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Credit Risk Management Practice of Ethiopian Commercial Banks

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Abstract
The main purpose of study is to investigate the level of Credit risk management practice of Ethiopian commercial banks. Descriptive research based on Survey approach was carried out using primary data collected through self-developed questionnaire. Econometric and other statistical methods were employed to test the hypothesis. The study found that Credit risk, liquidity risk and operational risk are the three important types of risks the banks mostly faced. The three widely used Risk identification method were identified and ranked as Financial Statement Analysis firstly and followed by audit and physical inspection and then internal communication. The study further confirmed that four aspects of Basel's Credit risk management principles explain a significant level of variation on Credit risk management practice of Ethiopian commercial banks. Furthermore, Establishing an appropriate Credit risk environment and Ensuring adequate Controls over credit risk were found to be the most influential variables on level of Credit risk management practice. It is finally observed insignificant difference between public and private commercial banks in all aspect of Credit risk management principles and practice.
Keywords: Credit risk management principles, credit risk management practice, Ethiopian commercial banks

1. Introduction

Commercial banks are just like bridge in which fund of savers are transferred to borrowers through the process of financial intermediary specially where capital markets are not yet well developed like Ethiopia. It plays vital role in any economy as similar as what heart's role in human body by pumping the blood of business (financial resource) from surplus to deficit area. As a result, bank service is considered as life blood for any economic unit while effective Credit risk management system and practice is an ingredient part of safety, soundness, liquidity and profitability of banks.

Credit is the common fundamental component in any financial system. Different economic units, both demand and supply side, require credits. Individual require credit for economic and social need. Governments also require credit for financing its deficit and building public project. Most of Businesses organizations heavily relay on external source of finance for expansion, modernization, working capital requirement and financing new project. As a result of it, Credit risk is the most important risk banks face specially in developing country where no formal stock market available as alternative source of external fund.

Despite its economic and social benefit, Credit is evil for economy if it is not properly used and managed. Its improper management causes Default and Bad Reputation and credit losses /bankruptcy (Joseph, 2013). And also taking excessive Credit risk influences money supply which may lead to economic and financial instabilities. That is why many authors considered that Failure of Credit risk management system and practice as one of the main cause of financial crises in general and banking failure particularly ((Hussain & Al-Ajmi, 2012), (Al-Tamimi & Al-Mazrooei, 2007). Thus banking industry is the backbone of economic development if only if Comprehensive Credits risk management system is practiced.

Banking based financial system of Ethiopia, dominated by public sector banks, need to be changed, improved and developed so as to cope up with changing environment. As there are dynamic change in technology, competition, regulation and liberalization as well as continuous expansion of public and private sector banks, risks are also increased simultaneously in volume as well as in types. As a result banking business are getting complex. As everyone knows, Banking innovation and competition make banking service easily and widely accessible than before under which banks confront various risks in a single transaction. Therefore, banks should withstand this change through latest development in the area of risk management system.

Ethiopia banking system had been not given enough attention before 2010 specially regarding to the development of modern system of assessing, controlling and managing risk in banking operation in line with the changing environment and global financial standard. Risk management guideline of 2010 paved the way for the latest development of Risk management practice in Ethiopian banking industry.

Commercial banking earn profit out of managing risk as a result banking business is all about managing risk. As no gain no loss principles of nature, Verma S. (2005) noted that 'Profiting without exposing to risk is like trying to live without being borne'. Risk and return are therefore the core reason for the existence of commercial banks.

Banks should have sound and effective Risk management system in the view of the fact that their fund is highly leveraged or public fund. As a result, sound Risk management system and practice in bank is not an alternative rather it is a matter of survival for not only safety of individual bank and depositors but also for national and global financial stability.

Practicing effective Risk management system play great role in protecting Consumers and investors against risk of losing their deposits and capital not only through maintaining soundness, liquidity, profitable and stability of banking industry but also through enhancing competitive advantage, improving mobilization and deployment of fund as well as optimizing risk – return trade off and reducing cost.

Poor Risk management lead to the accumulation of Nonperforming loan under which the generated profit are not only eroded through loan provision but also soundness, safety and stability of bank While effective Credit risk management improve Credit performance through establishing appropriate Credit risk environment, maintaining Credit limit at acceptable level, undertaking sound Credit granting process, proper monitoring and controlling credit risk. Therefore it is important to examine level of Credit risk management system and practice of Ethiopian Commercial banks to initiate top level management and regulatory bodies to take policy measure toward maintaining adverse effect of their Credit function.

The purpose of this research is to investigate the level of Credit risk management system and practice of Ethiopian commercial banks and assess the perception and awareness of risk management staffs as well as to identify the types of risks and risk identification method through descriptive Survey research approach. Econometric model and other statistical analysis were carried out to address the objective of study.

2. Review of literature

There is no single empirical study in the area of safety and soundness specially in the area of Credit risk management with the pace of changing environment in Ethiopian banking system while few academic and professional researches related to History and performance of Ethiopian bank system were conducted. The following attempt is made to summarize the main finding of some selected studies in the area of risk management in commercial banks.

Al-Tamimi, H. A., & Al-Mazrooei, F. M. (2007) carried out comparative study of bank's risk management between national and foreign banks in the United Arab of Emirates through survey. The survey questionnaire mainly composed seven items clustered under Risk management practice (independent variable) and thirty three items under Understanding risk and Risk management, Risk identification, Risk assessment and analysis, Risk monitoring, and Credit risk analysis (independent variables). The regression result revealed that risk identification and risk assessment and analysis had significant positive impact on Risk management practice while other variables had insignificant positive Impact. The researcher also found that Risk identification and Risk assessment and analysis were the most influential variables for Risk management practice of nationally owned bank. It also further concluded that there was a significant difference between nationally owned and foreign banks in the aspect of Understanding risk and Risk management(URM), Risk assessment and analysis(RAA) and Monitoring and Controlling aspects while did not with practice of Risk identification (RI), Risk management practice and Credit risk analysis. Generally reported as foreign bank were more effective in Risk management practice then nationally incorporated bank due to quality of staffs and regulatory requirement.

