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Using Loan-to-Deposit Ratio to Avert Liquidity Risk: A Case of 2008 Liquidity Crisis

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Abstract

Liquidity risk is an on-going issue since the emergence of liquidity crisis of 2008. This paper aims to contribute to the discussion on how Loan-to-Deposit (LTD) ratio can be used to investigate and avert liquidity problem in the banking sector. For this purpose, the data of Major British Banking Groups (MBBG) are collected and critically analysed. The findings of the study reveal that the banks which sustain the LTD ratio were able to successfully pass through the liquidity crisis of 2008, and other banks which rely more on borrowed funds or banks with increasing LTD ratio, became the victim of financial crisis.

Keywords: Liquidity crisis, Loan-to-Deposit ratio, LTD, solvency, financial crisis, UK banking sector

1. Introduction

The success of any business is largely based upon its liquidity power. Crucial decisions are made in financial market based upon liquidity position. Bhattacharya (2004) defines liquidity as "a firm can maintain liquidity if it holds assets that could be shifted or sold quickly with minimum transaction cost and loss in value" (p. 281). He further added that a firm's liquidity can be measured by its ability to meet its cash obligations when they are due and to exploit sudden opportunities in the market. Liquidity crisis is a broad term applied to various types of situations where banks lose their huge part of the value suddenly. The liquidity crisis began with the bankruptcy and bailouts of big market giants and spread like a flood & gathered intensity in 2008. In the early 2009, global economy and financial system appeared to be locked in a descending spiral (National Audit Office, 2009). Liquidity crisis mainly emerged in the world's banking sector in the early 2007 due to the wrong policies of mortgage lenders. According to Caouette*et al.* (2008) "the liquidity crisis occurs whenever a firm is unable to pay its bills on time or lacks sufficient cash to expand inventory and production or violates some term of an agreement by letting some of its financial ratios exceed limits" (p. 546).

The bankruptcy and bailouts of giant companies such as Lehman Brothers, Citigroup, Merrill Lynch, Bear Stearns, AIG, and Freddie Mac have brought difficult time for world's economy, financial systems, and central banks. The variety and volume of negative financial news have lifted up new questions about the market mechanism and the origins of the financial crisis by which they are propagated. Fisher *et al.* (2008) believe that the liquidity crisis emerged due to eruption in credit market turmoil. In addition, banks and other financial institutions were failed to absorb liquidity after providing easy access to credit with relatively low interest rates. According to Ackermann (2008), in the beginning of the financial crisis UK monetary policies gave rise to global liquidity which was attached with the exchange rates. In the meanwhile, the subprime mortgage crisis emerged when UK housing market was affected due to lack of mortgage financing. On the other hand, the refinancing of off-balance sheet vehicles put more pressure on bank's liquidity (Gibson, 2008).

The literature evidence reveals that the impacts of liquidity risk on the profitability of bank is of mixed nature. According to some experts (e.g. Molyneux and Thornton, 1992; Barth *et al*. 2003) liquidity risk has a positive impact on profitability of banks. On the other hand, Kosmidou *et al.* (2005) believe that it has a negative impact. In reality, no detailed work has been carried out on liquidity and its impact on banking operation.

2. Literature review

2.1 Importance of liquidity for banks

Traditionally, it is believed that banks exist to create liquidity from illiquid assets and it is also known that bank's success or failure is based on liquidity risks (Diamond and Dybvig, 1983). Besides, the study of liquidity risk is important for the banks in terms of determining their profitability or interest margins (Kosmidou *et al.* 2005). In the past, experts mainly focused on measuring credit and operational risks and often ignored liquidity risk measures. However, it is clear from the recent financial crisis that liquidity risk is an important issue in

terms of customer deposits, customer loans, wholesale and funding products, and technological advancements (Controller and Auditors General, 2010).

