Camel Rating System on Indian Banking system and Financial Institution

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Project Report

Submitted to the

School of Data Science and Business Intelligence

For the

Post Graduation Degree

In

Data Science and Business Analytics

April 2023

Abstract

This study helps in understanding how CAMEL rating system is helpful to the banking and financial institution and can be made to evaluate the performance & financial soundness of selected banks in the private and public sector. The research paper employs a quantitative research methodology, analyzing data from a sample of around 5 public Indian banks and 5 private Indian banks for the period of 2018-2022. The data has been acquired from published annual reports and financial statements. The study uses various methods for data collection and statistical techniques such as descriptive statistics in excel and visualization tools in Power BI to analyze the data. How to standardize this system such that there is moderate risk taken with a high amount of CAMEL rating so that the bank safety is secured.

According to CAMEL analysis, HDFC bank is ranked first under the CAMEL analysis followed by Kotak Mahindra. ICICI bank occupied the third position. The fourth position is occupied by Yes bank and the last position is occupied by Axis Bank amongst all the selected Private banks. In the Public sector, banks in generally performed lower than the private sector. The first rank is taken by Bank of Baroda which is followed by Bank of India in the second position. SBI is ranked in the third position which is followed by Union Bank of India and lastly Punjab National Bank occupies the fifth position.

Introduction

The banking industry is an essential part of any contemporary economy since it helps to manage risk, provide financial intermediation, and promote economic growth. Banks are companies that provide a variety of financial services and goods, such as checking and savings accounts, loans, credit cards, investment services, and insurance coverage. The banking industry plays a significant role in the economy by giving people and companies access to the financial services and products they require to manage their money, plan for the future, and mitigate risk. Thus, banking was associated with the business of money changing.

In terms of profitability, asset quality, and customer satisfaction, private banks in India have typically outperformed their public counterparts. Private banks have been able to concentrate on lucrative specialized markets and use technology to boost productivity and customer satisfaction. They have been able to increase profitability and market share as a result.

The high levels of non-performing assets (NPAs), also known as bad loans, have hurt India's public sector banks' profitability and capital basis. Public banks have struggled to adapt new technologies and enhance customer service, which has hurt their ability to compete.

In general, India's banking industry is going through a transformational period, with private banks driving innovation and growth while public sector banks struggle to overcome their own issues by increasing their capital adequacy, merging smaller banks to form larger, stronger organizations. Public banks continue to play a crucial role in fostering financial inclusion in India and delivering financial services to underserved groups despite the difficulties they confront.

It is essential to have a sound financial health and frequent performance evaluation of banks as they impact safety and stability, customer confidence, regulatory compliance, investor confidence, and economic stability. It is essential for banks to manage their finances prudently and regularly assess their financial performance to ensure their long-term sustainability and success.

One of such measures of supervisory information is the CAMEL rating system which was put into effect firstly in the U.S. in 1979, it was first developed in 1994 by the Central Bank of

Bahrain and has since been adopted by many other central banks and financial institutions in the Middle East and North Africa region. Now it has been proved to be a useful and efficient tool in response to the financial crisis in 2008 by the U.S. government (Dang, 2011).

The CAMEL rating system is a well-known system used by regulatory bodies to evaluate the financial health of banks. It stands for Capital adequacy, Asset quality, Management quality, Earnings, and Liquidity. It is better for performance measurement, evaluation and strategic planning for future growth and development of the Indian banks in the light of changing requirements of this sector.

Over the past five years the performance of private and public banks in India has been mixed and therefore we are taking this study as a chance to look into it in more detail and understand how the CAMEL rating system will help our Indian Banking system.

In this research paper, we will discuss the CAMEL rating system in detail, including its components, significance, and the process of rating banks.

Review of Literature

Various authors have assessed the financial strength and weaknesses of financial institutions using various models. Among the models, the CAMEL model is popular. CAMEL is the model which measures the financial performance of banks in terms of five features, Capital adequacy, Assets quality, Management, Earning quality, and Liquidity.

Here are some research papers on the CAMEL rating system:

- "CAMEL Rating System and Bank Performance: A Study of Indian Banks" by Abhijeet Singh and Vandana Gupta. This paper examines the relationship between CAMEL ratings and bank performance in Indian banks. The authors find that there is a positive correlation between CAMEL ratings and bank performance, indicating that banks with higher CAMEL ratings tend to have better financial performance.
- "The CAMEL Rating System and Bank Supervision: A Review of the Literature" by Donald P. Morgan and Kevin J. Stiroh. This paper provides a comprehensive review of the literature on the CAMEL rating system and its use in bank supervision. The authors examine the strengths and weaknesses of the CAMEL rating system and suggest areas for future research.
- "CAMEL Rating System, Regulatory Capital, and Bank Risk-Taking" by Reint E. Gropp and Jukka Vesala. This paper examines the relationship between CAMEL ratings, regulatory capital, and bank risk-taking in European banks. The authors find that higher CAMEL ratings are associated with lower risk-taking, and that regulatory capital requirements have a stronger impact on risk-taking in lower-rated banks.

- "Banking Regulation and CAMEL Ratings: Evidence from Emerging Market Economies" by Bikki Jaggi and Gopal Krishnan. This paper examines the impact of banking regulation on CAMEL ratings in emerging market economies. The authors find that stronger banking regulation is associated with higher CAMEL ratings, indicating that regulatory oversight is an important determinant of bank safety and soundness.
- "The CAMEL Rating System, Regulatory Intervention, and Bank Failure" by Edward J. Kane. This paper examines the effectiveness of the CAMEL rating system and regulatory intervention in preventing bank failures. The author argues that while the CAMEL rating system is a useful tool for identifying weak banks, regulatory intervention is often ineffective in preventing bank failures due to political and institutional constraints.

Overall, these research papers highlight the importance of the CAMEL rating system in bank supervision and regulation, and provide insights into its strengths and weaknesses.

Purpose of the Study

Even if numerous studies using the CAMEL model indicated how well private and public sector banks performed, it is always vital to assess them continually in order to track their efficacy and ensure their true financial situation as it provides a framework for evaluating the financial health of an institution and can be used as a tool for making informed decisions about lending and investment.

We have used python for data collection which has been acquired from published annual reports and financial statements. We used statistical analysis tools like Excel and Data Visualization tools like Power BI to get our ratios and do our visualization of our study.

Research Methodology

Objectives of the Study

Selected five government and five private banks are subjected to study.

Private Sector:

- Axis
- HDFC
- ICICI
- Kotak
- Yes Bank

Public Sector:

- Bank of Baroda
- Bank of India
- Punjab National Bank
- SBI
- Union Bank of India

For the purpose of the present study, the research instrument used is the CAMEL Model which is the recent innovation in the area of financial performance evaluation of banks. The components of CAMEL model Capital adequacy, Asset quality, Management efficiency, Earning quality and Liquidity are considered as independent variables and the financial performance is considered as the dependent variable. As such financial performance, financial condition, operating soundness and regulatory compliance of the banking institution can also be evaluated. According to the empirical evidence in the literature, CAMEL framework is widely used to evaluate the financial performance of banks.

Components of the CAMEL rating system:

1. **Capital adequacy:** This component focuses on the bank's ability to absorb losses and maintain a strong capital position. The rating is based on the bank's capital structure, the quality of its capital, and its ability to manage risks. Banks with higher capital ratios and better-quality capital are rated more favorably.
2. **Asset quality:** This component evaluates the quality of a bank's loan portfolio and the level of non-performing assets (NPAs) or bad loans. Banks with a high proportion of NPAs are rated poorly, while those with a lower proportion of NPAs are rated more favorably.
3. **Management quality:** This component assesses the bank's management team's ability to manage risk and make sound decisions. Banks with strong management teams that implement effective risk management strategies are rated more favorably.
4. **Earnings:** This component evaluates the bank's profitability, including its ability to generate consistent revenue and control expenses. Banks with stable earnings and strong profitability are rated more favorably.
5. **Liquidity:** This component assesses the bank's ability to meet its financial obligations as they come due. Banks with strong liquidity positions and effective liquidity management strategies are rated more favorably.

CAMEL MODEL APPROACH

Process of rating banks using the CAMEL rating system:

The process of rating banks using the CAMEL rating system typically involves an on-site examination of the bank's financial records and operations by regulatory authorities. They use a standardized rating system to evaluate each of the five components of the CAMEL rating system. Each component is assigned a rating of 1 to 5, with 1 being the highest rating and 5 being the lowest.

After evaluating each component, the regulator assigns an overall rating to the bank based on the weighted average of the component ratings. A bank with an overall rating of 1 is considered to be in excellent financial health, while a bank with an overall rating of 5 is considered to be in poor financial health and may be subject to regulatory intervention.

A total of eighteen ratios have been calculated to evaluate the performance of a bank under the CAMEL Model. The list of ratios have been highlighted in Table 1.

C	Capital Adequacy	1) Capital Adequacy Ratio (CAR)
		2) Advance to Assets Ratio
		3) Total Liability/ Shareholders Fund
		4) Total Liabilties/ Total Equity
		5) Tier 1 %
		6) Tier 2 %
A	Asset Quality	1) Net NPA to Net Advances
		2) Total Investment to Total Assets
		3) Net NPA to Total Assets
		4) Gross NPA to Total Asset
M	Management Capacity	1) Business per Employee
		2) Profit per employee
		3) Return on Assets
		4) Return on Equity
E	Earning Quality	1) Operating Profit to Total Assets
		2) Income Interest to Total Income Ratio
L	Liquidity	1) Liquid Assets to Total Assets
		2) Liquid Assets to Demand Deposit

C- CAPITAL ADEQUACY

Capital Adequacy is a major indicator of financial health of a bank. It indicates whether the bank has enough capital to absorb unexpected losses. It reflects the overall financial position of the banks and also the ability of the management to meet the need for additional capital and also to maintain depositor's confidence and prevent the bank from going bankrupt. Banks with lower capital adequacy ratios may face regulatory restrictions on certain activities, such as dividend payments or new lending, until they improve their capital position. The following ratios measure capital adequacy are:

1. **Capital Adequacy Ratio(CAR) :**

Capital Adequacy Ratio (CAR) is a measure of a bank's capital in relation to its risk-weighted assets. It is calculated by dividing the bank's capital by its risk-weighted assets. . The capital adequacy ratio (CAR) is a key metric used to evaluate a bank's capital position and is expressed as a percentage.

Capital Adequacy Ratio (CAR) = (Capital / Risk-Weighted Assets) x 100.

where Capital includes Tier 1 Capital and Tier 2 Capital. As per the new RBI norms, the banks can have a CAR of 9%. A higher CAR indicates a greater level of capital relative to a bank's risk-weighted assets, suggesting a stronger financial position and ability to absorb potential losses. It reflects a bank's resilience and capacity to meet unexpected financial challenges.

2. **Advance to Asset Ratio:**

The Advance to Asset Ratio, also known as the Loan-to-Asset Ratio, is a financial metric used to assess a bank's lending activities and the proportion of its assets that are allocated to loans and advances. It is calculated by dividing a bank's total loans and advances by its total assets and is expressed as a percentage.

Advance to Asset Ratio = (Total Loans and Advances / Total Assets) x 100

A higher ratio indicates an aggressive lending strategy where a large share of the bank's assets are being used for loans and advances. A lower ratio, on the other hand, denotes a more cautious approach with a smaller percentage of assets committed to loans.

3. **Total Liability/ Shareholders Fund**

The Total Liability to Shareholders' Fund ratio is a financial metric that measures the relationship between a company's total liabilities and its shareholders' equity. It provides insights into the level of financial leverage or the proportion of a company's total funding that is contributed by shareholders' equity.

Total Liability to Shareholders' Fund Ratio = Total Liabilities / Shareholders' Equity

A larger ratio shows that a company's debt or obligations are comparatively greater than its shareholders' equity. It implies that more borrowed money is used by the business to finance operations and investments. Higher levels of debt can boost profits during prosperous times but also raise financial risk and vulnerability during recessions.

4. **Total Liability/ Total Equity Share Capital**

The Total Liabilities to Total Equity Share Capital ratio is a financial metric that measures the relationship between a company's total liabilities and its total equity. It provides insights into the proportion of a company's total funding that is contributed by liabilities compared to the portion contributed by shareholders' equity.

Total Liabilities to Total Equity Share Capital Ratio = Total Liabilities / Total Equity Share Capital

In relation to its equity, a corporation with a higher ratio will have more debt. It implies that more borrowed money is used by the business to finance operations and investments. Due to the company's increased duty to repay its creditors and potential difficulties in doing so, a higher leverage ratio may increase financial risk.

5. **Tier 1 %**

The Tier 1 capital ratio, also known as the Tier 1 %, is a measure of a bank's core capital in relation to its risk-weighted assets (RWAs). It is a key indicator of a bank's financial strength and ability to absorb losses. The Tier 1 capital primarily consists of shareholders' equity and retained earnings.

Tier 1 % = (Tier 1 Capital / Risk-Weighted Assets) x 100

A higher Tier 1% signifies more high-quality capital as a percentage of a bank's risk-weighted assets, which is a sign of a stronger and more resilient financial position. It implies that the bank has adequate capital and the ability to withstand future losses.

6. **Tier 2 %**

The Tier 2 capital ratio, also known as the Tier 2 %, is a measure of a bank's supplementary capital in relation to its risk-weighted assets (RWAs). It represents an additional layer of capital that provides extra cushioning for a bank's financial position.

Tier 2 % = (Tier 2 Capital / Risk-Weighted Assets) x 100

A higher Tier 2% denotes more supplemental capital as a percentage of a bank's risk-weighted assets. It implies that the bank has additional capital resources in addition to its Tier 1 capital, which strengthens and stabilizes its financial position.

A - ASSET QUALITY

Asset quality is a measure of the quality of a bank's loan portfolio, indicating the level of risk associated with the loans it has made and the type of the debtors the bank is having. A bank's balance sheet provides the necessary information to calculate its asset quality. It reflects the creditworthiness and risk associated with the assets held by the bank.So it should be undertaken to find out as to why Non- performing assets are getting created and Non-performing assets classification of 90 days, 180 days and so on has to be strictly followed. The following ratios are necessary to assess the assets quality:-

1. **Net NPA to Net Advances**

The Net NPA to Net Advances ratio is a financial metric that measures the proportion of a bank's net non-performing assets (NPAs) to its net advances. It provides insights into the quality of a bank's loan portfolio after considering provisions made for potential loan losses.

Net NPA to Net Advances Ratio = (Net Non-Performing Assets / Net Advances) x 100

A lower Net NPA to Net Advances ratio, which indicates a smaller proportion of non-performing loans compared to the bank's net advances, indicates better asset quality. It suggests that the bank has a better loan portfolio and lower credit risk.

2. **Total Investments to Total Assets**

The Total Investment to Total Assets ratio is a financial metric that measures the proportion of a company's total investments to its total assets. It provides insights into the allocation of a company's resources in various investment activities.

Total Investment to Total Assets Ratio = (Total Investments / Total Assets) x 100

A higher ratio of Total Investment to Total Assets indicates that investments account for a larger portion of the company's assets. It suggests that the business is actively investing in various investment opportunities and has a more investment-focused strategy.

3. **Net NPA to Total Assets**

The Net NPA to Total Assets ratio is a financial metric that measures the proportion of a bank's net non-performing assets (NPAs) to its total assets. It provides insights into the quality of a bank's loan portfolio relative to its overall asset base.

Net NPA to Total Assets Ratio = (Net Non-Performing Assets / Total Assets) x 100

A higher Net NPA to Total Assets ratio implies that a greater percentage of the bank's assets are non-performing assets. This signals a higher credit risk and possible difficulties in loan recovery, which may have an effect on the bank's financial stability and health.

4. **Gross NPA to Total Assets**

The Gross NPA to Total Assets ratio is a financial metric that measures the proportion of a bank's gross non-performing assets (NPAs) to its total assets. It provides insights into the quality of a bank's loan portfolio relative to its overall asset base.

Gross NPA to Total Assets Ratio = (Gross Non-Performing Assets / Total Assets) x 100

A higher Gross NPA to Total Assets ratio indicates a larger proportion of non-performing assets compared to the bank's total assets. This suggests a higher credit risk and potential challenges in recovering loans, which can impact the bank's financial health and stability.

M - MANAGEMENT EFFICIENCY

Management efficiency is a measure of how effectively a company's management uses its assets to generate profits. In the case of a bank, management efficiency measures how well the bank's management team utilizes the bank's assets to generate earnings. It involves optimizing processes, minimizing costs, maximizing productivity, and making sound strategic decisions. By effectively managing resources, making informed decisions, and optimizing operations, management can enhance the company's profitability and create value for stakeholders. The ratios that are used to evaluate management efficiency are:

1) **Business per Employee:**

The Business per Employee ratio is a financial metric that measures the amount of business or revenue generated by a company per employee. It provides insights into the productivity and efficiency of a company's workforce in generating revenue or serving customers.

