A study on the performance of selected Nationalized Banks with reference to CAMELS Model

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Abstract- The blend of learning and knowledge acquired during my Research Project of the five selected Nationalized Banks is presented in this report. The rationale behind preparing the report is to study the history of selected nationalized banks and to study the overall performance of selected nationalized banks with reference to CAMELS MODEL. This research report starts with the introduction of the topic, history and introduction of the company, research methodology, Data analysis and interpretation, findings, conclusions and suggestions with appendices includes SPSS Input Sheet (Data View and Variable View) and output sheet, etc.

***Key Words*:** Analysis of nationalized banks' performance, CAMEL Model, CAMEL MODEL of Five nationalized banks, CAMEL Model measured the performance of banks, five important factors to analyze the performance of banks, Performance of five nationalized banks, Performance measured with the help of CAMEL MODEL.

INTRODUCTION TO THE TOPIC

(CAMELS MODEL)

CAMEL model of rating was originally developed in the 1970s by the three federal banking supervisors of the U.S (the Federal Reserve, the FDIC and the OCC) as part of the regulators' "Uniform Financial Institutions Rating System", to make available a suitable summary of bank condition at the time of its on-site examination. The banks were analyzed on five different components under the acronym C-A-M-E-L:

C – Capital Adequacy
A – Asset Quality
M – Management Soundness
E – Earnings Capacity and
L – Liquidity

CAPITAL ADEQUACY - C

Capital support of financial institutions facilitates depositors in forming their risk perception about the institutions. Also, it is the key factor for financial managers to maintain adequate levels of capitalization. Moreover, besides captivating unexpected shocks, it signals that the institution will continue to respect its obligations. The most commonly used indicator of capital adequacy is capital to risk weighted assets ratio (CRWA). According to Bank Supervision Regulation Committee (The Basle Committee) of Bank for International Settlements, at least 9 per cent CRWA is mandatory.

ASSET QUALITY- A

An Asset quality determines the wellbeing of financial institutions beside loss of value in the assets. The declining worth of assets, being main source of banking problems, explicitly pour into other areas, as losses are eventually written-off against capital, which eventually depiction the earning capacity of the institution. With these circumstances, the asset quality is gauged in relation to the point and severity of non-performing assets, sufficiency of provisions, recoveries, distribution of assets etc.

MANAGEMENT – M

Management of financial institution is evaluated in requisites of capital adequacy, asset quality, earnings and profitability, liquidity and risk sensitivity ratings. Performance evaluation includes fulfilment with set norms, ability to plan and react to changing conditions, technical competence, leadership and administrative ability.

Sound management is one of the most significant factors after financial institutions' performance. Indicators of quality of management, however, are mainly appropriate to individual institutions, and cannot be easily aggregated across the sector. Moreover, given the qualitative nature of management, it is complicated to judge its soundness just by checking the financial accounts of the banks.

EARNINGS & PROFITABILITY – E

Earnings and profitability, the main source of increase in capital base, is examined with reference to interest rate policies and adequacy of provisioning. In addition, it also helps to maintain present and future operations of the institutions. The single finest indicator used to gauge earning is the Return on Assets (ROA), which is net income after taxes to total asset ratio.

LIQUIDITY – L

A satisfactory liquidity position is a condition, where institution can obtain sufficient funds, either by increasing liabilities or by converting its assets rapidly at a reasonable cost. It is, therefore, generally assessed in terms of overall assets and liability management, as mismatching gives increase to liquidity risk.

Efficient fund management refers to a condition where a spread between rate sensitive assets (RSA) and rate sensitive liabilities (RSL) is maintained. The most frequently used tool to evaluate interest rate exposure is the Gap between RSA and RSL, while liquidity is gauged by liquid to overall asset ratio. At first, solvent financial institutions may be driven toward closure by poor management of short-term liquidity. Indicators should cover funding sources and detain large maturity mismatches.

SENSITIVITY TO MARKET RISK(S)

It refers to the risk that changes in market circumstances could adversely impact earnings and/or capital. Market Risk encompasses exposures connected with changes in interest rates, foreign exchange rates, commodity prices, equity prices, etc. While all of these items are significant, the primary risk in the majority banks is interest rate risk (IRR), which will be the centre of this module. The diversified nature of bank operations makes them exposed to various kinds of financial risks. Sensitivity analysis shows institution's exposure to interest rate risk, foreign exchange volatility and equity price risks (these risks are summed in market risk).

HISTORY OF THE COMPANIES

<u>CANARA BANK:</u>

Tagline: Together we can

Canara Bank is one of the most well-known commercial bank of India. The bank was set up in the year 1906 at Mangalore, Karnataka by a well known personality Mr. Ammembal Subba Rao Pai. Originally, it was founded with the name Canara Bank Hindu Permanent Fund; the fund grew into a limited company as 'Canara Bank Ltd.' in 1910 and became Canara Bank in 1969 after nationalization.

Mr. Ammembal Subba Rao Pai had envisioned the bank to not only offer financial services but also accomplish social causes such as removal of superstitions and ignorance, promotion of habit of saving, providing support to the people in need and develop a sense of humanity among the people.

<u>BANK OF INDIA:</u>

Tagline: Relationships beyond Banking

Bank of India came into existence on 7th September, 1906 by a group of eminent businessmen from Mumbai. The Bank was under private ownership and organizes till July 1969 when it was nationalised along with 13 other banks.

Establishment with one office in Mumbai, with a paid-up capital of Rs.50 lakh and 50 employees, the Bank has made a speedy growth over the years and blossomed into a mighty institution with a well-built national presence and sizable international operations. In business volume, the Bank occupies a premier place among the nationalised banks.

The Bank has over 5000 branches in India extend over all states/ union territories including specialized branches. These branches are guarded through 54 Zonal Offices and 8 NBG Offices. There are 60 branches/ offices and 5 Subsidiaries and 1 joint venture out of the country.

The Bank came away with its maiden public issue in 1997 and go behind on Qualified Institutions Placement in February 2008.

While firmly adhering to a policy of prudence and vigilance, the Bank has been in the forefront of commencing various innovative services and systems. Business has been operated with the successful blend of traditional values and ethics and the most modern infrastructure. The Bank has been the primary among the nationalised banks to set up a fully computerised branch and ATM facility at the Mahalaxmi Branch at Mumbai way back in 1989. The Bank is also a initiator Member of SWIFT in India. It pioneered the beginning of the Health Code System in 1982, for evaluating/ rating its credit portfolio.

<u>BANK OF BARODA:</u>

Tagline: ***India's international bank.***

BoB is an Indian state-owned International banking and financial services corporation headquartered in Vadodara (former known as Baroda) in Gujarat, India.

It is the second leading bank in India, next to State Bank of India. Its headquarters is in Vadodara, company has a corporate office in the Mumbai.

STATE BANK OF INDIA (SBI):

Tagline: Pure Banking Nothing Else.

The evolution of the State Bank of India goes back to the first Decade of the nineteenth century with the establishment of the Bank of Calcutta in Calcutta on 2 June 1806. Three years later on the bank received its charter and was re-designed as the Bank of Bengal (2 January 1809). A sole institution, it was the first joint-stock bank of British India sponsored by the Government of Bengal. The Bank of Bombay (15 April 1840) as well as the Bank of Madras (1 July 1843) followed the Bank of Bengal. These three banks remained at the central of modern banking in India till their amalgamation as the Imperial Bank of India on 27 January 1921.

PUNJAB NATIONAL BANK (PNB):

Tagline: The name you can bank upon.

