



# Efficiency and Effectiveness in Indian Banking: A Holistic Assessment of Financial Performance

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## Abstract:

India's economic development is based on the banking industry. With the development of technology and taking into account people's requirements, significant changes in the management and banking system have been observed over time. If the banking sector does not function properly, it could have a significant and wide-ranging impact on the economy. Therefore, there is a pressing need to look into the variables that affect the banking industry's performance level. The output ratios are the only criteria used to evaluate and rank the institutions. The current analysis makes use of data from six North Indian banks chosen over a period of ten years.

**Index Terms:** Return on Assets (ROA), Return on Net Worth (RONW), Income to Overhead Ratio (IOR), Gross NPA, Net NPA, Provision Coverage Ratio, Loan Ratio, Deposit Ratio, Loan to Deposit Ratio, Capital adequacy ratio, Interest Income/Interest Cost, Non-Interest Income/Non-Interest Cost, ANOVA.

## I. Introduction

The banking system contributes significantly to economic growth not just by directing money towards investments but also by increasing the efficiency with which resources are allocated. The most important segment of the Indian financial system is the banking industry. Commercial bank financial health is monitored by bank supervisory organizations, who also enforce relevant laws and regulations. The Indian banking sector's stability and financial health are overseen by RBI, the country's top institution. RBI bases its assessment on a number of variables and data that lead to significant findings. These outcomes typically serve as models for additional regulatory checks and initiatives to improve the financial environment.

To guarantee the health of banks and their financial stability, the RBI utilises its own set of Camels ratings assessments. Every year, the RBI inspects banks. Both the regulator and the bank maintain the confidentiality of the Camels rating report. The values of bank securities appear to be impacted by this information to the extent that it makes its way into the financial markets. Therefore, even if a bank has a good rating, it is never disclosed for marketing purposes.

Although much of the information needed to do so can be gathered from regulatory reports, on-site examinations are needed to verify report accuracy and to gather further supervisory information. Much research has explored the value of this private information, both to the bank supervisors and to the public who monitor banks through the financial markets. Thus, private supervisory information in Camels ratings also appears to be useful in the public monitoring of banks, especially the one conducted by various rating agencies.

## About Camel Rating

In order to review the banking supervisory system, RBI established a working group in 1995. S Padmanabhan served as the committee's chairman. The committee put control measures into place for the inspection cycle starting in July 1998. On the basis of the international Camels rating model, it was advised that the banks be graded on a five-point scale (A to E) (Table 1). The following six factors are used by Camels rating to evaluate banks:

Rating symbol	Rating Symbol Indicates
A	Bank is sound in every aspect.
B	Bank is fundamentally sound but with moderate weakness.
C	Financial, operational or compliance weaknesses that give cause for supervisory concern.
D	Serious or immoderate finance, operational and managerial weakness that could impair future viability.
E	Critical financial weakness and there is high possibility in the near future.

**Table 1 camels rating**

**a) Capital Adequacy:** Capital Adequacy is determined by the Capital to Risk-Weighted Assets (CRAR) ratio. A strong capital basis boosts depositors' trust.



**b) Asset Quality:** The ratio of nonperforming loans to total loans (GNPA) is one measure of asset quality. The ratio of gross non-performing loans to gross advances is a better indicator of the calibre of the bankers' credit judgements. A higher GNPA is a sign of bad credit judgement.

**c) Management:** One metric to gauge how well management is performing is the ratio of non-interest expenses to total assets. This variable indicates the management's policy position and comprises a number of costs, including payroll, workers' compensation, and training expenditures.

**d) Earnings:** The return on asset ratio can be used to calculate it.

**g) Liquidity:** The ratio of cash held by banks and balances with the central bank to total assets measures a bank's liquidity. In general, people see banks as being safer when they have more liquid assets since they can use such assets to cover unforeseen withdrawals.

**f) Systems and Control:** Each of the six parameters listed above has several sub-parameters, each of which is given a different weight on a scale of 1 to 100.

The Camels technique does, however, frequently include inherent subjectivity and ambiguity (Vong, 2009). A review of the accounting data may not always be able to determine whether to award an average or below average score. The 'in-betweens' are more difficult to identify than the 'excellent' and 'poor' indications. This is an ambiguity problem. The second issue of subjectivity, however, arises when bank inspectors are required to make a decision. As a result, these ratings may reflect varying levels of expectations and viewpoints.

### Criterion for Evaluation

The performance of banks can be measured and compared more precisely, objectively, and consistently using Earning Ability, Asset Quality, Growth, Liquidity, Equity, and Strategy.

**a) Earning Ability:** Three metrics—Return on Assets (ROA), Return on Net Worth (RONW), and Income to Overhead Ratio (IOR)—demonstrate a company's earning capacity. The IOR is significant because, typically, although overhead costs are significantly impacted by internal staffing, income is determined by pressures of the external market. Therefore, the bank must understand how to modify staffing based on the market's demand for its goods and services.

