conventional, on the relationship between factors determine liquidity and liquidity risk management practices?

1.4 Significance of Research

The importance of this research is to focus on the Islamic finance industry in Palestine. In light of the growing importance of Islamic banks in the global financial system and Shariah-compliant financial innovations. The importance of sound risk management practices. As in most emerging markets, the Palestinian banking sector dominates the financial sector as financings are channeled through banks (Islamic and conventional) and not through the capital market. This fact exposes the entire economy to the systematic risk of bank failure.

Answering thesis questions will help banks' directors to decrease liquidity risk. Provide guidelines to manage such risks across these banks.

1.5 Research Structure

This thesis structured as follow: chapter 1 is the introduction, while chapter 2 covers the background about banking sector in Palestine. Chapter 3 presents the literature review of previous studies. Chapter 4 explains the methodology, data and variables. Furthermore, chapter 5 presents the analysis and results of this study. Finally, chapter 6 appertain conclusion.

Chapter Two

Palestinian Banking System

Chapter Two
Palestinian Banking System

2.1 Introduction

The financial sector in Palestine has emerged since signing Oslo Accord in 1993. After Paris Protocol in 1994, this allowed the Palestinian Monetary Authority (PMA) to administer monetary and financial affairs.

Palestinian Monetary Authority seeks to increase the efficiency of the banking services provided to customers. Through the branching policy that aims to reduce the population density of the number of branches and to become more in line with the internationally recognized rates (10,000 people per branch) (PMA, 2018).

In this context, the population index recorded for each branch showed some improvement in 2018, dropping from 12.8 in 2017 to 6.12 in 2018. Despite this continuous improvement in the ratio, there is still room for further branching (PMA, 2018).

2.2 Bank's Characteristics

2.2.1 Introduction

The year 2018 witnessed a change in the structure of the licensed banks. As a result of Al-Quds bank acquisition of Jordan Kuwait bank in Palestine, thus the number of licensed banks decreased from 15 to 14 banks, of which: 3 local conventional banks, 3 local Islamic banks and 8 foreign banks (7 Jordanian banks and 1 Egyptian bank).

In 2018, numbers of the banking branches and offices have increased by 14 branches to reach 351 branches in compared to 337 branches in 2017 (PMA, 2019).

Table 2.1 lists of the banks operating in Palestine and their general characteristics.

Table (2.1): Banks operating in Palestine 2018

Bank name	Bank type	Public/ Private	Listing market	# of branches	# of employees
Safa Bank	Islamic	Private	Palestine	6	109
Palestine Islamic Bank	Islamic	Private	Palestine	43	664
Arab Islamic Bank	Islamic	Private	Palestine	22	531
Jordan Commercial Bank	Conventional	Private	Jordan	5	122
Egyptian Arab Land Bank	Conventional	Private	Egypt	7	NA
Jordan Ahli Bank	Conventional	Private	Jordan	9	218
Palestine Investment Bank	Conventional	Private	Palestine	18	243
Bank of Jordan	Conventional	Private	Jordan	36	NA
Housing Bank for Trade & Finance	Conventional	Private	Jordan	15	279
Cairo Amman Bank	Conventional	Private	Jordan	21	2049
Bank of Palestine	Conventional	Private	Palestine	72	1300
The National Bank	Conventional	Private	Palestine	26	592
Al-Quds Bank	Conventional	Private	Palestine	40	747
Arab Bank	Conventional	Private	Jordan	31	897

Source: Association of banks in Palestine. Available at https://abp.ps/

2.3 Bank's Indicators

2.3.1 Profitability in Palestinian banks

Most banking income still comes from traditional lending activities. It all ties back to the fundamental way banks make money. Banks use depositors' money to make loans.

The amount of interest the banks collect on the loans is greater than the amount of interest they pay to customers with saving accounts. The difference is the banks profit.

Table 2.2 reports the profit, loans and assets for the banks operating in Palestine over the period 2013 to 2018**.**

Table (2.2): Banking Indicators

Year	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**Compound annual growth rate (CAGR)**
Profit (USD million)	143	147	132	149	168	176	
Growth		*2.4%*	*-9.6%*	*12.4%*	*13%*	*4.6%*	*4.24%*
Loans (USD million	4404	4816	5736	6785	7900	8189	
Growth		*9.4%*	*19.1%*	*17.9%*	*18.8%*	*3.7%*	*13.2%*
Assets (USD million)	10782	11416	12271	13765	15376	15475	
Growth		*6%*	*7.5%*	*12.2%*	*12.3%*	*1.0%*	*7.49%*

Source https://www.abp.ps/

As the table above shows, profit of the banking sector for Palestinian listed banks amounted to 143 USD million in 2013, grew by a compound average annual rate of 4.24% to reach 176 USD million in 2018. The assets of the Palestinian banking sector have increased from 1078 USD million in 2013 to 1547 USD million in 2018. The increase in assets value across these years is due to increase in loans as loans represent 45% to the total banking assets system.

Loans consider the main profitability source for banks in general. Loans granted by the Palestinian banking sector amounted to 4404 USD million in 2013 and increased during the period to reach 8189 USD million in 2018.

2.3.2 Deposits in Palestinian banks

The success of a bank depends on its ability to attract deposits, particularly time deposits. As it can be used for lending, financing or long-term investing. The deposits of Palestinian banks reached 12.193 million in 2018 USD (PMA, 2018). The main component of banks deposits is customer deposits (saving and time), which accounts for 93% of the total liabilities of the banking sector, other component of deposits are: PMA deposits, deposits from local banks and deposits from foreign banks outside Palestine (PMA, 2019).

The PMA attributes this increase in deposits to the branching policy PMA (2019). Opening Banks branches in villages and rural areas has enhanced customer ability to complete their financial transaction. The following Table 2.3 reports the consolidated deposits for conventional banks.

Table (2.3): deposits in conventional banks

Year	2013	2014	2015	2016	2017	2018	Compound annual growth rate (CAGR)
Deposits (USD million)	7836	8258	8954	8169	12009	13076	
Growth		*6%*	*7.5%*	*-8.7%*	*47%*	*8.8%*	*8.5%*

Source https://www.abp.ps/

The level of deposits for the conventional banks amounted to 7836 USD million in 2013 and grew by 8.5% to 13076 USD million in 2018 (ABP, 2014).

Table (2.4): deposits in Islamic banks

Year	2013	2014	2015	2016	2017	2018	Compound annual growth rate (CAGR)
Deposits (USD million)	840	994	1152	1398	1822	1993	
Growth		*18.3%*	*15.8%*	*21.3%*	*30.3%*	*9.3%*	*15.4%*

Source https://www.abp.ps/

The level of deposits for the Islamic banks amounted to 840 USD million in 2013 and have a positive growth by 15% to 1993 USD million in 2018 (see Table 2.4). Deposits of conventional banks were much higher than deposits of Islamic banks due to the greater number of conventional banks over Islamic banks.

2.3.3 Geographic distribution of deposits and credit facilities

Figure 2.1 presents the distribution of customer deposits by geographic area. Ramallah has the largest portion of deposits (35%) followed by Nablus (13%). The distribution of deposits is parallel to that of credit facilities. Table 2.5 shows the geographic distribution of credit facilities. The majority of loans granted in Ramallah (52%) followed by Nablus (12%). This high portion of credit facilities in Ramallah is due to the fact that most of government, private sector and NGO offices are located there. This allowed to private and public sectors employees living

in the city of Ramallah, which increase the demand for consumer goods, real estates...etc.

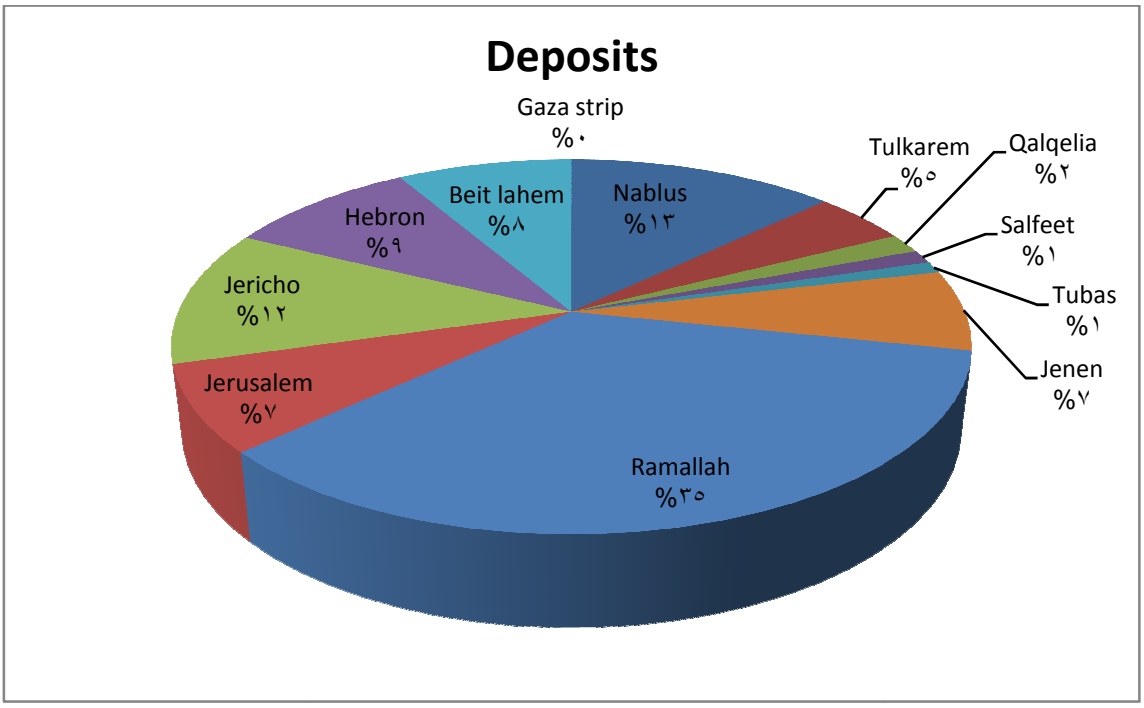

Figure (2.1): Geographic distribution of deposits

Source; Association of banks in Palestine. Available at https://www.abp.ps/

Table (2.5): Geographic distribution of credit facilities

Governorate	Percentage
Nablus	12%
Jenin	3.2%
Tulkarem	4%
Qalqelia	1.20%
Salfeet	.70%
Tubas	.50%
Ramallah	52%
Jerusalem	3.20%
Jericho	1.85%
Hebron	6%
Bethlehem	5.70%
Gaza strip	10%

Source; https://www.abp.ps/

2.3.4 Public and private loans

Figure 2.2 shows the trend of public and private loans provided by the banking sector. Although recent years have witnessed a remarkable decline in the size and importance of the credit portfolio granted to the public sector, it still constitutes an insignificant part of the credit portfolio (15.6% in 2018 comparing with 18.4% in 2017 (PMA, 2018).

