

**KWAME NKRUMAH UNIVERSITY OF SCIENCE TECHNOLOGY
(SCHOOL OF BUSINESS)**

**EFFECTS OF LIQUIDITY ON THE PROFITABILITY OF BANKS
LISTED ON THE GHANA STOCK EXCHANGE**

BY

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AWARD OF**

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DECLARATION

I hereby declare that this submission is my own work towards the award of the MSc and that, to the best of my knowledge, it contains no material previously by another person or any material which has been accepted for the award of any other degree of the University, except where due acknowledgement has been made in the text.

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DEDICATION

I dedicate this work to the glory of the Almighty God, my family especially my wife Mrs. Gloria Acquah Tetteh; and children.

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ABSTRACT

Liquidity management is always proven to be one of the essential determinants of the survival of every financial institution, and its impact on profitability. This is a difficult

management function since there is no linear determinant or central bank policy on required threshold of liquidity a bank has to maintain, per its size, in order to remain sustainable in operation. This has become necessary that every bank will require its own liquidity management policy. The study examines the threshold of liquidity a bank should hold at any given time to remain sustainable in operation, and its impact on profitability using listed financial institutions on the Ghana Stock Exchange as the study context. Specifically, the objectives of the study were to investigate the effect of liquidity on performance of financial institutions and to investigate whether the threshold of bank cash has an effect on bank's profitability. Data for the study was collected from the Bank of Ghana and the published financial statements of listed banks. The study was based on a sample of 7 listed banks over a 10 year period from 2010 to 2019 with data arranged in the form of a panel. Data was analysed using descriptive statistics, correlation analysis and regression. Profitability of listed banks will be measured using Return on Asset (ROA) and Return on Equity (ROE) indicating the dependent variables. Liquidity will be measured using the following ratios; Loan to Deposit Ratio (LDR), Cash to Deposit Ratio (CDR), Cash Ratio (CHR) and Bank Size will serve as a control independent variable. Liquidity measures the ability of banks to meet short-term obligation or commitments when they fall due. The profitability of a bank is its ability to generate revenue above its costs (Lartey et al. 2013). The study recommends that for sustainable operation and profitability to be achieved, board of directors and top financial managers of banks should devise more efficient ways which can ensure that at all times there will be an equitable balance between the cash the banks hold as against the deposits they keep for their customers.

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CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

The fundamental role of universal banks includes the mobilization of deposits from excess or surplus units of the economy and the granting of loans and advances to deficit units. This is known as economic intermediation. This apart from helping the Bank of Ghana in ensuring its monetary policy, also helps improve the nation's economy through financing feasible and viable investment. This capacities by widespread banks open them to a few risk, specific among them is liquidity risk. Liquidity risk is the vulnerability that an association will experience issues in gathering its liabilities as and when they fall due (IFRS, 2005). Liquidity management is the primary function of banks of which inability to handle it with pragmatic and tactical measures becomes a major source of vulnerability. Liquidity challenges could cause banks to suffer terrible consequences such as reputation risk, government bailout, liquidity support and its implications or even insolvency. If most depositors engage in panic withdrawals, these consequences usually materialize. When large portions of short-term liabilities (customer deposits) are deposited in illiquid securities, banks face liquidity problems and this becomes a challenge when demand for the deposit is made shortly or without warning. Banks also experience liquidity challenges as a consequence of NPL, bad risk management and funds embezzlement. In section 31 of the Banking Act, 2004, Act 673, the value of liquidity in the banking sector triggered regulations on bank liquidity in which banks are allowed to retain 9% of their deposits as primary reserves with the central bank, which is used to allow interbank transactions and also acts as depositor insurance (Lartey et al., 2013). There are numerous liquidity initiatives, but the best measure to ensure that banks do not have a liquidity problem remains a matter of scholarly and political discussion (Sumaila, 2015). Analysis has also

shown that banks' liquidity control has substantial and beneficial consequences for bank profitability.

A profitable bank will, after all, be able to survive disruptions and help sustain the banking business (Athanasoglou et al., 2008). A bank's profitability is its capacity to produce income above its expenses (Lartey et al. 2013). Researchers want to examine the impact of Ghana's economic growth on banks' liquidity management and its effects on banks' profitability in view of this knowledge deficit.

1.2 Problem Statement

The main motivation for existence of company is maximizing wealth of its shareholders, and in so doing liquidity which is also a catalyst for survival could be compromised. There is an unsettled dilemma on liquidity and profitability objectives among banks. When one is compromised it can create damaging effects for the firm. Therefore, there must be the need to ascertain the thin line between these two variables. However, if management fails to realize profit, the survival of the firm will be challenged into the long term. On the other hand, if management fails to pay attention to liquidity, the firm may run into insolvency problems which could lead to bankruptcy. It therefore becomes necessary to observe that both liquidity and profitability have serious consequences on firms' growth and survival. In averting such situations, the efficiency and effectiveness of how management manipulate and control assets entrusted in their hands by shareholder and at the same time ensuring the survival and wealth maximization of the firm must be given adequate attention. Konadu (2009), Lartey et.al, (2013) in a study respectively concluded that banks liquidity relates negatively with profitability and also weak positive relations exist among liquidity and profitability within the banking sector of Ghana. Admittedly, there exist unsettled conclusions and inadequate literature reviews on the link or association among banks liquidity and profitability in both local and international context. Based on these reports,

this analysis would attempt to intentionally consider the relationship between listed banks in Ghana with alternative ratio metrics regarding liquidity and profitability.

1.3 Objectives of the Study

The study's key objective is to investigate the impact of liquidity on the profitability of Ghana's listed banks. The research aims to fulfill the following basic goals:

- i. To examining the liquidity pattern of banks and the profitability of listed banks in Ghana.
- ii. To examine the effects of liquidity on the profitability of Ghana's listed banks as calculated by the Return on Assets (ROA).
- iii. To investigate the impact of liquidity, as calculated by the return on equity, on the profitability of listed banks in Ghana (ROE).

1.4 Research Questions

- i. What are the liquidity patterns for banks and the profitability of listed banks in Ghana?
- ii. As determined by Return on Asset (ROA), what is the impact of liquidity on the profitability of listed banks in Ghana?
- iii. As determined by Return on Equity (ROE), what is the impact of liquidity on the profitability of listed banks in Ghana?

1.5 Significance of the Study

Academics, government/policy makers and other stakeholders such as investors would benefit greatly from the study.

Research: This research goes beyond current studies on the development of liquidity by delineating the particular effect of the transformation of liquidity on the solvency and stability of Ghanaian banks. The findings of the study would make a significant contribution to the liquidity risk literature among the listed banks in Ghana. This is a

significant addition to literature as it may be an outlet for potential scholars to deal with the same in other financial fields and outside the national level.

Practice: This analysis may be listened to by policy makers and managers in the banking fraternity as they focus on issues of striking a balance between what bank deposits are used for and satisfying customers' withdrawal needs on the one hand, and bank protection and soundness on the other.

Central bank: Central bank regulates liquidity position of banks using the cash reserve ratio. This study could provide an input into the central bank's decisions on the adjustment of the cash ratio of banks, given the impact of this on banks' liquidity and stability. The central bank may also benefit from the results of the study in the development of guidance that will improve the banks' profitability by successful banking sector liquidity management while protecting the public of Ghana.

1.6 Methodology

The model for the study will be that of a multiple regression and ordinary least square will be the method of estimation. Return on Asset (ROA) and Return on Equity (ROE) are used to calculate the profitability of listed banks, showing the dependent variables. The following ratios will be used to calculate liquidity; the loan to deposit ratio (LDR), cash to deposit ratio (CDR), cash ratio (CHR) and bank size will act as an independent control variable.

1.7 Organisation of the Study

The study will be broken into five chapters. The history of the analysis, problem statement, research goals, hypothesis and organization of the study are discussed in chapter one, which is the introductory chapter. The second chapter comprises review of both the theoretical and empirical literatures on the topic. The theoretical literature deals with the theories that relates to exchange rate. The empirical literature presents the empirical findings of other

authors work on the topic. Chapter three shows how the study is going to be executed. It discusses the detailed research methodology for the study. Chapter four deals with the research findings and analyses the outcome. The final chapter summarizes the work, draws appropriate conclusions and recommendations.

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CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter is structured into four sections. The first part deals with the conceptual review and involves definitions and explanations of liquidity, liquidity management, bank profitability and economic growth concepts. The second part, which is the contextual review explains banking reforms, regulations and its impact on economic growth in Ghana. The third part details the theories of liquidity and profitability in banking. The final part reviews empirical works in Ghana and other countries on the effects of liquidity on the profitability of listed banks.

2.2 Conceptual Review

Ghana's banking industry largely outshines all the other sectors of the financial set up of the entire economy (Appiah et al., 2016). Liquidity and profitability of a firm persist deliberated and studied, though conclusions on what type of connection among these two key indicators of financial soundness and survival of financial institutions remain inconclusive and unsettled. However, tendencies for entities survival within the next twelve months depends on ease of meeting short term commitments at maturity while the business long term survival and growth is essentially influenced by the ability to generate enough profit (Niresh, 2012)

2.2.1 Bank Liquidity Concept

Liquidity be described in three perspectives; generic perspective to mean the degree by which individuals or organizations available cash can fund unexpected and interim commitments, otherwise hold funds easily convertible into cash for settling day to day obligation on short term basis. From accounting perspective, liquidity represents means through which liquid assets shields liabilities due within a single accounting year of an organization. By extension in respect of investments, it is the ease of rapidly converting

investment portfolio into cash with the absence of loss or insignificant loss in value (WebFinance.Inc.). Liquidity is also considered to be the gravity and velocity of converting non-cash assets to cash. Resources with high potential of being transformed to cash without significant loss in value when necessary are largely considered highly liquid. For example cash, reserves with central bank and debts due from government in relation to risk free investments. However, banks should make a cautious effort to possess enough current assets easily convertible to cash as a mitigating element against short term debt maturities and operation activities, especially depositors' withdrawals as they can knock at their doors unawares (Okoro and Nwakoby, 2016).

Nonetheless, Abbas et al., (2006) advances liquidity as having available and sufficient funds to settle clients' withdrawals and further debts as they mature. Solvency was also perceived as having enough assets as compared with liabilities. Admittedly, it is necessary to uphold liquidity as a significant requirement for banks to remain solvent and sustain depositors' confidence in the banking sector. Also Mucheru et al., (2017) emphasised that banks liquidity and financial risk exposure is very high and therefor effective liquidity management demands active sector regulation. Zaineldeen (2018) shares the same view regarding the deployment of a framework for managing liquidity that could statistically be used to assess banks and also assist banks to strike a balance during resources and fund utilization. However,

Banks must demonstrate commitment towards ensuring optimum resource utilization, to boost profitability and also adopt a mechanism of liquidity management to ensure sufficient liquidity as an incentive of efficiency in executing their operational activities. This could limit banks vulnerability to sudden unforeseen circumstances including loss of corporate image and public trust.

Liquidity problems may cast adverse effect on a given financial institutions ability to achieve profits and also puts their capital base at risk. Particularly, inability to fund short term obligation presents challenges which may provide fundamental basis for banks bankruptcy. Understandably, financial institutions experiencing liquidity problems might encounter difficulties in satisfying depositors' withdrawals. Conversely, maintaining an optimal buffer of cash, increasing deposits and reducing or limiting bad loans could mitigate against liquidity risk. Moreover, optimal reserve ratio could minimize the reliance on the stock market and also reduces over the night borrowing cost.