Business per Employee Ratio = Total Revenue / Number of Employees

A higher Business per Employee ratio indicates that each employee is generating a larger amount of revenue for the company. It suggests higher productivity and efficiency in utilizing human resources to drive business results.

2) **Profit per employee:**

Profit per Employee is a financial metric that measures the amount of profit generated by a company per employee. It provides insights into the profitability and efficiency of a company's workforce in generating profits.

Profit per Employee = Net Profit / Number of Employees

A higher Profit per Employee indicates that each employee is contributing to a larger amount of profit for the company. It suggests higher productivity and efficiency in utilizing human resources to generate profits.

3) **Return on Assets:**

Return on Assets (ROA) is a financial ratio that measures a company's profitability relative to its total assets. It provides insights into how efficiently a company utilizes its assets to generate profits or net income. ROA is often used to assess a company's profitability in relation to its asset base, regardless of its capital structure or financing decisions.

ROA = (Net Profit / Total Assets)*100

A higher ROA indicates that the company is generating more profit per unit of assets, suggesting better asset utilization and efficiency.

4) **Return on Equity**

Return on Equity (ROE) is a financial ratio that measures the profitability of a company relative to its shareholders' equity. It provides insights into how effectively a company generates profits for its shareholders' invested capital.

ROE = (Net Profit / Shareholders’ Equity)*100

A higher ROE indicates that the company is generating more profit per unit of shareholders' equity, suggesting better profitability and efficiency in utilizing invested capital.

E - EARNING CAPACITY

Earning capacity is a measure of a company's ability to generate profits over a specific period of time. In the case of a bank, earning capacity measures how well the bank can generate income from its assets, liabilities, and operations. For a company, earning capacity refers to its ability to generate profits from its business activities. It is influenced by factors such as revenue growth, profit margins, market share, competitiveness, operational efficiency, and strategic positioning within the industry. A company with a strong earning capacity is typically able to generate consistent and sustainable profits over time. The ratios that are used to evaluate earning capacity are:

1. **Operating Profit to Total Assets**

Operating Profit to Total Assets is a financial ratio that measures a company's operating profitability relative to its total assets. It provides insights into how efficiently a company utilizes its assets to generate operating profits or company's profit from its core operations, typically before interest and taxes.

Operating Profit to Total Assets = Operating Profit / Total Assets

A higher ratio indicates that the company is generating a higher operating profit relative to its asset base, suggesting higher and better efficiency in utilizing assets to generate profits.

2. **Interest Income to Total Income**

Interest Income to Total Income is a financial ratio that measures the proportion of a company's total income that is derived from interest. It provides insights into the significance of interest-related activities in generating revenue for the company.

Interest Income to Total Income = (Interest Income / Total Income) * 100

A higher ratio indicates that a significant portion of the company's total income is derived from interest-related activities. This suggests that the company relies heavily on interest income as a primary source of revenue.

L - Liquidity

The liquidity of a company refers to its ability to meet short-term obligations and convert assets into cash without incurring significant losses or delays. It assesses the company's ability to maintain sufficient cash flow and access funds to cover its operational and financial commitments in a timely manner and manage unexpected expenses or market fluctuations.

Insufficient liquidity can lead to financial distress, missed payments, and potential insolvency. However, it's important to note that excessive liquidity may also be undesirable, as it indicates underutilized resources and potential missed investment opportunities. Striking a balance between maintaining sufficient liquidity and deploying assets effectively is crucial. There are several key measures and ratios used to evaluate the liquidity of a company:

1. **Liquid Assets to Total Assets**

Liquid Assets to Total Assets is a financial ratio that measures the proportion of a company's liquid assets to its total assets. It provides insights into the liquidity position and the ability of a company to cover its short-term obligations using liquid resources. Liquid Assets typically include cash, cash equivalents, and other short-term assets that can be easily converted into cash within a relatively short period, usually within one year. Total assets includes the revaluation of all assets.

Liquid Assets to Total Assets = Liquid Assets / Total Assets

A higher ratio indicates a larger proportion of liquid assets relative to the total asset base, suggesting a stronger liquidity position.

2. **Liquid Asset to Total Deposit**

Liquid Asset to Total Deposit is a financial ratio that measures the proportion of a bank's liquid assets to its total deposits. It provides insights into the liquidity position of a bank and its ability to meet customer withdrawal demands and other short-term obligations. Total Deposits represent the aggregate amount of funds held by the bank from customers in various deposit accounts, such as savings accounts, current accounts, and time deposits.

Liquid Asset to Total Deposit = Liquid Assets / Total Deposits

A higher ratio indicates a larger proportion of liquid assets relative to total deposits, suggesting a stronger liquidity position and a higher ability to meet customer demands for withdrawals.

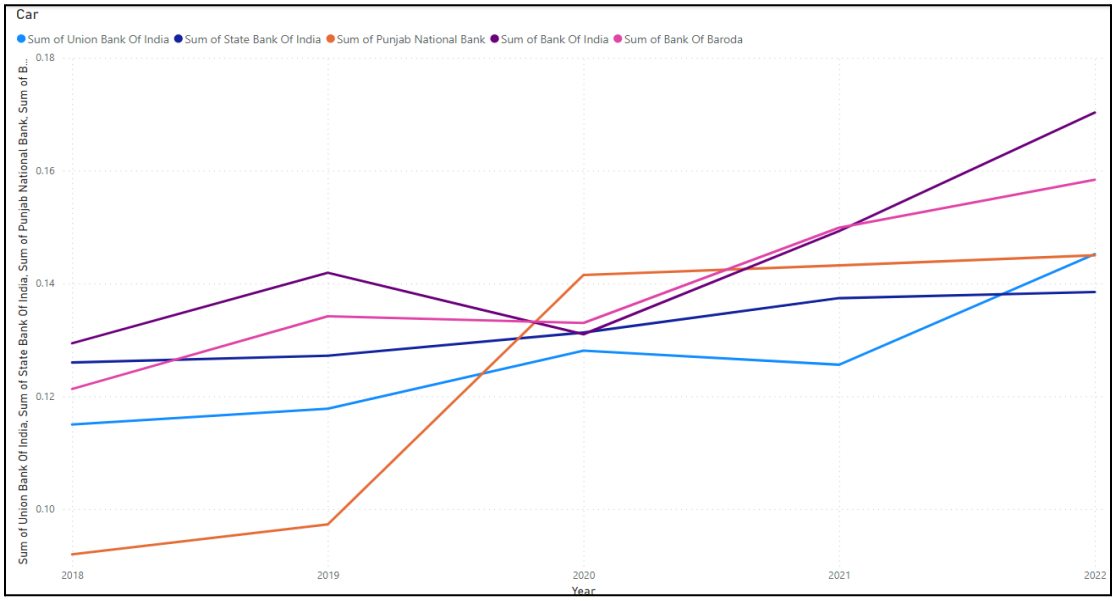
Data Visualization

For Public Banks

Capital Adequacy Ratio

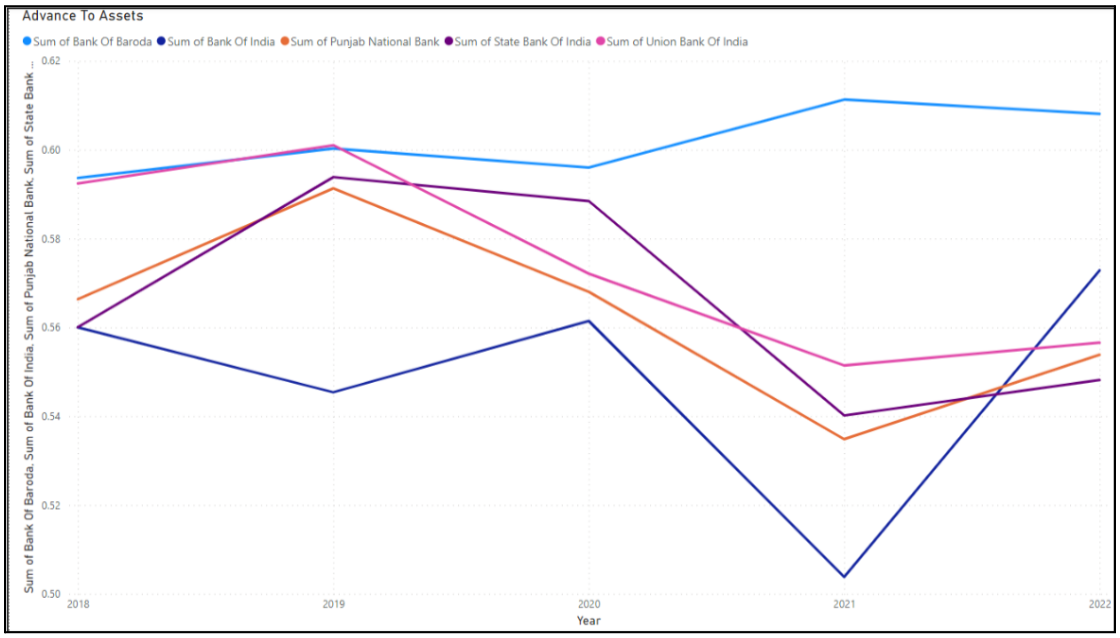
	Bank Of Baroda	RANK	Bank Of India	RANK	Punjab National Bank	RANK	State Bank Of India	RANK	Union Bank of India	RANK
CAR	0.139	2	0.144	1	0.124	5	0.132	3	0.126	4
Advance to Asset	0.601	1	0.549	5	0.563	4	0.566	3	0.575	2
Total Liabilities/ Shareholders Fund	15.903	3	15.205	1	15.36	2	17.021	4	17.482	5
Total Liabilities/ Equity share capital	1285.260	3	234.3997	5	4617.489	1	4617.489	1	238.8476	4
Tier 1	11.746	1	11.42	2	9.948	5	10.864	3	10.37	4
Tier 2	2.19	5	3.018	1	2.432	2	2.344	3	2.264	4
Total		15		15		19		17		23
Overall Rank		1		1		3		2		4

CAR %

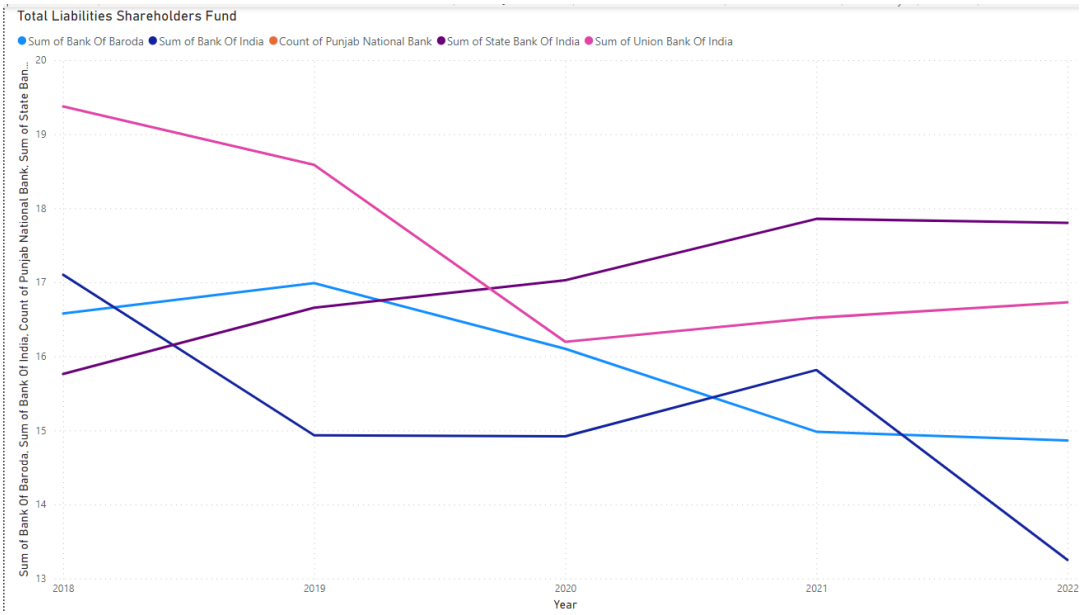


We can see that apart from PNB, the other banks come together during 2020, we guess it is due to COVID-19 and thes banks tried to control it by themselves with the default loans. Whereas, the increase in PNB during 2020 and increase in State bank of India during 2022, could be due to capital infusions from external sources, such as the government or investors, profit retention, asset sales, implementation of capital efficiency measures, and a reduced risk profile.

