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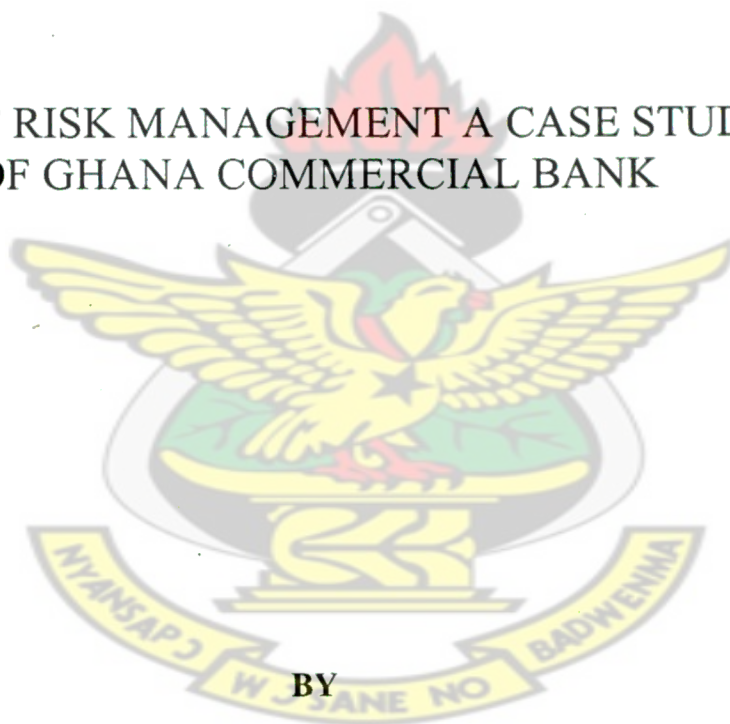
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CREDIT RISK MANAGEMENT A CASE STUDY
OF GHANA COMMERCIAL BANK

**BY**

**SAMUEL EFFAH FRIMPONG**

**AUGUST 2009**

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KNUST

**A THESIS SUBMITTED TO THE DEPARTMENT OF ACCOUNTING AND FINANCE, KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF BUSINESS ADMINISTRATION KNUST SCHOOL OF BUSINESS (BANKING AND FINANCE) COLLEGE OF ART AND SOCIAL SCEINCES**

**AUGUST 2009**

# DECLARATION

I hereby declare that this submission is my own work towards the MBA 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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Certified by:

Mr. Joseph Magnus Frimpong ........................................ 19-10-09

(Head of Department's Name)  Signature  Date

## DEDICATION

I dedicate this to you: Dad -Mr. Nicholas Yaw Frempong, Mum- Mrs. Joana Frempong, Siblings- Gideon, Awuah, Esther, Bernice, and Micaiah and to you Miss Esther Appiah Yeboah

# ACKNOWLEDGEMENT

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GCB        Ghana Commercial Bank

NPLGL        Non Performing Loans to Gross Loans

LSRIL        Loan Loss Reserve to Impaired Loans

LSRGL        Loan Loss Reserve to Gross Loans

BOD        Board of Directors

RMC        Risk Management Committee

PD        Probability of Default

LGD        Loss Given Default

RAROC        Risk-Adjusted Return on Capital

PNDC        Provisional National Defense Council

SME        Small and Medium Scale Enterprises

HOCC        Head Office Credit Committee

OLEM        Other Loans Especially Mentioned
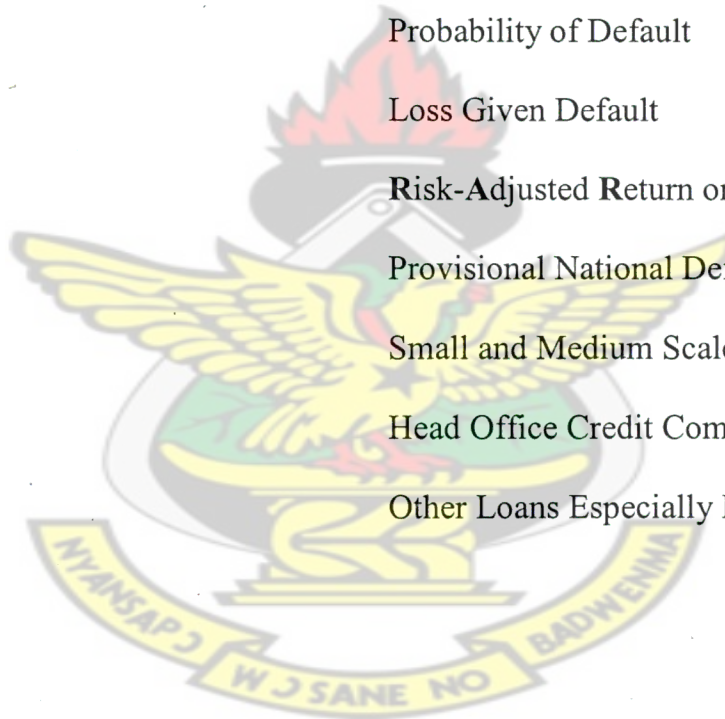
# ABSTRACT

Bad debts has plagued Ghana commercial bank since the banks inception in 1953.Frantic efforts has however been strained to overcome such a major problem. Though credit risk can not be eliminated completely, the effort according to the banks 2008 annual report yielded a result. In support to this is a survey conducted by pricewaterhousecoopers in 2008

This study therefore was conducted in other to have a bigger picture of how Ghana Commercial Bank Has Managed Its Credit risk.

To have information on this, annual reports of the Bank of the years of study were thoroughly studied. In addition was an interview of key staff who are related to the credit risk management of the Bank.

A critical observation of the processes involved in the banks credit Creation to its administration was made.

The results revealed how GCB is striving to go hand in hand with the Basel accord II of 2006. The bank since 2008 has adopted the IFRS which is a requirement of the Accord.

A ratio analysis supported by a correlation run on the credit risk management parameters revealed how the bank has worked on its credit risk to date.

Based on the above findings, the study recommended that:

- The banks bad debt control needs to be given an extra attention on.

- Modern trends of reliable credit risk measurement must be adopted

- Newer methods such as loan sales loans securitization, must be rolled out

- Decentralization of the risk management division. If possible, rather than centralizing the credit risk division of the bank at only the head office, must be embarked on.

- Well trained credit officers must be positioned at the branch level rather than posting staff who know nothing about the credit risk management strategy of the bank it was realized that staff at the branches only follow the status quo.

- . State banks such as the Agricultural Development Bank and National Investment Bank can take a cue from Ghana Commercial Bank Ltd.

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# CHAPTER ONE

## GENERAL INTRODUCTION

### 1.0 INTRODUCTION

Banks Credit risk in general has been a problem for quite a long time. However, due to the unavailability of data, less research has been conducted on this debilitating situation particularly on bank loans. This chapter discusses the background of the study, the problem statement, research objectives, justification, scope and limitations of the study.

### 1.1 BACKGROUND OF THE STUDY

Credit risk management is a structured approach to managing uncertainties through risk assessment, developing strategies to manage the credit risk, and mitigating the risk using managerial resources.

These Management strategies may include: transferring to another party, avoiding the risk, reducing the negative effects of the risk or accepting some or all of the consequences of a particular risk.

Wenner *et al* (2007) reiterated that taking credit risk is part and parcel of financial intermediation. Yet, the effective management of credit risk by financial intermediaries is critical to institutional viability and sustained growth.

Achou *et al* (2008) puts it in another way that Credit creation is the main income generating activity for banks. It however comes with huge risks to both the lender and the borrower. This risk (credit 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 a bank's business.

They ended it, that Banks with high credit risk has high bankruptcy risk that puts the depositors in jeopardy. These shows the importance banks should attach to their risk management.

There are many types of the risks a bank might experience but, among the risk that face banks, credit risk is one of great concern to most bank authorities and banking regulators. This is because credit risk is that risk that can easily and most likely prompts banks failure Achou *et al* (2008).

Lepus (2004) states in their research that more attention has been paid to Effective credit risk management in recent years, largely due to the fact that inadequate credit risk policies are still the main source of serious problems within the banking industry. It cites examples, according to ZNet that, the consequences of the Parmalat collapse were severe, with major institutions suffering heavy losses.

A typical example too in Ghana is the ex-while Bank for Housing and Construction and the Corporative Bank that were liquidated in the year 2002 due to losses due to bad debt (Anane, 2006).

The problem posed by credit risk is much of concern again in the sense, that sometimes the mere perception of high credit risk can sometimes deter financial intermediaries from entering into a particular market segment.

A need therefore arises for a thorough study of an organization or a firm's credit risk and how it is managed.

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## 1.2 STATEMENT OF THE PROBLEM

The main objective of most businesses of which financial institutions are not different is to make profit. Profits however are positively correlated to risk. Thus to maximize profits, increase in risks too must be anticipated. Bentil *et al* (2009) puts it this way that the riskier the loan the more profitable it is or it should be.

Hannagan (2005) explains further that Risk and return are paramount factors when investors, industry analysts and regulators view an institution's financial status and attempt to estimate future performance. While the two concepts are inseparable, it is still too common to find departmental financial executives that talk and act like risk management and commercial lending are somewhat separate and distinct concerns within their institution. This may be a function of tradition, specialization, departmental politics or insufficient internal communication, but the reality is that neither area of responsibility can be addressed successfully without regard for the other.

From the above, lending being the main profit generating activity of banks come with the most severe of risks.

Wenner *et al* (2007) groups interest rate risk and credit risk as the most prominent since problems from these area leads easily to liquidity crises, bank failure and bank insolvencies.

Hannagan (2005) on the other hand talks about the most prevalent risk in banks in terms of impact and probability, as market and credit risks since any form of lending involves both.

It must therefore be noted that credit risk cannot be overlooked in the operations of a financial institution.

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The Ghana commercial bank's managing director reported in its annual report of 2008, that the bank posted an increase in its profit of which an increase in the banks credit portfolio played a major role. He however declared a massive reduction in the loan loss provision which is an indication of a proper quality asset creation and efficient credit risk management.

Notwithstanding this, other banks and some financial institutions still habour this credit risk problem.

The need therefore arises to study how Ghana commercial bank creates its loans, how they manage the credits risk they born and measures put in place to control them.

## 1.3 OBJECTIVE OF THE STUDY

The main objective of the study is to have a bigger picture of how Ghana Commercial bank Limited manages its credit risk.

Specific objectives:

1. To determine GCB's level of credit risk management for the past eight years.

2. To identify the steps and methodologies used by GCB to identify, plan, map out, define a framework, develop an analysis and mitigate credit risk.

3. To identify the principles and procedures used in loan creation

4. To identify the tools GCB uses in their credit risk evaluation and assessment

5. To determine if GCB's current practices satisfy the requirements of the Basel accord

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## 1.4 JUSTIFICATION OF THE STUDY

Lending is the principal business activity for most banks. It is again a typically large asset and a predominant source of revenue; As such it is one of the greatest sources of risk to these institutions.

According to an article posted on myjoyonline a Ghanaian website, it came out in a conference dubbed 'Making Finance Work for Africa' that Low rate of loan recovery, has been identified as one of Ghana's financial sector banes, limiting credit access and business growth.

A Bank of Ghana's annual report of 2005 adds to this in this way that credit risk was the single most important risk, that needed to be controlled in other to improve on credit quality and liquidity in the Ghanaian economy. The report summarizes the above that, effective management of credits risk directly or indirectly improves on investment drive and small scale business' growth.

By studying the principle used by GCB in managing its credit therefore, effective criticism can be put forward in other to come out with an efficient and effective principle which will be beneficial to both the banking industry and its stakeholders. This will indirectly help much in increasing loanable funds to prospective customers. Coming out with a comprehensive credit risk management profile will contribute immensely to the objectives of the central bank and businesses and its other stakeholders.

## 1.5 SCOPE OF THE STUDY

The study covered a 8-year period i.e. 2001 to 2008(both years inclusive) but involved only Ghana Commercial Bank Limited. Although bad debts have plagued banks since time immemorial, exceptional attention to the situation prompting the central bank to

enact several laws since 1989. But for the sake of reliability of data and continuity of other research, the named period was chosen.

## 1.6  METHODOLOGY

Credit administrators and other managers in different functional areas within the Bank were purposively selected and interviewed for primary data.

Secondary data obtained from various sources such as the bank, Journals and Annual Reports from source and from other countries were extensively used as well.

Statistical tools like SPSS enabled data collected to be analysed

## 1.7 LIMITATION OF THE STUDY

The study was limited to only a financial institution due to the fact that it is very difficult getting data and even credit officers to assist in answering the question due to time constraints.

Secondly, due to the confidential nature of the operations of the bank particularly, with regards to issues relating to credits provided for clients, in-depth mathematical analysis of loans defaulting were not done.

Lastly, though other financial instruments such as acceptances, interbank transactions, trade financing, foreign exchange transactions, financial futures, swaps, bonds, equities, options, and in the extension of commitments and guarantees, and the settlement of transactions do also carry credit risk but due to its undeveloped nature on the Ghanaian stock market, much was not said about these other means of credits particularly those from the stock exchange. The study therefore concentrated on loans.

## 1.8 ORGANIZATION OF THE STUDY

The work was organized into five main chapters, as depicted below:

- Chapter 1 covered the introduction, problem statement, objectives etc.

- Chapter 2 dealt with the literature review

- Chapter 3 hinted on the profile of the organization.

- Chapter 4 treated the analysis of the data which the study seeks to unearth.

