

UNIVERSITY OF GHANA

UNIVERSITY OF GHANA BUSINESS SCHOOL



**ROLE OF CAPITAL ADEQUACY ON BANK LENDING AND PERFORMANCE IN
GHANA**

BY

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DECLARATION

I, Joana Afua Nyamekye Adu, hereby declare that this dissertation is the outcome of my research work supervised by Dr. Agbloyor. Other opinions used in this study have been dully referenced.

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CERTIFICATION

I hereby certify that this dissertation was supervised in accordance with procedures laid down by the University.

Signature.....

Date.....

Dr. Elikplimi Komla Agbloyor
(Supervisor)

DEDICATION

I dedicate this work to the Creator of the Universe, God, and the lovely husband he has blessed me with, Samuel Yao Ablordeppey.

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TABLE OF CONTENT

DECLARATION	i
CERTIFICATION	ii
DEDICATION	iii
ACKNOWLEDGEMENT	iv
TABLE OF CONTENT	vi
LIST OF TABLES	x
LIST OF FIGURES	xi
LIST OF ABBREVIATIONS.....	xii
ABSTRACT.....	xiii
CHAPTER ONE	1
INTRODUCTION	1
1.0 Introduction.....	1
1.2 Statement of Problem.....	4
1.3 Purpose of the Study	5
1.3.1 Objectives	5
1.3.2 Research Questions.....	6
1.4 Significance of the Research.....	6
1.5 Research Limitations	7

1.6	Chapter Outline.....	8
1.7	Conclusion	8
	CHAPTER TWO	9
	LITERATURE REVIEW	9
2.0	Introduction.....	9
2.1	Capital Adequacy.....	9
2.2	Bank Lending.....	10
2.3	Capital Adequacy and Bank Lending	11
2.4	Theoretical Framework.....	11
2.4.1	Buffer Theory of Capital Adequacy	11
2.4.2	The Theory of the Market Power.....	12
2.4.3	Deposit Insurance Theory:.....	12
2.5	Empirical Literature Review.....	13
2.6	Conclusion	16
	CHAPTER THREE	17
	RESEARCH METHODOLOGY.....	17
3.0	Introduction.....	17
3.1	Research Design.....	17
3.2	Population.....	18

3.3 Sample Size.....	18
3.4 Sampling Technique	19
3.5 Data Analyses and Interpretation.....	19
3.7 Conclusion	20
CHAPTER FOUR.....	21
DATA ANALYSIS AND DISCUSSION OF FINDINGS.....	21
4.0 Introduction.....	21
4.1 Descriptive Statistics.....	21
4.2 Performance of Banks.....	22
4.3 Lending by Banks	24
4.4 Capital Adequacy Ratio (CAR) of Banks.....	27
4.5 Relationship Among Variables	29
4.6 Survey Results	30
4.7 Expectation of Respondents on Recapitalisation.....	32
4.8 Prospects and Challenges of Recapitalisation.....	33
4.10 Conclusion	34
CHAPTER FIVE	35
SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS.....	35
5.0 Introduction.....	35

5.1 Summary of Key Findings	35
5.2 Conclusion	37
5.3 Recommendation	37
References.....	39
Questionnaire for Sampled Bank Staff.....	42

LIST OF TABLES

Table 1: Summary Statistics of Variables.....	22
Table 2: Pearson Correlation Matrix.....	30
Table 3: Crosstab between Department and Gender of Respondent	31
Table 4: The increase in minimum capital for banks from GHS120 million to GHS 400 million will lead to increased performance or returns?	32

LIST OF FIGURES

Figure 1: Performance of Banks	23
Figure 2: Average Profit of Banks (2008-2018).....	24
Figure 3: Loans and Advances to Customers by Years	25
Figure 4: Loans and Advances to Customer	26
Figure 5: Capital Adequacy Ratio by Banks.....	28
Figure 6: Average Capital Adequacy Ratio for 2008-2018	28
Figure 7: Sex of Respondents	31
Figure 8: Respondents' Expectations of Likely Outcomes of the Recapitalisation.....	33

LIST OF ABBREVIATIONS

ABG	Access Bank Ghana
ADB	Agricultural Development Bank
BBG	Barclays Bank Ghana
BOG	Bank of Ghana
CAR	Capital Adequacy Ratio
EBG	Ecobank Ghana
EBIT	Earnings Before Interest and Tax
ESLA	Energy Sector Levy Act
FBL	Fidelity Bank Limited
GCB	GCB Bank
GTB	Guarantee Trust Bank
HFC	The Republic Bank
NPLs	Non-Performing Loans
PBG	Prudential Bank Ghana
PWC	Price Waterhouse Coopers
ROA	Return on Assets
SBG	Stanbic Bank Ghana
SCB	Standard Chartered Bank
SSA	Sub-Saharan African
ZBL	Zenith Bank Limited

ABSTRACT

Banks play important roles in national economies and their continuous stability is regarded highly. One of the measures of financial soundness is capital adequacy, which is the ratio of a bank's primary capital to its risk weighted assets. This study set out to examine how capital adequacy is related to bank performance and lending. The analysis was done using both primary data from questionnaires issued to key bank staff as well as data from the annual financial reports of banks. Fourteen banks, with data from 2008 to 2018 were included in the sample. The study relied on Pearson Correlation coefficient and other bivariate descriptive to report results. The findings show that Capital adequacy had a positive relationship with profitability and lending, but the result was only significant for profitability and not lending. In spite of the high capital adequacy ratio of banks, there is still caution on lending based on increasing non-performing loan ratio in the industry. However, capital adequacy encourages customer confidence, which leads to cheap deposits for banks and ultimately increased profits. There is need to improve customer identity and addressing system as well as bank credit assessment process to enhance asset quality

CHAPTER ONE

INTRODUCTION

1.0 Introduction

This chapter introduces the current study on the role of capital adequacy on bank lending and explains why the study has become a subject of interest. The objectives and research questions are set out in this chapter and the significance of the study is justified. It concludes by discussing the study limitations and an outline of how the rest of the chapters are presented.

1.1 Background to the Study

Capital adequacy is widely noted as a strictly regulated aspect of banking. The recent decision of the Bank of Ghana to set a minimum capital of GHS 400 million for the Commercial banks of Ghana supports this argument. With the entire Basel accord centred on capital adequacy, capital adequacy could be recorded as the key for the high level of the financial performance of banks. Sharpe (1964) defines a bank's capital as the amount it holds apart from its assets and deposits. Given that the primary role of banks is to intermediate between the deficit and surplus units by facilitating the movement of funds from savers to borrowers, it is important that banks have adequate capital to carry out this intermediation role. It is worthwhile to note that the intermediation role of banks is done through two of its fundamental components namely financial markets and financial institutions of which banks are a part. Savings refer to the surplus of income left after

expenses are deducted and play an essential role in bank lending. Individuals who save can deposit their funds in banks at little interest, purchase financial assets on the financial market or save their funds as cash. Banks upon receiving these deposits at little interests, lend them to the deficit spending units at higher rates, hence making some margins on the funds. The net income accumulates into profits for banks after deduction of operational costs. Thus, as established by Longe (2005) and Nnanna (2005), the profitability of banks depends on the combination of their assets and liabilities to meet the requirements of environmental liquidity and solvency such as the monetary and banking policies.

From the above, it is clear that bank lending is an important aspect of its intermediation role because it is the main source of income for banks. Yasnur and Kurniasih (2017) stated that bank loans play an essential role in financing national economies and championing economic growth. Economic growth then leads to increased consumption thereby making funds accessible to companies through the banks. Thus, banks can stay in the business of lending only when they are financially sound. Remaining profitable also helps to build depositor trust in banks thereby encouraging them to deposit more. This makes cheap funds available to banks for the cycle of lending to continue.

Furthermore, the larger the capital of banks, the more the loans they could grant (Ejoh and Iwara, 2014). Thus, the more banks stay liquid, the more they can give out loans to different institutions in different sectors of the economy. Access to loanable funds by firms enables them to expand their operations leading to economic development in the country. However, through lending, banks suffer risks arising from loan defaults, which require adequate

capital to absorb unanticipated losses that occur. Olalekan and Adeyinka (2013) argue that usually, banks absorb losses through normal earnings, but where it is not possible to absorb some unexpected losses using normal earning, adequate capital serves as an insurance for financial soundness.

