

CHAPTER 3

LITERATURE REVIEW

3.1 Introduction

This chapter contains eight sections, including this introductory section. The underpinning theories employed in credit and liquidity risk exposures and bank performance literature, such as institutional theory, stakeholder theory, and financial intermediation theory, followed by a systematic review of credit and liquidity risk exposures. The chapter also reviews empirical studies on credit risk exposures, bank performance, and their main variables such as nonperforming loans, capital adequacy ratio, cost per loan ratio, loan loss reserve ratio, and credit growth ratio. Next, this chapter presents empirical studies on liquidity risk exposures, bank performance, and their main variables such as current ratio, loan to deposit ratio, loan to assets ratio, cash to deposit ratio, and leverage ratio. The discussions on bank size, bank type, board size, and gross domestic production, which are used as control variables between credit and liquidity risk exposures and bank performance, the research gap and a summary of the chapter, are also presented.

3.2 Theoretical Background

Theory is defined as a universal organization of facts and realities that demonstrates and interprets the facts in a model. The facts need to be checked to set the values, and a theory can be accepted or rejected on the basis of empirical results (Engheta & Ziolkowski, 2005). The theoretical framework is useful to define the variables to be measured and the statistical relationships to be examined. There are

two major realms in research, that is, theory and observation. Theory is “what is going on in the heads of scientists, but observation is what is going on in the real world. To do research, one works between these two realms” (Trochim et al., 2008).

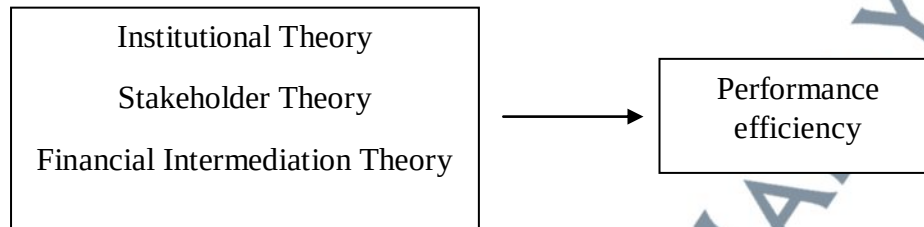


Figure 3.1: Theories Related to Risk Exposures and Bank Performance

3.2.1 Institutional Theory

This theory focuses on the regulations and rules imposed on firms and institutions by regulatory bodies and governments, in addition to all values and norms internalized in roles as part of socialization processes (DiMaggio & Powell, 1983; Meyer & Rowan, 1977; Powell & DiMaggio, 1991; Scott, 1995) as cited in Collier & Woods (2011). It explains the different ways of dealing with the uncertain and complex world and qualify the individual actors to understand their actions as well as the actions of others (Burns & Scapens, 2000). It is used in many different fields, but it is closely linked with economic works (Hodgson, 1988; Nelson & Winte, 1982; North, 1990) as cited in Dimaggio & Powell (1983).

Institutionalization is "the process through which components of a formal structure become widely accepted as both appropriate and necessary and serve legitimate organizations" (Tolbert & Zucker, 1983). This demonstrates that convergence towards homogeneity among organizations should be obtained through continual resource support to gain legitimacy, which ultimately leads to institutionalization. Homogeneity of institutions is formed through three processes,

which are: 1) coercive isomorphism, 2) mimetic isomorphism, and 3) normative isomorphism.

Isomorphism is the tendency of different organizations to adopt the same characteristics. Coercive isomorphism results from legitimacy, regulatory, or political pressures on firms in the forms of direction, persuasion, and temptation (DiMaggio & Powell, 1983). Mimetic isomorphism happens in highly uncertain environments, when organizations try to replicate other organizations that they consider as more legitimate or successful due to the lack of proven solutions for a given problem. Normative isomorphism is related to professionalization, which is resulted from experience, personnel movement, conference, and formal education and training (DiMaggio & Powell, 1983) as cited in Hudin et al. (2014).

Furthermore, institutionalization occurs when the management control system, especially risk management, becomes highly homogenous across a large number of institutions. In this regard, the risk management process is a logical and systematic approach for making decisions, decreasing costs, maximizing profits, improving communication between parties, increasing the confidence of stakeholders, and protecting the reputation of the firm. All these could help the firm achieve its goals and missions. Moreover, risk management could increase the firm's value, allows better managerial judgment, and enhances the confidence and quality of investment decisions (Tummala et al., 1997; Kleffner et al., 2003; Veysey, 2008; Smit & Watkins, 2012; Azhar et al., 2008) as cited in Hudin et al. (2014).

Most institutions combine the formal and informal approaches to risk management due to the drivers of risk management adoption, including technological advancements, competitive advantage, regulatory compliance, corporate governance, good business practices, globalization, improved communication, risk complexity, and

corporation failures (Manab, 2016). As these drivers suggest, the implementation of risk management exercises rests on three basic factors: 1) external factors, 2) internal factors, and 3) industrial factors (Abdullah et al., 2012). In this study, the focus was on the external factors, while other factors are ignored (Zsidisin et al., 2005; Collier & Woods, 2011).

Applied to risk management, the institutional theory clarifies two main points. The first is the external pressures on institutions to implement them (legitimation). The second is the similarity of risk management across different institutions (isomorphism). The legitimation and isomorphism in Jordanian banks manifest in two elements. First, the laws and regulations issued by the Central Bank of Jordan apply to all Jordanian banks, including Islamic ones (Sawney, 2003). Second, external auditing for all Jordanian banks is only carried out by the big four auditing firms. In addition, all Jordanian banks have a risk management committee in their organizational structure.

The Basel Committee on Banking Supervision (BCBS) has made a lot of efforts to improve the risk management tools of banks at the international level. The Committee was formerly known as the Committee on Banking Regulations and Supervisory Practices. It was formed in 1974 after the collapse of the Franklin National Bank of New York and the Bankhaus Herstatt of West Germany by the central bank governors of G10 countries (Canada, France, Germany, Italy, Netherlands, Belgium, Japan, the United States, the United Kingdom, Sweden, and Switzerland) (Basel committee on banking supervision, 2014).

These guidelines have been published to be applied in developed and developing countries for the purpose of enhancing financial soundness and stability of banks by improving the quality of banking supervision worldwide (Al-Tamimi, 2010). It

specifically aims to increase the ability of banks to identify emerging or current risks in the global financial system (Basel committee on banking supervision, 2014).

Basel II introduced more detailed standards for dealing with credit and liquidity risks by making the capital adequacy ratio and other components like loan loss reserve more risk-sensitive (Al-Tamimi, 2010). Despite its focus on the business environment of banks, which is characterized by a high degree of risk, Basel II preserves the integrity of the bank's financial system. In addition, their principles and rules can help banks to mitigate credit risk.

Nonetheless, risk management is not the sole responsibility of banking supervisory authorities, but also of managers, depositors, employees, and civil society representatives (Alsayyed et al., 2015). For that reason, this theory does not provide sufficient explanation for credit and liquidity risk exposures practices and their effects on the financial performance of banks.

3.2.2 Stakeholder Theory

This theory was originally developed by Freeman (1984), and it is managerial in the broad sense of the term. It does not simply predict cause-and-effect relationships or describe existing conditions; rather, it recommends structures, attitudes, and exercises in which managers and stakeholders contribute to each other (Donaldson & Preston, 1995).

In practice, stakeholder theory differs from agency theory, which proposes that the institution's management is undertaken on behalf of the owners, that is, the shareholders. Therefore, it assumes that the value obtained by the organization through management will only benefit the shareholders, while other stakeholders are

largely irrelevant. Any benefits that they obtain from the organization will be coincidental because it only focuses on the interests of its shareholders.

In contrast, the stakeholder theory states that an institution is accountable for a range of stakeholders, and each deserves a certain return (Crowther & Jatana, 2007). Stakeholder theory is linked to other concepts, namely stakeholder management and stakeholder model. All stakeholders have a stake in the organization and should be equally included in all decisions and processes. The stakeholder model appears as a new structure for "describing, evaluating, and managing corporate social performance" (Donaldson & Preston, 1995).

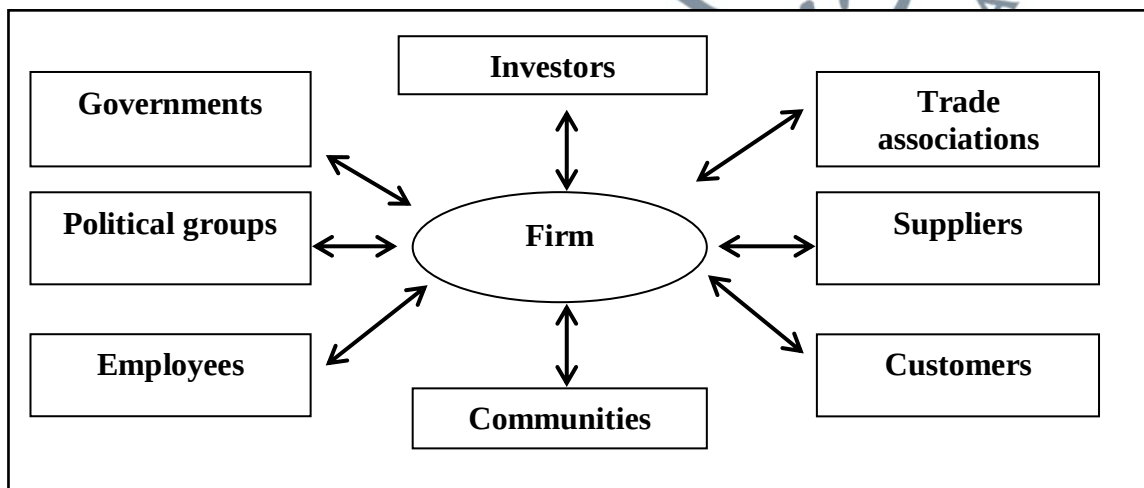


Figure 3.2: The Stakeholder Model

Stakeholder management suggests that it is possible to better understand all activities or outcomes of stakeholders' relationships to obtain positive results, but it is impossible to control all of them (Roeder, 2013). The basic requirement for stakeholder management is the simultaneous attention to all stakeholders who have legitimate interest in the three main aspects of general policies, case-by-case decision making, and establishment of organizational structures. This requirement takes into consideration the influences of any parties on firm policies, such as shareholders, managers, and the government.

Stakeholder theory has two purposes: to describe how organizations operate and to help predict organizational behavior. Indeed, different theories have different objectives, implications, and validity criteria, but the stakeholder theory distinguishes itself from other theories in apparent ways. It aims both to illustrate and guide the operations and the structure of the established firm. In addition, it describes the firm as an organizational entity that attempts to accomplish the multiple but not always entirely congruous goals of its diverse participants. This theory carries the basic idea that organizations have stakeholders.

Stakeholder theory has three main aspects: instrumental power, descriptive accuracy, and normative validity. While these aspects are clearly interlinked, each has different implications, types, pieces of evidence, and arguments. Descriptive accuracy means that the stakeholder theory is used to depict and explain particular corporate behaviors and characteristics that demonstrate and reflect past, present, and future situations. In addition, it is characterized by the affairs of stakeholders and corporations (Donaldson & Preston, 1995). This theory has been used to describe different areas related to the corporation, the nature of the firm, the ways that managers think about managing (Brenner & Molander, 1977) as cited in Donaldson & Preston (1995), and the actual number of firms managed (Clarskon, 1991; Halal, 1990; Kreiner & Bahmbri, 1991) as cited in Donaldson & Preston (1995).

