

**MBA IN BANKING AND FINANCE
Banking Option**

**WILL BASEL II ENHANCE THE CREDIT APPRAISAL TECHNIQUES
OF BANKS IN SUB-SAHARA AFRICA?
*A Case Study of the Ghanaian Banking Industry***



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TABLE OF CONTENTS

<i>Acknowledgements</i>	<i>i</i>
<i>Executive Summary</i>	<i>ii</i>
1. Introduction	1
1.1 Background	1
1.2 Problematic.....	2
1.3 Objectives.....	2
1.4 Significance of The Study.....	2
1.5 The Banking Industry in Ghana.....	3
1.6 Organization of the Study.....	5
2. The Main Credit Appraisal Techniques: A Review of Literature	6
2.1 Credit Risk and Credit Policies.....	6
2.2 Credit Appraisal: An Integrated Approach.....	9
2.2.1 The PRISM Model: Perspective, Repayment, Intention, Safeguard and Management.....	9
2.2.2 The Five Cs- Character, Capacity, Capital, Condition and Collateral.....	15
2.2.3 Lending Decision Based on the 5Cs.....	18
2.3 Appraisal Through Ratios.....	19
2.3.1 Objectivity of Ratio Analysis.....	20
2.3.2 Classification of Bankers' Ratios.....	20
2.3.3 Standards of Comparison of Ratios.....	27
2.4 Projections and Risk Assessment.....	28
2.4.1 Various Types of Projections.....	29
2.4.2 The Importance of Forward Looking Tools in the Appraisal Process.....	31
2.5 Loan Pricing.....	31
3. The New Capital Adequacy Framework (Basel II): An Opportunity to Enhance Credit Appraisal Techniques?	35
3.1 Capital Adequacy from Basel I to Basel II	35
3.2 The Three Pillars of Basel II.....	36
3.3 Credit Risk Measurement under Basel II.....	38
3.3.1 The Standardized Approach	38
3.3.2 The Internal Rating-Based Approach : Foundation and Advanced.....	41
3.4 The Impact of Basel II Credit Risk Measurement on Credit Appraisal.....	43
3.4.1 Data Quality.....	44
3.4.2 Credit Risk Identification and Evaluation.....	44
3.4.3 Risk Based Pricing and Resource Allocation.....	45
3.4.4 Collaterals.....	47
4. Study of the Ghanaian Banking Industry: Findings and Recommendations	49
4.1 Methodology of the survey.....	49
4.1.1 Population.....	49
4.1.2 Data Collection.....	49
4.1.3 Problems / Limits of the study.....	50
4.2 Findings of the survey.....	51
4.3 Summary of Findings and Recommendations.....	61
5. Conclusion	65
<i>Appendices</i>	
<i>References</i>	

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EXECUTIVE SUMMARY

Through intermediation banks offer credit to finance the economy. To ensure the sustainability of banks' activities in the area of credit, the regulators of banking activities develop guidelines and directives for specific functions in banking.

One of these directives is the new capital adequacy framework in the Basel II Accord. The Pillar I of the Accord defines capital adequacy and its related impact on risk evaluation, especially credit risk.

Considering the fact that credits are the most important assets on the balance sheet of banks in Sub-Sahara Africa, this study, using the case of the banking industry in Ghana aims at; on one hand, evaluate the current credit appraisal system of banks; and on the other hand estimate the impact the new capital adequacy framework is likely to have on banks, the banking sector and its customers as a whole. The study therefore focuses on credit appraisal in general and impact of the new capital adequacy framework on the appraisal system.

In a nutshell, findings reveal that banks are well abreast with credit assessment guidelines, however in practice, they are unable to abide by the basic requirements in their appraisal processes. This is because of varied reasons which range from lack of accurate data to a keen competitive environment. Although Bank of Ghana (central bank in Ghana) has not yet adopted the Basle II Accord, bankers in the country are very much aware of what it entails and its consequences on their lending activities and capital adequacy ratio.

Bankers in general tend to agree to the fact that through the implementation of the framework seems cumbersome; Basle II will not only compel them to apply the fundamental lending principles, but also to enhance credit appraisal techniques. Bankers are of the view that the benefits are many for both the banking sector and their customer. However, the challenges remain with whether the Regulatory Body has the capacity both human and logistic to enforce the Accord when it is adopted and whether the industry is well prepared to face the changes.

1. INTRODUCTION

1.1 Background

The Banking industry has entered an era of deregulation and globalization since the 1970, with the withdrawal of administered rate regime, which provided an umbrella to banks for long. In such a liberal environment, banks need a sense of caution, but also courage and wisdom to take reasonable risks when credit is tight. The pressure on the traditional spread of the banking organization is forcing them to dilute the quality of borrowers, lax in credit standards, ineffective portfolio risk policies, risks assumed beyond limits of bank's capital etc.

As a result the number of bank failures has increased with 1,600 banks closing down in the USA in the eighties and nineties. The same phenomenon was observed in Africa. During the period, performance ratios weakened and profitability declined while loan charge-offs rose dramatically. Among the root causes of problems loans identified by a major bank's survey were the following: compromise of credit principles, incomplete credit information, credits representing undue risks, lack of adequate supervision, dependence on oral information furnished by borrower, technical incompetence.

To curb the numerous bank failures which accompanied the changes in the banking sector, regulators have increased scrutiny of the sector with the imposition of prudential norms like capital adequacy, stricter provisioning requirements and carefully drawn up framework for lending activities of banks. In 1988, a Capital Accord was adopted which objectives were to assure sufficient capital in the global industry and create a level playing field for all banks. But this accord also came with the unwanted consequences of banks going into more risky businesses, higher risk practices and lip service to risk-related pricing.

This situation led to the introduction of the Basel II, which should become effective in 2007. The new capital accord is built around three pillars. The basic objective of the Pillar I is that credit institutions are well capitalized, by ensuring a better adequacy between risk and regulatory capital. Today, analysts consider as well capitalized banks with capital equal to more than 10% of their assets, provided both capital and assets are weighted for risk. The regulatory capital is now closely related to the level of risk being taken.

In developing countries, credit is the major asset on the balance sheet of commercial banks. Therefore credit risk remains an important risk element for banks and with the new framework, credit risk reflects the quality of credits a bank has in its portfolio. This calls for a better credit risk management which can be adopted right at the credit initiation stage through a thorough credit appraisal. In addition, new approach to the evaluation of credit risk could also pave the way for a better pricing of product.

1.2 Problematic

According to the Basel Committee on Banking Supervision (1999), in order to maintain a sound credit portfolio, a bank must have an established formal evaluation and approval process for the granting of credits.

In view of the number of bank failures recorded over the years, the proportion of problem loans there is a need to revisit the basic principles at the stage of credit initiation, assess the various approaches and find out if these are being applied by banks, and find out if the credit risk assessment (Pillar I) under the Basel II accord is likely to have any impacts on credit appraisal techniques.

1.3 Objectives

- Show to what extent Banks abide by credit appraisal frameworks
- Show the impact of the new credit risk evaluation under the Basel II Accord on credit appraisal techniques
- Highlight the benefits banks can derive from the Basel II Accord, in the area of credit risk, as far as risk assessment, pricing and target market selection are concerned.

1.4 Significance of the Study

The aim of this study is firstly to assess the credit appraisal system used by banks and secondly to contribute to the preparation of banks in developing countries to the implementation of Basel II, in the area of credit risk evaluation.

1.5 The Banking Industry in Ghana

As at the end of 2005, the Banking industry in Ghana comprised 21 banks (including ARB Apex Bank), as well as 121 rural and community banks and 2 representative offices. See structure of the banking sector in Appendix 1. There are:

- 8 universal banks
- 7 commercial banks
- 2 merchant banks
- 3 development banks

An additional universal bank was licensed in the course of the year 2006, bringing the number of universal banks to nine and the total number of banks to 22. In the face of increasing competition, especially from new banks, new products have been created and strategies aimed at maintaining or increasing market share have been developed.

Since 2005, the new Banking Law 673 has become operational. This law is characterised by a high capital adequacy ratio requirement, new sanctions regimes and higher governance standard. To date the Capital Adequacy framework applicable in the country is that of Basel I.

1.5.1 Banks Balance Sheet

As at May 2006, the total assets of the industry were evaluated at 42,270 billions of Cedis (USD4,700 billion, as compared to 33,297 billion Cedis (USD3,700 billion) the previous year, recording a total growth of 26.9%. This growth was driven principally by the substantial increase in net advances, which registered an annual growth of 44.9% .

The increase in the industry was funded mainly by deposits which went up by 36.4%, domestic long term borrowings which went up by 215% between May 2005 and May 2006. Shareholder funds have reached 4,782 billions Cedis (USD531.44 million) and paid up capital 1,306 billion Cedis (USD145.10 million)

1.5.2 Credits

According to the Bank of Ghana (the Central Bank), Financial Stability Review paper of May 2006, total credit amounted to 20,659 billion Cedis (USD2,298 billion) and represented almost 49% of total assets. The Herfindahl index-credit which measures sectarian credit concentration recorded 1,215.8 in May 2006 showing a high credit

concentration. Commerce and finance, manufacturing and services sectors combine 53% of credits.

As at May 2006, the ratio of non performing loans to gross loans was 12% and the loan provisions to gross loans was 10.3%. As compared to the previous years, asset quality is improving even if the proportion of non performing loan is still important.

1.5.3 Solvency

With the adoption the new banking law which increased the minimum capital requirement for all types of banks to 70 billion Cedis (USD7.77million) a lot of banks are operating with at least the required paid up capital. The industry recorded a capital adequacy ratio of 15.4% as of May 2006 and was well above the statutory requirement of 10% of Bank of Ghana. However, the current industry ratio is below the ratio recorded the previous years. The reduction in capital adequacy ratio suggests that banks are assuming more risks resulting in an increase in risky assets.

Various seminars have been organised to inform the industry about the Basel II Capital Adequacy framework. The implementation of Basel II is scheduled for the end of 2009. Despite the rapid growth in lending, the banking sector's liquid asset ratio remained stable, at about 20% (core) and 46% (broad).

1.5.4 Profitability

The principal sources of bank's income are interest margins which comprise interest on loans and advances, bills and investments and income from fees and commissions. Net interest margin represents a proportion of 50% of total income. As at May 2006, net interest margins as a ratio of total assets was 8.59%. Profitability indicators of the industry from 2003 to 2005 are as follows:

	December 2003 (%)	December 2004 (%)	December 2005 (%)
Return on Assets	6.3	4.6	3.3
Return on Earning Assets	8.0	5.9	6.3
Return on Equity	33.4	22.9	24.1
Interest spread	12.3	8.9	10.8
Expense to Income	63.9	63.5	68.7
Net Interest Margin	10.0	9.6	6.5
Capital Adequacy Ratio	9.3	15.3	27.7

Source : Bank of Ghana Annual Report 2005

1.6 Organisation of the Study

The study will be presented in five (5) chapters as follows:

- Chapter 1: ***Introduction:*** This is a general introduction to the topic including the background of the subject under discussion, the objectives of the study, the significance of study and the status of the banking industry in Ghana (as developed above).
- Chapter 2: ***The Main Credit Appraisal Techniques: A Review of Literature:*** A review of literature on the various approaches to credit appraisal and the respective type of credit facilities they are applied to.
- Chapter 3: ***The New Capital Adequacy Framework (Basel II): An Opportunity to Enhance Credit Appraisal Techniques:*** Summarizes the content of the Basel II accord and gives further details about credit assessment under the new accord and the benefits of the new approach to credit assessment.
- Chapter 4: ***Study of the Ghanaian Banking Industry: Findings and Recommendations:*** This is study of the actual practices with regards to credit assessment in the Banking Industry in Ghana and the awareness of the industry about Basel II accord and its impact on the industry and its customers.
- Chapter 5: ***Conclusion:*** This is the general conclusion of the study.

2. THE MAIN CREDIT APPRAISAL TECHNIQUES: A REVIEW OF LITERATURE

2.1 CREDIT RISK AND CREDIT POLICIES

“Credit risk is the risk of lost due to borrower or counterparty default. The risk is managed at both the transaction and portfolio levels. Credit risk management processes are highly disciplined and are designed to preserve the independence and integrity of the risk assessment process, as well as integrate effectively with business management” Credit Risk Management at Chase and JP Morgan.

Bhattacharya H. (1997) defines Credit risk as the risk of non payment of services due to a loan, in time. The services include payment of interest and other charges, and payment of the principal by installments or otherwise. If these are not paid as and when due, credit risk is involved because the bank loses not only the cost of funds to carry this loan for a further period, but also the profit that would have been earned on simultaneous investment of this amount. There is not one but a number of ‘why’ that cause a default. These ‘Whys’ constitute the credit risk of a lending decision.

Credit risk has two (2) components: Business Risk and Borrower Risk.

Business Risk

This is defined as the inability of the business or project to service its debt in time. This inability stems from the income generation capacity of the business, which again is affected by the nature of the business or the product it sells, the external economic or market environment, and the internal manufacturing organization and product mix of an enterprise.

Business risk is made up of systematic risk (exogenous hence unavoidable) and unsystematic risk (unique to a particular enterprise). Business risks essentially comprise:

- Sales Risk (the essential component) – can be evaluated through the measuring of the volatility of the sales of an enterprise
- Operating Risk – measured through operating leverage and financial leverage
- Financial Risk – measured through financial leverage
- Industry Risk – measured through trends in industry variables.

Borrower Risk

Borrower risk focuses the attention of the lender on the promoters and management of an enterprise. In spite of the emergence of the fee-based banking school, lending continues to be a personal business to a large extent. Mutual confidence and understanding are the bases of good lending. Knowing the borrower means knowing him vis-à-vis his business: his business character, capacity, capital, condition and collateral (the 5Cs). This will be detailed in another section.

Credit Policies

Credit policies deal with the framework for consistent credit decisions directed toward attaining the goals established by the bank for the credit function.

According to Ibid, credit policies establish the framework for lending and guide the credit granting activities of the bank. Credit policies should address such topics as target markets, portfolio mix, price and non price terms, the structure of limits, approval authorities, exception reporting etc. The policies should be designed and implemented within the context of internal and external factors such as the bank's market position, trade area, staff capabilities and technology. Policies and procedures that are properly developed and implemented enable the bank to:

- maintain a sound credit granting standards
- monitor and control credit risk
- properly evaluate new business opportunities
- and identify and administer problem credits

However, FRB (Federal Reserve Bank) states in its Commercial Bank Examination manual that, in the process of decision making, credit policy is constantly interpreted and applied to concrete situations, with the help of specific guides or procedures. The policy serves as a guide in determining how to handle given kinds of problems, but it never offers a definitive solution. It presents a range of solutions, within which the credit executive is free to exercise his judgment.

Nevertheless Glantz M. (2003) indicates that supervisory authorities stress the importance of formal written policies because such policies offer the following:

- ***Promotes discipline:*** especially when the institution's standards are under assault owing to intense loan competition. A written loan policy acts as the cornerstone for sound lending and bank reputation.
- ***Enshrines lending philosophy in stone:*** provide reference for lenders despite changes in management.
- ***Clarifies levels of responsibilities:*** minimize confusion that accompanies ad hoc guidelines, and sound objectives for evaluating new business opportunities.
- ***Gives type of covenant imposed on specific loans:*** this helps lower losses by communicating clear thresholds for financial performance and potentially triggering corrective and protective actions.

Morton Glantz, (2003) proposes a typical profile of loan policy as follows:

- **General Policy:**

Content: Management, trade area, balance loan portfolio, portfolio administration, loan-to-deposit ratio, legal loan limit, lending authority, loan responsibility, interest rate, loan repayment, collateral, credit information and documentation, delinquency ratios, loan-loss reserves, charge offs, extension or renewal of past due installments loans, consumer laws and regulations

- **Specific loan categories:**

Content: Business opportunities, desirable loan by loan category and undesirable loans.

