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ANCIENT INDIAN WISDOM FOR BANKING STABILITY: A CAMELS ANALYSIS

Naresh Sachdev[1], Gaurav K Mangar[2] and Ginni Syal[3]

[1]*Professor & Director, Punjab College of Technical Education, Ludhiana, Punjab, India.*
E-mail: naresh@pcte.edu.in (Corresponding Author)
[2]*Assistant Professor, Punjab College of Technical Education, Ludhiana, Punjab, India.*
E-mail: gauravmangar@pcte.edu.in
[3]*Assistant Professor, Punjab College of Technical Education, Ludhiana, Punjab, India.*
E-mail: ginni@pcte.edu.in

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Abstract: This study examines how capital adequacy and risk management techniques in contemporary banking can be informed by traditional Indian Knowledge Systems (IKS), namely the Arthashastra's ideas. The study looks at the performance of a few public, private, and foreign sector banks using the CAMELS framework, with an emphasis on how traditional Indian knowledge might offer creative answers to modern banking problems. The study mostly uses secondary data from these banks, which were chosen according to their December 2023 market value. With a focus on conventional risk management techniques, it integrates qualitative components from IKS and evaluates capital sufficiency and risk management performance using Mean Scores and Ratio Analysis. According to the investigation, several of the risk management techniques found in ancient Indian writings are very similar to contemporary approaches to risk mitigation and financial restraint. Stronger capital reserves and improved risk management results are displayed by banks that incorporate IKS-inspired values including long-term sustainability, ethical decision- making, and careful financial planning. According to the findings, public sector banks in particular might gain from strengthening their financial strategy by implementing conventional ideas. This study shows how ancient wisdom may be used to effectively solve contemporary banking issues and provides insightful information for banking executives and legislators wishing to include moral, sustainable practices into their risk management frameworks.

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1. INTRODUCTION

Maintaining economic development and institutional resilience in the ever-changing world of banking depends heavily on maintaining financial stability and reducing risks. As the backbone of economic systems, banks must manage a variety of risks arising from both domestic and international uncertainty while keeping sufficient capital buffers. A mainstay of financial research is the CAMELS framework, which assesses a bank's performance along six crucial dimensions: capital adequacy, asset quality, management effectiveness, earnings, liquidity, and sensitivity to market risk. However, contemporary financial methods frequently ignore the larger ethical, philosophical, and cultural factors that influence sustainable decision-making, even in spite of their technological precision. In order to improve capital adequacy and risk management tactics inside the CAMELS framework, this article suggests incorporating traditional Indian wisdom as an additional lens.

Many of the profound insights into ethics, governance, and wise decision-making contained in ancient Indian literature—such as the Arthashastra, Bhagavad Gita, and Upanishads—align with current financial requirements. Modern methods to capital adequacy and risk management are in line with Kautilya's Arthashastra, which places a strong emphasis on economic governance, resource optimization, and strategic foresight (Rangarajan, 1992). In a same vein, the Bhagavad Gita promotes self-control, equilibrium, and fortitude—all of which are essential for negotiating the intricacies of institutional management and financial markets (Dasgupta, 2006). The limits of strictly quantitative assessments, as those employed in the CAMELS model, can be addressed by using these concepts, which have their roots in ancient Indian customs.

Ancient Indian wisdom provides insightful viewpoints on capital adequacy, which is the foundation of financial stability. The Arthashastra places a strong emphasis on the value of setting aside funds for emergencies and striking a balance between conservation and resource use. This is in line with the contemporary idea of capital adequacy, which states that banks must keep enough capital

on hand to cover unforeseen losses and ensure operating stability. Banks can strengthen their resilience to regulatory demands and economic shocks by incorporating ancient literature' ideas of readiness and foresight.

Another crucial aspect of the CAMELS system, risk management, has similarities to ancient Indian philosophy. The Upanishads' idea of viveka (discernment) emphasizes the significance of making wise choices based on contextual knowledge and wisdom. This is in line with how risks are currently identified, measured, and mitigated. Furthermore, financial institutions must maintain composure and methodicalness when navigating tumultuous markets, which is reflected in the Bhagavad Gita's focus on maintaining composure in difficult times.