Normative validity means that the theory is used to explain the functions of the firm, including the identification of philosophical and moral guidelines for the corporation's management and operations. Instrumental power means that, along with available empirical or descriptive data, this theory is used to determine the connections, or lack thereof, between stakeholder management and the accomplishment of firm's conventional objectives like growth and profitability. It

typically stops short of examining the particular links between cause (stakeholder management) and effect (firm's performance) (Donaldson & Preston, 1995). It is used to adopt the hypothesis based on the cause-and-effect relationship. Accordingly, it is necessary to "explore the logic of this concept in practical terms i.e., in terms of how organizations can succeed in the current and future business environment" (Freeman, 1984) as cited in Donaldson & Preston (1995). It focuses on a simple hypothesis that "corporations that manage to adopt stakeholder principles and practices will perform better financially than those that do not".

The most promising contribution of the theory to risk management is the application of organizational functions as efficiently as possible by instrumentally linking between the stakeholder model and the performance of organizations (Donaldson & Preston, 1995). The most important type of risk faced by conventional and Islamic banks that is related to the stakeholder theory is credit risk. This is because banks generate their main income by granting credits to investors or entrepreneurs. CRE will affect bank's profitability (Li & Zou, 2014) as cited in Alshatti (2015), and it is measured using such indicators as NPL ratio, which indicates how banks manage their credit risk (Afriyie & Akotey, 2013). As mentioned above, Basel II introduced a more comprehensive risk management standard by making the capital adequacy ratio and loan loss reserve more risk-sensitive (Al-Tamimi, 2008).

There are two main points for the application of stakeholder theory in Islamic banks. Firstly, many critical trends have emerged to improve the banking industry, including the flexibility and reaction of Islamic banks, which have speedily changed at the economic and global scale. Secondly, it focuses on the moral side of Islamic banks. Stakeholder theory proposes that banks should be aware of social norms, religion, and culture and be accountable towards both external and internal

stakeholders. Thus, the responsibility of banks is not limited to maximizing the annual profit but also to preserve the welfare of all stakeholders.

Furthermore, from the viewpoint of Islam, bank comprises multiple networks of key stakeholders that communicate and influence each other. For instance, internal auditors provide an independent evaluation of the bank's compliance with its accounting practices, internal control, and information system. Moreover, they provide assurance regarding the bank's risk management, corporate governance, and control system processes. External auditors assess the quality of risk-based financial information. Meanwhile, the board of director is responsible for assuring that the banking system is healthy, in addition to planning and executing the strategic direction. Bank supervisors act as organizers for risk management practices, whereas the Islamic board comprises religious scholars that preserve the rights of all stakeholders based on Islamic law. Lastly, customers are accountable for their own behaviors (Al-shamali et al., 2013).

3.2.3 Financial Intermediation Theory

Financial intermediation theory deals with issues relating to adverse selection, moral hazard, and asymmetric information in financial contracts. The main function of banks is to serve as a financial intermediary between the borrower and the lender. Banks raise funds from depositors (lenders) and lend them to borrowers (entrepreneurs), and the banks then generate profits (outcome) through the interest spread.

The intermediaries monitor borrower's information and receive payment from the borrowers. This process is not directly observed by the lenders (Douglas W. Diamond, 1984). The financial intermediation theory assumes that external and

internal factors affect the performance of banks (Pagano, 2001). This theory is basically based on the cost advantage of intermediaries (delegated monitoring). The financial intermediary should not only know the details of financing transaction and how it should turn out, but they should also know the client, his private habits and business, and obtain a clear image of his situation. The banker is a risk-neutral agent with a personal wealth equaling zero. Therefore, the banker helps capture the value associated with solving information asymmetries and minimizing transactional costs between borrowers and lenders (Douglas W. Diamond, 1984). Hakenes (2004) argued that banks work as delegated risk managers through two essential aspects of risk management. The first is risk analysis for the aggregation of information about allocation and correlation of risky assets, and the second is risk control for the effective shaping and structuring of risky portfolio.

However, there exists the issue of information asymmetry because outsiders cannot directly observe the profitable activities for the business, and this is a costly endeavor. Therefore, the existence of banks as financial intermediary is justified by the amount of costs that they save. Their monitoring costs are lower than the depreciation in firm value as a result of poor monitoring or the direct monitoring cost by each depositor. These justifications increase the value of financial intermediation. Accordingly, in accomplishing this target, banks are required to manage their activities efficiently and diligently by placing the lender's money in profitable and productive investments with satisfactory risk (Douglas W. Diamond, 1984).

In addition, moral hazard can be decreased through regulatory standards, which can enhance stability by enforcing capital adequacy requirement (Bhattacharya, 1993). The moral hazard hypothesis indicates that the decrease in cost efficiency following low capital ratios may cause higher NPLs and credit risk. These evince that bad

management practices, as demonstrated not only in excess expenditures but also in subpar underwriting and controlling exercises, ultimately lead to NPLs (Berger & DeYoung, 1997).

Furthermore, the efficiency of financial markets is also affected by the asymmetric information between lenders and borrowers. This asymmetry results in moral hazard problems because the depositors cannot easily evaluate the quality of investment projects that borrowers undertake. These projects may benefit and incentivize the borrowers, but they increase the likelihood of default, and thus hurting the depositors (Mishkin, 1990). According to Wolfson (1996), information asymmetry occurs because of the bank's inability to differentiate between low risk (good) borrowers and high risk (bad) borrowers, which leads to adverse selection. Moral hazard activities by the management and adverse loan selection by banks raise the banks' risk.

Financial intermediation theory suggests that banks play the role of delegated monitors for depositors. Therefore, all undertakings of potential and existing borrowers are monitored by banks to protect the wealth of the depositors and shareholders.

3.3 Systematic Review of Credit and Liquidity Risk Exposures

The researcher searched for relevant articles in three databases: Scopus, EBSCOhost, and Google Scholar. The research included articles published in 2008-2018 that focused on the impact of credit risk, liquidity risk, CRM, LRM, conventional banks, Islamic banks, bank performance, Jordan, and GCC banks. These keywords were included in the article, title, or abstract. The researcher excluded other types of risks, such as interest rate risk, political risk, market risk, foreign exchange

risk, strategic risk, technology risk, reputational risk, operational risk, and equity or commodity price risk. The search was also limited to English articles and conference papers. The subject area was restricted to management and accounting, business, finance, and economics. This search contributed to bridging the literature gap through an organized, comprehensive, and accurate method. Table 2.1 shows the search results. The keywords used during the search are shown in the first column, and the number of articles found in the databases are presented in the following columns.

Table 3.1: Systematic Search Result of Credit and Liquidity Risk Management

Database	Scopus	EBSCOhost	Google Scholar
Performance	1,575,713	3,859	774,000
BP	3,450	42	1,760,000
Risk management	53	90	18,100
BP and CRM	8	4	8
BP and LRM	11	3	9
BP and CRM in Jordan	-	-	5
BP and LRM in Jordan	-	-	3
BP and CRM in GCC	-	-	-
BP and LRM in GCC	-	-	3
BP and CRM & LRM in Jordan	-	-	-
BP and CRM and LRM in GCC	-	-	1
BP and CRM & LRM in Jordan & GCC banks	-	-	-
BP and CRM in IB and CB	4	1	3
BP and LRM in IB and CB	5	2	2

CRM: Credit risk management, LRM: liquidity risk management, GCC: Gulf Cooperation Council, IB: Islamic banks, CV: conventional banks, BP: Bank performance, "-" means that no articles were found.

In the first stage of the search, the terms “performance”, “bank performance”, and “risk management” yielded a large number and a broad range of studies. In the second stage, the specific search terms of “credit risk management”, “bank performance”, “liquidity risk management”, and “bank performance” returned fewer articles. In the third stage, the papers were filtered to determine which included any independent variables related to this research. Irrelevant papers that were out of topic and subject area were excluded. This stage resulted in 72 articles. The last stage was to remove any duplication as a result of using many keywords. Six duplicate articles

were found in Scopus when using the keywords “credit risk management” and “liquidity risk management” in Islamic and conventional banks. There were two duplicate articles in each of EBSCOhost and Google Scholar. Following this exercise, the total number of articles collected and used by the researcher was 62.

3.4 Empirical Studies on Credit Risk Exposures and Bank Performance

This section presents the main empirical literature on risk management in banks, credit risk exposures, and bank performance. The review focuses on the main components of credit risk exposures, such as NPL, capital adequacy ratio, cost per loan ratio, loan loss reserve, and credit growth ratio. In general, risk management has a significant effect on financial and non-financial performance. It is necessary to implement risk management practices and conduct risk analysis and assessment. Strategic managers must also closely monitor and assess credit risk. Risk management cannot be ignored, and it is currently growing in size in the business sphere in Qatar.

Nair et al. (2014) and Eckles et al. (2014) examined the effect of enterprise risk management (ERM) on the cost of firm's risks. The empirical results revealed that the implementation of ERM decreases stock return volatility and risk, which simultaneously lead to a higher profit.

Boahene et al. (2012) and Rosa and Gartner (2017) conducted a survey and found a significant and positive relationship between bank profitability and credit risk indicators.

Sufian et al. (2012) investigated the internal and external factors that affected the performance of domestic and foreign commercial banks in India in 2000-2008. They found a significant and positive relationship between credit risk and the

performance of domestic banks, but a significant and negative relationship between credit risk and the performance of foreign banks from North America.

There is a growing body of literature that compares credit risk exposures between Islamic and conventional banks. For instance, Rozzani and Abdul Rahman (2014) investigated the factors affecting the performance of Islamic and conventional banks. They found a positive and significant relationship between the performance of Islamic banks and credit risk, while the performance of conventional banks is not significantly related to credit risk.

Meanwhile, Mendoza and Rivera (2017), Karim (2013), and Al-Rdaydeh et al. (2017) developed extensive models and found a significant and negative relationship between bank profitability and credit risk.

Noman et al. (2015) studied the performance of conventional and Islamic banks in Bangladesh in 2003-2013. They concluded that there is a significant and negative relationship between credit risk and profitability for both types of banks; More specifically it is found that one unit rise in NPL decreases ROAA by 0.05 unit, ROAE by 0.54 unit and NIM by 0.12 units respectively and one unit increases LLR decreases ROAA by 0.1 unit, ROAE by 1.25 units and NIM by 0.02. In addition, Islamic banks have lower credit risk and profitability than conventional banks. Therefore, banks need to use prudent CRM procedure in order to ensure profitability and safe the bank from loss and crisis.

In Pakistan, Hanif (2012) showed that CRM in Islamic banks is better than conventional banks, but the profitability of conventional banks is higher. This implies that Islamic banks are more financially sound and strong, but the assets of conventional banks are able to yield more returns.

On the other hand, Tafri et al. (2011) compared the risk management practices of Islamic and conventional banks in Malaysia. Using a questionnaire, they concluded that the risk management tools of conventional and Islamic banks are different, stemming from the different nature of the banks. Conventional banks are interest-based, while Islamic banks are non-*riba* and Islamic-compliant.

Several cross-sectional studies, such as Alshatti (2015), Poudel (2012), Singh (2015), and Musyokil and Kadubo (2011), found a significant and critical relationship between CRM and the performance of banks. Abiola and Olausi (2014) found that there were poor CRM practices in the commercial banks of Nigeria in 2005-2011.

Magali (2013) found a significant relationship between CRM and profit level of rural Savings and Credit Cooperative Societies (SACCOs) in Tanzania. The author reported that 70 percent of rural SACCOs suffered losses because they did not implement effective CRM practices.

Aebi et al. (2012) studied the effects of corporate governance mechanisms related to risk governance and risk management on the performance of banks in North America during the 2006 financial crisis. The results showed that the banks were able to face the financial crisis well if they implemented effective risk management practices. Similarly, Rohaya and Mahat (2015) concluded that risk governance significantly influences the performance of Islamic banks.

