UNIVERSITY OF GHANA

AN EVALUATION OF LIQUIDITY RISK MANAGEMENT AMONG BANKS: A CASE STUDY OF BARCLAYS BANK GHANA AND STANDARD CHATERED BANK

BY

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A LONG ESSAY SUBMITTED TO THE UNIVERSITY OF GHANA, LEGON IN PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE AWARD OF MASTER OF BUSINESS ADMINISTRATION DEGREE

JULY 2019

DECLARATION

I hereby declare that this dissertation is the result of my own original research and that no part of it has been presented for another degree in this University or elsewhere.

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CERTIFICATION

I hereby declare that the preparation and presentation of this dissertation were supervised in accordance with guidelines on supervision of dissertation laid down by the University of Ghana.

…… ……

PROFESSOR GODFRED ALUFAR BOKPIN DATE

DEDICATION

I dedicate this work to my husband to be, Kelvin Osei who has encouraged me all the way and whose encouragement has made me give all my best to finish. To my mother Charlotte Sowah Laryea and my father Jonathen Sowah Laryea, thank you and God bless you.

ACKNOWLEDGEMENTS

My deepest gratitude goes to God who has provided all that was needed to complete this project and the entire programme studied. Throughout this entire study there was never lack or want, He took care of everything and strengthened me even through my most difficult times. Without the support and assistance of several individuals who devoted time, energy and wise counsel, this work would not have seen the light of day. For his dedication, and guidance, I am grateful for my supervisor, Professor Godfred Alufar Bokpin, for his patience, committed and constructive comments that culminated into the eventual completion of this long essay.I also wish to specially acknowledge my mother Charlotte Sowah Laryea and father Jonathan Sowah Laryea for the financial support and their encouragement.

I am and will forever be grateful to my husband to be Kelvin Osei for his immense support and sheer believe in me to never give up throughout the entire programme, words cannot express my gratitude. I am also indebted to the management and staff of Barclays Bank Ghana and Standard Chartered Bank branches in Accra who provided responses, data and information necessary for the successful completion of this work. Finally, I thank my Spiritual father, Pastor Elton Afful and his wife Dr Nhyira Afful for their prayers, words of motivation and words of comfort. God bless you all.

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ABSTRACT

The effective handling of liquidity risk as pertains in the banking industry has in recent years attracted global attention. This is largely attributable to recent global developments in the financial sector. Liquidity creation is usually regarded the foremost function of the bank, as it guarantees the sustainability of any bank. It is also their source of vulnerability and a reason why they need fortification from liquidity crises. The licences of some indigenous banks in Ghana were recently revoked after they were unable to improve upon their capital adequacy and insolvency challenges. Against this background, this study sought to undertake an evaluation of two foreign owned banks in the country to determine their soundness in relation to liquidity risk management. The study adopted the quantitative method approach and collected primary data through a questionnaire. Data obtained from published statements of financial standing of the banks, covering 2013-2017 were also gathered for financial ratio analysis. Financial analysis and techniques including financial ratios were used to evaluate the past financial statements of the two banks for the period under consideration. The findings indicated that both banks had a high composition of corporate deposit (70%) as against retail deposits (30%) but had no issue with deposit concentration as the 20 largest depositors for each bank was less than 10% of total deposits. The study also found both banks, especially Standard Chartered to be exposed to liquidity risk in relation to their liquid assets to demand deposit ratios. The incidence of non-performing loans was also found to be a challenge to liquidity of the banks. The study concluded that both Banks had good liquidity positions and adequate liquidity management systems. It was recommended that each bank should balance its credit activities (loans) with the maintenance of adequate liquid assets.

CHAPTER ONE

INTRODUCTION

1.1 Background to the study

The prudent management of liquidity risk in the financial sector has in recent years attracted global attention. This is largely attributable to recent global developments in the financial sector. Globally, the financial sector has in the past decade witnessed severe crisis, for instance the US subprime financial crisis and the collapse of banks which were hitherto performing well. Consequently, to safeguard their interest, various stakeholders in the financial sector have begun to go beyond the profits declared in the sector, and to examine critically the risk management frameworks employed in managing the risks of the sector (Adu-Mensah, Inusah & Antwi, 2015).

The creation of liquidity is usually regarded the foremost function of the bank, as it guarantees the continuing sustainability of any bank. It is also their source of vulnerability and a reason why they need fortification from liquidity crises (Bryant, 1980 cited in Distinguin, Roulet & Tarazi, 2013).The banks' structure of funding sources as well as liquidity risk management, is however affected by increasing competition over the raising of deposits, the changes in customer preferences, growing off-balance-sheet operations as well as improvements in technology (PricewaterhouseCoopers, 2018).

The Banking sector is a key constituent of a country's financial sector, as it facilitates the movement of funds through credit to borrowers, as well as provide investment opportunity for savers (Arif&Nauman, 2012). The "payment and settlement systems" of an economy and the seamless transfer of goods and services, are equally facilitated by the banking sector. Banks acts as a medium for stimulating economic growth by undertaking prudent investment of funds and facilitates the creation of new industries, thereby assisting in creating more employment in

the economy. These wide-ranging functions of the banks makes them susceptible to liquidity risk, as the element of risk is present in almost every financial transaction (Jenkinson, 2008). Liquidity risk is a key sources of bank fragility. It refers to the danger that a bank may not meet its commitments as they fall due (depositors making withdrawal request), and thus bringing about high operating costs or incurring damages to the reputation of the bank (PricewaterhouseCoopers, 2018).The management of risk is therefore vital to the sustainability of banks and the financial system at large.

The issue of liquidity of the Ghanaian banking sector has in recent times become topical. This follows recent audit and supervisory actions of the central bank. Ghana's central bank conducted an audit between 2015 and 2016 and found some local banks to be highly exposed to low capital adequacy, high percentage of non-performing loans, solvency as well as poor corporate governance (Bank of Ghana, 2018). This eventually led to the revocation of the banking license of an initial number of two banks in 2017 namely, UT Bank Ghana Limited and Capital Bank Limited (PricewaterhouseCoopers, 2018). This was followed by five (5) more banks who lost their banking licence in March 2018.

The release also announced the establishment of a new indigenous bank by government to take over those banks who were closed down (Bank of Ghana, 2018). Although other reasons such as false pretences were sighted for the central bank's actions, issues of poor management of credit and liquidity risks leading to solvency and acute liquidity challenges, were found to run through the reports for these failed banks. The case of Ghana lends credence to the fact that managing liquidity risk is such a serious issue and challenge for today's banks (Comptroller of the Currency, 2001). It is now imperative for banks to adopt and practice sound liquidity management, as it is clear having good reports in terms of asset quality, profits and capital

adequacy without adequate liquidity, is not enough for a bank's sustainability (Crowe, 2009). The researcher therefore seeks to evaluate the management of liquidity among two foreign owned banks operating in the country.

1.2 Problem Statement

The foremost function of banks is the creation of liquidity, which ensures the flow of funds through lending, to the "don't haves" of funds, as well as provide liquidity to the "haves" of funds (Distinguin et al., 2013; Arif & Nauman, 2012). Banks in the past, under normal circumstances, have rarely faced liquidity crises.However, Crowe (2009), suggests that a significant attention of regulators, financial institutions and researchers is being given to liquidity risk management practices, following the recent banking crisis across the globe.

In Ghana, an audit (Asset Quality Review) by bank of Ghana of banks identified some indigenous banks to be exposed to low capital adequacy, weak corporate governance and huge non-performing loans among others (Graphic Online, 2018). Following their failure to bring about improvements in their capital adequacy and liquidity challenges, the licenses of some banks were revoked by the central bank. In all seven (7) banks suffered this action, two in 2017 and five in 2018. The central bank cited a number of reasons for which their licenses were revoked, including the inability of those banks to meet capital adequacy and liquidity requirements. Details given from the review of the failed banks indicated that issues of poor credit risk and liquidity risk management were common with all the banks. Also none of the foreign banks operating in the country were identified to have Capital Adequacy and Liquidity challenges to warrant revocation of licence.

It is evident that managers of the failed banks flouted regulations and basic requirements for risk management including concentrations of assets and minimising the returns volatilities. This eventually led to solvency and acute liquidity challenges. Against this background, this study seeks to undertake an assessment of two foreign banks operating in the country to ascertain their soundness in relation to liquidity risk management, and to identify what they are doing better as compared to their indigenous counterparts.

1.3 Research Objectives

The main goal for this study is to evaluate the Liquidity Risk management among banks, a case study of Barclays and Standard Chartered banks in Ghana. To achieve this goal, specific objectives have been set as follows:

i. To examine the liquidity risk management practices of Barclays Bank and Standard Chartered bank.
ii. To assess the liquidity risk of Barclays and Standard chartered banks.
iii. To identify control strategies adopted by the two banks in managing their liquidity risk.
iv. To identify the challenges faced by the two banks in managing their liquidity risk.

1.4 Research Questions

i. What are the liquidity management practices of Barclays bank and Standard Chartered bank?
ii. What is the liquidity risk of Barclays bank and Standard Chartered bank?
iii. What control strategies have the two banks adopted in managing their liquidity risk?
iv. What are the challenges faced by the two banks in managing their liquidity risk?

1.5 Significance of Study

The study is significant to practice, policy making and for academia. To practice the findings of the study will provide managers and shareholders of both Barclays bank Ghana and Standard Chartered bank, vital information on their liquidity risk levels as well as strategies for improvements. Based on its findings, the study will also make recommendations that will assist in shaping policies towards the effective management of liquidity risk in the Ghanaian banking sector in general. This will by extension assist in strengthening the country's financial sector for economic growth and development.

In addition to providing relevant information that will assist in managing liquidity risk in an effective manner, results from the study will also serve as a contribution to extant literature on the subject of liquidity risk and a reference material for knowledge and future academic research.

1.6 Scope and Limitations of the Study

The study sought to evaluate the Liquidity risk management among banks in Ghana. The focus however was on the evaluation of Liquidity risk management among Barclays and Standard Chartered banks - the case study. The scope of the study could have covered a number of other universal banks in the country for purposes of the generalisation of the findings of the study. Also, the study could have assessed indigenous banks as well for comparative purposes. However, as a result of time, logistical constraints and ease of access to data, the researcher was limited to the defined scope. Consequently, the findings of the study could not be generalised to all Universal Banks in Ghana, especially for the indigenous ones. The findings can therefore be interpreted within the confines of the case study. The researcher also acknowledges the challenges of availability and accessibility of data as potential issues which could have impact on the outcomes of this study.

1.7 Research Methodology

To be able to accomplish the objectives for the research and answer the formulated questions, the design of the study adopted the quantitative approach methodology. Thus quantitative data was gathered and analysed to answer the stated research questions. The data gathered had components of primary as well as secondary sources. The historical annual reports for the bank served as the core secondary source of data. Primary data from key officials of both banks was gathered for an insight on the liquidity risk management practices and norms in their respective banks. Relevant ratios, tables and charts were employed to help analyse and interpret collected data.

1.8 Chapter Organization

The study will be presented in five major chapters which chapter one to chapter five. Chapter will be dedicated to the introduction of the study as well as the objectives, problem statement, scope, research question, limitations and significance of the study. Furthermore, chapter two will also present the review of relevant and related literature on the subject matter. It also present the theoretical framework. Chapter three will focus on the methodology approach used by the researcher to collect and analyze data. It will also present the research design, approach, population, sample size, instrumentation, data collection procedure and analysis of the data. The fourth chapter will be dedicated to the analysis of the data obtained from the field and finally, chapter five will present the summary, conclusion and recommendations of the study.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The review of existing literature which are relevant and related to this study will be presented in this chapter. The chapter discusses existing literature covering, liquidity risk management including sources of liquidity risk, Banks and liquidity risk, measures of liquidity risk. The chapter will further present the empirical literature and the theoretical framework underlying the study.

2.2 Banks and Liquidity Risk

Liquidity is considered to be a broad and an elusive concept (Pástor & Stambaugh, 2003). To Crockett (2008), "liquidity is easier to recognize than define". However, according to Armstrong & Caldwell (2008), liquidity basically refers to the access to funds when needed. In relation to banking, liquidity refers to the capability of a bank to fund increases in assets and to meet its obligations as they fall due, without incurring intolerable losses (Basel Committee 2008a). Liquidity is therefore neither an amount nor a ratio (Yan, 2013). Being key players in the financial sector of an economy, banks facilitate the flow of funds in an economy through lending by transforming liquid deposit liabilities into illiquid assets. The banks therefore become innately susceptible to liquidity risk (Arif & Nauman, 2012; Armstrong & Caldwell (2008). Liquidity risk is the risk that a bank may not meet its obligations as they fall due and thus incurring excessive costs or suffering reputational damages (PricewaterhouseCoopers, 2018).

Traditionally, banks practice fractional reserve banking, where only a fraction of customer-deposited funds are held as reserves for withdrawals, whiles the remainder is used to fund

investments or loans for profits for the bank (Yan, 2013). Banks face liquidity risk when they over-supply credits such that they are unable to meet withdrawal demands from deposit customers. According to Adalsteinsson (2014), there are two distinct liquidity risks namely, funding liquidity risk and market liquidity risk. Funding liquidity risk refers to the inability to meet obligations as they become due and payable or only being able to meet such obligations at an excessive cost to the bank. Market liquidity risk on the other hand refers to the inability to realise assets due to inadequate market depth, or market disruption. The bank's inability to easily transfer marketable assets into cash, especially when its liabilities mature earlier than its assets exposes the bank not only to liquidity and other risks, but also damages its reputation (Adalsteinsson, 2014). According to Matz & Neu (2007), funding liquidity risk may arise at any time but it is usually severe in an environment of heightened market-liquidity risk. They draw a close link between the two types of liquidity risk and states that both risks can be triggered by the same event.

