

**THE EFFECT OF LOAN PORTFOLIO QUALITY ON THE PERFORMANCE  
OF BANKS IN GHANA**

**BY**

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of**

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## **DECLARATION**

I hereby declare that this submission is my own work towards the award of Master of Business Administration (MBA) in Finance and that, to the best of my knowledge, it contains no material previously published by another person nor material which has been accepted for the award of any other degree of the University, except where due acknowledgement has been made in the text.

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## **DEDICATION**

This research is first and foremost dedicated to the Almighty God for his guidance and direction. Secondly, it is dedicated to my father, Mr. Kwame Nkuah and mother, Abena Attaah.

## **ACKNOWLEDGEMENT**

I would like to express my profound gratitude to Almighty God for the strength and life given to me to undertake this research work.

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## **ABSTRACT**

The purpose of the study was to examine the effect of loan portfolio quality on the financial performance of selected universal banks in Ghana. Using dataset from the annual reports for 10 Ghanaian universal banks from 2007 to 2013, the study employed panel regression technique with the aid of STATA Statistical Software. Among the various panel data techniques, fixed effect model was identified as the best technique based on the Hausman test between fixed and random effect. Return on Equity (ROE) and Net Interest Margin (NIM) were used to proxy financial performance whiles Loan Portfolio Profitability (LPP) and Loan Loss Provision to Gross Loan Advances (LLP/GLA) were used as proxies for loan portfolio quality. Cost Income Ratio (CIR), Liquid Funds to Total Assets and Total Assets were used as control variables. The result from the analysis indicates that LLP/GLA has a negative effect on the financial performance of banks in Ghana. In addition, the findings of the study indicate that net interest margin has a positive effect on the financial performance of the selected banks. The result further established that firm size has positive effect on financial performance of banks. Thus, the larger the size of the bank, the more profitable it becomes due to economies of scale. Finally, the research findings revealed that cost-to-income ratio has a negative significant effect on the performance of universal banks in Ghana. The findings of the study therefore established that loan portfolio quality has significant effect on the financial performance of the selected Ghanaian universal banks. The study recommends that universal banks in Ghana should develop effective and efficient strategies and policies to improve the quality of their loans in order to improve their profitability. It further recommends that, efficient cost management must be adopted by Ghanaian universal banks to improve performance.

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## **CHAPTER ONE**

### **INTRODUCTION**

#### **1.1 BACKGROUND OF THE STUDY**

An efficient financial intermediation requires a stable banking system to channel surplus funds into savings for investments to promote rapid economic growth (King and Levine, 1993). This is done through the creation of loan assets by banks and other financial intermediaries. However, the creation of the loan assets exposes banks to the risk of defaults by borrowers as well as liquidity constraints. This does not only affect the bank profitability but also the stability of the banking system.

Loans and advances are major business activities among Ghanaian universal banks and other financial institutions around the globe. It is normally seen in the quantum of credits and advances which reflects in the financial statements and annual reports of both local and multinational banks in Ghana and the increment in the quantity of advances profited to borrowers in both formal and casual parts of the economy. According to Brown, Fazzari and Petersen (2009), the allowing of loans is a noteworthy business for most widespread banks. Loan portfolio regularly shapes a more noteworthy bit of a bank's assets and a wellspring of wage for business banks.

A survey in 2006 on the Ghanaian banking sector revealed that loans accounted for about 50% of total bank assets which had increased from 41.5% in 2005 (Infodata Associates, 2009). In 2007, the figure increased to 53% of the industry's total assets of GH¢ 7,795.6 million (Infodata Associates, 2009). In addition, a banking survey conducted by PricewaterhouseCoopers in 2014 revealed that loans and advances

remained the most significant component of the industry's operating assets accounting for 43% of these assets. The survey also revealed that growth of loans and advances in the industry slowed down between end of 2012 and end of 2013. Compared to the 41% increase in industry loans and advances to GHS12,817 million at end of 2012, there was only 31% growth in industry loans to GHS16,847 million.

The reason why banks give much attention to the lending activity, especially in periods of a stable economic environment, is that a substantial amount of banks income is earned on loans which contribute significantly to the financial performance of banks. According to the Ghana Banking Survey in 2014 by PricewaterhouseCoopers, interest income from loans increased by 32% from GHS1,993m in 2012 to GHS2,623m in 2013. Thus, the figures point to the fact that loans contribute immensely to the financial performance of banks in Ghana.

The above findings give ample evidence that healthy loan portfolios are vital assets for banks in view of their positive impact on the performance of banks. Unfortunately, some of these loans usually do not perform and eventually result in bad debts which affect banks earnings on such loans. These bad loans become cost to banks in terms of their implications on the quality of their assets portfolio and profitability. This is because in accordance with banking regulations, banks make provisions for non-performing loans and charge for bad loans which reduce their loan portfolio and income. For example in February, 2009, a Bank of Ghana report revealed that non-performing loans ratio increased from 6.4% in 2007, to 7.7% in 2008.

The problem of bad loans is not common in only Ghana but it is in other countries where the problem has led to the liquidation of some banks. The findings of Caprio and Klingebiel (2002) cited in Fofack (2005), showed that in Indonesia, non-performing loans represented about 75% of total loan assets which led to the collapse of over sixty banks in 1997.

A brief study of the annual reports and financial statements of banks in Ghana indicate that loan portfolio quality is seriously affecting most banks hence necessitating a study into the problem. This demonstrates the negative relationship between loan portfolio quality and the financial performance of banks in Ghana.

In the light of the above, the issue of loan portfolio quality has raised some concerns among stakeholders of banks in Ghana. The study therefore seeks to find out how loan portfolio quality affects financial performance of banks in Ghana specifically in the area of return on equity and net interest margins.

## **1.2 STATEMENT OF THE PROBLEM**

Despite the fact that loan portfolio quality management remains a challenge for commercial banks, the issuing of loans and advances is critical to most commercial banks performance around the globe. Interest on loans generated by these banks influences their financial strength and form a significant part of their asset. Unpaid loans accumulate debt which affects banks negatively in their operations as well as the general economy.

Studies of banking crises all over the world have shown that poor loans (asset quality) are the key factor of bank failures. Stuart (2010) stressed that the spate of bad loans

(non-performing loans) was as high as 35% in Nigerian Commercial Banks between 1999 and 2009. Umoh (1994) also pointed out that increasing level of non-performing loan rates in banks' books, poor loan processing, undue interference in the loan granting process, inadequate or absences of loan collaterals among other things, are linked with poor and ineffective credit risk management that negatively impact on bank's loan portfolio quality.

Investigations into lending activities of universal banks in Ghana postulate loan portfolio quality has a significant effect on the performance of Ghanaian universal banks, thus requiring a critical assessment of the issue. The study therefore seeks to uncover how loan portfolio quality affects bank performance in Ghana especially with regard to return.

### **1.3 OBJECTIVES OF THE STUDY**

The main objective of the study is to examine the effect of loan portfolio quality on the performance of banks in Ghana.

The specific objectives of the study are:

- To investigate the effect of loan portfolio quality on the performance of banks in Ghana from 2007 to 2013.
- To determine other factors that influence the performance of banks in Ghana.

### **1.4 RESEARCH QUESTIONS**

- What is the effect of loan portfolio quality on the performance of banks in Ghana from 2007 to 2013?
- What are the other factors that influence the performance of banks in Ghana?

### **1.5 JUSTIFICATION OF THE STUDY**

The justification of the study lies in the fact that, it will help the researcher to acquaint himself with loan portfolio quality management practices which pertains to the universal banks thereby broadening his knowledge in that field of study. It will also help Ghanaian universal banks to identify their problems and opportunities with regards to loan portfolio management practices and improve upon them. Furthermore, it will serve as a source document to future researchers who may wish to research into a similar topic. The Bank of Ghana as a regulatory body will be interested in this study as it will enable it to draw regulations regarding loan portfolio management practices among the various commercial banks in Ghana. The boards of directors as well as top level management can use this study to draw strategic policies for their banks.

Thus through the above, the study would contribute significantly to the development of the banking industry which plays a pivotal role in the development of the economy. This is because the study also seeks to identify the effect of loan portfolio quality on the performance of banks in Ghana.