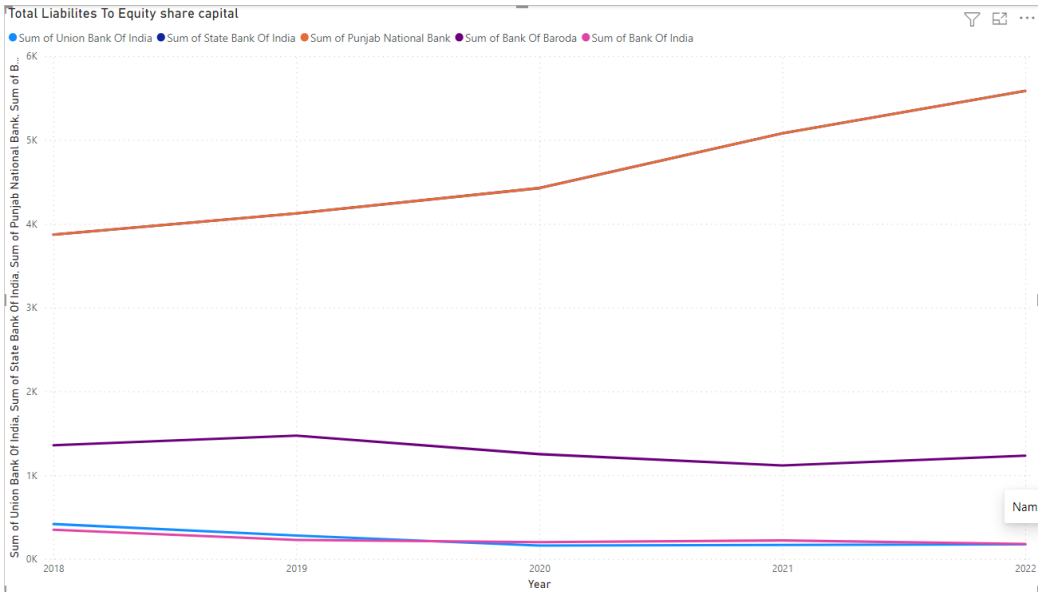
Advance to Asset



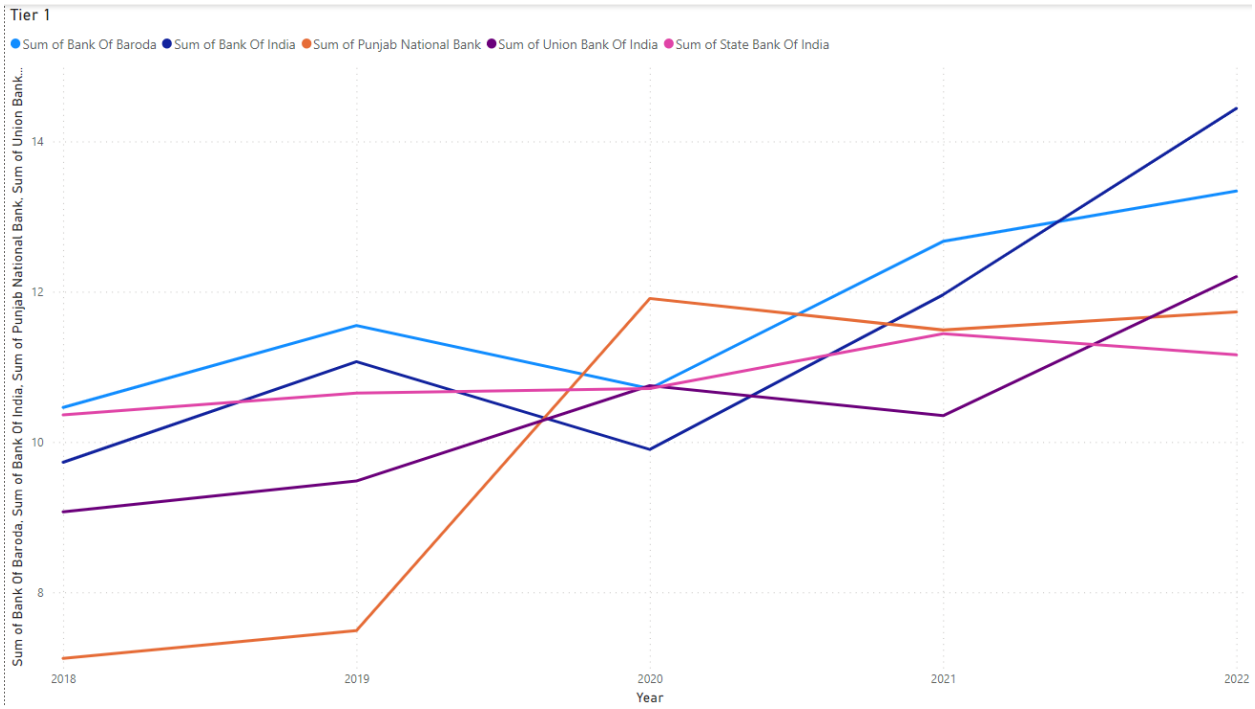
Total Liabilities To Shareholders Fund



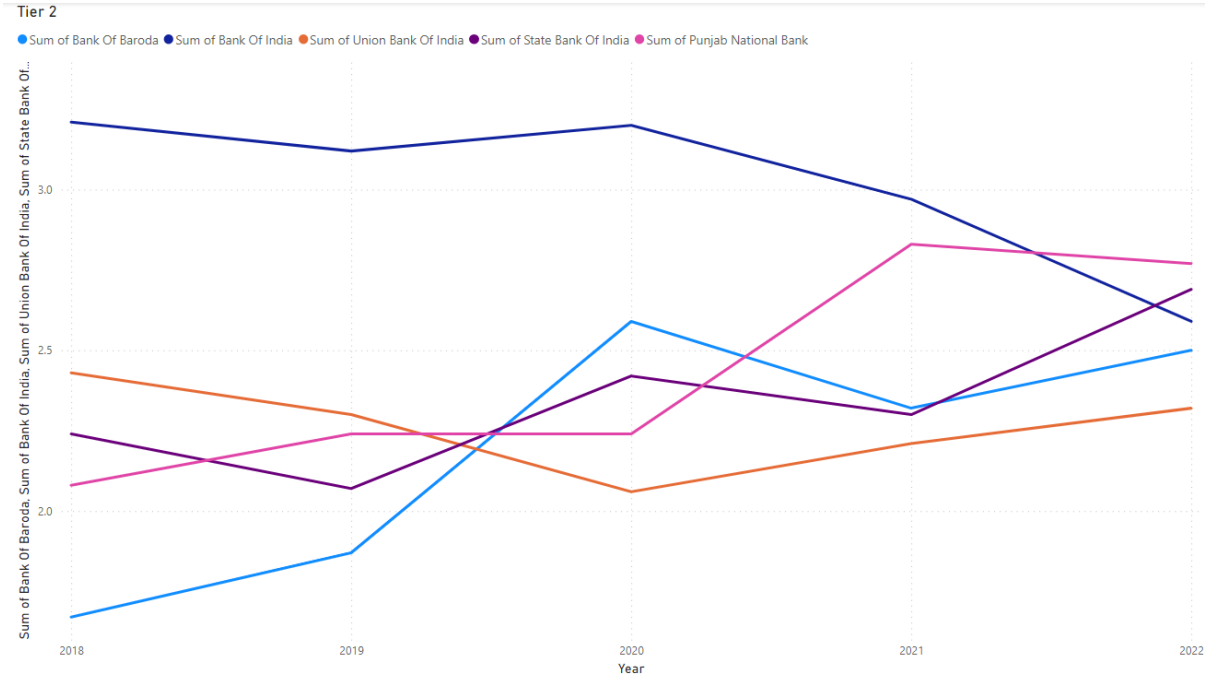
Total Liabilities To Equity share capital



Tier 1 %



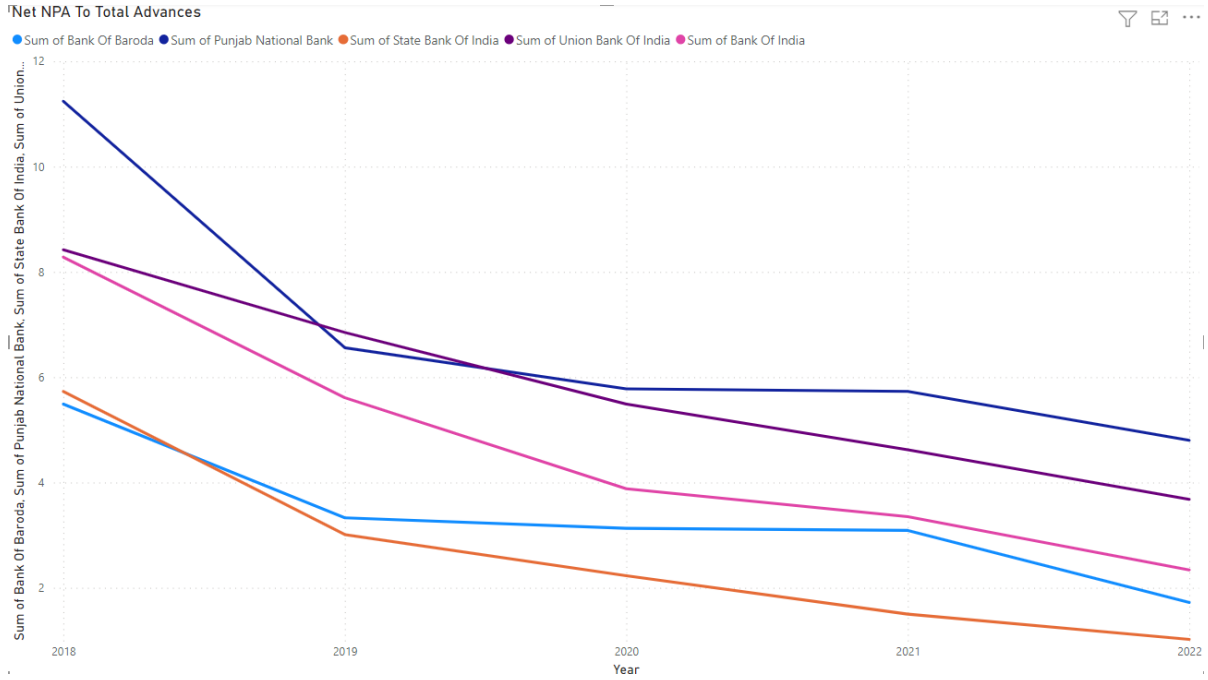
Tier 2 %



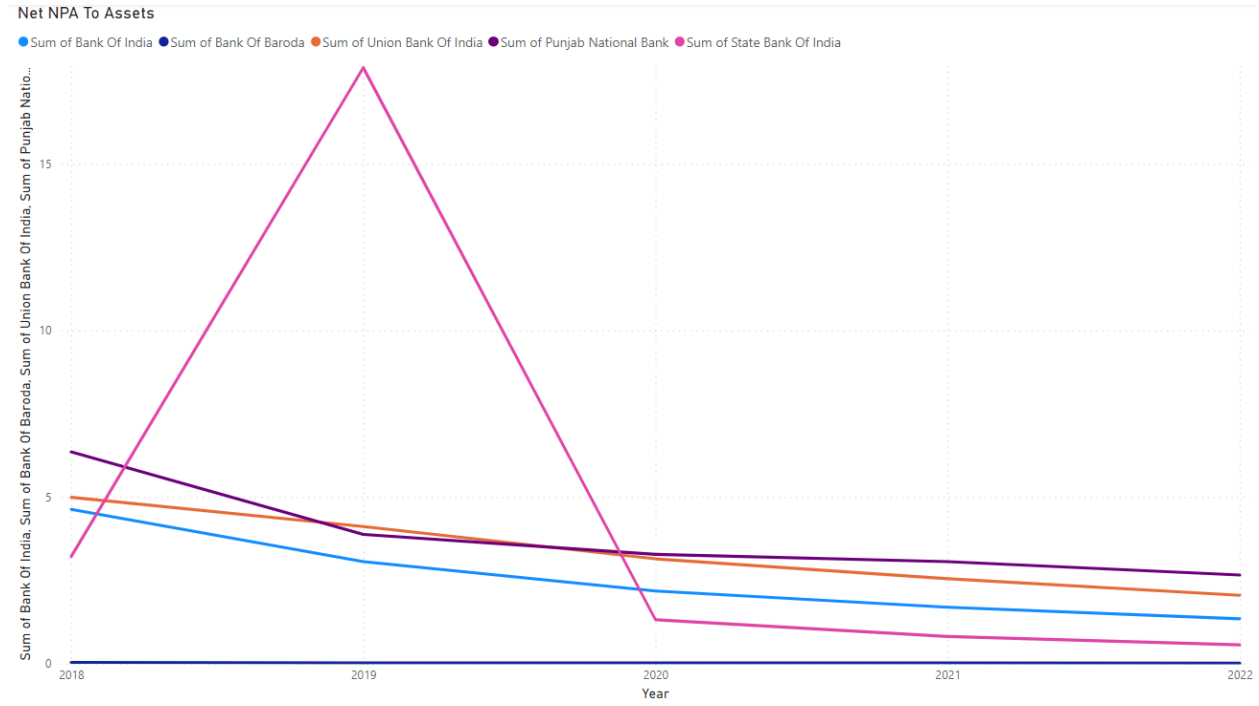
Asset Quality Ratio

	Bank Of Baroda	RANK	Bank Of India	RANK	Punjab National Bank	RANK	State Bank Of India	RANK	Union Bank of India	RANK
Net NPA to Advances	3.352	4	4.692	3	6.822	1	2.698	5	5.812	2
Net NPA to total Asset	0.020	5	2.579	4	3.845	2	4.759	1	3.368	3
Net Investment to total Asset	0.234	5	23.957	4	28.133	2	28.598	1	27.773	3
Gross NPA to total Asset	6.159	4	8.658	2	9.119	1	3.993	5	8.155	3
TOTAL		18		13		6		12		11
FINAL RANKING		5		4		1		3		2