PNB was established in the year 1894 at Lahore (Currently in Pakistan) as an off-shoot of the Swadeshi Movement. Among the inspired founders was Sardar Dayal Singh Majithia, Lala HarKishen Lal, Lala Lalchand, Shri Kali Prosanna
Roy, Shri E.C. Jessawala, Shri Prabhu Dayal, Bakshi Jaishi Ram,Lala Dholan Dass. With a universal missionary zeal they set about establishing a national bank; the initial one with Indian capital — own, manage and operated by the Indians for the advantage of the Indians. The Lion of Punjab, Lala Lajpat Rai, was dynamically associated with the management of the Bank in its formative years. The Bank made balanced progress right from its inception. It has revealed resilience to tide over many a crisis. It withstood the catastrophe in banking industry of 1913 and the severe depression of the thirties.

It survived the most crucial period in its history — the division of 1947 — when it was uprooted as of its major area of operations. It was the vision of the management that the registered office of the Bank was shifted from Lahore to Delhi in June 1947 — even previous to the announcement of the Partition.

RESEARCH METHODOLOGY

RESEARCH DESIGN

Literature review

For the present study, literature review was done with the aim of understanding the research gap and for identifying research questions.

- **According to Prasuna (2004),** "The study has investigated the performance of 65 Commercial Banks for the period 2003 – 04 by using CAMEL model. The researcher has observed that the Bank customers have tremendously benefitted from the competition among the Banks and have enjoyed improved service quality and innovative products and services at lower cost."
- **According to Bodla & Verma (2006),** "The study has examined the performance of SBI and ICICI through CAMEL model. Data set for the period of 2000-01 to 2004-05 were used for the purpose of the study. With the reference to the Capital Adequacy, it concluded that SBI has an advantage over ICICI. Regarding to assets quality, earning quality and management quality, it can be said that ICICI has an edge upon SBI. Therefore the liquidity position of both banks was sound and did not differ much."
- **According to Sangmi & Nazir (2010),** "The study has evaluated the financial performance of 2 top major banks in the northern India representing the biggest nationalized bank (i.e. Punjab national Bank, PNB) and the biggest private sector bank (i.e. Jamuna and Kashmir Bank, JKB). The results highlighted that the position of the banks under study is sound and satisfactory as far as their capital adequacy, asset quality management capability and liquidity is implicated."

Objectives of the study

- To evaluate the overall performance of selected nationalized banks using CAMELS Model.
- To analyze the Capital Adequacy of the selected nationalized banks.
- To analyze the Asset Quality of the selected nationalized banks.
- To analyze the Management Efficiency of the selected nationalized banks.
- To analyze the Earning capacity of the selected nationalized banks.

- To analyze the Liquidity position of the selected nationalized banks.
- To analyze the sensitivity to market risk of the selected nationalized banks.

Hypotheses of the study

H_{01}: There is no significant impact of Total Investments, Total Assets, Total Deposits and Interest Expenditure on Interest Income of different selected Nationalized Banks in India.

H_{a1}: There is a significant impact of Total Investments, Total Assets, Total Deposits and Interest Expenditure on Interest Income of different selected Nationalized Banks in India.

H_{02}: There is no significant impact of Debt on CAPITAL ADEQUACY of different selected Nationalized Banks in India.

H_{a2}: There is a significant impact of Debt CAPITAL ADEQUACY of different selected Nationalized Banks in India.

H_{03}: There is no significant impact of Total Assets on ASSET QUALITY of different selected Nationalized Banks in India.

H_{a3}: There is a significant impact of Total Assets ASSET QUALITY of different selected Nationalized Banks in India.

H_{04}: There is no significant impact of Total Advances on MANAGEMENT EFFICIENCY of different selected Nationalized Banks in India.

H_{a4}: There is a significant impact of Total Advances MANAGEMENT EFFICIENCY of different selected Nationalized Banks in India.

H_{05}: There is no significant impact of Interest Income on EARNING CAPACITY of different selected Nationalized Banks in India.

H_{a5}: There is a significant impact of Interest Income on EARNING CAPACITY of different selected Nationalized Banks in India.

H_{06}: There is no significant impact of Liquid Assets on LIQUIDITY of different selected Nationalized Banks in India.

H_{a6}: There is a significant impact of Liquid Assets on LIQUIDITY of different selected Nationalized Banks in India.

Research design

The present study is empirical in nature based on descriptive research design to study and examine the overall performance of selected nationalized banks using CAMELS Model. It is a research on secondary data, consisting of the five years' Annual Reports and related information from the company's official website has been undertaken. The survey was conducted under natural (un-manipulated) field conditions.

DATA ANALYSIS AND INTERPRETATION

DESCRIPTIVE RESEARCH

1. **CAPITAL ADEQUACY (C)**

1. DEBT- EQUITY RATIO

Debt to equity ratio is a long term solvency ratio that indicates the soundness of long-term financial policies of a company. It shows the relation between the portion of assets financed by creditors and the portion of assets financed by stockholders. As the debt to equity ratio expresses the relationship between external equity (liabilities) and internal equity (stockholder's equity), it is also known as "external-internal equity ratio".

Borrowings/ (Share Capital + reserves)

Debt- Equity Ratio							
Companies	**2014**	**2015**	**2016**	**2017**	**2018**	**Mean**	**Standard Deviation**
Canara Bank	0.905	0.793	0.832	1.141	1.055	0.945	0.148
Bank Of India	1.574	1.233	1.595	1.238	1.186	1.365	0.201
Bank Of Baroda	0.977	0.845	0.796	0.725	1.393	0.947	0.265
State Bank Of India	1.518	1.516	1.430	1.549	1.602	1.523	0.063
Punjab National Bank	1.533	1.390	1.954	1.004	1.538	1.484	0.341

Mean	1.301	1.155	1.321	1.131	1.355		
Standard Deviation	0.331	0.324	0.500	0.303	0.232		

INTERPRETATION:

The Debt- Equity Ratio of Canara Bank showed a fluctuating trend throughout the study period. It varied between 0.793 in 2015 and 1.141 in 2017, with an average ratio of 0.945, which is quite close to the ideal ratio of 1.1. In the case of Bank of India, the mean ratio was 1.365, ranging from 1.233 in 2015 to 1.595 in 2016. It showed a declining trend till 2015 and thereafter it showed a fluctuating trend. In the case of Bank of Baroda, the mean ratio was 0.947, ranging from 0.725 in 2017 to 1.393 in 2018. It reflected a declining trend till 2017 and then increased in 2018. In the case of State Bank of India, the mean ratio was 1.523, ranging from 1.430 in 2016 to 1.602 in 2018. It showed a declining trend till 2016 and then increasing trend from 2017 to 2018. In the case of Punjab National Bank, the mean ratio was 1.484, ranging from 1.004 in 2017 to 1.954 in 2016. It showed a declining trend till 2015 and then fluctuating trend from 2016 to 2018.

The mean Debt- Equity ratios of Canara Bank, Bank of India, Bank of Baroda, State Bank of India and Punjab National Bank were 0.945, 1.365, 0.947, 1.523, and 1.484, respectively. It implies that creditors and stockholders equally contribute to the assets of the business in all the selected companies. The ratio was the highest in the case of State Bank of India followed by Canara Bank, Bank of India, Bank of Baroda, and Punjab National Bank.

2. **TOTAL ADVANCES TO TOTAL ASSETS RATIO**

This ratio is the ratio of the total advances to total asset.