### **1.6 CONSTRAINTS OF THE STUDY**

Even though there are about twenty eight (28) commercial banks in Ghana, only ten (10) of them are involved in this research. Also, the time frame for the conduct of this research is short considering the fact that only a maximum of one academy year was used for this study. In addition, the cost involved in undertaking the research was borne solely out of the pocket of the researcher.

## **1.7 ORGANISATION ON THE STUDY**

The research was organized according to the following chapters: Chapter one, the general introduction, covered the general background of the research; defined the problem for the study, the aim of the study and its significance, the research questions and constraints of the study. Chapter two discussed the literature review. The second chapter talked about review of relevant literature that was relevant to the study. Chapter three covered the methodology. This section presented the approach of the study. Chapter four discussed the findings and analysis. This chapter covered the findings of the data collected and additional data from reports in the selected banks. It also discussed an analysis of the findings data collected. It discussed the results of previous studies as contained in the literature review and the findings of this study. Chapter five constituted the conclusion. Finally, chapter five presented the researcher's assessment and views on the investigated problem and the results.



## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 WHAT IS LENDING**

Lending is the process granting and allowing a borrower the use of loan on condition that they pay it back with interest at an agreed date. A loan is an asset for the lender and a liability for the borrower. To the lender, the loan is an asset that is expected to be repaid along with compensation for the costs and risk of lending. To the borrower, the loan is a liability that is required to be repaid along with charges for receiving the benefits of borrowing.

#### **2.2 ATTRIBUTES OF GOOD LENDING**

##### **2.2.1 SAFETY**

The lender needs to ensure that funds lent are safe and that the lender's own financial position is sound. Safety when applied to an advance, is an understanding that the borrower has the legal capacity to borrow, and to provide security should this be required.

##### **2.2.2 LIQUIDITY**

Liquidity is the ability of the borrower to meet repayments as they fall due. In the case of a personal loan this would be from monthly salary, and for a business from cash generated from business operations.

##### **2.2.3 PROFITABILITY**

Profitability is measured in terms of the income generated by the advance in terms of interest and fees and its proper reflection of the risk involved.

### **2.3 PERFORMING LOANS**

Legally, a loan facility is defined to mean a contractual promise between two parties where one party, the creditor agrees to provide a sum of money to a debtor, who in turn promises to return the said amount to the creditor either in one lump or in installments over a specified period of time. The agreement may include provision of additional payment of rental charges on the funds advanced to the borrower for the time the funds are in the hands of the debtor. The additional payments that are in the form of interest charges, processing fees, commissions, monitoring fees, among others are usually paid in addition to the principal sum lent. Indeed, these additional payments if made in accordance with the covenants of the loan facility constitute the interest income to the lender. A loan facility may therefore be considered as performing if payments of both the principal and interest charges are up to date as agreed between the lender and the borrower.

Regarding Bank of Ghana's classification, loans are considered current if the payment of principal and interest are up to date. It goes further to stipulate that an overdraft is classified as current or performing if there are regular activities (swing) in the account with no sign of hard core debt build-up. (Bank of Ghana, 2008). It can therefore be deduced that loans that are up to date in terms of principal and interest payment are described as performing loans and they constitute the healthy asset portfolio.

The foregoing reveals that loans that are up to date in terms of principal and interest payments are described as performing facilities. These types of loans constitute quality asset portfolio for banks in view of the interest income generated by such assets.

## **2.4 NON-PERFORMING LOANS**

The term “bad loans” as described by Basu (1998), is used interchangeably with non-performing and impaired loans as identified in Fofack (2005). Berger and De Young, (1997) also considers these types of loans as “problem loans”. Thus these descriptions are used interchangeably throughout the study.

Generally, loans that are outstanding in both principal and interest for a long time contrary to the terms and conditions contained in the loan contract are considered as non-performing loans. This is because going by the description of performing loans above, it follows that any loan facility that is not up to date in terms of payment of both principal and interest contrary to the terms of the loan agreement, is nonperforming.

Available literature gives different descriptions of bad loans. Some researchers noted that certain countries use quantitative criteria for example number of days overdue scheduled payments while other countries rely on qualitative norms like information about the customer’s financial status and management judgment about future payments. (Bloem and Gorter, 2001).

Alton and Hazen (2001) described non-performing loans as loans that are ninety days or more past due or no longer accruing interest. Caprio and Klingebiel (1996), cited in Fofack (2005), consider non-performing loans as loans which for a relatively long period of time do not generate income, that is the principal and or interest on these loans have been left unpaid for at least ninety days. A non-performing loan may also refer to one that is not earning income and full payment of principal and interest is no

longer anticipated, principal or interest is ninety days or more delinquent or the maturity date has passed and payment in full has not been made.

A critical appraisal of the foregoing definitions of bad loans points to the fact that loans for which both principal and interest have not been paid for at least ninety days are considered non-performing. A classification of advances of the banking industry in December, 2008 showed that out of the total loan portfolio of GH¢5,966,804,133.00, 7.68% was non-performing. This included loans captured within substandard, doubtful and loss categories. Loans in these groups have exceeded ninety days in terms of repayment (Bank of Ghana, 2008).

This study uses the quantitative criteria for identifying bad loans. Therefore any loan that is outstanding for ninety days or more is considered a non-performing loan. According to Berger and De Young (1997), such loans could be injurious to the financial performance of banking institutions.

## **2.5 LOAN CLASSIFICATION AND PROVISION**

### **2.5.1 Loan Classification**

Loan portfolios of banks are classified into various classifications to determine the level of provisions to be made in line with banking regulations. Loans are classified into five categories including Current, other loans especially mentioned (OLEM), substandard, doubtful and loss (Bank of Ghana, 2008).

The classifications indicate the level of provisions banks are required to make to reflect the quality of their loan portfolio. Indeed the various classifications clearly group loans

into performing and nonperforming, in line with banking regulations. These categories further help banks to know the structure of their loan portfolio and for that matter their assets quality.

### **2.5.2 Loan Provisioning**

In Ghana, a major factor considered in making loans is the ability of the borrower to repay the loan. However, to mitigate the risk of default, banks ensure that loans are well secured. Though advances shall be granted on the basis of the borrower's ability to pay back the advance and not on the basis to pledge sufficient assets to cover the advance in case of default, it is highly desirable for all advances made to customers and staff to be well secured. This means that in the event of default the bank shall fall on the collateral used in securing the facility to mitigate the effect of loss of principal and interest (Banking Act, 2004, Act 673).

In view of the above, banks take into account the assets used in securing the facility to determine the level of provision to be made. Bank of Ghana regulations indicate that certain amount of provisions are made on the aggregate outstanding balance of all current advances, and aggregate net unsecured balance of all other categories as shown in the table below.

**Table 2.1 Categories of Loans and their Provisions**

No	Category	Provisioning Rate	No. of Days of Delinquency
1	Current	1%	Less than 30 days
2	OLEM	10%	30 less than 90 days
3	Substandard	25%	90 less than 180 days
4	Doubtful	50%	180 less than 360 days
5	Loss	100%	360 days and above

**Source: Section 53(1) of Banking Act 2004 (Act 673)**

The review of the above literature on classifications and provisioning implies that the higher the non-performing loan category the higher the provisions and charges for such bad loans. For example in December, 2008, the total banking industry loan classification depicted an increase in the nonperforming categories which were 85.97%, 78.47% and 63.73% for substandard, doubtful and loss respectively. This led to an increase in the total non-performing loans which increased from 6.37% in 2007 to 7.68% in 2008 (Bank of Ghana, 2008).

## **2.6 ASSESSMENT OF LOAN PORTFOLIO QUALITY**

The parameters applied in assessing loan portfolio quality include the following;

### **2.6.1 OVERDUE LOAN RATIO**

This measures the proportion of overdue loans in the gross loan portfolio outstanding. A declining ratio is desirable but should not emanate from new credit facilities granted. A healthy situation should be from recoveries of overdue outstanding.

### **2.6.2 NON-PERFORMING LOAN (NPL) RATIO**

The non-performing loans comprise of substandard, doubtful and loss categories, which pose high degree of difficulty for recovery. An increasing trend suggests development of a hardcore portfolio, arising from weaknesses in the credit management process.