- **Miscellaneous Loan Profile:**

Content: Loans to executive officers, directors, 10% shareholders and companies they control, employee loan, conflict of interest.

- **Quality control:**

Content: Credit department, loan review and recovery department.

- **Committees:**

Content: Directors loan committee of the board of directors, officers' loan committee and loan review committee.

The Bank Director's Hand Book (1981), of Bank Administration Institute Foundation points out that it has been observed that written policies, wherever do exist, are often

written only to satisfy regulatory requirements rather than to reflect the current thinking of the Board and Management.

2.2 CREDIT APPRAISAL: AN INTEGRATED APPROACH

One of the essential components of credit risk management structures is a fundamental analysis, which regulators found lacking. The approaches below focus mainly on corporate non-financial institutions. The approach to adopt for other categories of borrowers can be derived from these, although each category of borrower has its own particularities.

2.2.1 The PRISM Model: Perspective, Repayment, Intention, Safeguards, and Management

“This represents the core of credit risk management” Glantz M. (2003).

When using this model, it is important to note that the thoroughness of the analysis will depend largely on the borrower’s credit grade or Standard and Poor rating. PRISM is an acronym for Perspective, Repayment, Intention, Safeguards, and Management.

a. PRISM: Management

We examine Management first, because this PRISM component centers on the ‘big picture’- what the borrower is all about, including history and prospect. *Management* encompasses Business Operations, Management, Bank Relationship and Financial Reporting.

- **Business Operations**

Certain business attributes provide bankers with an image of their borrowers and past performance is a good indicator of future success. Factors such as the number of years the borrower has been in business, the firm’s reputation and performance record, and its willingness and ability to repay debts are considered. Longevity means staying in power and is important for financial sources. It also imparts reputation.

The information flow should contain the following:

Company information

- History of the business including any predecessor companies, changes in capital structure, present capitalization and any insolvency proceedings.

- Description of products, market, principal customers, subsidiaries and line of business, recent technological innovation
- Customer growth, energy availability, and possible ecological problems
- Market segmentation by customer type, geographic location, distribution channels
- Number and types of customers broken down in percentage sales/profit contribution- note extent borrower is over dependent on one or few customers
- List of company's principal suppliers, together with approximate annual amounts purchased- noting delinquencies in settlement of suppliers' account.
- Capital equipment requirements and commitment
- Existence of Government contract.

Industry Information

- Industry composition and in particular recent changes in that composition, number of firms in the industry and whether that number is declining or increasing
- Borrower's market share and image of its products and services compared to industry leaders
- Industry's rate of business failure and average bond rating
- Industry reliance on exports and degree of vulnerability
- Suppliers' power versus buyers' power and basis of competition in the industry
- Degree of operating leverage inherent in the industry
- The effect of government regulations and environmental issues on the industry

• **Management**

Banks need to understand to whom they are granting credit. Therefore, prior to entering into any new credit relationship, a bank must become familiar with the borrower or counterparty and be confident that it is dealing with an individual or organization of sound repute and creditworthiness. This can be achieved through a number of ways, including asking for references from known parties, accessing credit registries, and becoming familiar with individuals responsible for managing a company and checking their personal references and financial condition. However, a bank should not grant credit simply because the borrower is familiar to the bank or is perceived to be highly reputable (Principles for Management of Credit Risk, consultative paper issued by the Basel Committee on Banking Supervision, Basel, September 2000).

It is a good idea to prepare a biographical summary for each senior manager, to be able to evaluate overall management philosophy.

Management can be broken into two parts:

- the ability to guide the corporation into a new and better future
- the willingness to repay during hard times

The key to effective management deals with two dimensions:

- responding to changes in the external environment and
- creatively deploying internal resources to improve the competitive position

The amount and quality of information will depend on the requirement of the deal and the type of information Management is willing to supply. There is a simple rule to keep in mind: the lower the credit grade, the more information management is asked to supply. Management's final evaluation rarely show up here, instead we view management quality in perspective when all PRISM sections are completed. The bank may require for the following type of information:

- list of officers and directors with affiliation, ages and number of years in office
- Company's professional advisors, including attorney, auditors, bankers
- Strategies management is using to increase market share and profitability
- Overview of management problem solving and decision making
- Management philosophy. How Management and subordinate work in an effective team
- Reputation of present owners, directors, and professional advisors.
- An organization chart, mission statement, business plan and strategic plan (for short term and long term range)

- **Bank Relationship**

If the relationship is an existing one, how solid has it been? A loyal customer with a strong history receives better treatment than someone who walks through the door for the first time.

- **Financial Reporting**

Banks evaluate the accounting firms that prepare financial statements, their reputation is important. Following are few good pointers for banks to adhere to:

- obtain audited statements and unaudited quarterly statements, including sales backlog information and description of accounting practices
- if possible secure tax returns for the past five years, Internal Revenue Services Report
- Request for projected operating and financial statements
- Form an opinion about the overall credibility and reliability of financial reporting. If financial reporting is overly complex, ask questions
- Review the adequacy and sophistication of the client's internal auditing system and whom the internal auditor reports to
- Determine if objectives are described so achievement can be monitored.

b. PRISM: Intention (purpose)

The consultative paper issued by the Basel Committee on Banking Supervision (September 2000) states that banks must operate under sound, well-defined credit-granting criteria. These criteria should include a thorough understanding of the borrower or counterparty, as well as the purpose and structure of the credit and its source of repayment.

The bank must pin down what the loan's real intention is. There are three reasons why firms borrow. The first deals with asset purchases – short term to support seasonality and long term to support growth. Loan used to acquire seasonal assets are repaid once inventory is worked down and receivables collected.

Second, firms borrow to replace creditors. Short term loans approved to replace creditors may be symptomatic of problems, if agency report such as Dun & Bradstreet reveal tardiness and late payment to suppliers often point to slow-moving inventory or receivables problems.

Third, firms borrow to replace equity- stock buybacks, acquisitions, leveraged buyout. Equity replaced with debt can easily dislodge the debt-to-equity ratio and cashflow coverage putting the rest of equity at risk.

c. PRISM: Repayment

Firms can raise cash primarily in two ways: through business activities and with new monies from debt and equity sources. Asset liquidation brings in cash as well, but they are considered as a secondhand source.

Seasonal loans provide the short term working capital needs of eligible small businesses by financing the seasonal increases in the trading assets, the liquidation of which repays the loan at the end of each season. It is a self liquidating loan. Commercial banks grant short term loan with the understanding that loans are retired at the low point of the season or the end of the cash conversion cycle. If the balance sheet fails to fully convert, a company may seek external sources to cover exposure in the form of new outside debt or equity injection. The key attribute to acquiring new monies are the borrower's reputation, existing capital structure, asset quality, profit-generating abilities and economic values.

Internal repayment of long-term loans is directly related to historical and projected cash flow quality, magnitude and quality. The main question to answer is does the company have the cash flow to support fixed asset investments? This can be answered by breaking down the historical cash flow in three areas: quality, magnitude and trend.

The quality of historical cash flow is analyzed by looking at the firm's gross operating cash flow (net income plus non cash charges less noncash credits). If the gross operating cash flow is composed of primarily non cash items such as depreciation, deferred taxes or assets write down, with relatively small amount of cash being generated, then the quality of operating cash flow may not be sufficient to repay credit.

The magnitude of historical cash flow relative to growth plans will help to identify the external financing requirements facing the firm. The smaller the cash flow the greater the debt load required to support long-term growth plan.

Historical cash flow trends enable the creditor to determine if the firm's cash flows support the decision to go for growth. This is determined by evaluating the company's viability. A healthy company is able to fund a good part of its expansion internally. On the other hand,

a company suffering from declining cash flows requires the helping hand of debt to expand. Projections are not intended to predict the future perfectly, but to see how the borrower will perform under a variety of situations. It is up to the lender to ascribe an expected probability to each set of projections and to determine a most likely scenario on which to evaluate the borrower's repayment ability.

External repayment often depends on whether or not funding sources are readily available. It is the ability and willingness to inject equity capital or subordinated debt.

d. PRISM: Safeguards

The level of risk influences the degree of protection lenders generally require. Safeguards can be internal, external or a combination of both. Internal safeguards refer to financial analysis, whereas collateral, personal guarantees and loan covenants provide external protection. Internal protection relates to the borrower's cash power depending on whether the loan is short term or long term. The primary source of internal repayment for short term loan is balance sheet liquidity. External safeguards can come from a variety of sources such as collateral, guarantees, covenants, syndications and participations, credit derivatives.

- **Collateral**

It is defined as property pledged as security for the satisfaction of a debt or other obligation. Credit grades assigned to secured loans depend on, among other things, the degree of coverage, the economic life cycle of the collateral versus the term of the loan, the possible constraints of liquidating the collateral and the bank's ability to skillfully and economically monitor and liquidate collateral.

- **Guarantees**

A guarantee is a written contract, agreement, or undertaking involving three parties. The first party the guarantor agrees to see that the performance of the second party, the guarantee is fulfilled according to the terms of the contract agreement, or undertaking. The third party is the creditor or the party to benefit by the performance.

- **Loan Covenants**

Covenants of a loan agreement lay the framework for the financial plan jointly agreed on by the borrower and the lender. The number and detail of covenants will largely depend on

the financial strength of the enterprise, management's aptitude, and the length of the proposed loan.

e. PRISM: Perspective

What is the deal perspective or conclusions. This section decomposes into the following: risk/reward analysis, operating and financial strategies that the banker believes might improve performance and go a long way adding to shareholder value and finally decision making and pricing.

2.2.2 THE 5Cs – Character, Capacity, Capital, Condition and Collateral

This approach focuses mainly on borrower risk. As mentioned earlier, Bhattacharya H. (1997) comments that in spite of the emergence of the fee-based banking school, lending still continues to be a personal business to a large extent. Mutual confidence and clear understanding are the bases of good lending. Knowing a borrower is knowing him vis-à-vis his business and this has always been the combination of the five Cs.

a. Character

The business character of a borrower rests on such traits as honour, trustworthiness and commitment. How a borrower will respond to a real emergency when all the other 'Cs' have turn bad is a real test of the character of the borrower. This is also the most difficult of credit analyses, as it is predominantly judgmental.

A good borrower is expected to maintain a code of conduct with regard to disclosing his business affairs with the banker. This may go beyond the balance sheet and profit and loss account. Another code of conduct relates to the use of funds for the purpose for which they were lent. Assessment of the integrity of the borrower is a vexed question for a credit appraiser, particularly when he is a first generation entrepreneur. For a small borrower who has no records of dealing with the bank, a credit appraiser gropes in the dark to delve into the physical and mental state of the prospective borrower

A corporate customer is represented by its board of directors, the chairman being at the helm of affairs. The composition of the board has to be examined to see whether it is a diversified board. A professionalized board will have representatives from different broad

areas of management. The banker should call for the following information from each director for analysis and records:

- Name of director and father's name (to know the family of house to which he belongs)
- Names of companies or firms wherein he is a director/partner or proprietor and business of these companies
- Shareholding of the director in these companies
- Dividend declared or profit made by these companies in the past three years
- Income tax and wealth tax return, since directors' personal prosperity is directly related to the prosperities of the companies where they have controlling or managing interest.

For a corporate customer, it is also necessary to look at the second tier of management, which in fact, implements the policies laid down by the board. This tier of management must be broad-based with professional managers. This management team should be a balanced combination of the young and the old experience and talent to fill up the generation gap in management technology and in continuation of organization. These persons are the real assets of the company. Their particulars should be analysed by the credit appraiser.

Some corporate units, even though large, are still managed as proprietary concerns. These concerns are found to be losing ground in a competitive world. They are risky borrowers because besides the professional handicap, the very continuation of the organization is at stake. The banker assessing the credit proposal of such corporate should insist on the appointment of professional managers with proper delegation of authority.

b. CAPACITY

The capacity to honour commitment depends upon the ability of the business to generate cash flows. Cash flows are often equated with profit after tax, plus depreciation and all other non-cash expenditure. But all the profit may not always be available in cash, because part of it is blocked in current assets. A company may have a level of profit but it may technically be insolvent. At time of fast growth the cash curve of an enterprise differs

significantly from the profit curve because of the increasing level of working capital items which do not feature in the income statement but in the balance sheet.

A cash flow statement that measures the ability of a business to repay debt may substantiate the possibility of a short term credit extension to an unprofitable business.

The repayment capacity of a borrower depends on encashability and not the profitability of his business. In order to estimate the repayment capacity of a borrower, the lender should make a detailed cash flow analysis of the business. Alternatively, if profit plus depreciation is used as a measure of the repayment capacity of a business, it must be qualified by an impact analysis of working capital items.

c. CAPITAL

Capital is the networth of a business and provides that important cushion to withstand shocks coming from adverse changes in external and internal environment of the business. As most of the outside liabilities contracted by a business have to be serviced by predetermined, fixed amounts, it would be dangerous to tamper with this fixity, hence the necessity to insulate them from shocks by providing a capital-cushion.

The absolute amount of a networth remains meaningless to an analyst till it is compared with the volume of debt of an enterprise. The equity debt ratio indicates the extent of unencumbered capital available to a business, which not only provides a cushion against future losses, but also indicates the capacity of an enterprise to borrow additional funds, should such a necessity arise in future to stave off impending liquidity crises. A downward trend of the equity-debt ratio suggests that the enterprise is becoming more and more vulnerable to shocks.

d. CONDITION

A Banker in the business of dealing with business should be aware and alert to the changing economic and financial environment in which his borrowers operate. Almost every industry suffers from some amount of cyclical fluctuations. At the downturn of a cycle, credits may be frozen, while in its upswing, there may be excessive fluctuations of loan volumes. It is important for a banker to know on which side of the cycle a borrowing unit is operating to enable him to adjust to the credit needs. There is also a problem of price fluctuations which

are not necessarily related to the cyclical fluctuations of industries. Obsolescence is another problem that industries suffer from. It is highest in high growth industries. Product obsolescence will make an industry stagnant, while technological obsolescence increases the capital intensity.

Consideration of the competitive structure of a business is receiving increased attention of credit analysts, owing to liberalization and globalization of national economies. An analysis of the competitive strength or weakness of an enterprise on these three aspects enables a banker to estimate the vulnerability of the business to swings in the market.

e. COLLATERALS

Collaterals must not drive lending decisions. The best security of a lender is a thriving business on which the appraisal should focus. Collaterals whether as third party guarantees or a real estate mortgage or a pledge of other financial or non financial assets are meant to enhance the creditworthiness of the principal borrower.

The test of good collateral lies in its 'shiftability' in other words, salability of assets. The higher the shiftability is, the better the collaterals. From this point of view, real estate mortgages are the worst kind of collateral, while government or other gilt-edged securities are the best. Though collateral do enhance credit worthiness, there is a limit to that.

2.2.3 Lending Decision Based on 5Cs

Out of the five Cs discussed, Character, Capacity and Capital are the three most important variables to judge the credit worthiness of a borrower. Many researchers including Smith K.V. (1978) have developed decision trees based on the three major Cs namely Character, Capacity and Capital of which Character occupies the first place, followed by the other two, in various combinations to determine the risk-category of a borrower.

Decision table for lending decisions based on Character, Capacity and Capital

Risk Category	Risk Variables			Converted Risk Index	Decision
	Character	Capacity	Capital		
0 - Excellent	Strong	Strong	Strong	100 - 91	Accept - minimum control
1- Very Good	Strong	Strong	Weak	90 - 81	Accept -Moderate control
2- Good	Strong	Weak	Strong	80 - 71	Accept - tight control
3 - Fair	Weak	Strong	Strong	70 - 61	Accept as the last option - tighter control and monitoring
4 - Doubtful	Weak	Strong	Weak	60 - 51	Can be accepted under exceptional circumstances— continuous control and monitoring
5 - Poor	Weak	Weak	Weak	50 and below	Reject

2.3 APPRAISAL THROUGH RATIOS

Ratio analysis as a concept or technique is as old as accounting concept. R.A. Foulke (1978) mentions that ratio analysis was being used in last few years of the nineteenth century. It was the Dupont Company which first used an integrated set of ratios in 1919, but kept it as a closely guarded secret until 1949 when it was made public. Since then important developments in ratio analysis took place. In 1950, extensive studies on the choice and use of productivity, finance and operating ratios were made. Bankers started using ratios as early as 1870. The first such ratio was the current ratio.