According to Goodhart (2008), a close relationship exists between liquidity and solvency which is often indistinguishable. Described as the heavenly twins of banking, Goodhart (2008) suggests that what happens to one affects the other. Thus a bank that has become illiquid may quickly become insolvent and a bank that is gone insolvent can rapidly become illiquid albeit with a strong capital position. Ong (2014) suggests that though a strong capital position of a bank reduces the possibility of experiencing liquidity pressures, solvent banks do experience liquidity crises, as capital position alone is not enough to manage liquidity risk. A common trigger for liquidity risk is an increasing level of other financial risks including credit and market risks, it is thus referred to as a "consequential risk" in the literature. Trigger events for liquidity risk could be due to of firm-specific issues or market-wide problems (Matz & Neu (2007). Armstrong & Caldwell (2008) shows that when left untreated, the trigger events for

liquidity risk tend to erode confidence in the specific financial institution and consequently the entire banking sector, as liquidity risk and the other financial risks interrelates quickly in unforeseen and complex ways. In addition, the withdrawal of confidence in one bank has the potential of spreading to other banks who may be perceived to have similar challenges (Armstrong & Caldwell, 2008).

2.3 Liquidity Risk Management

Generally, the occurrence of a risk event could result in losses which affects both profitability and business value. Banks' ability to meet their obligations (including off-balance sheet) could be associated to the presence of liquidity risk and this has been found to fall due leading to reputational damages of these banks. The concept of liquidity risk management therefore seeks to forestall the occurrence of the risk and to have adequate plans in place to reduce the frequency of the risk event and the severity of impact on the bank. It is also aimed at safeguarding the bank's capacity to continue to perform its fundamental role of supplying credit in an economy.

According to Ruozi & Ferrari (2013), there is no common international set of procedures for liquidity risk management except for a list of 14 principles of correct liquidity risk management by the Basel Committee on banking Supervision, which have purely informative value. It is therefore left to the discretion of various national central banks. The Basel Committee on banking Supervision (2008) however states that the management of risk must be carried out through sound internal procedures, that liquidity risk management must be carried out through sound internal procedures, which guarantees adequate control mechanisms over the process of managing liquidity risk, and this must include independent reviews and assessments carried out periodically to ensure the effectiveness of the systems so established. Thus liquidity risk

management does not need to be covered by specific capital requirements (Ruozi & Ferrari, 2013).

There is therefore no one-fit-all standard liquidity risk management strategy to be adopted by all banks. Rather, factors such as the nature of the market where the bank finds itself, its balance sheet as well as business strategies influences its risk appetite and management strategies (Matz, 2008). However, the liquidity risk management strategies adopted by banks are expected to meet three basic requirements as provided by Matz (2008) below:

1. See to it that the institution is capable of timely generation of funds efficiently and in a cost effective way to assist the bank in meeting its obligations.
2. Ensure that there is market confidence.
3. Provide the capacity that allows the bank to pursue business opportunities that are profitable in all market environments. This should be possible without the bank liquidating its assets as a result of bad times, or having to raise costly funds in a large quantum.

Typically, banks that pay particular attention to liquidity risk management would establish appropriate structures and mechanisms to help in identifying and recognising risk events in a timely manner. This would also include monitoring mechanisms for the liquidity position of the bank, risk assessment and mitigating mechanisms for liquidity problems. According to Matz (2008), Banks with sound management would typically undertake analysis on periodic basis (overnight to 1 year or more) of "their liquidity profile, net cumulative out-flows, unencumbered securities" among others. Whereas the very short term analysis are meant for the assessment of current risks, the analysis covering a period beyond a year are usually for the assessment of structural risk exposures and how to restructure them if the need be (Matz, 2008). In determining its short-term funding needs, recourse must be made to the bank's current cohort

of new business and trading positions. Also, in reviewing the long-term funding needs of the bank, managers must make reference to the strategic business initiatives of the bank (Matz, 2008). To Gatev and Strahan (2003), the Bank's deposits are its primary hedge against liquidity risk. However, Banks usually create reserves in the form of liquid assets which acts as a buffer against liquidity stress. The types of liquid assets held are usually those assets that hold their value over time, and can be converted into cash quickly with minimal transaction cost. An asset held as a buffer for liquidity pressures must also not be encumbered to some financial transaction or an entity. This is to ensure that the bank is able to convert the liquid asset into cash within the shortest time and without any legal claim from any entity (Armstrong & Caldwell, 2008).

Besides converting liquid assets into cash to satisfy their liquidity needs, banks have other two options for accessing cash in the short run. One is to borrow from the central bank or private sources on a secured or an unsecured basis. The other option is to generate fresh cash from its operations. A study by Sawada (2010) suggests that bank liquidity crises induced by demand depositors are usually resolved through the sale of securities. According to Armstrong & Caldwell (2008), banks usually resort to funding from the capital markets and selling of their less-liquid assets for their long term liquidity needs. Banks accessing funding from the capital markets are however expected to have in-depth market insights and the risks involved in that source of funding (Guglielmo, 2008).

Some banks also tend to act on the asset side of their balance sheet in response to liquidity shortfalls, by limiting loan advances to customers. However, besides the effect on an economy, this approach has major weaknesses including the fact that it is only practicable in the long

term. Secondly, loan advancement decisions are often taken prior to the occurrence of liquidity constraints, hence difficult to reverse (Ali, 2004).

2.4 Sources of Liquidity risk

Generally, liquidity risk originates from the nature of banking business, macroeconomic factors which are external to the bank, as well as from the internal financing and operational policies of a given bank (Ali, 2004). However, according to Adalsteinsson (2014), all sources of liquidity risk fall under three main categories namely Systemic, Individual or idiosyncratic and Technical or timing. Adalsteinsson (2014) has identified 10 sources of liquidity risk, of which retail and wholesale are said to be the the two significant sources to most banks. The ten (10) sources of liquidity risk are discussed as follows:

1. **Wholesale funding risk** - In its simplest form, it refers to those liabilities that do not come from retail customers - that is liquidity risk emanating from sources other than a natural person. This category of liquidity risk source is quite large and wide in nature and varies drastically in its behavioural characteristics.
2. **Retail funding risk** – This refers to those liabilities that come from natural persons (deposits of individual customers). The criteria used in the classification differs from bank to bank, as some banks tend to exclude other products held by individuals and recognises only retail deposits as attributable to a natural person. Adalsteinsson (2014) also suggests that other banks also classify SME deposits as retail deposits, provided at least two of the following three criteria are met in the last annual report of the company:
    - Have in the course of the year, an average number of staff of 1 to 249.
    - Have a total balance sheet of up to 43million Euros.
    - Have an annual net turnover of not above 50million Euros

3. **Intraday liquidity risk** – Banks typically have payments and settlement obligations within a working day that demands liquidity to settle. Intraday liquidity risk therefore refers to the inability of a bank to raise the necessary cash to meet these demands on time (at the time of day when needed), be it in normal times or when the bank is stressed. It is more concerned about the gross liquidity outflow which may possibly create a momentary net funding deficit at different periods of the working day. The amounts involved may not be that huge relative to the total size of a bank's liabilities but there could be a knock-on effect on other banks if a bank fails to honour its settlements. Consequently the smooth functioning of the payments and settlements systems may come to a halt. This liquidity risk source is therefore of great concern to the regulators of the banking sector (Adalsteinsson, 2014).
4. **Intragroup liquidity risk** – Applicable only to banks with subsidiaries or having a group structure, intragroup liquidity risk refers to the inability of a bank to source liquidity support from other group or subsidiary banks when needed. There are two ways in which this risk may occur. First, it arises when a bank, as part of its own liquidity buffer or as a contingency requirement falls back on other members of the group. Some jurisdictions permits each entity in the group to support each other with liquidity needs. In some other jurisdictions, each entity in the group is expected to be self-sufficient when it comes to liquidity, except where the bank applies for and is given special waivers to rely on its parent bank for liquidity support. Secondly, other entities in a group whose internal risk management conditions may not be clear may also be calling on that particular bank's liquidity sources (Adalsteinsson, 2014).
5. **Off-balance sheet liquidity risk** – This refers to those sources of liquidity risk which comes from the activities appearing as footnotes on the bank's balance sheet. These items are not listed on the balance sheet as assets or liabilities (Pushkala, Mahamayi &

Venkatesh, 2017). It therefore refers to those off-balance sheet items which may call for additional funding in the near future. These contingency liquidity risk elements includes undrawn credit limits, including overdraft and credit cards. It also includes contingent liquidity support for investment vehicles and securitization programmes, inevitable underwriting of new business or extension of existing loans, liquidity commitments made and collateral requirements of derivatives positions among others (Adalsteinsson, 2014).

6. **Cross-currency liquidity risk** – This according to the Bank for International Settlements (2006) refers to the risk that arises when a bank (usually with international activity) relies on cash inflows or assets in one currency to meet commitments in another currency. For some banks the liquidity risk arises because their assets are denominated in weak currencies, yet they have obligations in stronger currencies, thus when converted they still have shortfalls. According to Adalsteinsson (2014), Banks exposed to cross-currency risk are therefore expected to run the stress tests separately for every material currency they trade in and to have an overall review of currency mismatch and gaps for each currency.
7. **Funding cost risk** – Funding cost refers to the cost at which the bank secures liquidity for its activities. The risk arises when the funds available comes at an unsustainable price to the bank and threatens its continuity as a business entity. Funding cost risk usually provides an indication of rising market liquidity risk and an occasion for the bank to assess its sensitivity to price changes for its sources of funds (Adalsteinsson, 2014).
8. **Asset liquidity risk** – This refers to the risk of loss which arises from the bank's inability to transform its assets into cash at its original value when needed Banks from time to time liquidate their assets or use them as collateral for purposes of obtaining

funds. In doing so, the market price of the asset may be higher or lower depending on the quality of the asset and whether it is matured or being discounted. A bank with a strong operating cash flow and sufficient funding sources will normally hold its assets until maturity hence avoid asset liquidity risk (Banks, 2014).

9. **Funding concentration risk** – This refers to the risk of relying on a single or few funding sources for a disparate share of the total funding of the bank. The risk exposure for this type of liquidity risk is typically high for banks in a group structure, where a centralized funding model (one entity, usually the parent bank provides the funding) is adopted. These banks are therefore expected to pay more attention to funding concentration risk. A well-diversified funding strategy covering counterparties, markets, currencies and products is typically preferred in reducing the bank's exposure to this type of liquidity risk (Adalsteinsson, 2014).
10. **Correlation and contagion risk –** This refers to the situation where the crystallisation of one source of liquidity risk appears in another type of liquidity risk. It is common to observe that liquidity problems in one market tend to spread or manifest itself in other markets. The inter-dependence of the financial institutions tend to fuel this cascading effect that occurs when one market is affected (Acharya & Schaefer, 2006).

2.5 Measures of Liquidity Risk

Liquidity risk measurement is said to be challenging due to the fact that the basic factors responsible for the exposures are both dynamic and volatile. As compared to the measurement of other financial risks, liquidity risk measurement is considered to be more demanding due to its fluid nature. This stems from the fact that the identification and quantification of certain aspects of asset and funding liquidity risk are easy to do but other aspects are not. For example,

readily identifying and quantifying off-balance sheet or contingent items are quite challenging (Banks, 2014).

Notwithstanding the challenges workable measures have been developed to estimate liquidity levels. Liquidity ratios have been used predominantly in the past for liquidity risk measurement. In assessing the liquidity risk of a bank, some authors have used liquid assets as a ratio of liquidity, deposits, customer or short term funding (Kosmidou et al., 2005; Demirgüç-Kunt et al., 2003). Others have used loans to total assets (Athanasoglou et al., 2006) or net loans to customer and short term funding ratios (Kandil, 2009). Higher values for these ratios provides an indication that the bank has liquidity problems. According to Banks (2014), it is usually useful to rely on a mixture of accounting reports and forecasts, such as scenarios or stress-tests for liquidity risk measurement. Although accounting information is mostly considered to be historical, it assists in establishing trends. Scenarios analysis or stress tests can also provide a clue to future happenings if underlying variables are altered.

The Basel Committee on Banking Supervision (2000) also proposed other quantitative ways such as the maturity laddering method for measuring liquidity risk. According to Saunders and Cornet (2008), in measuring their liquidity exposures, banks also use methods and approaches such as liquidity planning, financing gap and requirement, net liquidity statement, peer group/industry ratio comparison and liquidity index among others. Matz and Neu (2007) also asserts that banks use measures such as cash position and maturity mismatch, balance sheet liquidity analysis as well as qualitative measures in assessing their liquidity risk. For qualitative measures, Matz and Neu (2007) provides key questions that needs to be answered. Some of the questions includes whether the bank has established diversified funding sources; has a board approved liquidity policy with fixed standard on responsibilities, methodologies, limit system

and reporting; liquidity contingency plan exist and addresses responsibilities of each unit and the measures to be taken among others.

2.5.1 Capital Adequacy Ratio

Capital Adequacy Ratio is an important ratio used in evaluating a bank's capital strength. It "is a measure of the amount of the bank's available capital expressed as a percentage of its risk-weighted credit exposures" (Pathak, 2011 p.458). Normally high ratios signals that the bank has the ability to absorb losses as well as contain risk exposures. Higher adequacy ratio usually drives banks towards greater efficiency (Vodova, 2011). Thus the bank may not need a substantial amount of external funds, and it also gives an indication that the bank can make more profits. In line with the requirements by the Bank for International Settlements, section 23(1) of the Banking Act, 2004 Act (673) as amended, prescribes a minimum capital adequacy of 10% for all universal banks in the country.

