



ANALYZING NON-PERFORMING ASSETS: A COMPREHENSIVE STUDY OF THEIR IMPACTS ON PROFITABILITY OF SELECTED BANKS IN INDIA

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ABSTRACT

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The present study explores the complex domain of non-performing assets (NPAs) in a subset of Indian banks. The selected institutions are focal points for comprehending the complex dynamics around non-performing assets (NPAs), as they are representative of a range of sizes and policies. The research provides a comprehensive overview of the current NPA environment by not only estimating the NPAs but also closely examining their features, sectoral distribution, and emerging trends. The study assesses the complex relationship between non-performing assets (NPAs) and the profitability of the chosen banks concurrently, providing detailed insights into the mutually beneficial nature of these components.

This in-depth analysis explores the complex world of non-performing assets (NPAs) in a few Indian banks. The selected institutions, which are representative of various sizes and approaches to operations, act as hubs for comprehending the complex dynamics related to non-performing assets. In addition to calculating the NPAs, the study examines their attributes, sectoral distribution, and written from a variety of angles, the study captures the opinions of several writers, each of whom adds a special perspective on non-performing assets. This diversity adds value to the research, generating insights that go beyond scholarly interest to have real-world ramifications for stakeholders, legislators, and bank executives. The research goes beyond conventional financial measures to navigate the difficulties presented by non-performing assets (NPAs), presenting these assets as dynamic obstacles requiring a comprehensive comprehension. The results are intended to help India's banking industry become more robust and adaptable so that it can deal with the complexities of non-performing assets (NPAs) with skill and foresight. In the end, this study aims to be a symphony of viewpoints, providing a rich tapestry of insights that might help define a stable and sustainable future for India's banking sector.

KEYWORDS: *Non-performing Assets, Indian Banking Sector, Profitability Analysis, Bad Loans, Financial Health, Credit Risk, Loan Portfolio, Financial Stability, Banking Operations, Risk Assessment, Banking Operations, NPA trends.*

INTRODUCTION

Non-Performing Assets (NPAs) become a crucial focus point in the intricate web of India's banking industry and require careful analysis. To understand the complexities of non-performing assets (NPAs), this study conducts a thorough investigation, focusing on a few chosen banks. A careful examination of the causes, traits, and effects of non-performing assets (NPAs), which are a sign of loans that do not yield anticipated returns, is necessary because they pose a

threat to the banks' capacity to maintain their financial stability. The selected banks are miniatures of the larger banking sector, chosen for their diversity in size, reach, and operational strategy. The main goal of the study is to present a comprehensive picture of the current NPA situation in these schools. The study explores the characteristics, sectoral distribution, and emergence patterns of non-performing assets (NPAs) beyond just quantifying them. By doing this, it looks for similarities or differences between the banks,

illuminating the fundamental causes of the NPA burden. The study also aims to assess the complex link that exists between non-performing assets (NPAs) and the profitability of the chosen banks. Effective management of non-performing assets (NPAs) is inextricably related to a bank's financial stability. The research attempts to determine the effect of non-performing assets (NPAs) on these institutions' profitability by means of a thorough examination of financial statements and performance metrics. The evaluation aspect not only draws attention to the difficulties presented by non-performing assets (NPAs), but also emphasises the possible consequences for the banks' overall prosperity and viability. The need of researching non-performing assets (NPAs) is becoming more and more apparent as India struggles with changes in the global economy and insecurity. This study aims to provide useful information for stakeholders, policymakers, and decision-makers in the banking industry, in addition to its academic implications. The study aims to enhance the resilience and adaptability of the Indian banking sector by providing guidance on regulatory frameworks, improving risk management practices, and informing strategic decision-making. This will enable the sector to effectively and strategically navigate the challenges posed by non-performing assets (NPAs).

