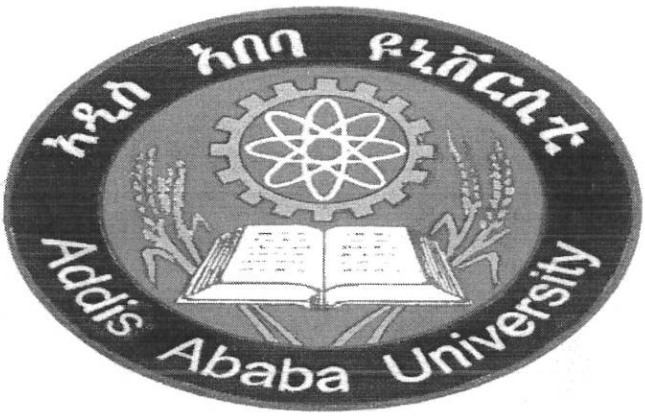

CREDIT RISK MANAGEMENT AND ITS IMPACT ON PERFORMANCE ON ETHIOPIAN COMMERCIAL BANKS

A THESIS SUBMITTED TO THE SCHOOL OF BUSINESS AND PUBIC ADMINSTRATION OF ADDIS ABABA UNIVERSITY IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF SCIENCE IN ACCOUNTING AND FINANCE

BY

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SCHOOL OF BUSINESS AND PUBLIC ADMINISTRATION

MSc. IN ACCOUNTING AND FINANCE PROGRAM

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APPROVED BY THE BOARD OF EXAMINERS:

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DECLARATION

I HEREBY DECLARE THAT THIS PROJECT IS MY ORIGINAL WORK HAS NOT BEEN PRESENTED FOR A DEGREE IN ANY OTHER UNIVERSITY AND ALL SOURCES OF MATERIALS USED FOR THE PROJECT HAS BEEN DULY ACKNOWLEDGED.

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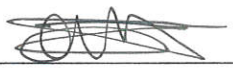
GIRMA MEKASHA		JUNE, 2011
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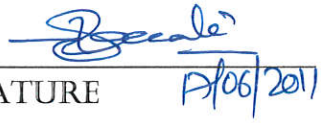
VANKATI PONNALA **(PhD)**		JUNE, 2011
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Abstract

Credit risk management has become an important topic for financial institutes, especially since the business sector of financial services is related to conditions of uncertainty. The turmoil of the financial industry emphasizes the importance of effective risk management procedures. Consequently, this thesis studies "Credit Risk management and its impact on performance in Ethiopian Commercial Banks." This research objective was formulated in order to gain a better understanding of credit risk management and its impact on performance (return on asset).

Credit risk has always been a vicinity of concern not only to bankers but to all in the business world because the risks of a trading partner not fulfilling his obligations in full on due date can seriously jeopardize the affaires of the other partner.

The axle of this study is to have a clearer picture of how banks manage their credit risk. In this light, the study in its first section gives a background to the study and the second part is a detailed literature review on banking and credit risk management tools and assessment models. Quantitative research design is employed under the quantitative research design survey method is used. The data were collected by cross sectional survey method. The forth part of this study is analysis of primary data by descriptive statistical tools and on hypothesis testing using regression model. This leads the researcher to conclude in the last section that banks with good credit risk management policies have a lower loan default rate and relatively higher return on asset

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List of Acronyms

BIS: Bank for International Settlements'

CAPM: Capital Asset Pricing Model

CEO: chief executive officer

EL: expected loss

NPV: Net Present Value

UL: unexpected loss

RM: Relationship Managers

KCB: Kenyan Commercial Bank

ROAA: Return on Average Asset

NPL: non-performing loan

TL: total loan

LP: loan provision

LRM: loan review mechanism

CDOs: Collateralized Debt Obligations

CRM: Credit Risk Management

KYC: Know Your Customers

Chapter one: Introduction

1.1 Background of the study

Credit risk management in a financial institution starts with the establishment of sound lending principles and an efficient framework for managing the risk. Policies, industry specific standards and guidelines, together with risk concentration limits are designed under the supervision of risk management committee.

These policies, standards and procedures also govern how credit risk is measured, monitored, reported and controlled. As market conditions change rapidly, adequacy and effectiveness of internal controls should be reviewed at least quarterly.

The diversity of the business and economic conditions has led to the development of highly sophisticated tools and models to measure the exposure of a financial institution to credit risk. In case of an individual loan portfolio, the probability of default, loss given default or credit rationing are the most commonly used ones to measure the exposure to credit risk. The invention of various credit scoring models that use observed loan applicants characteristics either to calculate a score representing the applicant's probability of default or to sort borrowers into different risk classes bring the ability to address credit risk on a new level.

Credit risk is an investor's risk of loss arising from a borrower who does not make payments as promised. Such an event is called a default. Another term for credit risk is default risk. Investor losses include lost principal and interest, decreased cash flow, and increased collection costs, which arise in a number of circumstances: consumer does not make a payment due on a mortgage loan, credit card, line of credit, or other loan, a

business does not make a payment due on a mortgage, credit card, line of credit, or other loan, a business or consumer does not pay a trade invoice when due, a business does not pay an employee's earned wages when due, a business or government bond issuer does not make a payment on a coupon or principal payment when due, an insolvent insurance company does not pay a policy obligation, an insolvent bank won't return funds to a depositor, and a government grant bankruptcy protection to an insolvent consumer or business.

Adequately managing credit risk in financial institutions (FIs) is critical for the survival and growth of the FIs. In the case of banks, the issue of credit is of even of greater concern because of the higher levels of perceived risks resulting from some of the characteristics of clients and business conditions that they find themselves in.

They also provide loans, credit and payment services such as checking accounts, money orders and cashier's checks. Banks also may offer investment and insurance products and a wide whole range of other financial services which they were once prohibited from selling.

Credit creation is the main income generating activity for the banks. But this activity involves huge risks to both the lender and the borrower. The risk of a trading partner not fulfilling his or her obligation as per the contract on due date or anytime thereafter can greatly jeopardize the smooth functioning of a bank's business. On the other hand, a bank with high credit risk has high bankruptcy risk that puts the depositors in jeopardy. Among the risk that face banks, credit risk is one of great concern to most bank authorities and

banking regulators. This is because credit risk is that risk that can easily and most likely prompts bank failure.

Credit risk management is a structured approach to managing uncertainties through risk assessment, developing strategies to manage it and mitigation of risk using managerial resources. The strategies include transferring to another party, avoiding the risk, reducing the negative effects of the risk, and accepting some or all of the consequences of a particular risk.

Some traditional risk managements focused on risk stemming from physical or legal causes (such as natural disasters or fires, accidents, deaths and lawsuits). Financial risk management on the other hand focuses on risks that can be managed using traded financial instruments.

The objective of risk management is to reduce the effects of different kinds of risks related to a pre selected domain to the level accepted by society. It may refer to numerous types of threats caused by environment, technology, humans, organizations and politics. On the other hand it involves all means available for humans, or in particular, for a risk management entity.

1.2 Statement of the problem

Credit risk in banking is commonly defined as the probability of a borrower defaulting his loan commitments. The present possibility for banks to diversify to broader range of services and products make life really cool for banking entrepreneurs and managers. But this diversification advantage is a once a life time opportunity that should be consumed

with some caution and prudence as this involves a great deal of risk. This is in direct line with the saying that the higher you go, the colder life becomes.

Commercial banks are in the risky business. In the process of providing financial services, they assume various kinds of financial risks. Over the last decade our understanding of the place of commercial banks within the financial sector has improved substantially. These arguments will be neither reviewed nor enumerated here. Suffice it to say that market participants seek the services of these financial institutions because of their ability to provide market knowledge, transaction efficiency and funding capability. In performing these roles they generally act as a principal in the transaction. As such, they use their own balance sheet to facilitate the transaction and to absorb the risks associated with it.

The very nature of the banking business is so sensitive because more than 85% of their liability is deposits from depositors (Saunders, Cornett, 2005). Banks use these deposits to generate credit for their borrowers, which in fact is a revenue generating activity for most banks. This credit creation process exposes the banks to high default risk which might led to financial distress including bankruptcy. All the same, beside other services, banks must create credit for their clients to make some money, grow and survive stiff competition at the market place.

The principal concern of this paper was to assess what extent banks can manage their credit risks, what tools or techniques they use to manage their credit risk and to what extent their performance can be affected by proper credit risk management policies and strategies.

1.3 Objective of the study

The main objective of the study was to have bigger picture on credit risk management and its impact on their performance. In line with the general objective the research paper is to assess the following specific objectives;

- To know how banks use credit risk evaluation and assessment tools to mitigate their credit risk exposure.
- To assess the relationship between the theories, concepts and models of credit risk management and what goes on practically in banking.
- To assess the banks credit administration process.
- To know the challenge that faced by the financial institution in credit risk management.

1.4 Significance of the study

In addition to the academic importance, the significance of the paper is:

- It shows the relationship between credit risk management and performance.
- It shows the challenges faced by the financial institution with regard to credit risk management.
- It shows the major tools or techniques used by financial institution to manage their credit risk.
- It will bè used as an input for further studies.

- ❖ It will be useful for financial institution by providing information in credit risk management.

1.6 Limitation of the study

The researcher tries to accomplish the objective of the study successfully. But time concern and source of fund will be the main limitation that may hinder the successful accomplishment of the paper. In addition to the above two factors data limitation and sample limitation are the other sides to the limitation part of the study.

1.7 Organization of the paper

This section gives a structure of every chapter with in this paper. The paper consists five chapters. Chapter one introduction, it presents background of the study, statement of the problem, objective of the study, significance and limitation of the study. Chapter two presents literature review.

The methodology employed, target population and sampling, data used in the research, and research hypothesis stated in chapter three. Chapter four data analysis and interpretation, it reports the result from the collected.

Lastly the paper presents the conclusions of the results and the recommendations suggested by the researcher in chapter five.

Chapter two: Review of related literature

2.1 Credit Risk

Credit risk is defined as the probability that some of a bank's assets, especially its loans, will decline in value and possibly become worthless. Because banks hold little owners' capital relative to the aggregate value of their assets, only a small percentage of total loans need to go bad to push a bank to the brink of failure. Thus, management of credit risk is very important and central to the health of a bank and indeed the entire financial system. As banks make loans, they need to make provisions for loan losses in their books. The higher this provision becomes, relative to the size of total loans, the riskier a bank becomes. An increase in the value of the provision for loan losses relative to total loans is an indication that the bank's assets are becoming more difficult to collect (Tshore, Aboagy and Koyerhoah Coleman).

Credit risk is the risk of a loss resulting from the debtor's failure to meet its obligations to the Bank in full when due under the terms agreed (R.S. Raghavan 2003).

Credit risk has the highest weight among risks taken by the Bank in the course of its banking activities. Credit risk management in the Bank is carried out using the following main procedures:

- putting in place limits for operations to limit credit risk;
- putting in place indicative limits for credit risk concentration and the share of unsecured loan portfolio;

- creation of security for credit operations;
- setting value conditions for operations with respect to payment for risks taken;
- permanent monitoring of risks taken and preparation of management reporting for the Credit Committee, the Bank's management and units concerned;
- evaluation of regulatory and economic capital necessary to cover the risks taken in respect of the Bank's operations and ensuring its sufficiency;
- carrying out hedging operations;
- Permanent internal control over the Bank's units in respect of observing regulations on operations procedure and risk assessment and management procedures by independent units.

The Bank's risk management envisages:

1. applying systematic approach to overall Bank's loan portfolio risk management and separate operations with certain borrowers/counterparties (group of related borrowers/counterparties);
2. applying unified methodology for identification and quantitative assessment of credit risk which is adequate to the nature and scale of the Bank's operations; and
3. Balanced combination of centralized and decentralized decision-making in respect of operations related to taking credit risk.

The main tool to restrict and control the credit risk taken by the Bank is the credit limit system. The following types of credit risk limits are put in place:

- counterparty limits;
- limits for independent risk-taking by the Bank's branches; and
- credit risk limits by countries/industries/regions.

Credit risk limits are determined by the Credit Committee and approved by the Bank's Management Board (in case the Credit Committee does not have the required authority). A part of authorities for putting credit limits in place is delegated to Branch Credit Committees (for standard credit operations within the special limit for independent credit risk-taking by branches), as well as to the Small Credit Committee and the Moscow Region Credit.

2.2 How to manage credit risk?

As to Laurent Clerc (2004) Participants analyzed the different risk management techniques by taking a look at the following two aspects: the emergence of a risk culture and the prevention of risk by building up regulatory capital in proportion to the level of risk exposure of each credit institution.

Pillar 1 of the new Basel II framework provides banks with several options for calculating their capital requirements relative to their credit risk and their operational risk. The most innovative one is the possibility that banks have been given of using — under the control of the supervisory authorities — their internal assessment systems.

Because calibrating these models tends to come up against the problem of the reliability and availability of data in some emerging economies, the Basel Committee has proposed a simplified standardized approach designed specifically for these economies.

The development of credit derivatives markets is taken into account when drawing up standards that better capture risk and recognizing the most advanced techniques at the prudential level. The following conclusions were drawn from the presentation of the results of the survey conducted under the aegis of the ESCB Banking Supervision Committee: the liquidity of credit derivatives markets has increased sharply, and, contrary to expectations, the transfer of credit risk to insurance companies has marked time. In Europe, activity thus appears to be principally concentrated in the banking sector. The most standardized instruments, such as credit default swaps (CDSs) account for the lion's share of transactions. As yet, credit risk transfer activities do not appear to have substantially impacted European banks' provisioning needs over the last business cycle. However, a few aspects remain unclear. They relate to the amounts actually transferred and the complexity of some of the instruments used, such as the CDOs of CDOs (Collateralized Debt Obligations), which seem particularly obscure.

Participants also commented on the decision taken by the Basel Committee in October 2003 to calibrate capital requirements against unexpected losses. This mechanism could have penalized banks that make greater provisions for their expected losses and resort more to dynamic provisioning. In order to prevent this undesirable effect from arising, excess provision amounts are to be integrated into banks' additional capital up to a certain limit, while any shortfall of provision amounts compared with expected losses is

to be deducted from banks' own funds, up to 50% from their core capital (*Tier 1*) and 50% from their additional capital (*Tier 2*).

