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ASSESSING THE RISK: A CASE STUDY OF NON-PERFORMING ASSETS (NPAS) AT SBI BANK

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ABSTRACT

The Indian banking sector plays a crucial role in economic growth through credit allocation and capital formation. Public Sector Banks (PSBs) dominate the market and contribute significantly to financial inclusion by funding infrastructure, rural development and priority sectors. However, the sector is challenged by rising Non-Performing Assets (NPAs), which negatively impact profitability, reduce lending capacity and erode investor confidence. NPAs have placed a considerable burden on management resources, highlighting the urgent need for effective strategies. Hence reforms are required to improve asset quality and ensure long-term financial stability with growth. The present research study comprehensively analyzed non-performing assets (NPAs) at the State Bank of India (SBI) from 2016 to 2025, aiming to assess NPA trends and their impact on financial performance. Employing a descriptive and analytical case study approach, the researcher has utilized secondary data and statistical methods including trend analysis, chi-square tests and ANOVA. Key findings indicate that both gross and net NPAs exhibited statistically insignificant variation post-2019, signifying a trend towards normalization. Furthermore, the Capital Adequacy Ratio and Provision Coverage Ratio demonstrated significant improvements, while the Return on Advances ratio did not show a statistically significant linear trend. The study concludes that SBI has effectively controlled its NPAs, bolstering its risk management practices and strengthening overall financial stability, largely attributed to internal reforms and external regulatory interventions.

KEYWORDS: Gross non-performing assets (GNPA), Net non-performing assets (NNPA), State Bank of India (SBI), Return on Advance (ROA), Capital Adequacy Ratio (CAR) and Provision Coverage Ratio PCR).

1. INTRODUCTION

The Indian banking sector is essential for economic growth by offering services like credit allocation and capital formation. Public sector banks (PSBs) dominate the market, with the State Bank of India

(SBI) as the largest and most influential. SBI's extensive network supports financial inclusion by funding infrastructure, rural development and priority sectors. However, the sector faces significant challenges due to rising non-performing assets (NPAs), which impact banks' profitability and stability. NPAs have particularly affected commercial banks in India, posing risks to its financial health and ability to lend highlighting the need for effective management and reforms to ensure sustainable growth in the banking industry. The high volume of non-performing assets (NPAs) has negatively impacted commercial banks financial performance by reducing profitability due to increased provisioning, lowering investor confidence and limiting lending capacity. Managing these stressed assets has also demanded substantial management focus and resources. In response to the commercial banking sector, SBI has adopted internal measures to enhance credit risk assessment, improve recovery processes and restructure bad loans. Additionally, external regulatory efforts have played a key role in addressing the issue. The Reserve Bank of India's Asset Quality Review (AQR), the Insolvency and Bankruptcy Code (IBC) and the establishment of the National Asset Reconstruction Company Limited (NARCL) have been crucial in encouraging banks to strengthen their balance sheets by effectively resolving stressed assets and improving asset quality. Despite various measures, NPAs remain a significant challenge requiring continuous improvement in banking practices.

2. Research context:

The rise in NPAs highlights systemic issues in credit evaluation and monitoring, especially in vulnerable sectors like infrastructure, power and real estate. As a major lender to large corporations and government projects, SBI is heavily exposed to these risky sectors. Following aggressive lending during India's 2004– 2008 economic boom, NPAs increased sharply due to project delays, legal challenges, and poor borrower financial health, worsened by the global financial crisis and domestic slowdown. The Indian banking sector has grappled with a persistent NPA challenge over the past decade. The Gross NPA ratio for Scheduled Commercial Banks (SCBs) witnessed a significant increase from 2.4% in March 2011, rising to 4.6% in March 2015, and peaking dramatically at 11.5% in March 2018. This period of escalating NPAs was influenced by various factors, including the lingering effects of the 2008 Global Financial Crisis, which underscored the critical need for financial vigilance and robust regulatory responses. Following this peak, the Indian banking sector has demonstrated a notable turnaround, with the Gross NPA ratio embarking on a sustained downward trajectory, declining to 3.9% in March 2023 and further to a 13-year low of 2.5% as of September 2024. This sustained decline indicates a substantial improvement in asset quality across the sector in recent years.

Non-performing assets (NPAs) are loans or advances where borrowers have failed to make scheduled repayments of interest or principal for more than 90 days, causing these assets to stop generating

income for the bank. Based on the extent of delay and recovery prospects, NPAs are categorized as substandard assets (overdue for 90 days to 12 months), doubtful assets (overdue for over 12 months), and loss assets (considered unrecoverable). A high level of NPAs significantly affects a bank's financial performance. It leads to a decline in profitability due to lost interest income, reduces liquidity as funds are blocked, and diminishes capital through mandatory provisioning. Additionally, NPAs limit the bank's ability to lend further and damage its reputation, indicating weak credit risk management practices. Generally, the NPAs are measured as,

- ★ Gross NPA Ratio: $\text{Total gross NPAs} / \text{Total advances}$. This shows the overall extent of bad loans.
- ★ Net NPA Ratio: $(\text{Gross NPAs} - \text{Provisions}) / \text{Total advances}$.

The case of SBI highlights the importance of strong credit governance, sector-specific risk assessment and timely resolution processes in addressing the systemic nature of NPAs at the SBI. This research aims to analyze the trends of NPA at the SBI and evaluate financial performance based on selected ratios.

