Print ISSN: 2288-4637 / Online ISSN 2288-4645
doi:10.13106/jafeb.2022.vol9.no8.0183

The Effect of Bank Liquidity on Bank's Stability in the Presence of Managerial Optimism

Ashfaq HABIB[1], Muhammad Asif KHAN[2], Natanya MEYER[3]

Received: April 20, 2022 Revised: July 05, 2022 Accepted: August 08, 2022

Abstract

Bank stability serves as a prerequisite for the smooth functioning of economic and financial activities in the country. Banks face numerous risks, and liquidity plays an essential role in determining a bank's long-term growth and financial stability. By using the sample of 70 banks of the Gulf Cooperation Council, this study examines the association between funding the liquidity and the creation of liquidity and their impact on bank stability. Firstly, the reciprocal relationship reveals between funding the liquidity and the creation of liquidity by employing the 2SLS regression model. Further, by employing the dynamic GMM model, the research finds that funding liquidity is significant and positively influences bank stability. However, bank stability is significantly negatively influenced by the creation of liquidity, but the combined effect of funding the liquidity and creation of liquidity positively explains the bank stability. Additionally, this study reveals that managerial optimism biases contribute to determining the bank's liquidity and long-term stability. The finding of this study supports the executives, policymakers, and management of banks in understating liquidity risks, efficiency, and bank stability. The findings support regulatory guidelines mainly by the Basel III framework, which places more importance on the joint management of funding the liquidity and creation of liquidity in the economy.

Keywords: Bank Liquidity, Bank Stability, Managerial Optimism, 2SLS, GMM

JEL Classification Code: G21, G32, G33

1. Introduction

The stability of a bank is important to the smooth functioning of all economic and financial activities in the country. The bank faces numerous risks like the risk of withdrawal of deposits (liquidity risk), banks failing to collect the advances from customers on time (credit risk), profitability affected by a sudden change in interest rate (interest rate risk), and routine banking operations halt to a breakdown in a computer system, or building is burned down (operational risk) (Crouhy et al., 2000). Among these risks, bank stability is directly influenced by liquidity and credit risk. Ozili (2019) also viewed the absence of credit supply, and lack of payments to customers are the main challenges to the bank stability (Jiménez et al., 2013). Bank stability is the smooth functioning of banking activities to earn profit by mitigating the risk of financial distress (Luong & Nguyen, 2021).

Funding and creating liquidity are the two important functions that may determine the long-term financial stability of the banking industry. In funding the liquidity, managers maintain sufficient liquidity to meet the short-term financial obligations and reduce the risk of cash flow shock (Duong & Nguyen, 2021; Gennotte & Pyle, 1991). It reflects a bank's ability to generate the funds in due time and convert the assets into cash without losing their real value (Gertler et al., 2012). Keynes and Waeger (1936) argued that decisions to invest in liquid assets are

[1]First Author. Assistant Professor, Faculty of Management, Humanities and Social Sciences. University of Poonch Rawalakot, Pakistan. Email: ashfaqhabib@upr.edu.pk
[2][1]Assistant Professor, Department of Commerce, University of Kotli Azad Jammu and Kashmir, Pakistan [2] Department of Business Management, University of Johannesburg, South Africa. Email: khanasif82@uokajk.edu.pk
[3]Corresponding Author. Associate Professor, Department of Business Management, DHET-NRF SARChI Entrepreneurship Education, University of Johannesburg, South Africa. ORCID: https://orcid.org/0000-0003-3296-7374. [Postal Address: Cnr Kingsway and University Roads, Auckland Park, Johannesburg, 2092, South Africa] Email: natanyam@uj.ac.za

driven by cash flow need for routine business transactions, avail the investment opportunities, and reduce the risk of future cash flow shocks. In addition, a country's banking industry regulations and central monetary authorities are also appealed to retain a required amount of liquid assets during routine business operations to maintain bank stability (Copelovitch & Singer, 2008). Further, the market powers perform a vital role in setting a bank's current liquidity requirements and long-term lending policy, which ultimately affects the bank's stability (Adrian & Boyarchenko, 2018). However, liquidity is not free of cost, and large investment in liquid assets is driven by opportunity costs that may negatively impact bank profitability (Acharya & Skeie, 2011).

On the other hand, the bank creates liquidity in the economy to earn profit and offset the opportunity cost of holding the liquidity. The banks' liquidity is created by funding the illiquid assets with the help of short-term liabilities (Brunnermeier & Pedersen, 2009). Holmström and Tirole (1998) stated that banks also create liquidity to finance riskier investments using long-term deposits, off-balance sheets item, and new credit lines. Similarly, Brunnermeier and Pedersen (2009) empirically showed that a bank with a large number of deposit inflows sets a lower lending rate to create more economic liquidity. Likewise, Kim and Sohn (2017) noted that banks with sufficient funds are issuing more long-term debt to reduce the opportunity cost of holding the liquidity.

Conversely, creating liquidity may increase the credit risk that borrowers may not repay their loans on time. While, a shortage of liquidity increases the short-term risk of paying the current business obligations (Matz & Neu, 2007). Basically, in funding the liquidity, management decides to maintain the desired level of liquidity to overcome the cash flow shocks. In creating liquidity, banks issue the liquidity in the economy to offset the opportunity cost of holding the liquidity.

Matz and Neu (2007), Malmendier et al. (2011), and Wang et al. (2013) argued that managerial traits are also an important factor that may influence the corporate decision-making of both financing and investing policy. Heaton (2002) argued that the decision of holding and liquidity creation is also led by managerial optimism. Optimism is a behavioral bias that may influence the firm's managers' short- and long-term investment policy. Optimist managers are thought to be having irrational behavior to making investment decisions. Such managers overestimate the future financial performance of the business and underestimate the uncertainty of outcomes (Brav & Heaton, 2002). It may lead to upward biases in terms of future financial outcomes. Optimist managers are very cautious regarding the firm's internal cash holding policy, which ultimately affects liquidity creation.

Banks perform the function of intermediaries by transforming the funds from pessimistic depositors to optimistic entrepreneurs. In the presence of optimist managers, it is easier for a bank to transfer the funds from risk-averse depositors to the risk-taker investors (Manove & Padilla, 1999). Optimistic managers may estimate a higher return on liquidity creation and lower the risk (Huang et al., 2018). Bui et al. (2016) also argued that optimistic bank managers take more risks and lend to risky projects. In line with these arguments, Hirshleifer and Luo (2001) stated that CEOs' optimism overvalues positive prospects of liquidity creation or future compensation. Further, they also state that a positive correlation exists between managerial optimism and bank liquidity creation. Hence, the optimistic managers may likely reduce the bank's liquidity funding and increase liquidity creation.

On the other hand, banks' regulatory bodies consistently recommend reserving an adequate level of liquidity to reduce the liquidity risk during the liquidity crunch. However, more rigorous liquidity requirements shrink the liquidity risk and squeeze the bank's profitability. As Fungacova and Weill (2015) also pose that the additional liquidity creation escalates the risk of bank failure to make payments on time. Similarly, as argued by Baltensperger and Dermine (1986), liquidity risk is a cost that causes to decrease in revenue. Default on loans endorses liquidity risk because of lowering cash inflows and increasing its depreciation.

Although Zhang et al. (2012) and Acharya and Viswanathan (2011) have already investigated the impact of liquidity on long-term bank stability, this study extends the existing research by analyzing the bank stability concerning the financial fragility hypothesis and risk absorbing hypothesis. This study also contributes to the existing literature by examining the reciprocal relationship between bank funding and liquidity creation and their impact on bank stability in the presence of managerial optimism. In view of the first result, we further test whether liquidity and managerial optimism individually or jointly affect bank stability.