In an extensive research, Stratulat and Ioan (2013) suggested that risk indicators provide better explanation for the causes, results, and consequences related to bank profitability. The authors found a significant relationship between macroeconomic risk factors and bank profitability, credit portfolio quality, and entire banking operations. In addition, bank performance is an indicator of the trust and stability of depositors.

3.4.1 Non-Performing Loans and Bank Performance

Hosna et al. (2009) reported that NPLs are an indicator of credit risk exposures. They are measured as the share of nonperforming loan to total loan. Rajha (2017) showed that many bankers and economists have declared that the global financial crisis increased the level of NPLs in Jordanian banks, which led to more pressure on their balance sheets and negatively affect their lending operations.

A number of cross-sectional studies, such as Alshatti (2015) and Boahene et al. (2012), investigated the impact of CRM on the financial performance of banks by examining their annual reports. They reported that there is a significant and positive relationship between NPLs and the financial performance of banks.

In their paper, Abiola and Olausi (2014) found that NPLs significantly increase bank performance. This is aligned with Afriyie and Akotey (2013), who reported that the percentage of NPLs in rural and community banks in Ghana has a positive and significant effect on financial performance. This means that NPLs increase proportionately with profitability.

Recent evidence from Rajha (2017) indicated that the association between lagged NPLs and NPLs in Jordanian commercial banks is significant and positive. They also asserted that the NPL ratio is likely to increase when it has risen in the preceding years.

Poudel (2012) studied the impact of credit risk exposures on the financial performance of banks. The author found a negative and significant association between the default rate and the performance of banks in Nepal. In addition, the author indicated that the most important predictor for bank performance is the default rate. Meanwhile, Magali (2013) collected data from the annual reports of rural SACCOs in Tanzania and found an inverse relationship between NPL and the

profitability of rural SACCOs. Furthermore, they are facing very serious problem in NPLs.

Hussain et al. (2016) empirically analyzed different types of risk affecting the activities of banks and evaluated the impact of risk management on the financial performance of large and small Pakistani banking institutions in 2005-2014. The authors revealed a significant and negative relationship between NPLs and financial performance in both large and small banking institutions.

Musyoki and Kadubo (2012) and Singh (2015) examined the impact of default rate on the financial performance of banks. They found a significant and negative correlation between the performance of banks and the default rate. Kithinji (2010) analyzed commercial banks in Kenya to determine the relationship between credit risk exposures and profitability from 2004 to 2008. The author found no significant correlation between NPLs and bank profitability.

There is a considerable amount of studies comparing between Islamic and conventional banks. For instance, Hanif (2012) compared the risk indicators and performance of Islamic and conventional banks in Pakistan in 2005-2009. He found that the impaired loan to gross loan ratio in Islamic banks is much lower than conventional banks. This implies that conventional banks are more efficient in absorbing loan losses than Islamic banks. Meanwhile, Abdel Megeid (2017) indicated that in Egypt, the management of loan quality in Islamic banks is better than that in conventional banks. In this study, the author used NPLs as a critical indicator for credit risk exposures.

In their study, Khan et al. (2016) compared the differences in performance quality between Islamic and conventional banks in Pakistan in 2007-2014. They found

a significant difference in NPLs between the banks, and the mean value shows that Islamic banks are less risky than conventional banks.

A comparative study conducted by Fayed (2013) analysed the performance of conventional and Islamic banks in Egypt from 2008 to 2010. He found that Islamic banks have a higher NPL ratio than conventional banks, which means that the quality of credit risk performance, loans, or assets in conventional banks are better than those in Islamic banks. Ben Khediri et al. (2015) found no significant relationship between NPL ratio and the type of banks (either conventional or Islamic) in GCC countries.

According to Hoang et al. (2022), from the view point of financial intermediation theory, information sharing mitigates information asymmetries between creditors and borrowers, contributing to the soundness of the banking system. Information sharing provides much needed information about debt obligations that borrowing firms hold and their true financial status, significantly increasing the information flow between lenders and borrowers. Consequently, it is expected that information sharing should weaken the adverse effect of nonperforming loans on economic growth.

This study tested the relationship between NPLs and bank performance, measured by ROA, ROE, and TQ. Based on the above discussion, this study formulated the following hypothesis:

H1.1: There is a negative and significant association between NPLs and bank performance.

Table 3.2: Summary of Non-Performing Loans and its Impact on Bank Performance

Author (Year)	Country	Period	Empirical results
Rajha (2017)	Jordan	2008-2012	There is a positive and significant relationship between lagged NPL and NPL ratio.
Alshatti (2015)	Jordan	2005-2013	There is a positive effect and significant relationship between NPL ratio and BP.
Boahene et al. (2012)	Ghana	2005-2009	There is a positive and significant relationship between NPL ratio and BP.
Abiola & Olausi (2014)	Nigeria	2005-2011	There is a large amount of loan default; NPLs increase proportionately with profitability.
Poudel (2012)	Nepal	2001-2011	There is a negative and significant relationship between NPL ratio and ROA.
Magali (2013)	Tanzania	2013	There is a significant and negative association between NPLs and the profitability of rural SACCOs.
Hussain et al. (2016)	Pakistan	2005-2014	NPLs are higher for small banks than large banks. NPLs significantly and negatively affect BP.
Musyoki & Kadubo (2012)	Kenya	2000-2006	There is a negative and significant relationship between NPL ratio and ROA.
Singh (2015)	India	2003-2013	There is a significant negative relationship between NPL ratio and ROA.
Kithinji (2010)	Kenya	2004-2008	There is a non-significant association between NPL ratio and BP.
Hanif et al. (2012)	Pakistan	2005-2009	NPLs of IBs is much lower than CBs.
Abdel Megeid (2017)	Egypt	2004-2011	Loan quality management in IBs is better than CBs.
Khan et al. (2016)	Pakistan	2007-2014	Risk management for NPLs in IBs are superior to CBs.
Fayed (2013)	Egypt	2008-2010	Credit risk performance of CBs is better than IBs.
Ben Khediri et al. (2015)	GCC countries	2003-2010	IBs are more profitable and have less credit risk than CBs.

3.4.2 Capital Adequacy Ratio and Bank Performance

Capital adequacy ratio is used to measure the financial strength of banks (Mendoza & Rivera, 2017). It is also called the capital risk-weighted assets ratio, which is used to protect bank depositors and promote the efficiency and stability of financial systems. Capital adequacy ratio was introduced so that banks would have a minimum level of stockholder's equity, depending on the number of loans and their riskiness.

Chowdhury (2015) stated that, measured by equity to total assets ratio, strong capital structure will give additional strength to banks in facing financial crisis, particularly those in developing countries. Iloska (2014) found that the quality and

strength of capital affect the profitability of banks. Lower capital ratio and higher leverage lead to higher borrowing cost and risk. (Flamini et al., 2009) as cited in Mendoza & Rivera. (2017) indicated that capital adequacy ratio is an important determinant of bank profitability. In addition, a well-capitalized bank signals to the market that it has higher than average performance.

A number of cross-sectional studies, such as Hussain et al. (2016), Chowdhury (2015) and Ramadan et al. (2011), concluded a significant and positive correlation between capital adequacy ratio and the performance of banking institutions. This finding implies the ability of well-capitalized banks to exploit investment opportunities, decrease the cost of bankruptcy, and control unexpected problems, thus allowing them to enjoy higher profitability.

Al-jarrah (2012) evaluated systematic and unsystematic risk by controlling specific variables in Jordanian banks in 2001-2009. The author found a significant relationship between capital adequacy ratio and unsystematic risk, but the direction of the relationship is mixed. On the other hand, capital adequacy ratio has a positive and significant relationship with systematic risk.

Smaoui and Salah (2012) extensively investigated the relationships between the macroeconomic environment and the specific characteristics of GCC Islamic banks and their profitability. The authors found a significant and positive relationship between capital adequacy ratio and the profitability of Islamic banks.

Almazari (2014) examined the internal factors that influence the profitability of banks and compared between Jordanian and Saudi banks. The author found a significant and positive correlation between capital adequacy ratio and the profitability of Saudi and Jordanian banks. Ramadan (2011) examined the internal and external

factors that affect the profitability of Jordanian banks in 2000-2010. The author found that capital adequacy ratio and profitability are positively and significantly related.

A number of cross-sectional studies conducted by Noman et al. (2015) and Bougatef and Korbi (2018) discovered a significant positive correlation between equity to total asset ratio and the performance of Islamic and conventional banks. Noman et al. (2015) stated that the credit risk of conventional banks is higher than that of Islamic banks.

Poudel (2012) investigated the effect of credit risk exposures on the financial performance of banks in Nepal from 2001 to 2011. The author found a significant negative relationship between capital adequacy ratio and the banks' financial performance.

An empirical investigation conducted by Rosa and Gartner (2017) on the disclosure practices in Brazil demonstrates the necessity to monitor systematic risk, as the authors identified a negative and significant relationship between the probability of financial distress and the level of capital.

Almumani (2013) investigated the managerial factors that affect the profitability of Jordanian commercial banks from 2005 to 2011. He noted that ROA and capital adequacy ratio are negatively but non-significantly related.

Using surveys, Abiola and Olausi (2014) and Afriyie and Akotey (2013) reported a positive but non-significant correlation between capital adequacy ratio and bank profitability, which suggested that the sample has poor CRM practices. Fredrick (2012), Alshatti (2015), and Mendoza & Rivera (2017) respectively conducted studies in Kenya, Jordan, and the Philippines. They reported no significant correlation between capital adequacy ratio and the performance of banks.

Wanke et al. (2016) compared the factors of efficiency between conventional and Islamic banks in ASEAN. The authors distributed questionnaires to 88 banks and examined their CAMELS criteria, which include the capital adequacy ratio. They concluded that Islamic banks are more efficient than conventional banks, whereas USA and European banks exhibit higher efficiency than ASEAN banks.

Siddiqui (2008) investigated whether the risk management, profitability, and capital adequacy of two Islamic banks in Pakistan in 2003 and 2004 exceeded the industry benchmark. From the results, the author concluded that capital adequacy ratio of the examined banks is higher than the industry average.

Azizud-din et al. (2016) investigated the factors that influence the performance of banks in Malaysia. Furthermore, they examined the difference in performance between commercial and Islamic banks from 2010 to 2014. They reported a significant positive relationship between capital adequacy ratio and the profitability of banks. Furthermore, the profitability of banks and capital adequacy ratio are found to be higher in commercial banks compared to Islamic banks.

A considerable amount of literature has examined the difference between the performance of Islamic and conventional banks, as well as the relationship between performance and capital adequacy ratio. For instance, Hanif (2012) found that the ROA of Islamic banks is lower compared to conventional banks, while the ROE of conventional banks is higher than Islamic banks. Such findings suggest that the assets of conventional banks have a higher capability to yield returns and generate profits compared to Islamic banks. However, the common equity to total assets ratio is higher in Islamic banks, which means that conventional banks are less capable in absorbing asset losses compared to Islamic banks. Meanwhile, Chazi (2010) investigated the riskiness of Islamic and conventional banks in 14 countries around the world from

2005 to 2008. The study showed that the Islamic banks have better capital adequacy ratio than conventional banks, and so they have lower bankruptcy and default risks.

In their paper, Ben Khediri et al. (2015) studied the differences in financial characteristics between conventional and Islamic banks in GCC countries. They reported that compared to Islamic banks, conventional banks are less profitable and capitalized and have more credit risks.

Tai (2014) examined the performance of Islamic and conventional banks in GCC countries between 2003 and 2011. The author concluded that conventional banks were more solvent than Islamic banks in the earlier years. But the situation reversed in later years the situation reversed, with Islamic banks being more solvent than conventional banks.

