Analyzing the Influence of Non-Performing Assets:
A Comparative Study between SBI and HDFC

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Abstract

Non-performing assets (NPAs) pose an enduring and intricate challenge within the banking sector, carrying far-reaching consequences for both financial stability and broader economic growth. This paper provides an in-depth analysis of NPAs and their impact on the financial performance of HDFC and SBI. Based on the analysis of the NPA data of the two banks, it is found that the NPA ratio for State Bank of India is in the range of 1.02%-5.73%, which is on the higher side in comparison to the NPA of HDFC, which lies between 0.20%-0.64% for the period 2007-8 to 2021-2022. In both cases, NPA has a negative impact on profitability, but it is much higher in SBI. These findings may help SBI reinvent its credit policy and the credited process of its credit business to different customer segments.

Keywords: non-performing assets, banking sector, State Bank of India, HDFC Bank

1.   INTRODUCTION

The global economy is inherently reliant on the health and stability of the banking sector. Banks act as financial intermediaries, channeling funds from savers to borrowers, facilitating economic growth, and ensuring the smooth functioning of transactions and investments. As such, the stability and performance of banks are central to the well-being of nations and their financial systems.

However, the banking sector is not without its challenges, and one of the most persistent and pressing issues it grapples with is non-performing assets (NPAs). NPAs represent loans or advances that have ceased to generate interest income or are at risk of default. The importance of understanding the implications of NPAs cannot be overstated. When loans turn into NPAs, it affects not only the lending institutions but also the borrowers, shareholders, and the overall stability of the financial system. High levels of NPAs can impair a bank's profitability, erode its capital base, and, in extreme cases, pose systemic risks, potentially leading to financial crises. Within this context, this research paper seeks to explore the number

of NPAs, the issues they pose, and their profound impact on the financial performance of two Indian banks, SBI and HDFC. It is aimed to provide a thorough understanding of the challenges posed by NPAs and their impact on profitability. The research paper also seeks to explore the NPAs and their relationship with profitability and put forth policy recommendations and future research directions.

State Bank of India (SBI)

It is a public sector bank. It is the largest and oldest commercial bank in India, boasting a rich heritage spanning over 200 years, originating from the establishment of the Bank of Calcutta in 1806. SBI commands a substantial market presence, holding a 22.84% share in deposits and a 19.69% share in advances in India. With an extensive network comprising 24,246 branches, it caters to a vast customer base of 467.7 million, as reported in the annual financial statements for 2022-23.

HDFC Bank

HDFC Bank is India's leading private financial institution, primarily known for housing finance. Established in 1977, HDFC Bank has a significant presence in the banking and financial services sector. As per the latest available data for 2022, HDFC boasts a substantial market share of 13.2%, deposits, and 13.2% in terms of advances, making it a key private sector player in the mortgage industry. HDFC has a widespread network of 7,945 branches (Press Release, 2023) and a substantial customer base of 110 million in 2022, contributing to its prominent position in the Indian private banking landscape.

The study has two main objectives, as mentioned below.
1. To study the trend and basic parameters (descriptive statistics of NPA, Net NPA, Net NPA ratio, and profitability.
2. To study the relationship between net NPA and profitability.

1.1. Definition and Classification of NPAs

Non-Performing Assets (NPAs), often referred to as non-performing loans, represent a critical issue within the banking sector. NPAs are essentially loans or advances extended by banks to borrowers that have either ceased to generate interest income for the lender or are at substantial risk of default. In essence, NPAs indicate that a bank is not receiving the expected repayments from its borrowers, and these assets have turned unproductive.

1.2. Classification of NPAs

Banks use a structured framework to classify loans or advances into different categories based on their performance. The classification criteria help banks assess the level of risk associated with each loan and make informed decisions regarding provisioning, reporting, and the allocation of capital (RBI, 2011). The primary classifications of NPAs include:

1.2.1. Standard Assets

These are loans that are being serviced on time and in accordance with the agreed-upon terms. No signs of financial stress or delay in payment are evident. Standard assets are free from NPA classification, RBI (2011).

1.2.2. Sub-Standard Assets

Sub-standard assets indicate the beginning of NPA classification. Loans in this category have started to show signs of irregular payment, and there are concerns about the borrower's ability to meet their obligations (RBI, 2011).

1.2.3. Doubtful Assets

Doubtful assets are at a higher level of risk as they have significant irregularities in repayment. There are serious doubts about the full recovery of the loan, and these assets are often considered riskier (RBI, 2011).

1.2.4. Loss Assets

Loss assets are loans where there is little or no chance of recovery. These are typically written off by banks, and they represent a complete loss of the loaned amount (RBI, 2011).

The classification of NPAs is essential for accounting purposes, risk management, and regulatory compliance. It allows banks to identify problem loans, make provisions for expected losses, and report their financial health accurately. Understanding the classification of NPAs is fundamental to assessing the impact of these assets on a bank's financial performance and overall stability. It provides the necessary context for further analysis and discussion of NPAs in the banking sector.