- Chapter 5 talked about summary of findings, conclusion and recommendations.

# CHAPTER TWO

# LITERATURE REVIEW

## 2.0 INTRODUCTION

Much has not been done concerning this area of study particularly, those concerning Ghanaian banks. To get full insight into this area of research therefore , works identifying financial institutions, risks, management of risks, types of risks, credit risk, credit risk management of other countries, and other works relevant to this study have been reviewed.

## 2.1. 0 FINANCIAL INSTITUTION IDENTIFIED

Studies on this identification though captured in different context are quite substantial but almost all drives at the same thing. Among them is Long (1919), he identified financial institutions as those institutions that make use of a widely accepted medium of exchange which reduces the cost of transaction, facilitate trade and encourage specialization as well as production efficiency. Ndenka (2005) also adds that financial institutions simply are economic units whose main function is to handle the financial assets of the households and firms in societies.

The association of charted accountants (ACCA) also puts it this way that, they are intermediaries which borrow money from the lenders-savers and then in turn makes loans to the borrowers-spenders.

These imply that financial institutions specialize in managing deposits from savers or depositors. These mobilized deposits are given out as loans to borrowers. Financial

institutions have credit creation as their main tool of raising financial profits. This is the process by which loanable funds are allocated to borrowers from lenders.

## 2.2. 0. COMMERCIAL BANKING

The word bank is derived from Italian *banca* which means bench. Moneylenders in northern Italy originally did business in open areas, or big rooms with each worker working from his or her own *bench* or table.

The essential function of a bank is to provide services that are related to the storing of value and extending credit. A bank has also been described as a *financial institution* that provides banking and other financial services. Currently the term bank is generally understood to be as an institution that holds a banking license. Banking Licenses are granted by *financial supervision* authorities and provide rights to conduct the most fundamental banking services such as accepting deposits and making loans. There are also financial institutions that provide certain banking services without meeting the legal definition of a bank, a so-called non-bank. Banks are therefore a subset of the financial services industry.

## 2.3.0. OPERATIONS OF BANKS

According to Wenner et al. (2005), the objective of banks are to maximize shareholder value by mobilizing deposits (liabilities) and lending them (assets) to firms and clients with investment projects. The institution seeks to generate profit by having interest income, fees, and investment. Even if the institution is member-owned or has a philanthropic motivation, the principle of earning a profit still applies. This is because obtaining a positive net income is always imperative for permanency and

sustainability. The only difference that may exist between a for-profit and a not-for-profit institution is the degree of profit accumulation and the use of those profits.

Banking products satisfy one or several of the basic financial needs of consumers which may include payments, investment, short-term finance, insurance, long-term finance, and advice. If products and services mainly serve individuals they are generally labeled as retail banking; if the customers are mainly corporations, the activities of servicing them are labeled as corporate banking. Well known banks mostly offer both retail banking business and corporate banking business but with different focus. (Qiao Liu, Douglas Arner, and Paul Lejot)

One financial product/service may cut across a few customer needs. Thus it might be difficult to categorize it. Recent financial innovations try to create financial products that can satisfy as many consumer needs as possible.

## 2.4.0. Risk

Risk has several meanings: in general it refers to the uncertainty about the outcome of an event. Financial risk in a banking organization is the possibility that the outcome of an action or event could bring up an adverse impacts. That is the outcomes could either result in a direct loss of earnings / capital or may result in imposition of constraints on bank's ability to meet its business objectives. Such constraints pose a risk as these could hinder a bank's ability to conduct its ongoing business or to take benefit of opportunities to enhance its business. (State Bank of Pakistani Risk Management Guidelines for Commercial Banks & Dfis.)

According to the OCC's supervision by risk philosophy, risk is the potential that events, expected or unexpected, may have an adverse impact on the bank's earnings or capital.

### 2.4.1. Types of Risk

Risks are inherent in almost all businesses. They are however grouped mainly into two by most scholars as systematic and unsystematic risks. Other scholars including Oldfield and Santomero (1997), have broadly grouped risks as shown below

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# Table 1: Types of Risk

| ENVIRONMENTAL RISKS | FINANCIAL RISKS | SUPPLY RISKS | MANAGEMENT RISKS |
|---|---|---|---|
| Business continuity | Capital | | Corporate governance |
| Business market | availability | Commodity | Data security |
| | Credit | prices | Employee health and safety |
| environment | counterparty | Supply chain | Intellectual property |
| Environmental | Financial market | | Labor disputes |
| Liability lawsuits | risk | | Labor skills |
| Natural disasters/ | Inflation | | shortage |
| weather | Interest rates | | M&A/restructuring |
| Pandemic | Liquidity | | Managing complexity |
| Physical damage | | | Outsourcing problems |
| Political risk | | | Project management |
| Regulatory/legislative | | | Reputation |
| Terrorism | | | Technology failure |

Source:Oldfields and Santomero(1997)

It has however been argued that risks facing all financial institutions can be segmented into three separable types, from a management perspective as:

    (i)    Risks that can be eliminated or avoided by simple

            business practices,

    (ii)    Risks that can be transferred to other participants, and,

    (iii)    Risks that must be actively managed at the firm level.

## 2.4.2. Risk Management

Risk Management is a discipline at the core of every financial institution and encompasses all the activities that affect its risk profile. It involves identification, measurement, monitoring and controlling risks to ensure that:

a) The individuals who take or manage risks clearly understand it.

b) The organization's Risk exposure is within the limits established by Board of Directors.

c) Risk taking Decisions are in line with the business strategy and objectives set by BOD.

d) The expected payoffs compensate for the risks taken

e) Risk taking decisions are explicit and clear.

f) Sufficient capital as a buffer is available to take risk

These activities broadly take place simultaneously hierarchically at these levels in most financial institutions:

*a)* **Strategic level:** It encompasses risk management functions performed by senior management and BOD. For instance definition of risks, ascertaining institutions risk appetite, formulating strategy and policies for managing risks and establish adequate systems and controls to ensure that overall risk remain within acceptable level and the reward compensate for the risk taken.

*b)* **Macro Level:** It encompasses risk management within a business area or across business lines. Generally the risk management activities performed by middle management or units devoted to risk reviews fall into this category.

*c)* **Micro Level:** It involves 'On-the-line' risk management where risks are actually created. This is the risk management activities performed by individuals who take risk on organization's behalf such as front office and loan origination functions. The risk

management in those areas is confined to following operational procedures and guidelines set by management. (State Bank of Pakistani Risk Management Guidelines for Commercial Banks & Dfis.)

According to Pyle H.D. (1997) managers need reliable risk measures to direct capital to activities with the best risk/reward ratios they therefore need estimates of the size of potential losses to stay within limits imposed by readily liquidity, by creditors, customers and regulators. They need mechanisms to monitor positions and create incentives for prudent risk –taking by divisions and individual. This process by which managers satisfy these needs by identifying key risks, obtaining consistent, understanding, operational risk measures, choosing which risk to reduce and which to increase and by what means, and establishing procedures to monitor the resulting risk position is risk management.

Risks and the corresponding risk assessments can be evaluated using either a quantitative or a qualitative approach. Quantitative assessments use actual dollar amounts to provide a financially-based risk value. Qualitative assessments use scoring methods and the experience of employees and consultants to arrive at a risk score. Since determining an actual dollar value of risk is often times a very resource intensive activity, the **qualitative risk assessment approach is used as a best practice by most risk assessment groups**. Although termed a qualitative approach, this method typically involves assigning some numerical value that can be used to stack rank or come up with some relative ratings on the assessment of risks.

To assist with the qualitative risk assessments utilize an established risk table. There are several commonly used published risk tables, some more complex than others. One of the most frequently used risk tables is the AS/NZS 4360, shown below:

Fig 1: AS/NZS 4360

| Significance | | Likelihood | | | | |
|---|---|---|---|---|---|---|
| Extreme | | Significant 5 | Major 10 | High 15 | Severe 20 | Severe 25 |
| Very High | | Moderate 4 | Significant 8 | Major 12 | High 16 | Severe 20 |
| Medium | | Low 3 | Moderate 6 | Significant 9 | Major 12 | High 15 |
| Low | | Trivial 2 | Low 4 | Moderate 6 | Significant 8 | Major 10 |
| Negligible | | Trivial 1 | Trivial 2 | Low 3 | Moderate 4 | Significant 5 |
| | | Rare | Unlikely | Moderate | Likely | Almost Certain |

Source: Paisley white paper, 2008

Once the risk assessments are scored using a risk table, they should be sorted from highest to lowest. This allows organizations to address the highest risks first. Once identified, there are essentially four ways to deal with each risk:

❖ Reject the risk: Rejecting risk is the head-in-the-sand approach. Some managers tend to ignore difficult challenges with the hope that they will simply disappear. This approach will rarely result in a successful defense against the risk event occurring.

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❖ Accept the risk: A common action to take is to accept the stated risk. For example, if the controls necessary to eliminate or mitigate key vulnerabilities are a greater financial burden to an organization than the actual risk impact, then it's probably a good idea to use the budget dollars in other areas.

❖ Transfer the risk: An alternative to accepting a higher than reasonable risk when the cost of controls is too high is to purchase insurance to lower the business impact of an incident. This is a common risk management step.

❖ Mitigate the risk: Risk mitigation typically focuses on managing the areas where the organization is most vulnerable. Risk mitigation involves the identification and management of risk mitigating controls.

The State Bank of Pakistani Risk Management Guidelines for Commercial Banks & DFIS again adds up that risk management framework encompasses the scope of risks to be managed, the process/systems and procedures to manage risk and the roles and responsibilities of individuals involved in risk management. The framework should be comprehensive enough to capture all risks a bank is exposed to and have flexibility to accommodate any change in business activities.

They concluded by saying that an effective risk management framework includes

*a)* Clearly defined risk management policies and procedures covering risk identification, acceptance, measurement, monitoring, reporting and control.

*b)* A well constituted organizational structure defining clearly roles and responsibilities of individuals involved in risk taking as well as managing it. Banks, in addition to risk management functions for various risk categories may institute a setup that supervises overall risk management at the bank. Such a setup could be in the form of a separate department or bank's Risk Management Committee (RMC) these

structure effective monitors and controls risks being taken. It is responsible for Risk review, internal audit, compliance etc) should be independent from risk taking units and report directly to board or senior management who are also not involved in risk taking.

*c)* There should be an effective management information system that ensures flow of information from operational level to top management and a system to address any exceptions observed. There should be an explicit procedure regarding measures to be taken to address such deviations.

*d)* The framework should have a mechanism to ensure an ongoing review of systems, policies and procedures for risk management and procedure to adopt changes.

### 2.4.3. Types of Risks in Financial Institutions

Financial institutions face a number of risks in the pursuit of the aforementioned objective among these are the followings: credit risks, liquidity risks, interest rate risks, foreign currency risks, operational risks (mistakes and fraud committed by staff), technological risks (power and equipment failures that lead to data loss), product innovation risks (new products failing), reputation risks (involvement or linkage to unsavory business practices—racial/ethnic discrimination, money laundering, lending for environmentally unsound projects, excessive related lending) competitive risks regulatory risks (sanctions for violations of regulatory norms)

The two most important risks, however, are interest rate and credit risks. Problems in these areas often lead to liquidity crises and bank failures. Wenner et al. (2005)

## 2.5.0. CREDIT RISK IDENTIFIED

Santomero (1997) identified credit risk as arising from non-performance by a borrower. It may arise from either an inability or an unwillingness to perform in the pre-committed contracted manner. This can affect the lender holding the loan contract, as well as other lenders to the creditor. Therefore, the financial condition of the borrower as well as the current value of any underlying collateral is of considerable interest to its bank.

The real risk from credit is the deviation of portfolio performance from its expected value.

Accordingly, credit risk is diversifiable, but difficult to eliminate completely. This is because a portion of the default risk may, in fact, result from the systematic risk outlined above. In addition, the idiosyncratic nature of some portion of these losses remains a problem for creditors in spite of the beneficial effect of diversification on total uncertainty. This is particularly true for banks that lend in local markets and ones that take on highly illiquid assets. In such cases, the credit risk is not easily transferred, and accurate estimates of loss are difficult to obtain.

Credit risk arises from the potential that an obligor is either unwilling to perform on an obligation or its ability to perform such obligation is impaired resulting in economic loss to the bank. (Bank of Pakistan credit risk management guideline).

The Loan Portfolio Management Comptroller's Handbook clarifies that though loans are the largest and most obvious source of credit risk, there are other pockets of credit risk both on and off the balance sheet, such as the investment portfolio, overdrafts, and letters of credit.

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Many products, activities, and services such as derivatives, foreign exchange and cash management services, also expose banks to credit risk.

The Basel II 1999 report seconds this that, the main source of credit risk is through loans. It however continues that apart from this are other sources although not prominent but can have impact on the banks profit. These they said exists throughout the activities of the bank including in the banking book, in the trading book, and both on and off the balance sheet. Other financial instruments through which banks inherit credit risks include acceptances, interbank transactions, trade financing, foreign exchange transactions, financial futures, swaps, bonds, equities, options, and in the extension of commitments and guarantees, and the settlement of transactions.

Credit risk is the likelihood that a debtor or financial instrument issuer is unwilling or unable to pay interest or repay the principal according to the terms specified in a credit agreement resulting in economic loss to the banking institution

AChou et al (2008) also comes with another identity of Credit risk management that it is a structured approach to managing uncertainties through risk assessment, developing strategies to manage it, and mitigation of risk using managerial resources. The strategies they mentioned to include transferring to another party, avoiding the risk, reducing the negative effects of the risk, and accepting some or all of the consequences of a particular risk.

