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A Study on the Factors Affecting the Profitability of Private Sector Banks

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ABSTRACT

This study analyzes the profitability of five major private sector banks in India—ICICI, HDFC, Kotak Mahindra, IDBI, and Axis Bank using Return on Assets (ROA) as the key indicator. Covering the period from 2015 to 2024, it examines the impact of five financial variables: Interest Income Ratio (IIR), Net Interest Margin (NIM), Net Non-Performing Assets (NNPA), Gross Non-Performing Assets (GNPA), and Operating Expenses (OE). Through Descriptive Statistics, Correlation, and Regression Analysis, the research aims to identify key drivers of profitability and assess risks affecting banking efficiency. The findings will offer practical insights for investors, policymakers, and bank managers to improve decision-making and promote financial sustainability in India's private banking sector.

INTRODUCTION

The banking sector is vital to economic growth, with private sector banks in India playing an increasingly important role due to liberalization, technological advances, and regulatory reforms. These banks have grown significantly in areas like retail and digital banking, enhancing financial inclusion and operational efficiency. Profitability is a key indicator of a bank's financial health, often measured by Return on Assets (ROA), which shows how effectively assets generate profit. Higher ROA reflects efficient management, while lower ROA may signal operational issues. Various financial indicators—such as Interest Income Ratio (IIR), Net Interest Margin (NIM), Net Non-Performing Assets (NNPA), Gross Non-Performing Assets (GNPA), and Operating Expenses (OE) influence a bank's profitability. While research exists on macroeconomic impacts on bank performance, there's limited insight into how internal financial variables affect profitability, especially in private sector banks. Understanding these relationships is critical amid challenges like rising NPAs, fluctuating interest rates, and increasing costs. This study focuses on five major private sector banks in India ICICI, HDFC, Kotak Mahindra, IDBI, and Axis Bank analyzing how IIR, NIM, NNPA, GNPA, and OE impact ROA over a 10-year period (2015–2024). Using descriptive statistics, correlation, and regression analysis, the research will identify key drivers of profitability. The findings aim to bridge research gaps, provide practical insights for stakeholders, and offer strategies to boost profitability by improving operational efficiency, cost management, and asset quality helping banks adapt to India's evolving financial landscape.

REVIEW OF LITERATUTRE

Avinash Bondu (2022): This study evaluated the banking sector's role in economic development and highlighted the persistent issue of Non-Performing Assets (NPAs), which negatively affect bank operations. It emphasized the challenges faced by banks in developing countries like India as they strive to be more customer-focused while managing growing risks.

Sreemanta Sarkar & Debdas Rakshit (2022): Analyzing 20 public sector banks from 2000 to 2017, the study found that GDP, inflation, and unemployment positively influenced profitability (ROE and NIM), while financial crises had a negative impact. Lending rates showed no significant effect. The research confirmed the strong role of macroeconomic factors in bank profitability.

Bhadrappa Haralayya & P.S. Aithal (2021): The study examined profitability through asset utilization and efficiency over time, arguing that measuring productivity in physical units alone is insufficient. It emphasized the importance of dynamic efficiency for firms aiming to maximize profits.

Eissa A. Al-Homaidi & Najib H.S. Farhan (2021): This research analyzed 1,308 firms listed on the BSE from 2011 to 2018. It found that leverage, company efficiency, and firm size significantly impacted profitability (ROE and EPS). The study contributed fresh insights into the financial performance of listed Indian firms.

Dr. Puspalata Mahapatra, Sarita Dhal & Dr. Nishikanta Mishra (2021): Focusing on private banks, the study assessed the effect of Overseas Investment Strategy and FDI on financial efficiency. Using various statistical tools, it concluded that FDI had no significant impact on key financial metrics like ROA, ROE, and NII.

RESEARCH METHODOLOGY

OBJECTIVES

PRIMARY OBJECTIVES

To analyze the impact of various financial factors that affect the profitability of selected private sector banks.

SECONDARY OBJECTIVE

- To examine the correlation between ROA and each independent variable.
- To assess the overall significance of the selected independent variables in explaining variations in ROA.
- To identify the most influential factors affecting bank profitability.
- To provide recommendations for improving the profitability of private sector banks based on the findings.

Research Design

This study uses a quantitative, descriptive, and analytical approach based on secondary data from annual reports, financial statements, and RBI publications. It focuses on five private sector banks - ICICI, HDFC, Kotak Mahindra, IDBI, and Axis - over the period 2015–2024. Profitability is measured using Return on Assets (ROA), with IIR, NIM, NNPA, GNPA, and OE as independent variables.

DATA COLLECTION

This study relies on secondary data to analyze the various factors affecting the profitability of private sector banks in India. The data will be collected from official financial reports and credible sources to ensure accuracy and reliability.