Total Advances/ Total Asset

Total Advances To Total Assets Ratio							
Companies	**2014**	**2015**	**2016**	**2017**	**2018**	**Mean**	**Standard Deviation**
Canara Bank	0.601	0.591	0.577	0.574	0.605	0.590	0.014
Bank Of India	0.645	0.647	0.586	0.583	0.558	0.604	0.040
Bank Of Baroda	0.597	0.593	0.566	0.545	0.586	0.578	0.022
State Bank Of India	0.659	0.627	0.630	0.551	0.542	0.601	0.052
Punjab National Bank	0.637	0.636	0.626	0.579	0.563	0.608	0.035
Mean	0.628	0.619	0.597	0.566	0.571		
Standard Deviation	0.027	0.025	0.029	0.017	0.025		

INTERPRETATION:

The Total Advances To Total Assets Ratio of Canara Bank showed a declining trend throughout the study period. It varied between 0.590 in 2018 and 0.605 in 2014, with an average ratio of 0.590. In the case of Bank of India, the mean ratio was 0.604, ranging from 0.647 in 2015 to 0.558 in 2018. It showed an increasing trend till 2015 and thereafter it showed a declining trend. In the case of Bank of Baroda, the mean ratio was 0.578, ranging from 0.545 in 2017 to 0.586 in 2018. It reflected a declining trend till 2017 and then increased in 2018. In the case of State Bank of India, the mean ratio was 0.601, ranging from 0.542 in 2018 to 0.659 in 2014. It showed a declining trend till 2015 and then increasing trend 2016 and then again it showed a declining trend till 2018. In the case of Punjab National Bank, the mean ratio was 0.608, ranging from 0.563 in 2018 to 0.637 in 2014. It showed a declining trend throughout the study period.

The mean Total Advances To Total Assets Ratios of Canara Bank, Bank of India, Bank of Baroda, State Bank of India and Punjab National Bank were 0.590, 0.604, 0.578, 0.601 and 0.608, respectively. It implies the banks aggressiveness in lending which eventually results in better profitability in all the selected companies. The ratio was the highest in the case of State Bank of India followed by Canara Bank, Bank of India, Bank of Baroda, and Punjab National Bank.

3. **GOVERNMENT SECURITIES TO TOTAL INVESTMENT RATIO**

Government securities/ total investments

Government Securities To Total Investment Ratio							
Companies	**2014**	**2015**	**2016**	**2017**	**2018**	**Mean**	**Standard Deviation**
Canara Bank	0.809	0.842	0.853	0.856	0.830	0.838	0.019
Bank Of India	0.834	0.834	0.852	0.858	0.850	0.845	0.011
Bank Of Baroda	0.797	0.795	0.800	0.810	0.820	0.804	0.010
State Bank Of India	0.763	0.780	0.801	0.768	0.770	0.776	0.015
Punjab National Bank	0.774	0.814	0.785	0.780	0.758	0.782	0.021
Mean	0.796	0.813	0.818	0.814	0.806		
Standard Deviation	0.028	0.026	0.032	0.042	0.040		

INTERPRETATION:

The Government Securities to Total Investments Ratio of Canara Bank showed a increasing trend till 2017 and then it showed declining trend in 2018. It varied between 0.809 in 2014 and 0.856 in 2017, with an average ratio of 0.838. In the case of Bank of India, the mean ratio was 0.845, ranging from 0.834 in 2014 and 2015 to 0.858 in 2017. It showed a constant trend till 2015 and thereafter it showed an increasing trend and then it showed a declining trend in 2018. In the case of Bank of Baroda, the mean ratio was 0.804, ranging from 0.795 in 2015 to 0.820 in 2018. It reflected a declining trend till 2015 and then increasing trend till 2018. In the case of State Bank of India, the mean ratio was 0.776, ranging from 0.763 in 2014 to 0.801 in 2016. It showed a increasing trend till 2016 and then declining trend in 2017 and then it showed increasing trend till 2018. In the case of Punjab National Bank, the mean ratio was 0.782, ranging from 0.774 in 2014 to 0.814 in 2015. It showed an increasing trend till 2015 and then it showed a declining trend till 2018.

The mean Government Securities to Total Investments ratios of Canara Bank, Bank of India, Bank of Baroda, State Bank of India and Punjab National Bank were 0.838, 0.845, 0.804, 0.776 and 0.782, respectively. It shows the risk taking ability of the bank and It also indicates a bank's strategy as being high profit-high risk or low profits-low risk in all the selected companies. The ratio was the highest in the case of Bank of India followed by Canara Bank, State Bank of India, Bank of Baroda, and Punjab National Bank.

2. **ASSET QUALITY (A)**

The following ratios calculate Asset Quality:

1. **TOTAL INVESTMENTS TO TOTAL ASSETS RATIO:**

Total Investment / Total Assets

Total Investments To Total Assets Ratio							
Companies	**2014**	**2015**	**2016**	**2017**	**2018**	**Mean**	**Standard Deviation**
Canara Bank	0.270	0.272	0.270	0.272	0.249	0.267	0.010
Bank Of India	0.201	0.197	0.199	0.207	0.228	0.206	0.013
Bank Of Baroda	0.181	0.170	0.186	0.196	0.234	0.193	0.025
State Bank Of India	0.242	0.249	0.237	0.298	0.327	0.271	0.040
Punjab National Bank	0.260	0.246	0.232	0.261	0.264	0.253	0.014
Mean	0.231	0.227	0.225	0.247	0.261		
Standard Deviation	0.038	0.042	0.033	0.044	0.040		

INTERPRETATION:

The Total Investments to total assets Ratio of Canara Bank showed a fluctuating trend throughout the study period. It varied between 0.249 in 2018 and 0.272 in 2015 and 2017, with an average ratio of 0.267. In the case of Bank of India, the mean ratio was 0.206, ranging from 0.197 in 2015 to 0.228 in 2018. It showed a declining trend till 2015 and thereafter it showed an increasing trend till 2018. In the case of Bank of Baroda, the mean ratio was 0.193, ranging from 0.170 in 2015 to 0.234 in 2018. It reflected a declining trend till 2015 and then increasing trend till 2018. In the case of State Bank of India, the mean ratio was 0.271, ranging from 0.237 in 2016 to 0.327 in 2018. It showed an increasing trend till 2015 and then declining trend in 2016 and then it showed increasing trend till 2018. In the case of Punjab National Bank, the mean ratio was 0.253, ranging from 0.232 in 2016 to 0.264 in 2018. It showed an declining trend till 2016 and then it showed an increasing trend till 2018.

The mean Government Securities to Total Investments ratios of Canara Bank, Bank of India, Bank of Baroda, State Bank of India and Punjab National Bank were 0.267, 0.206, 0.193, 0.271, and 0.253 respectively. It implies an aggressive bank would have a low investment to asset ratio as a high ratio shows that the bank has very normally kept a high cover of investment to safeguard against the risk of Non-Performing Assets in all the selected companies. The ratio was the highest in the case of State Bank of India followed by Canara Bank, Bank of India, Bank of Baroda, and Punjab National Bank.

2. **PRIORITY SECTOR ADVANCES TO TOTAL ADVANCES RATIO**

Priority sector Advances/ Total Advances

Priority Sector Advances To Total Advances Ratio							
Companies	**2014**	**2015**	**2016**	**2017**	**2018**	**Mean**	**Standard Deviation**
Canara Bank	0.321	0.324	0.384	0.399	0.413	0.368	0.043
Bank Of India	0.208	0.210	0.254	0.259	0.296	0.245	0.037
Bank Of Baroda	0.212	0.223	0.240	0.269	0.262	0.241	0.025
State Bank Of India	0.258	0.252	0.254	0.248	0.229	0.248	0.011
Punjab National Bank	0.329	0.352	0.324	0.314	0.356	0.335	0.018
Mean	0.265	0.272	0.291	0.298	0.311		
Standard Deviation	0.058	0.063	0.062	0.062	0.074		

INTERPRETATION:

The Priority sector advances to total advances ratio of Canara Bank showed an increasing trend till 2018 throughout the study period with an average ratio of 0.368 ranging from 0.321 in 2014 to 0.413 in 2018. In the case of Bank of India, it showed an increasing trend till 2018 throughout the study period with an average ratio of 0.245 ranging from 0.208 in 2014 to 0.296 in 2018. In the case of Bank of Baroda, it showed an increasing trend till 2017 and then it showed a declining trend in 2018 with an average ratio of 0.241 ranging from 0.212 in 2014 and 0.269 in 2017. In the case of State Bank of India, it showed a declining trend till 2015 and then it showed a fluctuating trend till 2018 with an average ratio of 0.248 ranging from 0.229 in 2018 and 0.258 in 2014. In the case of Punjab National Bank, it showed an increasing trend till 2015 and then it showed a fluctuating trend till 2018 with an average ratio of 0.335 ranging from 0.314 in 2017 to 0.356 in 2018.