Consequently, financial conglomerates must view the burden of cash needs and withdrawal shortages in varied angles to augment investments portfolios, as well as offer competitive superiority in the market. Liquidity red flags needs prompt identification, appropriate and tactful effort of management actions and responses (Ahmed and Ahmed, 2012). Hence, institutions cash demand side and supply side management is of great prominence to avert unwarranted surplus and shortages which could adversely impede operations, stakeholders' relationship and financial soundness. Liquidity wrangles within the financial sector is as a results of funds management failure or adverse economic factors that reduces depositors perceptions of country's financial institutions which finally erodes liquidity due to panic withdrawals (Rifki, 2010). Though, Appiah *et al.*, (2016) noticed that delivering of credit to corporate and micro businesses largely exposes banks to credit risk and ultimately prompt banks to make enough provisions for such loses. Financial institutions capital bases also impacts on their liquidity creation (Chaabouni et al., 2018). It is of great essence to note that with the Islamic banking industry which differs from commercial banking, liquidity plays major role in determining profitability (Wasiuzzaman and Tarmizi, 2010) cited in (Imran et al., 2017).

2.2.2 Concept of Banks Profitability

Every single profit oriented company requires profit for growth and survival. Consequently, with inspirations from 1 Corinthians 13 verse 4 to 8 , of the Bible, Cowton (2017) purposefully coined profit in a poetic manner; *“Profit is patient, profit is kind and not jealous; profit does not brag and is not arrogant, it does not act unfairly; it does not seek its own, it is not provoked, it does not take account of a wrong suffered, it does not rejoice in unrighteousness, but it rejoices with the truth; it bears all things, believes all things, hopes all things, endures all things. Profit is never failing”*. Hence in business profit may arguably be a substitute for love and therefore, banks must balance “love” to remain profitable with the “love” of stakeholders, especially depositor who are negatively affected in the advent of illiquidity. Owolabi and Obida (2012) stated that the ability of firms, organizations or companies to generate gains through their ordinary business undertakings is termed as profitability of a firm. Profitability measures efficiency in resource utilization and value addition to the firm. Relatively, profitability is measured in terms of profit and measures management ability to generate income on assets. Profitability may crop with challenges such as cosmetic financial transactions and method of accounting policies used to arrive at profit figures (Opoku, 2015) Menicucci and Paolucci (2016) suggest that firms’ profitability refers to its ability to maintain higher revenue over cost of generating the revenue continually and alternatively, one of the most relevant indicators of management success, and an influential guide for investors. Banks profitability is assured when income generated from operations or business dealings surpasses the cost inputs assuming constant capital base. The ability of banks to remain solid and sound against external shocks and pressures grants the ease to render services to larger portions or sectors of an economy (Athanasoglou et al.,2005) cited in (Alshatti, 2014). Maria and Maria (2018) also made same annotation with further assertion on how low profitability could weaken financial

inclusion and innovations. Financial performance is significantly influenced by liquidity management (Awo and Akotey, 2019). Banks that exhibit higher profitability have the tendency of producing inferior liquidity levels and this is possibly because such banks adopt high risk strategies as profitability booster which adversely increase vulnerability to funding liquidity risk (Bonfin and Kim, 2012). Return on assets (ROA) and return on equity (ROE) ratios are the two key suited profitability measurements (Maria and Maria, 2018). Notwithstanding the high credit risk exposure associated banking in Ghana, they are rewarded with high profitability which contradicts with previous assertion of an adverse relationship on profitability due to credit risk exposure indicators (Boahene et al., 2012). According to Kuranchie-pong, et al., (2016) profitable banks are less risky whereas less profitable banks in Ghana remains more risky. Erna et al., (2017) validated the need for investors to note the strength and ability of entities to cater for economic shocks as grounds for deciding on particular financial institution for capital investment and further considered return on assets (ROA), return on equity (ROE) and banks risk management framework for predicting stock price changes.

2.2.2.1 Financial System Stability

Banking stability can be attributable to fluctuations in economic indicators and conditions but varies among nations (Goodhart and Segoviano, 2009). Stability in the banking sector and real output growth are positive, but there is a connection between stability and inflation (Jokipii and Monnin, 2013). Several bank specific factors have been identified to affect profitability of banks. Banks size, cost management, and liquidity, and profitability before, during and after the economic downturn shows that bank specific factors have a link with performance. The relationship between other banks, however, also affects profitability by specific factors such as capital strength, credit risk and market power, macroeconomic determinants including gross domestic products and inflation (Adelopo et al., 2018).

According to Boateng et al., (2015) macroeconomic factors including GDP, inflation, GDP per capita and unemployment rates have influence on performance of banks.

Unemployment level of a country partly explains why banks fail to achieve performance targets and growing unemployment exposes overall downgrade demand for loans for productive use and increases the probability of loan default rates. High unemployment rate disturbs banks stability (Heffernan and Fu, 2008). Instability within the banking sector arguably is as a result of insufficient policy regulations or ineffectual supervision even though these two factors cannot be handled separately (Barth et al., 2013).

According to Financial Crisis Commission of United State of America (2011) weak regulatory framework promotes incomplete regulations while ineffective supervision involves the application of weak supervisory tools. Empirical evidence for the need for stringent banking supervision is reasonably broad (Adelopo et al., 2018). Delis and Staikouras (2011) demonstrated that effective supervision of financial institutions have the ability to minimize risk taking and at the same time improve timely supervisory intervention in the event of instability within the banking system. Bhattacharya et al., (2002) shares the same view.

Governance quality also influences regulations and supervision of banks (Beltratti and Stulz, 2012). Comprehensive regulation and supervision limits risk associated with banking and this is dependent on institutional quality of a country whereas liquidity regulations serve as a protective guide as a result of high level of institutional quality. Banking stability was improved due to higher capital reserves after the economic melt - down while strengthening supervisory independence helped to stabilize credit demand and improved stability of banks, though countries with low institutional quality suffered adversely (Fratzscher *et al.*, 2016). Regulatory authorities of banks should consider the structure and quality of financial institutions to promote overall financial stability in Africa.

In Africa, banks are exposed to higher operating expenses as a result of challenges associated with information asymmetry, market confidence and this is likely to dominate in the course of financial crisis. Sizable banks have the ability to retain abnormal profit in less competitive market and uncertainty periods, which encourages such banks to instigate relatively higher interest and take advantage of lower cost of borrowing (Allen *et al.*, 2011). Banks derive strength based on level of capital adequacy and regularity of satisfying depositors cash demands which send signals on soundness and security for depositors in the advent of uncertainty due to economic crisis (Ghosh, 2018). Consequently, banks that are adequately capitalized are well able to raise capital at less cost (Athanasoglou *et al.*, 2008).

2.3 Contextual Review

2.3.1 General Overview of the Banking Industry

The banking industry of Ghana has undergone and is still undergoing significant changes since 1953 when the Bank of the Gold Coast (now the GCB Bank and the Bank of Ghana) was established. Some of the changes witnessed include the enactment of the Banking law of 1989 (PNDCL 225) later repealed by S.91 of the Banking Act 2004 (Act 673), the adoption of Policy Rate in 2002 in place of the BoG Prime Rate. The setting of the banks' minimum operational capital at GH¢ 7 million upon the issuing of Universal Banking License to banks in 2003, the phasing out of the 15% banks' secondary reserve requirement in 2006, BoG's licensing of three (3) new Deposit Money Banks (DMBs) and two (2) new rural banks in 2006, the cedi redenomination in 2007 that pegged ₵10,000 to GH¢1, the adoption of the E-zwich card (a biometric smart card) in 2008 for electronic payments, BoG's implementation of the GH¢ 60 million as minimum capital requirement of banks in 2009 and the fixing of a capital base of GH.120 million for new entrants in the banking industry in 2013. However domestic banks had up to December 2012 to meet this GH. 60

million requirement. As of December 2015, there were 29 DMBs, 62 Non-Bank Financial Institutions (NBFIs), 139 Rural and Community Banks (RCBs) and 546 Microfinance Institutions (MFIs) as well as three (3) credit reference bureaux (XDS Data Ghana, Hudson Price Data Solutions, and Dan & Bradstreet) operating in Ghana. The DMBs comprises 12 Ghanaian and 17 foreign-controlled banks.

The reforms of the banking sector continued in 2017, when the BoG launched a comprehensive reform agenda to clean up the banking sector and strengthen the regulatory and supervisory framework for a more resilient banking sector. The new minimum capital directive issued on 11 September 2017 is perhaps one of the most important components of the reform of the banking sector. By the end of 2018, the Directive required universal banks operating in Ghana to increase their stated minimum capital to GHS400 million. After the compliance deadline, the changes in the banking sector have largely gone in the expected direction, declining the number of banks, although the impact may not have been as important as first thought. The total number of banks in Ghana officially acting as universal banks is twenty-three (23).

Essentially, the quantity of banks has contracted by eleven (11), speaking to a 32% decay from the 34 banks that worked as widespread banks preceding the becoming effective of the new least capital order. Out of the eleven (11) banks that left the market following the issuance of the new least capital order, three were surveyed as indebted by BoG and had their licenses disavowed even before the cut-off time for consistence. These are: UniBank Ghana Limited (UGL), The Beige Bank (TBB) and The Royal Bank Limited (TRB). Sovereign Bank Limited (SBL) and the Construction Bank Limited (TCB) had their banking licenses denied for acquiring them by affectations using dubious and non-existent capital, as indicated by the Bank of Ghana. The leftover six have needed to either leave the market or converge with different banks for different reasons, including those identified

with the new least capital prerequisite: Heritage Bank Limited (HBL) and Premium Bank Ghana Limited (PBG) had their licenses disavowed. The reasons gave by BoG to the denial of their licenses were bankruptcy on account of Premium bank and flawed wellspring of capital for Heritage bank.

Bank of Baroda (BoB) "shut shop" and left the market on their own volition likewise for reasons identified with the new least capital prerequisite. Marsh endorsed three consolidations including six banks, successfully accounting for three additional ways out. The affirmed consolidations are: 1. First National Bank and GHL Bank Limited, 2. Energy Bank and First Atlantic Bank and 3. Sahel - Sahara Bank and Omni Bank. Ensuing to the new least capital mandate, BoG and the Government have attempted some correlative activities pointed toward merging the normal increases from the bank recapitalisation exercise and supporting a more extensive monetary area tidy up and change. While a portion of these were shrouded in our GBS 2018, we have noticed some extra ones that were started after the distribution of our GBS 2018 report.

2.3.2 Regulatory Reforms

To provide guidelines for banks and to ensure they operate within the legal framework, the Banking Law 1989 (PNDCL 225) was passed. In 2002, the BoG embarked on a new banking act to establish statutory instruments to replace the existing Banking Act 1989 (PNDCL 225) to improve the regulatory framework of the Ghanaian banking system in order to deal with changes in the global banking market. Following the promulgation of the Banking Act 2004 (Act 673), the Banking Law 1989 (PNDCL 225) was repealed. Banking regulation in Ghana was further enhanced when in 2007 three important Acts were enacted. That include the 2007 Banking Act (Amendment) (Act 738), the 2007 Credit Reporting Act (Act 726), and the 2007 Anti-Money Laundering Act (Act 749). Three forms of banking licenses were introduced by the Banking (Amendment) Act 2007 (Act 738): the

General Banking License and Class I and Class II Banking Licenses. The authorization for general banking was for universal and off-shore banking to be regulated. That is, both Class I and Class II banking enterprises in Ghana have been permitted to do so. On 28 August 2007, Barclays Bank of Ghana Limited granted the first license for general banking, launching the first offshore banking in Ghana that year.