2.3 Credit assessment & risk grading

2-3-1 Credit assessment

A thorough credit and risk assessment should be conducted prior to the granting of loans, and at least annually thereafter for all facilities. The results of this assessment should be presented in a Credit Application that originates from the relationship manager/account officer ("RM"), and is approved by Credit Risk Management (CRM). The RM should be the owner of the customer relationship, and must be held responsible to ensure the accuracy of the entire credit application submitted for approval. RMs must be familiar with the bank's Lending Guidelines and should conduct due diligence on new borrowers, principals, and guarantors.

It is essential that RMs know their customers and conduct due diligence on new borrowers, principals, and guarantors to ensure such parties are in fact who they represent themselves to be. All banks should have established Know Your Customer (KYC) and Money Laundering guidelines which should be adhered to at all times.

Credit Applications should summaries the results of the RMs risk assessment and include, as a minimum, the following details:

- Amount and type of loan(s) proposed.

- Purpose of loans.

- Loan Structure (Tenor, Covenants, Repayment Schedule, Interest)

- Security Arrangements

In addition, the following risk areas should be addressed:

Borrower Analysis: The majority shareholders, management team and group or affiliate companies should be assessed. Any issues regarding lack of management depth, complicated ownership structures or inter group transactions should be addressed, and risks mitigated.

Industry Analysis: The key risk factors of the borrower's industry should be assessed. Any issues regarding the borrower's position in the industry, overall industry concerns or competitive forces should be addressed and the strengths and weaknesses of the borrower relative to its competition should be identified.

Supplier/Buyer Analysis: Any customer or supplier concentration should be addressed, as these could have a significant impact on the future viability of the borrower.

Historical Financial Analysis: An analysis of a minimum of 3 years historical financial statements of the borrower should be presented. Where reliance is placed on a corporate guarantor, guarantor financial statements should also be analyzed. The analysis should address the quality and sustainability of earnings, cash flow and the strength of the borrower's balance sheet. Specifically, cash flow, leverage and profitability must be analyzed.

Projected Financial Performance: Where term facilities (tenor > 1 year) are being proposed, a projection of the borrower's future financial performance should be provided, indicating an analysis of the sufficiency of cash flow to service debt repayments. Loans should not be granted if projected cash flow is insufficient to repay debts.

Account Conduct: For existing borrowers, the historic performance in meeting repayment obligations (trade payments, cheques, interest and principal payments, etc) should be assessed.

Adherence to Lending Guidelines: Credit Applications should clearly state whether or not the proposed application is in compliance with the bank's Lending Guidelines. The Bank's Head of Credit or Managing Director/CEO should approve Credit Applications that do not adhere to the bank's Lending Guidelines.

Mitigating Factors: Mitigating factors for risks identified in the credit assessment should be identified. Possible risks include, but are not limited to: margin sustainability and/or volatility, high debt load (leverage/gearing), overstocking or debtor issues; rapid growth, acquisition or expansion; new business line/product expansion; management changes or succession issues; customer or supplier concentrations; and lack of transparency or industry issues.

Loan Structure: The amounts and tenors of financing proposed should be justified based on the projected repayment ability and loan purpose. Excessive tenor or amount relative to business needs increases the risk of fund diversion and may adversely impact the borrower's repayment ability.

Security: A current valuation of collateral should be obtained and the quality and priority of security being proposed should be assessed. Loans should not be granted based solely on security. Adequacy and the extent of the insurance coverage should be assessed.

Name Lending: Credit proposals should not be unduly influenced by an over reliance on the sponsoring principal's reputation, reported independent means, or their perceived willingness to inject funds into various business enterprises in case of need. These situations should be discouraged and treated with great caution. Rather, credit proposals and the granting of loans should be based on sound fundamentals, supported by a thorough financial and risk analysis.

2.3.2 Risk grading

All Banks should adopt a credit risk grading system. The system should define the risk profile of borrower's to ensure that account management, structure and pricing are commensurate with the risk involved. Risk grading is a key measurement of a Bank's asset quality, and as such, it is essential that grading is a robust process. All facilities should be assigned a risk grade. Where deterioration in risk is noted, the Risk Grade assigned to a borrower and its facilities should be immediately changed. Borrower Risk Grades should be clearly stated on Credit Applications.

The more conservative risk grade (higher) should be applied if there is a difference between the personal judgment and the Risk Grade Scorecard results. It is recognized that the banks may have more or less Risk Grades; however, monitoring standards and account management must be appropriate given the assigned Risk Grade.

2.4 What type of risk is being considered?

Commercial banks are in the risky business. In the process of providing financial services, they assume various kinds of financial risks. Over the last decade our understanding of the place of commercial banks within the financial sector has improved substantially. Over this time, much has been written on the role of commercial banks in the financial sector, both in the academic literature and in the financial press. These arguments will be neither reviewed nor enumerated here. Suffice it to say that market participants seek the services of these financial institutions because of their ability to provide market knowledge, transaction efficiency and funding capability. In performing these roles they generally act as a principal in the transaction. As such, they use their own balance sheet to facilitate the transaction and to absorb the risks associated with it (Santomero 1997).

To be sure, there are activities performed by banking firms which do not have direct balance sheet implications. These services include agency and advisory activities such as (i) trust and investment management, (ii) private and public placements through "best efforts" or facilitating contracts, (iii) standard underwriting through Section 20 Subsidiaries of the holding company, or (iv) the packaging, securitizing, distributing and servicing of loans in the areas of consumer and real estate debt primarily. These items are absent from the traditional financial statement because the latter rely on generally accepted accounting procedures rather than a true economic balance sheet. Nonetheless, the overwhelming majority of the risks facing the banking firm is in on-balance-sheet businesses. It is in this area that the discussion of risk management and the necessary

procedures for risk management and control has centered. Accordingly, it is here that our review of risk management procedures will concentrate.

2.5 Bank risk management systems

The banking industry has long viewed the problem of risk management as the need to control four of the above risks which make up most, if not all, of their risk exposure, viz., credit, interest rate, foreign exchange and liquidity risk. While they recognize counterparty and legal risks, they view them as less central to their concerns. Where counterparty risk is significant, it is evaluated using standard credit risk procedures, and often within the credit department itself. Likewise, most bankers would view legal risks as arising from their credit decisions or, more likely, proper process not employed in financial contracting.

Accordingly, the study of bank risk management processes is essentially an investigation of how they manage these four risks. In each case, the procedure outlined above is adapted to the risk considered so as to standardize, measure, constrain and manage each of these risks. To illustrate how this is achieved, this review of firm-level risk management begins with a discussion of risk management controls in each area. The more difficult issue of summing over these risks and adding still other, more amorphous, ones such as legal, regulatory or reputational risk, will be left to the end (Santomero, 1997).

2.5.1 Credit portfolio management

Modern credit risk management techniques were initiated by the banking industry's desire to avoid a repeat of its late '80s and early '90s default experience. The heavy credit losses during this period, driven by a poorly controlled rush to build market share at the expense of asset quality and portfolio diversification, threatened the solvency of even well capitalized institutions.

The need to better understand portfolio credit risks was reinforced by the publication of the Bank for International Settlements' (BIS) capital adequacy guidelines in 1988.

These guidelines, whilst specifying minimum regulatory capital requirements, were inadequate to provide an accurate measure of the risk/reward characteristics of a credit portfolio. Banks therefore started to develop more sophisticated credit risk management techniques that recognized both the credit risk of individual exposures and the degree to which these risks were diversified.

Banks leading the development of credit risk management techniques quickly discovered that credit pricing was highly inefficient. Typically pricing within a loan portfolio would be almost flat across the credit risk spectrum, generating huge skews in customer profitability. Initial efforts focused on mitigating these skews by calculating risk adjusted profitability (e.g. risk adjusted return on [risk-adjusted] capital) by sub-portfolio and then using these measures to create risk adjusted loan pricing tools. Leading banks thus started to rationalize pricing in both loan and bond portfolios, and moving under-performing assets off their balance sheets. Consequently banks that had not developed risk-adjusted

performance measures started to suffer from negative selection, often accepting significantly under priced assets from more sophisticated institutions.

In parallel to developing aggregate risk-adjusted performance measures, leading banks were also starting to quantify credit risk at finery levels of detail. Credit portfolio models were developed which could differentiate credit risk along multiple dimensions (credit grade, industry, country/region etc) and, for large corporate exposures, on a name-by-name basis.

These credit portfolio models have positioned leading institutions to take advantage of the increasing liquidity of the credit markets and to adopt a far more active approach to credit portfolio management than was previously possible. Historically, credit portfolio management had focused on the monitoring of exposure by broad portfolio segment and, if necessary, the imposition of exposure caps. The creation of a stand-alone credit portfolio management function, armed with sophisticated portfolio models and with a controlling mandate over assets held on the balance sheet, now enabled the credit portfolio to be optimized independent of origination activity. Active credit portfolio optimization has enormous potential to enhance profitability. Using only very basic optimization techniques a typical institution might expect to reduce the economic capital consumed by its credit portfolio by 25%–30%.

2.5.2 Traditional approach

It is hard to differentiate between the traditional approach and the new approaches since many of the ideas of traditional models are used in the new models. The traditional approach is comprised of four classes of models (Achou and Tenguh, 2008).

1. Expert Systems

In the expert system, the credit decision is left in the hands of the branch lending officer. His expertise, judgment, and weighting of certain factors are the most important determinants in the decision to grant loans. the loan officer can examine as many points as possible but must include the five "Cs" these are; character, credibility, capital, collateral and cycle (economic conditions) in addition to the 5 Cs, an expert may also take into consideration the interest rate.

2. Artificial Neural Networks:

Due to the time consuming nature and error- prone nature of the computerized expertise system, many systems use induction to infer the human expert's decision process. The artificial neural networks have been proposed as solutions to the problems of the expert system. This system simulates the human learning process. It learns the nature of the relationship between inputs and outputs by repeatedly sampling input/output information.

3. Internal Rating at Banks:

Over the years, banks have subdivided the pass/performing rating category, for example at each time, there is always a probability that some pass or performing loans will go into default, and that reserves should be held against such loans.

4. Credit Scoring Systems:

A credit score is a number that is based on a statistical analysis of a borrower's credit report, and is used to represent the creditworthiness of that person. A credit score is primarily based on credit report information. Lenders, such as banks use credit scores to evaluate the potential risk posed by giving loans to consumers and to mitigate losses due to bad debt. Using credit scores, financial institutions determine who are the most qualified for a loan, at what rate of interest, and to what credit limits.

2.6 Credit risk measurement framework

Credit risk is conventionally defined using the concepts of expected loss (EL) and unexpected loss (UL). Because expected losses can be anticipated, they should be regarded as a cost of doing business and not as a financial risk. Obviously credit losses are not constant across the economic cycle, there being substantial volatility (unexpected loss) about the level of expected loss. It is this volatility that credit portfolio models are designed to quantify.

Volatility of portfolio losses is driven by two factors – concentration and correlation.Concentration describes the 'lumpiness' of the credit portfolio (e.g. why it is

more risky to lend £10m to 10 companies than to lend £0.1m to 1,000 companies). Correlation describes the sensitivity of the portfolio to changes in underlying macro-economic factors (e.g. why it is more risky to lend to very cyclical industries such as property development).

In all but the smallest credit portfolios, correlation effects will dominate.

When quantifying credit risk, two alternative approaches can be used when valuing the portfolio:

Loss-based method: Under this approach an exposure is assumed to be held to maturity. The exposure is therefore either repaid at par or defaults, and thus worth the recovery value of any collateral. Using this approach credit migration has no effect on the book value of the obligation.

NPV-based method: Under this approach, the embedded value of an exposure is assumed to be realizable. If the obligation upgrades then it is assumed to be worth more than par, and if it downgrades it is assumed to be worth less than par.

The value of the obligation can be calculated using either using market credit spreads (where applicable) or by marking-to-model using CAPM or similar method.

In general, NPV-based methods are most applicable to bond portfolios and large corporate portfolios where meaningful markets exist for either the physical assets or credit derivatives. For the vast majority of commercial bank exposures, where such markets do not exist a more meaningful risk profile is obtained using a loss-based

method. Loss-based calculations have the advantage of requiring less input data (margin and maturity information, for example, is not required) and being simpler to compute. However, many institutions are starting to run both methods in parallel, particularly for portfolios where securitization is possible.

2.7 Policy guidelines

The fundamental credit risk management policies that are recommended for adoption by all banks in Bangladesh. The guidelines contained herein outline general principles that are designed to govern the implementation of more detailed lending procedures and risk grading systems within individual banks.

Lending Guidelines

All banks should have established Credit Policies ("Lending Guidelines") that clearly outline the senior management's view of business development priorities and the terms and conditions that should be adhered to in order for loans to be approved. The

Lending Guidelines should be updated at least annually to reflect changes in the economic out look and the evolution of the bank's loan portfolio, and be distributed to all lending/marketing officers. The Lending Guidelines should be approved by the Managing Director/CEO & Board of Directors of the bank based on the endorsement of the bank's Head of Credit Risk Management and the Head of Corporate/Commercial Banking.

Any departure or deviation from the Lending Guidelines should be explicitly in credit applications and a justification for approval provided. Approval of loans that do not

comply with Lending Guidelines should be restricted to the bank's Head of Credit or Managing Director/CEO & Board of Directors

The Lending Guidelines should provide the key foundations for account officers/relationship managers (RM) to formulate their recommendations for approval, and should include the following:

- **Industry and Business Segment Focus**

The Lending Guidelines should clearly identify the business/industry sectors that should constitute the majority of the bank's loan portfolio. For each sector, a clear indication of the bank's appetite for growth should be indicated (as an example, Textiles: Grow, Cement: Maintain, Construction: Shrink). This will provide necessary direction to the bank's marketing staff.

- **Types of Loan Facilities**

The type of loans that are permitted should be clearly indicated, such as Working Capital, Trade Finance, Term Loan, etc.

- **Single Borrower/Group Limits/Syndication**

Details of the bank's Single Borrower/Group limits should be included as per Bangladesh Bank guidelines. Banks may wish to establish more conservative criteria in this regard.

- **Lending Caps**

Banks should establish a specific industry sector exposure cap to avoid over concentration in any one industry sector.

- **Discouraged Business Types**

Banks should outline industries or lending activities that are discouraged. As a minimum, the following should be discouraged:

- Military Equipment/Weapons Finance

- Highly Leveraged Transactions

- Finance of Speculative Investments

- Logging, Mineral Extraction/Mining, or other activity that is ethically or environmentally sensitive

- Lending to companies listed on CIB black list or known defaulters

- Counterparties in countries subject to UN sanctions

- Share Lending

- Taking an Equity Stake in Borrowers

- Lending to Holding Companies

- Bridge Loans relying on equity/debt issuance as a source of repayment.

