EVALUATION OF CREDIT RISK MECHANISM

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Abstract

The research showed absorbed on the risks that the Bank wants to face while yielding loan to consumer and also the ways, strategies and methods rummage-sale to diminish such risks. The main objective of this is to control the risk of the Bank when they are delivering loans to mandatory consumers and also to charitable some suggestions for proper consumption of loan amount and reimbursement of the same.Financial information obligatory for the analysis has been chosen from the financial statement like balance sheet and profit and loss account of the Bank. Data OD four financial years starting from 2017-2020 has been collected.The study focus on examining the study period of 4 years from 2017 to 2020 for the analysis and interpretation, analysis is a detailed examination of the elements collected and interpretation is a way of explaining the result of the analysis. The analysis used secondary source of data and the study used various tools a) statistical tools like descriptive statistics and b) financial tools like Ratios, Trend analysis and Comparative analysis are used to analyze the collected the data. These tools are helps to prove the said hypotheses and the outcome of the study is positively impacted on the MDCC Bank.

*Keywords:*Credit, Risk, Risk management, Ratios, Correlation, Present value annuity (PVIA), T-test.

I.   Introduction

"Credit risk management" is the method of permitting acclaim, set the situations on which it is permitted, improving this credit when it is payable and confirming acquiescence with company credit policy, between other acclaim related purposes. The goal within a Bank or corporation in nursing credit is to growth revenues and profit by accelerating sales and decreasing financial risks.A Credit manager is a person salaried by an organization to succeed the credit department and make choices concerning credit limits, agreeable levels of risk, and terms of imbursement and operation actions with their customers. Having bad debt revelation and expenses, through the direct management of credit terms on the company's journals.Maintenance durable cash flows concluded effective collections. The capability of cash flow is distinguished using various methods, farthest communal of which is Days Sales Unresolved (DSO). Authorizing a passable allowance for Disbelieving Accounts is kept by the enterprise. Inspection the Accounts Receivables assortment for propensities and carefulness signs. Hiring and poster of credit forecasters, accounts receivable and collections personnel. Impressive the "stop list" of vending of goods and services to customers.Eradicating bad debts from the record (Bad Debt Write – Offs).

II.   Background of the study

Credit supports the individual to meet his requirements at a specific purpose of time and the cost of that need can be paid further. Advancement and globalization in the economy transported the significance of risk administration. It's authoritative for a Bank to understand and deal with its credit chance. Banks are putting bunches of accomplishments to organizing of credit risk and money related demonstrating.Risk management is not only a technique however it is a major issue of the Banking sports. Every financial institution requirements to establish green hazard adjusted go back on capital methodologies, and to come up with falling

edge portfolio credit score chance management structures. Factually the primary threat of financial organization has been credit score risk nodding up thru lending.

III. Review of Literature

Hari Sutra Disemadi and Ali Ismail Shaleh[10] (2020),in Indonesia, the extent of Coronavirus Disease 2019 (COVID-19) affects the economic strength. The problem handled by Indonesia today is that the routine and capability of debtors in booming out their credit commitments have been interrupted by the spread of COVID-19,**Alobari Collins and Naenwi M-epbari[2] (2018),** in any financial institution, the largest risk in Bank is affording money and not getting it back. This study observed the effect of credit management and Bank performance in Nigeria.**Emenike O. Kalu and Bashabe Shieler[7] (2018),** the purpose of this study was to estimate whether relationship exist between credit risk management techniques and financial performance of microfinance institutions in Kampala& Uganda.**Wachira, Alexander Kinyua[29] (2017),** this study hunted to establish how various credit risk management performs affect performance of commercial Banks in Nyeri Country in Kenya.**Danjuman, Ibrahim, Kola, Ibrahim Abdullateef, Magaji, Badiya Yusuf, Kumshe& Hauwamodu[5] (2016),** clarified the credit risk management and customer satisfaction.**Abmed, Sufi Fizan, Malik & Qaisarali[1] (2015),** considered the credit risk administration and advance implementation of micro scale Banks. The penalties of the examination are indicating that there is a positive connection between the credit term and execution of advance.**Ljaz& Maha[13] (2015)** originate that examination in credit risk management has significantly moved from estimation of credit risk to the calculating of credit risk which is more essential process for the Bank.