Several studies (Santos, 2000; Ezike and Oke, 2013; Olalekan and Adeyinka, 2013; Almazari, 2013) have been conducted on the impact of capital adequacy on bank profitability, but the results are yet mixed. According to Santos (2000), bank regulation through higher capital requirements has a negative influence on bank development and credit expansion since it increases fixed and operating costs. Ezike and Oke (2013), on the other hand, show that capital adequacy proxied by shareholders fund positively impacts bank profit, total assets, total deposits, return on assets, earnings per share, loans and advances and credit risk, although not all were statistically significant. Olalekan and Adeyinka (2013) used two sets of data (primary and secondary data) to investigate the relationship between CAR and profitability in Nigeria. They found mixed results. The primary data showed that there was no significant relationship between CAR and profitability, but the outcome of the secondary data showed otherwise, that is, a positive significant relationship between the two variables.

In the case of Ghana, Osei-Assibey and Asenso (2015) investigated the relationship between regulatory capital and credit growth, bank efficiency and non-performing loans. Osei-Assibey and Asenso proxied regulatory capital as the ratio of the difference between minimum capital and stated capital to total assets. The study found that high minimum

capital and stated capital above the minimum capital requirement positively related to credit growth. No study on Ghana has focused on the effects of CAR (the ratio of a bank's tier 1 and tier 2 capital to its risk-weighted assets) on bank lending and performance in terms of profitability. Therefore, this study extends the frontiers of literature to address the existing gap as attempts to stimulate discussion among academics and policymakers on the significance of CAR among banks in Ghana.

1.2 Statement of Problem

Owing to the significance of capital to banks and the economy as a whole, the minimum capital requirement of banks has witnessed significant reviews in the last 15 years in Ghana. The Central Bank in 2003 revised the minimum capital from GHS2.5 million to GHS7.0 million. It raised this amount to GHS60 million in 2007 and GHS120 million in 2013. In 2018, the capital requirements more than tripled because most banks were found to be severely undercapitalised, hence affecting their ability to fund big transactions without breaching regulatory limits (BOG, 2018). Given that Capital Adequacy Ratio (CAR) is a function of banks' total capital to its risk-weighted assets, a change in minimum capital requirement affects CAR since it changes the share of a bank's total capital. The link between bank capital and lending is amplified by BOG as they argued that credit expansion had recorded low levels and finance to transformative economic projects suffered due to erosion of bank capital (ibid.).

The importance of capital adequacy cannot be overemphasised. This is because it provides the allowance for banks to continue to create assets without being exposed to insolvency

risk. It gives customers confidence that their funds are safe, and they can easily access credit to invest in their businesses. To the regulator, a higher CAR means the financial system is sound and can withstand shocks without severely affected by macro instability (Olaekan & Adeyinka, 2013). Notwithstanding this importance, no study in Ghana has isolated capital adequacy and examined its impact on bank lending and profitability. The only study on Ghana (Osei-Assibey & Asenso, 2015) has focused on regulatory capital (ratio of the difference between minimum capital and stated capital to banks' total assets). Therefore, this research is novel and seeks to fill this gap by assessing how capital adequacy of commercial banks in Ghana impacts on bank lending and performance. In addition to this, the study will throw light on the prospects and challenges of the recently revised capital requirements. Since the revision, there has not been a study to assess the prospects and challenges of the significant increase in the required capital except the expectations, which were measured in the 2018 banking survey by Price Water House Coopers (PWC).

1.3 Purpose of the Study

The purpose of this study is to find out how capital adequacy affects bank lending and profitability of banks. Analysing this will present opportunities to extend the frontiers of literature by suggesting ways to improve the capital strength of banks.

1.3.1 Objectives

The general objective is to assess the role of capital adequacy on bank lending. The specific objectives of the study are to:

- i. Find out how capital adequacy affects bank lending

- ii. Examine how capital adequacy affects bank performance
- iii. Examine the prospects and challenges regarding the recent increase in the minimum capital requirement to GHS400 million.

1.3.2 Research Questions

- i. How does capital adequacy ratio relate to bank lending?
- ii. What is the relationship between capital adequacy and bank performance?
- iii. What are the prospects and challenges of the recent increase in the minimum capital requirement to GHS 400 million?

1.4 Significance of the Research

The study contributes to research, practice, and policy in the following ways. First, this study is a novel study. This is because no research in Ghana has examined the relationship between CAR and lending as well as CAR and performance. Therefore, the findings will extend the frontiers of literature and contribute to stimulating discussion on the significance of CAR. Secondly, in the wake of ongoing regulatory reforms by BOG, the findings could serve as a source of information to enrich policy discourse as the regulator engages stakeholders. Finally, the findings will help shed light on how banks are coping concerning the benefits and challenges of the recently increased minimum capital. So far, no published work has surveyed feedback on the recent capital adjustment. This will guide future decisions of the central bank as it fulfils its mandates of maintaining a sound financial system in Ghana.

1.5 Research Limitations

The study does not consider the financial statements of other banks in other countries of the world and that of supplementary financial institutions such as microfinance institutions, savings and loans firms and insurance companies. Due to lack of data for all commercial banks in Ghana, the study was limited to only fourteen banks for a period of eleven years. This translates into a relatively smaller dataset and this may not present a precise output compared to a large dataset. However, it is important to state the sample size is above 50 percent and the estimated result will be good to give a reasonable description of the population for future research to build on.

In addition, this study was based on descriptive research design and therefore not able to report causal effect of CAR on lending and profitability. It will be important for future research to build on this study by regression analysis to draw the causal inferences. Further studies can also explore the impact of bank lending on macroeconomic indicators since the larger economy is also impacted by the economic intermediation roles of the financial system, which includes banks.

Finally, the 14 banks included in the study were coincidentally banks that met the GHS400 million recapitalization requirement from the regulator. This survivor bias did not allow for comparison between banks that met the minimum paid up capital requirement and those which eventually collapsed. However, this limitation has not affected the outcome of the study, though it would have enriched the findings. Secondly, this study was based on descriptive research design, which established only trends and associations. As a result,

causal inferences cannot be drawn since the analysis focused on the strength of association between the variables of interest.

1.6 Chapter Outline

The study is in five chapters. Chapter one handles the introduction and general overview of the research area. This is followed by the research problem, objectives, research questions, and significance of the research. The chapter concludes with the limitation of the study. In chapter two, relevant literature is discussed for both theory and empirical insights. This review helped to establish methodological areas adopted by previous researchers as well as existing gaps in the literature. Chapter three describes the research methods used for the study. It also defines the study sample, the data used and type of analysis adopted. The results of the study are discussed in chapter four. Finally, in chapter five, the summary of the study findings is presented with conclusion and recommendations.

1.7 Conclusion

The chapter discussed the relevance of capital adequacy on bank lending. It specified the research gap that had been identified in this research area and specified how this study seeks to close the gap. Objectives and research questions were outlined, and the significance of the research stated. Finally, the chapter also gave an outline of the thesis.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

The current chapter reviews relevant literature that explains the relationship between capital adequacy and bank lending. The chapter will first discuss the main theories that underline the association between capital adequacy and bank lending. A theoretical framework is also employed to explain key concepts reviewed in this study and linkages between these factors established. The study will then proceed to discuss empirical studies that highlight the overlaps and gaps in the existing literature that requires further studies. The thematic areas covered in this review are capital adequacy and bank lending.

2.1 Capital Adequacy

Capital adequacy is defined as the total of funds that a financial institution must hold to be able to carry out its daily activities (Kishore 2005; Pandey 2005). Yu (1996) defines adequate capital as the amount a deposit-taking institution needs to hold to ensure depositor funds are insured. Holding adequate capital serves as an absorber for possible losses and prevents financial institutions from going under. It is an indisputable fact that the role of financial institutions in extending credits to borrowers makes their business risky. There is always a risk of borrowers defaulting but the negative effect of insolvency posed by this risk is prevented through the holding of adequate capital by financial institutions. Thus, it is imperative to note that the call for capitalisation of banks by regulatory bodies is aimed at ensuring that depositor funds are secured and that banks stay solvent and profitable.

Nzotta (2004) therefore defines capital as the sum of capital assets that a bank needs for its operations per the level of risk it takes.