### **2.6.3 LOSS CATEGORY TO TOTAL NPL RATIO**

This determines the loss component in the entire non-performing loan portfolio and provides further test of worse character of the portfolio. An increasing trend is unacceptable since this indicates persistent deterioration in the loan portfolio quality.

## **2.7 FACTORS ACCOUNTING FOR BAD LOANS**

Research findings and publications show that bad loans occur as a result of some factors. Berger and De Young (1997) identified poor management as one of the major causes of problem loans. They argue that managers in most banks with problem loans do not practice adequate loan underwriting, monitoring and control.

A World Bank policy research working paper on Non-performing Loans in Sub-Saharan Africa revealed that bad loans are caused by adverse economic shocks coupled with high cost of capital and low interest margins (Fofack, 2005). Fofack (2005) stated that ‘‘the accumulation of non-performing loans is generally attributable to a number of factors, including economic downturns and macroeconomic volatility, terms of trade deterioration, high interest rate, excessive reliance on overly high-priced inter-bank borrowings, insider lending and moral hazard’’

Some writers also hold the view that bad loans can be caused by problem accounts. Rouse (1989) indicated in his work that problem loans can emanate from overdrawn account where there is no overdraft limit, overdraft taken on an account which has not been actively operated for some time and overdraft taken in excess of reasonable operational limits. He also identified lack of good skills and judgement on the part of the lender is a possible cause of bad loans.

Bloem and Gorter (2001) indicated that non-performing loans may rise considerably due to less predictable incidents such as the cost of petroleum products, prices of key export products, foreign exchange rates or interest rates change abruptly. They also stated that deficient bank management, poor supervision, overoptimistic assessments of creditworthiness during economic booms, and moral hazard that result from generous government guarantees are some of the factors that lead to bad loans.

## **2.8 LOAN PROCESSING IN BANKS**

There is risk in the provision of credit to borrowers. This risk exists because an expected payment may not occur. Credit risk is defined as potential losses arising from the inability of credit customers to pay what is owed in full and on time. Bank lending involves a bank, providing a loan in return for the promise of interest and principal repayment in the future (Kay Associates Limited, 2005).

Available literature on lending indicates the lender's role in ensuring good decisions relating to provision of loans in order to minimize credit risk. Rouse (1989) explained that a lender 'lends' money and does not give it away. There is therefore a judgment that on a particular future date repayment will take place. The lender needs to look into



the future and ask whether the customer will repay by the agreed date. He indicated that there will always be some risk that the customer will be unable to repay, and it is in assessing this risk that the lender needs to demonstrate both skill and judgment.

The lender should aim at assessing the extent of the risk and try to reduce the amount of uncertainty that will exist over the prospect of repayment. The lender must therefore gather all the relevant information and then apply his or her skills in making judgement. Though there might be pressures from customers and elsewhere which may sway away the lender's judgement, the lender must seek to arrive at an objective decision.

In view of these credit risks that might lead to bad loans, banks have some loan request procedures and requirements contained in their credit policy documents to guide loan officers in the processing of loans for customers. The following are some of the factors considered in granting loans:

- Applicant's background.
- Background of the Business
- The purpose of the request.
- The amount of credit required.
- The source of repayment.
- Repayment terms of the borrower.
- Security proposed by the borrower.
- Technical and financial soundness of the credit proposal.

Among the criteria outlined above, credit vetting or appraisal is one of the crucial stages in the loan processing procedures. This is because this stage analyses information about the financial strength and creditworthiness of the customer.

Kay Associate Limited (2005) identified five techniques of credit vetting known as the five Cs framework used in assessing a customer's application for credit. Firstly, the character of the customer is assessed. This determines the willingness of the customer to pay the loan and may include the past credit history, credit rating of the firm, and reputation of customers and suppliers. Secondly, the capacity of the customer which is described as his or her ability to pay in terms of cash flow projection is critically assessed. Thirdly, the capital or soundness of the borrower's financial position in terms of equity is assessed. In addition, conditions such as the industry and economic conditions of the business are also assessed. These are important because such conditions may affect the customer's repayment ability. The last C is collateral. This is referred to as the secondary source of repayment. This is considered in appraising the customer's request.

## **2.9 MONITORING AND CONTROL**

According to Rouse (1989) this is an area which many lenders pay little attention but, if it is properly carried out, the occurrence of bad debts can be reduced considerably. He identified internal records, visits and interviews, audited accounts and management accounts as some of the things that help in the monitoring and control process.

Monitoring can minimize the occurrence of bad loans through the following major purposes that it serves:

- Ensure the utilization of the loan for the agreed purpose.
- Identify early warning signals of any problem relating the operations of the customer's business that are likely to affect the performance of the facility.
- Ensure compliance with the credit terms and conditions.
- It enables the lender discusses the prospects and problems of the borrower's business.

## **2.10 REDUCING BAD LOANS**

Bad loans can be restricted by ensuring that loans are made to only borrowers who are likely to be able to repay, and who are unlikely to become insolvent. Credit analysis of potential borrowers should be carried out in order to judge the credit risk with the borrower and to reach a lending decision. Loan repayments should be monitored and whenever a customer defaults action should be taken. Thus banks should avoid loans to risky customers, monitor loan repayments and renegotiate loans when customers get into difficulties (Kay Associates Limited, 2005).

## **2.11 LOAN PORTFOLIO QUALITY AND BANK PERFORMANCE**

Loans generate huge interest for banks which contribute immensely to the financial performance of banks. However, when loans go bad they have some adverse effects on the financial health of banks. This is because in line with banking regulations, banks make adequate provisions and charges for bad debts which impact negatively on their performance. Bank of Ghana regulations on loan provisioning indicate that loans in the non-performing categories that is loans that are at least ninety days overdue in default

of repayment will attract minimum provisions of 25%, 50% and 100% for substandard, doubtful and loss, respectively( Bank of Ghana Act, 2004, Act 673).

According to Bloem and Gorter, (2001), though issues relating to non-performing loans may affect all sectors, the most serious impact is on financial institutions such as commercial banks and mortgage financing institutions which tend to have large loan portfolios. Besides, the large bad loans portfolios will affect the ability of banks to provide credit. Huge non-performing loans could result in loss of confidence on the part of depositors and foreign investors who may start a run on banks, leading to liquidity problems.

The provisions for bad loans reduce total loan portfolio of banks and as such affects interest earnings on such assets. Study of the financial statement of banks indicates that bad loans have a direct effect on profitability of banks. This is because charge for bad debts is treated as expenses on the profit and loss account and as such impact negatively on the profit position of banks. For example Barclays Bank Ghana Limited declared a loss in its 2008 financial statement partly due to the huge charge for bad debts which increased from GH¢5,540,000.00 in 2007 to GH¢46,890,000.00 in 2008 (Price Water-House Coopers, 2009). The annual report of ADB for 2007 showed that the bank had embarked on a five-year bad loan provisioning which affected its profitability during the period. The report indicated that the net profit for 2007 decreased by 13.81% which was attributed mainly to the non-performing loan provisions.

Some foreign literature indicates that bad loans can fuel banking crisis and subsequently result in the collapse of banks with huge non-performing loans. Demircuc-Kunt and Huizinga (1999), cited in Berger and De Young (1997), indicate that failing banks have huge proportions of bad loans prior to failure and that asset quality is a statistically significant predictor of insolvency.

As was indicated earlier in this research, Caprio and Klingebiel (1996), cited in Fofack (2005), also reported that during the banking crisis in Indonesia, non-performing loans represented about 75% of total loan assets which led to the collapse of over sixty banks in 1997. This means that banks holding huge bad loans in their books can run into bankruptcy if such institutions are unable to recover their bad debts.

A possible effect of bad loans is on shareholders earnings. Dividends payments are based on banks performance in terms of net profit. Thus since bad loans have an adverse effect on profitability of banks, it can affect the amount of dividend to be paid to share holders. The Banking Act of Ghana spells out that a bank shall not declare or pay dividend on its shares unless it has, among other things, made the required provisions for nonperforming loans and other erosions in assets value [Section 30 (1) of Banking Act, 2004, Act 673].

The foregoing discussions show the effects of bad loans on banks performance in Ghana and other parts of the world. This study intends to delve into the effect of loan portfolio quality on the performance of banks in Ghana.

## **2.12 EMPIRICAL REVIEW**

A number of researches have examined the effect of loan portfolio quality on the performance of banks in a number of countries. The results varied from one research to another as follows.

