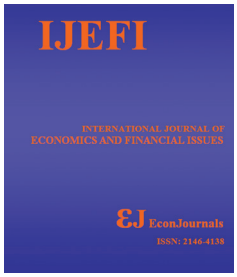

International Journal of Economics and Financial Issues

ISSN: 2146-4138

available at http: www.econjournals.com

International Journal of Economics and Financial Issues, 2022, 12(3), 68-72.

Market Risk Management Practices of the Indian Banking Sector: An Empirical Study

Bezawada Brahmaiah*

ICFAI Business School, (IBS) IFHE, Hyderabad, Telangana, India. *Email: brahmaiahb@ibsindia.org

Received: 17 February 2022 **Accepted:** 26 April 2022 **DOI:** https://doi.org/10.32479/ijefi.13160

ABSTRACT

The primary objective of this paper is to examine the market risk and liquidity risk management techniques and practices followed by the Indian scheduled commercial banks (SCBs) consisting of public sector banks (PSBs) and private sector banks (PVSBs) for five years from 2016-2017 to 2020-2021. The other objective is to compare market and liquidity risk management practices between the PSBs and PVSBs. The other purpose of the study is to review the strategies adopted by the SCBs in market risk management practices. To study the risk management practices, six largest banks each from PSBs and PVSBs are taken for sample study. This study finds that the SCBs are facing credit risk, market risk (Interest rate risk, foreign exchange risk, commodity price risk and equity price risk,) liquidity risk and operational risk. It also finds that the PSBs are better reporting and presenting their risk management practices in their annual reports than that of PVSBs in risk identification, risk assessment and risk analysis. The results indicate that there is no significant difference between the PVSBs and PSBs in the policies and practices of market risk and liquidity risk assessment, evaluation, monitoring risk controlling and risk taking. This paper will be relevant and value to those interested in research in the risk management banking industry. This is a descriptive research based on secondary data.

Keywords: Risk Management in Banking, Market Risk Management, Interest Rate Risk, Liquidity Risk Management
JEL Classifications: G20, G21, G28, G32

1. INTRODUCTION

The banking sector serves the economic function of financial intermediation by ensuring efficient allocation of resources in the economy. Risk is associated with every part of banking transactions. Banks have to assess the banking risks such as credit risk, market risk (interest rate risk, foreign exchange risk, and liquidity risk) and operational risk properly, evaluate them effectively, measure them correctly, monitored them perfectly and managed as per banks' desired policies. Financial risk is defined as the variations or deviations of actual returns from expected returns from lending and investment. Risk management is a process which involves identification of risks, quantification of risks, monitoring, management of risks. The market risk arises from adverse movements in financial market rates (interest and exchange rates, bond prices, equity prices and commodity prices. 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)s, 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 PVSBs 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.

This rest of the paper is divided in to six sections. The second section outlines the theoretical framework on market and liquidity risk management in banking, Section 3 reviews the literature and Section 4 covers research methodology, Section 5 examines risk

management practices of PSBs and PVSBs and the last Sections concludes with remarks.

2. MARKET RISK MANAGEMENT IN BANKING

Market risk arises on account of the adverse movements and volatility of the prices of interest rate instruments, equities, commodities, and currencies. Market risk consists of interest rate risk, liquidity risk, foreign exchange risk, commodity risk, and equity price risk. Liquidity risk is also one of the risks faced by banks. Interest rate risk arises on account of the bank's periodical renewal of assets and liabilities, and due to mismatches between maturity and repricing dates and amounts. This contributes the interest rate sensitivity of assets and liabilities to market interest rates. The net interest income (NII) and net interest margin (NIM) of banks are dependent upon the movements of interest rates. Any mismatch in the cash flows (assets or liabilities) or repricing dates (floating rate assets or liabilities) expose banks NII or NIM to variations. Interest rate risk refers to a potential impact on NII or NIM or market value of equity (MVE), caused by changes in market interest rates. Interest rate risk may be in the form of i) gap or mismatch risk, ii) basis risk, iii) embedded option risk, iv) price risk, v) yield curve risk, and vi) reinvestment risk.