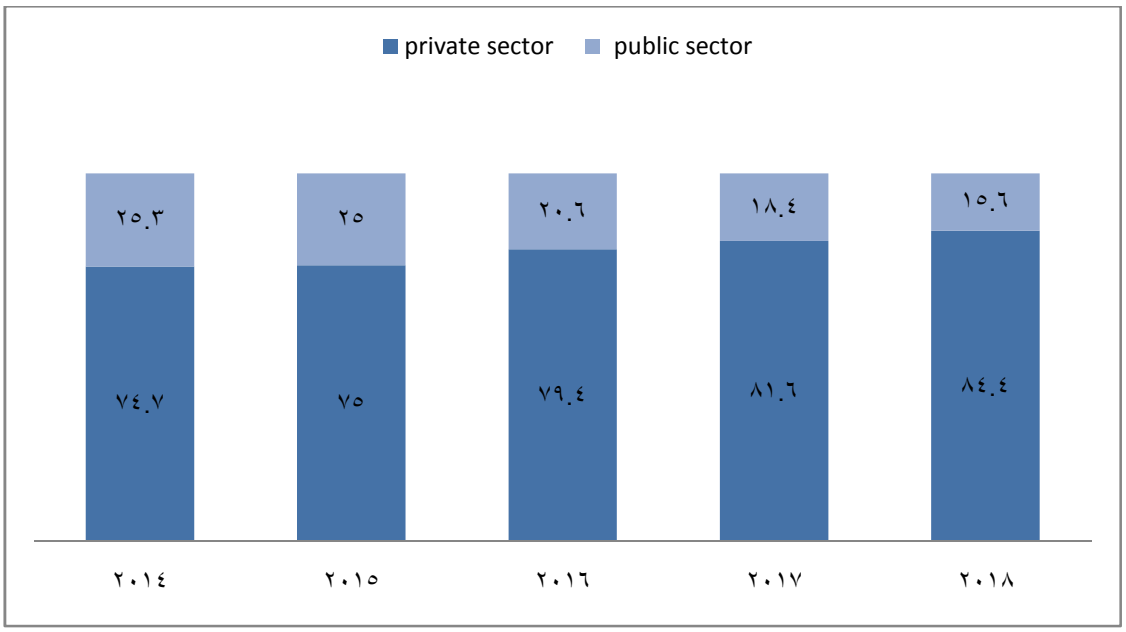

Figure (2.2): Public and Private Loans

Source: Association of banks in Palestine. Available at https://www.abp.ps/

2.3.5 Capital adequacy ratios in Palestinian banks

According to PMA Instruction number 7 for the year 2016, Banks operating in Palestine are required to keep a minimum capital adequacy (CAR) (PMA, 2016). This ratio is being adjusted according to bank size potential risks. This ratio is based on the bank size of operation, lending rate and the value of risk weighted assets. Al-Safa bank operates with high CAR of 58.40%, Egyptian Arab land bank also with 39%.

Higher CAR reflects less risky weighted assets and indicates inefficient use of resources (Abu Zir, 2016). However, Arab bank operate with the least CAR 12.44% and Palestine Islamic operates with a low CAR of 12.81% because of the significant lending portfolio of the two banks.

Figure 2.3 represents the values of CAR for the banks operating in Palestine as of 2018.

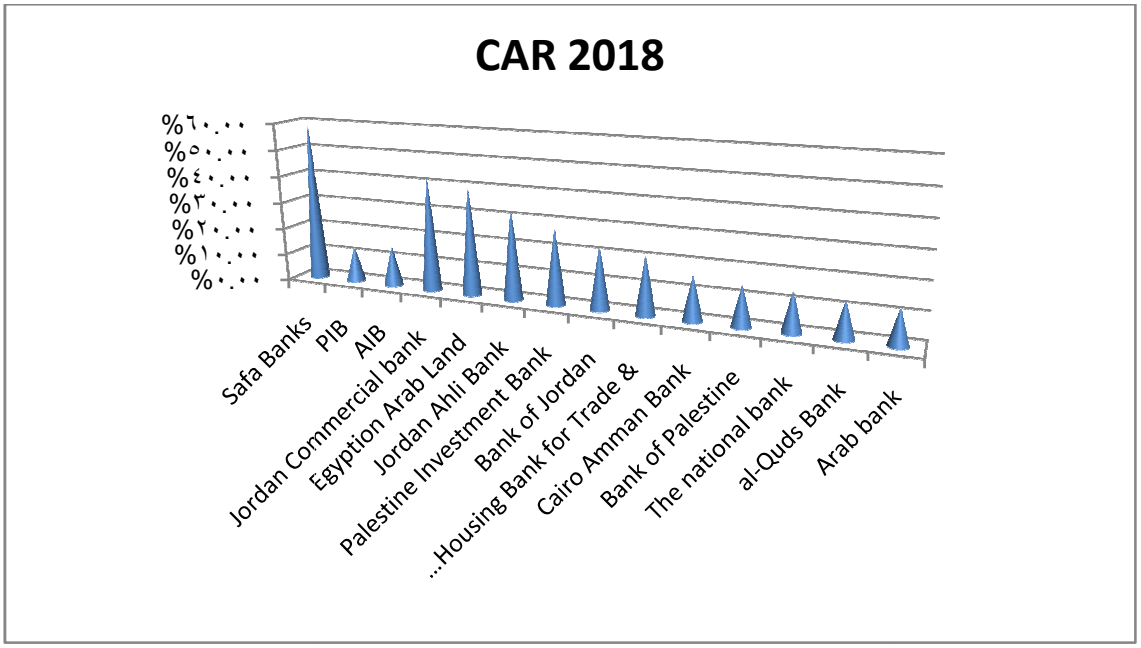

Figure (2.3): Capital Adequacy Ratio in Palestinian banks 2018

Source: Association of banks in Palestine. Available at https://www.abp.ps/

2.3.6 Liquidity ratios in Palestinian banks

Table 2.6 and 2.7 provide a comparison in liquidity ratios between conventional and Islamic banks as follows:

Table (2.6): liquidity ratios in conventional banks

Conventional banks						
Liquidity ratios	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**
Customer deposits/Total assets	6.36%	6.44%	6.64%	6.55%	6.70%	6.78%
Net credit facilities/Total assets	3.91%	3.99%	.33%	.48%	4.52%	4.51%
Net direct credit facilities/Customer deposits	5.5%	5%	6.01%	6.03%	6.04%	6.7%

Source: Association of banks in Palestine. Available at www.ps/index.

Table (2.7): liquidity ratios in Islamic banks

Islamic banks						
Liquidity ratios	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**
Customer deposits/Total assets	.387%	.381%	.395%	11%	21%	22.93%
Net credit facilities/Total assets	.236%	.258%	.285%	.139%	.173%	.198%
Net direct credit facilities/Customer deposits	30%	34%	36%	22%	38%	30.3%

Source: Association of banks in Palestine. Available at www.ps/index.

Table (2.8): liquidity ratios in combined Islamic and conventional banks

Conventional banks and Islamic banks						
Liquidity ratios	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**
Customer deposits/Total assets	76.8%	78%	78.5%	77.3%	78%	78.8%
Net direct credit facilities/Total assets	40.8%	42.2%	46.8%	49.4%	51.5%	52.9%
Net direct credit facilities/Customer deposits	53.2%	54.1%	59.6%	63.9%	66.1%	67.2%

Source: Association of banks in Palestine. Available at www.ps/index.

Liquidity ratios are explained as follows:

First of all, liquidity is associated with the deposits to assets ratio (DA): this ratio measures the magnitude of assets being funded by

customer's deposits. Higher ratio means higher level of liquidity risk, because these deposits are subjected to sudden withdrawals at any time (Mwangi, Muturi and Ombuki, 2015).

Secondly, liquidity is also associated with the percentage of net direct credit facilities from the total assets. Granted loans constitute the main source of bank profits. Higher percentage of this ratio indicates a higher capacity of the bank's ability to deal with liquidity problems or sudden withdrawals (Barnes, 1987).

Thirdly, liquidity is also associated with credit to deposits ratio. It indicates how much a bank lends out of its deposits. A very low ratio indicates that banks are not making full use of their resources. Alternatively, a high ratio indicates more reliance on deposits for lending and a likely pressure on resources. And those banks might not have enough liquidity to cover any unexpected fund requirement (Kumar & Verma, 2008).