Capital adequacy is usually measured in 2 tiers. Tier 1 capital adequacy (bank's core capital) provides indications for the bank's ability to absorb losses without going out of business, and Tier 2 (bank's supplementary capital) provides an indication of the bank's ability to absorb losses in the event of winding up. Basel III stipulates that Tier 1 capital of Banks must consist mainly of common equity and retained earnings whiles Tier 2 can consist of subordinated debts, preference shares with limited life span and loan loss reserves (Eubanks, 2010).

2.5.2 Financing Gap and the Financing Requirement

One key way of determining liquidity risk exposure is through the determination of the bank's "financing gap". The difference existing between the average loans of the bank and its core average deposits (Saunders & Cornet 2008). This is stated in mathematical form as:

Financing gap = Average Loans - Average deposits

Banks usually consider the average of their deposit base, which includes demand deposits, as a key and relatively stable funding source for the supply of loans. When the result of a computed financing gap turns to be positive, the bank is expected to raise funds to fill the gap, and this is usually done through its cash and cash equivalents and or borrowed cash (funding requirement). Thus the funding requirement is the financing gap plus the liquid assets of the bank (Saunders & Cornet 2008). Banks are exposed to greater liquidity problems when their funding requirement (amount to borrow, usually from money markets) becomes larger. Saunders and Cornet (2008) states further, that an imminent liquidity crises lurks around whenever a growing financing gap persist. This is because the gap may be as a result of increases in withdrawals from demand deposits.

2.6 Empirical review

A number of extant literature suggests that bank liquidity shocks generally affects loan supply, and liquidity risk attributed to demand deposits (transactions deposits) and their potential to trigger panic or bank failures (Paravisini, 2004; Loutskina, 2005; Khwaja & Mian, 2008). The study of Gatev, Schuermann & Strahan (2007) however represents a point of departure from these findings. The findings of the empirical study indicates that demand deposits rather assists banks in hedging liquidity risk from unused loan commitments. It further indicated that unused loan commitments increases a bank's stock-return volatility but for banks with high levels of demand deposits, the increase in volatility is minimal. The study also pointed out that banks attract more demand deposits during periods of tight liquidity, as nervous investors tend to move their funds out of the securities markets into the banks. The study covered the 100 largest publicly traded domestic banks in the USA (based on market capitalization) from 1990 to 2002.

Shen, Chen, Kao & Yeh (2009) on "Bank Liquidity Risk and Performance", sought to use other measures of measuring liquidity risk instead of the normal liquidity ratio used for the determination of bank performance. To achieve this, the researcher employed the use of an "unbalanced panel dataset" on 12 commercial banks in advanced countries for the period of 1994 to 2006. The findings indicated that there was an inverse impact of liquidity risk on the performance of banks in these countries. Additionally the research found that, liquidity risk occurrence leads to reduction in bank profitability due to higher funding cost, but increases the net interest margins of the bank. However, a previous study by Demirgüç-Kunt et al. (2003) suggests that lower net interest margins are recorded by banks holding high liquidity. Further on Bank liquidity risk and performance, Lartey, Antwi and Boadi (2013) finds that there is a very weak positive relationship between liquidity and profitability of Banks listed on the Ghana Stock Exchange.

The study of Berger & Bouwman (2009) which was the first to construct comprehensive measures of bank liquidity creation, found that large banks, group structure banks, retail banks, and newly merged banks creates more liquidity compared to small banks. It also indicated that those banks who create more liquidity have higher exposure to liquidity risk. The study also found that for large banks there is a positive relationship between capital and liquidity creation, and negative for small banks. The study constructed four different measures and applied to data on almost all banks in the United States of America for the period 1993-2003. Anamika Singh et al; (2016) also found that bank size has a negative effect on liquidity risk. The study also found that Indian banks with adequate reserves had no liquidity crises, and for banks with higher Capital Adequacy Ratio, there was a positive impact on liquidity.

The study of Singh & Sharma (2016) analysed macro-economic and bank specific factors affecting liquidity of Indian banks. The study covered 59 banks and data gathered covered the period 2000 to 2013. A pooled OLS regression model as well as fixed and random effect estimates were performed on data gathered from the participating banks. Panel analysis covering bank specific factors as well as trend analysis on the liquidity of the banks were also performed. The findings indicated that bank specific and macroeconomic factors significantly affected the liquidity of the banks. Also, foreign owned and private owned banks had liquidity risk managed such that there was no crises for the period of the study. This was as a result of sufficient liquidity buffer. The study also found that higher Capital Adequacy Ratio had a positive impact on bank liquidity.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

This chapter provides detailed information on the research methodology used by the researcher to achieve the stated objectives of the study. The chapter therefore contains information on the research design and approach adopted, population of the study, sampling technique and size, type and source of data, data gathering and assembly, data analysis, reliability and validity of data, ethical considerations and profile of the study organisations.

3.2 Research design and approach

To achieve the objectives of a research, a framework which assists in the conduct of the study is needed. This according to Bryman & Bell (2015) is the design of the study. According to Creswell (2011), three main approaches are available for the adoption of researchers, in conducting studies in social sciences. The approaches to be adopted are either quantitative, qualitative or a blend of the two which is called mixed methods approach. A researcher has the option of a quantitative, qualitative or mixed approach for his/ her study depending on which one best suits the study (Bryman & Bell, 2015). This study used the quantitative approach to help achieve its stated objectives.

3.3 Population of the study

According to Saunders, Lewis and Thornhill (2007). A research population refers to a total set from which a researcher selects a sample for the study, or from which a census is carried out, where all of the targeted population is used for the study. The population usually comprises of a group of people, objects or entities with shared characteristics. For this study, the selected

banks and their staff constitutes the population. Thus the total staff from Standard Chartered Bank and Barclays Bank constitutes the population for this study.

3.4 Sampling technique and size

According to Bryman & Bell (2015), the sample is portion of the population chosen for a research, and which represents the total set. Purposive sampling technique was adopted for this study and constituted key respondents to assist in providing responses to the research questions. A sample of thirty (30) in total was selected. This comprises of 5 branch managers, 5 risk managers and 5 operations managers each, who are drawn from 5 branches each of both Standard Chartered and Barclays banks in Ghana. The branches for the two banks were selected purposively from Accra. Also financial statements for the past five years (2013-2017) of both banks were used as the main sources of secondary data.

3.5 Type and sources of data

The main source of data for this study was a primary sources which constitute the used of questionnaire. However, the study also used secondary source via articles and other materials. The data were gathered through a questionnaire, which had closed-ended questions for branch managers, risk and operations managers from selected branches of Standard Chartered Bana Ghana as well as Barclays Bank Ghana. The questionnaires served as a primary data collection tool for obtaining relevant data for the study. The study also utilised the past five years (2013-2017) annual reports of both Standard Chartered Bank Ghana and Barclays Bank Ghana, as its main source of secondary data. The past financial reports of the two banks for the period 2013-2017, provided secondary data that assisted in assessing the liquidity risk of the two banks as well as generate trends for that assists in comparing the liquidity situation of both banks. The assessment of the banks' past financial statements, among other things, assisted in determining

Assets /liabilities mismatches, liquid assets to total assets ratio and the ratio of liquid assets to demand deposits.

3.6 Data gathering and assembly

Gathering the primary data, prior arrangements were made with the two banks for days and convenient time to administrator the questionnaires. For the very busy bank officials, the researcher dropped the questionnaires and allowed the respondents time to provide the responses. The respondents were given a period of one week after which the filled questionnaires were collected. The past financial statements for the period 2013 to 2017 were downloaded from the official websites of both Standard Chartered Bank and Barclays Bank Ghana, and the financial data extracted for analysis.

3.7 Data analysis

The unrefined data given by the respondents were organised into appropriate forms for ease of analysis. The study utilised descriptive statistics in the analysis of quantitative data and the generation of summaries. The study also employed Microsoft Excel 2013 tools for the processing of data. Results obtained from analysed data were displayed in tables, graphs and charts to assist with discussions and arriving at conclusions for the study. Financial analysis and techniques including financial ratios were used to evaluate the past financial reports of the two banks for the period 2013 to 2017. The data obtained from the annual financial standings of the banks were also used to perform trend analysis and comparative relationships drawn between the two banks.

3.8 Reliability and validity of data

According to Zohrabi (2013), validity is the extent to which a measure reflects a concept it intends to measure, and the study is said to be valid when conclusions are free from logical errors. Also, for the findings of a study to be reliable, the assessment tools adopted are expected to generate consistent results each time those tools are applied in a similar study with same variables (Nardi, 2015). There is therefore the need for a review of the instruments adopted for data collection. As a way of pre-testing the reliability and validity of the instruments, the initial draft of the questionnaire was given to the research supervisor for a review.

3.9 Ethical considerations

In conducting a research, a number of ethical considerations are expected to be observed. These includes objectivity on the part of the researcher, obtaining informed consent of participants, anonymity and confidentiality of participants, avoiding harm, as well as ensuring voluntary participation of respondents. Thus the researcher in conducting this study ensured objectivity by avoiding subjectivity, and sought the consent of respondents who gave their consent voluntarily and intelligently. The identities of respondents were concealed and responses gathered were treated confidentially. The researcher avoided coercing participants for responses, and issues deemed harmful to the person or the participation institution were also avoided.

3.10 Profile of study organisation

Standard Chartered Bank Ghana is a subsidiary of Standard Chartered Holdings (Africa) B.V. The Bank which was incorporated and started operations in the country from 1896, was then known as the Bank of British West Africa. Standard Chartered Bank, Ghana, is therefore the oldest bank in Ghana and has 25 networked branches and 68 ATMs nationwide (Standard

Chartered, 2019). The bank serves its client through three main segments namely Corporate and Institutional Banking, Retail Banking and Commercial Banking. Through its Corporate and Institutional Banking, the bank serves companies and financial institutions by enhancing their global operations and trade across markets. Standard Chartered Bank Ghana also serves its priority, business and personal clients through its retail banking where a wide range of banking solutions are offered. The Bank's Commercial Banking is also targeted at mid-sized companies who are offered financial solutions and services to support their growth and expansion drive. The products provided by Standard Chartered bank comprises of deposits, savings, personal and other loans. Others include trade finance, cash management and treasury, transaction banking, custodial and e-banking services, cross-border payments, among others (Standard Chartered, 2019).

Barclays Bank Ghana was established 1917 as a colonial bank. The bank was later in 1970 incorporated locally as an entirely owned subsidiary of Barclays Bank (DCO). The government of Ghana became a 40% shareholder in the bank in 1976. The government's interest was however bought back in 2003. Barclays has a total of 67 service outlets nationwide. That is, 52 networked branches, 8 Prestige Centres, 3 Premier Suites and 4 Agencies. In addition, the bank has over 164 ATMs nationwide. Barclays Bank of Ghana is currently part of Absa Group Limited, a major African financial services institution offering globally trusted products and services. Barclays Ghana products and services includes personal and business banking, corporate & investment banking, bancassurance, wealth management products & services and a number of card and e-services. The bank's e-solutions includes the provision of an app through which large businesses and corporates undertake transactions (Barclays, 2019).

CHAPTER FOUR

RESULTS AND DISCUSSION

4.1 Introduction

The aim of the research was to evaluate the Liquidity Risk Management of Barclays Bank Ghana and Standard Chartered Bank Ghana. The results and discussion of the study, based on the responses and facts collected are presented in this chapter. A total of 30 questionnaires were distributed to 5 branches each of the two banks and all were properly filled and returned to the researcher. This represented a 100% valid response rate. The chapter presented the demographic data as well as the results of analysis performed.

4.2 Gender of respondents

The study found it necessary to determine the gender of the respondents and to indicate proportion of male and females in the sample of the study. The findings as shown in Table 1 indicates that majority of all the respondents, which represents 57% of respondents were male, and 43% female. This gives an indication that a lot more males work on schedules involving liquidity in these banks as compared to their female counterparts. The proportion of females to males is however greater for respondents from Barclays Bank.

Table 1: Gender of respondents

Sex	Frequency			Percent
	BBG	SCB	Total	
Male	7	10	17	57
Female	8	5	13	43
Total	15	15	30	100

Source: Field data, 2019

4.3 Age distribution of respondents

The findings as shown in Table 2 indicated that out of the total sample of 30 respondents 50% were within the age range of 31-45. This was followed by 37% of respondents who were found in the age range of 18 to 30, 10% falling within the age range of 46-55 and 3% were over 55 years. It can be deduced from the age distributions that most of the respondents are matured adults.

Table 2: Age distribution of respondents

Age Group	Frequency			Percent
	BBG	SCB	Total	
18 - 30	8	3	11	37
31 - 45	5	10	15	50
46 - 55	2	1	3	10
Over 55	0	1	1	3
Total	15	15	30	100

Source: Field data, 2019

4.4 Educational level of respondents

As shown in Table 3, the findings revealed that most of the participants in the study had Master's Degree as their highest educational attainment. This represents 54% of the total respondents. The next was 43% with HND or First Degree and 3% with PHD as their highest formal educational attainment. It can be inferred from the level of education of the participants that data for the research was largely gathered from educated and informed respondents who understood better the questions posed in the questionnaires.

Table 3: Educational level of respondents

Qualification	Frequency			Percent
	BBG	SCB	Total	
Diploma	-	-	-	-
Degree/HND	7	6	13	43
Masters	7	9	16	54
PHD	1	0	1	3
Total	15	15	30	100

Source: Field data, 2019

4.5 Liquidity risk management practices of the Banks

The liquidity risk management practices by both banks were examined through a series of questions posed in the questionnaire and examined. A number of these practices are discussed in this section.