Waemustafa, Waeibroheem& Sukri&Sriani[30] (2015) exposed that dangerous division financing administrative capital and contract are serious to credit risk.**Uwalomwa Uwuigbe and Uwuigbe Olubukunola Ranti[28] (2015)** this study critically measured the effects of credit management on Bank's performance in Nigeria.**Tailwo JN[26] (2015)** this study is an experiential investigation into the quantitative effect of credit risk management on the performance of Nigeria's deposit money Banks (DMBs) and Bank lending growth over the period of 17 years (1998-2014).**Samoei Richard Kipkoech[22] (2015),** the purpose of this study is to inspect the effects of credit management (CM) on the firm's profitability.**Ejoh and Okpa[6] (2014),** this article intended at appraising the effect of credit risk and liquidity risk management on the profitability of deposit money Banks in Nigeria with specific reference to First Bank of Nigeria Plc.**Taiwo Adewale Muritala and Abayomi Samuel Taiwo[27] (2014),** the increasing non-performing credit portfolios have meaningfully donated to financial pain in the Banking sector.**Nyamutowa C and Masunda S[14] (2013),** the downfall of banking institutions is primarily driven by insufficient credit risk practices.**Olaf Weber[16] (2012)** examined the construction of ecological hazards in the credit the executives. The quantitative and biased investigations made recommends that Canadian business Banks. **Hameeda Abu, Hussain, AI Ajmi& Jasim[9] (2012),** observed the administration of risk practices followed by the ordinary Banks and establish that the risk levels opposed by Banks are higher in case of traditional Banks.

Haron O Moti and Justo Simiyu Masinde[11] (2012) microfinance institutions in Kenya knowledge high levels of non-performing loans. This trend looms feasibility and sustainability of MFIs and encumbers the achievement of their goals.**Onaolapo AR[19] (2012),** this article investigates the relationship between effectiveness of credit risk management and financial health in designated Nigerian Banks.**G.D. Gyamfi[8] (2012),** microfinance industry in Ghana challenged one fundamental problem during the period 2003-2007 was the technique agreed for credit risk management by the Microfinance firms (MFFs).**Olaf Weber[15] (2011)** Canadian Banks are active concerning environmental examinations of loans and that there is a need for a more accountancy linked reporting on environmental risk management in financial institutions.**Prakash S, Sonig, Rathore& Singh[20] (2010)** studied the role of risk management and corporate governance as a matter of financial disaster.**Olaf Weber, Ronald W Scholz & Georg Michalik[18] (2010)** establish that correlation between companies environmental and financial performance exists.**Bodla BS Verma& Richa[3] (2009)** investigated that for the Credit Risk Administration, a huge portion of the Banks are revealed playing out a few performances like learning bout industry, occasional credit calls, intermittent plant visits, cresting MIS, credit scoring what's more, yearly audit of records.**Sensarma, Rudra&Jaydev M[23] (2009)** originate a novel method for taking an indication at Banks financial related aspects that is from the risk management viewpoint.

Kosmas Njanike[12] (2009) due to incompetent credit risk management systems a number of financial institutions have warped or experienced financial problems.**Sufi Faizan Ahmed and Qaisar Ali Malik[24] (2008),** the main purpose of this article is to assess the inspiration of credit risk management practices on loan performance (LP) while taking the credit terms and policy (CTP). **Olaf Weber, Marcus Fenchel and Roland W. Scholz[17] (2008),** 15 years before, Banks ongoing to integrate environmental risks into their credit risk management actions.**Olaf Weber, Marcus Fenchel and Roland W. Scholz[17] (2008),** 15 years before, Banks ongoing to integrate environmental risks into their credit risk management actions.**Burt Edwards[4] (2004),** the credit management guidebook carries a complete, down-to-earth monitor to every aspect of handling credit.**S. Kanungo, S. Sharma, P.K Jain[21] (2000),** this education was attended to evaluate the helpfulness of a decision support system (DSS) for credit management.**Svensson Kling, Katarina[25] (1999),** the competition in the Banking industry has throughout the last years been supported resulting in lesser interest margins.

IV.   Statement of the problem

The profits of the Bank are completely dependent on loans and advances which tip to both economic and industrial growth.When the debtor fails to make the payment for the amount borrowed by him, the credit risk for the Bank intensifications, for many Banks, loans and advances are the indispensable source of credit risk exists through the operations of the Bank.Bank are gradually going up against credit chance in various budgetary instruments other than progresses, including affirmation, entomb Bank trades, trade financials, remote conversation trades, cash linked destinies, swaps, securities, equities, options and in the expansion of duty and ensures, and the payment of transactions.