Both internal and external factors, which affects the risks of bank operations are used to assess capital adequacy. It is worthwhile to note that over time, capital adequacy levels need to be adjusted to reflect the growing competition and changing economic factors in the markets and the environments that the banks operate in.

Capital Adequacy Ratio (CAR) as expressed by the Basel Committee measures capital adequacy. CAR is stated as a percentage of the bank's total capital to its total risk-weighted assets. In Ghana, the central bank (Bank of Ghana) has recently adjusted the capital of banks from GHS120 million to GHS400 million. This is to guarantee that the capital of banks is enough to cover the risks they take in their operations and keep them solvent regardless.

2.2 Bank Lending

The key function of banks in an economy is their intermediary role. That is, the state where banks take from the surplus groups (depositors) and give to the deficit group. The more banks perform better, the more loans they are able to give to different sectors of the economy to grow them. Rababah (2015) explains that the credit facilities granted by banks to these sectors enable the sectors to carry on the day-to-day business activities and ultimately improve their business, which in the end shows a positive growth rate in the economy. A study by Alkhazaleh (2017) on components that may increase commercial banks' lending revealed that credit risk and liquidity had a substantial negative impact on

bank lending. Bank lending is affected by internal and external factors. Some factors that were identified to positively affect lending were a return on assets, size of the bank measured by assets, inflation, money supply and growth in domestic and growth in the gross domestic product (GDP).

2.3 Capital Adequacy and Bank Lending

With liquidity being a function of capital adequacy, it is clear that capital adequacy affects bank lending. According to Nzotta (2004), the forte of a bank is dependent on the capital at its disposal. Adequate capital of a bank creates and maintains public confidence in the bank since depositors are guaranteed that their funds are safeguarded. It also signals to them that the bank can meet their credit needs through lending. The study posts that the more capially adequate banks are, the more loans they are able to meet out.

Although a limited number of studies on Ghana have investigated the factors of bank lending and found capital to play a role, those studies have not isolated capital adequacy to measure its impact on bank lending. Akinlo and Oni (2015) pointed out that most research studies conducted on bank lending have not been able to conclude on factors that have strong and weak impacts on bank lending. Not only that, most of the findings of these studies have different views on the direction (positive and negative) of these factors.

2.4 Theoretical Framework

2.4.1 Buffer Theory of Capital Adequacy

As the buffer theory developed by Caleb and Rob (1996) puts it, banks drawing closer to the minimum capital ratio will strive to ensure an increase in capital to avoid the regulatory costs that will be caused by a non-compliance to the capital requirements. As a result, at

every point in time, banks will prefer to have capital in excess of what the regulation demands. This is to ensure that they do not fall below the capital adequacy ratio to attract penalties. In so doing, banks become sensitive to lending. Capitally adequate banks engage in risk-taking ventures that will yield profits and ensure continuous improvement of their capital (Rime, 2001) while undercapitalised banks would tend to take more risks not fearing bankruptcy.

2.4.2 The Theory of the Market Power

This theory has it that the level of competition amongst banks boosts or reduces their profits (Keeley, 1990). The theory argues that having high entry cost serves as a barrier to new entrants into the banking system and therefore makes it possible for existing banks to operate as monopolies. As a result, these monopolies can increase prices without losing customers. With financial institutions need for market power to be successful, having less power affects the profits of banks.

With this being stated, it can be inferred that putting in place high capital requirements for bank set-ups can serve as a barrier to the set-up of new banks. Only a few banks that can meet these requirements will operate as commercial banks thereby eventually becoming a monopoly.

2.4.3 Deposit Insurance Theory:

The theory looks at commercial banks as a portfolio of risky claims. Insured banks normally engage in more risky ventures since, in the case of a crisis, government deposit Insurance Corporation is anticipated to transfer wealth to bank owners. It is therefore

paramount for the risks of these banks to be regulated to reduce the claims paid by these deposit insurance corporations. In addition, supervision of bank operations is needed to safeguard banks from bankruptcy and ensure they remain liquid at every given point in time. This calls in for more cheap deposits. Although deposits cannot be employed for long term planning, having more of it helps increase loans given out by banks. Giving out more loans requires that the needed due diligence be done on customers. This is to ensure that creditworthy customers are given out loans and the issue of moral hazard eliminated. Absence of due diligence can lead to loans going bad and banks becoming insolvent in the long run. In sum, this theory looks at the conduct of commercial banks (Flannery, 1989; Cham, Greenbaum and Thakor, 1992) and its implication on their financial performance.

2.5 Empirical Literature Review

Several studies on capital adequacy and bank financial performance were looked at. These studies established a diverse association between some determinants of financial performance with a focus on capital adequacy and financial performance in general. Musyoka (2017) in his study on the impact of capital adequacy on the financial performance of commercial banks in Kenya studied 42 commercial banks using a census survey. Secondary data of the financial statements of these banks were also used. To establish an existing association between the dependent and independent variables, descriptive statistics such as frequency distributions, pie charts, measures of central tendency and line graphs that described the data were used. Causal relationships between the variables were established through a linear equation. The findings showed that the

relationship between bank size and return on asset (ROA) of commercial banks in Kenya was negative and significant while that of asset quality and ROA as well as ROA and management quality is negative and insignificant. Findings of the study showed that capital adequacy and bank size considerably affect the financial performance of commercial banks.

Aruwa (2014) conducted a study on the effect of capital adequacy on the financial performance of quoted deposit money banks in Nigeria. He looked at financial performance concerning the profit and saving mobilisation of quoted banks in Nigeria. Data spanning through 1997-2011 was used as well as the descriptive research design of time series. To determine and analyse the association between capital adequacy and financial performance, the ordinary least square method of regression was employed. Capital adequacy was proxied by capital to risk -weighted assets while profitability was measured as profit after tax to total assets and saving mobilisation as customers' deposits to total liabilities. The findings showed that CAR has an insignificant impact on bank profitability and the bank's savings mobilisation. The study thus agrees with the buffer theory of capital adequacy, which explains why losses are incurred by some banks, which have an enormous capital base. This is so because findings of these studies showed a significant impact of CAR on financial performance.

Awdeh (2016) performed a study on the development of credit. He examined thirty-four banks with sixteen years data spanning 2000 to 2015. The study showed that factors such as GDP growth, money supply, deposit growth and inflation enhanced the ability of banks

to give out credit facilities to the private sector. Factors such as T-bill rate, interest rate, credit risk, public borrowing and remittance inflows were observed to have a negative effect on the growth of loans.

Ejoh and Iwara (2014) in their research on the influence of capital adequacy on deposit money bank's (commercial and merchant banks) profitability in Nigeria established that capital adequacy is vital in the explanation of a bank's return on assets (ROA) that is a measure of the bank's profitability. ROA was chosen as the measure of profitability due to its ability to measure the profitability and efficiency of a bank in creating income from the bank's total assets. The study used the Engle and Granger two steps procedure in co-integration and t-statistics for its analysis. Studying the annual reports and financials of five banks for a time frame of 20 years, the study established a positive significant relationship between capital adequacy and the bank's profitability. These results suggest that bank's with greater equity capital are seen as safe and are able to have cheaper sources of funds thereby making them more profitable. This is because being solvent helps banks to attract in new customers and shareholders as well as maintain their existing customers. Such banks are also able to meet the credit requests of their clientele. The fallout from this study was that a periodic review of such banks in Nigeria be done to ensure they were well capitalised and thereby more profitable.

Amidu (2014) in his study of the factors of bank lending in Sub-Saharan Africa (SSA) found linkages between the health of bank balance sheets and lending. He studied 24 countries in the region using bank and country-level data. The study used panel regression

to analyse data collected from 264 banks in these countries over eight-year period. The study revealed that giving out loans to the private segment in SSA is determined by the size of the bank, its growth level and management efficiency. In addition, it revealed that the decision of banks to give out loans is influenced by the conditions for entry, regulatory power and capital requirements. A negative association is established between monetary policy and bank lending in SSA. Thus, bank lending is reduced when policy-induced interest rates are increased.

Okoye, Ikechukwu, Christian, Chinyere and Christian (2017) also investigated the effects of capital adequacy on the performance of banks in Nigeria. Relying on panel data from 2010 to 2015 and using statistical analysis such as Pearson correlation coefficient and multiple regression, they found that capital adequacy and financial performance of banks significantly influenced each other in the same direction. The result was estimated at a significance level of 0.05.