**b) Asset Quality:** This is best assessed by the proportion of bad and questionable debts to total loans, or the level of bad debt provisions. The amount of assistance must be on the high side rather than the low, according to a conservative viewpoint.

**c) Growth:** The most significant indicators of how a bank seeks to position itself in the market are growth rates of core deposits and loans. An aim to raise interest margins is indicated by a loan book that is growing quickly without a matching increase in the deposit base. The bank experiences low interest margins when deposit growth increases without a matching increase in lending.

**d) Liquidity:** The ability of a bank to have enough cash on hand to cover demands for loans, withdrawals from deposits, and operational costs is known as liquidity. A bank must maintain balance between the volume of loans granted and the number of deposits collected. The deposit to loan ratio serves as the indicator. The investment deposit ratio is another useful tool for gauging liquidity.

**e) Equity:** The bank's equity position and capital sufficiency both play a significant role. The RBI has stated a comfort zone of 10-12% of overall Capital Adequacy Ratio (CAR) for banks in India, in addition to the international standard (Basel II) that requires a bank to have a minimum capital equivalent to 8% of risk-adjusted asset.

**f) Strategy:** The Strategic Response Quotient (SRQ), a measure of how well a bank's strategy is managed, provides this information. It evaluates the management's capacity to manage operating costs through lending, deposit collection, and fee-based income. The bank's strategy will determine the proper balance for the three major banking activities. By dividing the interest margin by net operating cost, or total operating costs less fee income, the SRQ is calculated. The better the number when combined with superior risk controls.

For a thorough review, each of the six parameters has been further broken down into sub-parameters. The Eagles model does not use grades or ratings since, unlike Camels, it is only based on arithmetical ratios. Eagle thus lacks subjectivity, and banks are evaluated solely on their ratios, which are then ranked from highest to lowest based on these factors.

The sub-parameters are listed from highest to lowest for each bank. The bank with the greatest ranking in that particular parameter will be the one with the most rankings across all sub-parameters. When all the parameters are added together, the bank with the greatest ranking across the most parameters comes out on top.

Why is the Eagles technique more effective when evaluating performance? Eagles can more accurately, objectively, and consistently assess and evaluate banks' performance. In light of this, the current research makes an effort to use the Eagles model to analyse the financial performance of a Indian banks from the public, private and foreign banks.



## LITERATURE REVIEW:

In his study, John Vong, the creator of the Eagles model, examined the Camels model's parameters and overall rating and came to the conclusion that it suffers from subjectivity, indeterminacy, and even inconsistency (Nong, 2009). Then he developed the Eagles model, which can more precisely, objectively, and consistently measure and compare banks' performance.

Two significant Thai banks that were displaying difficulty were named by the author. They used the Eagles standard to evaluate the banking sectors' performance in three Asian nations and provided insight into why Malaysia is in a better position in the area of financial instability. The author came to the conclusion that the Eagles model can recognize warning signs of trouble as well as systems of things going wrong (Vong, 1998). In his study from 2003, Nagarajan used the Eagles model to evaluate the rural banks in the Philippines. The Rural Bankers Association of the Philippines implemented the Microenterprise Access to Banking Services (MABS) programme. The program's goals are to create a rating system that can be used to monitor MABS regularly, develop an information database to aid in the development of performance standards, and provide a management tool for rural banks.

Using the Eagles model, Kothari and Doshi (2012) examined the performance of private sector banks between 2008 and 2011. They used the Eagles model to analyse each bank separately.

In order to identify merger partners who might optimize the critical performance parameters in the Eagles framework, Balachandher (2015) devised a quantitative technique employing Operations Research (OR) strategies. In this way, the transportation algorithm generates a workable preliminary selection of merging partners that might later be exposed to more stringent qualitative issues before the final decision is made.

There haven't been many research comparing the Camels and Eagles models. Most of the researchers came to the conclusion that the Eagles technique is a superior method for evaluating bank performance.

In their work, Vong and Song (2015) used various models to analyse the performance of the banks. The Eagles model, which the authors judged to be the best overall, can assess bank performance using just a few parameters.

In this study, Vaidya (2013) looked at 17 banks to assess how well they performed using the Camels and Eagles models. According to the author's analysis of Camels model, the 17 banks could not rank among the top-10 institutions in either grade. Under the Camels rating, the banks with a negative capital adequacy ratio and an extremely low ROA were placed last. The banks with the highest percentage of nonperforming loans and the lowest ROA were ranked lowest under the Eagles rating.