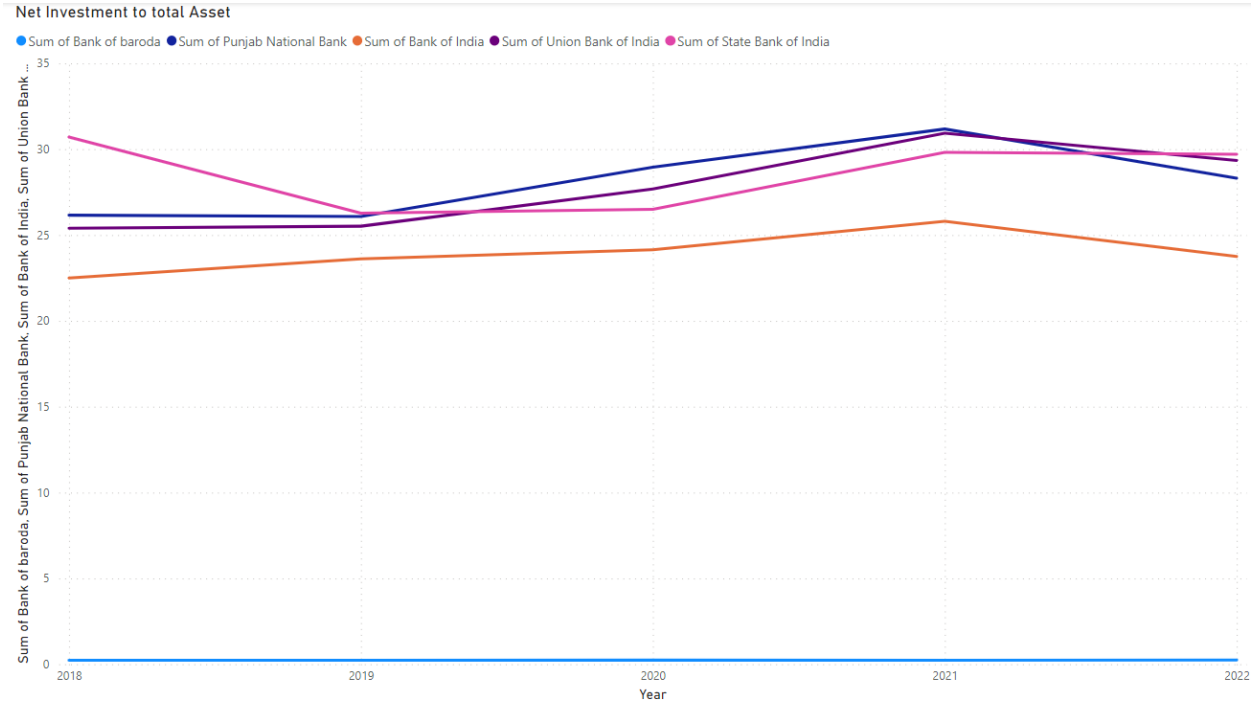
Net NPA to Advances



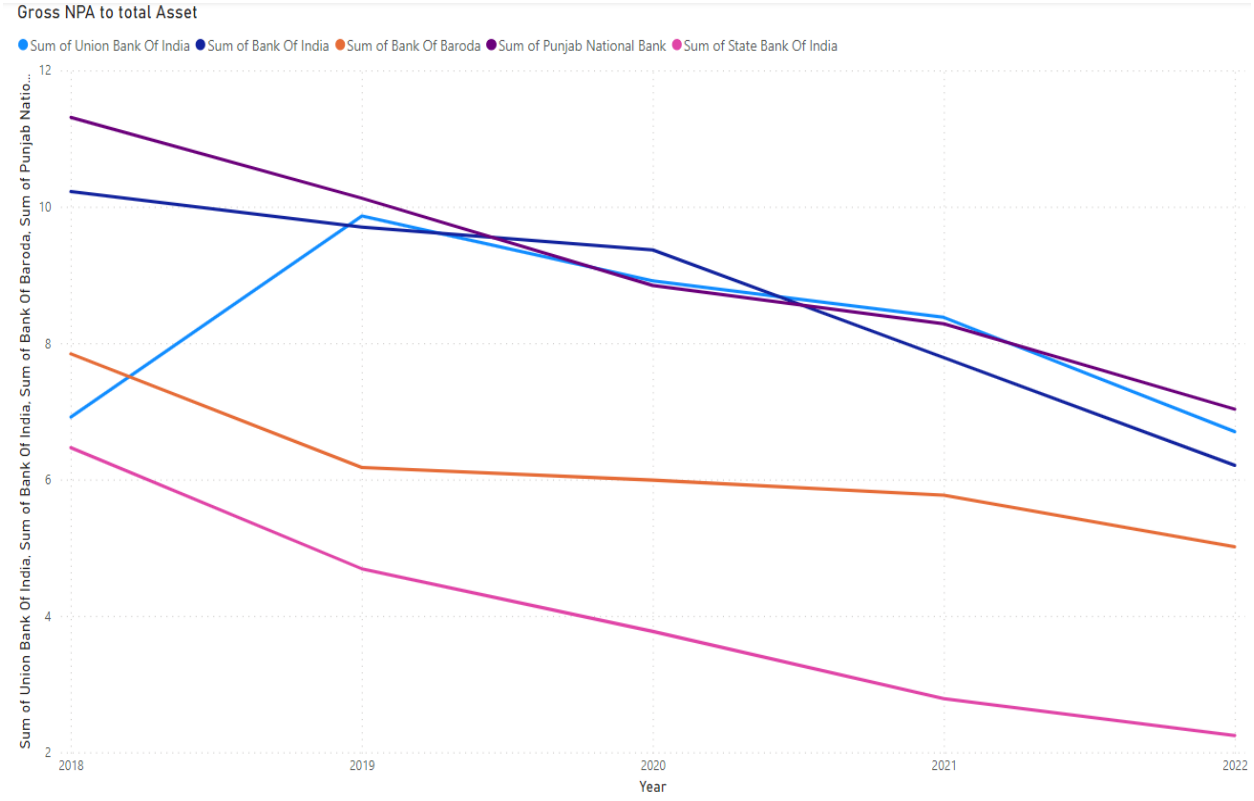
Net NPA to Total Asset



Net Investment to Total Asset



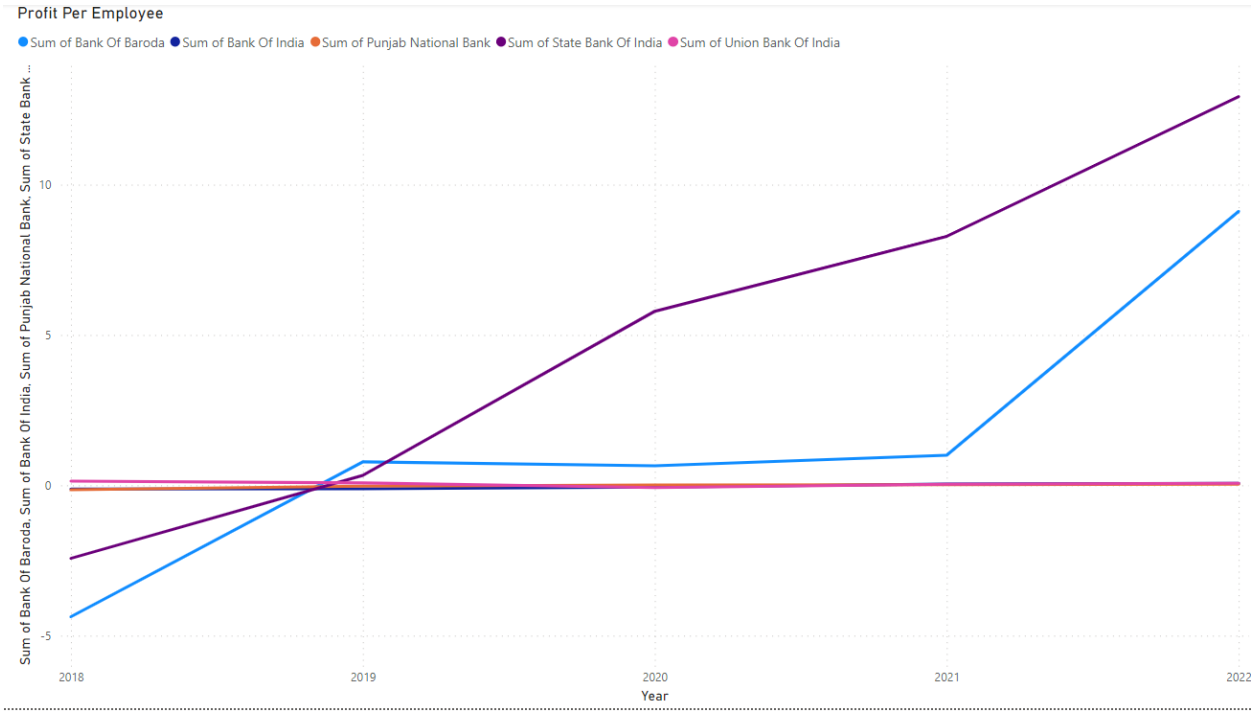
Gross NPA to total Asset



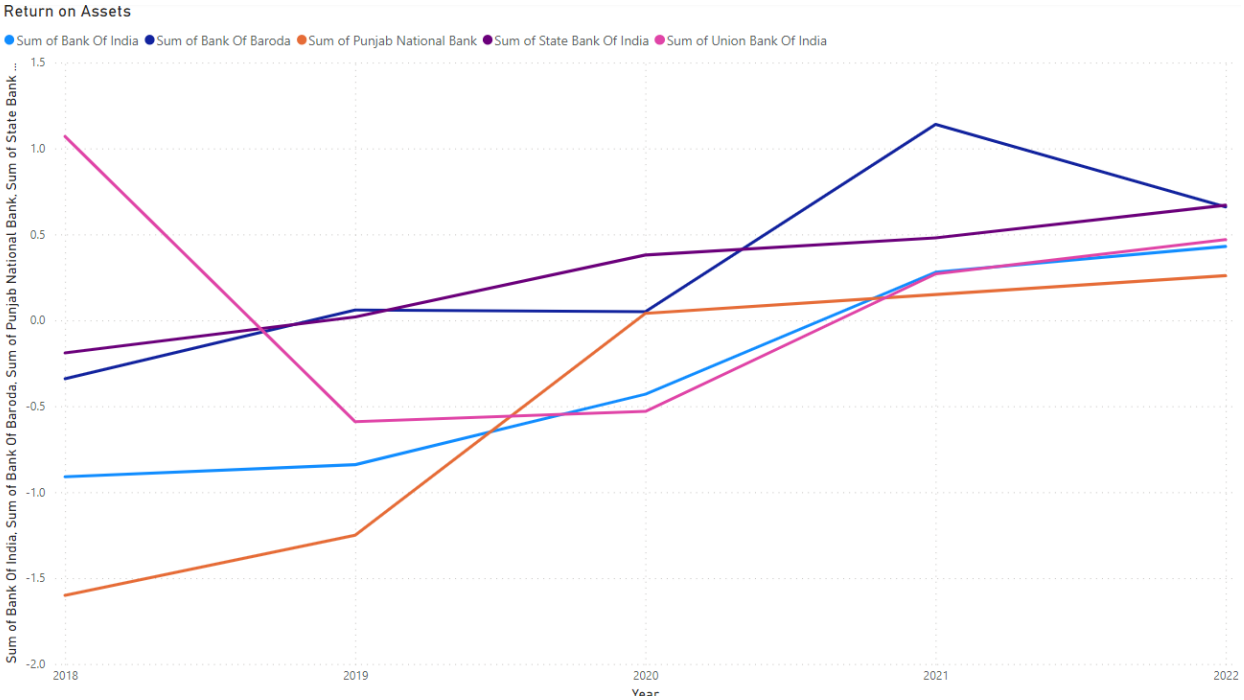
Management Quality Ratio

	Bank Of Baroda	RANK	Bank Of India	RANK	Punjab National Bank	RANK	State Bank Of India	RANK	Union Bank of India	RANK
Profit Per Employee	1.434	2	-0.0376	5	-0.022	4	4.9801	1	0.04962	3
Return on Assets	0.314	1	-0.294	4	-0.48	5	0.272	2	0.138	3
BusIness Per Employee	19.386	2	19.346	3	17.6	4	8.682	5	22.96	1
Return on Equity	4.574	2	-9.738	5	2.046	3	5.66	1	-7.962	4
Total		7		17		16		9		11
Overall Ranking		1		5		4		2		3

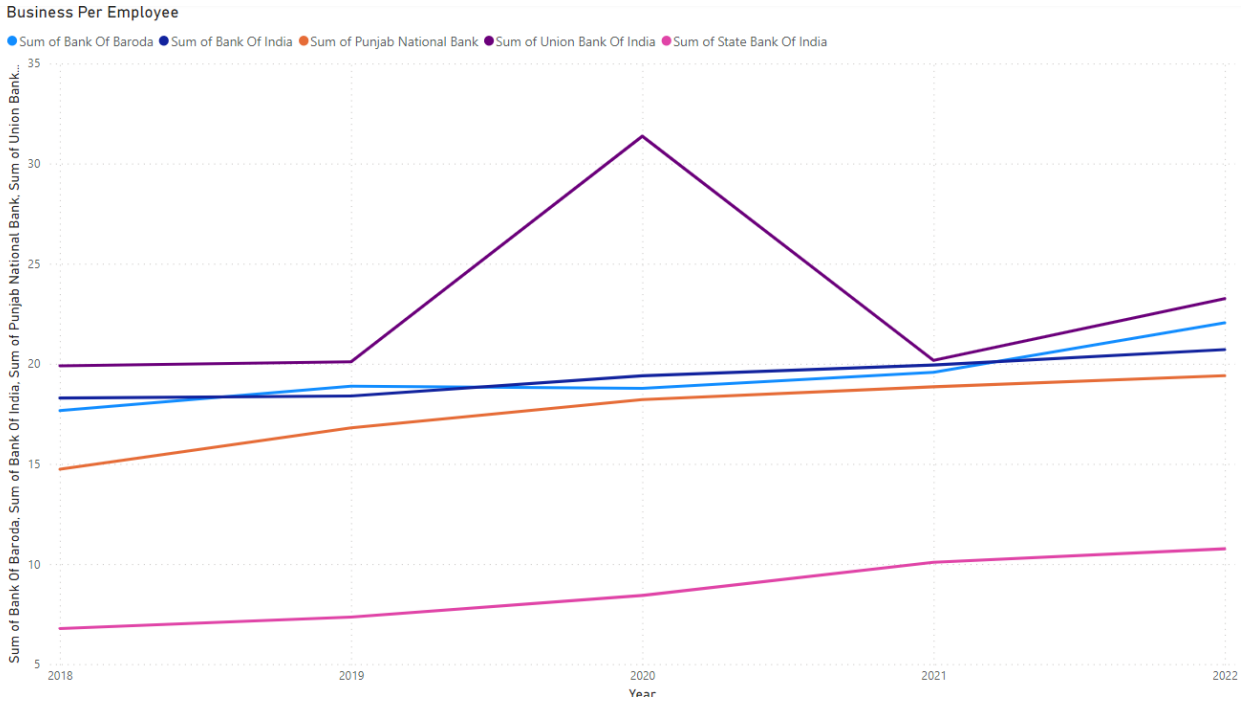
Profit Per Employee



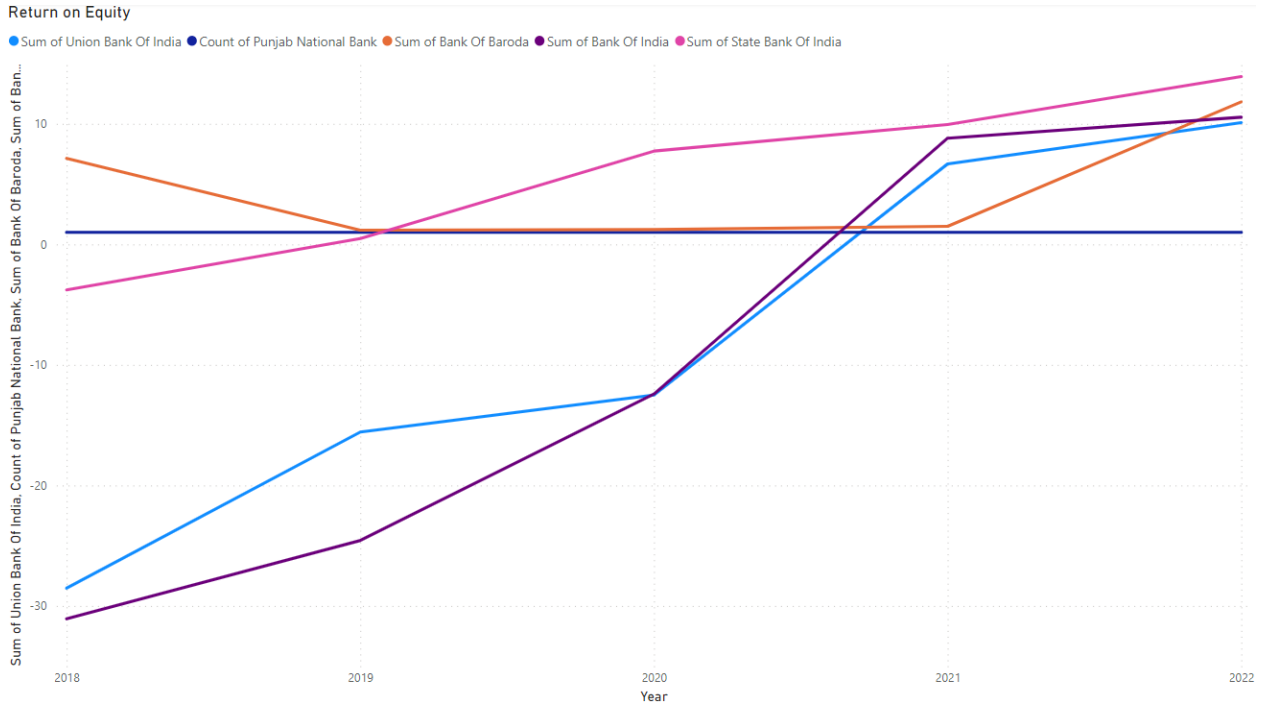
Return on Assets



Business Per Employee



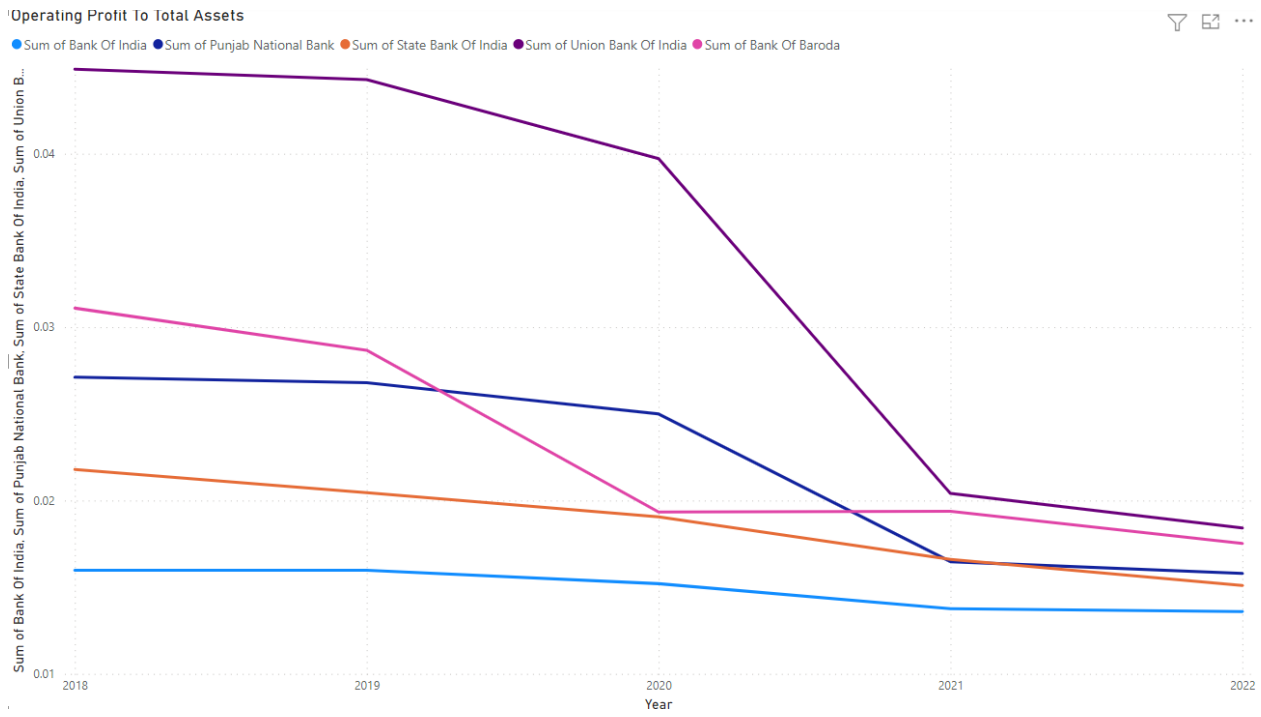
Return on Equity



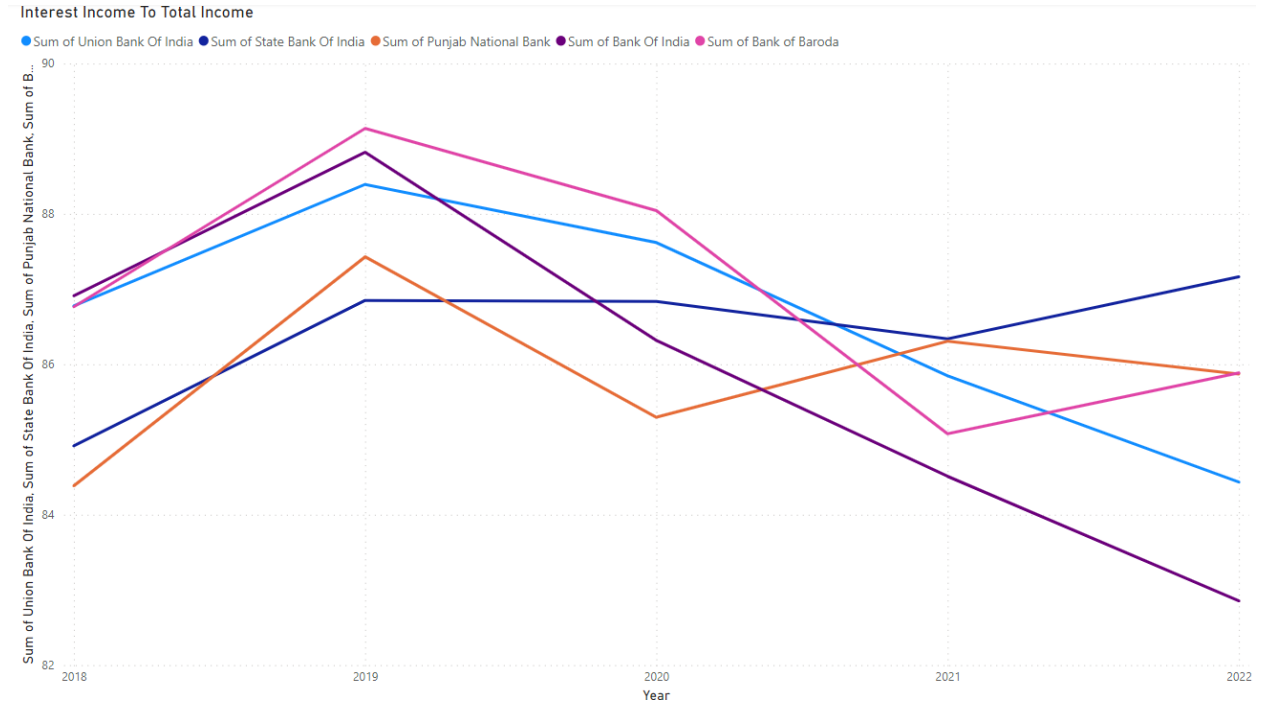
Earnings Capacity Ratio

	Bank Of Baroda	RANK	Bank Of India	RANK	Punjab National Bank	RANK	State Bank Of India	RANK	Union Bank of India	RANK
Operating Profit TO Total Assets	0.023	2	0.015	5	0.022	3	0.019	4	0.034	1
Interest Income To Total Income	86.982	1	85.883	4	85.858	5	86.421	3	86.614	2
TOTAL		3		9		8		7		3
FINAL RANKING		1		4		3		2		1