2.6 Conclusion

The chapter looked at various theoretical and empirical studies that underline the studies. It begins by establishing a link between capital adequacy and bank lending. It then proceeds to look at how theories posit the relevance of capital adequacy in determining bank lending. Various empirical studies reviewed showed that capital adequacy plays a crucial role in bank lending or bank performance as a whole.

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Introduction

Methodological approaches employed in analysing the role of capital adequacy on bank lending and performances are discussed in this chapter. The research design adopted is explained while the choice of data, sampling and analytical models are justified.

3.1 Research Design

According to Burns and Groove (2010), a research design is key in undertaking research and demands one to have absolute control over factors that may affect the study's validity. This study relied on mixed-method design: survey and descriptive designs. In the survey, both qualitative and quantitative approaches are used to solicit personal views of key bank staff about the prospects and challenges of the recently increased minimum capital for commercial banks. In addition to this, secondary data from banks financial statements were used to provide descriptive inferences, relationships and associations between CAR and lending and then CAR and performance. Basic descriptive, correlation and bivariate graphs were employed. Descriptive research design includes the assemblage of data describing events, and then their organisation, tabulation, depiction and description (Glass and Hopkins, 1984).

Data for fourteen (14) banks from 2008 to 2018 were used. The banks were sampled based on the availability of data on their financial performance over the eleven years. The time

series was restricted to eleven (11) years because that was the only period that we could access information on CAR for the fourteen banks.

3.2 Population

The total number of banks in Ghana before the recent recapitalisation was thirty-one (31). This represented the population from which the sampled banks for this study were drawn. To avoid survivor bias, the study did not focus on only banks that met the GHS400 million minimum capital requirement of the BOG. The primary target was to include all banks with available information on Earnings Before Interest and Tax (EBIT), loans and advances and Capital Adequacy Ratio (CAR). However, due to the liquidation of banks that failed to meet BOG threshold for capitalisation, their financials were not available and therefore the total population reduced to twenty-three (23) banks.

3.3 Sample Size

A sample of fourteen (14) out of twenty-three (23) licensed commercial banks operating in Ghana was used for this study. We relied on the sampled banks because of access to their financial information. The sample represents approximately 61% percent of the total population of banks. For the primary data, the study interviewed three (3) staff each from the 14 banks, making a total of 42 respondents. However, only 21 staff from the various banks responded to the survey questionnaire. We, therefore, reported the results of the survey based on the 21 respondents. The staff were purposively sampled from the credit, trade services and financial control departments to ensure relevant information was provided because CAR, lending and performance are primarily the responsibility of those departments.

3.4 Sampling Technique

The selection of banks was purposively done and included all banks with data on CAR, loans and advances and EBIT from 2008 to 2018. Although longer durations give a better insight into the association between the explained and explanatory variables, this study could rely on eleven years due to data unavailability. The study did not include non-bank financial institutions since commercial banks overshadow other financial institutions in lending in the Ghanaian economy and to a very large extent, most of these institutions are part of the banks' lending process. The non-bank financial institutions include, but are not limited to savings and loans companies, microfinance institutions, mortgage companies, insurance companies and the Stock Exchange.

Correlations and bivariate graphs were ran on CAR, growth of loans and advances as well as profitability (EBIT). This is to describe whether CAR has any relationship with lending and performance (proxied by EBIT).

3.5 Data Analyses and Interpretation

Analyses of the data were done using Stata version 14. Summary statistics on mean, standard deviation and ranges were generated in order to describe the characteristics of the dataset. Further, the Person correlation coefficient was used to established patterns of association between CAR and Lending as well as CAR and profitability.

Pearson's correlation coefficient is an arithmetical measure of the strength of a linear relationship between paired data (Evans 1996). The level of the relationships between the variables will be quantified using correlation coefficients(r) of +1 or -1. The strength of a positive correlation is determined by the closeness of r to positive 1 while that of a negative

correlation is determined by the closeness of r to negative 1. The interpretation of the Correlation coefficient will be guided by Evans' (1996) categorisation of the absolute value of r , which is described as follows: 0.0-0.19 (very weak relationship), 0.20-0.39 (weak relationship), 0.40-0.59 (moderate relationship), 0.60-0.79 (strong relationship) and 0.80-1.0 (very strong relationship). In addition to this interpretation, 5% percent significance test was ran to further confirm if the results are significant.

3.7 Conclusion

This chapter discussed the research methodology used for this study. It explained how the association between CAR and lending and profitability was established. The primary data justified the selection of the survey sample and the method used in obtaining the data. The chapter concluded by stating the research limitations to guide future studies.

CHAPTER FOUR

DATA ANALYSIS AND DISCUSSION OF FINDINGS

4.0 Introduction

This chapter focuses on the analysis of data and discussion of findings relative to the study objectives. First, summary statistics are presented to describe the dataset and this is followed by the bivariate graphs explaining the individual variables of interest. Secondly, Person correlation results are discussed to address the main research questions. Finally, the analysis is enriched by the discussion of the findings vis-à-vis previous studies.

4.1 Descriptive Statistics

Three key variables directly answer the questions this study set out to measure. These are EBIT, lending and capital adequacy ratio. The objective was to determine the direction of the association between CAR and EBIT as well as CAR and Lending. Table (1) shows that the average annual profit (EBIT) of the sampled banks is approximately GHS 114 million Ghana cedis. A high standard deviation of 139 reflects a significant variation in the profit levels of the banks.

Furthermore, the results also show some losses were recorded in the banking industry over the period, which averaged about GHS106 million Ghana cedis. Average lending proxied by the amount of loans and advances granted to customers was around GHS 922 million with a high standard deviation of GHS755 million. Given that the minimum average amount lent was around GHS1.5 million and the maximum amount totalled GHS4billion,

there was a huge variation among banks. Interest accruing from lending activities averaged GHS291million with some banks recording as high as GHS1billion Ghana Cedis.

Capital Adequacy Ratio, which is a measure of financial health in the banking industry averaged 18 percent above the regulatory threshold of 10 percent. However, some banks slipped below the regulatory threshold, as the minimum recorded was 8.2 percent.

Table 1: Summary Statistics of Variables

Variable	Obs	Mean	Std. Dev.	Min	Max
EBIT (millions)	154	113.9817	139.4949	-105.714	554.477
Lending (millions)	154	921.8419	755.2513	1.493	4123.153
CAR	154	18.21675	6.54238	8.2	53.95
Interest Income (millions)	154	291291.9	259419.6	11528	1354614

Source: Author’s computation based on Banks annual reports, BOG and World Bank data

4.2 Performance of Banks

Performance is defined by the level of profitability or otherwise of banks. Here, we discuss the profit and/or losses before interest and taxes, because that represents the actual return realised from investments and services delivered. Figure 1 shows that four banks (Ecobank, GCB bank, Barclays bank and Standard Chartered bank) were the most profitable. Of these four banks, only GCB bank is an indigenous bank with majority shares held by the state. The rest are subsidiaries of foreign-owned banks. The least performing banks are

Prudential bank, Agricultural Development Bank (ADB) and HFC Bank (now Republic Bank). Both Prudential and ADB are also indigenous banks.

The average performance of the sampled banks moderated in 2018 compared to 2017. Average growth in profit in 2017 was 31.1 percent compared with 22.9 percent recorded in 2018 (Figure 2). This is generally consistent with the industry trend reported by the regulator. According to BOG, net profit recorded in 2018 was GHS2.4billion, which is equivalent to a growth rate of 12.5 percent relative to 21.7 percent recorded in 2017 (BOG, 2019). Though interest income declined, there was a net-off effect due to a decline in interest rates as well (ibid.).