In their study, Girish and Reddy (2011), used the Eagles model to analyse the performance of private sector banks over the course of two years, namely 2009–2010 and 2010–2011. Lakshmi Vilas Bank, Karur Vysya Bank, and City Union Bank were discovered to be performing well in comparison to other banks based on all the components of the Eagles model. The balance sheet of Karur Vysya Bank displayed the strongest growth, as well as solid asset quality and managed cost ratios. City Union Bank has a strong balance sheet expansion with great asset quality, one of the top return ratios in the business, and good strategic balancing by the management. Lakshmi Vilas Bank has significantly improved over the past few years, with strong balance sheet expansion, a decrease in cost ratios, high liquidity, and a management style that has produced favourable return ratios.

## OBJECTIVES:

The main objectives of the study are as:

- Examine the financial performance of banks.
- Comparing the financial results of a few chosen institutions.
- Make recommendations to improve the financial performance of banks.

For the purpose of the study, the following hypotheses were formulated:

H0: There is no significant difference between selected banks.

H1: There is significant difference between selected banks.

## Data and Methodology

Ratio-based model for assessing banks' performance. It is a management tool that assesses strategy, growth, liquidity, asset quality, and earnings. The study uses a descriptive and analytical approach.

The current analysis is based on secondary data that was gathered from the annual reports, websites of the relevant banks, periodicals, journals, and other public information between 2012–2013 and 2021–2022. In the study, thirteen variables are used. Arithmetic mean, standard deviation, coefficient of variation, and t-test are employed as statistical tools for the analysis and interpretation of the results. The hypotheses are examined using the t-test. It establishes the size of the major discrepancy between the mean value of particular North Indian banks.



The total assets of the chosen banks are displayed and used to compare and analyse the banks. For the study, the following Eagles' parameters are taken into account: Earnings (ROA, RONW, and IOR), Asset Quality (gross, net, and provision coverage ratios), Asset Growth (loans and deposits), Liquidity (loan-to-deposit and investment-to-deposit ratios), Equity (capital adequacy), and Strategy (interest income to interest cost and non-interest income to non-interest cost ratios) are the key performance indicators for financial institutions.

Sr. No.	Public Sector Banks	Private Sector Banks	Foreign Banks
1.	State Bank Of India	HDFC	Standard Chartered Bank
2.	Punjab National Bank	ICICI	Citi Bank

**Table 2: list of sampled banks**

## RESULTS AND DISCUSSION

### EARNING APPRAISAL:

A bank's ability to sustainably earn a high level of income allows it to increase capital and enhance economic performance. For each company organisation, profitability and failure likelihood are inversely correlated. For the purpose of conducting the performance evaluation, the following ratios have been examined for each of the nationalised commercial banks because the bank is a for-profit organisation:

#### Return on Assets (ROA):

One of the often used metrics for profitability is ROA. Net profit as a percentage of total assets is used to calculate ROA. A bank that has a greater ROA is naturally stronger than one that has a lower ROA. The supervisors also use ROA to choose the PCA trigger and goal ratio.

#### Return on Assets

	SBI	PNB	HDFC	ICICI	STB	CITI
2013	0.90	0.99	1.68	1.55	0.6228	0.7241
2014	0.60	0.6	1.72	1.64	0.3726	0.4073
2015	0.63	0.5	1.73	1.72	-0.3429	1.0043
2016	0.42	-0.59	1.73	1.34	-0.0295	0.8389
2017	0.3	0.18	1.68	1.26	0.1911	-0.359
2018	-0.18	-1.6	1.64	0.77	0.161	0.9434
2019	0.02	-1.28	1.69	0.34	0.3248	0.9979
2020	0.36	0.04	1.71	0.72	0.0952	0.4914
2021	0.45	0.16	1.78	1.31	0.2794	0.9609
2022	0.63	0.26	1.78	1.65	0.264	0.6275
Mean	0.413	-0.074	1.714	1.23	0.19385	0.66367
std dev	0.31436179	0.83059818	0.044272	0.46787938	0.25693529	0.41783238
Cv	0.7611	-11.22	0.025	0.38	1.325	0.6295
Ranks based on CV	2	6	5	4	1	3

**Table 3: source: rbi (reserve bank of india)**

### ANNOVA

	sum of squares	df	mean square	F	sig
Between Groups	22.080	5	4.416	20.475	.000
Within Groups	11.646	54	216		
Total	33.726	59			

HDFC bank stood high at the level of earnings followed by sbi,pnb, icici, standard chartred bank and citi bank respectively. One of the bank has negative average ROA. Private banks are better than public sector banks and foreign banks respectively. There is significant difference among the banks under study.

### RETURN ON NET WORTH

It measures the rate of return on the capital invested by shareholders. It is a ratio of the company's net worth to profit after taxes. It shows the bank's capacity to return shareholders' capital to them in the form of income. RONW and bank profitability are inversely correlated.