The mean Priority sector advances to total advances ratios of Canara Bank, Bank of India, Bank of Baroda, State Bank of India and Punjab National Bank were 0.368, 0.245, 0.241, 0.248, and 0.335 respectively. It shows Issuance of advances to the priority sector to secure better adaptation of the banking system to the needs of economic planning in all the selected companies. The ratio was the highest in the case of Canara Bank followed by Bank of India, Bank of Baroda, State Bank of India and Punjab National Bank

3. SECURED ADVANCES TO TOTAL ADVANCES RATIO

Secured advances/ total advances

TABLE: 3

Secured Advances To Total Advances Ratio							
Companies	**2014**	**2015**	**2016**	**2017**	**2018**	**Mean**	**Standard Deviation**
Canara Bank	0.837	0.827	0.860	0.842	0.832	0.840	0.012
Bank Of India	0.822	0.851	0.842	0.814	0.805	0.827	0.019
Bank Of Baroda	0.864	0.876	0.883	0.845	0.821	0.858	0.025
State Bank Of India	0.852	0.823	8.100	0.832	0.808	2.283	3.252
Punjab National Bank	0.940	0.944	0.932	0.884	0.852	0.910	0.041
Mean	0.863	0.864	2.323	0.843	0.824		
Standard Deviation	0.046	0.049	3.229	0.026	0.019		

INTERPRETATION:

The secured advances to total advances Ratio of Canara Bank showed a declining trend till 2015 and then it showed an increasing trend till 2018. It varied between 0.827 in 2015 and 0.860 in 2016, with an average ratio of 0.840. In the case of Bank of India, the mean ratio was 0.827, ranging from 0.805 in 2018 to 0.851 in 2015. It showed an increasing trend till 2015 and thereafter it showed an declining trend till 2018. In the case of Bank of Baroda, the mean ratio was 0.858, ranging from 0821 in 2018 to 0.883 in 2016. It reflected an increasing trend till 2016 and then declining trend till 2018. In the case of State Bank of India, the mean ratio was 2.283, ranging from 0.808 in 2018 to 8.100 in 2016. It showed a declining trend till 2015 and then an increasing trend in 2016 and then declining trend till 2018. In the case of Punjab National Bank, the mean ratio was 0.910, ranging from0.852 in 2018 to 0.944 in 2015. It showed an increasing trend till 2015 and then it showed a declining trend till 2018.

The mean Secured Advances to Total Advances ratios of Canara Bank, Bank of India, Bank of Baroda, State Bank of India and Punjab National Bank were 0.840, 0.827, 0.858, 2.283, and 0.910 respectively. It implies that a borrower determine what kind of collateral to bring to the table in order to secure the desired loan amount – and helps minimize a lender's loss exposure when accepting collateral that can fluctuate in value in all the selected companies. The ratio was the highest in the case of State Bank of India followed by Canara Bank, Bank of India, Bank of Baroda, and Punjab National Bank

3. MANAGEMENT EFFICIENCY (M)

The following ratios calculate Management Efficiency:

1. **TOTAL ADVANCES TO TOTAL DEPOSIT RATIO:** This ratio evaluates the efficiency and ability of the banks management in converting the deposits available with the banks (excluding other funds like equity capital, etc.) into high earning advances. Total deposits consist of demand deposits, saving deposits, term deposit and deposit of other bank. Total advances also consist of the receivables.

Total Advance/ Total Deposit

Total Advances To Total Deposit Ratio							
Companies	**2014**	**2015**	**2016**	**2017**	**2018**	**Mean**	**Standard Deviation**
Canara Bank	0.716	0.697	0.677	0.691	0.728	0.702	0.020
Bank Of India	0.779	0.757	0.701	0.679	0.656	0.714	0.052
Bank Of Baroda	0.696	0.691	0.667	0.635	0.721	0.682	0.032
State Bank Of India	0.858	0.824	0.830	0.730	0.720	0.792	0.063
Punjab National Bank	0.794	0.785	0.782	0.674	0.677	0.742	0.061
Mean	0.769	0.751	0.731	0.682	0.700		

Standard Deviation	0.065	0.057	0.071	0.034	0.032		

INTERPRETATION:

The Total Advances to Total Deposits Ratio of Canara Bank showed a declining trend till 2016 and then it showed a fluctuating trend with an average ratio of 0.702, ranging from 0.677 in 2016 and 0.728 in 2018. In the case of Bank of India, the average ratio was 0.712 ranging from 0.656 in 2018 to 0.779 in 2014. It showed a declining trend throughout the study period. In the case of Bank of Baroda, the average ratio was 0.682 ranging from 0.635 in 2017 and 0.721 in 2018. It showed a declining trend till 2017 and an increasing trend in 2018. In the case of State Bank of India, the average ratio was 0.792 ranging from 0.720 in 2018 and 0.858 in 2014. It showed a declining trend throughout the study period. In the case of Punjab National Bank, the average ratio was 0.742 ranging from 0.674 in 2017 and 0.794 in 2014. It showed a declining trend till 2017 and then increasing trend in 2018.

The mean Total Advances to Total Deposits Ratios of Canara Bank, Bank of India, Bank of Baroda, State Bank of India and Punjab National Bank were 0.702, 0.714, 0.682, 0.792 and 0.742 respectively. It implies the efficiency and ability of the banks management in converting the deposits available with the banks (excluding other funds like equity capital, etc.) into high earning advances in all the selected companies. The ratio was the highest in the case of State Bank of India followed by Canara Bank, Bank of India, Bank of Baroda, and Punjab National Bank.

2. **ASSETS TURNOVER RATIO: Total Income/ Total Assets.**

Assets Turnover Ratio							
Companies	**2014**	**2015**	**2016**	**2017**	**2018**	**Mean**	**Standard Deviation**
Canara Bank	0.087	0.087	0.087	0.083	0.077	0.084	0.004
Bank Of India	0.073	0.077	0.074	0.073	0.072	0.074	0.002
Bank Of Baroda	0.068	0.069	0.075	0.073	0.072	0.071	0.003
State Bank Of India	0.095	0.095	0.092	0.087	0.085	0.091	0.005
Punjab National Bank	0.086	0.086	0.081	0.078	0.074	0.081	0.005
Mean	0.082	0.083	0.082	0.079	0.076		
Standard Deviation	0.011	0.010	0.008	0.006	0.005		

INTERPRETATION:

The Assets Turnover Ratio of Canara Bank was constant till 2016 and then it showed a declining trend till 2018 with an average ratio of 0.084 ranging from 0.077 in 2018 to 0.087 in 2014, 2015 and 2016. In the case of Bank of India, the average ratio was 0.074 ranging from 0.072 in 2018 and 0.077 in 2015. It showed an increasing trend till 2015 and then it showed a declining trend till 2018. In the case of Bank of Baroda, the average ratio was 0.071 ranging from 0.068 in 2014 to 0.075 in 2016. It showed an increasing trend till 2016 and then it showed a declining trend till 2018. In the case of State Bank of India, the average ratio was 0.091 ranging from 0.085 in 2018 to 0.095 in 2015. It was constant till 2015 and then it showed declining trend till 2018. In the case of Punjab National Bank, the average ratio was 0.081 ranging from 0.074 in 2018 and 0.086 in 2014.it showed a declining trend throughout the study period.