Liquidity risk became more relevant to banks due to two major factors in funding. According to some experts (e.g. Blaschke, 2001; Padmalatha, 2011) the first factor of importance is the increase in utilisation of credit sensitive wholesale funds. On the other hand, other practitioners believe that the growth of off-balance sheet activity is the most significant factor for the banks to be managed in order to avoid liquidity risk (Ackermann, 2008).

The literature investigation shows several impacts of liquidity risk on the profitability of the banks. The liquidity is positively correlated with the market value of the bank, if the bank is earning higher profits and is also able to access sufficient funds to meet payment obligations in a timely manner (Barth *et al.* 2003). On the other hand, the liquidity is negatively associated with the market value of the bank and a bank gaining losses refer to its inability to access sufficient funds to meet payment obligations in a timely manner (Kosmidou*et al.* 2005).

2.2 Sources of liquidity risk in banking sector

A fundamental source of funding in the banking sector of the UK is saving accounts. The customer deposits normally signify the steady and low-cost approach of funding. In the late 1980s, investment and saving vehicles were available to bank customers that create difficulties for the banks to retain core deposits. The fast growth of the banking sector and an extensive reliance on market funding sources expose banks to the price and credit sensitivities of major funds providers (National Audit Office, 2009). In order to fulfil the funding requirements, banks implemented off-balance sheet strategies such as asset securitisation. Once these activities of the banking sector were increased, the liquidity risk emerged in the banking industry.

In particular to liquidity risk, there are many sources from where liquidity risk emerged in the banking sector of the UK. According to Koch and MacDonald (2008), asset side and liability side are the two fundamental sources of liquidity risk where asset side deals with the degree of inability of banks to convert its assets into cash and also caused by loan commitments and other credit lines such as either by borrowing funds or by running down cash reserves (Gibson, 2008). In the UK economy, loan commitments for vehicles and commercial paper conduits have led to significant growth in bank assets requiring funds and when liquidity dried up the banks sold investment securities at the price of an asset that is less than the normal price in the market.

On the other hand, liability side originated from the unexpected recall of deposits when banks borrowed short term loans and lend long term finance. Therefore, they put themselves at liquidity risk. It happened just like if an individual or an organisation has £200 million in the demand account and instantly they claim money back. In this case, the bank has to return the money to the depositor but on the other hand, the bank is receiving insufficient additional deposits and cash inflows and consequently, the liability side of a bank's balance sheet is contracting (Saunders and Cornett, 2008).

Mullineux and Murinde (2003) identified few more sources of emergence of liquidity risk in the banking sector on the basis of bank's behaviour and misjudgement towards cash inflows and outflows. He further explained that banks can control the timing of the cash flows but today, they are more concerned with supplying credits and liquidity services to individuals and organisations that have their funding sources in other capital markets.

According to Ismal (2009) liquidity risk emerged in the UK banking system due to risk activation by secondary sources such as failure of strategy, corporate governance, and mergers and acquisitions. The fall of 'General American' is the best example in this case when its investors withdrew their funds due to company's weak long-term strategies and corporate governance issues. In order to handle the situation caused by the financial crisis, central banks introduced an extensive amount of liquidity into the financial market. This strategy works for the short time to stabilise markets but after some period banks bear more unexpected losses due to currency mismatch on balance sheets especially when EU banks increased dollar funding (Ackermann, 2008).

3. Research Design and Methodology

This research follows the exploratory research design due to its logical use of qualitative approach. This study is a non-experimental based research which strongly addresses the need to investigate an unexplored area such as 'how liquidity crises of 2008 emerged into the UK banking sector'. The study neither assumes any hypothesis nor employs a large amount of data. The major aim of this research is to understand the concept of liquidity and

to show what happens if liquidity is not preserved in the banking sector. This is the reason that qualitative approach is followed in this study to effectively address the aim and objectives of the study.

