A DUPONT ANALYSIS ON SELECTED INDIAN BANKS PERFORMANCE

[1]Dr. S. RAJARAJESWARI, [2]Dr. S. REVATHY, [3]K. SRINIVASAN

[1]Assistant Professor and Head, [2]Associate Professor, [3]Research Scholar
[1]Department of Business Administration,
[1] M.V. Muthiah Govt. Arts College for Women, Dindigul, Tamil Nadu, India.

Abstract: Economy of a country depends on performance of banks. Profitability of bank depends on the how efficiently capital has been utilized and capital availability for banking activities. In today's business environment, financial analysis is considered as one of the most reliable tools to judge the performance of banking sector. This present study investigates the financial performance of selected private and public sector banks in India. It investigates the performance from 2018 to 2023 by adopting the DuPont system. This study finds that HDFC Bank's performance much better in ROE, NIM, ATO and NPM. Axis bank and ICICI Bank among all banks better in Leverage ratio.

Key Words – DuPont, Return on Equity (ROE), Net Profit Margin (NPM), Net Interest Margin (NIM), Asset Turnover Ratio (ATR) and Net Profit Margin (NPM)

I. INTRODUCTION

The banking sector in India is undergoing a incredible shifts, as a result of a boom in digital technologies. Indian banks are heavily investing in digital technologies to stay up with leading global competitors and to appeal to an increasingly digitally literate population. This shift is consistent with the government's ambitious goal of digitizing different elements of people's life, such as social services, transactions, and formal banking.

India's fast expanding digital economy, banks that have lagged in digitization have recognized the urgent need for transformation. The government's expectations are high, putting pressure on banks to adequately service the rising digital population. In an era of ever-changing client preferences, digitization provides chances to improve services, cut costs, and increase customer loyalty in addition to meeting regulatory regulations. This trend is not limited to India; banks around the world are embracing hitherto unorthodox ways to combat the danger of disruption.

The Indian Perspective

With a rise of fintech firms transforming the industry, India's financial services scene has been a hotbed of innovation. This is accompanied by instances of industry convergence as businesses from several sectors explore banking prospects. Over the last decade, India's banks have moved from catching up to adopting global best practices. This puts them in a favourable position to not just compete with but potentially outperform innovative multinational banks. To prosper, Indian banks must actively monitor technological changes and learn from inventive leaders both at home and abroad. This proactive approach will enable Indian banks to maintain their competitive advantage and capitalize on the ever-changing digital banking ecosystem.

Literature Review

Author evaluated the financial performance of Kuwaiti banks from 2012 to 2017 using the modified DuPont system of financial analysis, which is based on the return on equity model. According to the results shown in this study, National Bank of Kuwait ranked first among Kuwaiti banks in terms of the original DuPont model, which considers return on assets (ROA) as the ultimate goal, followed by Ahli United Bank. However, when using the modified DuPont model, Ahli United Bank was the best performer among Kuwaiti banks in terms of return on equity (ROE), followed by National Bank of Kuwait. On the other hand, Warba Bank was the worst performer among all Kuwaiti banks, followed by AlAhli Bank. (Musaed S. AlAli, 2019)

The purpose of this research is to evaluate the financial performance of two significant companies, Bank of Bhutan Limited and Tashi Bank, using the DuPont Analysis and the Bankometer model. According to the conclusions of this investigation, both banks have regularly showed remarkable financial performance and soundness. (Selvi S, 2023)

This research examines the financial health of the banking industry using the DuPont model. It is a secondary data-based study that spans five years, from 2006-07 to 2010-11. In this research, an attempt is made to analyze financial performance using several DuPont model ratios. The ANOVA test was also utilized to examine the significance association between various bank ratios. According to the DuPont model, the PBIDT/Sales (%) ratio is highest in SBI, the Sales/Net Asset ratio is highest in Corporation banks, and the PBIDT/ Net Asset ratio is highest in SBI, Dena Bank, and Corporation Bank. Dena bank has the highest PAT/PBIDT% ratio, Bank of Baroda has the highest net asset/net worth ratio, and SBI has the highest ROE. (Dr. Butalal C. Ajmera, 2012)