1. Sources of Data:

Annual Reports of Banks: Financial statements, profit and loss accounts, and balance sheets of HDFC Bank, ICICI Bank, Axis Bank, Kotak Mahindra Bank, and IDBI Bank for the period 2015–2024.

2. Data Collected:

- **Return on Assets (ROA):** The dependent variable representing profitability.
- **Interest Income Ratio (IIR):** Measures the proportion of income earned from interest.
- **Net Interest Margin (NIM):** Reflects the difference between interest income earned and interest paid.
- **Net Non-Performing Assets (NNPA):** Represents the proportion of non-performing loans adjusted for provisions.
- **Gross Non-Performing Assets (GNPA):** Indicates the total non-performing loans before provisions.
- **Operating Expenses (OE):** Represents the costs associated with the bank's operations.

3. Time Frame

The data for this study will be collected over a period of 10 years (2015-2024), providing a comprehensive view of how the selected financial variables have impacted the profitability of the five private sector banks in India over time.

4. Tools for Analysis

- **Descriptive Statistics:** To analyze data distribution (mean, median, SD, variance) for ROA, IIR, NIM, NNPA, GNPA, and OE.
- **Correlation Analysis:** To identify the strength and direction of relationships between ROA and each independent variable.
- **Regression Analysis:** Multiple Linear Regression will quantify the effect of IIR, NIM, NNPA, GNPA, and OE on ROA and help predict profitability trends.

LIMITATIONS OF THE STUDY

- The Ten-year period may not capture the long-term structural changes or trends in banking sector that could affect profitability over a broader time horizon.
- Relies on publicly available data, which may lack granularity or consistency across banks.
- Insights are specific to private sector banks and may not be applicable to other banking segments like public sector or cooperative banks.
- Variations in reporting standards could impact the accuracy of comparisons.

ANALYSIS

A. DESCRIPTIVE STATISTICS

	GNPA	IIR	NIM	NNPA	OE	ROA
Mean	21311.46	7.166800	3.864800	8139.420	2.077800	0.943400
Median	17115.50	7.075000	3.595000	4387.500	2.020000	1.550000
Maximum	55588.00	9.160000	22.73000	69993.00	3.070000	2.290000
Minimum	1237.000	5.730000	-61.88000	609.0000	1.100000	-4.710000
Std. Dev.	15878.28	0.727715	10.73684	11505.77	0.420865	1.444149
Skewness	0.541666	0.349820	-4.402162	3.496072	0.178808	-2.491036
Kurtosis	2.077538	2.820582	29.78808	18.05320	3.387154	9.351699
Jarque-Bera	4.217802	1.086846	1656.494	573.9355	0.578704	135.7607
Probability	0.121371	0.580757	0.000000	0.000000	0.748749	0.000000
Sum	1065573.	358.3400	193.2400	406971.0	103.8900	47.17000
Sum Sq. Dev.	1.24E+10	25.94889	5648.704	6.49E+09	8.679258	102.1927
Observations	50	50	50	50	50	50

INTERPRETATION

The data shows significant fluctuations in key financial metrics. **GNPA** averaged ₹ 21,311.46 with high variability, while **IIR** remained stable at 7.16%. **NIM** and **NNPA** were highly volatile, indicating inconsistent profitability and credit quality. **ROA** had a low mean (0.94%) and was skewed toward losses, suggesting financial stress in some years. **OE** was stable (mean: 2.07%), reflecting effective cost control. Overall, several indicators showed non-normal distributions, pointing to periods of financial instability.

B. CORRELATION COEFFICIENT

	GNPA	IIR	NIM	NNPA	OE	ROA
GNPA	1	-0.55061	-0.27764	0.531167	-0.58825	-0.63732
IIR	-0.55061	1	-0.09127	-0.30666	0.303663	0.178739
NIM__	-0.27764	-0.09127	1	-0.00811	0.105024	0.522837
NNPA	0.531167	-0.30666	-0.00811	1	-0.44735	-0.34445
OE__	-0.58825	0.303663	0.105024	-0.44735	1	0.440509
ROA__	-0.63732	0.178739	0.522837	-0.34445	0.440509	1

INTERPRETATION

GNPA has a strong negative correlation with ROA (-0.64), showing that poor asset quality reduces profitability. GNPA also negatively impacts IIR and OE. NIM and ROA are positively correlated (0.52), indicating higher margins improve profits. NNPA negatively affects ROA, while OE shows a moderate positive link, highlighting the role of cost control. Overall, asset quality weakens profitability, while strong margins and efficient operations enhance it.