3.1 Population

The investment banking industry is dominated by major US and European banks and their main focus is on wholesale foreign currency activities. The major players in the UK retail banking industry are the Major British Banking Groups (MBBG). This research is primarily based on the data of MBBG that refers to Alliance Leicester, Barclays, Bradford & Bingley, HSBC Bank, Halifax Bank of Scotland (HBOS), Lloyds TSB, Royal Bank of Scotland (RBS), Northern Rock, and Standard Chartered Bank.

3.2 Data Collection and Analysis

This study is mainly based on meaningful secondary data which is collected from many authentic and reliable sources such as financial accounts and annual reports of selected banks, London Stock Exchange (LSE), the website of the Federal Reserve, International Monetary Fund (IMF), Bank of International Settlements (BIS), and UK Financial Services Authority (FSA). Moreover, banking & finance-based journals, books, and magazines are also considered during this investigation to develop basic and advanced understanding of liquidity and its role in banking institutions. To support the qualitative reasoning, the empirical data for ten years from 2003 to 2012 is collected from the consolidated annual accounts of the selected banks. The data for customer deposits and bank loans to customers for a year is collected to measure liquidity. The Loan-to-Deposit (LTD) ratio is used to measure the level of liquidity for all selected banks. The LTD ratio shows the financial health of any bank. The LTD ratio is expressed as dividing customer loans (excluding bank loans and impairment) over total customer deposits in each year. The higher figures demonstrate the fact that the bank relies more on borrowed funds which are in normal circumstances, more costly than other of types of deposits.

4. Analysis and Discussion

Table 1 shows the Loan-to-Deposit (LTD) ratio of the selected UK banks for the period from 2003 to 2012 (past 10 years). From table 1 it is clearly understood that after the financial crises the deposits and lending of the UK banks declined rapidly and all banks are struggling to maintain a better level of liquidity. Alliance Leicester and Bradford & Bingley were severely affected by the crises and these banks lost their identities and acquired by other banks and financial institutions. After the collapse of Alliance Leicester due to a rapid increase in the liquidity ratio from 2003 to 2007, the board accepted a 'friendly takeover' offer of a Spanish bank 'Banco Santander'. This is the reason of unavailability of Alliance Leicester's financial report and accounts from 2009 onward. Bradford & Bingley was another bank which got nationalised in 2008 due to uncontrollable liquidity. The bank was taken over by Abbey National which was then owned by the Santander Group plc.

Northern Rock is the first bank in 150 years, which has faced the problem of bank run, which means a large number of bank customers withdrew their deposits with the view that the bank is more likely to become insolvent in the future. The liquidity crises adversely hit the Northern Rock and it got nationalised in 2008. Its loan to deposit ratio became abnormal in the period of 2007 and 2008. The main reason behind this problem was the exposure towards liquidity risk due to excessive withdrawals of deposits and more issuance of long term mortgage loans. RBS faced huge losses due to their uncontrolled liquidities but it managed to survive during the financial crisis. At the beginning of 2008 it was announced that the bank is expecting a full year loss of more than £7 billion. In the meanwhile the bank also announced the loss of approximately £20 billion on goodwill primarily related to the acquisition of ABN-AMRO bank (Griffiths, 2009). The total loss of £37 billion was the ever annual loss in the history of the UK (Croft, 2009). As a result, the major part of RBS was owned by the government and the bank is still struggling to get its position back. In table 1, a considerable annual decline in LTD ratios of RBS and Northern Rock represents their efforts to reduce the liquidity level.

The LTD ratio of four banks i.e. Barclays, HSBC, HBOS, and Standard Chartered looks very stable throughout the period from 2003 to 2012. This shows their consciousness and ability to keep balance between customer deposits and loans to customers. The Lloyds TSB bank is the merger of Lloyds bank and TSB group. In 2009, HM Government took a 43.4 percent stake in Lloyds Banking Group and it was subsequently announced that a standalone retail banking business of 600 branches in TSB brand (Lloyds TSB, 2009). The LTD ratio of Lloyds TSB stumbled during the crisis but the banks recovered well in 2011 and 2012. Figure 1 is created based on information presented in table 1. The LTD ratio of each bank is plotted separately to have an idea about its position of selected UK banks.