Nazir, M. S., Daniel, A., & Nawaz, M. M. (2012) conducted research entitled 'Risk management practices: a comparison of conventional and Islamic banks in Pakistan using the same model suggested by Al-Tamimi, H. A., & Al-Mazrooei, F. M. (2007) and found positive relationship between dependent variable and explanatory variables. Hussain, H. A., & Al-Ajmi, J. (2012) also conducted research with the same instrument and found similar relationship in Bahrain. The regression result further indicates that Credit risk analysis, Risk monitoring and Understanding of risk and risk management had the most explanatory power of risk management practice in Pakistan.

NBE conducted the first survey on risk management practices of Ethiopian commercial banks by taking sample of nine members of bank's board of directors in 2009. It was specially aimed to identify the status of risk management practice of Commercial bank and to improve its strength further through providing fruitful recommendation on weakness. Inadequate risk management training , inefficient allocation of Risk management budget, lack of up to date and relevant economic and business data for decision making, lack of documented risk management strategy and program, lack of reviewing risk management document regularly, and poor internal communication and lack of comprehensive risk limits system were identified as weakness of Risk management system and practice of some Ethiopian Commercial banks while having qualified Risk management staffs, existence of policy and procedure of Risk management, having committed BOD, awareness of risk in banking operation, contingence plan for Operational and Credit risk were the major strength of the banks. Generally, the dominance of all those weaknesses over the strength witnesses the existence of poor Risk management system and practice in Ethiopian Commercial banking industry.

Richard E. et. al (2008) conduct research on the Credit risk management system of Tanzanian commercial banks and found that checklist with the help of 5C (Character ,Capacity ,Condition ,Credit history, and Collaterals) was used to assess borrower's Creditworthiness. Researcher also found that the quantitative Credit scoring model was not used as a result of poor record keeping and lack of effective data base system in different sectors with in the country. Researcher further noted the difficulty of using modern Credit risk management model due to lack of information and other financial infrastructure in under developed country.

Even though there are different methods of Risk identifications, Inspection by the bank's risk manager, audits or physical inspection, financial statement analysis and risk survey were the most important Risk identification methods of Commercial banks in United Arab of Emirates (Al-Tamimi & Al-Mazrooei, 2007). Hussain, H. A., & Al-Ajmi, J. (2012) also found similiare result in Bahrain.

The study of NBE(2009) identified and ranked three important type of risks in which Credit risk was ranked firstly and then followed by operational and liquidity risk .Al-Tamimi, H. A., & Al-Mazrooei, F. M. (2007) found three important types of risk the bank faces in United Arab of Emirates and ranked in descending order as Foreign exchange risk ,Credit risk and Operational risk while Hussain H. A.& Al-Ajmi J. (2012) ranked as Credit risk, Liquidity risk and Operational risk were the most important risk in Bahrain. Study of Alam, M. Z., & Masukujjaman, M. (2011) also found that Credit risk, Market risk and Operational risk were the major risks to the banks of Bangladesh. It is possible to conclude from those finding that Credit risk, Operational risk, Liquidity and Market risk are the major types of risks for most of Commercial banks. Therefore, Banks should give more emphasis on such types of risks to survive in banking segment.

The Basel Committee on Banking Supervision (BCBS) (1999) published document entitled "Credit risk management principles" (see figure: 1). It encompasses four major activities of managing Credit risk: 1) Establishing an appropriate Credit risk environment 2) Operating under sound Credit granting process 3) maintain appropriate Credit administration, measurement and monitoring process and 4) adequate Control overall Credit risk.

Establishing an appropriate Credit risk environment standard necessitate each commercial bank to establish its own strategies and policies along with clear responsibilities of Developing, Reviewing, Approving, implementing: and Communicating and reporting risk related data, as well as internal control system and monitoring compliance so as to ensure safety , soundness, and profitability of the bank . It specially states responsibilities of Board and senior management as the key role player in Credit Risk Management activities. The standards under Sound Credit granting process enforce Each Bank to operate its Credit granting activities through establishing and applying sound Credit granting process with Credit policy accompany with well-defined Credit-granting criteria and comprehensive credit limits as well as undertaking Creditworthiness analysis on arm's-length basis. Standards of Credit administration, measurement and monitoring process necessitate each bank to establish appropriate Credit administration and monitoring system and procedures, developing and utilizing internal risk rating and management information system, as well as establishing system for monitoring the overall composition and quality of the credit portfolio and assessing potential future change. While establishing a system, policies and procurers for early identification of deteriorating credits sign, managing problem loans and similar work out situations as well as efficient and independent internal credit quality review and reporting system are principles under standard of Adequate Control overall Credit risk.

Well-conceived Credit policy, Organization of Lending, Establishing Credit Limits, Credit Management Information System, Loan Pricing, Loan Portfolio administration, Creditworthiness Analysis, problem loans recovery, Loan Monitoring, Credit Authorization and Credit Scoring ((rating) are basic element of Credit risk management system (Baxter, N., Panova, G., & Platonov, V. (1998, p. 107-112)) . Bagchi SK (2003) noted that Risk identification, Risk measurement, Risk monitoring, Risk control and Risk audit as well as Credit risk management policies and Credit rating system are the major components of Credit risk management system. Active board and senior management oversight, adequate risk measurement, monitoring and management information system and comprehensive internal control are the main components of effective Credit risk Management (www.sas.com, 2006).

The management of Credit risk generally include setting out authority and responsibility clearly: developing and applying appropriate Credit risk strategy, policy and procedures: proper understanding and identification of risk: sound Credit granting process: credit administration, monitoring and reporting process and finally Credit risk control along with determining the method and frequency of reviewing Credit policies and procedures.

3. Conceptual framework

One of the main purposes of this study is to examine /confirm the relationship between Credit risk management practice and four aspects of NBE (2010) and Basel's Credit risk management standard (1999)(see figure: 1).