- **Loan Facility Parameters**

Facility parameters (e.g., maximum size, maximum tenor, and covenant and security requirements) should be clearly stated. As a minimum, the following parameters should be adopted:

- Banks should not grant facilities where the bank's security position is inferior to that of any other financial institution.

- Assets pledged as security should be properly insured.

- Valuations of property taken as security should be performed prior to loans being granted. A recognized 3rd party professional valuation firm should be appointed to conduct valuations.

- **Cross Border Risk**

Risk associated with cross border lending. Borrowers of a particular country may be unable or unwilling to fulfill principle and/or interest obligations. Distinguished from ordinary credit risk because the difficulty arises from a political event, such as suspension of external payments

- Synonymous with political & sovereign risk

- Third world debt crisis

2.8 Credit risk management for Ethiopian banks

This was disclosed at a one-day seminar on Credit and Risk Management, held on Thursday, February 14 at the Sheraton Addis and organized by Zemen Bank in collaboration with eVentive and Harland Financial Solutions.

The Bank is also taking the lead in the country in implementing the Basel II Framework. The Basel II Framework describes a more comprehensive measure and minimum

standard for capital adequacy that national supervisory authorities are now working to implement through domestic rule-making and adoption procedures. It seeks to improve on the existing rules by aligning regulatory capital requirements more closely to the underlying risks that banks face.

Basel II requires banks to collect more data about customers and consistently use best practices for credit risk management.

Participants at the seminar were credit officials from both private and government banks and from the Ministry of Capacity Building.

The purpose of organizing the seminar was to create awareness among other banks so that they too would benefit by using the software.

At the seminar, Harland Financial Solutions Worldwide and Kenya Commercial Bank presented a Credit Risk Symposium for Ethiopian banks.

Harland Financial Solutions Worldwide is a global software company with over 7,000 financial institution customers and delivers Credit Quest solutions for credit risk management for banks worldwide.

The full day symposium also covered the Evolution of Credit Risk and Lending Systems, Regulatory Requirements for Lending and Credit Risk Systems (Basel II), a demonstration of the Credit Quest product and a Case Study of KCB's implementation of Credit Quest.

2.9 Credit Risk Models

Over the last decade, a number of the world's largest banks have developed sophisticated systems in an attempt to model the credit risk arising from important aspects of their business lines. Such models are intended to aid banks in quantifying, aggregating and managing risk across geographical and product lines. The outputs of these models also play increasingly important roles in banks' risk management and performance measurement processes, including performance-based compensation, customer profitability analysis, risk-based pricing and, to a lesser (but growing) degree, active portfolio management and capital structure decisions. The task force recognizes that credit risk modeling may indeed prove to result in better internal risk management, and may have the potential to be used in the supervisory oversight of banking organizations. However, before a portfolio modeling approach could be used in the formal process of setting regulatory capital requirements for credit risk, regulators would have to be confident not only that models are being used to actively manage risk, but also that they are conceptually sound, empirically validated, and produce capital requirements that are comparable across institutions. At this time, significant hurdles, principally concerning data availability and model validation, still need to be cleared before these objectives can be met, and the committee sees difficulties in overcoming these hurdles in the timescale envisaged for amending the capital accord. Credit scoring models use data on observed borrower characteristics either to calculate the probability of default or to borrowers into different default risk classes (Saunders and Cornett, 2007).

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

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

Z=1.2x1+1.4x2+3.3x3+0.6x4+1.0x5

Where, X1 = Working capital/ Total assets ratio

X2 = Retained earnings/ Total assets ratio

X3 = Earnings before interest and taxes/ Total assets ratio

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

X5 = Sales/ Total assets ratio.

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

2.10 Banks Performance and Its Determinants

The role of bank remains central in financing economic activity and its effectiveness could exert positive impact on overall economy as a sound and profitable banking sector

is better able to withstand negative shocks and contribute to the stability of the financial system (Athanasoglou et al, 2005). Therefore, the determinants of bank performance have attracted the interest of academic research as well as of bank management, financial markets and bank supervisors since the knowledge of the internal and external determinants of banks profits and margins is essential for various parties.

During the last two decades the banking sector has experienced worldwide major transformations in its operating environment. Both external and domestic factors have affected its structure and performance. Correspondingly, in the literature, bank profitability is usually expressed as a function of internal and external determinants.

The internal determinants refers to the factors originate from bank accounts (balance sheets and/or profit and loss accounts) and therefore could be termed micro or bank specific determinants of profitability. The external determinants are variables that are not related to bank management but reflect the economic and legal environment that affects the operation and performance of financial institutions. A number of explanatory variables have been proposed for both categories, according to the nature and purpose of each study (Yuqi Li).

2.10.1 Internal determinants

Studies dealing with internal determinants employ variables such as size, capital, risk management and expenses management. Size is introduced to account for existing economies or diseconomies of scale in the market. Akhavein et al. (1997) and Smirlock (1985) find a positive and significant relationship between size and bank profitability.

Demirguc-Kunt and Maksimovic (1998) suggest that the extent to which various financial, legal and other factors (e.g. corruption) affect bank profitability is closely linked to firm size. In addition, as Short (1979) argues, size is closely related to the capital adequacy of a bank since relatively large banks tend to raise less expensive capital and, hence, appear more profitable. Taking the similar approach, Haslem (1968), Short (1979), Bourke (1989), Molyneux and Thornton (1992) Bikker and Hu (2002) and Goddard et al. (2004), all link bank size to capital ratios, which they claim to be positively related to size, results indicated that as size increases . Especially in the case of small to medium-sized banks. Profitability rises. However, many other researchers suggest that little cost saving can be achieved by increasing the size of a banking firm (Berger et al., 1987), which suggests that eventually very large banks could face scale inefficiencies.

Other internal factors, such as credit or liquidity are considered as bank specific factors, which closely related to bank management, especially the risk management. The need for risk management in the banking sector is inherent in the nature of the banking business. Poor asset quality and low levels of liquidity are the two major causes of bank failures and represented as the key risk sources in terms of credit and liquidity risk and attracted great attention from researchers to examine the their impact on bank profitability.

2.10.2 External determinants

Turning to the external determinants, several factors have been suggested as impacting on profitability and these factors can further distinguish between control variables that

describe the macroeconomic environment, such as inflation, interest rates and cyclical output, and variables that represent market characteristics. The latter refer to market concentration, industry size and ownership status (Athanasoglou et al, 2005).

2.11 Empirical results

As Yuqi Li 2007 a number of explanatory variables have been proposed for both categories, according to the nature and purpose of each study. Studies dealing with internal determinants employ variables such as size, capital, credit risk or costs etc while for external determinants, several factors have been suggested as impacting on profitability and these factors can further distinguish between control variables that describe the macroeconomic environment, such as inflation, interest rates and cyclical output, and variables that represent market characteristics. The latter refer to market concentration, industry size and ownership status.

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The empirical findings on the impact of bank profitability in the UK in our sample suggest the following conclusions. First, negative and positive effect of liquidity on bank profitability has been found, with weak significant coefficient. This is in consistent with previous studies as the results concerning liquidity are mixed. Therefore, the conclusion about the impact of UK bank's liquidity on their performance remains ambiguous and further research is required. Second, the ratio of loan loss reserves to net interest revenue has a negative impact on ROAA with statistical significance. This implies that higher credit risks results in lower profit.

As the findings shows that liquidity and credit risks do have negative impact on bank profitability, and it provides further implication on the effective risk management practices in banks.

Achou and Tenguh (2008) shows that there is a significant relationship between bank performance (in terms of return on asset) and credit risk management (in terms of loan performance). Better credit risk management results in better bank performance. Thus, it is of crucial importance that banks practice prudent credit risk management and safeguarding the assets of the banks and protect the investors' interests.

Regulation, peroxide by the amount of Reserve Fund appears to have negative impact on all three measures of risk, significantly so for liquidity risk. Depositor behavior appears to significantly impact only liquidity management, but not capital or credit risk

management. We do not find evidence that shareholders act in a manner that reduces the credit risk of banks. The more efficient the management, the less capital the bank is likely to hold, subject to minimum capital requirement. That is, the equity multipliers of banks with more efficient management are likely to be higher. The other evidence is that credit risk increases as management efficiency variable decreases (Tsorhe, Aboagye & Kyereboah-Coleman).

Chapter three: Methodology

3.1 Research design

This research paper was employ quantitative research design. The functional or positivist paradigm that guides the quantitative mode of inquiry is based on the assumption that social reality has an objective ontological structure and that individuals are responding agents to this objective environment (Morgan & Smircich, 1980). Quantitative research involves counting and measuring of events and performing the statistical analysis of a body of numerical data. The assumption behind the positivist paradigm is that there is an objective truth existing in the world that can be measured and explained scientifically. The main concerns of the quantitative paradigm are that measurement is reliable, valid, and generalizable in its clear prediction of cause and effect (Cassell & Symon, 1994).

Being deductive and particularistic, quantitative researcher is based up on formulating the research hypothesis and verifying them empirically on a specific set of data. Scientific hypothesis are value free; biases, and subjectivity preferences have no places in the quantitative approach. Researcher can view the communication process as concrete and tangible and can analyze it without contacting actual people involved in communication (Ting-Toomey, 1984).

Under the quantitative research design survey method was employed. The survey is a non-experimental, descriptive research method. Survey can be useful when a researcher wants to collect data on phenomena that cannot be directly observed.

Cross-sectional survey used to gather information on a population at a single point in time. An example of a cross sectional survey would be questionnaires that collect data. A different cross- sectional survey questionnaire might try to determine the relationship between two factors.

3.2 Data used in the research

In this paper both primary and secondary data sources was used. The secondary data was collected from the financial statements from the selected banks by the sample and the primary data was obtained by questionnaire. Forty-two questionnaires were prepared in order to collect primary data.

The researcher used the data from selected bank for analysis. A panel data of a 10 year financial data of banks under the study, to examine the relationship between return on asset (ROA) which is performance indicators and loan losses (NPL/TL), loan provision to total loan (LP/TL), loan provision to non-performing loan (LP/NPL), and loan provision to total asset (LP/TA) .

3.3 Sampling

Currently in Ethiopia 21 banks are in operation. From these six banks namely Dashn Bank, Awash International Bank, Wegagen Bank, United Bank NIB International Bank, and Bank of Absiniya was selected by using purposive sampling technique. Purposive sampling targets a particular group of people. When the desired population for the study is rare or very difficult to locate and recruit for a study, purposive sampling may be the

only option. The researcher used purposive sampling by considering the time concern, the cost allocated for the research and availability of data.

3.4 Analytical tools used

The primary data collected through questionnaire was analyzed and interpreted using descriptive statistical tools like table and percentages. Eviews software was employed to analyze and interpret the regression model used by the researcher.

3.5 Research hypothesis

The researcher expects with better credit risk management have high return on asset (ROA) and lower non-performing loan and loan provision. Accordingly with the help of empirical data on selected firms the study was established and tests the following hypothesis:

Hypothesis 1 (H0): credit risk management has an effect on the bank performance.

Hypothesis 2 (H1): credit risk management has no effect on the bank performance.

Thus, to test the hypothesis, the researcher uses the following regression model.

$$Y = \alpha + \beta 1X1 + \beta 2X2 + \beta 3X3 + \beta 4X4 + \mu$$

Where: Y= return on asset

X1= non-performing loan to total loan

X2= loan provision to non-performing loan

X3= loan provision to total asset

X4= loan provision to total loan

μ= disturbance term

Also α is an intercept and β is the parameter of explanatory variable of dependent variable (return on asset).

Chapter 4: Data analysis and interpretation

In this chapter, the empirical data collected from the researcher's self-completion questionnaire is presented. Firstly, it presents the percentage of each answer from the respondents and then summarizes the importance of each factor.

4.1 Analysis of Primary data

4.1 The results of general information

How many years of experience do you have working with bank and risk management area?

I) banking experience

Response	Percentage
Less than 1 year	-
1-2 years	14.23%
3-5 years	57.24%
More than five years	28.53%
Total	100%

Table 1: Experience of respondents in banking sector

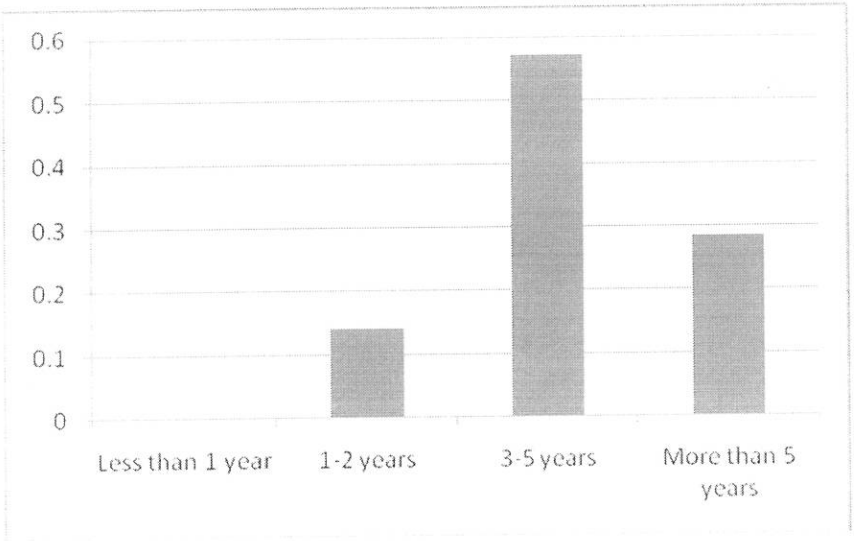

Figure 1: Experience of respondents in banking sector

The table above shows the percentage of the years of experience the respondents had working with in the bank. The researcher asked this question because I wanted to know how experienced the respondents were in terms of banking sector. In the results, I notice that 57.41% have experience working with in the bank 3-5 years. Whereas, the respondents who have working experience in banking sector more than five years was 28.57%, 1-2 years was 14.23% and less than one year was null.