2. Literature Review

2.1. Liquidity Funding and Liquidity Creation of Banks

According to Diamond and Dybvig (1983) and Bryant (1989), bank funding and liquidity creation are closely associated with each other, specifically for the funds' withdrawals and borrower's defaults. The bank's regulatory requirements and the threat of bankruptcy are two important fundamentals that may determine the desired level of bank funding and liquidity creation (Banerjee & Mio, 2018). Financial industry groups find that stringent liquidity

regulations increase the opportunity cost of bank funding and negatively influence the country's economy as banks decrease the credit supply and transfer the higher cost to the real economy (Young, 2013). The banking industry suggests that stringent capital requirements drive up the cost of funding the liquidity and reduce the bank liquidity creation, which reduces the bank's ability to bank lending and investing activities (Tran et al., 2016). Similarly, Admati et al. (2013) advocated that more rigorous capital requirements of banks sharply accelerate the cost of capital and reduce liquidity creation erroneously and inappropriately. However, the rigorous liquidity rules demand to maintain higher liquidity of the bank, which improves the bank's capacity to reduce the impact of the external economic shock on the financial stability of the bank (Kim & Sohn, 2017; Rashid, 2022).

The financial fragility hypothesis proposes that a higher bank's capital reduces liquidity by depressing banks to invest in long-term loans. In the financial fragility hypothesis, banks maintain sufficient liquidity to smooth routine business operations and reduce the risk of shock in cash flows. Further, Acharya and Viswanathan (2011) explained that higher investment in liquid assets leads to increase opportunity costs that negatively impact the bank's profitability, particularly in the competitive banking industry. Similarly, Acharya and Naqvi (2012) and Wagner (2007) found that a higher level of liquidity can potentially reduce the bank's profitability and more strict liquidity conditions increase the funding cost that risky banks may pose a threat of bankruptcy.

Conversely, as per the guidance of the risk absorption hypothesis, higher bank capital stimulates the issuance of new liquidity by absorbing risk aligned with lending activities (Laeven & Levine, 2009). Likewise, Bui et al. (2017) examined that higher bank deposits reduce the liquidity risk because adequate funds are available to settle the obligation on time and face lower risk in the presence of insured deposits. Further, as proposed by Repullo (2011), large bank deposits enhance the bank's capacity to absorb risk and create more liquidity to earn a higher profit. Andreou et al. (2016) also analyzed that efficient bank managers create more liquidity by taking the additional risk on per dollar investment and earning a higher return.

Hence, in light of the financial fragility hypothesis, there is a negative association between funding the liquidity and liquidity creation of a bank. The theory of financial fragility states that higher bank capital is caused by reducing the liquidity creation by financing the liquidity. At the same time, the risk absorbing hypothesis explains that there is a positive correlation between banks' funding the liquidity and the creation of liquidity. The risk-absorbing hypothesis encourages the bank managers having large capital to issue more liquidity by absorbing the risk with lending activities.

The literature on banks funding the liquidity with the association of liquidity creation shows mixed results. Horvath et al. (2014), Fu et al. (2016), Distinguin et al. (2013), Dahir et al. (2019), Kim and Sohn (2017), Khan et al. (2017), Drehmann and Nikolaou (2013), Abdul-Rahman et al. (2018) and Umar and Sun (2016a), developed a negative relationship between bank's funding the liquidity and bank's creation of liquidity with their respective studies. On the other hand, Al-Khouri and Arouri (2016), Berger and Bouwman (2009), Tran et al. (2016), Hassan et al. (2019), and Acharya and Naqvi (2012) found a positive association between liquidity funding and liquidity creation in their respective studies.

H1: *Banks' funding the liquidity, and creation of liquidity are negatively associated with each other as per the financial fragility hypothesis.*

H2: *Banks' funding the liquidity, and creation of liquidity are positively associated with each other as per the risk absorbing hypothesis.*

2.2. Banks' Liquidity and Stability

Banks funding liquidity and liquidity creation are critical factors that determine the long-term solvency and stability of the banking industry (Hugonnier & Morellec, 2017). The bank stability may threaten solvency when funding the liquidity and creation of liquidity are misaligned. The primary cause of the recent global liquidity crisis in the financial system was the shortage of liquidity and the creation of excess liquidity in the economy (Dahir et al., 2018). The banks maintain the liquidity to reduce the threats of solvency, and externally develop a strong association with the creation of liquidity in the economy (Rashid, 2022). The adequate liquidity also helps reduce losses raised from the sale of illiquid assets to repay the liabilities claimed (Drehmann & Nikolaou, 2013). Further, Brunnermeier (2009) investigated the increasing regulatory requirements to maintain the desired level of capital can change the liquidity and solvency risk of the banks and is important to improve the bank's stability.

In addition, Vazquez and Federico (2015) also analyzed the association between banks' funding and liquidity creation and their impact on bank stability. This study uses the data of 11000 banks in the US and European countries from 2001 to 2009. They concluded that banks with insufficient liquidity and higher leverage increased the default risk during the crisis. Further, Dahir et al. (2018) used the econometric techniques using the data of BRICS countries from 2006 to 2015 to explore the correlation between bank liquidity risk and risk-taking. The BRICS countries pose a negative association between liquidity funding and banks' risk-taking. The research finds that the banks hold adequate liquidity to reduce their long-term lending in the economy. The lower

liquidity and credit risk reduce the bank's default risk in the long run. Likewise, Khan et al. (2017) concluded in their study of US banks from 1986–2014 that liquidity funding develops a reciprocal relationship with banks' risk-taking.

This study suggests that the liquidity funding of banks reduces the bank's capacity to issue more liquidity. A sufficient level of liquidity improves the solvency position of the bank. Similarly, Umar and Sun (2016b) found that banks funding the liquidity negatively affect the liquidity creation using the dataset of BRICS countries from 2007 to 2014. This research reveals that the negative relationship between liquidity funding and liquidity creation positively impacts bank stability. Moreover, Calomiris and Jaremski (2016) proposed the theory of bank liquidity requirements and argued that banks should manage the assets side instead of the financing side of the balance sheet. This study argued that banks maintain a sufficient level of liquid assets to encounter liquidity risk and improve bank stability in the long run.

Similarly, the financial fragility hypothesis states that banks reduce the liquidity risk by funding the liquidity and reducing the liquidity creation in the economy. The bank maintains the liquidity for the smooth functioning of business operations and also maintains the desired level of liquidity to meet unforeseen needs. A sufficient level of liquidity reduces the liquidity risk, ultimately improving bank stability. However, funding the liquidity reduces the bank's ability to issue more liquidity in the economy. The lower levels of liquidity creation in the economy reduce the bank's credit risk, which may positively influence the bank's stability. Hence, we proposed our next hypothesis

H3: *The negative association between liquidity funding and liquidity creation positively influences the bank's stability.*

2.3. Managerial Optimism and Bank Liquidity

Managerial optimism is an important aspect that may affect the bank's ability to fund and create liquidity. Hill et al. (2014) and Malmendier and Tate (2005) suggested that overconfident managers influence corporate investment policies. Heaton (2002) introduced the simple model of managerial optimism in corporate finance and explained that managerial optimism might have explanatory power in corporate decision-making. Optimism managers are very excited about the future financial performance of the business and forecast the above-average rate of returns. Optimistic managers are supposed to be irrational and believe that projects under their management are operating more efficiently than actual performance (Mohamed et al. 2014). When determining the amount of liquidity creation, bank managers balance the benefits and risk generated by liquidity creation, and this trade-off may also be influenced by managerial optimism (Gervais et al., 2003).

