UNIVERSITY OF GHANA

IMPACT OF CREDIT RISK MANAGEMENT ON THE FINANCIAL PERFORMANCE OF INDIGENOUS BANKS

BY

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DECLARATION

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

GLORIA MPEANIN

DATE

(10637008)
CERTIFICATION

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

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SAINT KUTTU, PHD  DATE

(SUPERVISOR)
DEDICATION

To my Lovely husband.
ACKNOWLEDGEMENT

Without the support and assistance of several individuals who devoted time, energy and wise counsel, this work would not have seen the light of day. For his dedication, and guidance, my deepest appreciation goes to my supervisor Dr. Saint Kuttu who has patient and committed as well as provided constructive comments that has led to the successful completion of this dissertation. I am grateful. I also wish to extend a special acknowledgement to my husband for his immense support and sheer believe in me to never give up throughout the entire programme. I am thankful to my Family for their various roles in helping complete this work successfully. I am grateful to you all. God bless you.
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ABSTRACT

Through their financial intermediation, banks perform critical functions in national economic development, as they stimulate economic growth. This function is largely carried out through loan advances to businesses and individuals and earns income from interests on these loans. However, the banks are faced with credit risks as some customers may not be able to refund credits advanced to them. Managing credit risk effectively is therefore critical to the health and sustainability of the bank. The health and sustainability of a bank is usually assessed through its financial performance. Thus the study sought to ascertain how credit risk management affected the 7 indigenous banks who are now defunct. The quantitative approach was used and panel data covering the period 2010 to 2016 was gathered from the banks’ annual reports. The multivariate regression technique and descriptive statistics were employed in the analysis of data. The study established that adequate capital impacts positively on a local bank’s performance (profits). In addition, the research found credit risk management indicators, cost per loan as well as non-performing loan to affect local banks’ profitability negatively. It was suggested that existing indigenous banks ought to develop reliable credit management strategies to reduce the incidence of non-performing loans. This must include the use of credit bureaus to reduce information asymmetry during loan administration.

KEYWORDS: Credit Risk, Return On Assets, Bank performance, Non-Performing Loans, Capital Adequacy.
CHAPTER ONE
INTRODUCTION

1.0 Background to the Study

Banks perform critical functions in the economic development of all nations through their financial intermediation functions. This intermediation role serves a catalyst for economic growth. Also, banks provide capita to investors who by this are able to exploit desired profitable ventures (Kargi, 2011). But, at the same time, the provision of credit poses concern to banks due to the risk associated. This risks comes about due to the failure of borrowers to repay loans and advances granted. In this case, the banks needs to make provisions for loan losses which potentially constrain its profitability level.

Risk of nonpayment has largely been attributed to poor credit management. In an empirical study in Ghana, Addae-Korankye (2014) for example, found the major causes of non-performing loan to comprise poor appraisal, lack of monitoring, and improper client selection. This underscores the existence of a fundamental problem in the credit management practices of banks. Gill (1998) likewise contends that the incidence of nonperforming loans has been as a result of weak institutional standards of lending to clients and counterparties, and management of risk exposures. Extant literature indicates that non-performing loan levels are quite high among Ghanaian banks. The Ghana Business and Finance (2011) for example report that by close of year 2010, 17.6% of the loan portfolio of Ghanaian Banks were thought to be non-performing. By year 2017, this had risen to 21.6% (The World Bank, 2019). Given the growing levels of non-performing loans it has become imperative for banks to embrace efficiency in their operations. Non-performing loans generate additional costs for banks (Nitoi & Spulbar, 2015). Thus efficiency and cost optimization must characterise the operations of indigenous banks. Cost per loan asset ratio for instance is an indication of management efficiency in the administration of loans. Proceeding from this background, this study seeks to
evaluate the effect of credit risk management on bank performance, with a focus on the indigenous banks.

1.1 Statement of the Problem

Banks generally obtain their earnings from interest income accruing from their loan advances. However, this source of income is also the source of their vulnerability as some borrowers tend to default in making repayments (Li and Zou, 2014). This has clearly been witnessed in the banking sector in Ghana in recent times. In a more recent report on the banking sector, The Bank of Ghana (2018) revealed that credit risk among banks continues to be high with more than one-fifth of loans in the sector being non-performing and thus further highlighting the enormity of credit risk that banks face. Credit risk has also been cited as a cause of the collapse of some banks in recent times. That of Sovereign Bank, that is, non-performing loans was found to be 78.9 percent of its loan portfolio. The reports indicated further that some of the affected banks had transactions with individuals and bodies that per the central bank’s regulations must be within stipulated limits. The transactions of these banks with the earlier mentioned parties amounted to GH¢161.92 million. Per the banking regulations, the transactions with parties such as shareholders, and parties related to the bank should not exceed stipulated limits. The actions of the banks were therefore undertaken to conceal information as well as mislead the banking supervisors, thereby presenting wrong information on the adequacy of their capital (Joy Business News, 2018).

Managing credit risk entails processes. To accurately gauge the efficiency of the process, banks can rely on key pointers commonly employed by practitioners. Pazarbasioglu (1999), acknowledges that proxies give the best signal of how vulnerable or otherwise a financial institution is to crises. These proxies are therefore utilised in predicting crises as well as assess the soundness of the banking system. Similarly, Gizaw et al. (2015) holds the view that credit
risk monitoring provides managers of banks information on the extent to which loans will become non-recoverable.