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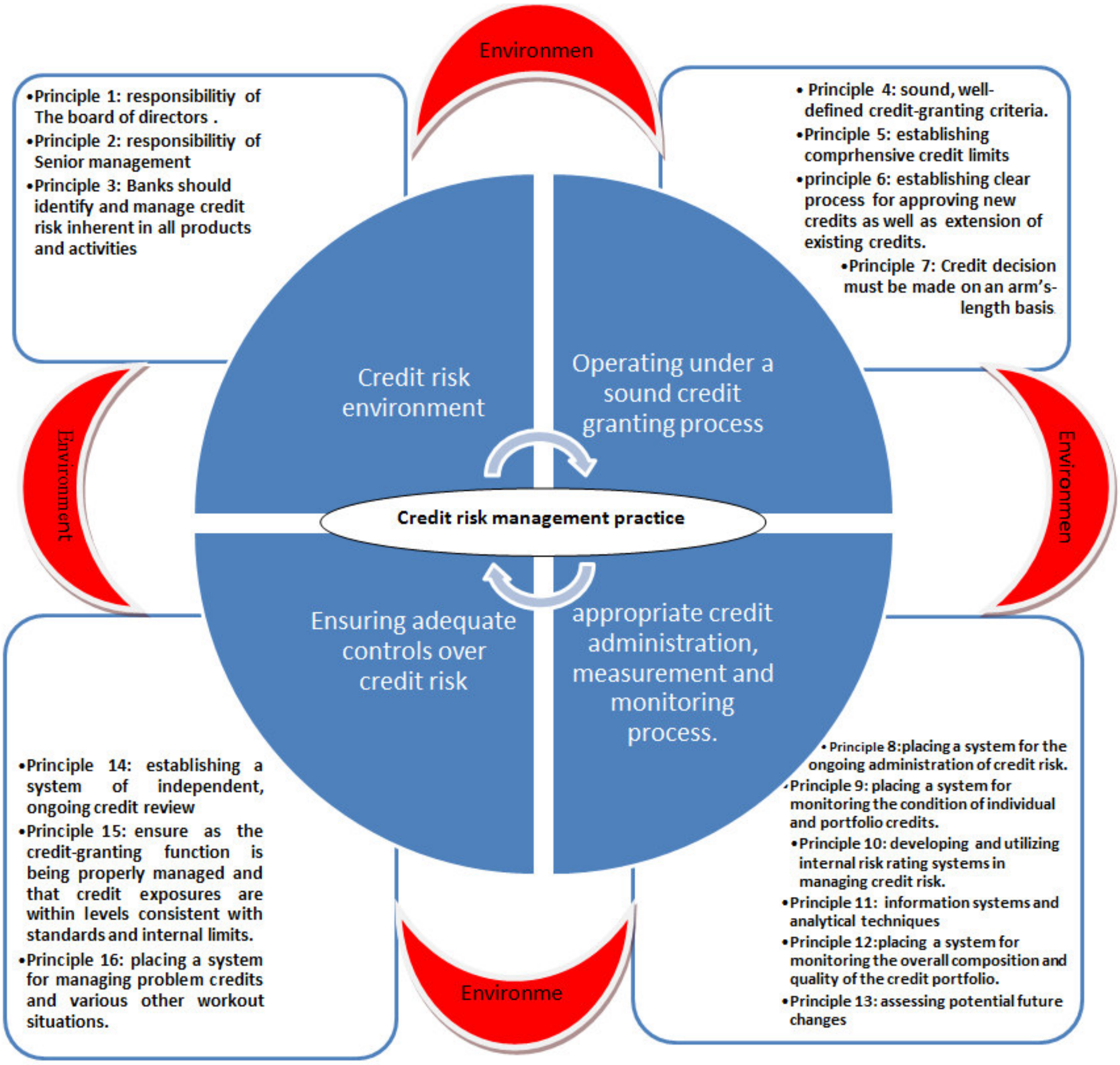

Figure 1: Model of Credit risk management practice.

Researcher tried to define Credit risk management practice as the process of reviewing and updating Credit risk management documents and apply consistently in actual Credit granting process, Credit administration and monitoring and risk controlling process with appropriate Credit risk environment, understanding and identification of risk so as to minimize the adverse effect of risk taking activities.

Basel (1999) and other literature in the area of Credit risk management suggested that banks should have Sound and updated Credit strategy, policy and procedures, sound Credit granting process, proper Credit administration and monitoring and Credit risk controlling system that consistently applied in each credit cycle with appropriate Credit risk environment in order to have effective Credit risk management system and practice. Therefore, four explanatory variables (appropriate Credit risk environment, sound Credit granting process, Credit administration, measurement and monitoring process and adequate Control over Credit risk) are expected to have positive effect on effectiveness of Credit risk management practice.

4. Research Questions

1.Have Ethiopian commercial banks established appropriate Credit risk environment?
2.Have Ethiopian commercial banks undertaken Sound Credit granting process?
3.Have Ethiopian commercial banks maintained appropriate Credit administration, measurement and monitoring system?
4.Have Ethiopian commercial banks ensured the adequate control over credit risk?
5.Do Ethiopian commercial banks have effective Credit risk management system and practice

5. Hypothesis

The following sets of alternative hypothesis are formulated based on the above research questions and tested by appropriate statistical techniques.

H_1: There is a positive relationship between Credit risk management practice and all four explanatory variables such as Credit risk oversight, sound Credit granting process Credit administration, measurement and monitoring and controlling over credit risk.

H_2: There are significant difference s between public and private commercial banks of Ethiopia in practicing Credit risk management, establishing Credit risk oversight, undertaking Credit granting process, Credit administration, Credit monitoring and ensuring control over Credit risk.

6. Methodology

The main objective of the study is to examine the level of Credit risk management system and practice of Ethiopian Commercial banks and make comparison with international standard as well as Credit risk management guideline of NBE. Descriptive survey research approach was carried out in order to achieve the intended objective of the study. All Risk management staffs of head office from both public and private Ethiopia commercial banks are selected purposively and become target population of the study.