Operating Profit To Total Assets



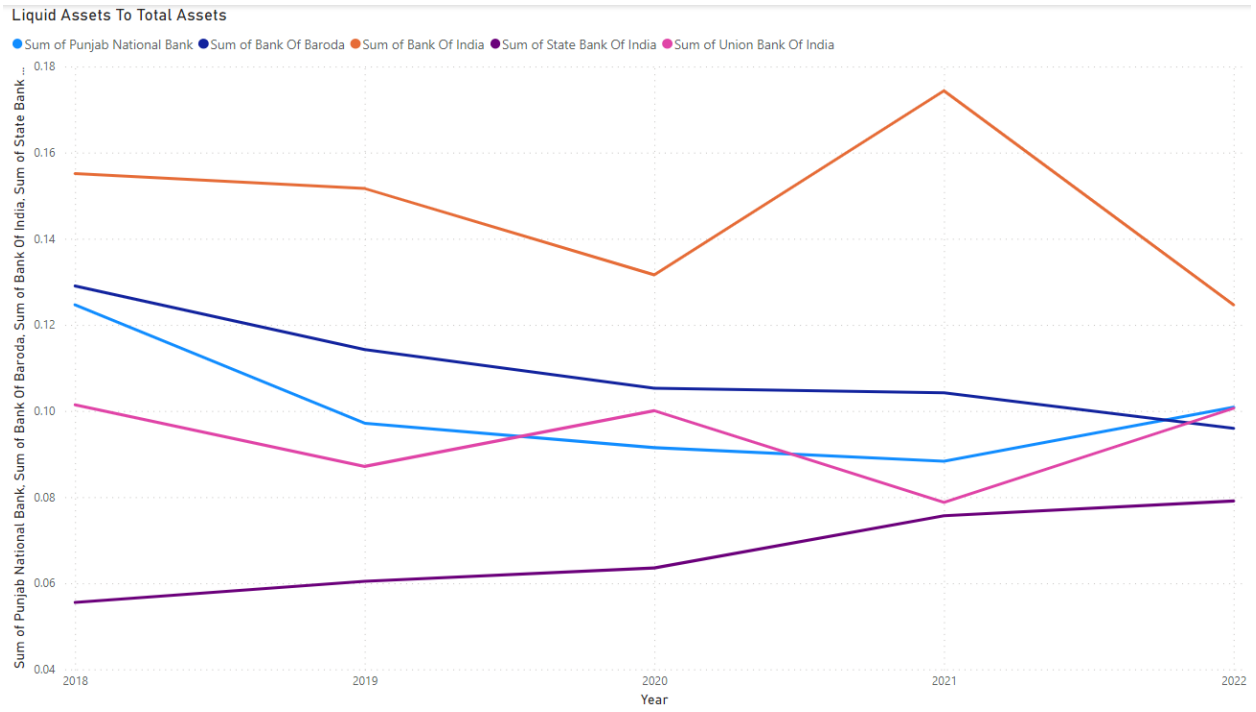
Interest Income To Total Income



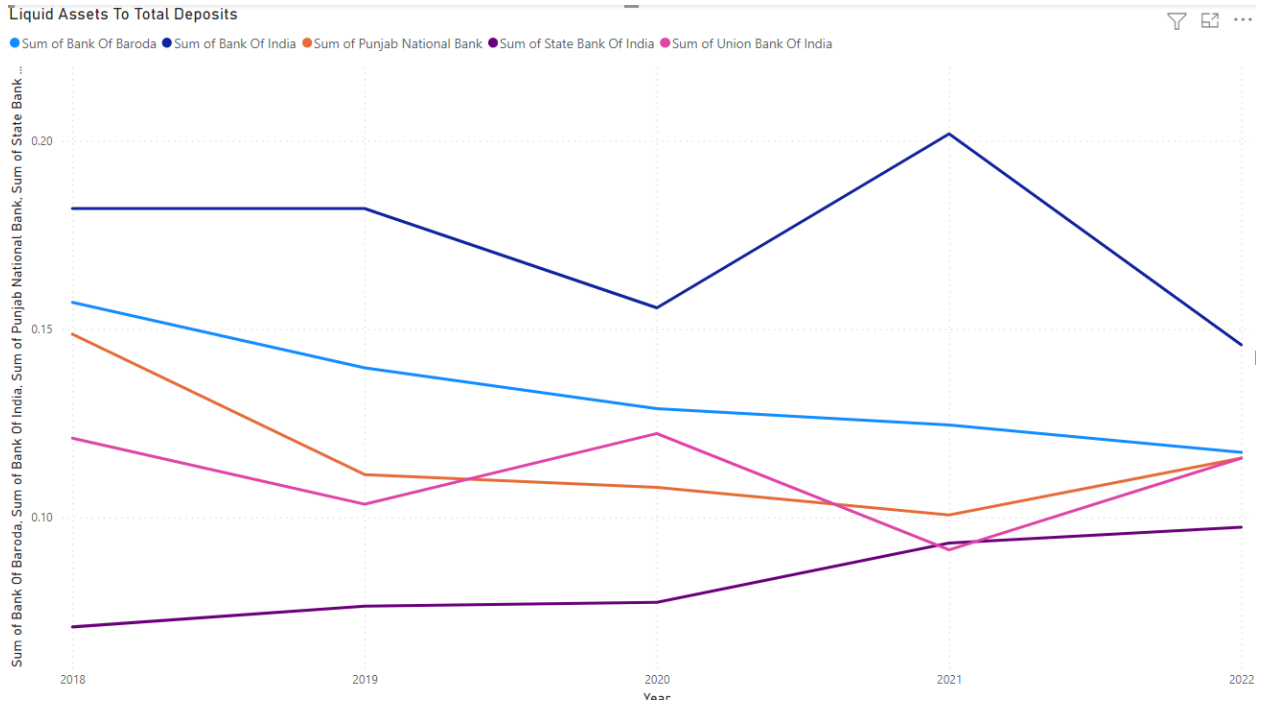
Liquidity Ratio

	Bank Of Baroda	RANK	Bank Of India	RANK	Punjab National Bank	RANK	State Bank Of India	RANK	Union Bank of India	RANK
Liquid Assets TO Total Assets	0.110	2	0.147	1	0.101	3	0.067	5	0.094	4
Liquid Assets TO Deposits	0.133	2	0.173	1	0.117	3	0.083	5	0.111	4
TOTAL		2		1		3		5		4
FINAL RANKING		2		1		3		5		4

Liquid Assets To Total Assets



Liquid Assets To Deposits

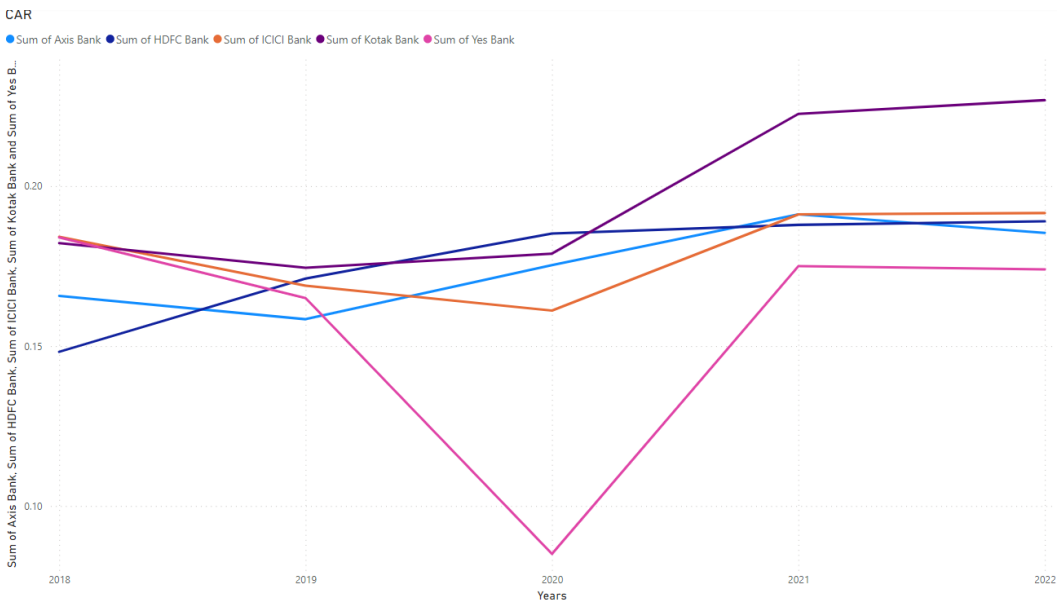


For Private Banks

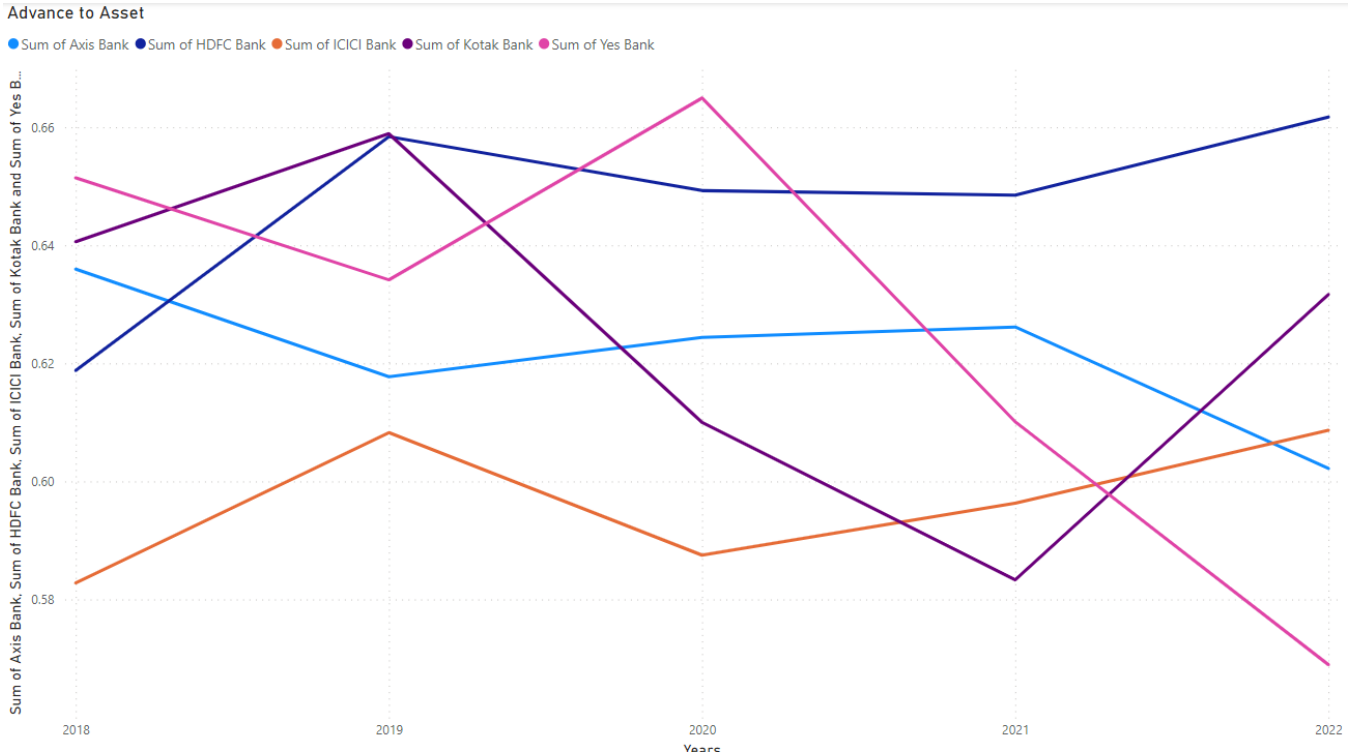
CAR

	AXIS	RANK	HDFC	RANK	ICICI	RANK	KOTAK	RANK	YES	RANK
CAR	0.175	4	0.176	3	0.179	2	0.197	1	0.157	5
Advance to Asset	0.621	4	0.647	1	0.597	5	0.625	3	0.626	2
Total liabilities/ Shareholders Fund	10.731	4	8.895	3	8.651	2	6.727	1	11.075	5
Total Liabilites/ Equity share capital	1612.12	2	2803.94	1	835.960	3	256.001	5	343.334	4
Tier 1	14.576	4	16.338	3	16.428	2	18.962	1	10.780	5
Tier 2	2.944	2	1.290	4	1.512	3	0.740	5	4.880	1
TOTAL		20		15		17		16		22
FINAL RANKING		4		1		3		2		5