More so, according to Li and Zou (2014), prior studies focusing on impact of various indicators used in managing credit risk indicates inconsistent results. For instance Jha and Hui (2012), established that the capital adequacy ratio is negatively related to profitability. Gizaw et al. (2015) posited that CAR has a significant positive effect on profitability. Similarly, Alshatti (2015) established a positive impact of the ratios of NPL/Gross loans on the performance of banks. In contrast, Felix and Claudine (2008) found the relationship to be negative. The study by Poudel (2012) in Nepal established that cost per loan assets (CLA) and ROA were negatively related. In contrast, Kurawa and Garba (2014) whose study was carried out in Nigeria established that the relationship between those variables is positive. The conclusion therefore, is that that the association between those variables is largely inconclusive and needs further enquiry in the contexts of different economic environments. This study therefore examined the association existing among these variables and indigenous banks performance.

1.2 Objectives of the Study

The objectives of this study are two-fold namely general and specific objectives.

1.2.1 General Objective

The goal of this research in general, is to look at how the management of credit risk affects the financial performance of indigenous banks.

1.2.2 Specific Objectives

1. To determine the impact of capital adequacy on the profitability of indigenous banks.
2. To examine the effect of nonperforming loan to total loan ratio on the profitability of indigenous banks.
3. To assess the effect of the ratio of cost per loan asset on indigenous bank’s profitability.
1.3 Research Questions

1. What impact has capital adequacy on the profitability of indigenous banks?
2. What is the effect of nonperforming loan to total loan ratio on the profitability of indigenous banks?
3. What is the effect of cost per loan asset ratio on the profitability of indigenous banks?

1.4 Significance of the Study

This research work had implications for policy practice in the banking sector in Ghana. The study provided much knowledge on the way various indicators used for managing credit risk impact on bank profitability. As a result, banks can gauge these indicators over time and respond appropriately in order to improve their performance. Regulators in the banking industry will find the outcome of the study useful as it can serve as a guide to policy formulation and direction. Again, the research sought to add to existing literature on the area of study. Thus other researchers can draw on it as a guide and source of reference material. Finally, the study will serve as a foundation upon which further studies may be conducted.

1.5 Scope and Delimitations of the Study

This research has both conceptual and population delimitations. Conceptually, the study limits itself to the examination of three credit risk management indicators; (1) capital adequacy ratio (2) cost per loan asset ratio and (3) non-performing loan ratio. Other indicators used in the management of credit risk are however not included. In terms of the population delimitation, the study is limited to only seven Ghanaian owned banks. Again, sampling period of the research is limited to years 2010 to 2016, a period of 7 years.

1.6 Limitations of the Study

The focus of this research has been on selected indigenous banks and for this very reason, findings could not be completely generalizable to other bank settings. Also, as the study is
limited to a particular sampling period, results may not hold for other periods yet to come and even for past years.

1.7 Organisation of the Study

The research work is made up of 5 chapters. The first chapter provided an outline of the background of the research and statement of research problem. It also covered the goals and research questions to be answered, and scope among others. Chapter two reviewed extant literature and chapter three explained research methods that were utilized to investigate the study. The chapter basically covered the design and approach for the study, population and sampling techniques adopted to constitute a sample, data sources, model specification, validity and reliability, as well as approach for analysing data. Chapter four outlined analysis and findings from the research. The fifth chapter, dealt with a summaries of the results as well as conclusions.
CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

The chapter presents discussion of existing theoretical knowledge on the research problem considered. The review of literature is undertaken in order to situate the study in the context of broader intellectual scholarship. The literature review covered the concept of risk, theories underpinning the study and empirical review of similar studies among others.

2.1 The Concept of Credit

In the field of banking, the term credit represents the loans and advances a bank gives out to its customers or borrowers. In other words, bank credit is a facility which allows an individual or entity which has provided the necessary security to a bank the liberty to draw from the bank a certain approved amount. It is an arrangement which allows for deferment of payment of a loan or purchase. Credit refers to the provision of, or commitment to provide, funds or its substitutes to a borrower. This includes off-balance sheet transactions, overdrafts, credit lines for customers, finance leases and bills purchased and discounted (Nyunja, 2011).

2.2 The Concept of Credit Risk

As previously noted, credit refers to the provision of goods and services to an individual or entity on agreed terms and conditions, and repayments scheduled for a later period with or without interest. Usually it is not all the debtors who are able to make repayments at the agreed due dates and frequency during the loan contract period. With the failure of the debtor to repay his/her loan on the scheduled period, the lender becomes open to the chance that the borrowed funds may not be recovered. Credit risk therefore refers to the lender’s risk of loss, financial or otherwise as a result of the borrower’s failure repay scheduled amounts that are due as agreed in the loan contract (Nyunja, 2011).
2.3 Credit Risk Management

The growth and survival of banks is becoming contingent on credit risk management (Afriyie & Akotey, 2012). To Afriyie and Akotey, (2012, p.3) “credit risk management is an organised approach to the management of uncertainties”. This is done through the assessment of risks, mapping out best strategies to manage them and utilising managerial skills and resources to ease the burden of occurrences. The strategies include risk transfers where other parties are contracted to share the burden of the risk in the event of its occurrence. Other strategies includes total avoidance of the risk, “putting in place mechanisms to reduce the impact of the occurrence of a risk” or accepting to accommodate all of a risk’s impact upon its occurrence (Afriyie & Akotey, 2012, p.3).

Gestel and Baesens (2008) contend that, the management of credit risk can take diverse forms, but suggests that it begins with the right selection of products and counterparties. It is suggested further that the risk management strategies should correspond with requisite assessment models and qualified human resources. In order to reduce default risk, clients with such risk levels must be asked to provide adequate collateral to minimise the risk exposure of the bank. Gestel and Baesens (2008) states further that efforts should be made to match the pricing of the bank’s loan products with the corresponding estimated risk. They further maintain that these strategies among others if adhered to will ensure that banks are not overly exposed to risks whose occurrence exposes banks to liquidity and solvency crises.

