

Liquidity Risk in Conventional and Islamic Banks Literature Review

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Abstract: *Following the 2008 Global Financial Crisis and 2014 oil price fall liquidity risk in banks is a major issue. The main objective of this journal article is to examine liquidity risk of Conventional and Islamic Banks. The study uses data of banks operating in banking regulatory environments. The implications of the results will be bank management, government and regulatory bodies of banks to manage the significant factors influencing liquidity risk effectively because they have direct impact on the banks' cost efficiency and profitability. It is therefore recommended that the practitioners and policy makers to examine closely contract that should be backed by long term capital to mitigate liquidity risk. This will ensure greater profitability of commercial banks in the dual banking environment.*

Keywords: Liquidity Risk, Banks

Introduction

Banking institution plays a crucial financial intermediation role in the economic system of any country. Thus, banks have responsibility of providing fundamental services that include, but not limited to, acceptance and collection, as well as safe keeping of customers' funds, which the banks usually transferred or exchanged for financial or economic benefits of the customers on their instruction (Askari, Iqbal, Krichene & Mirakhor, 2012). The bank's services facilitate economic activities as well as promote greater efficiency being intermediaries in meeting the investment and liquidity needs of the economic agents in the financial system Athukorala and Warr (2002), submit that higher risk is associated with higher return but it can also lead to higher risk of failure. The history of bank failure is attributable to excessive risk taking by banks. This calls for regulatory bodies to control risk behaviors of banks. However, self-governance is vitally important in risk governance and internal control. Every bank whether conventional or Islamic is facing liquidity risk. According to financial intermediation theory, financial institutions exist because of its role in real economy to create return to shareholders by taking calculated risk (Campbell & Kracaw, 1980; Diamond, 1984; Allen & Santomero, 1997). Risk management thus forms one of the activities of banks. There must be a risk management program with risk management framework made available.

Literature Review

Liquidity risk is one of the foremost risks faced by public banks. It is the heart of a financial institution's operations. When banks face liquidity problem, they cannot perform the intermediation role effectively. It is apparent from the GCF 2008 experience that liquidity risk poses major issues on the survival, profitability and efficiency of banks especially in less developed countries, whose member states are mostly poor (COMEC, 2015). Moreover, the global growth of banks can only be sustained with a robust risk management practice. However, this is not yet effective even in countries with more years of experience as managing risks such as credit risk and liquidity risk poses continuous challenges to banks. The critical issue on liquidity management in banks arises because of the banks' orientation towards short-term borrowing as against long-term financing (Ismael, 2010). This represents a liquidity gap or a funding mismatch manages liquidity problems.

Besides these instruments, the conventional banks also have access to central banks as lender of last resort in case of emergency. The central banks provide liquidity support to conventional banks again on interest basis which is not acceptable to Islamic banks. The absence of this support from central banks to Islamic banks is another factor militating against adequate liquidity position of many of the Islamic banks. This poses operational problems to manage their liquidity. For instance, Ali (2007) reports that one of the factors that led to the collapse of one of the Islamic banks in Turkey, Ihsan Finans was that deposits of the bank were not protected by the central bank's insurance system. However, Islamic banks' deposits in Malaysia are protected by Malaysian Deposit Insurance Corporation (MDIC). MDIC is to promote confidence in the banking system and to avert runs on individual banking institutions especially during crisis (Sabri, 2013). Nonetheless, there is need to be more careful in raising funds as well as prudent in investing them to safeguard the liquidity of the banks. A major gap on liquidity research is that there is inconsistency in the determinants of liquidity risk. This has resulted in different researchers giving conflicting views on the significance of various factors that influence liquidity risk. For instance, on bank specific variables, while Muharam and Kurna (2013), and Mehmed (2014) suggest a negative and significant relationship between Return on Equity (ROE) and liquidity risk, Siaw (2013) and Anam, Hassan, Huda, Uddin and Hossain (2012) reports a positive correlation between the two variables.