Boot et al. (2006) predicted that managerial optimism develops a positive association with liquidity creation. This study suggests that banks develop a bridge of transferring the funding from pessimistic depositors to optimistic investors. In this process, bank managers could be sufficiently optimistic about transferring the funds to riskier investors. Further, Bui et al. (2019) argued that the optimistic managers overvalue market return and believe that the market situation will be favorable in the future as well. As a result, optimistic bank managers tend to create more liquidity and fellow looser lending standards. Likewise, Huang et al. (2018) examined US banking firms' managerial optimism and bank liquidity from 1993 to 2014. This study suggests that managerial optimism promotes liquidity creation by transferring funds from pessimistic depositors and optimistic investors. This study concludes that optimism develops a strong relationship with liquidity creation during the crisis, and this association is stronger in the large banks and the banks with high capital ratios.

Mohamed et al. (2014) also investigated that cash flow sensitivity increases in the presence of optimistic managers with the availability of ample funds. Similarly, Campbell et al. (2011) examined that the optimistic CEO will intensively overinvest with the availability of adequate internal cash flows, and they will underinvest when internal funds are insufficient. The risk-absorbing hypothesis also supports managerial optimism by absorbing the bank's liquidity risk and encouraging more liquidity creation. In contrast, according to the financial fragility hypothesis, banks with large capital maintain a higher level of liquidity, reducing liquidity creation. But, optimistic managers take the opportunity of large capital and create liquidity in the economy by ignoring the rigid liquidity requirements. Therefore, managerial optimism develops a positive association with a bank's liquidity creation and may enhance the negative impact of liquidity creation on the stability of a bank. So, our next hypothesis is:

H4: *There is a positive association between managerial optimism and liquidity creation that may enhance the negative effect of liquidity creation on a bank's stability.*

3. Data and Methodology

3.1. Data Explanation

Gulf Cooperation Council (GCC) was signed in 1981 by Saudi Arabia, Qatar, Oman, Kuwait, Bahrain, and the United Arab Emirates in the Gulf region. The GCC promotes economic and financial cooperation among the member countries. The banking industry in GCC has a sound financial background and maintains a high capital adequacy ratio (Jedidia, 2020). The industry also possesses a comfortable leverage ratio by international comparison

(Tai, 2014). The high capitalized ratio and a reasonable level of leverage ratio support the GCC banking industry in maintaining sustainable growth after the financial crisis of 2008 (Al-Khouri, 2012). The Arab spring was a major setback after the financial crisis of 2008 for GCC member countries to maintain economic cooperation with each other. The banking industry plays an important role in maintaining the member states' cooperation and sound financial system.

The Scopus Database of Banks has been used to collect the data of 70 commercial banks of GCC countries from 2010 to 2019 to evaluate the impact of bank liquidity on bank stability. The bank's overall risk is measured with the Z-Score in this study. The Z-Score is a proxy of a bank's stability and has been used by academic research studies such as Khan et al. (2017) and Abdul-Rahman et al. (2018). The higher the value of the Z-Score, the greater the bank's stability. The Z-score represents the ROA plus capital to asset ratio divided by the standard deviation of assets' return, a comprehensive proxy used to measure the bank's risk. It represents how far the bank is from insolvency. Correspondently, the bank's loan growth rate is used to measure liquidity creation, which is the percentage change in gross loan of a bank from year$_t$ to year$_{t-1}$ (Rizvi et al., 2020). Similarly, the bank's total deposits divided by the total assets in the year are taken as a measure of liquidity funding of a bank (Khan et al., 2017).

This study also evaluates the influence of liquidity on the stability of a bank in the presence of managerial optimism. Managerial optimism is a behavioral bias that has been frequently studied in the emerging literature. The prior studies to measure managerial optimism, used the executive's stock option possession and earnings forecast. This study develops a novel executive compensation ratio to calculate managerial optimism. Managerial optimism is calculated by the sum of the top three executives' compensation plus bonus and perks divided by the sum of all managers' compensation. The managers are optimistic if the executive compensation ratio becomes above the average in a particular year. Hence, a dummy variable equal to 1 for optimism and 0 otherwise is created. The Bank Size (SIZ), Capital Adequacy Ratio (CAR), Return on Assets (ROA), and Gross Domestic Product (GDP) are used as control variables. The variables, their acronym, and estimation used in this study to examine the bank liquidity are shown in Table 1.

3.2. Methodology

This study uses various complementary methods to examine the bank's liquidity and managerial optimism effect on bank stability. The association between funding liquidity and liquidity creation is first explored in this study. The problem of the unclear direction of association between liquidity funding and liquidity creation that has attained great attention in the recent past literature is dealt with in this analysis (Imbierowicz & Rauch, 2014). To determine the reciprocal or lagged relationship between these two variables, the Simultaneous Equation and Panel Vector Auto-Regression (PVAR) model is employed in this study. Secondly, we also examine the impact of liquidity and managerial optimism on a bank's stability by using the Generalised Method of Movement (GMM).

3.2.1. Two Stages Least Square

The simultaneous equation model is employed in this study to analyze the causal relationship between liquidity funding and liquidity creation.

$$FL_{i,t} = C + \beta_1(FL_{i.t-1}) + \beta_2(CL_{i,t}) + \beta_3 SIZ_{i,t} + \beta_4 ROA_{i,t} + \beta_5 CAR_{i,t} + \beta_6 GDP_{i,t} + \mu_{i,t} \quad (1)$$

$$CL_{i,t} = C + \beta_1(CL_{i.t-1}) + \beta_2(FL_{i,t}) + \beta_3 SIZ_{i,t} + \beta_4 ROA_{i,t} + \beta_5 CAR_{i,t} + \beta_6 GDP_{i,t} + \mu_{i,t} \quad (2)$$

Table 1: Variable Description

Variables	Acronym	Estimation
Bank Stability	Z-Score	
Funding the liquidity	FL	Total Deposits/ Total Assets
Creation of liquidity	CL	% change in bank gross loan from year$_t$ to year$_{t-1}$
Managerial Optimism	M.Opt	Top five executives' compensation plus bonus and perks divided by the sum of all managers' compensation
Bank size	SIZ	Natural log of total assets
Return on Assets	ROA	Operating profit/ Total Assets
Gross Domestic Product	GDP	% growth in real GDP

Where: i = 1.,,,,, N indicates the bank and t = 1.,,,,, T indicates the time period.

The FL_{it} funding the liquidity and CL_{it} represent the liquidity creation of bank i at time t. The bank size (SIZ), capital adequacy ratio (CAR), return on assets (ROA), and real Gross domestic product (GDP) are the control variables also used to investigate the relationship between liquidity funding and liquidity creation.

3.2.2. Panel Vector Auto-Regression Model (PVAR)

Following Love and Zicchino (2006), the PVAR model is used to examine the relationship between liquidity funding and liquidity creation for the association's unclear direction and the expected lagged relationship. This model accounts for each bank-specific level of the variables by suggesting fixed effects (u_i). This model can be expressed as:

$$y_{i,t} = +(\mu_{i,t}) + \varnothing(L)y_{i,t} + \varepsilon_{i,t}$$

Where $\varnothing(L)$ is the lagged operator and $y_{i,t}$ is a vector of variables.

3.2.3. Modelling of Bank Stability

This study also implements the empirical specification that is introduced by (Imbierowicz & Rauch, 2014) to reveal the influence of bank liquidity on bank stability, which can be written as follows:

$$\begin{aligned} \text{Z–score}_{i,t} = {} & \beta_0 + \beta_1(\text{Z–score}_{i,t-1}) + \beta_2(\text{FL}_{i,t}) \\ & + \beta_3(\text{CL}_{i,t}) + \beta_4(\text{FL}_{i,t} * \text{CL}_{i,t}) + \beta_5\text{SIZ}_{i,t} \\ & + \beta_6\text{ROA}_{i,t} + \beta_7\text{CAR}_{i,t} + \beta_8\text{GDP}_{i,t} + \mu_{i,t} \end{aligned} \quad (4)$$

Where: i denotes the bank (sample of 70 banks); t represents the time (2010–2019); represents the bank stability at time t, is the first lagged dependent variable, which captures the consistency in bank stability over the period. The joint effect of ($FL_{i,t}$ * $CL_{i,t}$) also develops in the model to find the influence of the association of these two variables on bank stability. β_0 is the parameter and β_1, β_2, β_3, β_4, β_5, β_6, β_7, and β_8 the coefficient of respective variables in the model to be estimated under the GMM model as developed by Blundell and Bond (2000). These variables were developed by the research articles on bank stability and bank risk, such as Acharya and Viswanathan (2011) and for the accounting variables (Du & Palia, 2016) and the macroeconomic variables (Aubuchon & Wheelock, 2010).