3. SCOPE OF THE STUDY:

1. The study is focused exclusively on the State Bank of India (SBI), representing public sector banks in India.
2. It covers the financial, operational and strategic dimensions of non-performing asset (NPA) management within SBI based on selected ratios only.
3. The analysis is limited to the Indian banking sector, considering the regulatory framework, policies and economic conditions applicable to SBI.

4. METHODS AND MATERIALS:

The present research paper employs a descriptive and analytical case study approach to examine the trends and impact of Non-Performing Assets (NPAs) on the State Bank of India's (SBI) performance from 2016 to 2025. It uses secondary data from credible sources, including SBI Annual Reports, RBI bulletins, financial stability reports and publications from the Ministry of Finance and Indian Banks Association (IBA). Additional insights come from academic articles, published papers on NPAs and financial databases like Moneycontrol, Statista and Centre for Monitoring Indian Economy Pvt. Ltd. The study analyzes selected financial ratios over this period to identify patterns in NPA trends and assess the effectiveness of SBI's management strategies. For data analysis, trend analysis by applying regression equations evaluates changes over time, while the chi-square test measures statistical significance. These methods altogether offer a detailed understanding of how NPAs influence SBI's financial performance and risk exposure.

5. OBJECTIVES OF THE STUDY:

1. To analyze the trends in Gross and Net Non-Performing Assets (NPAs) of the State Bank of India (SBI) over the financial year from 2016 to 2025.
2. To assess the impact of NPAs on SBI's financial performance based on selected financial indicators and/or ratios.

6. Hypothesis the study:

1. H_{01} : The growth in gross non-performing assets (GNPA) of the State Bank of India does not exhibit statistically significant variation over the observed period.
2. H_{02} : The growth in net non-performing assets (NNPA) of the State Bank of India does not exhibit statistically significant variation over the observed period.
3. H_{03} : There is no significant deviation in the State Bank of India's performance based on the selected financial ratios, indicating satisfactory performance.

7. RESULTS AND DISCUSSIONS:

The researcher has thoroughly examined the objectives of the present study and conducted a detailed analysis of the formulated hypotheses as follows.

1. H_{01} : The growth in gross non-performing assets (GNPA) of the State Bank of India does not exhibit statistically significant variation over the observed period.

To test the hypothesis H_{01} , the researcher has collected secondary data on the gross non-performing assets (GNPA) at the State Bank of India spanning from 2016 to 2025. Using this data, the researcher calculated the absolute growth in the gross non-performing assets amount as well as the percentage change over the specified period. The same have been tabulated and analyzed as follows.

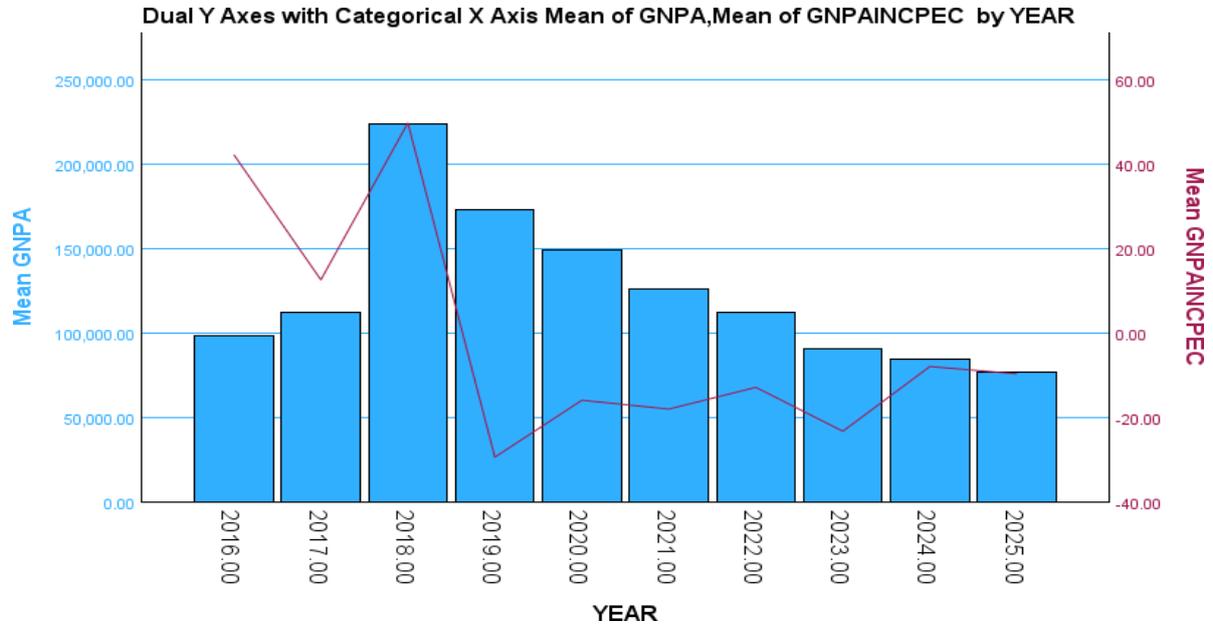
Table: 1 Growth of gross non-performing assets amount and percentage change at the SBI Bank

YEAR	YEAR NO	GNPA AMOUNT (Rs in Lakhs)	GNPA AMOUNT ABSOLUTE INCRS (Rs in Lakhs)	GNPA Per Cent Count (%)
2015	NA	56,725.34	NA	NA
2016	1	98,172.80	41,447.46	42.22
2017	2	112,342.99	14,170.19	12.61
2018	3	223,427.46	111,084.47	49.72
2019	4	172,753.60	-50,673.86	-29.33
2020	5	149,091.85	-23,661.75	-15.87
2021	6	126,389.00	-22,702.85	-17.96
2022	7	112,023.00	-14,366.00	-12.82
2023	8	90,927.78	-21,095.22	-23.20
2024	9	84,276.33	-6,651.45	-7.89
2025	10	76,880.20	-7,396.13	-9.62

Source: Compiled from secondary data.

