Access to Interbank Market Liquidity: Does Bank Concentration Matter?

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Abstract
Commercial bank's access to liquidity is the fulcrum which guarantees their very continued survival and existence. However, some banks in Kenya experience difficulty getting sufficient liquidity from the interbank market to resolve their problems of liquidity which can lead to their reduced levels of profitability, freezing of giving loans to their borrowing customers, downsizing or even closure. This study adopted pragmatism philosophical approach to assess the effect that bank concentration has on access to interbank market liquidity in Kenya. The study was anchored on credit access theory, financial intermediation theory and lendable funds theory. The study collected secondary data from the top five commercial banks in terms of market share of total bank assets which operated in Kenya between 2009 and 2018. The data was obtained from the Central bank of Kenya annual bank supervision reports and from each of the 40 individual bank's annual financial and balance sheet published reports. Data was analyzed using fixed multiple regression model. The findings of the study showed that bank concentration had a positive but insignificant influence on access to interbank market liquidity by commercial banks in Kenya .The study recommended that bank managers should thus endeavor to grow their banks market share for easy access to interbank market liquidity and that policymakers should put in place policies which encourage bank consolidation.

Keywords: *Interbank market, Access to liquidity, Bank liquidity, Bank Concentration, Market power*

1.0 Introduction

Access to liquidity is crucial for survival of any commercial banking institution. Banks require sufficient and guaranteed supply of liquidity in order for them to be able to honor their maturing financial obligations, be able to pay for their clients financial instruments at the cheques clearing house and be able to comply with prudential and regulatory guidelines on bank liquidity requirements. Evidence shows that since the collapse of the three Kenyan banks in 2015 and early 2016, a number of commercial banks continue to experience access to liquidity problems (CBK, 2016). According to the Kenya Financial Sector Stability Report (2017), failure by banks to get enough money from the interbank market has forced them to reduce their levels of business activity especially in giving out of loans to their borrowing customers due to liquidity constraints. Others have been forced to either merge, downsize by closing some of their branches or undertaking painful staff rationalization and layoffs due to declining bank profitability and shrinking shareholder value not withstanding at risk of being sanctioned by the regulator for operating below the statutory levels required for bank liquidity.

It is not clear what makes some banks access liquidity more easily while others face difficulty getting money from the banks market. There seems to be factors that determine access to interbank market liquidity. Some of these factors are known like the size of the bank while others are not clear especially in emerging money markets. There is therefore a need for a study to help address this problem of access to interbank market liquidity by banks. Identification of the factors that banks prioritize in allowing access to their money by another bank will help commercial banks to position themselves strategically to be able to get liquidity from the interbank market every time they experience sudden need for money thus preventing banks from collapsing or reducing their levels of operations hence ensuring banking sector stability.

Studies on the interbank market in emerging money markets have tended to focus on segmentation and efficiency of the market (Sichei et al., 2012); the price of liquidity: bank characteristics and market conditions (Fecht et al., 2011); the peer monitoring role of the interbank market and its implications for bank regulation (Murinde et al., 2016); the role of interbank relationships and liquidity needs (Kim, 2014; Craig et al., 2015).

However, there exists insufficient information supported by relevant theories to help address the problem of access to interbank market liquidity and what banks consider important when they allow access to their liquidity by other banks. This is the gap that this study sought to fill by evaluating the effect of bank concentration on access to interbank market liquidity in Kenya.

1.1 Literature Review

This chapter covers the literature underpinning the study and highliglits the interbank market liquidity, access to interbank market liquidity and bank concentration.

1.2 The Interbank Market

Described as entirely a commercial bank's only market, the interbank market provides an avenue where banks borrow and lend liquidity to and from each other. According to Sichei, Tiriongo, Oduor & Shimba (2012), the market plays significant role at bank, industry and macroeconomic level in the economy. At the industry and bank level, the interbank market does three important things for commercial banks; that of helping in liquidity management; thus, taking deposits from their customers who have excess or idle money and giving out the money to either their clients who need loans or to other banks that have liquidity shortage. Secondly, that of enabling the other banks to meet their daily money obligations of paying for their client's cheques in the clearing house and thirdly, that of enabling banks meet their statutory reserve requirements with banking sector regulators thus helping banks to adjust their liquidity positions to evade penalties or sanctions (Choon, Hooi, Murthi, Yi, &, Shven, 2013; Sichei, Tiriongo, Oduor & Shimba, 2012).