The currency risk is that of incurring losses on account of changes in foreign currency exchange rates. Variations in earnings are caused by the indexation of revenues and charges to exchange rates, or the values of assets and liabilities held in foreign currencies. Foreign exchange risk is also a part or component of market risk. Equity risk is the risk of losses due to adverse change in market price of equity prices shares and investments held by a bank. Liquidity risk is considered as a major risk for a bank. Liquidity is the ability of a bank to meet its short-term payment obligations. It is a bank's capacity to fund an increase in assets and meet both expected and unexpected cash flows at reasonable cost. Liquidity risk arises from investing short term liabilities in long-term assets. Liquidity risk is a fatal risk. Liquidity risk arises when the short-term assets are not sufficient to match short-term liabilities or unexpected outflows. Liquidity risk consists of funding risk, time risk & call risk, The important techniques of market risk management are the Maturity Gap Method, Duration Gap Analysis, Sensitivity Analysis, Value at Risk and Asset Liability Management (ALM).

3. LITERATURE REVIEW

A large number of research papers are published on risk management in banking. However, the studies on risk management practices by banking institutions in Indian context is found to be relatively small in number. The present study is an attempt to consolidate the research findings and conclusions on the market risk management in banking. Risk management practices suffer from lack of proper understanding and identification of different risks, failure to identifying risks, and lack of skill to manage the risks faced by banks. Market risk arises from possible losses in financial markets due to changes in prices of investments (Jorion and Sarkis, 1996). The volatility of underlying market prices of interest rates, foreign exchange rates and other risk factors contribute to the bank's market risk and the sensitivity of the value of bank's portfolio (Hendricks and Hirtle, 1997). Risks may be defined as fall in banks value due to changes in the business environment. Banks need mechanisms to monitor banks' positions and create incentives for prudential risk management (Pyle, 1997). Banks are expected to expose liquidity risk and the possibility of incurring losses associated with disposing of illiquid assets to meet the liquidity demands of banks' business (Allen and Jagtiani, 1996 and Diamond 1999). Risk is associated with leverage risk that obligations and liabilities cannot be met with current assets (Gleason, 2000). These are necessities for in depth study and examination of risk management practices by Indian scheduled commercial banks.

Carey (2001) concluded that risk management is more important in the banking and financial sector than in other segments of the economy. Risk can be reduced by anticipating all the activities with the precautionary measures of the financial institution. Risk measurement refers to the quantification of risk exposures, and risk management deals with the overall process to identify the risks, quantify those risks, and to and to control the nature of risks it faces. (Cumming and Beverly, 2001). The objective of banking and financial institutions is to maximize profitability and shareholder wealth by providing financial services by managing risks (Khan and Ahmad, 2001). Risk Adjusted Rate of Return on Capital (RAROC) provides an estimate of how much economic capital for different products and businesses need and determines the total return on capital of a bank (Crouhy and Robert, 2001).

Interest rates risk is due to changes in interest rates, the increase or decrease in value of assets and liabilities will not match since the bank's the assets-liabilities maturity mismatches (Hasan and Sarkar, 2002). Hahm (2004) results indicate that Korean commercial banks and merchant banking institutions had been significantly exposed to both interest rate and exchange rate risks. Gatev (2006) concluded that banks that are aggressive in lending activities are exposed to the higher risk of liquidity than other banks. It is found that banks that make aggressive commitments to lend are exposed to the risk of unexpected liquidity demands from their borrowers. Hassan (2009) found that three major risks such as foreign exchange risk, credit risk, and operational risks are faced by banks The growth and development of information and communicative technologies have provided great opportunities and also created cut throat competition and generated various risks to banking institutions (Voon Choong et al., 2010). Abu Hussain and Al-Ajmi (2012) examined the risk management practices followed by the commercial and Islamic Banks in Bahrain and their results indicated that a significant and positive effect on risk management practices in both commercial and Islamic banks of Bahrain. Shafique et al. (2013) studied the risk management practices followed by Islamic and commercial banks in Pakistan and found that no extensive variation in risk management practices between Islamic financial institutions and commercial financial institutions apart from the equity investment risk. Channar et al. (2015) study on commercial and Islamic banks on risk management strategies in Pakistan and found that commercial banks are adopting better

strategies and tactics for risk management than that of the Islamic banks. Khurram et al., (2020) found that both PSBs and PVSBs are managing adequate risk management practices and sub-groups' results indicate that PVSBs are superior to the PSBs in risk management.