From the table above, a dual-axis comparative analysis was conducted using SPSS Statistics. In this analysis, the independent variable was defined as time (year), while the dependent variables consisted of the GNPA in absolute monetary terms and the corresponding GNPA trend expressed as a percentage. A combination chart was constructed in SPSS to facilitate visual interpretation. In this chart, GNPA values in rupees in lakhs were represented as blue bars on the primary Y-axis, while the GNPA trend percentage was illustrated using a magenta line on the secondary Y-axis. The X-axis captured the timeline, displaying each year from 2016 to 2025. This dual-axis approach enabled simultaneous visualization of both the magnitude of gross non-performing assets and their relative year-on-year movement, thereby supporting a comprehensive analysis of asset quality trends over the specified time horizon.

Graph: 1 GNPA amount and trend per percentage



Source: Researcher's own exploration from secondary data.

The graphical findings suggest that the normalization of gross non-performing assets (GNPA) levels commenced in 2019, representing a pivotal shift in the trajectory of the bank's asset quality. This inflection point is indicative of a substantive improvement in the bank's operational resilience and its credit risk management framework. The stabilization observed post-2019 is likely the result of synergistic effects arising from comprehensive internal reforms coupled with the enforcement of external regulatory policies. These combined interventions have bolstered the institution's capacity to effectively mitigate credit risk and reinstate financial discipline, thereby facilitating the development of a more robust and sustainable asset portfolio throughout the study period.

To support the above graphical findings, the researcher has conducted chi-square test. The results are as follows.

Table: 2 Chi-square test results for gross non-performing assets

Chi-square Value	0.000
Table Value	18.31
df	10
asymp. Sig	1.000
a. 11 cells (100.0%) have expected frequencies less than 5.	
b. The minimum expected cell frequency is 1.0.	

Source: Compiled from secondary data.

The table above shows that the Chi-square calculated value of 0.000 is lower than its table value of 18.31 and its significance value 1.000 is more than 0.05 i.e. @ 5 % level of significance. This shows that the growth in gross non-performing assets (GNPA) of the State Bank of India does not exhibit statistically significant variation over the observed period; H_{01} (null hypothesis) is accepted.

H₀₂: The growth in net non-performing assets (NNPA) of the State Bank of India does not exhibit statistically significant variation over the observed period.

To test the hypothesis **H₀₂**, the researcher has collected secondary data on the net non-performing assets (NNPA) at the State Bank of India spanning from 2016 to 2025. Using this data, the researcher calculated the absolute growth in the net non-performing assets amount as well as the percentage change over the specified period. The same have been tabulated and analyzed as follows.

Table: 3 Growth of net non-performing assets amount and percentage change at the SBI Bank

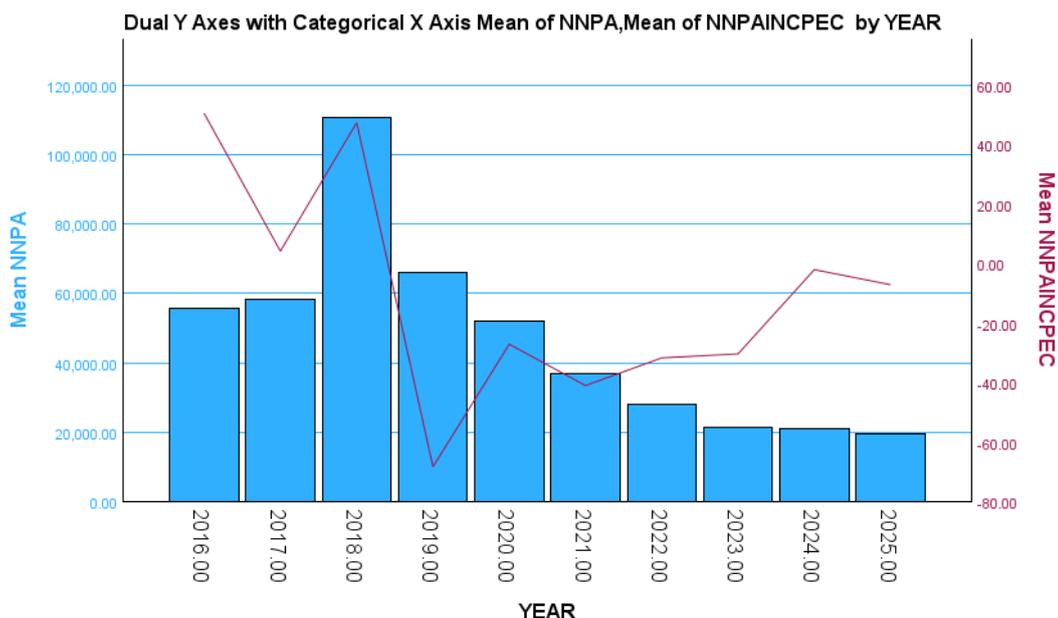
YEAR	YEAR NO	NNPA AMOUNT (Rs in Lakhs)	NNPA AMOUNT ABSOLUTE INCRS (Rs in Lakhs)	NNPA Per Cent Count (%)
2015	NA	27590.58	NA	NA
2016	1	55,807.02	28,216.44	50.56
2017	2	58,277.38	2,470.36	4.24
2018	3	110,854.70	52,577.32	47.43
2019	4	65,894.40	-44,960.30	-68.23
2020	5	51,871.30	-14,023.10	-27.03