The paper is organized into five sections. Section 1 offers a concise introduction to NPAs, while Section 2 provides an extensive literature review on the interplay between NPAs and profitability. Section 3 outlines the methodology employed, including details on data collection. The analysis is presented in Section 4, and Section 5 encapsulates the findings and conclusion of the study, practical implications, and suggestions for future research endeavors.

2.   LITERATURE REVIEW

Non-performing assets have always been the subject of interest of researchers, bankers, investing firms, and financial experts across the globe. Large numbers of research papers are published on this topic. The review of key research papers in the context of Indian banks during the period of 2008-22 is presented in the following.

Agarwala and Agarwala (2019) studied the health of banks by analyzing the number of loans given by banks that were not being paid back by the customers for the period starting from 2010 to 2017. The study includes private banks and government-owned banks, including the State Bank of India (SBI) and its associates. Based on an analysis of the data, they found that private banks have fewer unpaid loans than government-owned banks like SBI. It indicates better management of private sector banks and the future profitability they can make.

Gautami and Santhapalli (2015) attempted to address the question of why loans don't get paid back. They focus on thinking of managers of banks, people, and borrowers. They found that people did not repay loans due to unexpected family problems and a lack of the right rating of borrowers on the part of banking executives. The banks did not map the amount to be given as a loan with the paying capacity of

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borrowers to pay back loans. To fix this, banks need better ways to decide whom to lend to and stricter rules to design. This study shows that banks like SBI and ICICI need to work on these issues to make sure loans are paid back on time. Gaba & Kumar (2018) looked at how non-performing assets (NPAs) affect the profits of private banks in India. They studied several private banks over a certain time. Based on the analysis of data from these banks, the authors concluded that NPAs can affect the profits of private banks.

Khanna (2017) explored the reasons behind loan defaults in major banks such as State Bank of India (SBI), its associate banks, private sector banks (ICICI Bank, Axis Bank Ltd, Indusland Bank Ltd) and public sector banks (Oriental Bank of Commerce, Corporation Bank, Bank of Baroda). The research reveals varying trends in unpaid loans across different years. It also underscores that a significant portion of these unpaid loans originate from lending to agriculture and small businesses. Conversely, private banks tend to face more unpaid loans from lending to larger industries and businesses. These findings stress the importance of exercising caution in lending practices to ensure prompt repayment. Such practices are vital for banks to sustain profitability and maintain the stability of the banking system.

Manu et al. (2018) studied data from IFCI and IDBI Bank utilizing multiple regression analysis techniques and concluded that a rise in Non-Performing Assets (NPA) has a significant impact on the profitability of these banks. This observation was consistent with the results of the analysis of Return on Assets (ROA), Return on Equity (ROE), and Return on Capital Employed (ROCE) as indicators of bank profitability. The study recommended the implementation of stringent credit appraisal and recovery policies by management to effectively control the continuous increase in NPAs. Das and Utpal (2021) explore the relationship between Non-Performing Assets (NPAs) and profitability by analyzing the determinants of profitability across 39 public sector and private banks from 2005 to 2019. They explored the relationship between non-performing assets (NPA) and the return on assets (ROA) among Indian commercial banks. Their analyses, which employ a Random Effects model and incorporate macroeconomic factors such as inflation and GDP growth rates, conclude that NPAs adversely affect the ROA of these banks. As per this study, there exists a statistically significant negative correlation between profitability, as measured by Return on Assets (ROA), and both Non-Performing Assets (NPA) and operating costs. However, a positive relationship is observed between ROA and interest income as well as non-interest income, suggesting their potential as drivers of bank profitability.

Mittal & Suneja (2017) provides a snapshot of Non-Performing Assets (NPAs) in Indian banks from 2005 to 2016, comparing trends between public and private sector banks. Notably, public banks showed a downward trend in NPAs until 2008, followed by an increase, likely due to the global financial crisis. Meanwhile, private banks exhibit a similar pattern but with less pronounced increases. The analysis indicates the substantial disparity in NPA levels between public and private sector banks. Causes of NPAs are categorized into internal bank factors, borrower-related issues, and macroeconomic influences. They suggested the need to revise credit appraisal systems and promote borrower accountability. Overall, the study underscores the necessity for proactive measures to address NPAs effectively, given their significant implications for the banking sector and the broader economy.

Sharma (2018) reported that the Indian banking sector has transformed significantly, evolving from intermediaries to pivotal drivers of development. Both public and private banks have forged close ties with industries and agriculture, aiming to compete in the credit market and support small and medium enterprises. Structural changes, including reductions in Cash Reserve Ratio (CRR), Statutory Liquidity Ratio (SLR), and bank rates, have been instrumental to this situation. However, challenges persist, particularly in managing non-performing assets (NPAs). The author emphasizes the importance of proactive measures such as stricter credit appraisal systems and enhanced regulatory oversight to ensure the resilience of India's financial sector. Dey (2018) focused on the recovery of poor loans within the Indian commercial banking sector. He found that Debt Recovery Tribunals (DRTs) played a more effective role compared to recovery through Lok Adalat's and the SARFASEI Act. Examining the root causes of accumulating NPAs, Kumar et al. (2018) identified factors such as industrial sickness, changes in government policies, deficiencies in the credit appraisal system, willful defaults, and defects in the lending process as the primary reasons behind the surge in NPAs.

