

Access to Interbank Market Liquidity: Does ALICO Decision Matter?

Gilbert Kyongo Mutinda¹, Josephat Mboya Kiweu²,
Charles Ombuki³

¹PhD Student, School of Business & Economics, Machakos University P.O box 136-90100, Machakos.

²School of Business & Economics, Machakos University P.O box 136-90100, Machakos.

³School of Business & Economics, Machakos University P.O box 136-90100 Machakos.

Corresponding Author: Gilbert Kyongo Mutinda

Abstract: Banks need access to liquidity in a timely manner for them to uninterruptedly continue discharging their daily banking obligations. However, some banks experience difficulty getting enough money from the interbank market to resolve their problems of liquidity which can lead to their reduced levels of profitability, downsizing or even closure. This study evaluates factors that asset and liability committee members consider important for access to liquidity from the bank. The study uses census survey research design and collects primary data from all the 40 commercial banks operating in Kenya between 2009 and 2018. A questionnaire tool is used to collect primary data through interaction with bank treasurers of the 40 commercial banks. The study uses factor reduction approach to prioritize factors that bank treasurers consider important in allowing access to liquidity from their bank. Findings from critical factor analysis show that bank experts prioritize creditworthiness, bank's level of credit risk, the expected return from the interbank transaction and the prevailing level of economic activity in allowing access to liquidity from the bank. The study recommends that bank managers should constantly monitor these critical factors in order to ensure compliance and adherence to prudential guidelines on bank liquidity management and that policymakers should put in place policies which encourage banks to lend liquidity to one another.

Keywords: Interbank market, Bank liquidity, Access to liquidity

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I. Introduction

Liquidity is the fulcrum on which all banking operations are based. However, bank experts have not been able to resolve the conundrum of its access by banks. Evidence shows that many small and medium commercial banks in Kenya continue to experience access to liquidity problem due to massive transfer of customer deposits from banks perceived to be “small” to banks perceived as “big”. Evidence shows that smaller banks have been reporting declining levels of profitability, are not able to give loans to their customers and risk being sanctioned by the regulator for operating below the statutory levels required for bank liquidity (CBK, 2016). Evidence suggests that Asset and Liability Committees (ALCO) who are ideally liquidity management experts in all commercial banking institutions are central to the way a bank manages its liquidity. This is because discretionary authority to allow or deny access to liquidity within the commercial banks is vested on this crucial committee (Sinkey, 2002). It has been argued that the decisions of ALCO committee play a key role in determining the overall level of access to money by commercial banks and may sometimes supercede or even disregard the dictates of the prevailing macroeconomic, bank specific or even banking industry parameter outlook (Sichei et al., 2012; Vento & Ganga, 2009; Vodova 2015; Lovin, 2013).

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 regulator (Business Daily, Tuesday, 27th February, 2018). Evidence from the interbank market in Kenya shows that smaller banks face difficulty and restrictions when they want to access liquidity from larger banks. Arguably, there exist access discrimination where larger banks offer large proportion and better terms for access to their liquidity to their counterparts in the large banks segment than they do to small and medium banks (Sichei et al., 2012; Green et al., 2016; Murinde et al., 2016).

According to the Kenya Financial Sector Stability Report (2017), failure by smaller bank 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.

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. This study helps address this problem of access to interbank market liquidity particularly by smaller 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.

1.2 Review of Literature

Past studies have looked at both macroeconomic and bank specific factors either separately or by studying them together while evaluating their influence to various parameters related to access to liquidity by commercial banking institutions (Vodova, 2013; Trenca, 2015; Fecht et al., 2011; Sharma & Singh, 2016; Eichengreen & Gupta, 2013). Several macroeconomic factors have however been suggested to influence access to interbank market liquidity. These include presence of financial disturbances such as shocks like interest capping, collapse of banks which may cause liquidity hoarding by banks with liquidity surplus (Hovarth et al., 2012), the interest rate of monetary policy usually represented by the central bank rate (Mohamed et al., 2015), bid-ask spread effect both by lenders and borrowers, when they acted as quoters rather than as aggressors (Gabbi et al., 2012; Beck & Fuchs, 2004), business cycle either during time of expansion or recession of the economy and price of liquidity. It is however not clear how they influence access to liquidity from the interbank market in an emerging money market like Kenya (Vodova, P., 2015; Sharma & Singh, 2016).