Gestel and Baesens (2008) suggests that credit allocation processes of a bank must provide an opportunity to diversify its risks across diverse borrowers and from different industries and geographical locations. This strategy is intended to spreads the bank’s credit risk thereby avoiding credit concentration which can adversely affect the bank. Gestel and Baesens (2008) also suggests that banks adopt the strategy of obtaining guarantees through credit derivatives to enhance its asset quality. The various strategies adopted by the bank must be documented in
the form of procedures and policies to inform the selection criteria of borrowers, the risk profile of borrowers, levels of authority for assessment and approval of loans among others. Well documented policies and lending procedures are projected to ensure credit discipline and healthy portfolio, avoid aggressive underwriting to risky clients, wrong loan pricing among others (Gestel & Baesens, 2008). An effective credit risk management, must also have an established internal control and audit mechanism for monitoring and compliance (Gestel & Baesens, 2008).

2.4 Theory of the Study

The theory adopted for this study is the theory of financial distress. When an entity’s operations deteriorates such that it is unable to settle its obligations as they accrue, it described as having financial distress Baldwin and Scott (1983). Inability to pay debts, as well as reduction or a lack of capacity to pay dividends in this context are the first signals of financial distress. To Whitaker (1999), financial distress begins when cash flows fall short of maturing debts. The firm is in a better position to settle its debts when the cash flow exceed the maturing obligations. Thus the inability to meet its contractual obligations is a signal of financial distress. However, a considerable number of financial distress cases become obvious prior to default. Wruck (1990) attributes financial distress to economic distress, declined performance as well as defective management, particularly of risks.

Prior to a bank’s weak disposition regarding liquidity and credit risks, there are usually factors such economic downturn, and or poor managerial decisions and mistakes that eventually tend to be costly to the bank, some of which results in bank collapses. Thus efforts must be put in place immediately the signs of financial distress begin to show up. The significance of this theory stems from the fact that the bank is faced with liquidity and credit risks. The bank’s survival and reputation is at stake anytime it is unable to provide cash to its depositors when needed. The bank’s inability to advance loans to borrowers when need could also be as a result
of liquidity challenges. To Kiselakova and Kiselak (2013), the bank’s liquidity and stability hinges on how effective credit risk is handled to ensure a healthy loan portfolio. This critical task must be comprehensive enough to provide for changes in the financial market and also the bank’s sensitivity to risk exposures. Efforts must also be made to factor the effect of other creditors when instituting measures to address credit risk.

2.5 Credit risk Management Indicators

2.5.1 Capital Adequacy Ratio (CAR)

This is a key indicator often used to assess the soundness of a bank. Hyun and Rhee (2011) defined CAR to be “the ratio of capital to the risk-weighted sum of bank’s assets”. This ratio assists in measuring a bank’s capital in relation to its credit risk exposures (risk weighted). Following the banking crisis over a decade ago, occasioned by the subprime mortgage problems in the US, banking supervisors and regulators across the globe have developed regulations and supervisory focus on the adequacy of capital for the sector. To Hyun and Rhee (2011), this is largely as a result of mortgage and associated securities losses which have a high tendency of decreasing significantly the capital position a bank. To maintain “the minimum capital adequacy ratio and secure against underlying losses, capital-constrained banks began to collect outstanding loans or became reluctant to grant new lending” (Hyun & Rhee, 2011, p. 323). To compute the CAR, the total capital of the bank is divided by the total assets (risk weighted).

2.5.2 Non Performing Loans

This refers to credit advances for which borrowers are more than 90 days late in repaying both interest and principal. According to Hosna et al. (2009), the non-performing ratio (NPLR) is a variable used to determine a bank’s loan portfolio quality, as well as a tool for assessing the efficiency of a bank in managing credit risk. NPLR indicates the proportion of loan loss
amounts in relation to all loans, thus it gives signals of how banks have managed their credit risk (Hosna et al., 2009). According to Gizaw et al. (2015), the NPLR is a major pointer to the performance of a banks’ credit risk management. They indicated further that empirical evidence suggests that non-performing loans significantly impacts on a bank’s profits negatively when return on assets (ROA) is used as the measuring variable.

2.5.3 Cost per Loan Assets (CPLA)

This refers to the average cost per loan to borrowers in monetary terms. The cost per loan assets is usually computed by dividing total operating costs by total loans. It is used to give an indication of how efficient the bank has distributed loans to its clients (Kolapo et al., 2012; Ahmed and Ariff, 2007). The CPLA is therefore regarded as a variable for determining the performance of a bank in terms of credit risk. Thus all things being equal, Banks that exhibit efficiency in the management of their expenses (costs), will post high profits. Therefore, the cost per loan assets and bank performance usually have negative association, except in cases where the increases in costs are as a result of increases in business (loan advances) for which the bank will still make high returns.

2.6 Measuring Financial Performance

Financial performance according to Nduati (2013) “is an indicator of how profitable a company is relative to its total assets”. Murthy and Sree (2003) observe that the measurement of bank performance involve a wide variety of financial ratios. However, Return on Assets, Return on Equity (ROE) and Net Margin are common in the literature. Curry (1994) (as found in Ngumi, 2014), observes that computation of financial ratios be grouped broadly into five categories namely liquidity, leverage, turnover, profitability and valuation methods. Profitability constitutes one of the most vital aspects of business life according to Pantawala (2009). It follows that profitability constitutes to a large extent the most appropriate measure of financial performance. A firm may realize higher volume of sales but may not necessarily translate into
higher profit levels. The use of profitability as a measure of financial performance is further reinforced by the fact that profitability is indicative of the financial robustness of a financial institution in that it affects other financial performance measures such as liquidity and leverage. To Rivard and Thomas (1997), the Return on Assets (ROA) is the best variable for measuring a bank’s profitability. They added that the ROA is not distorted by high equity multipliers and it gives a better picture of the bank’s ability to generate returns on its assets.