Chapter Three

Literature Review

Chapter Three
Literature Review

3.1 Conceptual Framework

3.1.1 The Concept of Liquidity Risk

There are two sides for the liquidity concept: funding liquidity and market Liquidity. Crockett (2008) defines the market liquidity as the speed to which an asset can be converted into cash easily and without any loss in the asset price. Lou and Sadka (2011) define the liquidity risk as the risk that rises from the security response to changes in market condition. Bakir (2017) and Drehmann and Nikolaou (2013) define the funding liquidity as the ability of an organization or institution to meet or cover its obligation due. Kapadia, Drehmann, Elliott, and Sterne (2012) define it as the ability to pay debt to needed parties.

Liquidity is the major element that is used to pay the expected debts and have liquid assets that are ready to use (Hossain, 2016). When it comes to banking sector, whether they are conventional or Islamic banks, it is simply the ability of the bank to meet its liabilities and finance the investment portfolio, to face any sudden withdraws of its customer deposits.

Each bank should have its adequate level of liquidity and the need to ensure that they pay their contributors when they request their cash (Fiedler, 2000). But it is a truth that cannot be denied that banks are

suffering from liquidity risk among other types including interest rate risk and credit rate risk (Duffie & Singleton, 2012).

In general, risk in financial terms is the probability that the actual return may differ from the expected return (Sweeney, 2019). In financial system, there are at least three broad categories of risks, (1) financial risk, (2) business risk, and (3) operational risk. Financial risk concerns risks arising from financial activities of banks, while business risk and operational risk relate to the bank's internal affairs and market conditions. In this respect, liquidity risk is under the financial risk category along with credit risk and market risk.

Diamond, Hu and Rajan (2018) explained that when banks witness sudden withdrawals of customer, this could really cause liquidity shock, especially if the bank was not ready for this situation or have illiquid funds. Zheng (2006) mention that the spread between deposits and loan causes liquidity risk. Cornett, McNutt, Straha and Tehranian (2011) focus on the main reason for liquidity risk, which is high and unexpected, withdraws for deposits, which leads banks to liquid their assets even if that causes loss. Santomero and Babbel (1997) adds that the unstable market condition or market disruption play a crucial role in increasing liquidity risk.

There are many other causes of liquidity risk. Chen, Yang and Yeh (2017) measure the causes of liquidity risk on a sample of 12 countries, and reveal on the strong relationship between liquidity risk and bank performance. They mention the macro factors as influencing factors that

effect on the extent of liquidity risk in addition to regulations and supervision factors.

Cornett (2011) measured liquidity risk during the financial crises and find a relation between liquidity risk and credit risk. Because of the high demand on loans, borrowers were not able to pay back the principles plus the interest. Therefore, banks started to witness high and unexpected levels of defaults that eventually cause some major banks to declare bankruptcy and others to a merger.

It is fair to say that liquidity risk is a major determinant of other risks such as credit risk (Jaara, Jaara, Shamieh, & Fendi, 2017; Yuwonoputro & Syaichu, 2019). Credit risk is the probability of default by the bank borrower to meet obligations according with specific terms. As indicated by Aosaki (2013), the objective of credit risk administration is to augment a bank's hazard balanced pace of return by keeping up credit risk presentation inside adequate parameters.

Basel Committee on Banking Supervision Risk (2008) defines liquidity risk as the variability in the banking ability to fund increases in assets and cover its commitments. It also defines it as a risk resulted when financial associations' securities can't be traded quickly in the market (Kou, Peng & Heyde, 2013).

According to Basel Committee, there are two measures with regard to liquidity risk measurement. The first one is leverage ratio that measures the risk based capital requirements to restrict the usage of leverage. The

capital measure for overage called tier 1. Yaacob, Rahman and Karim (2016) focus on the determinant of liquidity risk by using Basel indicators and focused on Islamic Banks in Malaysia. They found out that liquidity risk is affected by CAR and financing and macro factors like GDP that have also relation with liquidity on short and long run.

The study of Hidayat, Al-Khalifa and Aryasantana (2012) looks at the determinants of liquidity risk in the Islamic sector between the period 2004 and 2012 for a sample of 60 Islamic banks. The study reveals that using Islamic financing methods especially Musharakah and Mudarabah can reduce exposure to liquidity risk because they are based on the Islamic principles of profit and loss sharing between the Islamic banks and investor.

3.1.2 Islamic Finance Principles

The genuine difference between conventional banking and Islamic banking lies in the practices, principles and the services provided that are utilized in ordinary fund and prohibited under Shariah laws .So it is vital to mention these principles as discussed in the following sections (Rosman, 2009)

1-Charging an interest

Islam considers loaning with premium installments an exploitative practice that favors the money lender to the disservice of the borrower. According to Shariah law, interest is usury (Riba) which is prohibited.

2-Putting Assets into Associations Connected with Confined Activities

Activities such as producing and selling alcohol or pork are denied in Islam. Therefore, placing assets into such activities is prohibited.

3-Speculation

Shariah cautiously denies any sort of speculation or wagering, which is called *maisir*. Therefore, Islamic cash related associations can't be related with contracts where the obligation regarding depends upon future probable event.

4- Uncertainty and Risk (gharar)

The rules of Islamic finance ban participation in contracts with excessive risk and/or uncertainty. The term *gharar* measures the legitimacy of risk or uncertainty in investments. *Gharar* is observed with derivative contracts and short-selling, which are forbidden in Islamic finance.

5-Material Unalterable Quality of the Trade

Each trade must be identified with a genuine basic financial exchange/money related trade.

6-Profit and Loss Sharing

Parties entering into the contracts in Islamic finance, share advantage/losses related with the trade. It's not possible for anyone to benefit by the trade more than the other party.

3.1.3 Modes of Finance in Islamic Banks

Islamic finance has expanded wonderfully around the globe. Today, Islamic banks offer to their client's different modes to put away their cash and fund their tasks. These modes incorporate answers for short, medium, and long-term financing. These unique kinds of financing game plans of Islamic banks that were created to follow Sharia's principles (Ali ,2004):

1-Murabahah

Murabahah is an Islamic contract for a sale where the buyer and seller agree on the markup (profit) or (cost-plus) price for the item(s) being sold. In Islamic banking it has become a term for a marked-up price and deferred payment, a way of financing a good (home, car, business supplies, etc.). Whereby the bank buys the good and resells it to the customer at higher price (informing the customer of the price increase), and offering to take payment in installments or in a lump sum.

2-Mudarabah

Mudarabah is a profit and loss sharing partnership agreement. Where one partner (financier or rab-ul mal) provides the capital to another partner, (labor provider or mudarib), who is responsible for the management and investment of the capital. The profits are shared between the parties according to a pre-agreed ratio.

3-Musharaka (Partnership)

Musharakah is a form of a joint venture where all partners contribute capital and share the profit and loss on a pro-rata basis. The major types of these joint ventures are:

1. Diminishing Partnership: This type of venture is commonly used to acquire properties. The bank and investor jointly purchase a property. Subsequently, the bank gradually transfers its portion of the equity in the property to the investor in exchange for payments.

2. Permanent Musharkah: such a joint undertaking doesn't have a specific end date and continues functioning as long as the partaking parties agree to continue with assignments. Generally, it is used to subsidize long term endeavors.

4- Ijarah

Ijarah is a financing agreement, where the lessor (who should own the property) leases the property, to the lessee in exchange for a stream of rental, and purchase payments, ending with the transfer of property ownership to the lessee.

Leasing can also be structured in a way that ends by the purchase of the leased asset in a financing contract. That is, ownership of the leased asset is transferred to the lessee at the end of the lease agreement. This transfer of ownership is made through a new contract, in which the leased

asset is either given to the lessee as a gift or is sold to him at a nominal price at the end of the lease agreement. According to a decision of the OIC Fiqh Academy, this second transfer of ownership contract should be signed only after termination of the lease term, not an advance promise to affect such a transfer of ownership.

5-Istisna

Istisna is a contract in which a party orders another to manufacture and provide a commodity. The description includes, delivery date, price, and payment date are all set in the contract. According to a decision of the OIC Fiqh Academy, this type of contract is binding, and the payment of price could be deferred.

6-Salam

It is among the fastest-growing Islamic modes of financing. Salam is a sales contract, in which the price is paid in advance at the time of contracting, against delivery of the purchased goods/services at a specified future date. Not every commodity is suitable for a *salam* contract. It is usually applied only to fungible commodities.

3.1.4 Risks Facing Conventional and Islamic banks

Despite this great diversity of Islamic Banks financial models or investments arrangements, banks still face a group of unique risks that affect their operation and decision making. These risks can be classified

into two groups: Those that are faced by conventional banks and risks that are unique to Islamic banks as shown in Figure 3.1.