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

The present study is an attempt to contribute to the literature on risk management in banking by Indian banks. The research is based on the Indian banking sector covering both the public sector and private sector banks. The sample covers six largest public sector banks (PSBs[1]) and six largest private sector banks (PVSBs[2]) in terms of assets and banking business. The sample twelve banks account for about 78% of banking business and banking assets as at the end of March 2021. The research is on the empirical study of the risk management practices of the Indian banking sector for five financial years from 2016-17 to 2020-21. The practices are studied based on their published annual reports of the respective 12 banks. The scope of the study is limited to market and liquidity risks management practices of the PSBs and the PVBs for five years. The present study is a descriptive and based on the secondary data. The published annual reports of sample banks are collected through their websites of respective banks for five years to study the reported practices. To examine the market and liquidity risks management process and practices, the study focuses on risk management practices such as understanding of risk and its management, risk assessment and analysis, risk identification, risk monitoring and management. The study also covers the tools and techniques of market and liquidity risks management by PSBs and PVSBs.

5. MARKET RISK MANAGEMENT PRACTICES BY PSBS AND PVSBS[3]

SCBs are subject to statutory liquidity ratio, cash reserve ratios requirement, capital and liquidity requirements that structurally exposes them to interest rate risks and liquidity risks, (ICICI Bank Ltd, 2021). PSBs and PVSBs have adopted a multi-layered risk management process to identify, assess, monitor and manage traditional and emerging risks through the effective use of processes, information and technology. The risk of potential loss on account of adverse changes in market variables which affect the value of financial instruments that the Banks hold as a part of its statutory reserves or trading activity, such as market instruments, debt securities, equities, foreign exchange and derivative instruments. The Risk Appetite Statements of banks incorporate all limits and set targets for market risks with relevant and appropriate parameters. The market risk management involves to identify, measure, monitor and manage the market risks, foreign exchange risks and derivative risks, (State Bank of India, 2021). The credit risk, market risk, liquidity risk, and operational risk are faced by the Indian SCBs. Risk management process of banks includes risk identification, risk assessment, risk measurement and risk mitigation and curtail the impact of risks on profitability, assets quality and capital of the Banks (State Bank of India, 2021). PSBs as well as PVSBs have developed market risk and liquidity risk management policies, proces and practices to identify, measure, assess, evaluate, monitor, and manage market and liquidity risks scientifically and systematically across all its products, services and portfolios (State Bank of India, 2021).

The risk measures include long and short position limits, gap limits, tenor restrictions, sensitivity limits, Duration, Modified Duration, Value-at-Risk (VaR) Limits, Stop Loss Trigger Levels, Forex Daylight Limit, and Options Greeks are monitored on end-of-day and daily basis. Value at Risk (VaR) is a tool used for monitoring risk in the trading portfolios (State Bank of India, 2021). The impact on earnings at risk (EaR) and market value of equity (MVE) are assessed with pre-defined tolerance limits which enables the Banks to initiate appropriate preventive steps and mechanism in improving the NII and enhance the MVE. The Asset Liability Management Committees (ALCO) of Banks monitor and manage liquidity risk and interest rate risks by constantly modulating and updating the asset-liability mix in the banks' balance sheets, (State Bank of India, 2021). The change in economic value of different market products is largely a function of change in factors such as interest rates, exchange rates, economic growth and business confidence. The Banks have well defined policies to control and monitor its treasury functions which undertake market risk management. The Banks measure, monitor and manage interest rate risks in its trading book through duration, modified duration, PV01 and value at risk (VaR) on a daily basis (Bank of Baroda, 2021). Equity price risk is measured and monitored through VaR limits and portfolio size limits, (Bank of Baroda, 2021). The interest rate risk in the banking book (IRRBB) arises due to mismatch between rate sensitive assets and liabilities which may adversely impact the earnings and economic value of equity of the Banks with the change in interest rates in the market. Banks undertake the short term impact of interest rate movements on net interest income (NII) is measured through the 'Earnings at Risk' and the long-term impact of interest rate movements is measured through change in Market Value of Equity (MVE), (Bank of Baroda, 2021). The liquidity risk is measured and monitored through the Fow Approach and Stock Approach and other prudential guidelines and stipulations for Asset Liability Management (Bank of Baroda, 21).