3.2.4. Modelling of Managerial Optimism

This study also develops model (5) to examine the influence of managerial optimism on liquidity creation. Secondly, model (6) is constructed to investigate the combined effect of liquidity creation and managerial optimism ($M.Opt_{i,t}$ * $LC_{i,t}$) on bank stability. Both models are developed and estimated under the GMM regression method. The models can be written as a fellow.

$$\begin{aligned} \text{LC}_{i,t} = {} & \beta_0 + \beta_1(\text{LC}_{i,t-1}) + \beta_2(\text{FL}_{i,t}) + \beta_3(\text{M.Opt}_{i,t}) \\ & + \beta_4(\text{SIZ}_{i,t}) + \beta_5(\text{ROA}_{i,t}) + \beta_5(\text{CAR}_{i,t}) \\ & + \beta_8(\text{GDP}_{i,t}) + \mu_{i,t} \end{aligned} \quad (5)$$

$$\begin{aligned} \text{Z–score}_{i,t} = {} & \beta_0 + \beta_1(\text{Z–score}_{i,t-1}) + \beta_2(\text{FL}_{i,t}) \\ & + \beta_3(\text{LC}_{i,t}) + \beta_4(\text{FL}_{i,t} * \text{LC}_{i,t}) \\ & + \beta_5(\text{M.Opt}_{i,t}) + \beta_6(\text{M.Opt}_{i,t} * \text{LC}_{i,t}) \\ & + \beta_7(\text{SIZ}_{i,t}) + \beta_7(\text{ROA}_{i,t}) + \beta_8(\text{CAR}_{i,t}) \\ & + \beta_7(\text{GDP}_{i,t}) + \mu_{i,t} \end{aligned} \quad (6)$$

4. Results and Discussion

4.1. Descriptive Statistics

Table 2 of this study shows the descriptive statistics of the variables used. The mean value of Z-Score (2.491) and

Table 2: Descriptive Statistics

Variables	Obs	Mean	Median	Max	Min	Std.Dev.
Z-Score	422	2.491	1.783	3.431	0.024	1.089
FL	422	0.081	0.044	0.184	0.031	0.038
CL	455	0.127	0.053	0.182	0.045	0.058
M.Opt	455	0.492	0.250	1.000	0.000	0.281
SIZ	455	4.027	1.892	10.67	2.784	0.489
ROA	455	1.436	1.024	1.876	0.812	1.541
CAR	455	11.73	5.921	15.23	4.34	4.34
GDP	455	5.352	2.058	10.90	–0.20	2.078

the standard deviation value (1.089) indicate that only a small number of observations deviate from its mean value.

Similarly, the mean value of liquidity funding (0.081) and standard deviation (0.032) indicate that FL observations are closer to their mean value. Likewise, the mean value of creation of liquidity (0.127), median (0.53), and standard deviation (0.058) indicate that data values are normal and can be used for research analysis. Further, the average value of managerial optimism M.Opt (0.492), median (0.250), and standard deviation (0.281) are guided that optimist managers overestimate the future returns. Moreover, the mean values of control variables are SIZ (4.027), ROA (1.436), CAR (11.73), and GDP (5.352), while the standard deviation SIZ (0.489), ROA (1.541), CAR (4.34), and GDP (2.078) respectively shows that control variables maintain positive mean values and lower standard deviation.

4.2. 2SLS- Regression Analysis

The relationship between liquidity funding and liquidity creation has been estimated using the 2SLS regression model-1 and model-2, respectively. The funding of liquidity (FL) is significantly but negatively explained (–0.035) by the creation of liquidity as shown in model-2, and the creation of liquidity is also significantly but negatively explained (–0.026) by the liquidity funding as presented in model 1 in Table 3. The results show that 1% increases in funding of liquidity bring a –0.026 change in the creation of liquidity, whereas 1% increases in the creation of liquidity bring a negative (–0.035) change in funding the liquidity. The results indicate an inverse relationship between funding the liquidity and the creation of liquidity. The results are consistent with the study of Distinguin et al. (2013), Drehmann and Nikolaou (2013), Horvath et al. (2014), Fu et al. (2016), Umar and Sun (2016a), Kim and Sohn (2017) and Dahir et al. (2019) which also show a negative relationship between liquidity funding and liquidity creation in their respective studies.

The higher level of liquidity shrinks the liquidity risk and squeezes the bank's profitability, whereas the creation of liquidity increases the bank profitability but escalates the risk of bank default. The bank management struggles to set the desired level between funding the liquidity and creating liquidity to generate the maximum return at a given level of risk. Therefore, we accept our hypothesis 1 that funding the liquidity and creation of liquidity are negatively associated with each other as per the financial fragility hypothesis and reject hypothesis 2.

The DWH test has been employed to test the endogeneity in the model. The null hypothesis of DWH states that consistent results can be obtained under the OLS of a similar equation. While the rejection of the DWH test null hypothesis suggests that instrumental variables should be the part of the equation and the endogenous regressor is a meaningful influence on the regression estimation. Secondly, the over-identification restrictions are checked by using the Hansen test. The Hansen test null hypothesis cannot be rejected. Thirdly, AR (2) test is used on residuals to estimate whether a correlation exists between the transformed error terms. The results of these tests in Table 3 specify that the instruments are valid to remove the model's endogeneity and serial correlation errors.

4.3. PVAR Model Estimation

This section explores the direction of association between funding liquidity and liquidity creation. In addition

Table 3: Regression Results

Independent Variables	Funding the Liquidity (Model 1)		Creation of Liquidity (Model 2)	
	Coefficient	*P*-Values	Coefficient	*P*-Values
Constants	2.152	0.086*		
FL			−0.035	0.001****
CL	−0.026	0.000***		
ROA	−0.021	0.005***	0.034	0.021**
SIZ	0.003	0.001***	0.015	0.004***
CAR	−0.001	0.000***	0.003	0.001***
GDP	−0.015	0.021**	0.001	0.032**
AR(2) test	−0.220	0.812	1.291	0.173
Hansen J-test	24.78	0.105	26.19	0.106
DWH test	176.2	0.000	188.3	0.000

Note: Hansen-test indicates the over-identification test for the restrictions in GMM estimation. AR (2) test is the second-order autocorrelation test in the first difference. Durbin-Wu-Hausman test of the endogeneity. denote * for 10%, ** for 5% and *** for 10% respectively.

to simultaneous equations under the 2SLS regression model, we further examine the inverse association between liquidity funding and liquidity creation in robustness tests. The simultaneous regression equations have been replaced with the PVAR model in the robustness check of our results. We found a statistically significant relationship between the variables and estimated the meaningful economic results. Table 4 shows the results that are estimated by using the PVAR model.

Further to the robustness test, we find that the results estimated in Table 3 have been verified in Table 4. The coefficient of funding the liquidity and creation of liquidity in the PVAR model are significant but negatively explained to each other, which indicates that a reciprocal relationship exists between funding the liquidity and creation of liquidity, as shown in Table 4. Therefore, our results show a meaningful economic relationship between liquidity funding and liquidity creation. Overfull, the statistical findings reflect a causal relationship between liquidity funding and liquidity creation that indicates a considerable co-movement with each other.