Researcher develops structured questionnaire based on the Basel's Credit risk management principles/activities of 1999 and NBE's Credit risk management guideline of 2009. 41 closed ended questions with seven Likert scale level of agreement were developed on five aspects of Credit risk management activities: (1) Establishing an appropriate Credit risk environment; (2) Operating under a sound Credit granting process; (3) Maintaining an appropriate Credit administration, measurement and monitoring process; and (4) Ensuring adequate Controls over credit risk and 5) Credit risk management practice . One multiple responses and one ordinal scale question were also additionally included. Very few questions from Al-Tamim H. and Al-mazrooei F. (2007) were adopted and included after modified.

The questionnaires were distributed for Risk management staffs of head office by expecting practical oriented response since Risk management function mainly carried out at head office in case of Ethiopian commercial banks (Risk management function is set up at head office).

There were 18 Ethiopian commercial banks during study period where two are government owned and 16 privately owned commercial banks. All commercial banks with minimum two years experience were included except "United bank" due to unnecessary buerocratical procedure to distribute questionnaire.

160 questionnaires were distributed personally to all Risk management staffs of head office who were assigned in different Risk management position. Out of which 25 questionnaires were unreturned because of some reason like absence of some staffs due to personal and field work, losing questioners and other. 12 questionnaires had defective response like similar response across all questions and blank response on the majority of questions. Nine questionnaires were returned without response due to lack of interest and work burden. Therefore, 114 (72%) of the questionnaires were duly filled and returned out of 160 questionnaires.

The natures of participants are displayed in appendix table 1. Risk management staffs of head office such as Credit manager, Credit director, Credit analyst, Recovery officers, Credit follow up, risk and compliance managers and Risk experts were the major respondents. 40 % of the respondents were staffs of public commercial banks while 60 % were staffs of private commercial banks. Age of majority respondents (55.3%) ranged from 31 to 41 years. The majority of the participants are holder of BA Degree (74.5%) while 25.5 % are MA holders. The participants are graduated from different business and economist streams such as Accounting (37.7%), Management (36.6%), Economics (21.9%), Banking and finance (7%) and risk management (1%). The majority of the respondents (55%) had work experience ranged from one to five years.

6.1 Variables and method of data analysis

The survey data has been analyzed using descriptive summaries, econometrics model and ANOVA as well as Cronbach's alpha with the help of SPSS version 20.

Econometrics model is used to test hypothesis and explore the influence of explanatory variable over dependent variable as well as to determine the contribution of each independent variable on dependent variable. Therefore, the following research questions are answered beside hypotheses testing through the Model:

- **a.** How much variance in Credit risk management practice scores can be explained by set of four variables?
- **b.** Which one of these four variables is better predictor of Credit risk management practice in Ethiopian commercial banks?

Credit risk management practice is the function of Credit risk management principles/activities. Symbolically

CRMP=f (ACRE, SCGP, CAMMP, ACOCR). Where:

CRMP= Credit risk management practice:

ACRE = Establishing an Appropriate Credit risk environment:

SCGP = Operating under a sound Credit granting process

CAMMP=Maintaining an Appropriate Credit Administration, Measurement and monitoring process

ACOCR = Ensuring Adequate Controls over Credit Risk

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In formal way:

$$Y_i = (b_0 + b_1\ ACRE_{i1} + b_2\ SCGP_{i2} + b_3\ CAMM_{i3} + b_4\ ACOCR_{i4}) + \varepsilon_i$$

Y is the outcome variable (dependent variable), b_1 is the coefficient of the first predictor ($ACRE_1$), b_2 is the coefficient of the second predictor ($SCGP_2$), b_3 is the coefficient of the third predictor ($CAMM_3$), b_4 is the coefficient of the fourth predictor ($ACOCR_4$) and ε_i is the difference between the predicted and the observed value of Y for the i th participant.

6.2 Reliability measure

Cronbach's alpha was employed to test the consistency of the questionnaire. CRMP, ACRE, SCGP, CAMM and ACOCR had high reliabilities, all Cronbach's α =0.963. Yfield, A. (2009, P. 676) suggested that Cronbach's α value of 7 to 8 is acceptable and ensure the reliability of items while Pallant, J. (2007, P. 292) suggested that Cronbach's α value of above .8 is preferably to be considered reliable. Therefore the result of total items together and also each clustered items were reliable enough for further statistical analysis (See table 1 below).

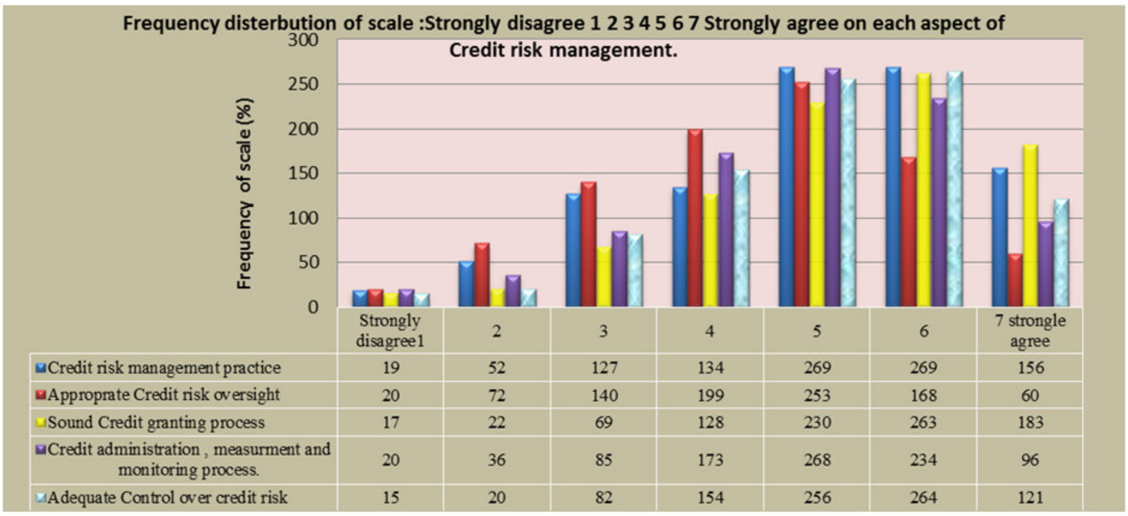
Table 1: result of correlation coefficient