Ratios are processed data. They relate absolute figures and bring forth meaningful information. A ratio is thus the result of comparing or dividing one number (numerator) by another (denominator).

2.3.1 Objectivity in Ratio Analysis

A number of ratios have been developed since its advent in the 19th century. Managers and analysts wanted to have a set of their own ratios to analyze, plan and control their respective functions. One set of ratios used by one analyst may not be useful for another. An analyst must have a set of clear objectives before him and then decide which are the ratios needed by him under each objective.

For a banker the objectives will broadly be the following:

- to judge the operating efficiency of the borrower
- to judge the financial health
- to ensure safety and security of the advance

2.3.2 Classification of Banker's Ratios

A banker is interested to know the following three efficiency aspects of the borrower's business: efficiency of operational management, efficiency of financial management, efficiency of debt-service management.

a. Efficiency of Operational Management

Ratios to judge the efficiency of operational management

Name of Ratio	Computation	Unit of measurement	Particular purpose
1. Fixed assets turnover ratio	Net sales/operating fixed assets	Number	To determine fixed asset utilization
2. Capital-turnover ratio	Net sales /capital employed	-do-	To determine how judiciously long term funds are employed
3. Total assets turnover	Net sales/total operating asset	-do-	To determine the level of asset utilization
4. Return on investment (ROI)	PBIT/total operating assets	Percentage	To determine profitability of total assets employed.
5. Current asset-turnover ratio	Total sales/operating current assets	Number	To determine the revenue generating capacity of current assets
6. Materials inventory turnover ratio	Consumption of raw material/raw materials inventory	-do-	To determine the efficiency of material planning
7. Work-in-process inventory turn over Ratio	Cost of production/work in process inventory	-do-	To determine the stability of operating structure

Name of Ratio	Computation	Unit of measurement	Particular purpose
8. Technology updation Ratio	Capital expenditure/depreciation	Number	To determine the level of replacement and hence technology
9. - Export ratio	Export sales/sales	Percentage	To determine the sensitivity of the business to changes in international market
- Import ratio	Imported raw materials/total raw material consumed	-do-	-do-
10. Protection ratio	Domestic cost of the product/landed cost of the same imported product	Percentage or number	To determine the product sensitivity to any withdrawal of government protection.
11. Earning ratios: Gross profit ratio	Gross profit/net sales or Gross profit/cost of goods sold	Percentage	To determine the operating efficiency of the business in keeping the rate of gross profit stable or increasing.
12. Operating profit ratio	Operating profit/net sales	Percentage	To determine the operating efficiency of the business in keeping the rate of operating profit stable or increasing
13. Net profit ratio	Net profit/net sales	-do-	To determine the net earning capacity of sales
14. Expense ratios			
- Direct expense ratio	Cost of goods sold/net sales	-do-	To determine the operating efficiency of the management in controlling expenses
- Expense group ratio	Each group of expense/net sales	-do-	-do-
15. Tax incidence ratio	Indirect taxes/sales	-do-	To determine the vulnerability of the business to the vagaries of revenue authorities.

- **Fixed asset-turnover ratios**

Fixed assets here mean operating fixed assets that contribute to the production of goods and services. It is obvious therefore that fictitious assets is to be ignored; because it does not, in anyway, augment the produceability of fixed assets. It is expected that in a capital-intensive industry where capital spins faster, this ratio must be higher. The higher the ratio, the better is the efficiency of fixed assets. A low or falling ratio indicates outdated technology.

- *Capital turnover ratio*

It is calculated by comparing the net sales with the capital employed by the business. Sales should be taken net of excise duty. This ratio is very important in cases of trading firms where a low level of capital is expected to turnover faster, giving rise to a large volume of sales and faster turnover of stocks.

- *Return on Investment (ROI)*

This is a combination of operating profit ratio and assets turnover ratio. Profit here means profit before interest and taxes (PBIT), which should exclude non operating income. The size of a firm's ROI is a function of the margin of profit on sales and the amount of sales generated on the asset base. The ROI is the key factor of profitability of a business. It matches the operating profit with the assets which earn this profit. Efficient utilization of assets will have a relatively high return.

- *Current asset turnover ratio*

Current asset here means operating current assets and turnover is total sales gross of excise duty. This ratio indicates sales generation capacity or mobility of current assets. If this ratio is falling, it may mean, on one hand, that larger credit is being given to buyers for expanding or holding the market share which may also necessitate holding larger inventory. On the other hand, it may also mean that current assets include slow moving or dead stocks or bad debtors. The latter is of more concern to the banker, but even in the former case the banker must see that the firm is not over trading.

- *Technology updation ratio*

It is given by the ratio of depreciation to capital expenditure. A firm has to make provision for replacement of fixed asset, and a bulk of the future expenditure should come from accumulation of depreciation over the life of a given asset. As fixed assets are generally replaced after a period only, this ratio should also be calculated over a number of years. This ratio is essential for capital intensive industry because, if proper replacements are not made the unit might fall sick. A banker should be very cautious about this aspect of the business because this ratio indicates the level of replacement of assets hence the state of technology of the business.

- **Earning Ratios**

- *Gross Profit Ratios*

This is a ratio of gross profit to turnover: this is the standard calculation. However, a banker can make further variation for his own use to neutralize variations price fluctuations in sales, by using gross profit to cost of goods sold. A downward movement in the gross profit ratio suggests that the prices of raw materials and/or the labour cost has/have increased, which cannot be passed over to the customer because of competitive market conditions or consumer resistance. A gross profit ratio is the single most important ratio to judge the operating condition of a business.

- *Operating Profit Ratios*

This is the ratio of operating profit to sales. A trading company can do with a low ratio, which indicates a fast turnover of current assets manifested in a large volume of sales. But a manufacturing firm to survive on low ratio must have some element of trading in it. For some industries, public utilities like electricity and gas for example, operating profit may be very high, but ROI is low because of heavy capital investment. A banker needs to understand the nature of the business first before coming to a definite conclusion about this ratio.

- *Net profit ratio*

It is the operating ratio which signifies the efficiency of the management, not the Net Profit Ratio. The banker should know the range of non-operating income and its influence on the total profitability of a business. A widening gap between the operating profit and net profit ratio may suggest that the company is losing on its main line of business.

b. Efficiency of Financial Management

Ratios to judge Efficiency of Financial Management:

Name of Ratio	Computation	Unit of measurement	Particular purpose
1. Debt-equity ratio	Long term outside liability/shareholder's fund	Percentage or number	To determine the level of permanent stake of the borrower
2. Total debt-equity ratio	Total debt/shareholders' fund	-do-	To determine the level of borrower's overall stake in the business

Name of Ratio	Computation	Unit of measurement	Particular purpose
3. Ratio of net working capital to current assets	Net working capital/current assets	-do-	To determine the level of buffer funds available to withstand financial shocks
4. Current ratio	Current assets/current liabilities	A number or a ratio	To determine the general liquidity of the business
5. Diversion ratio	Net working capital/capital gap	percentage	To determine diversion or loss of current funds
6. Finished goods stock turnover ratio	Cost of goods sold/finished goods stock	Number of days or months	To determine the reasonableness of stock holding
7. Debtors-turnover	Gross sales/trade debtors	-do-	To determine the saleability of the product and efficiency of the collection department
8. Creditors-turnover ratio	Purchases/trade creditors	-do-	To determine the ability of the firm to obtain market credit.
9. Market command ratio	Creditors turnover (by days)/debtors turnover (by days)	Ratio	To determine the market position of the borrower.

• Debt-equity ratio

A company may try to prove to the banker that the total long term resources are not only covering the entire fixed assets, but also contributing reasonably towards current assets. The banker should question the magnitude of outside loan liability in the long-term fund, and even the extent of the stake of the entrepreneurs in the business. This ratio has undergone much devolution both in respect of definition of debt and also the standard. Some financial institutions allowed debt-equity ratio of 3 : 1 for small scale industrial units, 2 : 1 for large and medium scale industrial unit and up to 5 : 1 for very large unit, though this was decided on a case-to-case basis. Today most financial institutions are working towards a ratio of 1.5 : 1.

• Total debt-equity ratio

For banks appraising a credit proposal for working capital finance, the concept of debt has to be enlarged to include current liabilities also, because the average level of current liabilities has a dynamic stability as resources of funds. A banker is therefore interested to know the overall leverage available to the company. The total debt is then made of long term liability and current liabilities.

- **Net Working Capital**

From an analyst point of view, it is the contribution of long-term resources towards gross working capital as manifested in aggregate current assets. While normally bankers would not like a zero net working capital situation considering it to be the worst condition for a business, as they are traditionally led to believe, it may be just the other way around. A firm maintaining itself with a zero net working capital may as well be an extremely good firm having tremendous command in the market. However, it should be noted that even if a firm operates in a seller's market, occasional failure of debtors is not an unlikely situation; the firm has to build up a minimum cash reserve. A lender need not be unnecessarily touchy about a zero net working capital, the following should be considered before taking a definite conclusion:

- Market standing of the unit
- Composition of current assets
- Maturity classifications of debtors and creditors
- Whether the debtors are fairly widespread

- **Current Ratio**

This is a more generalized form of net working capital to current assets ratio. It is the ratio of current assets to current liabilities. Analysts for long regarded a current ratio of 2:1 as ideal, which means a net working capital of 50% on current assets. But composition and realization of current assets may make very high current assets meaningless. If turnover of stocks and debtors is low, then a high level of current ratio endangers the liquidity rather than easing it.

Some analysts take another connotation of current ratio, which is quick ratio. This is done by comparing relatively more liquid current assets with impending current liabilities. This ratio becomes important to a banker at the time of declaring of a dividend by the company, because a low quick ratio at such point of time would definitely force the company to fall back upon the bank for ready cash. While evaluating a current ratio, the banker should evaluate contingent liabilities, which may include commitments for capital expenditure and bills discounted with the bank.

- **Diversion Ratio**

This is the ratio of net working capital to the working capital gap. The working capital gap should be calculated before accounting for a bank advance on working capital. The higher the ratio, the lower the borrower dependency on bank finances. If the value of this ratio was low or it is showing a declining trend simultaneously with a low or declining net working capital to current asset ratio, it would have been a case of diversion which can take the following form: Investment of current funds in long term assets, current funds used to finance losses and pure diversion of funds from out of the business by over invoicing of expenditure.

c. Efficiency of debt-service management

All lending institutions including banks are necessarily concerned to know whether:

- the profit of the borrowing firm is enough to cover not only the interest payment, it is also sufficient to provide a reasonable cushion against future uncertainty
- the profit is sufficient to provide enough coverage for repayment obligations
- the assets of the firm provide adequate security for loans sanctioned.

Ratio to judge the efficiency of debt-service management

Name of Ratio	Computation	Unit of measurement	Particular purpose
1. Interest cover ratio	Profit before interest and tax/annual interest obligation	number	To determine the interest paying capacity of the firm.
2. Debt-service or coverage ratio	(profit after tax + interest + depreciation)/(interest + annual repayment of term loans)	-do-	To determine the ability of the firm to service its total debt-service obligations
3. Priority obligation ratio	Net operating cash flows/priority outflows	Percentage	To determine the cash position of the business to meet priority obligations
4. Asset-margin ratio	(fixed asset – term loans)/fixed assets	-do-	To determine the margin of safety of the lender, or the borrowing capacity of the borrower

- **Interest Cover Ratio**

This is to know how many times the interest payment could be covered by cash profit. A high ratio is indicative of the fact that the borrower's reliance on interest bearing borrow funds is low. A high interest cover ratio will generally indicate a risk-averse management.

On the contrary a very low ratio, below 2 may indicate a risk-prone management with a high-gear capital structure. In the case of manufacturing firms, a coverage ratio of 3 is a reasonable standard. The standard ratio is 1.5. However, if the ratio is above 1 but below 1.5, and the firm is operationally viable, the lender need not reject the proposal outright. Suitable spacing of the repayment period, thereby lowering the annual payment obligations, may raise the ratio and make the proposal financially viable.

- **Priority Obligation Ratio**

It is necessary to prepare an operating cash flow statement of an enterprise to measure its ability to discharge priority obligations which include payment of interest, lease rentals and repayment of term loans. The priority obligations ratio should at least be 1.5 to provide a reasonable cushion against sudden lengthening of the working capital cycle. This ratio is a vastly superior ratio than the debt service coverage ratio because profit is often a matter of opinion.

- **Asset-Margin Ratio**

This ratio indicates capital debt capacity of fixed assets of an enterprise. Normally a 50% margin is taken to be sufficient for a lender to feel secure. This ratio also indicates the reserve borrowing capacity of the company, to which it can turn in case of financial crisis. This ratio should be compared with the debt-equity ratio of an enterprise. It may often be found that an enterprise has a low debt equity ratio, but no asset-margin left to withstand shocks by raising long term loans on the market.

2.3.3 Standards of comparison of ratios

Just as no absolute figure is meaningful in isolation, so also no ratio is. Since the banker is not doing the business of the borrower, he must have before him certain standards of ratios with which to compare the ratios revealed by the borrower's business. Standards can be developed in any of the following three ways or by a combination of all.

a. Firm Past Standard

These are most readily available and most frequently used. A banker has to rely, most often, on the internal standards of a firm whose credit proposal is being assessed. This has

the advantage of consistent comparison and consistent accounting method. However, one must guard against the following pitfalls:

- the past standard of the firm may not be very meaningful when these are established from a few years data only
- a perfectly satisfactory standard in the past may not be valid now because of a change in technology
- there may be an environmental change in the economy resulting in either a general fall or rise of economic activities which may render the past standards of a firm useless.

b. Budgetary Standards

It is better than the internal standard, as it takes into account changes in the economy, the state of technology and also the value of money. But a budget cannot be prepared as objectively as it should. Subjective influences of individuals creep into fixation of budgetary standards. But a banker can infuse objectivity: a dialogue with the borrower and help the latter in setting realistic standards which would be mutually useful.

c. External standards

It has the following advantages over the above two standards:

- Standards derived from a reasonably wide and representative sample of other firms can be used. The objective is also to compare how a particular unit is performing in comparison to the others in the market
- Comparison of the firm-level ratios with those of the industry over similar economic and technological periods can take off aberrations caused by using only internal standards.

2.4 PROJECTIONS AND RISK ASSESSMENT

“In the final analysis bank should attempt to identify the types of situations, such as economic downturn, both in the whole economy or in particular sectors, higher than expected levels of delinquencies and defaults, or the combinations of credit and market events, that could produce substantial losses or liquidity problems. Stress test analysis should also include contingency plans regarding actions management might take given certain scenario” Basel Committee on Banking Supervision.

“What if” analysis can unveil previously uncovered areas of credit risk exposures and plays a vital role of looking into areas of potential problems. The emphasis on banks forecasts developed as loan demand increased to fund large and complex credits including mergers and acquisition.

Lenders should be aware of both the benefits and the pitfalls of each forecasting method before using one. One of the first checks is to determine comparability between the forecast methods used and the complexity of the facility or borrower being evaluated.

Availability of comprehensive, historical data is the standard prerequisite for developing forecasting. There is a requirement for data quality, quantity and accuracy.

2.4.1 Various Types of Projections

a. Sensitivity Percentage of Sales method

This is based on the assumption that the historical relationships that have held firm generally will not change much, at least into the near term and finding relationships in historical statements improves forecast accuracy. It is the best way to complement the statistical methods. One widely used technique is the modified percentage of sales method which is based on the premise that the balance sheet is correlated to changes in sales.