4.5.1 Liquidity risk management routine, customer and deposit proportion

As shown in Table 4, 80% of the respondents from Barclays Bank indicated that the proportion of deposit from corporate clients to deposit from their retail customers is 70% corporate clients; 30% retail clients. 73% of the respondents from Standard Chartered Bank also indicated that deposits from their clients are 70% corporate clients and 30% retail clients. Thus as shown in Figure 1, majority of respondents (77%) from both banks stated that the composition of their deposits is 70% corporate and 30 retail.

Table 4: Proportion of deposits of corporate and retail clients for both banks

Proportion	Frequency			Percent		
	BBG	SCB	Total	BBG	SCB	Total
70% corporate clients; 30% retail clients	12	11	**23**	**80**	**73**	**77**
30% corporate clients; 70% retail clients	-	4	4	-	27	13
50% corporate clients; 50% retail clients	3	-	3	20	-	10
	15	15	30	100	100	100

Source: Field data, 2019

As shown in Figure 1, 77% of respondents from both banks stated that the composition of their deposits is 70% corporate and 30 retail, 13% stated that the composition is 30% corporate clients; 70% retail clients and 10% indicated that there is an equal proportion (50% corporate clients; 50% retail clients) for both corporate and retail (individual) customers.

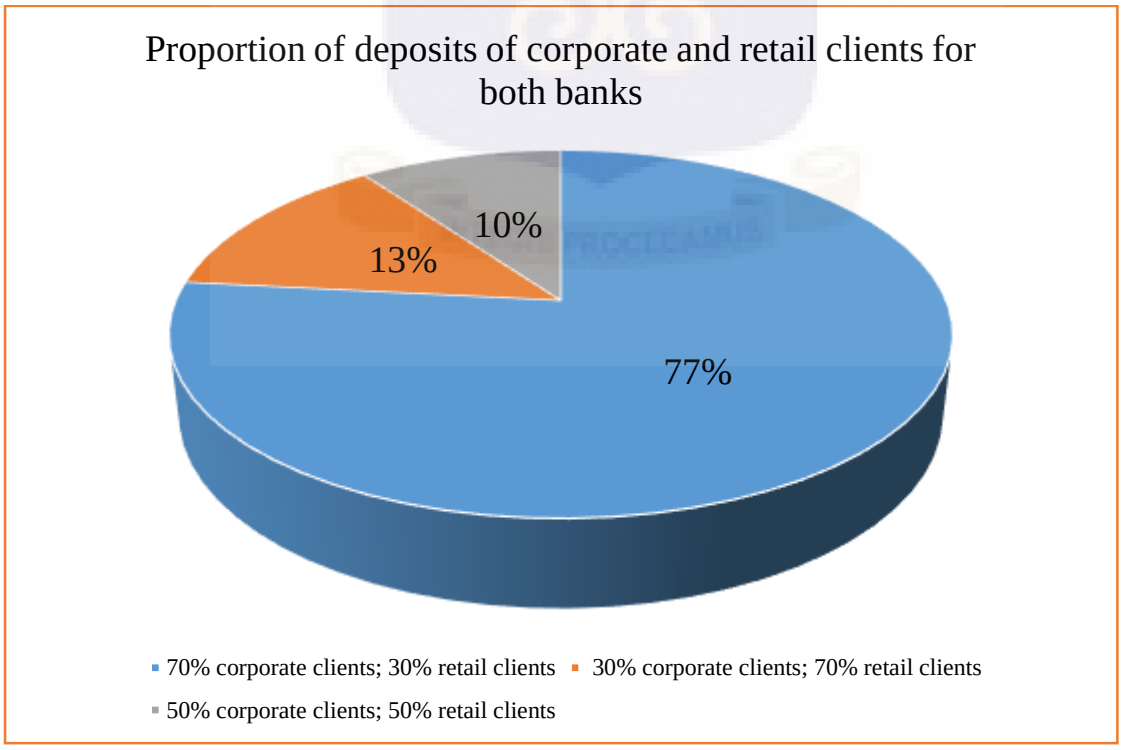

Figure 1: Proportion of deposits of corporate and retail clients

Source: Field data, 2019

The responses gathered from the questionnaire indicated that the percentage of the 20 largest depositors for both banks is less than 10% of total deposits. As shown in Figure 2, 80% of respondents from Standard Chartered Bank stated that the percentage is less than 10% of total deposits and 20% said it is less than 20% of total deposits. For the responses gathered from Barclays Bank, 40% of the respondents stated that the percentage is less than 10% of total deposits, 27% indicated that it is up to 30% of total deposits, 20% said it is less than 20% of total deposits and 13% said it is more than 30% of total deposits.

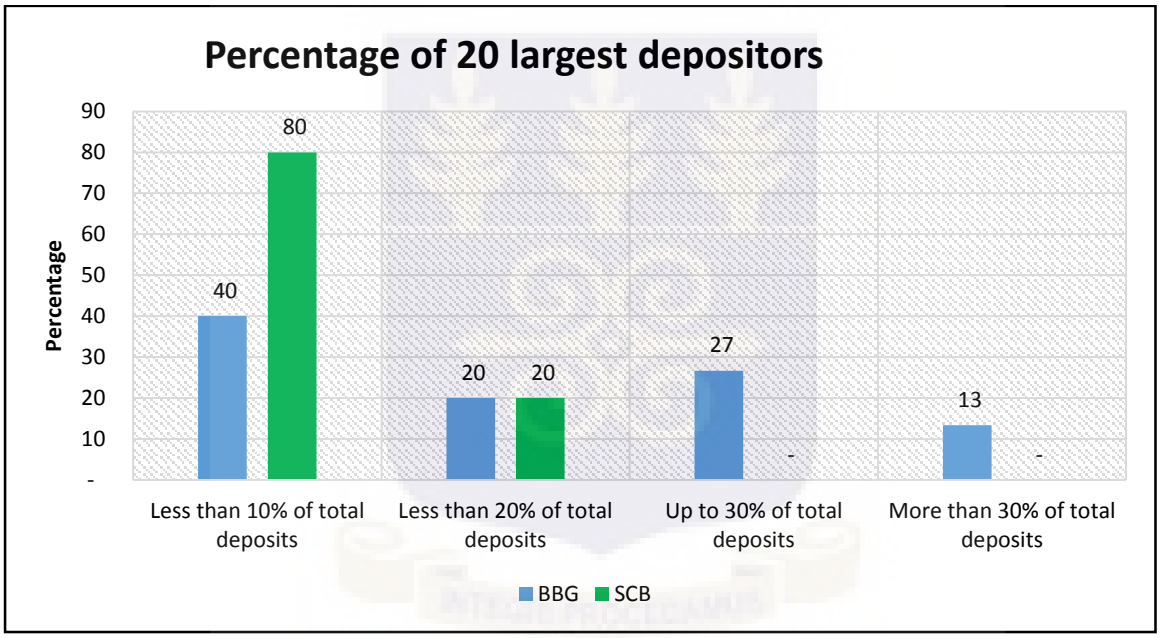

Figure 2: Percentage of 20 largest depositors

Source: Field data, 2019

On how the banks manage their liquidity, majority (83%) of the respondents from both banks stated that it is done daily. As shown in Figure 3, 17% indicated that it is done weekly and no respondent stated monthly. This gives an indication of the seriousness the banks attach to liquidity of the bank as daily analysis of liquidity patterns and forecasting for subsequent days assists in providing early warning signals to avert liquidity crises. Daily analysis of liquidity

patterns also assists in taking investment decisions on the use of idle funds for investment activities to generate profits for the bank.

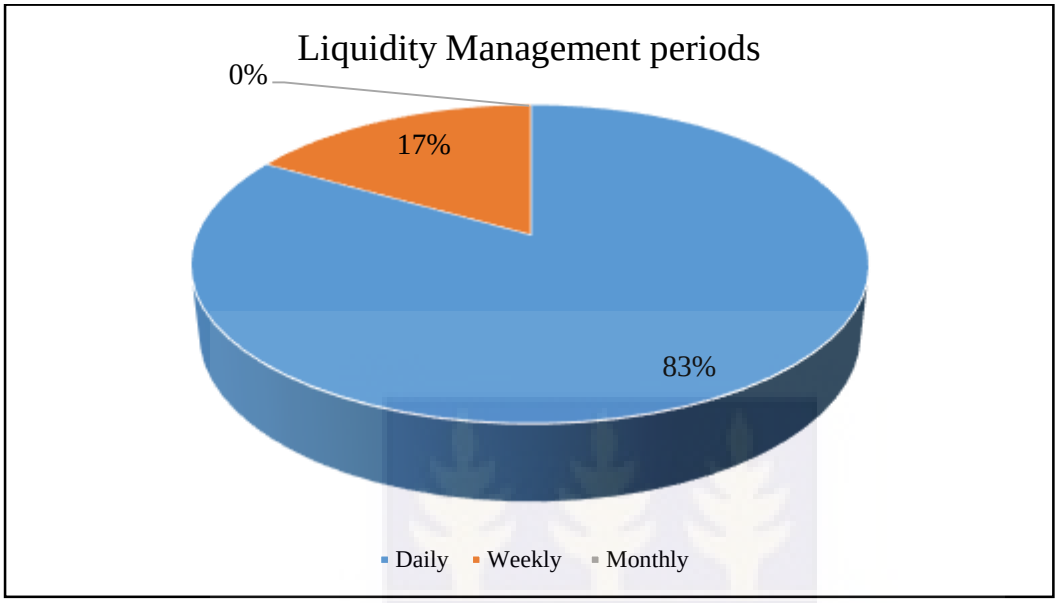

Figure 3: Liquidity Management periods

Source: Field data, 2019

4.5.2 Concentration of term deposits

Concentration of term deposits refers to the situation where customer deposits with contractual maturity dates are higher than deposits in current and savings accounts. Term deposits are typically interest earning accounts for customers. From Figure 4, majority of the respondents from both Barclays and Standard Chartered Bank indicated that there is a high concentration of fixed deposits (investment accounts) over transaction deposits (current and saving account) in their banks. Although the responses from both banks pointed towards one direction, responses from Standard Chartered Bank had the highest percentage of 67% and Barclays 47%. This implies that both banks could face liquidity challenges when the investments reach maturity, and Standard Chartered bank faces the highest risk. A high concentration of term

deposits in the short term creates a funding gap for which the bank may have challenges filling if there is no immediate buffer to depend on, and may have to acquire funds at a higher cost.

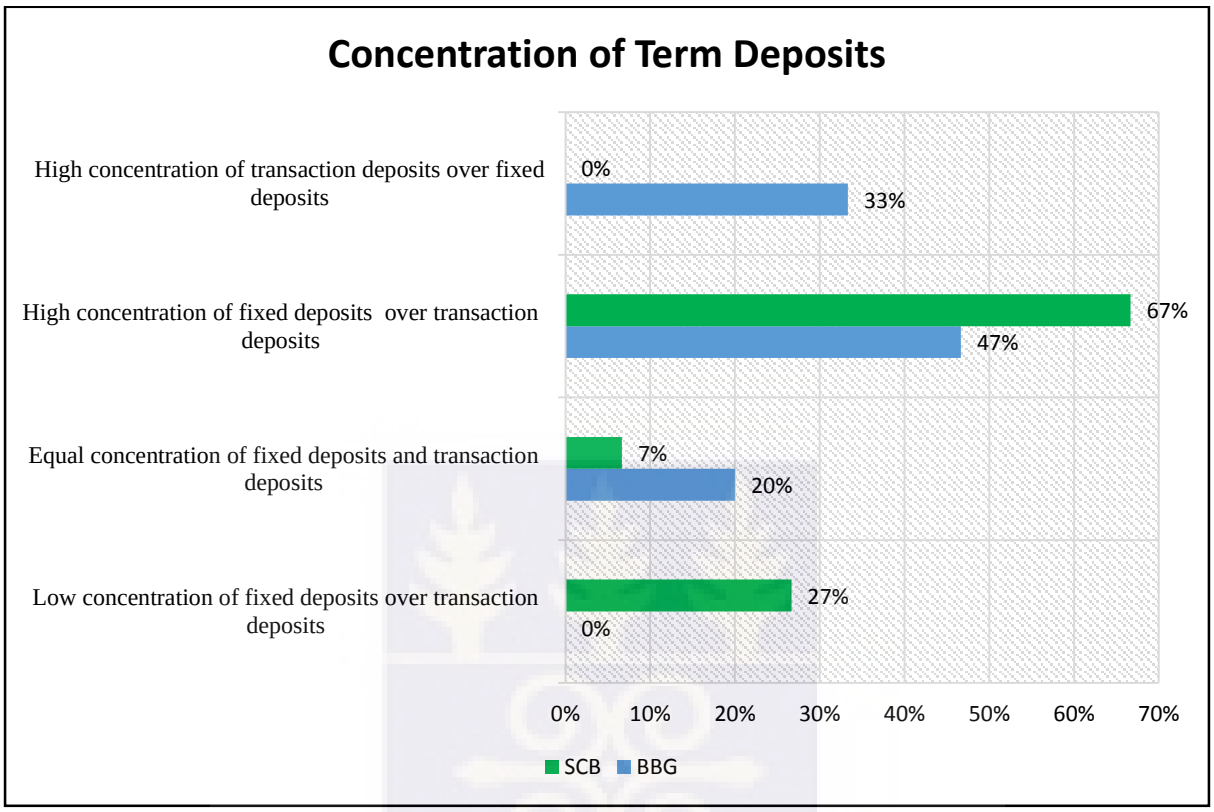

Figure 4: Concentration of term deposits

Source: Field data, 2019

4.5.3 Liquidity risk limits, Senior Management oversight and Contingency plans

The study also examined the liquidity management practices of both banks in the aspect of liquidity risk limits, senior management oversight and contingency plans. The bank has Board and Senior Management oversight in its liquidity risk management. On the involvement of the Board and Senior Management who provide oversight in the bank's liquidity risk management, Table 5 shows that 10 (33%) respondents strongly agree and 14 (47%) agree that it is a practice in their bank. Thus majority of the respondents (80%) indicated that their banks have established that system.