The mean Assets turnover ratios of Canara Bank, Bank of India, Bank of Baroda, State Bank of India and Punjab National Bank were 0.084, 0.074, 0.071, 0.091 and 0.081 respectively. It implies how rapidly a bank turns over its asset through its income, both interest incomes as well as non-interest income. It evaluates the ability of a bank to utilize its assets to efficiently generate income in all the selected companies. The ratio was the highest in the case of State Bank of India followed by Canara Bank, Bank of India, Bank of Baroda, and Punjab National Bank.

3. DIVERSIFICTION RATIO:

(Total Income - Interest Income) / Total Income.

Diversification Ratio							
Companies	**2014**	**2015**	**2016**	**2017**	**2018**	**Mean**	**Standard Deviation**
Canara Bank	0.095	0.098	0.104	0.159	0.152	0.122	0.031
Bank Of India	0.102	0.089	0.080	0.147	0.132	0.110	0.029
Bank Of Baroda	0.121	0.108	0.116	0.151	0.148	0.129	0.020
State Bank Of India	0.167	0.192	0.187	0.228	0.253	0.205	0.035
Punjab National Bank	0.095	0.113	0.121	0.160	0.154	0.128	0.028
Mean	0.116	0.120	0.122	0.169	0.168		
Standard Deviation	0.030	0.041	0.040	0.033	0.048		

INTERPRETATION:

The diversification ratio of Canara Bank was showing an increasing trend till 2017 and then it was declining in 2018 with an average ratio of 0.122 ranging from 0.095 in 2015 and 0.159 in 2017. In the case of Bank of India, the average ratio was 0.110 ranging from 0.080 in 2016 and 0.147 in 2017. It showed a declining trend till 2016 and then it showed a fluctuating trend. In the case of Bank of Baroda, the average ratio was 0.129 ranging from 0.108 in 2015 to 0.151in 2017. It showed a declining trend till 2015 and then showed a fluctuating trend till 2018. In the case of State Bank of India, the average ratio was 0.205 ranging from 0.167 in 2014 and 0.253 in 2018. It showed an increasing trend throughout the study period. In the case of Punjab National Bank, the average ratio was 0.128 ranging from 0.095 in 2014 to 0.160 in 2017. It showed an increasing trend till 2017 and then it showed a declining trend in 2018.

The mean Diversification ratios of Canara Bank, Bank of India, Bank of Baroda, State Bank of India and Punjab National Bank were 0.122, 0.110, 0.129, 0.205, and 0.128 respectively. It implies the ability of the bank to generate income other than interest income from usual banking activities. A huge proportion of banks income is generated through its lending activities, however at present banks have also started enhancing its income by resorting to activities other than regular banking activities that are called as fee based activities (e.g. fees and commission, trading gains, forex activities etc.) in all the selected companies. The ratio was the highest in the case of State Bank of India followed by Canara Bank, Bank of India, Bank of Baroda, and Punjab National Bank.

4. EARNING CAPACITY (E)

The following ratios calculate Earning Capacity:

1. **NET INTEREST MARGIN TO TOTAL ASSETS RATIO**

Net Interest Margin/ Total Assets

Net Interest Margin To Total Assets Ratio							
Companies	**2014**	**2015**	**2016**	**2017**	**2018**	**Mean**	**Standard Deviation**
Canara Bank	0.018	0.017	0.017	0.017	0.019	0.018	0.001
Bank Of India	0.019	0.018	0.019	0.019	0.017	0.019	0.001
Bank Of Baroda	0.019	0.020	0.020	0.021	0.023	0.020	0.001
State Bank Of India	0.028	0.028	0.027	0.024	0.023	0.026	0.002
Punjab National Bank	0.029	0.027	0.023	0.021	0.020	0.024	0.004
Mean	0.023	0.022	0.021	0.020	0.020		
Standard Deviation	0.006	0.005	0.004	0.003	0.002		

INTERPRETATION:

The net interest margin to total assets ratio of Canara Bank showed a declining trend till 2017 and then it showed an increasing trend in 2018 with an average ratio of 0.018 ranging from 0.017 in 2015, 2016 and 2017 to 0.019 in 2018. In the case of Bank of India, it showed a declining trend till 2015 and it showed a fluctuating trend throughout the study period with an average ratio of 0.019 ranging from 0.017 in 2018 and 0.019 in 2014, 2016 and 2017. In the case of Bank of Baroda, it showed increasing trend throughout the study period with an average ratio of 0.020 ranging from 0.019 in 2014 to 0.023 in 2018. In the case of State Bank of India, it showed a declining trend throughout the study period with an average ratio of 0.026 ranging from 0.023 in 2018 and 0.028 in 2015. In the case of Punjab National Bank, it showed a declining trend throughout the study period with an average ratio of 0.024 ranging from 0.020 in 2018 to 0.029 in 2014.

The mean net interest margin to total assets ratios of Canara Bank, Bank of India, Bank of Baroda, State Bank of India and Punjab National Bank were 0.018, 0.019, 0.020, 0.026 and 0.024 respectively. It implies how well a company is making investment decisions by comparing the income, expenses, and debt of these investments. In other words, this ratio calculates how much money an investment firm or bank is making on its investing operations in all the selected companies. The ratio was the highest in the case of State Bank of India followed by Canara Bank, Bank of India, Bank of Baroda, and Punjab National Bank.

2. **INTEREST INCOME TO TOTAL INCOME RATIO :**

   Interest Income/ Total Income

Interest Income To Total Income Ratio							
Companies	**2014**	**2015**	**2016**	**2017**	**2018**	**Mean**	**Standard Deviation**
Canara Bank	0.905	0.902	0.896	0.841	0.848	0.878	0.031
Bank Of India	0.898	0.911	0.920	0.853	0.868	0.890	0.029
Bank Of Baroda	0.879	0.892	0.884	0.849	0.852	0.871	0.020
State Bank Of India	0.833	0.808	0.813	0.772	0.747	0.795	0.035
Punjab National Bank	0.905	0.887	0.879	0.840	0.846	0.872	0.028
Mean	0.884	0.880	0.878	0.831	0.832		
Standard Deviation	0.030	0.041	0.040	0.033	0.048		

INTERPRETATION:

The interest income to total income ratio of Canara Bank showed a declining trend till 2017 and then it showed an increasing trend in 2018 with an average ratio of 0.878 ranging from 0.841 in 2017 to 0.905 in 2014. In the case of Bank of India, it showed an increasing trend till 2017 and then it showed a declining trend in 2017 and then it showed an increasing trend with an average ratio of 0.890 ranging from 0.853 in 2017 to 0.920 in 2016. In the case of Bank of Baroda, it showed an increasing trend till 2015 and then it showed a fluctuating trend with an average ratio of 0.871 ranging from 0.849 in 2017 and 0.892 in 2015. In the case of State Bank of India, it showed a declining trend till 2015 and then it showed a fluctuating trend throughout the study period with an average ratio of 0.795 ranging from 0.747 in 2018 and 0.833 in 2014. In the case of Punjab National Bank, it showed a declining trend till 2017 and then an increasing trend in 2018 with an average ratio of 0.872 ranging from 0.840 in 2017 and 0.905 in 2014.