2021	6	36,809.72	-15,061.58	-40.92
2022	7	27,965.71	-8,844.01	-31.62
2023	8	21,466.64	-6,499.07	-30.28
2024	9	21,051.08	-415.56	-1.97
2025	10	19,666.92	-1,384.16	-7.04

Source: Compiled from secondary data.

From the table above, a dual Y-axis structure to depict temporal variations in two critical indicators associated with the management of net non-performing assets (NPAs) at the State Bank of India (SBI) over the financial years 2016 to 2025 using SPSS statistics. The researcher has utilized secondary data pertaining to net non-performing assets of the State Bank of India. A combination chart was constructed in SPSS to facilitate visual presentation and interpretation. In this chart, net non-performing asset values in rupees in lakhs were represented as blue bars on the primary Y-axis, while the net non-performing asset trend percentage was illustrated using a magenta line on the secondary Y-axis. The X-axis represents the timeline, displaying each year from 2016 to 2025. This dual-axis approach enabled simultaneous visualization of both the magnitude of net non-performing assets and their relative year-on-year movement, thereby supporting a comprehensive analysis of asset quality trends over the specified time horizon.

Graph: 2 NNPA amount and trend per percentage



Source: Researcher's own exploration and analysis from secondary data.

The observed pattern reveals that the absolute amount of net non-performing assets exhibited an upward trend from 2016, reaching its highest point in 2018, indicative of a period marked by heightened asset quality deterioration. However, from 2019 onwards, a sustained decline in net non-performing assets is evident, reflecting the effectiveness of the bank’s remedial measures, including strengthened recovery mechanisms and enhanced credit risk management practices. This downward trajectory continues consistently through 2025, suggesting a structural improvement in the bank’s asset portfolio. Concurrently, the net non-performing assets percentage trend demonstrates high volatility, with substantial positive and negative fluctuations. A pronounced negative shift in 2019 denotes a sharp deceleration in the annual growth rate of net non-performing assets, aligning with the subsequent decline in its absolute value. From that point forward, the percentage change remains largely negative, affirming the persistence of a declining trend in net non-performing asset levels. Although minor positive changes are observed around 2023 and 2024, these are likely transient and do not significantly alter the overall downward momentum. Collectively, the data reflect a strategic inflection in SBI’s asset quality trajectory beginning in 2019, driven by targeted interventions aimed at mitigating credit risk and reinforcing financial stability. To support the above graphical findings, the researcher has conducted a chi-square test. The results are as follows.

Table: 4 Chi-square test results for net non-performing assets

Chi-square Value	0.000
Table Value	18.31
df	10
asympt. Sig	1.000
a. 11 cells (100.0%) have expected frequencies less than 5. b. The minimum expected cell frequency is 1.0.	

Source: Compiled from secondary data.

The table above shows that the chi-square calculated value of 0.000 is lower than its table value of 18.31 and its significance value of 1.000 is more than 0.05 i.e. @ 5 % level of significance at a degree of freedom of 10. The growth in net non-performing assets of the State Bank of India does not exhibit statistically significant variation over the observed period; H_0 (null hypothesis) is accepted.

H₀₃: There is no significant deviation in the State Bank of India’s performance based on the selected financial ratios, indicating satisfactory performance.

To test the above hypothesis, the researcher has considered and analyzed (a) the return on advance ratio,

(b) the provisioning coverage ratio and (c) the capital adequacy ratio. The results for the same are as follows. To test the above hypothesis H_{03} - (a), the first ratio the researcher has considered is the return on advance ratio.