Whether a firm restructures or just grows normally, variations in revenue generally require asset/liabilities adjustments. In the process of developing a forecast, the lender works with two important equations: the financial needs formula (F) and the projected percentage of sales externally financed formula (E).

$$F = A/S (\Delta S) + \Delta NFA - L1/S (\Delta S) - P(S)(1-d) + R$$

The F formula determines the external financing needs of the firm. If used in conjunction with the percentage of sales method, both techniques render the same answer.

$$E = (A/S - L1/S) - (P/g)(1+g)(1-d) + R/\Delta S$$

The E formula identifies the percentage of sales growth requiring external financing.

F = Cumulative financial needs

A = Projected spontaneous assets

S = Projected sales

ΔS = Change in sales

ΔNFA = Change in net fixed assets

L1 = Spontaneous liabilities

P = Projected profit margin (%)

d = Dividend payout rate

R = Debt maturities

T = Targeted growth rate

L = Leverage

g = Sales growth rate

b. Statistical forecasting

This involves the use of various statistical tools depending on the number of variables being considered and the type of relationship to be established among the variables. This includes: casual forecasting, time-series forecasting, simple moving averages, exponential smoothing averages, multiple regression.

It should be noted that these methods are being abandoned for more advanced methods.

c. Simulation Approach

A simulation is a computer-assisted extension of sensitivity forecasting. It helps answer questions like: 'will the borrower stay under budget if the bank finances the facility?' 'what are the probabilities that operating cashflow will cover debt service when all is said and done?' 'Is multicollinearity a problem with the forecast?'

d. Stochastic Optimization

Optimization procedures are used to identify maximum and minimum values subject to constraints. Stochastic models can handle non linear relationships that are specifiable by the kinds of equations and formulas that are used in mathematical programming formulations. Stochastically driven optimization models allow you as the lender to more realistically represent the flow of random variables.

2.4.2 The Importance of forward looking tools in the approval process

Division of Banking Supervision of The Federal Reserve Board, in its Lending Standard for Commercial loans states that formal presentation of financial projections or other forms of forward looking analysis used by the borrower are important for making explicit the conditions required for a loan to perform and for communicating the vulnerabilities of the transaction to those responsible for approving loans.

Technology-driven projections, rather than only describing single sets of 'most likely' scenarios, characterize the kind or real-world events that might impair the loan. Confidence levels set around probabilities that operating cash flows fail to cover debt service and probabilities that a borrower's capital structure will fail to represent two major determinants of loan performance. Rigorous forecasting tools are central to initial approvals and determining the adequacy of provisions and reserves.

Although it may be tempting not to avoid running up simulations and optimizations for smaller borrowers, these customers may collectively represent a significant portion of the institution's loan portfolio. Applying formal forward looking analysis even on a basic level will help the institution identify and manage risks for individual transactions and that of the whole portfolio.

2.5 LOAN PRICING

Robert Kemp and Laurence Pettit, Jr. (1992) explain the need for accurate loan pricing as follows: "A bank acquires funds deposits, borrowing, and equity, recognizing the cost of each source and the resulting average cost of funds to the total bank. The funds are allocated to assets, creating an asset mix of earning assets such as loans and non-earning assets such as bank's premises. The price that customers are charged for the use of an earning represents the sum of the cost of the bank's funds, the administration cost, and a profit objective that compensate the bank for bearing the risk. If pricing adequately compensates for these costs and all risks undertaken, bank value is created."

Loan pricing within a risk-return framework is one of the most basic concepts of managing credits. However due to the nature of highly competitive business, pricing loans has traditionally been drawn into relationship parameters. Lending by definition serves as the

foundation for broader corporate business, aiming to maximize the profitability of the entire client relationship, rather than focusing on one or two individual loans. Lower deal pricing may be offset by revenue producing products in other departments.

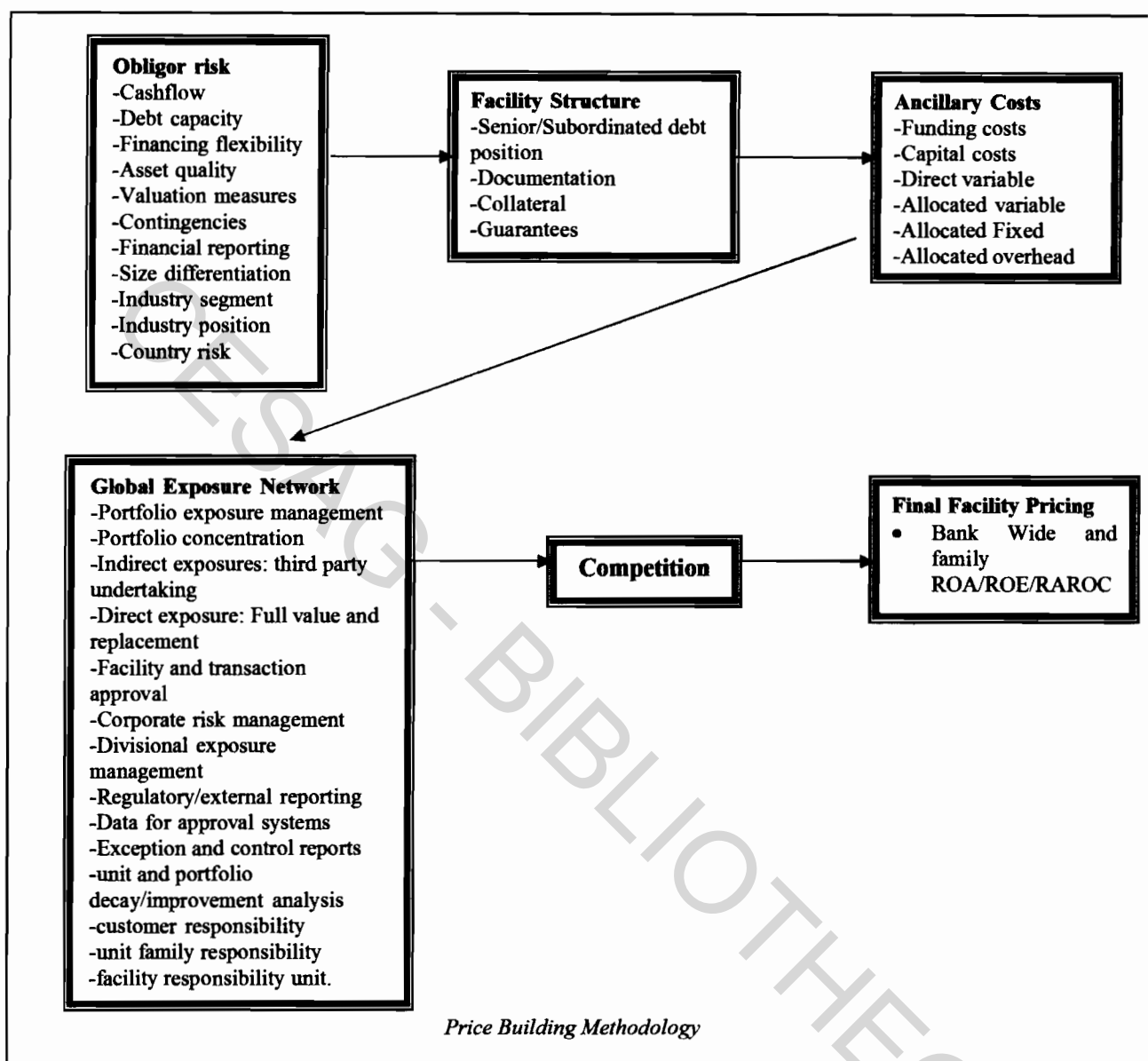
Bankers are in the business of making loans, but the fiduciary responsibility of bankers is value creation as well, meaning paying special attention to all costs of bearing risk. Dermine J and Bissida Y.F. (2002) summarize it as follow: the interest margin on a loan should include three components:

- an equity spread to reward shareholders
- a credit risk spread to cover expected losses
- a spread to cover operating expenses.

Pricing models focus on these aspects.

For Glantz M., loan pricing is less an art than a science. Effective pricing model are designed to interact with Return on Equity (ROE), Return on Assets (ROA) and Risk Adjusted Return on Capital (RAROC). With the right statistical estimates, loan returns will generally provide enough of a margin to compensate for default risk. But without default and recovery estimates across a broad range of risks, risk adjusted pricing regresses to an exercise in academia. Historical survival and recovery rates are available to a wide range of credit. The lower the credit rating, the more attentive the pricing.

Beyond statistical default risk, pricing requires a profound understanding of borrowers, along with the ability to judge the qualitative factors on which every risk-return relationship root. Lending by definition serves as the foundation for broader corporate business aiming to maximize the profitability of the entire client relationship; this allows institutions to earn target return on consolidated client basis. However, there is a need to develop a pricing strategy, i.e. a price build up methodology which works itself through all pricing components – obligor risk, facility structure, ancillary costs, global exposure network and competition. This will help avoid naïve pricing and pricing errors. The methodology is presented in the figure below:



Pricing models include key variables that combine to produce return on assets, return on equity, or risk adjusted return on capital. Models should be able to define trade offs among rate spreads, fees, deposit balances fixed and variable cost and host of other variable to provide correlations between assumption variables, rank these correlations and target forecast variable. According to Campbell J. Y (1998), characteristics of a good pricing model either internal or existing software in the market (such as KMV or Loan Pricing Corporation) must include the following:

- Easy to install and use and administer
- Available on a wide variety of platforms

- Computes risk-adjusted returns
- Computes yields-to-maturity
- Provides multiperiod analysis
- Accounts for all relevant variables
- Support the negotiating process
- Provides full relationship profitability
- Provides comprehensive, context-sensitive help

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3. THE NEW CAPITAL ADEQUACY FRAMEWORK (BASEL II):

AN OPPORTUNITY TO ENHANCE CREDIT APPRAISAL TECHNIQUES?

A first draft of the capital adequacy framework by the Basel Committee on Banking Supervision was released in June 1999. This was a consultative paper, containing general outlines of proposed regulations. Other consultative papers were issued and quantitative impact studies were conducted. Capital adequacy rules established by the Basel Committee, initially destined to affect capital requirements of credit institutions at Group of Ten (G10), are eventually to be adopted by central banks and supervisory authorities of the majority of countries in the world. January 2007 was scheduled as the date of implementation. Each country will however implement Basel II as appropriate to its jurisdiction.

Basel II establishes in the best possible way, capital requirement for an economy dominated by service industries and financial instruments. It integrates credit risk, market risk and operational risk into a comprehensive system of supervision. A service economy brings up the need to face long-term future uncertainties seriously, which means accounting for them ahead of time.

3.1 CAPITAL ADEQUACY FROM BASEL I TO BASEL II

The concept of global regulatory capital requirements has been first implemented with the Basel Capital Accord of 1988 (Basel I), which addressed exposures arising mainly from credit risks. It also specified that these must be backed by the bank's own funds (tier 1) and some other eligible funds (tier 2). In 1996, there has been an amendment to include market risk and the algorithm became:

$$\frac{\text{Own fund} + \text{Other eligible funds}}{\text{Risk weighted exposures from credit risk} + \text{charges for market risk}} \geq 8\%$$

To determine the risk weighted exposures, the credit institutions must establish on-balance sheet assets and off balance sheet positions and then apply regulatory weight, which are classified into risk buckets: 0%, 10%, 20%, 50%, and 100%. Belongingness to Organization for Economic Cooperation (OECD) was determinant for risk weighing. For example, OECD-government debt and cash were zero-weighted loans. Claims on banks incorporated in countries outside the OECD with a residual maturity of up to one year, guaranteed by banks incorporated in countries outside the OECD weighted at 20%. Loans

fully secured by mortgage on residential property that is or will be occupied by the borrower or that is rented is weighted at 50%. Claims on private sector and claims on banks incorporated outside the OECD with a residual maturity of over one year weighed at 100%. For both the wholesale and retail market, weights are set by type of risk. The 1988 accord had two objectives: assure sufficient capital in the global banking industry and create a level playing field for all banks.

Basel II integrates credit risk, market risk and operational risk, into a comprehensive system of supervision. Banks must assure the capital adequacy for every one of their exposure along these three lines. Provisions for operational risk are new requirements. To face the challenge, credit institutions need to analyze their operational risks, identify the losses and provide adequate capital for operational risk events. With regards to market risk, Basel II maintains the policies and methods advanced with the 1996 Market Risk Amendment.

For counterparty risk, banks choosing the standardized approach will use external ratings by reputable independent agencies such as Standard and Poor's, Moody's Investors Services, Fitch Ratings and other recognized firms. Alternatively, banks will develop and use internal ratings, if they choose either Internal Rating Based-Foundation (F-IRB) or Internal Rating Based- Advanced (A-IRB).

3.2 THE THREE PILLARS OF BASEL II

Basel's new capital adequacy framework rests on three pillars.

Pillar I: Capital Adequacy

The basic objective of Pillar I is that credit institutions are well capitalized. Adequately capitalized banks are usually those with capital of 8% to 10% risk weighted assets. There are three Basel II methods, designed to gage capital adequacy under pillar one. All these target capital financial staying power of the institution. The methods are:

- the standardized approach
- the foundation internal rating based (F-IRB)
- the advanced internal rating based (A-IRB).

The standardized approach will be to measure credit risk in a standardised manner, supported by external credit assessment institutions recognised as eligible for capital purposes by national supervisors. With the internal rating-based approach, banks internally assess their own key risk drivers which serve as primary input of capital requirement. These methods will be discussed further. Our study will be focused on the impact of this pillar on credit appraisal.

Pillar II: Prudential Revision

The more freedom credit institutions are given in computing their capital requirements, the more regulators need to inspect the bank's procedures, systems and models used to establish their capital adequacy. This responsibility comes over and above already existing supervisory duties. To serve in an efficient manner the requirements of pillar II, and the application of Basel II as a whole, the Basel Committee on Banking Supervision has established the Accord Implementation Group (AIG), whose goal is to provide a channel to exchange information on practical implementation challenges and discuss strategies to address different issues as they evolve.

Pillar III: Market Discipline

It is an active use of market discipline to encourage reliable financial disclosure. The basis for market discipline is transparency in financial accounts. Not only the regulators but also the market as a whole will be looking over the shoulders of financial institutions, scrutinizing their dependability.

D. N. Chorafas summarizes the three pillars as follows:

PILLAR I	PILLAR II	PILLAR III
<i>REGULATORY CAPITAL AND ECONOMIC CAPITAL</i>	<i>SUPERVISION</i>	<i>MARKET DISCIPLINE</i>
<ul style="list-style-type: none"> - Economic capital allocation by business unit - Decision on rating - Link to risk management - Steady evaluation through internal control 	<ul style="list-style-type: none"> - Internal control tests included in all audits - Management risk - Legal risk - Technology risk - Other operational risks important to supervisors 	<ul style="list-style-type: none"> - Clients and Counterparties are sensitive to entity's risk exposure - Rigorous internal control is the signal that top management is in charge

3.3 CREDIT RISK MEASUREMENT UNDER BASEL II

Deutsche Bundesbank (January 2003) proposes a snapshot of differences characterizing the three method of credit risk evaluation as follows:

	Standard Method	IRB Foundation	IRB Advanced
<i>Rating</i>	External	Internal	Internal
<i>PD Estimate</i>	None	Own	Own
<i>LGD Estimate</i>	None	Defined by supervisor	Own
<i>EAD Estimate</i>	None	Defined by supervisor	Own
<i>Maturity</i>	Not recognized	Not explicitly	Defined by supervisor
<i>Risk Mitigation for collateral and product characteristics</i>	Defined by supervisor	By supervisor through LGD and EAD	Own estimate through LGD and EAD.