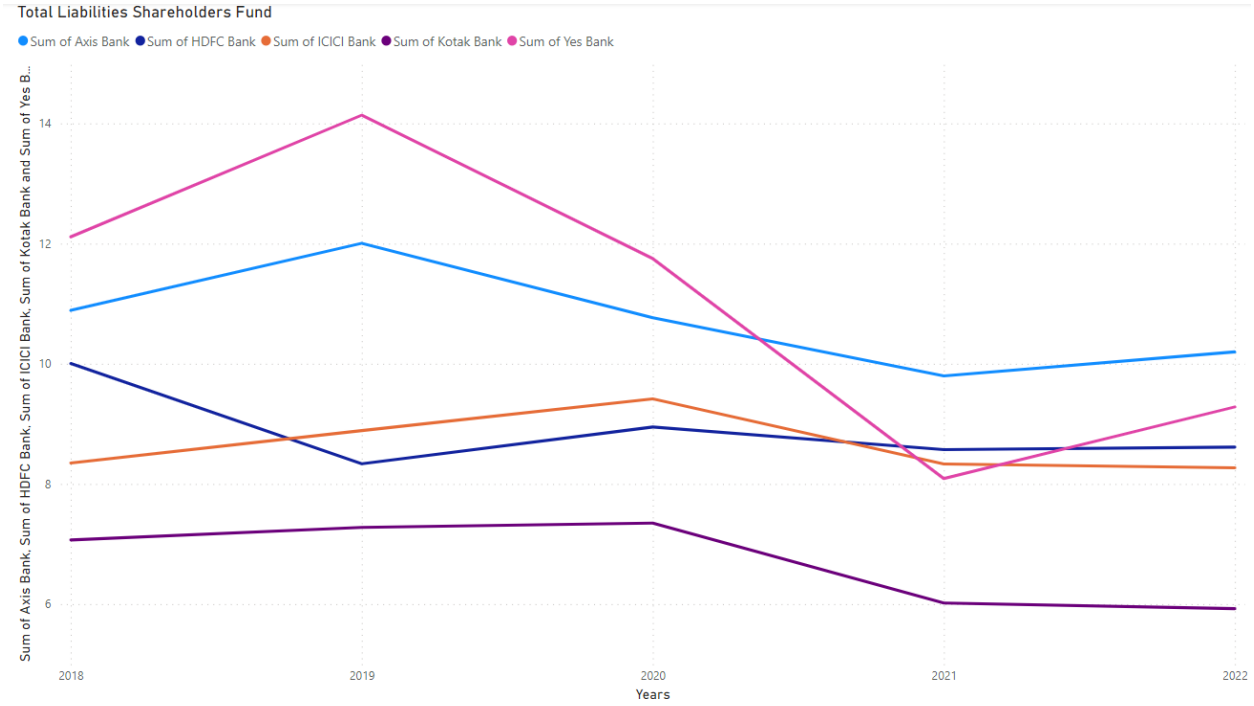
CAR



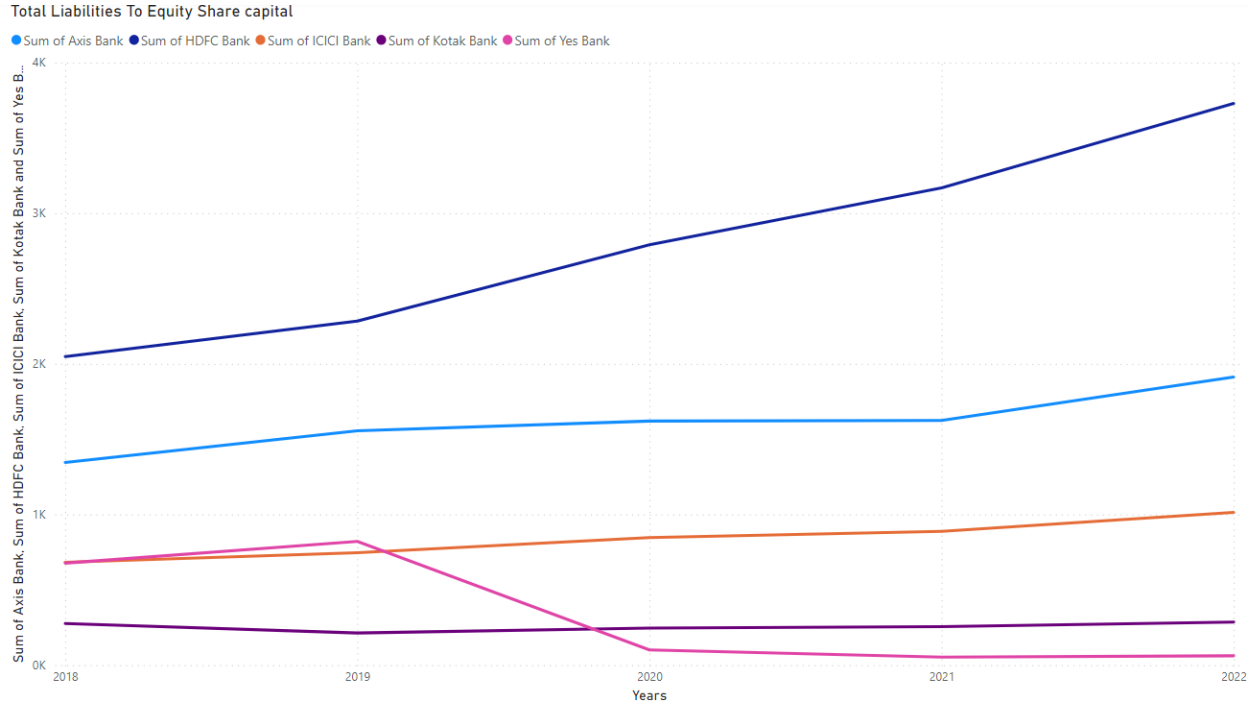
Advance to Asset



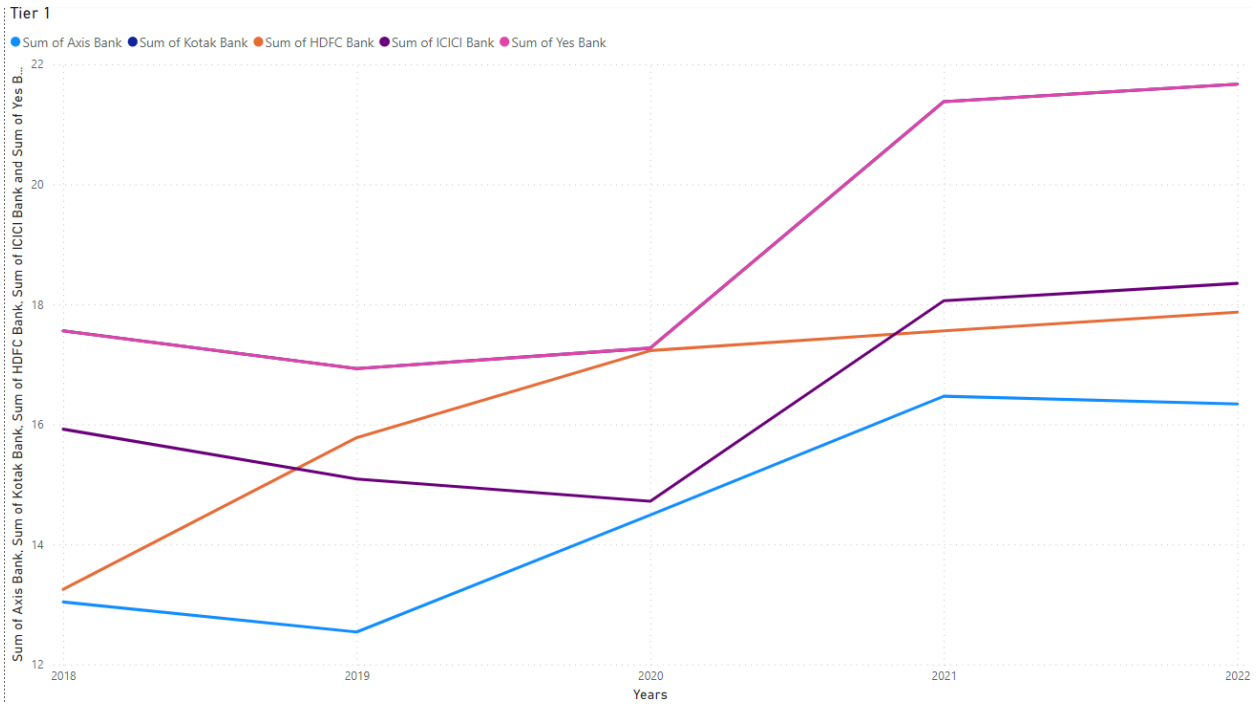
Total Liabilities To Shareholders Fund



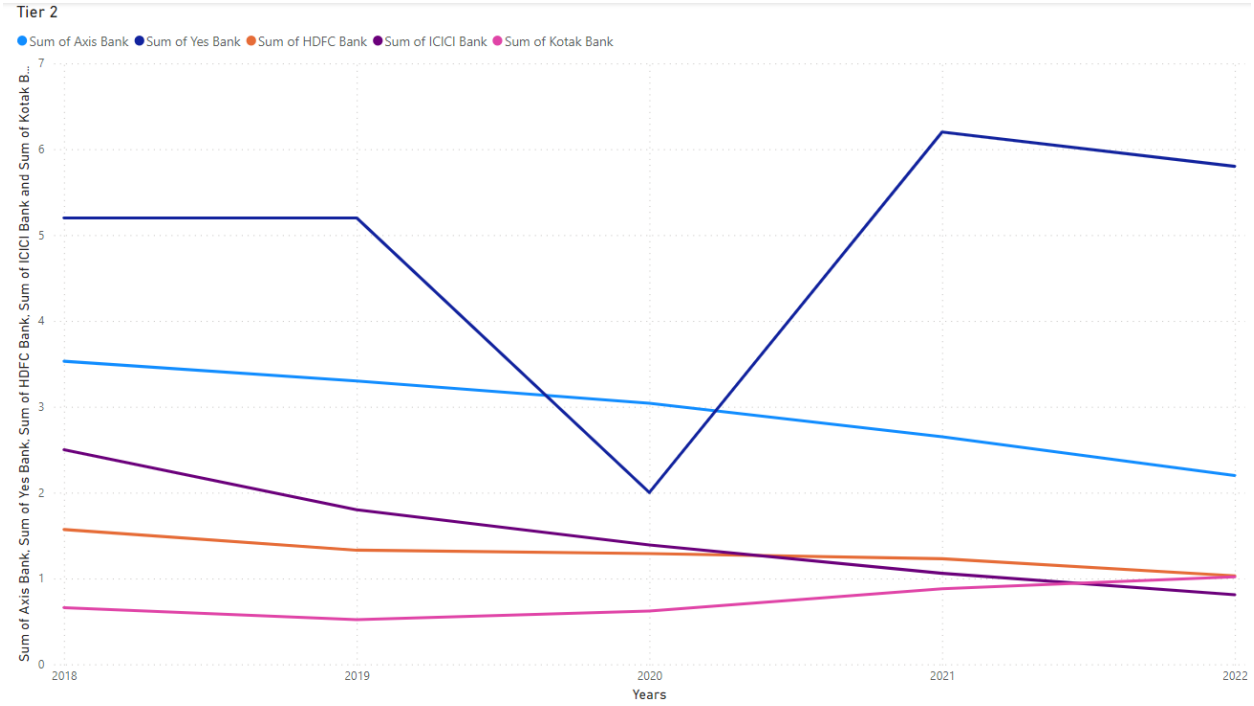
Total Liabilities To Total Equity



Tier 1 Ratio



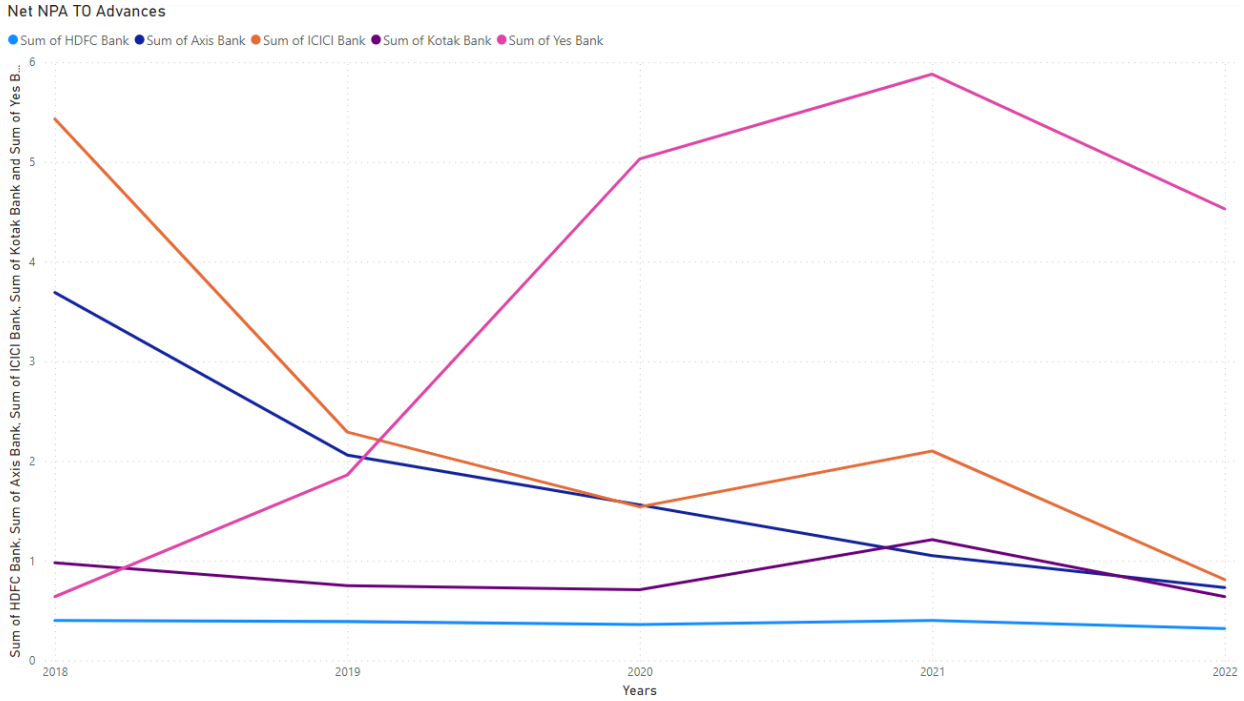
Tier 2 Ratio



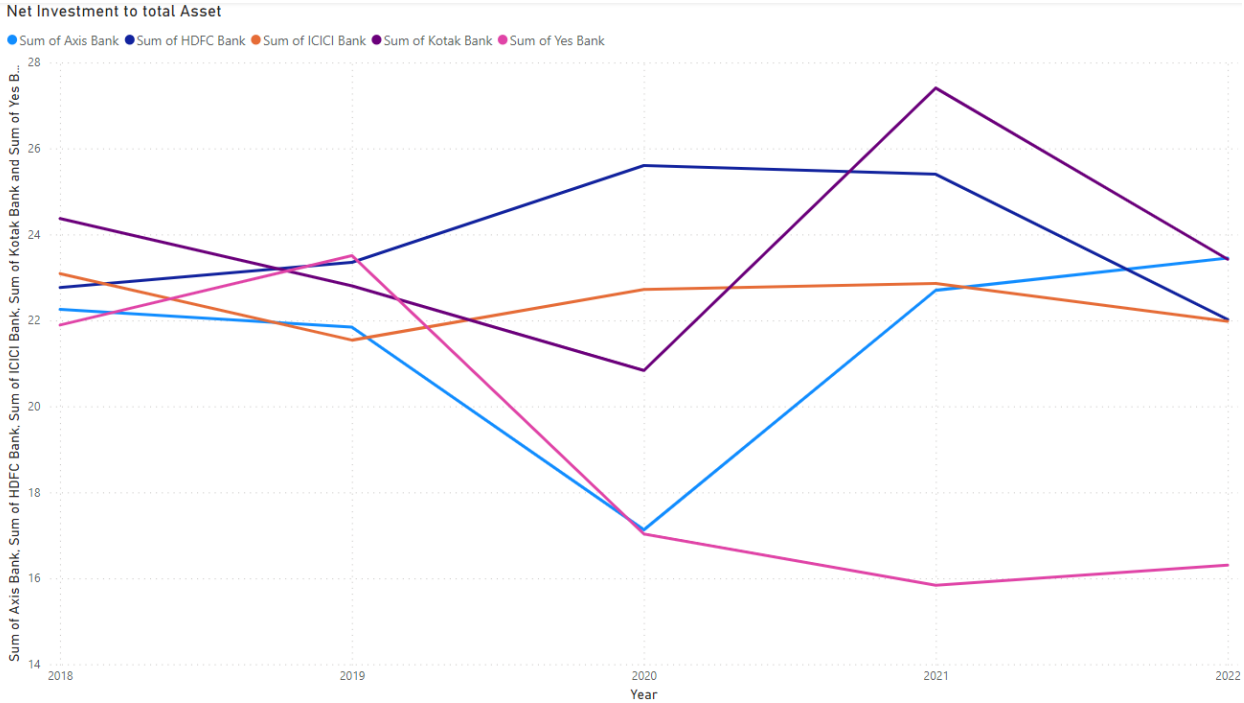
Asset Quality Ratio

	AXIS	RANK	HDFC	RANK	ICICI	RANK	KOTAK	RANK	YES	RANK
Net NPA to Advances	1.818	3	0.374	5	2.262	2	0.858	4	3.588	1
Net NPA to total Asset	1.377	2	0.242	5	1.339	3	0.533	4	1.814	1
Net Investment to total Asset	21.476	4	23.828	1	22.438	3	23.767	2	18.915	5
Gross NPA to total Asset	3.275	3	0.836	5	4.037	2	1.543	4	5.400	1
TOTAL		12		16		10		14		8
FINAL RANKING		3		5		2		4		1