II) Risk management area

Response	**Percentage**
Less than 1 year	2.38%
1-2 years	45.24%
3-5 years	38.10%
More than 5 years	19.05%

Table 2: Experience of respondents in the area of risk management

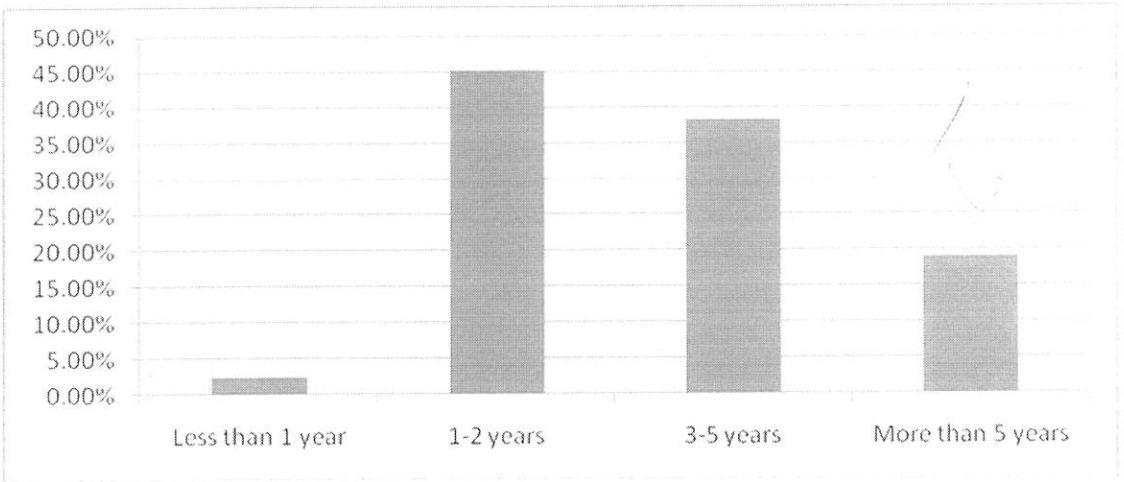

Figure 2: experience of respondent on risk management area

The figure above shows the percentage of the years of experience the respondents had working with risk management. This question was asked because the researcher wanted to know how experienced the respondents were in the area of risk management. In the results, it was notice that 45.24% have experience working with risk management area 1-2 years. Whereas, the respondents who have working experience in risk management 3-5 years was 29.40%, more than 5 years was 19.05% and 1 to 2 years was 2.38%.

What is your expectation from effective risk management in your organization?

Response	Percentage
Reduce financial loss	57.14%
Improve communication with customers	23.81%
Improve decision making	38.10%
Improve resource allocation	45.24%

Table 3: The expectation from credit risk management

Figure 3: the expectation from credit risk management

The second question was asked the respondents to indicate their expectations of credit risk management in their organization. The researcher asked this in order to find out how important the respondents think credit risk management is. The results show that most of the respondents expect risk management to reduce financial losses (57.14%). Additionally, 45.24% of the respondents expect effective credit risk management to

improve resource allocation, 38.10% expect effective credit risk management to improve decision making and 23.81% improve communication with customers.

Who has the authority to establish credit risk management policy in your organization?

Response	Percentage
Chief executive officer	-
Chief financial officer	-
Board/committee	95.25%
Executive management committee	4.75%
Internal auditor	
Staff	

Table 4: The percentage of who has the authority to establish credit risk management in organization

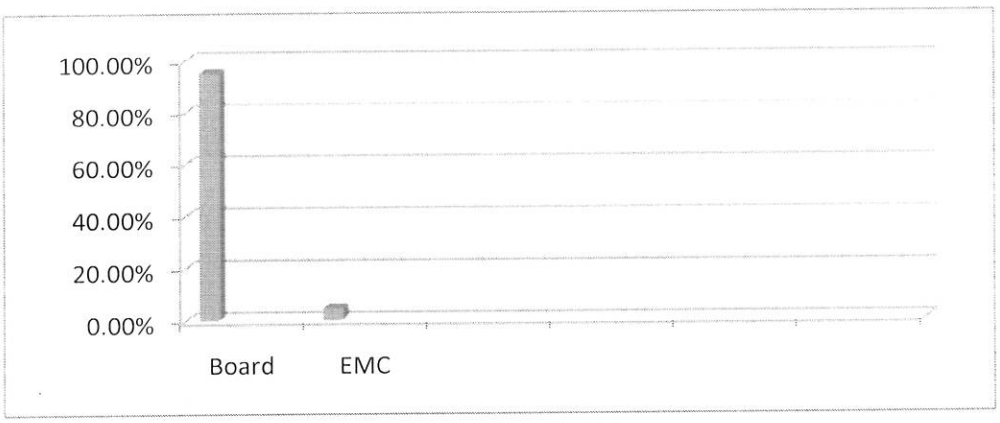

Figure 4: The authority to establish credit risk management in organization

In the beginning, the researcher asked a question about commitment and support from top management. In the table above, the respondents asked to identify who has the authority to establish credit risk management in their organization. The results of this question were closely expected because it assumed the top-level should have the authority to establish risk management. As it can see in the table, the majority of the respondents (95.25%) specify that the board and committee have the authority to establish risk management. Next was the executive management team (4.75%).

The surveys show that respondents identified commitment and support from top management as the most important. Top-level management responds to business processes and manages credit risk. Most of the organizations believe that it is the responsibility of the Board of Directors or Committee and Executive Management team to establish credit risk management. Top management decides the objectives and strategies for organizational credit risk management activities, mission and overall objectives.

The respondents indicated that there are many ways in which top management can support risk management policy as showed in the table 4. They set up a particular credit risk management teams, regularly revision of risk management plans, clear to allocate credit risk management responsibilities, strictly obey in credit risk management policy, listen a problems from employees and allocate appropriate resources. Most of the organizations have a policy to support the development of credit risk management. The benefit of top management support is effective decision-making to manage risks .This is one of the expectations from the responden

Does your organization have a documented credit risk management guideline or policy?

Response	Percentage
Yes	100%
No	-
Total	100%

Table 5: The percentage of the yes/no question that was asked regarding if the respondents' organizations have a documented credit risk management guideline or policy.

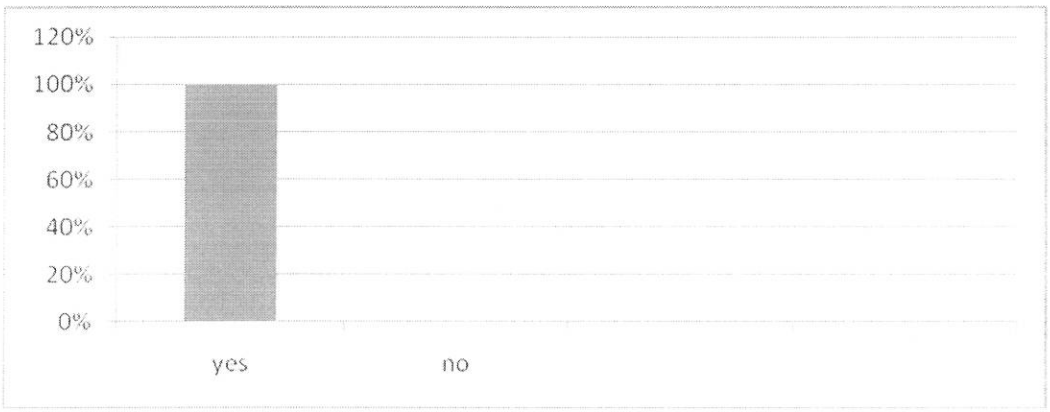

Figure 5: organizations have credit risk management

In table 5, it was used a yes/no question to ask the respondents if their organizations have a documented credit risk management guideline or policy. 100% of respondent replied 'Yes'. This helps the organization to manage their credit risk. Because the employees' of the organization works under the guideline or policy developed by the organization.

Organizational structure involves an organization's internal pattern in relationships, authority and communication. Structure is comprised of formal lines of authority and communication, and the information as well as data that flow along these lines (Stank, Daugherty and Gustin, 1994). Structure and processes of the organizations are most effective when their design function match their environment and impact to organization's strategies (Hunter, 2002). The respondents agree that their organization have a documented guideline or policy for risk management.

Does the guideline support the goals and objectives of credit risk management?

Response	Percentage
Yes	100%
No	-
Total	100%

Table 6: The percentage of guidelines that support the goals and objectives of credit risk management

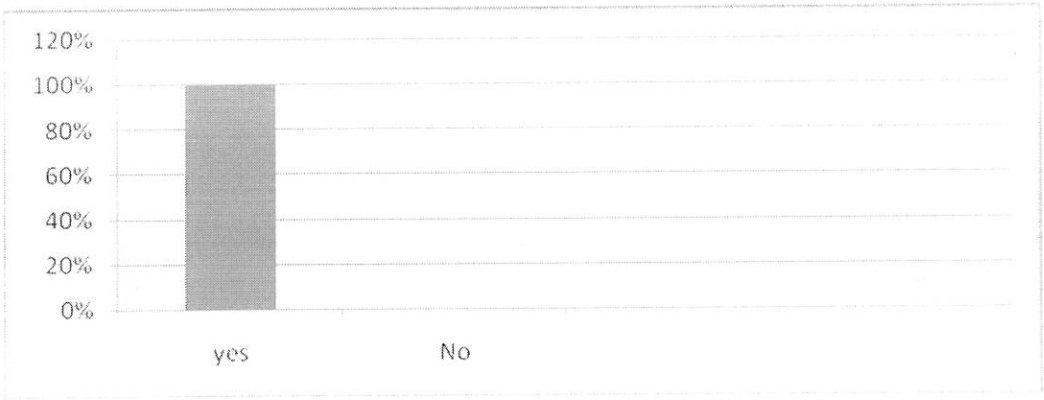

Figure 6: the guidelines that support the goals and objectives of CRM

Table 6, shows that 100% of respondents have guidelines that support the goals and objectives of credit risk management.

All of the respondents believe that the guideline supports the goals and objectives of risk management. As Hasanali (2002) and Department of State and Regional Development (2005) argue, one of the most important aspects of effective risk management is organizational structure. Organizational structure provides concepts, guidelines, direction and support to employees that conducted by the steering committee. The respondents understand the risk management guideline or policy.

Do you understand the credit risk management guideline or policy?

Response	Percentage
Yes	95.24%
No	4.76%
Total	100%

Table 7: The percentage of yes/no question that we asked about do you understand the credit risk management guideline or policy.

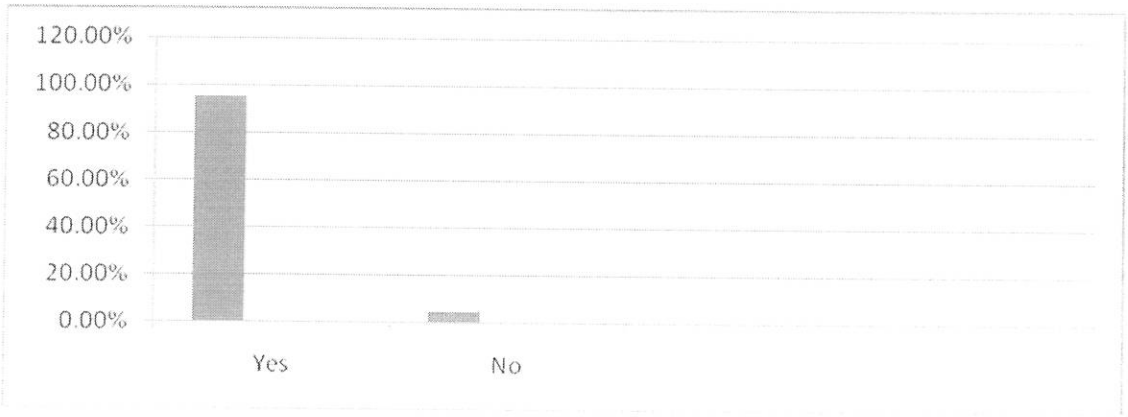

Figure7: the percentage of understanding the CRM guideline

In figure 7, showed 95.24% of respondents understood the risk management guideline or policy.

But 4.76% did not understand the risk management guideline or policy. From the table it can be generalized that almost all the worker of credit risk management understand the guidelines that developed by their organizations, this enables the employee to manage the credit that arise in their organization.

How often does your organization change its guidelines or policies to manage credit risks?

Response	Percentage
Once per year	66.67%
Once per two years	23.81%
Once in more than two years	9.52%
Never	-
Total	100%

Table 8: The percentage of how often the respondents' organizations change its guidelines or policies to manage risk

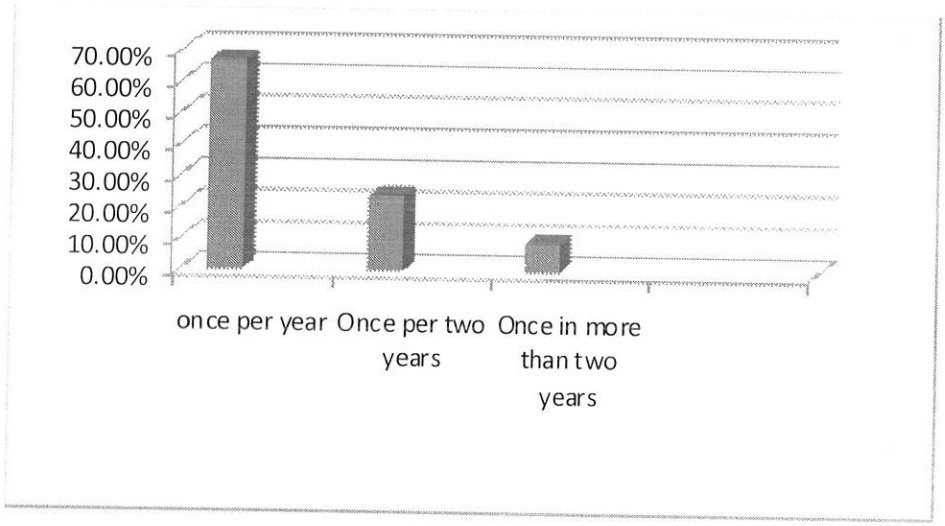

Figure 8: the change of guidelines to manage credit risk by the organization

In table 8, most of the respondents (66.67%) replied that their organization changes their guidelines or policies to manage credit risks once per year. 23.81% of the respondents replied that their organizations changed their guidelines or policies one every 2 years and changing once in more than 2 years had 9.52%. That means that most of the organizations think they should change their guidelines or policies to manage credit risks once per year.

Because the financial world is always in fluctuation, Carey (2001) suggests that organizational structure must be reviewed regularly and adjusted to adapt to changing financial environments. All of the respondents stated that their organization changes its guidelines or policies in order to manage credit risks. Most of the organizations implement changes and review their organizational structure every year. Moreover,

Grabowski and Roberts (1999) suggest that risk management is primarily associated with the fluidity of organizational structures. It is a flexible approach to respond in different ways and respond quickly in the face of changing conditions.

In the future, does your organization have a policy to support the development of credit risk management?