Based on the institutional theory, Rahman et al. (2018) provided strong evidence of the effects of capital regulations on the cost of intermediation and banks' risk-taking. As the capital adequacy ratio increase, banks increase the cost of intermediation, reducing their risk-seeking behavior. Meanwhile, equity to assets ratio internalizes the risk for shareholders; banks increase the cost of intermediation, which explains their reluctance to take higher risks. Switching from Basel I to Basel II has no significant effect on risk-taking and cost of intermediation, but it positively and significantly affected profitability after Basel II application.

Sriyono and Nabellah (2022) explained that according to the theory, a higher CAR indicates the bank's higher ability to bear the risk of any risky credit/productive assets. This means higher public trust to save their funds in the bank. Therefore, capital is an important factor in developing a bank's business. With sufficient capital, a bank can carry out its activities without experiencing difficulties and losses. This will

have an impact on the increasing number of funds disbursed or profitability of the bank.

Table 3.3: Summary of Capital Adequacy Ratio and its Impact on Bank Performance

Author (Year)	Country	Period	Empirical results
Hussain et al. (2016)	Pakistan	2005-2014	CAR has a significant and positive impact on ROE.
Chowdhury (2015)	Asia & Africa	2013	CAR has a significant and positive impact on the profitability of IBs.
Ramadan et al. (2011)	Jordan	2001-2010	There is a significant and positive relationship between CAR and BP.
Smaoui & Salah (2012)	GCC region	1995-2009	CAR has a significant and positive relationship with ROA, but a positive and non-significant relationship with ROE in IBs.
Almazari (2014)	Jordan & Saudi Arabia	2005-2011	The profitability of Jordanian and Saudi banks has a positive and significant correlation.
Ramadan (2011)	Jordan	2000-2010	There is a significant positive effect between CAR and profitability.
Noman et al. (2015)	Bangladesh	2003-2013	Capitalization of IBs is higher than CBs; CAR is positive and significant.
Bougatef & Korbi (2018)	MENA	1999-2014	CAR is positively and significantly related to intermediation margins in both IBs and CBs.
Prakash & Poudel (2012)	Nepal	2001-2011	There is a significant and negative relationship between CAR and BP.
Rosa & Gartner (2017)	Brazil	2006-2014	There is a negative and significant relationship between the level of capital and the probability of financial distress.
Almumani (2013)	Jordan	2005-2011	CAR in CBs has a negative and non-significant relationship with ROA.
Afriyie & Akotey (2013)	Ghana	2006-2010	There is a positive and non-significant relationship between CAR and BP.
Fredrick (2012)	Kenya	2006-2010	There is a weak relationship between CAR and BP.
Alshatti (2015)	Jordan	2005-2013	There is no relationship between CAR and BP.
Wanke et al. (2016)	Southeast Asian nation	2010-2013	The efficiency of ASEAN banks is lower compared to US and European banks.
Siddiqui (2008)	Pakistan	2003-2004	Banks have met or exceeded industry performance standards in CAR, profitability, and risk management
Chazi & Syed (2010)	14 countries	2005-2008	IBs have a better CAR and lower default and bankruptcy risks than CBs.
Ben Khediri (2015)	GCC countries	2003-2010	IBs are more capitalized than CBs
Azizud-din et al. (2016)	Malaysia	2010-2014	Capital adequacy values of CBs are higher compared to IBs.
Tai (2014)	GCC countries	2003-2011	CBs were more solvent than IBs in the earlier years, but during the later years the situation reversed.
Hanif et al. (2012)	Pakistan	2005-2009	The strength and soundness of IBs are better than CBs.

This study tested the association between capital adequacy ratio and bank performance, measured by ROE, ROA and TQ. From the above discussion, this study formulated the following hypothesis:

HI.2: There is a positive and significant relationship between capital adequacy ratio and bank performance.

3.4.3 Cost per Loan Ratio and Bank Performance

Cost per loan asset ratio explains the average cost per loan given to customers in monetary terms. It demonstrates the efficiency in allocating loan to customers (Appa, 1996, as cited in Prakash & Poudel (2012). Shrestha (2015) investigated the effect of credit risk exposures on the profitability of Nepalese banks during 2007-2013. The researcher found that there is a positive and significant relationship between cost per loan ratio and ROA and ROE. Bhattarai (2017) also found a positive and significant relationship between CPL and bank profitability. Iannotta et al. (2007) investigated the financial performance of 181 banks in 15 European countries. In contrast to the above studies, they found a significant negative relationship between the operating costs of banks and their earnings.

Poudel (2012) investigated the impact of credit risk exposures on the financial performance of Nigerian banks. The author found An insignificant negative correlation between the performance of banks and the CPL. Musyoki and Kadubo (2012) also found a non-significant negative relationship between the performance of banks and the CPL. Based on the stakeholder theory, Du et al. (2014) explained that more value is created for the firm is more stakeholders are involved. Suppliers are more likely to concentrate their sales on this firm; customers are more likely to rank the firm's brand highly; and employees are less likely to voluntarily quit their jobs.

Table 3.4: Summary of Cost per Loan Ratio and its Impact on Bank Performance

Author (Year)	Country	Period	Empirical results
Poudel (2012)	Nepal	2001-2011	There is a non-significant negative relationship between CPLR and BP
Musyoki & Kadubo (2012)	Kenya	2000-2006	There is a non-significant negative relationship between CPLR and BP
Shrestha (2015)	Nepal	2007-2013	There is a significant positive relationship between CPLR and ROA and ROE
Bhattarai (2017)	Nepal	2010-2015	There is a significant positive relationship between CPLR and BP
Iannotta et al. (2007)	15 European countries	1999-2004	There is a significant negative relationship between CPLR and BP

From the above discussion, this study formulated the following hypothesis:

H1.3: There is a negative and significant association between cost per loan ratio and bank performance.

3.4.4 Loan Loss Reserve and Bank Performance

Loan loss reserve is used to estimate the quality of assets in banks based on the loans and evaluate the credit risk that is particularly linked to the loans (Wasiuzzaman & Gunasegavan, 2013). It is a CRM tool used by banks to absorb expected losses from the bank's loan portfolio (Ozili & Outa, 2017). This ratio shows the management's estimation and assessment of the current loan value that will not be collected and will be recorded as a contra asset account from total loans in the bank's balance sheet (Walter, 1991).

Al-Rdaydeh et al. (2017) explored the effect of credit risk on the performance of Jordanian banks using loan loss provision for 16 banks from 2006 to 2015. The authors found a significant negative correlation between ROA and ROE and loan loss reserve.

In a relevant study, Wasiuzzaman and Gunasegavan (2013) investigated the differences between Islamic banks and conventional banks in Malaysia during the period of 2005 to 2009. They concluded that loan loss reserve and bank performance

are significantly and negatively related. They also noted that conventional banks have a lower ratio than Islamic banks, which suggested that conventional banks are more profitable than Islamic banks.

A considerable amount of literature has compared the performance between Islamic and conventional banks and examined its relationship with loan loss reserve. Among these studies is Abdel Megeid (2017), who investigated the efficiency and effectiveness of LRM of conventional and Islamic banks in Egypt from 2004 to 2011. The empirical results revealed that conventional banks are better in managing assets and that Islamic banks should review their risk management practices and focus more on loan loss reserve and gross loan.

Meanwhile, Noman et al. (2015) and Ben Khediri et al. (2015) concluded that the average loan loss reserve of Islamic banks is lower than that of conventional banks, which indicates that Islamic banks have a significantly lower level of credit risk than conventional banks. Furthermore, Noman et al. (2015) found a negative significant relationship between loan loss reserve and the performance of banks.

The results also differ according to the proxies used. For instance, in the GCC, Smaoui and Salah (2012) examined the characteristics of Islamic banks that affect their profitability from 1995 to 2009 using ROA, ROE, and non-interest margin (NIM) as proxies. The results showed an unexpected negative sign between loan loss reserve and ROA and loan loss reserve and ROE. But loan loss reserve has a positive and significant relationship with NIM. Meanwhile, Karim and Alam (2013) found a significant and negative relationship between loan loss reserve and ROA and ROE. However, loan loss reserve had a negative and non-significant with Tobin's Q.

Pelealu and Worang (2018) investigated the relationship between loan loss reserve and the profitability of banks in Indonesia. They found a positive but non-

significant association between loan loss reserve and ROA. Eng and Nabar (2007) found a positive and significant relationship between loan loss reserve, future cash flow, and stock return.

Ramadan (2011) examined the characteristics of Jordanian Islamic banks that affect their profitability from 2000 to 2010. Loan loss reserve was used as a proxy for credit risk, and three models were applied on the sample. He found a non-significant but positive relationship between loan loss reserve and the profitability of banks in the first and second models. In the third model, there is a significant positive relationship between loan loss reserve and the profitability of Jordanian banks. These findings show that if Islamic banks are exposed to higher credit risk, they will have higher profitability.

Based on the institutional theory, Fanta et al. (2013) argued that good corporate governance will increase firm value and performance. External corporate governance is a mechanism by which the government controls the operations of banks through bank regulations. Central bank regulation is exercised using several financial ratios, including LLR. The results found that lower LLR indicates higher concern about the implementation of good corporate governance.

From the above discussion, this study formulated the following hypothesis:

H1.4: There is a negative and significant relationship between loan loss reserve ratio and bank performance.

Table 3.5: Summary of Loan Loss Reserve and its Impact on Bank Performance

Author (Year)	Country	Period	Empirical results
Al-Rdaydeh et al. (2017)	Jordan	2006-2015	Significant and negative correlation between ROA, ROE and LLR
Wasiuzzaman & Gunasegavan (2013)	Malaysia	2005-2009	LLR and BP are significantly and negatively related; CBs have a lower ratio than IBs.
Noman et al. (2015)	Bangladesh	2003-2013	There is a negative and significant relationship between LLR and BP, and the average LLR of IBs is lower than CBs.
Ben Khediri et al. (2015)	GCC Countries	2003-2010	IBs have a significantly lower level of credit risk than CBs.
Karim&Alam (2013)	Bangladesh	2008-2012	Significant and negative relationships between LLR and ROA and ROE; negative and non-significant relationship between LLR and Tobin's Q.
Ramadan et al. (2011)	Jordan	2000-2010	There is a negative and non-significant relationship between LLR and the profitability of banks in models one and two, while in model three there is a significant and negative relationship.
Smaoui & Salah (2012)	GCC Countries	1995-2009	There is an unexpected negative sign between LLR and ROA, as well as between LLR and ROE. LLR positively and significantly relates to NIM.
Pealelu & Worang (2018)	Indonesia		There is a positive but non-significant association between LLR and ROA.

3.4.5 Loan Growth Ratio and Bank Performance

Loan growth indicates credit expansion in banks. Excessive and rapid credit growth in banks is similar to a sharp decline in their capital. It is an indicator of the weakening financial system of banks and could be used as an early warning sign of future loan problems (Das & Ghosh, 2007) as cited in Tehulu & Olana (2014).

Keeton (1999) examined a sample of 60 large banks in the USA from 1967 to 1983 and from 1990 to 1998 to determine the association between loan growth and loan losses in banks. He reported a significant and positive relationship between loan growth and loan losses.

Foos et al. (2010) investigated the impact of loan growth on the riskiness of 16000 banks from 1997 to 2007. The results showed that there is a significant positive relationship between loan growth and loan loss provision. In addition, the authors found that the association between interest income and loan growth is significant and

negative, suggesting that the rapidly growing loans led to the bank's inability to sufficiently compensation for any additional risk and therefore increase loan losses.

The association between loan growth and loan quality in banks in Texas was comprehensively investigated in Clair (1992). The author reported that there is a significant negative correlation between loan quality and internal loan growth. Any rapid increase in the loan growth rate would lead to higher charge of rate, while low loan portfolio quality could ultimately result in bank failure.