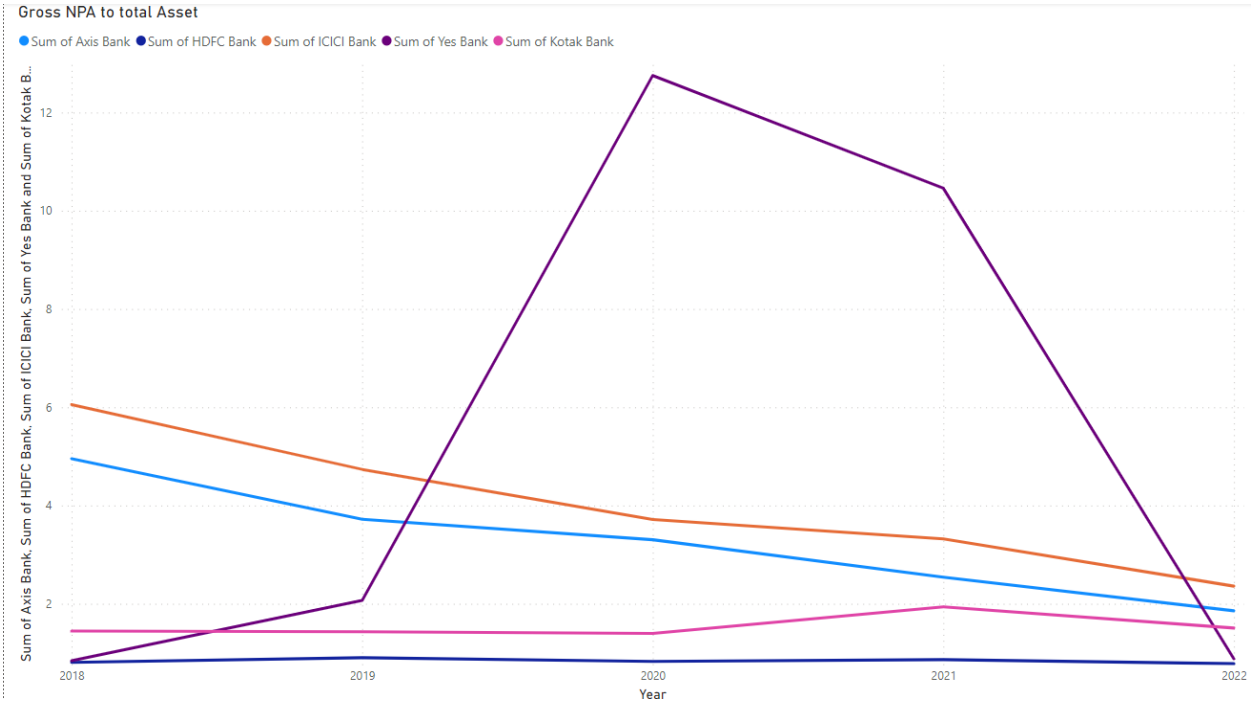
Net NPA to Advances



Net Investment to total Asset



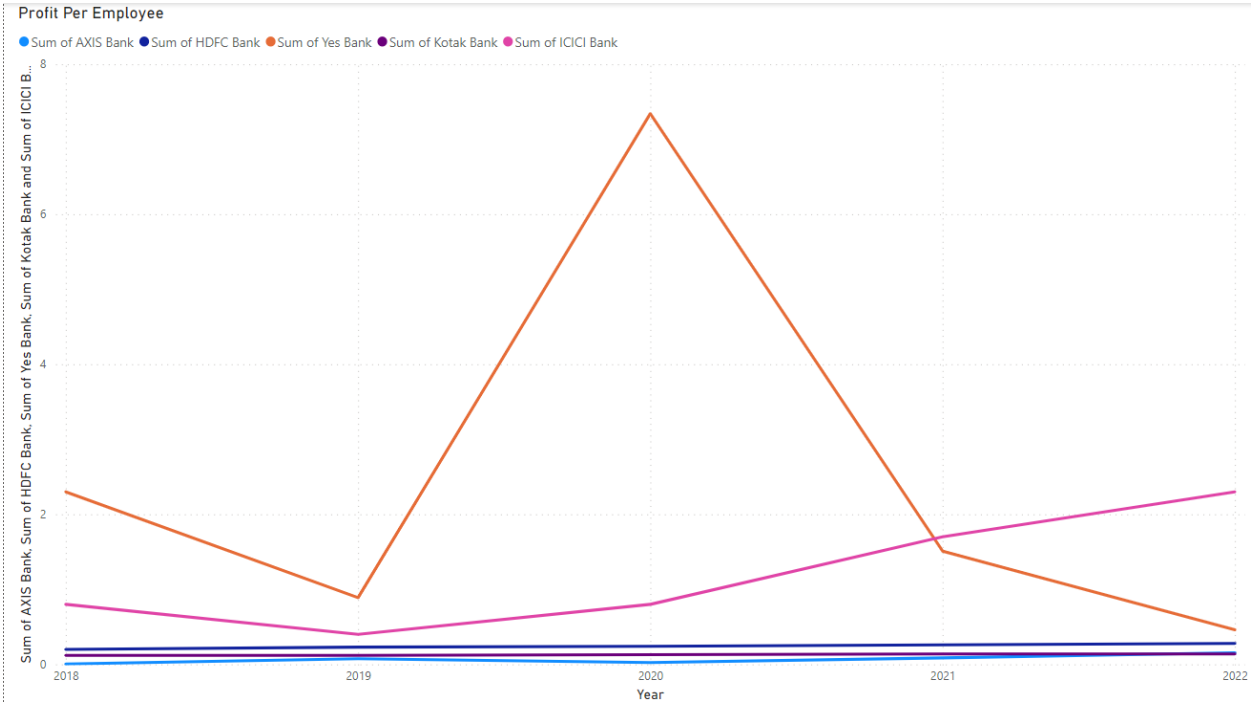
Gross NPA to Total Asset



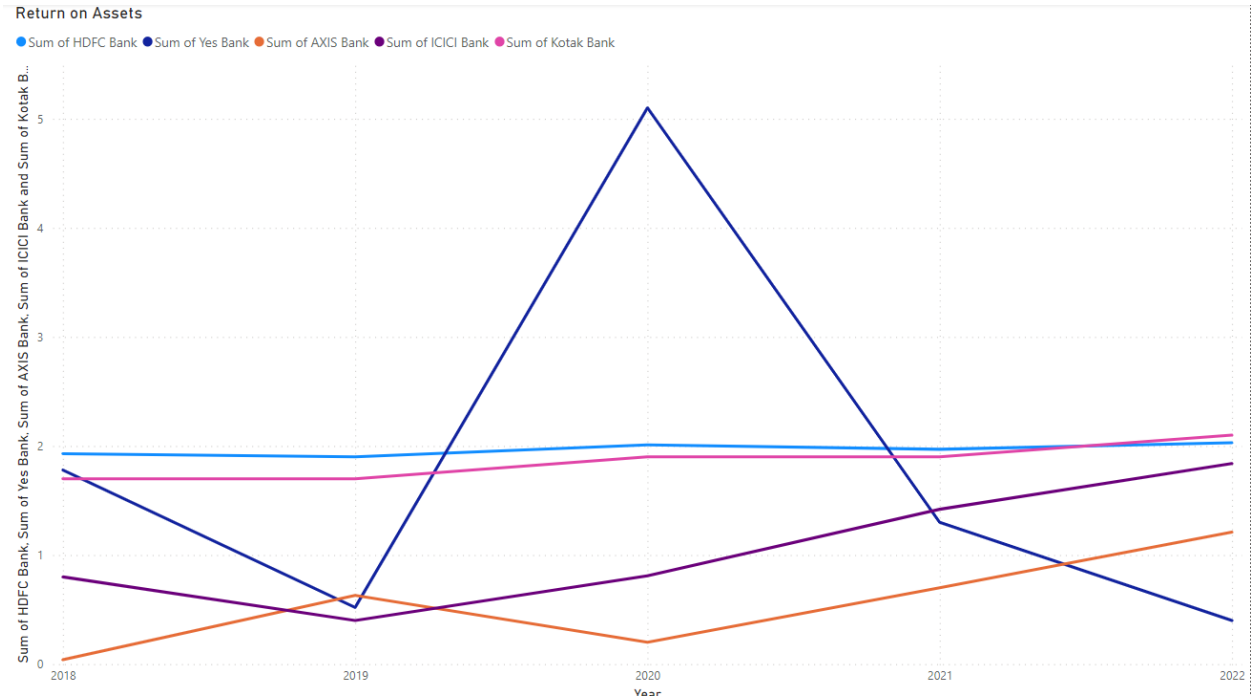
Management Quality Ratio

	AXIS	RANK	HDFC	RANK	ICICI	RANK	KOTAK	RANK	YES	RANK
Profit Per Employee	0.07	5	0.24	3	1.20	2	0.13	4	2.50	1
Return on Assets	0.56	5	1.97	1	1.05	4	1.86	2	1.82	3
BusIness Per Employee	16.74	3	17.80	1	13.47	4	9.54	5	17.14	2
Return on Equity	6.28	4	17.04	2	18.14	1	13.34	3	-13.16	5
TOTAL		17		7		11		14		11
FINAL RANKING		4		1		2		3		2

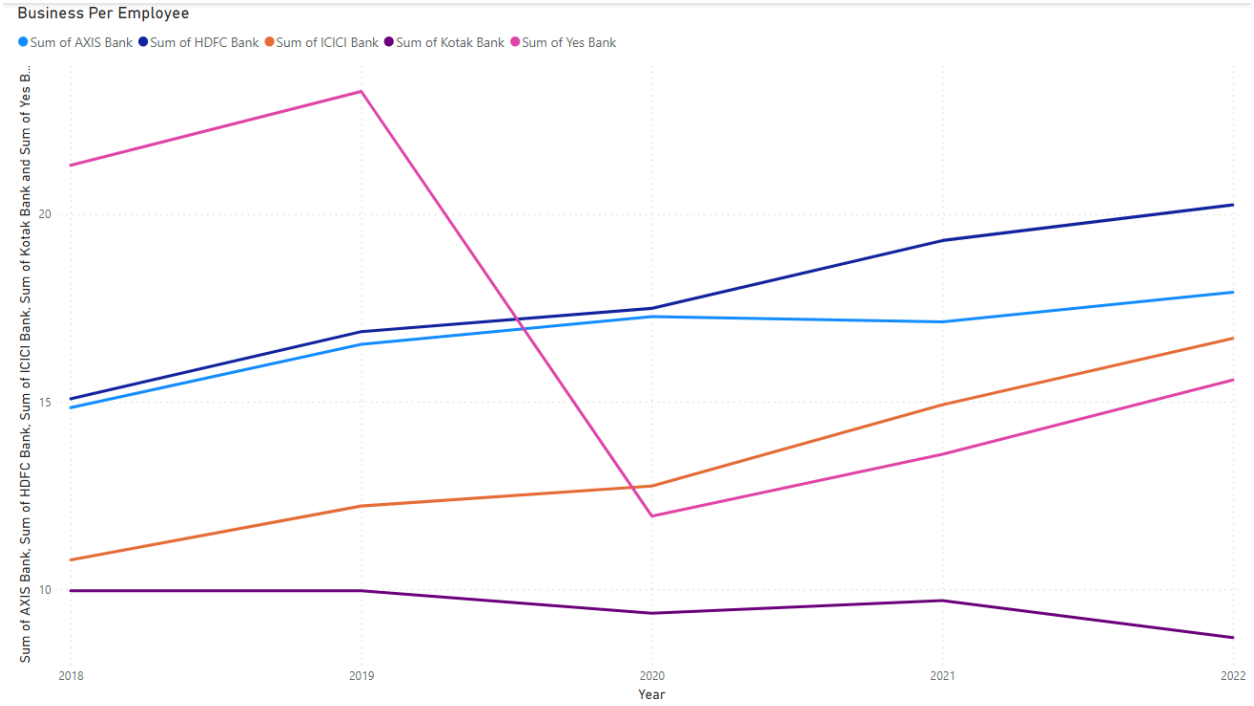
Profit Per Employee



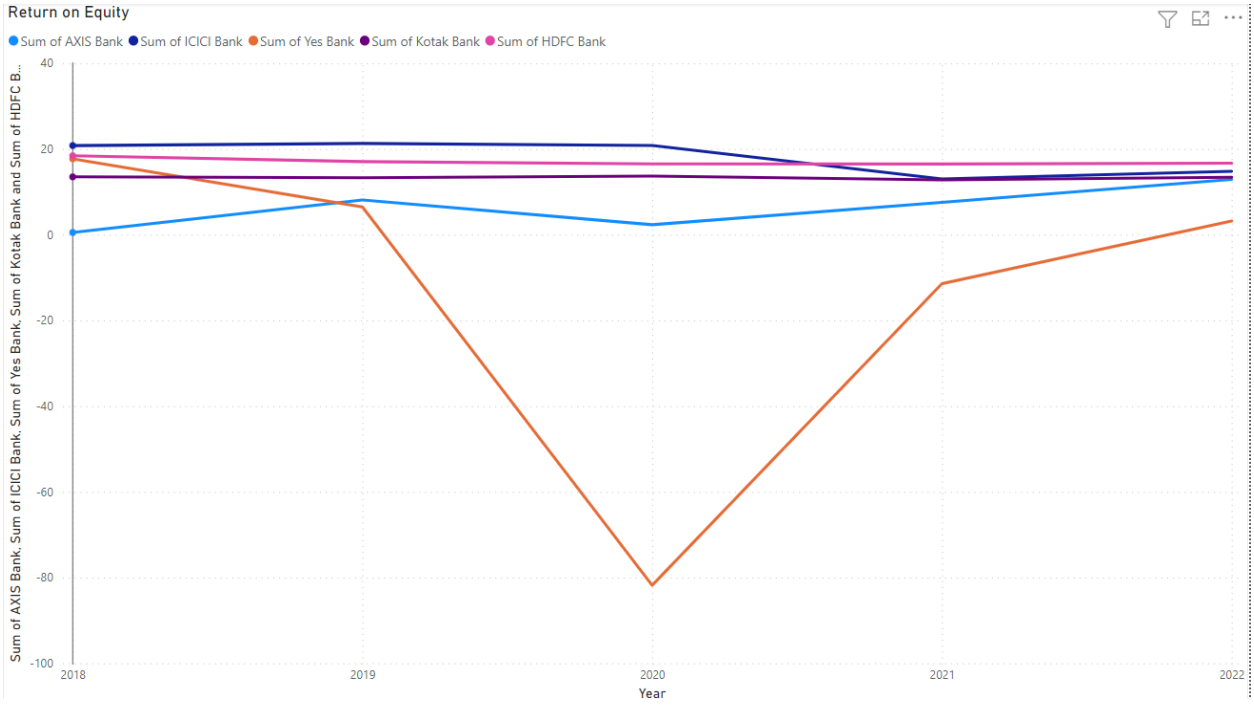
Return on Assets



Business Per Employee



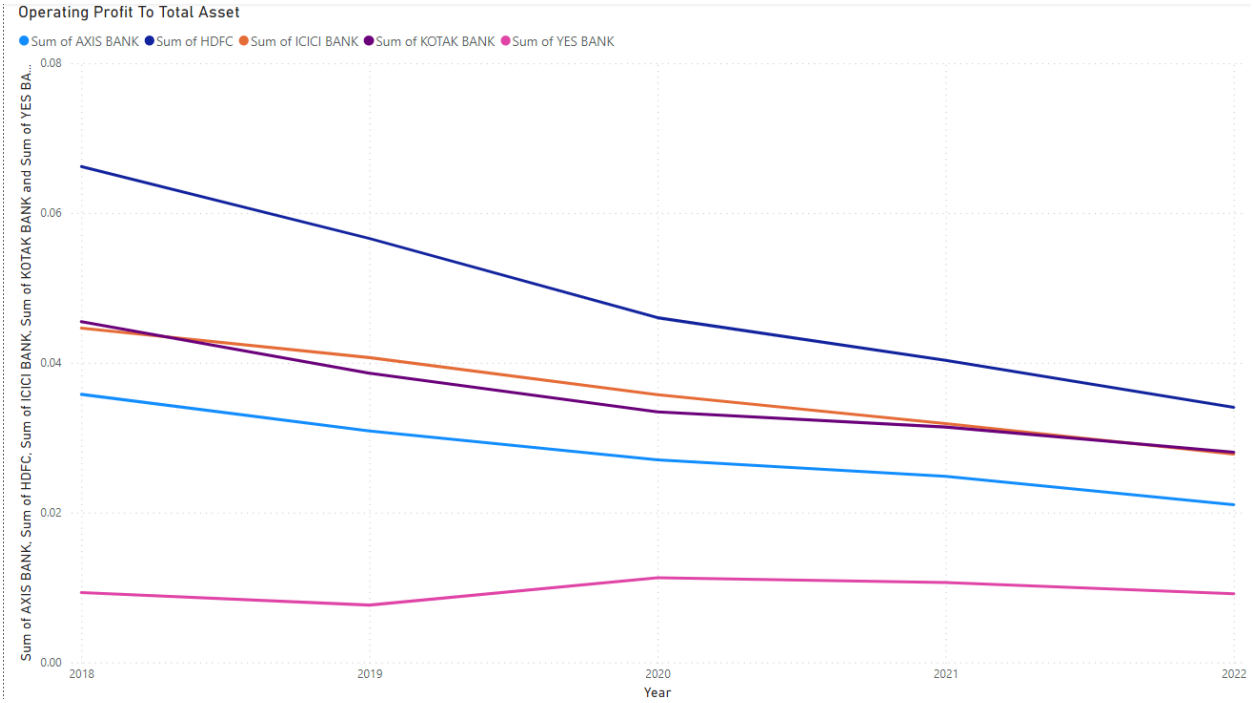
Return on Equity



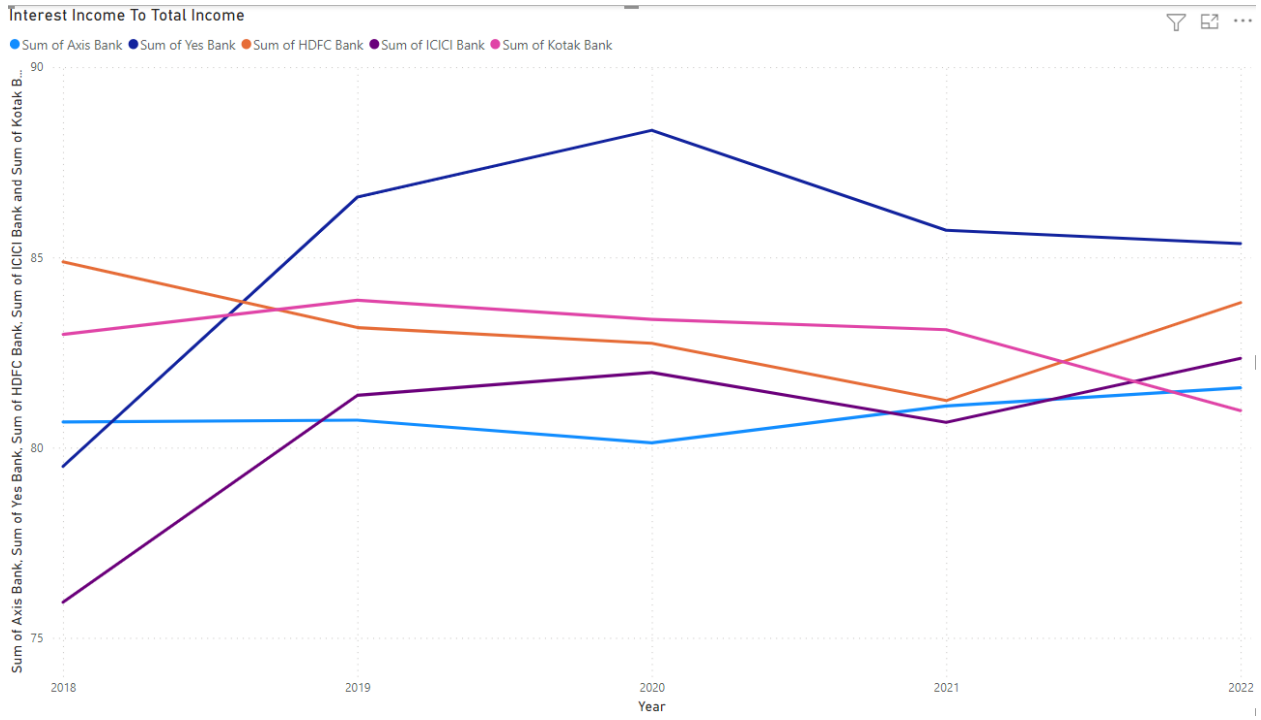
Earnings Capacity Ratio

	AXIS	RANK	HDFC	RANK	ICICI	RANK	KOTAK	RANK	YES	RANK
Operating Profit TO Total Assets	0.028	4	0.049	1	0.036	2	0.035	3	0.010	5
Interest Income To Total Income	80.838	4	83.165	2	80.458	5	82.857	3	85.101	1
TOTAL		8		3		7		6		6
FINAL RANKING		4		1		3		2		2