## 2.6.0. APPROACHES TO CREDIT RISK MANAGEMENT

Due to the seriousness attached to the effects and consequences of credit risk not withstanding the difficulty of coming out with data, much studies has gone on in the area of its management. Most of these studies do group the approaches into portfolio and traditional.

## 2.6.1. PORTFOLIO APPROACH:

Since the 1980s, banks have successfully applied modern portfolio theory (MPT) to market risk. Many banks are now using earnings at risk (EAR) and value at risk (VAR) models to manage their interest rate and market risk exposures. Unfortunately, however, even though credit risk remains the largest risk facing most banks, the practical of MPT to credit risk has lagged ( Margrabe, 2007). Banks recognize how credit concentrations can adversely impact financial performance. As a result, a number of sophisticated institutions are actively pursuing quantitative approaches to credit risk measurement, while data problems remain an obstacle. This industry is also making significant progress toward developing tools that measure credit risk in a portfolio context. They are also using credit derivatives to transfer risk efficiently while preserving customer relationships. The combination of these two developments has precipitated vastly accelerated progress in managing credit risk in a portfolio context over the past several years. Under this too are two main approaches which are;

## 1. Asset-by-asset Approach:

Banks traditionally have taken an asset-by-asset approach to credit risk management. While each bank's method varies, in general this approach involves periodically evaluating the credit quality of loans and other credit exposures, applying a credit risk rating, and aggregating the results of this analysis to identify a portfolio's expected losses. The foundation of the asset-by-asset approach is a sound loan review and internal credit risk rating system. A loan review and credit risk rating system enable management to identify changes in individual credits, or portfolio trends in a timely manner. Based on the results of its problem loan identification, loan review, and credit risk rating system management can make necessary modifications to portfolio strategies or increase the supervision of credits in a timely manner.

## 2. Portfolio Approach:

Though the asset-by-asset approach is an important component to managing credit risk, it however does not provide a complete view of portfolio credit risk, where the term risk refers to the possibility that actual losses exceed expected losses. Therefore to gain greater insight into credit risk, banks increasingly look to complement the asset-by-asset approach with a quantitative portfolio review using a credit model. Banks increasingly attempt to address the inability of the asset-by-asset approach to measure unexpected losses sufficiently by pursuing a portfolio approach. One weakness with the asset-by-asset approach is that it has difficulty identifying and measuring concentration. Concentration risk refers to additional portfolio risk resulting from increased exposure to a borrower, or to a group of correlated borrowers. Strategies that has been to deal with these risks include: Geographic

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Diversification, Loan Size Limits (Rationing), Over Collateralization, Credit Insurance and Portfolio Securitization

## 2.6.2. Traditional Approach

Traditionally four main classes are identified under this. They include:

- **Expert systems**

Historically, bankers have relied on loan officer expert systems such as the 5 Cs of credit to assess credit quality: character (reputation), capital (leverage), capacity (earnings volatility), collateral, and cycle (macroeconomic) conditions. Evaluation of the 5 Cs is performed by human experts, who may be inconsistent and subjective in their assessments. Moreover, traditional expert systems specify no weighting scheme that would consistently order the 5 Cs in terms of their relative importance in forecasting Pay Default.

- **Artificial Neural networks**

Artificial neural networks have been introduced to develop more objective expert systems. A neural network is "trained" using historical repayment experience and default data. Structural matches are found that coincide with defaulting firms and then used to determine a weighting scheme to forecast PD. Each time the neural network evaluates the credit risk of a new loan opportunity, it updates its weighting scheme so that it continually "learns" from experience. Thus, neural networks are flexible, adaptable systems that can incorporate changing conditions into the decision-making process.

One type of neural network is the multi-layer perceptron network. A multi-layer perceptron network starts with a series or "layer" of inputs and ends with a layer of outputs. Between these two layers are several layers of information processing points, or "neurons", that assist in determining the weight each input should receive.

In the case of credit decisions, the input layer could be several financial ratios and the output layer could be whether or not the borrower defaults. Using the inputs of loans with known outputs, the network experiments with various weights until the weighting system with the least error emerges. The network then uses these weights to predict the outcomes of loans with particular inputs.

Empirical tests of the accuracy of neural networks produce mixed results. Kim and Scott (1991) used a supervised artificial neural network to predict bankruptcy in a sample of 190 Compustat firms. While the system performs well (87% prediction rate) during the year of bankruptcy, its accuracy declines markedly over time, showing only a 75%, 59%, and 47% prediction accuracy one year prior, two years prior, and three years prior to bankruptcy, respectively. Altman et al. (1994) examined 1000 Italian industrial firms from 1982 to 1992 and found that neural networks have about the same level of accuracy as do credit scoring models. Podding (1994), using data on 300 French firms collected over three years, claims that neural networks outperform credit scoring models in bankruptcy prediction. However, he finds that not all artificial neural systems are equal, noting that the multi-layer perceptron (or back propagation) network is best suited for bankruptcy prediction. Yang et al. (1999) uses a sample of oil and gas company debt to show that the back propagation neural (1990).network obtained the highest classification accuracy overall, when compared to the probabilistic neural network and discriminant analysis. However, discriminant

analysis outperforms all models of neural networks in minimizing type 2 classification errors that is, misclassifying a good loan as bad.

During ''training'' the neural network fits a system of weights to each financial variable included in a database consisting of historical repayment/default experiences. However, the network may be ''overfit'' to a particular database if excessive training has taken place, thereby resulting in poor out-of-sample estimates. Moreover, neural networks are costly to implement and maintain. Because of the large number of possible connections, the neural network can grow prohibitively large rather quickly. Finally, neural networks suffer from a lack of transparency. Since there is no clear economic interpretation that can be attached to the hidden intermediate steps, the system cannot be checked for plausibility and accuracy. Structural errors will not be detected until PD estimates become noticeably inaccurate

- **Internal rating systems**

The Office of the Comptroller of the Currency (OCC) in the United States has long required banks to use internal ratings systems to rank the credit quality of loans in their portfolios. However, the rating system has been rather crude, with most loans rated as Pass/Performing and only a minority of loans differentiated according to the four non-performing classifications (listed in order of declining credit quality): other assets especially mentioned, substandard, doubtful, and loss. Similarly, the National

Association of Insurance Commissioners requires insurance companies to rank their assets using a rating schedule with six classifications corresponding to the following credit ratings: A and above, BBB, BB, B, below B, and default.

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Many banks have instituted internal ratings systems in preparation for the BIS New Capital Accord scheduled for implementation in 2006. The architecture of the internal rating system can be one-dimensional, in which an overall rating is assigned to each loan based on the PD, or two-dimensional, in which each borrower's PD is assessed separately from the loss severity of the individual loan. Treacy and Carey (2000) estimated that 60% of the financial institutions in their survey had one-dimensional rating systems, although they recommend a two-dimensional system.

Moreover, the BIS (2000) found that banks were better able to assess their borrowers' PD than their LGD.

Treacy and Carey (2000) in their survey of the 50 largest US bank holding companies and the BIS (2000) in its survey of 30 financial institutions across the G-10 countries found considerable diversity in internal ratings models. Although all used similar financial risk factors, there were differences across financial institutions with regard to the relative importance of each of the factors. Treacy and Carey (2000) found that qualitative factors played more of a role in determining the ratings of loans to small and medium-size firms, with the loan officer chiefly responsible for the ratings, in contrast with loans to large firms in which the credit staff primarily set the ratings using quantitative methods such as credit-scoring models. Typically, ratings were set with a one-year time horizon, although loan repayment behavior data were often available for 3–5 years.

- **Credit scoring models**

The most commonly used traditional credit risk measurement methodology is the multiple discriminant credit scoring analysis pioneered by Altman (1968). Mester (1997) documents the widespread use of credit scoring models: 97% of banks use

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credit scoring to approve credit card applications, whereas 70% of the banks use credit scoring in their small business lending. There are four methodological forms of multivariate credit scoring models: (1) the linear probability model, (2) the logit model, (3) the probit model, and (4) the multiple discriminant analysis model. All of these models identify financial variables that have statistical explanatory power in differentiating defaulting firms from non-defaulting firms. Once the models' parameters are obtained, loan applicants are assigned a Z-score assessing their classification as good or bad. The Z-score itself can be converted into a PD.

Credit scoring models are relatively inexpensive to implement and do not suffer from the subjectivity and inconsistency of expert systems. Most studies found that financial ratios measuring profitability, leverage, and liquidity had the most statistical power in differentiating defaulted from non-defaulted firms. One of the most widely used credit scoring systems was developed by Fair Isaac and Co. Inc. (FICO). During the 1960s and 1970s, the firm created credit scoring systems tailored to meet the needs of individual clients, mainly retail stores and banks in the United States. In the 1980s, Fair Isaac serviced more industries, including insurance, as well as more countries in Europe. During the 1990s, the firm developed products to evaluate credit of small businesses, including trade credit in 1998 and loan credit in 1999. Personal credit evaluation became more accessible with the development of www.myfico.com in 2001. Customers can determine their credit score directly using the Internet. Credit scoring systems vary according to the information they evaluate and how they evaluate it. For example, Fair Isaac assesses credit reports and credit history to determine a score that ranges between 300 and 850. The assessment considers all outstanding debt such as mortgage loans and credit card balances as well as the

proportion of balances to credit limits on credit cards. Payment history, such as whether and how often an individual was late in making payments as well as the length of the credit history, is also included. The evaluation does not include characteristics that could bias a lender such as race, religion, national origin, gender, or marital status. However, the evaluation also ignores salary and occupation, so that a person with a good, steady income and a history of always paying his/ her credit card receivables may not achieve a perfect score.

Some shortcomings of credit scoring models are data limitations and the assumption of linearity. Using analysis of variance, discriminant analysis fits a linear function of explanatory variables to the historical data on default and repayment. Moreover, the explanatory variables are predominantly limited to balance sheet data. These data are updated infrequently and are determined by Studies cited Explanatory variable accounting procedures that rely on book, rather than market valuation. Finally, there is often limited economic theory as to why a particular financial ratio would be useful in forecasting default Allen et al (2004)

### 2.6.3. Credit Risk Management Framework

In other to develop a sound, standardized and well managed credit and thus for quality credits by financial institutions and banks in particular, most banks and other financial institutions have come out with suitable and nicely arranged credit management framework.

Among these is the bank of Pakistan.

The bank categorizes its framework into

a) Board and senior Management's Oversight -this involves the board of directors

and other senior management coming out with a sound risk management strategy and policy with which all other staff will work particularly those directly involved in credit creation

b) Organizational structure - it is affirmed here that To maintain bank's overall credit risk exposure within the parameters set by the board of directors, the importance of a sound risk management structure is second to none. While the banks may choose different structures, it is important that such structure should commensurate with institution's size, complexity and diversification of its activities. It must facilitate effective management oversight and proper execution of credit risk management and control processes.

They advised that banks, depending upon its size, should constitute a Credit Risk Management Committee (CRMC), ideally comprising of head of credit risk management Department, credit department and treasury. This committee reporting to bank's risk management committee should be empowered to oversee credit risk taking activities and overall credit risk management function.

c) Quite apart from the above discussed conditions they continue that caution must be exercised in the various systems and procedures involved in the loan creation. The first is when originating the loan. it is said that Banks must operate within a sound and well-defined criteria for new credits as well as the expansion of existing credits. Credits should then be extended within the target markets and lending strategy of the institution. Before allowing a credit facility, the bank must make an assessment of risk profile of the customer/transaction. This may include:

 *a)* Credit assessment of the borrower's industry, and macro economic factors.

 *b)* The purpose of credit and source of repayment.

 *c)* The track record / repayment history of borrower.

*d)* Assess/evaluate the repayment capacity of the borrower.

*e)* The Proposed terms and conditions and covenants.

*f)* Adequacy and enforceability of collaterals.

*g)* Approval from appropriate authority

Another important element of credit risk management talked about here is to establish exposure limits for single obligors and group of connected obligors. Institutions are expected to develop their own limit structure while remaining within the exposure limits set by State Bank. The size of the limits should be based on the credit strength of the obligor, genuine requirement of credit, economic conditions and the institution's risk tolerance. Appropriate limits should be set for respective products and activities. Institutions may establish limits for a specific industry, economic sector or geographic regions to avoid concentration risk.

Third on the list is the administration of the credit. Credit administration is mainly a back office work.

Its Function includes:

a. **Documentation.** Credit administration is to ensure completeness of documentation (loan agreements, guarantees, transfer of title of collaterals etc) in accordance with approved terms and conditions. Outstanding documents should be tracked and followed up to ensure execution and receipt.

b. **Credit Disbursement**. The credit administration function should ensure that the loan application has proper approval before entering facility limits into computer systems. Disbursement should be effected only after completion of covenants, and receipt of collateral holdings. In case of exceptions necessary approval should be obtained from competent authorities.