With a Class I Banking license, currently referred to as Universal Banking license, a bank undertakes only domestic banking business. On the other hand, a Class II banking license requires a bank to participate in banking or investment banking operations with non-residents and other banks authorised under the same Class II banking license in currencies other than local currencies (the cedi). With the introduction of a Class II banking licence, international banks will now set up branches in Ghana to conduct Class II banking business operations. The enactment of the Credit Reporting Act 2007 (Act 726) brought about the setting up of credit reference bureaux in Ghana. XDS Data Limited, the first credit reference bureau, was issued a provisional license in 2008. XDS Data Limited are to provide reliable statistics on prospective borrowers and reduce the asymmetry in lending-related information that has led to the rising number of non-performing loans.

The Anti-Money Laundering Act 2007 (Act 749) was also passed to allow for the criminalization of money laundering and the setting up of a Financial Intelligence Centre. The FI Centre aims to identify and track activities linked to money laundering and provides the investigating authorities with the appropriate details. The Borrowers and Lenders Act, Act 773, was enacted by the Ghanaian Parliament in 2008 to establish the regulatory basis for lending, strengthen disclosure, and restrict some credit market activities. This further reinforced the lending practices of banks and reduced the knowledge asymmetry that historically distinguished bank lending.

2.4 Theoretical Review

2.4.1 Bank Liquidity Management theories

The prime objective of a universal bank is to retain strength for creating liquidity and simultaneously demonstrating financial soundness and maximize shareholders wealth. Nonetheless, there are numerous dimensions through which banks conscientiously mitigate liquidity risk. Similarly, contending ideas of liquidity management exist. The theories of liquidity management consist of where the company operates specifically, how liquidity is measured and tracked, and the steps that banks should consider to prevent or combat liquidity challenges.

2.4.1.1 Keynesian Theory of Money (1936): The theory propounded that liquidity is essential because both firms and individuals would need to satisfy three basic objectives; speculative intent, motive for precautions and motive for purchases. The motivation for speculation is a willingness to keep money capitalize on bargain purchases and capitalize on favourable fluctuations in exchange rates in international transactions. Universal bank investments in short term marketable securities offer a means attaining speculative objectives. Additionally, the core mandate of universal banking business provides the flexibility of borrowing so as to satisfy firms' speculative motives. Precautionary motives burden universal banks to take precaution in the process of intermediation and survival. This encourage firms create adequate buffer of liquid reserves as a safety net against unanticipated shocks in the future. Idle liquid asset generate less or no returns for universal banks and therefore it is normally not justifiable to keep liquid reserves in cash for precautionary objectives, rather it is prudent to invest in relatively lower or risk free securities (treasury bills). However, loans and advances form a sizable portion of banks assets and also income in ordinary banking business. The need to hold cash to satisfy day to day attributable operational costs, loans demands and deposit withdrawals by depositors will be accomplished through holding cash for transaction purposes to install depositors'

confidence and trust. Accordingly, the core duty of banks requires sound and adequate liquidity without compromising on the profit generating ability because illiquidity challenges banks' ability in fulfilling these three objectives.

2.4.1.2 Liquidity Trade – Off Theory

Banks derive benefit from maintaining an optimal liquidity levels. However the cost of holding liquid funds cannot be over-ruled when determining optimal cash levels of firms. Listed banks will capitalize on the ability to generate fund from the capital market and benefit from low transactions cost at the same time not liquidating assets or investments to honour short term obligations. In extreme situation, banks will rely on liquid resources to augment normal business and investment opportunities in situations of limited sources or exorbitant means of funding. Consequently, banks suffer adversely from two dimensions from holding liquid assets, thus low return on assets (ROA) attributable to liquidity premium and perhaps of tax disadvantage (Otieno, 2016). Trade – off liquidity is relevant to the study because the essence of bank liquidity management practice is to reduce cost and maximize shareholders wealth. Base on the theory, banks are in a position to understand the best practice in maintaining an optimal level of liquidity because banks core activity is about liquidity rationing through intermediation in an economy

2.4.1.3 Anticipated Theory

Financial institutions should categorically recognize loan portfolio which form a major portion of asset as source of liquidity. Banks loan portfolio has a mixture of maturity levels and the need to classify short term loan from long term loans remains unresolved. According to the theory, banks are motivated to classify loans with long term maturities to be a probable avenue for liquidity. Nevertheless their maturity is not short term in nature. Assumptions are that, borrowers will gradually settle such loans on instalments basis and affords banks the constant flow of funds that enhance liquidity position. Equally, when

banks are confronted with liquidity crisis, the loans can be traded in the secondary market to raise the required cash for continues operation. We hold the assumption of this theory to encourage banks not to only anticipate loans portfolio as a source of liquidity but to work to avoid granting problem loans through sufficient and adequate credit risk management practices that will impact overall profitability.

2.4.1.5 Loan Theory

The loan theory is a product of Adam Smith through renowned work titled “The Wealth of Nation”, in the eighteenth century (Smith, 1776). Fundamentally, the theory considers assets management with premium on liquidity. The theory holds that earning assets of banks should be restricted to” real” bills of exchange, short - term and self - liquidating loans or advances for motives. This theory preserves banks liquidity would be guaranteed once assets are committed to short - term loans which warrant liquidation in the normal course of business. Smith’s theory implies that by financing such types of loans would enable banks to have the most easily convertible assets and would therefore be able to finance their due debt obligations. However, the loan theory is embedded with limitations. The theory does not consider other type of credit needs such as loans to finance for the acquisition of long term assets like residential property. Again the theory is heavily cautious on the view of deposit withdrawals. It is also worth noting that the theory holds assumption that all depositors would withdraw their funds at the same time and this is normally not always the case. In time of economic recession or depression, borrower may find difficulty in servicing their loans and thus casting doubts on self-liquidating concept. There is also the tendency for short term loans to result in long term loans as borrowers may need extended duration to repay their debts. It is helpful and necessary for bankers to evaluate borrowers, regardless of the vulnerability demonstrated by this principle, since short-term

and self-liquidating loans are favoured because they are a sure source of liquidity for banks (Holmstron & Tirole, 2013).

2.4.2 Analytical Profitability Literature for the Bank

Bank profitability determinants are split into two: internal and external variables. Variables such as money, liquidity and costs form the internal considerations of profitability. The management of a bank finds these internal factors to be controllable. External variables are those that are deemed beyond the influence of a bank's management, such as concentration, inflation and growth of the gross domestic product. Banks typically aim to optimize profitability by hiring capital and monitoring internal determinants. These financial institutions often aim to take advantage of external conditions outside their influence at the same time.

In examining the patterns in bank productivity, it is fitting to recall precisely why banks expand benefits. Bank's investors are normally petitioners for its benefits and it is subsequently to their greatest advantage to augment these benefits. They expand their degree of profitability by boosting the income and by limiting expenses. Bank the executives can choose the blend of sources of info and yields, by which benefits are expanded, where they have various inclinations, forego high-risk, exceptional yield openings and upgrade towards most extreme benefit (Jacob and Jaap, 2008).

This segment talks about the monetary speculations concerning bank benefit. The examination of bank productivity determinants has been directed in various speculations. As per Haron (1997) and Haron and Azmi (2004) a larger part of studies identified with bank productivity determinants have zeroed in on the accompanying hypotheses:

2.4.2.1 Market-Power theories

The theories of market power consist of the traditional model of industrial organization that is embedded in the theory of structure-conduct-performance.

Bain had first proposed the Structure-Conduct-Performance (SCP) (1951). The SCP approach argues that the performance of an industry depends on its companies' behaviour, which then depends on the structure. Markets with a high level of concentration induce a company to act (behave) in a collusive manner, thus improving the company's performance (Goddard et al., 2004). The profits of companies are determined by the level of concentration in the market. The SCP theory therefore clarifies that the performance (profitability) of companies is determined by the market structure (concentration level of the market) through the conduct link. In short, the SCP theory postulates that the structure of the market is determined by exogenous basic conditions and that there is a one-way causation flow from the market structure through behaviour to performance.

The conventional SCP hypothesis has been tested by the Relative Market Power (RMP). The discussion about the significance of the piece of the overall industry as opposed to the fixation as a standard of the market power basically began with Shepherd (1972) driving Rhoades (1997) to beget the adage "relative market power"(Nissan, 2003). RMP proposes that banks with huge pieces of the overall industry and all around separated items are more productive and can procure high benefits. As such, the banks with (generally) huge piece of the pie profit by this effort of market force, and free of market focus.

2.4.2.2 Efficient-Structure theory

The theory of efficient structure (ES) emerges from the criticism by Demsetz (1973) and Peltzman of the SCP theory (1977). The ES postulates that the relationship between any bank's market structure and performance is defined by the bank's efficiency. Banks with superior management or production technologies have lower costs and thus higher earnings.

The possibility of the effectiveness hypothesis depends on the way that the more productive banks bring about lower costs, which may lead straightforwardly to higher benefit. The

proficient structure hypothesis has been proposed in two theories, the productive structure-X-effectiveness (ESX) and proficient structure-scale-productivity (ESS) speculations. In the ESX theory, it expresses that banks with more effectiveness (better administration, advances and practices control costs) have lower costs, higher benefits and bigger piece of the overall industry. The ESS theory expresses that the distinction in productivity between banks isn't brought about by contrasts in the nature of the board, however by contrasts in the degree of scale effectiveness at which a bank is working. All in all, the ESS theory expresses that a few banks accomplish better size of activity that prompts lower costs. Lower costs lead to higher benefit and quicker development for the scale-proficient banks.

2.4.2.3 Expense-Preference theory

The Expense-Preference conduct hypothesis is tried in the presentation of banks, see for instance: Haron (1997) and Al Manaseer (2007). It was first presented by Becker (1957) and further created by Williamson (1963). The Expense-Preference hypothesis gives an elective view with respect to administrative conduct. It suggests that the principle objective which directors seek after isn't to augment benefit yet to claim the utility or utility of the firm (bank), which is generally accomplished through expanding pay rates. Administration may expand "staff uses, administrative remittances and optional benefits" as opposed to zero in carefully on augmenting benefits Williamson (1963). On the off chance that the administration favours a more noteworthy number of staff or more areas, this is ordinarily reflected in the present moment in higher effectiveness proportions. Such choices may add to productivity over the long haul.

2.4.2.4 Economies of scale theory

Among the earliest researchers to correlate bank size with profitability were Emery (1971) and Vernon (1971) (Haron and Azmi, 2004). The economies of scale suggest that a larger bank will benefit from economies of scale and deliver services at lower costs per product.

Since big banks are expected to benefit economies of scale, they can produce their outputs or services cheaper and more effectively than small banks can. As a consequence, major banks can make a better profit than tiny banks. Therefore, it is predicted that branch size is positively correlated to bank profitability.

In empirical studies such as Haron (2004) and Al Manaseer (2007) on bank profitability, the Structure-Conduct-Performance, Relative Market Strength, Efficient-Structure and Expense-Preference Behaviour are theories commonly used. Many experiments have been conducted on the basis of the structure of these hypotheses, but many scholars do not limit themselves to using only internal and systemic variables as the potential explanatory variables of bank profitability. In academic analysis, macroeconomic indicators that include annual inflation, gross domestic product growth and per capita GDP are commonly used to describe the profitability of banks.