PD: Probability of Default

LGD: Loss Given Default

EAD: Earning At Default

3.3.1 The Standardized Approach

The Standardised Approach measures credit risk in a standardised manner, supported by external credit assessment institutions recognised as eligible for capital purposes by national supervisors.

a. Claims on sovereigns and central banks

Claims on sovereigns and their central banks will be risk weighted as follows:

Credit Assessment	AAA to AA-	A+ to A-	BBB+ to BBB-	BB+ to B-	Below B-	Unrated
Risk Weight	0%	20%	50%	100%	150%	100%

At national discretion, a lower risk weight may be applied to banks' exposures to their sovereign (or central bank) of incorporation denominated in domestic currency and funded in that currency. For the purpose of risk weighting claims on sovereigns, supervisors may recognise the country risk scores assigned by Export Credit Agencies (ECAs).

ECA risk score	0 - 1	2	3	4 - 6	7
Risk Weight	0%	20%	50%	100%	150%

b. Claims on banks

There are two options for claims on banks. National supervisors will apply one option to all banks in their jurisdiction. No claim on an unrated bank may receive a risk weight lower than that applied to claims on its sovereign of incorporation.

Under the first option, all banks incorporated in a given country will be assigned a risk weight one category less favourable than that assigned to claims on the sovereign of that country. However, for claims on banks in countries with sovereigns rated BB+ to B- and on banks in unrated countries the risk weight will be capped at 100%.

The second option bases the risk weighting on the external credit assessment of the bank itself with claims on unrated banks being risk-weighted at 50%. Under this option, a preferential risk weight that is one category more favourable may be applied to claims with an original maturity of three months or less, subject to a floor of 20%. This treatment will be available to both rated and unrated banks, but not to banks risk weighted at 150%.

OPTION 1

Credit Assessment of Sovereign	AAA to AA-	A+ to A-	BBB+ to BBB-	BB+ to B-	Below B-	Unrated
Risk Weight under option1	20%	50%	100%	100%	150%	100%

OPTION 2

Credit Assessment of Banks	AAA to AA-	A+ to A-	BBB+ to BBB-	BB+ to B-	Below B-	Unrated
Risk Weight under option2	20%	50%	50%	100%	150%	50%
Risk weight for short term claims under option 2	20%	20%	20%	50%	150%	20%

c. Claims on Corporates

The table provided below illustrates the risk weighting of rated corporate claims, including claims on insurance companies. The standard risk weight for unrated claims on corporates will be 100%. No claim on an unrated corporate may be given a risk weight preferential to that assigned to its sovereign of incorporation.

Credit assessment	AAA to AA-	A+ to A-	BBB+ to BB-	Below BB-	Unrated
Risk Weight	20%	50%	100%	150%	100%

d. Claims on retail portfolio

Exposures included in such a portfolio may be risk-weighted at 75%, with a limited level exposure to the same obligor and a *minimum number of exposures* in the portfolio.

e. Claims secured by residential property

Lending fully secured by mortgages on residential property that is or will be occupied by the borrower, or that is rented, will be risk weighted at 35%. In applying the 35% weight, supervisory authorities should satisfy themselves, according to their national arrangements for the provision of housing finance, that this concessionary weight is applied restrictively for residential purposes.

f. Claims secured by commercial real estate

In view of the experience in numerous countries that commercial property lending has been a recurring cause of troubled assets in the banking industry over the past few decades, the Committee holds to the view that mortgages on commercial real estate do not, in principle, justify other than a 100% weighting of the loans secured.

g. Off Balance sheet items

Off balance sheet items under the standardised approach will be converted into credit exposure equivalents through the use of credit conversion factors (CCF).

3.3.2 The Internal Rating Based Approach: F-IRB and A-IRB

Subject to certain minimum conditions and disclosure requirements, banks that have received supervisory approval to use the IRB approach may rely on their own internal estimates of risk components in determining the capital requirement for a given exposure. The risk components include measures of the probability of default (PD), loss given default (LGD), the exposure at default (EAD), and effective maturity (M). In some cases, banks may be required to use a supervisory value as opposed to an internal estimate for one or more of the risk components.

The IRB approach is based on measures of unexpected losses (UL) and expected losses (EL). The risk-weight functions produce capital requirements for the UL portion. Expected losses are treated separately. If provisions exceeded EL, then the excess can be counted toward Tier 2 capital up to a limit of 0.6% RWA (Risk Weighted Average); if, on the other hand, EL exceeds provisions then the amount of excess must be deducted 50% from Tier 1. Under the IRB approach, banks must categorise banking-book exposures into broad classes of assets with different underlying risk characteristics, subject to the definitions set out below. The classes of assets are:

- (a) corporate (five sub-classes of specialised lending are separately identified),
- (b) sovereign,
- (c) bank,
- (d) retail (three sub-classes are separately identified), and
- (e) equity.

The classification of exposures in this way is broadly consistent with established bank practice. However, some banks may use different definitions in their internal risk management and measurement systems.

a. Calculation of Risk Weighted Asset

The derivation of risk-weighted assets is dependent on estimates of the PD, LGD, and EAD and, in some cases, effective maturity (M), for a given exposure. PD and LGD are measured as decimals and EAD is measured as currency (e.g. euros), except where explicitly noted otherwise. This is expressed as follows: $RWA = EAD \times f(PD, LGD, M)$

Each portfolio is treated separately.

Under the IRB approach for corporate credits, banks will be permitted to separately distinguish exposures to SME borrowers (defined as corporate exposures where the reported sales for the consolidated group of which the firm is a part is less than €50 million) from those to large firms.

Subject to national discretion, supervisors may allow banks, to substitute total assets of the consolidated group for total sales in calculating the SME threshold and the firm-size adjustment.

b. Treatment of Expected Loss

EL can be broken down into three components:

EXPECTED LOSS (EL) \$\$	Borrower Risk		Facility Risk Rated	
	PROBABILITY OF DEFAULT (PD) %		LOSS SEVERITY GIVEN DEFAULT (SEVERITY) %	LOAN EQUIVALENT EXPOSURE (EXPOSURE) \$\$
=		+		+
	<i>What is the probability of the counterparty defaulting?</i>		<i>If default occurs how much of this do we expect to lose?</i>	<i>If default occurs how much exposure do we expect to lose?</i>

Banks using the IRB approach must compare the total amount of total eligible provisions with the total EL amount as calculated within the IRB approach, where the calculated EL amount is lower than the provisions of the bank, its supervisors must consider whether the EL fully reflects the conditions in the market in which it operates before allowing the difference to be included in Tier 2 capital.

c. Minimum Requirements for IRB Approach, include the following:

- A qualifying IRB rating system must have two separate and distinct dimensions: the risk of borrower default and transaction-specific factors. The institution's credit policy must articulate the risk of each grade in terms of both a description of the probability of default risk and the criteria used to distinguish that level of credit risk. The transaction-specific factors must take into account elements such as collateral, seniority, product type, etc.

- A bank must collect and store data on key borrower and facility characteristics to provide effective support to its internal credit risk measurement and management process, to enable the bank to meet the other requirements in this document, and to serve as a basis for supervisory reporting. These data should be sufficiently detailed to allow retrospective reallocation of obligors and facilities to grades.
- Definition of default must at least contain the following two elements:
 - The bank considers that the obligor is unlikely to pay its credit obligations to the banking group in full, without recourse by the bank to actions such as realizing security (if held).
 - The obligor is past due more than 90 days on any material credit obligation to the banking group. Overdrafts will be considered as being past due once the customer has breached an advised limit or been advised of a limit smaller than current outstandings.
- Irrespective of whether a bank is using external, internal, or pooled data sources, or a combination of the three, for its PD estimation, the length of the underlying historical observation period used must be at least five years.
- In order to be eligible for the IRB approach, banks must meet the disclosure requirements set out in Pillar 3. These are minimum requirements for use of IRB: failure to meet these will render banks ineligible to use the relevant IRB approach.

3.4 IMPACT OF BASEL II CREDIT RISK EVALUATION ON BANK CREDIT APPRAISAL

The implementation of Basel II is expected to bring a number of tangible benefits to compensate for the complexity and the cost of the project. Eugene Buck, Managing Director of Economic Capital of Rabobank, Netherlands mentioned that according to the Dutch Bankers Association, Basel II is quite a change in the development and implementation of credit risk policies and procedures. This is particularly in the terms of

- credit risk modeling and
- the way banks look at the credit process as a whole.

At the credit initiation stage, the new capital adequacy accord is expected to have on the evaluation process as indicated below.

3.4.1 Quality of data

P. Thomopoulos, the Deputy Governor of the Bank of Greece, in an address to the Alumni Association of London School of Economics, in 2005, said that with the new framework, banks will require more reliable data from their customers, particularly from Small and Medium Enterprises (SME), to judge the credit worthiness of their customer. The quality of a credit assessment depends on that of the data provided for the assessment. He also added that that is the only way SMEs can have access to credit at preferential terms, now that the new capital framework has made particular provisions for them. This will create additional burden for them to produce timely and accurate accounting and other financial information. However, the availability of such information will also lead to efficient management for such companies, based more on informed and less intuitive decision.

3.4.2 Credit Risk Identification and Evaluation

The Consultative Committee on Financial Sector in France, in its publication of May 2006 indicates that under the new Basel framework, bankers will have a standardized and advanced analytical tools which will allow them to adequately evaluate the level of risk of their customer. This will make it difficult for client to bring forth their particularities which end up influencing bankers decisions. The committee believes that with a homogeneous credit evaluation practices bankers now have at their disposal prospective tools to venture into new markets. For Groups, this will reduce differences in evaluation from one country to another.

In a study conducted by the Economist Business Intelligence Unit (2004), on risk weighing under Basel II for mid-tier banks, bank executives from Taiwan and Brazil state respectively “we are using this implementation of Basel II as a chance to really implement our risk management system” and “Implementation of Basel II will allow us to manage better our risk and mitigate them”. Basel II therefore provides the opportunity to really implement those credit risk principles which already existed. It comes as a restructuring exercise.

From the same study, an executive of 20 Billion dollar Mexican bank (Grupo Financiero), says that even though they cannot yet use Basel II models to assign regulatory capital, they have already aided strategic decision-making when the bank decided to launch fixed-rated mortgages. Using Basel II models, they were able to evaluate expected and unexpected losses, economic capital necessary to cover the risk and priced loans with a competitive advantage. Basel II should then facilitate wise lending decision since bankers can focus on the most profitable areas, determine what area provides the best return on a risk adjusted basis.

3.4.3 Risk Based Pricing and Resource Allocation

A lot of writers have highlighted this as a major benefit to banks. Chofaras D.N. (2004) said that bankers are looking at Basel II as a significant improvement over the existing capital accord, because it differentiates more efficiently the levels of risk and obliges financial institutions to use advance credit risk measurement and tools.

According to him, risk-based pricing is a totally different method to the classical way bank price their loans and other products. The reason is that, traditionally, the lenders dependability which has always been part of the equation has always been underestimated. Basel II changes this by obliging banks to quantify risk. In this connection a distinction should be made between expected events and unexpected events in credit evaluation. Just as important is the frequency an impact characterizing each of these events, distinguishing between those which are:

- High Frequency/Low Impact (HF/LI), usually expected events,
- Low Frequency/High Impact (LF/HI), typically unexpected events.

Thomopoulos P. stated that traditionally, banks use some discrimination in their pricing decisions, but mostly because of their inability to adequately differentiate the credit risk of individual obligor. Therefore the system irrespective of creditworthiness of the borrower, was contributing to rather level pricing, especially as regards capital requirements. For example, consider two unsecured corporate loans, one to a rather good customer, with external rating A and internal estimated probability of default of 0.12% and another worse one with an external rating of BB and an internal estimated probability of default of 1.5%.

According to the current framework the required capital to be set aside against both customers would be 8% of the amount lent. According to the new capital framework:

- if the standardized approach is used capital to be set aside for the first customer would be 4% while the capital to be set aside for the second would be 8%
- if the foundation internal rating-based (IRB) is used, the capital required against the first customer would be 2.7% and 8.9% for the second customer.

This shows the impact of the new framework on pricing and resource allocation. Capital has a cost and therefore should be used wisely. Practitioners of the new framework can operate with less capital and price more favourably.

In the study conducted by the Economist Intelligence Unit, some bank executives of mid-tier banks are of the view that the ability to quantify risk more precisely is crucial to being able to price adequately to cover that risk. They also added that Basel II will help lenders explain to borrowers why costs are rising for weaker credits and falling for stronger credits.

For Ulrich Richter, chief credit officer, interviewed during the Economist Intelligence study, the new framework will help credit officers work together to improve credit quality, and not just selling loans.

It is one thing to measure risk and capital and it is another to apply and use output. Dr. Edward I. Altman of Stern School of Business, New York University outlines that, under the new capital accord, the objectives of the supervisor and the bank are similar but not identical. Both objectives are achieved through the use and application of risk measurement framework, the supervisor's objective is capital adequacy – enough capital – while that of the bank is capital efficiency. He therefore suggests the following formula to account for risk-adjusted pricing, performance measurement and compensation:

- At a minimum, risk-adjusted pricing means covering expected losses (EL)

$$\text{PRICE} = \text{LIBOR} + \text{EL} + (\text{FEES \& PROFIT})$$

- If a credit portfolio model is available, i.e. correlations and concentrations are accounted for, we can do contributory risk-based pricing

$$\text{PRICE} = \text{LIBOR} + \text{EL} + \text{CR} + (\text{FEES \& PROFIT})$$

With the basic idea that if marginal loan is diversifying for the portfolio, we maybe able to offer a discount, if concentrating, charge a premium

With the calculation of economic capital, we can compute RAROC (risk-adjusted return to [economic] capital) - Returns relative to standard measure of risk

- Used for performance measurement by comparing RAROCs across business lines
- Capital attribution and consumption
- Input to compensation, especially for capital intensive business activities (e.g. lending)
- Capital management at corporate level

3.4.4 Collaterals

In January 2001 the Basel Committee proposed the introduction of a W-factor on the extent of risk mitigation achieved by collaterals. W-factor is a minimum floor beyond which collateral on a loan cannot reduce the risk weight to zero. Main rational for the floor was “legal uncertainty” of collecting on the collateral and its price volatility. However, an amendment later in the year acknowledged that legal uncertainty is already treated in the Operational Risk charge and proposes the W-factor be retained but moved from the Pillar I adequacy ratio and the Pillar II.

$$\text{If, Capital Ratio} = \frac{\text{Capital}}{\sum \text{Risk Weighted Assets}}$$

And knowing that Collateral Value (CV) impact the denominator, then :

- More CV, the lower the RWA. This leads to a higher capital ratio on the freeing up of capital while maintaining an adequate Capital Ratio
- Under the new capital accord, CV is however adjusted based on 3 Haircuts:
 - HE based on volatility of underlying exposure
 - HC based on volatility of collateral
 - HFX based on possible currency mismatch

With the exception the sophisticated ones, most bank can adopt this simple approach in collateral evaluation:

- Partial collateralization is recognized
- Collateral needs to be pledged for life of exposure
- Collateral must be marked-to-market
- Collateral must be revalued with a minimum of six months
- Floor of 20% except in special Repo cases

Treatment of collateralised transactions can be either comprehensive or simple, provided the chosen one is consistently used for the entire portfolio. The comprehensive approach focuses on the cash value of the collateral, taking into consideration its price volatility. The simple approach maintains the substitution approach of the present accord, where collateral issuer's risk is substituted for the underlying obligor.

4. A SURVEY OF THE GHANAIAN BANKING INDUSTRY: FINDINGS AND RECOMMENDATIONS

4.1 METHODOLOGY OF THE STUDY

The research strategy adopted for this study is a case study.

4.1.1 Population

The population considered for this study is the entire banking industry in Ghana, that is the banks located in Ghana. Instead of sampling a portion of the population, a census was done, data was to be collected and analysed from every possible case. The decision of using a census was informed by the fact that the population under consideration is not large and therefore can be adequately covered within the time allocated for the study. The total population was 22: a manageable size

4.1.2 Data Collection

Both primary and secondary data were used. Secondary data were drawn mainly from the annual reports for the various banks and various publications of Bank of Ghana, the Central Bank. A questionnaire was designed to collect secondary data. This was a self administered questionnaire completed by respondents, who were mainly from the Risk/Credit Department of the banks. The questionnaire was delivered by hand to each respondent and collected later by the researcher.