Objectives

- ❖ To Study the NPA's of Selected Banks in India.
- ❖ To Evaluate the relation between NPAs and Profitability on selected Banks in India
- ❖ To study the impact of NPAs on profitability of selected Banks in India

Scope of the Study

- ❖ This study covers the basic meaning, and concept of Non-Performing Assets
- ❖ The study is restricted to explain only the profitability ratios
- ❖ The study is confined to 10 public sector banks and 10 private sector banks on profitability of selected banks in India.
- ❖ The data analysis is done by considering 5 years of data i.e., 2018-19 to 2022-23

Need for the Study

The banking sector of India consists of public sector banks, private sector banks, co-operative banks and foreign banks. But among these four types" public sector banks still dominate the banking industry, with approximate 82% of the market share in total deposit and advances of the industry. The public sector banks play a crucial role in the Indian economy, by contributing directly to the GDP, and mobilizing savings and channelizing investments. But after managing every challenge successfully and by giving standard services to the customers, NPA becomes the

biggest of all challenges and managing NPA is one of the hardest tasks for these banks, as the increasing NPA have adverse impact on the bank's profitability. This study is an effort to look into the contribution of the selected nationalized banks in India individually to the NPA in the industry by looking into its profitability.

LITERATURE REVIEW

- (Victor Murinde , Eftymios Rizopoulos b, Markos Zachariadis,2022)The study utilizes high-quality bank-level data spanning 115 countries over the past 16 years to analyze key indicators of the changing banking landscape in the FinTech era. The central inquiry revolves around understanding the potential impact of FinTech on traditional banks, exploring whether FinTech lenders might replace banks, and investigating the role of banks in developing their own FinTech platforms or collaborating with FinTech start-ups.
- (Mercurius Broto Legowo1, Steph Subanidja2, Fangky Antoneus Sorongan3,2021) This study employs a qualitative descriptive analysis methodology to investigate FinTech's historical, contemporary, and prospective impact on Indonesia's traditional banking industry. The study looks closely at documentation papers from banking institutions, investigates the FinTech phenomena in Indonesia, and conducts a thorough analysis of pertinent scientific journals.
- (Ferdinando Giglio,2021)This article's main objective is to analyze the development of fintech. The identification and analysis of the six primary Fintech models—payment services, wealth management, crowdfunding, loans, capital market activities, and insurance services—represent the core focus of the study.It outlines the six Fintech business models that have been identified: capital market activities, loans, crowdfunding, wealth management, insurance services, and payment services.
- (Maoyong Cheng, Yang Qu, (2020)This article examines how bank FinTech has affected credit risk in the context of Chinese commercial banks, covering the years 2008–2017. The researchers created a thorough FinTech index using web crawler technology and word frequency analysis, concentrating on subcategories including big data, blockchain, cloud computing, artificial intelligence, and internet technology. The inquiry goes on to evaluate how bank FinTech affects credit risk, and it finds that there is a significant and advantageous impact on risk mitigation.

- **(SANTIAGO CARBÓ VALVERDE, FRANCISCO RODRÍGUEZ FERNANDEZ,2020)**
Understanding the dynamic relationships between traditional banks, FinTech, and BigTech is a key focus of this study, which focuses on recent macroeconomic and microeconomic viewpoints surrounding financial digitalization. The competitive dynamics that exist between digital startups and traditional banks are highlighted, highlighting the critical role that information sharing capabilities play. It also introduces new approaches that are based in brain research and machine learning to recognize and understand behavioral patterns in financial digitalization decision-making.
- **(Lars Hornuf & Milan F. Klus & Todor S. Lohwasser & Armin Schwienbacher, Published online: 13 May 2020)**
This article focuses on the growing pressure that traditional banks are under to update their fundamental business operations and services because of the growing impact of fintechs—technology-driven companies that provide financial services. Its specific goal is to determine which banks are more likely to work with fintechs, how intensely these collaborations occur, and what kinds of alliances these banks choose to build. The approach uses manually gathered data and focuses on the biggest banks in the UK, France, Germany, Canada, and the United States.
- **(Zveryakov, M., Kovalenko, V., Sheludko, S., & Sharah,2019)**The swift growth of the digital economy both domestically and globally in the past several decades has expedited financial system transformation processes and brought about the financialization of the world economy. FinTech enterprises functioning inside the financial sector are a novel and exceptionally unique class of parbank establishments. The study concludes by providing insight into the complex dynamics of FinTech development and how they affect credit risk within the framework of Chinese commercial banks.
- **(Xavier Vives,2017)** Fintech is starting to have an impact on the capital markets and banking industry. This article examines its evolution and effects on banking market structure, entrant and incumbent strategies. Fintech has the potential to significantly disrupt the welfare state, but regulations must change to ensure that the new technology delivers on its promises without jeopardizing the stability of the financial system.
- **(Marcello Bofondi and Giorgio Gobbi,2017)** Fintech is bringing new players, products, and business strategies to the

