

SYSTEMATIC REVIEW OF LITERATURE ON EFFECT OF LIQUIDITY ON BANK

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ABSTRACT

This study carries out a systematic review on related empirical literature on the role of liquidity on banks' performance as well as risk-taking. The review of existing literature revealed that bank's liquidity has significant influence on banking outcomes such as banks performance, banks risk-taking behaviour, moral hazard, and other financial risks. However, we find that empirical evidence on all these is majorly skewed toward developed market. Therefore, we recommend that further studies in this area to provide additional insight for understanding of the impact of liquidity on the performance as well as the risk-taking behaviour and moral hazard. Thus, policy makers, banking regulators shareholder and other stakeholders will be properly guided on the potential impact of banks' liquidity and their performance and risk-taking behaviour.

Keywords: Liquidity, Systematic Review, Risk-Taking Behaviour, Performance.

INTRODUCTION

Banks' liquidity has been one of the interesting topics in the field of banking and finance since the aftermath of the 2007-2008 Global Financial Crisis (GFC). This is because abundant liquidity at the United State (US) banks derived the high risk-taking that had led to the 2007-2008 GFC. In addition, liquidity risk has been identified as one of the major factors that had led to the collapsed of banks across the globe during the crisis period. As a result, banking reforms by policy makers such as the Basel Committee on Banking Supervision (BCBS) has initiated new standards on liquidity to mitigate banks' liquidity risk as an effort to reduce the possibility of a bank run and ensure the long-term stability in the banking industry. The two liquidity standards are the Liquidity Coverage Ratio (LCR) which requires banks to keep liquid assets that can cover at least thirty days of cash outflows during the crisis period. Also, the LCR are required to be held in the High-Quality Liquid Assets (HQLA). While the Net Stable Funding Ratio (NSFR) which require the bank funding of the medium and long-term loans to be carried out with stable funds that may not run during the crisis period (BCBS, 2010).

Similarly, academic scholars have emphasised the importance banks' liquidity as well as its effects on the banks. For example, DeYoung and Jang (2016) stated that the Basel III standard is tantamount to the Tirole (2011) analysis for bank liquidity that centres on three main areas: maintaining liquid assets to aid short-term financing runs; issuing stable deposits that may not run; and holding significant levels of equity financing to indicate long-term solvency and thus minimise the possibility of runs. Also, scholars such as Acharya and Naqvi (2012); Drehmann and Nikolaou (2013); King (2013); Hong et al. (2015); Khan et al. (2015); Umar and Sun (2016); Huynh and Cong (2017); Dahir et al. (2017); Barua (2017); Hye and Lau (2017); Scheule and Wu (2017); Abobakr (2017); Raweh and Shihadeh (2017); and

Rahma (2017) have divergent views and found that liquidity has significant effect on the bank risk-taking, liquidity creation as well as the performance.

Extant literature provided divergent views on the effects liquidity on banks. Also, the studies focus more on developed and transition economy which led to the paucity of studies on the issue of bank liquidity. For example, studies by Aizenman and Hoffmaister (2004); Aspachs et al. (2005); Berger and Bouwman (2009); Delechat et al. (2012); and Kashyap et al. (2002) provided an empirical benchmarks for considering the impact of liquidity regulations on banks and other sectors of the economy. They found that liquidity cushions are positively correlated with bank deposit and bank profitability but negatively related to bank size, market concentration, and the business cycle. Other studies by Bonner (2015); Bonner et al. (2016); and King (2013) maintained that though liquidity buffer help to reduce the banks risk-taking behaviour, however, it negatively affects liquidity creation as well as their performance. Accordingly, studies by Acharya and Naqvi (2012); Dahir et al. (2017); Hong et al. (2015); and Khan et al. (2017) are of the view that bank liquidity influences their risk-taking behaviour as well as performance.

The purpose of this paper is to review empirical studies on the effect of bank liquidity on their risk-taking behaviour and show other directions for future research. This would provide additional insights to researchers, policy makers, and other stakeholders a better understanding of the various factors that affects the banks liquidity. The paper only covers empirical studies that mainly focus on bank liquidity buffer which are accessible to the researchers as at the time of the study.

Our paper differs from existing literature survey that have focused mainly on factor such as risk-taking behaviour of Islamic banks (Mairafi et al., 2018), financial stability, (Belouafi et al., 2015; Odeduntan & Adewale, 2015) and the rate of return risk of Islamic banking and finance (Zainol & Kassim, 2012). However, none of these studies focused on the banks' liquidity which is the main factor that influences the banks' risk-taking, banks performance as well as their stability. Also, this paper focuses mainly on the more recent studies on banks' liquidity and its effects on banks.