A questionnaire was used because it is an adequate data collection method for case studies. It also requires less sensitivity and skills to administer. Above all the orderly manner of the pre-determined questions allows for comparability of data. As for the respondents, their function as risk or credit managers gives them insights in appraisal techniques and new developments in the area of risk management.

The questions in the questionnaire covered areas such as the credit philosophy, the importance of the credit portfolio as compared to total assets, the quality of the current portfolio, the various techniques used in credit assessment, awareness about the new capital adequacy and its credit implications and the effect of the new capital adequacy on credit appraisal techniques as perceived by the respondents.

4.1.3 Problems/Limits of the Study

As at the time of the study, the financial sector in Ghana, particularly the banking industry was in a period of keen competition among the banks with the emergence of new banks in the last 2 years. Some banks were therefore reluctant to provide information, because they suspected the questionnaire could be a disguised strategy from competitors to go get access to classified information. There was a need to prove that the study was solely for academic purpose.

Quite a number of institutions were of the view that they do not derive any benefit from the study and do not see the need for spending time providing information. A few institutions, particularly the new banks which had less than 2 years of activity simply refuse to take part in the study, although they could have answered most of all the questions.

The process was time consuming and demanded much perseverance. Access to respondents and to information was very difficult, since there was a need to seek approval from management before information is provided. While some respondents returned questionnaire within 10 days, others took as long as 60 days.

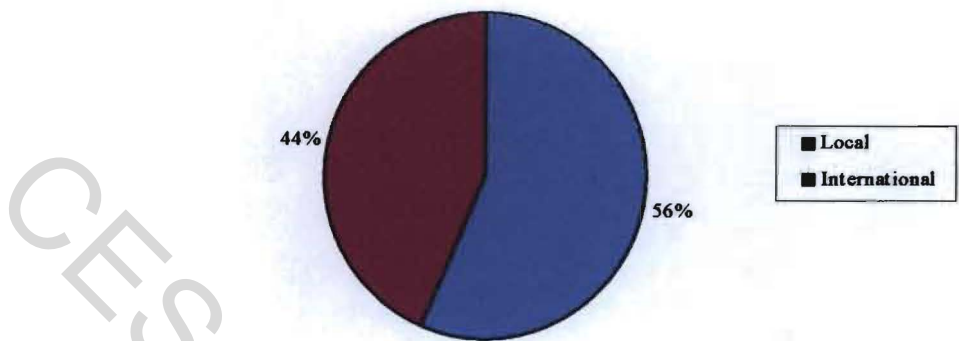
Out of the 22 questionnaires distributed, 16 were returned, bringing the response rate to about 73%.

Apart from the above problems encountered, the case study strategy itself has the limit of being restricted to the case under review. The findings of the research cannot be generalised. Also constraints such as time and resources in academic work do not allow for the use of a variety of data collection methods. The use of questionnaires alone as means of data collection could deny the study of some data which could be obtained by the use of a combination of techniques.

4.2 FINDINGS OF THE STUDY

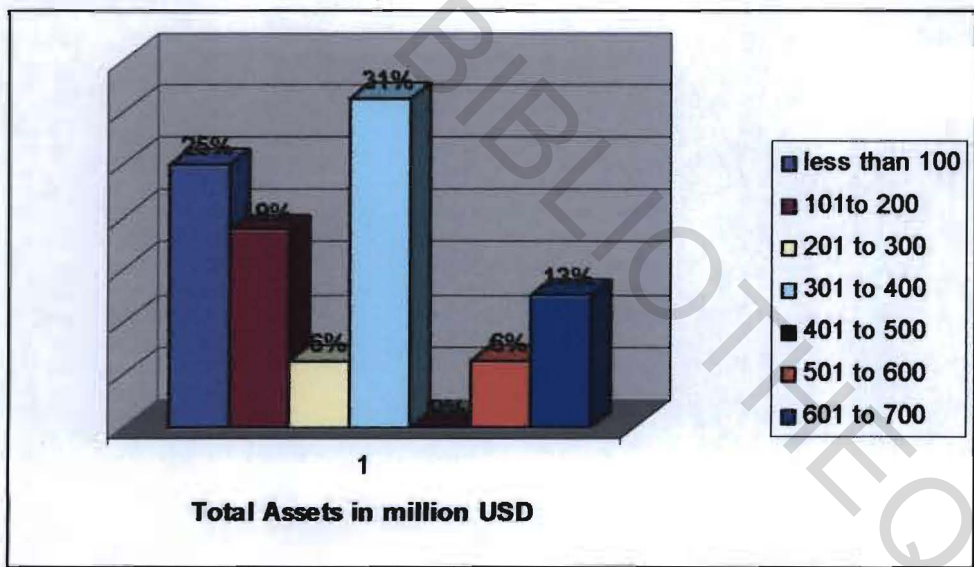
4.2.1 Type of Banks under Study and their Credit Portfolio

Figure 4.1: Type of banks



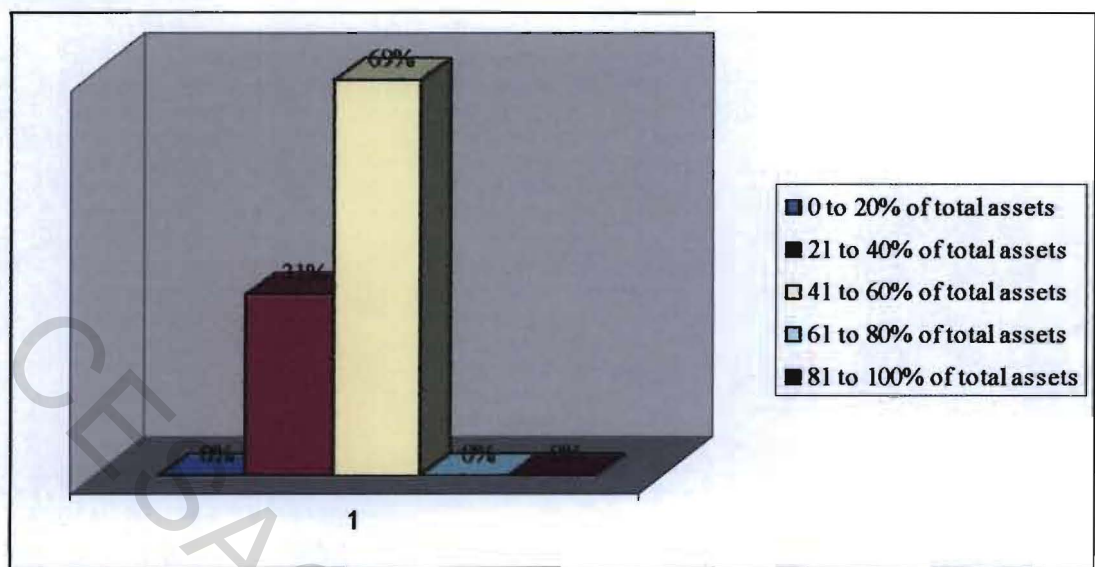
Out of the 16 respondents, 56% are local banks and 44% are international banks.

Figure 4.2: Total Assets of Banks



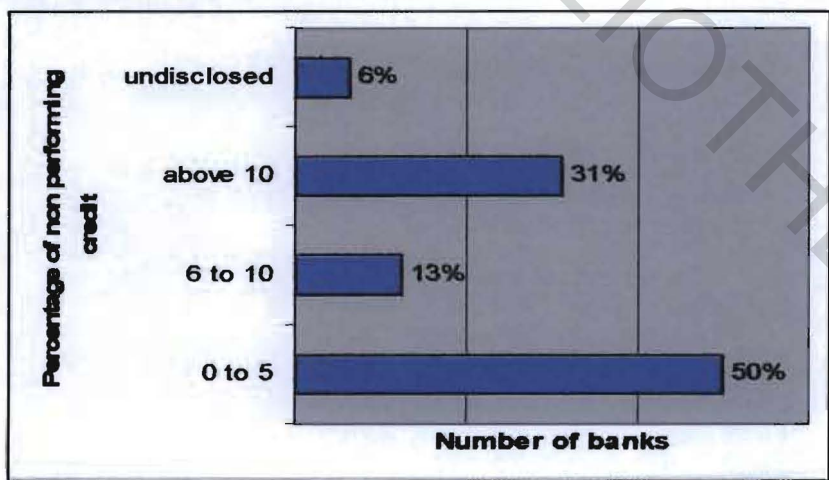
The total assets of the various banks ranged from below 100 million to 700 millions US dollars. 25% of the banks had at total assets worth less than 100million, 19% had assets between 101 and 200 million, 6% had their total assets in the range of 201 to 300 million, 31% had a total assets in the range of 301 to 400 million, another 6% had a total assets in the range of 501 to 600 million and 13% had a total assets in the range of 601 to 700 million.

Figure 4.3: Proportion of Credit as a percentage of Total Assets



Considering the proportion of total credit as a percentage of the total assets of banks, 31% recorded credits covering 21 to 40% to their total assets, while another 69% booked credits which represented between 41 to 60% of their total assets. This highlights the importance of credits in the total portfolio of banks under study.

Figure 4.4: Proportion of non performing credit



Regarding the level of non performing loans, 50% of the banks indicated that their non performing loans represented 0 to 5% of their total credits granted, 13% of the banks indicated that 6 to 10% of their credits were non performing, whereas another 31% of the

banks stated that their proportion of non performing credit as a percentage of total credit is above 10%. Respondents representing 6% chose not to disclose any information.

4.2.2 Credit Assessment Framework in the Bank

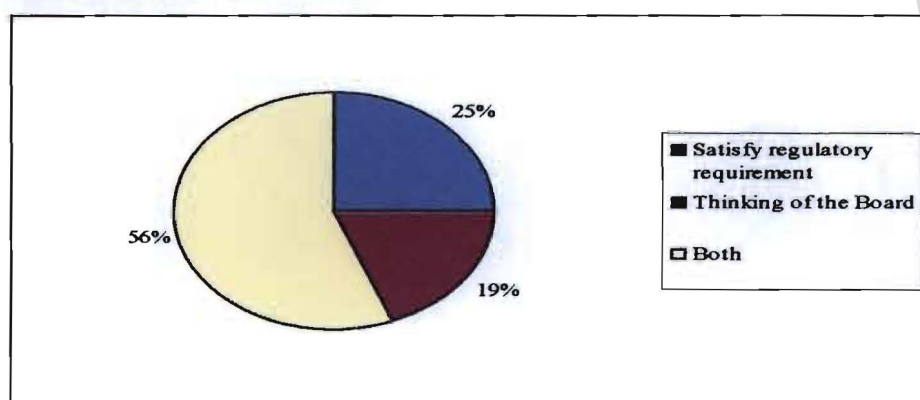
Table 4.1 Credit Policy and its main guidelines

Credit Policy Guidelines	Banks' Response regarding their existence		Total
	YES (in %)	NO (in %)	
Lending philosophy	100	0	100
Level of Responsibilities	100	0	100
Type of Covenant for specific loans	87	13	100
Level of exposure to shareholders, directors and officers	100	0	100

All the banks indicated that they have existing credit policies which clearly spelt out their lending philosophy, the various levels of responsibilities as far as lending decision is concerned and a defined level of exposure to shareholders, directors and officers of the Bank. However, with regards to type of covenant governing specific loans, 13% of respondent banks directed that they did not have such element stated in their credit policy, while 87% said they had it.

A few banks also added that apart from the areas stated in the table above, their policy also specify their level of exposure to various industries or sectors of the economy.

Figure 4.5 Orientation of Credit Policy



This is an appreciation of credit policies by the banks themselves, as to whether they think the policy reflect the thinking of their board of directors or is solely meant to satisfy regulatory requirements. 25% of the banks were of the view that their credit policy is meant to satisfy regulatory requirement, 19% held the view that it reflected the thinking of their board of directors and 56% represented that their credit policies is meant both for regulatory requirement and the philisophy of their Board.

4.2.3 Current Credit Risk Assessment Techniques

All the 16 respondents agreed to the fact that while conducting credit risk assessment they investigate the following four main areas which are the management of the borrower, in the case of a corporate borrower or the character, in case it is an individual; a financial evaluation is carried out; a check on the safeguards or collateral to cover the lender; and finally the projections to access the viability of business, the industry and sustainability of project. But the ranking of these four areas varied widely from one bank to the other.

Table 4.2: Ranking of Areas of Credit Assessment

Areas Covered in Credit Assessment	Ranking				Total
	Most important	Very important	Important	least Important	
Management	31%	44%	25%	0%	100%
Financial Evaluation	31%	19%	19%	31%	100%
Safeguard for Credit	25%	6%	50%	19%	100%
Projections	19%	31%	6%	44%	100%

In the area of *Management*, 31% of respondent banks ranked it as most important, followed by 44% who said it is very important, another 25% indicated that it is important. None of the banks classified it as least important.

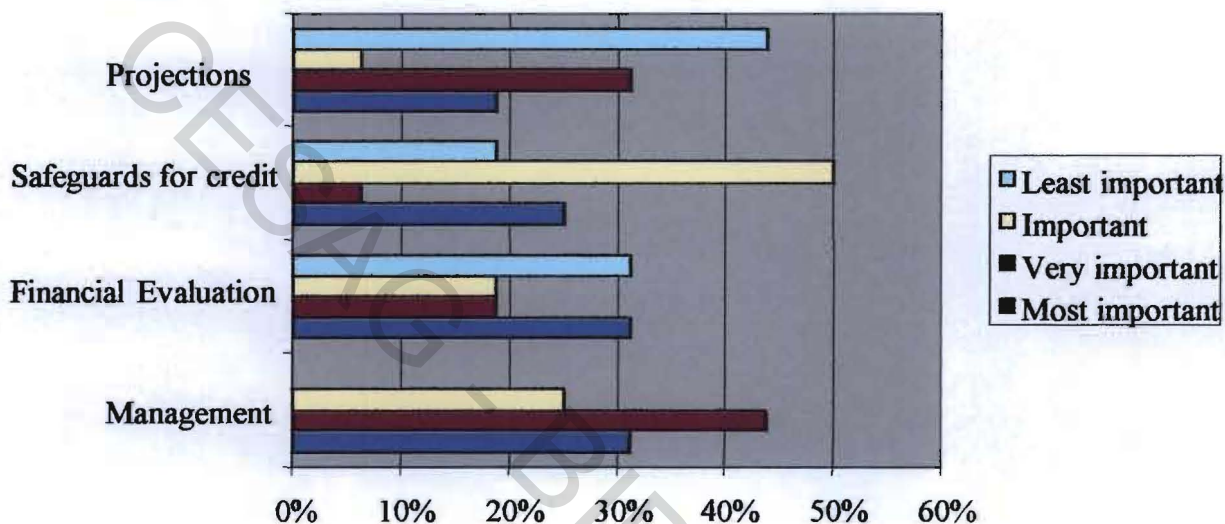
Financial evaluation is considered most important by 31% of respondents, very important by 19%, important by another 19% and of least importance to 31%.

Safeguard for credit was ranked most important by 25% of the bank, 6% viewed it as very important, 50% indicated it is important and 19% classify this as least important.

Finally **Projections** were considered most important by 19% of respondents, very important by 31%, important by 6% and least important by 44%.