Studies have also suggested various bank specific factors that are likely to influence access to money from the interbank market such as creditworthiness (Cocco et al., 2009; Broecker, 1990; Allen & Gale, 2000), nature of bank ownership and more specifically whether fully owned by the indigenous people or has traces of foreign ownership (Cocco et al., 2009; Green et al., 2012; Allen et al., 1992), Bank Reputation (Allen et al., 1990; Green et al., 2012; Sichei et al., 2012), Bank reserve holding at the Central bank (Cocco et al., 2009; Angelini et al., 2011) Ability to provide a collateral for the borrowing like treasury bills and bonds (Cocco et al., 2009; Sichei et al., 2012), Proximity to the bank in need of liquidity or the financial services provider (Boot, 2000; Goyal et al., 2011; Beck, 2015) Credit ratings of the borrower by rating bodies (Angelini et al., 2011; Choon et al. 2013) Capital ratios such as return on assets or return on equity, Earnings per share (Angelini et al., 2011; Choon et al., 2013).

It is however not clear which one of these factors influences bank's decision to give another bank money the most. The proposed study looks at the determinants of access to liquidity in Kenya and incorporates the opinion of industry experts in helping identify what they consider important for access to liquidity from the bank.

1.2 Conceptual Framework

The study conceptualizes a linear relationship between the independent variable represented by ALCO decisions and the dependent variable represented by access to interbank market liquidity. The choice of variables for the study is informed by other studies done on interbank markets and the variables included in this proposed study have been identified from reviewed literature as having significant influence on access to interbank market.

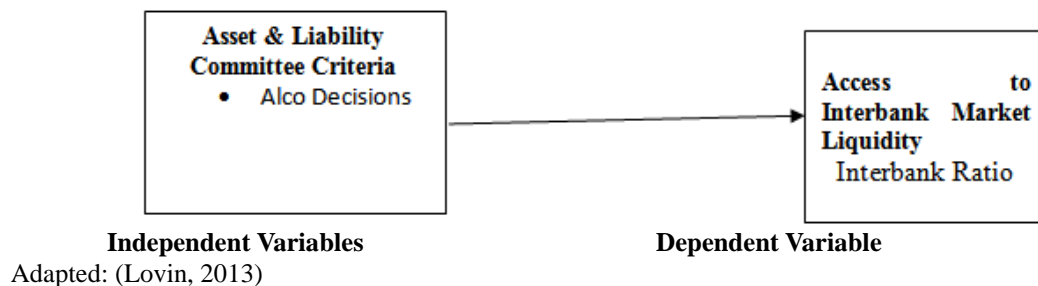


Figure 2.1: Conceptual Framework

1.4 METHODOLOGY

The study uses a structured questionnaire tool to collect primary data from the heads of treasury of all the 40 commercial banks who participate in interbank trading. The questionnaire tool captures their opinion on the importance that they attach on factors identified from reviewed literature in a score of one to five (where 5 represented the most important while 1 will represented the least important factor consideration). The tool has provision for open ended questions to capture the independent opinions of the industry experts on what they consider important for access to liquidity from the bank.

1.5 Results and Findings

This section presents the profiles of the respondents and the results of factor analysis

1.5.1 Number of Years Participating in Interbank Trading

The respondents were asked to state the number of years that they had participated in interbank trading regardless of whether they were acting for different banking entities. Below is a summary of the bank expert interbank trading profiles.

TABLE 1.1: Number of Years in Interbank Market Trading

No.	Years Participating in Interbank Trading	Respondents
1.	Less than 3 years	None
2.	Between 3 and 5 years	None
3.	More than 5 years	33

Source: Researcher, (2019)

The profiles of the bank treasurers show that all the 33 bank treasurers had participated in interbank trading for more than 5 years. The findings were in support of the observation by Braxton (2008) that the number of years one has been involved in interbank trading was important to ensure that the information given was credible and could be relied upon to make an informed decision on the determinants of access to liquidity from the bank.