Response	Percentage
Yes	92.86%
No	7.14%
Total	100%

Table 9: The percentage of organizations which have a policy to support the development of risk management

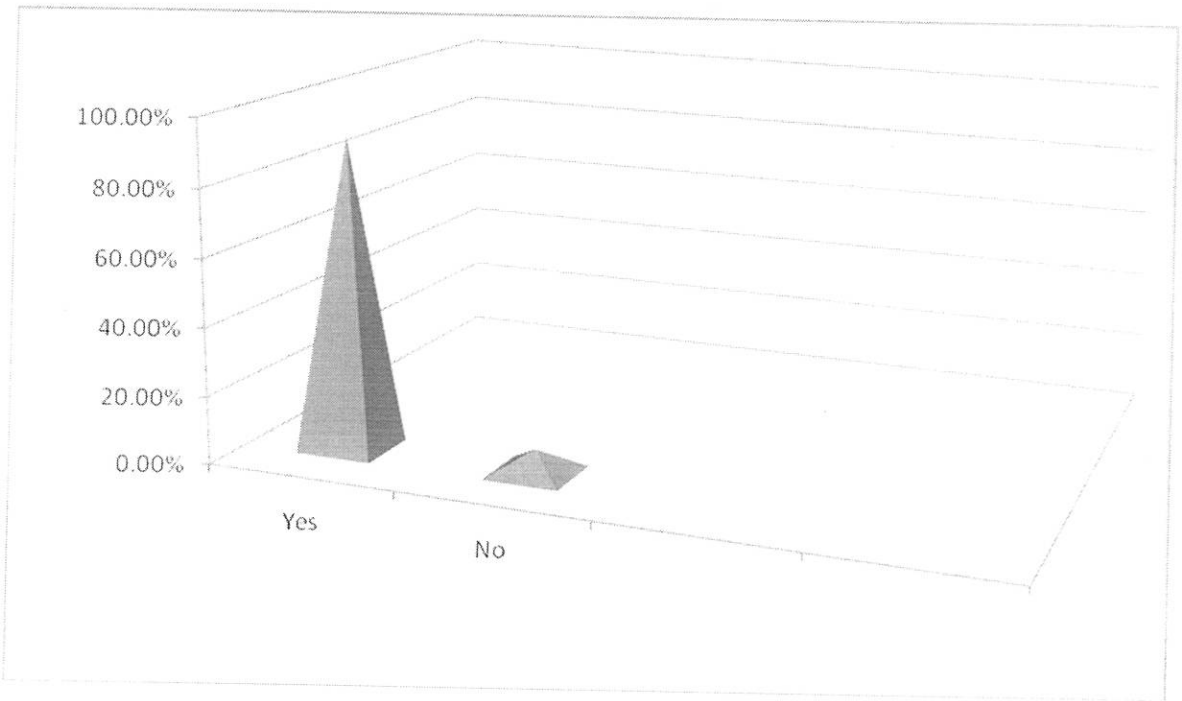

Figure9: A policy to support the development risk management in future

In table 9, the researcher used a yes/no question to ask the respondents about future credit risk management policy. The results show that the amount of respondents who chose yes was 97.10%, which means that top management is willing to support the development of future risk management policy.

Does your organization offer training for new employees?

Response	percentage
Yes	100%
No	-
Total	100%

Table 10: The percentage of how many organizations offer training for new employees

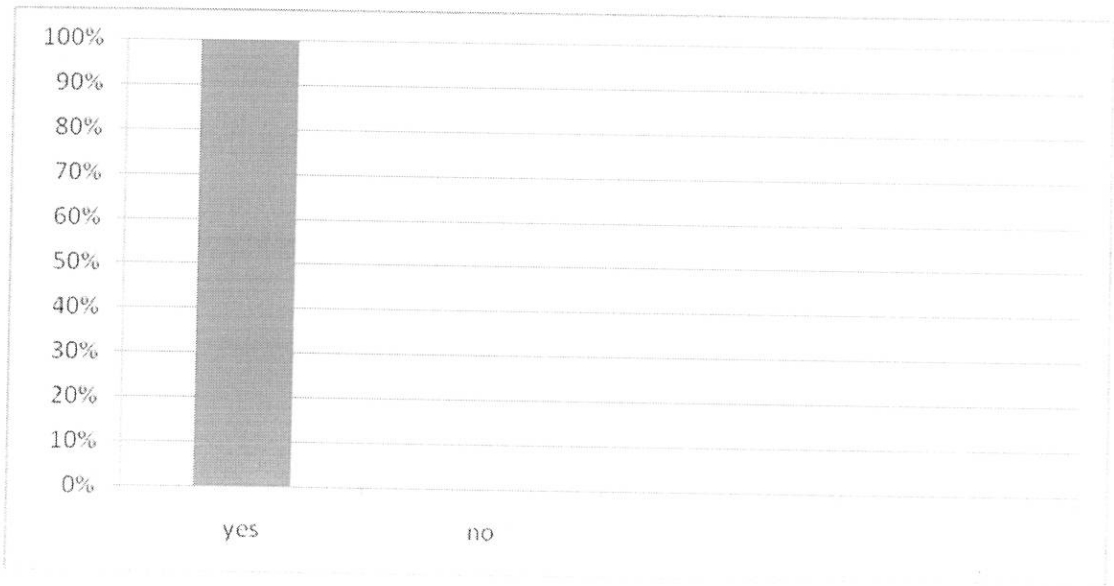

Figure 10: offering training to employee

The researcher also asked yes or no question about training courses for employees. The results show that 100% have a training course for employees. That mean most of the respondents' organizations think training employees is important.

Risk management becomes a part of good business practice and should include training staff appropriately. The main reason for an education and training program is to ensure that the members are comfortable with the system and increase the expertise and knowledge level of the members. Most companies offer training courses for new employees. The purpose of training is to improve knowledge, skills and attitudes that in turn increase confidence, motivation and job satisfaction (Fill and Mullins, 1990).

How often does your organization provide risk management training courses?

Response	Percentage
Never	
1 times per year	69.05%
2 times per year	14.29%
More than two times per year	16.66%
Total	100%

Table 11: The percentage of how often organizations provide risk management training courses

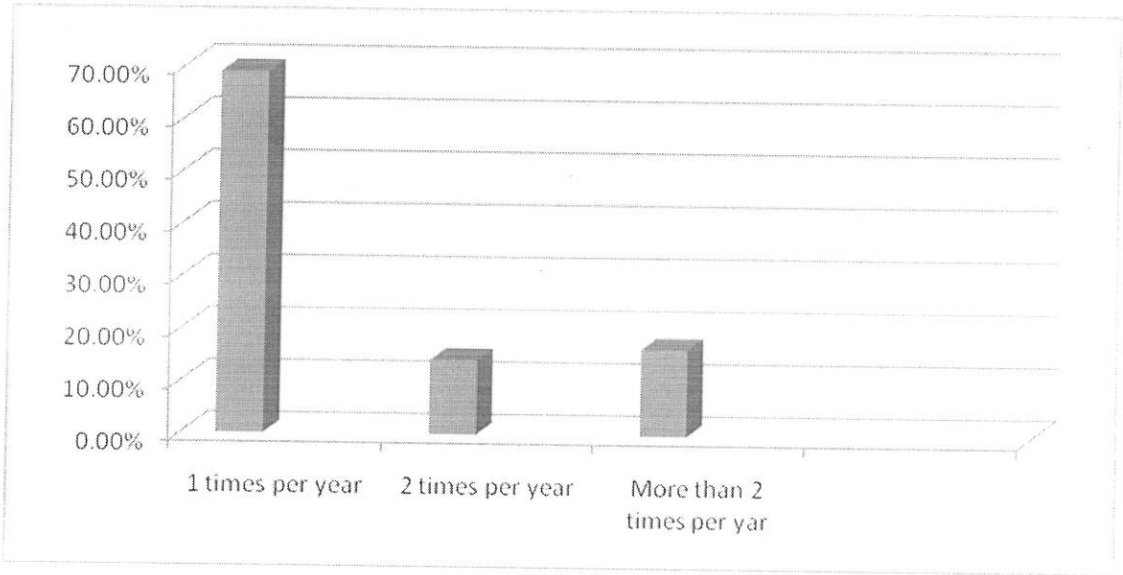

Figure 11: How often organizations provide risk management training courses

In table 11, it was asked the respondents about the frequency of credit risk management training in their organizations. The results show that most of the respondents' organizations (69.05%) have a risk management training course one times per year. 16.66% have a risk management training course two times per year and, more than 2 times per year percentages, 11.89%.

Since the purpose of training is to improve knowledge, skill and attitudes to job satisfaction it is better to know how frequent the organizations provide training for employees. According to table 11 it can be concluded that the organizations give training to employees' one times per year. This is short be period and enables employees to understand the credit risk management practices and to do better effort in the behalf of the organization benefit.

Does your organization have established procedures for keeping up-to-date and informed with changes in regulations?

Response	Percentage
Yes	90.48%
No	9.52%
Total	100%

Table 12: The percentage of organizations which have established procedures for keeping up to- date and informed with changes in regulations

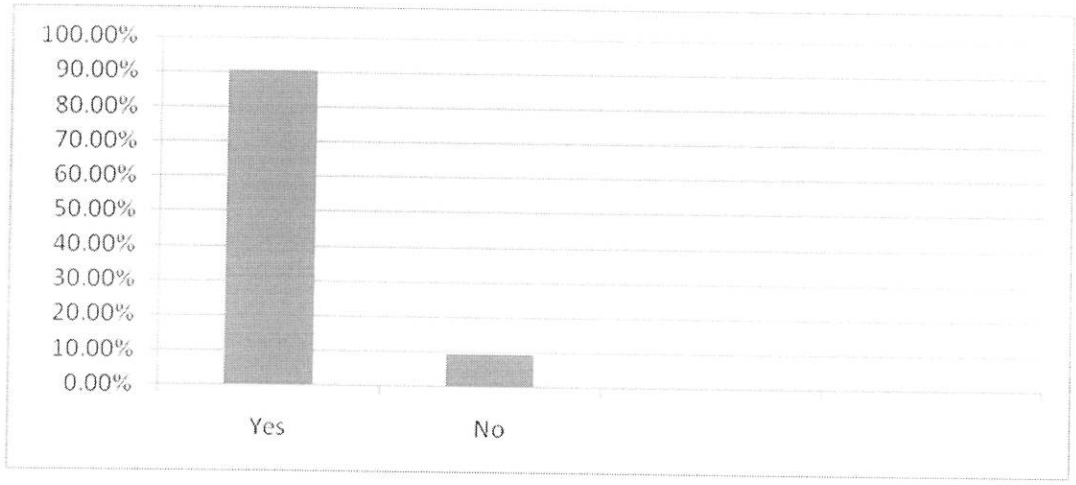

Figure 12: Organizations established procedures for keeping up to date and informed with changes in regulations

The results show that table 12 show that 90.48% of the respondents answered 'Yes', their organization does have established procedures for keeping up-to-date and informed with changes in regulations. But 9.52% do not. From the table it can be concluded that the organization is in the way to provide training to its employee for the changes that will be happen in the regulations of credit risk management.

The ability to respond to changing conditions in an organization's operation is related to a range of activities including the development of risk training courses and involvement of staff in responding to an early warning system (Carey, 2001). The respondents state that their organizations have established procedures for keeping up-to-date and informed with changes in regulations to their staff. In addition, they provide risk management training courses at least once per year. The other companies also offer training courses more than once a year.

How does your organization effectively communicate to reduce credit risk?

Response	Percentage
Creating clear and trustworthy information	38.10%
Developing understanding between management team and employee	47.62%
Fast communication between management team and customers	30.95%
Regularly communicating among management and staff	42.86%
Creating and maintaining a clear communication	28.57%

Table 13: The percentage of the processes of communicate to reduce credit risk

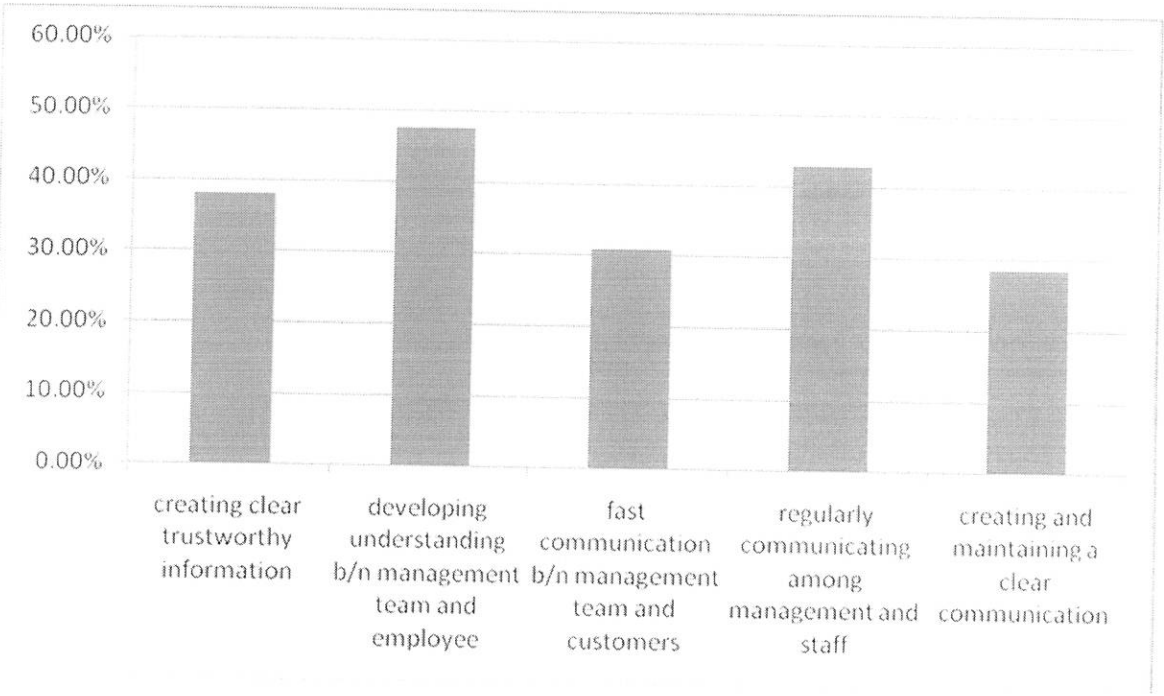

Figure 13: the process of communicating to reduce risk

In table 13, the researcher would like to know how the organizations effectively communicate in order to reduce credit risk. In this question, the respondents could choose more than one answer. The results show that the most common way of communicating effectively to reduce risk is developing understanding between management team and employee, with 47.62% of the respondents picking this answer. It means that most of the respondents think that developing this understanding is a first priority for organizations. The next results were regularly communicating among management and staff with 42.86%. Creating clear and trustworthy information and fast communication between management team and customers followed with 38.10%and 30.95% respectively. The lowest ranking was creating and maintaining a clear communication, with 28.57%. This means that Creating and maintaining a clear communication is not a common way of communicating to reduce risk and is outranked by creating understandable and clear information.