2.7 Empirical Review

Hosna et al. (2009) conducted a study to ascertain the association between non-performing loan, capital adequacy ratios and profitability of selected Swiss banks. Data collected in their study spanned a period of 9 years from 2000 to 2009. The results of their study indicated that the rate of nonperforming loan and capital adequacy ratios were significantly negatively related to profitability as operationally measured using ROE. Findings however showed that the magnitude of the impact of NPL and CAR differed across sampled banks. Such negative association between profitability and credit risk measures have been reported in many other studies (Achou & Tenguh, 2008; Kolapo et al., 2012; Musyoki & Kadubo (2011).

The findings of Ogboi and Unuafe (2013), suggested that an effectively managing credit risk, as well as adequate capital, impacts positively on the bank performance. Conversely, loans and advances were found to have impacted negatively the performance of banks. The study which took place in Nigeria utilised secondary data (time series and cross sectional) collected from the annual historical financial data of 6 banks in the country covering the period 2004 to 2009. The study utilised the panel data model in estimating relationships among dependent and independent variables. The return on asset (ROA) was adopted as the dependent variable whiles capital adequacy (CA), non-performing loans (NPL), loan loss provisions (LLP) and loans and advances (LA) represented independent variables.
The study of Marshal and Onyekachi (2014) investigated the how the handling of credit risk impacts on the performance of banks. The study which covered 5 banks in Nigeria utilised secondary data (time series and cross sectional) sourced from the annual reports of the selected banks for the period 1997 to 2011. The study utilised panel data model in estimation and regression techniques to analysed collected data. It was found that NPL ratio and loan and advances and performance (LogROA) had a positive relationship. The findings also indicated that the loan portfolio of the sampled banks had fewer non-performing loans. The study concluded that increases in the advancing of credits resulted in the increase of interest incomes hence an enhanced bank performance.

In a related study, Kithinji (2010) examined the association between management of credit risk and profitability of Kenya’s commercial banks. The study utilised data from the historical financial standings of the banks covering the period 2004 to 2008. The study adopted trend analysis and a regression model to establish relationships existing among profits and loans that have gone bad. The findings indicated that the profits of the selected banks were not impacted by the level of credits advanced as well as non-performing loans of the banks. Thus the need to consider other factors responsible for bank performance was established. The findings of the study also underscores the need to extend the duration in the collection of data, as longer periods of data collection can provide a better picture of what factors impacted performance the most. The study also suggested that other factors such as market and financial risk could be considered in further studies as potential factors that affects bank performance.

Kargi (2011) suggests that an effectively managed credit risk impacts significantly on bank performance (profitability). The study established that an inverse relationship exists between the performance (profits) of the bank and evaluated variables namely loan and advance levels, NPL and deposits. Thus the banks are susceptible to liquidity risk and financial distress. The study which was conducted on Nigerian banks, used secondary data gathered from the banks’
final accounts covering the period 2004 to 2008. The gathered data was analysed through descriptive statistics, correlation and regression techniques. The study suggested that further studies must be done and the analysis of credit risk must be comprehensive with a consideration of capital to asset ratio (risk weighted).

The study of Kolapo et al. (2012), also on how management of credit risk impacts bank performance, covered an eleven year period between 2000 and 2010. The study was also undertaken in Nigeria where 5 commercial banks were sampled and studied. The study utilised ROA as performance (profitability) measure and other variables for credit risk. These variables were the ratios of NPL to loans; Total loans to Total deposit; as well as loan loss provision to classified loans. In estimating the profit function variables, the study utilised the Panel model in the analysis. The findings indicated that increase NPL provisioning for loan losses had a negative impact on profits by reducing profits. This findings was found to be common among all the sampled banks. However, it was found that increases in total loan advances resulted in increases in bank profitability.

The study of Poudel (2012) which was carried out on banks in Nepal had a similar objective to investigate the how the management of credit risk affects financial performance. The study used the Return on Asset (ROA) as a proxy for bank performance and other variables (independent variables) as measures of credit risk. The independent variables included capital adequacy ratio, default rate and cost per loan assets. In analysing data collected for the study, analytical techniques including correlation and regression analysis were employed. A substantial negative relationship was observed among return on assets (ROA) and all the independent variables (credit risk management parameters). Thus the credit risk management variables have inverse relationships with the performance of the sampled banks.
CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Introduction

This chapter explicates on the research methods utilised for the study. The description of the research methods is grouped under research approach, population, sampling size and technique, sources of data, model estimation, estimation technique, and description of variables and mode of analysing data.

3.1 Research Approach

The two general existing approaches to a study are the quantitative and the qualitative research approaches. Quantitative paradigm generally represents a research approach where emphasis is on the collection of numerical data and then subsequently adopting statistical models in the estimation of the nature and strength of association between a set of dependent and independent variables. The quantitative research approach unlike the qualitative research approach is well noted for generating objective research estimates and results as its fundamental assumptions conform to the positivist research approach which disregards subjectivity and puts primacy on impartiality and objectivity. The study adopts the quantitative research approach. Harwell (2011) contends that quantitative research methods attempt to determine significant associations among variables in a research. Therefore, as this study seeks to determine whether significant relationship exist between credit risk management indicators and banks’ performance, the quantitative research approach is utilized.