The mean interest income to total income ratios of Canara Bank, Bank of India, Bank of Baroda, State Bank of India and Punjab National Bank were 0.878, 0.890, 0.871, 0.795, and 0.872 respectively. It implies the ability of the bank in generating income from its lending. In other words, this ratio calculates the income from lending operations as a percentage of the total income generated by the bank in a year in all the selected companies. The ratio was the highest in the case of Bank of India followed by Canara Bank, State Bank of India, Bank of Baroda, and Punjab National Bank.

3. NON INTEREST INCOME TO TOTAL ASSETS RATIO

Other Income/ Total Income

Non Interest Income To Total Assets Ratio							
Companies	**2014**	**2015**	**2016**	**2017**	**2018**	**Mean**	**Standard Deviation**
Canara Bank	0.008	0.008	0.009	0.013	0.012	0.010	0.002
Bank Of India	0.007	0.007	0.006	0.011	0.010	0.008	0.002
Bank Of Baroda	0.008	0.007	0.009	0.011	0.011	0.009	0.002
State Bank Of India	0.016	0.018	0.017	0.020	0.021	0.018	0.002
Punjab National Bank	0.008	0.010	0.010	0.013	0.011	0.010	0.002
Mean	0.010	0.010	0.010	0.013	0.013		
Standard Deviation	0.003	0.005	0.004	0.004	0.005		

INTERPRETATION:

The non- interest income to total assets ratio of Canara Bank showed an increasing trend till 2017 and then it showed a declining trend in 2018 with an average ratio of 0.010 ranging from 0.008 in 2014 and 2015 to 0.013 in 2017. In the case of Bank of India, it showed a declining trend till 2016 and then it showed an increasing trend in 2017 and then it showed a declining trend with an average ratio of 0.0.008 ranging from 0.006 in 2016 to 0.011 in 2017. In the case of Bank of Baroda, it showed a declining trend till 2015 and then it showed an increasing trend with an average ratio of 0.009 ranging from 0.007 in 2015 and 0.011 in 2017 and 2018. In the case of State Bank of India, it showed an increasing trend till 2015 and then it showed a declining trend in 2016 and then it showed an increasing trend till 2018 with an average ratio of 0.018 ranging from 0.016 in 2014 to 0.021 in 2018. In the case of Punjab National Bank, it showed an increasing trend till 2017 and then a declining trend in 2018 with an average ratio of 0.010 ranging from 0.008 in 2014 and 0.013 in 2017.

The mean non- interest income to total assets ratios of Canara Bank, Bank of India, Bank of Baroda, State Bank of India and Punjab National Bank were 0.010, 0.008, 0.009, 0.018 and 0.010 respectively. It implies the ability of the bank to generate higher fee income through innovative products and adapting the technology for sustained service levels in all the selected companies. The ratio was the highest in the case of State Bank of India followed by Canara Bank, Bank of India, Bank of Baroda, and Punjab National Bank.

5. LIQUIDITY (L)

The following ratios calculate Liquidity:

1. LIQUID ASSETS TO TOTAL ASSETS RATIO:

Liquidity Asset/ Total Asset

Liquid Assets To Total Assets Ratio							
Companies	**2014**	**2015**	**2016**	**2017**	**2018**	**Mean**	**Standard Deviation**
Canara Bank	0.090	0.087	0.101	0.099	0.080	0.091	0.009
Bank Of India	0.107	0.117	0.161	0.153	0.156	0.139	0.025
Bank Of Baroda	0.199	0.207	0.198	0.214	0.130	0.190	0.034
State Bank Of India	0.070	0.070	0.069	0.079	0.054	0.068	0.009
Punjab National Bank	0.082	0.092	0.108	0.125	0.125	0.106	0.020
Mean	0.109	0.114	0.127	0.134	0.109		
Standard Deviation	0.052	0.054	0.052	0.053	0.041		

INTERPRETATION:

The Liquid Assets to Total Assets of Canara Bank showed a declining trend till 2015 and then it showed a fluctuating trend till 2018 with an average ratio of 0.091 ranging from 0.080 in 2018 and 0.101 in 2016. In the case of Bank of India, it showed an increasing trend till 2016 and then it showed a fluctuating trend with an average ratio of 0.139 ranging from 0.107 in 2014 and 0.161 in 2016. In the case of Bank of Baroda, it showed an increasing trend till 2015 and then it showed a fluctuating trend till 2018 with an average ratio of 0.190 ranging from 0.130 in 2018 and 0.214 in 2017. In the case of State Bank of India, it showed a constant trend and then it showed fluctuating trend throughout the study period with an average ratio of 0.068 ranging from 0.054 in 2018 and 0.079 in 2017. In the case of Punjab National Bank, it showed an increasing trend throughout the study period, with an average ratio of 0.106 ranging from 0.082 in 2014 and 0.125 in 2017.

The mean liquid assets to total assets ratios of Canara Bank, Bank of India, Bank of Baroda, State Bank of India and Punjab National Bank were 0.091, 0.139, 0.190, 0.068 and 0.106 respectively. It implies the ability of the bank to ensure its own liquidity under all reasonable situations. Liquid assets consists of cash in hand, balance with the RBI, balance with other banks (both in India and abroad), and money at call and short notice. Total asset comprise the revaluations of all the assets. The proportion of liquid asset to total asset shows the overall liquidity position in all the selected companies. The ratio was the highest in the case of Bank of Baroda followed by Canara Bank, Bank of India, State Bank of India, and Punjab National Bank.

2. CASH TO TOTAL DEPOSITS RATIO **Cash/ Total Deposits.**

Cash To Total Deposits Ratio							
Companies	**2014**	**2015**	**2016**	**2017**	**2018**	**Mean**	**Standard Deviation**
Canara Bank	0.107	0.103	0.118	0.119	0.096	0.108	0.010
Bank Of India	0.129	0.137	0.193	0.178	0.184	0.164	0.029
Bank Of Baroda	0.232	0.241	0.234	0.250	0.160	0.223	0.036
State Bank Of India	0.091	0.092	0.091	0.105	0.072	0.090	0.012
Punjab National Bank	0.102	0.113	0.135	0.145	0.150	0.129	0.021
Mean	0.132	0.137	0.154	0.159	0.132		
Standard Deviation	0.057	0.060	0.058	0.058	0.047		

INTERPRETATION:

The cash to total deposits ratio of Canara Bank showed a declining trend till 2015 and then a fluctuating trend till 2018 with an average ratio of 0.108 ranging from 0.096 in 2018 and 0.119 in 2017. In the case of Bank of India, it showed an increasing trend till 2016 and then it showed a fluctuating trend till 2018 with an average ratio of 0.164 ranging from 0.129 in 2014 and 0.193 in 2016. In the case of Bank of Baroda, it showed an increasing trend till 2015 and then it showed a fluctuating trend till 2018 with an average ratio of 0.223 ranging from 0.160 in 2018 and 0.250 in 2017. In the case of State Bank of India, it showed an increasing trend till 2017 and then it showed a declining trend in 2018 with an average ratio of 0.090 ranging from 0.072 in 2018 and 0.105 in 2017. In the case of Punjab National Bank, it showed an increasing trend throughout the study period with an average ratio of 0.129 ranging from 0.102 in 2014 and 0.150 in 2018.

The mean cash to total deposits ratios of Canara Bank, Bank of India, Bank of Baroda, State Bank of India and Punjab National Bank were 0.108, 0.164, 0.223, 0.090, and 0.129 respectively. It implies the amount of cash that the bank has from the deposits that it has generated. Cash being liquid of all the assets provides the complete picture of the liquidity of the bank. Banks need to preserve sound cash to deposit ratio so as to ensure that large volume of cash is not maintained, as idle cash does not create any returns and will subsequently endanger the earnings quality in all the selected companies. The ratio was the highest in the case of Bank of Baroda followed by Canara Bank, Bank of India, State Bank of India, and Punjab National Bank.