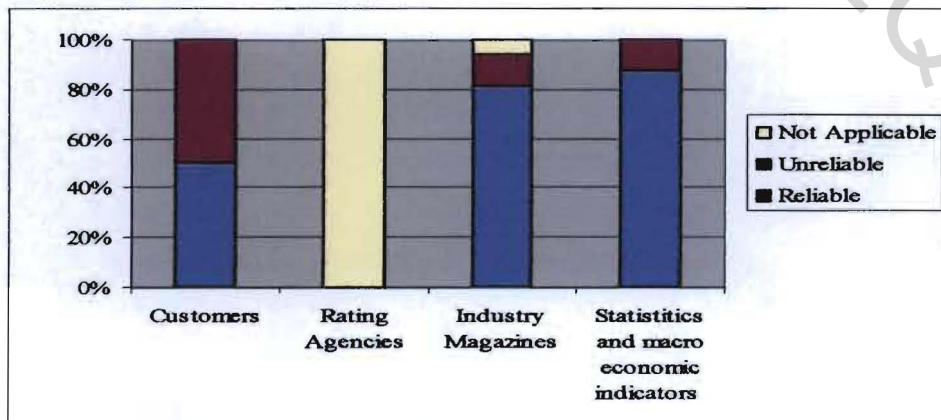
The graph below gives a picture of the ranking done by the banks. See Figure 4.6

Figure 4.6: Ranking of Areas of Credit Assessment



Apart from the above areas of assessment ranked above, an important number of respondents said that they also assessed other areas in their credit appraisal techniques, most of which revolved around the main four listed above. These include life style of borrower, succession plan of the business, environmental impact of the business and performance of previous credits if any.

Figure 4.7: Source of information and their reliability



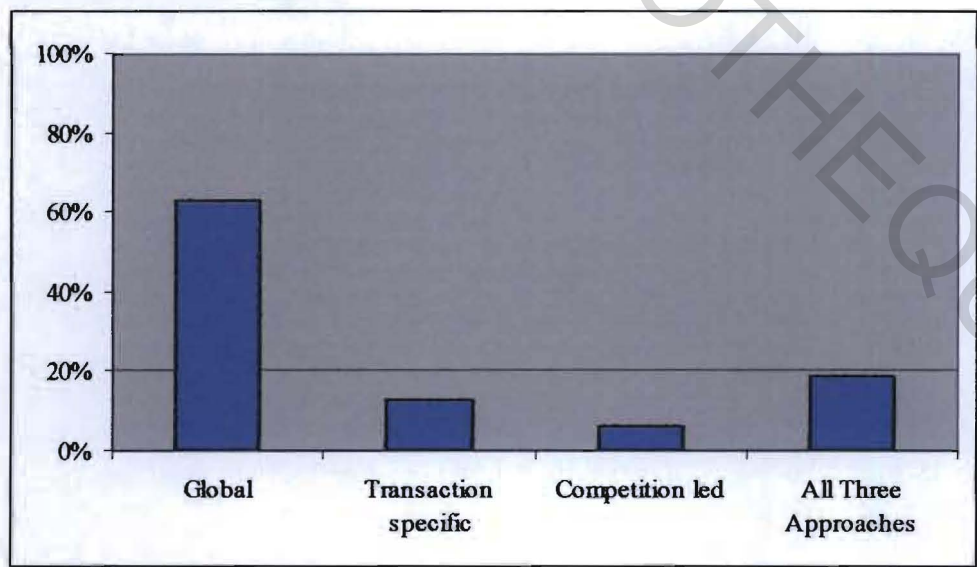
When asked to appreciate the quality of information from main sources such as customer, rating agencies, industry magazines and statistics and macroeconomic indicators, 50% of respondent banks viewed information provided by customers as reliable, while the other 50% stated that it is unreliable. Industry magazines were considered reliable by 81% of respondents, 13% said they were unreliable and 6% stated that they were not applicable in this context. National statistics and macroeconomic indicators are regarded as reliable by 88% while 12% said they were unreliable. As at the time of the study, there were no credit rating agencies in Ghana.

The banks also added that they used other sources of information such as internet, players in the same industry as the borrower, newspapers, due diligence with other banks or borrower's trading partners.

4.2.4 Current Approach to Pricing

Respondents were provided with a list of pricing approaches and were asked to identify those they currently use. In this segment they were also asked to indicate what the components of their interest margin were, and how the overall pricing of their credit portfolio was built up.

Figure 4.8 Pricing strategy

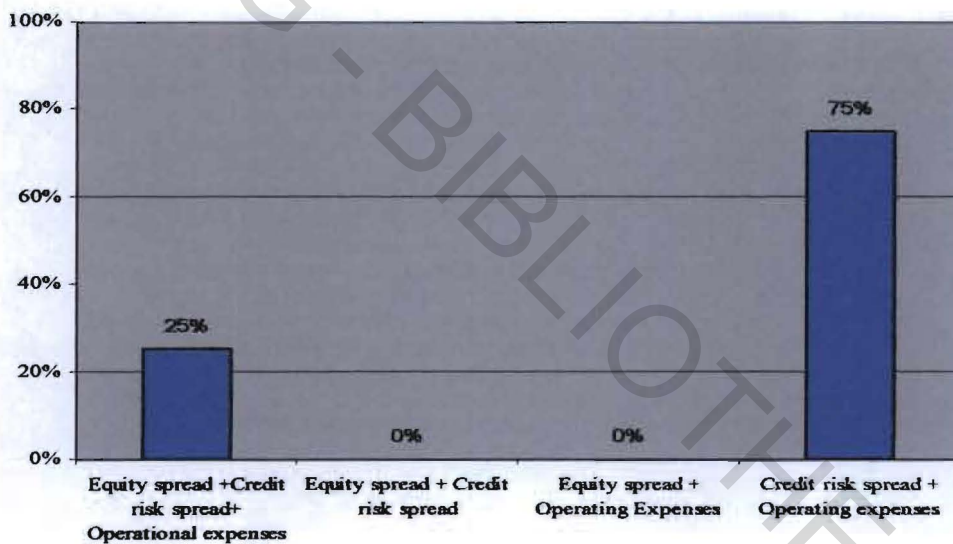


63% of respondent banks indicated that they have a global approach to credit pricing, that is they do not only price the credit being processed, but they take into consideration other

services and products the client is likely to buy and incorporate this in their pricing. 13% had a transaction specific approach where only the credit transaction is priced independently from any other transaction. The competition led approach is used by 6% of respondents, that is where the bank prices its credit based on what competitors are offering and sometimes, pricing is meant to beat competition. 19% of respondents said they used all three strategies.

When the banks which used the global approach were asked whether they have a price building model, 50% of them stated that they have a model which help them to arrive at the global pricing, while the other 50% said they do not have any such model, and therefore they worked out global pricing manually.

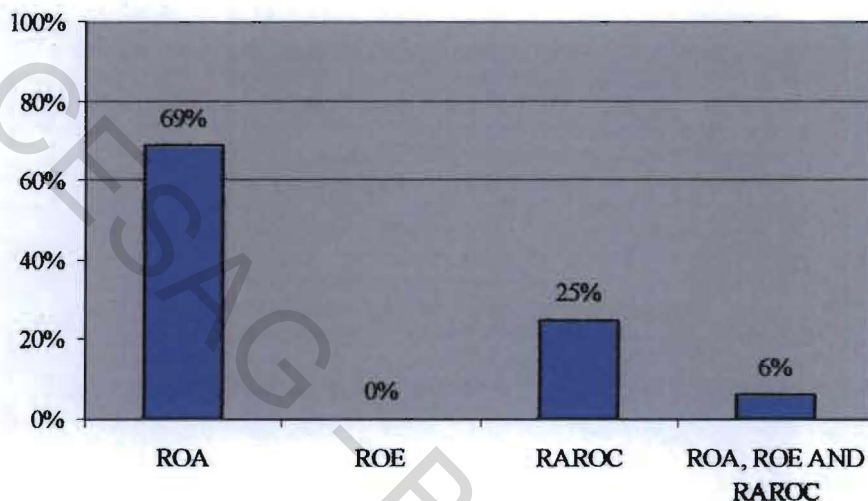
Figure 4.9 Components of Credit Interest Margin



The respondents to the questionnaire were requested to indicate among the components of credit interest margin- which generally include equity spread, credit risk spread for expected loss and operating expenses- those they actually incorporated in their credit interest margin. 25% of the banks represented that their credit interest margin is made up of a combination of equity spread, credit risk spread for expected loss and a spread to cover operational expenses. 75% said their margin is made up of credit risk spread for expected loss and a spread for operating expenses. None of the banks had a combination of Equity spread and credit risk spread alone or equity spread and operating expenses alone.

It is also important to note that in Ghana, most interest rates applied to credit, either in local or foreign currency, are floating rates- that is a floating base rate plus a spread (for example: base rate + 5%). Operating expenses are normally included in the base rate.

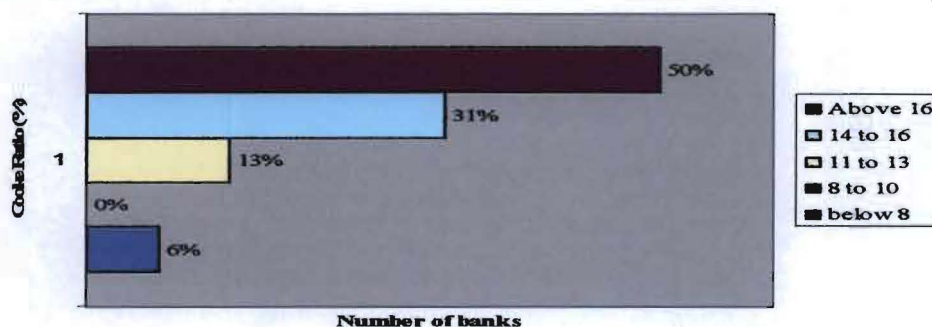
Figure 4.10: Overall price build up for the credit portfolio



The study of the components of the overall pricing of the credit portfolio revealed that 69% of the banks based their pricing solely on their expected Return on Assets (ROA). None of the banks had a pricing based on an expected Return on Equity (ROE). 25% indicated that their pricing is based on a risk Adjusted Return on Capital (RAROC). 6% of the respondents had a price build up for their portfolio which combines a targeted return on asset, return on equity and risk adjusted return on capital.

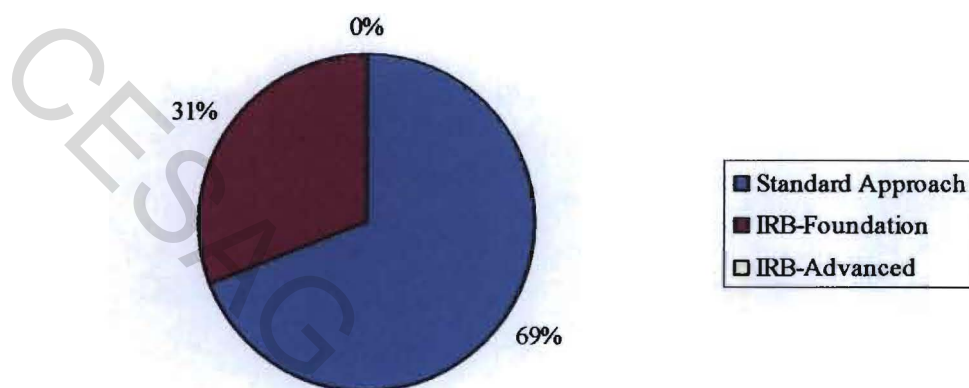
4.2.5 Capital Ratio and Awareness of the Basle II Accord

Figure 4.11: Cooke Ratio



An assessment of the capital ratio of the banks showed that 6% of the responded have a Cooke ratio of less than 8%. 13% of respondents had a ratio between 11 to 13; 31% of the banks are in the range of 14 to 16; while the majority i.e. 50% of respondent had a ratio above 16.

Figure 4.12 : New Credit Risk Evaluation Approach to be Adopted



All the respondent banks indicated that they are aware of the new capital adequacy framework – Basle II and its implications for credit risk evaluation. 69% indicated that they intent to use the standard approach for their credit risk evaluation and another 31% stated that they will rather use the Internal Rating Based - Foundation approach (IRB-Foundation). None of the respondents choose to start with the Internal Rating Based - Advanced (IRB-Advanced).

4.2.6 Impact of the Basel II New Credit Risk Evaluation on Credit Appraisal and Related Benefits for Banks

The banks under study unanimously agreed that the new capital adequacy framework and particularly its credit risk evaluation aspect will enhance their credit appraisal techniques. The reasons they provided are the following: they said that the new approaches will bring greater risk sensitivity in credit appraisal, introduced a risk based capital requirement, risk areas will be clearly demarcated. They also represented that the new approaches to credit risk evaluation will allow them to have a more independent, in depth and standardised

appraisal. Others also directed that the new assessment will bring an efficient correlation between risk and pricing and a better segmentation of the clientele base.

Table 4.3: Benefits of the new credit risk evaluation

Perceived Benefits	Banks' Response		Total
	Agree	Disagree	
1. Incentive for borrower to improve data quality in order to get a better rating	56%	44%	100%
2. Better credit risk identification and evaluation	100%	0%	100%
3. Improved capital resource allocation	88%	12%	100%
4. Efficient loan pricing	75%	25%	100%
5. Greater transparency in lending decision	75%	25%	100%
6. Standardized procedures for credit appraisal across the banking industry	63%	37%	100%
7. Improved credit portfolio quality	100%	0%	100%
8. Stronger competitive position	63%	37%	100%

Apart from a regulatory requirement, compliance to the new Basle II approach to credit risk evaluation is expected to benefit both banks and their customers. The table above presents banks position vis a vis the benefits which are expected to be derived.

The totality of the respondent banks (100%) agreed that there will be a better credit risk identification and evaluation and subsequent improvement in credit portfolio.

56% of respondents recognised that there will be an incentive for borrowers to improve the quality of data they provide for banks' assessment, while another 44% indicated that they cannot perceive that impact.

88% of the banks said that capital resource allocation will be improved with the new approach to credit risk, whereas 12% directed that they could not see any impact in that area.

Respondent who are of the view that loan pricing will be more efficient represented 75% , against 25% who did not agree to that.

Greater transparency in lending decision is expected by 75% of the banks, while the remaining 25% indicated that transparency will not improve.

With regards to procedure for credit appraisal, 63% of respondent indicated that the new approach to credit risk is likely to bring a standardization of procedures across the banking industry. 37% stated that they could not foresee any effect on standardisation of procedures.

As to whether, the adoption of the new approach to credit risk will give a stronger competitive position to banks, 63% represented that it will, against 37% who were of the opinion that it will not.

4.3 SUMMARY OF FINDINGS AND RECOMMENDATIONS

4.3.1 Summary of findings

- a. Credits represent the most important asset on the balance sheet of banks in Ghana. For most of the banks in the industry, credits represented up to 70% of their total assets, hence the quality of the credit portfolio is of great concern to the banks themselves and to regulatory authorities.
- b. With the exception of one bank, all the others, operated within the prescribed Cooke ratio (capital ratio) which is 8%. The Capital ratio of half of the banks was above 16%, showing that banks are adequately capitalised, but also have room for more business.
- c. The study revealed that banks have a framework for credit appraisal. Moreover, there are clearly written laid down procedures for various types of credits, from overdrafts to term loans. Credit officers seem to be well informed about processes and procedures to follow for credit appraisal. Some of the policies however are regarded more like a requirement of the regulatory authority than the philosophy of management.

- d. In general, credit officers are of the view that some of the appraisal frameworks are too stringent and unrealistic, considering the business environment in which bank operate in the sub-region. Apart from the multinational businesses, most local companies are small and medium enterprises not well structured and are most of the time unable to produce coherent financial or managerial documentation. With respect to individual borrower, basic information such as addresses or identification are unavailable.
- e. The appreciation of the importance of the various aspects to be considered in the appraisal process (financial evaluation, credit safeguards, borrower's management style or character and projections) vary a lot from bank officer to another, despite the existence of general guideline which should be known to all credit officers. This may suggest that there is an element of subjectivity in the current approach, which could affect the overall credit decision making and consequently the quality of the credit portfolio.
- f. While credit officers seem to be prepared to abide by laid down procedures to ensure appraisal techniques are properly applied, there is a lack of quality information to be used to perform their duty. Credit Analysts rely heavily on pieces of information provided by the borrowers themselves, their competitors, suppliers rather than a reliable source such as research firms, credit bureaux, or industry reports.
- g. Banks are very much aware of the new capital adequacy accord: the Basle II and its different approaches to credit risk evaluation. They also expect these new approaches to have a major positive impact on the credit appraisal techniques. This is due to the fact that these approaches are more risk sensitive and standardised. The standardisation will take away elements of subjectivity and its undue advantages to some borrowers. This will also create levelled playing field for banks. Some of which are using the shortfalls in the current appraisal structures as a competitive tool.

