Abstract

This study investigates the influence of capital structure on the financial performance of banks in India. The study used a dataset consisting of 57 institutions to examine the correlation between the capital structure and financial performance of banks. The panel regression models were employed over the time frame of 2000–2022, utilising both fixed effect and random effect models. Return on equity (ROE) and return on assets (ROA) are the two metrics used for evaluating financial performance. The results of this study indicate that the debt-to-equity ratio, net profit margin, and size show statistical relevance. Due to their large size and high debt-to-equity ratio, public sector banks have performed worse than private and foreign sector banks in terms of these factors. Banks face significant difficulty with regards to their low financial performance, mostly due to factors such as the debt-to-equity ratio and return on capital used. The data suggests that the capital structure has had a considerable impact on the financial performance of the Indian banking sector, particularly in recent years. The empirical analysis also shows that there is no statistically significant correlation between net interest margin, current ratio, and the metrics of return on assets and return on equity for Indian banks.

1. Introduction Banks follow international standards set by the Basel Committee on Banking Supervision to manage their capital composition. Basel I, Basel II, and Basel III are three regulatory frameworks for banking supervision that have standardized capital regulation globally. The bank buffer theory suggests that banks maintain capital reserves exceeding regulatory requirements. In response to the 2008 financial crisis, India introduced regulatory reforms to ensure sufficient capital for banks. Central banks should consider the impact of policy rates on the capital structure and stability of banks when responding to economic shocks. Capital structure is a financial strategy that includes reserves, surpluses, and long-term sources of finance such as debentures, long-term debts, preference shares, and ordinary share capital. Effectively managing the debt-to-equity ratio is crucial for a bank's stability and financial health. Debt and equity serve distinct functions within a capital system, with debt being advantageous for businesses due to tax benefits and equity allowing external investors to obtain stakes in the business. Identifying an ideal capital structure for a bank depends on factors such as industry categorization, growth potential, and risk tolerance. Financial performance assessment involves using indicators like return on assets (ROA), return on equity (ROE), and net profit margin (NPM). Banks' capital structure can influence their clients' characteristics, as consumers with varying levels of dependence on liquidity and credit may be attracted to different types of banks.
2. Theoretical framework Two perspectives on capital structure in the banking sector have been explored. One suggests that higher capital enhances banks' incentive to choose asset portfolios efficiently and monitor borrowers, leading to more lending, liquidity creation, and higher bank values. The other suggests that higher AN EMPIRICAL ANALYSIS OF CAPITAL STRUCTURE DYNAMICS AND FINANCIAL PERFORMANCE IN THE INDIAN BANKING SECTOR 111 capital may reduce liquidity or transaction costs, resulting in lower liquidity creation by banks. Both studies agree that higher capital in the banking sector reduces systemic risk and fragility. However, the Indian banking sector has a unique feature where one bank's failure can trigger failures in other banks, as an individual bank's problem informs the potential problems of other banks. This has been evident from the 2006-08 period leading up to the 2008 financial crisis. Empirical evidence suggests that commercial banks with higher capital have a better capability of surviving a financial crisis, and small banks with higher capital are more likely to survive in normal times. 2.1 Capital structure and financial stability. Bank capital plays a crucial role in bank management, survival, market share, and regulatory

concerns. Bank regulators prioritize bank survival and market share as they impact the stability of the financial system. They assess the impact of bank capital on performance during normal times and during financial crises, assessing whether higher capital levels significantly affect a bank's survival likelihood and varying based on factors like bank size and crisis nature. Capital structure, which includes debt and equity financing, is essential for a financial institution's stability. A well-balanced capital structure can provide a buffer against economic downturns and unexpected losses. A higher proportion of equity can enhance a bank's resilience during financial stress, while a heavy reliance on debt may increase vulnerability, especially if the debt is short-term or low-quality. However, the odds support the hypothesis that capital increases the likelihood of survival, as supported by reviews in Freixas and Rochet (2008). 2.2 Choice of capital structure A bank can choose to use a combination of preferred capital, debt, or equity sources for its investment. Factors such as industry type, earnings consistency, money market makeup, and investor sentiment influence the selection of an acceptable capital structure. Debt capital is a liability that the bank must pay interest regardless of its profit, while equity capital is made up of owners' or shareholders' funds, with the obligation to pay dividends dependent on its profit margin. Various theories suggest that higher capital levels increase a bank's likelihood of survival. These theories argue that capital reduces the appeal of risky products, mitigates moral hazards, and enhances a bank's incentive to monitor borrowers, reducing default probabilities. However, some theories argue that increasing capital might encourage banks to take on more risk. Empirical research generally supports the idea that higher capital improves a bank's competitive position in asset and liability markets, increasing its chances of survival. Banks with larger capital bases are often more successful in competing for deposits and loans. Recent banking theories suggest a positive relationship between capital and market share, and banks with larger capital can compete more effectively for market share. The decision about capital structure policy is between projected return and risk, with the optimal capital structure striking a balance between these risks and returns by examining the stock price. The relationship between capital structure and financial stability is multifaceted and may vary across institutions. Factors such as asset quality, risk management practices, and market conditions play a role in determining the impact of capital structure on stability. 3. Review of literature 3.1 Theoretical Review Some of the studies that highlight the significance of the capital structure and its relation to the financial performance of the banking sector are as follows: Trade-off theory and pecking order theory assert the presence of a linkage between leverage and performance, and their propositions are empirically testable. The trade-off theory contends that a firm's creation of an ideal capital structure can increase firm value. The trade-off theory was initially developed out of the argument over the Modigliani and Miller theories. The trade-off theory argues that organisations could enhance their value by trading off the benefits and costs of borrowing. The benefit of debt is thought to be the tax shield of debt, which can enhance firm value through debt issuance (Myers 1984). Moreover, Modigliani and Miller (1963) emphasize that tax savings are the key benefit of debt, which assists firms in reducing their total taxable income through interest payments. Thus, empirical evidence supports the hypotheses of trade-off and pecking order theories.