Five aspects of Credit risk managements	Cronbach's alpha
1. Credit risk management practice(CRMP)	0.845
2. Appropriate Credit risk environment(ACRE)	0.886
3. Sound Credit granting process (SCGP)	0.881
4. Credit administration ,measurement and monitoring(CAMM)	0.889
5. Adequate control over Credit risk (ACOCR))	0.889
6. over all	0.963

7. Empirical Discussion and Results

The study reported here was conducted to find out the level of Credit risk management practice, Types of risks the banks mostly face, widely used risk identification method, and generally, the levels of awareness and perception of Risk management staffs of Ethiopian commercial banks

114 respondents were asked their level of agreement on seven Likert scale and its frequencies distribution of scale on each component are displayed in figure: 2. Average



	Strongly disagree1	2	3	4	5	6	7 strongle agree
Credit risk management practice	19	52	127	134	269	269	156
Approprate Credit risk oversight	20	72	140	199	253	168	60
Sound Credit granting process	17	22	69	128	230	263	183
Credit administration , measurment and monitoring process.	20	36	85	173	268	234	96
Adequate Control over credit risk	15	20	82	154	256	264	121

Figure: 2 Frequency of scale on level of agreement

grand mean value of all items is 4.98 which indicate that the majority of respondents gave 'somewhat' positive score on the level of agreement scale of 41 questions. The dominance of positive response, the frequencies scale of 5, 6 and 7, has been clearly observed from graph 1. In other word, 27.3% of participants responded on scale 5, while 25.6% and 13.2% on scale of 6 and 7. The frequency of 5, 6, and 7 are totally occupied 66.1 % over total frequency. Overall, these results 'somewhat' indicate that Ethiopian commercial banks are undertaking its Credit risk management function with appropriate Credit risk environment, sound Credit granting process, Credit administration and monitoring system and adequate control over credit risk.

7.1 Establishing Appropriate Credit risk environment

Establishing Appropriate Credit risk environment is preliminary activities of Credit risk management process (Basel (1999), NBE (Risk management guideline (2010)). Eight items were included in the questionnaire to address the issue of establishing appropriate Credit risk environment. Table: 2 shows the descending orders of 8 items in terms of mean value. Mean value of eight questions range from 4.3 to 4.9 which represent 'somewhat' positive response on measurement scale. The lowest mean value is 4.29 for question number 8 and Followed by mean value of 4.46 for question number 7 which are also less than grand mean value of 4.68. This indicates that creating common understanding on risk management documents and identification of Credit Risk need attention respectively.

Table2: Survey result on BOD & Senior management oversight

	Cumulative frequency of 5, 6 & 7	Cumulative percentage of 5,6 & 7	Mean	Std. D
1. Bank's Credit risk strategies, policies and procedures are regularly reviewed and updated by the board of directors.	75	65.8	4.93	1.27
2. Senior managements are responsible for implementing credit risk strategy approved by the board and for developing credit policies and procedures.	74	64.9	4.87	1.21
3. Boards of Directors and Senior Managers closely monitor the major Credit Risk exposure of the Bank	73	64	4.85	1.22
4. Credit Risk management strategy, Policies and Procedures are consistently applied in all Credit product and activities of the bank.	70	61.4	4.81	1.36
5. The banks' staffs take the necessary precaution against default risk	69	61.4	4.60	1.33
6. Authority and Responsibility of Risk Management are clearly set out and understood throughout the bank.*	63	55.3	4.56	1.43
7. There is proper identification of Credit Risk inherent in all products and activities of our Bank	60	52..6	4.46	1.28
8. There is common understanding about Credit Risk Management Strategy, Policy and Procedures across the Bank.	55	48.2	4.29	1.37
Average grand cumulative frequency of 5,6,7 and means	**67**		**4.68**	

Understanding credit risk strategy, policy and procedures as well as identifying risks are the cornerstone for Credit risk management process. Lack of Common understanding on Credit risk strategy, policies and procedures across the bank may cause inconsistent interpretation and application of Credit policy and procedures across the bank and finally lead to lack of common code of conducting Credit risk management activities among staff and staff also get difficulties to ward identifying Credit risk inherent in all product and activities of bank. Generally, the grand mean value is 4.68 which represent 'somewhat' positive response on measurement scale. Cumulative frequency scale of 5, 6 and 7 of eight items also ranges from 55 to 75 and its Grand cumulative frequency score is 67. Hence, the majority of the participants gave 'somewhat' positive response on the establishment of appropriate Credit risk environment in Ethiopian commercial banks.

Question number eight has the highest standard deviation of 1.36 which means that there is more average deviation between individual score and its mean while the second question has lowest standard deviation of 1.21 which indicates the respondent's score is near to main or less average deviation between observed values and the mean score.

7.2 Operating under a Sound Credit granting process

Operating under a Sound Credit granting process is the Basis for an effective Credit risk management process under which feasible and creditworthy client is identified. The table 3 indicates the descending order of eight questions in terms of mean value. Mean value of eight questions range from 4.7 to 6.13. The lowest mean value is 4.73 of question number 8 and Followed by mean value of 4.9 for question number 7 and 6, which are also less than grand mean value of 5.3, represent in somewhat positive level of response on measurement scale. This indicates that Commercial banks should further enhance Credit limit system, level of Credit diversification and obtaining sufficient and up-to-date micro and macro economic data relatively. Lending business without gathering the necessary information is just like putting money in fire.