The responses believed that developing understanding between management team and employee, regularly communication between management and staff, create information clear and trustworthy, maintaining clear to communication and fast and sharp communication in organization all is support effective communication in risk management procedures.

Do the banks use Altman Z score model for credit evaluation?

Response	Percentage
Yes	-
No	100%
Total	100%

Table 14: The percentage of the use of Altman Z score for credit evaluation

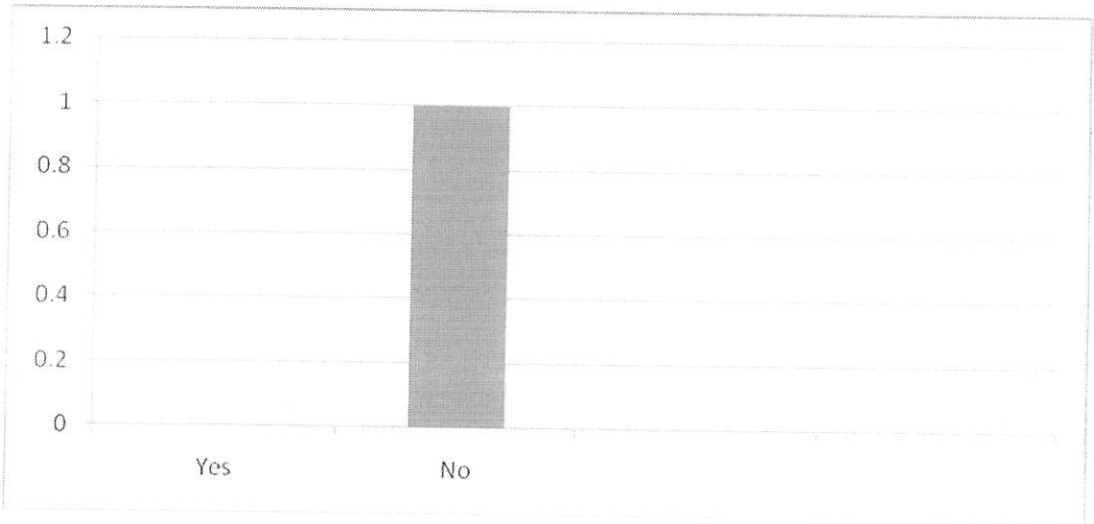

Figure 14: the use of Altman Z score model for credit valuation

The researcher also asked yes or no question about the application of Altman Z score for credit evaluation to determine the bankruptcy of the organization which they provide loan to employees. The results show that 100% stated that they do not use Altman Z score. From the result it can be conclude that the financial institutions are not in the position to apply the model to evaluate what will happen to their customers' regarding the payment of their obligation. The Z-score formula for predicting Bankruptcy of Dr. Edward Altman (1968) is a multivariate formula for measurement of the financial health of a company and a powerful diagnostic tool that forecast the probability of a company entering bankruptcy within a two year period with a proven accuracy of 75-80%.

Does the bank have internal credit rating system?

Response	Percentage
Yes	100%
No	-
Total	100%

Table 15: The percentage of organizations has internal credit rating system

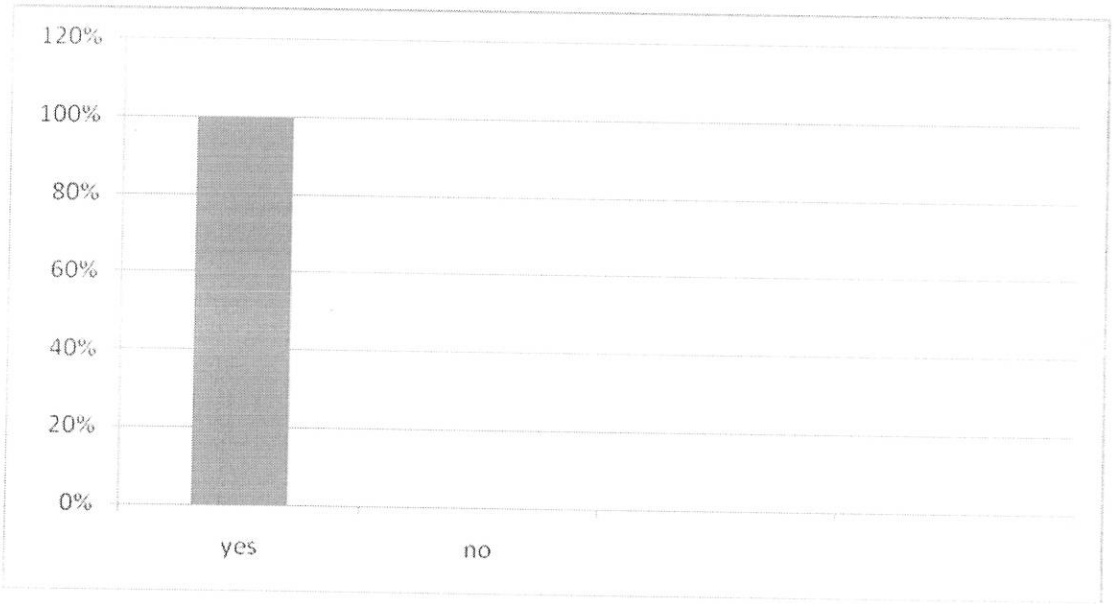

Figure 15: Internal credit rating system in the organization

The results show that table 15 show that 100% of the respondents answered 'Yes', their organization does have internal credit rating systems. The internal credit rating system has been developed by looking different factors like term loan, merchandise loan, letter of guarantee, trade bill discount, advance on export bill, type of financial statement (financial standing), quality of management and banking relationship are some of them.

From the above table it can be concluded the financial institution have developed internal credit rating to manage their credit risk. Well-managed credit risk rating systems promote bank safety and soundness by facilitating informed decision making. Rating systems measure credit risk and differentiate individual credits and groups of credits by the risk they pose. This allows bank management and examiners to monitor changes and trends in risk levels. The process also allows bank management to manage risk to optimize returns (Comptroller's Handbook 2001)

The challenges that the respondents' face in credit risk management lack of experience because it is a newly emerged department, lack of technology to mange the portfolio data, implementation of policies at the grass root level, miss interpretation of policies, unknowing the exact feature of customers especially individual loaner, effects of changing in government policy, inadequate human capacity, poorly organized of industries to evaluate their worthness, problem of collateral registration, low level of awareness to ward credit risk management, bad attitudes of the staffs towards satisfying the need of their organizations, unable to get full information about customer from external sources, the department is under staffed, use of traditional or simple measurement tools, and absence of relevant information on time.

In addition the researcher identifies the major kinds of tools or methods used to mange credit risks. The tool that the banks used to manage their credit risks includes:

Loan portfolio management: The need for credit portfolio management emanates from the necessity to optimize the benefits associated with diversification and to reduce the potential adverse impact of concentration' of exposures to a particular borrower, sector or

industry. Portfolio management shall cover bank-wide exposures on account of lending, investment, other financial services activities spread over a wide spectrum of region, industry, size of operation, technology adoption, etc. There should be a quantitative ceiling on aggregate exposure on specific rating categories, distribution of borrowers in various industries & business group. Rapid portfolio reviews are to be carried on with proper & regular on-going system for identification of credit weaknesses well in advance. Steps are to be initiated to preserve the desired portfolio quality and portfolio reviews should be integrated with credit decision-making process.

Loan review: Multi-tier Credit Approving Authority, constitution wise delegation of powers, sanctioning authority's higher delegation of powers for better-rated customers; discriminatory time schedule for review / renewal, Hurdle rates and Bench marks for fresh exposures and periodicity for renewal based on risk rating

Credit Audit/Loan Review Mechanism: This should be done independent of credit operations, covering review of sanction process, compliance status, review of risk rating, pick up of warning signals and recommendation for corrective action with the objective of improving credit quality. It should target all loans above certain cut-off limit ensuring that at least 30% to 40% of the portfolio is subjected to LRM (loan review mechanism) in a year so as to ensure that all major credit risks embedded in the balance sheet have been tracked and to bring about qualitative improvement in credit administration as well as Identify loans with credit weakness. Determine adequacy of loan loss provisions. Ensure adherence to lending policies and procedures. The focus of the credit audit needs to be broadened from account level to overall portfolio level. Regular, proper & prompt

reporting to Top Management should be ensured. Credit Audit is conducted on site, i.e. at the branch that has appraised the advance and where the main operative limits are made available.

Exposure Ceilings: Prudential Limit is linked to Capital Funds for individual borrower entity, for a group with additional for infrastructure projects, subject to approval of the Board of Directors.

Risk Rating Model: Set up comprehensive risk scoring system on different point scale. Clearly define rating thresholds and review the ratings periodically preferably at half yearly intervals, to be graduated to quarterly so as to capture risk without delay. Rating migration is to be mapped to estimate the expected loss.

In addition to the above tools the banks also use collecting data from internal and external sources, evaluation of collateral, identifying the risk with the source, communicating with customers, and etc as a tool for credit risk management.

4.2 Analysis of secondary data

Dependent Variable: ROA

Method: Least Squares

Date: 05/24/11 Time: 10:52

Sample (adjusted): 2 60

Included observations: 59 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.025082	0.006076	4.128265	0.0001
LROA	0.309197	0.125060	2.472381	0.0167
NPL	-0.048889	0.015091	-3.239663	0.0021
LPNPL	0.003986	0.004872	0.818035	0.4170
LPA	0.017190	0.046106	0.372832	0.7108
LPL	-0.076096	0.082086	-0.927025	0.3581

R-squared	0.492457	Mean dependent var	0.025751
Adjusted R-squared	0.444576	S.D. dependent var	0.010790
S.E. of regression	0.008041	Akaike info criterion	-6.712292
Sum squared resid	0.003427	Schwarz criterion	-6.501017
Log likelihood	204.0126	Hannan-Quinn criter.	-6.629819
F-statistic	10.28494	Durbin-Watson stat	1.814810
Prob(F-statistic)	0.000001		

The result of return on asset (ROA) on the regression shows that non-performing loan and loan provision of the financial institution is significantly negatively related to performance. The parameter value shows that 1 percent increase in non-performing loans decreases return on asset by 0.048889 percent. In addition that a 1 percent increase in loan provision decreases return on asset by 0.076096 percent.

On the other side the regression result shows that loan provision to non-performing loan and loan provision to total asset of the financial institution is significantly positively related to return on asset. The parameter value shows that 1 percent increase in loan provision to non-performing loans increases return on asset by 0.003986 percent. In addition that a 1 percent increase in loan provision increases return on asset by 0.017190 percent.

The results verify hypothesis that better credit risk management results in better bank performance. The researcher aware that return on asset (profitability) is an endogenous variable which means that it can influence the magnitude of non-performing loans, since better profitability affords the financial institution to write off more bad loans.

Chapter Five: Conclusions and recommendations

5.1 Conclusions

According to the uncertainty of conditions, the financial industries are facing a large number of risks. For this reason, the financial industries emphasize risk management. Moreover, effective risk management is so important that it can increase project success.

- The study summarizes that banks used different credit risk management tools, techniques and assessment models to manage their credit risk, the credit risk management and that they all have one main objective, i.e. to reduce the amount of loan default which is a principal cause of bank failure.
- The surveys show that respondents identified commitment and support from top management as the most important. Top-level management responds to business processes and manages credit risk. Most of the organizations believe that it is the responsibility of the Board of Directors or Committee and Executive Management team to establish credit risk management. Top management decides the objectives and strategies for organizational credit risk management activities, mission and overall objectives.
- All of the respondent indicates that their organization has a documented credit risk management guidelines and Most of the respondents understand the guideline of credit risk management. The guidelines also help the institutions to supports the goals and objectives of credit risk management. Because the financial world is always in fluctuation, almost more than half of the respondent suggests that

organizational structure must be reviewed regularly and adjusted to adapt to changing financial environments and the changes made once per year and at the time when it is believed to have changes.

- The survey shows the respondents credit risk management becomes a part of good business practice and should include training staff appropriately. Since the purpose of training is to improve knowledge, skill and attitudes to job satisfaction the organizations provide training for employees once per year as agreed by most of the respondents. In addition, the respondents state that their organizations have established procedures for keeping up-to-date and informed with changes in regulations to their staff.
- The paper shows the means of communication that they use to reduce credit risk. The results show that the most common way of communicating effectively to reduce risk is developing understanding between management team and employee.
- The study also reveals that banks with good or sound credit risk management policies have lower loan default ratios (bad loans) and higher interest income (profitability).
- This study shows that there is a significant relationship between bank performance (in terms of return on asset) and credit risk management (in terms of loan performance). Better credit risk management results in better bank performance. Thus, it is of crucial importance that banks practice prudent credit

risk management and safeguarding the assets of the banks and protect the investors' interests.

- The study also reveals banks with higher profit potentials can better absorb credit losses whenever they crop up and therefore record better performances.
- Furthermore, the study shows that there is an inverse relationship between return on asset (ROA) and the ratio of non-performing loans to total loan (NPL\TL) and loan provision to total loan.

This has led us to accept our hypothesis and conclusion that banks with higher interest income have lower non-performing loans, hence good credit risk management strategies.

References :

Akhavein, J.D., Berger, A.N., Humphrey, D.B., (1997). ''The effects of mergers on efficiency and prices: evidence from a bank profit function''. Finance and Economic Discussion Series 9, Board of Governors of the Federal Reserve System.

Anthony M. Santomero (1997), Commercial Bank Risk Management: an Analysis of the Process, Wharton Financial Institution Center.

Athanasoglou, P., Brissimis, S N., and Delis, M D. (2005), ''Bank-specific, industry specific and macroeconomic determinants of bank profitability''. MPRA Paper No.153.

Cassel, C., & Symon, G. (1994). Qualitative research in work contexts. In C.

Carey, A. (2001), "Effective risk management in financial institutions: the Turnbull approach", *Balance Sheet*, Vol. 9(3).

Comptroller's Handbook (2001), Rating Credit Risk, Comptroller of the Currency Administrator of National Banks.