Similarly, bank size measured in terms of total assets produced more contradictory results. For Siaw (2013), Sabri (2014), Ramzan and Zafar (2014), it is a positive correlation between bank size and liquidity risk while Sulaiman et al (2013) reveals a negative association between the variables. Yet, Ahmed, Ahmed and Naqvi (2011) report that variable size and profitability are not powerful explanatory variables to define the liquidity risk of Islamic banks in Pakistan. Again, these differences challenge the theory of 'too big to fail' (TBTF) (Kaufman, 2013) which suggests a negative connection between bank's size and liquidity risk. Hence, the inconsistencies in the result of return on assets (ROA), total assets and capital adequacy on liquidity is a research gap which warrants further investigation to confirm the results. Another major issue of banks on liquidity management is asset and liability mismatch. Liability items represent sources of fund like deposits, while assets indicate the utilization and uses of such funds as financing. Based on their annual reports, banks tend to have short term liabilities to finance long term assets (Greuning & Iqbal, 2008). This is maturity mismatch which means borrowing short to lend long (Bourakba, 2015). The theoretical business model for banks as a special type of intermediary is that maturities of assets and liabilities should be matched. This is due to asset-backed principle which ties financing to the various activities of the real economy. However, due to domination of fixed income financing, there is always a mismatch between assets and liabilities which result in liquidity issues. The effects of macro-economic variables in terms of Gross Domestic Products (GDP) and inflation effects on liquidity risk is also not settled. Mehmed (2014) reports that the choice of dependent variable determines which factors influence liquidity risk in the banking sector. Using liquid assets to customer deposits and short term funding as a measure of liquidity risk shows higher explanatory power than using liquid assets to total assets. Sabri (2014) observes an insignificant positive association and Vodova (2013) asserts an uncertain relationship between GDP and liquidity risk. Almost all studies used GDP to measure economic performance and the results were not conclusive. GDP is an aggregate that only measures flows but not stock of wealth of an economy. It also excludes many household activities that are productive in an economic sense (Stiglitz, Sen, & Fitoussi, 2009).

Additionally, the focus on liquidity risk was not pronounced until after the 2008 global financial crisis. Previously, credit risk has been the priority of banking industry. Now, attention is on liquidity risk as against managing interest rates and credit risk due to drying up of liquidity at the time of crisis (Peeble & Shah, 2015). This increasing concern explains why liquidity is featured prominently in Basel III following the financial crisis. Inadequate research on commercial banks in LDs regarding liquidity risk is another concern addressed in this study. Also, related to this is the impact of type of regulation governing the banks on the liquidity of banks. This refers to dual banking or wholly Islamic banking regulated systems. Klomp and Haan (2012) find regulation has significant impact on high-risk taking banks. However, it does not have significant effect on low-risk taking banks. The authors used factor analysis to measure both multi-faceted concepts of banking risk and banking regulation. On the other hand, Sabri (2014) shows that liquidity risk is significantly determined by stringent officially supervisory power on capital regulation and banking activity restrictions. Although regulations have been studied in those past researches, but it is not in the context of liquidity risk. What is also lacking is that many specialized standard-setting bodies have developed specific standards, but these regulatory frameworks do not provide for the risks that are unique to Islamic banks in many countries (Kammer, et al. 2015). Consequently, the way Commercial banking is being practiced in some countries has brought about intricate financial transactions. Operations across borders have also been stretched without proper regulatory coordination. It is postulated that the findings could lead to increased regulatory clarity and synchronization, and further improvement of regulatory tools for effective supervision.