Khalid (2012) examined the impact of asset quality on profitability of private banks in India, of which a multiple regression model was employed to examine if bank asset quality and operating performance are positively correlated. The results showed that a bad asset ratio is negatively associated with banking operating performance, after controlling for the effects of operating scale, traditional banking business concentration and the idle fund ratio. The results further supported the hypothesis that the higher the quality of the loan processing activities before loan approval, the lower the non-value-added activities that is required to process problematic loans, and thus the higher the banking operating performance will be.

Ezeoha (2011) investigated Banking consolidation, credit crisis and asset quality in a fragile banking system in Nigeria. The paper made use of panel data from 19 out of a total of 25 banks operating in Nigeria. A multivariate constant coefficient regression model was adopted as the estimation technique. The study reveals that deterioration in asset quality and increased credit crisis in the Nigerian banking industry between the periods 2004 and 2008 were exacerbated by the inability of banks to optimally use their huge asset capacity to enhance their earnings profiles. The findings showed that excess liquidity syndrome and relatively huge capital bases fueled reckless lending by banks; and that increase in the level of unsecured credits in banks' portfolios ironically helped to mitigate the level of Non Performing Loans within the studied period.

Alhassan, Coleman and Andoh (2014) investigated the factors that account for the deterioration in the asset quality of Ghanaian banks during a period of financial crises using a dataset on 25 banks from 2005 to 2010. The study found that the persistence of non-performing loans in addition to loan growth, bank market structure, bank size, inflation, real exchange rate and GDP growth are the significant determinants of banks asset quality in Ghana. The study further revealed the findings have implications for both bank management and regulators in emerging economies.

Alhassan, Brobbey, and Asamoah (2013) examined the persistence of bank asset quality on bank lending behaviour in Ghana. The study employed a random effects (RE) model to test the relationship between bank lending behaviour proxied as the ratio loans and advances to total asset and bank asset quality (ratio of nonperforming loans to gross loans and advances) while controlling for deposit mobilization, equity, management efficiency, intermediation spread and income diversification. The empirical estimation found that the effect of the deterioration of bank asset quality (high levels of non-performing loans) on bank lending behaviour is persistence and not contemporaneous. Additionally, bank deposit mobilization, intermediation spread and equity were also found to influence bank lending behaviour.

Swamy (2015) investigated the determinants of bank asset quality and profitability using panel data techniques and robust data sets for the period between 1997 and 2009. The study established that while capital adequacy and investment activity significantly affect the profitability of commercial banks, apart from other accepted determinants of profitability, asset size has no significant impact on profitability.

Mathuva (2009) examined the relationship between capital adequacy, cost income ratio and the performance of commercial banks in Kenya, using return on assets and equity as proxies for bank profitability. The study revealed that bank profitability is positively related to the core capital ratio and tier 1 risk based capital ratio. This implies that an increase in capital may raise expected earnings by reducing the expected costs of financial distress, bankruptcy. The study also established that there exist negative relationship between the equity ratio and profitability. It further revealed that cost income ratio is inversely related to both bank profitability measures.

Hess and Francis (2004) observed that there is an inverse relationship between the cost income ratio and the bank's profitability. Ghosh, Narain and Sahoo (2003) also found that the expected negative relation between efficiency and the cost-income ratio seems to exist. However, the cost income ratio (CIR), with its limitations (Welch, 2006), is another emerging measure of bank's efficiency and a benchmarking metric (Hess and Francis, 2004).

There have been varying reports on the relationship between bank liquidity and profitability. Some argue, per their research findings, that banks holding more liquid assets benefit from a superior perception in funding markets, reducing their financing costs and increasing profitability. For example, Bourke (1989) finds some evidence of a positive relationship between liquid assets and bank profitability for 90 banks in Europe, North America and Australia from 1972-1981. On the other hand, other researchers argue that, holding liquid assets imposes an opportunity cost on the bank given their low return relative to other assets, thereby having a negative effect on profitability. For example, Molyneux and Thornton (1992) and Goddard (2004) find



evidence of a negative relationship between the two variables for European banks in the late 1980s and mid-1990s, respectively. According to Eichengreen and Gibson (2001), the fewer the funds tied up in liquid investments, the higher we might expect profitability to be. In effect, various authors have found varying relationships between the liquidity and profitability of banks in various countries.

Lartey, Antwi, and Boadi (2013) sought to find out the relationship between the liquidity and the profitability of banks listed on the Ghana Stock Exchange. It was found that for the period 2005-2010, both the liquidity and the profitability of the listed banks were declining. Again, it was also found that there was a very weak positive relationship between the liquidity and the profitability of the listed banks in Ghana.

Moein, Nayebyzadeh and Pour (2013) investigated the relationship between modern liquidity indices and stock return in companies listed on Tehran Stock Exchange. Results indicated that there was a positive and significant relationship between comprehensive liquidity index and stock returns while there was no significant relationship between the index of cash conversion cycle as well as net liquidity balance and stock returns.

Almazari (2014) investigated the internal factors that have an effect on profitability in Saudi and Jordanian banks. He found that there is a positive correlation between profitability measured by ROA of Saudi and Jordanian banks with some liquidity indicators, as well as there is a negative correlation with other liquidity indicators between profitability measured by ROA of Saudi and Jordanian banks .

Demirguc-Kunt et al. 1999, assert that, while net interest margin (NIM) can be interpreted as a rough index of bank efficiency or inefficiency, the changes in its value should be carefully interpreted. Usually higher NIM signals improved or higher profitability. This situation is not desired if the higher NIM is due to new loans with higher yield and yet risk. On the other side, reduction in NIM may reflect an improved functioning and efficiency of the banking system due to the greater competition among banks, but it can also reflect a high loan default rate. That is why the yields should be monitored at the same time with the risks undertaken. However, higher NIM contributes to the stability of the banking system, by adding to the bank's capital needed as a secure measure against any adverse situations. The evidence says that NIM is usually highest in middle-income countries, where the banks also have the highest values for operating expenses and loan loss provisions to assets variables. Banks in the high-income countries, instead, achieve the lowest NIM, and they face the lowest ratios of operating expenses, loan loss provisions, and net profits to assets. Overall, for NIM to be a good measure of profitability, interest rate revenues and expenses should be closely related to banks' behavior, and not to government decisions.

NIM (net interest margin) is investigation on income make through markup (interest) operations (Hoggarth, Milne, & Wood, 1998). Angbazo (1997) in the study of US banks from 1989-2003 concluded that management effectiveness, credit risk and leverage has a positive association with net interest margin. A study of United State bank by Angbazo (1997) that identified net interest margin has a direct association with capital and inverse association with liquidity risk in addition investigates mainly credit risk. Naceur (2003), in his study of determinants of Tunisian banking industry profitability of 10 banks form 1980-2000 concluded that high net interest margin and profitability are expected to be linked with high quantity of capital and cost. By

investigating relationship between the bank net interest margin and profitability it is found that well capitalized commercial banks are most effective and this leads to better profitability in the study of European banking conducted by (Abreu & Mendes, 2001).

Ma (1988) examined if Loan Loss Provisioning (LLPs) were used as a tool to reduce volatility of earnings by banks. He concluded that LLPs, together with loan charge-offs, were used by banks for income smoothing. Collins et al. (1995) examined whether, in addition to LLPs, other tools such as loan charge-offs and securities issuances were used for earnings management. They found a positive association only between LLPs and earnings management, and concluded that the other tools were used primarily for capital management. Some studies sought to examine the characteristics of banks that indulged in earnings management. Greenawalt and Sinkey (1988) found that regional banks engaged in more aggressive income smoothing than money-centred banks. Bhat (1996) found that banks that engaged in aggressive income smoothing were in poorer financial health relative to others. All these studies had one common feature: they all found a positive association between LLPs and earnings management.

Not all studies on LLPs and earnings management came to the same conclusion. Wetmore and Brick (1994) studied what factors might be associated with income smoothing by banks and found no evidence that LLPs are used as a tool for earnings management. Beatty, Chamberlain and Magliolo (1995) considered whether banks alter timing and magnitude of transactions and accruals to achieve earnings management, but found no association between LLPs and earnings management by the banks in their sample. Ahmed, Takeda and Thomas (1999), in their study used data that included the period after the change in capital adequacy regulations, also found no

evidence that banks used LLPs to manage earnings. Their finding of no association was surprising, since the capital adequacy regulation removed the costs of earnings management.