financial scene to expand on the connection between Fintech and banks by keeping in mind that previous innovation caused a generalized state of financial instability. To strengthen the case against early claims that the banking industry would irreversibly fail and to highlight the evidence of shadow banking's growth.

- **(Jean Dermine ,2016)**In the context of the constantly changing financial and technological developments in the banking industry, the article under review explores an evaluation of the possible threat presented by digital banking. The main objective is to understand the economics of banking services and the essential roles that banks play, especially as lenders and liquidity providers. It provides an overview of the possible risks associated with digital banking, the feasibility of alternative lending models, and the wider ramifications for the conventional functions of banks.
- **(Arnoud W.A. Boot,2016)**The article primarily centers on the revolutionary function of information technology inside the banking industry, specifically with the expansion of financial markets. It is pointed out that the latest manifestation of the continuous influence of information technology on banking is the focus on fintech, which is defined as technology-driven companies joining the financial services sector.

STATEMENT OF THE PROBLEM

Recent years have seen a sharp increase in Non-Performing Assets (NPAs), which has caused losses for the Indian banking industry. Regarding the possible effects of this issue on banks' profits, concerns have been expressed. This study's goals are to accurately assess the amount of non-performing assets (NPAs) in a chosen set of banks, assess the correlation between NPAs and profitability, and determine how NPAs affect the banks' overall financial health. By focusing on these goals, the study hopes to offer knowledge that will help develop appropriate NPA management techniques and support the long-term financial health of Indian banks.

RESEARCH METHODOLOGY

A mixed-methods research methodology is used in this study to thoroughly examine the intricate relationship between non-performing assets (NPAs) and bank profitability in a subset of Indian banks. The research design combines quantitative and qualitative methodologies. Financial data from several banks might be gathered at one particular period as part of the cross-sectional design used in the quantitative component. With this architecture, it is easier to analyze the relationship between NPAs and profitability measures like Return on equity and Return on assets. The qualitative component is conducting in-depth interviews with significant

stakeholders, such as bank officials and industry experts, to obtain a more profound comprehension of the tactics and procedures utilized by banks in the management of non-performing assets. Information will be gathered from necessary databases, annual reports, and financial statements of the chosen banks during the quantitative phase. Regression analysis and other statistical tools will be used to assess financial variables associated with profitability and non-performing assets. By analyzing relevant patterns, correlations, and trends between NPAs and profitability, this component seeks to provide a quantitative framework for understanding the financial dynamics of the chosen institutions. Key informants from the financial services sector undergo evaluations in semi-structured interviews at this phase.

Through these interviews, the qualitative features of NPA management techniques will be investigated, and bank officials' opinions, experiences, and difficulties in dealing with NPAs will be clarified.