From the findings on the profiles of the bank treasurers that participated in the survey it can be seen that the survey participants were quite experienced in terms of the number of years that they had participated in interbank market trading. This indicated that asset and liquidity management was being done by senior managers of the banks who were experts. This observation assured the study that the information obtained from the respondents was representative, credible and could be replicated on other emerging money markets. Respondents to the survey were further requested to rate the importance of factors that they prioritized in allowing access to liquidity from the bank. Table 1.2 below presents the findings of the mean score ranking of the items as prioritized by the bank treasurers in order of the importance they attached to each item (Sekaran & Bougie,2011).

TABLE 1.2: Results of Mean Score ALICO Factor Importance.

No.	Qn. No.	Factor Consideration	Mean Score
1.	1	Credit Worthiness of the borrower	4.88
2.	10	The borrower banks' credit risk record	4.76
3.	22	Expected return (margin of revenue from the transaction)	4.70
4.	2	Prevailing level of economic activity	4.33
5.	14	Bank profitability (ROA, ROE).	4.03
6.	9	Bank reputation	3.97
7.	5	The size of the bank	3.88
8.	20	Level of liquidity in the market	3.88
9.	4	The level of non-performing loans of the borrower bank	3.82
10.	15	Bank's profitability trend or history	3.76
11.	6	Level of bad loan provisions of the borrower bank	3.70
12.	21	Business cycle	3.70
13.	11	Ability to provide collateral	3.55
14.	3	Borrower banks reserves at CBK	3.48

15.	18	Request Initiator	2.97
16.	23	General performance of country's economy (GDP growth)	2.91
17.	19	Prevailing business environment	2.79
18.	13	Banks credit rating	2.70
19.	16	Level of inflation in the economy	2.36
20.	7	Foreign or Indigenous	2.30
21.	8	Bank ownership (Private or Public)	2.30
22.	19	Existing Central bank rate (CBR)	2.15
23.	12	Proximity to the borrower bank (how near/location wise) ⁸⁷	1.64

Source: Researcher, (2019)

All the 23 items had mean scores ranging from 1.64 and 4.88 thus indicating the expert's opinion on the items' statements based on each variable and the higher mean scores are considered to be items with major antecedents of access to liquidity by banks. The mean score rating of the 23 ALICO factors on Table 4.10 give an indication of what banks prioritize as important for access to liquidity from the bank.

The summary of the descriptive statistics shows 10 items with a mean score of 3.75 and above which meet the threshold for consideration as a significant factor of importance for access to liquidity from the bank (Kiweu,2010).

TABLE 1.3: Results of Top 10 Mean Score ALICO Factor Importance.

No.	Qn No.	Factor Consideration	Mean Score
1.	1	Credit Worthiness of the borrower	4.88
2.	10	The borrower banks' credit risk record	4.76
3.	22	Expected return (margin of revenue from the transaction)	4.70
4.	2	Prevailing level of economic activity	4.33
5.	14	Bank profitability (ROA, ROE).	4.03
6.	9	Bank reputation	3.97
7.	5	The size of the bank	3.88
8.	20	Level of liquidity in the market	3.88
9.	4	The level of non-performing loans of the borrower bank	3.82
10.	15	Bank's profitability trend or history	3.76

Source: Researcher, (2019)

The results indicate that credit worthiness had the highest mean score rating of 4.8, followed by expected return which had a mean score rating of 4.76, level of credit risk had a mean score rating of 4.70 while the level of economic activity had a mean score rating of 4.33. In summary, the mean score rating results showed that bank experts gave importance to the banks' credit worthiness, expected return, level of credit risk and the prevailing level of economic activity while making considerations for allowing access to liquidity from the bank.

The results of mean score rating by bank treasury managers however, contradicts the findings in literature especially the studies by Kim, (2014) who observed that bank size, bank profitability, bank ownership and bank origin were more important for access to liquidity from the bank. Other studies had prioritized the nature of bank ownership and more specifically whether fully owned by the indigenous people or has traces of foreign ownership (Cocco et al., 2009; Green et al., 2012; Allen et al., 1992), Bank Reputation(Allen et al., 1990; Green et al., 2012; Sichei et al., 2012), Bank reserve holding at the Central bank (Cocco et al., 2009; Angelini et al., 2011) Ability to provide a collateral for the borrowing like treasury bills and bonds (Cocco et al., 2009; Sichei et al., 2012), Proximity to the bank in need of liquidity or the financial services provider (Boot, 2000; Goyal et al., 2011; Beck, 2015) Credit ratings of the borrower by rating bodies (Angelini et al., 2011; Choon et al. 2013) Capital ratios such as return on assets or return on equity, Earnings per share (Angelini et al., 2011; Choon et al., 2013) among others.