The objective of this research is to explore the methodology of gauging financial performance by utilizing financial ratios. The study delves into an analysis of the performance of the commercial banking sector over the period spanning from FY 2017 to FY 2021. During this timeframe, prominent Indian banks, like SBI, PNB, BOI, HDFC, ICICI, and YES Bank, were extracted from various databases. Findings are liquidity ratio is compared it found that SBI has a good ratio. PR(profitability ratio), ATR(asset turnover ratio) Leverage and Dupont analysis that SBI, BOI, HDFC, ICICI has steady level of Total asset turnover which shows us its optimum application of resources (assets) in income creation. HDFC and ICICI have the best PE ratio. The total asset turnover of YES Bank demonstrates that it maintains high assets to cover its obligations. (Michael James, Rahul Sharma, Dr. Amalanathan Paul, 2022)

Research Objectives

1. To examine the financial performance of selective private and public sector banks by using the DuPont model.
2. To evaluate the performance according to the parameter under the DuPont model.

Scope of the Study & Limitations

The present study covers only three public sector banks and three private sector banks which has been operated during the period of 2017-18 to 2022-23. In this article the financial ratios to investigate the Banking performance namely Return on Equity (ROE), Leverage Ratio, Net Interest Margin (NIM), Asset Turnover Ratio (ATO) and Net Profit Margin (NPM). The findings of this study have important ramifications for shareholders, investors, and managers, allowing them to make more educated financial decisions.

Research Methodology

Sources of Data – Various online resources like articles, research papers, blogs, corporate articles, finance related sites and share market web site data. Also used the excel functions and formulas to work through the ANOVA test.
Sample Size & Period of Data Coverage – the period covered for the article and analysis 2018 – 2023 and the data collection was covering three private sector bank (Axis Bank Ltd., HDFC Bank Ltd. and ICICI Bank Ltd.) and three public sector banks (Indian Bank, Bank of India and Bank of Baroda).

Statement of the Problem

Financial system for bankers has undergone various changes due to change in policy, norms, economic conditions, and reputation of the Reserve Banks. Many researchers have carried out in this area of analyses, the performance of Bankers on Profitability determinant and financial indicators. This study has been carried

out to the analyze the financial performance based on the DuPont model based on three selected public & private Bankers.

IV. RESULTS AND DISCUSSION

The data is divided into six different years (labeled as 2018 through 2023) and six different banks (Axis Bank Ltd., H D F C Bank Ltd., I C I C I Bank Ltd., Indian Bank, Bank of India, and Bank of Baroda). The analysis carried out with the statistical tool "Anova Two-Factor Without Replication". The results and findings are below -

Return on Equity = (Net Income / Average Shareholders' Equity) * 100

ANOVA

Source of Variation	SS	df	MS	F	P-value	F crit
Bank	1158.639	5	231.7278	12.42687	4.02E-06	2.602987
Year	626.701	5	125.3402	6.72162	0.000428	2.602987
Error	466.183	25	18.64732			
Total	2251.523	35				

ANOVA Results and Interpretation: The p-value obtained (0.000) is significantly smaller than the typical threshold of 0.05 for both Banks as well as year. This indicates strong evidence to reject the null hypothesis that there are no differences between the group means of Banks as well as Years. In other words, there are statistically significant differences between at least some of the group means Banks, and at least some of the group means of Years.

Conclusion: Based on the provided ANOVA results, there are statistically significant differences between the means of the different Banks, and between the means of different Years.

Leverage Ratio = Total Debt / Total Equity
ANOVA

Source of Variation	SS	df	MS	F	P-value	F crit
Bank	2.828333333	5	0.565667	8.952122	5.63E-05	2.602987
Year	8.076666667	5	1.615333	25.56393	4.45E-09	2.602987
Error	1.5797	25	0.063188			
Total	12.4847	35				

ANOVA Results and Interpretation: The p-values for both factors are extremely small, indicating that the differences are unlikely.

Conclusion: There are statistically significant differences among the banks and years in terms of the measured variable.