2.5 Empirical Review

Lyroutdi et al., (1999) conducted a study to establish liquidity connection with profitability among entities on London Stock Exchange market over four year span. The study showed that liquidity calculated by current ratio, rapid ratio and cash duration found a negative profitability relationship between listed firms in London, which was measured in terms of their asset return ratio, equity return and net profit ratio, and thus indicates that such a relationship between the chosen liquidity ratios remains positive. Niresh (2012) conducted a descriptive analysis in Sri Lanka to explore the correlation between liquidity and profitability of companies in the manufacturing industry between 2007 and 2011. Listed manufacturing companies involved were Thirty One (31) in number out of the overall number of Thirty Nine (39). Secondary information was gathered from the 31 corporations' financial accounts that paved the way for Pearson correlations and descriptive research. The return on capital invested was used to calculate the viability of the businesses, whilst

the rapid ratio, current ratio and liquid ratio were used to measure liquidity and found that there is a connection between the liquidity and profitability ratios chosen, but that negative ratios remain. The partnership or trade-off between liquidity and profitability of companies in Sri Lanka's manufacturing industry, however, remains negligible and further stresses how seasonal demands, the scale of the business, production cycles and changes due to technical impacts on companies' ability to generate profits.

As Marozva (2015) obviously calls attention to, there have been a few examinations led and still on-going discussions to research the connection between bank liquidity and bank benefit. He set that the discoveries of these investigations brought about differing ends; though a few analysts presume that there is a negative connection between these factors, different journalists finish up something else. Shockingly, Marozva (2015) focuses to different investigations that noticed equal connection between these factors. The following are a few discoveries by various scientists that are uphold a positive connection between bank liquidity and execution (benefit). An investigation by Bordeleau and Graham (2010) of Canadian and USA banks for the period 1997 to 2009, as referred to in Tamunosiki (2017) tried to decide the heading of banks holding fluid assets utilizing econometric examination. Their outcome reasoned that despite the fact that banks holding fluid assets have positive effect on benefit, nonetheless, expanded productivity was reliant on the quantum of fluid resource and throughout a specific timeframe. The outcome recommends that, banks' benefit could be expanded by holding a specific measure of fluid assets throughout a predetermined time. In any case, the exploration additionally recommended that holding such assets take a break decreases the banks' benefit. Further exact proof additionally recommends that the connection between the couples is reliant on the bank's structure and the economy when all is said in done. In a work by Andrew and Osuji (2013) to inspect the productivity of liquidity the board and bank benefit utilizing a study plan,

their discoveries likewise showed a positive connection between viable liquidity the executives and bank benefit. Once more, their discoveries additionally uncovered proficient liquidity the executives is extremely basic to guaranteeing the security of banks.

Additionally, an investigation by Abubakar (2015), whose work analyzed the conventional proportions of bank liquidity like money hold necessity and liquidity proportions, nature of liquidity the board and monetary proportion examination. His discoveries inferred that the quantum of a bank's fluid assets combined with appropriate administration measures had a positive relationship to the bank's presentation. Notwithstanding, this finding somewhat is disproved by Anthony et al., (2016). The premise of their contention was the way that his examination just centred around the banking area henceforth was not a decent measuring stick for speculation.

Kosmidou (2008) discoveries are in concurrence with Bourke's discoveries of positive connection between liquidity risk and bank benefit. Olangunji et al. (2012) in their investigation found that there is a huge positive connection between bank liquidity and its exhibition. In their examination, they contended that there is a two-way relationship, particularly for banks, where banks' quickening execution and productivity is altogether affected by significant levels of liquidity and the other way around. Then again, there are other examination discoveries that highlight a negative connection between bank liquidity and execution. Their contention depends on the reason that banks hold fluid assets just as an obligatory prerequisite instead of the conviction that it yields positive outcomes to the banks' fortune: Molyneux and Thornton (1992).

Marozva (2015) contends that the creators may have missed the contention with regards to why banks hold fluid assets. He recognized that, the purpose behind banks keeping up generous liquidity cut across much usefulness of the banks' activities. An examination by Raheman and Nasr (2007) uncovered an opposite connection between bank liquidity and

bank productivity. Once more, their received networking benefit as the reliant variable and stock turnovers, normal assortment and installment periods, money transformation cycle, monetary resource, size of firm, current proportion and monetary resource for all out resource proportion as the autonomous factors, they came out with an exceptionally negative connection between obligations utilized by the organizations and its productivity. As expressed before, different scientists finish up both positive and negative relationship for bank liquidity and execution.

On the opposition to this, a few discoveries likewise finish up equal relationship. For example Shen et al., (2010) place that liquidity risk is emphatically identified with revenue edges in market based monetary framework. This suggests that banks with lower level of illiquid resource are confronted with lower revenue pay and the other way around. As opposed to the abovementioned, their prior discoveries comparable to intrigue edge reasoned that dissimilar to the previous position, liquidity risk is adversely identified with ROA and contrarily identified with ROE. In this unique circumstance, they placed that banks with higher illiquid resource cause higher financing cost as additional assets to connect the subsidizing hole should be recovered from the market.

Additionally, Naceur and Kandil (2009) inferred that banks' resource or value are not controlled by the banks' fluid assets dependent on their investigation of cost of intermediation in the post capital guideline systems. Abdullah and Johan (2014) analyzed the effect of liquidity on bank in Bangladesh. The investigation examined five bank utilizing board information over a long term period where return on assets and profit for value were utilized to gauge bank benefit and credit store proportion, store resource proportion and money store proportion. The aftereffects of the investigation indicated that there is no critical connection among liquidity and benefit of recorded banks in Bangladesh.

Ibe (2013) inspected the effect of liquidity the executives on productivity of banks in Nigeria. The examination haphazardly chose three banks to speak to the Nigerian banking industry utilizing intermediaries, for example, money and momentary asset, bank adjusts and depository bills and testaments, while benefit after expense was the intermediary for productivity. The aftereffect of this examination has demonstrated that liquidity the executives is in fact a significant issue in the Nigerian banking industry. The investigation in this manner suggests that banks ought to draw in equipped and qualified staff to guarantee that correct choices are embraced particularly with the ideal degree of liquidity and still augment benefit.

Khan and Ali (2016) inspected the effect of liquidity of productivity of banks in Pakistan. The examination utilized auxiliary information separated from the fiscal summary of some chose banks over a long term period from 2008 to 2014. Utilizing connection and relapse examination, the consequences of the investigation uncovered that a positive and critical connection among liquidity and benefit of banks. The investigation anyway advised that the little example size implied that the outcomes can't be summed up for the whole banking area in Pakistan.

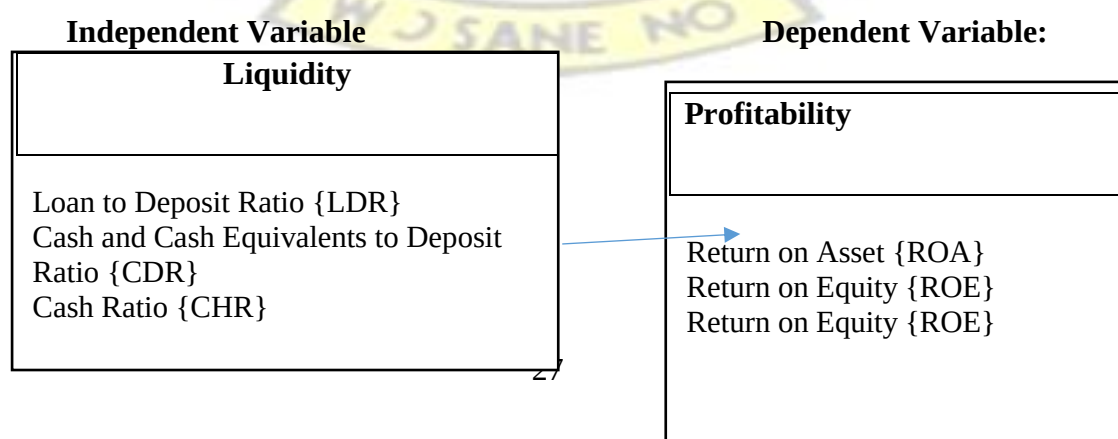
In the Ghanaian setting, Lartey et al. (2013) analyzed the impact of liquidity on the productivity of recorded banks in Ghana. The investigation tested the whole seven recorded bank on the Ghana Stock Exchange at the time over a long term period from 2005 to 2010. The investigation uncovered that the liquidity and benefit position of recorded banks in Ghana declined over the examination time frame. The relapse and connection investigation uncovered that there was a feeble positive and genuinely irrelevant connection among liquidity and productivity of recorded banks in Ghana. Warrad et al. (2016) inspected the effect of liquidity on benefit of banks in Jordan. The investigation inspected 15 banks in Jordan over a long term period from 2005 to 2011. The aftereffects of the investigation

demonstrated that a critical effect of liquidity on benefit of recorded banks in Jordan. The examination anyway utilized snappy proportion as a methods for bank liquidity as opposed to the bank liquidity estimates utilized in writing.

The analysis reveals that there is no research that discusses the influence of liquidity on banks' profitability. The few studies used liquidity as one of the variables that impact banks' profitability. The only research that seems to have studied banks' liquidity and profitability in Ghana is the work of Lartey et al (2013). A sample size of 7 was used in the analysis and the focus was on listed banks in Ghana. There are some contradictory findings in the study of hypotheses describing bank liquidity and how it influences bank profitability as well as the analytical review.

2.6 Conceptual Framework

According to Elmendorf *et al.*, (2000) a Conceptual Framework talks about pictorial representation of identified variables once aggregated, elucidates issues of concern. For the study to achieve the stated objectives, quantitative data amassed from the sampled banks will be examined. As an independent variable, the analysis will delegate liquidity and calculate loan to deposit (LDR), currency and cash equivalents to deposit (CDR) and cash ratio, while bank size (BSZ) will be used as a control variable. The Return on Assets (ROA) and Return on Equity (ROE) calculation tools would define profitability as a dependent variable. This will help the researcher to define patterns within operational variables and also to draw conclusions on the nature of the liquidity-profitability relationship. Conceptual framework for the study is presented below.