### Return on Net Worth

	SBI	PNB	HDFC	ICICI	STB	CITI
2013	14.26	15.2	18.6	12.5	8.9665	6.8287
2014	9.20	9.69	19.5	13.4	5.7876	3.7291
2015	10.20	8.12	16.5	13.9	-4.526	8.4245
2016	6.89	-11.2	16.9	11.2	-0.392	7.2662
2017	6.69	3.47	16.3	10.1	2.4475	-3.6328
2018	-3.37	-32.9	16.5	6.63	2.2025	10.1269
2019	0.39	-24.2	14.1	3.19	4.6189	11.0652
2020	6.95	0.58	15.35	6.99	1.4804	6.146
2021	8.86	2.41	15.27	11.21	4.3943	11.9874
2022	12.33	3.90	15.39	13.97	4.00	8.294
Mean	7.24	-2.493	16.441	10.309	13.37423	7.02352
std dev	5.27488599	15.4761659	1.612544	3.61375905	3.65494233	4.46542722
Cv	0.7285	-6.2	0.098	0.35	0.273	0.538
Ranks based on cv	1	6	5	3	4	2

Table 4: source: rbi (reserve bank of india)

### ANNOVA

	sum of squares	df	mean square	F	Sig
Between Groups	2101.890	5	420.378	8.064	.000
Within Groups	2815.034	54	52.130		
Total	4916.924	59			

Again HDFC bank has the highest average return on net worth of 16.44% followed by SBI, PNB, ICICI, Standard Chartered Bank, Citi Bank during the period of study. Excepting PNB all the other banks have positive average return on net worth. There is significant difference among the banks under study.

### Income To Overhead Ratio

The efficiency of the bank is also demonstrated by the Income to Overheads ratio (IOR). The income to overhead ratio measures the effectiveness of a bank's management by dividing operating costs by total income less interest expenses.

#### Income to overhead ratio

	SBI	PNB	HDFC	ICICI	STB	CITI
2013	4.63	5.64	1.19	1.21	0.12	1.02
2014	4.33	5.11	1.21	1.22	0.13	1.1
2015	4.52	4.97	1.22	1.22	0.11	0.76
2016	4.59	5.44	1.17	1.17	0.12	0.71
2017	4.53	5.99	1.15	1.15	0.12	0.72
2018	4.42	4.21	1.64	1.26	0.15	0.75
2019	3.99	5.08	1.69	0.77	0.28	1.11
2020	4.28	5.38	1.71	1.35	0.24	1.31
2021	4.65	4.78	1.78	1.54	0.26	0.74
2022	4.88	5.20	2.08	1.98	0.29	1.21
Mean	4.482	5.18	1.484	1.287	0.182	0.943
std dev	0.2435296	0.48712307	0.333673	0.30976873	0.07539525	0.23103872
Cv	0.054	0.094	0.22	0.24	0.414	0.245
Ranks based on cv	6	5	4	3	1	2

Table 5: source: rbi (reserve bank of india)

### ANNOVA

	sum of squares	df	mean square	f	sig
Between Groups	208.210	5	41.642	299.507	.000
Within Groups	7.508	54	.139		
Total	215.718	59			





The highest average income to overhead ratio is 5.18 is attained by PNB. The average income of another selected bank varies from the highest average of 4.48 times to the lowest average of 0.182 times of overhead expenses. There is significant difference among the banks under study.

#### ASSET QUALITY ANALYSIS:

Assets of high calibre are those that can produce the most value with the least amount of risk. The primary difficulty facing the Indian banking industry continues to be the need to preserve high-quality assets. The propensity for banks to collect low-quality assets is one of the main obstacles to their ability to compete effectively. A high-quality asset is a sign of competent credit administration, which includes standard credit evaluation, effective follow-up, and effective loan recovery. The incidence of the quantity of NPAs in relation to the whole portfolio is the only reliable indication of the asset quality. A high percentage of NPAs indicates that banks' assets are of poor quality, which has major implications for both their present and future profitability. Since banks are required to make provisions for the classification of NPAs, a sizable amount of money is stuck in loans due to their failure to be recovered on time. It is anticipated that banks with adequate credit risk management procedures will have fewer NPAs. To evaluate the quality of assets in banks, a variety of asset quality ratios have been utilised.