1. 3 Bank Liquidity

Liquidity to a commercial bank is likened to the life blood which sustains all living animals. Indeed, just as animals cannot live without sufficient flow of blood, commercial banks cannot survive without sufficient supply of liquidity (Dang, 2011). The Bank of International Settlement (2008) defines bank liquidity as the ability of a commercial banking institution to attract sufficient money either from its internal or external sources to cater for its asset growth and be able to meet its obligations as they fall due without necessarily incurring unacceptable losses, penalties or sanctions. Banks require liquidity to fulfill three of their main banking obligations; first, that of enabling banks to pay for their own or their customers' maturing money obligations. Secondly, that of allowing banks to boost growth of diverse investments in loan assets which form their main source of revenue and thirdly, that of allowing banks to be able to comply with statutory guidelines on cash reserve requirements as set by regulatory authorities (Bruche & Suarez, 2010).The survival of banking institutions lies on their ability to raise money within short notices to cater for any sudden need for liquidity. Banks have to thus ensure that the money they are receiving is more than the money they are giving out to pay for their obligations in order to avoid encountering problems of liquidity which may lead to their closure or even collapse (Cocco, Gomes &Martins, 2009; CBK, 2016; Sharma & Singh, 2016).

1.4 Access to Interbank Market Liquidity

Evidence suggests that the level of access to liquidity from the interbank market varies greatly from one region to another and from one interbank market to another (Vodova, 2015). The variation on the level of access to interbank market liquidity is mainly attributed to the levels of development of the interbank markets which is usually reflected by the ease in which banks trading in a particular market are able to access many products at better terms and allows access to more volumes of interbank market money (Cocco, et al.,2009).Banks operating in emerging money markets are seen to not only experience low levels of access to interbank market liquidity but also high levels of volatility and poor flow of financial information as compared to commercial banks operating in more developed money markets (Rooyen & Claassen, 2012). However, the situation seems to favor larger banks while smaller commercial banks have been seen to encounter difficulties getting a bank that is willing to give it money when it has problems of liquidity (Vodova, 2015). It is argued that smaller banks experience access to interbank liquidity difficulties such as being allowed less amounts of money than

requested, being charged higher interest rates for access to liquidity than the larger banks, being allowed repayment periods which are shorter as compared to the period allowed to larger banks, being subjected to tough conditions or even outright denial of money among others (Business Daily, Tuesday 10th October, 2017; Allen & Gale, 2004; Coco et al., 2009; Sichei et al., 2012). Evidence from the more developed money markets show that it is easier for smaller banks to get money from the interbank market than it is for smaller banks operating in emerging money markets to get money from other bank within their interbank markets. Coco et al. (2009) notes that the interbank market in the United States of American (USA) for example offers diverse interbank loan products including overnight loans which are not secured. However, studies have shown that banks tend to prefer to give money to other banks with whom they have an established banking relationship thus banks outside these networks have difficulty getting money from the interbank market (Coco et al., 2009).

Kim (2014) observed the interbank market in Europe as being relatively well developed and by extension providing variety of unsecured short-term interbank loans to its partners. However, commercial banks' access to interbank market money within the Eurozone local banks was seen to be discriminative to cross border borrower banks in terms of interbank rates, varying levels of access to money, volumes and overall pricing of the interbank loans (Vodova,2015). Further, bank's access to money from the Germany interbank market was to a larger extent influenced by the size of the bank (Kim, 2014). Observations have been made that smaller banks are discriminated against whenever they want to borrow money from larger banks within the Germany interbank market (Fecht, Nyborg, & Rocholl, 2015).Sharma and Singh (2016) observed that despite India having liquidity adjustment facility which was given out to commercial banks facing liquidity problems, banks in India still experience difficulty getting money from the Mumbai interbank market .Studies show that access to interbank market money was discriminatory based on bank ownership and that larger public sector banks had better access to money from the interbank market than foreign owned banks (Afonso, Kovner, & Schoar, 2014; Sharma & Singh, 2016).