HYPOTHESIS

- H0 = There is no impact of NPAs on profitability of selected Banks in India
- H1 = There is impact of NPAs on profitability of selected Banks in India
- H0 = There is no significant relation between NPA and profitability of selected Banks in India
- H1 = There is significant relation between NPA and profitability of selected Banks in India

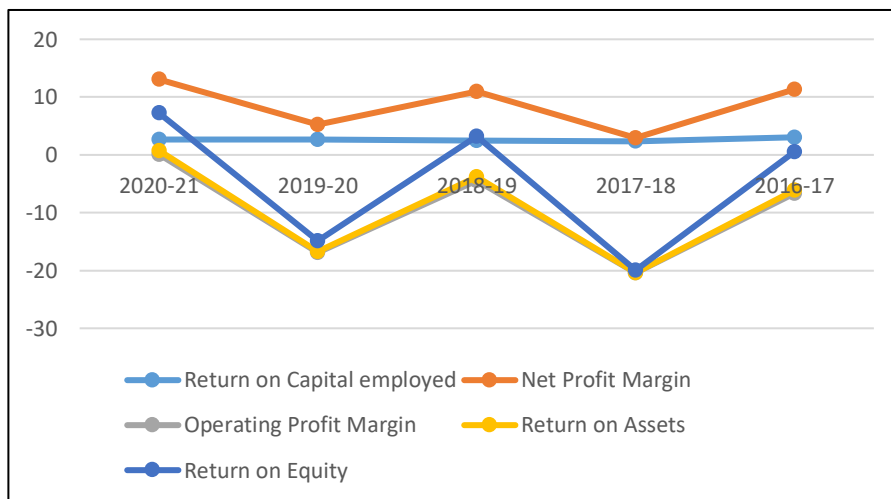
INTERPRETATION

(Table:01)

Private sector Banks					
Year/Particulars	2023-22	2022-21	2021-20	2020-19	2019-18
Gross NPA	25,314.84	30,233.82	29,789.44	34,248.64	21,280.48
Net NPA	6,993.52	9,360.41	11,275.60	16,591.71	8,626.55
Total	32,308.36	39,594.23	41,065.04	50,840.35	29,907.03
Ratios:					
Return on Capital employed	2.7	2.68	2.47	2.34	3.05
Net Profit Margin	10.35	2.59	8.5	0.6	8.26
Operating Profit Margin	-12.96	-22.2	-15.37	-23.35	-17.98
Return on Assets	0.66	0.17	0.58	0.03	0.61
Return on Equity	6.48	1.91	7.01	0.43	6.59

(SOURCE:www.rbi.org.in)

GRAPHICAL REPRESENTATION



(Table:02)

Regression Statistics								
Multiple R	0.75226195							
R Square	0.56589804							
Adjusted R Square	0.42119739							
Standard Error	2815.70139							
Observations	5							
ANOVA								
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>			
Regression	1	31005653.74	31005653.74	3.91081886	0.14239237			
Residual	3	23784523.02	7928174.341					
Total	4	54790176.77						
	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95.0%</i>	<i>Upper 95.0%</i>
Intercept	14339.0676	2284.500196	6.276676026	0.00816497	7068.7684	21609.3668	7068.7684	21609.3668
X Variable 1	-1.11872877	0.565706225	-1.97757904	0.14239237	-2.91905846	0.68160091	-2.91905846	0.68160091

TABLE :1

The financial data for private sector banks over the past five years reflects a dynamic landscape characterized by fluctuations in key indicators. The Gross Non-Performing Assets (NPAs) have shown a mixed trend, decreasing in 2022-21 but increasing in the subsequent year to reach 25,314.84 crore in 2023-22. Net NPAs, while fluctuating, have generally followed a decreasing trend. Total NPAs, however, depict a decline in 2022-21 followed by a subsequent increase in the latest fiscal year.

Financial ratios provide further insights into the banks' performance. Return on Capital Employed has shown a gradual decline over the years, reaching 2.7% in 2023-22. Net Profit Margin experienced substantial fluctuations, with a notable increase in 2023-22, signaling a potential improvement in profitability. Operating Profit Margin, on the other hand, has shown a mixed trend, occasionally entering negative territory. Return on Assets and Return on Equity exhibit variability, indicating the challenges and opportunities faced by private sector banks in navigating economic conditions and market dynamics. The data underscores the need for a nuanced approach to risk management and strategic decision-making within the private banking sector.