V.   Objectives of the study

- To investigate the level of credit risk associated in selected loan with respect to loan disbursement and recovery.
- To evaluate Effectiveness of Credit Risk Management & its impact on profitability.

VI.   Research Methodology

6.1 Type of Research

Descriptive Research Design is used in the project because the study and the implications are drawn based on the analysis made for the secondary data & primary data collected using Analytical Techniques in drawing implication.

6.2 Sampling design

Last 2 years Financial Statements are used for the study i.e., 2019-2020.

- **Sampling Method: Random sampling –** It is a way of choosing a sample of observations from a population in order to make suggestions about the population.
- **Sampling technique: Convenience sampling –** 4 years data (2017-2020) of the financial ratios and the financial position of the company.

6.3 Sources of Data

- **Primary data:** The primary data composed from the External guide about the day today activity of the organization or Bank.
- **Secondary Data:** This is appraising of relevant information, which is already collected and making inferences based on information collected.

6.4 Tools for the study

A. Financial tools for analysis

i.   **Ratios:**Collecting the data of Mandya District Co-operative Central Bank, Mandya for the period of 4 years considering the following ratios.We usedAverage yield on assets, Avg cost of funds, Financial margin, Salary as % to total expenses, Interest paid as % to total expenses, Other expenses as % to total expenses, Salary as % to total income, Borrowings as % to advances, Capital to risk assets ratio, Leverage ratio, Gross NPAs to gross advance ratio, Yield on assets ratio, Profit per branch, Total exp, Total income, Deposits, Borrowings, Advances.

ii.   **Comparative analysis:** To know the comparative % we done the comparative analysis.

iii.   **Present value inflow (PVIF) –** To know the current value we ascertain PVIF.

B. Statistical tools for analysis

Descriptive statistics: The study is the Mean & Standard deviation to ascertain the variations of the variables.

i.   **Karl Pearson's Co-efficient of Correlation:** Communication between two variables.
ii. **Mean & SD:** To know the mean & SD value we done the calculation
iii. **T-test:** To know whether Credit Risk Management is positively or negatively impacted we done the T-test.

6.5 Hypotheses of the Study

Based on the review of literature research gaps areas has framed the following hypothesis for the study.

- H_0: there is no significant change in NPA Creation of selected loans
- H_0: there is no impact of credit risk management on profitability of the Bankers.

VII.   Data Analysis & Interpretation

The study period of 4 years from 2017 to 2020 for the analysis and interpretation, analysis is a detailed examination of the elements collected and interpretation is a way of explaining the result of the analysis. The analysis used secondary source of data and the study used various tools a) statistical tools like descriptive statistics and b) financial tools like Ratios and Comparative analysis are used to analyze the collected the data. These tools are helps to prove the said hypotheses.

A. Financial tools

i.   Ratios of MDCC Bank, Mandya

Table - 1.1   Ratios taken every year in MDCC Bank, Mandya

Ratios	2020	2019	2018	2017
Avg yield on assets	7.80%	7.62%	8.44%	8.36%
Avg cost of funds	5.48%	5.30%	5.65%	6.00%
Financial margin	2.32%	2.32%	2.79%	2.36%
Salary as % to TE	20.65%	22.87%	19.03%	18.04%
Int paid as % to TE	68.43%	66.65%	68.30%	72.67%
Other exp as % to TE	7.29%	8.53%	8.73%	6.51%
Salary as % to TI	20.34%	22.79%	18.26%	17.58%
Borrowings as % to Advances	37.73%	29.74%	33.66%	30.83%
Capital to Risk assets ratio	12.77%	13.74%	12.06%	14.02%
Leverage ratio	9.37%	10.02%	15.32%	10.53%
Gross NPAs to gross advance ratio	5.60%	7.02%	7.36%	6.48%
Proportion of doubtful and loss assets to gross NPAs	44.02%	38.04%	34.02%	42.22%
Net NPAs to net advance ratio	2.15%	2.88%	3.55%	3.93%
Yield on advance ratio	5.85%	6.20%	5.65%	4.88%