1.5.2 Critical Factor Analysis

Further investigation was carried out on the 23 items to evaluate the influence that they had on access

to interbank market liquidity from the bank using factor solution scree diagram. This was done in order to reduce the 23 items into only those items which had higher importance for access to liquidity from the bank as prioritized by bank treasury experts. The following factor solution scree diagram was considered to help reduce the items as per Kaiser rule which considers only items with eigenvalues higher than one (>1) (Kiweu, 2010).

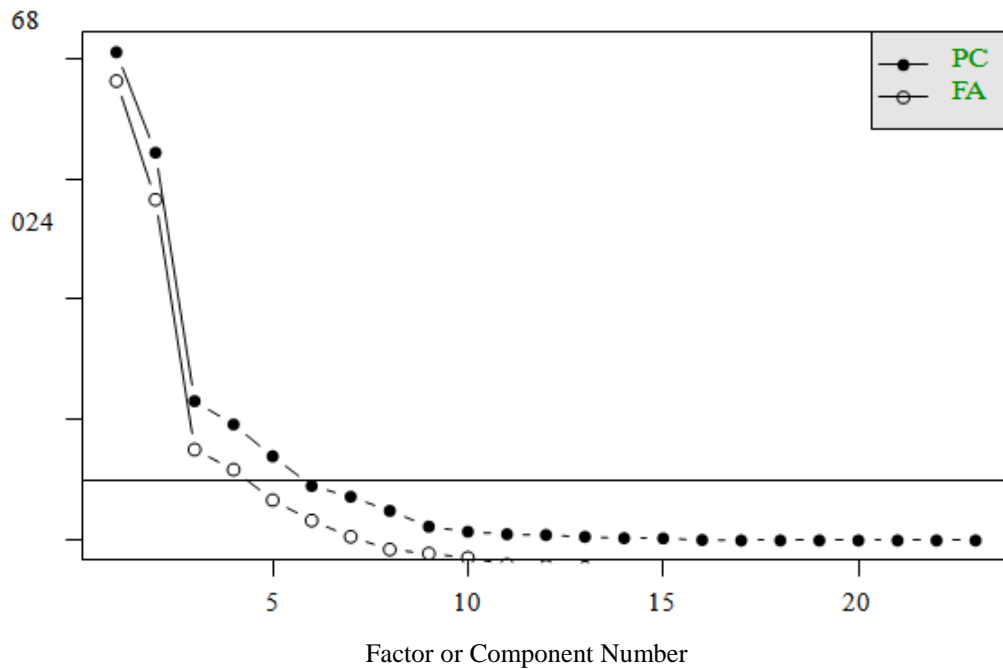


FIGURE 1.3: The Scree Plot.

The factor solution scree diagram reduced the 23 items into only 4 factors consisting of 15 items which had eigenvalues greater than one as shown in Figure 1.3 then Kaiser-Meyer Olkin test was used to determine the suitability to perform factor analysis on the data items according to (Pallant, 2007).

1.5.3 Varimax Rotation

The study used factor rotation matrix approach to further reduce the 23 items of importance as ranked by bank treasury experts in order to extract the items with highest influence on access to liquidity from the bank in a similar approach as used by Lekkos(2001).The study considered only variables with eigenvalues higher than 0.6 as the level of criticality which was a higher measure than Kaiser’s 0.5. The results of the Varimax rotation are shown in Table 1.4 below.

TABLE 1.4: Results of Variable Matrix Rotation.

Item no.	Eigenvalues Loadings				Total
	Factor 1	Factor 2	Factor 3	Factor 4	
Question 1	0.9				1
Question 13	0.8				1
Question 9	0.7				1
Question 10	0.6				1
Question 22		0.9			1
Question 5		0.8			1
Question 14		0.7			1
Question 3		0.6			1
Question 4			0.9		1
Question 6			0.8		1
Question 15			0.7		1
Question 2				0.9	1

Question 20			0.7	1
Question 17			0.7	1
Question 23			0.6	1
Epl.Variance	0.29	0.275	0.115	0.099
Cum.Variance	0.29	0.566	0.681	0.780
No. of Items	4	4	3	4
				15

Source: Researcher, (2019)

Table 1.4 show that out of the 23 items, only 15 items were picked. The four factors combined explained up to 78% of the important issues of consideration for access to liquidity from the bank by bank treasurers. The first factor grouped together items which explained 29% of the total variance and loaded on the items; 1,13,9,10 which were considerations for access to interbank liquidity related to bank credit worthiness, credit rating with bank rating agencies, bank reputation and bank's past repayment history.