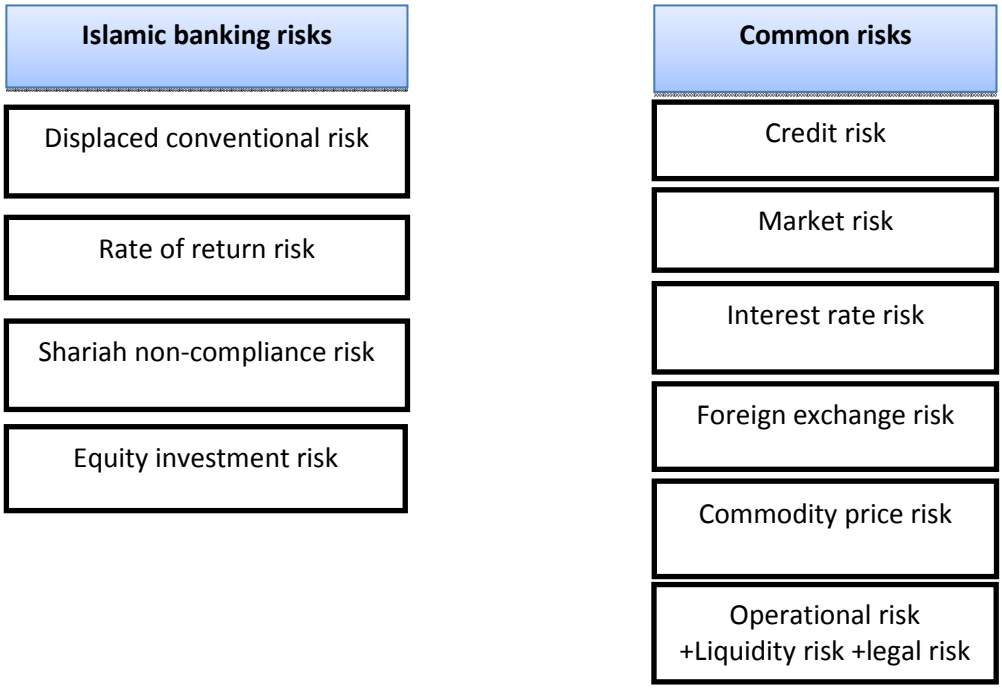

Figure (3.1): Islamic and conventional banking risks overview

Based on Karim and Archer (2013) risks that are in common between conventional banks and Islamic Banks are:

1) Credit risk

Credit risk is the probability of default as a result of borrower's failure to repay the required loan principal and interest. This will cause an interruption in the cash flow model and high collection costs (Elizalde, 2007).

2) Market risk

Market risk is the risk that an investment may face due to fluctuations in the market. It describes how changes in market prices and

interest rates will result in investment losses. Hasan (2003) distinguishes between:

a. General or deliberate market hazard, brought about by a development in the costs of all market instruments because of full scale factors (for example a change in monetary strategy).

b. Unsystematic or explicit market chance, which emerges in circumstances where the cost of one instrument moves off the mark with other comparative instruments.

3) Interest rate risk

It is the changes in interest rates that will affect the value of assets or bond. This risk can be reduced by buying bonds that mature at different dates as well as by hedging fixed-income investments with interest rate swaps and other instruments (Cornford, 2005).

4) Foreign exchange risk

Foreign risk /Currency risk explains the losses that incur because of currency fluctuations in international transactions. These fluctuations or changes cause a decrease in the asset's value.

5) Equity price risk

Equity is referred to equity in companies through the purchase of stocks, and does not commonly refer to the risk in paying into real estate or

building equity in properties. This risk is resulted from holding equity in particular /specific type of investment.

6) Commodity price risk

It is the probability of financial losses in buyer's goods through having higher prices than expected therefore, having higher production costs so lower profits to them.

7) Operational risk

It is the risk of value changes due to external events, such as legal risk, natural disasters or internal events, such as: failed internal processes, systems, and people.

8) Liquidity risk

It is a firm failure to meet its momentary obligation commitments. A higher liquidity will be required if the significant portion of the advantage portfolio comprises of long-term loans and deposits has a high fixation nature. A bank will require higher liquidity.

9) Legal risk

One source of operational risk is legal risk. Islamic banks should be able to identify this risk according to the bank’s environment. In addition, legal risk may have a crucial effect also on Islamic banks, because of the lack of reliable legal systems and the uncertainty in the interpretation of

financial contracts, amongst other factors (Hassan & Dicle, 2005; Izhar, 2010; Sundararajan & Cihak, 2010).

The risks specific to Islamic banks are as follows (Ariffin, Archer, & Karim, 2009):

1- Displaced Conventional risk

It is the risk accrued to Islamic banks due to the market pressure of having to pay a rate of return equivalent to a competitive rate of return. And absorb a portion of losses, which normally would have been borne by investment account holders, to prevent massive withdrawal of funds.

2- Rate of return risk

According to IFSB, it is uncertainty in returns earned on Islamic Bank's assets. Changes in the market rate of return will have an impact on the Islamic financial institution's market value or net income.

3-Shariah non-compliance risk

According to IFSB, it is the risk arising from the Islamic Bank's failure to comply with the Shariah rules and principles determined by the Shariah board.

4-Equity Investment risk

According to IFSB, it's the risk arising from entering into a partnership in general business activity, as describes in the contract and the provider of finance shares the business risk.

Risk management is the general procedure that a financial institution follows to ascertain the nature of risks and to develop the right strategy (Cumming & Hirtle, 2001). The process of risk management will ensure that the correct sequence of procedures of identification, measurement, and managing of the risks has been followed Rosly (2005). Risk management in Islamic banks consists of risk measurement, risk management and risk control (Van, Greuning & Iqbal, 2007).

Islamic banks face many unique risks because of their operations which must be in match with Islamic conduct (Rosman, 2009). One of these unique risks is liquidity risk. It is one of the top priorities of Islamic bank's assets liabilities management. Liquidity risk in banks comes from the mismatching between the supply and demand of funds. The difference between them is called net liquidity position. Therefore, banks should manage these elements carefully to reduce the liquidity risk.

Since Banks are inspired by different motivations to hold a specific measure of liquid balances. It is crucial to explain the concept of liquidity that refers to the ability of the bank to meet up deposit withdrawals, maturing loan request and liabilities without setback. So, banks defend its customers aligned with troubles of liquidity by captivating in financial liabilities. That can be drained on demand, offering dedicated lending services. The arrangement of balance sheets of banks usually illiquid loans is financed by extremely liquid deposits, or the ability to fund increases in

assets and meet obligations as they come due is critical to the ongoing viability of banks.

Since there is a strong association between liquidity and solvency of banks, sound liquidity management reduces the probability of banks becoming insolvent thus, reducing the possibilities of bankruptcies and ban runs. Liquidity management is just as important to the Islamic banks as it is to the conventional banks. However, compared to the conventional counterpart, liquidity management for the Islamic banks is unique and even more challenging. Since most of the existing instruments used for liquidity management are interest-based, therefore, not Islamic law compatible. Also, the rationality of bank customers in the conventional sense in which profit motive prevails in any economic transaction, could result in liquidity withdrawal, from the Islamic banks when return in the conventional counterpart is higher (Kassim, Majid, & Yusof, 2009). Besides, the Palestinian Islamic banks have accomplished consistent development regarding resources size, stores and loaning to the private segment.

3.1.5 Liquidity Risk Management Process

Islamic banks face many restrictions in what kind of activities they can pursue, what types of contracts are allowed to make. Islamic banks have limited access to Islamic money market products and prohibit interbank activities that involve interest. As a result, they hold more liquidity levels than conventional banks that affect the profitability negatively (Brown, Hassan, & Skully, 2007).

Banks are commercial organizations with a profit seeking mission. But when talking about risk it is completely different than profit or loss. Risk represents the chance that an investment's actual return will differ from the expected return. Businesses including financial institutions engage in risky activities, because they understand the positive relationship between risk and return. When anticipating a higher return, higher risk must be taken. However, some kinds of risks are uncontrollable, while others are unrewarded. Therefore, it is important to focus on managing an institution’s exposure to losses or risk and to protect the value of its assets.

Risk management means taking risks within limits to optimize risk-adjusted returns. Risk management in banking sector means the rational implementation of a specific plan to deal with potential losses. Banks usually manage those risks as part of their normal operations, risk management process.

Therefore, banks need risk management process. Risk management process is applied for each phase of analysis, economic and regulatory, within the framework Pyle .Also as stated by Banking Committee on Banking Supervision (BCBS), it is a four step process (BCBS, 2002).

1- First step: The identification of risk events and categorizing them into market, credit, operational

2- Second Step: The assessment of the risks using risk model. Although there are many methods and approaches of risk management, one popular method that is widely used is the Value at Risk (VaR). It

records different types of risks also assigning risk limits to a bank business unit to have effective capital allocation Linsmeier and Pearson (2000), Saita (1999). On the other hand, traditional/ quantification methods, such as gap, duration and simulation are being used to measure other risks.

3- Third step: Monitoring & Mitigation. This step is very important that is done by all financial institutions after analyzing the target risks. It is referred to risk control the aim of which is to choose the right mitigation strategy that minimizes overall risk position.

4- Fourth step: Reporting and feedback to make the right decision.

These steps are ongoing process (Mohamad, Mohamad, & Samsudin, 2013). There is no single most ideal way for executing a successful risk management process since banks are not all equivalent. Yet, a risk management framework can be flexibly designed and adapted to match different banks.

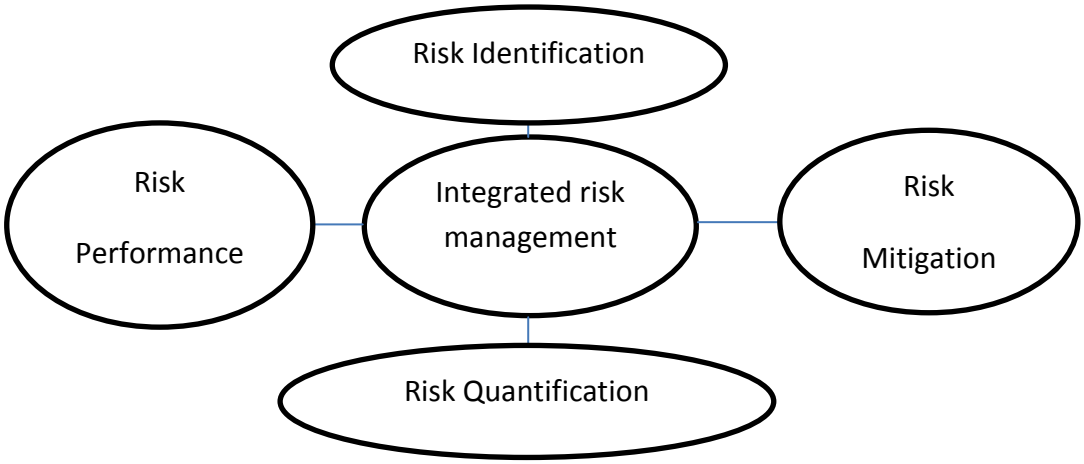

Figure (3.2): Liquidity risk management process in banks (Masood, 2016)

Islamic banks face unique risks because of their unique form and their modes of financing such as withdrawal risk, reputation risk, Shariah compliance risk and asset price risk. To handle these risks, it is vital to identify the practices of risk management. Liquidity management is now becoming a more complex phenomenon that needs more understanding (Dahiyat, 2016).