Hamisu, (2011) notes that credit creation involves huge risks to both the lender and the borrower. The risk of a trading partner not fulfilling his or her obligation as per the contract on due date or anytime thereafter can greatly jeopardize the smooth functioning of bank's business. On the other hand, a bank with high credit risk has high bankruptcy risk that puts the depositors in jeopardy. In a bid to survive and maintain adequate profit level in this highly competitive environment, banks have tended to take excessive risks. But then the increasing tendency for greater risk taking has resulted in insolvency and failure of a large number of the banks. However, the higher the volume of loans extended the higher the interest income and hence the profit potentials for the commercial banks. At this point, it is also worth noting that banks with a high volume of loans will also be faced with higher liquidity risk. Thus, the commercial banks need to strike a balance between liquidity and profitability (Devinaga, 2010). Hamisu, (2011), highlighted that available statistics from liquidated banks in Nigeria clearly showed that inability to collect loans and advances extended to customers and directors or companies related to directors/managers was a major contributor to the distress of the liquidated banks. At the height of the distress in 1995, when 60 out of the 115 operating banks were distressed, the ratio of the distressed banks' non-performing loans and leases to their total loans and leases was 67%. The ratio deteriorated to 79% in 1996; to 82% in 1997; and by December 2002, the licenses of 35 of the distressed banks had been revoked. At the time, the banking licenses were

revoked, some of the banks had ratios of performing credits that were less than 10% of loan portfolios (Hamisu, 2011).

The size of bank as one of the independent variable could create economies of scale which lower the average cost and has a positive impact on bank profits. At the same time, if the size of a bank becomes larger, phenomenon of the diseconomies of scale appears, the more difficult for management to conduct surveillance and the higher the level of bureaucracy that have a negative impact on bank profitability (Athanasoglau, Brissimis and Delis, 2005). Gul, Irshad and Zaman (2011) found a direct relationship between the size of banks and profitability.

## **CHAPTER THREE**

### **METHODOLOGY**

#### **3.1 INTRODUCTION**

This chapter is designed to provide a detailed description of the methodology adopted for the study. The main issues examined in this chapter include the research design, study population, sources of data, data analysis techniques and validity and reliability of data.

#### **3.2 RESEARCH DESIGN**

Based on the purpose of the research, the researcher decides that explanatory study is the most suitable for the topic. Even though the research starts with the description about loan portfolio quality and performance of banks, the ultimate goal is to test if a relationship exists and how the Loan portfolio quality could impact on performance of banks. That is to say, the aim is to find causes and effects of the problem under study. The main task is to separate such causes and to say to what extent they lead to such effects. Therefore the study seeks to explain the causal relationship between the variables. Hence, the researcher considers explanatory study as the research design.

#### **3.3 RESEARCH APPROACH**

Deductive approach requires the development of hypothesis (Saunders, Lewis and Thornhill, 2009). In this study, the researcher studied the relationship between loan portfolio quality and performance in commercial banks in Ghana. Therefore, hypotheses which state there is a certain relationship between loan portfolio quality and performance were formulated. To test the various hypotheses, the researcher

collected financial data from the selected banks such as Return on Equity (ROE), Total Assets, Cost Income Ratio, Net Interest Margin, Liquid Funds to Total Assets, Loan Loss Provision to Gross Loan Advances and Loan Portfolio Profitability. This approach reflects a deductive stance. Besides, deduction indicates the researcher should be independent of what is being observed (Saunders et al., 2009, p. 125). The study involved quantitative data based on the data collected. Hence, the researcher was independent of what was observed and also objective in data gathering. Therefore, the research approach is consistent with deductive approach.

### **3.4 RESEARCH STRATEGY**

The research used archival strategy which involves data from administrative records. The data was collected from the annual report of each of 10 selected banks. Based on the nature of the data, the researcher considers that archival strategy as the more appropriate strategy for the study. Even though the researcher aims on the valuation of loan portfolio quality in the study, only ratios were used as indicators to measure the performance of loan portfolio management and other bank specific factors that affect performance.

### **3.5 POPULATION AND SAMPLE**

The population of the study consisted of all twenty eight (28) commercial banks licensed by Bank of Ghana as at 31<sup>st</sup> December, 2014. A sample of ten (10) banks was taken from the whole population constituting 35.7% of the entire population. The sample decision was arrived at based on the availability of data and time constraint. The sample period covered 2007 to 2013. This sample fairly represents the whole

population and is considered large enough to provide a general view of the entire population and serve as a good basis for valid and reliable conclusions.

### **3.6 DATA COLLECTION**

The data used for the study are from secondary sources especially from financial statements of the banks. Data was obtained from ten (10) universal banks in Ghana. Purposive sampling technique was used in selecting these ten banks. The basic data was obtained from the Annual Report of the banks from 2007 to 2013. The financial data collected include Return on Equity (ROE), Total Assets, Cost Income Ratio, Net Interest Margin, Liquid Funds to Total Assets, Loan Loss Provision to Gross Loan Advances and Loan Portfolio Profitability.

### **3.7 TIME HORIZON**

Although the main research question is to find if there exists a relationship between Loan portfolio quality and performance of banks, the researcher also explored if the relationship is stable or fluctuating over different sub-periods. Hence, the researcher also examines the change of relationship over year 2007 to 2013. Considering that the longitudinal studies examine the change and development over a given period, it leaves no doubt that the researcher should conclude the research follows longitudinal studies. Based on the fact that the data collected constitutes panel data, a panel data analysis using fixed effect model, was employed.

Panel data (also known as longitudinal or cross-sectional time-series data) is a dataset in which the behavior of entities are observed across time. The fixed-effects model controls for all time-invariant differences between the individuals, so the estimated



coefficients of the fixed-effects models cannot be biased because of omitted time-invariant characteristics use fixed-effects (FE) whenever you are only interested in analyzing the impact of variables that vary over time. Fixed Effect explores the relationship between predictor and outcome variables within an entity (country, person, company, etc.). When using FE the assumption is that something within the individual may impact or bias the predictor or outcome variables and therefore need to control for this.

### 3.8 SPECIFICATION OF ECONOMETRIC MODELS

According to Fonta and Ichoku (2009), an econometric model is a representation of the basic features of an economic phenomenon. For the purposes of this study, the model employed is the fixed effect model. The Fixed Effect Panel Model (FE) allows the individual-specific effects  $\alpha_i$  to be correlated with the regressors X. Each individual has a different intercept term and the same slope parameters. The general fixed effect model is given as:

$$y_{it} = \alpha_i + \beta_i X_{it} + \mu_{it}$$

Where:

$\alpha_i$  = the intercepts

$X_i$  = the regressors

$\beta_i$  = the slope of the regressors

$\mu_i$  = the error term

To meet the objectives of the study, two set of regression equations were formulated. The first equation (1) examines the effect of asset quality (measured by loan portfolio profitability and loan loss provision to gross loan advances) on the performance

(measured by ROE) of the selected universal banks. The regression equation is given by:

$$ROE_{it} = \beta_0 + \beta_1(LPP_{it}) + \beta_2(LLP / GLA_{it}) + \varepsilon_{it} \dots \dots \dots (1)$$

Where share price (ROE) is the dependent variable, and Loan Portfolio Profitability (LPP) and Loan Loss Provision to Gross Loan Advances (LLP/GLA) are the independent variables. The value  $\beta_0$  is the intercept of the model while  $\beta_1$  and  $\beta_2$  are the coefficients of the independent variables and  $\varepsilon_{it}$  is the error term.

The Second Equation (2) examines other variables that affect the performance of commercial banks in Ghana. In this model, three control variables (Cost Income Ratio, Liquid Funds to Total Assets and Size) are used as the independent variables including the two main independent variables. The model is given as:

$$ROE_{it} = \beta_0 + \beta_1(LPP_{it}) + \beta_2(LLP / GLA_{it}) + \beta_3(CIR_{it}) + \beta_4(LSIZE_{it}) + \beta_6(LF / TA_{it}) + \varepsilon_{it} \dots \dots \dots (2)$$

### 3.9 DATA ANALYSIS

Saunders et al (2009) explain that data analysis involves breaking down data and clarifying the nature of the components parts in order to establish relationship between them. In business research, data can be analysed qualitatively or quantitatively based on the nature and objectives of the study. A qualitative data analysis enables a researcher to develop a theory from data, while a quantitative data analysis enables the researcher to explore, present, describe and examine relationships and trends with a quantitative data (Saunders et al., 2009). Based on the nature of the data collected – which is quantitative in nature – the quantitative data analysis was deemed appropriate.