4.4. Analysis of Bank Stability

To investigate the significance of funding the liquidity and creation of liquidity for the bank, we study how these two variables jointly impact on bank's stability. The finding of a meaningful economic association between two liquidity categories in our initial analysis might indicate a significant influence on bank stability. If true, we have to find a joint inverse association between funding the liquidity and liquidity creation strongly contributing to the bank's stability as proposed in hypothesis 3. After getting the favorable results of the association between funding the liquidity and the creation of liquidity, we believe that theoretical arguments support this hypothesis.

The corporate literature on funding the liquidity and creation of liquidity as presented above has recognized that each category strongly influences bank stability. Secondly, the body of research studies by Berger and Bouwman (2009), and Andreou et al. (2016) found a causal relationship between these two categories which significantly influence bank stability. Thirdly, according to Imbierowicz and Rauch (2014), banks' failures during the recent financial crisis were caused by both the liquidity shortage and excess liquidity creation. Therefore, we have a strong theoretical justification for testing whether or not funding the liquidity and creation of liquidity individually and also jointly influence the bank's stability. The GMM approach, as introduced by Arellano and Bond (1991), Arellano and Bover (1995), and Blundell and Bond (1998), is used in estimating our results. The results of the Hansen test for over-identifying restrictions and AR (2) second-order serial correlation tests are shown in Table 5.

Table 5 presents the results estimated under GMM and shows that the AR (2) specification tests used to test the serial correlations in the GMM model are also valid. The *p*-value of AR (2) is higher than 0.10; hence we failed to reject the null hypothesis for the bank. It means that our empirical model is correctly specified because no serial correlations are transformed from the standard errors, and the instruments employed in the model are valid. Further, the Hansen J-statistics test was used to test the instrument validity and obtained a greater than 0.10 *p*-value. This implies that identified restrictions in the model are valid and the model is correctly specified. The results show the correctly specified dynamic model for bank stability. Additionally, the z-score-1 of lagged dependent variables in Table 5 is significantly positive at the 1% level, which verifies the dynamic role of model specification (Tan, 2016).

First, the different categories of liquidity (funding the liquidity and creation of liquidity) positively and negatively influence the bank stability to amplify the liquidity categories further to increase the bank stability. The funding the liquidity develops a statistically significant and positive (0.0482) impact on the bank's stability. Indeed, funding liquidity increases bank stability. Funding liquidity enables banks to meet the urgent cash flow needs due to unexpected customer withdrawals, which may influence the bank's stability.

In other words, funding the liquidity increases the bank's probability of meeting the obligations on time and reducing the bankruptcy risk. The results indicate that sufficient liquidity increases bank stability. The findings are consistent with the studies of De Jonghe (2010), Berrospide and Edge (2010), and Dahir et al. (2019). However, liquidity creation is statistically significant and positively (0.0221) influences a bank's stability. It guides that the credit risk is increased by creating liquidity, which enhances the negative impact on bank stability. Hence, the probability of a bank's failure is higher where the creation of liquidity is higher. The results suggest that the bank's stability decreases by increasing liquidity creation. After the financial crisis of 2008, known

Table 4: Robustness Tests

Variables	Funding the Liquidity	Creation of Liquidity
Funding the Liquidity-1	0.0431(0.003)***	−0.0341(0.001)***
Creation of Liquidity-1	−0.0264(0.001)***	0.0212(0.002)***

Table 5: Interaction Effect

Independent Variables	Coefficient	*P*-Values
Constant	−0.1026	8.873
Z-Score-1	0.2862***	0.000
FL	0.0482***	0.000
CL	−0.0221***	0.002
FL*CL	0.0312**	0.031
SIZ	−0.0150**	0.031
ROA	0.0315**	0.021
CAR	0.0291**	0.001
GDP	−0.0115**	0.027
AR (1)	−4.27	0.000
AR (2)	0.351	0.723
Hansen-test	22.12	0.311

Note: Hansen-test indicates the over-identification test for the restrictions in GMM estimation. AR (2) test is the Arellano Bond test for the second-order autocorrelation test in the first difference. Durbin-Wu-Hausman test of the endogeneity. * denote for 10%, ** for 5% and *** for 10% respectively.

to be a liquidity crisis, the bank industry has taken different steps to reduce the liquidity risk. The veracious management of funding the liquidity and creation of liquidity increases the bank's stability which confirms the results of Altunbas et al. (2007), Imbierowicz and Rauch (2014), and Adrian and Boyarchenko (2018).

Further, the interaction term (FL*CL) shows a significantly positive (0.0312) effect on the bank's stability at the 5% level. The results suggest that the joint influence of funding the liquidity and liquidity creation positively influences banks' stability. It reflects the fact that a sufficient amount of liquidity mitigates the credit risk of liquidity creation on a bank's stability and jointly promotes the bank's stability, as proposed in our hypothesis 3. The financial fragility hypothesis states that liquidity risk is reduced by funding the liquidity. It also restrains the banks' ability to create more liquidity in the economy, which ultimately reduces the bank credit risk. Therefore, a joint decrease of both categories of risks (liquidity and credit risk) positively influences the bank's stability. The findings of Nikomaram et al. (2013), Ejoh et al. (2014), and Imbierowicz and Rauch (2014) are also confirmed by our results.

Regarding the control variables, Table 5 shows the impact of ROA on bank stability. The ROA has a significantly positive (0.0315) effect on a bank's stability at a 5% level. However, the ROA results are inconsistent with the study of Srairi (2013) and Imbierowicz and Rauch (2014), who found the negative impact of ROA on bank stability. However, the bank size (SIZ) is statistically significant and negatively (-0.0150) affects the bank's stability at a 5% level. The results explain that large banks are risk-takers and have a higher probability of bank failure. Although large banks have more risky assets, they can manage their risk efficiently by diversification (Boyd & Prescott, 1986). The capital adequacy ratio (CAR) has a significant and positive (0.0291) effect on the bank's stability at a 1% level. Capital provides safety during a financial crisis and reduces the risk of bankruptcy. The results are consistent with Kamyabi and Ashjar (2014), where CAR is negatively associated with the probability of bankruptcy. Further, the coefficient of GDP develops a significantly negative (-0.0115) effect on the bank's stability. It indicates that banks create more liquidity during the economic growth period and maintain higher liquidity during the economic downfall.

4.5. Analysis of Managerial Optimism and Bank Stability

Managerial optimism is a young approach in corporate finance that has been frequently studied in the recent past to investigate the influence of governance mechanisms on firm performance. Banks construct a bridge for transforming the funds from pessimistic depositors to optimistic investors. Optimist managers make the process more convenient and create more liquidity by adopting looser lending standards. Table 6 shows the results estimate under model 5 and model 6 to examine the influence of managerial optimism on liquidity creation and bank stability. Managerial optimism develops a statistically significant and positive (0.0141) effect on liquidity, as presented in Table 6 using model 5.

Table 6: Liquidity Creation, Managerial Optimism, and Bank Stability

Independent Variables	Liquidity Creation and Managerial Optimism (Model 5)		Managerial Optimism and Bank Stability (Model 6)	
	Coefficient	*P*-Values	Coefficient	*P*-Values
Constants	1.341	0.040**	1.354	0.061*
FL	−0.0431	0.001****	0.0956	0.001****
CL			−0.0611	0.002***
Z-Score-1			0.2760	0.021**
M.Opt	0.0141	0.003***	−0.0231	0.001***
M.Opt*CL			−0.0162	0.003***
SIZ	0.031	0.005***	−0.002	0.031**
ROA	0.021	0.001***	0.0310	0.002***
CAR	−0.003	0.000***	0.0019	0.003***
GDP	0.0145	0.021**	0.0022	0.031**
AR(2) test	−0.24	0.812	1.183	0.174
Hansen J-test	22.76	0.105	24.17	0.103
DWH test	166.13	0.000	171.30	0.000

In model 5, creation of liquidity (CL) is the dependent variable, and in model 6, bank stability is the dependent variable.