Liquidity management refers to elude cash from depositors and then balancing demands for money from lenders and from depositors asking for their money back (Roseman, 2009). Most of Islamic banks scale adequate capital levels. Islamic banks follow Basel III liquidity measure such as net coverage ratio, which results in that Islamic banks need to hold more assets for funding. This ratio is important for banks to go international and improve its transparency (Harzi, 2012).

Some empirical studies highlight that Islamic banks lacks the flexibility of their non-Islamic counterparts when seeking short-term finance due to the restrictions of Islamic laws (Alman, 2012; Rajhi, Hassairi, & Cergam, 2012; Akhtar, Ali, & Sadaqat, 2011; Ismal, 2010a).

Mohamad (2013) and Ariffin (2012) suggest that ideal methods of liquidity management are not available to Islamic banks. Due to the prohibition of interest transactions Hidayat et al. (2012) and Mounira and Anas (2008) advise that Islamic banks should adopt internal control systems over liquidity risk management process, to avoid liquidity problems at the present and in the future also.

An essential part of robust liquidity management program is the credibility and effectiveness of the risk assessment process (Alsayed, 2007). The Islamic financial Services Board (IFSB) as the international standard-setting organization has published two references:

1) The Guiding Principles of Risk Management for Institutions Offering Only Islamic Financial Services December (2005).

2) The Technical Note on Issues in Strengthening Liquidity Management of Institutions Offering Islamic Financial Services. Ismal (2010) in his research on Shariah issues that arise in the management of liquidity risk discovered that Islamic banks need to develop their liquidity risk management environment as a practice of modern banking standards to ensure safe operations and maintaining business operations.

3.2 Hypotheses development

Based on the previous empirical studies, the determinants of liquidity risk and the distinction between the liquidity risk between Islamic and conventional banks are to be examined through the following hypotheses:

H1: Deposits to assets ratio has a positive impact on the liquidity risk of Palestinian banks.

H2: Return on equity has a positive impact on the liquidity risk of Palestinian banks.

H3: Capital adequacy ratio has a negative impact on the liquidity risk of Palestinian banks.

H4: Bank size has a positive effect on the liquidity risk of Palestinian banks.

H5: The level of liquidity risk is expected to be higher for local banks than foreign banks.

H6: The relationship between DA and the liquidity risk depends on the type of bank, whether Islamic or conventional.

H7: The relationship between ROE and the liquidity risk depends on the type of bank, whether Islamic or conventional.

H8: The relationship between bank size and the liquidity risk depends on the type of bank, whether Islamic or conventional.

H9: The relationship between capital adequacy and the liquidity risk depends on the type of bank, whether Islamic or conventional.

3.3 Conceptual frame work

The framework of this study is summarized in Figure 3.3.

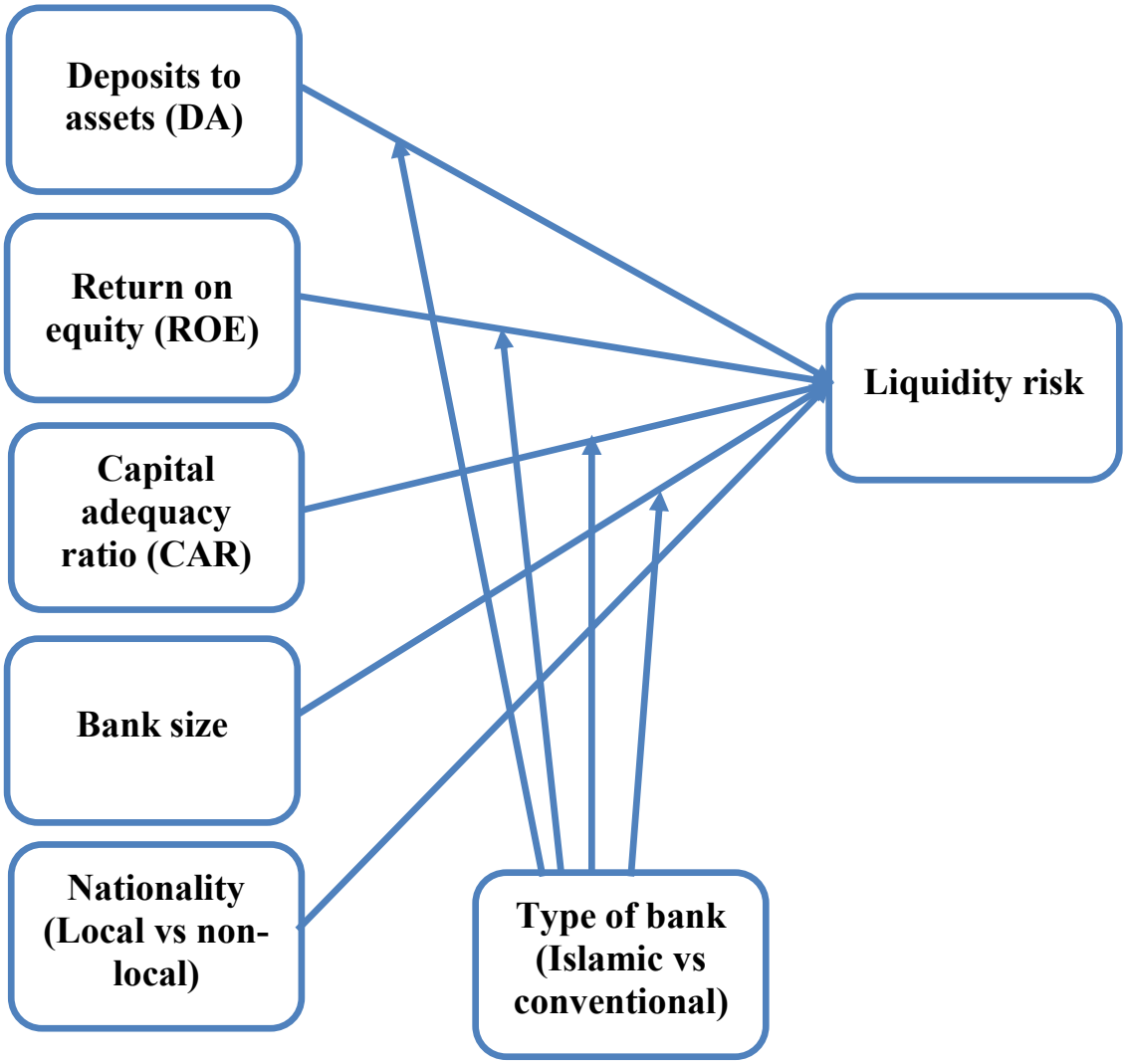

Figure (3.3): Conceptual frame work

Chapter Four

Research Methodology

Chapter Four
Research Methodology

A mixed research methodology will be used in this thesis, the quantitative research methodology and the qualitative research methodology. The quantitative research is used to model the liquidity risk determinants and to examine how the effects of these determinants are different in Islamic banks from conventional banks. Qualitative research is used then to explore the liquidity problems and management practices in the context of Palestine.

4.1 Quantitative research methodology

4.1.1 Data and Sample Descriptions

The data that have been used in this thesis are micro data in nature, which is related to specific banks. For the purpose of construction of the study variables, the financial statements of the banks (conventional and Islamic) are collected and variables are constructed manually. The sources of the data include the published financial reports of the banks available from Association of Banks in Palestine. The study covered the period from 2009 to 2018. We have a full sample of 12 Islamic and conventional banks. For conventional banks; we selected 10 conventional banks whereas 2 Islamic banks have been selected. Due to missing data issue, the data set for Al -Safa bank and Jordan commercial bank were excluded in order to have strongly balanced panel data.

4.1.2 Model Specification, Estimation and Variables Definition

Multiple Linear regressions were conducted to determine the impact of DA, ROE, Size, Nationality and CAR on the liquidity risk of banking sector in Palestine and the effect of bank type on these relationships.

After conducting OLS regression analysis and since the presence of serial correlation in our regression model that made the coefficients inefficient, and because one of the assumption of the error terms that have a constant variance was violated. Therefore, the generalized least square method (GLS) method has been conducted instead of OLS to improve our model and eliminate the heteroskedasticity problem.

Another model was used to examine the effect of type of bank on the relationship between factors affecting liquidity and the liquidity risk in Palestinian banks.

In our research two models were used: The first model contained the main independent variables. The second model contained an interaction variable (interaction effect of Islamic banks) to investigate whether independent variables were affecting Islamic banks differently from conventional banks.