- Banks and years have a big impact on the measured variable.
- The differences between banks and years are unlikely to be due to change.

Net Interest Margin = (Interest Income - Interest Expenses) / Average Earning Assets
ANOVA

Source of Variation	SS	df	MS	F	P-value	F crit
Bank	9.776191667	5	1.9552383	42.951189	1.756E-11	2.6029874
Year	1.165625	5	0.233125	5.1211127	0.0022789	2.6029874
Error	1.138058333	25	0.0455223			
Total	12.079875	35				

ANOVA Results and Interpretation: The p-values for both factors are small, indicating that the differences are unlikely. However, the p-value for the "Year" factor is larger compared to the "Bank" factor, suggesting that the variation due to the "Year" factor is less pronounced.

Conclusion: Based on the provided ANOVA results, there are statistically significant differences among the banks and years in terms of the measured variable.

Asset Turnover Ratio = Net Sales (or Revenue) / Average Total Assets

ANOVA

Source of Variation	SS	df	MS	F	P-value	F crit
Bank	0.0007139	5	0.0001428	7.6035503	0.0001848	2.6029874
Year	0.0005139	5	0.0001028	5.47337278	0.0015493	2.6029874
Error	0.0004694	25	1.878E-05			
Total	0.0016972	35				

ANOVA Results and Interpretation: The p-values for both factors are small, indicating that the differences are unlikely. However, the p-value for the "Year" factor is larger compared to the "Bank" factor, suggesting that the variation due to the "Bank" factor is more pronounced.

Conclusion: Based on the provided ANOVA results, there are statistically significant differences among the banks and years in terms of the measured variable.

Net Profit Margin = (Net Profit / Net Sales) * 100

ANOVA

Source of Variation	SS	df	MS	F	P-value	F crit
Bank	2816.8443	5	563.36885	29.573279	9.837E-10	2.6029874
Year	1263.5545	5	252.7109	13.265714	2.291E-06	2.6029874
Error	476.24821	25	19.049928			
Total	4556.647	35				

ANOVA Results and Interpretation: The p-values for both factors are extremely small, indicating that the differences are highly unlikely. Based on the provided ANOVA results, there are statistically significant differences among the banks and years in terms of the measured variable.

CONCLUSION

    With the carful study of data from three private and public sector banks, with the help of statistical tool "Anova Two-Factor Without Replication", the period of study is considered to be a challenging time for the nation, COVID 19 pandemic struck the world and made a complete stop for a longer period of time. During the hard and improbable period, some of the banks faced a challenging result, in those time ROE of Axis bank was dipped big way but BOI shown a huge jump and from there next three years stable growth can be witnessed. This is the common trend over all the parameters in DuPont ratios, with minor exceptions. Similar kind of results were experienced with the ANOVA results as well. The P-values are the critical event in the analysis considered; this shows the values are very low in significance and also indicate the growth or dip parameters are not in high significance. But ATR shows there is a more pronounced variation between the banks and the years analyzed.

Future Study

    Furthermore, research can be carried out post COVID 19 period with pre Covid period or during covid period to identify the significance or implication of shutdown worldwide and or growth perspective of the nation, with the help of geopolitics and other economic factors.