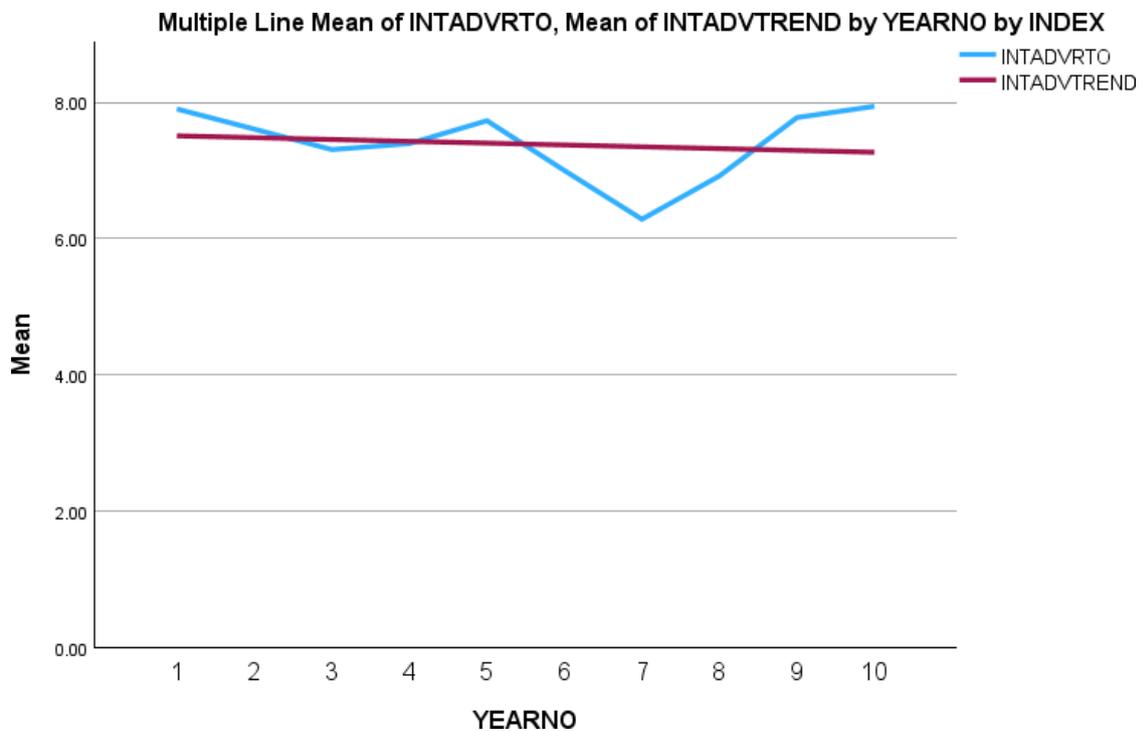
Table: 5
Return on Advances at SBI Bank

YEAR (x)	INTEREST/ADVANCE RATIO	TREND (Y)
1	7.9023008	7.50821
2	7.606877004	7.48142
3	7.306042551	7.45463
4	7.394754413	7.42784
5	7.730170173	7.40105
6	6.998542342	7.37426
7	6.284777972	7.34747
8	6.920350531	7.32068
9	7.776471567	7.29389
10	7.941440902	7.2671

Source: Compiled from secondary data.

To test the above hypothesis H_{03} - (a), the researcher has conducted ANOVA test statistics and trend analysis by applying a regression equation with graphical presentation.

Graph: 3 Return on Advance Ratio and trend



Source: Researcher's own exploration from secondary data.

Image: 1 Linear regression model summary: Return on Advance

Model Summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	Change Statistics			
						F Change	df1	df2	Sig. F (
1	.156 ^a	.024	-.098	.550099725	.024	.198	1	8	

Source: Compiled from secondary data on return on advance.

The linear regression model examines the relationship between the dependent variable and the independent variable YEARNO. The model yielded a low R-value of 0.156, indicating a very weak positive correlation between the predictor (year number) and the dependent variable i.e. return on advance. The F-statistic is 0.198 with a significance value (Sig. F Change) of 0.668, which is well above the conventional alpha level of 0.05. This implies that the model is not statistically significant, and there is no evidence to suggest a meaningful linear relationship between the year and the outcome variable.

Image: 2 ANOVA test results: Return on Advance

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.060	1	.060	.198	.668 ^b
	Residual	2.421	8	.303		
	Total	2.481	9			

a. Dependent Variable: INTADVRTO

Source: Compiled from secondary data on return on advance.

The ANOVA table above evaluates the overall significance of the regression model. The F-statistic is 0.198 with degrees of freedom (1, 8) and a significance level (p-value) of 0.668. Since the p-value exceeds the conventional alpha threshold of 0.05, the model is not statistically significant. This indicates that the independent variable YEARNO does not significantly predict variations in the dependent variable INTADVRTO, i.e. return on advance. The total variation in the dependent variable is 2.481, of which only 0.060 (approximately 2.4%) is explained by the regression model, while the remaining 2.421 is attributed to residual (unexplained) variation.

Image: 3 Coefficients statistics: Return on Advance

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	7.535	.376		20.050	<.001
	YEARNO	-.027	.061	-.156	-.445	.668

a. Dependent Variable: INTADVRTO

Source: Compiled from secondary data on return on advance.

The unstandardized coefficient for the intercept is 7.535, which is statistically significant ($p < 0.001$). This indicates that when YEARNO is zero (i.e., at the starting point of the timeline), the predicted value of INTADVRTO is 7.535 units. The unstandardized coefficient (B) for YEARNO is -0.027, indicating a very slight negative relationship between year progression and INTADVRTO. In other words, for each additional year, the INTADVRTO is predicted to decrease by 0.027 units, holding all else constant.

Hence the regression equation derived from the above coefficient statistics and interpretations is;

$$Y = 7.535 - 0.027 \times x \quad Y = 7.535 - 0.027 \times 1$$

$$Y = 7.535 - 0.027$$

$$Y = 7.508 \text{ (trend value in 1st year in table no. 5.)}$$

To test the above hypothesis $H_{03} - (b)$, the second ratio the researcher has considered is the capital adequacy ratio.