Model one:

$$\boldsymbol{LRit}=\boldsymbol{\alpha 0}+\boldsymbol{\alpha 1}.\boldsymbol{DAit}+\boldsymbol{\alpha 2}.\boldsymbol{ROEit}+\boldsymbol{\alpha 3}.\mathrm{BS}\boldsymbol{it}+\boldsymbol{\alpha 4}.\boldsymbol{CARit}+\boldsymbol{\alpha}5.\mathrm{D1}+\boldsymbol{\alpha}6.\mathrm{D2}+\varepsilon\mathrm{it}$$

Model two:

$$\boldsymbol{LRit}=\boldsymbol{\alpha 0}+\boldsymbol{\alpha 1}.\boldsymbol{DAit}+\boldsymbol{\alpha 2}.\boldsymbol{ROEit}+\boldsymbol{\alpha 3}.\mathrm{BS}\boldsymbol{it}+\boldsymbol{\alpha 4}.\boldsymbol{CARit}+\boldsymbol{\alpha} 5.\mathrm{D1}+\boldsymbol{\alpha} 6.\mathrm{D2}+\boldsymbol{\alpha} 7.\mathrm{D1}*\mathrm{DA}+\boldsymbol{\alpha} 8.\mathrm{D1}*\mathrm{ROE}+\boldsymbol{\alpha} 9.\mathrm{D1}*\mathrm{BS}+\boldsymbol{\alpha} 10.\mathrm{D1}*\mathrm{CAR}+\varepsilon it$$

Whereas:

α0 to α10: regression coefficients

LRit: liquidity risk.

DAit: deposits to assets ratio.

ROEit: return on equity.

BSit: bank size.

CARit: capital adequacy ratio.

D1: Dummy variable equal to 1 if the bank is Islamic.

D2: Dummy variable equal to 1 if the bank is local.

Eit: error term.

4.1.3 Variables Measurement

Table 4.1 illustrates the variables' operational definitions that have been employed in our investigation.

Table (4.1): Measurement of Variables

Variable	Abbrev.	Measurement
1.Dependent Variable: Liquidity Risk		
Liquidity Risk	LR	Total customer deposits/Liquid assets (Mennawi and Ahmad,2020)
2. Independent and moderator Variables		
Deposits to Assets	DA	Total deposits/Total assets(Abu Zir, 2016)
Return on Equity	ROE	Earnings available for common stockholders/Common stock equity (Bagh, Razzaq, Azad, Liaqat and Khan,2017).
Capital adequacy ratio	CAR	Tier1+Tier2/risk weighted assets ((Laeven, Ratnovski and & Tong , 2014)
Bank size	BS	Logarithm of assets
Islamic	D1	Dummy variable equal to 1 if the bank is Islamic, zero otherwise
Local	D2	Dummy variable equal to 1 if the bank is local, zero otherwise

Discussion of variables followed.

1. Deposit to Assets ratio (DA): it is being measured as total deposits to total assets. Deposit to assets ratio is considered an efficiency measure that examines the bank's reliance on deposit funding. Deposits to asset ratio measures the magnitude of assets being funded by total deposits.

The effect of this variable was tested by Cucinelli (2013) and Alzoubi, (2017). Also used by Otieno et al. (2016) who conducted his study by using total deposit to total asset ratio. These studies found that there is a positive relation between deposits to assets and bank liquidity risk.

2. Return on equity (ROE): it is being measured as earning available for common stockholders to common stock equity. Return to equity is considering a profitability measure, as it measures a company's ability

to earn a return on its equity investments. ROE may increase without additional equity investments, as the ratio can rise due to higher net income due to a larger asset base funded with debt (Laeven, Ratnovski & Tong, 2014).

The effect of this variable was tested by Wanjohi and Xiaodong (2011). The finding of their study showed that ROE seemed to have a positive and relationship with liquidity risk.

3. Capital adequacy ratio (CAR): it is being measured as tier 1 and tier 2 capital to risk weighted assets. Capital adequacy ratio is considered a solvency ratio that provides way to evaluate a company's debt versus its revenues situation. However, the capital adequacy ratio is usually applied specifically to evaluate banks. The reason capital adequacy ratios (CAR) is critical is to make sure that banks have enough cash to absorb a reasonable amount of losses before they become insolvent and consequently lose depositors' funds. The capital adequacy ratios ensure the efficiency and stability of financial system by lowering the risk of banks becoming insolvent. Generally, a bank with a high capital adequacy ratio is considered safe and likely to meet its financial obligations (Laeven, Ratnovski & Tong, 2014).

The effect of this variable was tested by Staroselskaja (2014) who found that there is a negative relationship between CAR and liquidity risk.

4. Bank size (BS): it is being measured as the logarithm of the banks total assets. Increasing bank size can increase profitability by allowing banks

to realize economies of scale. For example, increasing size allows banks to spread fixed costs over a greater asset base, thereby reducing their average costs. Furthermore, as the scale of operation increases, banks could better use specialized inputs such as loan officers with expertise in a particular business line, resulting in greater efficiency (Laeven, Ratnovski & Tong, 2014).

5. Islamic banks

A dummy variable equal to 1 if the bank is Islamic, zero otherwise.

6. Local Banks

A dummy variable equal to 1 if the bank is local, zero otherwise.

4.2 Qualitative Research Methodology

A qualitative research methodology has been used through an open-end questionnaire distributed among the target sample of Islamic and conventional bankers. These questionnaires were answered by the managers of Treasury and Risk department for both Islamic and conventional banks.

4.2.1 Data and sample description

The sample chosen to explore qualitatively the issues related to liquidity management in Palestine. Sample includes six banks (three conventional and three Islamic) as in Table 4.2.

Table (4.2): Sample Description

Islamic banks	conventional banks
Arab Islamic bank	Bank of Palestine
Palestine Islamic bank	Palestine Investment Bank
Al-Safa bank	Al-Quds Bank

The reason for choosing the above three conventional banks besides the time and approvals limitations is that these banks are local Palestinian banks therefore their policies and procedures are not affected by external headquarter influences.

4.2.2 Questionnaire Design

The questionnaires (Annex 1 and Annex 2) that were directed to Islamic bankers (treasury managers and risk department) and conventional bankers aimed to answer the following questions:

1. Defining the differences in liquidity risk measurement and management between Islamic and conventional banks.
2. Exploring the types of liquidity risk in Palestinian Islamic and conventional banks.

4.3 Propositions

Depending on the research questions this research aims to explore the following propositions:

Proposition 1:

Islamic Banks faces a unique liquidity risk because of its nature of asset-based financing.

Proposition 2:

Islamic and conventional Palestinian Banks use different liquidity risk management techniques to effectively reduce liquidity risk problems

Proposition 3:

Islamic and conventional banks don’t have dedicated committee to oversee the liquidity risks.

Chapter Five
Results and Discussion

Chapter Five
Results and Discussion

5.1 Preface

This thesis used two approaches to answer the questions of the study: quantitative and qualitative approach.

5.2 Quantitative approach

This approach was used to model the factors that affect liquidity risk and to investigate the hypotheses of the thesis.

5.2.1 Summary Statistics

The summary statistics of the study variables for conventional and Islamic banks are presented below in Table 5.1. The table contains the mean, median, maximum value, minimum value, standard deviation, for selected variables (dependent and independent). This table gives a quick and simple description of the data.

Table (5.1): Summary statistics for Islamic and conventional banks

	Mean	Median	Maximum	Minimum	Std. Dev.	Observations
LR	0.755	0.766	6.231	0.110	0.498	133
DA	0.764	0.833	0.901	0.033	0.160	133
ROE	-0.058	0.070	0.379	-10.300	1.018	133
BS	20.097	20.092	22.309	18.282	0.944	133
CAR	0.360	0.242	1.289	0.111	0.282	133
ISLAMIC	0.211	0.000	1.000	0.000	0.409	133
LOCAL	0.549	1.000	1.000	0.000	0.499	133

The mean value of LR is 0.755; this shows that percentage of LR is 70 % which is high while the standard deviation is 0.49.The mean value of

deposit to asset ratio (DA) is 0.76, which is also high, while the (DA) registered a low standard deviation of 0.160. The mean value of ROE is – 5% which is a warning sign, but the median is 7% indicating that the mean is influenced by outlier values. The standard deviation for ROE shows that the percentage is more than 100% which is very high. In regard to capital adequacy ratio (CAR), the mean value is 0.36 which around 30%, while the standard deviation is 0.49.

By the exception of bank size, the mean-median ratio is approximately 1, which indicates the normality of data. Compared to mean standard, values of error are low which represents small coefficient of variation and indicates low spread in the data.

5.2.2 Correlation analysis

Correlation analysis is utilized to figure out the strength of the relation among variables. This relation can happen among independent variables and dependent ones, as well as it can be among independent variables facing other independent variables. Generally, the high correlation between independent variables shows the existence of multicollinearity.

In this examination, we have tested correlations in Islamic and conventional Banks in one group. Table 5.2 illustrates that the relationship of LR ratio is positive with DA ratio, ROE and bank size, negative with CAR.

Table (5.2): Full sample correlation matrix

	LR	DA	ROE	BS	CAR	ISLAMIC	LOCAL
LR	1.000						
DA	0.158	1.000					
ROE	0.079	0.161	1.000				
BS	0.154	0.539	0.221	1.000			
CAR	-0.064	-0.504	-0.222	-0.584	1.000		
ISLAMIC	-0.087	-0.164	0.077	-0.218	-0.133	1.000	
LOCAL	0.104	0.158	0.032	0.134	-0.307	0.283	1.000

According to the correlation Table 5.2, there are no strong relationships between the independent variable. Since that the multicollinearity problem means that there are at least two independent variables which have a strong relationship between each other. As we don't have that strong relationship 70% or more between two independent variables, we can conclude that we don't have a multicollinearity problem in our model.

5.2.3 Model Estimation

Two models have been estimated using the panel data regression under GLS as viewed in Table 5.3. Summary of the regression results for Model 1 and Model 2 are shown in Table 5.3.