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c. **Credit monitoring**. After the loan is approved and draw down allowed, the loan should be continuously watched over. These include keeping track of borrowers' compliance with credit terms, identifying early signs of irregularity, conducting periodic valuation of collateral and monitoring timely repayments.

d. **Loan Repayment.** The obligors should be communicated ahead of time as and when the principal/markup installment becomes due. Any exceptions such as non-payment or late payment should be tagged and communicated to the management. Proper records and updates should also be made after receipt.

e. **Maintenance of Credit Files**. Institutions should devise procedural guidelines and standards for maintenance of credit files. The credit files not only include all correspondence with the borrower but should also contain sufficient information necessary to assess financial health of the borrower and its repayment performance. It need not mention that information should be filed in organized way so that external / internal auditors or SBP inspector could review it easily.

f. **Collateral and Security Documents.** Institutions should ensure that all security documents are kept in a fireproof safe under dual control. Registers for documents should be maintained to keep track of their movement. Procedures should also be established to track and review relevant insurance

coverage for certain facilities/collateral. Physical checks on security documents should be conducted on a regular basis.

While in small Institutions it may not be cost effective to institute a separate credit administrative set-up, it is important that in such institutions individuals performing sensitive functions such as custody of key documents, wiring out funds, entering limits into system, etc., should report to managers who are independent of business origination and credit approval process.

This step carries a chunk of the loan processing procedure as such more than an extra care must be taking in carrying out all the functions enumerated above.

Another step involved in the systems and procedure worth mentioning is the Measuring of credit risk

A number of qualitative and quantitative techniques to measure risk inherent in credit portfolio are evolving as some are discuss below due to its importance. To work on this effectively, banks should establish a credit risk rating framework across all type of credit activities. Among other things, the rating framework may, incorporate:

**Business Risk and Financial Risk**

Under this is the **internal credit rating**. Credit risk rating summarizes indicators of a bank's individual credit exposure. An internal rating system categorizes all credits into various classes on the basis of underlying credit quality. A well-structured credit rating framework is an important tool for monitoring and controlling risk inherent in individual credits as well as in credit portfolios of a bank or a business line. The importance of internal credit rating framework becomes more eminent due to the fact

that historically major losses to banks stemmed from default in loan portfolios. An internal rating framework would facilitate banks in ways such as;

- Credit selection

- Amount of exposure

- Tenure and price of facility

- Frequency or intensity of monitoring

- Analysis of migration of deteriorating credits and more accurate computation of future loan loss provision

- Deciding the level of Approving authority of loan.

Last on the list is the monitoring and control of the credit risk. Credit risk monitoring refers to incessant monitoring of individual credits inclusive of Off-Balance sheet exposures to obligors as well as overall credit portfolio of the bank. This must include;

*a)* The roles and responsibilities of individuals responsible for credit risk monitoring

*b)* The assessment procedures and analysis techniques (for individual loans & overall portfolio)

*c)* The frequency of monitoring

*d)* The periodic examination of collaterals and loan covenants

*e)* The frequency of site visits

*f)* The identification of any deterioration in any loan

According to the Basel committee report (1999) which most banks both large and small based on it has come out with their own frameworks and standards of managing credit risk, managing credit risk must encompass the following:

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(i)     Establishing an appropriate credit risk environment;

(ii)    Operating under a sound credit granting process;

(iii)   Maintaining an appropriate credit administration, measurement and monitoring process; and

(iv)    Ensuring adequate controls over credit risk

Santomero (1997) also used a general risk management framework made up of

(i)   Standards and reports,

(ii)  Position limits or rules,

(iii) Investment guidelines or strategies,

(v)  Incentive contracts and compensation to address the issue of credit risk.

### 2.6.4.   Managing Credit Risk Using Financial Ratios:

Ratio analysis (financial and accounting ratios) is a measurement system to analyze the strength, weakness, opportunity and threats (SWOT Analysis) of an FI. The table below depicts some of the frequently used ratios in credit analysis

Table 2: Ratios for managing credit risk.

| Category | Ratio |
|---|---|
| Operating performance | Earnings before interest, taxes, depreciation and amortization(EBITDA)/Sales<br><br>Net Income/ Sales<br><br>Net Income/ Net Worth<br><br>Sales/ Fixed Assets |
| Debt Service Coverage | EBITDA/ Interest Payment>1.5<br><br>Free Cash-flow expenditure/ Interest payments<br><br>Free Cash-flow expenditures-dividend/Interest |
| Financial Leverage | Long-term debt/Capitalization<br><br>Long-term debt/Tangible net worth<br><br>Total liabilities/Tangible net worth<br><br>Current liabilities/Tangible net worth |
| Liquidity | Current ratio (current assets/current liabilities)<br><br>Quick ratio (current assets-inventory/current liabilities)<br><br>Inventory turnover(inventory/Net sales)<br><br>Inventory to Net working capital<br><br>Current debt to Inventory<br><br>Raw materials, WIP, and finished goods as a percentage of total Inventory |
| Receivables | Aging of receivables:30,60,90,90+days Average collecting period |

Source: Caoutte, et al., 1998

## 2.6.5. Credit Risk Models

The last decade saw a number of the world's largest banks developing sophisticated systems in an attempt to model the credit risk arising from important aspects of their business lines. Such models are intended to aid banks in quantifying, aggregating and managing risk across geographical and product lines. The outputs of these models also play increasingly important roles in banks' risk management and performance measurement processes, including performance-based compensation, customer profitability analysis, risk-based pricing and, to a lesser (but growing) degree, active portfolio management and capital structure decisions. The Task Force recognizes that credit risk modeling may indeed prove to result in better internal risk management, and may have the potential to be used in the supervisory oversight of banking organizations.

However, before a portfolio modeling approach could be used in the formal process of setting regulatory capital requirements for credit risk, regulators would have to be confident not only that models are being used to actively manage risk, but also that they are conceptually sound, empirically validated, and produce capital requirements that are comparable across institutions. At this time, significant hurdles, principally concerning data availability and model validation, still need to be cleared before these objectives can be met, and the Committee sees difficulties in overcoming these hurdles in the timescale envisaged for amending the Capital Accord (BIS, 1999).

Credit scoring models use data on observed borrower characteristics either to calculate the probability of default or to borrowers into different default risk classes (Saunders and Cornett, 2007).

Prominent amongst the credit scoring models is the **Altman's Z-Score**. The Z-score formula for predicting Bankruptcy of Altman (1968) is a multivariate formula for measurement of the financial health of a company and a powerful diagnostic tool that forecast the probability of a company entering bankruptcy within a two year period with a proven accuracy of 75-80%.

The Altman's credit scoring model takes the following form;

$$Z = 1.2X1 + 1.4X2 + 3.3X3 + 0.6X4 + 1.0X5 \dots\dots\dots\dots\dots (2)$$

Where, X1 = Working capital/ Total assets ratio

X2 = Retained earnings/ Total assets ratio

X3 = Earnings before interest and taxes/ Total assets ratio

X4 = Market value of equity/ Book value of long-term debt ratio

X5 = Sales/ Total assets ratio.

The higher the value of Z, the lower the borrower's default risk classification. According to Altman's credit scoring model, any firm with a Z-Score less than 1.81 should be considered a high default risk, between 1.81-2.99 an indeterminate default risk, and greater than 2.99 a low default risk.

The above model was identified with some problems hence, to try resolving the problems; the KMV Model was developed this uses the structural relationship between the **volatility of a firm's asset** and the **volatility of the firm's equity.** The KMV Corporation (purchased by Moody's in 2002) has turned this relatively simple idea into a credit-monitoring model now used by most of the large US banks to determine the Expected Default Frequency (EDF) that is the probability of default of large corporations (KMV Corporation, 1994). The expected default frequency that is

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calculated reflects the probability that the market value of the firm's assets will fall below the promised repayments on debt liabilities in one year. If the value of a firm's assets falls below its debt liabilities, it can be viewed as being economically insolvent. Simulations by the KMV have shown that this model outperforms both accounting-based models and S&P ratings (Saunders and Cornett, 2007). The relevant net worth of a firm is therefore the market value of the firm's assets minus the firm's default point.

Net worth= (Market Value of Assets) - (Default Point) ...............................(3)

A firm will default when its market net worth reaches zero.

(Market Value of Assets)(Asset Volatility)

(Market Value of Assets) (Default Point)

Distant to Default ☐Market value of asset) (Default Point)/ (Market value of asset)(asset volatility)................... (4)

(Source: Moody's KMV; Modeling Default Risk, 2003.)


The KMV's empirical EDF is an overall statistics that can be calculated for every possible distance to default (DD) using data either aggregated or segmented by industry or region. To find the EDF for any particular firm at any point in time, one must look at the firm's EDF as implied by its calculated DD. As a firm's DD fluctuates, so do its EDF.

For firm's that are actively traded, it would be possible in theory to update the EDF every few minutes (Gilbert, 2004).

An increasingly popular model used to evaluate the return on a loan to a large customer is the Risk-Adjusted Return on Capital (RAROC) Model. This model, originally pioneered by Bankers Trust (acquired by Deutsche Bank in 1998) is now adopted by virtually all the large banks in Europe and the US, although with some

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differences among them (Saunders and Cornett, 2007). The essential idea behind RAROC is that rather than evaluating the actual promised annual cash flow on a loan as a percentage of the amount lent or (ROA), the lenders balance the loan's expected income against the loan's expected risk.

The RAROC Model is basically represented by,

**RAROC = (one year net income on loan)/ (Risk adjusted assets).** ............... (5)

For denominator of RAROC, duration approach can be used to estimate worst case loss in value of the loan:

$$DLn = -DLn \text{x } Ln \text{ x } (DR/ (1+R)) \dots (6)$$

Where, DR is an estimate of the worst change in credit risk premiums for the loan class over the past year.

Ln= Loan

DLn= Change in loan class

R=Interest Rate

According to Christopher (1996), the immediate purpose of the RAROC risk measurement systems is to provide bank managements with a more reliable way to determine the amount of capital necessary to support each of their major activities and, thus, to determine the overall leverage for the bank as a whole. This paper also stipulates that the RAROC system provide a uniform measure of performance and that management can, in turn use this measure to evaluate performance for capital budgeting and as an input to the compensation system used for senior managers.

Cubillas Ding, Celent (2009) on the gtnewscom summarises credit risk technology diagrammatically as shown.

## Fig 2: Credit risk technology diagram.

**Systems used and data captured**

**Risk management practices**

Origination

Credit analysis

Document and booking

Monitoring and servicing

Workout

Focus of study

Uniform conter-party ID

Front-office workflow system

Collateral data

- Focus on data flow and capture along credit process

Loss data

- Example systems managing specific types of data

Obligor rating

Portfolio modeling

Facility rating

Limit setting

LGD models

Credit risk monitoring

Pricing

Source: gtnews.com, 2009

## 2.7.0. LOAN DEFAULT

Dermine and Neto de Carvalho (2005) identify three main default definitions as follows:

i) A loan is classified as 'doubtful' as soon as "full payment appears to be questionable on the basis of the available information"

ii) A loan is classified as 'in distress' as soon as a payment (interest and/or principal) has been missed.

iii) A loan is classified as 'in default' when a formal restructuring process or bankruptcy procedure is started. They continued this way that the criterion used for the classification of a loan in the 'default' category is critical for a study on recovery rates, as a different classification would lead to different results.

The second component, the costs of default risk, are defined as 'those expenses for the risk of loan default incurred by the lending institutions, for example, provision for loan losses, the loan guarantee fees paid, and the actual bad debts incurred' (Saito and Villanueva,1981). Transaction costs are usually expressed as a percentage of the total loan amount. Rodman (2002) there is no "universal standard" for determining when a loan becomes nonperforming however in many countries; a loan is nonperforming after it has been delinquent for 90 days; in other countries, 180 days. Once a loan becomes nonperforming, the lender must classify it as "special mention," "substandard," "doubtful," or "loss." Each country has slightly different definitions for these categories.

## 2.8.0.    DEFINITION OF SOME TERMS

**Adverse Selection**

In most lending situations, a borrower knows more than the bank about his/her own credit risk. The bank being at an information disadvantage, may attempt to increase a borrower's interest rate for compensating the unknown credit risk. The problem is that the higher interest rate does not prevent riskier borrowers but those with less probability to default, and it is suggested that the more effective way be used to limit access to credit instead. However, what is likewise noticeable is that the quantitative credit exposure limits also deserves careful consideration. Since a smaller limit reduces lending volume as well as profits while a larger one encourages borrowers with low credit quality, the choice of an optimal limit is an important task for banks.

**Moral hazard**

It is said that "if you owe your bank GH¢100 million that you don't have, your bank is in big trouble". For banks, large loan are considered riskier than small ones because

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they provide incentives for borrowers to undertake riskier behaviors. Also, large borrowers who default have stronger bargaining power, which puts lending bank in a worse position. Therefore banks always have their own limits on credit for certain counterparties, to deal with moral hazard.

Another interesting aspect with moral hazard in the banking system involves central banking, since it is argued that central banks' help will encourage banks to engage in riskier behaviors. The most recent example may be the one about the crisis with American subprime mortgage-backed securities. As mortgage lending institutions, hedge funds and many banks are seriously affected, worldwide central banks made quick reaction for maintaining the financial stability and public confidence, among which European Central Bank provided $ 131 billion of extra funds to the money market (Anonymous 2007a) and the Federal Reserve cut the rate for emergency lending to banks from 6.25% to 5.75%, with a lengthening term to 30 days (Anonymous 2007b). However, whether such central bank bailout is correct is quite arguable. It is mentioned by Grauwe (2007) that central banks should provide liquidity only against good assets and let the banks which loaned massive amounts of money to hedge funds get their punishment or even collapse. If the irresponsible banks can get away with it cheaply, they will be incited to take such activities again. Therefore, moral hazard at this level may be a dilemma, in which banks need to make decisions considering both current and future financial stability.