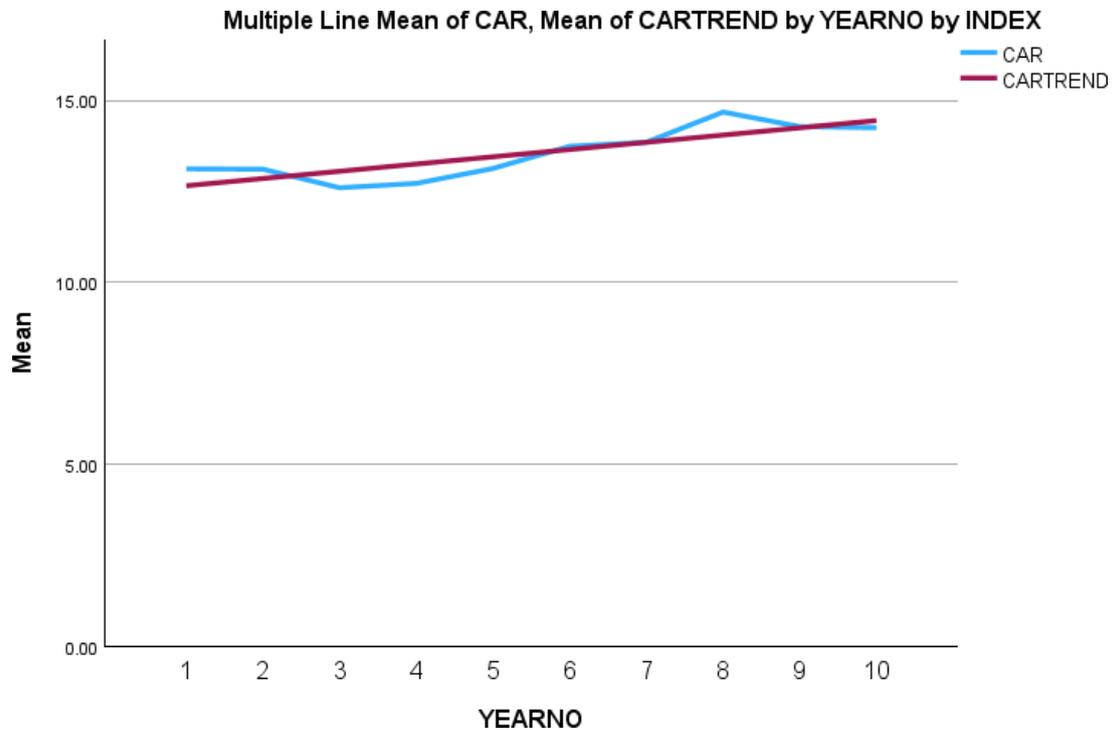
Table: 6 Capital Adequacy Ratio at SBI Bank

YEAR	YEAR NO	CAR %	TREND
2016	1	13.12	12.655
2017	2	13.11	12.854
2018	3	12.6	13.053
2019	4	12.72	13.252
2020	5	13.13	13.451
2021	6	13.74	13.65
2022	7	13.85	13.849
2023	8	14.68	14.048
2024	9	14.28	14.247
2025	10	14.25	14.446

Source: Compiled from secondary data.

To test the above hypothesis $H_{03} - (b)$, the researcher has conducted ANOVA test statistics and trend analysis by applying a regression equation with graphical presentation.

Graph: 4 Capital adequacy ratio and trend



Source: Researcher's own exploration from secondary data.

Image: 4 Linear regression model summaries: Capital Adequacy Ratio

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	Change Statistics			
						F Change	df1	df2	Sig. F Change
1	.843 ^a	.711	.675	.40620	.711	19.710	1	8	.002

a. Predictors: (Constant), YEARNO

Source: Compiled from secondary data on capital adequacy ratio.

The regression model demonstrates a strong and statistically significant relationship between the variable YEARNO and the dependent variable, as evidenced by an R² value of 0.711 and a p-value of 0.002. This implies that the year-related trend explains approximately 71.1% of the variance in the dependent outcome. The F-test result (F = 19.710, p < 0.01) further confirms the model's overall significance, validating the predictive relevance of the YEARNO variable. The adjusted R² (0.675) and a relatively low standard error (0.40620) support the robustness and reliability of the model fit.

Image: 5 ANOVA test results: Capital Adequacy Ratio

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3.252	1	3.252	19.710	.002 ^b
	Residual	1.320	8	.165		
	Total	4.572	9			

a. Dependent Variable: CAR

b. Predictors: (Constant), YEARNO

Source: Compiled from secondary data on capital adequacy ratio.

The ANOVA results confirm that the regression model is statistically significant ($F(1,8) = 19.710$, $p = 0.002$), indicating that the independent variable YEARNO has a significant linear relationship with the dependent variable CAR. The model explains a substantial portion of the variance in capital adequacy ratio, as further supported by the model summary ($R^2 = 0.711$). This suggests that year-wise changes have a considerable impact on CAR over the observed period.

Image: 6 Coefficients statistics: Capital Adequacy Ratio

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	12.456	.277		44.889	<.001
	YEARNO	.199	.045	.843	4.440	.002

a. Dependent Variable: CAR

Source: Compiled from secondary data on capital adequacy ratio.

The regression coefficients indicate that the variable YEARNO is a statistically significant predictor of Capital Adequacy Ratio (CAR), as shown by a standardized Beta coefficient of 0.843 and a p-value of 0.002. The unstandardized coefficient ($B = 0.199$) suggests that for each additional year, CAR increases by approximately 0.199 units, holding other factors constant. The intercept value of 12.456 indicates the baseline level of CAR when YEARNO is zero. The high t-value (4.440) further confirms the significance and reliability of the estimate. Therefore, it can be concluded that temporal progression (as measured by YEARNO) has a positive and meaningful impact on the capital adequacy of the observed bank.

