



Credit Risk Management Practices of Indian Banking Industry: An Empirical Study

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ABSTRACT

The primary objective of this paper is to examine the risk management techniques and practices of credit risk management followed by Indian commercial banks for the period from 2011-2017 to 2020-2021. The other objective is to compare risk management practices followed by the public sector banks (PSBs) and private sector of banks (PVBs). The study uses a sample of twelve banks consisting of six largest public sector banks (PSBs) and six largest private sector banks (PVBs) for the study. The sample accounts for 78% of the banking business of the country. The study finds that the scheduled commercial banks (SCBs) are facing credit risk, market risk and operational risk. The study finds that the credit risk management process and practices include risk identification, risk assessment, risk analysis, risk evaluation, risk monitoring and risk control. The study finds that private sector banks (PVBs) have better credit risk management practices as compared to that of public sector banks (PSBs). The PSBs have more NPAs than PVBs whereas PVBs have better asset quality and better profitability ratios than PSBs during the study period.

Keywords: Risk Management in Banking, Credit Risk Management, Prudential Limits, Credit Rating, Commercial Banks, Credit Portfolio

JEL Classifications: G20, G21, G28, G32

1. INTRODUCTION

The financial and banking sector serves the economic function of financial intermediation by ensuring efficient allocation of resources in the economy. Financial intermediation involves asset liability transformation, size transformation, maturity transformation and risk transformation. Risk is inherent in the banking business. The integration among the financial markets, increased globalization, emergence of new private sector banks and the rapid developments in financial technologies (Fintech) have contributed for the volatility of the interest rates, foreign currency exchange rates, and commodity prices. All banks try to achieve an appropriate trade-off between the risks and the returns. Banks must assess the banking risks such as credit risk, market risk (interest rate risk, foreign exchange risk, and liquidity risk) and operational risk properly, evaluate effectively, measure correctly, monitored perfectly and managed as per banks' desired policies.

The banks undertake different business activities within the defined risk limits and policies as approved by respective managements of the banks. Financial risk is defined as the variations or deviations of actual returns from expected returns from lending and investment. Risk management enables the banks to bring their risk levels to manageable proportions while not severely reducing their income.

There are 97 scheduled commercial banks (SCBs) in India consisting of 12 Public sector banks (PSBs), 22 private sector banks (PSBs), and 43 foreign banks (FBs) 12 small finance banks (SFBs), six payment banks (PBs), two local area banks (LABs) as on March 1, 2021 (RBI, 2021). The PSBs and PVBs together accounts for about 93% of the total banking business (assets and liabilities) in India by the end of March 2021 (RBI, 2021). The PSBs account for about 60% and PVBs account for about 33% of total banking business of SCBs as on March 31, 2021 (RBI, 2021). The FBs, LABs, RRBs and other banks constitute the remaining

7% of total banking business in India. The banking industry has grown in many folds in terms of deposit mobilization, sanctions of loans and overall banking business.

2. CREDIT RISK

Credit risk is the risk the failure of the borrower or counter party to meet the payment or contractual obligations on the due date or fail to meet its obligations in accordance with the agreed terms. Credit risk is the oldest and major risk of the banking business and about 60% of the balance sheet of the banks is exposed to loans and advances. Credit risk is important because the defaults of a small number of borrowers can generate large losses and erosion of profits and which may lead to insolvency of banks. Lenders, depositors, borrowers, and suppliers all face credit risk. The credit risk may be an individual transactions risk or combination of multiple credit transactions known as portfolio risk. Transaction risk is further classified as default risk and migration of rating or downgrade rating risk. The portfolio risk comprises intrinsic and concentration risk. The credit risk of banks depends upon both external and internal factors. The internal factors are related to the bank's credit and loan policies, defective prudential and credit concentration limits, defective appraisals of borrowers' conditions, and lack of scientific risk pricing, problems in loan review process and poor weak post sanction surveillance and monitoring. Credit risk arises from all business lines of banks such as lending, guarantees, letters of credit, treasury products, securities trading businesses, and cross-border exposure varying degrees depending upon the macroeconomic environment.