Figures and Tables

Bank	2018	2019	2020	2021	2022	2023
Return on Equity						
Axis Bank Ltd.	0.43	7.01	1.91	6.48	11.3	7.63
H D F C Bank Ltd.	16.45	14.12	15.35	15.27	15.39	15.74
I C I C I Bank Ltd.	6.63	3.19	6.99	11.21	13.94	16.13
Indian Bank	8.14	2.28	4.35	9.34	10.63	12.83
Bank of India	-16.21	-14.79	-7.88	5.12	7.04	7.17
Bank of Baroda	-4.05	2.2	1.21	1.87	8.54	14.18
Leverage Ratio						
Axis Bank Ltd.	2.30	2.30	1.70	1.40	1.60	1.50
H D F C Bank Ltd.	2.14	1.45	1.06	0.96	1.14	1.26
I C I C I Bank Ltd.	2.09	1.86	1.74	0.94	0.89	0.88
Indian Bank	2.00	1.04	0.91	0.66	0.38	0.45
Bank of India	2.37	1.03	0.88	0.69	0.48	1.08
Bank of Baroda	2.79	1.38	1.26	0.87	1.19	1.03
Net Interest Margin						
Axis Bank Ltd.	2.69	2.96	3.08	3.26	3.05	3.48
H D F C Bank Ltd.	3.76	3.87	3.67	3.71	3.48	3.52
I C I C I Bank Ltd.	2.61	2.8	3.02	3.16	3.36	3.92
Indian Bank	2.47	2.5	2.45	2.5	2.49	2.84
Bank of India	1.72	2.18	2.32	1.96	1.91	2.48
Bank of Baroda	2.15	2.36	2.37	2.49	2.55	2.83
Asset Turnover Ratio						
Axis Bank Ltd.	0.07	0.07	0.07	0.07	0.06	0.06
H D F C Bank Ltd.	0.08	0.08	0.08	0.07	0.06	0.07
I C I C I Bank Ltd.	0.06	0.07	0.07	0.06	0.06	0.07
Indian Bank	0.07	0.07	0.07	0.06	0.06	0.06
Bank of India	0.06	0.06	0.06	0.06	0.05	0.06
Bank of Baroda	0.06	0.06	0.07	0.06	0.06	0.07
Net Profit Margin						
Axis Bank Ltd.	0.60	8.50	2.59	10.35	19.33	11.24
H D F C Bank Ltd.	21.79	21.29	22.86	25.74	28.93	27.29
I C I C I Bank Ltd.	12.33	5.3	10.6	20.46	27.02	29.2
Indian Bank	7.35	1.67	3.51	7.68	10.15	11.75
Bank of India	-15.87	-13.6	-6.98	5.32	8.94	8.44
Bank of Baroda	-5.57	0.87	0.71	1.17	10.4	15.74

Return on Equity = (Net Income / Average Shareholders' Equity) * 100

SUMMARY	Count	Sum	Average	Variance
Axis Bank Ltd.	6	34.76	5.793333	15.89883
H D F C Bank Ltd.	6	92.32	15.38667	0.574987
I C I C I Bank Ltd.	6	58.09	9.681667	24.14994
Indian Bank	6	47.57	7.928333	15.61422
Bank of India	6	-19.55	-3.25833	121.4174
Bank of Baroda	6	23.95	3.991667	40.92142
2018	6	11.39	1.898333	127.7097
2019	6	14.01	2.335	90.95195
2020	6	21.93	3.655	58.09151
2021	6	49.29	8.215	22.57139
2022	6	66.84	11.14	9.95164
2023	6	73.68	12.28	15.68824

Leverage Ratio = Total Debt / Total Equity

SUMMARY	Count	Sum	Average	Variance
Axis Bank Ltd.	6	10.8	1.8	0.16
H D F C Bank Ltd.	6	8.01	1.335	0.18423
I C I C I Bank Ltd.	6	8.4	1.4	0.30908
Indian Bank	6	5.44	0.906667	0.351987
Bank of India	6	6.53	1.088333	0.443657
Bank of Baroda	6	8.52	1.42	0.48232
2018	6	13.69	2.281667	0.080537
2019	6	9.06	1.51	0.24368
2020	6	7.55	1.258333	0.146177
2021	6	5.52	0.92	0.07108
2022	6	5.68	0.946667	0.213107
2023	6	6.2	1.033333	0.127027

Net Interest Margin = (Interest Income - Interest Expenses) / Average Earning Assets

SUMMARY	Count	Sum	Average	Variance
Axis Bank Ltd.	6	18.52	3.0866667	0.0719067
H D F C Bank Ltd.	6	22.01	3.6683333	0.0216567
I C I C I Bank Ltd.	6	18.87	3.145	0.21359
Indian Bank	6	15.25	2.5416667	0.0217367
Bank of India	6	12.57	2.095	0.07983
Bank of Baroda	6	14.75	2.4583333	0.0520167
2018	6	15.4	2.5666667	0.4681867
2019	6	16.67	2.7783333	0.3671367
2020	6	16.91	2.8183333	0.2838967
2021	6	17.08	2.8466667	0.4095867
2022	6	16.84	2.8066667	0.3577867
2023	6	19.07	3.1783333	0.2962567