3. **INTEREST EXPANDED TO INTEREST EARNED: Interest Expenditure / Interest Income**

Interest Expanded To Interest Earned							
Companies	**2014**	**2015**	**2016**	**2017**	**2018**	**Mean**	**Standard Deviation**
Canara Bank	0.773	0.779	0.778	0.761	0.704	0.759	0.032
Bank Of India	0.713	0.738	0.719	0.697	0.722	0.718	0.015
Bank Of Baroda	0.682	0.680	0.701	0.665	0.633	0.672	0.025
State Bank Of India	0.643	0.640	0.645	0.647	0.640	0.643	0.003
Punjab National Bank	0.628	0.643	0.676	0.681	0.688	0.663	0.026
Mean	0.688	0.696	0.704	0.690	0.678		
Standard Deviation	0.058	0.061	0.050	0.044	0.039		

INTERPRETATION:

The interest expanded to interest earned ratio of Canara bank showed increasing trend till 2015 and then it showed fluctuating trend till 2018 with an average ratio of 0.759 ranging from 0.704 in 2018 and 0.779 in 2015. In the case of Bank of India, it showed an increasing trend till 2015 and then it showed fluctuating trend till 2018 with an average ratio of 0.718 ranging from 0.697 in 2017 and 0.738 in 2015. In the case of Bank of Baroda, it showed a declining trend till 2015 and then it showed a fluctuating trend throughout the study period with an average ratio of 0.672 ranging from 0.633 in 2018 and 0.701 in 2016. In the case of State Bank of India, it showed an increasing trend till 2017 and then it showed a declining trend in 2018 with an average ratio of 0.643 ranging from 0.640 in 2015 and 0.647 in 2017. In the case of Punjab National Bank, it showed increasing trend throughout the study period with an average ratio of 0.663 ranging from 0.628 in 2014 and 0.688 in 2018.

The mean interest expanded to interest earned ratios of Canara Bank, Bank of India, Bank of Baroda, State Bank of India and Punjab National Bank were 0.759, 0.718, 0.672, 0.643, and 0.663 respectively. It implies the ability of the bank to meet the interest expenditure on deposits from the interest income from advances. It also signifies the apt management of deposits and advances of the bank in all the selected companies. The ratio was the highest in the case of Canara Bank followed by Bank of India, Bank of Baroda, State Bank of India, and Punjab National Bank.

6. SENSITIVITY (S)

The following technique of Gap Analysis (Interest Sensitivity Ratio) calculates sensitivity:

GAP ANALYSIS: GAP Analysis is a tool used to judge a bank's earnings exposure to interest rate movements is called a gap. A bank's gap over a given time period is the difference between the value of its assets that mature or reprice during that period and the value of its liabilities that mature or reprice during that period. If this difference is large (in either a positive or negative direction), then interest rate changes will have large effects on net interest income.

A balanced position would result if the amount of repricing assets were exactly offset by the repricing liabilities (ratio = 1.0). Ratio less than 1.0 indicate a bank that is liability sensitive (liabilities reprice quicker than assets), while a ratio greater than 1.0 indicates that the bank's assets reprice faster than liabilities (asset sensitive).

GAP is the difference between Risk Sensitive Assets and Risk Sensitive Liabilities. Whereas, Risk Sensitive Assets are the sum of Net Advances, Net investments and Money at Call. Risk Sensitive Liabilities are the sum of Deposits and borrowings of the bank.

Risk Sensitive Assets – Risk Sensitive Liabilities

INTEREST SENSITIVITY RATIO

Risk sensitive Assets/ Risk Sensitive Liabilities

Gap Analysis					
Companies	**2014**	**2015**	**2016**	**2017**	**2018**

Canara Bank	115685	959856	682851	857785	388385
Bank Of India	451106	-127904	-176119	-138432	-185361
Bank Of Baroda	237658	227459	140326	146797	141550
State Bank Of India	148131	112288	107112	100169	971748
Punjab National Bank	19520.92	20748.97	9710.32	8739.51	-601.25

Interest Sensitivity Ratio							
Companies	**2014**	**2015**	**2016**	**2017**	**2018**	**MEAN**	**STANDARD DEVIATION**
Canara Bank	1.03	1.02	1.01	1.02	1.01	1.018	0.01
Bank of India	1.01	1	0.97	0.98	0.97	0.986	0.02
Bank of Baroda	1.04	1.03	1.02	1.02	1.02	1.026	0.01
State Bank of India	1.07	1.05	1.04	1.03	1.03	1.044	0.02
Punjab National Bank	1.04	1.04	1.01	1.01	1	1.02	0.02
MEAN	1.04	1.03	1.01	1.01	1.01		
STANDARD DEVIATION	0.02	0.02	0.03	0.02	0.02		

INTERPRETATION:

The interest sensitive ratio of Canara Bank showed a fluctuating trend throughout the study period with an average ratio of 1.018 ranging from 1.01 in 2016 and 1.03 in 2014. In the case of Bank of India, it showed a declining trend till 2017 and then increasing trend in 2018 with an average ratio of 0.986 ranging from 0.97 in 2016 to 1.01 in 2014. In the case of Bank of Baroda, it showed declining trend till 2016 and then constant trend till 2018 with an average ratio of 1.026 ranging from 1.02 in 2016, 2017 and 2018 to 1.04 in 2014. In the case of State Bank of India, it showed declining trend throughout the study period with an average ratio of 1.044 ranging from 1.03 in 2018 to 1.07 in 2014. In the case of Punjab National Bank, it showed a fluctuating trend throughout the study period with n average ratio of 1.02 ranging from 1 in 2018 to 1.04 in 2014 and 2015.

The mean interest expanded to interest earned ratios of Canara Bank, Bank of India, Bank of Baroda, State Bank of India and Punjab National Bank were 1.018, 0.986, 1.026, 1.044 and 1.02 respectively. It implies the company's risk sensitive assets to its risk sensitive liabilities in all the selected companies. The ratio was the highest in the case of State Bank of India followed by Canara Bank, Bank of India, Bank of Baroda, and Punjab National Bank.

REGRESSION ANALYSIS

H_{01}: There is no significant impact of Total Investments, Total Assets, Total Deposits and Interest Expenditure on Interest Income of different selected Nationalized Banks in India.

H_{a1}: There is a significant impact of Total Investments, Total Assets, Total Deposits and Interest Expenditure on Interest Income of different selected Nationalized Banks in India.

Results of Regression Analysis reveal nullification of Null Hypothesis and acceptance of Alternative Hypothesis in certain cases. In other words, it has been observed between some specific dimensions of CAMELS MODEL. Regression Analysis has been carried out involving each of the five components of CAMELS MODEL, taking Interest Income as Dependent Variable and Total Investment, Total Assets, Total Deposits and Interest Expenditure as Independent Variables. The results highlighting only the statistically significant relationship are exhibited in the table below.

In case of this CAMELS MODEL, there are significant p values which are explaining the significance and variation of the some different components of CAMELS MODEL.

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	1.000[a]	.999	.999	20721600.24540

The "**R**" column represents the value of R, the ***multiple correlation coefficients.*** R can be considered to be one measure of the quality of the prediction of the dependent variable. The **"R SQUARE"** column represents the R^2 value, which is the proportion of variance in the dependent variables that can be explained by the independent variables. It is evident from table that for CAMELS MODEL, R^2 value of 0.999 is showing that it is a perfect correlation.

TABLE 2

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	14329088271944172000.000	4	3582272067986042900.000	8342.803	.000[b]
	Residual	8587694334604603.000	20	429384716730230.100		
	Total	14337675966278777000.000	24			

The F- ratio in the **ANOVA** table tests whether the overall regression model is a good fit for the data. The table shows that CAMELS MODEL, the independent variables, Total Investments and Total Assets are not statistically significant as F=, p>0.05 and another independent variables, Total Deposits and Interest Expenditure statistically significantly predict the dependent variable Interest Income as F=, p<0.05 (i.e., the regression model is a good fit of the data) in CAMELS MODEL.