3.2 Population of the Study

A research population generally refers to the sum of elements of an identifiable group from which a researcher chooses a portion to make inferences about an attribute of the population. The
population of this study comprises all indigenous banks in Ghana. The collapse of these banks have been largely attributed to poor credit risk management, hence these banks provide a rich empirical context for evaluating the effect of credit risk management indicators on banks’ performance. The population size is all the 33 universal banks in the country.

3.3 Sample and Sample Techniques
The number of banks is huge and for that matter a sample of banks is adopted for the study. A sample refers to part of a population which the researcher uses to make inference on the whole population unit. In this study, a sample of seven indigenous banks is used. These banks comprises of UT Bank and Capital Bank. The others are Royal Bank, Construction Bank, Unibank, Sovereign and Beige Bank. The sampling period is limited to 2010-2016. Banks in this study are selected by both judgmental and convenience sampling strategies. The use of judgmental sampling is attributed to the fact that the study primarily focuses on indigenous banks which have recently witnessed financial distress. A related explanation for the use of judgmental sampling is that the study has a set criterion of selecting indigenous banks that show no anomalies in data on published financial statements. Convenience sampling is used as the study focuses on banks with financial statements freely available and accessible.

3.4 Data type, sources and collection
Panel data is used in this study because the data on firms spans several years. This data comprise data taken from several banks, specifically, 7 banks over several years, that is, from 2010-2016. It was obtained from the banks’ financial reports published annually.

3.5 Description and Measurement of Variables
a. Return on Assets
A financial profitability measure which is used to represent earnings from the use of a company’s assets in a defined time period. It is measured as follows:

$$\frac{\text{Net profit or profit after tax}}{\text{Total assets}} \times 100$$

b. Capital Adequacy ratio

This represents the quantum of equity and other resources held by banks against their risky assets. Banking supervisors insist on adequate capital to secure depositors against unexpected losses.

c. Non-Performing loan ratio

This refers to “the ratio of nonperforming loan to total loan”. It provides information on the quantum of a bank’s loan portfolio which is non-performing as well as credit defaults the bank has suffered (Hosna et al., 2009).

d. Cost per loan asset ratio

This is the average cost per monetary credits advanced to customers in monetary term. The ratio is computed through the division of total operating costs by total amount of loans. This ratio, a determinant of bank performance assists in ensuring efficiency whiles advancing loans (Kolapo et al., 2012; Ahmed and Ariff, 2007).

Table 3.1 Below Summarises the variables of the study and their operational proxy measures.
Table 3.1: Description of Variables

<table>
<thead>
<tr>
<th>Type</th>
<th>Name</th>
<th>Proxy Measure</th>
<th>Sign</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dependent variable</td>
<td>Return on Assets</td>
<td>Profit after Interest and Taxes / Total Assets</td>
<td>ROA</td>
</tr>
<tr>
<td>Independent variable</td>
<td>Capital Adequacy ratio</td>
<td>Total capital/total risk-weighted assets</td>
<td>CAR</td>
</tr>
<tr>
<td>Independent variable</td>
<td>Non performing loan ratio</td>
<td>Nonperforming loan/total amount of loans</td>
<td>NPLR</td>
</tr>
<tr>
<td>Independent variable</td>
<td>Cost Per loan asset ratio</td>
<td>Total operating cost/total amount of loans</td>
<td>CPLA</td>
</tr>
</tbody>
</table>

Source: Author’s construct

3.6 Model Specification

Any regression equation requires specification concerning variable choice. In theory, firm profitability is not affected by only credit risk but also by other firm specific and external variables which is usually beyond the control of banks. One of such firm specific variables that potentially influence performance is firm size. Theoretically, the potential effect of firm size is acknowledged due to the presence of economies of scale. Regarding external variables, macroeconomic factors like inflation, interest rate and GDP also potentially affects firm performance. Hence, the model equation specified in the current study also incorporates other firm level variable like size and external variables like inflation and interest rate besides the primary variables that the study focuses on. Inclusion of these variables as control variables addresses a potential biases in model estimates. Philips and Ghosh (2009) call for the inclusion of more explanatory variables in a model
equation in order to improve validity of model estimates. Curwin and Roger (2008) similarly argue that it is usually useful to employ more explanatory variables in a model equation due to issues with biased prediction.

The model equation of the study is consequently formulated as:

$$\text{ROA}_t = \beta_0 + \beta_1 \text{CAR} + \beta_2 \text{NPLR} + \beta_3 \text{CPLA} + \beta_4 \text{FS} + \beta_5 \text{INF} + \beta_6 \text{IR} + \beta_7 \text{GDP} + \varepsilon_t$$

ROA= Return on Assets, a widely used profitability measure in the literature and the dependent variable in the study

C= Constant predictor

CAR= Capital Adequacy Ratio

CPLA=Cost Per Loan Asset Ratio

NPLR=Non Performing Loan ratio

FS= Firm size

INF= Inflation,

IR = Interest rate

$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$ and $\beta_6$, are Beta coefficients and

$\varepsilon= $ Error Term

3.6.1 Justification for ROA as the Preferred Performance Measure

In evaluating the performance of managers of a company, two key measures, namely return on assets (ROA) and Return on equity (ROE) are utilised to determine how effective entrusted resources have been put to use. However, it is commonly measured using Return on Assets (ROA),
“as it is not distorted by high equity multipliers and represents a better measure of the ability of a firm to generate returns on its portfolio of assets” (Rivard & Thomas, 1997, p.63). Rather than simply indicating strong returns on the sales of the company, the ROA is better in accounting for the support services of the assets of the company in its operations, and determines its capacity to generate adequate returns on the assets (Furhmann, 2019). Also, the study of Aliabadi, Dorestani & Balsara (2013), which examined six key performance measures to ascertain which one is most relevant in selected industries globally, found the ROA to be the most relevant accounting measure. The study therefore adopted the ROA as the preferred performance measure and the dependent variable for the specified model of the study.