The positive influence of managerial optimism on liquidity creation indicates that optimists' managers invest more and create more liquidity to earn a higher return. Indeed, optimistic managers create more liquidity to forecast the higher future return. The empirical results indicate that banks that have more optimist managers are more likely to take a risk by issuing liquidity in the economy.

The interaction effect of liquidity creation and managerial optimism (LC*M.Opt) has a significantly negative (–0.0162) influence on bank stability under model 6 as proposed in hypothesis 4. The negative interaction effect of (LC*M.Opt) indicates that optimist managers overestimate the future return and create more liquidity to fulfill their dream, negatively influencing bank stability. The optimist managers reduce the bank funding the liquidity and create more liquidity in the economy. Therefore, if managerial optimism exists, the issuance of more liquidity increases both the credit and liquidity risk, negatively influencing bank stability. Additionally, the Z-score-1 (lagged dependent variable) is statistically significant at 5% and positive, confirming the dynamic character specification in model 6. The control variables ROA, SIZ, CAR, and GDP, have also significantly affected liquidity creation in model 5 and bank stability in model 6, respectively. It guides that model is specified correctly to reveal the effect of liquidity on a bank's stability.

5. Conclusion and Managerial Implication

Funding and creating liquidity are the two essential factors for a bank's stability. This research investigates the impact of funding the liquidity and creation of liquidity on bank stability using a panel dataset of 70 commercial banks operating in the GGC countries from 2010–2019. Firstly, we revealed the reciprocal relationship between funding liquidity and liquidity creation. We investigated the clear pattern of association between these two variables, which are statistically significant and economically meaningful results.

Further, this study examines the effect of liquidity funding and liquidity creation on bank stability. The empirical results show that funding the liquidity develops a positive and statistically significant impact on a bank's stability. It guides that funding the liquidity enables banks to meet the problems due to customers' unexpected withdrawals, which may influence the bank's stability. It increases the bank's ability to meet the bank obligations on time and reduces the bankruptcy risk. On the other hand, creating liquidity significantly negatively affects a bank's stability. The results explain that a higher level of liquidity creation increases the credit risk, enhancing the negative impact on bank stability. It implies that the creation of liquidity increases credit risk and decreases a bank's stability. Moreover, we find that the combined effect of funding the liquidity and creation of

liquidity (FL*CL) is statistically significant and positively influences the bank's stability. It reflects that sufficient liquidity mitigates the credit risk of liquidity creation and enhances the positive influence on a bank's stability.

This study also examines how managerial optimism bias influences the bank's liquidity and the combined effect of liquidity creation and managerial optimism (LC*M. Opt) on a bank's stability under the GMM regression model. The study reveals that managerial optimism is statistically significant and positively influences liquidity creation. It guides optimist managers to implement the looser banking standards and create more liquidity to earn higher returns. The empirical results indicate that banks that have more optimist managers are more likely to be risk-taking by issuing more liquidity in the economy. While the interaction effect of liquidity creation and managerial optimism (LC*M. Opt) is statistically significant and negatively influences the bank's stability. It indicates that optimist managers overestimate the future return and create more liquidity to fulfill their dream, negatively influencing bank stability. Therefore, managerial optimism promotes bank liquidity and credit risks, negatively influencing bank stability.

The research findings have several policy implications and recommendations for managerial decision-making. First, the findings suggest a few guidelines for managing a bank in the Gulf region. The 2008 financial crisis has exposed that banks' defaults caused by credit risk in their portfolios can originate a halt in the liquidity market. The results of this study help the executives, policymakers, and bank management bodies develop a good understanding of liquidity risks, efficiency, and stability of banks. Likewise, the joint management of funding the liquidity and creation of liquidity of a bank consistently increases the bank's stability. Finally, our findings support regulatory guidelines mainly by the Basel III framework, which places more importance on the joint management of funding the liquidity and creation of liquidity in the economy.

References

Abdul-Rahman, A., Sulaiman, A. A., & Mohd Said, N. L. H. M. (2018). Does financing structure affect bank liquidity risk? *Pacific-Basin Finance Journal*, *52*, 26–39. https://doi.org/10.1016/j.pacfin.2017.04.004

Acharya, V. V., & Skeie, D. (2011). A model of liquidity hoarding and term premia in inter-bank markets. *Journal of Monetary Economics*, *58*(5), 436–447. https://doi.org/10.1016/j.jmoneco.2011.05.006

Acharya, V. V., & Viswanathan, S. (2011). Leverage, moral hazard, and liquidity. *Journal of Finance*, *66*(1), 99–138. https://doi.org/10.1111/j.1540-6261.2010.01627.x

Acharya, V., & Naqvi, H. (2012). The seeds of a crisis: A theory of bank liquidity and risk-taking over the business cycle. *Journal of Financial Economics*, *106*(2), 349–366. https://doi.org/10.1016/j.jfineco.2012.05.014

Adrian, T., & Boyarchenko, N. (2018). Liquidity policies and systemic risk. *Journal of Financial Intermediation*, *35*, 45–60. https://doi.org/10.1016/j.jfi.2017.08.005

Al-Khouri, R. (2012). Bank characteristics and liquidity transformation: The case of GCC banks. *International Journal of Economics and Finance*, *4*(12), 114–120. https://doi.org/10.5539/ijef.v4n12p114

Al-Khouri, R., & Arouri, H. (2016). The simultaneous estimation of credit growth, valuation, and stability of the Gulf Cooperation Council banking industry. *Economic Systems, 40*(3), 499–518. https://doi.org/10.1016/j.ecosys.2015.12.005

Altunbas, Y., Carbo, S., Gardener, E. P., & Molyneux, P. (2007). Examining the relationships between capital, risk and efficiency in European banking. *European Financial Management, 13*(1), 49–70. https://doi.org/10.1111/j.1468-036X.2006.00285.x

Andreou, P. C., Philip, D., & Robejsek, P. (2016). Bank liquidity creation and risk-taking: Does managerial ability matter? *Journal of Business Finance & Accounting, 43*(1–2), 226–259. https://doi.org/10.1111/jbfa.12169

Arellano, M., & Bond, S. (1991). Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations. *The Review of Economic Studies, 58*(2), 277–297. https://doi.org/10.2307/2297968

Arellano, M., & Bover, O. (1995). Another look at the instrumental variable estimation of error-components models. *Journal of Econometrics, 68*(1), 29–51. https://doi.org/10.1016/0304-4076(94)01642-D

Aubuchon, C. P., & Wheelock, D. C. (2010). The geographic distribution and characteristics of US bank failures, 2007–2010: Do bank failures still reflect local economic conditions? *Federal Reserve Bank of St Louis Review*, *92*(5), 395–415. https://files.stlouisfed.org/files/htdocs/publications/review/10/09/Aubuchon.pdf

Baltensperger, E., & Dermine, J. (1986). The role of public policy in insuring financial stability: A cross-country, comparative perspective. INSEAD Fontainebleau. https://doi.org/10.1007/978-94-009-1487-2

Banerjee, R. N., & Mio, H. (2018). The impact of liquidity regulation on banks. *Journal of Financial Intermediation*, *35*, 30–44. https://doi.org/10.1016/j.jfi.2017.05.008

Berger, A. N., & Bouwman, C. H. S. (2009). Bank liquidity creation. *Review of Financial Studies*, *22*(9), 3779–3837. https://doi.org/10.1093/rfs/hhn104

Berrospide, J. M., & Edge, R. M. (2010). The effects of bank capital on lending: What do we know, and what does it mean?. *Finance and Economics Discussion Series*, *2010*(44), 1–48. https://doi.org/10.17016/FEDS.2010.44