Credit Risk Management: Credit risk management is a complex process, and it ensures banks identify, assess, manage, and optimize their credit risk at an individual level or at an entity level or at the portfolio level. Banks should have sound and efficient credit risk management policies and procedures which are responsive to the micro and macro-economic changes. The efficiency and quality of the credit risk management will be the key challenge and driver for the asset quality and profitability of banks. The primary techniques of credit risk management are creating credit standards, developing credit scores, analysis of credit worthiness of borrowers, proper risk rating, adequate collaterals and risk-based pricing. Banks should develop and adopt the Risk Adjusted Return on Capital (RAROC) model to measure the efficiency of the capital and profitability of banks. Banks are required to follow the cardinal principles of lending, comply exposure norms and ceilings, follow loan review and renewal mechanism, effective risk scoring and appropriate rating models, risk based pricing and credit portfolio exposures diversification. Credit limits for individual borrower and group should be set in a comparable and meaningful manner. Critical cases involving counterparty credit risk should be handled with highest standards in compliance with bank's policies and procedures. The non-performing assets (NPA) of SCBs declined from 2018-19 across all the banks reflecting the gross non-performing assets (GNPA) ratios and net NPA (NNPA) ratios as ratios from 7.5% and 2.4% respectively at the end of March 2021 from 8.4% and 3.4% respectively as at the end of March 2020 (RBI, FSR, 2021).

3. LITERATURE REVIEW

There have been a lot of research studies and papers published on risk management in banking. The research work on risk management practices with regard to Indian banking is limited to a few studies. The literature indicates that the credit risk management practices used by banking institutions across the globe are differed. Some of the important and relevant studies on credit risk management in banking are discussed below. There are large number of theoretical and empirical studies of credit risk management in banks (Al-Tamimi, 2002; Salas and Saurina, 2002; Saunders and Allen, 2002; Fatemi and Fooladi, 2006; Al-Tamimi and Al-Mazrooei, 2007; Bhaumik and Piesse, 2007; Das and Ghosh, 2007; Sanjeev, 2007; Pennathur et al., 2012; Arora, 2014.)

Al-Tamimi (2002), found that the credit risk management tools used by the banks were setting of credit standards, using the credit scores, evaluation of credit worthiness, applying risk rating and adequate collateral management. Salas and Saurina (2002), undertook a study on the credit risk management of Spanish banks and found that the growth rate of economy, banks credit history, branch expansion of banks, managerial performance and efficiency, nature of credit portfolio, size and composition of portfolio, size of corporate, net interest margin, capital adequacy ratios were having bearing bearing risk management of banks. Most of the commercial banks incurred losses due to credit risk (Bo et al., 2005, Fan and Shaffer (2004) examined the efficiencies of the regional banks in the USA and found that the profit was dependent up on management of credit risk.

Hanweck and Ryu, (2004), the higher the credit risk, the greater will the credit premiums to be charged by commercial banks and financial institutions, resulting to an improvement in the net interest margin. Linbo Fan (2004) analysed the efficiency of profit making and the degree of risk exposure for large domestic banks in the USA and found that the profit-earning efficiency of the banks in the USA is significantly dependent on the degree of the credit risk borne by the banks but not as much dependent on the liquidity risk borne by the banks. Das and Ghosh (2007) examined both the macroeconomic and microeconomic factors influencing bad loans in state-owned banks in India for the period 1994-2005. The findings suggested that at the macro level, GDP growth, and at the bank level, actual loan growth, operating expenses, and the size of banks have a significant impact on bad loans. Bhaumik and Piesse (2007) used a portfolio choice model and bank-level data from India during the period 1996 to 2004 to study the banks' credit market behaviour. There was little evidence on the credit risk management practices of Indian PSBs and PVBs.

Sanjeev (2007) found that the presence of internal and external factors of a risk matters more than its nature. His results suggest that external factors affecting bad loans are more significant than the internal factors. Pennathur et al. (2012) investigated the impact of ownership on income diversification and risk in Indian banks. The results indicated that bank's ownership has a significant impact on the pursuit of non-interest income. The PVBs earn significantly more fee income than government banks, while foreign banks earn higher than private banks. Fee-based income considerably reduces

the risk of bankruptcy and default risk in banks. Shafique et al. (2013) led an investigation to assess the difference in overseeing risk practices pursued by Islamic and commercial banks in Pakistan. The objective of the study was the identification of practices and procedures of risk management among banks of Pakistan. Arora (2014) presented a major difference between government and private banks in India in measuring credit risk.

Rehman et al. (2019) examined the risk management strategies adopted by commercial banks of Pakistan and found that corporate governance, hedging, diversification, and the banks' capital adequacy ratio, are factors significantly explaining credit risk management. Sirius et al. (2019), study suggest that the identification of credit risk significantly affects the credit risk performance. They found that the credit risk identification is negatively related to annual growth in NPAs or loans. There was evidence in support of a priori expectation of better credit risk performance of private banks compared to that of government banks. Dao et al. (2020), the higher the credit risk faced by banks, the greater their profitability. Sarwar et al. (2020), found that credit risk is a significant predictor of bank margins, which is usually a key indicator of the bank's level of efficiency in terms of its fundamental role of financial intermediation.