Challenges in getting access to enough interbank market liquidity by commercial banks appear to be replicated across most emerging money markets in Africa. In South Africa for example, four of the top banks control 80% of the market liquidity while evidence shows that 12 small banks have collapsed since 1990 due to inability to access enough interbank market money to resolve their problems of liquidity (Bloomberg, Monday, 12th March, 2018). Further, it is observed that the Nigerian interbank market has been experiencing liquidity problems since 2010. Moreover, getting money from the Nigerian interbank market has been a challenge to smaller banks because the 6 top banks control over 70% of the total liquidity but evidence suggests that smaller banks experiencing liquidity problems have been forced to either merge or put in more capital in order for them to survive because the larger banks are reluctant to give them interbank money (Daily Monitor, Friday, 20th January, 2017).

Further, in the last three years the Central bank of Tanzania (BOT) has withdrawn the licenses of five small banks and forced three others to merge due to low capitalization and access to money problems. This even after the bank had reduced discount window rate from 16% to 9% and minimum statutory reserve requirement from 10% to 8% in its effort to ease access to money by commercial banks. M-bank of Tanzania is the most recent bank to be placed under receivership owing to lack of access to immediate liquidity to enable it meet its maturing obligations (BOT, 2017). Moreover, Crane bank which was the fourth largest bank in Uganda collapsed in 2017 due to high levels of nonperforming loans which ate into the capital levels of the bank. However, the bank was denied access to money by other banks thus plugging into more liquidity problems and was finally put under receivership by the Central bank of Uganda (Business Daily,2nd Thursday, 2018; Daily Monitor, Friday 20th January, 2017).

In Kenya, access to liquidity has been observed to be skewed in favor of larger commercial banks. Indeed, the Central bank of Kenya (CBK, 2018) observed that by the close of the year 2017, eight large banks controlled 66.74% of the overall liquidity, while eleven medium banks and twenty-two small banks controlled 26.01% and 7.25% of the overall liquidity respectively. However, even though large banks control most of the country's

liquidity, they are reluctant in allowing access to their money by smaller banks. This contributed to the closure of the three small and medium banks in late 2015 and early 2016 because they were unable to get money from the interbank market to resolve their sudden need for liquidity thus their closure by the Central bank of Kenya (Business Daily, Tuesday, 27 February, 2018).Studies on the interbank market in Kenya have shown that smaller banks face difficulty and restrictions when they want to access liquidity from large banks. Arguably, there exist access discrimination where large banks offer large proportion and better terms for access to their money to their counterparts in the large banks segment than they do to small and medium banks (Sichei et al., 2012; Green et al., 2016). There is evidence that banks have difficulty getting money from the interbank market which threatens not only their very existence but also the stability of the entire banking sector in Kenya (Murinde et al., 2016; Business Daily, Tuesday, 10th October, 2017).

1.5 Bank Concentration and Access to Interbank Market Liquidity

Defined as the share of a country's bank assets held by the 3 or the 5 largest banks (Demirgüç-Kunt et al., 2003) bank concentration represents the share of the market or the market power that a particular bank command. According to Owen & Pereira (2018), values below 1500 represents a low concentrated banking sector, values between 1500 and 2500 represents a moderately concentrated market while values above 2500 represents a highly concentrated banking sector. Evidence suggests that larger banks are easily diversified and that high levels of bank concentration increases access to interbank market liquidity for the dominant banks within the industry (Demirguc-Kunt et al., 2003). Further, it has been observed that banking systems characterized by a few large banks are more stable and have fewer incidences of bank failures due to better access to interbank market liquidity (Zekry-Barruch, 2014).

2.0 METHODOLOGY

The study uses descriptive survey research design and collects data from all the 40 commercial banks which operated in Kenya between 2009 and 2018. This period is significant because many commercial banks experienced liquidity challenges leading to reduced extension of credit facilities to their clients, reduced bank profitability, staff layoffs, mergers and bank collapse. The study collects secondary data from the Kenya bureau of statistics, the Central bank of Kenya reports and from the individual bank's annual financial reports. The study then analyses the trend of bank concentration and captures the estimation procedure that was followed to assess the effect of bank concentrations on access to interbank market liquidity in Kenya**.**

2.1 Trend of Bank Concentration and Access to Interbank Liquidity

The trend of bank concentration was analyzed against that of access to interbank market liquidity and the results presented in Figure 2.1.