Blundell, R., & Bond, S. (1998). Initial conditions and moment restrictions in dynamic panel data models. *Journal of Econometrics, 87*(1), 115–143. https://doi.org/10.1016/S0304-4076(98)00009-8

Blundell, R., & Bond, S. (2000). GMM estimation with persistent panel data: an application to production functions. *Econometric Reviews, 19*(3), 321–340. https://doi.org/10.1080/07474930008800475

Boot, A. W. A., Gopalan, R., & Thakor, A. V. (2006). The entrepreneur's choice between private and public ownership. *Journal of Finance*, *61*(2), 803–836. https://doi.org/10.1111/j.1540-6261.2006.00855.x

Boyd, J. H., & Prescott, E. C. (1986). Financial intermediary-coalitions. *Journal of Economic Theory, 38*(2), 211–232. https://doi.org/10.1016/0022-0531(86)90115-8

Brav, A., & Heaton, J. B. (2002). Competing theories of financial anomalies. *Review of Financial Studies*, *15*(2), 575–606. https://doi.org/10.1093/rfs/15.2.575

Brunnermeier, M. K. (2009). *Financial crisis: Mechanism, prevention, and management*. https://www.princeton.edu/~markus/research/papers/G20_UK_Treasury_Brunnermeier.pdf

Brunnermeier, M. K., & Pedersen, L. H. (2009). Market liquidity and funding liquidity. *Review of Financial Studies*, *22*(6), 2201–2238. https://doi.org/10.1093/rfs/hhn098

Bui, C., Scheule, H., & Wu, E. (2017). The value of bank capital buffers in maintaining financial system resilience. *Journal of Financial Stability*, *33*, 23–40. https://doi.org/10.1016/j.jfs.2017.10.006

Bui, D. G., Chen, Y. S., Chen, Y., & Lin, C.-Y. (2019). Religious beliefs, gambling preferences, and superstitious individual investor trading behaviors. *SSRN Journal, 21, 017*. https://doi.org/10.2139/ssrn.3416017

Bui, D. G., Chen, Y. S., Hsu, H. H., & Lin, C. Y. (2016). A bright side of labor union in global banks: Evidence from the financial crisis. *SSRN Journal, 11, 917*. https://doi.org/10.2139/ssrn.2913917

Calomiris, C. W., & Jaremski, M. (2016). Deposit insurance: Theories and facts. *Annual Review of Financial Economics*, *8*(1), 97–120. https://doi.org/10.1146/annurev-financial-111914-041923

Campbell, T. C., Gallmeyer, M., Johnson, S. A., Rutherford, J., & Stanley, B. W. (2011). CEO optimism and forced turnover. *Journal of Financial Economics*, *101*(3), 695–712. https://doi.org/10.1016/j.jfineco.2011.03.004

Copelovitch, M. S., & Singer, D. A. (2008). Financial regulation, monetary policy, and inflation in the industrialized world. *Journal of Politics*, *70*(3), 663–680. https://doi.org/10.1017/S0022381608080687

Crouhy, M., Galai, D., & Mark, R. (2000). A comparative analysis of current credit risk models. *Journal of Banking and Finance*, *24*(1–2), 59–117. https://doi.org/10.1016/S0378-4266(99)00053-9

Dahir, A. M., Mahat, F. B., & Ali, N. A. B. (2018). Funding liquidity risk and bank risk-taking in BRICS countries: An application of system GMM approach. *International Journal of Emerging Markets*, *13*(1), 231–248. https://doi.org/10.1108/IJoEM-03-2017-0086

Dahir, A. M., Mahat, F., Razak, N. H. A., & Bany-Ariffin, A. N. (2019). Capital, funding liquidity, and bank lending in emerging economies: An application of the LSDVC approach. *Borsa Istanbul Review*, *19*(2), 139–148. https://doi.org/10.1016/j.bir.2018.08.002

De Jonghe, O. (2010). Back to the basics in banking? A micro-analysis of banking system stability. *Journal of Financial Intermediation*, *19*(3), 387–417. https://doi.org/10.1016/j.jfi.2009.04.001

Diamond, D. W., & Dybvig, P. H. (1983). Bank runs, deposit insurance, and liquidity. *Journal of Political Economy, 91*(3), 401–419. https://www.jstor.org/stable/1837095

Distinguin, I., Roulet, C., & Tarazi, A. (2013). Bank regulatory capital and liquidity: Evidence from US and European publicly traded banks. *Journal of Banking and Finance*, *37*(9), 3295–3317. https://doi.org/10.1016/j.jbankfin.2013.04.027

Drehmann, M., & Nikolaou, K. (2013). Funding liquidity risk: Definition and measurement. *Journal of Banking and Finance*, *37*(7), 2173–2182. https://doi.org/10.1016/j.jbankfin.2012.01.002

Du, B., & Palia, D. (2018). Short-term debt and bank risk. *Journal of Financial and Quantitative Analysis*, *53*(2), 815–835. https://doi.org/10.1017/S0022109017001132

Duong, T. T. N., & Nguyen, H. Q. (2021). Bank restructuring and financial performance: A case study of commercial banks in Vietnam. *Journal of Asian Finance, Economics, and Business*, *8*(10), 327–339. https://doi.org/10.13106/jafeb.2021.vol8.no10.0327

Ejoh, N. O., Adebisi, A., & Okpa, I. (2014). Information and communication technology-an indispensable tool for the implementation of cash-less policy in Nigeria. *International Journal of Economics, Commerce and Management, 2*(10), 1–18. https://doi.org/10.1088/1742-6596/1299/1/012056

Fungacova, Z., Turk, R., & Weill, L. (2015). High Liquidity Creation and Bank Failures: Do They Behave Differently? Washington, DC: International Monetary Fund.

Gallego Herrero, S., Saurina Salas, J., & García-Herrero, A. (2002). The Asian and European Banking Systems: The case of Spain in the quest for development and stability. *SSRN Journal*. http://dx.doi.org/10.2139/ssrn.869384

Gennotte, G., & Pyle, D. (1991). Capital controls and bank risk. *Journal of Banking and Finance*, *15*(4–5), 805–824. https://doi.org/10.1016/0378-4266(91)90101-Q

Gertler, M., Kiyotaki, N., & Queralto, A. (2012). Financial crises, bank risk exposure, and government financial policy. *Journal of Monetary Economics*, *59*, S17–S34. https://doi.org/10.1016/j.jmoneco.2012.11.007

Gervais, S., Heaton, J. B., & Odean, T. (2003). Overconfidence, investment policy, and executive stock options *SSRN Journal*, *15*(02), 200. https://doi.org/10.2139/ssrn.361200

Hassan, M. K., Khan, A., & Paltrinieri, A. (2019). Liquidity risk, credit risk, and stability in Islamic and conventional banks. *Research in International Business and Finance*, *48*, 17–31. https://doi.org/10.1016/j.ribaf.2018.10.006

Heaton, J. B. (2002). Managerial optimism and corporate finance. *Financial Management*, *31*(2), 33–45. https://doi.org/10.2307/3666221

Hill, A. D., Kern, D. A., & White, M. A. (2014). Are we overconfident in executive overconfidence research? An examination of the convergent and content validity of extant unobtrusive measures. *Journal of Business Research*, *67*(7), 1414–1420. https://doi.org/10.1016/j.jbusres.2013.08.011

Hirshleifer, D., & Luo, G. Y. (2001). On the survival of overconfident traders in a competitive securities market. *Journal of Financial Markets*, *4*(1), 73–84. https://doi.org/10.1016/S1386-4181(00)00014-8

Holmstrom, B., & Tirole, J. (1998). Public and private supply of liquidity. *Journal of Political Economy, 106*(1), 1–40. https://doi.org/10.1086/250001

Horváth, R., Seidler, J., & Weill, L. (2014). Bank capital and liquidity creation: Granger-causality evidence. *Journal of Financial Services Research, 45*(3), 341–361. https://doi.org/10.1007/s10693-013-0164-4