Descriptive statistics in the form of mean and standard deviations was used to describe the various financial ratios used in the study. Inferential statistical technique in the form of panel regression was used to establish the relationship between the dependent variables and the independent variables. STATA Statistical Software and Statistical Package for the Social Sciences (SPSS) were mainly used to analyse the data.

### **3.10 DESCRIPTION OF VARIABLES**

#### **Return on Equity (ROE)**

This ratio measures the management efficiency in utilizing the bank funds in achieving a profit, and is calculated by dividing net income (net profit after tax) on the owed capital. Thus, Return on equity (ROE) = (Profit after tax/ Shareholders Fund)  $\times$  100. Shareholder's funds comprise paid-up stated capital, income surplus, statutory reserves, and capital surplus or revaluation reserves.

#### **Net Interest Margin (NIM)**

It is expressed as a percentage of what the financial institution earns on loans in a time period and other assets minus the interest paid on borrowed funds divided by the average amount of the assets on which it earned income in that time period. Thus, net interest income (NIM) = (interest income – interest expense) /average earning assets. This variable has been used as a proxy for financial performance and is used as one of the dependent variables. For instance, Demirguc-Kunt et al. (1999) established that there exist a positive and statistically significant effect between net interest margin and financial performance. Naceur (2003) also found that high NIM may indicate low default rate and hence better performance of banks.

**Loan Loss Provision (LLP)**

An expense set aside as an allowance for bad loans (customer defaults, or terms of a loan have to be renegotiated). Thus, loan loss provision = general and specific provisions for bad debts + interest in suspense/gross loans and advances.

**Liquid Assets**

This includes cash assets and assets that are relatively easier to convert to cash, for example, investment in government securities, quoted and unquoted debt and equity investments, equity investments in subsidiaries and associated companies.

**Total Assets (Bank Size)**

This comprises of total operating assets and total non-operating assets. Thus, total assets = total operating assets + total non-operating assets.

**Cost Income Ratio (CIR)**

The ratio gives investors a clear view of how efficiently the bank is being run. The lower it is, the more profitable the bank will be. Changes in the ratio can also highlight potential problems: if the ratio rises from one period to the next, it means that costs are rising at a higher rate than income, which could suggest that the company has taken its eye off the ball in the drive to attract more business. Thus, cost income ratio =  $\text{operating expenses} \div \text{operating income}$ .

**Loan Portfolio Profitability (LLP)**

This is expressed as interest income attributable to advances minus provision for bad and doubtful loans divided by gross loans and advances. Thus, loan portfolio profitability = (interest income attributable to advances - provision for bad and doubtful loans) / gross loans and advances.

## **CHAPTER FOUR**

### **PRESENTATION OF DATA, ANALYSIS AND DISCUSSION OF FINDINGS**

#### **4.1 INTRODUCTION**

In the previous chapter, the methodology and sources of data for the study was examined in detail. In this section, the collected data is analysed with the view of finding relationships between the study variables. The results are discussed and compared with existing literature on the subject.

#### **4.2 DESCRIPTIVE STATISTICS**

The descriptive statistics of the dependent and independent variables used in the study are presented in Table 4.1. Return on Equity (ROE) and Net Interest Margin (NIM) which are a proxy for profitability/performance were used as the dependent variables. The main independent variables are Loan Loss Provision to Gross Loan Advances (LLP/GLA) and Loan Portfolio profitability (LPP). These two Ratios are used to measure credit quality of the commercial banks (Ghana banking survey, 2014). Other independent variables used in the model include Cost Income Ratio (CIR), Liquid Funds to Total Assets (LF/TA), Natural Logarithm of Total Assets (LASSET), Loan portfolio profitability (LPP) and Loan Loss Provision to Gross Loan Advance (LLP/GLA). The descriptive statistics indicate that on average, the return on equity for the selected banks is 21.34 percent. This means that investors on average receive a little over 21% on their equity. Also, the cost to income ratio (CIR) averaged 0.64 with a standard deviation of 0.213. The average values for Liquid funds to total assets (LFTA), Net Interest Margin (NIM), Loan Loss Provision to Gross loan Advances

(LLPGLA), Loan portfolio profitability (LPP) and Natural logarithm of total assets (LASSET) are respectively, 0.450, 9.44, 6.60, 14.73% and 13.70 respectively. The rest of the information is captured in Table 4.1.

Variables	N	Minimum	Maximum	Mean	Std. Deviation
ROE	70	-41.200	79.200	21.34286	16.086357
CIR	70	0.160	1.400	0.63857	0.213808
LFTA	70	0.180	0.750	0.44971	0.136243
NIM	70	3.600	17.300	9.43714	2.806626
LLPGLA	70	0.800	30.200	6.59571	5.443795
LPP	70	4.100	36.200	14.73000	4.913936
LASSET	70	11.238	15.347	13.69901	0.857601

**TABLE 4.1 Descriptive Statistics of Variables used in the model**

*Key; ROE=Return on Equity; CIR=Cost to Income Ratio; LFTA= Liquid fund to Total Asset; NIM=Net interest margin; LLG/GLA=Loan Loss provision to gross loan advances; LLP=Loan Portfolio Profitability LASSET=Log of total assets. Source: Author's Construction, 2015*

#### **4.3. SUITABILITY OF STUDY DATA**

The suitability of the data for the regression analysis was assessed using normality test and multicollinearity test, since these are the most important factors to consider in regression analysis

##### ***Test of normality***

The normality of the variables used in the model was tested using Kolmogorov-Smirnov and Shapiro-Wilk tests. In both tests, a non-significant result (ie, sig. value greater than 0.05) shows there is normality. The result, as presented in Table 4.2 shows that most of the variables are normally distributed, with the exception of ROE and LLPGLA. However, since the number of observation is quite high, the result is good for analysis (Pallant, 2011).

TABLE 4.2 Test of Normality among the Variables

	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	df	Sig.
ROE	.123	70	.010	.910	70	.000
CIR	.173	70	.100	.874	70	.100
LFTA	.064	70	.200*	.980	70	.320
NIM	.066	70	.200*	.986	70	.637
LLPGLA	.258	70	.000	.751	70	.000
LPP	.093	70	.200*	.931	70	.100
LASSET	.099	70	.089	.969	70	.082

\*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Source: Author's Construction, 2015

### ***Test of Multicollinearity***

The assumption of multicollinearity was tested to ensure that there is no strong relationship among the predictor variables. Tolerance and Variance Inflation Factor (VIF) (Pallant, 2009) was used in addition to Pearson's correlation test. The tolerance



test shows how much of the variability of the specified independent variable is not explained by the other independent variables in the model. From the table 4.2, it can be observed that all the tolerance valued are greater than 0.10, indicating that there is no problem of multicollinearity in the regression model. Also the VIF test was performed to detect the presence of multicollinearity among the independent variables. According to Pallant (2011), the rule of thumb states that VIF values above 10 suggest some high levels of multicollinearity. The result shows that none of the values are above 10, suggesting that there is no problem of multicollinearity in the multiple regression model. In other words the assumption of multicollinearity has not been violated, hence the use of the panel multiple regression model. Also the Pearson's correlation matrix (See Table 4.3) shows that there is no problem of multicollinearity among the various independent variables.