4. RESEARCH METHODOLOGY, SAMPLE SIZE AND SCOPE OF THE STUDY

The evidence on credit risk assessment in Indian banks as per Basel norms is limited. The relationship between credit risk management and ownership of Indian Banks has not been studied comprehensively. The present study is an attempt to contribute to the literature on risk management in banking by Indian banks. The extant work fails to conclusively establish the functional relationship between credit risk components and its performance.

The research design adopted is the empirical study of the Indian banking sector for five financial years from 2016-2017 to 2020-2021. The practices are studied based on their published annual reports of the respective 12 banks. The scope of the study is limited to credit risk management practices of PSBs and five PVBs for 5 years from 2017 to 2021. The research is based on the Indian banking sector covering both the public sector and private sector banks and with a sample covering six largest public sector banks (PSBs¹) and six largest private sector banks (PVBs²) in terms of assets and banking business. The present study is a descriptive and based on the secondary data. The published annual reports of sample companies are collected through their websites of respective banks for 5 years to study the reported practices by banks on credit risk management. The sample twelve banks account for about 78% of banking business and banking assets as at the end of March 2021. To examine the credit risk management process and practices, the study focuses on important components of risk management practices such as understanding of risk and its management, risk assessment and analysis, risk identification,

credit risk analysis and risk monitoring and control. The study also covers the tools and techniques of credit risk management by PSBs and PVBs. However, this study is restricted to credit risk management by the Indian commercial banks covering both PSBs and PVBs for the period 2017-2021. This secondary data of the sample banks on NPA ratios and capital adequacy ratios are taken from the Database of Indian Economy (DBIE), and Financial Stability Reports (RBI, FSR, 2021, July, and December).

5. CREDIT RISK MANAGEMENT PROCESS AND PRACTICES OF PSBS AND PVBs

- i) Risks faced by Banks: The banks face credit risk, market risk, and operational risk.
- ii) Risk Appetite Statement: Risk Appetite is set up by banks with the help of different parameters along with the risk limits and risk threshold levels for each parameter. The Risk Appetite Framework (RAF) that articulates the risk appetite and a limit framework for various risk categories under which various business lines operate. The risk management objective of the Bank is to balance the trade-off between risk and return and ensure that the Bank operates within the board approved Risk Appetite Statements.
- iii) Risk Governance Framework: The Risk Management Committee (RMC) has a complete oversight on the functioning of various sub committee's setup for Identification, Measurement, Management and Mitigation of risks faced by the Bank. The Risk Management function is structurally independent of the business lines and is without any volume or profit targets. The Bank uses a robust risk rating framework for evaluating credit risk of the borrowers. (Indusand Bank Ltd, 2021). The Board of Directors of the Banks take responsibility for managing the risks faced by the banks. The Board of Directors of the Bank has oversight of all risks in the Bank with specific Committees of the Board constituted to facilitate focused oversight. (ICICI Bank Ltd., 2021). The Risk Policy and Monitoring Committee (RPMC) is a Board level committee, which guides and supervises the credit risk strategy implementation in the banks. RPMC develops the credit policies, procedures, and systems for managing credit risk. The credit risk management process includes identification, assessment, monitoring and managing risks through the effective use of processes, information and technology. The Committee reviews the level and direction of major risks pertaining to credit risk. The Credit Committee also reviews major credit portfolios, non-performing loans, accounts under watch, over dues, incremental sanctions etc.
- iv) Credit risk management process: It consists of risk identification, risk assessment, risk measurement and risk mitigation with the objectives of maximizing profitability and improving asset quality. Banks have developed the loan policies and credit sanctioning procedures to measure, assess, monitor, and manage risks across all banking products and services. The banks have implemented all prudential caps across industries, sectors and borrowers in order to avoid credit concentration risks (Punjab National Bank, 2021). A strong process for internal rating of the borrowers, appraisal

1 State Bank of India, Punjab National Bank, Bank of Baroda, Canara Bank, Union Bank of India and Indian Bank

2 HDFC Bank, ICICI Bank, Axis Bank, Indusand Bank, and IDBI Bank Ltd.

of loans and credit proposals, appraising the viability of the proposal and credit worthiness of the applicant for sanctioning credit limits. Proper credit approval process and authorization matrix, standards for collateral management, credit monitoring, restructuring of advances to all borrowers, and off-balance sheet exposures, are followed. Banks conducted migration and default rate analysis to test robustness of its credit risk rating models.

