

Credit Risk Management with reference to Non-Performing Assets of Bangalore City Co-Operative Bank (BCCB)

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Abstract: Credit risk management in banks has gained importance in the recent past due to the increasing trend of NPA in the banks. This determines the commercial performance of the banks for the success, sustainable growth and profitability. The primary objective of this paper is to analyze risk management practices followed by BCCB during the years 2019-2023. Secondary data has been collected from the annual reports for these five years. Various ratios have been calculated to analyze the Altman Z score model. The results indicate that the bank was not too far from bankruptcy in the year 2020 while the years 2019 and 2023 have been faring better. From the analysis it has been observed that the credit risk management practices have an impact on the NPA (Non Performing Assets) in cooperative bank.

Keywords: Cooperative bank, Altman Z score model, NPA, Credit risk management

1.Introduction: Credit risk is a complex process as it involves identification, assessing, analyzing and managing the risk at individual, entity, segment and portfolio level for the bank. Credit risk is the risk of loss due to a borrower not repaying a loan. If a borrower or multiple borrowers under different segments of the bank fail to fulfil their contractual obligations, this leads to financial losses in banks. The collateral security may also be insufficient to close the loan account. This erodes the profits of the bank and its existence itself maybe affected. (Hennie Van Greuning, 2020)While loans are the main source of credit risk for banks, other sources, including operations in the banking and trading books, take place both on and off the balance sheet. Banks are assessed based on how responsive their policies are to the macro and micro economic changes in the environment. This will be the key challenge and the driver for better asset quality and

profitability of the banks. Banks undertake different kinds of activities within the business environment as approved by the concerned banks management. Today banks are increasingly exposed to credit risk with innovative financial instruments such as trade financing, forex transactions, derivatives, bonds, equities and options, off balance sheet guarantees. (Bezawada Brahmaiah, 2021). The lenders look at the repayment capacity of the applicant by assessment of their creditworthiness by evaluating the borrower's past repayment habits and present financial position.

Loans or advances that are in default or in arrears, showing a borrower's failure to make prompt principle or interest payments, are referred to as nonperforming assets (NPAs). These NPAs are shown on a bank or other financial institution's balance sheet. Typically, a loan is classified as nonperforming when payments have not been made for a period of 90 days. However, the time frame may vary depending on the loan terms. Nonperforming assets can be identified at any point during the loan term or at its maturity. In order to cover prospective losses, loan loss provisions are placed aside, which lowers the capital availability in the next lending phase. Actual losses from non-performing loans are calculated and written off against earnings. NPA levels that are increasing over time tell authorities that the bank's financial stability is under risk. A new organization called the Bad Bank is being developed to solve this problem and aid banks in getting their money back. Banks will be able to restore their financial stability and carry on with their regular business operations by selling these non-performing

assets to the Bad Bank. The National Asset Reconstruction Company Limited (NARCL), which is in charge for tracking and solving these non-performing assets, will receive about Rs 90 billion in unpaid debts that banks have recognized. This is a technique by which banks deal with NPAs. (Lakshakaushik Dattratraya Puri, 2022)

Indian banks use an Early Warning System (EWS) that varies from bank to bank in detecting probable non-performing assets (NPAs). The criteria used for account monitoring include customer profiles, credit rating systems, watch lists, and early warning indications. There is an augmented usage of technology to track and detect NPAs. Indian banking sector suffers an important difficulty in absorbing informal loans into the official financial system. In order to comply with Basel II rules, which place a strong emphasis through monitoring of potential economic consequences banks have significantly altered their business models. In order to handle NPAs, credit risk management is essential, and banks must retain sufficient capital in keeping with Basel II guidelines.

Some of the credit risk management techniques adopted by the bank are robust credit assessment, effective due diligence, diversification of loan portfolio, loan monitoring and surveillance, strict loan documentation, risk-based pricing, collateral management, loan restructuring and workout plans, early warning systems, regular reporting and analysis, stress testing, collection strategies, customer education, collaboration with regulators.

1.1 Credit Risk Management Models- There are various credit risk modelling techniques, the prominent methods include

- a) External ratings services-External credit rating agencies is dominated by three big agencies which controls around 95% of the business. The top firms are Standard and Poor, Moody's Investor services, Fitch group. These agencies take into consideration factors like financial statements, level and type of debt, lending and borrowing ability, industry size, company size and past debt of the entity.
- b) Financial statement Analysis models- These models provide rating on the basis of the various financial statement items and ratios of individual borrowers. Altman Z score model is a numerical measurement that is used to predict the chances of a business going bankrupt in the next two years. This formula takes into account the profitability, leverage, liquidity, solvency and activity ratios. An Altman Z score close to 0 suggests a company is close to bankruptcy while a closer to 3 suggests a sound financial position.