On the establishment of limits that constrain the amount of liquidity risk that the bank may take, 14 (47%) respondents strongly agree and 13 (43%) agree that it is a practice in their bank. A total of 23 (77%) respondents from both banks also agree that the limits are set on minimum liquid asset (MLA), target holding of liquid asset, maturing mismatches and on the dependence on a particular funding source. 18 (60%) and 9 (30%) agree and strongly agree respectively that their bank has contingency plans clearly identifying potential sources of liquidity and outlines precise policies to follow during liquidity crisis.

4.5.4 Asset and liability committee, prudential benchmark and liquidity disclosures

Table 5 show that 11 (37%) of respondents believe that the key responsibility areas of their bank's Asset and liability Committee (ALCO) include interest rate risk, market/investment risk, liquidity risk and credit risk. The majority 19 (63%) of the respondents only slightly agree to this assertion. This could be due to the fact that only a few of the respondents are privy to the comprehensive functions of the Asset and liability Committee (ALCO) of their bank. Contrary to the views expressed by Akrong (2017) that Ghana's central bank has no prudential limit for liquid ratio, majority of the respondents from both banks indicated that there is a prudential benchmark from the central bank for that ratio. They also indicated that there are benchmarks for that of net liquid assets to customer deposits. An examination of the financial statements of the two banks indicated that there is some level of disclosure of the liquidity position, including capital adequacy ratio, but as asserted by Akrong (2017), there is no mention of a prudential benchmark from the central bank in the reports.

Table 5: Liquidity management practices

Liquidity management practices	FREQUENCIES							
	SA	**A**	**SLA**	**N**	**SLD**	**D**	**SD**	**Total**
The bank sets limits that constrain the amount of liquidity risk that it may take	**14**	13	3	-	-	-	-	30
The bank sets limits on								
i) Minimum liquid asset (MLA)	5	**23**	2	-	-	-	-	30
ii) Target holding of liquid asset								
iii) Limits on maturing mismatches								
iv) Limits on the dependence on a particular funding source								
The bank has contingency plans clearly identifying potential sources of liquidity and outlines precise policies to follow during liquidity crisis.	9	**18**	3	-	-	-	-	30
The banks' liquidity position information is regularly disclosed to the public	8	9	**11**	2	-	-	-	30
The bank has Board and Senior Management oversight in its liquidity risk management	10	**14**	3	-	3	-	-	30
There is a prudential benchmark from the central bank for the disclosure of liquid ratio and the ratio of net liquid assets to deposits from customers	**12**	10	5	3	-	-	-	30
The key responsibility areas of the bank's Asset and liability Committee (ALCO) include interest rate risk, market/investment risk, liquidity risk and credit risk	-	11	**19**	-	-	-	-	30

Source: Field data, 2019

From Table 5, a total of 10 (33%) strongly agree and 14 (47) agree that these prudential benchmarks exists. A total of 9 (30%) and 8 (27%) agree and strongly agree respectively that their banks' liquidity position information is regularly disclosed to the public, 11 (37%) slightly agree and 2 (7%) are neutral. A careful examination of the published financial statements indicates that the banks have some disclosure of liquidity

4.6 Liquidity Risks Assessment of Barclays and Standard Chartered Banks

4.6.1 Liquid Assets/ Demand Deposits

This ratio is used to assess the bank's liquidity in terms of liquid assets available to meet demand deposits. The liquid assets comprises of cash and balances with Bank of Ghana, due from other financial institutions, securities (trading securities, available-for-sale securities, unearned income from securities, and other securities). Demand/volatile funds comprises of deposits not sourced from institutional depositors and whose term are not stipulated, thus withdrawals can be done at any time and without prior notice. The formula used to ascertain this ratio is liquid assets / demand deposits × 100 and a ratio of 1 or 100% or more is preferred.

As shown in Table 6, the liquid assets to demand deposit ratio for Barclays Bank was 64% for 2013, 66% for 2014, 67% for 2015, 105% for 2016 and 100% for 2017. Although it recorded year by year increases, it was not until 2016 and 2017 that it recorded more than the preferred rate of 100% or more.

Table 6: Liquid Assets/ Demand Deposits – Barclays

Year	Liquid Assets (GH¢'000)	Demand Deposit (GH¢'000)	Liquid Assets to Demand Deposit (%)
2013	1,015,768	1,592,324	64%
2014	1,335,867	2,033,073	66%
2015	1,550,068	2,329,201	67%
2016	3,004,806	2,853,313	105%
2017	3,153,902	3,161,861	100%

Source: Field data, 2019

As shown in Table 7, the liquid assets to demand deposit ratio for Standard Chartered Bank was 93% for 2013, 90% for 2014, 80% for 2015, 88% for 2016 and 88% for 2017. Thus the

bank recorded between 2013 and 2015 and began to record an increases in 2016 and a no-change in 2017. However, all the ratios recorded by the bank for the period under consideration were below the preferred 100% or more.

Table 7: Liquid Assets/ Demand Deposits – Standard Chartered Bank

Year	Liquid Assets (GH¢'000)	Demand Deposit (GH¢'000)	Liquid Assets to Demand Deposit (%)
2013	1,656,335	1,779,108	93%
2014	1,971,885	2,198,585	90%
2015	1,927,403	2,422,382	80%
2016	2,800,966	3,197,673	88%
2017	2,992,716	3,420,164	88%

Source: Field data, 2019

4.6.2 Liquid Assets to Total Assets

This ratio provides a measure of the fraction of the bank's total assets that is held in illiquid assets as well as provide an indication of the bank's inclination towards risk taking for profits. An increasing trend of this ratio (where liquid assets are more than total assets) generally indicates that the bank faces less liquidity risk although it also gives an indication that the bank is not utilising enough of its resources (funds) to generate more profits. A decreasing trend (where liquid assets are less than total assets) however gives a signal that the bank faces more liquidity risk though it also indicates that the bank has utilised its resources for risk activities (example loans) intended to generate more profits.

From Table 8, Barclays Bank recorded a liquid asset to total asset ratio of 43.67%, this increased in 2014 to 44.81% but reduced to 42.92% in 2015, increased again to 56.81% and in 2017 reduced to 52.97%. The increasing trend of the ratio indicates that the bank has lower

liquidity risk concerns but it also indicates that the bank had more space to utilise the increase in liquid assets to generate more profits.

Table 8: Liquid Assets/ Total Assets – Barclays

Year	Liquid Assets (GH¢'000)	Total Assets (GH¢'000)	Liquid to Total Assets (%)
2013	1,015,768	2,326,109	43.67
2014	1,335,867	2,981,302	44.81
2015	1,550,068	3,611,110	42.92
2016	3,004,806	5,288,817	56.81
2017	3,153,902	5,954,035	52.97

Source: Field data, 2019

From Table 9, a slightly different scenario is observed with the liquid assets to total assets of Standard Chartered Bank which recorded 55.43% in 2013, 56.24% in 2014, 57.2% in 2015, 64.04% in 2016 and 62.65% in 2017. This was a continuous increase until 2017 when it recorded a decrease. This gives an indication that for the period 2013 to 2016, the bank had less liquidity risks but also it did not utilise the increases in its liquid funds to create more assets for more profits. The decrease (increase in total assets) of the ratio in 2017 however gives an indication of the bank's inclination towards taking risk by engaging in profit generation activities.

Table 9: Liquid Assets/ Total Assets – Standard Chartered Bank

Year	Liquid Assets (GH¢'000)	Total Assets (GH¢'000)	Liquid to Total Assets (%)
2013	1,656,335	2,988,358	55.43
2014	1,971,885	3,506,297	56.24
2015	1,927,403	3,369,448	57.20
2016	2,800,966	4,373,564	64.04
2017	2,992,716	4,776,984	62.65

Source: Field data, 2019

An assessment of the balance sheet of both banks indicated that the banks recorded year on increases in both liquid and total assets. This reflected in the increasing trend of their liquid assets to total assets ratios, although Barclays had some decreases which may be as a result of an inclination towards investments as against liquidity risk concerns. Figure 5 provides a comparison of the liquid assets to total assets ratio of the two banks.

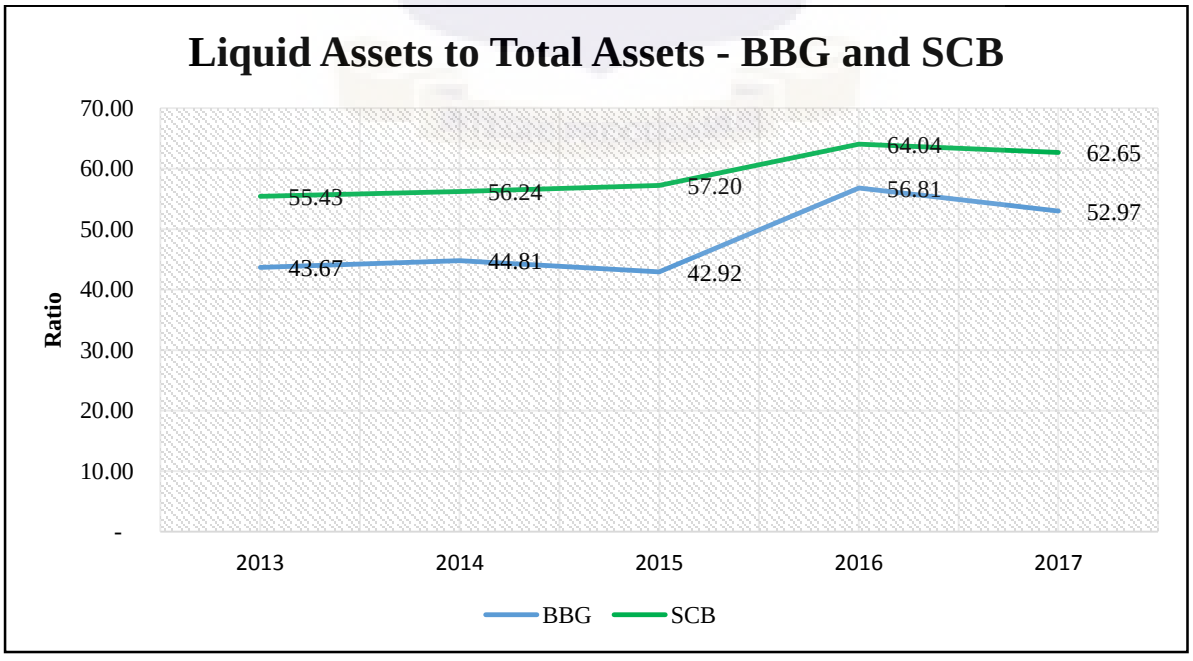

Figure 5: Liquid Assets to Total Assets – a comparison

Source: Field data, 2019

4.6.3 Assets / Liabilities Mismatches

The asset liability mismatch ratio is used in to assess the short term (up to 3 months) maturity of the assets and liabilities of a bank and to determine mismatches. A decreasing trend of adverse ratio is preferred to an increasing trend. This assists in forecasting and planning for the liquidity needs of the banks, as it needs to have available liquid assets to take care of liabilities maturing in the short to medium term. The liquid assets (cash and cash equivalents) was compared to liabilities and was computed as follows (Liquid Assets - Liabilities/Liabilities). Analysis of the annual data for both banks assisted in identifying the pattern of mismatches for both banks. From Table 12, both banks recorded adverse mismatches where liquid assets were less than the liabilities. Barclays bank had increasing ratios between 2013 and 2015, a decrease in 2016 and a slight increase in 2017. Standard chartered bank on the other hand had recorded a decreasing trend.

Table 10: Assets and Liabilities Mismatches

Assets and Liabilities Mismatches						
YEAR	Liquid Assets (GH¢'000)		liabilities (GH¢'000)		Mismatches (%)	
	BBG	SCB	BBG	SCB	BBG	SCB
2013	1,015,768	1,656,335	1,880,877	2,501,374	45.99	33.78
2014	1,335,867	1,971,885	2,500,505	2,977,370	46.58	33.77
2015	1,550,068	1,927,403	3,027,660	2,814,348	48.80	31.52
2016	3,004,806	2,800,966	4,496,741	3,608,348	33.18	22.38
2017	3,153,902	2,992,716	4,901,546	3,856,228	35.65	22.39

Source: Field data, 2019

4.6.4 Capital Adequacy

The banking Act of Ghana 2004 (Act 673) as amended, mandates banks to operate with a minimum capital adequacy ratio of 10%. The assessment of the statements of financial position with respect to both banks, covering 2013 to 2017 shows that both banks complied with this requirement. As shown in Figure 6, Barclays Bank recorded a capital adequacy ratio of 22.52% in 2013, 18.22% in 2014, 17.75% in 2015, 19.04% in 2016 and 20.45% in 2017. Standard Chartered Bank also recorded a capital adequacy ratio of 23% in 2013, 15.67% in 2014, 15.35% in 2015, 21.59% in 2016 and 26% in 2017. Both banks had a decline in the ratio from 2013 to 2016 when it picked up again.

Although both banks recorded stronger capital adequacy ratios beyond the required minimum of 10% and a buffer of plus 3% as advised by the central bank, Standard chartered recorded the highest ratio of 26% in 2017. In line with findings of Vodova (2011), the higher ratios recorded by these banks is an indication that they have the capacity to absorb losses as well as contain their risk exposures, as Banks with adequate capital are usually not susceptible to liquidity risk. The high capital adequacy ratio also increases the confidence of the funders of the bank as well as provide a strong indication to the central bank of how solvent the bank is.