Risk Management in Banks

The business of banking whether conventional is to take calculated risk. Banks are economic entities that specialize in risk management and maturity transformation (Howladar, 2011). Risk management is more of optimization risk reward equation rather than minimization of losses. Thus, a bank will be in a competitive advantage if it can manage its risk (Jeroen, 2015). Risk management as a subject and professional discipline is gaining momentum (Ebrahim, 2011). It is now seen as distinct from corporate governance, Internal Audit or Control, Financial reporting and regulatory compliance to which it is closely linked. Risk management is a process that involves identifying, measuring, mitigating, reporting and monitoring risk (Ismal, 2010; Jeroen, 2015). It is a management process that deals with uncertainties an entity faces, threats to its resources and its consequences. It provides opportunities to increase the value of the entity based on its operating environment (Ebrahim, 2011). It is also seen as being concerned with both positive and negative aspects of risk. The practices of risk management, processes and tools which measure the risks and the techniques adopted to mitigate risk are similar in both Islamic and conventional banks (Al Ali & Naysary, 2014). In most cases, where Islamic banks are relatively new, the central banks apply the same rules to both Islamic and conventional banks.

Liquidity in Financial Institutions

The word liquidity has so many facets that is often counter-productive to use it without further and closer definition (Banque De France, 2008). It is a concept that is not only hard to define but also hard to ignore (Calvo, 2013b). Liquidity relates to the ability of an economic agent to exchange his or her existing wealth for goods and services or for other assets. Here, liquidity is regarded as a flow concept rather than stock (Nikolaou 2009). Thus, an asset is said to be liquid if it can be easily converted to cash or its equivalent (Ali, 2013). Similarly, Bankscope defines liquid assets as loans with less than three months to run to maturity plus quoted or listed government bonds and cash (Alman & Oehler, 2010). Furthermore, liquidity is the lifeblood of any organization (Sekoni, 2015). This means that both banking and non-banking institutions require liquidity and management of cash and liquid assets is a fundamental management function in any organization.

In economics, liquidity refers to the ease and speed at which one asset can be converted into another (Sanghani, 2014; Vasigh, Fleming & Kenneth, 2014). Based on this definition, a car for instance is less liquid an asset than gold, and treasury bills are more liquid than corporate bonds. Thus, money (cash) is the most liquid of wealth (Hasan, 2014). There is always a tradeoff between profit (from lending or investment) and liquidity in bank's business. This is because while banks deal in cash or liquidity, they operate on a fractional reserve principle. The regulatory principle is to maintain balance between liquidity and profit. The structure of a bank's balance sheet depicts the importance of liquidity. On the asset side, the listing is from the most liquid asset (cash) to the most illiquid one (fixed assets like building). This is contrary to the reverse listing in other organizations where the fixed assets are first listed (Hasan, 2014). Moreover, the survival of a banking institution and the entire financial sector depends on the ability to provide liquidity and also understand the proper way to mitigate its risk. The main objectives of liquidity are to guarantee that banks are able to meet up with cash obligations without compromising their profitability. In addition, liquidity is inherent in every market and it manifests itself in every transaction involving assets or portfolios trading. Sekoni (2015) also reports three situations in which liquidity manifests itself. These include the need for daily business transactions, investment activities and in case of fire-sales when there is shortage of reserves. Shortage of liquidity always occur when there is financial crunch. During such crisis, there is often massive outflows of capital with no more or at least equal inflows.