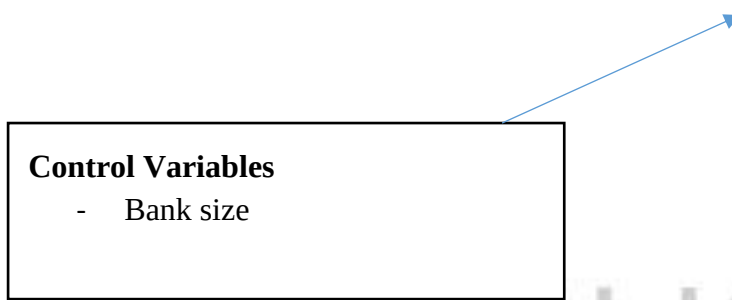


Figure 1.0: Conceptual Framework

Source: Author

2.6 Conclusion

The nature of relationships surrounding liquidity and bank profitability is exposed in a study of previous literature. The work analysis revealed conflicting findings on the relationship between bank liquidity and profitability. Nevertheless, we brought to light that the direction of relationship is interconnected with choice in liquidity and profitability proxies in measuring the relationship. The size of bank impacts on banks liquidity and profitability but irrespective of being small, medium or large; they all strive for optimal level of liquidity against short term demands. Though theories around the study remain effective, there is the need to realign with the current trend of technological and innovative banking. International studies conducted on the topic elsewhere are subject to variations in market conditions, economic and political stability and banking reforms and regulation of such countries. On the experimental outcomes, a few examinations detailed a positive critical connection among liquidity and benefit of banks (Khan and Ali, 2016; Anthony et al., 2016), whiles different investigations have announced a negative huge connection among liquidity and productivity of banks (Marozva, 2015; Islam, 2008; Raheman and Nasr, 2007) whiles different examinations revealed no huge effect of liquidity on benefit of banks (Abdullah and Johan, 2014; Lartey et al., 2013, Shen et al., 2010). Therefore, it can be concluded that previous studies on the liquidity and efficiency of the bank still leave

immense holes as these studies have not drawn a corrupted conclusion on the issue, therefore requiring additional work to exploit the gap by seeking to answer questions such as what are the liquidity pattern and profitability of listed banks in Ghana? What are the impact of liquidity on the profitability of listed banks in Ghana as determined by ROE and ROA? by using current data from 2010 to 2019.



CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Introduction

In general, the study aims to evaluate the correlation between liquidity and profitability of listed banks in Ghana. The study discussed methodology appropriate for the research. Here, the study also focused on research approach, design of the research, targeted population relating to the study, methods of sampling and sampling procedures, type of data to be used, method of collecting data, how data were analysed and analytical models, justification of variables, test of significance, test for multi-collinearity, and the general overview of the Ghanaian banking system.

3.1 Research Approach

The research approach was quantitative. A research is said to be quantitative when the study attempts to measure quantities or amounts. Quantitative approach to research is applicable in areas where data can be articulated quantitatively (Kothari, 2004, p.3). We will obtain quantitative data from annual financial reports of the target population which will be subjected to rigorous analysis to enable the researcher infer characteristics or relationships among the studied variables.

3.2 Research Design

The layout of an analysis is represented by a research design. It gives both the option of analysis and the sampling methodology to be implemented. It also points to the ultimate methodology chosen to simply and astutely combine the relevant testing mechanisms (Vaus, 2001). Exploratory, informative and explanatory experiments include three main kinds of study design defined by Saunders et al. (2007). A case study is the research technique used for this research. The researcher selected a case study as it offers the researcher the ability to create a detailed account of the problem under study and to make

neutrality and comprehensive study possible in a brief period. The research adopts both explanatory and descriptive style. The researcher adopted descriptive survey design. According to Coopers and Schindler (2011) descriptive study is a research, intended to describe phenomenon, estimate section of population that shares similar or identical traits and attempt to ascertain relations among different variables. Descriptive survey design will be appropriate as the study sought to observe a sample population with same characteristics and determine relationship among variables over time.

3.3 Population

Entire objects that a study targets, irrespective of the field of inquest is denoted as population of the study (Kothari, 2004). During December 2019, the sample population was banks on the Ghana Stock Exchange (GSE). There were ten (10) active banks on the Ghana Stock Exchange. They are Access Bank Limited, Agricultural Development Bank (ADB), Cal Bank Limited, Ecobank Ghana Limited (EGH), Ecobank Transnational Incorporated (ETI), Ghana Bank (GCB), Republic Bank (RPB) formerly HFC Bank, Societe General Ghana Limited (SG-SSB), Standard Chartered Bank Limited, and Trust Bank Limited (The Gambia). All these banks are among the leading banks in Ghana and due to the meticulous requirements for listing, it worth considering such banks as population for the study.

3.4 Sampling and Sampling Techniques

Technically, respondent who have been selected for a study out of the whole population constitute a sample and the process involved in selecting such respondents is denoted as sampling technique (Kothari, 2004, p. 55). Purposive sampling technique was utilized in selecting seven (7) from all the ten (10) listed banks. Purposive sampling technique is also referred as judgmental sampling which is a deliberate means of choosing respondents with common characteristics or qualities (Etikan *et al.*, 2016). Adopting this sampling method

fits well for the study. Banks that were considered for the study include Access Bank Limited, Trust Bank Limited (The Gambia) and Ecobank Transnational Incorporated (ETI). In order to avoid data distortions and ensure accurate comparison, apart from Access bank, the two under - mentioned banks were excluded because their operational or reporting currencies are not in Ghana Cedis. Data unavailability result the exclusion of Access Bank. Banks carefully considered for the study is largely dependent on data availability, nature of business, operational currencies and to ensure uniformity and accurate comparison.

3.5 Data Collection

Data were collected from secondary source. In Ghana, public entities on Ghana stock exchange are required by law in publishing annual financial reports and once such reports are published they become readily accessible as public documents. This historical audited financial data could be obtained through the sampled banks websites and through Ghana Stock Exchange (GSE) domain. Financial records considered covers 2008- 2017, thus ten (10) years.

3.6 Data Analysis

Descriptive analysis, Pearson correlation analysis and multiple linear regression analysis were used to determine the impact of liquidity on the profitability of listed banks on the Ghana Stock Exchange market. Liquidity and profitability ratios were tabulated separately for graphical presentation of trends over the period. Statistical Package for Social Sciences (version 20), and Excel aided the analysis.

3.6.1 Analytical Model

The model for the study considered that of a multiple regression and ordinary least square will be the method of estimation. A multiple regression model for the study was a modification of the model adopted by Dawood (2014) and Alshatti (2014) in the study of liquidity control on profitability of Jordanian banks that of Kwong and Chen, in Pakistan

from 2009 to 2012 in the study of profitability factors influencing profitability in Pakistan (2006). The dependent variables measures profitability whereas the independent variables measures liquidity

The Linear Regression Models is specified in the form;

$$ROA_{i,t} = \alpha_0 + \beta_1 (LDR_{i,t}) + \beta_2 (CDR_{i,t}) + \beta_3 (CHR_{i,t}) + \beta_4 (BSZ_{i,t}) + \varepsilon \dots\dots\dots (Model 1)$$

$$ROE_{i,t} = \alpha_1 + \beta_5 (LDR_{i,t}) + \beta_6 (CDR_{i,t}) + \beta_7 (CHR_{i,t}) + \beta_8 (BSZ_{i,t}) + \varepsilon \dots\dots\dots (Model 2)$$

Where;

$ROA_{i,t}$ = Return on Asset Ratio of institutions i at time t , $ROE_{i,t}$ = Return on Equity Ratio of institutions i at time t , $LDR_{i,t}$ = Loan to Deposit Ratio of institutions i at time t , $CDR_{i,t}$ = Cash to Deposit Ratio of institutions i at time t , $CHR_{i,t}$ = Cash to Deposit Ratio of institutions i at time t , $BSZ_{i,t}$ = Bank Size of institutions i at time t , α_0 and α_1 = Models constant values, $\beta_2 - \beta_8$ = Models Coefficient Values t : time = 1,2.... 10 years. i : Institutions = 1,2.....7 institutions, ε = Error term.

3.6.2 Justification of Variables

Return on Asset (ROA) and Return on Equity (ROE) were used to calculate the profitability of the listed banks, suggesting dependent variables. The following ratios were used to calculate liquidity; the loan to deposit ratio (LDR), currency to deposit ratio (CDR), cash ratio (CHR) and bank size acted as an independent control variable. These variables have been considered in a number of studies (Abdelaziz and Zaghdoudi, 2017; Dawood, 2014; Idowu *et al.*, 2017; Lartey *et al.*, 2013; Maria and Maria, 2018; Obilor, 2013; Raygani, 2017; Vodova, 2013). The variables were computed in accordance with the formulas below;
Return on Assets (ROA) = Net Income / Total Asset
Return on Equity (ROE) = Net Income / Equity
Loan to Deposit (LDR) = Loan / Deposit
Cash to Deposit (CDR) = Cash and Cash

Equivalent Deposit Cash Ratio (CHR) = $\frac{\text{Cash and Cash Equivalent}}{\text{Short Term Liabilities}}$
(Total liabilities – Borrowings) Bank Size (BSZ) = LOG (Total Asset).

3.6.3 Test of Significance

Since the main objective of the research is to test the liquidity impact on the profitability of listed Ghana Stock Exchange (GSE) banks, the correlation analysis specifies the degree and orientation of the relationship between the indicator (dependent variable) and the explanatory variables (independent variables). Regression analysis was conducted to reveal which independent variable relate with the dependent variable and the mode of relationship they exhibit. The study also used 5.00% and 1.00% coefficient to test for significance level (R^2), Analysis of Variance (ANOVA), t and F statistics will be done.

3.6.4 Test for Multi-collinearity

Test was conducted to establish how the independent variables relates with each other since the study wants to determine the relationship between dependent variables and independent variable, if the independent variables have a high degree of correlation among themselves it would reduce the strength of our regression model and therefore weakens its predictive power. According Abuzar, (2004) when the tolerance value approaches zero, it is an indication of collinearity which reduces the strength of the regression model and the variable inflation factor (VIF) is also a statistical measure used to measure multi-collinearity. Base on the rule of thumb, variables with VIF more than 10 is an indication of collinearity.

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION AND DISCUSSION

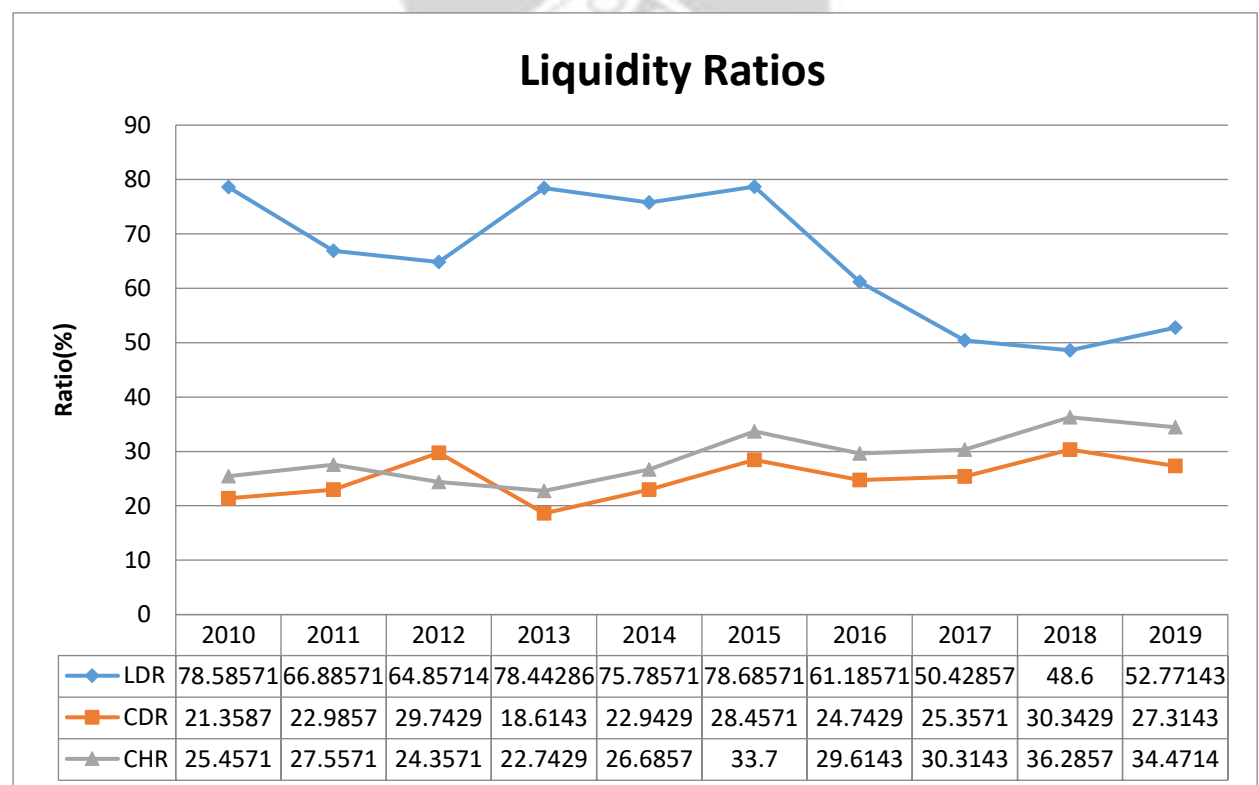
4.0 Introduction

The analysis, presentation and evaluation of the results arising from this research are part of this chapter. Data review and evaluation was carried out on the basis of interview findings and focus group conversations. In relation to the research goals, the review is divided into three major thematic parts focused on the developing themes.