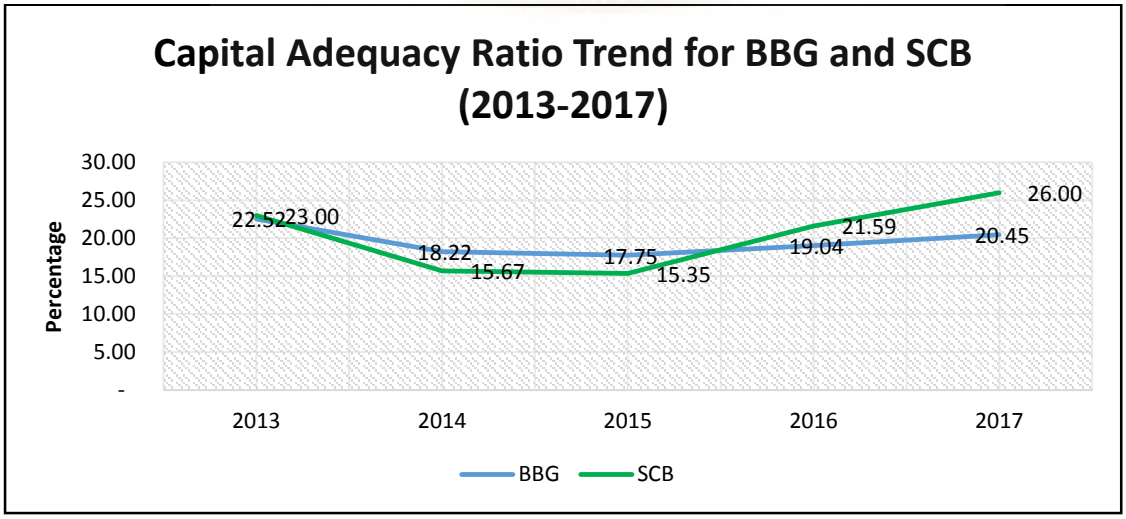

Figure 6: Capital Adequacy Ratio Trend for BBG and SCB

Source: Field data, 2019

4.7 Control strategies adopted in managing liquidity risk

As a way of reinforcing their liquidity risk management practices, banks are expected to adopt both preventive and corrective risk management strategies. This is due to the fact that each transaction almost all transactions have implications on the bank's liquidity. The liquidity management strategies adopted by most banks can be classified as both preventive and corrective. The questions in Table 4 therefore sought to assess the two banks on some of the key preventive and corrective activities with regards to their liquidity management strategies.

Table 11: Liquidity risk management strategies –Barclays Bank

	Frequency							Total
Strategies	SA	A	SLA	N	SLD	D	SD	
There are charges for pre-mature withdrawals	6	**9**	0	0	0	0	0	15
A regular basis, stress tests for various internal and market-wide stress scenarios	2	**11**	2	0	0	0	0	15
Stress-testing covers the actions of market participants and counterparties	1	**9**	3	2	0	0	0	15
The bank communicates with its large depositors on their withdrawal time schedule	0	3	3	**7**	0	2	0	15
The bank undertakes regular analyses of pattern of withdrawals for liquidity forecasts	2	**8**	5	0	0	0	0	15

Source: Field data, 2019

From Table 11, 8 (53%) respondents from Barclays Bank agreed that the bank undertakes regular analyses of pattern of withdrawals for liquidity forecasts, 11 (73%) also agree that on a regular basis, stress tests for various internal and market-wide stress scenarios are performed

and 9 (60%) agree that the regular stress-testing covers the actions of market participants and counterparties. Also 9 (60%) of the respondents and 6 (40%) of the respondents agree and strongly agree that the bank charges penalties for pre-mature withdrawal of term deposits. However 7 (47%) of the participants were uncertain whether the bank communicates with its large depositors on their withdrawal time schedule, 2 (13%) actually disagree that it is the practice of the bank though 3 (20%) of the respondents agree and another 3 (20%) slightly agree. This gives an indication that although the bank has adopted a lot of sound liquidity management strategies, it can do better by adopting a communication strategy with its large depositors on their withdrawal plans.

Table 12 shows the responses from Standard Chartered Bank. 11 (73%) of respondents (5 Strongly Agree, 6 Agree) from Standard Chartered Bank agreed that the bank undertakes regular analyses of pattern of withdrawals for liquidity forecasts, 9 (60%) agree that on a regular basis, stress tests for various internal and market-wide stress scenarios are performed and another 11 (73%) (5 Strongly Agree, 6 Agree) agree that the regular stress-testing covers the actions of market participants and counterparties.

Table 12: Liquidity risk management strategies – Standard Chartered Bank

	Frequency							Total
Strategies	SA	A	SLA	N	SLD	D	SD	
There are charges for pre-mature withdrawals	4	**9**	1		0	1		15
A regular basis, stress tests for various internal and market-wide stress scenarios	3	**9**	1	1		1	0	15
Stress-testing covers the actions of market participants and counterparties	5	**6**	1	1	0	1	1	15
The bank communicates with its large depositors on their withdrawal time schedule	2	**6**	1	1	1	3	1	15
The bank undertakes regular analyses of pattern of withdrawals for liquidity forecasts	**6**	5	2	1	1			15

Source: Field data, 2019

Also from Table 11, majority of the respondents (60%) from Standard Chartered bank, agree that the bank charges penalties for pre-mature withdrawal of term deposits. Contrary to the responses from Barclays Bank, the majority (73%) were of the opinion that their bank communicates with its large depositors on their withdrawal time schedule and 1(7%) each disagree and strongly disagree that it is the practice of the bank. This gives an indication that the bank has adopted a lot of the key liquidity management strategies including having a communication strategy with its large depositors on their withdrawal plans.

When asked which of the sources of funds is relied upon frequently by their banks in managing liquidity mismatches, all respondents 30 (100%) indicated that the frequently used source is deposits (core deposits, public funds, large depositors). This gives an indication that both banks utilise the traditional and often cheap source of funding for their liquidity mismatches. This findings is consistent with the responses shown in Table 13. From the table, majority of the

respondents 9 (30%) from both banks ranked first the reduction of short-term wholesale funding and increasing retail deposits as their preferred strategy in managing liquidity risk. This was followed by "reduce committed lines (credit/liquidity)" which was ranked as the 2nd choice. Leveraging (buying liquid assets, funded by issuing long-term wholesale debt) was ranked as the last choice (6th).

Table 13: Ranked choice of strategies in managing liquidity risk

Strategies	Frequency	Rank
Reduce short-term wholesale funding, increase retail deposits	9	1st
Reduce committed lines (credit/liquidity)	7	2nd
Lengthen short-term wholesale funding maturities	5	3rd
Shorten maturities of assets	4	4th
Sell non-liquid assets, buy liquid assets	3	5th
Leveraging (Buying liquid assets, funded by issuing long-term wholesale debt)	2	6th

Source: Field data, 2019

In identifying the corrective risk management strategies of the two banks, the question was posed as to what the first option of the banks will be given that deposit withdrawal demands for a period exceeds liquidity reserves. The responses for the question was in the same direction except that the magnitude of responses were different. From Table 14, the majority of respondents indicated that the first option will be to borrow funds from the parent company. A higher number of respondents 9(60%) were from Barclays Bank and 3 (20%) from Barclays Bank. A total of 10 (33%) respondents however said their first option will be to use the bank's capital to cover the liquidity demanded, 13% said selling of securities owned in the secondary market will be the first option and 7% said borrowing from the central bank will be their first option.

Table 14: First choice option when withdrawal demands for a period exceeds liquidity reserves

	Frequency			Percentage		
Options	BBG	SCB	Total	BBG	SCB	Total
Borrow funds from the parent company	9	3	12	60	20	40
Borrow funds from the interbank market	2	-	2	13	-	7
Sell securities owned in the secondary market	4		4	27	-	13
Withdraw private placement from other banks	-	-	-	-	-	-
Use bank's capital to cover liquidity demanded	2	8	10	13	53	33
Ask depositors to wait for extra days	-	-	-	-	-	-
Borrow from the central bank	2	-	2	13	-	7
	19	11	30	127	73	100

Source: Field data, 2019

On internal controls to enhance liquidity management in the banks, all respondents from both banks (30, 100%) indicated that their banks strictly comply with the primary reserve requirement by the central bank, meets capital adequacy requirements, always meets customers withdrawals, established strong internal controls and undertakes training of staff involved in liquidity management. 28 (93%) of the total respondents also indicated that their bank ensures sound investment of idle funds. 22 (73%) of the total respondents from both banks also indicated that their bank undertakes periodic reconciliation of treasury registers and regular cash flow forecasts. On the strict compliance to secondary reserve requirement, only 18 (60%) of the total respondents indicated that their bank complies. This findings implies that both

banks to a large extent have established strong internal controls and ensures compliance with statutory requirements as prescribed by the central bank.

4.8 Challenges faced by the banks in managing their liquidity risk

The Government of Ghana started the implementation of its Treasury Single Account (TSA) in 2017.This was a policy being implemented as part of the government's public financial management reforms. The policy demanded the closure and transfer to the central bank of government's accounts at the commercial banks. The study sought to ascertain the impact of this policy on the liquidity of the two banks. The responses from the two banks vary. Majority of the respondents from Standard Chartered bank indicated that the policy affected their bank's liquidity position only for a while. As shown in Figure 7, 73% of the respondents said it affected the bank's liquidity position for a while, 20% said it continues to affect the bank's liquidity position whiles 7% said it had no impact on the bank's liquidity position.

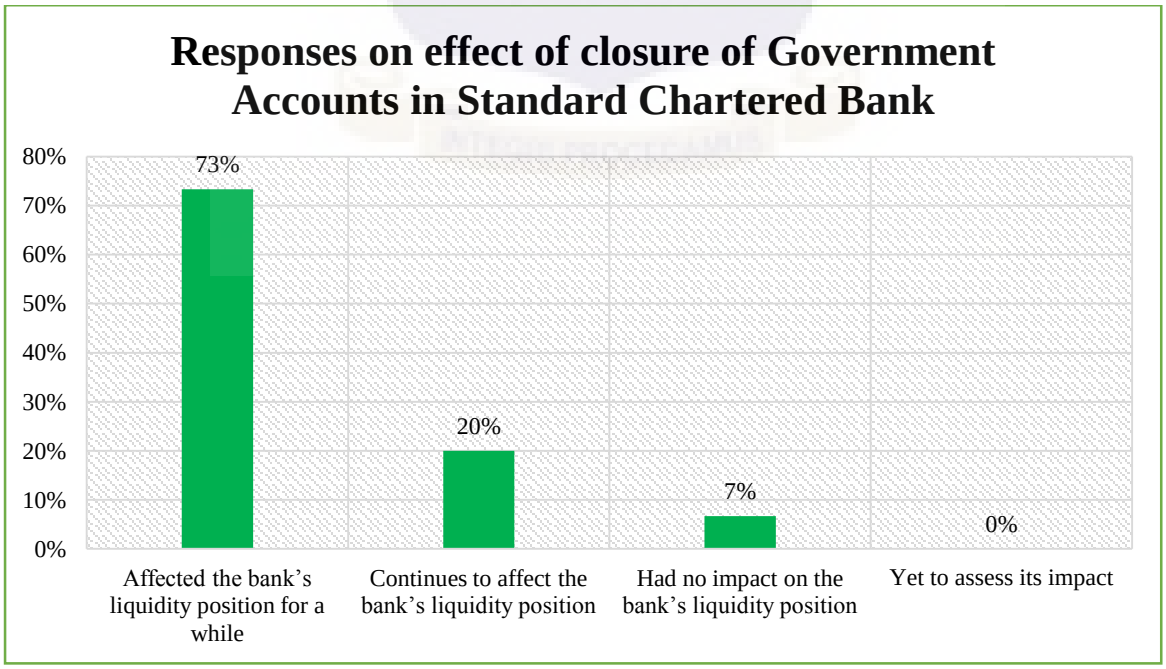

Figure 7: Effect of closure of Government Accounts in Standard Chartered Bank

Source: Field data, 2019

Responses from Barclays Bank on the other hand indicated that the policy continues to affect the bank's liquidity position. As shown in Figure 8, 40% of the respondents indicated that it continues to affect the bank's liquidity position 34% indicated that it affected the bank's liquidity position for a while, 13% said it had no impact on the bank's liquidity position and another 13% said they are yet to assess its impact.