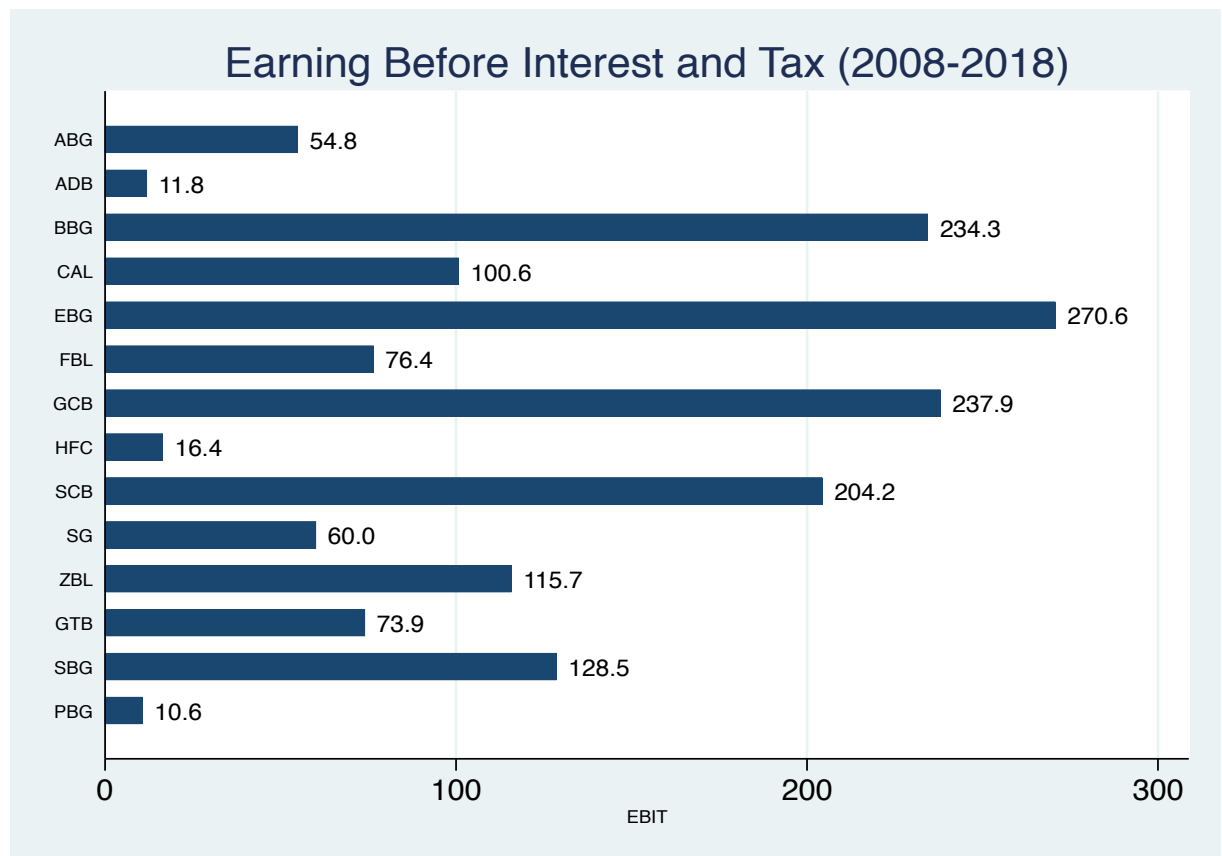


Figure 1: Performance of Banks

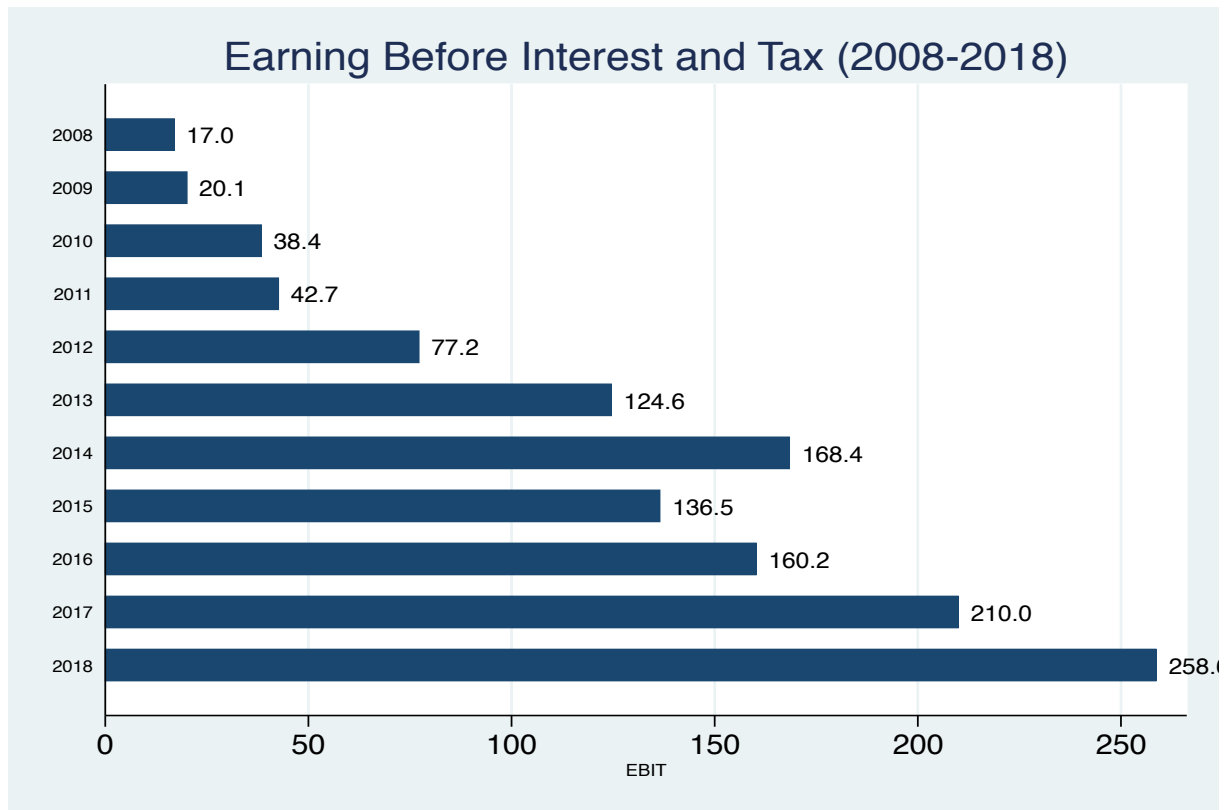


Figure 2: Average Profit of Banks (2008-2018)

Source: Author’s computation based on data from banks financial statements

4.3 Lending by Banks

Banks create loan assets by investing capital and liabilities generated from customer deposits and the issuance of debt instruments. These activities define the core business of banks, which is financial intermediation. This involves the process of channelling funds from the surplus units to the deficit units within the financial system. Total assets created by each bank in terms of loans to customers over the eleven years period are presented in Figures 3 and 4. There have been consistent increases in the total loans granted to customers from 2008 until 2017 when the loan portfolio declined marginally, but resumed a sharp rise

in 2018. From 2015 to 2017, there was no significant difference in the amount of loans disbursed to customers.

The energy crisis, which occurred between 2015 and 2017 adversely impacted banks operations. For instance, BOG reported that the oil and gas sector recorded 37.8 percent of impaired loans in 2018, an indication of a lagged effect of the economic situation from previous years. Deteriorating asset quality and increasing non-performing loans (NPLs) were pointers that signalled to banks for a more careful approach in order not to further expose their assets to risk. On the other hand, the increase in credit to customers from 2017 to 2018 was approximately 25 percent (Figure 3) and this reflects the fact that banks had injected additional capital following the recapitalisation exercise carried out by Bank of Ghana.