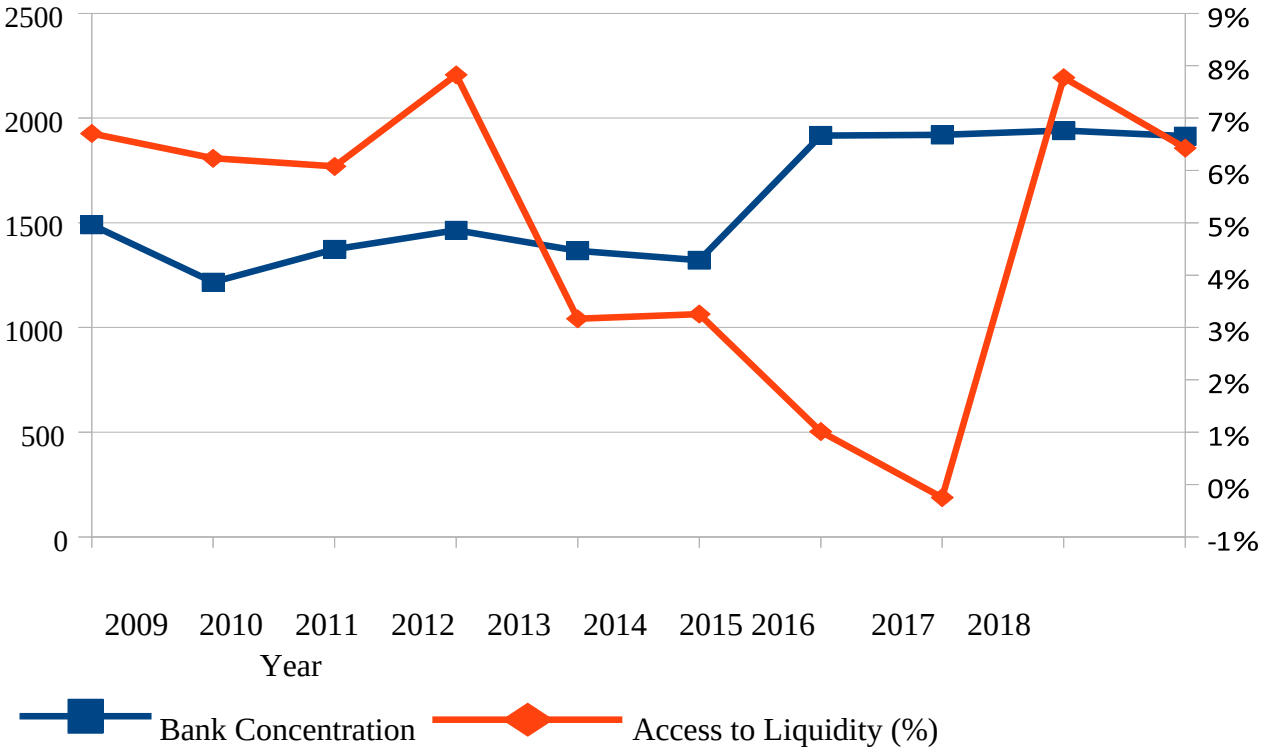

Figure 2.1: Trend of Bank Concentration (Source: Researcher, 2019)

Figure 2.1 shows that bank concentration had generally plateaued between 2009 and 2014 with a significant drop in bank concentration in 2010 which was attributed to central bank's change of market share classification from looking at bank capitalization to use of weighted market share. Figure 2.1 further shows a significant raise in access to interbank liquidity from an interbank ratio of 1.60 in 2011 to an interbank ratio of 2.50 in 2012 implying improved access of interbank market liquidity by commercial banks. As highlighted earlier, this was a significant time when the country's economy exhibited increased levels of activity attributed to economic recovery programs by the coalition government after the contested 2007/2008 elections.

Moreover, the results show a significant drop in access to interbank liquidity in the period 2013 to 2016; with 2016 recording the lowest interbank ratio of 0.54 signifying lowest levels of access to interbank liquidity by commercial banks within this particular period. As mentioned earlier, this is the period when majority of banks experienced liquidity distress leading to collapse, mergers and or consolidation of some of the commercial banks in Kenya which lead to increased bank concentration from low concentration to moderate concentration level in 2015.