**Credit Risk Concentrations**

Concentrations, as pointed out by Basel (1999a), are probably the single most important cause of major credit problems. They are regarded as any exposure where the potential losses are large relative to the bank's capital and are quite common in the

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banking sector. The reason is that banks usually cannot avoid specializing in certain industries or geographical areas due to the convenience for collecting information and the benefits of being more knowledgeable as well as better able to predict defaults of the targets they are familiar with. However, by doing this, banks should also bear the cost of charge-offs, nonperforming asset and strict reserve requirements. In fact, concentration is the major cause of bank failures due to credit risk management problems, as concluded by Heffernan (1996), which is proved by many examples such as the cases of Japanese Toyo Sogo Bank, Johnson Matthey Bankers in the UK the US commercial bank failures

# CHAPTER THREE

# METHODOLOGY/ORGANISATIONAL PROFILE

## 3.0. INTRODUCTION

The chapter identifies the methods and materials used in achieving the set objectives .it again talks about the organization under studies profile. Discussed here include the source of data, the sampling procedure, the theoretical framework and other information that were relevant to the study.

## 3.1.0 METHODOLOGY

### 3.1.1 Sampling Procedure for Data Collection

Purposive sampling was employed for the selection of the sample.

In the selection of the bank and the bank staff, purposive sampling was used. Discussions, informal interview and observations were used in the collection of data. A semi-structured questionnaire was purposively administered to bank staffs who are related to the creation of credits and its risks management at the bank premises.

### 3.1.2. Data Source and Description

#### a. Quantitative Data

Limited by the information made available by the bank, three financial ratios relating mainly to banks' credit exposure and lending decision quality were used instead of the six suggested by Zhao (2007). Zhao (2007) cites Zhang's (2006) as his source. Zhang (2006) also cites Abdul (2006) as the source. The three selected ratios out of the six are described as follows:

1.      Non-performing loans to gross loan ratio (NPLGL) = impaired loans/gross loans

This ratio is for assessing the quality of banks loans because it can measure the percentage of doubtful loans in banks' credit portfolio. The credit performance of the banks is moving adversely with this ratio.

2.      Loan Loss Reserve to impaired loan ratio (LSRIL) = loan loss reserve/total impaired loans

This ratio measures the proportion of loan loss reserve held against banks' non-performing loans. Obviously, the higher this ratio, the better is the quality of banks loans and the more confident the banks can be about their assets

3.      Loan loss reserve to gross loan ratio (LSRGL) = loan loss reserve/gross loans

The percentage of total loan portfolio that has been set aside but not charged off is indicated from this ratio, and a lower ratio is the symbol of better loan portfolio quality.


**b. Qualitative Data**

The qualitative data used for this research mainly came from the banks annual reports and other information received through interviews of key staff directly related to credit risk management. After examining all the reports, it is confirmed that they all have independent review sections on credit risk management. Those reports outline items such as the banks' credit risk management policies, structures, qualitative and quantitative measures for risk control together with all the relevant figures, thus they are the basis of the whole research. Besides, the consultative papers issued by Basel (1999a, 2000 and 2006) also play an important role due to their updated and detailed requirements on banks' credit risk management, which will serve as the benchmarks in achieving the

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research objectives. Between those papers, the one issued in 1999 and 2006 has shown the principles on credit risk management.

### 3.1.3 Sample Size

In all, key staffs directly involved in the credit risk management of the northern sector of the bank were interviewed. An officer from the credit risk management division was also interviewed.

## 3.2.0 ORGANIZATIONAL PROFILE

### 3.2.1 Profile of Ghana Commercial Bank Limited

Ghana Commercial Bank Limited, formerly Bank of Gold Coast was established in 1953 and charged with the provision of banking services to the emerging nation for socio-economic development. In particular the bank was to pay special attention to the requirements of Ghanaian traders, businessmen and farmers who hitherto lacked the needed financial support from the then expatriate banks. In addition, the Bank was to function as a Central Bank.

On Ghana attaining independence in 1957, the Bank of Ghana (BOG) was established to be responsible for the Central Banking needs of the country. The Bank of Gold Coast was then renamed Ghana Commercial Bank to focus mainly on commercial banking services

Ghana Commercial Bank which was wholly owned by the Government of Ghana has grown remarkably to become the largest commercial bank in Ghana with a network of 149 branches and a subsidiary Development Finance and Holdings Limited. The extensive and well positioned branch network coupled with the competitively priced products established the bank as one of the market leaders in terms of Assets,

Deposits, Profits and Business size. The situation remained so until these last few years.

### 3.2.2 Services as Rendered by the Bank

Besides the efficient payment and transfer mechanism that it facilitates, the bank also spearheads the development and growth of priority sectors of the economy - Cocoa financing and marketing, crude oil import financing, road and infrastructure construction and tourism related projects. It has also engaged in financing timber processing for export to name only a few. Added to the bank's lending to the agricultural sector, is her involvement in the administration of Private Enterprise and Export Development Project for the promotion of non-traditional exports. Below however are details of the various products and services offered by the bank.

### 3.2.3  Product Lines and Product Mix

The operations of the bank as defined by the Bank of Gold Coast Ordinance of 1952, amended in 1957 and further amended under Ghana Commercial Bank Decree (NLCD 115), PNDC Law 225 (1989) authorizes the bank to carry on the business of banking in all aspects provided that it shall not at any one time in any manner or at any place do any act or thing in contravention of the provisions of the banking law (1989) PNDC LAW 225 or any other statutory re-enactment thereof for the time being in force.

The banks products can be grouped under the following:

- Domestic Retail Banking Services

- Foreign Banking Services

- Other Special Services / Packages

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Such special services include the following:

a) Provision of short and medium term loans and advances to the productive sector

b) Provision of Business Advisory Services

c) Provision of term guarantees

d) Foreign Lines of Credit

e) Consortium financing –Teaming up with other lending institutions to provide lending which is well beyond the capabilities of one individual bank.

### 3.2.4 Organisational Structure

The bank has a seven tier organizational structure which has at it's apex a 12 member Board of Directors. Reporting directly to the Board are the Secretary to the Board and Heads of Inspection / Internal Audit. Directly beneath the Board of Directors is the Managing Director who is assisted by two Deputies, one in charge of Finance and Administration and the other in charge of Operations. The Managing Director has a direct overseeing responsibility over the Chief Legal officer and the General Manager, Risk Management. Also answerable solely to the Managing Director are two Executive Heads, namely, Executive Head Administration and Executive Head Credit and International Trade.

The above-mentioned two Deputy Managing Directors and the two Executive Heads in turn oversee the operations of 12 General Managers.

The DMD Operations oversees the General Managers for Systems and Technology, Marketing and Branch Operations.

The DMD (Finance) oversees the General Managers for Planning and Research, Accounts and Treasury while the Executive Head (Admin) supervises the General Managers in charge of Human Resource and Support Services Divisions.

The Executive Head (Credit and Int. Trade Finance) is responsible for Credit Management, Corporate Banking and International Trade Finance while the DMD (Operations) oversees the General Managers in charge of Branch Operations, Marketing, Systems and Technology and Small and Medium Enterprise and Rural Banking.

# CHAPTER FOUR

## 4.0 ANALYSIS OF DATA, FINDINGS AND DISCUSSIONS

## 4.1 INTRODUCTION

The chapter presents the findings of the research. It answers and presents statistical data on the set objectives.

## 4.2.0 LEVEL OF CREDIT RISK MANAGEMENT (2001-2008)

To get a clearer view of the level of credit risk management (2001-2008), three main ratios were used. The results are as presented in appendix 1

## 4.2.1 Non Performing Loans to Gross Loans (NPLGL)

Analyzing the ratios according to the individual years, it was found out that GCB has on the average a deteriorating NPLGL which indicates the banks weakness in controlling bad loans. That is, the Banks control of non performing loans is nothing to write home about. The percentage of gross loans that are doubtful in banks' portfolio has been increasing throughout the years.

## Figure 3- A graph of NPLGL to the year of report
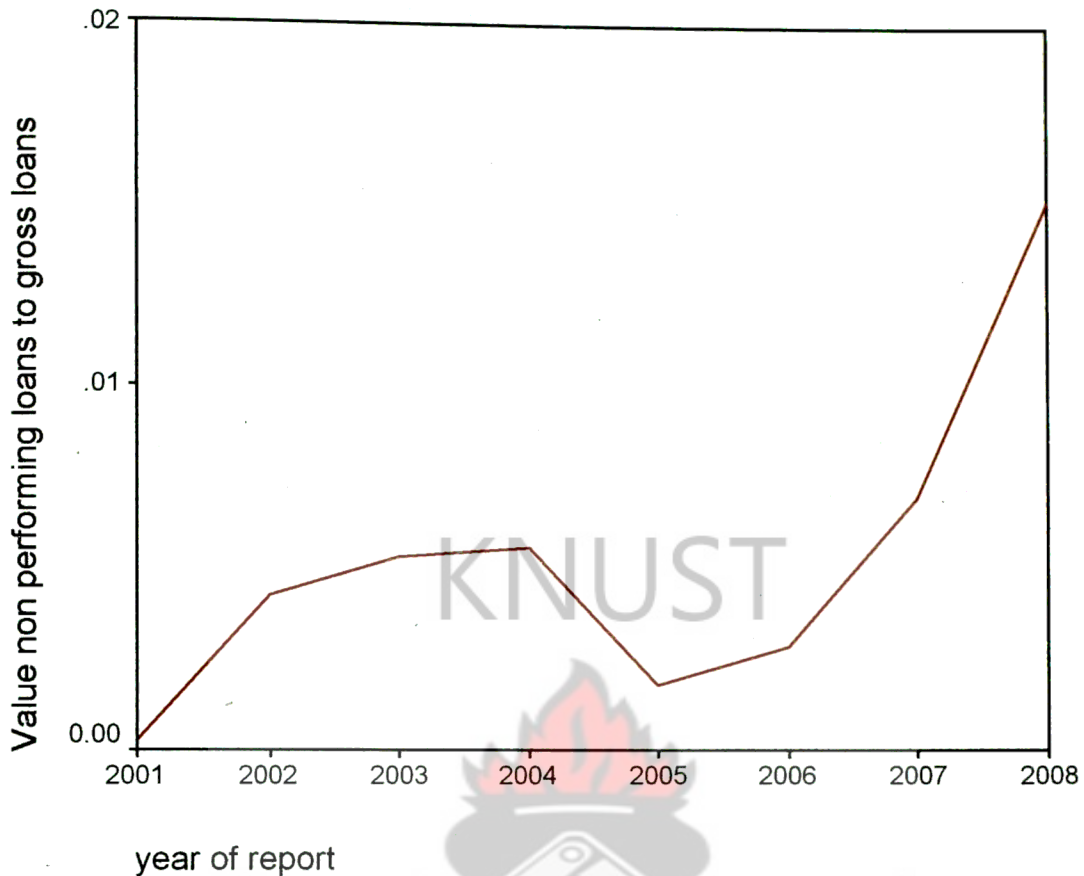


As depicted by the graph above, GCB`s NPLGL increased sharply from the year 2001 to 2002 where it was brought under control to some extent. The increase was however gentle between the years of 2002 and 2004. The years 2004 saw a sharp decline till 2005 where it started picking up again. This indicates that bad debt was well controlled in the year 2004.the upward movement in 2005 was gentle as compared to that in 2006 and 2007.It got to its peak in the year 2008 where a whooping 1.151% was recorded. This up and down movement is an indication that GCB is struggling to control its inherent credit risk. But on the grounds of bad debts control, much has not been achieved as at 31<sup>st</sup> December 2008.

## 4.2.2 Loan Loss Reserve to Impaired Loans (LSRIL)

Loan loss reserve to impaired loans (LSRIL) of GCB is as illustrated by the graph below.

**Figure 4-A graph of LSRIL to the year of report**
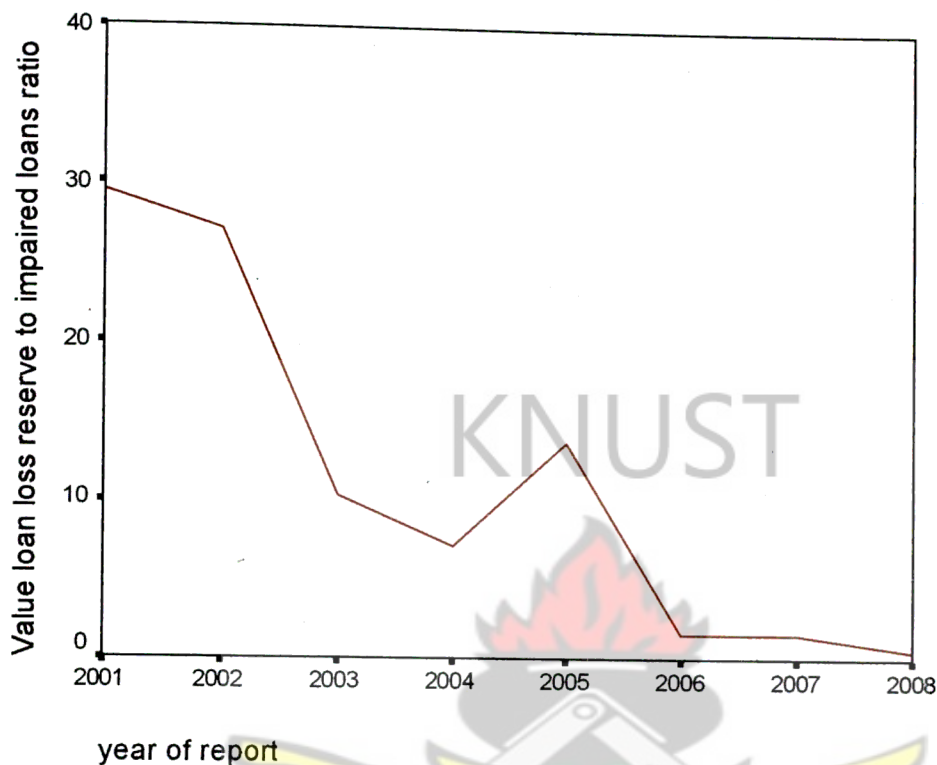


This is an indication of a general decreasing pattern of LSRIL for the years. It decreased from 2001 thought 2003 until 2004 where it increased slightly. It was how ever brought back under control in 2005 where it started decreasing again and has reached a tolerable ratio of 0.53 in 2008 not withstanding the general increase in the gross loan disbursed in that year.