The trade-off theory and pecking order theory can also explicate the logic of the reverse causal association between performance and leverage with empirical evidence. The trade-off theory expects a positive effect of profitability on leverage. It is argued that the possibility of bankruptcy moves in reverse with profitability (Fama & French, 2002). Iavorskyi (2013) examined the impact of

capital structure (debt-to-assets ratio) on the performance (return on assets, return on sales, and total factor productivity) of 16,500 Ukrainian firms between 2001 and 2010. The results state that a negative relationship exists between leverage and performance in Ukraine. Firms with high future growth opportunities should use more equity in their financing because higher leverage is likely to encourage more profitable investment opportunities. According to Titman & Wessels (1988) and Huang & Song (2002), factors that affect capital structure include a firm's size, asset structure, profitability, growth prospects, and tax rates. Furthermore, highly profitable firms have a greater tendency to bear more debt, aiming to benefit from tax savings (Frank and Goyal, 2009). Wiwattanakantang (1999) adds that firms with high cash flow shall obtain debts more easily compared to low profitable firms. Therefore, bankruptcy costs and agency costs imply that high profitability is related to a higher debt ratio. In other words, firm performance can positively impact the capital structure. The results of previous empirical studies could support the proposition of the trade-off theory (Adedeji, 2002; Salawu and Agboola, 2008). Whereas the pecking order theory argues that highly profitable companies more potentially depend on the earned surplus to finance their assets, not external sources (Ghosh and Cai, 1999; Myers, 1984), Consequently, the effect of profitability on leverage is presupposed to be negative, holding the investment level stable (Tong and Green, 2005). Empirically, several studies have observed a negative association between the ratios of debt and profitability (Viviani, 2008; Yolanda and Soekarno, 2012; Guner, 2016; Jarallah et al., 2019; Moradi and Paulet, 2019). These theories are financial principles that help a financial firm choose its capital structure. Each one of them plays a vital role in the decision-making process reliant on the type of capital structure that the firm wants to achieve in a particular period. However, the pecking order theory has been empirically observed to be the most used approach in determining a firm's capital structure. There are several other ways that firms can decide on the ideal capital structure, like cash in from sales, stock sold to investors, and debt sold to bondholders. Accurate analysis of the capital structure can help a company by optimizing the cost of capital and improving profitability. With all these literary theories, it seems that these types of hypotheses are mutually exclusive, and it is quite challenging to draw a firm conclusion from them. However, it helps create a shared understanding of the significance of bank capital and bank monitoring incentives. Each of these hypothesis's states that when bank failure rises (decline probability), the value of banking services decreases. However, high leverage may jeopardize the provision of liquidity if banks are unable to eliminate asset risks. 3.2 Empirical Review The relationship between capital structure and profitability in the US banking industry was analysed with the GMM approach to control endogeneity and heterogeneity issues. The findings showed a non monotonic connection and a strong negative relationship between these factors, following the agency theory (Hoffmann, P.S. 2010). The relationship between financial leverage and overall financial performance in the fuel and energy sector of Pakistan showed a positive relationship between financial leverage and overall performance (Akhtar, S., Javed, B., Maryam, A., & Sadia, H. 2012). The relationship between the debt-to-equity ratio and the capital structure of commercial banks in Nigeria was also examined. The results of this study showed a positive and large effect on return on equity with no unidirectional or bidirectional relationship between the capital structure and the performance of commercial banks (Nwude, E.C., & Anyalechi, K.C. 2018). Empirically, several studies have observed a positive association between the capital structure and financial performance of banking firms (Abdullah, H., & Tursoy, T., 2021; Dai, T. B., 2017). Sofi, T. R., et. al., (2023) examined the financial performance of 14 Indian public sector banks from 2000 to 2020, focusing on profitability, liquidity, and asset quality. Results show that debt equity ratio and return on assets positively impact net profit margin and return on equity. However, banks face financial losses due to interest expenses and debt repayments. Despite this, profitability is increasing due to overall debt equity ratio and size