**Table 4.3 Test of Multicollinearity between independent variables**

<b>Variables</b>	<b>Variance Inflation Factor (VIF)</b>	<b>Tolerance</b>
CIR	1.532	0.653
LFTA	1.391	0.719
LLPGA	1.359	0.736
LPP	1.286	0.778
LASSET	2.233	0.448

Source: Author's Construction, 2015

**TABLE 4.4 Pearson correlation coefficient result**

		ROE	CIR	LFTA	NIM	LLPGLA	LPP	LASSET
	Pearson Correlation	1						
ROE	Sig. (2-tailed)							
	Pearson Correlation	-.430**	1					
CIR	Sig. (2-tailed)	.000						
	Pearson Correlation	.304*	-.200	1				
LFTA	Sig. (2-tailed)	.010	.097					
	Pearson Correlation	.262*	-.342**	-.099	1			
NIM	Sig. (2-tailed)	.029	.004	.416				
	Pearson Correlation	-.028	.098	.177	.270*	1		
LLPGLA	Sig. (2-tailed)	.819*	.418	.143	.024			
	Pearson Correlation	.311**	-.050	.126	.244*	.314**	1	
LPP	Sig. (2-tailed)	.009	.681	.298	.042	.008		
	Pearson Correlation	.316**	-.559**	.257*	.492**	-.084	-.113	1
LASSET	Sig. (2-tailed)	.008	.000	.032	.000	.488	.353	
	N	70	70	70	70	70	70	70

\*\* . Correlation is significant at the 0.01 level (2-tailed); \* . Correlation is significant at the 0.05 level (2-tailed).

*Source: Author's Construction, 2015*

The Pearson's Correlation analysis result in Table 4.4 also gives credence to the previous result that there is no multicollinearity among the independent variables. Drury (2008) posit that for multicollinearity to exist, the correlation coefficient ( $r$ ) between the independent variables should be 0.70 or above ( $r \geq 0.70$ ). In this result, it can be observed that none of the coefficients is above 0.70, indicating the absence of multicollinearity.

The Pearson's correlation result also shows that there is a positive significant relationship between ROE and four of the variables; ie ROE and LFTA ( $r=0.304$ ;  $p \leq 0.05$ ), ROE and NIM ( $r=0.262$ ;  $p \leq 0.05$ ), ROE and LPP ( $r=0.311$ ;  $p \leq 0.05$ ) and ROE and LASSET ( $r=0.304$ ;  $p \leq 0.05$ ). However, the result shows that there is a negative and significant relationship between Performance (ROE) and two of the variables (CIR and LLPGLA).

#### **4.4 ANALYSIS OF MULTIPLE REGRESSION RESULT**

The parameters of this model are estimated using multivariate regression analysis. Two main models were used to examine the relationship between the dependent and the independent variables. The first model examines the effect of loan portfolio quality on the performance of selected universal banks in the Ghana. The loan portfolio quality is measured by Loan Loss Provision to Gross Loan Advances (LLP/GLA) and Loan Portfolio Profitability (LPP). The performance of the banks is measured by Return on Equity (ROE). The second model, Equation (2), examines the effect of other control variables (size, net interest margin, cost income ratio and loan loss provision to gross loan advances) on the performance of universal banks in Ghana.

Liquid funds to total assets (LFTA) was dropped from the regression analysis because its contribution to the model was extremely minimal.

#### 4.4.1 Hausman Test for Fixed and Random effect model

To examine the suitable panel model to employ, the Hausman test was used. The Hausman test provides a means of determining whether fixed or random effect model is suitable for the analysis. The fixed effect (FE) model assumes that each of the banks selected is different, therefore the bank's error term and the constant (which captures individual characteristics) should not be correlated with the others. If the error terms are correlated, then FE is not suitable since inferences may not be correct and one needs to model that relationship (probably using random-effects). The Hausman test tests the null hypothesis that the difference between the fixed effect and the random effect of the model is not systematic. The result of the Hausman test is presented in Table 4.5.

**TABLE 4.5 Hausman test results**

	Coefficients		
	Fixed (b)	Random	b-B Difference
LLP/GLA	-0.172	-0.293	0.121
LPP	1.757	1.484	0.272
H <sub>0</sub> : difference in coefficients not systematic			
Chi <sup>2</sup> (2) =26.88			
Prob >Chi <sup>2</sup> =0.000			
Dependent Variable: (ROE)			

*Source: Author's Construction, 2015*

The result shown in Table 4.5 indicates that we reject the null hypothesis that the difference between the coefficient of the fixed and random effect models are not significant. This is because the prob Chi<sup>2</sup> is less than 0.05 (Prob >Chi<sup>2</sup> =0.000). Therefore the test concludes that fixed effects model is optimal methodology to be employed in this study (Katchova, 2013). Thus, the study employs the fixed effect panel regression model in the analysis.

#### **4.4.2 Examining the effect of loan portfolio quality on the performance of universal banks**

The variables, Loan loss provision to Gross Loan Advances (LLP/GLA) and Loan Portfolio Profitability (LPP) were added to the model as a measure of credit risk and asset quality. The ratio of loan loss provisions over total loans is a measure of a bank's credit quality. The loan loss provisions are reported on a bank's income statement. A higher ratio goes together with a lower credit quality and, therefore, a lower profitability/performance. A higher Loan Portfolio Profitability (LPP) means that higher profit for firms and hence performance. The result of the regression analysis is presented in Table 4.6.

**Table 4.6 Results of the effect of loan portfolio quality on performance (ROE as Dependent variable)**

	Coefficient	T-stat	P-Values
Intercept	-3.396	-0.60	0.549
LLP/GLA	-0.172	-0.45	0.653
LPP	1.757	4.510	0.001**

Notes: significant at: \*\* 1 percent level; Adj. R<sup>2</sup> = 0.272, F-stat = 10.67; Prob of F-stat =0.001, Rho=0.382

*Source: Author's Construction, 2015*

**Table 4.7 Results of the effect of loan portfolio quality on performance (NIM as Dependent variable)**

	Coefficient	T-stat	P-Values
Intercept	7.254	6.56	0.000
LLP/GLA	-0.019	-0.27	0.791
LPP	0.157	2.05	0.045

Notes: significant at: \*\*1 percent level; Adj. R<sup>2</sup> = 0.0711, F-stat = 2.2; Prob of F-stat = 0.10  
Rho=0.244

*Source: Author's Construction, 2015*

From Table 4.6, the predictive power of the model as measured by Adjusted R<sup>2</sup> is 0.272 or 27.2%. The F-statistic of 10.67 is significant at p<.001. The result implies the independent variables explain about 27.2% of the variations in the financial performance of the selected universal banks. The result also shows that all the coefficients in the mode are different than zero, according to the F-Statistics. The rho statistics, measured by:

$$rho = \frac{(\sigma_u)^2}{(\sigma_u)^2 + (\sigma_e)^2} , \text{ shows that 38.2 percent of the variance in the}$$

outcome and predictor variables is due to differences across panels. The result indicates that Loan Portfolio Profitability (LLP) has a positive significant impact on the financial performance of the selected universal banks in Ghana. The result further shows that Loan Loss Provision to Gross Loan Advances (LLP/GLA), which is also a measure of loan portfolio quality, has a negative but insignificant effect on financial performance of universal banks in Ghana.

Using Net Interest Margin (NIM) as dependent variable, it can be observed the predictive power of the model as measured by Adjusted R<sup>2</sup> is 0.071 or 7.1%. The F-

statistic of 2.2 is not statistically significant. This means that the independent variables together do not significantly explain variations in the dependent variable. Based on this result, it can be concluded that ROE is a better measure of performance than NIM.

#### 4.4.3 Regression Result with control Variables.

In this model, the control variables (CIR, LASSET and LFTA) are added to examine their effect on the financial performance of the selected banks. First, the Hausman test was used to confirm the fixed effect model. The result presented in Table 4.7 indicates that we reject the null hypothesis that the difference between the coefficient of the fixed and random effect models are not significant. This is because the prob  $\chi^2$  is less than 0.05 (Prob  $>\chi^2 = 0.001$ ). Therefore the test concludes that fixed effects model is optimal methodology to be employed in this study (Katchova, 2013). Thus, the study employs the fixed effect panel regression model in analyzing other factors that affect the financial performance of banks.