The inference of LSRIL is most of the time subjective. This is in the sense ,that based on only reducing loan loss provision, it cannot be concluded that GCB is managing its credit effectively for it can also be a sign that GCB`s credit risk management is weakening. It might however indicate an improvement in credit default control.

Though the above analysis holds but by comparing this to the year by year increase in gross loan ,all except 2005 shows a general increase each year. It can then be

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confidently concluded that the bank has really worked and has massively improved upon its credit exposure control as the years gone by.

## 4.2.3 LOAN LOSS RESERVE TO THE GROSS LOANS (LSRGL)

**Figure 5-A graph of LSRGL to the year of report**
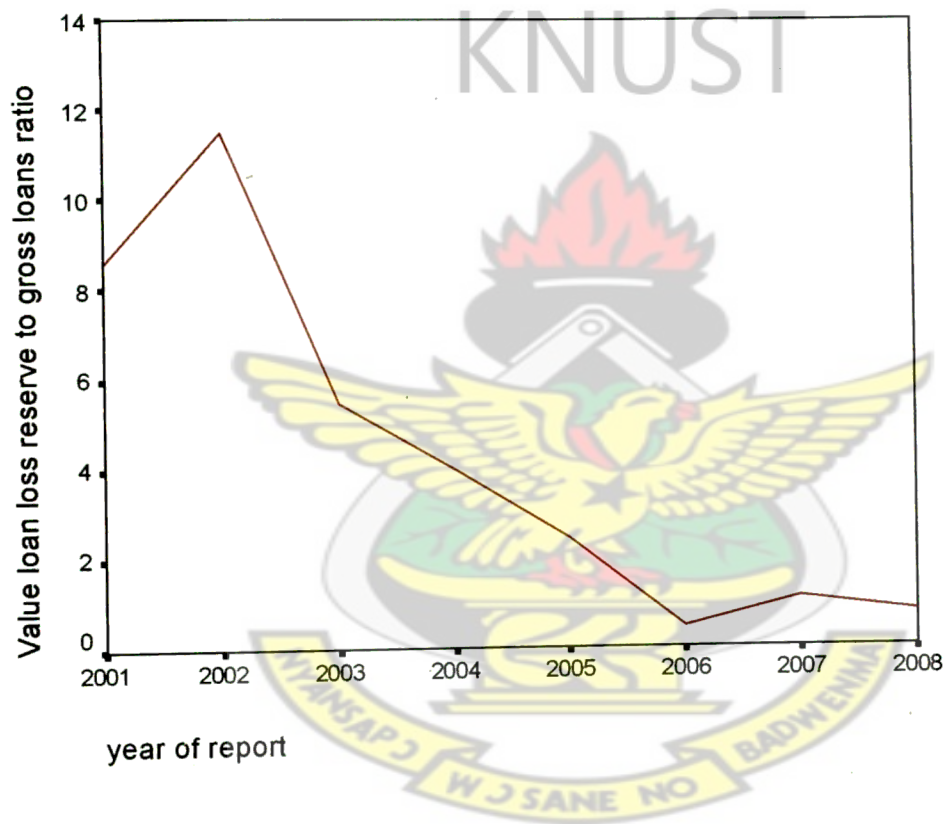


Last but not the least ratio is the loan loss reserve to the gross loans (LSRGL) as per the graph above.

GBC`s LSRGL increased in 2001 but was quickly corrected in 2002. As such, it reduced drastically till 2003 where it started showing a gentle slope, meaning a reduction in the level of effort strained earlier. It however showed a slight increase in 2006 which was on the bad side. But since 2007 has again reverted to the reducing pattern though gentle. Just like the LSRIL, inference from this is subjective, since

based on only the decreasing nature of the ratio, it cannot be concluded that GCB is managing its credit risk effectively for least loan loss provision can also be a sign of weakening credit risk management. In much the same way as the LSRIL, by comparing the ratios to the year by year increasing nature of the gross loans, it can be said there is a general improvement in the credit exposure control.

## 4.2.4 Correlation of gross loans and advance, Provision for bad debt and Provision for Impaired loans.

| | | gross loans and advance | provision for bad and doubtful debt | provision for impaired loan |
|---|---|---|---|---|
| gross loans and advance | Pearson Correlation | 1 | -.326 | .978 |
| | Sig. (2-tailed) | . | .431 | .000 |
| | N | 8 | 8 | 8 |
| provision for bad and doubtful debt | Pearson Correlation | -.326 | 1 | -.169 |
| | Sig. (2-tailed) | .431 | . | .688 |
| | N | 8 | 8 | 8 |
| provision for impaired loan | Pearson Correlation | .978 | -.169 | 1 |
| | Sig. (2-tailed) | .000 | .688 | . |
| | N | 8 | 8 | 8 |

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

As per the table above, Pearson correlation between gross loans and provision for bad and doubtful debt was -0.326. This indicates that throughout the eight (8) year period, the banks gross loan has increased whereas that for the provision for bad and doubtful debt is decreasing though not significant.

On the other hand correlation between gross loans and the provision for impaired loans was 0.978. This can be approximated to 1, an indication that as the gross loans has been increasing in the eight years; an almost corresponding increase in impaired loan provision was recorded.

Finally, Pearson correlation between provision for bad debt and impaired loans is -0.169.this indicates that as the provision of bad debt increases impaired loans has slightly decreased during the eight year period though not significantly.

## 4.3.0 CREDIT RISK MANAGEMENT OF GHANA COMMERCIAL.

After getting a general picture of the credit risk management level of performance of the banks from 2001 to 2008, the findings moves to the stage for analyzing the current practice of bank, which is particularly important to get an understanding on how GCB manages their credit risk nowadays.

### 4.3.1. An Overview of GCB'S Credit Management

The Bank has a centralized credit administration system with the appraisal of credit requests being undertaken at Head Office of the Bank. Four divisions are basically responsible for the credit delivery /administration of the bank. These are:

1.  The Corporate Banking Division

2.  The Small, Medium Enterprise and Rural Banking Division (SME)

3.   The Risk Management Division and

4.  The Retails division

For a clear cut responsibility of the first three divisions, the bank has divided its customer base into three, as:

● The large Corporate

● The Small and Medium Enterprise and

● The retails(individual)

# THE LARGE CORPORATE DIVISION

The large Corporate accounts are those accounts with an annual turnover of a minimum of the cedi equivalent of USD1.0m or those accounts to which the bank's exposure is in excess of ¢500.0million. Accounts with annual turnovers of less than the cedi equivalent of USD1.0million or accounts to whom the bank has extended a facility of a magnitude well below ¢500.0m fall in the Small and Medium Enterprise category.

The Corporate Banking Division is headed by a Senior Manager and assisted by an official who is on the grade of a Manager. Officers in the division comprise Corporate / Relationship Managers and their assistants who are called "Corporate Manager's Assistants". Each of the Corporate Managers have a responsibility for a number of corporate accounts. The key responsibilities of the Corporate Managers are as follows:

- Conducting annual review of customers borrowing facilities and interim reviews if the customers circumstances warrant it
- Consult customers/owners, managers on financial/ credit issues and general business practices/ideas
- Deal with and find resolutions to customers complaints
- Determine the products that most appropriately meet the customers needs and be able to sell these products to the customer
- Plan and coordinate any marketing approaches for existing customer needs and develop these relationships
- Monitoring the accounts and ensuring adherence to risk service standards
- Identifying the financial needs of the directors / owners of the business and providing appropriate solutions for the needs.
- Building long term relationships that are founded on efficient and reliable support for their business.

## THE SMALL AND MEDIUM ENTERPRISE & RURAL BANKING DIVISION (SME)

This division is also headed by a Senior Manager and assisted by a full ranking Manager. Just as with the Corporate Banking Division, the SME division has high ranking officials dubbed "Relationship Managers" who are responsible for the various accounts managed by the division. They are assisted by Assistant Relationship Managers.

## THE RETAIL BANKING DIVISION (BRANCHES)

This division is also headed by a retails manager. Assisting the retails manager is the operations manager.

The division deals directly with individual account holders and other smaller group accounts that do not meet the threshold of the other two described above.

The division's credit creation is mainly centered on individual overdrafts and personal loans.

## THE RISK MANAGEMENT DIVISION

This division is also headed by a General Manager with a lengthy experience in credits having worked at all the credit units of the bank.

The responsibilities of the division are to undertake an independent assessment of the credit proposals that have been appraised mainly by the SME and the Corporate Banking Divisions and are to be submitted to the approving authorities. The retails division comes in when requested loan facilities exceeds the threshold of the branch. The idea is to eliminate any biases in the credit appraisals by the Corporate and SME

Divisions due to the possibility of the Relationship Managers empathizing with their clients and recommending highly risky proposals for the bank to finance.

## 4.3.2 CREDIT RISK MANAGEMENT TECHNIQUES AND PRACTICES OF GHANA COMMERCIAL BANK

### a. Credit Risk Management Governance

Generally, the credit risk strategies of GCB, responsibility in determining, the risk management structure are determined by the Board of Directors whereas the policies are made by the credit risk division of the Bank. As discussed above, the Credit Risk division advice, review and monitor all credit matters, identify, measure and manage credit risk within the area of responsibility.

The bank has a board that is changed yearly. Each board comes with its own strategy hence changes in the banks operational strategies of the bank, which credit risk forms part is subjective.

On the other hand, policies enacted by the credit risk division are reviewed every two years.

The credit risk management policy of the bank was reviewed in 2008.

The policy after has been accepted by the board of the bank is then given to the main divisions for implementation.

The bank also has two credit committees which are responsible for the approval of credit proposals submitted by the SME and the Corporate Banking Divisions

The committees are:

1) Head Office Credit Committee (HOCC) for requests for facilities of amounts up to ¢250.0m

2) The Executive Committee - Advances (EC) are also responsible for taking decisions on requests for facilities of amounts in excess of GH¢25000.00

The Head Office Credit Committee (HOCC) is chaired by the Executive Director in charge of Credits and International Trade Finance. Other members of the committee are as follows:

a) The Head of SME (To present and defend proposals from the S.M.E. Division)

b) The Chief Legal Officer or his representative to advise on legal issues

c) The Head of Research Division to advise on the bank's capacity to lend

d) The Head of Branch Operations

e) The Head of the Risk Management Division to advise on risk issues.

The committee is expected to meet at least once every month to deliberate on credit requests.

*The Executive Committee - Advances* is chaired by the Managing Director of the bank. The other members are:

a) The Deputy Managing Director
b) The two Executive Directors
c) The Heads of both the SME's and the large Corporate who would present and defend their credit proposals
d) The Head of Research to advice on the position of the bank with regards to capacity to lend.
e) The Chief legal Officer to advise on legal issues.
f) The Head of Branch Operations to note and advice branches on peculiar issues that may crop up during deliberations.

This committee is also expected to meet at least once a month to vet credit applications submitted to it for approval. All facilities in excess of ¢1.5 billion that are approved by the Executive Committee Credits, are submitted to the Board of

Directors of the bank by the Managing Director for ultimate approval by the board. The Board also is expected to meet at least once every month to deliberate on credit proposals as well as other issues.