Table 3: Survey result of Sound Credit granting process

	Cumulative frequency of 5, 6 & 7	Cumulative percentage of 5,6 & 7	Mean	Std. D
1. It is too risky to invest our bank's funds in one specific sector of the economy.	104	89.5	6.13	1.30
2. Adequacy, marketability and enforceability of collateral requirement is properly evaluated and measured by professional personnel or expertise.	92	80.7	5.62	1.31
3. The Bank conducts comprehensive Credit worthiness analysis properly before granting loan.	91	79.8	5.37	1.14
4. The Bank uses well defined Credit-granting Criteria for assessing credibility of each loan applicants.	85	74.6	5.19	1.34
5. The bank critically follows Sound Credit granting process for approving new credits as well as amending, renewing and re-financing existing credits.	85	74.6	5.14	1.31
6. The bank has established comprehensive Credit limit for the main categories of risk factors in all types of credit facilities.	76	66.7	4.92	1.37
7. The Bank optimally diversifies its credit exposure to different economic sectors and geographical area.	74	64.7	4.92	1.43
8. The Bank undertakes Credit granting process based on a reliable and substantial amount of date related to macro-economic and borrower specific factors.	71	62.3	4.73	1.46
Grand cumulative frequencies of 5,6 and 7 and mean	**85**		**5.3**	

The mean value of the first question is 6.13 which represent strong level of positive response on measurement of scale and relatively indicates that bank's risk management staffs have high awareness and positive perception on portfolio diversification. The mean value of second, third, fourth and fifth question are 5.62, 5.37, 5.19 and 5.14 which represent strong positive response on the level of measurement scale. The grand mean value is 5.3 which also represent strong positive response on measurement scale. Overall, these results indicate that Ethiopian commercial banks are operating under sound Credit granting process.

7.3 Maintaining an appropriate Credit administration, Measurement and Monitoring process

Proper administration of Credit documentation as well as monitoring the status of borrowers, loan term and conditions and collateral coverage periodically as well as keeping Credit file up to date and repayments continuously are the basic post Credit approval activities of Credit risk management process that help to discover mistake at early stage while management information system and internal risk rating are the main ingredient for monitoring, reporting and controlling risks.

The table 4 shows the descending order of eight questions in terms of mean score. Individual mean value ranges from 4.4 to 5.1.

Table 4:Survey result of Credit administration,measurement and monitoring system

	Cumulative frequency of 5, 6 & 7	Cumulative percentage of 5,6 & 7	Mean	Std. D
1. The bank strictly monitors loan terms and conditions that have been stipulated at the time of loan approval.	84	73.7	5.11	1.348
2. The bank regularly reviews and monitors the performance of Credit quality at individual and portfolio level.	77	67.5	5.08	1.327
3. There is a complete, neatly organized and regularly updated credit file in our bank.	79	69.3	5.02	1.204
4. The bank has developed its own internal risk rating system and applying in credit risk management process effectively.	78	68.4	5.01	1.557
5. There is effective Credit monitoring system and procedures.	82	71.9	4.98	1.336
6. The bank quantify its credit risk at individual and portfolio level	73	64	4.83	1.504
7. There is effective system and practice of reporting and communicating risk data/ information among relevant staffs of our bank.	64	56.1	4.64	1.283
8. The bank's Credit risk management system and practice has been integrated with appropriate Management Information Systems.	61	53.5	4.47	1.418
Average Grand mean value	75		4.88	

The first, second, third and fourth statements with the high mean value of 5.11, 5.08 5.02 and 5.01, which are also greater than grand mean value of 4.88, represent positive response on measurement of scale. Therefore, Majority of respondents confirmed that Ethiopian commercial banks are monitoring loan term and conditions strictly; reviewing and monitoring credit quality; updating credit file and applying internal risk rating system properly.

The lowest mean score is 4.4 of question number 8 and Followed by a mean value of 4.6 and 4.83 of question number 7 and 6, which are also less than grand mean value of 4.88, represent somewhat positive level of response on measurement scale. Hence, establishing effective management information system, Communication and reporting risk related data and quantifying credit risk both at individual and portfolio level are some issues that require great attention of top management and regulatory bodies respectively.

Average grand mean value of eight statements is 4.9 which represent 'somewhat' positive level of response on measurement of scale. Generally, it indicates that appropriate Credit administration, Measurement and Monitoring process are maintained somewhat in line with guideline of NBE and Basel (1999).

7.4 Adequate control over Credit risk

Eight items were included in the questionnaire to address the issue of ensuring adequate control over Credit risk. Table 5 shows descending orders of 8 items in terms of their mean value. Mean value of eight questions range from 4.7 to 5.6. The lowest mean score is 4.75 is for of question number 8 and Followed by mean value of 4.8 and 4.87 of question number 7 and 6, less than grand mean value of 5.3, which represent 'somewhat' positive response on measurement scale. This indicate that early identification of default sign, conducting independent Credit quality review and monitoring risk profile are some issues that need attention of top level managements. The mean value of first, second, third and fourth question is 5.6, 5.3, 5.29 and 5.01 which represent positive level of response on measurement scale.

Table 5:survey result on adequate control over credit risk

	Cumulative frequency of 5, 6 & 7	Cumulative percentage of 5,6 & 7	Mean	Std. D
1. The bank has appropriate policy, procedures and techniques for improving loan repayment and handling troubled loan.	93	81.6	5.64	1.29
2. Credit loss, Loan concentration, large exposure and level of NPL can be reduced if banks' Credit policy, Procedure and Techniques are implemented properly.	88	77.2	5.30	1.37
3. The bank's top managements have strong commitment toward controlling default risk	92	80.7	5.29	1.19
4. Appropriate and timely policy measures have been taken for resolving loan recovery problem during the last three years.	76	66.7	5.01	1.17
5. The Bank keeps its Actual risk profile at or below its risk tolerance /appetite.	76	66.7	4.89	1.25
6. There is an appropriate level of Control over Credit Risk the bank faces.	73	64.0	4.87	1.40
7. The Bank carry out regular independent internal Credit quality reviews accurately.	74	64.9	4.80	1.40
8. There is an early identification of Credit default sign with immediate corrective action.	69	60.5	4.75	1.39

This indicates that the majority of participants have positive perception and strong beliefs toward risk management documents and strong commitment of top level management toward controlling credit risk by taking Appropriate and timely policy measures.

Generally, Grand mean value is 5.07 which represent positive level of response on measurement scale and it indicates that the majority of respondents confirmed as Ethiopian commercial banks have ensured adequate control over Credit risk by developing appropriate loan repayment strategy, policies and procedures and resolving loan recovery problem properly with committed top level management as well as with staffs having positive perception and strong beliefs toward Credit policies and procedures.