2. Review of Literature:

Tekalagn Getahun, et.al. (2015)- This study examines the relationship between commercial bank performance in Ethiopia and credit risk management. From 2009 to 2014, secondary data of nine commercial banks were gathered, and the link between the variables was examined using panel data regression models and descriptive statistics. The results demonstrate a significant association between Ethiopian commercial banks' performance and credit risk management. The Return on Assets (ROA), Return on Equity (ROE), and Capital Adequacy Ratio (CAR) were employed as performance factors in the analysis of the data using SPSS software. Syed Muhammed Hanza (2017) in his article has used the pooled regression method to analyze the credit risk management in banks via two performance methods. Out of 25 banks listed in Karachi stock exchange, 13 banks have been opted for the study. The results indicated that larger banks have better capability to utilize their assets in a better way. Credit risk management is inversely related to the banks performance.

Sonakshi Sharma (2023)- This study of credit risk management and its impact on performance in Indian Commercial Banks to gain a better understanding of how banks manage their credit risk. The study aims to gain a clearer picture of how banks manage their credit risk. The analysis of primary data by descriptive statistical tools and hypothesis testing using regression model is conducted. The researchers conclude that banks with good credit risk management policies have a lower loan default rate and relatively higher return on asset. Sharon Sophia (2013) Credit risk management has gained importance in Indian banks due to the regulatory framework by BASEL II, which makes banks compulsory to implement credit risk management. The study aims to identify the application and implementation of credit risk management in banks using a survey method and MANOVA analysis. The Basel Accord II includes the internal rating approach to credit risk as one of the cornerstones, and the study aims to investigate the extent to which credit rating systems are used in Macao. The study aims to determine whether the implementation of credit risk management policy helps banks make wise decisions about borrowings. Shreya Pradhan, Ajay.K.Shah (2019) – The study is focused on credit risk assessment practices in commercial banks on the basis of their internal efficiency, assessment of the borrower and the assets. This study is based on the analysis of the credit risk management practices, mitigation practices and the loan repayment measures. Primary data has been collected and correlation analysis has been performed to analyze the data. From the data analysis it has been observed that credit risk management and credit mitigation measures have a

positive relationship with the repayment. The findings revealed that a well defined credit risk policy, roles and responsibility of the employees of the credit department, training to the employees to take timely and impactful decisions would avert the NPA in the bank. Careful monitoring from the time of disbursement of the amount to the last rupee recovery can reduce risk and improve loan repayment.

2.2 Objectives

- To examine the credit risk management techniques adopted by Bangalore city cooperative bank with reference to NPA's.
- To check whether non-performing assets of the bank has increased or decreased the credit risk in the past five years.
- To suggest measures to be adopted by the banks to decrease non-performing assets

2.3 Hypothesis

H0-Non-performing assets will not significantly impact the credit risk management of Bangalore city co-operative bank

H1: Non-performing assets will significantly impact the credit risk management of Bangalore City Co-operative bank.

3.4 Research Methodology

3.4.1 Scope of the Study- Since the topic has wide scope in non-performing assets in credit risk management in banks, the research is confined to Bangalore City Co-operative Bank. (BCCB)

3.4.2 Data Collection- Secondary Data: Data is collected through the Annual reports provided by the bank and websites from 2019 to 2023.

3.4.3 Tools and Techniques- The use of statistical tools has become a normal phenomenon in any type of analysis. The researcher had picked up the tools and techniques to suit their requirements and it is based on the data available to them. Under this research study following tools and technique has been used for evaluating the performance of selected samples. Ratios like Current ratio, Quick ratio, working capital to total assets ratio, market value of equity to total liabilities ratio was calculated. Based on these ratios the Altman's Z score was calculated.