Public, private, and international banks make up the Indian banking industry, which is a diverse and intricate ecosystem with many chances to apply lessons learned from traditional Indian knowledge. Public sector banks, which are charged with promoting socio-economic goals, usually struggle to balance profitability with carrying out their social obligations. A useful framework for tackling these issues is offered by the governance ideas of ancient India, especially those that emphasize responsibility and the well-being of the group, as stated in writings such as the Arthashastra (Rangarajan, 1992). On the other hand, private and international banks frequently prioritize short-term profitability due to their emphasis on efficiency, innovation, and market competitiveness. The Bhagavad Gita and other ancient Indian philosophies that support sustainable practices and strategic forethought can operate as a guiding counterbalance to these impulses (Dasgupta, 2006).

Furthermore, trust and accountability are emphasized by the ethical aspects of ancient Indian knowledge, both of which are essential for promoting long-term sustainability in banking. The idea that financial institutions have an obligation to promote community welfare is reinforced by the Arthashastra, which emphasizes the importance of moral leadership and the fair allocation of resources (Rangarajan, 1992). Similar to this, the Bhagavad Gita emphasizes the value of carrying out one's responsibilities with honesty and purpose, which is in line with contemporary demands for corporate social responsibility and sound governance procedures (Mahadevan, 2018). These antiquated moral principles fit in perfectly with current initiatives to maintain financial institutions' good name and increase stakeholder trust.

By incorporating traditional Indian knowledge into the CAMELS framework, banks can take a more thorough approach to risk management and performance assessment. In addition to improving the operational and technical aspects of financial stability, this synthesis adds cultural and ethical elements that fortify stakeholder relationships and institutional resilience. Using a multifaceted framework based on conventional wisdom enables banks to better meet stakeholder expectations while preserving their primary goals in an era where financial institutions are under increasing scrutiny for their environmental, social, and governance (ESG) practices. Such an approach contributes to the development of a sustainable and inclusive financial ecosystem that can adjust to modern challenges by promoting a balance between quantitative evaluations and qualitative insights.

2. REVIEW OF LITERATURE

2.1. Ancient Indian Wisdom and its Relevance towards Capital Adequacy & Risk Management

Timeless guidelines for moral leadership and risk reduction can be found in Indian philosophical writings like the Arthashastra and the Bhagavad Gita. According to Chakrabarti (2020), Kautilya's Arthashastra provides a fundamental framework for economic resilience by emphasizing the need to keep reserves to withstand future shocks and the wise distribution of resources. Similarly, Gupta and Bansal (2019) contend that the Bhagavad Gita's dharmic decision-making principles support moral behavior and foresight in risk management.

Mishra (2021) examines the similarities between ancient Indian governance and contemporary banking laws, pointing out that the ancient texts' emphasis on accountability, transparency, and systemic stability is similar to present practices such as Basel III standards for capital adequacy. These lessons offer a cultural framework for building financial institutions' resilience. According to Singh and Sharma (2023), risk management in the Arthashastra entails identifying weaknesses and making backup plans, which is comparable to scenario analysis and stress testing in contemporary banking.

2.2. Insights and Modern Constraints to Capital Adequacy

In banking literature, capital adequacy has received a lot of attention, especially after the 2008 global financial crisis. Maintaining adequate capital is essential

to financial stability, claim Bhattacharya and Kumar (2017). They emphasize that significant non-performing assets (NPAs) make it difficult for Indian banks, especially public sector ones, to comply with Basel III standards.

Desai et al. (2020) points out that, in part because of their effective risk management procedures, private and international banks in India have greater CAR levels than public sector banks. Sharma and Patel (2022), however, contend that a focus on maximizing short-term profits can jeopardize long-term sustainability and advocate for an ethical strategy based on traditional Indian values.

In a more recent work, Nair and Menon (2024) examine how banks might better align with capital adequacy criteria by using AI and machine learning for risk modeling. They suggest that a strong framework for risk management can be produced by fusing technology tools with ethical and cultural understanding.

2.3. CAMELS Framework & Its Integration Into the Indian Wisdom

A thorough method for assessing bank performance is the CAMELS model, which includes Capital Adequacy, Asset Quality, Management Efficiency, Earnings, Liquidity, and Sensitivity to Market Risk. An detailed application of the CAMELS model in Indian banking is given by Rajan and Choudhury (2018), who highlight the model's value in finding deficiencies across a range of criteria.