#### Gross NPA:

According to RBI criteria as of the balance sheet date, they represent the total amount of all loan assets that have been designated as NPAs. Gross NPA is a good indicator of the calibre of bank loans. It consists of all non-standard assets, such as loss, dubious, and substandard assets. The calculation is as follows:

Gross NPAs = Gross NPA's/Gross Advances Ratio

#### Gross NPA

	SBI	PNB	HDFC	ICICI	STB	CITI
2013	5	4	1	0	0.6	1.13
2014	5	5	1	0	0.8	1.81
2015	4	7	1	4	0.9	1.86
2016	7	13	1	6	0.14	2.41
2017	7	13	1	9	0.10	2.83
2018	10.91	18	1	10	0.12	3.03
2019	7.53	16	1	7	0.91	2.95
2020	6.15	14	1	6	0.63	4.09
2021	4.98	14	1	5	0.7	5.11
2022	3.97	12	1	4	0.66	4.70
Mean	6.154	12	1	5.1	0.556	2.992
std dev	2.09219821	4.69515116	0	3.3149493	0.3185453	1.29625786
Cv	0.339	0.391	0	0.649	0.572	0.433
Ranks based on cv	5	4	6	1	2	3

Table 6: source: rbi (reserve bank of india)

#### ANNOVA

	sum of squares	df	mean square	f	Sig
Between Groups	821.582	5	164.316	24.195	.000
Within Groups	366.729	54	6.791		
Total	1188.311	59			

Standard chartered bank has shown the lowest average gross NPA 0.55% during the study. It is followed by other banks in the min- max of 1% and 12%. Hence there is significant difference among the banks under study.

#### Net NPA:

A low net NPA ratio, like the gross NPA ratio, is a sign of good credit risk management and solid assets. The net NPA reveals the banks' true financial load.



#### Net NPA

	SBI	PNB	HDFC	ICICI	STB	CITI
2013	2	2	0	1	1.63	0.63
2014	3	3	0	1	0.45	1.23
2015	2	4	0	2	0.34	1.30
2016	4	9	0	3	1.07	1.53
2017	4	8	0	5	0.18	1.71
2018	5.73	11	0	5	0.58	1.70
2019	3	7	0	2	0.00	1.81
2020	2.23	6	0	1	1.00	2.29
2021	1.50	6	0	1	0.00	2.97
2022	1.02	5	0	2	1.00	2.95
Mean	2.848	6.1	0	2.3	0.625	1.812
std dev	1.41363047	2.76686746	0	1.56702124	0.55070409	0.74273967
Cv	0.496	0.453	0	0.68	0.881	0.409
Ranks based on cv	3	4	6	2	1	5

Table 7: source: rbi (reserve bank of india)

#### ANNOVA

	sum of squares	df	mean square	f	Sig
Between Groups	233.094	5	46.619	22.052	.000
Within Groups	114.158	54	2.114		
Total	347.251	59			

HDFC bank has put itself at zero level of average NET NPAs as compared to another banks from 6.1% to 0.625%. Hence there is significant difference among the banks under study.

#### Provision Coverage Ratio:

PCR aids banks in fulfilling their financial commitments. In general, the bank will be better able to fulfil its future obligations if the coverage ratio is higher. The cumulative provision balances of the banks on a given date to cross gross NPAs is the important relationship in analysing the asset quality of the bank. It is a metric that shows how much protection the bank has against the troubled portion of its loan portfolio.

Provision Coverage ratio = Cumulative Provisions/Gross NPAs

#### Provision Coverage Ratio

	SBI	PNB	HDFC	ICICI	STB	CITI
2013	0.21	0.45	0.71	0.18	0.50	0.69
2014	0.25	0.35	0.53	0.24	0.64	0.57
2015	0.34	0.31	0.6	0.25	0.42	0.54
2016	0.3	0.32	0.62	0.44	0.36	0.45
2017	0.32	0.22	0.61	0.32	0.30	0.44
2018	0.33	0.34	0.68	0.32	0.26	0.48
2019	0.31	0.36	0.67	0.43	0.29	0.32
2020	0.28	0.19	0.55	0.75	0.59	0.53
2021	0.34	0.18	0.53	0.77	0.56	0.41
2022	0.21	0.17	0.93	0.79	1.29	0.31
Mean	0.289	0.289	0.643	0.449	0.521	0.474
std dev	0.04998889	0.00.0938616	0.118608	0.23553485	0.30160497	0.11539305
Cv	0.172	0.032	0.184	0.524	0.578	0.243
Ranks based on cv	5	6	4	2	1	3

Table 8: source: rbi (reserve bank of india)



## ANNOVA

	Sum of squares	df	mean square	F	sig
Between Groups	.985	5	.197	6.546	.000
Within Groups	1.626	54	.030		
Total	2.611	59			

Cumulative provisions of HDFC bank has an average 0.643% of Gross NPA. The cumulative provisions of another banks are not more than 0.52%. Hence there is significant difference among the banks under study.

## GROWTH:

The most significant measures of how a bank intends to position itself in the market are growth rates of core deposits and loans.

## Loan Ratio:

The most effective rate of return on the bank's investment is through loans. Higher loan growth suggests that the bank can make more money. Due to an increase in the percentage of disbursements over the study period in absolute terms, it has been found that loan growth has decreased for all of the examined banks.