- h. The banks under study expect a number of benefits from the new credit risk evaluation which will be beneficial to both banks and their customers. These include a better risk identification and evaluation, an improved capital resource allocation, an efficient and risk based pricing, greater transparency in lending decision, better segmentation of the clientele base, a stronger competitive position, all of which will go a long way to make banking business more profitable.

4.3.2 Recommendations

- a. In view of the importance of credit in banks' assets, particular attention needs to be given to the quality of the credit portfolio. This can only be achieved with a good analysis and due diligence on each credit booked by the bank. Although 50% of the banks claimed that their non performing credits were within the range of 0 to 5%, these should be taken with caution, since this information is considered as classified.
- b. Executives as well as management and operational staff involved in credit or risk management should be made to understand the importance of credit policies and procedures designed for credit approval. This will make them adhere fully to these policies and not consider them as documents meant to satisfy regulatory requirements.
- c. Knowing that credit risk management start at the credit initiation stage, the need for a thorough credit appraisal cannot be over emphasised. Once the risk elements are clearly identified, facilities can be structures in such a way that mitigation measures are good enough for these risks not materialise and trigger provisioning. With the Basel II, potential deficit in provisions to cover expected losses are directly deducted from capital. This will result in higher capital needs.
- d. The banking industry should be encouraged to improve upon their management information system to derive maximum profit of information they have on credits. National and regulatory authorities should make available statistics, macroeconomic indicators which are relevant information in credit decision making.

- e. Despite the competitive nature of the industry, serious consideration should be given to credit pricing, while awaiting the implementation of the new capital accord. This will mitigate systemic risk which could affect the financial sector, if credit portfolios are not of good quality.
- f. The regulatory authority of the banking industry should work seriously together with banks to put necessary measures in place and pave the way to the successful implementation of the Basle II capital accord which is scheduled for 2009. The Regulatory Authorities could make use of the expertise of the international banks in the country which are already implementing Basle II in Europe.
- g. Most banks indicated that they are likely to use the standard approach to credit risk evaluation, this is an opportunity for the creation of rating agencies, which do not currently exist in the country. The regulatory authorities or the banks themselves could create subsidiaries which could embark on rating activities.
- h. Credit Risk assessment under Basle II must not be limited to the initial standard approach, but aim at the utilisation of the advanced internal rating approach. It is only at that level that bank will have full benefits of the risk sensitivity of Basle II. The more sophisticated approach you adopt, the less capital requirement will apply. However, the utilisation of the most sophisticated approach will only be possible if one has a reliable and complete management information system. Banks must therefore make it a policy to build such robust database in order to qualify for higher sophistication in credit risk management.
- i. Banks should take advantage of the special treatment for small and medium enterprises (SMEs) under the new credit risk evaluation to do more business with the numerous SMEs in the region. With all the benefits identified by the banks themselves, the full implementation of the Basle II accord should also provide opportunities for the banks in the country to assess the global market, where Basle II is gradually becoming a norm.

5. CONCLUSION

The various regulations introduced in the banking sector are directly linked to the challenges the sector has been facing over the years. The new Capital Adequacy framework guiding credit or other banking activities aim at strengthening the banking industry and the financial sector as a whole.

The case study under review: *'will Basel II enhance the credit appraisal techniques of banks in Sub-Sahara Africa? A case study of the Ghanaian banking industry'* has depicted in a practical manner the current approach to credit appraisal. This has been done by comparing and contrasting literature on the subject and the actual practices in the sub region; based on the Ghanaian experience. By revisiting literature, one could realize that there are quite a number of good guidelines in the current framework (Basel I) for credit appraisal which are not being adhered to. In fact the new capital adequacy framework (Basel II) in its pillar I offers a good opportunity to the banks in the sub region to enhance their appraisal techniques and Procedures, because of its approach to credit measurement.

This study further touches on regulatory changes which aim at correcting the shortfall in current system as far as credit assessment and regulatory capital and information disclosure are concerned, under the new Basle Accord. The case was however narrowed down to the Pillar I of the Basle II Accord, based mainly on credit assessment and a new capital adequacy. This introduces some level of standardization and reduces the level of subjectivity which currently mares credit assessment. A further analysis of the foreseeable impacts of the new regulatory framework revealed the benefits of the exercise for stakeholders in the banking industry.

Knowing that in the sub region banks are gradually becoming a major source of finance of the economy, any measures directed at development of a solid financial sector will go a long way provide to support for a strong economy and the development of countries in the region. Standards of banks in the region are then being upgraded to a higher level. Also, the special provisions made for Small and Medium Enterprises in the new Capital Accord will benefit businesses in the sub region which currently find it difficult to access credit from banks.

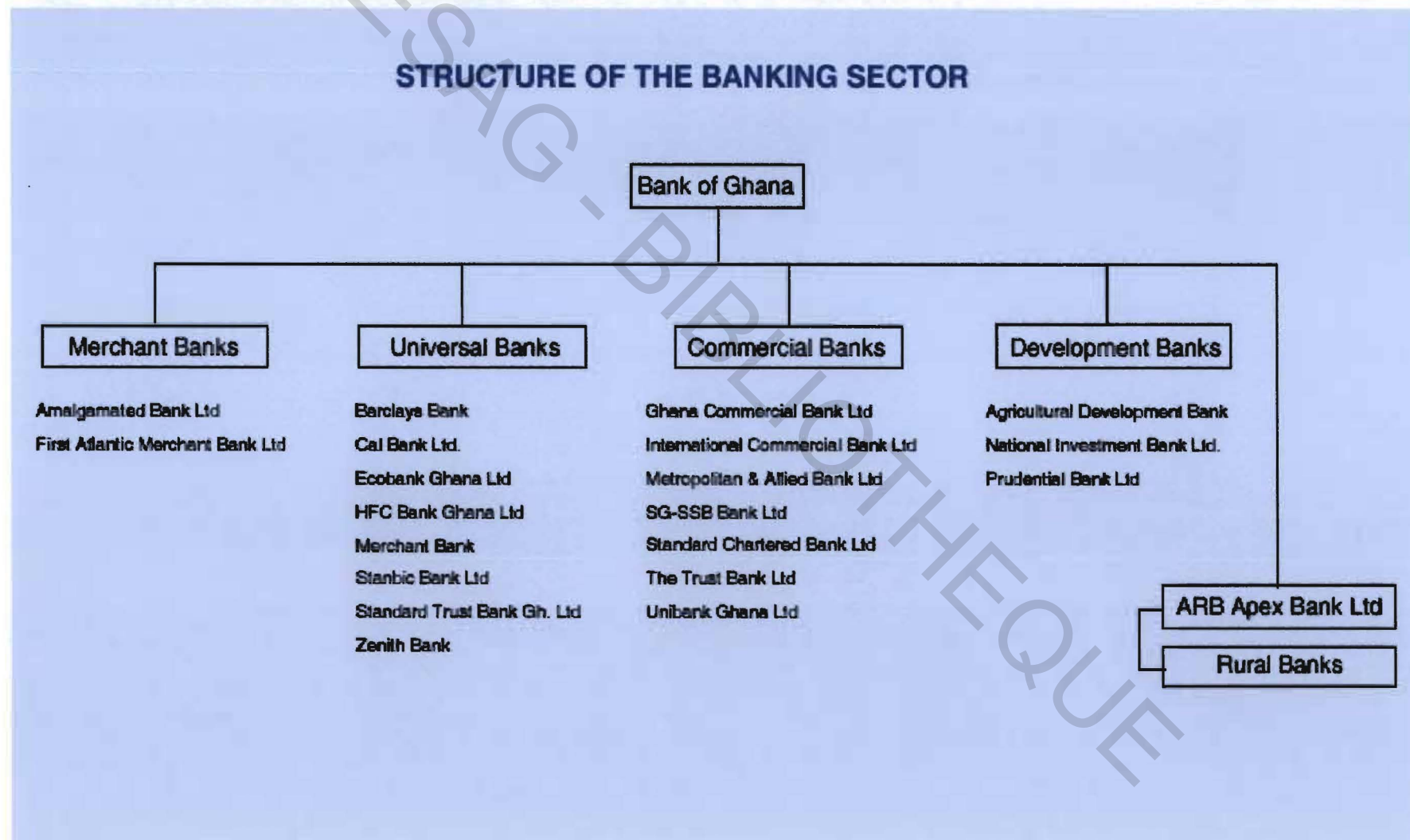
In addition to the benefits of the new regulatory framework in the local economy, it is important to note that the adoption of these new rules can also propel banks in developing countries into the international market. The regulations are formulated by committees made up of eminent central bankers of developed countries as well as bankers from developing countries such as the Basle Committee on Banking Regulation. In an era of globalization, banks in sub region will have no excuse to adhere to these new principles, if they intend to be part of the global market.

For the implementation of Basle II, Central Banks in the sub region have a pivotal role to play, since the whole exercise will be driven and supervised by them. In order to be up to the task, most Central Banks, like the Bank of Ghana have already created awareness about the new accord and have started equipping themselves for the implementation. Although central banks have a responsibility in the successful implementation of the new accord, commercial banks also as partners to the regulatory authority will draw maximum benefit.

Today the task awaiting bankers in the sub region is not only the adoption and implementation of the new capital adequacy accord and its implication, but also the adoption of the new International Financial Reporting Standards with its requirements for banks. Both new concepts, will certainly require a lot of hard work to be fully operational.

It is clear that the banking industry in our region cannot escape changes in the global market. There is therefore a need to face the challenges related to new rules in the sector, by drawing on the experiences of western countries which are already in the process of implementation. Sooner or later the adoption and implementation of the new regulatory framework in Banking and the International Financial Reporting Standard will become a prerequisite in the international market where Africa is still striving to be recognized.

Chart 31: Structure of the Banking Sector



QUESTIONNAIRE

This questionnaire is designed to solicit information from you regarding Credit Appraisal conducted by Banks in Ghana and the impact of the Basel II Accord on the Process. The information provided is strictly confidential and for purposes of this research only.

1. Type of Bank : ☐ Local/National ☐ International
2. What was the total assets of the Bank as at December 2005 (in USD) _____
3. What is the proportion of credits in the total assets (as a percentage of total assets)

0-20%	21-40%	41-60%	61-80%	81-100%

4. What is the proportion of non performing credits (as a percentage of total credit)

0-5%	5-10%	Above 10%

5. Are the following elements clearly defined in your bank credit policy

	YES	NO
Lending Philosophy		
Level of Responsibility		
Type of covenant for specific credit		
Level of exposure to shareholders/directors/officers		

Others: _____

6. How would you appreciate the credit policy of your bank?

- ☐ Meant to satisfy regulatory requirement
- ☐ Reflect the thinking of board and directors

7. Which of the following areas do you consider when conducting credit risk assessment for a lending decision

	YES	NO
MANAGEMENT: company and industry information, top management profile, relationship with bankers, purpose of credit		
FINANCIAL EVALUATION: operational efficiency, financial efficiency, debt service efficiency, cash flow analysis, source of repayment, past performance		
SAFEGUARD: Nature, liquidity and evaluation of collateral / type of guarantee/ deposit		
PROJECTIONS: Financial projections for borrower, projection for the borrower's industry and macro-economic projection		

8. Are information/data available on all the above areas? ☐ Yes ☐ No

9. How would you rank the following aspects of assessment based on their importance for a lending decision from 1 to 4 (with 1 = most important and 4 = least important)

Management	Financial Evaluation of Borrower	Safeguards for credit	Projections

10. Are there any other areas of Borrowers business which are of interest to you when conducting a credit appraisal? Please state:

a.

b.

c.

11. Kindly indicate your main source of information for credit appraisals and their reliability :

	Reliable	Unreliable	Not sure
Customers			
Rating Agencies			
Industry magazines			
National Statistics and macro-economic indicators			

Others: _____

12. Which approach does your bank have to pricing? Please indicate:

a- ☐ Global: based on profitability of the entire relationship with borrower
ie credits and other services

b- ☐ Transaction specific, based on profitability of individual lending transaction

c- ☐ Competition led: to beat competition

If a-) is yes, do you have a price building model, to ensure adequate pricing? ☐ Yes ☐ No

13. Are the following components always represented in your interest margin?

	YES	NO
Equity Spread to reward shareholders		
Credit risk spread to cover expected losses		
A spread to cover operating expenses		

14. How do you measure the profitability of your credit portfolio? Is it based on :

- a- ☐ Return on Assets (ROA)
- b- ☐ Return on Equity (ROE)
- c- ☐ Risk Adjusted Return on Capital (RAROC)

15. What is the current solvency ratio (capital over risk weighted assets) of your bank? Please indicate:

- ☐ Below 8% ☐ 8-10% ☐ 11-13% ☐ 14-16% ☐ Above 16%

16. Are you aware of the new capital adequacy ratio Basel II and its new approach to Credit Risk Evaluation? ☐ Yes ☐ No

17. If the above is yes, what approach will it take towards credit risk, if your bank plans to implement Basel II

- ☐ Standard Approach
- ☐ Internal rating-based Foundation
- ☐ Internal rating-based Advanced

18. In the Ghanaian context, apart from regulatory compliance, what benefits do you expect to achieve by implementing a more risk sensitive credit risk assessment under the Basel II framework. ? Please indicate:

	YES	NO
Incentive for borrower to improve data quality in order to get better rating		
Better credit risk identification and evaluation		
Improved capital resource allocation		
Adequate credit pricing		
Greater transparency in lending decision		
Standardized procedures for credit appraisal across the banking industry		
Improved credit portfolio quality		
Stronger competitive position		

19. Do you think that the new approach of credit risk evaluation under Basel II is likely to enhance your credit appraisal techniques? ☐ Yes ☐ No

Please give reasons :

REFERENCES

1. Glantz M., (2003), **Managing Bank Risk : An Introduction to Broad-base Credit Engineering**, Academic Press
2. Chofaras D.N (2004), **Economic Capital Allocation with Basel II: Cost, benefit and implementation procedures**, Elsevier Ltd.
3. Bhattacharya H. (1997), **Banking Strategy, Credit Appraisal and Lending Decisions- A risk-return framework**
4. Altman E.I. (Dr), (2003), **Managing Credit Risk: The Challenge for the New Millennium**
5. Smith K.V. (1978), **Guide de Working Capital Management**, Mc Graw Hill
6. Foulke R.A. (1978), **Financial Statement Analysis**, Prentice-Hall Inc.
7. Kempt R. and Pettit L., Jr. **Loan Pricing's Effect on Bank Value**, *the Bankers Magazine*, July/August 1992
8. Campbell, J. Y. (1998), **Asset Prices, Consumption and the business cycle**, *National Bureau of Economic Research. Working Paper Series No. 6485*
9. Dermine J and Y. F. Bissada, (2002), **Asset & Liability Management: a guide to value creation and risk control**, Prentice Hall
10. Thomopoulos, P.(April 2005), **Impact of Basel II on banks and their business customers**
11. **Bank Directors Handbook (1981)** Bank Administration Institute Foundation
12. **Principles for Management of Credit Risk (September 2000)**, Basel Committee on Banking Supervision

13. **Weighing Risk-Basel II and the challenge of mid-tier banks, the Economist Intelligence Unit (2004)**
14. **The Financial Stability Review 108-008 (May 2006) Banque de France**
15. **Bank of Ghana 2005 Annual Report**
16. **Financial Stability Review, Volume 5 N°4/2006 (July 2006), Bank of Ghana Monetary Policy Report**

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