Huang, S. C., Chen, W. D., & Chen, Y. (2018). Bank liquidity creation and CEO optimism. *Journal of Financial Intermediation*, *36*, 101–117. https://doi.org/10.1016/j.jfi.2018.03.004

Hugonnier, J., & Morellec, E. (2017). Bank capital, liquid reserves, and insolvency risk. *Journal of Financial Economics*, *125*(2), 266–285. https://doi.org/10.1016/j.jfineco.2017.05.006

Imbierowicz, B., & Rauch, C. (2014). The relationship between liquidity risk and credit risk in banks. *Journal of Banking and Finance*, *40*, 242–256. https://doi.org/10.1016/j.jbankfin.2013.11.030

Jedidia, K. B. (2020). Profit-and loss-sharing impact on Islamic bank liquidity in GCC countries. *Journal of Islamic Accounting and Business Research, 45*, 111–139. https://doi.org/10.1108/JIABR-10-2018-0157

Jiménez, G., Lopez, J. A., & Saurina, J. (2013). How does competition affect bank risk-taking? *Journal of Financial Stability*, *9*(2), 185–195. https://doi.org/10.1016/j.jfs.2013.02.004

Kamyabi, Y., & Ashjar, S. (2014). *The investigation of the credit risk and its role in cash flows, macroeconomic factors, and competition in the Iranian banking industry*. http://repository.unsri.ac.id/14518/1/Prosiding_MIICEMA_Malaysia_yulia_saftiana.pdf.

Keynes, J. M., & Waeger, F. (1936). *The general theory of employment, interest, and money* (6th ed.). Berlin: Duncker & Humblot.

Khan, M. S., Scheule, H., & Wu, E. (2017). Funding liquidity and bank risk-taking. *Journal of Banking and Finance*, *82*, 203–216. https://doi.org/10.1016/j.jbankfin.2016.09.005

Kim, D., & Sohn, W. (2017). The effect of bank capital on lending: Does liquidity matter? *Journal of Banking and Finance*, *77*, 95–107. https://doi.org/10.1016/j.jbankfin.2017.01.011

Laeven, L., & Levine, R. (2009). Bank governance, regulation, and risk-taking. *Journal of Financial Economics*, *93*(2), 259–275. https://doi.org/10.1016/j.jfineco.2008.09.003

Love, I., & Zicchino, L. (2006). Financial development and dynamic investment behavior: Evidence from panel VAR. *The Quarterly Review of Economics and Finance, 46*(2), 190–210. doi:10.1016/j.qref.2005.11.007

Luong, T. M. N., & Nguyen, P. A. (2021). Optimal capital adequacy ratios for commercial banks: Empirical evidence from Vietnam. *Journal of Asian Finance, Economics, and Business*, *8*(10), 47–56. https://doi.org/10.13106/jafeb.2021.vol8.no10.0047

Malmendier, U., & Tate, G. (2005). Does overconfidence affect corporate investment? CEO overconfidence measures revisited. *European Financial Management*, *11*(5), 649–659. https://doi.org/10.1111/j.1354-7798.2005.00302.x

Malmendier, U., Tate, G., & Yan, J. (2011). Overconfidence and early-life experiences: The effect of managerial traits on corporate financial policies. *Journal of Finance*, *66*(5), 1687–1733. https://doi.org/10.1111/j.1540-6261.2011.01685.x

Manove, M., & Padilla, A. J. (1999). Banking (conservatively) with optimists. *RAND Journal of Economics*, *30*(2), 324–350. https://doi.org/10.2307/2556083

Matz, L., & Neu, P. (2007). *Liquidity risk measurement and management: A practitioner's guide to global best practices.* Hoboken, NJ: Wiley & Sons.

Mohamed, E. B., Fairchild, R., & Bouri, A. (2014). Investment cash flow sensitivity under managerial optimism: New evidence from NYSE panel data firms. *Journal of Economics Finance and Administrative Science*, *19*(36), 11–18. https://doi.org/10.1016/j.jefas.2014.04.001

Nikomaram, H., Taghavi, M., & Diman, S. (2013). The relationship between liquidity risk and credit risk in Islamic banking industry of Iran. *Management Science Letters, 3*(4), 1223–1232. https://doi.org/10.5267/j.msl.2013.02.025

Ozili, P. K. (2019). Bank income smoothing, institutions, and corruption. *Research in International Business and Finance*, *49*, 82–99. https://doi.org/10.1016/j.ribaf.2019.02.009

Rashid, A. (2022). Impacts of bank-specific and macroeconomic risks on growth and stability of Islamic and conventional banks: An empirical analysis from Pakistan. *Journal of Asian Finance, Economics, and Business*, *9*(2), 1–14. https://doi.org/10.13106/jafeb.2022.vol9.no2.0001

Repullo, R. (2011). 11 Liquidity, Risk Taking, and the Lender of Last Resort. *Liquidity and Crises, 270*. https://doi.org/10.1007/s10693-013-0164-4

Rizvi, S. A. R., Narayan, P. K., Sakti, A., & Syarifuddin, F. (2020). Role of Islamic banks in the Indonesian banking industry: An

empirical exploration. *Pacific-Basin Finance Journal*, *62*, 101117. https://doi.org/10.1016/j.pacfin.2019.02.002

Srairi, S. (2013). Ownership structure and risk-taking behaviour in conventional and Islamic banks: Evidence for MENA countries. *Borsa Istanbul Review, 13*(4), 115–127. https://doi.org/10.1016/j.bir.2013.10.010

Tai, L. (2014). Efficiency and performance of conventional and Islamic banks in GCC countries. *The Middle East. Journal of Business*, *55*(1068), 1–12

Tran, V. T., Lin, C. T., & Nguyen, H. (2016). Liquidity creation, regulatory capital, and bank profitability. *International Review of Financial Analysis*, *48*, 98–109. https://doi.org/10.1016/j.irfa.2016.09.010

Umar, M., & Sun, G. (2016a). Determinants of different types of bank liquidity: Evidence from BRICS countries. *China Finance Review International*, *6*(4), 380–403. https://doi.org/10.1108/CFRI-07-2015-0113

Umar, M., & Sun, G. (2016b). Interaction among funding liquidity, liquidity creation, and stock liquidity of banks. *Journal of Financial Regulation and Compliance*, *24*(4), 430–452. https://doi.org/10.1108/JFRC-11-2015-0062

Vazquez, F., & Federico, P. (2015). Bank funding structures and risk: Evidence from the global financial crisis. *Journal of Banking & Finance, 61*, 1–14. https://doi.org/10.1016/j.jbankfin.2015.08.023

Wagner, W. (2007). The liquidity of bank assets and banking stability. *Journal of Banking & Finance, 31*(1), 121–139. https://doi.org/10.1016/j.jbankfin.2005.07.019

Wang, C. Y., Chen, Y. F., & Yu, C. W. (2013). Managerial optimism and post-financing stock performance in Taiwan: A comparison of debt and equity financing. *Economics Letters*, *119*(3), 332–335. https://doi.org/10.1016/j.econlet.2013.03.010

Young, K. (2013). Financial industry groups' adaptation to the post-crisis regulatory environment: Changing approaches to the policy cycle. *Regulation and Governance*, *7*(4), 460–480. https://doi.org/10.1111/rego.12025

Zhang, G., Fang, X., Guo, X., Li, L., Luo, R., Xu, F., Yang, P., Zhang, L., Wang, X., Qi, H., Xiong, Z., Que, H., Xie, Y., Holland, P. W., Paps, J., Zhu, Y., Wu, F., Chen, Y., Wang, J., & Wang, J. (2012). The oyster genome reveals stress adaptation and the complexity of shell formation. *Nature*, *490*(7418), 49–54. https://doi.org/10.1038/nature11413