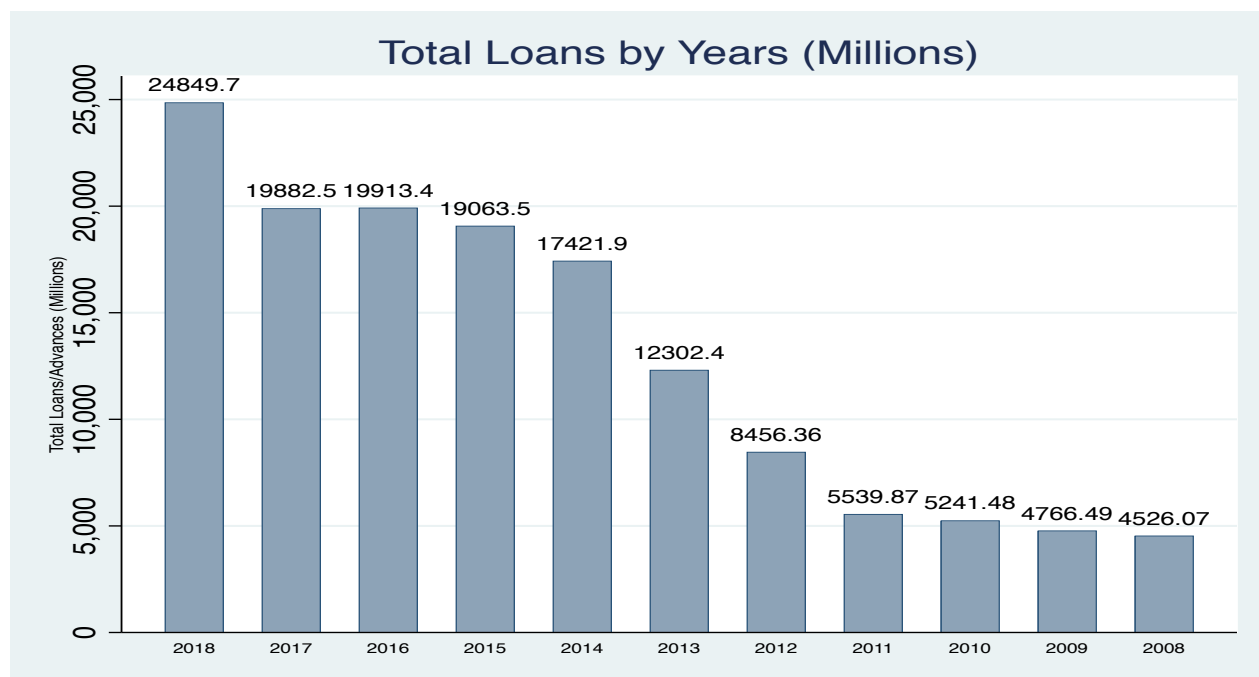


Figure 3: Loans and Advances to Customers by Years

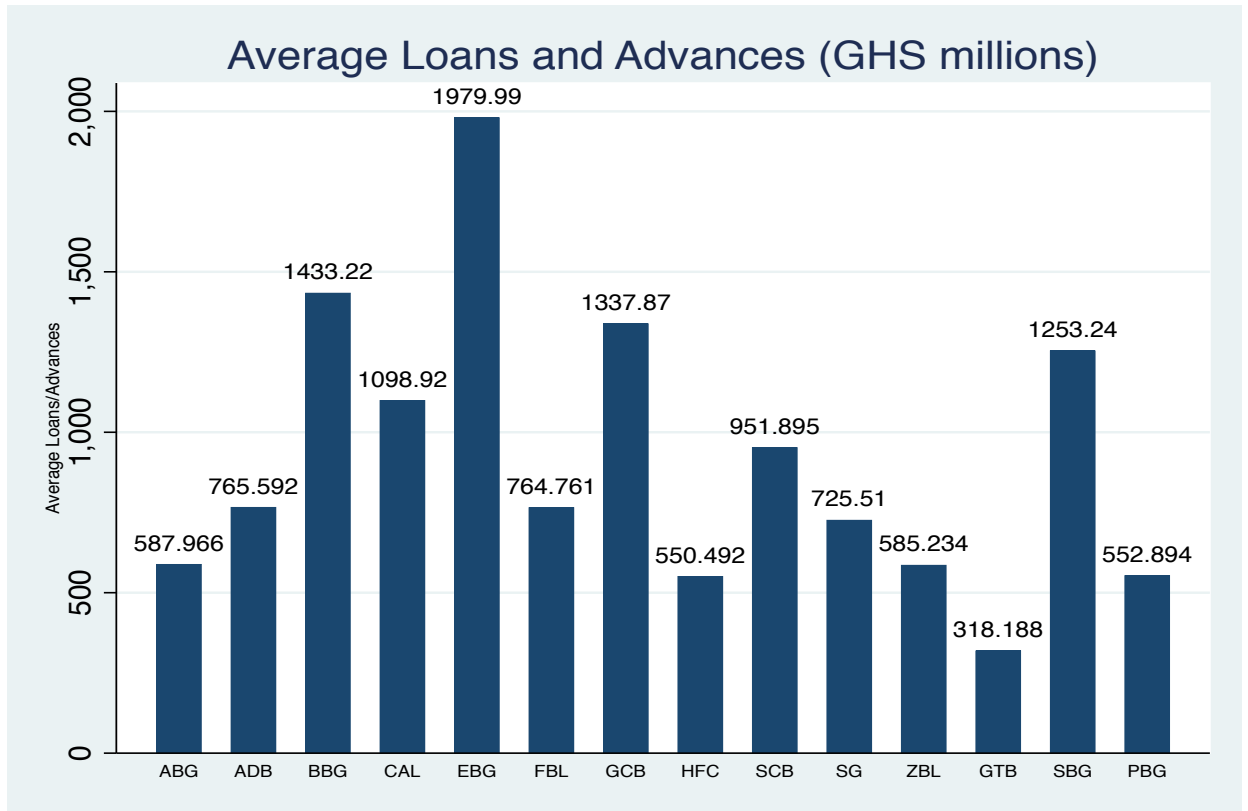


Figure 4: Loans and Advances to Customer

Source: Author’s computation-based data from banks’ financial statements

The top banks with a high proportion of loans to customers were Ecobank (GHS1.9billion), Barclays (GHS1.4billion), GCB bank (GHS1.3billion) and Stanbic (GHS1.2billion). Apart from Stanbic Bank, the rest were among the top four most profitable banks (Figure 4). Although Standard Chartered Bank (SCB) was among the four most profitable banks, its share of loans to customers was lower than the amount lent by Stanbic and CAL Banks respectively. Guarantee Trust Bank (GTB) was the least in terms of the share of loan portfolio that went to customers. It is important to emphasise that the share of the loans to customers is also likely to be a function of the size of each bank.

4.4 Capital Adequacy Ratio (CAR) of Banks

Olalekan and Adeyinka (2013) argued that usually, banks absorb losses through normal earnings, but where it is not possible to absorb some unexpected losses using normal earnings, adequate capital serves as an insurance for financial soundness. Banks in Ghana are required to ensure they keep CAR at a regulatory minimum of 10 percent (Figure 5). Therefore, a ratio of 10 percent or more gives confidence that the banking sector is solvent and liquid to absorb any losses arising from the non-performance of loans granted to customers. Average CAR for the sampled banks in this study was 18 percent, which is above the regulatory requirement but lower than the industry average of 21.9%. Figure 4 shows that each of the banks averaged more than the minimum threshold required by the regulator. CAR generally improved across banks for 2018 and this is largely due to the recently increased minimum capital as well as the issuance of the ESLA bond (BoG, 2019; Figure 5 & 6). The importance of CAR cannot be overemphasised, especially given that the industry has been recording steady growth in NPLs. A sound financial system is able to support the economy through increased credit to businesses while remaining solvent to absorb any unexpected risk.