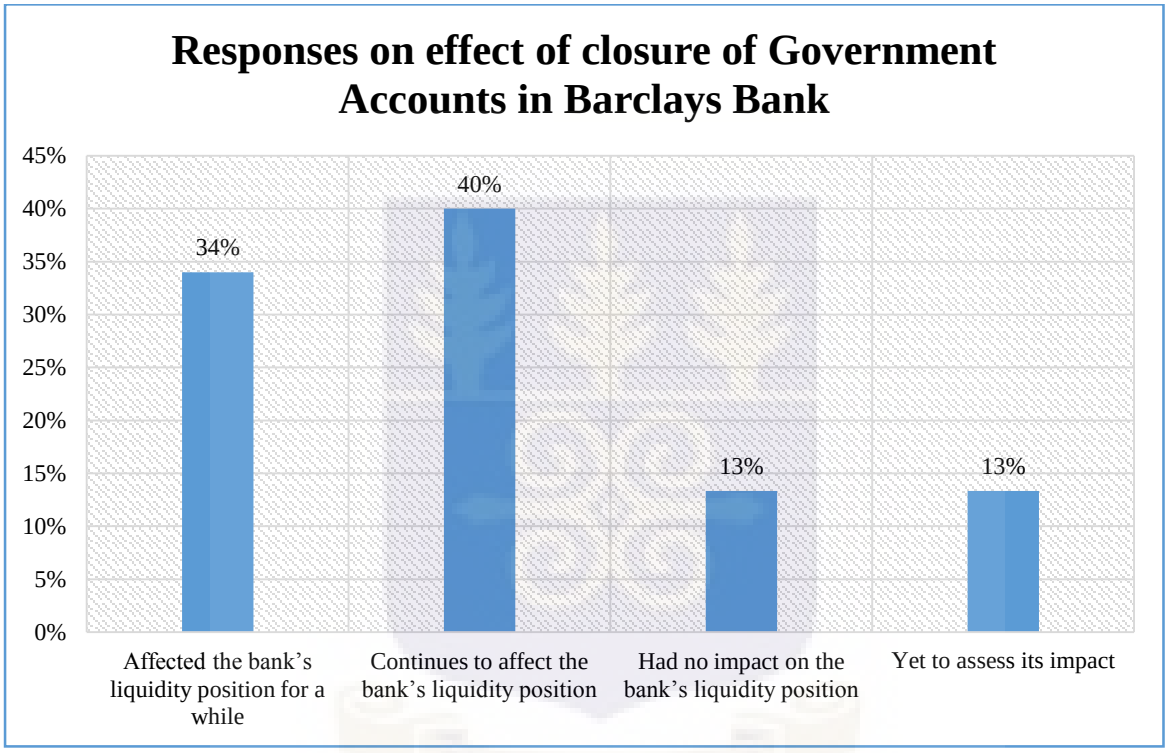

Figure 8: Effect of closure of Government Accounts in Barclays Bank

Source: Field data, 2019

Other challenges encountered by the banks in their liquidity management is the incidence of non-performing loans. In response to the question on whether it is a challenge for liquidity risk management, 20 (67%) of the total respondents stated that it is a challenge, whiles 10 (33%) indicated that it is not. Thus the incidence of non-performing loans poses a threat to the liquidity of the two banks. Respondents were also asked whether Ghana's low savings rate, especially personal savings, is a challenge for bank's liquidity risk management. In response, 18 (60%)

were indifferent, 9 (30%) agreed and 3 (10%) disagreed that it is a challenge to liquidity risk management. This implies that majority of the respondents do not have empirical evidence based on an internal research to provide categorical responses. A few however believe that it is a challenge, as the banks depend on such deposits as a cheap source of funding their profit generating activities such as loans.

A similar response was given to the question on whether repatriation of profits by foreign corporate clients poses a challenge for liquidity risk management in the bank. In the responses, 24 (80%) were indifferent and 6 (20%) agreed that it is a challenge to liquidity risk management. Thus a study on the effect of these variables on the bank's liquidity may assist in providing categorical responses, although 20% of the respondents believe it impacts on liquidity and therefore sees it as a challenge.

4.9 Discussion of results

Liquidity risk management practices of the Banks - Figure 1 indicated that majority of respondents (77%) from both banks stated that the composition of their deposits is 70% corporate and 30% retail. Thus the corporate depositor concentration for both banks is high. This has implications for interest payments by the bank as higher rates of interest are often demanded by most corporate depositors as compared to the retail customers.

The 20 largest depositors for both banks is less than 10% of total deposits - This is good for the banks, as it avoids deposits concentration with few large depositors and prevents a situation where withdrawals from one or more of such large depositors could create liquidity challenges for the bank. Although deposit concentration can be beneficial in normal times, as it provides some liquidity buffer, it creates liquidity challenges in an unforeseen situation where a sudden withdrawal is made from a large depositor.

Term deposit concentration – The findings indicated that both banks had a high concentration of fixed deposits (investment accounts) over transaction deposits (current and saving account). Although funds from these fixed deposit accounts serves as liquidity buffer prior to maturity, it can pose liquidity challenges to the bank when they reach maturity. A funding gap is immediately created at maturity, for which the bank may have challenges filling if there is no immediate buffer to depend on, and funds may have to be acquired at a higher cost. The bank may however be spared funding costs if the investments are rolled over by the customer or new deposits are made at the same time that old ones are being withdrawn.

Board and Senior Management oversight and disclosures – The findings indicated that both banks have Board and Senior Management oversight in their liquidity risk management. This is positive for control purposes and ensuring the adherence to the bank's policies and procedures regarding decisions with implication for liquidity and other risks. The findings confirms the responses from both banks indicating that they have contingency plans which clearly identify potential sources of liquidity and outlines precise policies to follow during liquidity crisis. These plans and policies usually emanate from the Board and Senior Management.

With senior management having oversight responsibilities, it is expected that they will as well see to furnishing of all statutory disclosures regarding liquidity to the central bank and the public (where applicable). Majority of the respondents slightly agreed that the functions of their Asset and liability Committee (ALCO) include interest rate risk, market/investment risk, liquidity risk and credit risk. Risks pertaining to the banks are mostly related, therefore the responsibilities of this committee (ALCO) go beyond liquidity risk to cover other risks which can impact on liquidity.

Liquid Assets to Demand deposits – The results indicated that Barclays Bank recorded an increasing trend for its Liquid Assets to Demand deposits ratio but it was not until 2016 and 2017 that it recorded the preferred rate of 100% or more. Standard Chartered Bank on the other hand recorded rates below the preferred 100% or more. It is clear that both banks for most part of the periods under consideration had less liquid assets as compared to their demand deposits. This may be due to the risk appetite for these banks to give out more credit relative to keeping liquid assets. The daily assessment of the patterns of withdrawals of their customers may have also influenced their decision.

Adequate control strategies adopted by both banks – The results indicated that both banks have instituted adequate control strategies for managing liquidity risk. For example on a regular basis, stress tests for various internal and market-wide stress scenarios are performed and it covers the actions of market participants and counterparties. Also majority of the respondents from both banks indicated that the banks charges penalties for pre-mature withdrawal of term deposits. These strategies tend to provide early warnings as well as deter customers from pre-mature withdrawals which could cause liquidity gaps. Both banks were found to have adopted many key liquidity management strategies including having a communication strategy with large depositors on their withdrawal plans.

However, for Barclays bank, a large number of the respondents could not confidently agree that the bank communicates with its large depositors on their withdrawal time schedule. Although there is no on-fit-for all strategy for liquidity risk management, the various strategies can assist these banks in planning and managing liquidity risk effectively if maintained and enhanced. Barclays bank could also adopt an approach by which it could have information ahead of time from its largest depositors as it helps to prevent unexpected liquidity shocks.

Preferred source of funding for liquidity mismatch - On what the preferred option will be when withdrawal demands for a period exceeds liquidity reserves, borrowing funds from the parent company was the most preferred option. Respondents indicated that the response was in the context of funds from head office and not the parent bank outside the Ghanaian jurisdiction. This implies that they were considering cheap sources first. Though it could be done, borrowing from the parent bank outside the jurisdiction could indicate that the bank was in a dire liquidity problem. The second choice by respondents was to use the bank's capital to cover the liquidity demanded, this could probably due to the fact that the capital adequacy ratio for the two banks far exceeds the statutory required ratio. Borrowing from the interbank market and the central bank was the last option probably due to cost of borrowing and the signal that it sends to the central bank.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

The study among others sought to evaluate the Liquidity Risk Management of two foreign owned banks, Barclays Bank Ghana and Standard Chartered Bank Ghana. The chapter presents summaries of the findings of the study, conclusion and drawn and recommendations based on the findings. The chapter covers the introduction, summary of the research process, the outcomes of the research, its conclusions as well as recommendations.

5.2 Summary of Research Process

This study in general sought to evaluate the Liquidity Risk Management of universal banks, a case study of Barclays Bank Ghana and Standard Chartered Bank Ghana. It sought to evaluate the practices of liquidity risk management of both banks, identify control strategies utilised by the two banks in handling their liquidity risk, and to identify their liquidity management challenges. A review of relevant extant literature was undertaken for an insight into the topic of study. The study adopted the quantitative method approach and a questionnaire was utilised in gathering data from bank officials (senior executives). Secondary data from published financial statements for the two banks, from 2013 to 2017, were also gathered for financial ratio analysis. Financial analysis and techniques including financial ratios were used to evaluate the past financial statements of the two banks for the period under consideration. Also percentages, frequencies and graphics analysis were used to present the summaries of respondents.

5.3 Summary of Findings

i. The study found a high composition of corporate deposit (70%) as against retail deposits (30%), a composition which could have high interest payment implications.

ii. The study also found that both banks had no issue with deposit concentration, as the 20 largest depositors for each bank was less than 10% of total deposits. However both banks had large fixed deposits concentration over transaction deposits, thus open to liquidity risk (funding gap) when the investments reach maturity.

iii. The findings also indicates that the banks undertake daily liquidity management where liquidity patterns are analysed and contingency plans put in place. Also, both banks have board and senior management oversight on decisions with implication on liquidity risk.

iv. The assessment of the readiness of both banks to meet their volatile funds with their liquid assets indicated that Barclays recorded the preferred rate of 100% for liquid assets to demand deposit for the years 2016 and 2017. Standard Chartered Bank on the other hand recorded rates lower than 100% for the entire period under consideration. Thus both banks were at one time or the other exposed to liquidity risk.

v. The study found that for the period 2013-2017, both banks recorded stronger capital adequacy ratios beyond the required minimum of 10% and a buffer of plus 3% as advised by the central bank.

vi. The findings of the study indicated that both banks have instituted adequate control strategies for managing liquidity risk. This includes regular stress tests for various internal and market-wide stress scenarios, charging penalties for pre-mature withdrawal of term deposits, regular analyses of withdrawal patterns.

vii. The study also found that both banks utilise the traditional and often cheap source of funding (deposits from customers) to cover liquidity mismatches and in case of a rundown will prefer increasing retail deposits as against increasing short term wholesale funds.

viii. The findings also pointed to the fact that the implementation of the Treasury Single Account (TSA) in 2017 by the government of Ghana, which demanded the closure and transfer of all government accounts with the commercial banks affected the liquidity position of both banks differently. For Standard Chartered bank, the policy affected their bank's liquidity position only for a while, but for Barclays Bank the policy continues to affect its liquidity position.

ix. The study also found that the incidence of non-performing loans poses a threat to the liquidity of both banks.

5.4 Conclusions

The recent collapse of some banks in the country, all eight being indigenous banks, raises the question, whether their foreign owned counterparts have been doing something unique in terms of their liquidity. The study evaluated liquidity risk management practices of two foreign-owned banks. Both banks were found to have similarities in their liquidity risk management practices. Both banks practiced daily liquidity management, have liquidity risk limits, Board and Senior Management oversight and Contingency plans. However, the outcome of the research pointed to the fact that the banks had a high concentration of fixed deposits over transaction deposits, thus exposing them to funding gap upon maturity of the investments. Standard Chartered Bank had the highest percentage of 67% as compared with that of Barclays which was 47%. Standard Chartered Bank also had an enhanced liquidity management that included communicating with its large depositors on their withdrawal time schedule to avoid liquidity shocks. Although both banks were found to be well capitalised, Standard chartered recorded the highest capital adequacy ratio in 2017.

The recent implementation of the Treasury Single Account (TSA), a major government policy in the financial sector meant that accounts of all government institutions with the commercial banks had to be closed and transferred to the central bank. Thus a substantial amount of liquidity loss to the commercial banks. The results indicated that this action was a challenge to the banks. However, Standard Chartered Bank was able to manage the policy's effect on its liquidity position over a short period of time as compared with Barclays Bank which is still managing that challenge. Further investigation into the number of clients and volume of funds transferred out may however paint a different comparative picture for the two banks. On the basis of these findings, it can be suggested that generally both banks had adequate liquidity management systems and structures, as well as good liquidity positions, although they had some risk exposures during the period under consideration.

5.5 Recommendations

On the basis of the findings of the study the following recommendations are made for improvements in the banks liquidity risk management:

i. Both banks were found to have high concentration of fixed deposits over transaction deposits, a situation which could pose liquidity challenges to the bank upon the maturity of the investment accounts. It is recommended therefore that both banks should consider reducing the ratio through targeted products that will increase in particular deposits in savings accounts as well as other transaction accounts. The banks should also analyse thoroughly the tenor of the fixed deposit accounts and encourage customers to roll over these deposits for some time.

ii. On their readiness to meet their volatile funds with available liquid assets, both banks demonstrated vulnerability as evidenced by the liquid asset to demand deposit ratios for the period 2013-2017. It is therefore recommended that both banks should balance

their credit activities (loans) with the maintenance of adequate liquid assets such as investments in highly liquid short-term investments.

iii. Although both banks undertake daily liquidity management where liquidity patterns are analysed and contingency plans put in place, they need to occasionally test the plans by creating fictitious liquidity crisis. This will help the banks determine their true readiness.

iv. The findings indicated that the incidence of non-performing loans poses a threat to the liquidity of both banks. It is recommended that officials with risk management responsibilities should be given continuous training, especially in credit intelligence gathering, to ensure accurate credit appraisals as well as monitoring of the bank's loans.

REFERENCES

Acharya, V., & Schaefer, S. (2006). Liquidity risk and correlation risk: Implications for risk management. *London, UK London Business School*.

Adalsteinsson, G. (2014). *The Liquidity Risk Management Guide: From Policy to Pitfalls*. John Wiley & Sons.

Adu-Mensah, S. A., Inusah, M., &Antwi, S. K. A. (2015). A Risk-based Assessment of Ghana Commercial Bank Limited. *Developing Country Studies*. 4(5). 127-144.

Akrong, E. (2017). Are some banks on liquidity life support? Retrieved on March 15, 2019, from https://thebftonline.com/2017/business/are-some-banks-on-liquidity-life-support/

Arif, A., &NaumanAnees, A. (2012). Liquidity risk and performance of banking system. *Journal of Financial Regulation and Compliance*, *20*(2), 182-195.

Armstrong, J., & Caldwell, G. (2008). Liquidity risk at banks: Trends and lessons learned from the recent turmoil. *Financial System Review*, 47-52.