C. REGRESSION ANALYSIS

Dependent Variable: ROA

Method: Least Squares

Date: 04/01/25 Time: 12:01

Sample: 1 50

Included observations: 50

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GNPA	-3.38E-05	1.07E-05	-3.155516	0.0029
NNPA	-6.35E-06	1.54E-05	-0.413278	0.6814
IIR	0.019428	0.118847	0.163474	0.8709
OE	0.652686	0.376940	1.731537	0.0902
NIM	0.054183	0.014147	3.829893	0.0004
R-squared	0.545564	Mean dependent var		0.943400
Adjusted R-squared	0.505170	S.D. dependent var		1.444149
S.E. of regression	1.015874	Akaike info criterion		2.964016
Sum squared resid	46.44002	Schwarz criterion		3.155218
Log likelihood	-69.10039	Hannan-Quinn criter.		3.036827
Durbin-Watson stat	0.641723			

INTERPRETATION

The regression analysis shows that GNPA has a significant negative impact on ROA, indicating poor asset quality reduces profitability. NIM positively and significantly influences ROA, highlighting its role in enhancing returns. Operating Expenses show a marginally positive effect, while NNPA and IIR are statistically insignificant. The model explains 54.56% of ROA variation, but the low Durbin-Watson value (0.64) suggests autocorrelation. Overall, GNPA and NIM emerge as the key factors affecting bank profitability.

FINDINGS

1. Descriptive Statistics:

- GNPA and NNPA show high volatility, indicating fluctuations in asset quality.
- NIM exhibits extreme variations, suggesting financial instability.
- ROA has negative skewness and high kurtosis, reflecting financial distress.
- Operating expenses (OE) remain relatively stable.
- Non-normality in NIM, NNPA, and ROA indicates extreme variations.

2. Correlation Analysis:

- GNPA negatively impacts ROA (-0.6373) and IIR (-0.5506), confirming poor asset quality reduces profitability.
- NIM is positively correlated with ROA (0.5228), highlighting its significance in profitability.
- OE positively correlates with ROA (0.4405), suggesting cost efficiency improves returns.
- NNPA negatively affects ROA (-0.3445), reinforcing the adverse effect of bad loans.

3. Regression Analysis:

- GNPA has a significant negative impact on ROA (p-value: 0.0029), showing NPAs reduce profitability.
- NIM has a strong positive effect on ROA (p-value: 0.0004), emphasizing its role in profitability.
- OE positively affects ROA but is not statistically significant at the 5% level (p-value: 0.0902).
- NNPA and IIR do not show significant effects on ROA.
- The model explains 54.55% of variations in ROA ($R^2 = 0.5456$), indicating moderate explanatory power.

SUGGESTIONS

- To improve asset quality, private sector banks must implement stringent credit risk assessment frameworks and enhance loan monitoring mechanisms. A proactive approach to identifying potential defaults through early warning systems can help mitigate risks. Strengthening loan recovery processes by leveraging legal and financial strategies will also play a crucial role in reducing Non-Performing Assets (NPAs). By improving asset quality, banks can enhance financial stability and maintain investor confidence.
- Enhancing Net Interest Margin (NIM) should be a priority to boost profitability. Banks can achieve this by optimizing interest rate structures, ensuring a balance between competitive lending rates and sustainable earnings. Diversifying revenue streams beyond interest income, such as fee-based services and digital banking, can provide additional financial stability. Effective asset-liability management will also help in improving returns on investments, reducing the impact of fluctuating interest rates.
- Controlling operating expenses (OE) is essential for long-term financial sustainability. Banks should leverage automation and digital banking solutions to streamline operations and reduce costs. Strategic workforce management and efficient resource allocation can further optimize expenses without compromising service quality. Collaborating with fintech firms can also help banks adopt cost-effective and innovative banking solutions.
- To improve Return on Assets (ROA), banks must focus on efficiency and financial diversification. Strengthening internal controls and operational efficiency will help in achieving better financial outcomes. Expanding high-yield lending portfolios and reducing reliance on interest-based income will create a more resilient revenue model. Introducing innovative financial products tailored to customer needs can also enhance profitability.
- Regulatory and policy measures must also support financial discipline and sustainability. Strengthening capital reserves and ensuring adequate provisioning for NPAs will safeguard against financial distress. Implementing risk-based pricing strategies can help banks set appropriate interest rates that align with market conditions. By adopting these measures, private sector banks can mitigate financial risks, improve profitability, and maintain long-term stability in an increasingly competitive market.

CONCLUSION

This study analyzes factors influencing the profitability of selected private sector banks in India from 2015 to 2024.It finds that asset quality, particularly GNPA and NNPA, has a significant negative impact on Return on Assets (ROA).Net Interest Margin (NIM) emerges as a strong positive contributor to profitability. Operating expenses show a weak but positive link to ROA, indicating limited influence.

Descriptive statistics reveal volatility in key financial indicators like GNPA and NIM.

Correlation results confirm that higher NPAs reduce profitability.

Regression analysis reinforces that GNPA significantly lowers ROA, while NIM improves it.

To boost profitability, banks should enhance credit risk management and loan recovery.

Adopting digital tools and optimizing operational efficiency can reduce costs. Supportive regulatory measures are also essential for long-term financial stability.

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