Asset Turnover Ratio = Net Sales (or Revenue) / Average Total Assets

SUMMARY	Count	Sum	Average	Variance
Axis Bank Ltd.	6	0.4	0.0666667	2.6667E-05
H D F C Bank Ltd.	6	0.44	0.0733333	6.6667E-05
I C I C I Bank Ltd.	6	0.39	0.065	3E-05
Indian Bank	6	0.39	0.065	3E-05
Bank of India	6	0.35	0.0583333	1.6667E-05
Bank of Baroda	6	0.38	0.0633333	2.6667E-05
2018	6	0.4	0.0666667	6.6667E-05
2019	6	0.41	0.0683333	5.6667E-05
2020	6	0.42	0.07	0.00004
2021	6	0.38	0.0633333	2.6667E-05
2022	6	0.35	0.0583333	1.6667E-05
2023	6	0.39	0.065	3E-05

Net Profit Margin = (Net Profit / Net Sales) * 100

SUMMARY	Count	Sum	Average	Variance
Axis Bank Ltd.	6	52.61	8.7683333	45.025017
H D F C Bank Ltd.	6	147.9	24.65	9.82988
I C I C I Bank Ltd.	6	104.91	17.485	91.89191
Indian Bank	6	42.11	7.0183333	14.731377
Bank of India	6	-13.75	-2.291667	126.6973
Bank of Baroda	6	23.32	3.8866667	59.785067
2018	6	20.63	3.4383333	178.6329
2019	6	24.03	4.005	129.17395
2020	6	33.29	5.5483333	103.69766
2021	6	70.72	11.786667	88.676467
2022	6	104.77	17.461667	80.464297
2023	6	103.66	17.276667	77.973227

REFERENCES

(1) https://finbox.com/NYSE:HDB/explorer/degree_of_operating_leverage/#:~:text=HDFC%20Bank's%20

degree%20of%20operating%20leverage%20(dol)%20decreased%20in%202019,(1.31%2C%20%2B72.

0%25).

(2) Ranina SanglapSaqib Chaudhry, 21 Jul, 2019; India's largest banks to sit on more excess capital as

leverage ratios eased; https://www.spglobal.com/marketintelligence/en/news-insights/blog/banking-

essentials-newsletter-9th-august-edition

(3) IBM, 01 August 2017; India's digital banking revolution; https://www.ibm.com/thought-

leadership/institute-business-value/en-us/report/bankingindia

(4) Musaed S. AlAli, Oct 30, 2019; The Use of DuPont Modified Financial Model in Evaluating the Financial Performance of Kuwaiti Banks; http://ecsenet.com/index.php/2576-6821/article/view/32

(5) Michael James, Rahul Sharma, Dr. Amalanathan Paul, October 2022; A Comparative Study On Selected Indian Banks' Financial Ratios For The Period From Fy 2017–2021; https://eprajournals.com/IJMR/article/9588; DOI No: 10.36713/epra11616

(6) Dr. Butalal C. Ajmera, December 2012; Analysis of Financial Health of Banking Industry Through Dupont Model; https://www.utu.ac.in/DManagement/download/December%202012/4.pdf

(7) Selvi S, 31 Mar, 2023; A Study on Dupont Model and Financial Performance of State Bank of India before and after Merger; https://www.researchsquare.com/article/rs-2541657/v1; https://doi.org/10.21203/rs.3.rs-2541657/v1

(8) https://www.moneycontrol.com/financials/hdfcbank/ratiosVI/HDF01/1#HDF01

(9) https://www.topstockresearch.com/rt/Financial/HDFCBANK/DebtToEquityRatio

(10) https://www.topstockresearch.com/rt/Financial/ICICIBANK/DebtToEquityRatio

(11) https://www.topstockresearch.com/rt/Financial/BANKBARODA/DebtToEquityRatio