3.4.5 Statistical Tool- Altman Z Score model- The Altman Z-Score Model, developed by Edward I. Altman, is a predictive financial tool that consolidates multiple ratios into a single score. It gauges a company's bankruptcy risk: Z-Score > 3 suggests stability, 2.7 < Z-Score < 3 indicates caution, and Z-Score < 1.8 implies risk. The Altman Z-Score Model is a widely used tool for predicting bankruptcy risk, offering a simple and accessible approach to assess a company's financial health. Its ability to distill multiple financial ratios into a single

score serves as an early warning system, aiding in proactive risk management. With empirical validation across diverse economic conditions, the model's quantitative analysis provides valuable insights for creditors, investors, and analysts. While its holistic approach considers liquidity, profitability, and market sentiment, limitations exist, such as industry variability and market dynamics. Despite these limitations, the Altman Z-Score Model remains a cornerstone for strategic decision-making, enhancing risk assessment and financial stability in a dynamic business landscape.

4. Data Analysis

Formula of Altman Z Score Model

Calculation of Altman Z Score of 2019-2023- On Calculation of the ratios, the Altman Z score model formula has been applied and the Z score has been obtained.

$$1.2 * (\text{Working capital} / \text{Total assets}) + 1.4 * (\text{Retained earnings} / \text{Total assets}) + 3.3 * (\text{EBIT} / \text{Total assets}) + 0.6 * (\text{Market value of equity} / \text{Total liabilities}) + 1.0 * (\text{Sales} / \text{Total assets})$$

Year	Particulars	Amount	Ratio
2023	Working Capital/total assets	190625346.97/1279141260.8	0.15
	Retained Earnings/Total Assets	747595763.76/1279141261	0.58
	EBIT/Total Assets	45821285.5/1279141261	0.035
	Market Value of Equity/total Liabilities	95449832472/30058910103.64	3.1754
	Sales/Total Assets	895912.25/1279141261	0.0007
	Altman Z Score		3.01
2022	Working Capital/total assets	435564832.00/1109458905.00	0.39
	Retained Earnings/Total Assets	684798978.71/1109458905.00	0.617
	EBIT/Total Assets	448481415.37/1109458905.00	0.4
	Market Value of Equity/total Liabilities	915498527/29389543106.31	0.03115
	Sales/Total Assets	883015/1109458905	0.00079
	Altman Z Score		2.671
2021	Working Capital/total assets	306986164.05/1231530932	0.24
	Retained Earnings/Total Assets	684798978.71/1231530932	0.55
	EBIT/Total Assets	444462625.48/1231530932	0.36
	Market Value of Equity/total Liabilities	1185786784.58/29389549106	0.04
	Sales/Total Assets	959712.26/1231530932	0.00077
	Altman Z Score		2.27
2020	Working Capital/total assets	205151144/1185786785	0.17
	Retained Earnings/Total Assets	547249067/1185786785	0.4615
	EBIT/Total Assets	434776349/1185786785	0.3666
	Market Value of Equity/total Liabilities	903788472/28144429913	0.032
	Sales/Total Assets	1246799/1185786785	0.00105
	Altman Z Score		2.08
2019	Working Capital/total assets	864623211/967836567	0.89
	Retained Earnings/Total Assets	483571974/967836567	0.5
	EBIT/Total Assets	415060189/967836567	0.43
	Market Value of Equity/total Liabilities	87490094700/24435364010.16	3.58
	Sales/Total Assets	1288667/967836567	0.0013
	Altman Z Score		5.33

Source: Bank's annual report

t-Test: Paired Two Sample for Means		
	<i>Profitability</i>	<i>Gross NPA</i>
Mean	255200681.4	124793.88
Variance	3.08784E+14	157201991.4
Observations	5	5
Pearson Correlation	0.066541406	
Hypothesized Mean Difference	0	
Df	4	
t Stat	32.45991533	
P(T<=t) one-tail	2.68528E-06	
t Critical one-tail	2.131846786	
P(T<=t) two-tail	5.37055E-06	
t Critical two-tail	2.776445105	

Interpretation: Since the T stat value is more than the t critical value null hypothesis is rejected, alternate hypothesis is accepted. Non-performing assets will significantly impact the credit risk management of Bangalore City Co-operative bank.

5. Findings of the Study: Before speaking on the Altman Z Score results, let us analyze the prerequisite ratios for this model.

1. The working capital to total assets ratio from 2019-2023 has witnessed lot of fluctuations. From 0.89, it has been reduced to 0.15. This indicates that the bank has not been able to keep more current assets to the current liabilities when compared to their past or even with their peers. In 2019 the ratio was very close to the standard ratio, but with ups and downs in 2023 it has reduced to 0.15. If the same situation continues the bank may not have sufficient funds in the future to payback its debts.