Hence the regression equation derived from the above coefficient statistics and interpretations is;

$$Y = 12.456 + 0.199 \times x \quad Y = 12.456 + 0.199 \times 1$$

$$Y = 12.456 + 0.199$$

$$Y = 12.655 \text{ (trend value in 1st year in table no. 6.)}$$

To test the above hypothesis H_{03} - (c), the third ratio the researcher has considered is the capital adequacy ratio.

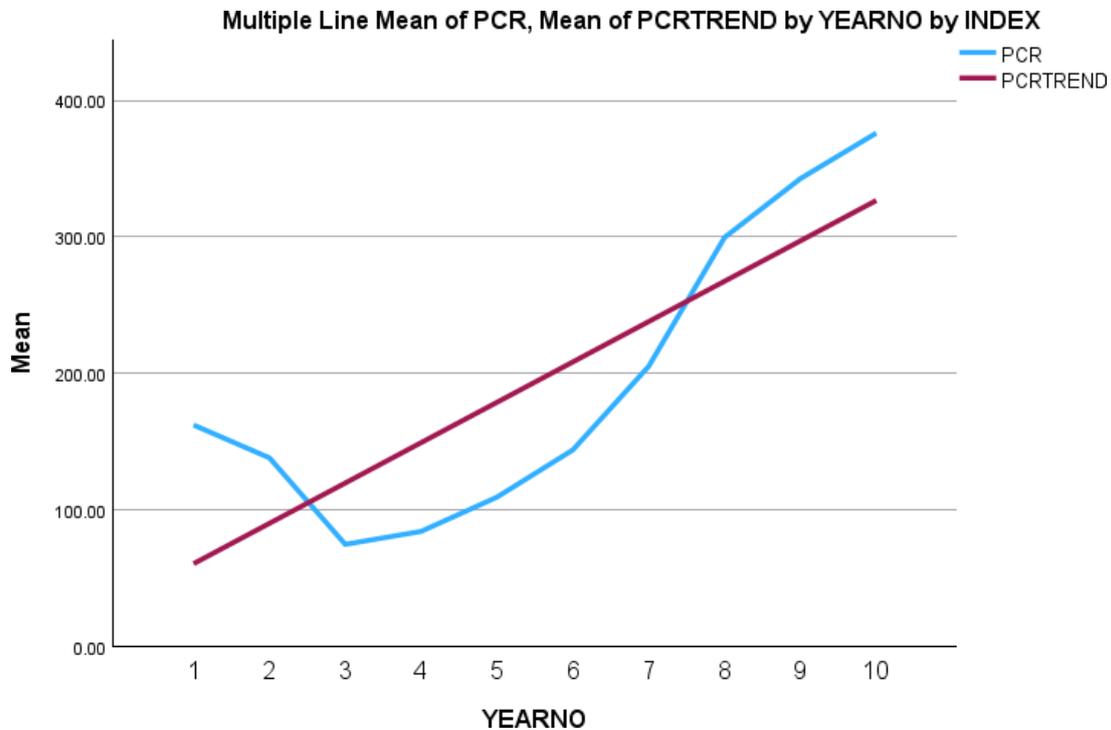
Table: 7 Provision Coverage Ratio at SBI Bank

YEAR	YEAR NO	PCR %	TREND
2016	1	162.2405391	60.624
2017	2	138.1796853	90.186
2018	3	74.80641815	119.748
2019	4	84.28032759	149.31
2020	5	109.4024254	178.872
2021	6	143.9837802	208.434
2022	7	205.2541353	237.996
2023	8	299.6412647	267.558
2024	9	342.693767	297.12
2025	10	376.0774556	326.682

Source: Compiled from secondary data.

To test the above hypothesis H_{03} - (c), the researcher has conducted ANOVA test statistics and trend analysis by applying a regression equation with graphical presentation.

Graph: 5 Provision Coverage Ratio and trend



Source: Researcher’s own exploration from secondary data.

The graph illustrates the temporal progression of the mean Provision Coverage Ratio (PCR) across a 10- year period (YEARNO), alongside a corresponding linear trend line (PCRTREND) that summarizes the underlying trajectory. The light blue line represents the actual mean values of PCR over time, while the maroon line represents the linear trend approximation. In the initial years (YEARNO 1 to 3), there is a noticeable declining trend in PCR, reaching its lowest point around YEARNO 3. This suggests a weakening in the bank’s provisioning coverage during that period, which could be indicative of rising non-performing assets or a more lenient provisioning policy. However, starting from YEARNO 4 onward, the PCR exhibits a gradual upward movement, becoming more pronounced from YEARNO 6 through YEARNO 10. By YEARNO 10, the PCR reaches a level above 400, indicating a substantial improvement in provisioning adequacy. The maroon trend line (PCRTREND) confirms this overall upward linear trend in provisioning coverage, suggesting that despite early fluctuations, the long-term trajectory of PCR is positive and consistent. The increasing trend could reflect enhanced asset quality measures, stricter provisioning norms, or improved risk management strategies adopted over the years.

Image: 7 Linear regression model summaries: Provision Coverage Ratio

Model Summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	Change Statistics			
						F Change	df1	df2	Sig. F Change
1	.823 ^a	.677	.636	65.64680	.677	16.730	1	8	.003

a. Predictors: (Constant), YEARNO

Source: Compiled from secondary data on provision coverage ratio.