In the same way, A survey conducted by Tanveer et al. (2010) involved a sample of 500 commercial banks from over 50 countries from 2005 to 2007. The purpose of the study was to analyze how ownership concentration and riskiness are related. This study used loan growth as a control variable. The results showed a significant and negative relationship between NPL and loan growth.

Carbó-valverde et al. (2011) investigated the changes in the quality of mortgage-backed securities (MBS) and asset-backed securities (ABS) in Spain from 2000 to 2010. The authors particularly examined the credit quality of banks by analyzing the relationship between loan growth and loan performance. They found a positive and significant relationship between the lagged loan growth of bank and current loan growth; a significant and positive relationship between current loan growth and ROE; and a negative and significant relationship between lagged loan growth and non-performing loans.

On the other hand, Fahlenbrach et al. (2018) concluded that loan growth rate has a negative and significant impact on the performance of US banks from 1973 to 2014. Tehulu and Olana (2014) analyzed the association between bank characteristics and credit risk in Ethiopian commercial banks. The authors revealed that ownership and operating inefficiency have a significant and positive impact on credit risk.

Meanwhile, bank size and credit growth have a significant and negative impact on credit risk. Stefanelli and Cotugno (2012) examined the efficiency and effectiveness of board monitoring on the quality of loan portfolio in Italian banks from 2006 to 2008. The researchers found a significant positive relationship between loan growth and NPL, and a negative and significant relationship between loan growth and the quality of loan portfolio.

The relationship between loan growth and the stability of banks was extensively investigated by Bundesbank and Köhler (2012) using a sample of 2,966 listed and unlisted banks from 15 EU countries in 2003-2009. The authors specifically examined the effect of loan growth on the bank's risk. The results indicated a negative and significant relationship between loan growth and the stability of banks when the banks increased their lending by decreasing their standards and their collateral requirements during boom. Amador et al. (2013) examined the effect of abnormal loan growth ratio on financial health, represented by profitability, solvency, and non-performing loans, among 64 financial institutions in Colombia. The authors concluded that abnormal credit growth has a positive effect on short-run profitability, but there is no significant relationship between them in the long-run. In addition, credit growth has a significant and negative impact on the bank's solvency. The authors reported a positive and significant relationship between abnormal credit growth and NPLs in banks.

From the above discussion, this study formulated the following hypothesis:

H1.5: There is a negative and significant association between credit growth ratio and bank performance.

Table 3.6: Summary of Loan Growth Ratio and its Impact on Bank Performance

Author (Year)	Country	Period	Empirical results
Stefanelli & Cotugno (2012)	Italy	2006-2008	There is a significant and positive relationship between LGR and NPL and a negative and significant relationship between CGR and loan portfolio quality.
Fahlenbrach et al. (2018)	US	1973-2014	LGR has a negative and significant impact on BP.
Bundesbank and Köhler (2012)	EU countries	2003-2009	The banks increased their lending by decreasing their standards and their collateral requirements.
Keeton (1999)	US	1967-1983 1990-1998	There is a significant positive relationship between LGR and loan losses.
Clair (1992)	US		There is a significant negative correlation between loan quality and internal loan growth
Foos et al. (2010)	16 countries	1997-2007	The association between the interest income of banks and loan growth is significant and negative
Tehulu and Olana(2014)	Ethiopia	2007-2011	There is a significant negative relationship between credit risk and LGR.
Carbó-valverde et al. (2011)	Spain	2000-2010	There is a significant positive relationship between lagged loan growth and LGR

3.5 Review Studies on Liquidity Risk exposures and Bank Performance

This section presents the main empirical literature on liquidity risk exposures and its implications on bank performance. The literature reviewed in this study focuses on the main components of liquidity risk exposures , such as current ratio, loan to deposit ratio, loan to total asset ratio, cash to deposit ratio, and leverage ratio.

Rosa and Gartner (2017) evaluated the disclosure practices in Brazil and proposed a warning model to predict financial distress in financial institutions. They found a negative and significant relationship between liquidity and bank profitability, and between liquidity and financial distress probability. Similarly, Sufian et al. (2012) found a significant negative relationship between liquidity and bank profitability.

Ariffin (2012) investigated the relationship between the financial performance of Islamic banks and liquidity risk. The author also analyzed the disclosures of LRM. The results showed a negative relationship between liquidity risk and the profitability of banks during financial crises. Furthermore, the financial crisis had a little effect on

the liquidity risk in Islamic Banks. Meanwhile, Bougatef and Korbi (2018) examined the factors that affect the intermediation margin of conventional and Islamic banks in MENA, and they found a negative relationship between bank margin and liquidity.

A considerable number of studies, such as Warrad (2017), Akinwumi et al. (2017), Faroug et al. (2016), and Arif and Anees (2013), analyzed the effect of financial risk, particularly liquidity risk, on the performance of banks. They found a significant relationship between liquidity risk and the performance of banks. In their paper, Sharma et al. (2018) found that liquidity has a significant relationship with expected losses and risks.

A number of cross-sectional studies have examined the performance of Islamic and conventional banks and its relationship with liquidity risk exposures. For instance, Siddiqui (2008) found that IBs have higher liquidity and maintain higher cash balances compared to CBs, while Azizud-din et al. (2016) found that the liquidity of commercial banks is higher than IBs when measured as liquid assets over deposits and short-term funding, while liquidity is higher for IBs when proxied with liquid assets over total assets.

Previous studies such as Noman et al. (2015), Hanif (2012), and Abdel Megeid (2017) have examined the performance of Islamic and conventional banks and found that IBs have lower liquidity and profitability than conventional banks. On the contrary, Khan et al. (2016) found that the LRM and profitability of IBs are better compared to CBs, while the CBs are better in asset quality.

Zarrouk (2014) evaluated the soundness of CBs and IBs. The author also examined the effect of global financial crisis on Islamic banks. The results showed that financial crises have a non-significant negative impact on the liquidity position of IBs in GCC and non-GCC countries.

An extensive research developed by Ihsan and Hussain (Hussain et al., 2016) evaluated the effect of risk management on the performance of small and large banks in Pakistan. The study concluded that small banks have higher liquidity than large banks.

A number of cross-sectional studies by Al-Rdaydeh et al. (2017), Chowdhury (2015), and Fredrick (2012) found a non-significant relationship between the financial performance of banks and liquidity.

3.5.1 Current Ratio and Bank Performance

Alzorqan (2014) examined the association between current bank performance. Current ratio is the most popular ratio for the evaluation of liquidity in banks. The ratio indicates the percentage of current assets (cash equivalent, cash, marketable securities, receivable, and inventory) that is available to cover current liabilities (current portion of term debt payable, notes payable, taxes, and accrued expenses). A higher current ratio is better.

Sharma et al. (2018) reported a significant relationship between liquidity and bank performance. On the other hand, Farooq et al. (2015). and Akinwumi et al. (2017) found a significant relationship between bank performance and current ratio.

From the above discussion, this study formulated the following hypothesis:

H1.6: There is a significant association between current ratio and bank performance.

Table 3.7: Summary of Current Ratio and its Impact on Bank Performance

Author (Year)	Country	Period	Empirical results
Sharma et al. (2018)	Russia	2000-2010	There is a significant relationship between liquidity and BP
Farooq et al. (2015)	Pakistan	2009-2013	There is a significant relationship between BP and CR
Akinwumi et al. (2017)	Nigeria	2007-2016	There is a significant relationship between BP and CR

3.5.2 Loan to Deposit Ratio and Bank Performance

Alzorqan (2014) explained that the loan to deposit ratio (total loans divided by total deposits) is used to evaluate the liquidity of banks. This means that if the percentage is too low, the banks may not be getting as much earnings as they should; if the percentage is too high, the banks do not have enough liquidity to control the unexpected fund requirements. Therefore, the LTD ratio can be used as a success or vulnerability indicator to balance the banks' loans and withdrawals because banks gain profit from the difference between the loan interest and deposit interest (Hapsari, 2018). Hanif (2012) indicated that a higher loan to deposit ratio would lead to a higher chance of liquidity risks in banks.

Faroug et al. (2016) examined the impact of liquidity on the financial performance of banks in Oman. They noted a positive and significant relationship between loan to deposit ratio and the profitability of banks.

Contrary to the findings of previous studies, Al-Rdaydeh et al. (2017) found a significant negative relationship between loan to deposit ratio and ROA, while there is no relationship between loan to deposit ratio and ROE in conventional and Islamic banks in Jordan. In addition, Hacini et al. (2021) investigated the effect of LR on the financial performance of selected commercial banks in Saudi Arabia in 2002-2019. They found a negative and significant relationship between loan to deposit ratio and bank performance. Therefore, management should concentrate more on maintaining the optimal loan to deposit ratio and not "over loan" to avoid any deficit risk. The more loans granted by the banks, the more they will be exposed to default risk, as the operating cash inflow decreases due to higher cash outflow. Kaddumi and Al-Kilani (2020) investigated the impact of LRM on the financial performance of Jordanian banks in 2014-2018. They found that LRM has a negative and significant impact on

operating cash flow per share (OCFS) but a non-significant effect on earnings per share (EPS).

A comparative study between large and small banks conducted by Hussain et al. (2016) found a negative and significant relationship between the ROE of large commercial banks in Pakistan and the banks' loan to deposit ratio. It also found the negative and non-significant impact of loan to deposit ratio on the ROE of small banks.

Meanwhile, Almazari (2014) compared between Jordanian and Saudi banks from 2005 to 2011 and found that the profitability of the latter is higher than that of the former. The author noted a significant negative relationship between loan to deposit ratio and the profitability of Saudi banks, and a significant positive relationship between loan to deposit ratio and the profitability of Jordanian banks.

Zarrouk (2014) investigated the effect of the global financial crisis on the liquidity position of Islamic banks in 10 MENA countries. He found the non-significant and negative effect of financial crises on loan to deposit ratio, and the impact is similar for banks in both GCC and non-GCC countries. This proxy has been considered as the most important measure for bank's liquidity.

Cross-sectional studies carried out by Alzorqan (2014) and Farooq et al. (2015) revealed a significant relationship between loan to deposit ratio and the performance of banks.

A considerable amount of literature has investigated the performance of Islamic and conventional banks and its relationship with loan to deposit ratio. For instance, Abdel Megeid (2017) reported that asset quality and funding management practices are better in conventional banks than in Islamic banks, and these positively affect LRM. In Islamic banks, funding management positively affects LRM, while asset

quality affects it negatively. In addition, the author recommended that Islamic banks borrow funds to reach the minimum liquidity reserve requirements because these banks suffer from a lack of liquidity.

Khan et al. (2016), Fayed (2013), and Ben Khediri et al. (2015) examined the financial performance of Islamic and conventional banks by analyzing the loan to deposit ratio. They found that loan to deposit ratio is higher in conventional banks, suggesting that these banks have better asset quality, and that Islamic banks face more liquidity risk.

Contrary to the findings of previous studies, Tai (2014) and Abu Loghod (2010) found that conventional banks are more liquid and solvent than Islamic banks in GCC countries, and they noted that Islamic banks have a higher loan to deposit ratio.

This study tested the association between loan to deposit ratio and bank performance. From the above discussion, this study formulated the following hypothesis :

H1.7: There is a negative and significant association between loan to deposit ratio and bank performance.