Figure 2.1 further shows a decline in bank concentration in 2014 owing to banks slowdown in growth of their loan assets as a result of wait and see following enactment of interest capping regulation. The results however show that bank concentration increased to moderate level in 2015 owing to the fact that banks were able to resume giving out loans to their borrowing customers. Evidence shows that many customers who banked with smaller banks left to seek funding from the larger banks following flight to safety due to collapse of the 3 banks in 2015 and early 2016(Bank Supervision Report, 2018).The growth from low concentration to moderate concentration is attributed to sustained consolidation of market share through recapitalization, acquisitions and mergers by the top 5 banks within the study period. The results show that the top 5 banks had maintained the top slot of their percentage share of the total bank assets for the entire period of the study (Bank Supervision Report, 2018).

2.2 Model Estimation

This section addressed the main objective of the study and described the estimation procedure followed to empirically assess the effect of bank concentration on access to interbank market liquidity employing equation 2.1.

$$Y=\beta 0it + \beta 7it X7 + \epsilon it \quad (2.1.)$$

Where;
Y = Access to Liquidity
X_7 = Bank Concentration
β_{0it} = The intercept
β_{1it} =Coefficient of the Parameter to be estimated
ϵ_{it} =Error term

The results of this estimation are presented in Table 2.1

Table 2. 1: Multiple Regression Output for Bank Concentration and Access to Liquidity

	Coefficient Estimate	Std. Error	t value	Pr(>|t|)
(Intercept)	3.8500	1.3800	7.306	0.0053 **
Bank Concentration	1.9570	0.4347	−4.502	0.0605 *

Residual standard error: 1.109 on 2 degrees of freedom

Multiple R-squared: 0.0683, Adjusted R-squared: 0.0631

F-statistic: 3.39 on 1 and 1 DF, p-value: 0.0548*

Significance. Codes: *** 1%, ** 5%, * 10%

Source: Research Data, (2019)

Table 2.1 shows a R^2 of 0.06310 implying that 6.31% of the variance of access to interbank market liquidity was accounted for by bank concentration. Further, the results show that bank concentration had a p-value of 0.0548 which indicated significance at 10% level of significance. The results show that bank concentration had a p-value of 0.0605 and was thus not significant at 5% level of significance. However, the results show that bank concentration had a positive beta coefficient value of 1. 9570.This reflects a positive relationship between bank concentration and access to interbank market liquidity implying that a unit increase in bank concentration would cause an increase in access to interbank market liquidity by 1.957 and vice versa. The results however show that bank concentration was not significant at 5% level of significance. These results support the loanable funds theory argument that the amount of money available in the market depends only on the supply and demand for liquidity and that there are no interactions with other factors. This implies that the percentage of market power that a particular bank commands does not influence its access to funds from other banks. These findings agree with those of Harbi (2017) who observed that bank concentration was insignificant in influencing access to interbank market liquidity in Tunisia. Other studies have however observed that increased bank concentration tends to tighten the available liquidity in favor of large banks and consequently, less access to money by smaller banks who have to borrow at higher rates in order for them to survive (Vodova, 2011; Ongore & Kusa, 2013; Mousa, & Mohamed,2015; Business Daily, Tuesday, 27th February 2018; Vodova, 2015).

Further, the results in Table 2.1 support Demirguc-Kunt et al. (2003), observation that larger banks have more market power and are easily diversified and that high levels of bank concentration increases access to interbank market liquidity for the dominant banks but reduces access to interbank market liquidity for smaller banks within the industry. Further, the results in Table 4.7 agree with the findings of the study by Zekry-Barruch, (2014) that banking systems characterized by a few large banks were more stable and had fewer incidences of bank failures due to better access to interbank market liquidity. Moreover, the results support the observation by Oduor et al. (2014) that the relationship between bank concentration and access to interbank market liquidity could be inverse when there were just a few large banks holding the largest percentage of the available liquidity and thus dictating who could access money from the interbank market based on their qualifying criteria(Ongore & Kusa, 2013; Oduor et al., 2014; Muriithi & Osoro, 2016).The results shown on Table 4.7 however differ with the findings by Sichei et al. (2012) who observed that Kenya's interbank market was segmented by size into small, medium and large banks and that top large banks with more total assets influenced the level of access to liquidity by the Kenyan banks.

In conclusion, the study observes that bank concentration had no significant effect on the level of access to interbank market liquidity by commercial banks.

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