The second factor grouped together items which explained 27.5% of the total variance and loaded on; 3,5,14,22. These items relate expected revenue from the interbank market transaction and show visibility, market power and presence in the market and include expected return, size of the bank, bank profitability and bank reserves held by central bank.

The third factor explained 11.5% of the total variance and loaded together the factor consideration of importance to bank treasurers which were related to Level of Credit Risk, these are;4,6,15; The study observed that these were related to concerns on future cash flows; level of non-performing loans, level of bad loan provisions and past credit risk record.

The fourth factor explained 9.9% of the total variance and loaded together the items; 2,20,17,23, which represented items related to the Level of Economic Activity; level of liquidity in the market, prevailing business environment and general performance of the country's economy given by gross domestic growth rate.

The results from factor rotation supported the view of asset and liability management (ALM) theorists that advocate for strategies aimed at mitigating risks associated with changing macro and bank specific factors that could affect the banks liquidity position (Cocco et al., 2009; Sichei et al., 2012). The study observed that asset and liability maturity mismatch presents a challenge to ALCO and that banks needed to maintain a balance between the need to hold higher levels of liquidity to cater for any sudden need for money and the desire to grow their profitability by increasing their income generating investments in form of loans either to their clients or to other banks (Diamond & Dybvig, 1983; Allen & Gale, 2004; Nikolaou, 2009).

The results of factor analysis identified the following 4 factors which had 78% explanatory power as being critical for access to liquidity from the bank;

- i. Credit Worthiness of the other bank.
- ii. The borrower banks' credit risk record.
- iii. Expected Return (Margin of revenue from the transaction).
- iv. Prevailing level of economic activity.

1.5.3.1 Credit Worthiness and ALCO Decision

Treasury experts ranked credit worthiness as the item with the highest level of important for access to liquidity from the bank with a mean score of 4.88 and an eigenvalue of 0.9. The results are in support of the theory of credit access by Stiglitz and Weiss (1981) who observed that banks continuously gathered their borrowers' private information which they used to screen and monitored in an effort to mitigate on risks associated with advancing such loans to the would be borrowers. The results agree with the study by Tiriongo & Kanyumbu (2016) who studied interbank market discipline and efficiency and compared Kenya's interbank market with that of Malawi and found that lending and borrowing agreements in the interbank market were not open to all banks but rather there were established credit lines created overtime through a continuous credit profiling process that banks conducted on each other and that the credit lines determined the level of access to funds in terms of both quantities transacted as well as prices charged for access to interbank market liquidity from the bank(Sichei et al.,2012;Tiriongo & Kanyumbu 2016).

1.5.3.2 Level of Credit Risk and ALCO Decision

The level of credit risk had an eigenvalue of 0.9 and had the second highest mean score importance of 4.76 as ranked by treasury managers. The results show that bank experts evaluate the risk exposure of the other

bank to determine level of access to liquidity that they can allow. The results brings to light the salient reasons why some banks deny others money because they consider them to have bad lending decisions which they foresee might make the borrowing bank to incur huge loan provisions and thus fear that their money may not be repaid as scheduled (Vodova,2011;Sharma & Singh,2016).

The results of factor rotation corresponds to the findings by Vodova(2011) that banks are cognizant of the fact that a business environment which is unstable affects bank customers who are repaying their loans in such a way that they will not be able to return the borrowed money as it falls due and this would ultimately lead to a decline in bank liquidity and consequently the bank will be forced to restrict access to its money by other banks. The results are also in support of the finding by Singh & Sharma(2016) that observed that a bank's credit risk reflects how its loans are being repaid which reflects how a particular commercial bank is earning its income from its investments in loan assets and consequently shows the banks' ability to actualize its cash flows uninterruptedly thus ensures that the bank is able to pay its obligations as they fall due without attracting penalties or defaulting.