4.1 Trends of Banks Liquidity

The following bank ratios calculate liquidity: the loan to deposit ratio (LDR), the cash to deposit ratio (CDR) and the cash ratio (CHR).

Figure 4.1 Average Liquidity Ratios



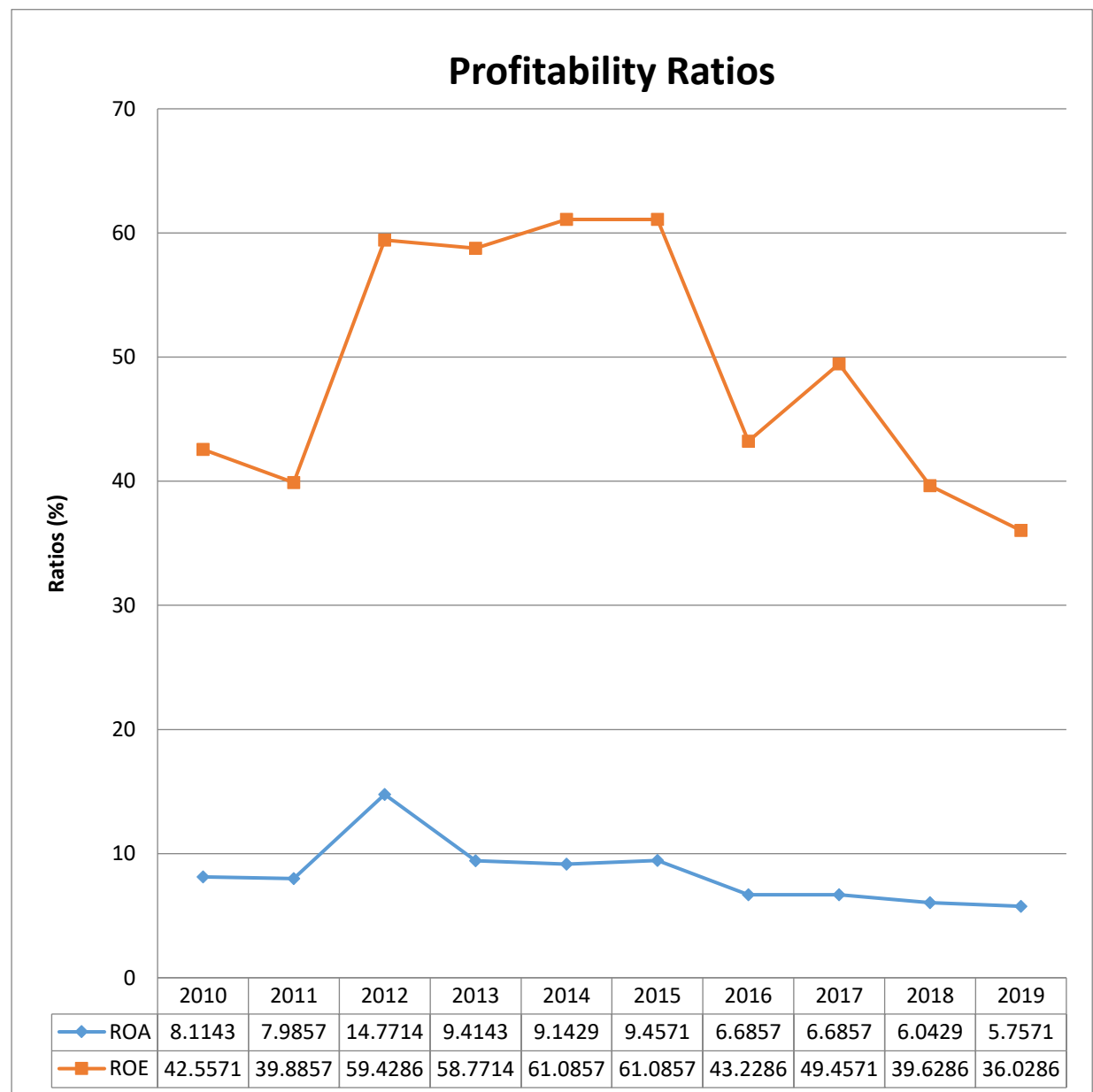
The average liquidity ratios of the listed banks on the Ghana stock exchange from 2010 to 2019 are seen in Figure 4.1 above. The loan to deposit ratio, cash deposit ratio and cash ratio are the measures taken into account. Looking at the Loan to Deposit ratio, there was

a decrease in the loan deposit ratio from 2010 through to 2012; there was an increase in 2013, a decrease in 2014 and an increase in 2015. There was a significant decrease in the loan to deposit ratio from 2016 through to 2018 but a slight increase in 2019. The maximum loan to deposit ratio was in 2015 and the minimum was in 2018. With respect to Cash Deposit ratio, there was an increase from 2010 through to 2012; there was a decrease in 2013, an increase in 2014 and 2015, a decrease in 2016, an increase in 2017 through to 2018 and a decrease in 2019. The maximum cash deposit ratio was in 2018 and the minimum was in 2013. Concerning Cash Ratio, there was an increase of 2.1% from 2010 to 2011. It decreased by 3.2% in 2012 and decreased by 1.6% in 2013. There was an increase of 3.9% and 7.1% in 2014 and 2015 respectively. There was a decrease in 2016 by 4.1% and a slight increase in 2017 by 0.7%, an increase in 2018 by 5.9% and a decrease in 2019 by 1.8%. The maximum cash ratio was in 2018 and the minimum was in 2013. All the liquidity ratios experienced an increase in 2015. From a close look of Figure 4.1, liquidity ratios indicate uneven and declined trends from 2010 to 2019 among the listed banks in Ghana.

4.2 Profitability Trends

The return on assets (ROA) and the return on equity (ROE) of the banks from 2010 to 2019 calculate the performance of the listed banks.

Figure 4.2 Average Profitability Trends



The profitability levels of the listed banks from 2010 to 2019 in Ghana are seen in Figure 4.2. The asset return and return on equity are the profitability ratios. With respect to Return on Asset, there was a decrease in 2011 by 0.12% and a significant increase in 2012 by 6.88%. There was a decrease in 2013 and 2014 by 5.36% and 0.27% respectively. There was an increase by 0.04% in 2015 and a constant decrease in 2016 and 2017 by 2.77%. It further decreased in 2018 by 0.64% and a decrease by 0.28% in 2019. The highest return on asset was recorded in 2012 and the lowest was recorded in 2019. Concerning Return on

Equity, there was a decrease by 2.67% in 2011, a significant increase by 19.54% in 2012 and a decrease in 2013 by 0.65%. There was a constant increase in 2014 and 2015 by 2.32%. There was a decrease in 2016 by 17.86% and an increase by 6.23% in 2017. There was a decrease by 9.83% and 3.60% in 2018 and 2019 respectively. The highest Return on Equity was recorded in 2014 and 2015 and the lowest Return on Equity was recorded in 2019. With this, the listed banks recorded their lowest profitability ratios in 2019. From a closer look at Figure 4.2, the banks largely experience reduction in profitability over the period.

4.3 Descriptive Statistics

Table 4.1 Descriptive Statistics of LDR, CDR, CHR, ROA, ROE, BSZ

Variable	N	Mean	Standard Dev.	Minimum	Maximum
LDR	70	0.6562	0.1208	0.4860	0.7869
CDR	70	0.2519	0.0381	0.1861	0.3034
CHR	70	0.2912	0.0457	0.2274	0.3629
ROA	70	0.08406	0.02624	0.05757	0.14771
ROE	70	0.4912	0.1006	0.3603	0.6109
BSZ	70	7.3367	0.1573	7.1070	7.5970

The mean, standard deviation, minimum and limit of variables under consideration are displayed in Table 4.1. As a liquidity metric, the loan-to-deposit ratio showed 0.6562, 0.1208, 0.4860, and 0.7869 as the mean, standard deviation, minimum and limit, respectively. Cash deposit ratio showed 0.2519, 0.0381, 0.1861 and 0.3034 as mean,

standard deviation, minimum and maximum respectively. On the measurement of the profitability of the listed banks, ROA had an average of 8.4% and ROE had an average of 49.12%. This indicates that, there is an adverse return on both asset and equity and also the bank finance 73.3% of their loans through deposits which correspond to the banking core activities. Cash ratio has an average of 29.12% of the current liabilities of the listed banks which is very low.

4.4 Correlation Analysis

The correlation analysis is done for the profitability ratios which are the dependent variables (ROA, ROE) and the liquidity ratios which are the independent variables (LDR, CDR, CHR, BSZ). The correlation analysis helps to show the strength of relationship between the variables.

Correlations: LDR, CDR, CHR, ROA, ROE, BSZ

	LDR	CDR	CHR	ROA	ROE
CDR	-0.570				
	0.086				
CHR	-0.611	0.680			
	0.060	0.031			
ROA	0.466	0.098	-0.612		
	0.175	0.787	0.060		
ROE	0.592	-0.095	-0.452	0.712	
	0.071	0.793	0.189	0.021	
BSZ	-0.689	0.264	0.526	-0.489	-0.347
	0.028	0.462	0.119	0.152	0.326

Cell Contents: Pearson correlation

P-Value

From the correlations above, the profitability ROA relates positively with loan deposit ratio at 0.466 and cash deposit ratio at 0.098. The strength of their relationship is weak especially ROA and CDR. ROA relates negatively with cash ratio at -0.612 and the strength of their relationship is strong. The profitability ROE relates positively strongly with loan deposit ratio at 0.592 and relates negatively with cash deposit at -0.095 and cash ratio at -0.452, though the strength is weak. The measures of profitability of the listed banks (ROA, ROE) relate negatively with bank size at -0.489 and -0.347 respectively though the strength is weak. The relationship between the two profitability proxies is positive and strong at 0.712. Liquidity variables with negative relationship with the profitability variables suggest an increase in the independent variables (liquidities) will cause a decrease in the dependent variables (profitability) and those with positive relationship indicates marginal increase in the independent variables will result in an increase in the dependent variables.

4.5 Regression Analysis (ROA)

Multiple linear regression is been carried out to show how profitability (ROA) is affected by the independent variables (LDR, CDR, CHR, BSZ).