2. The retained earnings to total assets ratio from 2019-2023 has also been a point of fluctuations indicating that the capital expenditure of the bank has been met via the borrowings. This ratio reflects the company's leverage

3. EBIT to total assets ratio is also a point of change because the bank is not able to generate high income from its assets. The higher the ratio, it indicates the bank is able effectively generate income .

4. Market value of equity to total liabilities ratio had also reduced in the year 2020, 2021 and 2022. Gradually it has seen an improvement in the year 2022.

5. Sales to total assets ratio or popularly called as the Assets turnover ratio is also very low, which indicates that the bank needs to change its plans and policies to overcome this trend in the future.

6. On analyzing the Altman Z Score the year 2020 had a least score of 2.08 close to the bankruptcy state. So there was an urgent need that the bank had to work on this stage and improve on the credit risk management techniques. In the forthcoming years that is 2021, 2022 and 2023 the bank's Z score has improved because any score that is above 3 is considered as totally safe/strong. So the years 2019 and 2023 have really been safe for the bank.

7. From the t-test we can understand that t stat value is more than the t critical value. Hence null hypothesis is rejected and alternate hypothesis is accepted. Non-performing assets will significantly impact the credit risk management of Bangalore City Co-operative bank.

5.1 Suggestions

- Improve the bank's capacity to forecast and manage credit risks by implementing an innovative risk assessment system that combines big data analytics and machine learning algorithms.
- To assist effective recovery processes and decrease the bank's NPA portfolio,

assemble a specialized team for NPA recovery, complete with legal knowledge and negotiation abilities.

- Invest money on training courses that will improve bank employees' abilities to assess credit risk, manage non-performing assets (NPAs), and negotiate effectively. This will encourage a proactive approach to risk management.
- Investment in new technologies to improve real-time risk monitoring and credit processes, such as AI-driven credit scoring models and digital platforms.
- Participate in cooperative initiatives with other financial institutions and professionals in the field to exchange best practices, knowledge, and experiences regarding the reduction of NPAs and credit risk.

6. Conclusion: Even though the bank has a rosy picture, the management needs to take immediate remedial measures else definitely it will take no time to convert itself into a weak bank. Strong risk assessment framework, early warning system and efficient credit monitoring system are important in reducing NPAs according to the examination of credit risk management techniques. Bank management needs to be efficient in judging that their customers have feasible repayment capacity or not. Banks need to create an agile lending process equipped with relevant rating systems to identify the creditworthiness and charge appropriate rates. This improves the banks position to recover the defaults that may happen in the future and improve the loan accounts.

Bibliography:

Bezawada Brahmaiah (2021) "Credit Risk Management Practices of Indian Banking Industry: An empirical study" International Journal of Economics and Financial Issues 12(2), 67-71
<https://doi.org/10.32479/ijefi.12968>

Lakshkaushik Dattatraya Puri (2022) "An Analytical study of concept of bad bank in Indian context" The Journey of the Indian economy in the last 75 years, Page 21-29
https://www.researchgate.net/publication/364948957_AN_ANALYTICAL_STUDY_OF_CONCEPT_OF_BAD_BANK_IN_INDIAN_CONTEXT

Sharon Sophia (2013) Credit Risk Management in Indian Banking system – SSRN Electronic Journal

https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2253119

Shreya Pradhan, Ajay.K.Shah (2019) “Credit Risk Management of Commercial Banks in Nepal”
Journal of Business and Social Sciences Research,
Vol.IV, No,1, June 2019
<https://ace.edu.np/wp-content/uploads/Credit-Risk-Management-of-Commercial-Banks-in-Nepal.pdf>

Syed Muhammad Hamza(2017) “ Impact of credit risk management on Banks performance : A case study in Pakistan Banks” European Journal of Business and Management Vol.9, No.1
<https://core.ac.uk/download/pdf/234627678.pdf>

Tekalagn Getahun, Lu Anwen, Md.Shafiqul Bari (2015)” Credit Risk Management and Its Impact on Performance of Commercial Banks: InCase of Ethiopia , Research Journal of Finance and Accounting, Vol.6, No.24,
<https://core.ac.uk/download/pdf/234631211.pdf>

Books referred:

Hennie Van Greuning and Sofija-Sonja Brajovic Bratanovic (2020) Credit Risk Management
https://elibrary.worldbank.org/doi/10.1596/978-1-4648-1446-4_ch7

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