- V) Credit Portfolio Risk Management: In order to address the credit risk at portfolio level and the issue of concentration risk, the policy prescribes fixation of various exposure ceilings. Stress tests are conducted on portfolios regularly and updated to the top management. Outputs of rating models are linked to the decision making in the Banks i.e., sanction, pricing, loaning powers besides audit, loan review and monitoring of credit portfolio). Banks performed customized stress testing of all portfolios including corporate, retail, personal segment, SME and Agriculture portfolios, at periodic intervals to identify stress built up (State Bank of India, 2021). Bank reviewed its credit portfolio and identified specific sectors where risk exists, and reduction would be sought as also origination would not be encouraged except for high quality borrowers. (Axis Bank Ltd., 2021).
- VI) RAROC: Banks have used the ratio of Risk Adjusted Return on Capital (RAROC) to measure the efficiency of capital of the bank.
- VII) Credit Audit, Internal Audit and Management Audits: Banks supplemented their credit risk management process through their Credit Audit and Review, Internal Audit and Management Audit departments to identify any deviations or gaps between the set policies and procedures and actual credit decision. The PSB Reforms Agenda - EASE -requires the bank to meet specific action points aimed at enhancing credit risk assessment and underwriting, ultimately leading to a higher reforms index score.
- VIII) The Credit Risk management process outlines the principles, standards, and approach for credit risk management at the Banks. Systems, procedures, controls and measures are in place to actively manage the credit risks, optimize resources and protect the Banks against adverse credit situations (Canara Bank, 2021).
- IX) The Bank undertakes a range of business activities necessitating it to identify, measure, control, monitor and report risks effectively. (IndusInd Bank Ltd., 2021). The overall goal of the risk management process is to assess future possible losses for banks and to take preventative measures to deal with these issues if they arise. The risk management committee has been constituted to assess the various risks associated with the banks business, their mitigation, address the issues relating to asset liability mismatch and also monitor and review the risk management plan of the bank. (IDBI Bank Ltd, 2021).

6. CONCLUSIONS

The identification and management of credit risk is the important determinant of credit risk performance of Indian banks. This study results are in conformity with the RBI's guidelines on credit risk management. The results find that banks ensured the early

identification of credit risk, risk assessment, risk evaluation, risk monitoring and risk control by commercial banks. The credit risk performance of PVBs is significantly higher than that of PSBs. This is not surprising given the operational freedom enjoyed by private banks, and their objective of achieving superior performance. Among the bank groups, PSBs may continue to register the higher GNPA ratio than that PVBs. The practices of credit risk management of the banks are taken annual reports of the Banks. It is observed that the PVBs tend to take minor risks and major credit risks are conveniently avoided whereas the PSUs do undertake larger and largest ticket loans corporate and infrastructure lending and take more credit risks and suffer greater NPAs.

Both the PSBs and PVBS have adopted proactive and efficient credit risk management practices based on their credit risk appetite framework culture, philosophy and nature of business. It is found that the PVBs are managing their credit risks better than that of PSBs. The results indicate that there is a no significant difference in risk management process and practices between the PSBs and PVBS. There is not much difference in the policies and practices of credit risk assessment, analysis, evaluation, monitoring, controlling and credit risk management PSBs and PVBs. The only difference is that PVBs are avoiding in taking big ticket credit proposals, and sensitive sectors such as infrastructure and highly vulnerable industries whereas PSBs could not avoid such kind of proposals. This paper will be useful and relevant to those interested in research in the banking industry with special reference to risk management, The effective credit risk management practices to manage credit risk assumes greater importance in the context of higher NPAs of PSBs, and the consequences for the Indian economy. The study finds that the better implementation of the risk management practices by the PVBs than that of the PSBs.

The study finds that the focus of the risk management framework was designed by the most of the Indian banks and this has focussed on credit risk management, management of capital adequacy, improving asset quality and enhancing the earnings during the last 5 years from March 31, 2017 to March 31, 2021. The PVBs outperformed the PSBs on all the fronts of comparison in the study. The study finds the tools of credit risk management used by banks are exposure limits, prudential limits, loan review process, loan review mechanism, internal risk rating of borrowers, risk based pricing, portfolio management, Value at Risk (VaR), Sensitivity Analysis, and Securitization. The study finds that credit risk, market risk and operational risks are faced by the banks. This study finds that most of the Indian banks used the sophisticated risk management process and systems to manage credit risk and thereby reduce NPAs and improve profitability of banks.

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