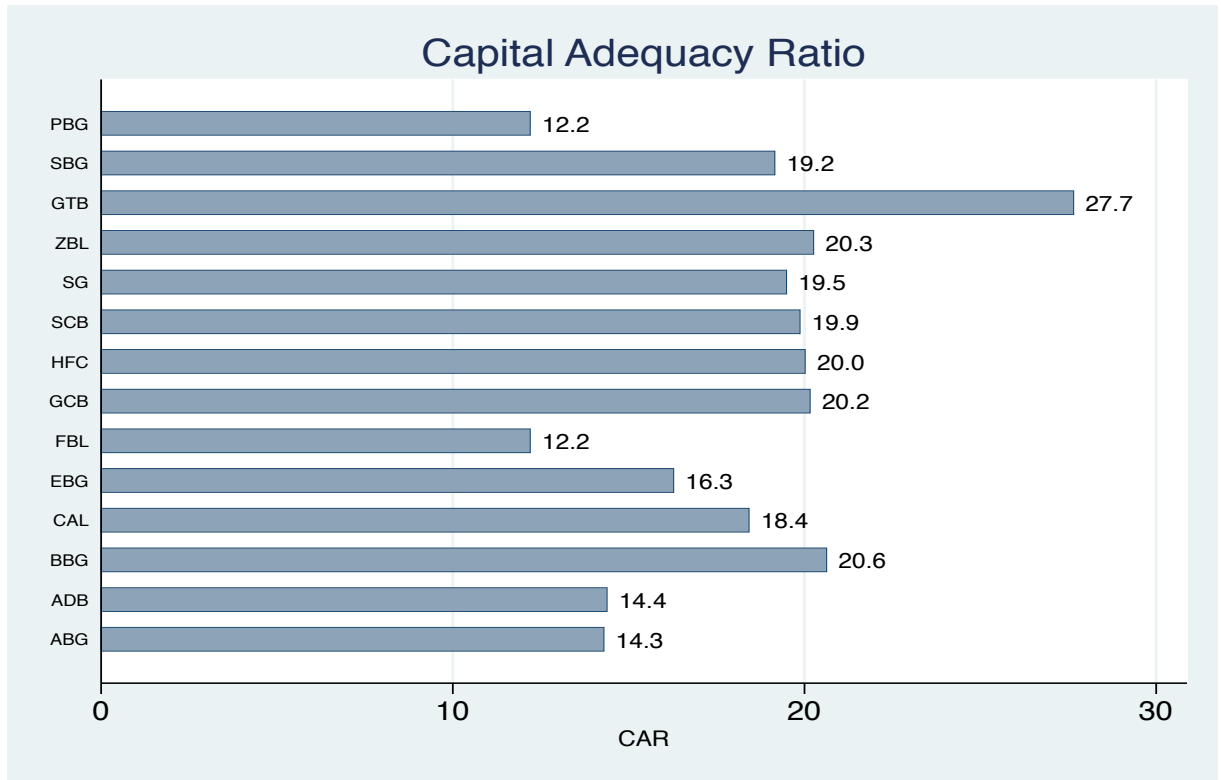


Figure 5: Capital Adequacy Ratio by Banks



Figure 6: Average Capital Adequacy Ratio for 2008-2018

Source: Author’s computation based on data from banks

4.5 Relationship Among Variables

To determine how related Capital Adequacy is to Profit and Lending, Pearson correlation was computed. The results are presented in Table 2. Capital adequacy and profitability are positively related, suggesting that an increase in capital adequacy is likely to lead to an increase in profit or vice versa. Though this is significant at 0.05 level ($r=0.2759$, $p=0.001$), it is a weak correlation according to the interpretation guide by Evans (1996), which classifies correlation coefficient from 0.20 to 0.39 as weak correlation because of its distance to 1. Going by the significance test, the result reported here is consistent with Okye et al. (2017) and Ejoh and Iwara (2014).

Nzotta (2004) and Ejoh and Iwara (2014) stress the fact that capital adequacy creates customer confidence and portrays banks as safe to do business. This makes well-capitalised banks attractive to customers with a cheap source of funds for increased business. The study contradicts Aruwa (2014) who found an insignificant relationship between CAR and profitability. Aruwa's argument is aligned with Buffer theory's proposition that banks with adequate capital have an appetite for lending and may unnecessarily assume the risk that can impair their performance.

While Buffer theory (Caleb & Rob, 1996) insists that banks' sensitivity to lending increases as they approach the minimum capital adequacy ratio, this study finds CAR to have no impact on lending decisions of banks. Though the correlation coefficient ($r=0.016$) was positive, it is a very weak and insignificant ($p=0.846$) coefficient. This does not find favour

with Amidu (2014) who reported that loan decisions by banks are influenced by capital requirements in addition to market conditions and regulatory power.

Table 2: Pearson Correlation Matrix

	EBIT	Lending	CAR	Interest Income
EBIT	1			
Lending	0.7752*	1		
	0.000			
CAR	0.2759*	0.016	1	
	0.001	0.846		
Interest Income	0.7844*	0.8272*	0.1552*	1
	0.000	0.000	0.055	

*Significant at 0.05 level

Source: Author’s computation based on data from Bank Financial Statements and World Bank

4.6 Survey Results

This section presents the results of a survey, which focused on collecting the views of staff from the various banks on the recently increased minimum capital. Forty-two respondents were targeted from the banks included in the secondary data. Survey questions were electronically shared with the respondents through Survey Monkey data collection tool. Fifty (50) percent response rate was achieved and therefore, the results presented here are based on the views of the respondents.

Majority of the respondents (66.7 percent) were male as shown in Figure 7 with average employment longevity of 3.67 meaning that employees have stayed with banks for about 4 years. The duration of stay is relatively long for the respective staff to provide relevant

information on the subject matter, especially because they were drawn from finance, operations, retail business, risk management and trade services (Table 3).

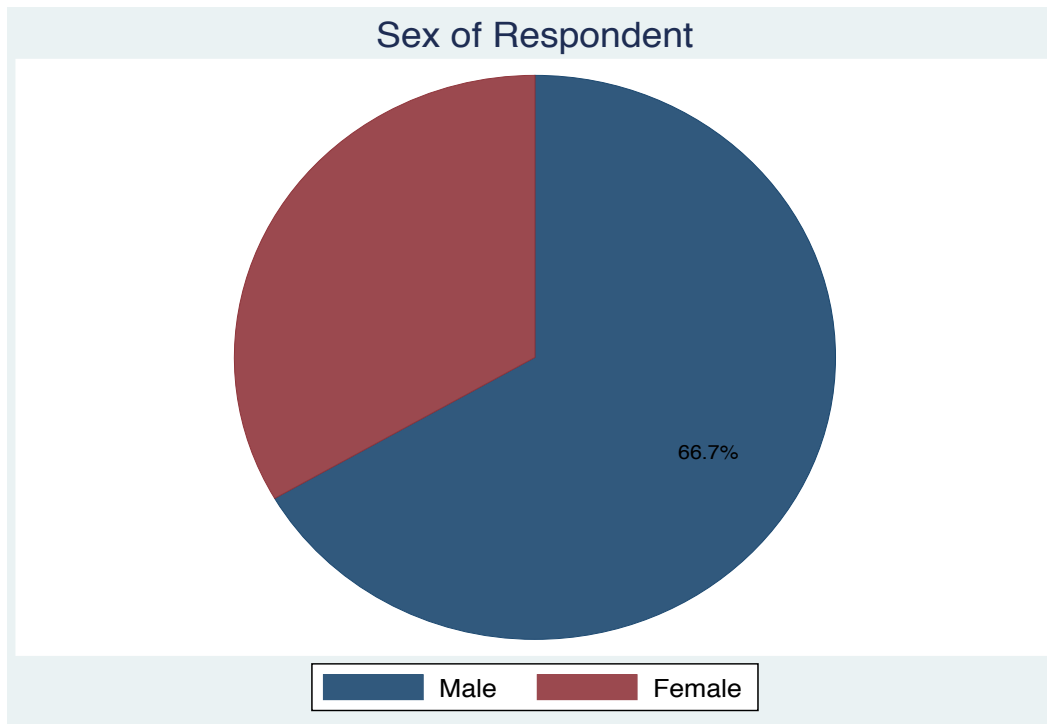


Figure 7: Sex of Respondents

Table 3: Crosstab between Department and Gender of Respondent

<i>Department</i>	<i>Female</i>		<i>Male</i>		<i>Grand Total</i>	
	<i>Frequency</i>	<i>Percent</i>	<i>Frequency</i>	<i>Percent</i>	<i>Frequency</i>	<i>Percent</i>
Financial Control	3	14%	3	14%	6	29%
Operations	1	5%	2	10%	3	14%
Retail Business	0	0%	2	10%	2	10%
Risk Management	0	0%	4	19%	4	19%
Trade Services	3	14%	3	14%	6	29%
Grand Total	7	33%	14	67%	21	100%

4.7 Expectation of Respondents on Recapitalisation

From Table (4), the majority of the respondents (52 percent) were certain that the recapitalisation will lead to increased bank performance. About 34 percent were relatively unsure of the impact of the recapitalisation while 14 percent disagreed on the positive influence of the minimum capital. There was no significant difference between the responses of males and females because the chi statistic was more than 0.05 significance level. In the secondary data, recapitalisation influenced CAR positively, which contemporaneously also positively related to profitability. Given this direct influence, the views of the respondents agree with results from the secondary data.

Table 4: The increase in minimum capital for banks from GHS120 million to GHS 400 million will lead to increased performance or returns?