In figure 1, LTD ratios of all the banks (apart from Northern Rock) look stable from 2003 to 2012. In 2007, Northern Rock was relying more on borrowed funds and this was the reason that in the beginning of 2008 the bank became the first victim of financial crisis and got nationalised. Figure 2 shows the average LTD ratio of all the banks. In the figure it is evident that overall LTD ratio increased from 2004 and it touched the highest point in 2008 when the liquidity crisis of 2008 was triggered. A substantial decrease in the LTD ratio after 2008 demonstrates that the banks learned a lesson from their mistakes and they managed to control liquidity after the crisis. Another possible reason of a quick decline in the average LTD ratio is the nationalisation of few banks e.g. Alliance Leicester that was heavily relying on borrowed funds. Also, some banks such as Bradford & Bingley and Northern Rock are dropped from the stock exchange as they have lost the confidence of shareholders.

5. Conclusion

This study provides the performance of the UK banking sector before, during, and after the liquidity crisis of 2008. It is perceived that the unstable liquidity of banks can adversely affect the reliability and sustainability of banking operations. The results of this study clearly show that the banks with low control over customer deposits and loans (e.g. Alliance Leicester, Bradford & Bingley and Northern Rock) have already been nationalised, taken over, or merged with other financial institutions. These banks became the victim of liquidity crisis due to their low operational measures to control the loan-to-deposit ratio. Further analyses reveal that Barclays, HSBC, HBOS, and Standard Chartered have been successful in preserving liquidity by maintaining a fine balance between customer deposits and customer loans. The liquidity crisis of 2008 badly influenced the UK banking sector and some banks like RBS and Lloyds TSB are still struggling hard to recover their position. A significant decline in the average LTD ratio in 2011 and 2012 represents a more conscious approach of the UK banks towards bank deposits and loans to customers.

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Table1: Loan-to-Deposit ratios

Banks	For the period from 2003 to 2012									
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Alliance Leicester	123.65	136.26	152.26	157.36	184.21	130.89	-	-	-	-
HBOS	154.91	148.42	172.54	179.32	178.18	200.64	183.32	187.93	175.29	152.30
Barclays	124.35	118.39	114.10	111.25	118.37	139.59	133.66	127.35	118.00	110.35
Bradford & Bingley	151.03	152.61	148.10	162.75	167.45	-	-	-	-	-
HSBC	79.60	86.74	88.88	88.15	84.87	80.65	82.51	82.88	83.21	86.99
Lloyds TSB	117.56	127.74	135.05	136.70	135.56	144.09	157.78	155.21	136.66	121.15
Northern Rock	146.07	268.56	296.71	323.05	854.76	350.93	-	72.16	85.73	93.08
RBS	108.22	122.67	121.69	121.52	121.42	136.78	118.59	108.73	102.52	95.94
Standard Chartered	84.57	87.34	93.53	95.35	88.33	77.12	81.41	81.11	77.17	75.17