Bank for International Settlements (2006). "The Management of Liquidity Risk in Financial Groups." The Joint Forum of the Basel Committee on Banking Supervision. Basel: BIS.

Bank of Ghana (2018). Press release: Government establishes new indigenous bank; bank of Ghana revokes licenses of five banks and appoints receiver in respect of their assets and liabilities. Retrieved on November 3, 2018, from https://www.bog.gov.gh/privatecontent/Public_Notices/PRESS%20RELEASE%20-%20Grand%20Final%20August%202018.pdf

Banks E. (2014) Asset Liquidity Risk. In: Liquidity Risk. Global Financial Markets Series. Palgrave Macmillan, London

Barclays Bank (2019). About us. Retrieved on March 17, 2019, from https://www.gh.barclaysafrica.com/about-us/

Berger, A. N., & Bouwman, C. H. (2009). Bank liquidity creation. *The review of financial studies*, *22*(9), 3779-3837.

Bryman, A., & Bell, E. (2015). *Business research methods*. Oxford University Press, USA.

Çanakci, M., & Tunali, H. Islami Bankacilik Sektöründe Likidite Riski Unsurlarini Belirleyen Esaslar. *Akademik Araştırmalar ve Çalışmalar Dergisi (AKAD)*, *10*(18), 90-119.

Comptroller of the Currency (2001), Liquidity: Comptroller's Handbook, Comptroller of the Currency: Administrator of the National Banks, Washington, DC.

Creswell, J.W. (2011). Controversies in mixed methods research. *The Sage handbook of qualitative resarch*, 4, 269-284.

Crowe, K. (2009). Liquidity risk management–more important than ever. *Harland Financial Solutions*, *3*(1), 1-5.

Distinguin, I., Roulet, C., &Tarazi, A. (2013). Bank regulatory capital and liquidity: Evidence from US and European publicly traded banks. *Journal of Banking & Finance*, *37*(9), 3295-3317.

Distinguin, I., Roulet, C., &Tarazi, A. (2013). Bank regulatory capital and liquidity: Evidence from US and European publicly traded banks. *Journal of Banking & Finance*, *37*(9), 3295-3317.

Eubanks, W. W. (2010). *Status of the Basel III Capital Adequacy Accord*. DIANE Publishing.

Gatev, E. and Strahan, P.E. (2003), "Banks' advantage in hedging liquidity risk: theory and evidence from the commercial paper market", working paper, The Wharton Financial Institutions Centre, Chestnut Hill, MA.

Gatev, E., Schuermann, T., & Strahan, P. E. (2007). Managing bank liquidity risk: How deposit-loan synergies vary with market conditions. *The Review of Financial Studies*, *22*(3), 995-1020.

Goodhart, C. (2008). Liquidity risk management. *Banque de France Financial Stability Review*, *11*, 39-44.

Graphic Online (2018, August 1).Why BoG revoked licenses of 5 banks and consolidated them. Retrieved on November 1, 2018, from https://www.graphic.com.gh/business/business-news/why-bog-revoked-licenses-of-5-banks-and-consolidated-them.html

Jenkinson, N. (2008), "Strengthening regimes for controlling liquidity risk", Euro Money Conference on Liquidity and Funding Risk Management, Bank of England, London, p. 9.

Khwaja, A. I., & Mian, A. (2008). Tracing the impact of bank liquidity shocks: Evidence from an emerging market. *American Economic Review*, *98*(4), 1413-42.

Lartey, V. C., Antwi, S., & Boadi, E. K. (2013). The relationship between liquidity and profitability of listed banks in Ghana. *International Journal of Business and Social Science*, *4*(3).

Loutskina, E. (2005). Does securitization affect bank lending? Evidence from bank responses to funding shocks. *Manuscript, Caroll School of Management*.

Matz, L. & P. Neu (eds). 2007. *Liquidity Risk Measurement and Management: A Practitioner's Guide to Global Best Practices*. Singapore: John Wiley & Sons (Asia).

Matz, L. (2008). Liquidity risk: New lessons and old lessons. *Financial Managers Society Inc. White Paper*.

Nardi, P.M. (2015). Doing survey research. Routledge.

Ong, M. L. L. (2014). *A guide to IMF stress testing: methods and models*. International Monetary Fund.

Paravisini, D. (2004). Constrained banks, constrained borrowers: the effects of bank liquidity on the availability of credit. *Unpublished working paper, MIT*.

Pástor, Ľ, &Stambaugh, R. (2003). Liquidity Risk and Expected Stock Returns. *Journal of Political Economy, 111*(3), 642-685. doi:10.1086/374184

Pathak, B. V. (2011). *The Indian Financial System: Markets, Institutions and Services. Noida, India: Dorling Kindersley, 783 p*. ISBN 978-81-317-2817-8.

PricewaterhouseCoopers (2018). *Ghana Banking Survey 2018: Having secured the new capital; what next for banks?* Retrieved on November 2, 2018, from https://www.pwc.com/gh/en/assets/pdf/2018-gh-banking-survey.pdf

Pushkala, N., Mahamayi, J., & Venkatesh, K. A. (2017). Liquidity and Off-Balance Sheet Items: A Comparative Study of Public and Private Sector Banks in India. *SDMIMD Journal of Management*, *8*(1), 47-54.

Ruozi, R., & Ferrari, P. (2013). Liquidity risk management in banks: economic and regulatory issues. In *Liquidity Risk Management in Banks* (pp. 1-54). Springer, Berlin, Heidelberg.

Saunders, A. & Cornet, M.M. (2008). *Financial institutions Management, A Risk Management Approach* (6th edition), McGraw-Hill Irwin

Saunders, M., Lewis, P. & Thornhill, A. (2007), *Research Methods for business students:* Financial Times and Prentice Hall, Harlow. Simons.

Sawada, M. (2010). "Liquidity risk and bank portfolio management in a financial system without deposit insurance: Empirical evidence from prewar Japan". *International Review of Economics and Finance,* 392–406.

Shen, C. H., Chen, Y. K., Kao, L. F., & Yeh, C. Y. (2009, June). Bank liquidity risk and performance. In *17th Conference on the theories and practices of securities and financial markets, Hsi-Tze Bay, Kaohsiung, Taiwan*.

Singh, A., & Sharma, A. K. (2016). An empirical analysis of macroeconomic and bank-specific factors affecting liquidity of Indian banks. *Future Business Journal*, *2*(1), 40-53.

Standard Chartered Bank (2019). About us. Retrieved on March 17, 2019, from https://www.sc.com/gh/about-us/

Yan, M. (2013). *An assessment of UK banking liquidity regulation and supervision* (Doctoral dissertation, © Meilan Yan).

Vodova, P. (2011). Liquidity of Czech commercial banks and its determinants. *International Journal of mathematical models and methods in applied sciences*, *5*(6), 1060-1067.

Zohrabi, M. (2013). Mixed method research: Instruments, validity, reliability and reporting findings. *Theory and Practice in Language Studies*, *3*(2), 254.

APPENDIX

QUESTIONNAIRE FOR BRANCH, RISK AND OPERATIONS MANAGERS

This is an MBA thesis questionnaire to elicit data on the topic "AN EVALUATION OF LIQUIDITY RISK MANAGEMENT AMONG BANKS: A CASE STUDY OF BARCLAYS BANK GHANA AND STANDARD CHATERED BANK GHANA". Information provided is purely for academic purposes and the obtained responses will be reported anonymously.
Thank you for your time and support.

Section A: Socio-Demographic Data (tick appropriately)

1. What is your gender: Male ( ) Female ( )
2. What is your age group? 18 – 30 yrs.( ) 31-45 yrs.( ) 46-55 yrs.( ) Over 55 yrs. ( )
3. Level of Education: Diploma ( ) Degree/HND ( ) Masters ( ) PHD ( )
4. Title/ department/ section/unit/ …….....

Section B: Liquidity management practices

Kindly rank the ff. on a seven point Likert scale provided below:

	Question Statements	1 Strongly Agree	2 Agree	3 Slightly Agree	4 Neutral	5 Slightly Disagree	6 Disagree	7 Strongly Disagree
	Liquidity management practices							
1	My bank sets limits that constrain the amount of liquidity risk that it may take							
2	My bank sets limits on i) Minimum liquid asset (MLA) ii) Target holding of liquid asset iii) Limits on maturing mismatches iv) Limits on the dependence on a particular funding source							
3	Your bank has contingency plans which clearly identifies potential sources of liquidity and outlines precise policies to follow during liquidity crisis.							
4	My banks' liquidity position information is regularly disclosed to the public							
5	My bank has Board and Senior Management oversight in its liquidity risk management							
6	There is a prudential benchmark from the central bank for the disclosure of liquid ratio and the ratio of net liquid assets to deposits from customers							

7	The key responsibility areas of my bank's Asset and liability Committee (ALCO) include interest rate risk, market/investment risk, liquidity risk and credit risk							

8. What is the proportion of deposit from your bank's **corporate** clients to deposit from its **retail** customers?
   i) 70% corporate clients; 30% retail clients
   ii) 30% corporate clients; 70% retail clients
   iii) 50% corporate clients; 50% retail clients
   iv) Other (Please specify)…….
9. The percentage of the 20 largest depositors of your bank is:
   a. Less than 10% of total deposits
   b. Less than 20% of total deposits
   c. Up to 30% of total deposits
   d. More than 30% of total deposits
10. How is bank liquidity managed in your bank?
    i) Daily
    ii) Weekly
    iii) Monthly
    iv) Other, specify……
11. How will you describe your bank's concentration of term deposit instruments?
    i) There is a low concentration of fixed deposits (investment accounts) over transaction deposits (current and saving account).
    ii) There is an equal concentration of fixed deposits (investment accounts) and transaction deposits (current and saving account).
    iii) There is a high concentration of fixed deposits (investment accounts) over transaction deposits (current and saving account).
    iv) There is a high concentration of transaction deposits (current and saving account) over fixed deposits (investment accounts).
12. My bank has these pillars of risk management (Kindly tick as many as are applicable in your case).
    a. Board and Senior Management Oversight
    b. Policies, Procedures and Limits
    c. Measurement, Monitoring and MIS (including ALM Models)

13. Internal Controls and AuditAs part of its liquidity management practices, my bank undertakes the following:

Statement	**Agree**	**Not sure**	**Disagree**
Strict compliance to Primary Reserve Requirement			
Meets Capital Adequacy requirements			
Always meets customers withdrawals			
Strict compliance to Secondary Reserve Requirement			
Established strong internal controls			
Periodic reconciliation of treasury registers			
Regular cash flow forecasts			
Ensures sound investment of idle funds			
Training of staff involved in liquidity management			

Section C: Strategies for managing liquidity risk

Kindly rank the ff. on a five point Likert scale provided;1 = Strongly Agree, 2 = Agree 3 =Slightly Agree, Neutral 4 = Agree, 5 = Slightly Disagree, 6 = Disagree, 7 = Strongly Disagree

Question Statements		**1**	**2**	**3**	**4**	**5**	**6**	**7**
		Strongly Agree	**Agree**	**Slightly Agree**	**Neutral**	**Slightly Disagree**	**Disagree**	**Strongly Disagree**
	Section C: Strategies for managing liquidity risk							
14	The bank charges a penalty on depositors for withdrawal/redemption of investments that are yet to mature							
15	The bank conducts on a regular basis, stress tests for various internal and market-wide stress scenarios.							
16	The stress-testing covers the actions of market participants and counterparties, to determine the impact of their actions on the bank's liquidity risk positions							
17	The bank communicates with its large depositors to have a fair idea of their withdrawal time schedule							

18	The bank undertakes regular analyses of pattern of withdrawals for liquidity forecasts							

19. Which of the following strategies is adopted by your bank in managing liquidity risk? *Please rank with 1st choice, 2nd choice, 3rd choice, 4th choice, 5th choice, 6th choice*

i) Sell non-liquid assets, buy liquid assets
ii) Shorten maturities of assets
iii) Reduce committed lines (credit/liquidity)
iv) Lengthen short-term wholesale funding maturities
v) Reduce short-term wholesale funding, increase retail deposits
vi) Leveraging (Buying liquid assets, funded by issuing long-term wholesale debt)

20. If deposit withdrawal demands for a period exceeds liquidity reserves, the first option for my bank will be to:

i) Borrow funds from the parent company
ii) Borrow funds from the interbank market
iii) Sell securities owned in the secondary market
iv) Withdraw private placement from other banks
v) Use bank's capital to cover liquidity demanded
vi) Ask depositors to wait for extra days
vii) Borrow from the central bank

21. Which of the following sources of funds is relied upon frequently by your bank in managing liquidity mismatches?

i) Deposits (core deposits, public funds, large depositors)
ii) Drawing Credit Lines from Peer Banks
iii) Negotiable Certificate of Deposits
iv) Drawing of Funds from the Central Bank
v) International Funding Sources

Section D: Challenges in managing liquidity risk

22. The Government of Ghana started the implementation of its Treasury Single Account (TSA) in 2017. This came with the closure of government's accounts at the commercial banks. What has been the implication of this policy on your bank's liquidity?

i) It affected the bank's liquidity position for a while
ii) It continues to affect the bank's liquidity position
iii) It had no impact on the bank's liquidity position
iv) We are yet to assess its impact

23. Kindly indicate whether you agree, not sure or disagree with the following challenges banks face in liquidity risk management

Statement	**Agree**	**Not sure**	**Disagree**
The incidence of non-performing loans is a challenge for liquidity risk management			
Ghana's low saving rate especially personal savings is a challenge for bank's liquidity risk management			
Repatriation of profits by foreign corporate clients poses a challenge for liquidity risk management in the bank			

24. Is there any other peculiar challenge that your bank faces in its liquidity risk management? Kindly state.

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