Source - AGM reports

- **Avg yield on assets, Avg cost of funds &financial margin:**During the last 4 year, MDCC Bank is in the position to maintain more than this requirement. In 2017 it was 8.36% and shows an increasing trend up to 2018 it was 8.44% than 2019 onwards it shows decreasing 7.62% and 2020 again it shows increasing trend 7.40%.
- **Salary as % to Total exp, other exp as % to Total exp & Int paid:** The graph clearly shows that overall Total Expenses % of MDCC Bank in 2017 is 18.04%, in the year 2018 it was increased to 19.03%, Next year again it is increased to 22.87% and last year it was decreased to 20.65%.
- **Salary as % to Total income:** In the year 2017 shows 17.58%. In the year 2018 it increased to 18.26% it shows better result done by the Bank employees. Then, in the year 2019 again it was increased to 22.79% just because of employee's hard work & performance. In the last year 2020, it goes down because during the covid-19 some of employees quit the organization.
- **Borrowings as % to advances:** In the year 2017 shows 17.58%. In the year 2018 it increased to 18.26% it shows better result done by the Bank employees.

Table 1.2   MDCC Bank Annual Data

Annual data	2020	2019	2018	2017
Profit (+) per branch	3.89 lakh	69 lakh	8.36 lakh	4.90 lakh
Total expenses	140 mill	116 mill	109 mill	99 mill
Total income	142 mill	116 mill	113 mill	101 mill
Profit	2 mill	37 Cr	4 mill	2 mill
Deposits	1207 mill	1036 mill	9 mill	842 mill
Borrowings	411 mill	288 mill	282 mill	242 mill
Advances	1089 mill	970 mill	838 mill	786 mill

Source – AGM reports

- **Profit (+) per branch:** In the above chart the profit per branch in 2017 were 4.9 Lakh rupees, in the year 2018 it was increased to 8.36 Lakh rupees, in the year 2019 it was decreased to 0.69 Lakh rupees and in the year 2020 it was increased to 3.89 Lakh rupees.
- **Total exp:** on 2017 was 99+ million, In 2018 it was increased to 100+ million, In the year 2019 it was again increased to 116 million and In the year 2020 also it increased to 140 million.
- **Total income:** In the year 2017 the Total income were 101 million, in 2018 it increased to 113 million, in 2019 it was increased to 116 million & in 2020 also it increased to 142 million. Therefore, you can see every year the total income of MDCC bank is increasing.
- **Profit:** In the year 2017 the amount of profit were 2 million, in the year 2018 it was increased to 4 million, in 2019 it decreased to 37 Cr (Due to the Pandemic situation& Lockdown rules) and in the year 2020 it increased to 2 million.
- **Deposits:** In the year 2017 the deposit amount of MDCC Bank were Rs 842 million, in 2018 it was increased to Rs 917 million, in the year 2019 it was increased to Rs 1036 million and in 2020 it again increased to Rs 1207 million.
- **Borrowings:** The above chart you can see, in the year 2017 the borrowings amounted to Rs 242 million, in the year 2018 it increased to Rs 282 million, in the year 2019 it increased to Rs 288 million and in the year 2020 it increased to Rs 411 million.

ii.   **Calculation of present value annuity (PVIA):**

$$\text{PVIA} = A \left[\frac{(1+r)n-1}{r(1+r)n} \right]$$

$$= 1000000 \left[\frac{1+0.15)5-1}{0.15(1+0.15)5} \right] \qquad = 1000000 \left[\frac{1.011}{0.3016} \right]$$

$$= 1000000 \left[\frac{0.15(1.15)5}{0.15(2.011)} \right] \qquad = 1000000 \left[3.352 \right]$$

$$= 1000000 \left[\frac{1.011}{0.15(2.011)} \right] \qquad A = \frac{1000000}{3.352} \qquad \mathbf{A = 298329}$$

B. Statistical tools

i   Correlation Calculation

Table - 1.3 Loan disbursement is dependent and loan recovery is independent

Years	X	Y	dx	dy	dx^2	dxdy
2017	57,9371	46,22100	30	23	529	476100
2018	18,22400	18,13280	-9.4	-4.6	21.2	1865
2019	35,48000	11,72640	7.8	10	100	6100
2020	58,14431	42,222	-7	-11.0	121	5929
N=4	∑x= 117,64202	∑y= 765,0242	∑dx= 21.4	∑dy= 17.4	$∑dx^2=$ 771.2	∑dxdy= 489994