## Loan Ratio

	SBI	PNB	HDFC	ICICI	STB	CITI
2013	0.26	0.05	0.22	0.14	0.48	0.68
2014	0.15	0.13	0.26	0.16	0.48	0.71
2015	0.07	0.08	0.2	0.14	0.48	0.68
2016	0.12	0.08	0.27	0.12	0.49	0.67
2017	0.07	0.01	0.19	0.06	0.50	0.69
2018	0.23	0.03	0.18	0.17	0.57	0.67
2019	0.12	0.07	0.24	0.14	0.49	0.65
2020	0.20	0.04	0.22	0.17	0.52	0.67
2021	0.18	0.06	0.27	0.16	0.55	0.68
2022	0.24	0.05	0.30	0.19	0.58	0.69
Mean	0.164	0.06	0.235	0.145	0.514	0.679
std dev	0.06883152	0.03299832	0.039511	0.03597839	0.03893014	0.01595131
Cv	0.419	0.54	0.16	0.24	0.25	0.0234
Ranks based on cv	2	1	5	4	3	6

Table 9: source: rbi (reserve bank of india)

## ANNOVA

	sum of squares	df	mean square	f	sig
Between Groups	2.786	5	.557	122.544	.000
Within Groups	.246	54	.005		
Total	3.032	59			

During the study period average loan ratio of citi bank (67%) and standard chartered bank (51%) is more than HDFC, ICICI, SBI and PNB banks. It has shown the firced nature of banks in increasing the profitability. With respect to this ratio there is significant difference among the banks under study

## DEPOSITS:

Deposits are the sums that depositors provide to banks in the form of certificates of deposit, savings deposits, and fixed deposits in exchange for interest payments.





### Deposits Ratio

	SBI	PNB	HDFC	ICICI	STB	CITI
2013	0.86	-3.19	20.1	14.5	0.51	7.19
2014	0.86	-11	24	13.4	0.55	6.10
2015	0.82	-9.34	22.7	8.93	0.55	5.59
2016	0.83	-9.96	21.2	16.6	0.57	4.31
2017	0.79	-13.3	17.8	16.3	0.55	10.19
2018	0.71	-3.05	22.5	14.5	0.60	12.87
2019	0.75	-17.6	17	16.4	0.55	13.00
2020	0.71	-11.05	19.0	15.4	0.60	12.54
2021	0.66	-12.02	20.4	16.9	0.64	10.57
2022	0.67	-9.95	22.1	16.3	0.60	11.67
Mean	0.766	-10.046	20.68	14.923	0.572	9.403
std dev	0.0761869	4.34524056	2.255265	2.39247919	0.03765339	3.30327464
Cv	0.099	0.43	0.1	0.16	0.065	0.351
Ranks based on cv	4	6	3	2	5	1

Table 10: source: rbi (reserve bank of india)

### ANNOVA

	sum of squares	df	mean square	f	Sig
Between Groups	5980.157	5	1196.031	108.450	.000
Within Groups	595.535	54	11.028		
Total	6575.691	59			

This study has shown the results that HDFC bank has gained highest average amount i.e 20 cr. It is followed by the another selected banks. Hence there is significant difference among the banks under study.

### LIQUIDITY ANALYSIS:

One of the crucial duties of a bank's treasury department is managing liquidity in order to satisfy various funding demands. A bank must keep highly liquid assets in an amount sufficient to cover deposits, withdrawals, and valid loan requests. In Table-19, the various liquidity goals are listed.

### OBJECTIVES OF LIQUIDITY

1	Deposit Liquidity	To honour depositors for funds.
2	Protective Liquidity	To protect the bank against scale of creditworthy assets in adverse market scenario in case of emergency need of funds.
3	Portfolio Liquidity	Maintenance of additional funds to meet additional demand for loan. Tracking the assets and liabilities maturity profile for marking cash inflow and cash outflows.
4	Regulatory Liquidity	To accomplish 25% SLR requirements as per RBI's guideline.

Table 11: source international monetary fund

The main tool for assessing a bank's liquidity condition is the liquidity ratio. Since liabilities are unpredictable, there is no widely accepted liquidity ratio in the banking industry. Liabilities for non-financial companies have set maturities, although a significant share of bank liabilities are repayable on demand. The following ratios are used to evaluate banks' liquidity positions:

### Loan To Deposit Ratio:

The ratio of loans to deposits shows how much of the bank's available resources have already been spent to meet clients' credit needs. The assumption is that the bank's capacity to provide new loans would decline as the ratio increased. Therefore, a larger score denotes a greater level of liquidity vulnerability. When a bank has a high loan deposit ratio, it means that loans make up a sizable amount of its earning assets while securities make up a smaller portion. The loan deposit ratio affects the management of the bank psychologically. Lending becomes increasingly cautious and selective as the ratio rises. The ratio aids bank management in determining the maximum amount of loans a bank can make without resorting to more or less continuous borrowing. Every commercial bank is required to keep a 25% SLR, which has an additional impact on the bank's ability to lend money.