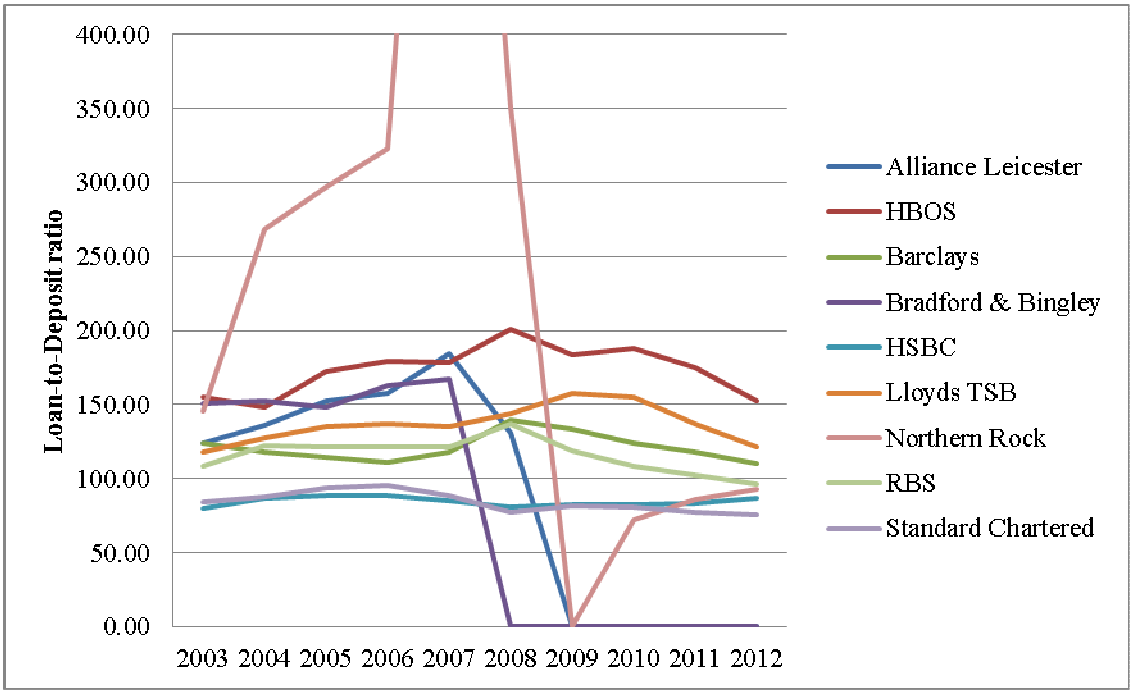

Figure 1: Loan-to-Deposit Ratios of UK Banks

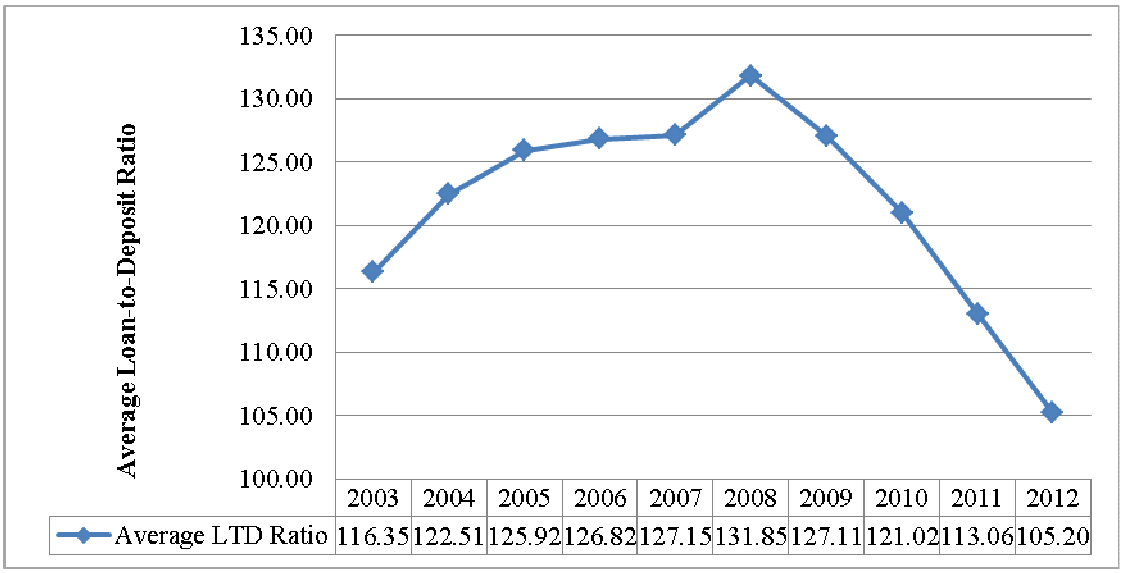

Figure 2: Average Loan-to-Deposit ratios