The rest of the paper proceeds are as follows: theoretical insight on the bank liquidity, empirical studies on banks' liquidity buffer and their effects, and discusses the empirical studies on bank liquidity and risk-taking behaviour. Finally, concludes the study.

THEORETICAL INSIGHT ON BANK LIQUIDITY

Liquidity creation and delegated monitoring are among the key roles of banks as pointed out by the financial intermediation theory (Berger & Bouwman, 2009; Diamond, 1984). Berger and Bouwman (2009); Diamond (1984); and Holmstrom and Tirole (1998) explained that banks create liquidity to customers by making available sufficient funds for their withdrawal needs. Also, banks transform risk by extending riskless deposits to finance risky loans while earning returns from the risk transfer functions. Thus, the liquidity provision role of banks required that banks maintain a reasonable amount of liquidity to discharge their obligations promptly. Banks ensure prompt and consistent liquidity creation by hedging against liquidity shortfalls by way of maintaining cash and cash equivalents.

Though banks are required to maintain a liquidity buffer to mitigate liquidity risk and to insure against liquidity shocks, it is argued that maintaining high levels of assets liquidity can increase the bank risk. Hong et al. (2014) revealed that systematic liquidity risk was the main cause of bank failures occurring over the 2009 to 2010 period in the aftermath of the 2007-2008 GFC. Liquidity risk could lead to bank failures through systematic and idiosyncratic channels. In addition, Acharya and Naqvi (2012) and Wagner (2007) have shown that short-term liquidity have implications for bank risk-taking and bank stability.

On the other hand, the theory of delegated monitoring explained that banks play a role as delegated monitors that invest on behalf of their customers (Diamond, 1984). This role could create an agency problem such as the conflict of interest between the capital providers and the business overseers as explained by agency theory (Jensen & Meckling, 1976). Mairafi et al. (2018) stated that the banks' incentives for risk-taking stemmed from their role as delegated monitors that invest in financial assets on behalf of their clients. Thus, banks in their desire to improve performance and increase returns would give priority to self-most profiting venture such as issuing out more loans to the disadvantage of their depositors and other stakeholders. In line with this, Acharya and Naqvi (2012) in their model have shown how an agency problem aggravates the banks high risk-taking behaviour. In their model, they elucidated that an agency problem prevails in the bank whenever there is an excessive liquidity which stem from large deposit inflows. Thus, banks allocating more funds to loans to increase performance. Consequently, this could lead to high loan growth and loan concentration. Bacha (1998), Gonzalez-Hermosillo (1999), and Laeven (1999) argued that high loan growth and loan concentration are signs of banks poor diversification strategy and high risk-taking that can expose banks to financial risks such as credit risk and liquidity risk. Therefore, the bank risk-taking behaviour is reveals on their assets portfolio, profitability and eventually leads to banks failure.

EMPIRICAL INSIGHT

According to the BCBS (2008), bank liquidity is the ability to fund increases in assets and meet obligations as they come due, without incurring unacceptable losses. The definition by the BCBS combined both the funding liquidity and the liquidity risk because the primary role of banks as financial intermediaries inherently exposes them to liquidity risk. In this paper, we define the two terms separately because they are measure using separate ratios. Thus, liquidity referred to funding liquidity which is the ability of banks to be prompt and consistent in discharging their obligations as a financial intermediary. Liquidity risk is defined as the possibility that a bank can meet up to its obligations without disposing its liquid asset at an unbearable loss. Similarly, liquidity risk may occur when the borrowers are unable to pay back loans at a maturity time. In line with this, Petria and Petria (2009) defined liquidity risk as the inherent due to the fact that a borrower may default position as they fall due.

The strand of literature such as Agénor et al. (2004); Aspachs et al. (2005); Berger and Bouwman (2009); Delechat et al. (2012); and Kashyap et al. (2002) provided an empirical benchmarks for considering the impact of liquidity regulations on banks and other sectors of the economy. They found that liquidity cushions are positively correlated with bank deposit and bank profitability but negatively related to bank size, market concentration, and the business cycle. In addition, liquidity cushion affects liquidity creation.