TABLE:2

The regression analysis was conducted to examine the relationship between the independent variable (X Variable 1) and the dependent variable. The results of the regression statistics reveal several key insights into the model's performance.

The multiple R-value, representing the correlation coefficient, is 0.75, indicating a moderate to strong positive linear relationship between the variables. This suggests that changes in the independent variable are associated with predictable changes in the dependent variable. The R-squared value, at 0.57, signifies that

approximately 57% of the variability in the dependent variable can be explained by the independent variable, highlighting a relatively good fit for the model.

The adjusted R-squared value takes into account the number of predictors in the model, providing a more accurate measure of goodness of fit. In this case, the adjusted R-squared is 0.42, suggesting that around 42% of the variability in the dependent variable is explained by the independent variable, considering the model's complexity.

The standard error of the regression is 2815.70, representing the average deviation of observed values from the regression line. This value provides an indication of the accuracy of the model's predictions, with lower values suggesting a more precise fit.

The ANOVA table assesses the overall significance of the regression model. The F-statistic is 3.91, and the associated p-value is 0.14. Although the p-value is greater than the conventional significance level of 0.05, indicating that the model's overall fit is not statistically significant, it is worth considering the context of the specific field of study and the implications of the results.

The coefficients table provides insights into the individual contributions of the intercept and X Variable 1. The intercept value is 14339.07, representing the estimated value of the dependent variable when X Variable 1 is zero. The coefficient for X Variable 1 is -1.12, suggesting that for each unit increase in X Variable 1, the dependent variable is expected to decrease by approximately 1.12 units. The coefficients table provides insights into the individual contributions of the intercept and X Variable 1. The intercept value is 14339.07, representing the estimated value of the dependent variable when X Variable 1 is zero. The coefficient for X Variable 1 is -1.12, suggesting that for each unit increase in X Variable 1,

the dependent variable is expected to decrease by approximately 1.12 units.

significance of the regression model is not firmly established based on the ANOVA results. Further examination and consideration of the specific context are recommended to determine the practical implications of the findings.

In conclusion, while the model exhibits a moderate to strong relationship between the variables, the overall

(TABLE 03)

Public Sector Banks					
Year/Particulars	2023-22	2022-21	2021-20	2020-19	2019-18
Gross NPA	41,373.42	41,409.16	46,291.63	54,062.51	42,551.54
Net NPA	9,180.20	10,113.86	13,577.43	27,886.27	25,451.03
Total	50,553.62	51,523.02	59,869.06	81,948.78	68,002.57
Ratios:					
Return on Capital employed	3.1	2.67	2.52	2.91	3.59
Net Profit Margin	20.46	10.6	5.3	12.33	18.09
Operating Profit Margin	-3.5	-11.38	-17.58	-19.36	-17.91
Return on Assets	1.31	0.72	0.34	0.77	1.26
Return on Equity	11.21	6.99	3.19	6.63	10.11

(SOURCE:www.rbi.org.in)

GRAPHICAL REPRESENTATION (TABLE 04)

Regression Statistics								
Multiple R	0.98120035							
R Square	0.96275412							
Adjusted R Square	0.95033882							
Standard Error	226.677499							
Observations	5							
ANOVA								
	df	SS	MS	F	Significance F			
Regression	1	3984512.52	3984512.52	77.545816	0.00308553			
Residual	3	154148.066	51382.6887					
Total	4	4138660.59						
	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	-155.606513	388.975145	-0.4000423	0.71590713	-1393.49903	1082.286	-1393.49903	1082.286
X Variable 1	0.1496514	0.01699423	8.80601022	0.00308553	0.09556816	0.20373464	0.09556816	0.20373464