This is as shown below:

**Figure 6-The Governance structure of GCB`s credit risk management**

```
                    ┌──────────────────────────────┐
                    │    THE BOARD OF DIRECTORS     │
                    └──────────────────────────────┘
                                   │
                    ┌──────────────────────────────┐
                    │     CREDIT RISK DIVISION      │
                    └──────────────────────────────┘
          ┌────────────────────┼──────────────────────────┐
┌──────────────────────┐       │            ┌──────────────────────┐
│  HEAD OFFICE CREDIT  │       │            │   THE EXECUTIVE      │
│     COMMITTEE        │       │            │   COMMITTEE -        │
└──────────────────────┘       │            │   ADVANCES           │
                    ┌──────────────────────┐└──────────────────────┘
                    │  CORPORATE DIVISION  │
                    └──────────────────────┘
                               │
        ┌──────────────────────────────────────────────┐
        │  THE SMALL AND MEDIUM ENTERPRISE &            │
        │       RURAL BANKING DIVISION                  │
        └──────────────────────────────────────────────┘
                               │
                    ┌──────────────────────┐
                    │   RETAILS DIVISION   │
                    └──────────────────────┘
          ┌────────────────────┴──────────────────────┐
┌──────────────────────┐              ┌──────────────────────┐
│    LINE MANAGERS      │              │   CREDIT OFFICERS    │
└──────────────────────┘              └──────────────────────┘
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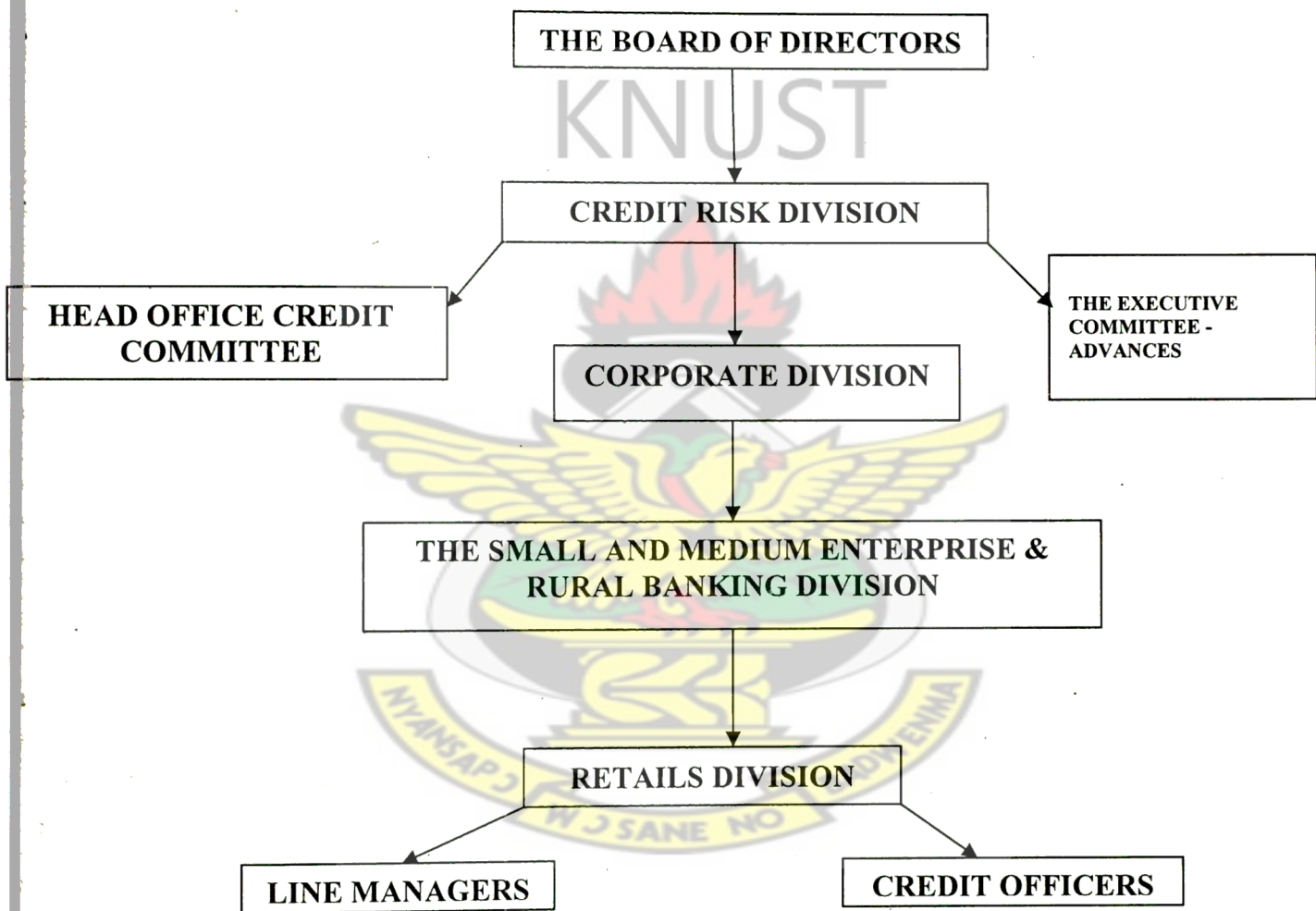
**b. Credit Approval Process**

The processes involved in the appraisal of credit requests at both Corporate and SME levels involves the collation of basic data required for the processing of the credit request by the branch in which the account is domiciled. The data required are as follows:

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- An application letter for the facility

- A Board resolution backing the facility in the case of limited liability companies

- A shareholders resolution when the amount to be borrowed is in excess of the Paid up capital of the borrowing entity.

- Audited financial statements for the immediate past 3-year period.

- A projected cashflow statement for the intended duration of the facility being sought.

- Particulars of collateral(s) being offered to secure the facility.

The above-mentioned documents in addition to statistical data on the account, which depict how the account has been operated over the past one year, are then forwarded to either the SME Division or the Corporate Banking Division (depending on the categorization of the account or the amount to be borrowed) for a detailed appraisal.

For Personal loans, processing of credit request requires the following data:

- An application letter for a facility from the prospective customer

- Guarantee from the employers of the customer

- Analysis of credit history and account statement

- Assurance of regular monthly salary to secure the facility.

The appraisal process involves an assessment of both the credit risk and the business risk of the proposal. The credit risk involves an assessment of the financial strengths and weaknesses of the business entity that is applying for a facility through an analysis involving the computation of varied ratios from the past financial performance. The ratios are expected to establish the following:

The past profitability and the profitability trend over a previous three year period (if such data is available).The liquidity position of the company or its ability to meet its

short term obligations from its current assets and trend patterns in the past. The Gearing or leverage which is an indication of the extent to which borrowings have been used to finance the operations of the business entity.

Asset Management, also for analyzing the ability of the company to optimize the use of the company's assets to generate revenue.

A point in contention here is the fact that although the ratios are computed as required, there are no basic measuring criteria or benchmarks for the ratios. For instance whereas a current ratio ( a basic assessment of the liquidity of a company) of 3:1 for a business entity may be classified as quite good by an appraiser, another may deem it not to be a good liquidity status.

Also involved in the credit risk is an assessment of the projected cashflow statement of the borrower. The projected cashflow is to determine the following:
The level of borrowing that would be required by the prospective applicant or borrower, the purpose of the borrowing and the ability to repay the intended borrowing.

The business risk analysis on the other hand involves an examination of the future of the particular industry to which the prospective borrower's firm belongs, the management in place and the market.

All appraised reports are forwarded to the Risk Management Division for an independent assessment of the appraisal / risks that are inherent in the proposals. It is worth noting that the retails division have a zonal head (area office) to which a

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facility of a certain threshold is forwarded to. Facilities beyond the threshold of the area office are those that are sent to the risk division for their submission. After the assessment of the proposal by the risk management division, the proposal is submitted to the appropriate Head Office committee for approval or otherwise of the credit request.

## c. Credit Risk Measurement

From interviews conducted, it came to light that the divisions mainly use expert system in appraising credit facilities. The five C`s which is made up of character, credibility, capital, collateral and cycle (economic conditions)

For the other larger loans, internal rating is employed. The bank has a model design by **moody** for the rating of prospective customers risk level.

In meeting the above the customer ought to satisfy the following:

1. should be a member of the Ghana club 100

2. The financial reputation, social status, work experience, educational qualification , marital status of the directors and management must be ascertained

Other factors such as

1. A satisfactory account operation and

2. Duration of account operation (at least should be six months old)

These factors are important but sometimes are subjective. Businesses with good and promising business plan might be considered.

Within the corporate business too, a credit scoring system is used. The bank has a numerical grading system of 1-8 with 1 being the highest quality for quantifying the risk associated with counterparty. The grading of the bank is based on probabilities

of default measures. For further assessment of individual exposures and portfolio analysis, expected loss is employed. As discussed earlier, duties concerning credits are segregated at all divisions. That is, segregation is always separate from approval.

## d. Credit risk management evaluation and assessment

The bank assesses its performance at the end of each quarter in the year.

Using guidelines provided by the Central Bank, all credits are reviewed and classified accordingly. Besides accounts classified as "current" all other classifications are deemed to be adverse.

The main classifications in use and their selection criteria are as follows:

All facilities for which interest and principal repayments are on schedule are classified as being *current.* All facilities for which the principal repayment or interest is overdue for between 30 days are considered delinquent, whereas those overdue for between 30and 90 days are classified as *Other Loans Especially Mentioned* (OLEM) .Any facilities for which the principal repayment or interest payment are overdue for between 90days up to 180days are classified as *Substandard Accounts.* Any facility for which the principal repayment or interest payment has been outstanding for between 180 days and 360 days is classified as a *Bad and Doubtful Debt* and finally, all accounts for which the principal repayment and interest payments are overdue for over 360 days are classified as loss account.

## e. Credit risk control and mitigation

Credit officers of the bank normally review loan applications just as when a request is presented.

The bank risk management division conducts a review of credit reports. This is done in other to ensure that credit originators keep to the set standard before a loans approval.

In course of the loan approval, the bank takes collateral and predetermines the limits of loans one can access. This is to mitigate the risk that comes with the credit facility. This is an indication that the bank still uses the traditional means of controlling credit risk.

Despite all efforts to deliver quality assets, a loan can become problematic; in such situations the facility is restructured to suit the condition at hand.

As part of the prudential practices aimed at guarding against over-stating of profits by the banks through an over-optimistic perception of the recoverability of credits granted, the Central Bank mandatorily requires the following provisions / deductions to be made to the profit and Loss accounts of the banks.

**Current Facilities** – 1% of the facilities categorized as current are deducted as provisioning (for advances in the current category) from the Profit and Loss account

**Other Loans especially mentioned (OLEM)** – 10% of the total of facilities classified as OLEM are deducted from the profit and Loss as provisioning for facilities adversely classified as OLEM

**Sub-Standard Loans** – 25% of the total of all facilities classified as sub-standard are also deducted from the Profit and Loss account of the bank as provisioning for facilities duly classified as Sub-standard loans.

**Bad and Doubtful Debts** – 50% of the total of facilities in this category are duly written off against the profits of the bank as provisioning for bad and doubtful debts.

**Loss Accounts** – For loss accounts however, 100% of the entire sum of all facilities classified as "loss accounts" are deducted from the profit and loss account as provisioning for facilities classified as such.

**Inspection by External Auditors And The Banking Supervision Division of the Central Bank**

To guard against the under-classification of the loans and advances, regular routine inspection of the various loan accounts are undertaken by external auditors appointed by the bank as well as the Banking Supervision Division of the Central Bank. This practice is to give credence to the ultimate figures that would be presented in the annual financials of the bank.

## 4.4.0. GCB`S CURRENT PRACTICES COMPARED TO THE BASEL ACCORD II

To assist banks in creating quality loans, the Basel committee has periodically come out with a set principle and framework. The most prominent concerning credit risk management are the Basel accord I of 1999a and the accord II of 2006 which is a review of the 1999a.

This research tried to compare operations of GCB to this accord.

## Principle 1

Principle 1 of the accord expects that The bank's board of directors and senior management takes responsibility for ensuring that the banks have appropriate credit risk assessment processes and effective internal controls to consistently determine provisions for loan losses in accordance with the bank's stated policies and procedures, the applicable accounting framework and supervisory guidance commensurate with the size, nature and complexity of the bank's lending operations. As described earlier per the figure four shown in the preceding chapter, GCB meets this very principle.

## Principle 2

**This principle** of the accord requires Banks to have a system in place to reliably classify loans on the basis of credit risk.

The principle talks about the bank sticking to an effective credit risk assessment and loan accounting practices. This to  prudently value loans and to determine appropriate loan provisions, The bank in accordance to this  principle 2, has changed its accounting policy for preparing its financial statement from the traditional historical cost convention to the bank of Ghana accepted International Financial Reporting Standards (IFRS) in 2008.

This principle also requires a well structured loan grading system. As such, as discussed in the previous sections the bank has graded its facilities into three main kinds which are large corporate credits, small scale and medium credits and personal loans (retail)

**Principle 3**

A bank's policies should appropriately address validation of any internal credit risk

Assessment models.

The bank as discussed in section 4.3.2 c, meets this principle squarely. They have models in

place for rating grading and estimating the inherent risk in a credit facility

**Principle 4**

A bank should adopt and document a sound loan loss methodology, which addresses

risk assessment policies, procedures and controls, for assessing credit risk, identifying

problem loans and determining loan provisions in a timely manner.

With this also, the bank has measures in place just as reported at the section 4.3.2 e of

this dissertation.

**Principle 5**

A bank's aggregate amount of individual and collectively assessed loan provisions

should be adequate to absorb estimated credit losses in the loan portfolio.

The bank reviews its policy every two years which is contrary to the suggested yearly

or regularly by the Basel accord II however, its been stated categorically in the annual

report of 2008 that the bank will revert to a yearly review as required in the

subsequent years

Just as the Basel II accord suggested Ghana commercial Bank also uses indication

that they use to classify a financial asset as impaired. This might include:

- Significant financial difficulty of the issuer or the obligor

- A breach of contract such as a default or delinquency in interest or principal

  payment.

- The lender (the bank) for economic or legal reason relating to the borrower's financial difficulty