Loans to deposits ratio = Total Loans/Total Deposits



### Loan To Deposit Ratio

	SBI	PNB	HDFC	ICICI	STB	CITI
2013	0.85	0.49	0.86	0.99	0.99	0.78
2014	0.85	0.63	0.82	1.02	0.94	0.72
2015	0.82	0.75	0.81	1.07	0.93	0.68
2016	0.82	0.91	0.85	1.03	0.88	0.61
2017	0.72	0.67	0.86	0.94	0.85	0.52
2018	0.71	0.67	0.83	0.91	0.52	0.49
2019	0.75	0.67	0.88	0.89	0.56	0.66
2020	0.71	0.67	0.86	0.83	0.47	0.72
2021	0.66	0.60	0.84	0.78	0.50	0.59
2022	0.80	0.69	0.85	0.80	0.59	0.62
Mean	0.769	0.69	0.846	0.926	0.723	0.639
std dev	0.06740425	0.10700467	0.042374	0.10145607	0.21113713	0.09134185
Cv	0.087	0.155	0.05	0.1095	0.29	0.142
Ranks based on cv	5	2	6	4	1	3

Table 12: source: rbi (reserve bank of india)

### ANNOVA

	sum of squares	df	mean square	f	Sig
Between Groups	.683	5	.137	11.980	.000
Within Groups	.616	54	.011		
Total	1.299	59			

ICICI bank has given the largest amount of its average deposit as a loan by taking risk in aggressive nature. The average loan to deposits ratio of sbi 76%, pnb 69%, hdfc 84%, standard chartered 72%, and citi bank 63%. Hence there is significant difference among the banks under study.

### EQUITY:

The bank is significantly impacted by equity levels and capital adequacy.

### Capital Adequacy Ratio

The most frequently used indicator of a bank's soundness is the capital adequacy ratio, or capital to risk weighted assets. It displays the bank's resilience to shocks in the case of unfavourable developments. The Basel Agreement of 1988 significantly contributed to financial stability and competitive equality among various institutions. Commercial banks are under more pressure than ever to raise capital from various sources and minimise their exposure to assets with greater risk weightages without sacrificing their ability to earn money. In the years following the reform, commercial banks' overall capital situation has significantly improved.

	SBI	PNB	HDFC	ICICI	STB	CITI
2013	13	13	17	19	10.45	14.81
2014	13	12	16	1	10.52	15.35
2015	12	13	17	17	11.84	14.18
2016	13	11	16	17	12.36	14.85
2017	13	12	15	17	13.43	16.71
2018	13	9	15	18	15.22	16.32
2019	13	10	17	17	14.50	15.68
2020	13	14	17.53	16	13.20	14.85
2021	13	14	19.12	19	12.46	15.55
2022	13	14	18.54	19	13.67	16.80
Mean	12.9	12.2	16.819	34	12.765	15.51
std dev	0.31622777	1.75119007	1.367044	5.3748385	1.56345948	0.87853413
Cv	0.024	0.143	0.081	0.05	0.122	0.056
Ranks based on cv	6	1	3	5	2	4

Table 13: source: rbi (reserve bank of india)



#### ANNOVA

	sum of squares	df	mean square	F	Sig
Between Groups	165.484	5	33.097	4.926	.001
Within Groups	362.780	54	6.718		
Total	528.263	59			

The average ratio of capital adequacy of banks under the study from 34% to 12%. This shows that there is significant difference among the banks under study.

#### STRATEGY:

This establishes the management's range of options for influencing income and balance sheet growth. There are two ratios in strategy: interest and non-interest. Understanding the bank's ability to re-price its assets in line with liabilities and pass along the increases in interest costs to its customers is made easier by looking at interest revenue on interest costs. The amount that a bank spends to generate non-interest income is expressed as non-interest income on non-interest cost. Ideal would be for the ratio to be greater than 1.

The Strategic Response Quotient (SRQ), which measures how well a bank strategy is managed, provides this information. It evaluates management's capacity for direction, deposit collection, fee-based income generation, and cost control. The bank's strategy will determine how the three primary banking activities should be balanced. By dividing the interest margin by net operating cost (operating cost minus free revenue), the SRQ is calculated. A higher number is preferable when accompanied with superior risk management.