3.7 Data Analysis

In analysing the data, the researcher used the STATA software application to run a multiple regression. Employing multivariate regression techniques in data analysis assists in determining the relationships of multiple predictor variables on the dependent variable. Descriptive statistics, including variance and standard deviation, were also utilised to complement analysis of data. The regression technique helps in the estimation of the nature of the relationship and strength of association among the dependent and predictor variables of the study whereas the descriptive statistics help to ascertain the nature of the properties of the variables of the research.
CHAPTER FOUR

RESULTS AND DISCUSSIONS

4.0 Introduction

The current chapter aims to present the data collected in the study, analyses them and finally discusses them in relation to current literature paying particular attention to areas of agreements and divergences. Analysis and discussions are all based on the guiding objectives of the study as specified in the introductory part of the study. Before data presentation, analysis and discussions, the chapter first sheds light on the properties of the variables employed in the study and their interrelationships. These are done by the through descriptive statistics, multicollinearity test, correlation as well as regression.

4.1 Results

Table 4.1: Descriptive Statistics

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Skewness</th>
<th>Kurtosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROA</td>
<td>35</td>
<td>9.24</td>
<td>6.876</td>
<td>1.597</td>
<td>1.843</td>
</tr>
<tr>
<td>CAR</td>
<td>35</td>
<td>5.16</td>
<td>3.616</td>
<td>2.322</td>
<td>7.298</td>
</tr>
<tr>
<td>NPLR</td>
<td>35</td>
<td>2.94</td>
<td>5.529</td>
<td>3.949</td>
<td>15.706</td>
</tr>
<tr>
<td>CPLA</td>
<td>35</td>
<td>15.13</td>
<td>4.185</td>
<td>.366</td>
<td>-.436</td>
</tr>
<tr>
<td>FS</td>
<td>35</td>
<td>14.43</td>
<td>4.375</td>
<td>.623</td>
<td>-.261</td>
</tr>
<tr>
<td>INF</td>
<td>35</td>
<td>14.84</td>
<td>2.463</td>
<td>1.546</td>
<td>2.345</td>
</tr>
<tr>
<td>INTR</td>
<td>35</td>
<td>20.96</td>
<td>3.477</td>
<td>3.648</td>
<td>6.452</td>
</tr>
</tbody>
</table>

Source: Field data, 2019
“Table 4.1 shows the descriptive statistics of the variables in this study. There are 35 observations collected from the period 2010 to 2016. The mean of ROA is 9.24. The means of the independent variables CAR, NPLR, CPLA, and FS are 5.16, 2.94, 15.13, and 14.43 correspondingly. The standard deviations of the independent variables CAR, NPLR, CPLA, and FS are 3.616, 5.529, 4.185, and 4.375 respectively. The smaller values of the kurtosis from Table 4.1, for example - .436 for CPLA and - .261 for FS suggest the lower presence of outliers in the data set for the model”.

Table 4.2: Correlation Matrix

<table>
<thead>
<tr>
<th></th>
<th>ROA</th>
<th>CAR</th>
<th>NPLR</th>
<th>CPLA</th>
<th>FS</th>
<th>INF</th>
<th>INT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Correlation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ROA</td>
<td>1.000</td>
<td>.001</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAR</td>
<td>.001</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NPLR</td>
<td>-.033</td>
<td>.001</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CPLA</td>
<td>-.012</td>
<td>.111</td>
<td>-.120</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FS</td>
<td>.002</td>
<td>.031</td>
<td>-.005</td>
<td>-.122</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>INF</td>
<td>0.121</td>
<td>0.423</td>
<td>.142</td>
<td>0.142</td>
<td>0.423</td>
<td>1.000</td>
<td></td>
</tr>
<tr>
<td>INTR</td>
<td>-0.127</td>
<td>0.482</td>
<td>0.452</td>
<td>0.485</td>
<td>0.423</td>
<td>0.11</td>
<td>1.000</td>
</tr>
</tbody>
</table>

Source: Field data, 2019

“The correlation matrix illustrated by Table 4.1 shows the direction of association between the independent variables employed in the study. From Table 4.2, the coefficient of correlation between ROA and CAR is .001 and thus suggests a positive relationship between profitability and CAR. This means rise in CAR causes a rise in the profitability of indigenous financial firms. The correlation coefficient between NPLR and ROA is -0.33 and thus indicates a negative relationship
between NPLR and profitability of firms. The coefficient of correlation between CPLA and is -.012 and this indicates a positive relationship between CPLA and profitability of indigenous financial firms. The coefficient of correlation from Table 4.2 between FS and ROA is .002. This positive coefficient means that FS and price of ROA are positively related”.

**Table 1.3: Multicollinearity Test**

<table>
<thead>
<tr>
<th>Model</th>
<th>Tolerance</th>
<th>VIF</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAR</td>
<td>0.107</td>
<td>1.281</td>
</tr>
<tr>
<td>NPLR</td>
<td>0.041</td>
<td>1.59</td>
</tr>
<tr>
<td>CPLA</td>
<td>0.107</td>
<td>1.320</td>
</tr>
<tr>
<td>FS</td>
<td>0.804</td>
<td>1.08</td>
</tr>
<tr>
<td>INF</td>
<td>0.213</td>
<td>1.055</td>
</tr>
<tr>
<td>INTR</td>
<td>0.643</td>
<td>1.553</td>
</tr>
</tbody>
</table>

*Source: Field data, 2019*

Table 4.3 provides the results for the test of multicollinearity between the predictor variables employed. The Variance Inflation Factor denoted by VIF from Table 4.3 according to Liao & Valliant (2012) quantifies how much each of the variance in the independent variables is inflated.
The standard errors and hence the variances of the estimated coefficients are inflated when multicollinearity exists. In other words, fairly large VIF values suggest the presence of high level of multicollineraity possibly due to association between any of the predictors or the other variables.