Table (5.3): Estimation results for liquidity risk

Dependent Variable: LR	Model 1			Model 2		
Variable	**Coefficient**	**t-Statistic**	**Prob.**	**Coefficient**	**t-Statistic**	**Prob.**
DA	**0.1568**	**2.4107**	**0.0174**	**0.269**	**2.535**	0.013
ROE	0.0065	0.6607	0.5100	0.005	0.288	0.774
BS	**0.0438**	**4.1379**	**0.0001**	**0.039**	**2.850**	0.005
CAR	**-0.0890**	**-2.8203**	**0.0056**	-0.037	-0.742	0.460
ISLAMIC	**-0.0564**	**-2.8170**	**0.0056**	0.384	0.693	0.490
LOCAL	**0.0659**	**5.2121**	**0.0000**	**0.050**	**2.842**	0.005
DA*ISLAMIC				**-0.254**	**-2.001**	0.048
ROE*ISLAMIC				**0.057**	**2.251**	0.026
BS*ISLAMIC				-0.006	-0.221	0.826
CAR*ISLAMIC				**-0.258**	**-3.602**	0.001
C	-0.2332	-1.1395	0.2566	-0.248	-0.949	0.345
R-squared	0.582227			0.629		
Adjusted R-squared	0.562334			0.599		
F-statistic	29.26659			20.727		
Prob(F-statistic)	0.000			0.000		
Total panel (unbalanced) observations	13+3			133		
Method: Panel EGLS (Cross-section weights)						

The regression results of model 1 (which represents the effect of DA, ROE, size, nationality and CAR on liquidity risk management of banks in general) and model 2 (which adds the interaction effect of Islamic banks dummy with each of the independent variables to compare Islamic with conventional banks). Model 1 and model 2 have generated the values of R squared of 58% and 62% respectively. However, the better measurement of the explanatory power in an econometric model is the adjusted R squared, as this value is adjusted for the number of explanatory variables, and prevents the random increase in R squared. The value of adjusted R squared for the first model is 56%, which indicates that 56% of the variance in the dependent variable (LR) is explained by the variability in the examined independent variables.

On the other hand, the value of adjusted R squared for the second model which has been tested with the incremental effect of the moderating variable “Islamic Bank” is 59%, which means that only 59 percent of the variance in the dependent variable (LR) is attributed to the variability of the independent variables and the interaction variable. Obviously, both models are close to each other and the explanatory powers for both models are good.

In regards to the overall significance of both regression models, this can be measured by F-test. According to this test, the regression analysis reveals that both models are statistically significant at the empirical significance level of 1% each, as the results suggested probability values of F-test of almost zero for both models

Given that the empirical significance level of this study is 5%, the GLS regression test revealed that the following variables: DA (deposit to asset ratio), bank size, nationality and type of the bank and CAR (Capital adequacy ratio) from the first model are significant. In the second model, DA, size, nationality and the ffect of interaction variable “Islamic bank” with DA, ROE and CAR from the second model were found to be statistically significant.

5.2.4 Discussion of Estimation Results for Model One

The regression results for the Model 1 reveals that the explanatory variable DA (deposit to asset) has a significant positive relation with LR

(liquidity risk) in banks in general, with the coefficient value of 0.1568. This indicates that one unit of increase in DA or the ratio of total deposit to total asset increases the ratio of liquidity risk by 0.1568 units. This outcome is consistent with Cucinelli (2013) and Alzoubi, (2017). Also, the same relation was found by Otieno et al. (2016) who conducted his study by using total deposit to total asset ratio, he found a similar positive relation with bank liquidity risk.

As stated by Model one in terms of Deposits to assets (DA) which has significant positive relation with LR (liquidity risk), the null hypothesis will be rejected and alternative hypothesis will be accepted since p-value 1% is less than significant level 5%. The Deposits to assets ratio has a positive impact on the liquidity risk of Palestinian banks.

If the management of banks will rely more on their deposits to fund their assets that might incur more exposure to liquidity risk and related to the sudden withdraw. The higher the ratio, the more the bank must rely on external funding, which is often a more costly source of funding than deposits.

As it can be seen from Table 5.3, the negative significant determinant of the liquidity risk in Palestine is the ratio of capital adequacy CAR. This ratio has a negative coefficient of 0.0890 and has a significant level of 0%. Which indicates that an increase of one unit in this ratio will cause the liquidity risk LR (The ratio of customer deposits to liquid assets) to be decreased by 0.0890 units. Since a higher value of this ratio reflects a

more capital a bank retains compared to its risk, this means that a higher a bank's CAR, the more likely it is to be able to withstand a financial downturn and less likely exposure to liquidity risk. The same conclusion was found by Staroselskaja et al. (2014) who attempted to identify the determinants of liquidity risk and examined the relation between capital adequacy ratio and liquidity risk, and found a negative relationship of CAR with liquidity risk.

As stated by Model one in terms of capital adequacy ratio (CAR) which has significant negative relation with LR (liquidity risk), the null hypothesis will be rejected and alternative hypothesis will be accepted since p-value 0% is less than significant level 5%.

The banks' management has to keep a high capital adequacy ratio to ensure efficiency and stability of their financial system, and to stay safe and have less likely to exposure of liquidity risk.

Another positive but insignificant determinant of the liquidity risk in Palestine is the ratio of return on equity which is an indicator of bank performance. This result is consistent with Wanjohi the finding of their study showed that ROE seemed to have a positive and insignificant relationship with liquidity risk.

As stated by model one in terms of Return on equity (ROE) which has insignificant relation with LR (liquidity risk), the null hypothesis will be accepted and alternative hypothesis will be rejected since p-value 51% is higher than significant level 5%.

In addition to that, in model the effects of Islamic and local banks from the first model are as follows: Islamic banks: The effect of Islamic banks has negative significant effect on liquidity risk (coefficient is -5%, p value is 0%) whereas the effect of local banks has positive significant on liquidity risk according to coefficient 6% and p-value of 0%. These results mean that Islamic banks have lower level of liquidity risk compared to conventional banks while local banks have higher levels of liquidity risk compared to foreign banks.

As illustrated by previous studies, conventional banks are better than Islamic banks in managing their liquidity risk. The alternative hypothesis will be accepted. So that Islamic banks are better than conventional banks in managing their liquidity risks. Foreign banks are better than local banks in managing liquidity risk.

5.2.5 Discussions of Estimation Results for Model Two

The test for the second model was implemented with the interaction variable (Islamic bank dummy) and as it can be seen from the Table 5.3, this analysis shows that the independent variable DA (deposit to assets), bank size, and bank nationality has positive effects on liquidity risk. The interaction of DA with Islamic bank dummy has a negative significant relations with the dependent variable liquidity risk in opposite with the DA variable relationship. According to coefficient -.254, the deposits to assets ratio has weaker effect in Islamic banks on liquidity risk than conventional banks.

The incremental effect of the interaction variable (Islamic bank) on the DA in this model, has mitigate the effect of deposit to asset on the liquidity risk, the interaction variable has reduced the power of relationship between DA on the liquidity risk. This indicates that one unit of increase in the ratio of total deposit to total asset with the effect of Islamic bank will lower than conventional banks by 0.254 units. This outcome is consistent with Leykun (2016), the results of his study revealed that the total deposit to total asset ratio affects the liquidity risk of banks negatively. This supports that Islamic banks have better liquidity position in regard to deposit-base and diversity. As stated by model two in terms of interaction with deposits to assets (DA), the null hypothesis will be rejected and alternative hypothesis will be accepted since p-value 4% is lower than significant level 5%.

Other independent variables ROE and CAR were also significant. Due to the incremental effect of Islamic bank on ROE in the model, this lead to significantly positively relationship between interaction variable with ROE and liquidity risk. This indicates that one unit of increase in ROE for Islamic bank will increase the liquidity risk by 0.057 units more than the effect on conventional banks. This finding concurs with that of Oino (2014) who posted a positive significant relationship between ROE and liquidity risk for banks in Ghana. The liquidity risk may increases while the ROE increase due to the increase in income. This is in line with the research of Dahiyat (2016) which concludes that there is an unfavorable influence between liquidity risk and profitability.

As stated by model two in terms of return on equity (ROE), the null hypothesis will be rejected and alternative hypothesis will be accepted since p-value 2% is lower than significant level 5%.

The incremental effect of the interaction variable (Islamic bank) on the capital adequacy ratio CAR in this model has emphasis the negative direction of the relationship between capital adequacy ratio and the liquidity risk. This indicates that one unit of increase in CAR with the effect of Islamic bank will decreases the liquidity risk by 0.258 units in Islamic banks more than conventional banks. This result consistent with Duqi and Al-Tamimi (2018), as they concluded a negative and significant relationship between the capital adequacy ratio and liquidity risk.

As stated by model two in terms of capital adequacy ratio (CAR), the null hypothesis will be rejected and alternative hypothesis will be accepted since p-value 0% is lower than significant level 5%.

To avoid the exposure to liquidity risk, banks' management should keep a capital requirement. This ratio represents the likelihood of insolvency in banks. In other words, sufficient capital ratio maintains a stable financial system and hedges bank from operation risk, market risk, and liquidity risk.

5.4 Qualitative Results and Discussions

This part provides discussion of the finding of the open-ended questionnaire that conducted with Islamic and conventional bankers (treasury managers and risk department).

In this study, an open–end questionnaire has been written, developed and data were collected from the Islamic and conventional bankers to understand the needed aspects of those parties and to answer the research questions.

Measurement of liquidity risk

1- Conventional and Islamic banks use a daily report called the "Report of the Statement of Cash" in branches. This report is prepared by the Risk department of and summarized by measuring the gaps between the cash inflows and cash outflows.