Sources of Liquidity for Banks

Nikolaou (2009) enumerates four sources of liquidity. The first is short-term (liquid) deposit. This is money entrusted by depositors to the bank. It is considered as the major source of funding liquidity. The second is the market liquidity. This is when the banks engage in selling of assets in markets to generate liquidity. This can be through loan syndication, securitization and loans from secondary markets. The third liquidity is referred to as interbank market. Here, liquidity can be sourced by banks from other banks through interbank market. The last source is the central bank. Through its function as lender of last resort, central banks do directly provide liquidity to banks. The Central Banks act as an immediate but temporal buffer to liquidity shocks which allows time for supervision and regulation to confront the causes of liquidity risk (Nikolaou, 2009). Nikolaou (2009) also identifies monetary or macroeconomic liquidity which he refers to as the growth of money, credit and aggregate savings. Thus, it includes Central bank liquidity which he says is synonymous to supply of base money. In addition, there is also funding liquidity which is the ability of banks to meet their liabilities and to settle their obligations as they come due (BIS, 2008). There are linkages among these sources of liquidity. In normal periods, the Central banks make available the amount of liquidity that will stabilize demand and supply through controlling of Statutory Reserve Requirement (SRR), while market liquidity is managed through the interbank money market and short term asset markets re-distributes and maintain the liquidity and funding position. Liquidity management also safeguards an effective sharing of liquidity resources. However, in an atmosphere of imperfect markets, and irregular information, the Central bank cannot differentiate between illiquid bank and the bank in debt. When there is a failure in coordination among depositors, banks, or traders which provide and are provided with information asymmetric and imperfect markets, the liquidity risk will result (Nikolaou, 2009).

Liquidity and Solvency

Liquidity and solvency are closely interrelated (Goodhart, 2008). These two terms refer to the financial wellbeing of an organization. However, there is difference. Solvency denotes the extent to which long-term obligations of an organization can be met. Liquidity on the other hand refers to the capability to settle short-term obligations. A solvent firm owns more than it owes. An illiquid bank can rapidly become insolvent, and an insolvent bank become illiquid. Davydenko (2013) defines solvency in terms of market value of assets relative to the debt of an organization while liquidity is cash reserves relative to current liabilities. Banks fail because of insolvency. A combined shortage of liquidity can also render a bank insolvent. Banks' failure also cause liquidity and can lead to shrinkage in the collective pool of liquidity (Diamond & Rajan, 2002). Liquidity and solvency problems interact and one can cause the other. The issue here is; illiquid assets are usually financed by banks with demandable claims. A company is solvent if its assets are more than its debt. This means that its net worth is positive and able to manage its debt portfolio (Pappas, et al. 2013). It also means that when a company is solvent, it has more assets than liabilities. The company can settle its debt without losing its net worth.

Solvency risk occurs when a bank is not able to meet up maturing obligations due to its being in a negative net worth (Almarzoqi, Naceur, & Scopelliti, 2015). This means the bank has more liabilities than assets. This usually happens when a bank suffers losses on assets due to write-offs on securities and unsettled loans but the capital base is not sufficient to cover the losses. Two factors that influence solvency position are adequate capital and profitability. Liquidity risk on the other hand happens when a bank is not capable of meeting short-term obligations. This occurs when the bank does not have enough funding (funding liquidity) or if its investments and assets cannot be sold quickly for cash without incurring unnecessary losses (market liquidity) (Almarzoqi, et al. 2015). Thus, liquidity ratios and solvency ratios are apparatuses investors use to make investment decisions. Liquidity ratios measure a company ability to change its assets to cash, while solvency ratios measure a company's ability to meet its financial obligations. Solvency ratios include financial obligations in both the long run and short term, whereas liquidity ratios focus more on a company's short-term debt obligations and current assets.

Liquidity during Global Financial Crisis

Peeble & Shah (2015) reports that these days, investors are spending a great deal of time on worrying about liquidity risk as against managing interest rates and credit risk. According to the authors, the reason is that liquidity is drying up at the time of financial crisis due to subprime borrowers' inability to pay the banks their mortgages. Similarly, Bank for International Settlement (BIS) also states that liquidity in recent years has become a key focus of international policy debates. This reflects the view that global liquidity and its drivers are of major importance for international financial stability. According to the report, in a world of high capital mobility, global liquidity issue should be approached in a different way. Furthermore, Calvo (2013a) asserts that liquidity and credit shocks have been a central factor in recent crises. He says liquidity consideration explains why a credit boom always precede financial crisis and why capital inflows grow in the run-up of balance-of-payments crises. In support of this argument, Asongu (2013) reveals that liquidity risk management has become increasingly vital in the banking industry especially following the recent financial melt-down and economic down-turn. The author posits that during the crisis, increasing credit concern and feeble market liquidity resulted in a cycle of deteriorating asset market value and deleveraging. The implication of this is that there is more focus on liquidity following the global financial crisis and that the concept of liquidity lies at the heart of commercial banks and the management of its funds. It represents one of the crucial risks in banking industry (Muharam & Kurna 2013).