Table 3.8: Summary of Loan to Deposit Ratio and its Impact on Bank Performance

Author (Year)	Country	Period	Empirical results
Faroug et al (2016)	Oman	2010-2014	There is a positive and significant relationship between LDR and the profitability of banks.
Hapsari (2018)	Indonesia	2012-2016	There is a positive and significant relationship between LDR and BP.
Zarrouk (2014)	10 MENA countries	2005-2010	The financial crises negatively and non-significantly affect LDR.
Almazari (2014)	Jordan & Saudi Arabia	2005-2011	There is a significant and negative relationship between LDR and the profitability of Saudi banks; LDR has a significant and positive relationship with the profitability of Jordanian banks.
Al-Rdaydeh et al. (2017)	Jordan	2006-2015	There is a significant and negative relationship between LDR and ROA, while LDR has no relationship with ROE.
Hacini et al. (2021)	Saudi Arabia	2002-2019	There is a significant and negative relationship between LDR and BP.

Table 3.8, continued

Author (Year)	Country	Period	Empirical results
Kaddumi & Al-Kilani (2020)	Jordan	2014-2018	There is a significant and negative relationship between LDR and OCFS, and a non-significant relationship between LDR and EPS.
Hussain et al. (2016)	Pakistan	2005-2014	LDR has a negative and significant relationship with the ROE of large commercial banks, while a negative and non-significant impact with the ROE of small banks.
Alzorqan (2014)	Jordan	2008-2012	There is a significant relationship between LDR and BP.
Farooq et al. (2015)	Pakistan	2009-2013	There is a significant relationship between LDR and BP.
Rengasamy (2014)	Malaysia	2009-2013	There is a positive and non-significant relationship between LDR and BP.
Fayed (2013)	Egypt	2008-2010	LDR is higher in CBs.
Khan et al. (2016)	Pakistan	2007-2014	LDR is higher in CBs.
Ben Khederi et al. (2015)	GCC countries	2003-2010	IBs face more liquidity risk.
Abu Loghod (2010)	GCC countries	2000-2005	IBs have higher LDR.
Tai (2014)	GCC countries	2003-2011	IBs have higher LDR.

3.5.3 Loan to Total Asset Ratio and Bank Performance

Hanif (2012) explained that this ratio measures the proportion of loans that are rooted in the assets of the company. Noman et al. (2015) showed that a higher ratio may decrease the level of liquidity in banks, which would lead to higher funding cost and credit risk. Zarrouk (2014) found that a higher loan to asset ratio leads to lower liquidity and higher profits and risks for the banks.

Rajha (2017) concluded that there is a positive and significant relationship between loan to asset ratio and NPLs in commercial banks in Jordan, which means that the banks will bear more NPLs if they are a high risk taker. Faroug et al. (2016) found different results: using a sample of commercial banks in Oman and examining the relationship between loan to asset ratio, as a proxy for liquidity position, and bank performance. They noted a positive and significant relationship between loan to asset ratio and ROA, but it has a non-significant negative correlation with ROE.

In their surveys, Sufian et al. (2012) and Almumani (2013) found that loan to asset ratio negatively relates to the profitability of banks. Specifically, Sufian et al. (2012) found a significant correlation between both constructs, while Almumani (2013) concluded a non-significant relationship between ROA and loan to asset ratio. Contrary to those studies, Noman et al. (2015) found that loan to asset ratio has a positive impact on the profitability of Islamic banks in Bangladesh. The banks have low liquidity, signifying that the loan disbursement of Islamic banks is higher than that of conventional banks.

Smaoui and Salah (2012) analyzed the effects of bank characteristics and macroeconomic variables on the profitability of Islamic banks from 1995 to 2009. They found a non-significant relationship between loan to asset ratio and ROA; a negative but non-significant correlation between loan to asset ratio and ROE; and a negative and significant relationship between loan to asset ratio and non-interest margin (NIM).

Kaddumi and Al-Kilani (2020) found a negative relationship between loan to asset ratio and OCFS. This finding indicates that higher loan to asset ratio results from a decrease in total assets value or increase in loans, which negatively affects the financial performance of Jordanian banks.

Cross-sectional studies developed by Abu Loghod (2010), Fayed (2013), and Hanif (2012) showed that Islamic banks have a higher loan to asset ratio than conventional banks. On the contrary, Abdel Megeid (2017) found that loan to asset ratio is higher for conventional banks than Islamic banks. This finding shows that Islamic banks have a better level of liquidity, which is clear evidence that Islamic banks try to maximize the benefits of the committed funds.

Ben Khediri et al. (2015) noted no difference in the loan to asset ratio between Islamic and conventional banks in GCC countries from 2003 to 2010. Meanwhile, Zarrouk (2014) found that the global financial crisis did not have an impact on loan to asset ratio; in fact, it stayed stable before and during the crisis.

The factors that affect the intermediation margin of Islamic and conventional banks were widely investigated by Bougatef and Korbi (2018). The authors noted a significant and negative relationship between loan to asset ratio and the intermediation margin of conventional banks. This shows that the banks focus on lending activities, which may lead to effective evaluation of credit quality of borrowers. The authors also reported lower intermediation cost while finding no significant relationship between the loan to asset ratio and net profit margin of Islamic banks.

Chowdhury (2015) investigated the factors that affect the profitability of Islamic banks in Asia and Africa. They found a non-significant relationship between loan to asset ratio and profitability, indicating that liquidity does not affect the profitability of Islamic banks.

This study tested the association between loan to asset ratio and bank performance. From the above discussion, this study tested the following hypothesis:

H1.8: There is a negative and significant association between loan to asset ratio and bank performance.

Table 3.9: Summary of Loan to Asset Ratio and its Impact on Bank Performance

Author (Year)	Country	Period	Empirical results
Rajha (2017)	Jordan	2008-2012	There is a positive and significant relationship between LAR and NPLs.
Faroug et al. (2016)	Oman	2010-2014	LAR has a positive and significant relationship with ROA but a negative and non-significant correlation with ROE.
Sufian et al. (2012)	India	2000-2008	There is a negative and significant relationship between LAR and the profitability of banks.
Smaoui & Salah (2012)	GCC countries	1995-2009	There is a non-significant negative relationship between LAR and ROA and a significant negative relationship between LAR and non-interest margin.
Bougatef & Korbi (2018)	MENA	1999-2014	There is a significant and negative relationship between LAR and the intermediation margin of CBs; there is no significant relationship between LAR and the net profit margin of IBs.
Kaddumi & Al-Kilani (2020)	Jordan	2014-2018	There is a negative relationship between LAR and OCFS.
Almumani (2013)	Jordan	2005-2011	There is a negative and non-significant relationship between LAR and the profitability of banks.
Chowduhry (2015)	ASIA & AFRICA	2013	There is a negative and non-significant relationship between LAR and the profitability of IBs.
Noman et al. (2015)	Bangladesh	2003-2013	LAR has a positive and non-significant impact on the profitability of IBs.
Abu Loghod (2010)	GCC Countries	2000-2005	IBs have a higher LAR than CBs.
Hanif et al. (2012)	Pakistan	2005-2009	IBs have a higher LAR than CBs.
Abdel Megeid (2017)	Egypt	2004-2011	LAR is higher for CBs than IBs.
Ben khederi et al. (2015)	GCC Countries	2003-2010	No difference in LAR between IBs and CBs.
Zarrouk (2014)	10 countries	2005-2010	The global financial crisis did not affect LAR.

3.5.4 Cash to Deposit Ratio and Bank Performance

Warrad (2017) defined cash to deposit ratio as “the total balance of cash in hand, and it evaluates how much fund the bank has available for borrowing.” He found no significant relationship between cash to deposit ratio and return on investment (ROI) in Jordanian Islamic banks. A comprehensive research by Siddiqui (2008) analyzed cash to deposit ratio and other liquidity ratios for two Islamic banks in Pakistan. The author found that Islamic banks have maintained larger cash balances than conventional banks.

Examining the performance of Islamic and conventional banks and its relationship with cash to deposit ratio, Abu Loghod (2010) found that Islamic banks have higher cash to deposit ratio than conventional banks in GCC countries. Meanwhile, Ben Khederi et al. (2015) noted no difference in cash to deposit ratio between Islamic and conventional banks in GCC countries from 2003 to 2010.

Goel and Kumar (2016) and Abdullah and Jahan (2017) found a non-significant relationship between CDR and the financial performance of banks. An extensive research by Mishra & Pradhan (2019) in India found that CDR has a negative non-significant relationship with ROE and a negative and significant relationship with ROA. Thiagarajan (2015) found a negative and significant relationship between CDR and the financial performance of banks. Hacini et al. (2021) found a negative and significant relationship between cash to deposit ratio and bank performance. This means that as CDR increases above a certain level, the bank incurs opportunity cost and deposit interest, which negatively affect its performance. On the other hand, increasing cash to deposit ratio increases the customers' trust that the bank will be able to return their deposit when they request it. Therefore, Saudi banks may hold a large percentage of cash (surplus in liquidity) to satisfy deposit withdrawal demands.

Contrary to those findings, Bansal et al. (2018) noted a positive and significant relationship between CDR and the financial performance of banks using the fixed effects model, but the random effects model indicated a non-significant relationship.

Kaddumi and Al-Kilani (2020) found a positive and insignificant relationship between CDR and OCFS and EPS. These results suggest that management should concentrate on financial investments that generate enough cash flow for shareholders to avoid any liquidity deficit risk.

This study tested the association between cash to deposit ratio and bank performance. From the above discussion, this study formulated the following hypothesis:

H1.9: There is a non-significant association between cash to deposit ratio and bank performance.

Table 3.10: Summary of Cash to Deposit Ratio and its Impact on Bank Performance

Author (Year)	Country	Period	Empirical results
Warrad (2017)	Jordan	2010-2015	There is a non-significant relationship between CDR and ROI for Jordanian IBs.
Siddiqui (2008)	Pakistan	2003-2004	IBs have maintained larger cash balances than CBs.
Abu Loghod (2010)	GCC Countries	2000-2005	IBs have higher CDR than CBs.
Ben Khederi et al. (2015)	GCC Countries	2003-2010	There is no difference in CDR between IBs and CBs.
Goel & Kumar (2016)	India	2009-2010 2013-2014	There is a non-significant relationship between CDR and BP
Mishra & Pradhan (2019)	India	2013-2017	There is a significant and negative relationship between CDR and ROA, and a negative non-significant relationship between CDR and ROE
Hacini et al. (2021)	Saudi Arabia	2002-2019	There is a negative and significant relationship between CDR and BP.
Bansal et al. (2018)	India	2013-2017	There is a positive and significant relationship between CDR and BP using the FE model, but the relationship is non-significant using the RE model
Kaddumi & Al-Kilani (2020)	Jordan	2014-2018	There is a positive but insignificant relationship between CDR and EPS and OCFS.
Abdullah & Jahan (2017)	Bangladesh	2009-2013	There is a negative non-significant relationship between CDR and BP
Thiagarajan (2015)	Belize	2008-2015	There is a negative significant relationship between CDR and BP

3.5.5 Leverage Ratio and Bank Performance

Debt to equity ratio is used to indicate the percentage of equity capital that is considered as collateral for all the company's debt, or to evaluate the value of debt used by the corporation. The ratio measures the ability of a company to meet its obligations by assessing the proportion of equity capital that is used to pay the debt (Heikal et al., 2014). Darsono (2005) as cited in Heikal, Khaddafi and Ummah (2014)

reported that higher loan capital leads to higher debt burden (interest cost), and an increase in debt burden would reduce the profitability of a firm.

Adeusi et al. (2014) investigated the effect of risk management on the financial performance of banks in Nigeria. The authors quantitatively examined credit, market, and liquidity risks from 2006 to 2009. They concluded that there is a positive and significant relationship between debt-equity ratio and bank performance. On the contrary, Alshatti (2015) concluded that there is a significant negative correlation between leverage ratio and the profitability of banks in Jordan from 2005 to 2013.