Demirguc-Kunt, A., Huizinga, H., (1998). ''Determinants of commercial bank interest margins and profitability: some international evidence''. World Bank Economic Review 13.

Dev, A. and Rao, V. (2006), Performance Measurement in Finance Institutions in an ERM FrameworK: A Practitoner Guide,

Fill, C.and Mullins, L. (1990), "The Effective Management of Training", Industrial and Commercial Training, Vol. 22(1).

Goddard, J., Molyneux, P., Wilson, J.O.S., (2004). ''The profitability of European banks: a cross-sectional and dynamic panel analysis''. Manchester School 72 (3).

Grabowski, M. and Roberts, K. (1999), "Risk mitigation in virtual organizations" Organizational Science. Vol. 10(6).

G. Symon (Eds.), Qualitative methods in organizational research. Thousand Oaks, CA: Sage Publications.

Groum Abate (2008), Credit Risk Management for Ethiopian Banks

Haslam,. and John A., (1968), .A statistical analysis of the relative profitability of commercial banks., Journal of Finance,

Hunter, J. (2002), "Improving organizational performance through the use of effective elements of organizational structure", International Journal of Health Care Quality Assurance incorporating Leadership in Health Services, Vol. 15(3).

Joan Selorm Tsorhe,Anthony Q. Q. Aboagye and Anthony Kyereboah-Coleman (2009)," Corporate Governance and Bank Risk Management in Ghana", University of Ghana Business School

Laurent Cleck (2004), Credit risk management and financial stability

Economic Analysis and Research Directorate, Monetary and Financial Policy Research Division.

Prapawadee Na Ranong and Wariya Phuenngam (2009) Critical Success Factors for effective risk management procedures in financial industries: A study from the perspectives of the financial institutions in Thailand.

R.S. Raghavan(2003), Risk Management in Banks.

Ross, Westerfield (2008). Modern Financial Management 8th edition. McGraw Hill.

Rose, Peter S., 1996. Commercial Bank Management McGraw Hill Cos. Inc. USA

Saunders and Cornett (2005). Financial Institution Management. McGraw Hill.

Saunders and cornett (2007). Financial Markets and Institutions; an Introduction to the Risk Management Approach. McGraw Hill.

Short, B.K., (1979), .The relation between commercial bank profit rate and banking Concentration in Canada, Western Europe and Japan, Journal of Banking & Finance 3.

Stank, T.P., Daugherty, P.J. and Gustin, C.M. (1994), "Organizational Structure: Influence on Logistics Integration, Costs, and Information System Performance", the International Journal of Logistics Management, Vol. 5(2)

Takang Felix Achou and Ntui Claudine Tenguh (2008), Bank performance and credit risk management. University of Skoved: School of technology and society

Yuqi Li , Determinants of Banks. Profitability and its Implication on Risk Management Practices: Panel Evidence from the UK in the Period 1999-2006,

Addis Ababa University

School of Business and Public Administration

Department of Accounting and Finance

Dear respondents:

This is a questionnaire designed to collect data on the **credit risk management and its impact on bank performance** which will be used as an input for a thesis in a partial fulfillment of Msc. Degree in Accounting and Finance. Your genuine response is solely used for academic purpose and the data will be treated utmost confidentiality. Therefore, your kindly cooperation is appreciated in advance.

1. How many years of experience do you have working with bank and I the area risk management?

Bank	**Risk management area**
☐ Less than 1 year	
☐ 1-2 years	
☐3-5 years	
☐More than five years	

2. What is your expectation from effective credit risk management in your organization? (You can use more than one answer)

   - ☐ Reduce financial loss
   - ☐ Improve communication with the stake holders
   - ☐ Improve decision making
   - ☐ Improve resource allocation
   - ☐ Other (please specify)

3. Who has the authority to establish credit risk management in policy or procedure your organization?

- ☐ Chief executive officer(CFO)
- ☐ Chief financial officer(CFO)
- ☐ Board/ committee
- ☐ Executive management committee
- ☐ Internal auditor
- ☐ Staff
- ☐ Other(please specify)

4. Does your organization have a documented credit risk management guideline or policy?

- ☐ Yes
- ☐ No

5. Does the guideline support the goals and objectives of credit risk management?

- ☐ Yes
- ☐ No

6. Do you understand the credit risk management guideline or policy?

- ☐ Yes

☐ No

7. How often does your organization change its guidelines or policies to manage risks?

   ☐ Once per year

   ☐ Once per two years

   ☐ Once in more than two years

   ☐ Never

8. In the future, does your organization have a policy to support the development of credit risk management?

   ☐ Yes

   ☐ No

9. Does your organization offer training for employees?

   ☐ Yes

   ☐ No

10. How does your organization effectively communicate to reduce credit risk?(you can choose more than one answer)

    ☐ Creating clear and trustworthy information

    ☐ Developing understanding between management team and employee

    ☐ Fast and sharp communication between management team and stakeholders

    ☐ Regularly communicating among management and staff

    ☐ Creating and maintaining a clear communication

    ☐ Other (please specify)

11. How often does your organization provide credit risk management training courses?

- ☐ Never
- ☐ 1 times per year
- ☐ 2 times per year
- ☐ More than 2 times per year

12. Does your organization have established procedures for keeping up-to-date and informed with changes in regulations?

- ☐ Yes
- ☐ No

Do the bank uses Altman Z score in credit evaluation?

13. Do the bank uses Altman Z score for credit evaluation?

- ☐ Yes
- ☐ No

14. Does the bank have internal credit rating system?

- ☐ Yes
- ☐ No

15. What challenges you face in credit risk management?

_____

_____

16. What are the major kinds of method or process used by the in management of credit risk?

_____

_____

_____

Bank of Abyssinia

Balance Sheet

At year ending June

(In millions of Birr)

Assets	2001	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**
Cash on hand	22	28	51	58	110	101	128	325.46	612.15	662
Cash at Bank	21	252	242	170	16	5	1	1.46	15.63	57
Reserve Account With NBE	51	70	73	104	440	472	433	820.78	1693.59	1,606
Deposit with foreign Banks	84	85	141	123	193	203	260	294.93	374.93	638
Treasury Bills	0	0	0	173	0	0	200			
Other Investments	5	5	5	5	0	0				
Trust fund	0	0	0	0	0	0				
Sundury Debtors & Other debit balances	32	58	61	44	90	113	136	194.75	259.94	320
Total Loans & Advances	687	669	809	962	1234	1963	2305	2,817.15	2708.96	3,153
Less Provision for doubtful Debts	18	38	62	73	61	61	108	250.58	266.22	234
Net Loans & advances	669	631	747	889	1,173	1,902	2,197	2,566.58	2442.75	2,920
Custemers liability	-	-	90	67						
Fixed assets	12	13	13	19	35	38	41	65.97	77.64	78
Total	**896**	**1,142**	**1,333**	**1,585**	**2,057**	**2,834**	**3,396**	**4,269.94**	**5476.62**	**6,280**
Liabilities										
Deposits	**651**	**909**	**1,076**	**1,275**	**1,627**	**2,177**	**2,721**	**3,477.77**	**4494.19**	**5,139**
Demand Deposits	94	134	207	223	333	403	511	785.25	1211.31	1219
Saving Deposits	468	631	719	937	1183	1548	1898	2,411.50	3049.75	3783
Fixed Deposits	89	144	150	115	111	226	312	281.02	233.13	136
Foreing Bank	0	0	0	0	0	0				
Trust fund	0	0	0	0	0	0				
Short term loans	0	0	0	0	0	0				
Other credit balances	42	54	67	84	118	173	209	287.93	328.91	330
Margin held on L/C	40	29	39	17	37	45	35	76.83	89.33	170
Long term loans	0	0	0	0	0	0				
Provision for taxation	0	9	2	16	21	37	28	7.33	44.97	56
State dividened	0	0	0	0	0	0				
Other provisions	16	0	0	0	0	0				
Bank liability	0	0	90	67						
Capital & reserves	**147**	**141**	**149**	**193**	**254**	**402**	**403**	**419.68**	**519.23**	**585**
Authorized & paid	120	129	132	137	166	265	265	315.00	315.97	318
Legal reserves	10	10	11	21	36	58	75	78.76	103.85	139
General & Special reserves	4	4	4	6	6	13	13	13.43	25.92	26
Retained Earning	13	-2	2	29	46	66	50	12.49	73.49	103
Profit & loss A/C	0									
Total	**896**	**1,142**	**1,333**	**1,585**	**2,057**	**2,834**	**3,396**	**4,269.54**	**5476.62**	**6,280**
	896	**1,142**	**1,333**	**1,585**	**2,057**	**2,834**	**3,396**	**4,269.94**	**5476.62**	**6,280**

Bank of Abyssinia

Income Statement

Year ending June

(In millions of Birr)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Descriptions				A	B	C	D			
Interest Income	72	65	62	97	105	165	202	252.42	275.89	262
Interest Expense	27	34	27	29	33	41	60	93.40	112.07	127
Net Interest Income	45	31	35	68	72	124	142	159.02	163.83	135
Service Charge & Commission Income	2	1	8	12	14	21	23	31.03	35.85	46
Other Income	15	14	11	14	33	34	42	64.00	93.07	161
Total Non Interest Income	17	15	19	26	47	55	65	95.02	128.92	207
Net Interest Income & Non Interest income	62	46	54	94	119	179	207	254.04	292.74	342
Employees Salary & Benefits	6	7	8	10	13	30	35	45.26	65.91	79
Provision For Doubtful Loans	10	20	24	11	0	4	47	142.77	22.95	
General Expenses	11	11	14	19	24	23	30	44.10	58.39	66
Total Non Interest Expenses	27	38	46	40	37	57	112	232.13	147.25	145
Prior Year Ajustment										
Operating Income before Tax	35	8	8	54	82	122	95	21.91	145.50	196
Tax	16	10	2	16	21	37	28	7.33	45.03	56
Net Income After Tax & Provisions	**19**	**-2**	6	38	**61**	**85**	**67**	**14.58**	**100.46**	**141**

Awash International Bank

Balance Sheet

Year ending June

(In millions of Birr)

Assets	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Cash on hand	69	120	76	100	129	125	181	272	478	425
Cash at Bank	6	6	2	0	2	2	1	1	99	3
Reserve Account with NBE	81	81	61	206	233	237	520	909	1,771	1661
Deposit with foreign Banks	104	66	100	116	267	367	426	532	838	1154
Treasury bills	46	130	316	337	235	198		130		800
Other Investments	8	10	3	3	3	3	3	4	4	6
Trust Funds			-							
Other debit balances	22	48	30	61	72	152	196	230	521	672
Total Loans Advances	561	637	800	946	1290	1872	2512	2,738	2,713	3146
Less Provision For Doubtful Debts	19	24	44	73	80	92	109	127	149	148
Net Loans & advances	542	613	756	873	1,210	1,780	2,403	2,611	2,564	2997
Customers' liability for L/C			-						710	1078
Fixed assets	29	38	57	74	75	90	100	131	147	227
Total	**907**	**1,112**	**1,401**	**1,770**	**2,226**	**2,954**	**3,830**	**4,820**	**6,423**	**7945**
Liabilities										
Deposits	751	930	1,164	1,493	1,940	2,567	3,112	3,870	4,962	6106
Demand Deposits	136	166	245	287	422	574	603	825	1,133	1383
Saving Deposits	552	713	875	1141	1437	1833	2223	2,792	3,649	4661
Fixed Deposits	63	51	44	65	81	160	286	253	181	62
Foreign Bank their A/C										
Trust Funds										
Short term loans										
Other credit balances	43	51	73	94	16	18	214	248	326	427
Margin held on L/C			27	22	42	65	70	105	339	350
Loang term loans										
Provision for taxation				6					34	103
State dividend payable										
Other provisions										
Bank's liability to L/C									710	1078
Capital & reserves	104	131	137	155	228	304	434	597	750	940
Authorized & paid	91	100	111	127	155	188	252.5	368	445	550
Legal reserves	12	17	19	23	32	43	67	99	152	214
General reserves	1	2	2	3	7	8	7.5	13		
Retained Earning	9								11	19
Profit & loss A/C		12	5	2	34	65	106.5	117	152	176
Total	**907**	**1,112**	**1,401**	**1,770**	**2,226**	**2,954**	**3,830**	**4,820**	**6,423**	**7945**
	907	**1,112**	**1,401**	**1,770**	**2,226**	**2,954**	**3,830**	**4,820**	**6,423**	**7945**

* 2009 data is Eighteen months ended 30.06.09

Awash International Bank

Year-ending June Income Statement

(In millions of Birr)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Description										
Interest Income	57	61	58	68	94	137	214.5	251	276	303
Interest Expense	30	29	26	30	34	48	62	106	120	155
Net Interest Income	27	32	32	38	60	89	153	145	156	148
Service Charge & Commission Income	5	13	17	21	34	48	48	60	67	129
Other Income	14	7	26	35	21	43	80.5	112	134	254
Total Non Interest Income	19	20	43	56	55	91	129	172	201	383
Net Interest Income & Non Interest income	46	52	75	94	115	180	281	317	357	532
Employees Salary & Benefits	10	13	14	16	22	30	38	48	67	94
Provision For Doubtful Loans	5	5	24	19	9				29	18
General Expenses	13	15	19	24	29	39	39	65	59	69
Total Non Interest Expenses	28	33	57	59	60	69	77	113	155	181
Prior Year Ajustment										
Operating Income before Tax	18	19	18	35	55	111	204	204	202	351
Tax	7	7	4	9	17	33	61	61.2	59	103
Net Income After Tax & Provisions	**11**	**12**	**14**	**26**	**38**	**78**	**143**	**143**	**143**	**248**