Liquidity Risk in Banks

Liquidity risk is complex to define. However, its causes and symptoms can be identified more easily (Sekoni, 2015). He defines liquidity in terms of capital and earnings of an organization not meeting its financial obligations without suffering undesirable losses. There are several definitions of liquidity risk. It arises when an asset cannot be disposed without suffering additional losses (Ali, 2013). The study also defines it in terms of likelihood of illiquid positions. Thus, according to him, liquidity is inversely related to liquidity risk. This means when liquidity risk is high, there is tendency for illiquidity. Similarly, Hasan (2014) defines liquidity as the possibility of loss due to a temporary inability to meet an obligation because of shortage of cash.

Causes and Sources of Liquidity Risk

Kumar (2008), identifies the following causes of liquidity risk to include sudden or unexpected large deposit withdrawals and credit disbursement. It also includes a situation when contingent obligations become due unexpectedly. According to the study, other events that cause counterparties to avoid trading or lending to the bank can also result into liquidity risk. Also, when the sectors which the banks depend on suffer loss of liquidity, this can lead to liquidity risk of the bank itself. In addition, Mohammad and Shahwan (2013) also explain that limited accessibility of Shari'ah-compliant money and inter-bank markets are major sources of liquidity risk of Islamic banks. The financial instruments are not adequately developed to allow Islamic banks raise funds when required. The available financial instruments in conventional banks are interest based. The rule that available Islamic products like *Murabahah* and *Bay' al-Salam* can only be traded at par value is also responsible for lack of liquidity in Islamic banks. Another significant cause of liquidity risk identified by Mohammad and Shahwan (2013) is the conflicting interpretations of Shari'ah teachings on some of the Islamic products. For instance, while *bay'al-dayn* (sale of debt) is acceptable in Tanzania, it is not allowed in other regions. Furthermore, public banks in Tanzania are smaller in number in most of the countries and they depend mostly on demand deposits which can be withdrawn at any time. This again pose liquidity risk to the banks. Thus, if liquidity risk is not maintained properly, there is a threat to banks of becoming insolvent or subjected to bad publicity and reputational damage. Liquidity risk has compound effect on other risks, hence it is more important to manage it effectively.

Many studies have been conducted on the determinants of liquidity risk in banks. For instance, Sulaiman, et al. (2013) report that macroeconomic variables influence the behavior of Islamic banks in managing liquidity risk. According to the authors, variable Gross Domestic Product (GDP) are significant and directly proportional to liquidity. In addition, there are also bank specific factors influencing risk management. For instance, Ahmed, et al. (2011) while using liquidity risk as a dependent variable assert that leverages, tangibility and age are important determinants of liquidity risk in Islamic banks. The authors claim that variable size and profitability are not powerful explanatory variables to define the liquidity risk of Islamic banks in Pakistan. On the other hand, Htay, Adnan, AiRashid, and Meera (2011) examine the impact of corporate governance on the risk of banks and conclude that separate board leadership structure, higher proportion of independent directors, smaller board size, lower director ownership, higher institutional and block ownership seem to have lower impact on risk in Islamic banks.