**Principle 6**

A bank's use of experienced credit judgment and reasonable estimates are an essential part of the recognition and measurement of loan losses. As per this principle, the bank in addition to the said model and equations has two main experienced committees which uses their judgment to evaluate assess credit facilities

**Principle 7**

A bank's credit risk assessment process for loans should provide the bank with the necessary tools, procedures and observable data to use for credit risk assessment purposes, account for impairment of loans and the determination of regulatory capital requirements. This is an area that GCB has done well since 2008. The annual report of 2008 has special data in place for the assessment purposes.

**Principle 8**

Banking supervisors should periodically evaluate the effectiveness of a bank's credit risk policies and practices for assessing loan quality.

As discussed in the 4.3.2e the bank has measures and institutions in place for evaluating and assessing the quality of loan and the administration of credit facilities of the bank

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**Principle 9**

Banking supervisors should be satisfied that the methods employed by a bank to calculate loan loss provisions produce a reasonable and prudent measurement of estimated credit losses in the loan portfolio that are recognized in a timely manner.

The banks most recent annual report made provision a data that makes it possible to calculate the loan los provision. On the 2008 annual report is a charge off which tells the amount bad debt that was paid off.

Banking supervisors should consider credit risk assessment and valuation practices when assessing a bank's capital adequacy.

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# CHAPTER FIVE

## SUMMARY, CONCLUSIONS AND RECOMMENDATION

### 5.0 INTRODUCTION

This chapter summarizes and concludes all findings of the research. In this chapter also are recommendations to the Bank and other banks particularly other commercial banks in Ghana.

### 5.10 SUMMARY

The study was to have a general picture of credit risk management with Ghana Commercial bank as a case study. GCB was purposively sampled for the study.

Annual reports of the bank from the year 2001 to 2008 were consulted for secondary and primary data.

Staff directly or indirectly related to the creation of credits and credit risk management of the bank were purposively selected and interviewed.

The level of credit risk management of the bank was measured quantitatively using three main ratios.

These included: NPLGL, LSRIL and LSRGL.

The non performing loan to Gross loan (NPLGL), the years 2001 to 2008 recorded an increasing trend. It moved from a minimum of 0.291% in 2001 to a maximum of 1.515% in the year 2008.

Loan Loss Reserve to Impaired Loan (LSRIL) was found to have decreased from 29.53 in 2001 to 0.53 in 2008.

Last but not the least is the loan Loss reserve to Gross Loan (LSRGL) was also found to be decreasing.

It was found to be 8.594% in 2001 but decreased to 0.796% in 2008.

For a further proof a Pearson correlation was run.

Correlation between gross loans and loan loss reserve was found to be -0.326 whereas correlation between gross loans and provision for impaired loan was found to be 0.978.

Correlation between provision for bad debt and doubtful loans and impaired loans was found to be -0.169.

The study revealed how GCB currently manages its credit risk. It was detected that the bank basically has four (4) main divisions responsible for the credit delivery.

On techniques the bank employs in managing its credit risk, it came to the fore that it goes hand in hand with the Basel II accord of 2006.

The bank has in place a well arranged governance structure for the credit risk management.

Credit facility`s approval process was found out to be dependent on the type of credit facility requested for.

It was found out that the bank still employs the traditional method of credit risk measurement.

## 5.2.0. CONCLUSION

Credit risk has been declared by almost all writers on financial institution`s risk management as the most prominent among the various risks that financial institutions face. As cited in an article by zheng (2008), Wesley (1993) used to conclude that few banks have been left untouched by the consequence of poor lending and other credit

risk management practices. Although it should be understood that perhaps banks can never know their borrowers or counterparties they transact business with as well as they should, but an appropriate credit risk management can help to minimize the loss, while on the contrary, a poor one can be extremely damaging.

In this dissertation, a true picture of how GCB manages its credit risk has been drawn. Various findings have been achieved. It has been shown by the ratio analysis that GCB since 2001 has been trying hard to minimize its credit risk.

The non performing loan to gross loans (NPLGL) of GCB which measures the percentage of gross loans that are doubtful in banks' portfolio was found to be on the increasing side. This is an indication that the banks percentage of gross loans that were doubtful as at 31st December 2008 in the banks portfolio was on the high side.

Notwithstanding this finding, other indicators such as the LSRIL and LSRGL have shown a decreasing trend. The LSRIL, although not all that smooth, on the average shows GCB's percentage of the total portfolio that has been set aside but not charged off. This decreasing LSRGL indicates good quality of loan portfolio. The Bank can therefore feel somehow comfortable about the soundness of its assets.

As a further proof of the ratios, correlation between the various parameters was run. Correlation of Gross loans and advance and provision for bad debt were negative. This indicates how the bank threats its bad debt. The banks gross loans have increased in the eight year period with a slightly non-corresponding decreasing provision for bad debt.

Gross loans and advance and provision for impaired loans also showed a figure of 0.978.this indicates that as gross loans increased provision for impaired loans also increased significantly.

Finally correlation between provisions for bad debt and impaired loans was -0.169.this indicates that the banks charge off does not correspond to the bad debt provision. The impaired loan loss provision decreased as the loan loss provision increases.

In all Ghana commercial bank level of credit risk management has generally improved notwithstanding the problem with the bad debt collection.

However there is no doubt that future improvement is still to be made.

As for how GCB performs its credit risk management tasks, credit risk management techniques and practices. It has been found out generally that GCB is devoted to managing the credit risk inherent in their banking and trading activities. They follow the Basel guidelines, and have adopted multiple choices of means for assessing, granting and mitigating credit risk.

## 5.2 Recommendations

- GCB in their last annual report of 2008 has tried to go hand in hand with the Basel accord II of 2006. However there are some provisions that they weakly met.

  For instance the banks bad debt control needs to be worked on.

- The bank can introduce modern trends of credit risk measurement. As at now, the bank still uses traditional methods in their credit evaluation.

- On credit risk control and mitigation, newer methods such as loan sales loans securitization and credit risk derivatives can be employed.

- Decentralization of the risk management division. If possible, rather than centralizing the credit risk division of the bank at only the head office, must be embarked on

- Well trained credit officers must be positioned at the branch level rather than posting staff who know nothing about the credit risk management strategy of the bank. it was realized that staff at the branches only follow the status quo but in reality know just a little of how the Bank manages its credit risk.

- As per a survey by the pricewaterhousecoopers survey of 2008 most banks performed badly as regards their credit risk management. These include state banks such as the Agricultural development Bank and National Investment Bank. A cue therefore can be taking from Ghana commercial bank ltd. Other banks who records worse credit risk management performance level can study how GCB did it.

- The bank can set up a special unit entrusted to recover bad debts.

- Frequent training should be given to entire staff to get them abreast with issues on credit risk management strategy and policy of the bank
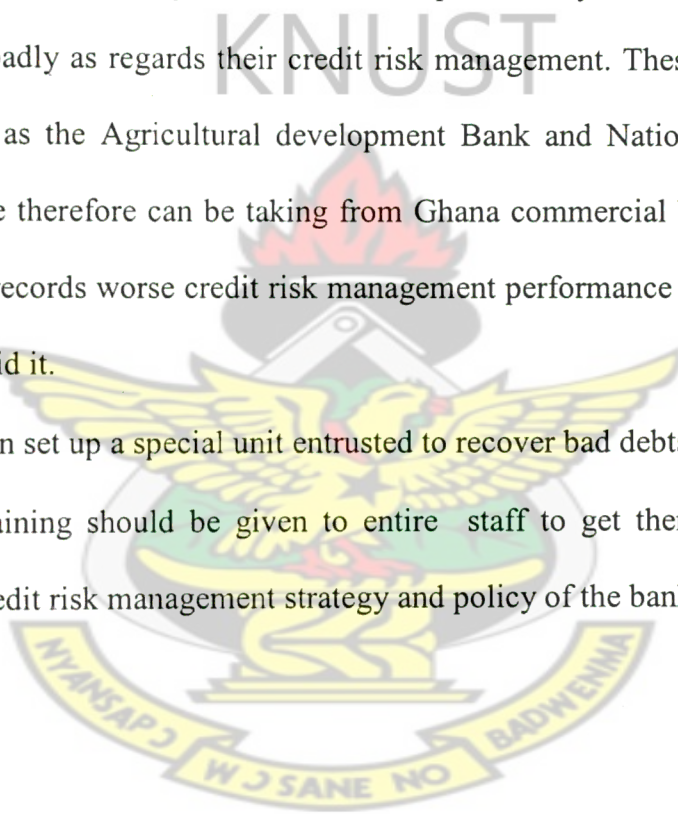
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APPENDIX 1

RATIOS FOR CREDIT RISK MANAGEMENT ASSESSMENT

| Parameter/Year | (GH¢)2001 | (GH¢)2002 | (GH¢)2003 | (GH¢)2004 | (GH¢)2005 | (GH¢)2006 | (GH¢)2007 | (GH¢)2008 |
|---|---|---|---|---|---|---|---|---|
| Gross loans and advance | 208,447,200 | 115,682,700 | 205,792,100 | 247,450,500 | 301,628,500 | 376,185,600 | 760,882,158 | 1,103,841,133 |
| Year on year increase | | (44.50%) | 77.90% | 20.24% | 21.90% | 24.70% | 102.20% | 45.13% |
| Provision for bad and doubtful debt | 17,914,300 | 13,306,100 | 11,281,500 | 9,848,900 | 7,359,100 | 1,659,000 | 8,300,067 | 8,784,170 |
| Provision for impaired loans | 606,600 | 490,500 | 1,095,100 | 1,384,800 | 533,600 | 1,059,600 | 5,300,333 | 16,722,205 |
| NPLGL | 0.291% | 0.424% | 0.532% | 0.559% | 0.177% | 0.282% | 1.344% | 1.515% |
| LSRIL | 29.53 | 27.13 | 10.30 | 7.11 | 13.79 | 1.57 | 0.81 | 0.53 |
| LSRGL | 8,594% | 11.502% | 5.482% | 3.980% | 2.440% | 0.441% | 1.091% | 0.796% |

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# APPENDIX 2

## INTERVIEW GUIDE FOR BANK OFFICIALS

### PERSONAL PROFILE

1. Age

   <20

   20-30

   31-40

   41-50

   >50

2. Sex

   Male [ ]    Female [ ]

3. Position Of Respondent

   Manager  [ ]

   Credit Officer [ ]

   Customer Care [ ]

   Other.....................specify  [ ]

4. Years  in Service

   < 1year          [ ]

   1-5              [ ]

   5-10             [ ]

   10-15            [ ]

   >20              [ ]

5. Years  in current position

   < 1              [ ]

1-5            [ ]

5-10           [ ]

10-15          [ ]

>20            [ ]

6. Educational background of respondent?

7. Any other background relating to credits?

**Establishing an Appropriate Credit Risk Environment**

8. Do You Have A Clear Credit Risk Strategy And Policy?

   Yes    [ ]  No      [ ]

9. Who Prepares the Strategy And Policy?

   a) The board of directors        [  ]

   b) The managing director         [  ]

   c) The branch manager            [  ]

   d) The credit officer            [  ]

   e) Others specify.....................................................................

10. Has the strategy and policy ever been reviewed?

    Yes    [ ]      No    [ ]

11. When was the last time it was reviewed?

12. How often is it Review?

    a) Monthly              [  ]

    b) Quarterly            [  ]

    c) Yearly               [  ]

d) Others specify...................................................................

10. What are the main loan portfolios of your bank?

11. Does Your Bank Have a set Level of Profitability for each portfolio?

    Yes [ ] No [ ]

13. If yes what is it?.................................................................

14. What is the Banks Risk tolerance Level?

15. What is your view on the credit strategy that your bank uses?

**Operating under a sound credit granting process**

16. What are the main types of loans this your branch creates?

17. Who is eligible for each of the credits mentioned above?

18. Is the branch having a ceiling to which they can disburse the loan?

    Yes [ ] No [ ]

19. What is it?

20. Under what terms and conditions are each credit be granted?

21. What are some of the things you look for before a prospective borrower will

    be given your credit facility forms?

    Does your bank have a limit at which each borrower mentioned above can

access your credit facility? Yes [ ] No [ ]

22. How do you set that limit?

23. How does the bank determine the following before a borrower is given a

    facility?

I. The integrity and reputation of a borrower

II. The current risk profile (including the nature and aggregate amounts of risks)

III.   The borrower's repayment history and current capacity to repay, based on historical financial trends and cash flow projections

IV.   A forward-looking analysis of the capacity to repay

V.   the legal capacity of the borrower to assume the liability

VI.   For commercial credits, the borrower's business expertise and the status of the borrower's economic sector and its position within that sector

VII.   the future risk profile of the borrower

21. Do you have strict policies in place to avoid associating with individuals involved in fraudulent activities and other crimes?

   Yes [ ]   No [ ]

22. If yes, what are some of them?

23. What assets do you consider as collaterals?

24. Under what conditions do you consider collaterals?

25. What do you normally look for on collaterals?

26. How do you value/cost presented collaterals?

27. Does the bank have a Clearly-established process in place for approving new Credits as well as the extension of existing credits? Yes☐ No☐

28. What is it?

29. Under what conditions will you approve loan for existing borrower?

**Maintaining an appropriate credit administration, measurement and monitoring process**

30. How does the bank rate the risk of a prospective customer?

31. How do you measure the credit risk inherent in all on- and off-balance sheet activities?

32.    How do you monitor the overall composition and quality of the credit portfolio?

**Ensuring adequate controls over credit risk**

33.    How often does the branch conduct credit reviews?

34.    Who normally conducts this?

35.    How do you ensure that loan originators keep to the set standards before a loan is approved?

36.  How do you manage a problem credit?

37. Can you enumerate the procedure and the processes a prospective customer goes through before a loan is granted him or her?

38. What is you comments on the laid down policies of your bank with respect to its ability to reduce the inherent risk associated with credit creation?