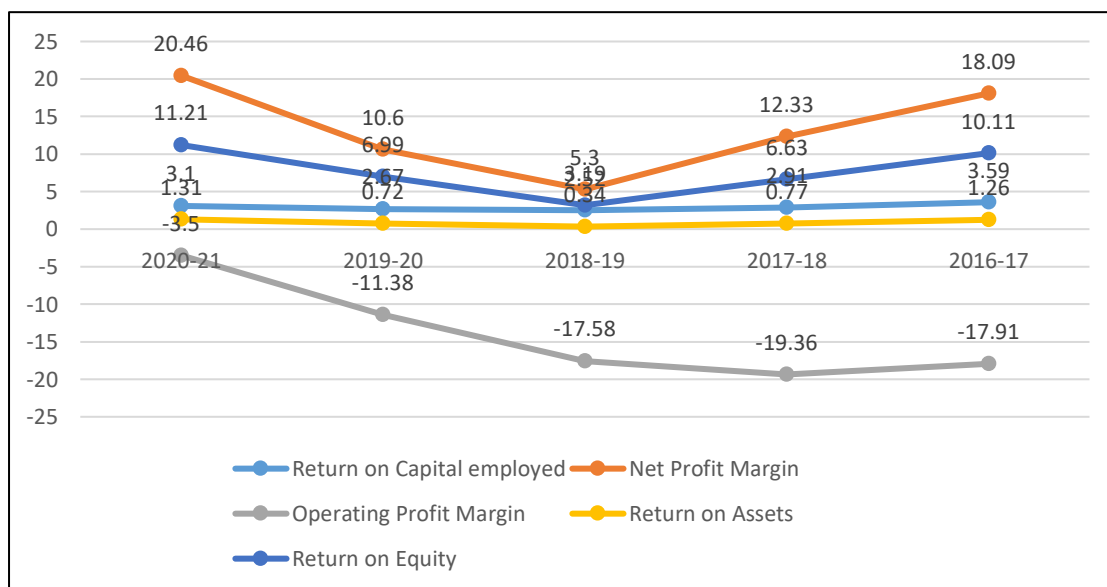


TABLE :3

The financial data provided for Public Sector Banks over the five-year period from 2019-18 to 2023-22 presents a comprehensive overview of their performance, focusing on key indicators such as Gross NPA (Non-Performing Assets), Net NPA, and various financial ratios. The Gross NPA, representing the total value of non-performing assets before accounting for provisions, exhibits a fluctuating trend. Starting at INR 42,551.54 crores in 2019-18, it reached its peak at INR 54,062.51 crores in 2020-19, before showing a gradual decline to INR 41,373.42 crores in 2023-22. This suggests a mixed performance in asset quality, reflecting the challenges faced by the banking sector Net NPA, which considers provisions for bad loans, also fluctuates but tends to be more stable than Gross NPA. The decline from INR 27,886.27 crores in 2020-19 to INR 9,180.20 crores in 2023-22 indicates an improvement in the provisioning for bad loans, signaling efforts to address asset quality concerns.

The total of Gross NPA and Net NPA shows a similar trend, demonstrating a reduction from INR 81,948.78 crores in 2019-18 to INR 50,553.62 crores in 2023-22. This reflects an overall positive trajectory in managing non-performing assets over the specified period.

Examining financial ratios, the Return on Capital Employed (ROCE) indicates a consistent but modest performance, increasing from 2.52% in 2021-20 to 3.1% in 2023-22. The Net Profit Margin experienced substantial growth, reaching 20.46% in 2023-22, highlighting efficient cost management and revenue generation. However, the Operating Profit Margin remained negative over the years, indicating challenges in operational efficiency.

Return on Assets (ROA) shows a gradual improvement, rising from 0.34% in 2021-20 to 1.31% in 2023-22, reflecting increased profitability relative to total assets. Similarly, Return on Equity (ROE) exhibits a positive trend, indicating enhanced returns for shareholders, climbing from 3.19% in 2021-20 to 11.21% in 2023-22.

In summary, the financial data suggests that Public Sector Banks have made strides in addressing non-performing assets, enhancing profitability, and improving returns for both capital employed and equity. However, operational challenges, reflected in the negative Operating Profit Margin, underscore the need for continued efforts to optimize efficiency in the coming years.