In a more recent analysis of the relationship between CAMELS characteristics and regulatory changes, Verma et al. (2023) concluded that banks with high capital adequacy were more resilient to external shocks, which is consistent with traditional Indian approaches to sustainable governance.

Drawing on Indian wisdom, Gupta and Roy (2024) offer an enlarged CAMELS paradigm that includes cultural sustainability and ethical governance. They contend that in addition to improving financial stability, this strategy also complies with international ESG (Environmental, Social, and Governance) trends.

2.4. The Interplay of Capital Adequacy, CAMELS & Indian Wisdom

According to Kumar et al. (2021), risk mitigation and long-term capital adequacy are made possible by ethical governance that is based on the dharma

(righteousness) principle. They contend that the short-term profit-driven tactics common in contemporary banking can be balanced by including such ethical principles. In a similar vein, Das and Jain (2023) present a convincing case for matching CAMELS criteria with traditional Indian government ideas. For example, they link asset quality to satya (truth), stressing openness and confidence in financial transactions, and capital adequacy to dhriti (fortitude), promoting readiness for adversity. These connections demonstrate how Indian philosophical ideas are still relevant today while dealing with the challenges of modern financial management.

Singh and Bhattacharya (2022) go into further detail about the ethical aspects of risk management by examining how the traditional idea of artha (wealth) relates to both societal welfare and financial sustainability. Their view, which is in line with the duties of public sector banks in India, is that the banking industry's profits need to be directed towards a larger social goal. Gupta and Sharma (2023), who advocate incorporating ahimsa (non-harming) into risk management systems and encourage banks to take into account societal and environmental risks in addition to financial ones, further support this viewpoint. They argue that such ethical considerations not only promote stakeholder trust but also improve long-term stability.

Ancient Indian knowledge is the source of the CAMELS framework's fundamental concepts of risk sensitivity and strategic foresight. Narayan and Rao (2023) highlight the value of flexibility and foresight in navigating volatile markets by drawing comparisons between viveka (discernment) and sensitivity to market risks. By adding insights from the Arthashastra, Mehta and Kapoor (2024) expand on this conversation and point out that tactics like alliance-building and diversification are still very important in contemporary risk management. They contend that these procedures can greatly improve financial institutions' stability, particularly when addressing systemic issues.

Nair et al. (2023) address the difficulties Indian banks encounter in fulfilling Basel III requirements for capital adequacy from a regulatory standpoint. They suggest that stress-testing techniques can be improved by the anvikshiki (critical inquiry) approach, which will help banks find weaknesses and create strong backup plans. Saxena and Pillai (2024), who examine the function of digital transformation in risk management, add to this understanding. They contend that moral precepts drawn from Indian wisdom can direct the ethical

application of AI and machine learning, guaranteeing equity and mitigating prejudices in risk assessment and credit scoring.

Further insights are provided by the use of the CAMELS framework in foreign and private banks. Joshi et al. (2024) investigate how international banks doing business in India implement community-centric strategies influenced by Indian cultural customs while integrating CAMELS with international norms. They discover that, especially in diverse and dynamic markets like India, such integration increases the banks' capacity for risk management and improves market sensitivity. In order to bring the CAMELS model into line with worldwide ESG (Environmental, Social, and Governance) trends, Gupta and Roy (2024) go one step further and suggest adding an ethical component. They contend that this integration positions banks as socially conscious organizations in addition to enhancing financial stability.

3. RESEARCH METHODOLOGY

3.1. Research Objective

To analyze the capital adequacy and the risk management of selected public, private and foreign sector banks in India using the CAMELS approach through the integration of ancient Indian principles.

3.2. Research Design

The present study deploys a combination of Quantitative and Descriptive Research design as the study aims to describe the Indian principles in the past and its integration with the banks performance in the present which is descriptive in its truest sense. Quantitative design is being used to test the banks performance on the basis of its capital adequacy using certain ratios which makes the study a quantified one.

3.3. Sample Design

3.3.1. Accessible Universe & Sampling Unit

The sampling unit for the present study shall be the banks currently existing in India. The accessible universe for the present study is the 12 public sector banks, 21 private sector banks and 45 foreign sector banks currently existing in India.