For example, Kashyap et al. (2002) considered the two key functions of banks, acceptance of deposits and granting of loans as one of the functions that require a bank to maintain liquidity buffer to meet with withdrawal demands of different customers. This is because an approved lending or line of credit is nothing more than a deposits account with a negative balance since it allows the customer the right to withdraw on demand as depositors. As such, the synergy between the two roles required a bank to have more buffers to cater for customers demand. Agénor et al. (2004) have shown that the reserve requirements funding costs of a bank are related to liquidity risk and output volatility. Furthermore, Aspachs et al. (2005) assessed the effect of the liquidity buffer on two perspectives; one from the perspective of the central banks support during the crisis period, and two from the perspective of the bank itself. They found that the more support by the central banks, especially during

crisis period, the lower the liquidity cushion bank maintain. Two, the countercyclical liquidity buffer has effects on the bank lending policy.

A study by Berger and Bouwman (2009) applied the model they developed on a sample of the US banks from the period 1993-2003. They reported that bank liquidity creation constantly increases throughout the period of their studies. They further revealed that liquidity creation is related to the bank size and it is positively related to the bank value. Supporting this finding, Delechat et al. (2012) used a sample of 100 banks from the Central American region and concluded that bank liquidity buffer and liquidity creation are related to bank size, capitalisation, and profitability. Similarly, Allen et al. (2012) maintained that to comply with the new liquidity standard, banks will be forced to maintain more liquid assets which will have an impact on the banks' liquidity management as well as their customers. Allen et al. (2012) further argued that the new requirement could dwindle the supply of credit to small business which are an important sector of the economy. Thus, the standard will provide more harm than good.

Recent study by Bonner et al. (2015) used data from 30 different countries and found that the correlations of bank liquidity buffers (e.g., liquid assets-to-deposits, liquid assets-to-total assets) with deposit liabilities, market concentration, and bank size are substantially weaker in countries with bank liquidity regulations. They concluded that liquidity regulations act as substitutes for (i.e., reduce) active liquidity management of banks. The implication suggests that the liquidity regulations guide the banks' risk-taking behaviour. Thus, it will help to mitigate the excessive risk-taking behaviour of banks particularly, as the liquidity regulation providing a benchmark which a bank should maintain at any particular period. Supporting this view, Bonner (2016) examined the effects of regulatory liquidity coverage ratios on 17 banks in the Netherlands, and concludes that liquidity regulation has real effects, causing banks to increase their investments in government bonds and decrease their investments in loans. Thus, the liquidity standard relatively controls the banks risk-taking behaviour on one hand, however, on the other hand it could have negative impact on the profitability of banks, since loans has been identified as the major source of revenue for banks. In addition, this may lead to assets concentration and eventually expose banks to liquidity risk.

Umar et al. (2016) in their study distinguished the terms funding liquidity, liquidity creation, and stock liquidity (referred to as bank liquidity) and use NSFR to proxy for funding liquidity and stock liquidity to proxy for stock illiquidity. Using three-stage least square estimations simultaneously and examines a sample of 188 banks operating in Brazil, Russia, India, China and South Africa (BRICS) for the period 2007-2014. Their finding revealed that the liquidity creation has a significant negative effect on funding liquidity. In other words, an increase in liquidity creation directly result in decrease in funding liquidity, and there is no evidence showing reversibility, which means that funding liquidity has not an effect on liquidity creation. If stock liquidity becomes higher, it impacts negatively on liquidity creation. In other words, if stock illiquidity becomes higher, liquidity creation also gets high, but variation in stock liquidity cannot be explained by variation in liquidity creation. Nonetheless, there is a direct effect of stock liquidity on funding liquidity, but stock liquidity can influence funding liquidity through liquidity creation.

Accordingly, other strand of literature focused on the impact of liquidity on the banks' risk-taking behaviour. This is because of the significant specific characteristics of the banking sector. For instance, banking has other information asymmetry that exists between owners and managers. These include the asymmetric information between the depositors, the bank and the regulator, also between the owners, the managers, and the regulators, and between the borrowers, the managers and the regulators (Garcia-Marco & Robles-Fernandez, 2008). The information asymmetry resulted to the risk-taking incentives as well as the conflict of interest

between the capital providers and the business overseers. For example, shareholders are willing to take on high-risk projects that maximise their values at the expense of the deposits, which could be contrary to the interests of depositors.