Table 4.2 Model Summary of Return on Asset (ROA)

SUMMARY OF MODEL				
MODEL	R	R-SQUARE	R-SQUARE (ADJUSTED)	STD. ERROR OF ESTIMATE
1	0.8919	0.9819	0.9674	0.00473675

Table 4.2 provides a description of the regression analysis model of Return on Asset (ROA). The R-square value of 0.9819 means that 98.19 percent of the response data (Return

on Asset) uncertainty across its average is clarified by the formula. Apart from the independent variables, the standard estimation error indicates other factors that influence profitability. The R value addresses the association between variables that are dependent and independent. The 89.19 percent R value of the model indicates that there is a clear positive association between the profitability of the ROA listed banks and the liquidity of the listed banks (LDR, CDR, CHR, BSZ). These findings are corroborated by a research conducted by Khan and Ali (2016), who analysed the influence of commercial banks' liquidity on profitability in Pakistan. For the five-year period from 2008 to 2014, the analysis used secondary data derived from the financial statements of several chosen banks. Using correlation and regression analysis, the findings of the study showed that the relationship between liquidity and profitability of universal banks is positive and important. However, the report cautioned that the limited sample size meant that the findings could not be replicated in Pakistan for the entire banking sector.

Warrad et al. (2016), who analysed the influence of liquidity on the profitability of commercial banks in Jordan, published similar findings. Over a 7 year period from 2005 to 2011, the analysis sampled 15 commercial banks in Jordan. The findings of the study revealed that the profitability of listed commercial banks in Jordan was greatly impaired by liquidity. A research was also carried out in the European Union during the period (1990-2002) by Kosmidou (2008). Liquid assets from banks have been shown to have a good relationship with ROA. Another analysis by Kosmidou et al. (2005) has showed that the relationship between the ROA of banks and the ratio of net assets to customers and short financing commitments is favourable. However, these findings are contradictory to a study undertaken by Lartey et al. (2013), who investigated the effects of liquidity on the profitability of Ghana's listed banks. The research sampled a total of seven listed banks on the Ghana Stock Exchange over a period of six years from 2005 to 2010 at the time. The

study showed that over the study period, the liquidity and profitability status of listed banks in Ghana deteriorated. Regression and correlation analysis showed that the association between liquidity and profitability of listed banks in Ghana was weakly positive and statistically negligible.

Table 4.3 Analysis of Variance Test (ROA)

ANOVA					
	SUM OF SQUARES	DF	MEAN SQUARE	F	SIG.
Regression	0.0060842	4	0.0015211	67.793	0.0001524
Error	0.0001122	65	0.0000224		
Total	0.0061964	69			

Dependent variable: ROA

Independent variables: LDR, CDR, CHR, BSZ

The F-Statistic value is 67.793 from the ANOVA table and indicates a significance degree (0.0002) which is less than 0.05. This means that the regression equation suits well at a confidence level of 95% and, as such, it is possible to forecast the relationship between the profitability of the listed banks in Ghana (ROA) and the liquidities. This shows that liquidity measured by LDR, CDR, CHR and BSZ have a significant relationship with profitability measured by ROA of the listed banks in Ghana.

4.5.1 Regression Equation

$$\text{ROA} = -0.234627 + 0.117876 \text{ LDR} + 0.789693 \text{ CDR} - 0.66703 \text{ CHR} + 0.0322581 \text{ BSZ}$$

The equation shows that ROA will decrease by 23.463% if the independent variables (LDR, CDR, CHR, and BSZ) are held constant. A positive coefficient of LDR, CDR, and BSZ depicts that the listed banks' ROA will experience an upward adjustment of profitability by a unit increase of the LDR, CDR and BSZ. A negative coefficient of CHR shows that ROA will reduce by a unit increase of Cash Ratio (CHR).

4.6 Regression Analysis (ROE)

Multiple linear regression is been carried out to show how profitability (ROE) is affected by the independent variables (LDR, CDR, CHR, BSZ).

Table 4.4 Model Summary of Return on Asset (ROE)

SUMMARY OF MODEL				
MODEL	R	R-SQUARE	R-SQUARE (ADJUSTED)	STD. ERROR OF ESTIMATE
1	-0.1658	0.6085	0.2954	0.0844260

The description of the regression analysis model for return on equity as shown in Table 4.4. (ROE). The R-square value of 0.6085 means that 60.85% of the uncertainty of the response data (return on equity) about its average is clarified by the formula. Apart from the independent variables, the standard estimation error indicates other factors that influence profitability. The R value addresses the association between variables that are dependent and independent. The model shows that the R value of -0.1658 shows that there is a negative association between the viability of the ROE banks listed and the liquidity of the banks listed (LDR, CDR, CHR, and BSZ). This means that the profitability measured by the ROE of the listed banks and the liquidity of those measured by the LDR, CDR, CHR

and BSZ are inversely related. These findings are corroborated by a report conducted by Niresh (2012), which conducted a comparative study to investigate the relationship between liquidity and profitability of manufacturing companies from 2007 to 2011. Thirty one (31) out of the total number of thirty nine were the listed manufacturing firms involved (39). Secondary information was gathered from the 31 corporations' financial accounts that paved the way for Pearson correlations and descriptive research. The return on capital invested was used to calculate the viability of the businesses, whilst the rapid ratio, current ratio and liquid ratio were used to measure liquidity and found that there is a connection between the liquidity and profitability ratios chosen, but that negative ratios remain. The partnership or trade-off between liquidity and profitability of companies in Sri Lanka's manufacturing industry, however, remains negligible and further stresses how seasonal demands, the scale of the business, production cycles and changes due to technical impacts on companies' ability to generate profits.

Again, a report by Shen et al. (2010) concluded that there is no correlation between bank liquidity and its efficacy. Their argument is based on the assumption that banks are thus not impacted by liquidity risk because they play a persistent and crucial role in funding the bank-based financial system.

Table 4.5 Analysis of Variance Test (ROE)

ANOVA					
	SUM OF SQUARES	DF	MEAN SQUARE	F	SIG.
Regression	0.0554022	4	0.0138506	1.94319	0.241740
Error	0.0356388	65	0.0071278		

Total	0.0910410	69			
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Dependent variable: ROE

Independent variables: LDR, CDR, CHR, BSZ

The F-Statistic value is 1.94319 from the ANOVA table and indicates a significance degree (0.241740) that is greater than 0.05. This implies that the regression equation does not suit well at the confidence level of 95 percent and, as such, it is difficult to forecast the relationship between the profitability of the listed banks in Ghana (ROA) and the liquidity. This shows that liquidity measured by LDR, CDR, CHR and BSZ have an insignificant relationship with profitability measured by ROA of the listed banks in Ghana.

4.6.1 Regression Equation

$$\text{ROE} = -2.07157 + 0.773584 \text{ LDR} + 1.9385 \text{ CDR} - 1.32648 \text{ CHR} + 0.266209 \text{ BSZ}$$

The equation shows that ROE will decrease by 2.07157 if the independent variables (LDR, CDR, CHR, and BSZ) are held constant. A positive coefficient of LDR, CDR, and BSZ depicts that the listed banks' ROE will experience an upward adjustment of profitability by a unit increase of the LDR, CDR and BSZ. A negative coefficient of CHR shows that ROE will reduce by a unit increase of Cash Ratio (CHR).

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATION

5.0 Introduction

The fifth chapter describes the study's overview, findings and recommendations. The overview summarizes the relevant outcomes according to the particular targets. Conclusions and observations were made on the basis of a review of the data.

5.1 Summary

The overarching goal of the analysis is to investigate the impact of liquidity on the profitability of Ghana's listed banks. The report used supplementary data that was evaluated using pattern analysis and multiple analysis of linear regression. For ten consecutive years (2010 to 2019), the financial statements of the listed banks in Ghana were considered.

As the control variable, liquidity was calculated by loan deposit ratio, cash deposit ratio, cash ratio and bank size. The Return on Asset (ROA) and Return on Equity assessed profitability (ROE).

Liquidity ratios indicate uneven and declined trends from 2010 to 2019 among the listed banks in Ghana. The maximum cash ratio was in 2018 and the minimum was in 2013. All the liquidity ratios experienced an increase in 2015.

The banks largely experience reduction in profitability over the period. The highest Return on Equity was recorded in 2014 and 2015 and the lowest Return on Equity was recorded in 2019. With this, the listed banks recorded their lowest profitability ratios in 2019.

A positive coefficient of LDR, CDR, and BSZ depicts that the listed banks' ROA will experience an upward adjustment of profitability by a unit increase of the LDR, CDR and BSZ. A negative coefficient of CHR shows that ROA will reduce by a unit increase of Cash Ratio (CHR).

A positive coefficient of LDR, CDR, and BSZ depicts that the listed banks' ROE will experience an upward adjustment of profitability by a unit increase of the LDR, CDR and BSZ. A negative coefficient of CHR shows that ROE will reduce by a unit increase of Cash Ratio (CHR).

5.2 Conclusions

Based on the research findings with the goal of analyzing the impact of liquidity on the profitability of listed banks in Ghana, it can be hypothesized that; Listed banks in Ghana are profitable but lack consistency in sustaining higher return on asset (ROA) and return on equity (ROE), which exposes them to a decreased pattern in liquidity and profitability over the years considered for the study. There is a clear positive link between the viability of the ROA banks listed and the liquidity of the banks listed (LDR, CDR, CHR, BSZ). It can also be inferred that there is a negative correlation between the profitability of the ROE banks listed and the liquidity of the banks listed (LDR, CDR, CHR, and BSZ). In view of the fact that liquidity has some amount of bearings on the profitability of a bank, it is important that banks manage their liquidity very well. When banks hold adequate liquid assets, their profitability would improve. Adequate liquidity helps the bank minimise liquidity risk and financial crises. The bank can absorb any possible unforeseen shock caused by unexpected need for decrease in liabilities or increase in assets side of the Statement of Financial Position. However, if liquid assets are held excessively, profitability could diminish. Liquid assets usually have no or little interest generating capacity.

5.3 Recommendations

The following suggestions are worth considering based on the outcome and the conclusion of this study;

There must be regular and effective training for financial institutions on liquidity and profitability management by regulative authorities such as the Bank of Ghana.

The central Bank of Ghana must put in much effort in terms of effective and efficient monitoring and supervision to ensure that Banks comply with the requirements of Section 36 of Specialized Deposit Taking Institution Act, 2016, (Act, 930).