Boards-approved investment policy, market risk policy and limit packages cap exposure in line with the Banks risk appetite. PVSBs follow well-established procedures for portfolio risk evaluation, market risk factor assessment and risk management, (HDFC Bank Ltd, 2021). PVSBs framework for liquidity and interest rate risk management is spelled out in PVSBs' Asset Liability- Management policy. The robust mechanism to comprehensively track cash flow mismatches under normal and stressed conditions and critical ratios has also been implemented. The PVSBs have an extensive

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, Indusind Bank, IDBI Bank Ltd. And YES Bank Ltd

3 This section on risk manage practices is heavily drawn and extracted from the annual reports of the respective sample banks.

intraday liquidity risk management framework for monitoring intraday positions during the day, (HDFC Bank Ltd, 2021).

Risk management strategy of banks aims at the identification, measurement and monitoring. Identification of risks enables the Bank for further analysis and assessment, measurement empowers the Bank to accept, avoid, mitigate or transfer risks. Banks have a well-established policies and procedures for ALM, Fund Transfer Pricing, and Profitability, (IDBI Bank Ltd, 2021). These policies outline appropriate levels of risk appetite, risk return trade off and implementation mechanisms for management of these risks and achieve the expected return on investment (IDBI Bank Ltd, 2021). The Banks have a well-defined liquidity risk management structure to manage the asset liability management (ALM). The ALCO of the Banks monitor and manage liquidity and interest rate risk in line with the business strategies of banks. The ALCO directives and ALM actions are implemented by the concerned business groups and verticals, (IDBI Bank Ltd, 2021).

6. CONCLUDING REMARKS

The major risks faced by SCBs are credit risk, market risk, liquidity risk, and operational risk. Risk management includes risk identification, risk assessment, risk measurement and risk mitigation and curtails its impact on profitability, assets quality and capital of the Banks. Banks have policies and procedures to measure, assess, monitor, and manage risks systematically across all its products, services and portfolios. Banks' market risk management involves of identification and measurement of risks, control measures, monitoring, and reporting systems. Market risk is handled through a well-defined board approved Investment Policy, Trading Policy and Market Risk Management Policy and Market Risk Limit Policy that caps risk in different trading desks or various securities through trading risk limits/triggers for effective management of investment funds (State Bank of India, 2021). These risk measures include position limits, gap limits, tenor restrictions, sensitivity limits, namely, Duration, Modified Duration, Value-at-Risk (VaR) Limits, Stop Loss Trigger Level, Forex Daylight Limit, and Options Greeks are monitored on end-of-day basis. Value at Risk (VaR) is a tool used for monitoring risk in the Banks trading portfolios, (State Bank of India, 2021).

Banks identify the inherent risks associated with the changing interest rates on its on-balance sheet and off-balance sheet exposures. The impact on Earnings at Risk (EaR) and Market Value of Equity (MVE) are assessed with pre-defined tolerance limits which enables the Banks 'Managements to initiate appropriate preventive steps in a likely scenario of erosion in NII and Net Worth. The Asset Liability Management Committees (ALCO) of Banks monitor and manage Liquidity and Interest Rate Risks by constantly modulating the asset-liability mix in the Balance Sheet. ALCOs, inter alia, reviews the Interest Rate scenarios, pattern of growth of liability products, credit growth, competitive advantages, liquidity management, adherence to the regulatory prescriptions and pricing of liabilities and assets from time to time. (State Bank of India, 2021). The results indicate that there is no significant difference between the PVSBs and PSBs in the policies and practices of market risk and liquidity risk assessment, evaluation, monitoring risk controlling and risk taking. This paper will be relevant and value to those interested in research in the risk management banking industry.

REFERENCES

Abu Hussain, H., Al-Ajmi, J. (2012), Risk management practices of conventional and Islamic banks in Bahrain. The Journal of Risk Finance, 13(3), 215-239.