The results in table 1.4 support the argument that many non-performing loans usually reflected by high number of loans which are not being repaid on time once they fall due shows that the bank is not able to earn its projected money inflows thus negatively affecting the banks liquidity position (Cocco et al., 2009). The other banks within the industry will intern restrict access to their liquidity by such constrained bank for fear of default in payment of its interbank loans. The results support the argument that banks lend in the interbank market for a return and have to balance between risk of default and expected return. It thus cannot wholly be said that banks with high non-performing loans cannot get liquidity from the interbank market since there are commercial banks who see it as an opportunity to make more returns by charging higher rates (Sichei et al., 2012; Allen & Saunders, 1992; Furfine 2001).

1.5.3.3 Expected Return and ALCO Decision

Expected return from the interbank transaction had eigenvalue of 0.8 and had the third highest mean score importance of 4.70 as ranked by treasury managers. This implied that banks considered the likely return from any interbank transaction while assessing whether to allow or deny access to interbank liquidity by another bank. This resonated well with banks predisposition to post their excess or surplus liquidity in the interbank market platform. According to Sichei et al., (2012), displaying of surplus liquidity position by banks is meant to entice banks with liquidity shortage to borrow or banks with excess liquidity to lend out the excess or surplus funds for a return. The results support the argument that through intermediation, banks with excess money are able to get a return by investing in banks with liquidity shortage thus growing their profitability while ensuring continued survival of the banks with liquidity deficit (Affinito et al.,2013).

The findings in table 1.4 further agree with the proponents of liquidity preference theory (Keynes, 1936) which explains why banks seek compensation in form of interest risk premium for parting with their liquidity. The results show that banks charge higher interest rates for access to interbank market liquidity where possibility of default is higher (Bibow,1995). The findings are in support of the study by Cocco et al. (2009) who observed that banks lend in the interbank market for a return (Sichei et al., 2012; Allen & Saunders, 1992; Furfine 2001).

1.5.3.4 Level of Economic Activity and ALCO Decision

The results of factor analysis show that the level of economic activity had an eigenvalue of 0.9 and the opinions expressed by bank experts show that they ranked the influence that the level of economic activity has on access to liquidity from the bank with a mean score of 4.33 which was ranked the fourth highest in importance. The results support the argument by the proponents of loanable funds theory that access to liquidity depends on available funds which the market is able to offer based on prevailing level of economic growth.

The results in table 1.4 imply that when the level of economic growth is high, people are willing to save their cash to benefit from the high interest rate returns due to increased level of economic activity leading to gradual build-up of bank liquidity. Further, once the number of customers who want to take their money to the bank increase, banks receive more money which improves banks liquidity position and hence banks invest more in loan assets leading to increased access to liquidity by other banks experiencing liquidity shortage or who have investment opportunities which they want to maximize on (Nikolaou, 2009; Singh & Sharma, 2016; Eichengreen & Gupta, 2013).

Vodova (2013) observed that the level of business activity influenced availability and the ease of access to liquidity and that an increase in the total goods and services produced within an emerging market increased the money available in the market while a decline in the level of business activity within an economy affects demand for assets leading to decline in the demand for loans consequently leaving banks with idle liquidity. These results agree with the findings by Lovin (2013) who studied determinants of access to liquidity within the Romanian interbank deposits market that the level of business activity and inflation showed a positive effect on access to bank liquidity and that cost of funds, the level of business activity, the levels of money supply

and the prevailing business environment influenced how banks got money from the interbank market (Lovin, 2013).

1.6 Conclusion and Recommendation

In conclusion, the results show that bank experts consider banks' credit worthiness, expected return, level of credit risk and the prevailing level of economic activity as important determinants for access to liquidity from the bank. These results however contradicts observation from reviewed literature which appears to prioritize factors such as bank size; that bigger banks had better access to liquidity than smaller banks, bank profitability; that more profitable banks in terms of accounting profit had better access to interbank market liquidity, bank ownership; that foreign owned banks had more access to liquidity, existing relationship; that the level of lending relationship influenced banks access to liquidity while allowing access to liquidity from the bank. The findings of ALCO analysis suggest that there is a shift from reviewed literature on the factors that ALCO experts consider important for access to liquidity from the bank. Perhaps, this is the only study of its kind especially in an emerging money market context that has identified the factors that treasury experts consider critical for access to liquidity from the bank.

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