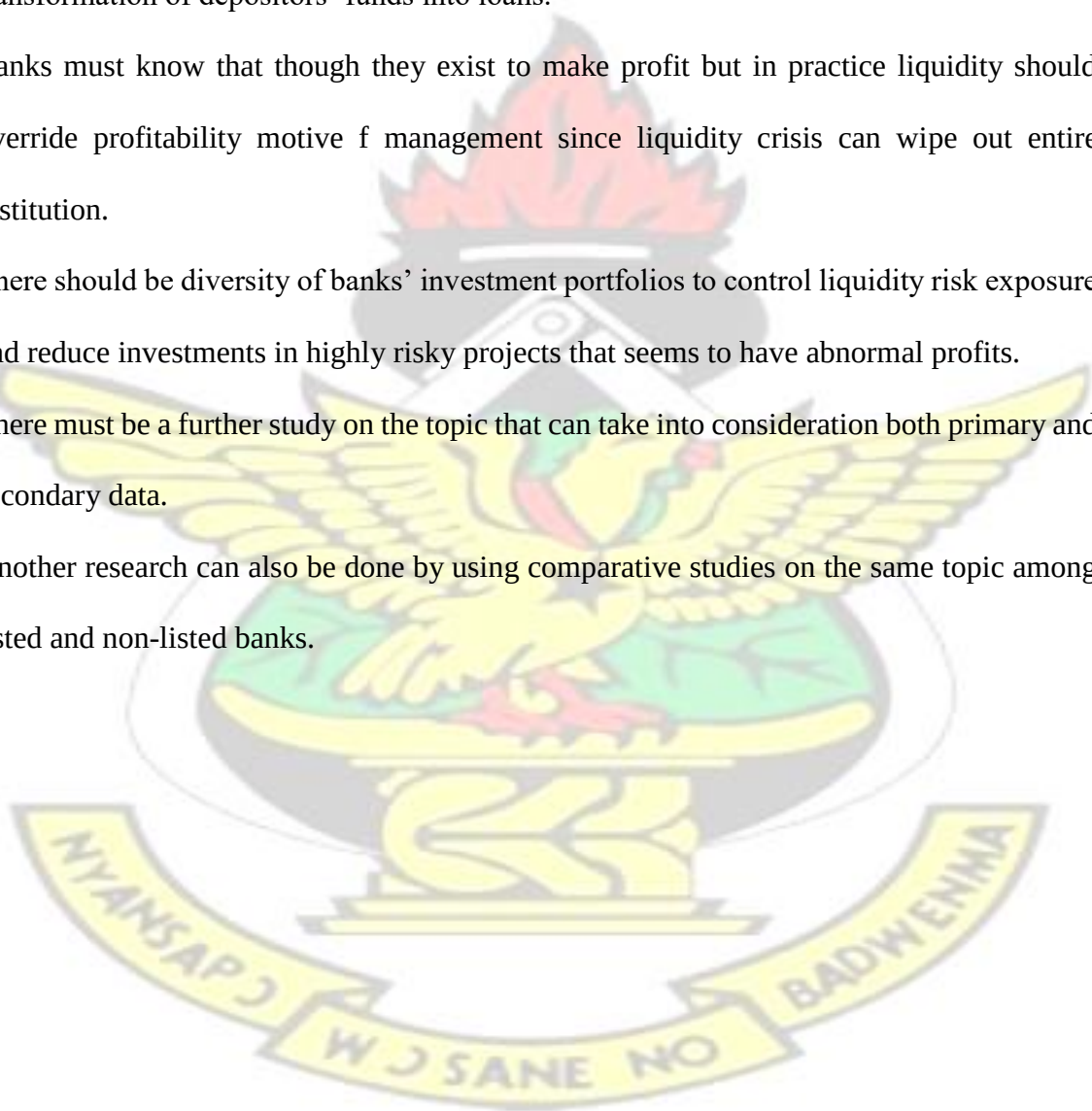
Credit risk management systems should be intensified by Banks to ensure smooth transformation of depositors' funds into loans.

Banks must know that though they exist to make profit but in practice liquidity should override profitability motive of management since liquidity crisis can wipe out entire institution.

There should be diversity of banks' investment portfolios to control liquidity risk exposure and reduce investments in highly risky projects that seems to have abnormal profits.

There must be a further study on the topic that can take into consideration both primary and secondary data.

Another research can also be done by using comparative studies on the same topic among listed and non-listed banks.



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APPENDIX

PROFITABILITY AND LIQUIDITY RATIOS OF LISTED/SELECTED BANKS

GCB

YE AR	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Ro A	0.0685 0242	0.13732 913	0.08395 467	0.10907 736	0.13509 031	0.14034 085	0.1 46	0.09 3	0.09	0.09 3
RoE	0.6473 9215	1.64888 292	1.22032 418	1.09900 602	0.98689 882	0.86705 997	0.8 36	0.73 7	0.66 7	0.65 6
LD R	1.0048 009	0.62835 95	0.23101 451	0.36384 672	0.36598 71	0.40346 316	0.3 32	0.30 7	0.34 9	0.38 5
CD R	0.1908 8565	0.16607 632	0.17594 952	0.12076 685	0.09950 494	0.17799 081	0.1 94	0.10 6	0.18 2	0.12 6
CH R	0.2135 9457	0.18187 645	0.18967 353	0.13407 38	0.11528 566	0.21236 362	0.2 35	0.12 2	0.21 1	0.14 6

CAL BANK										
YE AR	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Ro A	0.0722 2662	0.05023 821	0.51933 315	0.09190 294	0.06779 279	0.07389 805	0.0 03	0.0 36	0.0 28	0.025
RoE	0.4675 7978	0.46021 075	0.40774 452	0.50077 864	0.46073 87	0.47859 572	0.0 2	0.2 28	0.1 97	0.178
LD R	0.8651 7994	0.67282 854	0.94063 225	1.17581 724	0.95799 235	1.12630 956	0.8 28	0.7 42	0.7 69	0.757
CD R	0.1895 2454	0.25033 483	0.74730 282	0.15508 729	0.31268 745	0.31492 644	0.1 57	0.1 21	0.1 18	0.085
CH R	0.2241 4857	0.28101 136	0.12737 916	0.18994 624	0.36663 369	0.37243 221	0.1 83	0.1 44	0.1 37	0.098

ADB										
YE AR	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Ro A	0.09 2443 81	0.0661 6126	0.1096 0219	0.1078 8334	0.0963 1759	0.0846 1179	-0.03	0.01	0.002	0.003
RoE	0.84 1574 76	0.4419 0923	0.8026 917	0.6204 4008	0.6041 9702	0.5424 3856	-0.18	0.06	0.0092	0.0187
LD R	1.07 6309 65	0.8200 2204	0.8017 4049	0.8616 985	0.7688 3183	0.7189 0667	0.468	0.448	0.413	0.433
CD R	0.29 9301 07	0.3142 9522	0.1215 2486	0.1697 8704	0.2142 5346	0.2267 7304	0.201	0.237	0.407	0.412

CH R	0.33 6281 68	0.3696 3596	0.1407 4228	0.2053 7066	0.2548 8589	0.2686 8337	0.268	0.31	0.495	0.498
BS Z	5.98 5964 63	6.0841 0097	6.1596 3426	6.2099 8685	6.3337 9779	6.3292 2433	6.4822 2924	6.5496 33758	6.5559 88127	6.6606 4344

STANDARD CHATERED										
YE AR	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Ro A	0.0915 8202	0.0763 0557	0.0710 0186	0.0938 5128	0.095 2246 8	0.1109 2381	0.1052 3157	0.0985 63654	0.08 2	0.078
RoE	0.7794 8163	0.6466 8323	0.5451 8563	0.5759 5321	0.631 2515 7	0.6733 0571	0.6014 4717	0.5113 59144	0.46 7	0.51
LD R	0.4276 2179	0.4032 7718	0.5630 8166	0.6352 869	0.581 4476 1	0.9342 33	0.7400 9493	0.3220 99677	0.30 3	0.327
CD R	0.3082 6581	0.3242 5007	0.2805 2265	0.2164 9471	0.330 8998 1	0.2991 4277	0.3325 759	0.3543 43661	0.4	0.34
CH R	0.3493 1086	0.3676 285	0.3225 2667	0.2586 6064	0.389 6838 5	0.3581 4547	0.4031 0469	0.4389 50705	0.48 6	0.401
BS Z	6.2221 6532	6.2947 0029	6.3785 2217	6.4754 6169	6.544 8487	6.5275 5876	6.6408 3549	6.6791 53787	6.77 5355 184	6.8818 7643

REPUBLIC BANK										
YE AR	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Ro A	0.0832 9436	0.090 0616 6	0.0912 9173	0.0763 8015	0.080 7318 4	0.0924 905	0.08 9359 13	0.0691 3577	0.0785 84291	0.0653 76442
RoE	0.0832 9436	0.457 2005 8	0.5176 4131	0.3419 7014	0.469 7372 1	0.5025 847	0.74 0650 2	0.9041 4688	0.6916 04333	0.3763 14053
LD R	1.3259 7774	1.144 3447 7	0.8960 2979	1.0569 3216	1.136 9499 7	0.9710 2127	0.74 8990 71	0.5900 5911	0.4658 48768	0.5436 54634
CD R	0.0845 3786	0.123 9192 1	0.2060 9323	0.2022 3893	0.147 0824 6	0.2680 7812	0.25 8358 13	0.3388 2742	0.4029 92984	0.3145 68011

CH R	0.0968 7411	0.154 4251 5	0.2505 2362	0.2604 0015	0.177 8295 5	0.3289 9285	0.29 4275 74	0.3674 0497	0.4555 25601	0.3813 97817
BS Z	8.4168 0946	8.561 6887 9	8.6387 8941	8.7746 8168	5.999 5702 7	6.1282 0276	6.20 4209 28	6.2781 946	6.3222 56105	6.4592 46794

SOCIETE GENERALE										
YE AR	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Ro A	0.0955 528	0.081 2714 9	0.0684 5047	0.0885 9602	0.0927 9672	0.086 5461 4	0.080 8313 1	0.0937 69921	0.081	0.082
RoE	0.0955 528	0.453 6661 7	0.4389 3554	0.5584 536	0.7006 0539	0.656 6006 8	0.595 2169 6	0.5041 77298	0.396	0.456
LD R	0.6030 5151	0.550 5482 3	0.6054 1173	0.7994 5929	0.7832 3656	0.653 0063 8	0.526 1160 6	0.7089 23405	0.77	0.834
CD R	0.3359 3009	0.280 5520 8	0.3323 5901	0.1855 0123	0.2093 9612	0.424 4955 5	0.316 5614 6	0.2716 20645	0.187	0.292
CH R	0.4044 787	0.341 7798 3	0.3937 6535	0.2204 7921	0.2413 6551	0.488 9428 1	0.366 3063 8	0.3336 80559	0.235	0.356
BS Z	8.8362 6882	8.924 8358 6	9.0369 9859	9.0851 3111	9.2242 6089	9.301 6249 8	9.388 9597 4	9.4455 64085	9.5354 65828	9.6477 6518

ECOBANK										
YE AR	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Ro A	0.064 2721 6	0.059 0296 8	0.0914 2232	0.0912 9032	0.0716 533	0.0729 9457	0.0742 0595	0.0672 13387	0.0618 94983	0.0628 5471
RoE	0.064 2721 6	0.167 9886 8	0.4271 0375	0.4178 0692	0.4229 5237	0.4916 9607	0.4629 3667	0.4578 31479	0.3463 72485	0.3421 5624
LD R	0.198 2797 1	0.463 0700 7	0.5031 1175	0.5977 0422	0.7110 8479	0.7020 2743	0.6398 948	0.4117 67493	0.3326 05773	0.3301 5687

CD R	0.088 4330 3	0.150 3987 4	0.2194 3437	0.2535 2704	0.2921 2602	0.2810 1669	0.2717 9058	0.3461 3816	0.4272 75916	0.4325 6148
CH R	0.158 3380 9	0.231 8788 2	0.2791 9698	0.3244 1031	0.3517 0999	0.3300 079	0.3236 7349	0.4056 97916	0.5202 40158	0.5314 4879
BS Z	5.295 9517 5	5.449 6912 5	5.9022 7655	5.9960 9907	6.2352 5112	6.3846 4834	6.4281 087	6.5051 24056	6.5491 27644	6.5834 3944