**TABLE 4.7 Hausman test results**

	Coefficients		b-B Difference
	Fixed (b)	Random	
CIR	-19.840	-22.868	3.027
LLPGLA	-0.309	-0.027	0.167
LPP	1.535	1.114	0.420
LASSET	-6.476	3.145	-9.621
H <sub>0</sub> : difference in coefficients not systematic			
$\chi^2 (5) = 20.12$			
Prob $>\chi^2 = 0.001$			
Dependent Variable: (ROE)			

*Source: Author's Construction, 2015*

**Table 4.8 Result of the factors affecting financial performance of universal banks in Ghana (ROE as the Dependent Variable)**

	Coefficient ( $\beta$ )	T-stat	P-VALUES
Intercept	87.100	1.73	0.090
CIR	-19.840	-2.01	0.049*
LLP/GLA	-0.309	-0.81	0.421
LPP	1.534	4.01	0.000**
LASSET	-6.478	-1.73	0.081

**Notes:** significant at: \*\*1, \*5, Adj.  $R^2 = 0.381$ , F-stat = 6.78; Prob of F-stat =0.001, rho=0.473

Sigma\_u =11.744; sigma\_e=12.419

*Source: Author's Construction, 2015*

**Table 4.9 Result of the factors affecting financial performance of universal banks in Ghana (NIM as the Dependent Variable)**

	Coefficient ( $\beta$ )	T-stat	P-VALUES
Intercept	-21.19957	-2.76	0.008**
CIR	-2.100833	-1.33	0.189
LLP/GLA	0.771367	1.26	0.212
LPP	.0754281	1.23	0.224
LASSET	2.216102	4.33	0.000**

**Notes:** significant at: \*\*1, Adj.  $R^2 = 0.4509$ , F-stat = 2.8; Prob of F-stat =0.001, rho=0.371

Sigma\_u =1.548; sigma\_e=2.015

*Source: Author's Construction, 2015*

The fixed effect model result in Table 4.8 shows that the predictive power of the model as measured by Adjusted  $R^2$  is 0.381 or 38.1%. The F-statistic of 6.78 is significant at  $p < .001$ . The result implies the independent variables explain about 38.1% of the variations in the financial performance of the selected universal banks. The result also



shows that all the coefficients in the model are different than zero, according to the F-Statistics. The rho statistics, measured by:

$$rho = \frac{(\sigma_u)^2}{(\sigma_u)^2 + (\sigma_e)^2} , \text{ shows that 47.3 percent of the variations in the}$$

outcome and predictor variables is due to differences across panels. The model indicates that Cost Income Ratio (CIR) has significant effect on the financial performance of universal banks in Ghana. Specifically, CIR has a negative significant impact on the financial performance of universal banks in Ghana. In other words, an increase in the cost income ratio of the banks leads to a reduction in the financial performance of the banks.

The model having NIM as the dependent variable is analysed and summarized in Table 4.9. It can be observed that total asset is significant in affecting performance of the banks. However, CIR, LPP and LLP/GLA are statistically insignificant in influencing performance of the banks.

#### **4.5 DISCUSSION OF RESULTS**

The result from the analysis indicates that loan portfolio quality, measured by loan loss provision to gross loan advances (LLP/GLA) and Loan Portfolio Profitability (LPP), has significant effect on the financial performance of the selected universal banks. For instance, the result shows that an increase in Loan Portfolio Profitability leads to increase in the financial performance of the selected banks. The variable, Loan loss provision to Gross Loan Advances (LLP/GLA) was added to the model as another measure of credit risk and loan portfolio quality. The loan loss provisions are reported on a bank's income statement. A higher ratio goes together with a lower credit quality

and, therefore, a lower profitability. The result shows that LLP/GLA has a negative but statistically insignificant effect on the financial performance of banks in Ghana.

The result implies that the higher the provision for loan loss to total advances, the higher the credit risk and hence the higher the accumulation of unpaid loans and interest. Unpaid loan and associated interest reduces the profit of the bank thereby making it less profitable. The result is in agreement with that of Bessis (2002) who asserts that poor asset quality reduces profitability of banks. Also, studies such as Miller and Noulas (1997) have found that exposure of financial institutions to high credit risk increases unpaid loans which in turn reduces financial performance. The result implies that banks must endeavor to manage their credit efficiently in order to improve their financial performance.

The Cost-Income Ratio (CIR) is one of the control variables added to the model to examine its effect on bank performance. Cost Income ratio is defined as the operating costs (such as the administrative costs, staff salaries and property costs, excluding losses due to bad and nonperforming loans) over total generated revenues. It is used to measure the effect of efficiency on bank profitability. The study sought to determine whether this variable has any significant effect on the profitability of banks in Ghana. The result reveals the coefficient of the cost-to-income ratio is statistically insignificant and negative in the model. The result confirms the findings of Athanasoglau et al. (2005), who found that cost-to-income ratio has a negative significant effect on profitability of banks, indicating that efficient cost management is a prerequisite for improved profitability in the Ghanaian banking industry. Also, Hess and Francis (2004) found an inverse relationship between the cost income ratio and the bank's profitability.

The variable, Logarithm of total asset, was used as a proxy for bank size in the regression model based on the work of Boyd et al. (1993). In essence, Bank Size may have a positive effect on bank profitability if there are significant economies of scale. On the other hand, if increased diversification leads to higher risks, the variable may exhibit negative effects (Sufian and Chong, 2008). The implication of this result is that bank size has the potential of inducing economies of scale which makes larger banks more profitable. In other works, the larger the size of the bank, the more profitable it becomes due to economies of scale. Larger banks will enjoy economies of scale through the reduction in the cost of gathering and processing information. The findings are in agreement with Athanasoglau et al. (2005).

## **CHAPTER FIVE**

### **SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS**

#### **5.0 INTRODUCTION**

This chapter presents the summary of findings, conclusions and recommendations based on the results. The summary presents a snapshot of the research findings. The inference based on the empirical study is captured in the conclusion while recommendations are proposed based on the findings.

#### **5.1 SUMMARY OF FINDINGS**

The results from the analysis indicate that loan portfolio quality, measured by loan loss provision to gross loan advances (LLP/GLA) and loan portfolio profitability (LPP), has a significant effect on the financial performance of the selected universal banks. For instance, the result shows that an increase in loan portfolio profitability leads to an increase in the financial performance of the selected banks. The results also show that LLP/GLA has a negative but statistically insignificant effect on the financial performance of banks in Ghana. The results imply that the higher the provision for loan loss to total advances, the higher the credit risk and hence the higher the accumulation of unpaid loans and interest. Unpaid loan and associated interest reduces the profit of the bank thereby making it less profitable.

In addition, the study reveals that the coefficient of the cost-to-income ratio is statistically insignificant and negative in the model.

Furthermore, the study established that net interest margin has a positive and statistically significant effect on the financial performance of the selected banks in Ghana.

Finally, bank size has a positive effect on bank profitability. The implication of this result is that bank size has the potential of inducing economies of scale which makes larger banks more profitable. Thus, the larger the size of the bank, the more profitable it becomes due to economies of scale.

## **5.2 CONCLUSION**

The purpose of the study was to examine the effect of loan portfolio quality on the financial performance of selected universal banks in Ghana. Return on Equity (ROE) and Net Interest Margin were designated as proxies for financial performance while Loan Portfolio Profitability (LPP) and Loan Loss Provision to Gross Loan Advances were used as proxies for loan portfolio quality. In addition, Cost Income Ratio (CIR), Liquid Funds to Total Assets and Total Assets were used as other control variables to test their effect on financial performance of the selected universal banks. The results of the study established that loan portfolio quality has significant effect on the financial performance of the selected universal banks.

Considering the factors that account for loan portfolio quality as established by the research findings, it can also be concluded that the granting of loans which is a core lending activity of the banks is heavily exposed to credit risk. Management therefore needs to put in place pragmatic measures to mitigate the risk in lending so as to improve the quality of the overall loan portfolio, hence performance.

### **5.3 RECOMMENDATIONS**

Firstly, the result shows that LLP/GLA has a negative effect on the financial performance of banks in Ghana. It is recommended that, universal banks in Ghana should develop effective and efficient strategies and policies to improve the quality of their loans in order to improve their profitability.

Secondly, the result indicates that cost-to-income ratio has a negative effect on bank performance. It is thus recommended that efficient cost management must be adopted by Ghanaian universal banks to improve performance.

Furthermore, the result shows that net interest margin has a positive effect on the financial performance of the selected banks. It is therefore recommended that, universal banks should be allowed to invest more in loans and advances as long as such banks have enough reserves to finance such investments.

Finally, the findings of the study indicate that bank size has a positive influence on bank performance. It is thus, recommended that, universal banks should be allowed to scale up their operations so long as there is adequate capitalization to support their growth.

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