The association between expected risks and the financial strength of banks was widely investigated by Sharma et al. (2018). The authors found a significant relationship between the expected risks and losses and financial strength indicators (leverage ratio, ROA, ROE, and liquidity) in Russian banks from 2000 to 2010.

Zarrouk (2014) investigated the effect of the global financial crisis on Islamic banks in MENA from 2005 to 2010 and compared the soundness in risk management between Islamic banks and conventional banks. The author showed that all solvency and risk ratios, including leverage ratio, of Islamic banks in GCC countries are lower than those reported in non-GCC countries. Furthermore, most assets of Islamic banks are financed by debt rather than equity. Chazi & Syed (2010) found that the leverage ratio in conventional banks is lower than that in Islamic banks, and Islamic banks had a better ratio from 2005 to 2008.

Based on the stakeholder theory, Bae et al. (2011) found that customers, employees, and other stakeholders are reluctant to do business with a highly leveraged firm because financial difficulties can affect firm's incentive to honor its implicit contracts with them.

Table 3.11: Summary of Leverage Ratio and its Impact on Bank Performance

Author (Year)	Country	Period	Empirical results
Adeusi et al. (2014)	Nigeria	2006-2009	There is a positive and significant relationship between LR and BP.
Alshatti (2015)	Jordan	2005-2013	There is a significant and negative correlation between LR and the profitability of banks.
Sharma et al. (2018)	Russia	2000-2010	There is a significant relationship between the expected risks and losses and LR, ROA, and ROE.
Chazi & Syed (2010)	14 countries	2005-2008	LR in CBs is lower than IBs.
Zarrouk (2014)	10 countries	2005-2010	All solvency and risk ratios of IBs in GCC countries are lower than non-GCC countries.

Accordingly, this study tested the association between leverage ratio and bank performance, as measured by ROE and ROA. From the above discussion, this study formulated the following hypothesis:

H1.10: There is a positive and significant association between leverage ratio and bank performance.

3.6 Empirical Studies on Control Variables on Bank Performance

3.6.1 Bank Size

A considerable amount of literature has examined the impact of bank size on the profitability of banks. For instance, Boahene et al. (2012) investigated the relationship between credit risk and the profitability of banks in Ghana in 2005-2009. The findings support previous studies, which suggest that bank size is positively and significantly associated to profitability. Benefits associated with firm size, if managed properly, include high bargaining power, ability to invest in research and development, economies of scale, and improved efficiency of operation due to the ability to procure better technologies. These benefits eventually lead to increased profitability and lower cost of operation. Larger banks also have high collateral capacity, which attracts cheaper and bigger loan facilities.

Smaoui and Salah (2012) examined the effect of bank-specific characteristics on the profitability of Islamic banks in the GCC. They found a positive and significant relationship between bank size and profitability. In addition, Chowdhury and Rasid (2015) found a positive and significant relationship between bank size and ROA. On the other hand, Karim and Alam (2013) analyzed the performance of banks in Bangladesh during the period of 2008-2012. They found a negative and significant relationship between bank size, ROA, ROE, and NIM.

A number of cross-sectional studies, such as Akhtar et al. (2011) and Rajha (2017), found an insignificant positive relationship between bank size, credit risk (measured by nonperforming loans), and liquidity risk (measured by cash-to-asset ratio). In addition Ramadan et al. (2011) investigated the relationship between the characteristics of internal and external factors and the profitability of Jordanian banks. They found a negative insignificant relationship between them. Almumani (2013) also found an insignificant and negative relationship between bank size and profitability. The negative result might be due to diseconomies of scale experienced by banks due to their increased size.

Table 3.12: Summary of Empirical Evidence on Bank Size and its Impact on Bank Performance

Author (Year)	Country	Period	Empirical results
Boahene et al. (2012)	Ghana	2005-2009	There is a significant relationship between bank size and profitability.
Smaoui & Salah (2012)	GCC		There is a significant relationship between bank size and profitability.
Chowdhury & Rasid (2015)	ASIA, AFRICA	2013	There is a significant relationship between bank size and ROA.
Karim & Alam (2013)	Bangladesh	2008-2012	There is a negative and significant relationship between bank size, ROA, ROE, and NIM.
Akhtar et al. (2011)	Pakistan	2006-2009	There is a non-significant positive relationship between bank size and credit risk (NPL).
Rajha (2017)	Jordan	2008-2012	There is an insignificant positive relationship between bank size and liquidity risk (CDR).
Ramadan et al. (2011)	Jordan	2001-2010	There is a negative insignificant relationship between bank size and profitability.
Almumani (2013)	Jordan	2005-2011	There is a negative insignificant relationship between bank size and profitability.

3.6.2 Bank Type

Noman et al. (2015) compared the performance of conventional and Islamic banks in Bangladesh. They found that efficiency, profitability, liquidity, and size of CBs are higher than IBs, but the former has lower capitalization and lower CRM quality than the latter. Khan et al. (2016) found that IBs are relatively better in efficiency, risk, liquidity management, and profitability, while CBs are superior in asset quality.

Ben Khediri et al. (2015) compared the financial performance of conventional and Islamic banks in GCC countries in 2003-2010. The results showed that IBs are more liquid, capitalized, profitable, and have lower credit risk exposures than CBs. Fayed (2013) investigated the performance of conventional and Islamic banks in Egypt. The results indicated that CBs are better than IBs in profitability, CRM, solvency, and liquidity.

Waemustafa and Sukri (2016) analyzed the impact of internal and external factors on the liquidity risk of conventional and Islamic banks from 2000 to 2010. The results showed that CBs generate slightly more profit than IBs because the larger size of CBs allows them to reap the benefits of economies of scale while reducing their transactions costs. In contrast, Azizud-din et al. (2016) compared the performance of conventional and Islamic banks and found that IBs are better in terms of earning power performance, liquidity performance, and profitability.

Abdel Megeid (2017) compared the effectiveness of LRM of conventional and Islamic banks in Egypt in 2004-2011. The results showed that IBs are likely to be more stable than CBs because they have profit/loss sharing on both the liability and asset sides. At the same time, CBs are more efficient in managing their liquidity risks compared to IBs.

Rozzani and Abdul Rahman (2014) examined the performance of CBs and IBs in Malaysia from 2008 to 2011. They observed that the performance of IBs improves following the reduction of bank size and increase in credit risk, while the performance of CBs improves following the reduction of operational costs.

Hanif et al. (2012) investigated the financial performance of IBs and CBs in Pakistan. They found that the profitability of CBs is higher than IBs, but the quality of loans or assets and CRM of IBs are better than CBs.

Ali (2020) investigated the financial performance of CBs and IBs in Qatar before and after the imposition of the economic blockade on Qatar. This study analyzed five CBs and four IBs from 2015 to 2019, separated into pre-blockade and post-blockade. He found that IBs have higher profitability than CBs, but CBs maintain more sustainable and steadier profit growth than IBs.

Nasib and Faleel (2021) analyzed the profitability and credit risk management efficiency of ten CBs and ten IBs between 2007 and 2013 in the global cash control system (GCC). They found that IBs have more efficient CRM techniques than CBs, and that IBs are more profitable than CBs.

Table 3.13: Summary of Empirical Evidence on Bank Type and its Impact on Bank Performance

Author (year)	Country	Period	Empirical result
Khan et al. (2016)	Pakistan	2007-2014	IBs are better in profitability, efficiency, risk, and liquidity management than CBs.
Noman et al. (2015)	Bangladesh	2003-2013	The efficiency, profitability, liquidity, and size of CBs are higher than IBs.
Ben Khediri et al. (2015)	GCC	2003-2010	IBs are more liquid, capitalized, profitable, and have lower credit risk than CBs.
Fayed (2013)	Egypt	2008-2010	CBs are better than IBs in profitability, CRM, solvency, and liquidity.
Waemustafa & Sukri (2016)	Malaysia	2001-2011	CBs generate slightly more profit compared to IBs.
Azizud-din et al. (2016)	Malaysia	2010-2014	IBs are better in terms of earning power performance, liquidity performance, and profitability
Abdel Megeid (2017)	Egypt	2004-2011	CBs are more efficient in managing their liquidity risks compared to IBs.

Table 3.13, continued

Author (Year)	Country	Period	Empirical results
Rozzani &Abul Rahman (2014)	Malaysia	2008-2011	The performance of CBs improves following the reduction of operational costs, while the performance of IBs improves following the reduction of bank size.
Hanif et al. (2012)	Pakistan	2005-2009	Profitability of CBs is higher than IBs.
Ali (2020)	Qatar	2015-2019	IBs have higher profitability than CBs.
Nasib & Faleel (2021)	GCC	2007-2013	IBs are more profitable than CBs.

3.6.3 Board Size

A number of cross-sectional studies have investigated the impact of board size on the financial performance of firms. For example, Oyerogba et al. (2016) found that board size has a positive and significant effect on capital returns, and that firms with a large board enjoy more access to capital and benefit from the professional experience of the board members. In an extensive research, Haniffa and Hudaib (2006) analyzed 347 listed firms in Malaysia using both inferential and descriptive statistics for five years. They found a positive and significant relationship between board size and ROA. Similar to other developing economies, Indian firms with a large board perform better and record higher growth and profitability during the period covered by the study (Jackling & Johl, 2009).

Guest (2009) examined the effect of board size on firm performance in 2746 listed UK firms in 1981-2002 and found that board size has a significant negative impact on profitability, share returns, and Tobin's Q. They argue that poor decision-making and communication undermine the effectiveness of large boards. Rostami et al. (2016) analyzed the impact of corporate governance components on stock returns and ROA of companies listed in the Tehran stock exchange using a sample of 469 firm-year observations covering a seven-year period. The study found a significant negative relationship between board size, stock returns, and ROA.

Several cross-sectional studies, such as Goel and Sharma (2020), Darko et al. (2016), and Yammeesri and Herath (2010) found an insignificant relationship between board size and the financial performance of banks and firms.

Table 3.14: Summary of Empirical Evidence on Board Size and its Impact on Bank Performance

Author (Year)	Country	Period	Empirical results
Oyerogba et al. (2016)	Nigeria	2004-2013	Board size has a positive and significant effect on capital returns.
Haniffa & Hudaib (2006)	Malaysia	1996-2000	Positive and significant relationship between board size and ROA.
Jackling & Juhl (2009)	India	2005-2006	Positive and significant relationship between board size and BP.
Guest (2009)	UK	1981-2002	Board size has a significant negative impact on profitability, share returns, and Tobin's Q.
Rostami et al. (2016)	Tehran	2006-2012	Significant negative relationship between board size and ROA.
Goel & Sharma (2020)	India	2011-2016	Insignificant relationship between board size and BP.
Darko et al. (2016)	Ghana	2008-2012	Insignificant relationship between board size and BP.
Yammeesri & Herath (2010)	Thailand	2003-2004	Insignificant relationship between board size and BP.

3.6.4 Gross Domestic Production

Yüksel et al. (2018) identified the factors of bank profitability in 13 post-Soviet countries. They analyzed the annual reports of the banks from 1996 to 2016. They concluded that economic growth significantly and positively influences bank profitability. This means that higher GDP is linked to higher profitability for banks in post-Soviet countries. Moreover, Obamuyi (2013) investigated the impact of economic conditions, interest income, and expense management on bank profitability in Nigeria. He collected data from the sample banks' annual reports in 2006-2012. In line with researcher's expectation, GDP has a positive and significant relationship with profitability. Higher GDP improves business opportunities, which ultimately leads to higher profitability.

Alkhazaleh (2017) likewise found a positive and significant relationship between economic growth and the financial performance of Jordanian banks after analyzing their annual reports. The finding suggests that Jordanian banks significantly contribute to economic development, and as such the government should introduce efficient policies that improve bank performance to increase aggregate output, thereby stimulating economic growth.