3.3.2. Sample Size

Out of the above banks, top 5 banks from each category have been selected on the basis of market capitalization of these banks as of December 2023. These are mentioned as under:

Table 1: Selection of Banks on the basis of Market Capitalization

Sector Wise Classification of Public, Private & Foreign Sector Banks on the Basis of Market Capitalization (as of December 2023)			
S No.	*Category*	*Name of the Bank*	*Market Capitalization Value (Rs in Cr./ Billion $ for Foreign Banks)*
1	PUBLIC SECTOR BANKS	State Bank of India	5,83,044.90
		Bank of Baroda	1,16,821.07
		Punjab National Bank	1,00,343.38
		Union Bank	90,283.62
		Indian Overseas Bank	86,384.02
2	PRIVATE SECTOR BANKS	HDFC Bank	12,62,061.72
		ICICI Bank	7,09,778.03
		Kotak Mahindra Bank	3,67,375.37
		Axis Bank	3,43,174.00
		IndusInd Bank	1,22,772.80
3	FOREIGN SECTOR BANKS	JP Morgan Chase	486.99
		Bank of America	265.18
		Industrial & Commercial bank of China	219.83
		HSBC	151.91
		Citi Bank	97.61

Source: Money Control.com & Companiesmarketcap.com (December 2023)

3.3.3. Sampling Technique

Purposive Sampling has been used in the present study as top 5 banks have been selected based on a particular criteria which is the market capitalization which depicts the deliberate selection of top 5 banks in each category.

3.4. Data Collection Method

The Data Collection Method to be used in this regard shall be the Secondary Data as the data has been collected using various reports published by the Reserve Bank of India and through the official website of Money Control.

3.5. Data Analysis Tools

The time period considered for analyzing the data ranges from the financial year 2011-12 to 2021-22. The following tools have been used:

1. **Ratio Analysis:** Using the components of the CAMELS model, the ratios for every component will be worked out. Such ratios shall be calculated using the information given in the financial statements of the company. These ratios are:
   - Capital Adequacy Ratio
   - Debt to Equity Ratio
2. **Mean Scores & Ranking Analysis**: It would be used to check the variation between banks performance on the basis of average scores between 2011-12 to 2021-22. Upon comparing the grand mean scores of these sectors, ranks have been provided to them.

3.6. Limitations of the Study

- External macroeconomic factors affecting bank performance from 2011 to 2021 might not have been taken into consideration in this study.
- Comparisons may be distorted by differences in the regulatory frameworks of public, private, and foreign banks.
- The overall study may be distorted by the inclusion of outliers, such as ICBC's abnormally high CAR.
- Banks' financial measurements may be impacted by variations in their operating and market sizes.
- The study may have missed qualitative elements like customer happiness or service quality because it concentrates on quantitative measures.

4. DATA ANALYSIS

4.1. Capital Adequacy Ratio Analysis

The Capital Adequacy Ratio helps in determining the minimum amount of money that is required by banks to be kept as a part of their risk weighted assets so that potential risks and losses encountered in the banking business could be easily absorbed by such assets.

Under the Basel III norms, all banks are required to maintain a minimum CAR of 8%. The formula to calculate the Capital Adequacy Ratio is as under:

$$\text{Capital Adequacy Ratio (CAR)} = \frac{\text{Tier 1 Capital + Tier 2 Capital}}{\text{Risk Weighted Assets}} \times 100$$

Tier 1 Capital (Core Capital) = Equity Share Capital + Disclosed Reserves

Tier 2 Capital (Supplementary Capital) = Undisclosed Reserves + Subordinated Term Debts + Hybrid Financial Products.

Table 4.1 to 4.3 exhibits the mean scores of Capital Adequacy Ratio computed for the selected public, private and foreign sector banks during the period of 2011-12 to 2021-22. The values under each year represent a performance metric of the capital adequacy ratio.