2- A detailed statement of the amount of deposits in banks and all branches are also prepared.

The nature of liquidity risk in Palestinian Islamic and Conventional banks

For Islamic banks:

1- The main source is customer deposits, which are short-term and the bank is unable to benefit from these deposits with them due to the possibility of sudden withdrawal.

2- When customers deposit certain amounts of cash in terms of Hawala or checks, a cash of the same value must exist inside the treasury. The bank doesn't benefit from that cash because it doesn't own it.

For conventional banks these risks are less noticeable.

Existence of risk management committee specialized with the liquidity risk

Islamic banks

All Islamic banks have a special division called Asset and Liability Management Committee (ALCO); Islamic banks coordinate with Shariah Supervisory Board for liquidity risk management and follow directions of Palestine Monetary Authority management.

The General Manager of the Bank is responsible for ALCO committee and a member of it, the committee members are general manager, treasury manager, risk manager and finance department and asset development manager.

ALCO committee has the following duties:

1. Assets and Liabilities Management
2. Deposits and Finances Management
3. Branch Plans for the Bank
4. Investments
5. Rate of Returns
6. Other Banks Offers
7. Cash Flow in Treasury
8. Cash Shipment and Cash in Branches.

Conventional banks

Conventional banks have different responses with this matter as following:

1- Bank of Palestine: has executive committee that is responsible for dealing with liquidity issues. The head of this committee is the general manager and the members are the members of the executive committee, this committee meets at least 12 times yearly, when a specific emergency or problem occurs, it holds an immediate, unscheduled meeting.

The roles of this committee include facilities granting, deposits, finances management, branch plans for the bank, investments, and rate of returns.

2- Al-Quds bank has ALCO committee that is responsible for dealing with liquidity issues. The general manager of the bank is responsible for this committee and a member of it, the committee consists of the general manager, treasury manager, risk manager, finance department and asset development manager meeting every 2 months. The role of this committee is continue management of day to day transactions, long-term work, deposits and cash inflows and outflows currency exchange rated.

3- Bank of Investment has a treasury department. The head of this committee is the treasury manager, meets daily for urgent cases but regularly meets monthly. The role of this committee is facilities granting, deposits, finances management, branch plans for the bank, investments, and rate of returns.

Chapter Six

Recommendations and Future Research Directions

Chapter Six
Recommendations and Future Research Directions

The recommendations of the study are divided into two parts. The first part provides recommendations to Islamic and conventional banks. The second part provides recommendations to regulators of Islamic and conventional banks in Palestine, namely Palestine Monetary Authority (PMA).

The following are specific recommendations for Islamic and conventional banks:

1- The management of conventional and Islamic banks has to manage capital adequacy ratio to ensure efficiency and stability of their financial system, and to stay safe and have less likely to exposure of liquidity risk.

2- The liquidity management process in both categories of banks (Islamic and conventional) is quite informal, where cash requirements are anticipated based on experience. The operations manager of banks should be better trained for effective liquidity management in Islamic banks in Palestine.

3- An independent liquidity office should be placed for conventional and Islamic banks. Because banker agrees on the existence of special committee to deal with a lot of issues including liquidity but under a different title, so the independent office should be united, and have its major role in dealing only with liquidity issues, practices method, and

implementations. This recommendation is presented after conducting the questionnaire with Islamic and conventional banks.

4- Banks should increase their investment portfolio because the presence of the liquidity problem with banks means not to fully employ the sources of funds, banks, especially Islamic ones are paying a sub-optimal return for investors, so Islamic banks are required to be more diversified in its portfolio about the new financing forms of Murabaha and Musharaka.

5- Establishing a financial liquidity management center as a way for Islamic financial institutions to manage liquidity through liquid investments of short or medium term and legally acceptable.

Lastly, banks regulators are also provided with the following recommendation:

1- Palestine Monetary authority should stand ready to help and bailout any bank facing liquidity-related issues and problems. This recommendation was based on the questionnaire results.

2- Palestine Monetary authority should construct some other standard which is consistent with norms for better utilization and to meet the concept of Islamic and conventional banking in Palestine.

3- Palestinian Monetary Authority must review the nature of the current liquidity relations with Israeli banks and find a new sustainable mechanism that serves the interests of the Palestinian banking sector

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Annexes

Annex (1)

Questionnaire to Islamic Banks

Liquidity risk Managements practices in Palestinian banks

Questionnaire number……..

This questionnaire is to assess liquidity risk management practices for Islamic Banks. The survey is designed to get information from Islamic Bankers. I would be grateful if you could take some of your time to fill out this questionnaire

1- What are the reasons behind the existence of liquidity risk in Palestinian Islamic?

2-how liquidity risk is measured by your bank?

3- If your bank has a committee to manage liquidity risk, what is the role of this committee?

Annex (2)

Questionnaire to Conventional Banks

Liquidity Risk Managements practices in Palestinian banks

Questionnaire number……..

This survey is to assess liquidity risk management practices for conventional Banks. The survey is designed to get information from conventional Bankers. I would be grateful if you could take some of your time to fill out this questionnaire

1-What are the reasons behind the existence of liquidity risk in Palestinian conventional banks?

2-how liquidity risk is measured by your bank?

3- If your bank has a committee to manage liquidity risk, what is the role of this committee?

جامعة النجاح الوطنية
كلية الدراسات العليا

ممارسات ادارة مخاطر السيوله :دراسه مقارنه بين البنوك التقليديه والاسلاميه في فلسطين

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قدمت هذه الأطروحة استكمالاً لمتطلبات الحصول على درجة الماجستير في التمويل بكلية الدراسات العليا في جامعة النجاح الوطنية في نابلس، فلسطين.

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الملخص

تواجه البنوك أنواعًا عديدة من المخاطر منها مخاطر السيولة التي تعتبر من أهم القضايا في القطاع المصرفي (التجاري والإسلامي)، حيث يخسر البنك عددًا من عملائه نتيجة نقص السيولة الكافية أو عدم القدرة للوفاء بسحوباتهم أو أموالهم في الوقت المناسب وكذلك مساءلة السلطات الإشرافية، مما يؤثر على جانب السمعة المصرفية للمؤسسة المالية، في المقابل، قد يحتفظ البنك بسيولة أكثر مما يحتاج، مما يؤدي إلى الاستخدام غير الصحيح للموارد المتاحة، وبالتالي فإن وجود إدارة سيولة مناسبة يزيد من ثقة السلطات والمودعين.

يمكن للبنوك التقليدية استخدام العديد من االادوات لإدارة هذا النوع من المخاطر. ولكن بالمقابل تعتبر البنوك الإسلامية مقيدة بشكل متزايد في استخدام جزء من هذه الأدوات. بهذه الطريقة، من الأهمية بمكان فهم فكرة مخاطر السيولة في البنوك الإسلامية وما هي المتغيرات التي يمكن أن تؤثر وتضيف إلى مخاطر السيولة. تم استخدام منهجية البحث المختلط، حيث تم تنفيذ المنهج النوعي من خلال عينة مكونة من 3 بنوك إسلامية و 3 بنوك تجارية ، وقد تم استخدام استبيان مفتوح للحصول على البيانات المستهدفة من البنوك الإسلامية والتجارية. كما تم استخدام منهجية البحث الكمي من خلال قياس مخاطر السيولة في البنوك الإسلامية والتجارية في فلسطين. من خلال فحص العوامل المختلفه التي اؤثر على مخاطر السيوله: مثل نسبة كفاية رأس المال (CAR) ، والعائد على حقوق الملكية (ROE) كمؤشر لمخاطر السيولة ، نسبة الودائع إلى الأصول (DA) وحجم البنك (BS) من البنوك الإسلامية والتجارية. فلسطين للفترة 2009-2018. ستساعد الاكتشافات الواردة في هذه الورقة مديري البنوك على تقليل مخاطر السيولة والحفاظ على بنوكهم في وضع سيولة متفوق ، ويمكن لمديري البنوك بالمثل تقليل

مخاطر السيولة عن طريق الاحتفاظ بجزء من مزاياهم في أموال حقيقية أو عن طريق وضع الموارد في الحماية. يجب على مديري البنوك توخي الحذر بشكل متزايد عند تمويل عملائهم لأن التمويل السيء يمكن أن يزيد مخاطر السيوله. تتضمن بعض التوصيات الواردة في هذه الورقة من خلال الاستبيان توصيات للبنوك بأن يكون لديها إطار عمل متكامل لإدارة السيولة ، وزيادة محفظة استثماراتها لأن وجود مشكلة السيولة لدى البنوك يعني عدم توظيف مصادر الأموال بشكل كامل، ووجود مكتب سيولة مستقل في كل فرع ، وبالمثل ، فإن سلطة النقد الفلسطينية يجب ان تكون مستعدة لمساعدة وإنقاذ أي بنك يواجه مشكلة سيوله وعليها مراجعة طبيعة علاقات الرسائل الحالية مع البنوك الإسرائيلية وإيجاد آلية مستدامة جديدة تخدم مصالح البنوك الفلسطينية. كشفت نتائج هذه الرسالة فيما يتعلق بالبنوك التجارية، أن هناك علاقة موجبة وهامة بين الودائع والأصول ومخاطر السيولة. علاقة ايجابية وغير هامة بين نسبة العائد على حقوق الملكية ومخاطر السيولة. هناك علاقة سلبية وذات دلاله احصائية هامه بين نسبة كفاية رأس المال ومخاطر السيولة في البنوك التجارية، بينما كان تأثير المتغير الوسيط "البنوك الاسلامية" على نسبة الودائع الى الاصول، العائد على حقوق الملكية و نسبة كفاية رأس المال تأثير هام على مخاطر السيولة في فلسطين.