7.5 Credit risk management practice

The effectiveness of Credit risk management process is highly dependent on proper application of sound Risk management documents, Staff quality, Credit culture, committed top management bodies, Adequate training program, suitable organizational structure, Adequate level of internal Control and Performance of intermediation function (Basel (1999), Baxter, N., Panova, G., & Platonov, V. (1998, p. 107-112) Colquitt, J. (2007), Srivastava R, (2008)). The researcher includes nine questions to address Credit risk Management Practice by taking those core aspects in to account. Once the banks develop comprehensive and sound Risk management document, it should not be kept always on shelf instead it should be reviewed and up dated as well as rehearsed in the mind of risk management staffs so as to serve as guideline in each activities of credit cycle. However, having sound and comprehensive Risk management document merely, without its proper implementation, is not means that the bank is practicing effective Risk management system.

Table 6 shows descending orders of nine questions in terms of their mean value. Mean value of nine items range from 4.4 to 5.6. The first, second, third and fourth statements with the high mean value of 5.62, 5.45 5.19 and 5.17, which are also greater than grand mean value of 4.96, represent positive response on measurement of scale. This indicates that Ethiopian commercial banks have established sound Risk management documents, suitable Organizational structure, and Credit risk management system/program, as well as created risk awareness in line with the directives and guideline of NBE.

Table 6: Respondent's answers on credit risk management practice

Questions	Cumulative frequency of 5, 6 & 7	Cumulative percentage of 5,6 & 7	Mean	Std. D
1. Establishing and Practicing effective Credit Risk Management system is one of the main objectives of my bank.	96	84.2	5.62	1.35
2. Success and failure of any bank is mostly depends on the effectiveness of Credit Risk Management System and Practice.	84	73.7	5.45	1.37
3. The bank has well-documented Credit Risk Management Strategy, Policy and Procedures that guide the staffs in their daily activities of managing credit risks.	86	75.4	5.19	1.59
4. The bank has established Sound Credit Risk Management System in line with NBE's risk management guideline and directives.	82	71.9	5.17	1.38
5. There is suitable Organizational structure that enables me to undertake effective Risk Management System and practice.	82	71.9	5.00	1.41
6. This Bank has adequate and qualified risk management staffs and expertise.	69	60.5	4.71	1.42
7. There is adequate Deposit mobilization and fund utilization in this bank.	68	59.6	4.57	1.66
8. The bank gives adequate and effective Risk Management training for staffs	63	55.3	4.47	1.41
9. Overall, I consider the level of Credit Risk Management system and Practices of the Bank is to be excellent**	64	56.1	4.44	1.36
Grand mean	**77.1**	**67.6**	**4.96**	

Note: NBE is National bank of Ethiopia
Modified question (Al-Tamimi & Al-Mazrooei, 2007).

The lowest mean values is 4.44 for question number 9 and followed by mean value 4.47 and 4.57 of question number 8 and 7 and then mean value of 4.71 for question number 6 respectively, which are also less than grand mean value of 4.96, represent somewhat positive response on measurement scale.

This indicates that profile of risk management staffs, efficiency of intermediation process and Risk management training need attention. Generally, the grand mean value is 4.96 which represent somewhat positive response on scale. Therefore, the majority of the participants gave somewhat positive response on the level of Credit risk management practice in Ethiopian commercial banks.

7.9 Risk identification methods

Respondents were asked optional types of questions to indicate widely used methods of risk identification in their banking business. Figure 3 depicts the participant's response on Risk identification methods.

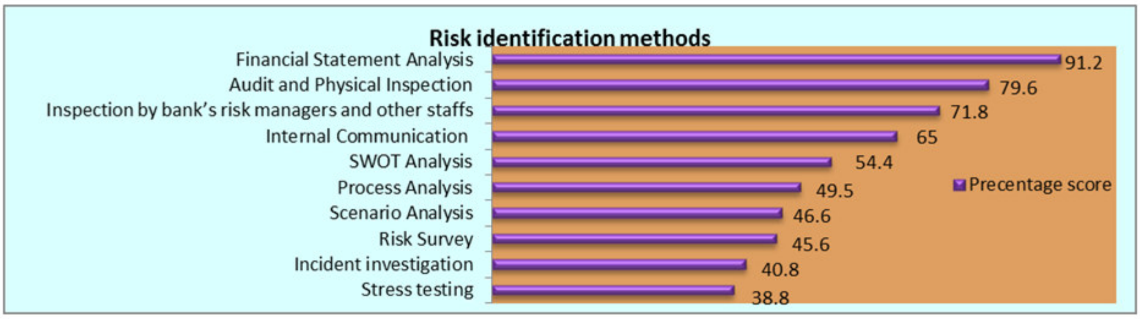


Figure 3 Percentage score on Risk identification methods

It can be clearly seen from the table 7 that Financial Statement Analysis is the widely used method with total score of 91.2 % and followed by audit and physical inspection total score of 81.4% and then internal communication with total score of 70.3 %. Overall, these results indicate that more than 70% of the respondents have reached commonsense on three types of risk identification method (Financial Statement Analysis, audit and physical inspection and internal communication) as the most important and widely used method in Ethiopian commercial banks.

7.10 Types of risk

The respondents gave the score on the types of risk the bank mostly face. Figure 4 clearly shows the rank of risks depend on percentage score. Credit risk is vital and mostly faced risk and then followed by liquidity and operational risk. This study somewhat confirm the survey result of NBE(2009) under which Credit risk ranked firstly in both studies and order difference between rank of operational and liquidity risk. While both study revealed that credit risk, liquidity and operational risk are the three most important risks in Ethiopian commercial banking industry.

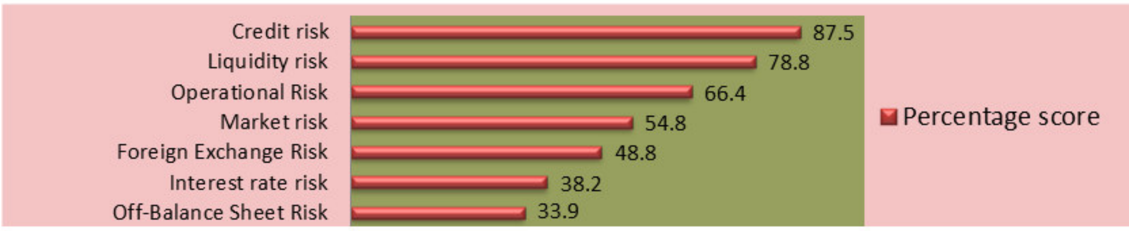


Figure 4 types of risk

1.17 Correlation and Regression analysis

A Pearson correlation were used to determine the correlation among five variable and identifying multicolinearity problems while multiple regression analysis have been run in order to test hypothesis. Table 7 provides the correlations between each variable.