<i>Scale</i>	<i>Female</i>		<i>Male</i>		<i>Grand Total</i>	
	<i>Frequency</i>	<i>Percent</i>	<i>Frequency</i>	<i>Percent</i>	<i>Frequency</i>	<i>Percent</i>
Agree	0	0%	3	14%	3	14%
Disagree	1	5%	2	10%	3	14%
Don't know	1	5%	1	5%	2	10%
Moderately agree	1	5%	4	19%	5	24%
Strongly agree	4	19%	4	19%	8	38%
Grand Total	7	33%	14	67%	21	100%

Pearson chi2(4) = 3.1500 Pr = 0.533

Source: Author's analysis-based field data (2019).

The expectations of majority of bank staff were that the recapitalisation will lead to improved lending (57 percent), increased profit (57 percent) and risk appetite (52 percent).

This was followed by staff that believed that there will be an investment in information technology, investment in human resource training and capacity building as well as expansion in the branch network. Very few respondents (5 percent) hoped that this could influence NPLs in the opposite direction (Figure 8).

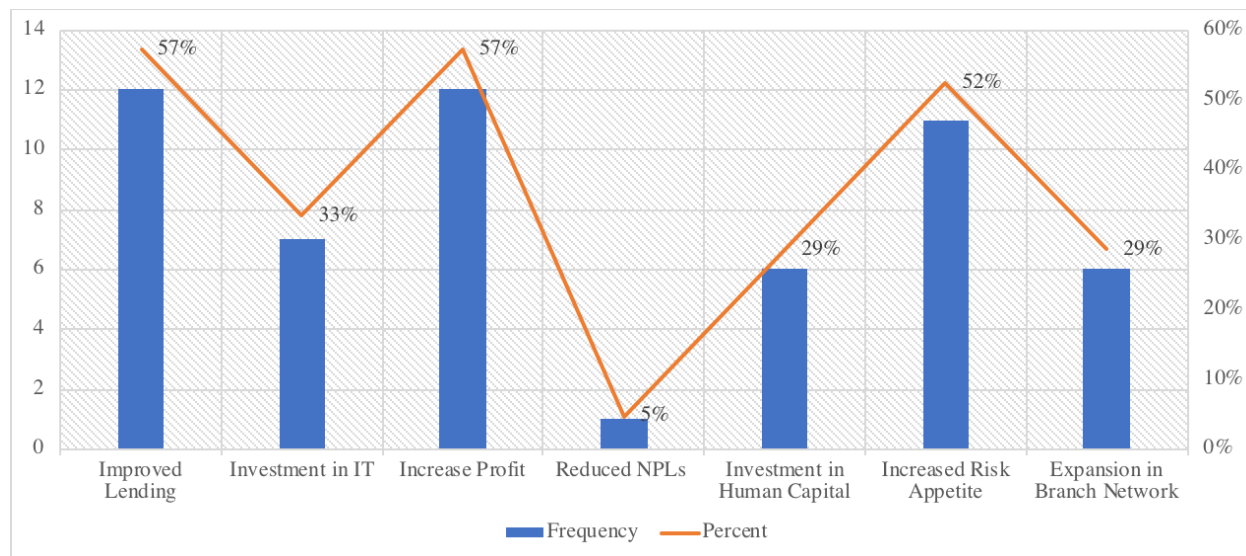


Figure 8: Respondents' Expectations of Likely Outcomes of the Recapitalisation

Source: Author's analysis-based field data (2019).

4.8 Prospects and Challenges of Recapitalisation

Increased capital improves capital adequacy ratio because CAR is a ratio of banks capital to its risk-weighted assets. Given that respondents have inside knowledge of how operations of the various banks are conducted, they were asked to give their general impression of the recapitalisation exercise. Generally, respondents held the view that the upward adjustment in the minimum capital will expose non-performing banks, increase competition, strengthen those with the financial capacity to absorb unexpected risk and serve as a deposit protection measure to prevent customers from losing their funds. At the

same time, it was argued that the GHS400 million was too high, especially for growing banks with the relatively short period required of them to actualise the directive from the regulator. In this regard, it was suggested that the minimum should have been implemented in tiers for different categories of banks based on the nature of their operations rather than the wholesale approach. Notwithstanding all these, the fear for job losses because of liquidation, mergers and acquisition for failed banks also dominated their responses with a compelling net-off effect on the reform objective of achieving financial soundness.

4.10 Conclusion

This chapter focused on the presentation of analysis and discussion of the study findings. The primary data was based on a survey of opinion from selected bank staff with relevant knowledge in finance, operations, risk and credit management. The responses have been triangulated with the secondary data to give a clear picture of the impact of CAR on bank performance and lending. The subsequent section, therefore, concentrates on the summary of the key discussions in this chapter.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.0 Introduction

This study set out to investigate how capital adequacy ratio, being a measure of the financial soundness of banks, relate to bank lending and impact performance. Furthermore, it was important to find out the prospects and challenges of the recent upward adjustment in the minimum capital requirement for banks, given that the size of capital positively impacts capital adequacy ratio. This chapter provides a summary of key findings, conclusion and recommendations based on the descriptive analysis presented in the previous chapter.

5.1 Summary of Key Findings

The banking sector is financially sound as the average capital adequacy ratio for the sampled banks in this study was 18 percent. This is higher than the required regulatory minimum threshold of 10 percent, although lower than the industry average of 21.9 percent as at the end of 2018. The recent upward adjustment in the minimum capital of banks positively related to CAR of banks as the latter recorded growth of 27.3 percent in 2018 compared to 4.3 percent in 2017. A higher CAR is very important given that there has been a steady growth in non-performing loans in the banking sector in Ghana.

This study also realised that loans and advances to customers have been growing steadily in absolute terms until 2017 when it declined, but resumed a sharp rise in 2018, owing to

the increase in minimum capital. The growth in loans is good for the private sector, as this will stimulate economic activity.

Profitability recorded a stochastic trend. A negative growth rate of 19 percent was recorded in 2015. This improved in 2016 with a growth rate of 17 percent and 31 percent in 2017 but moderated in 2018 with a rate of 23 percent. This is consistent with the industry trend reported by the Bank of Ghana. Out of the 14 banks studied, the most profitable were Ecobank, GCB bank, Barclays bank and Standard Chartered bank. These four banks controlled about 59 percent of the average profit realized, a reflection of the level of concentration in the industry.

Capital Adequacy Ratio and profitability were found to be positively related. This was significant at 0.05 percent level. This result showed that it is likely that banks can improve their profits if they seek to maintain capital levels required by regulation. This concurs with previous studies in the subregion (Okye et al., 2017; Ejoh & Iwara, 2014 and Nzotta, 2004).

Lending was not sensitive to changes in the capital ratios because the correlation coefficient reported was very weak according to the classification by Evans (1996). At the same time, it failed the significance test. This finding is contrary to the position of the Buffer theory as well as the findings by Amidu (2014).

5.2 Conclusion

Banks in Ghana maintain high capital ratios to provide a buffer for unexpected losses arising from their lending decisions. Although loans and advances have rising in absolute terms over the years, the increases have not been significant to depict any relationship with the relatively sound financial environment. Given the rising incidence of NPLs, banks remain cautious in further exposing their capital. In the midst of this, however, there is evidence to suggest that capital adequacy ratios inure to the benefit of banks in terms of profitability. This is because banks are likely to mobile cheap liabilities from their customers who are confident about the stability of the financial system. It is important to emphasise that changes in capital held by banks may not directly influence lending, which is the core business of banks, but it does strongly relate to CAR with potential to lead to increased deposits.

5.3 Recommendation

The evidence presented in this study was only based on establishing associations or the strength of the relationship between CAR and other bank-level variables and macro factors. It did not extend to measure causal relationship. Therefore, it will be important to examine the extent to which CAR affects lending and profitability. This is a future research area. Furthermore, it was not possible to analyse differences in the direction of correlation between banks that collapsed following the recapitalisation and those that eventually survived due to data limitation. As a result, it will be important to test a hypothesis in this area.

To improve bank lending to customers, there is the need to focus on mitigating risk in the industry and government needs to be at the forefront in introducing systems that improve customer identity while streamlining the addressing system.

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H. Others (Please specify).....

G. Strongly disagree

4. What possible challenges do you envisage banks will face following the increase in minimum capital to 400 million?
5. What are your general impressions of the decision by Bank of Ghana to increase the minimum capital from GHS 120 million to GHS 400 million?