Calculation of correlation for 'X' and 'Y' variables: (Table 1.3)

$$r = \frac{N\sum dxdy - (\sum dx)(\sum dy)}{\sqrt{n\sum dx^2 - (\sum dx)^2} \sqrt{n\sum dy^2 - (\sum dy)^2}}$$

$$= \frac{5(203.724) - (51.4)(0.01)}{\sqrt{5(1998)(51.4)^2}\sqrt{5(1132.2)(38.06)^2}}$$

$$= \frac{1018.620 - 1956.28}{\sqrt{9990 - 2642}\sqrt{5661 - 1449}}$$

$$= \frac{937.66}{\sqrt{7348}\sqrt{4212}}$$

$$= \frac{937.66}{86*65}$$

$$= \frac{937.66}{5590}$$

r= 0.167

The above calculation r is 0.167% it showing the weaker the relationship, Therefore, there is no significant relationship between the loan disbursement and recovery.

ii   Mean, SD & Co-variance calculation

Table - 1.4   (Mean of X&Y, SD of X&Y Co-variance calculation)

Mean of X	Mean of Y	$\sigma(S.D)of\ x$	$\sigma(S.D)of\ y$	Co-Variance
$X = \frac{\sum x}{n}$	$\bar{y} = \frac{\sum y}{n}$	$\sigma x = \sqrt{\frac{\sum dx^2}{n-1}}$	$\sigma y = \sqrt{\frac{\sum dy^2}{n-1}}$	$CV = \frac{\sum dx \sum dy}{n-1}$
$= \frac{117,64202}{4}$	$= \frac{765,0242}{4}$	$= \sqrt{\frac{1998}{4-1}}$	$= \sqrt{\frac{1132.2}{4-1}}$	$= \frac{814894}{4-1}$
= 27.65	=22.76	= 25.81	= 19.43	= 203.73

iii.   T-test calculation

Table - 1.5   Calculation of T-test

Pair	Variables	df	Sig. (2- tailed)	r	Sig.
Pair 1	Credit Risk-Profit	4	0	-0.554	0.00021

Source: Author's calculation- SPSS output

Here it's proven that there is a significant impact of credit risk on Bank profitability, The Credit Risk is positively impacted on the MDCC Bank, when providing loan to the public is more obviously we can ascertain positive value.

VIII.   Results & Discussion

- The average yield on assets increased in 2017, 2018, 2019 and in the year 2019 it decreased.
- The average cost of funds is decreased in the year 2018 & 2019, and then it increased in 2020.
- Financial margin increased in 2018 and decreased in 2019& 2020.
- Salary as % to Total Expenses increased in 2018 & 2019, decreased in 2020.
- Interest paid as % to Total Expenses decreased in 2018, 2019 & 2020 as well.
- Other expenses as % to total expenses increased to 8.73% in 2018, decreased in 2019& 2020.
- Salary as % to total income increased to 18.26% in 2018; in 2019 it increased to 22.79% after that it goes down in the year 2020.
- Thestudysuggestsimprovingthe CostofDepositsRatioinfuturebecausethis Ratioperformanceispoor.So,thiscostofdepositsimpactonvalueofcurrency.
- Thebankneedstoconcentrateonincreasingthecostofborrowingratiothisratio found to below par value so this ratio increasing the financial institutionprofit.
- Thisstudyadvicetoimprovethecostofmanagementratio.Thisratioshowsthe below par performance of the bank.

IX.   Conclusion

The following conclusion is recommended by the study of MDCC Bank. MDCC Bank which provides financial support in the form of a loans scheme has gained a considerable reputation with its borrowers, ensuring loan quality at the right time satisfying the needs of borrowers for a certain period of time. The Loan recovery management is an important concept for bank as they provide other loans to customers. But at the same time, the Non-performing assets of the bank increased, which affected the profitability of the bank that controlled Non-performing assets bank and increase their growth in thesociety.

Agriculture loans are very beneficial for the formers. Which are formed in the form of agriculture loans and doing the agriculture activity for the purpose of crops growing useful for the formers? In the study observe that the banks had properly provides loans through proper investigation and helped improve the standards of living of the formers. In general, this study discuss about the loan recovery management on Mandya District Central Co-operative Bank. During the analysis, a descriptive study approach and co- efficient of correlation analysis had been found during the analysis. Correlation shows the relationship between the 2 variables is agriculture loans and Non-agricultureloans.

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