From Table 4, the VIF for the predictor CAR suggests that the variance of the estimated coefficient of CAR is inflated by 1.281. This suggests that the correlation between CAR and any other independent variable in the model is weak and hence low multicollinearity. The VIF for NPLR is 1.59 and suggests low level of correlation between NPLR and any other independent variable in the model. The VIF of CPLA from Table 4 is 1.320 and also suggests low level of multicollinearity. The VIF for FS as illustrated by Table 4 is 1.08 and its low level suggests that FS is not strongly correlated to any other predictor variable, hence indicative of low level of multicollinearity.

Table 4.4: ANOVA

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Regression</td>
<td>1.229</td>
<td>4</td>
<td>.307</td>
<td>4.166</td>
</tr>
<tr>
<td></td>
<td>Residual</td>
<td>.664</td>
<td>10</td>
<td>.074</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>1.893</td>
<td>14</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. Predictors: (Constant), CAR, NPLR, CPLA, FS, INFL, INTR
b. Dependent Variable: ROA

Source: Field data, 2019

The Analysis of Variance (ANOVA) tests whether the regression model best predicts the dependent variable (Curwin, Roger, & Eadson, 2013) From Table 5, the model is significant given the p-value of .035. With this, the validity of the model in predicting the dependent variable namely profitability of indigenous financial firms is strengthened.
Table 4.5: Estimate from Regression Model

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Beta</td>
<td>Std. Error</td>
</tr>
<tr>
<td>(Constant)</td>
<td>.531</td>
<td>.068</td>
</tr>
<tr>
<td>CAR</td>
<td>.282</td>
<td>.684</td>
</tr>
<tr>
<td>NPLR</td>
<td>-.655</td>
<td>-2.422</td>
</tr>
<tr>
<td>CPLA</td>
<td>.654</td>
<td>-.1797</td>
</tr>
<tr>
<td>FS</td>
<td>.317</td>
<td>.912</td>
</tr>
<tr>
<td>INF</td>
<td>-.277</td>
<td>-3.179</td>
</tr>
<tr>
<td>INTR</td>
<td>-.003</td>
<td>-.244</td>
</tr>
</tbody>
</table>

Source: Field data, 2019

Table 4.6: Model Summary

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.873a</td>
<td>.762</td>
<td>.630</td>
<td>.043</td>
</tr>
</tbody>
</table>

a. Predictors: (Constant), CAR, NPLR, CPLA, FS, INF, INTR

Source: Field data, 2019

As shown in Table 4.6, the R-Square is .762. This means approximately 76% of variations in the dependent variable, profitability of indigenous financial firms (ROA), is accounted for by the independent variables employed. To reiterate, CAR, NPLR, CPLA, and FS. The other 24% of the total variation in the dependent variable, profitability, is accounted for by other factors not added in the model.
4.2 Discussions

4.2.1 Effect of Capital Adequacy Ratio on Profitability of Banks

One of the core aims for conducting this research was to ascertain the effect that an adequate capital has on indigenous banks’ profitability. This research question is addressed by drawing on the regression output as depicted by Table 6. From the regression coefficients, the coefficient of CAR is .282. The positive sign associated with the coefficient of CAR means that an positive relationship exists between profitability and CAR. This means that an increase in CAR will cause an increase in profitability. Likewise, a decrease in CAR will result in a reduction of profitability. More specifically, from the Table 7, a unit increase in CAR will cause an increase in the profitability of indigenous financial firms by .282 units. In the same way, a unit decrease in CAR will result in reduced profitability of indigenous firms by .282 units. The effect of CAR on profitability is also found significant from Table 6 because of the significance value of 0.028. This means the effect of CAR is not due to chance. Theoretically, the finding of a positive effect of CAR on profitability reaffirms the theoretical assumption that banks that are adequately capitalized experience lower costs when distressed financially and are able to make higher profits with their capital. Similarly, it may be argued soundly that with good capital adequacy level, a bank will be able to absorb any eventual loss and finance its business operations subsequently. Empirically, the finding of a positive effect of CAR on profitability of firms confirms the empirical finding by Ogboi and Unuafe (2013) who also found that adequate capital positively affects firm profitability. This finding however conflicts with the finding by Hosna et al. (2009) who found that adequate capital negatively affects profitability. The differences in research results in this context may be attributed to variations sample sizes, sampling periods, and economic environments.
4.2.2 Effect of Non-Performing Loan on Bank Profitability

“A related objective of the study was to examine the effect of non-performing loan ratio on the profitability of indigenous financial firms. From Table 6, the coefficient of NPLR is -.655. This means there is a negative relationship between NPLR and the profitability of indigenous financial firms. The negative relationship suggests that when NPLR increases, profitability of indigenous financial firms decreases and likewise, when NPLR falls, the profitability of indigenous financial firms increases. Specifically, Table 6 shows that a unit increase in NPLR will lead to a decrease in profitability by .655 units. Similarly, a unit decrease in NPLR will lead to an increase in the profitability by .655 units. The effect of NPLR on profitability is significant as shown by the significance value of 0.04 from Table 6. The finding of a negative relationship between NPLR and profitability corroborates the findings by Hosna et al. (2009) and Kargi (2011) who similarly found a negative effect of NPLR on firms’ profitability. It however conflicts with the findings by Kithinji (2010) and Marshall and Onyekaachi (2014) who found no relationship between NPLR and profitability and positive relationship between NPLR and profitability respectively. These variations in research findings regarding the effect of NPLR on profitability of firms may be due to such factors as differences in sampling periods, economic environments, operational definitions and methodologies”.