Leon (2020) investigated the impact of macroeconomic factors on the profitability of 20 ASEAN banks from 2012 to 2017. The results showed that GDP growth negatively and significantly affects ROA. Therefore, higher GDP growth reduces the ROA of banks. In addition, Tan and Floros (2012) investigated the impact of GDP growth on bank profitability in China in 2003-2009. The findings showed a negative and significant relationship between GDP growth and bank profitability.

Several cross-sectional studies, such as Sheefeni (2015), Ramadan et al. (2011), Ariffin and Tafri (2014), and Michael and Osamwonyi (2014) found insignificant relationship between GDP growth and bank profitability. Table 3.15 summarizes the empirical evidence on GDP and bank performance, while Table 3.16 summarizes the research hypotheses.

Table 3.15: Summary of Empirical Evidence on GDP and its Impact on Bank Performance

Author (Year)	Country	Period	Empirical results
Yüksel et al. (2018)	Soviet-countries	1996-2016	Positive and significant relationship between GDP and BP.
Obamuyi (2013)	Nigeria	2006-2012	Positive and significant relationship between GDP and BP.
Alkhazaleh (2017)	Jordan	2010-2015	Positive and significant relationship between GDP and BP.
Leon (2020)	ASEAN	2012-2017	GDP negatively and significantly affects ROA.
Tan & Floros (2012)	China	2003-2009	Negative and significant relationship between GDP and BP.
Sheefeni (2015)	Namibia	2001-2014	Insignificant relationship between GDP and BP.
Ramadan et al. (2011)	Jordan	2001-2010	Insignificant relationship between GDP and BP.
Ariffin & Tafri (2014)	Malaysia	2004-2011	Insignificant relationship between GDP and BP.
Michael & Osamwonyi (2014)	Nigeria	1990-2013	Insignificant relationship between GDP and BP.

Table 3.16: Research Hypotheses

No	Hypothesis
H1.1	There is a negative and significant association between non-performing loans and bank performance.
H1.2	There is a positive and significant relationship between capital adequacy ratio and bank performance.
H1.3	There is a negative and significant relationship between cost per loan ratio and bank performance.
H1.4	There is a negative and significant relationship between loan loss reserve ratio and bank performance.
H1.5	There is a negative and significant association between loan growth ratio and bank performance.
H1.6	There is a significant association between current ratio and bank performance.
H1.7	There is a negative and significant association between loan to deposit ratio and bank performance.
H1.8	There is a negative and significant association between loan to asset ratio and bank performance.
H1.9	There is insignificant association between cash to deposit ratio and bank performance.
H1.10	There is a positive and significant association between leverage ratio and bank performance.
H2	There is no difference in CRM between Jordanian banks and selected Qatari and Saudi Arabian banks
H3	There is no difference in LRM between Jordanian banks and selected Qatari and Saudi Arabian banks
H4	There is no difference in CRM and LRM between Islamic and conventional banks

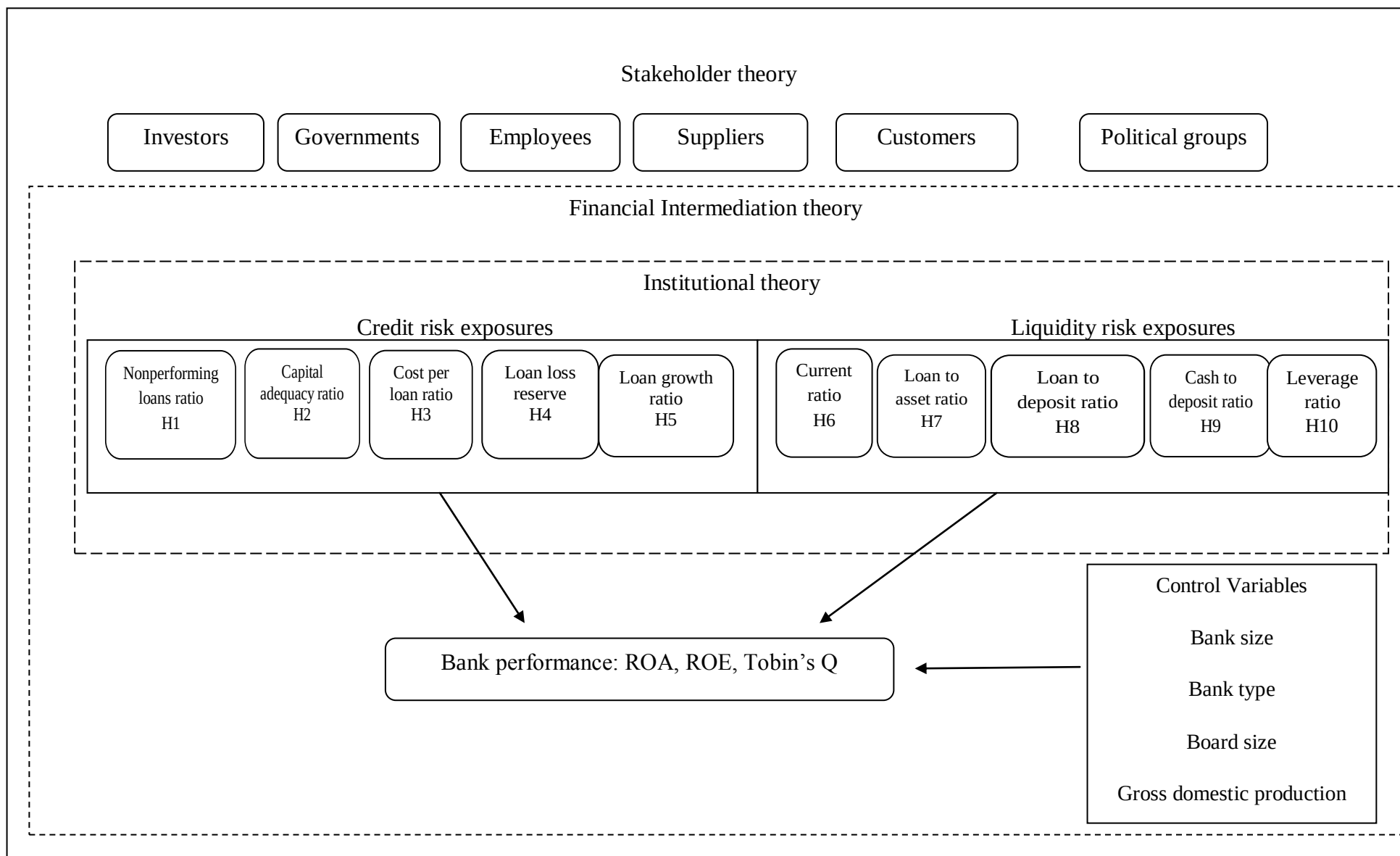


Figure 3.3: Conceptual Framework of The Study

This figure explains the relationship between institutional theory, financial intermediation theory, stakeholder theory, and credit and liquidity exposures. Institutional theory clarifies two main points. The first is the external pressures on institutions to implement the rules and regulations imposed by regulatory bodies and governments (legitimation), while the second is the similarity of managing risk exposures across several institutions (isomorphism). Legitimation and isomorphism in Jordanian and selected GCC banks are applied on all ratios used to measure the credit and liquidity risk exposures by the central bank, external auditing, risk management committee, and Basel III such as NPL, LLR, and CAR.

The financial intermediation theory deals with issues relating to adverse selection, moral hazard, and asymmetric information in financial contracts. The banker as a financial intermediary helps in capturing the value associated with solving information asymmetries and minimizing transactional costs between borrowers and lenders (CPL ratio, leverage ratio). Their analysis aggregates information about allocation and correlation of risky assets and risk control for the effective shaping and structuring of risky portfolio. Therefore, Risk management efficiency will determine the success and survival of financial organizations and it's consider one of the most important determinants of better shareholder returns (Akkizidis & Khandelwel, 2007) as cited in Rosman & Abdul Rahman (2015).

In addition, the contribution of the stakeholder theory to risk exposure is the application of organizational functions as efficiently as possible by instrumentally linking between the stakeholder model and the performance of organizations. The most important type of risk faced by banks that is related to the stakeholder theory is credit and liquidity risk. This is because banks generate their main income by granting credits to investors or entrepreneurs.

3.7 Gap of the Study

The current section provides a brief discussion on the potential research gap related to credit and liquidity risk exposures, and bank performance. Several studies have investigated credit and liquidity risk exposures in Jordanian banks. This thesis aims to offer new insights into risk management practices by developing a new model called CRETY. It is a comprehensive model for measuring risk disclosures practices, particularly credit and liquidity risk, which includes a unique set of financial structure and bank-specific determinants of bank performance. This model improves the measurement of CRE and LRE in banks, taking into account technical requirements by combining numerical mathematics and statistics.

The literature shows that some key bank-specific factors have not been considered when measuring bank performance. For instance, NPL ratio, CGR, and LTD have not been evaluated alongside market-based performance (Tobin's Q). Similarly, the literature has not investigated the impact of GDP, credit and liquidity risk exposures on bank performance using Tobin's Q. To the best of the researcher's knowledge, no previous studies have examined NPL ratio, CGR, and GDP using Tobin's Q on both conventional and Islamic banks. Risk exposures practices in the financial system of Jordan and GCC countries are still unclear. This creates a substantial need for empirical studies to illuminate those practices. Thus, this thesis intends to compare between credit and liquidity risk exposures of Jordanian banks and those of Qatari and Saudi Arabian banks to gain a more comprehensive view of the bank's risk exposures. This study has successfully examined three banking sectors that comprise Islamic and conventional banks of different number and sizes. Thus, the comparative risk exposure model is one of the novel contributions of the thesis to the theoretical aspect of banking.

Today, IBs have significantly extended their presence in various developing and emerging economies. In recent years, IBs in many countries have become an important part in the local banking system. The effect of the entry of IBs on the financial stability and the development of the banking sector depends primarily on bank characteristics, home country, and host country.

Previous studies on the comparative performance between CBs and IBs have mainly focused on GCC and Middle East countries; only a few studies provide a comparative evaluation for the performance of CBs and IBs in Jordan. Moreover, most studies on bank performance have either examined IBs or CBs separately or collectively. In addition, only a few studies have comprehensively investigated the performance of IBs and CBs independently and collectively. Furthermore, some studies reported that CBs perform better than IBs, while others found the opposite to be true. In addition, only a few studies have made a comparison between Jordanian banks and Saudi Arabian banks, but bank performance in those studies were not measured using Tobin's Q. This thesis shows that different bank types will have different perceptions of risk management and different quality in financial performance. Therefore, this study offers some insights into the applicability of stakeholder theory, institutional theory, and financial intermediation theory to Islamic and conventional banks and adds a significant Islamic contribution through a comparative analysis of credit and liquidity risk exposures between conventional and Islamic banks in Jordan, Qatar, and Saudi Arabia.

3.8 Chapter Summary

This chapter reviewed some significant theories related to risk management and credit and liquidity risk exposures, such as institutional theory, stakeholder theory, and

financial intermediation theory, to examine how credit and liquidity risk exposures tools are clarified from the perspective of each theory.

This chapter has presented and summarized previous empirical studies related to this study. The credit risk exposures ratios used in this study were NPL, CAR, CPL, LLR, and LGR, while the liquidity risk exposures ratios were CR, LDR, LAR, CDR, and LR. This chapter has likewise discussed four control variables considered in this study: bank type, bank size, board size, and gross domestic production.

This chapter has provided the justifications on why it adopted credit and liquidity risk exposures as its independent variables and bank type as the control variable. Based on a review of the empirical literature, only a few studies in Jordan and GCC countries have examined the impact of credit and liquidity risk exposures on bank performance. Finally, this chapter ends with the study hypothesis, illustration of the study framework, and gap of the study.