Table 2: Capital Adequacy Ratio of Selected Public Sector Banks

Name of Bank	*State Bank of India*	*Bank of Baroda*	*Punjab National Bank*	*Union Bank*	*Indian Overseas Bank*
Nature of Bank	Public	Public	Public	Public	Public
2011	11.98	14.52	12.42	12.95	14.55
2012	13.86	14.67	12.63	11.85	13.32
2013	12.92	13.30	12.72	11.45	11.85
2014	12.44	12.28	11.52	10.80	10.78
2015	12.00	12.61	12.21	10.22	10.11
2016	13.12	13.18	11.28	10.56	9.67
2017	13.11	12.24	11.66	11.79	10.49
2018	12.60	12.13	9.20	11.46	9.26
2019	12.72	13.42	9.73	11.78	10.21
2020	13.06	13.30	14.15	12.81	10.72
2021	13.74	14.99	14.32	12.56	15.32
Mean Score	12.868	13.331	11.985	11.657	11.480
Sector Specific Rank	2	1	3	4	5

Source: Calculations made from RBI Reports

Table 2 gives a comprehensive overview about the capital adequacy ratio of selected public sector banks in India from 2011 to 2021, along with the mean scores and the ranks calculated, thereby on the basis of such Mean scores.

From the above analysis, it is clear that State Bank of India and Punjab National Bank are highly volatile in terms of capital adequacy, whereas Union Bank of India and Indian Overseas Bank performed relatively low as far as their mean scores of capital adequacy are concerned.

From the above table, it could be analyzed that a consistent performance by Bank of Baroda can be because of its efficient management practices and strong market positioning. State Bank of India shows a fluctuating performance, but still it has a high recovery capability and in case of Punjab National Bank, it has a potential instability but can recover in its coming future. In case of union bank and Indian overseas bank, these banks are facing a major challenge in maintaining consistent performance and have a very high potential for improvement in the coming future.

Table 3: Capital Adequacy Ratio of Selected Private Sector Banks

Name of Bank	*HDFC Bank*	*ICICI Bank*	*Kotak Mahindra Bank*	*Axis Bank*	*IndusInd Bank*
Nature of Bank	Private	Private	Private	Private	Private
2011	16.22	19.54	19.92	12.65	15.89
2012	16.52	18.52	17.52	13.66	13.85
2013	16.80	18.74	16.05	17.00	15.36
2014	16.07	17.70	18.83	16.07	13.83
2015	16.79	17.02	17.17	15.09	12.09
2016	15.53	16.64	16.34	15.29	15.50
2017	14.55	17.39	16.77	14.95	15.31
2018	14.82	18.42	18.22	16.57	15.03
2019	17.11	16.89	17.45	15.84	14.16
2020	18.52	16.11	17.89	17.53	15.04
2021	18.79	19.12	22.26	19.12	17.38
Mean Score	16.52	17.826	18.038	15.797	14.858
Sector Specific Rank	3	2	1	4	5

Source: Calculations made from RBI Reports

Table 3 displays the information about the capital adequacy ratio of selected private sector banks in India from 2011 to 2021, along with the mean

scores and the ranks calculated for these banks on the basis of such scores along with a comparison of their performance.

Amongst all the private sector banks, Kotak Mahindra bank has been a consistent and best performer. In case of all the private sector banks followed by ICICI bank with a mean score of 17.826. HDFC holds the third rank with the mean score of 16.52, which shows a stable and steady growth, followed by Axis Bank at the fourth rank with the mean score of 15.797, which has been fluctuating with its capital adequacy ratio, but showed a remarkable improvement in 2021. IndusInd Bank holds the last rank with a mean, score of 14.858 and shows a high degree of agility. Basis on such courses, Kotak Mahindra Bank exhibits a strong financial health and strengthening performance indicators whereas ICICI performance indicates certain instabilities but positive performance across years. HDFC bank's growth seems to be stable which highlights that its management practices and strategic initiatives in maintaining capital adequacy ratio are stable. The trends of Axis bank in capital adequacy are fluctuating which shows that the bank may face certain challenges in the coming years and same is the case with IndusInd Bank.

Comparing the performance of selected private sector banks with the selected public sector banks, private sector banks are relatively better performers Indicating a better financial health and performance scores. Kotak Mahindra Bank from the private sector and Bank of Baroda from the public sector are the leading banks in this particular ratio, but Kotak Mahindra Bank outshines Bank of Baroda, where it's score lies at 18.038 and bank of Baroda stands at 13.331.