4.2.3 Effect of Cost Per Loan Asset (CPLA) on Profitability Of Banks

The study analyzed the effect of this variable (CPLA) on the profits of indigenous financial firms. From Table 6, the coefficient of CPLA is -.654. This means a negative relationship exists between CPLA and profitability due to the positive coefficient. Therefore, it can be inferred that an increase in CPLA will result in a decrease in profitability and likewise a unit fall in CPLA will lead to a fall in profitability. Specifically, Table 6 shows that a unit increase in CPLA will result in a fall
in NPLR by .654 units. In the same way, a unit fall in CPLA results in an increase in CPLA by .654 units. With 0.010 P-Value, the impact of CPLA on profitability was also significant. It is possible for banks to record lower operating costs in the process of loan administration and recovery given the finding of a positive association between CPLA and profitability”.

4.2.4 Impact of Firm Size on Profitability of Banks

From Table 6, the coefficient of FS is .317. This means that FS and profitability are positively correlated. The positive relationship implies that an increase in FS results in an increase in profitability and a decrease in FS leads to a fall in profitability. Specifically, the regression coefficient Table 6 shows that increasing FS by a unit leads to a .317 increase in profits. On the other hand, decreasing FS by a unit leads to a 0.317 decrease in profits. Recording a P-Value .001, the impact of FS on profitability is also significant. This finding suggests that larger firms enjoy economies of scale in varied forms, for example as in the case of lower credit cost relative to smaller firms”.

CHAPTER FIVE

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

5.0 Introduction

This chapter outlined the summary of the research work including a recap of the research process, results, conclusions and propositions to stakeholders for improved risk management. Finally, the chapter provides suggestions regarding research avenues that future research can explore.

5.1 Summary of Findings

The general research goal was to ascertain the effect that a well-managed credit risk has on indigenous banks’ profitability. Specific objectives were the determination of the effects of three (3) selected variables (CAR, NPL and CPLA) on the profitability of indigenous financial firms. The research process started with an outline of the context for achieving its objectives, such that it becomes relevant for theory and practice. Subsequent to this, the study was put in a theoretical perspective by synthesizing both theoretical and empirical literature related to the study. To achieve the research objectives, panel data on all the variables spanning the period 2010 to 2016 were adapted from the Ghana Stock exchange through annual reportghana.com. The sample of the study comprised 7 indigenous financial firms. The analytical technique employed was the multivariate regression statistical technique. Controlling for firm size, the results of the study demonstrates that managing credit risk efficiently impacts on the profits of banks. Specifically, the study found that capital adequacy ratio has a positive effect on a firm’s profits. In addition, it was found that credit risk management indicators, nonperforming loan ratio as well as cost per loan ratio have negative relationship with profitability of indigenous financial firms.
5.2 Conclusions
The goal of the research was to generally analyze credit risk management as practiced in Ghanaian-owned banks and how it affects their profitability. The effect of three (3) selected variables (CAR, NPL and CPLA) on the profitability of indigenous financial firms was explored. From the outcome of the study, it is concluded that adequate capital impacts positively on a local bank’s performance (profits). It was also established that Non-performing loans affects a local bank’s profits negatively. Further, it was also established that CPLA negatively affects a local bank’s profits. From a theoretical perspective, the results of the study demonstrate that well capitalised banks have the capacity to make massive levels of profit relative to poorly capitalised banks. The findings also demonstrate that efficiency in loan administration enhances profitability.

5.3 Recommendations
Recommendations which are premised on the outcomes of the research are stated below for policy and practice:

Indigenous financial firms are urged to develop reliable credit management strategy to reduce the rate of incidence of non-performing loans. The use of credit bureaus in this regard can be particularly useful in reducing information asymmetry during loan administration. To complement this, strict measures must be adopted to evaluate borrowers’ ability to pay loans.

Indigenous financial firms are also urged to improve upon their capitalization level without the promptings of bank regulatory authorities. This will also increase their firm sizes with its attendant effects of economies of scale.
Banks are further urged to reduce operating costs during loans administration. This will lead to greater efficiency in the loan administration, thus reducing the cost per loan asset for higher profitability. Operating costs during loan recovery must also be minimized.

Regulatory authorities should embark on consolidation exercises that stress the need for banks to reassess their capital base. In order to improve their liquidity, banks must also review their capital adequacy to optimal levels consistent with regulatory requirements.

5.4 Suggestions for Further Research

The study was limited to the use of only three risk management indicators. Future research can employ other indicators used in managing risk in the evaluation of how management of credit risk impacts on indigenous banks’ profitability. In addition, the study recommends for prospective studies to use other proxy measures of profitability in the assessment of how credit risk impacts on profits of indigenous. More so, the findings are based on the peculiar economic environment of Ghana within a particular sampling period. In view of this, the results of the research and consequent recommendations may not be applicable over time. Future studies may also employ longitudinal approaches in determining how stable the findings are. Again, researchers can employ other models to investigate the relationships among the variables employed in the study. Wittingham et.al (2006) rightly observe that drawing inference on a single model could be be misleading. In particular, models which assume non-linear relationship between many of the variables utilised to assess the handling of credit risk and its repercussion on profits. Finally, it is suggested that future research should employ qualitative research approaches to unravel the drawbacks in the common risk management strategies.
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Kargi, H.S. (2011). Credit Risk and the Performance of Nigerian Banks, AhmaduBello University, Zaria