Operating Profit To Total Assets



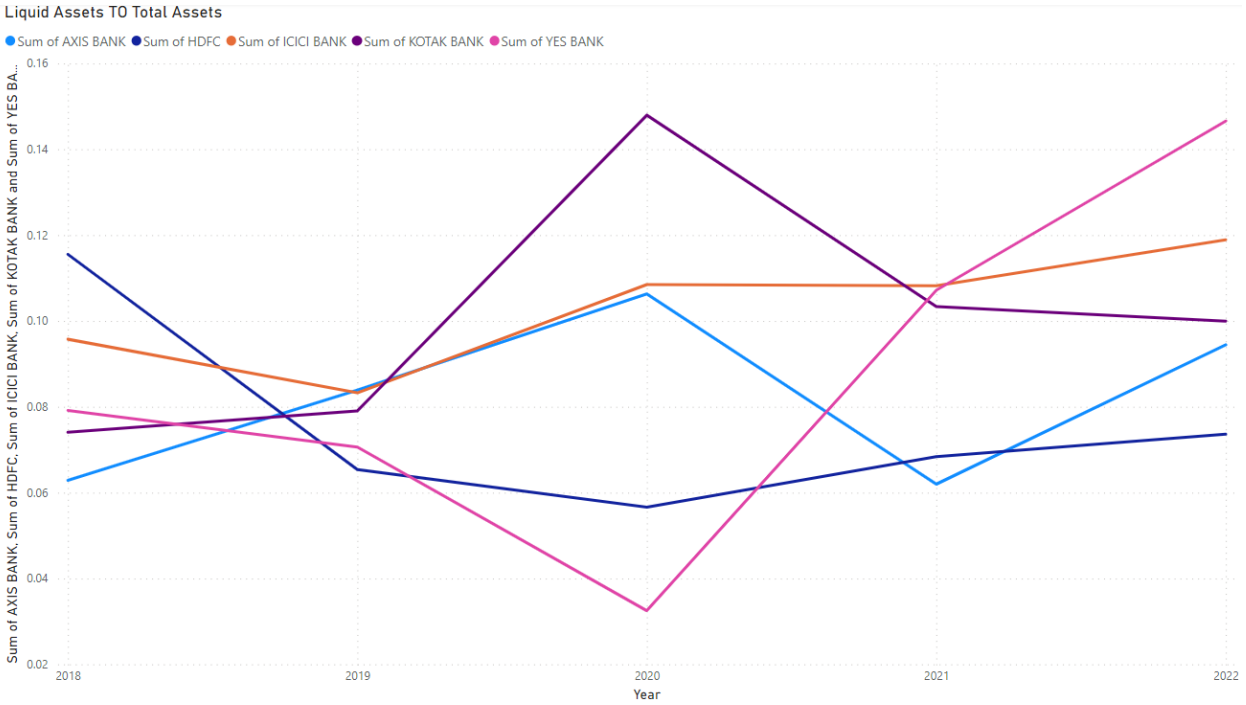
Interest Income To Total Income



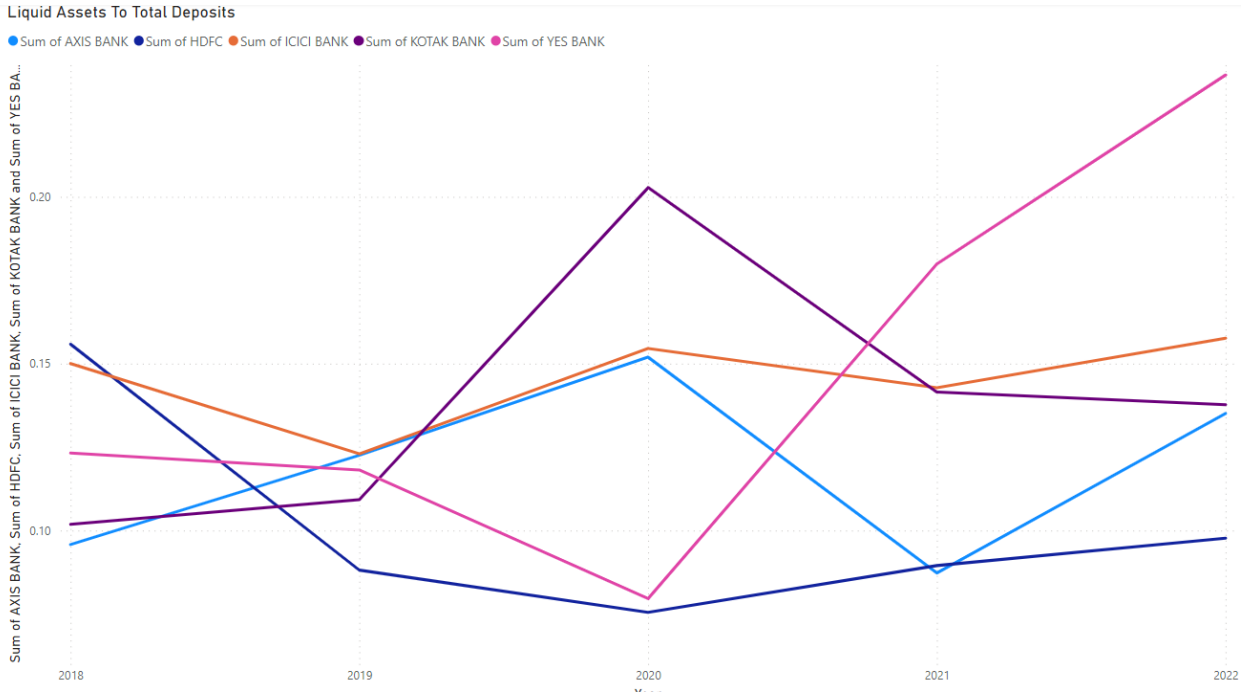
Liquidity Ratio

	AXIS	RANK	HDFC	RANK	ICICI	RANK	KOTAK	RANK	YES	RANK
Liquid Assets TO Total Assets	0.082	4	0.076	5	0.103	1	0.101	2	0.087	3
Liquid Assets TO Deposits	0.119	4	0.101	5	0.146	2	0.139	3	0.147	1
TOTAL		8		10		3		5		4
FINAL RANKING		4		5		1		3		2

Liquid Assets TO Total Assets



Liquid Assets TO Deposits



Final ranking of the banks

Private Banks

	Total of Sum Ranking	Ranking
Axis	65	5
HDFC	43	1
ICICI	52	3
Kotak	51	2
Yes Bank	59	4

Public Banks

	Total of Sum Ranking	Ranking
Bank of baroda	35	1
Bank of India	45	2
Punjab National Bank	59	5
SBI	55	3
Union Bank Of India	58	4

Pros - Cons of CAMEL rating system

Here are some specific reasons why the CAMEL Rating Model is helpful:

Comprehensive Assessment: The CAMEL rating system provides a comprehensive assessment of a bank's financial health, covering multiple key areas. It enables regulators, stakeholders, and investors to gain a holistic view of a bank's performance and risk profile.

Standard framework: The CAMEL Rating Model provides a consistent framework that regulators and financial institutions can use to evaluate the financial health of banks. This helps ensure that banks are being evaluated in a consistent and standardized manner.

Helps identify potential problems: The CAMEL Rating Model assesses a bank's Capital adequacy, Asset quality, Management, Earnings, and Liquidity. By evaluating these areas, the model can identify potential problems before they become serious issues. This can help prevent bank failures and protect depositors.

Encourages risk management: The CAMEL Rating Model encourages banks to manage their risks effectively. Banks that receive a high rating are considered to have a lower risk of failure, while banks that receive a low rating may need to take steps to improve their risk management practices.

Regulatory Guidance: The CAMEL rating system serves as a regulatory tool for assessing the safety and soundness of banks. It provides guidance for regulators in monitoring and supervising banks, enabling them to take appropriate actions to mitigate risks and maintain stability in the banking sector.

While the system has proven effective in evaluating risk and ensuring that loans are granted to viable candidates, it is not without its challenges.

Some of the problems faced by the Camel Rating System include:

Subjectivity: The Camel Rating System relies on subjective assessments of a borrower's financial health, which can lead to inconsistencies in evaluations. Different analysts may interpret the same financial data differently, leading to discrepancies in ratings.

Lack of transparency: The rating process is not transparent, and borrowers may not know how they are being evaluated. This can lead to distrust and confusion among borrowers, especially those who are rated poorly.

Limited scope: The Camel Rating System is primarily designed to evaluate the financial health of banks and other financial institutions. It may not be as effective in assessing the creditworthiness of non-financial institutions or other types of borrowers.

Insufficient data: The system relies on financial data that may not always be accurate or complete. In some cases, borrowers may provide misleading information, or there may not be enough data available to make an accurate assessment.

Lack of adaptability: The Camel Rating System may not be able to adapt quickly to changes in the financial environment or new types of financial products. This can make it difficult for analysts to accurately assess the risk associated with these products or borrowers.

Overall, the Camel Rating System is a valuable tool for assessing credit risk, but it is not without its limitations. Banks and other financial institutions must be aware of these limitations and take steps to mitigate the risks associated with them.

The target audience of the CAMEL rating system

Bank regulators: Bank regulators use the CAMEL rating system to evaluate the financial condition of banks and assess their level of risk. The ratings are used to determine if a bank needs additional oversight or intervention to address any risks.

Bank executives: Bank executives can also benefit from the CAMEL rating system as a tool for identifying areas where the bank may need to improve its operations, management practices, or risk management policies.

Investors: Investors may also be interested in the CAMEL rating system as a way to assess the financial strength of a bank and make informed investment decisions.

Depositors: Depositors may also be interested in the CAMEL rating system as a way to assess the safety of their deposits and the likelihood of a bank failing or experiencing financial difficulties.

Overall, the CAMEL rating system is designed to provide a comprehensive assessment of a bank's financial health and identify any potential risks or issues that could impact its stability. As such, it is an important tool for bank regulators, executives, investors, and depositors to evaluate the strength and stability of a bank.

CONCLUSION and FINDINGS

This study was mainly based on the evaluation of comparative ability of financial performance of banks in India. The comparative financial performance is analyzed using CAMEL model and finally ranked the banks according to the average and how the ratio is performing. In this study, we can conclude that the Private banks performed better than the private banks. All the information was collected for the period of five years (2018-202) from the annual reports of 5 public sector banks and five private sector banks.

Private Sector:

- Axis
- HDFC
- ICICI
- Kotak Mahindra
- Yes Bank

Public Sector:

- Bank of Baroda
- Bank of India
- Punjab National Bank
- SBI
- Union Bank of India

Analysis

The CAMEL rating system is a crucial tool used by regulators to assess the financial health of banks. It provides a comprehensive assessment of a bank's financial health and helps regulators to identify weak banks and take corrective action before they fail. Additionally, the CAMEL rating system is also used by investors and customers to assess a bank's financial health and make informed decisions about their investments or deposits.

According to the ratios,

In **Capital Adequacy Ratio**, HDFC bank ranks first, which is followed by Kotak Mahindra Bank, ICICI bank, then Axis and lastly Yes Bank in the Private banking sector, In the Public banking sector, Bank of

Baroda (BOB) and Bank of India (BOI) are at a tie ranking first, with SBI on the third, Punjab National Bank (PNB) placing at fourth and lastly Union bank of India (UBI) comes last.

In **Asset Quality Ratios**, in the private banking sector, HDFC comes first as lower the ratio, the better is the bank. followed by Kotak Mahindra, Axis, then ICICI and Yes bank came last. BOB comes first in the public sector behind BOI, SBI then UBI and PNB comes last in the Public sector.

In **Management Quality Ratio**, HDFC is at the first rank, which is followed by Yes Bank and, then Union Bank of India then Kotak ,then and lastly Yes Bank in the Private banking sector, In the Public banking sector, Bank of Baroda (BOB) rank first, with SBI second, then Union Bank and lastly Bank of India.

In **Earning Capacity Ratio**, HDFC comes first, Kotak comes second with Yes Bank, then ICICI and Axis bank lastly, for Private Banks. In Public sector, Bank of Baroda comes first with Union bank of India, then SBI, then comes Punjab National Bank and lastly Bank of India

In **Liquidity Ratio**, ICICI Ranks first , then Yes bank, then Kotak Bank , then comes Axis bank and then lastly comes HDFC Bank. In Public sector banks, BOI comes first, BOB comes close second followed by PNB. The fourth place goes to Union Bank of India and the fifth place to SBI.

After all the ratio analysis, we can understand that in the Private sector, HDFC is the best using the CAMEL rating system. Whereas Axis and Yes Bank are the 4th and 5th among the 5 banks. In the last five years, HDFC Bank has performed well based on key financial ratios. It has kept its capital adequacy ratio high, demonstrating a solid capital basis. Low levels of non-performing assets have allowed the bank's asset quality to stay strong. High returns on assets and returns on equity have been repeatedly displayed by HDFC Bank as signs of profitability. Its high business to employee ratio illustrates how effectively it has used its resources. Through its customer service and risk management procedures, the bank has also preserved a strong liquidity position and gained the trust of its clients. Overall, responsible risk management, a focus on the client, efficient cost-control strategies, and technology improvements may all be credited for HDFC Bank's success.

Axis and Yes bank faced similar challenges in the past few years due to the economic downturn during the COVID-19 pandemic, including asset quality issues with elevated levels of non-performing assets (NPAs) in sectors like infrastructure and power. Corporate governance concerns affected investor confidence and the bank's stock price. The economic slowdown in India led to increased defaults and stressed assets across the banking sector. Provisions and write-offs impacted profitability and capital adequacy. Corrective measures like management changes and restructuring were implemented to improve risk management, reducing NPAs, and better governance .

In the Public Banking Sector, Bank of Baroda is doing the best among the 5 banks and Punjab National Bank is not doing so well.

Bank of Baroda has performed well among public banks in the past five years due to various factors. The merger with Vijaya Bank and Dena Bank brought operational synergies and cost efficiencies. The bank improved its asset quality by reducing non-performing assets and implementing strong risk management practices. Bank of Baroda maintained a strong capital position and embraced digital transformation to enhance customer experience. Its focus on retail and MSME segments, along with effective risk management, contributed to its success. Overall, Bank of Baroda's performance is a result of strategic initiatives, improved asset quality, strong capital base, digital transformation, and targeted focus on key segments.

Punjab National Bank (PNB) has struggled in the past five years among public banks due to various challenges. The bank faced significant asset quality issues, including the Nirav Modi scam, resulting in substantial loan write-offs and provisions. Weak risk management practices and governance issues affected investor confidence. PNB also experienced capital constraints, reporting consecutive losses and struggling to maintain a strong capital position. The bank has undergone governance and management reforms to address these issues, but their impact may take time to be fully realized. PNB's future performance will depend on its ability to address the

challenges, strengthen risk management, and regain investor trust through transparent and improved financial performance.

Recommendations on how the model can be improved:

Expanded Risk Assessment: Include a broader range of risks, such as operational risk and cyber risk, to provide a more comprehensive evaluation of a bank's overall risk profile.

Forward-looking Analysis: Incorporate stress testing and assess how banks would perform under adverse scenarios or changing market conditions to better understand potential vulnerabilities and risks.

Qualitative Factors: Include more qualitative factors, such as risk management systems and corporate governance practices, to provide a holistic assessment.

Market-based Metrics: Supplement the model with market-based metrics to gain insights into market sentiment and investor confidence.

Comparative Analysis: Incorporate benchmarking and peer analysis to assess a bank's performance relative to its industry peers.

Dynamic Assessment: Adopt a real-time monitoring approach to identify potential risks and issues in a bank’s financial condition at an early stage.

Regulatory Cooperation: Encourage cooperation among regulatory bodies to establish consistent standards and methodologies for evaluating banks' financial health.