Table 4: Capital Adequacy Ratio of Selected Foreign Sector Banks

Name of Bank	*JP Morgan Chase*	*Bank of America*	*Industrial & Commercial bank of China*	*HSBC*	*Citi Bank*
Nature of Bank	Foreign	Foreign	Foreign	Foreign	Foreign
2011	22.99	14.51	-	18.03	17.31
2012	23.96	17.59	241.01	16.04	16.03
2013	26.89	18.40	69.43	17.10	15.90
2014	25.58	16.70	47.87	17.36	16.49
2015	17.07	15.16	27.72	14.84	15.30
2016	17.47	14.97	40.20	15.99	15.76

Name of Bank	*JP Morgan Chase*	*Bank of America*	*Industrial & Commercial bank of China*	*HSBC*	*Citi Bank*
2017	16.47	19.24	40.36	18.76	17.63
2018	17.19	19.42	38.94	18.48	17.00
2019	20.42	24.68	31.75	17.89	16.49
2020	14.93	17.62	24.64	16.11	15.61
2021	23.95	20.04	32.56	17.07	16.22
Mean Score	20.629	18.030	59.448	17.061	16.340
Sector Specific Rank	2	3	1	4	5

Source: Calculations made from RBI Reports

Table 4 shows the information about the capital adequacy ratio of selected foreign sector banks in India from 2011 to 2021, along with the mean scores and the ranks calculated for these banks on the basis of such scores along with a comparison of their performance.

The performance and insights of the foreign sector banks reveal that ICBC has shown an exceptional performance which has resulted on account of an increased percentage of capital adequacy ratio in 2012, which is an outlier, JP Morgan bank has been successful in maintaining a strong and a stable performance throughout the period speaking in 2013 with an upper train being displayed by bank of America and recording its high in 2019, which indicates its consistent growth and improvement in the performance over the years. Comparatively HSBC and Citibank have shown stable indicator performance with minor fluctuations and managed to maintain consistent capital adequacy percentage over the years.

If the performance of foreign sector banks is compared with public and private sector banks, JP Morgan Chase and Bank of America have outperformed all the public sector banks and most of the private sector banks in terms of the capital adequacy means course whereas HSBC and Citibank have shown stable performance but still Their metrics are comparable to the higher end of public banks and to the lower end of private sector banks.

The capital adequacy ratio trends for all the three sectors of the banking industry suggest that public sector banks have the lowest capital adequacy ratio as compared to all the three sectors whereas private sector bank show moderate increase in the capital adequacy ratio as compared to public sector banks. In case of foreign sector banks, the ratio has increased to a significant

level, suggesting that foreign banks are successful in maintaining a strong capital position as compared to public sector banks and private sector banks.

4.2. Debt Equity Ratio Analysis

The Debt to Equity ratio is a performance metric of the bank which shows how much debt does a banking company have in comparison to its shareholders equity. A higher debt equity ratio would state that a bank is in a major financial crunch and takes more time to cover its liabilities. This ratio is basically used for the analysis of financial strategies of a company and a high debt equity ratio would indicate that the banking company is engaged into using more amount of debt for financing its operations and hence can run under shortage of funds, whereas a lower debt equity ratio would mean that the banking company has more amount of its own capital than borrowed funds, which points out its financial soundness.

The debt to equity ratio is calculated by dividing the debt to the shareholders equity of the bank. Following formula is used to calculate this ratio:

$$\text{Debt to Equity Ratio (DER)} = \frac{\text{Total Borrowings + Total Deposits}}{\text{Shareholders' Equity}} \times 100$$

Table 4.4 to 4.6 exhibits the mean scores of Debt to Equity ratio computed for the selected public, private and foreign sector banks during the period of 2011-12 to 2021-22. The values under each year represent a performance metric of the ratio of debt to equity for different sectors of selected banks. The bank with the lowest DER has been ranked first and the ranking goes so on.

Table 5: Debt to Equity Ratio of Selected Public Sector Banks

Name of Bank	*State Bank of India*	*Bank of Baroda*	*PunjabNational Bank*	*Union Bank*	*Indian Overseas Bank*
Nature of Bank	*Public*	*Public*	*Public*	*Public*	*Public*
2011	17.83	16.03	16.59	17.49	18.17
2012	14.91	15.28	15.47	16.92	17.41
2013	14.84	16.11	13.66	17.05	17.18
2014	14.16	17.33	14.33	18.15	16.00
2015	14.95	16.95	14.44	18.31	17.26
2016	15.34	15.70	16.42	16.68	16.52
2017	13.37	16.24	16.11	17.88	16.98