Assessing the suitability of data for parametric analysis indispensably required before rushing to regression and ANOVA analysis. Preliminary analyses like Inspection of the Normal Probability Plot (P-P) and the Scatter plot were conducted and the result ensured none violation of assumptions of normality, linearity, multicollinearity and homoscedasticity.

Different authors suggest different way of identifying multicolinearity problem even though there is no any certain method of detecting such problem. However as rule of thumb, Gujarati, N. D. (2003,P. 341-375) , Pallant, J. (2007, P.149) , Yfield, A. (2009, P. 233, 242) suggested that correlation coefficient between any independent variables should not be above 0.8 or 0.9 or the VIF value is greater than 10, or the Tolerance is less than 0.1. Multicollinearity problem is not the concern of this study since Correlations between each pair of independent variables ranges from 0.648 to 0.724 (see table 7) and the VIF value is greater than 10 as well as the Tolerance is less than 0.1 (ACRE score, Tolerance =0.34, VIF=2.8: SCGPE score, Tolerance= 0.31, VIF=3.1: CAMM score, Tolerance= 3.5, VIF=2.6: ACORC score, tolerance= 0.45, VIF= 2.2) (see table 9). The data also met the assumption of independent errors (Durbin Watson value = 1.9).

Table: 7 Correlation matrix

Correlations

		ACRMP	ACRE	SCGP	CADMM	ACORC
Pearson Correlation	ACRMP	1.000				
	ACRE	.741	1.000			
	SCGP	.664	.773	1.000		
	CADMM	.667	.721	.719	1.000	
	ACORC	.624	.611	.682	.690	1.000

All variables are significant at 0.00 level

Table 8 shows the Result of Regression Coefficients of five variables. The value of F-statistics was 42.3(F=42.3) which is statistically significant (F<0.01). Hence the fitness of the model is confirmed. The variance explained by the model was 60.8% which means that the level of ACRE, SCGP, CAMM and ACOCR explain a significant amount of variation on the level of Credit risk management practice ($F (4,109) = 42.2$, $P < 0.01$, $R^2 = 60.8\%$, adjusted $R^2 = 59.4\%$, $p < .01$). Therefore H1 is accepted at 1% level of significance which confirms that all four explanatory variables together had significant positive relationship with Credit risk management practice.

The analysis further revealed that the estimated coefficient of SCGP and CAMM had insignificant positive effect on the level of Credit risk management practice (Beta=6.5%, $t(109) = 0.608$ and Beta=15.8%, $t(109) = 1.58$).

Table 8: Result of Regression Coefficients

	Un standardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	7.158	3.194		2.241	0.027		
ACRE	.499	.110	.462	4.525	0.000	0.346	2.894
SCGP	.076	.125	.065	.608	0.544	0.317	3.158
CAMM	.178	.113	.158	1.583	0.116	0.363	2.758
ACOCR	.211	.100	.189	2.117	0.037	0.452	2.214

F-Value=42.20, R^2=0.608, Adjusted R^2=0.594

However, ACRE and ACORC as expected and had significantly positive effect on the level of Credit risk management practice (Beta=46.2%, $t(109) = 4.52$, $P < 0.01$ and Beta=19%, $t(109) = 2.12$, $p < .05$). In addition, the results indicate that ACRE makes the strongest contribution to explain the Credit risk management practice followed by ACORC. Therefore, ACRE and ACORC establishing have high explanatory power on the level of Credit risk management practice which means that Ethiopian commercial banks should give more focus on ACRE and ACORC to strength the level of Credit risk management practice.

7.11 Analysis of variance

A one way analysis of variance was conducted on each aspect of Credit risk management principles and practice to test H_2. Table10 shows the results of ANOVA test.

ANOVA result revealed that there were statistically insignificant differences between Ethiopian public and private commercial banks in all aspects of Credit risk management principles and practice. (ACRE: $F(2, 112) = 1.02$, SCGP: $F(2,112) = 3.7$, CAMM: $F(2,112) = 0.065$, ACORC: $F(2,112) = 1.09$, and CRMP: $(2,112) = 0.6$). Hence null hypothesis is accepted.

Table 9 : result of ANOVA for public and private banks

ANOVA

Variables	F	Sign.
1. Credit risk environment	1.016	.316
2. Sound credit granting process	3.734	.056
3. Credit administration, measurement and monitoring	.065	.799
4. Adequate control over credit risk	1.082	.300
5. Credit risk management practice	.603	.439

8. Conclusion

Descriptive analysis ascertain as there is somewhat appropriate Credit risk environment and maintained appropriate Credit administration, Measurement and Monitoring process in Ethiopian commercial banks while it is operating under sound Credit granting process and ensuring adequate control over Credit risk.

Financial Statement Analysis is the widely used risk identification method and followed by audit and physical inspection and then internal communication. The three vital and mostly faced risks in Ethiopian commercial banks are ranked as Credit risk firstly and then followed by liquidity and operational risk.

Correlation coefficients between all pairs of variables are significantly positive. Econometrics model confirm that four aspects of NBE and Basel's Credit risk management principles and guideline explains 60% of the variations in Credit risk management practice of Ethiopian commercial banks. The estimated coefficient of SCGP and CAMM had insignificant positive effect on the level of Credit risk management practice. However, ACRE and ACORC as expected and had significantly positive effect on the level of Credit risk management practice. The results additionally indicate that ACRE and ACORC have high explanatory power on the level of Credit risk management practice. Finally ANOVA result revealed that there were statistically insignificant differences between Ethiopian public and private commercial banks in all aspects of Credit risk management principles and practice.

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