Therefore, banks' liquidity allows for further understanding of the potential relationship between liquidity and risk-taking behaviour of banks in the MENA region as there is increasing interest in literature (Andreou et al., 2016; Berger & Bouwman, 2017; Dahir et al., 2017; DeYoung & Jang, 2016; Drehmann & Nikolaou, 2013; Francis et al., 2015; Khan et al., 2017; Lei & Song, 2013; Vazquez & Federico, 2015).

For example, Drehmann and Nikolaou (2013) concluded that funding liquidity risk is associated with the bank risk-taking in the European market, especially during the crisis period. Vazquez and Federico (2015) assessed 11,000 banks in the US and Europe during 2001-2009 period applying probit regression model. Their outcomes reveal that banks with lower funding liquidity failed from the onset of the crisis and those with higher ratios of equity to asset were more likely to fail after the financial turmoil. Furthermore, the findings also documented that bank risk-taking was responsible for likely bank failure.

Khan et al. (2017) examined how bank's funding liquidity affect their risk-taking behaviour by using the two stages least squares and instrumental variable methods for data analysis. Using a sample of 4,749 US Bank Holding Company (BHC) during the period 1986-2014, their results showed an inverse relationship between the bank funding liquidity and their risk-taking behaviour. In another word, whenever the funding of liquidity risk is lower, banks take more risk and issue out more loans. Conversely, banks with lower funding liquidity risk took on less risk during the 2007-2008 GFC. Similarly, bank size and bank capital buffers generally prevented them from high risk-taking.

Similarly, a study by Dahir et al. (2017) used data from a sample of 57 banks operating in BRICS countries during the period 2006-2015 and assessed the relationship between funding liquidity risk and bank risk-taking. They found a significant and negative relationship between liquidity risk and risk-taking. Also, they found that funding liquidity risk have significant effect on bank risk-taking in BRICS countries.

The relationship between banks' liquidity and their risk-taking behaviour has been empirically explained with relation to the agency problem. The agency problem in the banking exists due to the delegated monitoring function of banks which cause conflict of interest between the bank managers and the bank owners and information asymmetry. For instance, Andreou et al. (2016) empirically investigated the impact of managerial ability on banks' liquidity creation and risk-taking behaviour. Their findings have shown that higher ability bank managers create more liquidity and take more risk. However, during the period GFC, higher ability managers reduce liquidity creation as a way to de-leverage their balance sheets. Khan et al. (2017) found that banks with low funding liquidity risk takes more risk.

A recent study by Dahir et al. (2017) revealed a significant and negative relationship between liquidity risk and the bank risk-taking behaviour. Meanwhile, study by Imbierowicz and Rauch (2014) examined the relationship between the two main factors such as liquidity risk and credit risk that are related to the reasons for the banks existence which are the sources of banks risks. They used dataset of banks from the US during the period 1998-2010 in assessing the relationship between the two main sources of the bank's risks. They concluded that both liquidity risk and credit risk jointly or individually contribute to the bank probability of default despite the fact that they are not contemporaneous. This view is consistent with the finding of Hong et al. (2014) who examines the potential relation and the impact of Basel III liquidity coverage ratio and net stable funding ratio on the bank's failures. Employing data from the US banks for the period 2001 to 2011, they reported that the two ratios potentially have limited impact on the probability of bank failures, but systemic liquidity risk significantly contributes to the bank failures. Vazquez and Federico (2015)

studied a higher number of sample banks in the US and Europe within the period 2001 to 2009. In addition, they argued that higher funding stability measured by net stable funding ratio reduces the probability of bank failures. However, they further explained that only domestically smaller banks are more exposed to liquidity risk while larger international banks are more exposed to solvency risk because of higher leverage.

CONCLUSION

The issue of liquidity and its effect on the banks has become an area of interest in the banking and financial literature, yet the empirical evidence majorly focuses on developed market with relatively few evidences from the emerging market. Based on this, we carried out a systematic review on studies on effects of liquidity on banks outcomes such as liquidity creation, risk-taking, and performance. This review indicated that liquidity standards reduce the banks' risk-taking behaviour since it requires the banks to maintain more liquid assets. Banks' liquidity has significant influence on their risk-taking behaviour, performance, and liquidity creation. However, most of the existing studies reviewed mainly focused on the conventional banking system. Hence, this study points out the need to explore the nature of the relationship between funding liquidity and the bank risk-taking behaviour by examining the relationship from more developing nations as well as the comparative studies between the developed and developing nations. Thus, regulators of banks would be adequately guided.

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