TABLE:4

The regression analysis conducted on the provided data yields valuable insights into the relationship between the independent variable (X Variable 1) and the dependent variable. The multiple R value of

0.9812 indicates a strong positive correlation between the variables. The R Square value of 0.9628 implies that approximately 96.28% of the variability in the dependent variable can be explained by changes in the independent variable. The Adjusted R Square, accounting for the number of predictors in the model, stands at 0.9503, reinforcing the robustness of the model in capturing the true relationship.

The coefficient for the intercept is -155.61, though not statistically significant (p-value = 0.716), suggesting that when the independent variable is zero, the dependent variable is estimated to be -155.61. However, the more critical coefficient is that of X Variable 1, which has a coefficient of 0.1497. This indicates that for every one-unit increase in X Variable 1, the dependent variable is expected to increase by 0.1497 units. The statistical significance of this relationship is supported by a low p-value (0.0031), suggesting that the relationship is unlikely to be due to random chance.

The ANOVA results further reinforce the validity of the model, with a significant F-statistic of 77.55 (p-value = 0.0031). This implies that the variance explained by the regression model is significantly greater than the variance left unexplained.

However, it's crucial to consider the practical significance along with statistical significance. The standard error of the regression is 226.68, providing an estimate of the variability of the dependent variable. The narrower the standard error, the more precise the predictions.

In summary, the regression analysis suggests a strong and statistically significant positive relationship between the independent and dependent variables. The model, as indicated by the R Square and Adjusted R Square values, effectively explains a substantial proportion of the variability in the dependent variable. While the intercept lacks statistical significance, the coefficient for X Variable 1 is significant, emphasizing its importance in predicting the dependent variable. Researchers and practitioners can utilize these findings to make informed decisions, understanding the magnitude and significance of the relationship between the variables under consideration.

CONCLUSION

In summary, this thorough analysis of the Non-Performing Assets (NPAs) of particular Indian banks and their effect on profitability has provided rich insights into the banking industry's financial environment. The intricate relationship between asset quality and financial health is highlighted by the analysis of non-performing assets over time and how they correlate with profitability. The results emphasize how important it is for banks to implement efficient

risk management plans, particularly in light of the unpredictable nature of economic cycles. Furthermore, the comparative worldwide approach clarifies how economic and regulatory contexts influence NPA trends. The study highlights the significance of investigating technology innovations and their ability to alleviate non-performing assets (NPAs) as we go through the digital era. This indicates a move toward innovative solutions in the banking industry. Furthermore, acknowledging the impact of consumer behavior and macroeconomic variables leads to a greater understanding of the difficulties and prospects in the banking sector. The study's conclusion identifies several possible directions for further investigation, including as the creation of thorough measures for long-term financial health and the incorporation of environmental, social, and governance aspects in NPA assessments. Through the implementation of these measures, the banking industry can enhance its ability to withstand changes in the financial landscape and maintain general stability.

SCOPE FOR FUTURE RESEARCH

There are a number of interesting directions that future studies on non-performing assets (NPAs) and how they affect bank profitability may go. First, a dynamic study across time could reveal how non-performing assets (NPAs) change over the course of many economic cycles and whether particular banks or industries show different levels of resilience or vulnerability in downturns. Second, by considering various legal frameworks and economic circumstances, a comparative international study could broaden the scope of the research and evaluate NPA patterns across other nations or regions. Thirdly, examining how different risk management techniques work to reduce the risks associated with non-performing assets (NPAs) may reveal best practices for banks. Furthermore, it might be useful to look into how technology innovations and digital transformation, including the use of fintech solutions, affect NPA management. Gaining insight into the relationship among customer behavior, loan repayment patterns, and non-performing assets (NPAs) could provide important early warning indicators of declining loan quality. In addition, studying the impact of macroeconomic variables on NPAs and profitability—such as inflation, GDP growth, and interest rates—may help us better understand the overall economic environment. Other options worthy of investigation include including environmental, social, and governance (ESG) issues into NPA evaluations and examining the effects of recent policy changes or interventions on NPAs and profitability.

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