Allen, L., Jagtiani, J. (1996), Risk and Market Segmentation in Financial Intermediaries' Return. Pennsylvania: Wharton Financial Institutions Center. p1-32.

Al-Tamimi, A. (2002), Risk management practices: an empirical analysis of the UAE commercial banks. Finance India, 16(3), 1045-1057.

Bank of Baroda. (2021), Annual Report 2021. Vadodara: Bank of Baroda Ltd.

Carey, A. (2001), Effective risk management in financial institutions: The turnbull approach. Balance Sheet, 9(3), 24-27.

Channar, Z.A., Abbasi, P., Maheshwari, M.B. (2015), Risk management: A tool for enhancing organizational performance. Pakistan Business Review, 17(1), 1-20.

Crouhy, M., Galai, D., Robert, M. (2001), Risk Management. New York: McGraw Hill. p543-548.

Cumming, C., Beverly, J.H (2001), The challenges of risk management in diversified financial companies. Economic Policy Review, Federal Reserve Bank of New York, 7, 1-17.

Diamond, D.W. (1999), Liquidity Risk, Liquidity Creation and Financial Fragility: A Theory of Banking. United States: National Bureau of Economic Research. p1-55.

Gatev, E. (2006), Managing Bank Liquidity Risk: How Deposit-loan Synergies Vary with Market Conditions. United States: National Bureau of Economic Research. p1-38.

Gleason, J.T. (2000), Risk: The New Management Imperative in Finance. Princeton, New Jersey: Bloomberg Press. p21.

Hahm, J.H. (2004), Interest rate and exchange rate exposures of banking institutions in pre-crisis Korea. Applied Economics, 36(13), 1409-1419.

Hasan, I., Sarkar, S. (2002), Banks' option to lend, interest rate sensitivity, and credit availability. Review of Derivatives Research, 5(3), 213-250.

Hassan, A. (2009), Risk management practices of Islamic banks of Brunei Darussalam. The Journal of Risk Finance, 10(1), 23-37.

HDFC Bank Ltd. (2021), Annual Reports, 2021. Mumbai: HDFC Bank Ltd

Hendricks, D., Hirtle, B. (1997), Bank Capital Requirement for Market Risk: The Internal Models Approach. Economic Policy Review, 3, 1-12.

ICICI Bank Ltd. (2021), Annual Reports, 2021. Vadodara: ICICI Bank Ltd.

IDBI Bank Ltd. (2021), Annual Reports, 2021. Mumbai: IDBI Bank Ltd.

Jorion, P., Sarkis, J.K (1996), Financial Risk Management Domestic and International Dimensions. Cambridge, Massachusetts: Blackwell Publishers. p2.

Khan, T., Ahmad, H. (2001), Risk Management-an Analysis of Issues in Islamic Financial Industry, Occasional Paper No. 5. Jeddah, Saudi Arabia: Islamic Research and Training Institute, Islamic Development Bank, Jeddah. p26.

Khurram, R., Hadi, H.K., Bilal, S., Noor, M., Wahab, A., Ur Rehman, Z. (2020), A multi-group analysis of risk management practices of public and private commercial banks. Journal of Asian Finance, Economics and Business, 7(11), 893-904.

Punjab National Bank Ltd. (2021), Annual Reports, 2021. Dhaka: Punjab National Bank Ltd.

Pyle, H.D. (1997), Bank Risk Management Theory, Working paper RPF-272, Haas School of Business. Berkeley: University of California. p2.

Santomero, A.M. (1997), Commercial bank risk management: An analysis of the process. Journal of Financial Services Research, 12, 83-115.

Shafique, O., Hussain, N., Hassan, M.T. (2013), Differences in the risk management practices of Islamic versus conventional financial institutions in Pakistan: An empirical study. The Journal of Risk Finance, 14(2), 179-196.

State Bank of India. (2021), Annual Reports 2020-21. Mumbai: State Bank of India.

Voon-Choong, Y., Hway-Boon, O., Kok-Thim, C., Yueh-Sin, A. (2010), Factors affecting banks' risk exposure: Evidence from Malaysia. European Journal of Economics, Finance and Administrative Sciences, 19, 121-122.