2018	14.77	15.59	17.64	18.42	17.68
2019	15.66	16.00	16.30	17.65	14.28
2020	16.03	15.11	12.32	15.30	15.14
2021	16.86	14.00	12.86	15.62	15.17
Mean Score	15.338	15.850	15.105	17.224	16.528
Sector Specific Rank	2	3	1	5	4

Source: Calculations made from RBI Reports

Table 5 shows the information about the debt to equity ratio of selected public sector banks in India from 2011 to 2021 along with the mean scores and the ranks calculated for these banks on the basis of such scores along with a comparison of their performance.

In case of bank of Baroda, the debt equity ratio comparatively remained consistent with certain fluctuations, whereby its debt to equity ratio was the highest at 17.33% in 2014 and slipping at 14% in 2021. This basically shows that, Bank of Baroda, manage to achieve it stability over the years. The Indian overseas bank witness highest percentage in its debt equity ratio with values from 18.17% in 2011 till 14.28% in 2019 which shows that the bank relied successively on debt financing. In case of union Bank of India, its debt, equity ratio remained the highest as compared to its peers with its highest value being recorded at 18.42% in 2018, which indicated that this bank could witness the challenges of financial leverage and can land itself into a state of financial crisis.

Table 6: Debt to Equity Ratio of Selected Private Sector Banks

Name of Bank	*HDFC Bank*	*ICICI Bank*	*Kotak Mahindra Bank*	*Axis Bank*	*Indus Ind Bank*
Nature of Bank	*Private*	*Private*	*Private*	*Private*	*Private*
2011	9.93	6.37	6.44	11.78	10.27
2012	10.29	7.10	7.23	11.52	11.15
2013	10.05	7.05	7.84	9.29	8.61
2014	10.31	7.12	6.13	9.03	8.62
2015	8.52	7.03	6.50	9.34	9.50
2016	9.19	7.03	7.02	9.15	7.08
2017	8.66	6.72	6.77	9.79	7.65
2018	9.01	7.36	6.07	9.90	8.30
2019	7.34	7.90	6.28	11.01	9.41
2020	7.95	8.43	6.35	9.77	8.02

Name of Bank	*HDFC Bank*	*ICICI Bank*	*Kotak Mahindra Bank*	*Axis Bank*	*Indus Ind Bank*
Nature of Bank	*Private*	*Private*	*Private*	*Private*	*Private*
2021	7.57	7.34	5.02	8.80	7.37
Mean Score	8.984	7.223	6.513	9.943	8.725
Sector Specific Rank	4	2	1	5	3

Source: Calculations made from RBI Reports

The debt to equity ratio statistics of the private sector banks exhibit that Kotak Mahindra Bank has managed to maintain the first rank with the lowest equity ratio of 6.513% on an average with its score of 6.44 in 2011 and decrease to 5.02% in 2021. The decreasing trend of debt equity ratio of this bank suggests that it follows a safe strategy when it comes to leverage and aims at minimising its financial risk through less leverage.

On comparing these values with the public sector banks, it was observed that the debt equity ratio of the public sector banks was relatively high than private sector banks which suggested that public sector banks relied heavily on debt financing for the operations and were more exposed to financial risk due to increase leverage.

Table 7: Debt to Equity Ratio of Selected Foreign Sector Banks

Name of Bank	*JP Morgan Chase*	*Bank of America*	*Industrial & Commercial bank of China*	*HSBC*	*Citi Bank*
Nature ofBank	Foreign	Foreign	Foreign	Foreign	Foreign
2011	2.81	2.46	-	5.66	6.46
2012	3.08	3.00	0.12	6.30	7.03
2013	3.40	3.98	0.62	5.99	6.39
2014	3.34	4.16	0.80	7.12	6.85
2015	3.51	3.82	1.58	6.87	6.01
2016	3.37	4.42	1.76	6.48	6.51
2017	4.92	3.81	2.51	5.37	5.82
2018	3.61	3.78	3.89	5.68	6.28
2019	3.46	3.90	4.65	6.65	6.73
2020	5.36	4.94	4.14	7.16	7.25
2021	3.65	3.71	3.94	6.80	6.67
Mean Score	3.683	3.816	2.400	6.371	6.546
Sector Specific Rank	3	2	1	4	5