The regression model reveals a strong positive relationship between the independent variable YEARNO and the dependent variable, as evidenced by a correlation coefficient (R) of 0.823. This indicates a high degree of association between the passage of years and the dependent variable's values. The coefficient of determination (R Square = 0.677) signifies that approximately 67.7% of the variability in the dependent variable is explained by the year-wise trend (YEARNO). The Adjusted R Square value of 0.636 accounts for the model's complexity and sample size, indicating that even after adjusting for degrees of freedom, about 63.6% of the variance is still explained by the predictor. This suggests a good model fit. The standard error of the estimate is 65.647, indicating the typical distance between the actual values and the regression line. While this value is context-dependent, it suggests a moderate spread of residuals around the fitted values.

Image: 8 ANOVA test results: Provision Coverage Ratio

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	72100.028	1	72100.028	16.730	.
	Residual	34476.016	8	4309.502		
	Total	106576.044	9			

a. Dependent Variable: PCR

b. Predictors: (Constant), YEARNO

Source: Compiled from secondary data on provision coverage ratio.

The ANOVA (Analysis of Variance) table evaluates the overall significance of the linear regression model. The regression sum of squares is 72,100.028, indicating the amount of variation in the Provision Coverage Ratio (PCR) that is explained by the predictor variable YEARNO. The residual sum of squares is 34,476.016, representing the portion of the variance not explained by the model. With a total sum of squares of 106,576.044, it can be inferred that approximately 67.7% of the total variance in PCR is explained by the regression model (as seen earlier from the R Square value of

0.677), leaving the remaining 32.3% as unexplained or residual variance. The F-statistic of 16.730 (calculated as the ratio of the regression mean square to the residual mean square) tests the null hypothesis that the regression model does not explain any of the variability in PCR better than a model with no predictors. The significance level (Sig.) is 0.003, which is highly significant ($p < 0.05$).

Image: 9 Coefficients statistics: Provision Coverage Ratio

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	31.062	44.845		.693	.508
	YEARNO	29.562	7.227	.823	4.090	.003

a. Dependent Variable: PCR

Source: Compiled from secondary data on provision coverage ratio.

The regression analysis reveals a strong and statistically significant relationship between YEARNO and the Provision Coverage Ratio (PCR). The unstandardized coefficient for YEARNO is 29.562, indicating that PCR increases by approximately 29.56 units with each passing year. The standardized beta coefficient of 0.823 further confirms a strong positive correlation between the two variables. The p-value associated with YEARNO is 0.003, which is well below the 0.05 threshold, signifying that the relationship is statistically significant. Although the constant term (31.062) is not statistically significant ($p = 0.508$), this does not affect the validity of the predictor variable. Overall, the findings suggest a consistent upward trend in PCR over the years, highlighting an improvement in the bank's provisioning against non-performing assets.

Hence the regression equation derived from the above coefficient statistics and interpretations is;

$$Y = 31.062 + 29.562 \times x \quad Y = 31.062 + 29.562 \times 1$$

$$Y = 31.062 + 29.562$$

$$Y = 60.624 \text{ (trend value in 1st year in table no. 7.)}$$

8. FINDINGS AND CONCLUSION:

This study comprehensively analysed the Non-Performing Assets (NPAs) of SBI from 2016 to 2025, revealing significant improvements in asset quality. Post-2019, both gross and net NPAs exhibited statistically insignificant fluctuations, indicating a clear trend towards normalization. These positive changes were primarily driven by internal reforms and external regulatory measures such as the Asset

Quality Review (AQR) and Insolvency and Bankruptcy Code (IBC).

Furthermore, SBI demonstrated notable progress in key financial indicators, with the Capital Adequacy Ratio and Provision Coverage Ratio showing marked improvements over the period. However, the return on advances ratio did not display a significant linear trend. These findings underscore SBI's enhanced risk management practices and strengthened financial stability. While continued vigilance remains essential, the evidence suggests that SBI has effectively controlled its NPAs, contributing to a more resilient and sustainable financial framework.

9. Limitations of the Study:

1. The study is based solely on secondary data available in the public domain such as annual reports, regulatory publications and financial databases.
2. There is a lack of access to internal bank data and detailed borrower-specific information, which may limit the depth of analysis.
3. Due to geopolitical events and global pandemics, the findings may not fully capture the effects of unforeseen macroeconomic disruptions or major policy changes that occurred during the study period i.e., from 2016 to 2025.
4. A comparative study can be conducted utilizing a common database that includes data from rural and/or urban areas.

10. Directions for the future research:

1. Interviews with bank executives, subject matter experts and borrowers can be used as primary data sources in future research to gain a deeper understanding of the qualitative facets of non-performing asset (NPA) management that secondary data cannot adequately capture.
2. It is possible to evaluate and assess a pre-post COVID-19 comparison analysis.
3. Future studies might also look at developments that have occurred beyond 2025, with a focus on the changing geopolitical landscape and macroeconomic circumstances that may significantly affect banks' asset quality and financial stability.
4. Advanced econometric models and a cross-country comparative approach could offer predictive insights into the behaviour of non-performing assets (NPAs) and the efficacy of different policy measures.

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2. Studies by the Reserve Bank of India (RBI) on the impact of economic downturns and crises (like COVID-19) on asset quality. (The RBI's Financial Stability Reports will be particularly useful here).

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