Similarly, Muharam and Kurna (2013) investigate the influence of capital adequacy ratio (CAR), profitability ratios, return on assets (ROA), return on equity (ROE), Net Interest Margin (NIM), liquidity gaps (LG) and risky liquidity assets (RLA) on liquidity risk in banking industry. The authors point out that there is a negative and significant influence of CAR and ROE on conventional banks, while ROA and RLA have positive and insignificant effect. They also submit that while NIM, ROA and ROE have positive and significant effect on liquidity risk in Islamic banks, the LG and RLA have insignificant effect. Furthermore, they reveal that LG have positive and significant effect in conventional banks while the effect of NIM is negative and insignificant at 5percent. CAR is also negative and insignificant in Islamic banks. The study and result is like what was reported earlier by Kurna (2012). In his study of determinants of liquidity of commercial banks in Hungary, Vodova (2013) submits that capital adequacy ratio and profitability are positively related to liquidity while size of the bank and monetary policy on interest are negatively related. He says that the relationship between gross domestic products (GDP) and liquidity is ambiguous. According to him, bank liquidity decreases with the size of bank. This means that big banks rely on the interbank market or on the liquidity assistance of the

Lender of Last Resort while small and medium sized banks hold buffer of liquid assets. This supports the hypothesis of ‘‘too big to fail’’ (Kaufman, 2013). The author maintains that during financial crisis, profitability of many banks declined substantially and liquidity remains almost unchanged or declined slightly. This is also in line with the submission of Bonfim & Kim (2012) that the regulation of Systematically Important Financial Institutions (SIFIs), the so called ‘too big, too systematic or too interconnected to fail’ may play an important role in mitigating the specific component of liquidity risk.

Furthermore, Bonfim and Kim (2012) while looking for evidence of herding behaviors among banks with emphasis on the period preceding the global financial crisis reveal that interbank ratio, measured as the ratio between interbank assets and interbank liabilities may also be an important input in assessing liquidity risk. They also suggest that the ratio between credit granted and deposits taken from customers provides a broad structural characterization of banks’ main funding risks. Similarly, while analyzing the determinants of bank liquidity risk within the context of Euro area, Cucinelli (2013) posits that assets quality impacts only on the measure of short- term liquidity risk. He says banks that specializes on lending activity are more vulnerable to funding structure. Moreover, Siaw (2013) examines the determinants of liquidity risk of Ghana banks and how it affects their profitability. Using an unbalanced data set of 22 banks over a period of ten years (2002-2011), he employed random effects Generalized Least Square (GLS) regression based on Hausman test to estimate the determinants of bank liquidity risk. His result shows that bank size, Non-Deposit Dependence (NDD) and inflation have significant positive relationship with liquidity risk. He contends that while ownership structure does not affect liquidity risk significantly, ROA and ROE show significant correlation with liquidity risk.

Recently, Mehmed (2014) examines the extent to which banks in Bosnia and Herzegovina are exposed to liquidity risk. He argues that the most important determinants of liquidity in the banking sector vary, depends on the definition of liquidity risk. The author defines liquidity risk using two parameters. L1 Risk he defines as liquid assets to total assets while L2 Risk is liquid assets to customer deposits and short-term funding. Using GDP, Capital Adequacy and Return on Equity (ROE) as independent variables, he concludes that most of the determinants have influence on liquidity risk of banks in the country. More recently, Jedidia and Hamza (2015) investigate the determinants of Islamic Banks liquidity using a panel of 60 Islamic banks in Middle East and North Africa (MENA) and Southeastern Asian countries. They observe that profitability of bank indicator (like ROA) positively affects the exposure to liquidity shortage. They also contend that CAR and the ratio of bank’s investment have statistically significant negative relationship with the liquidity risk measure. In line with previous researchers, they agree that bank size does not matter probably because small and large Islamic banks have difficulties in managing their liquidity risk. However, their position that GDP has negative but irrelevant association with liquidity risk is contentious. The above discussion suggests that various authors have identified different determinants of liquidity risks. While some of these determinants like ROA and bank size have been commonly identified by many authors, other determinants have not been thoroughly discussed. Yet, there seems to be conflicting results in the relationship of some factors to liquidity risk. The conflict could be because of the period and country of study. Besides, many determinants including profitability, regulation and supervision, capitalization and inflation have not been adequately researched. This creates opportunity for further research in this area.

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