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-22053833.856	7212192.220		-3.058	.006
	Total Investment	.024	.013	.100	1.786	.089
	Total Assets	-.019	.010	-.269	-1.855	.078
	Total Deposits	.075	.016	.621	4.655	.000
	Interest Expenditure	.867	.120	.551	7.232	.000

For testing the statistical significance of each of the independent variables, t- value and corresponding p-value are located in the **"t"** and "sig." Columns which indicate significant relationship between following five components of CAMELS MODEL which includes Capital Adequacy, Asset Quality, Management Efficiency, Earning Capacity, Liquidity and Sensitivity.

ANALYSIS OF VARIANCE (ANOVA): CAPITAL ADEQUACY (C)

$H_{01:}$ There is no significant impact of Debt on CAPITAL ADEQUACY of different selected Nationalized Banks in India.

$H_{a1:}$ There is a significant impact of Debt CAPITAL ADEQUACY of different selected Nationalized Banks in India.

TABLE: Results of ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	236256348106.693	4	59064087026.673	67.074	.000
Within Groups	17611612999.867	20	880580649.993		
Total	253867961106.560	24			

INTERPRETATION:

This is the table that shows the output of ANOVA analysis and whether we have a statistically significant difference between our group means. We can see that in this Parameter of Capital Adequacy, the p- value is less than 0.05 which indicates a statistically significant impact of Debt on different selected Nationalized Banks in India.

ANALYSIS OF VARIANCE (ANOVA): ASSET QUALITY (A)

H_{02}: There is no significant impact of Total Assets on ASSET QUALITY of different selected Nationalized Banks in India.

H_{a2}: There is a significant impact of Total Assets ASSET QUALITY of different selected Nationalized Banks in India.

TABLE: Results of ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	275936807733856830000O.000	4	68984201933464210000O.000	132.098	.000
Within Groups	10444365923406438000O.000	20	5222182961703219200.000		
Total	286381173657263250000O.000	24			

INTERPRETATION:

This is the table that shows the output of ANOVA analysis and whether we have a statistically significant difference between our group means. We can see that in this Parameter of Asset Quality, the p- value is less than 0.05 which indicates a statistically significant impact of Total Assets on different selected Nationalized Banks in India.

ANALYSIS OF VARIANCE (ANOVA): MANAGEMENT EFFICIENCY (M)

H_{03}: There is no significant impact of Total Advances on MANAGEMENT EFFICIENCY of different selected Nationalized Banks in India.

H_{a3}: There is a significant impact of Total Advances MANAGEMENT EFFICIENCY of different selected Nationalized Banks in India.

TABLE: Results of ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	9776499346879844000000.000	4	2444124836719961000000.000	451.193	.000
Within Groups	108340663795190900000.000	20	5417033189759546200.000		
Total	9884840010675035000000.000	24			

INTERPRETATION:

This is the table that shows the output of ANOVA analysis and whether we have a statistically significant difference between our group means. We can see that in this Parameter of Management Efficiency, the p-value is less than 0.05 which indicates a statistically significant impact of Total Advances on different selected Nationalized Banks in India.

ANALYSIS OF VARIANCE (ANOVA): EARNING CAPACITY (E)

H_{04}: There is no significant impact of Interest Income on EARNING CAPACITY of different selected Nationalized Banks in India.

H_{a4}: There is a significant impact of Interest Income on EARNING CAPACITY of different selected Nationalized Banks in India.

TABLE: Results of ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	14211769834409200000.000	4	3552942458602299900.000	564.380	.000
Within Groups	125906131869575104.000	20	6295306593478757.000		
Total	14337675966278775000.000	24			

INTERPRETATION:

This is the table that shows the output of ANOVA analysis and whether we have a statistically significant difference between our group means. We can see that in this Parameter of Earning Capacity, the p- value is less than 0.05 which indicates a statistically significant impact of Interest Income on different selected Nationalized Banks in India.

ANALYSIS OF VARIANCE (ANOVA): LIQUIDITY (L)

H_{05}: There is no significant impact of Liquid Assets on LIQUIDITY of different selected Nationalized Banks in India.

H_{a5}: There is a significant impact of Liquid Assets on LIQUIDITY of different selected Nationalized Banks in India.

TABLE: Results of ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	12405061740206311000.000	4	3101265435051577900.000	63.392	.000
Within Groups	978446977734173440.000	20	48922348886708672.000		
Total	13383508717940484000.000	24			

INTERPRETATION:

This is the table that shows the output of ANOVA analysis and whether we have a statistically significant difference between our group means. We can see that in this Parameter of Liquidity, the p- value is less than 0.05 which indicates a statistically significant impact of Liquid Assets on different selected Nationalized Banks in India.

FINDINGS:

CAMELS Model Overall Rating

1- **Very Good, 2- Good, 3- Average, 4- Poor, 5- Very Poor**

OVERALL RANKING TABLE

Banks	Capital Adequacy	Asset Quality	Management Efficiency	Earnings Capacity	Liquidity	Sensitivity	Average	Overall Rank
Canara Bank	2	3	3	3	2	4	2.83	**3**
Bank Of India	5	1	2	2	3	5	3	**2**
Bank Of Baroda	1	1	1	1	4	2	1.67	**5**
State Bank Of India	3	2	4	4	1	1	2.5	**4**
Punjab National Bank	4	3	4	4	2	3	3.33	**1**

Conclusions:

- It can be concluded that, In the Parameter of **Capital Adequacy**, the p- value is less than 0.05 which indicates a statistically significant impact of Debt on different selected Nationalized Banks in India.
- It can be concluded that, In the Parameter of **Asset Quality**, the p- value is less than 0.05 which indicates a statistically significant impact of Total Assets on different selected Nationalized Banks in India.
- It can be concluded that, In the Parameter of **Management Efficiency**, the p- value is less than 0.05 which indicates a statistically significant impact of Total Advances on different selected Nationalized Banks in India.
- It can be concluded that, In the Parameter of **Earning Capacity**, the p- value is less than 0.05 which indicates a statistically significant impact of Interest Income on different selected Nationalized Banks in India.
- It can be concluded that, In the Parameter of **Liquidity**, the p- value is less than 0.05 which indicates a statistically significant impact of Liquid Assets on different selected Nationalized Banks in India.

Suggestions:

- The findings suggest that, Canara bank has strong performance in case of Sensitivity and it is average in Asset Quality, Management Efficiency and Earning Capacity while it is lag behind in case of Capital Adequacy and Liquidity. Therefore, the policy makers of the related bank should take necessary steps and try to find out solution to improve their weaknesses by using the findings of this study.
- The banks need to lay focus on the Management Efficiencies as management is the only criteria which can manage all the other elements of the performance.
- Bank of India has strong performance in case of Sensitivity and Capital Adequacy, while it is lag behind in all the other components of CAMELS Model. Therefore, the bank should take some steps to find out the cause and to improve it.

- Bank of Baroda at the lowest position compared to other banks under the study due to its poor performance in the context of Capital Adequacy, Asset Quality, Management Efficiency, Earnings Capacity and Sensitivity, whereas it perform better in case of Liquidity. Therefore, Bank of Baroda should improve its position in particular weak areas.

BIOGRAPHY

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ACKNOWLEDGMENTS

F. O. Author thanks **Dr. Ashish Khandelwal** (Associate Professor) and **Dr. Shweta Kastiya** (Senior Assistant Professor), Department of Management Studies, **The IISUniversity,Jaipur.**