#### Interest Income / Interest Cost

A higher interest income/interest cost (II/IC) ratio means that the growth of interest income has outpaced the growth of interest costs. The bank has been able to lower the age of its assets relative to liabilities by controlling its cost of deposits, growing its loan book more quickly to generate more interest revenue, or increasing its return on advances more quickly than its cost of deposits.

	SBI	PNB	HDFC	ICICI	STB	CITI
2013	1.58	1.54	1.82	1.52	1.07	6.94
2014	1.56	1.59	1.81	1.59	0.60	6.73
2015	1.56	1.55	1.85	1.63	-3.24	7.20
2016	1.53	1.47	1.84	1.67	9.22	7.30
2017	1.54	1.46	1.91	1.67	4.6	6.91
2018	1.51	1.45	1.99	6.68	5.41	6.71
2019	1.57	1.5	1.95	6.90	6.67	7.23
2020	1.52	1.45	1.90	7.27	5.85	7.35
2021	1.54	1.40	1.85	6.81	6.90	7.45
2022	1.58	1.55	1.95	6.55	6.50	6.96
Mean	1.549	1.496	1.887	4.229	4.358	7.078
std dev	0.02469818	0.05966574	0.062013	2.76069013	3.74297505	0.26190753
Cv	0.015	0.039	0.032	0.65	0.858	0.037
Ranks based on cv	6	3	5	2	1	4

Table 14: source: rbi (reserve bank of india)

#### ANNOVA

	sum of squares	df	mean square	F	Sig
Between Groups	240.459	5	48.092	13.012	.000
Within Groups	199.580	54	3.696		
Total	440.039	59			

The average interest income of CITI bank is the highest as compare to another banks under study. This shows that there is significant difference among the banks under study.

#### Non Interest Income/ Non Interest Cost

The ratio Non-Interest Income/Non-Interest Cost (NII/NIC) reflects management's capacity to generate NII at a reasonable cost. This ratio should ideally be greater than 1, which shows that the bank has been able to generate more NII at a stable cost of doing business. Due to the stalling of other incomes and the rise in



operational costs, which causes larger cost to income ratios, none of the banks have demonstrated that this ratio is higher than 1.

	SBI	PNB	HDFC	ICICI	STB	CITI
2013	0.34	0.29	0.42	0.6	2.33	1.56
2014	0.32	0.26	0.44	0.61	2.51	2.20
2015	0.35	0.3	0.42	0.6	2.52	2.35
2016	0.37	0.26	0.41	0.57	1.52	2.16
2017	0.4	0.39	0.39	0.62	1.91	2.47
2018	0.35	0.24	0.4	0.51	1.30	2.20
2019	0.2	0.21	0.39	0.38	2.42	2.42
2020	0.32	0.2	0.46	1.60	2.37	2.38
2021	0.33	0.23	0.48	1.63	2.34	2.42
2022	0.35	0.3	0.5	1.41	2.58	2.18
Mean	0.333	0.268	0.431	0.853	2.18	2.234
std dev	0.05250397	0.05553777	0.038137	0.48703297	0.44835502	0.26344723
Cv	0.15766957	0.2072305	0.088485	0.57096479	0.20566744	0.11792625
Ranks based on cv	4	2	6	1	3	5

Table 15: source: rbi (reserve bank of india)

#### ANNOVA

	sum of squares	df	mean square	f	Sig
Between Groups	40.487	5	8.097	68.209	.000
Within Groups	6.411	54	.119		
Total	46.898	59			

Citi bank stood first in earning non interest income among the selected bank during the study period. It is followed by other banks in the range of 2.18 of Standard Chartered Bank to 0.268 of PNB. From the Annova statistics, there is significant difference among the banks under study.

#### CONCLUSION:

In comparison and by evaluating the performance of banks in light of many factors including earnings, the total return on net worth, and deposits. The private sector banks are performing better. HDFC Bank outperforms than other six banks in terms of earnings, return on net worth, capital adequacy, deposits and provision coverage ratio. The findings also demonstrated that HDFC Bank's asset quality was superior because its NPA was lower than others'.

The data also demonstrates that private sector banks like ICICI Bank and HDFC Bank have greater capital adequacy and lending capabilities than other public sector and foreign banks.

The study also shows that public sector banks like PNB and SBI have higher average incomes.

In Nutshell, it is observed that private sector banks i.e HDFC bank are better than other banks. This bank fares in all respects. Under this study HDFC BANK is followed by CITI BANK, ICICI BANK, Punjab National Bank and Standard Chartered Bank respectively. In majority of the parameters, the mean difference is significant at the 0.05 level among the banks under study.

#### LIMITATIONS:

- The study has some limitations because of time and resource limits:
- It is dependent on secondary data, which could have impacted the findings;
- The secondary data was gathered from the annual reports of the relevant banks. It is probable that the data presented in the annual reports was only window dressing and did not accurately represent the state of the institutions.

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