The study suggests that banks could improve their financial system by diversifying income production through customer-based financial services. Roberts, M. R., & Whited, T. M. (2013) talk about the problem of endogeneity in empirical corporate finance. Endogeneity is when there is a link between the variables that explain something and the error term in a regression. This can cause parameter estimates to be biassed and not match up with reality. Random effect and fixed effect models are unable to account for endogeneity. Therefore, the Generalised Method of Moments (GMM) is recommended to estimate and account for endogeneity. It has been argued that the GMM estimator can choose parameter estimates that will reduce the association between the instrument and the disturbance term to zero (Wooldridge, 2001). Therefore, the relationship between capital structure and firm performance in various firms has been extensively studied and analysed. The use of GMM models and the use of various econometric models, such as Random-Effect, Fixed-Effect, and Generalised Methods of Moments, helps to understand the complex relationship between capital structure and performance in various industries. This study has thoroughly summarized both theoretical and empirical literature, where one can understand that there are some potential benefits to having a higher debt load. Eventually, the impact of capital structure on financial performance depends on several factors. Banks need to carefully consider their circumstances before making decisions about their capital structure. The regulatory view of the capital structure of an individual bank is that it should have sufficient capital to give to its stakeholders because preventing the failure of the individual bank can lower the possibility of contagion. The objective of this study is to examine the impact of capital structure on the financial performance of the banking sector in India for the period 2000–2022.

3.Data and Methodology The study is based on secondary data and involves empirical estimation utilising multiple econometric models. The income and financial statements of the banks from 2000 to 2022 have been extracted from the INDIASTAT and Prowess (IQ) CMIE databases. Panel methods, such as fixed effect and random effect models, have been employed in conjunction with Hausman's specification test. These econometric techniques are designed to address the problems of causative factors and the dynamics of the relationship between capital structure and the financial performance of the banking industry in India. The analytical stage involved utilising financial ratios derived from the financial accounts to determine the effect on financial performance. A total of 57 banks from the public, private, and foreign banks were chosen to serve as the sample. This research omits specific banks that had incomplete audited income statements and financial statements to avoid any potential prejudice.

investment resources. NIM is calculated by dividing net interest income by total assets. Bank size is also included as an independent variable in size-related economies and diseconomies. Total assets should be logged before being included in models, as they are related to other dependent variables like ROA. The higher the equity-to-asset ratio, the smaller the requirement for external finance and greater profitability. Our analysis is confined to the activities of the 57 banks (including public, private, and foreign) listed on the Bombay Stock Exchange (BSE). In exploring the relationship between capital structure and financial performance among these banks, this study employs fixed effects (FE) and random effects (RE) panel regression models, complemented by Hausman’s specification test, a pivotal step following the application of both panel data techniques. Should the results demonstrate statistical significance in both fixed effects (FE) and random effects (RE) models, it would necessitate the rejection of the hypothesis positing a consistent absence of differences in coefficients (Dougherty, 2007).

onclusion The deterioration of the debt-to-equity ratio (DER) and size have had a negative impact on the financial performance of public sector banks. In contrast, private sector and foreign sector banks

have not had the same negative effects. The sole determinant of the decline in financial performance in India is size. The dismal financial performance is mostly attributed to the DER, ROCE, and SIZE aspects of banks, including public, private, and foreign banks. Even though other variables like size, current ratio (CR), return on capital employed (ROCE), and net interest margin (NIM) had an effect, the study did not find any significant links between return on assets (ROA) and return on equity (ROE). These characteristics were determined to be statistically insignificant, indicating that they have little impact on the financial performance of Indian banks. Its capital structure had a big impact on the bank's financial performance. The debt-to-equity ratio (DER) and the company's size negatively impacted the return on assets (ROA) and return on equity (ROE), but the net profit margin (NPM) showed a substantial positive correlation with ROA and ROE. Hence, it can be inferred that the performance (profitability) of Indian banks is primarily driven by characteristics like capital structure and net profit margin rather than interest margin, size, and current ratio. This underscores the need for effectively controlling debt levels and optimizing profit margins to enhance financial performance in the banking industry.