Dashen Bank
Balance Sheet
Year ending June
(In millions of Birr)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
	A									
on hand	46	58	103	77	110	120	150	268	370	488
t Bank	27	28	34	81	75	1	13	46	232	261
e Account with NBE	88	101	138	225	390	482	861	1,773	3,442	2226
t with foreign Banks	192	192	245	190	446	546	647	829	658	2280
ry Bills	0	130	129	299						
nvestments	10	31	23	26	28	28	28	28	28	1426
und	0									
debit balances	28	79	75	113	165	229	356	510	542	568
oans & Advances	714	872	1267	1690	2232	3164	3988	4,382	4,452	5049
rovision For Doubtful Debts	23	27	49	63	72	84	99	102	102	110
ans & advances	691	845	1,218	1,627	2,160	3,080	3,889	4,280	4,349	4939
ers liability	-	-	-	-						
ssets	18	22	26	39	46	60	97	94	110	165
ssets	**1,100**	**1,486**	**1,991**	**2,677**	**3,420**	**4,546**	**6,041**	**7,829**	**9,733**	**12,353**
ties										
ts	886	1,191	1,621	2,178	2,833	3,692	4,861	6,152	7,925	10,145
d Deposits	261	393	466	623	793	1039	1361	1,617	2,190	2715
Deposits	533	737	1056	1,448	1,897	2,343	2843	3,842	5,034	6730
Deposits	92	61	99	107	143	310	657	693	702	699
n bank their a c	0									
nd	0									
rm loans	0									
redit balances	121	83	117	166	214	280	419	700	636	720
held on L/C	0	60	94	101	104	136	145.5	153	160	231
rm loans	0									
on for taxation	0	15	10	22	26	52	71	94	103	134
ividened payable	0	15	20	38						
rovisions	0	0	0	0						
iability	0	0	0	0	0	0				
& reserves	**93**	**122**	**129**	**172**	**243**	**386**	**545**	**731**	**909**	**1,123**
ed & paid	50	75	75	100	100	156	282	454	529	592
serves	12	18	25	39	57	90	137	197	259	340
Reserve	0				86	65	65			
Earning	31	29	29	33		75	60.5	80	121	191
loss A C		0	0	0	0	0				
	1,100	**1,486**	**1,991**	**2,677**	**3,420**	**4,546**	**6,041**	**7,829**	**9,733**	**12,353**
	1,100	**1,486**	**1,991**	**2,677**	**3,420**	**4,546**	**6,041**	**7,829**	**9,733**	**12,353**

Dashen Bank
Income Statement
Year ending June
In millions of Birr)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
ion				A						
Income	70	77	82	117	162	242	320	420	435	483
Expense	31	36	30	41	52	67	93	162	199	248
est Income	39	41	52	76	110	175	227	258	235	234
Charge & Commission Income	6	17	25	17	38	61	68	87	123	172
come	31	21	27	58	34	64	97	163	198	310
n Interest Income	37	38	52	75	72	125	165	250	321	482
est Income & Non Interest income	76	79	104	151	182	300	392	508	556	716
es Salary & Benefits	11	14	19	23	29	41	53	73	97	115
n For Doubtful Loans	0	4	23	16	12	14	8	18	2	11
Expenses	29	22	25	34	44	60	73	84	104	131
n Interest Expenses	40	40	67	73	85	115	134	175	204	258
ar Ajustment										
g Income before Tax	36	39	37	78	97	185	258	333	352	458
	15	15	10	22	26	52	71	94	103	134
me After Tax & Provisions	**21**	**24**	**27**	**56**	**71**	**133**	**187**	**239**	**250**	**324**

Wegagen Bank
Balance Sheet
Year ending June
(In millions of Birr)

Assets	2001	2002	2003	2004	2005	2006	2007	2008	2009
Cash on hand	68	69	86	75	104	147	167	218	318
Cash at bank	27	30	33	54	104	91	124	115	271
Reserve Account with NBE	59	65	55	95	62	175	327	845	1,893
Deposit with foreign Banks	56	64	140	185	350	248	702	625	433
Treasury Bills	16	0	0	0	0				
Other Invesments	0	0	0	0	0				
Trust Funds	0	0	0	0	0				
Sundury Debtors & Other debit balances	19	18	18	20	24	57	67	73	161
TotalLoans & Abvances	344	406	571	738	1002	1593	2155	2,347	2,112
Less Provision for Doubtful Debts	15	20	29	43	51	77	95	139	129
Net Loans & advances	329	386	542	695	951	1,516	2,060	2,208	1,984
Customers' liability for L/C	0	0							
Fixed assets	9	14	15	16	21	25	33	41	58
Total	**583**	**646**	**889**	**1,140**	**1,616**	**2,259**	**3,480**	**4,125**	**5,118**
Liabilities									
Deposits	**449**	**515**	**704**	**876**	**1,288**	**1,778**	**2,724**	**2,966**	**3,728**
Demand Deposits	159	172	251	375	590	725	1209.5	1,191	1,870
Saving Deposits	232	202	274	351	518	723	803.5	1,095	1,518
Fixed Deposits	58	137	179	150	180	330	710.5	680	340
Foreign Bank their A/C	0	4							
Trust Funds	0	0							
Short term loans	10	0							
Other credit balances	32	41	55	72	89	118	168	242	264
Margin held on L/C	26	20	33	50	43	85	144	260	214
Long term loans	0	0							
Provision for taxation	8	6	4	13	16	23	41	51	75
State dividend payable	0	0							
Other provisions	0	0							
Bank's liability to L/C	0	0							
Capital & reserves	**58**	**64**	**93**	**129**	**180**	**255**	**403**	**605**	836
Authorized & paid	46	53	77	89	113	151	238	381	532
Legal reserves	4	6	8	16	28	46	74	108	153
General reserves	1	0			3	5	8	12	16
Retained Earning	0	0	8	24	36	53	83	104	135
Profit & loss A/C	7	5							
Total	**583**	**646**	**889**	**1,140**	**1,616**	**2,259**	**3,480**	**4,125**	**5,118**
	583	**646**	**889**	**1,140**	**1,616**	**2,259**	**3,480**	**4,125**	**5,118**

Wegagen Bank
Income Statement
Year ending June
(In millions of Birr)

	2001	2002	2003	2004	2005	2006	2007	2008	2009
Description				A	B	C	D		
Interest Income	38	42	42	66	80	120	185	238	234
Interest Expense	17	20	17	18	22	35	55	90	83
Net Interest Income	21	22	25	48	58	85	130	149	150
Service Charge & Commission Income	12	12	16	27	39	52	67	91	90
Other Income	10	8	9	17	31	48	68	101	149
Total Non Interest Income	22	20	25	44	70	100	135	192	239
Net Interest Income & Non Interest income	43	42	50	92	128	185	265	341	389
Employees Salary & Benefits	9	10	11	14	20	31	44	55	74
Provision For Doubtful Loans	8	5	8	14	19	29	32	52	3
General Expenses	12	15	16	19	26	31	36	43	55
Total Non Interest Expenses	29	30	35	47	65	91	112	151	133
Prior Year Ajustment									
Operating Income before Tax	14	12	15	45	63	94	153	190	256
Tax	8	6	4	13	15	23	41	51	75
Net Income After Taxes & Provisions	6	6	11	32	48	71	112	139	181

Nib International Bank
Balance Sheet
As at end of June
(In millions of Birr)

Assets	2000	2002	2003	2004	2005	2006	2007	2008	2009	2010
Cash on hand	6	41	67	76	138	111	147	341	1026	622
Cash on bank	18	25	10	21	28	23	21	94	189	376
Reserve Account with NBE	9	5	40	62	98	93	279	720	906	932
Deposit with foreign banks	29	96	97	92	200	208	249	178	213	638
Treasury Bills	25	0	30	80	0	0				499
Other Investments	0		1	1	2	2	3	3	4	4
Trust fund	0		0	0	0					
Sundury Debtors&Other debit balances	9	42	106	152	170	141	111	238	294	380
Total Loans & Advances	59	324	550	786	1133	1475	1817	2,114	2220	2,546
Provisions	0	4	22	30	47	57	62	80	102	99
Net Loans & advances	59	320	528	756	1086	1418	1755	2,034	2118	2,447
Customers liabilty	0		131	149						
Fixed assets	3	5	6	7	10	31	42	43	56	72
Total Assets	**158**	**534**	**885**	**1,247**	**1,732**	**2,027**	**2,607**	**3,650**	**4,807**	**5,971**
Liabilities and Capital										
Deposits	**78**	**345**	**588**	**832**	**1,223**	**1,452**	**1,879**	**2,470**	**3,296**	**4,127**
Demand Deposits	37	95	152	229	292	327	423	671	1032	1,309
Saving Deposits	41	203	336	493	709	837	1085	1,437	1996	2,517
Fixed Deposits	0	47	100	110	222	288	371	362	269	301
Foreing bank	0		0	0	0					
Trust fund	0		0	0	0					
Sthort term loans	0		0	0	0					
Other credit balances	9	61	125	181	215	211	223	374	515	621
Margin held	31	20	41	47	50	56	50	163	201	221
long term loan	0		0	0	0					
Provisions for taxtion	0	9	6	14	20	23	30	46	66	84
State dividened	0		0	0	0					
Other provisions	0		0	0	0					
Bank liabilty	0	0	131	149						
Capital & reserves	40	99	125	173	224	285	425	598	729	917
Authorized & paid	39	84	105	129	160	200	307	426	488	586
Legal reserves	0	7	10	18	30	44	63	91	130	180
General & Special reserves	1		1	1	1	1	1	1	1	1
Retained earning	0		0	0	0					7
Profit & loss A/C	0	8	9	25	33	40	54	80	110	143
Total Liabilities and Capital	**158**	**534**	**885**	**1,247**	**1,732**	**2,027**	**2,607**	**3,650**	**4,807**	**5,971**
	158	**534**	**885**	**1,247**	**1,732**	**2,027**	**2,607**	**3,650**	**4,807**	**5,971**

Nib International Bank
Income Statement
Year ending June
(In millions of Birr)

Descriptions	2000	2002	2003	2004	2005	2006	2007	2008	2009	2,010
Interest Income	3	29	37	56	83	107	147	210	254	266
Interest Expense	1	10	11	15	24	33	42	62	75	90
Net Interest Income	2	19	26	41	59	74	105	148	178	177
Service Charge & Commission Income	1	7	13	18	23	25	27	48	90	152
Other Income	1	9	16	19	29	29	34	58	82	139
Total Non Interest Income	2	16	29	37	52	54	61	107	172	290
Net Interest Income & Non Interest income	4	35	55	78	111	128	166	254	351	467
Employees Salary & Benefits	1	4	6	8	11	17	25	36	53	77
Provision For Doubtful Loans	0	3	20	8	18	9	5	19	23	33
General Expenses	2	6	10	13	16	21	30	41	55	71
Total Non Interest Expenses	3	13	36	29	45	47	60	96	132	182
Prior year adustment										
Operating Income before Tax	1	22	19	49	66	81	106	159	219	285
Tax	0	9	6	14	20	23	30	46	66	84
Net Income After Tax & Provisions	**1**	**13**	**13**	**35**	**46**	**58**	**76**	**113**	**154**	**201**

UnitedBank
Blance Sheet
Year ending June
(In millions of Birr)

Assets	2001	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**
Cash on hand	13	21	35	34	44	68	116	176	260	312
Cash at Bank	5	21	13	14	15	72	33	238	278	551
Reserve Account with NBE	26	37	55	47	135	286	141	565	1,331	1748
Deposit with foreign Banks	25	38	70	195	290	167	468	406	617	664
Treasury Bills	0	25	0	0	0	0				
Other investment	0		0	0	0	0			1	1
Trust fund	0		0	0	0	0				
Sundury Debtors&Other debit balances	5	3	4	6	8	17	25	20	38	60
Total Loans & Advances	134	163	290	384	593	1004	1410	1,860	2,152	2614
Less Provision for doubtful Debts	1	2	7	15	23	29	43	50	66	95
Net Loans & advances	133	161	283	369	570	975	1368	1,810	2,086	2518
Customers liabilty	-									
Fixed assets	7	8	9	9	11	14	32	34	42	43
Total	**214**	**314**	**469**	**674**	**1,073**	**1,599**	**2,183**	**3,250**	**4,652**	**5896**
Liabilities										
Deposits	**129**	**189**	**287**	**532**	**865**	**1,220**	**1,541**	**2,443**	**3,616**	**4725**
Demand Deposits	28	42	60	118	191	331	385	674	1,106	1502
Saving Deposits	89	114	172	276	397	681	849	1,364	1,984	2857
Fixed Deposits	12	33	55	138	277	208	307	405	525	366
Foreing bank	0		0	0						
Trust fund	0		0	0						
Shotr term loans	0		0	0						
Other credit balances	15	26	72	30	42	124	225	142	183	235
Margin held on L/C	7	8	17	13	29	48	34	162	294	226
Long term loans	0		0	0	0	0				
Provistion for tax	0	3	2	3	12	16	23	35	40	73
State dividened	0		0	0	0	0				
Other provisions	0		0	0	0	0				
Bank liability	0		0	0	0	0				
Capital & reserves	**63**	**88**	**91**	**96**	**125**	**191**	**360**	**468**	**520**	**638**
Authorized & paid	57	82	83	85	88	132	268	335	362	376
Legal reserves	2	3	4	6	14	25	41	64	87	131
General & Special reserves	0	0	0	0	0	0				
Retained Earning	4	3	4	5	23	34	51	69	71	131
Profit & loss A C	0	0	0	0	0	0				
Total	**214**	**314**	**469**	**674**	**1,073**	**1,599**	**2,183**	**3,250**	**4,652**	**5,896**
	214	**314**	**469**	**674**	**1,073**	**1,599**	**2,183**	**3,250**	**4,652**	**5,896**

United Bank
Income Statement
Year ending June
(In millions of Birr)

	2001	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**
Descriptions				A	B	C	D			
Interest Income	13	17	19	27	46	71	122	171	210	251
Interest Expense	4	6	6	11	17	29	40	63	88	104
Net Interest Income	9	11	13	16	29	42	82	108	122	147
Service Charge & Commission Income	1	2	5	8	20	25	27	40	56	99
Other Income	8	5	7	11	25	30	43	68	79	161
Total Non Interest Income	9	7	12	19	45	55	70	109	135	260
Net Interest Income & Non Interest income	18	18	25	35	74	97	152	217	257	406
Employees Salary & Benefits	3	4	4	7	10	14	23	34	55	68
Provision For Doubtful Loans	1	1	5	9	7	6	13	14	17	29
General Expenses	6	6	9	9	14	17	29	43	52	62
Total Non Interest Expenses	10	11	18	25	31	37	65	91	124	159
Prior Year Ajustment										
Operating Income before Tax	8	7	7	10	43	60	87	126	134	248
Tax	3	3	2	3	12	16	23	35	40	73
Net Income After Tax & Provisions	**5**	**4**	**5**	**7**	**31**	**44**	**64**	**91**	**94**	**174**

Paired correlation, Multicolinearity test

	LROA	NPL	LPNPL	LPA	LPL
LROA	1.000000				
NPL	-0.312378	1.000000			
LPNPL	0.211657	-0.660664	1.000000		
LPA	0.034629	0.087811	-0.119103	1.000000	
LPL	-0.399777	-0.061655	0.281608	0.375665	1.000000