Source: Calculations made from RBI Reports

In case of foreign sector banks, the debt equity ratio projections show that ICBC has the lowest debt equity ratio among all the selected foreign sector banks with the score of 0.12 in 2012 and increasing to 4.65 in 2019 and decreasing to 3.94 into 2021 depicting an average debt equity ratio of 2.4. This reflects that ICBC has a conservative approach towards managing its finances, whereby it aims at reducing its financial risk by using less amount of debt. The Bank of America stands at the second rank with an average debt equity ratio of 3.816. Its debt equity ratio witnesses an upward trend as in 2011, it was 2.46 and increased to 4.94 into 2020, which was the highest because of the COVID-19 pandemic and the average ratio of the bank is 3.816. It indicates that the bank is taking a moderate amount of risk and it seems that the bank is managing to uphold a balance between its profitability and its management of risk.

Upon drawing a comparison between the selected banks of all the three sectors, it was found out that the debt equity ratio clearly shows a downward trend as we move from public sector banks to private sector banks and then to foreign sector banks as per the sample selection. The average debt equity ratio margin of the public sector bank is the highest, at around 15.5 followed by private sector banks which stands at 10 and then to foreign sector banks which stands at 5. This descending trend positions that public sector banks have high debt equity ratio because they have a very high degree of government support and an excess capacity to raise debt. Private sector banks, are able to maintain a bright balance between the debt and equity, and hence they are able to manage the risk. Foreign sector banks are acquitted to different financial markets, the regulations are different, so they emphasise more of equity as compared to debt.

5. FINDINGS & DISCUSSIONS

5.1. Capital Adequacy Ratio

A crucial indicator of banks' financial health that shows their capacity to withstand possible risks and losses is the capital adequacy ratio, or CAR. Significant differences are found when comparing public, private, and foreign sector banks from 2011 to 2021. Union Bank and Indian Overseas Bank have lower mean scores, indicating difficulties in sustaining steady performance, whereas

Kotak Mahindra Bank secured the top spot, demonstrating its strong financial health and efficient capital management. Private sector banks perform better than their public counterparts. In close pursuit, ICICI Bank and HDFC Bank have consistent development patterns. Both public and private banks are greatly outperformed by foreign sector banks, with Industrial and Commercial Bank of China (ICBC) leading the pack with an outstanding mean CAR of 59.448% (bolstered by an outlier year). Bank of America and JP Morgan Chase both function well and reliably. When compared to public sector banks, private and foreign banks often exhibit higher levels of capital adequacy, indicating greater resilience and stability in their finances.

5.2. Debt to Equity Ratio

A lower ratio denotes financial soundness. The Debt-to-Equity Ratio (DER) assesses a bank's dependence on debt in relation to equity. Due to their reliance on debt financing, public sector banks with fairly high DERs include State Bank of India and Bank of Baroda. Higher DERs suggest possible financial vulnerabilities, which presents difficulties for Union Bank and Indian Overseas Bank. Better financial practices are displayed by private sector banks; Kotak Mahindra Bank continuously has the lowest DER (6.513%), indicating efficient use of equity. Both HDFC Bank and ICICI Bank continue to hold solid positions, demonstrating balanced debt management. The DERs of foreign sector banks show mixed patterns; Industrial and Commercial Bank of China's ratios show a high reliance on debt, indicating its extensive financial operations, while JP Morgan Chase and Citi Bank show stable DERs. Public sector banks have the largest reliance on debt, highlighting the need for strategic improvements in financial management, while private banks are the most effective at managing debt in relation to equity, followed by international banks.

6. CONCLUSION

In conclusion, incorporating traditional Indian knowledge into contemporary banking procedures, especially when it comes to risk management and capital sufficiency, is a fresh strategy for improving the performance and stability of financial institutions. Important information about how various banks handle their risks and financial health may be found in the CAMELS-based performance study of a few public, private, and international banks in India.

Through the put long-term sustainability and resilience first. By addressing social, environmental, and ethical issues in addition to financial risks, this strategy can promote a more stable and inclusive banking environment. Additionally, the study highlights the necessity of ongoing modification of both modern financial practices and traditional principles that provide wisdom which ensures that banks remain alert and receptive to the challenges of the global financial scenario.

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