Sahoo et al. (2017) explored the regulatory frameworks concerning Non-Performing Assets (NPAs) in Scheduled Commercial Banks in India. By critically analyzing the existing mechanisms, the study highlights both the challenges and opportunities in managing NPAs. This research contributes significantly to our understanding of financial regulation's impact on banking stability and performance. The study is based on NPAs from 2010 to 2017 of private banks, government-owned banks, and the State Bank of India and its partners. Kaur & Kumar (2018) found that private banks have fewer bad loans compared to government-owned including the State Bank of India.

Kavitha et al. (2019) investigated the influence of non-performing assets (NPAs) on the profitability of Indian scheduled commercial banks. Their study spanned a particular period during which they explored the correlation between NPAs and bank profitability. The findings revealed a notable adverse effect of NPAs on the profitability of Indian scheduled commercial banks, including HDFC, SBI, and others. This underscores the significance of implementing effective strategies for NPA management to enhance overall bank profitability. The research contributes valuable insights into the challenges faced by Indian banks in handling NPAs and emphasizes the necessity of implementing robust measures to address this issue. Ombir and Bansal (2016) conducted an analysis of non-performing assets (NPAs) in Indian banks, focusing on understanding the impact of NPAs on the financial health of these banks. They found that NPAs had a significant adverse effect on the profitability and performance of the banks. Kumar (2018) conducted a study to understand the trends and recovery of non-performing assets (NPAs) in Indian banks. The study looked at how NPAs changed over time and how banks tried to recover the money. It found that NPAs were a concern for Indian banks, affecting their financial health.

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Table 1. Summary of Reviewed Research Papers

Author	Key Finding and Banks	Methodology
Agarwala & Agarwala (2019)	Conducted a critical review of NPAs in the Indian banking industry. Found NPAs affect banks' profitability.	Reviewed existing literature and analyzed data from Indian banks.
Gaba & Kumar (2018)	Studied NPAs and profitability in Indian private-sector banks.	Analyzed financial data of private sector banks and compared NPAs' impact on profitability.
Das & Uppal (2021)	Conducted an empirical analysis of NPAs' effect on Indian banks' profitability.	Utilized statistical methods to analyze financial data and assess NPAs' impact on profitability.
Nachimuthu, & Muthukrishna (2019)	Investigated NPAs' impact on profitability in Indian scheduled commercial banks.	Analyzed financial data of scheduled commercial banks and assessed NPAs' impact on profitability.
Santhapalii (2015)	Explored factors influencing NPAs in commercial banks, focusing on ICICI and SBI.	Conducted empirical study and analyzed data to identify factors contributing to NPAs.
Khanna (2017)	Examined NPA management strategies in commercial banks. Found challenges in managing NPAs.	Reviewed NPA management practices and identified challenges through case studies.
Mittalj & Suneja (2017)	Compared rising NPAs in Indian public and private sector banks.	Analyzed financial data of public and private sector banks to compare NPA trends.
Ombir & Bansal (2016)	Analyzed NPAs of Indian banks. Found challenges in managing NPAs due to various factors.	Reviewed financial reports and conducted case studies to analyze challenges in NPA management.
Rayudu & Thunga (2018)	Investigated NPAs in selected public and private sector banks in India.	Conducted empirical study and analyzed financial data of selected banks to assess NPA levels.
Bepari & Sarkar (2020)	Examined the impact of NPAs on profitability in selected public and private sector banks in India.	Conducted comparative analysis of NPAs' effect on profitability using financial data of selected banks.
Roy & Samanta (2017)	Analyzed NPAs in public sector banks of India. Explored factors contributing to NPAs and suggested measures.	Conducted empirical study and reviewed financial data of public sector banks to identify NPA trends and factors.
Srinivas (2002)	Investigated NPAs of commercial banks in India. Examined factors leading to NPAs and suggested measures for control.	Conducted empirical study and analyzed financial data of commercial banks to identify NPA trends and causes.

Author	Key Finding and Banks	Methodology
Swain et al (2017)	Explored NPAs of scheduled commercial banks in India and their regulatory framework.	Reviewed regulatory frameworks and analyzed financial data of scheduled commercial banks to assess NPA levels.
Valliammal & Manivannan (2018)	Studied NPAs and their impact on public sector banks in India. Identified measures to address NPAs.	Conducted empirical study and analyzed financial data of public sector banks to assess NPA levels and mitigation measures.
Kaur & Kumar (2018)	Conducted sectoral analysis of NPAs during pre and post-crisis periods in selected commercial banks.	Analyzed financial data of selected banks and compared NPAs' trends before and after the financial crisis.
Sharma (2018)	Explored growing NPAs in the Indian banking sector. Discussed challenges and suggested solutions.	Conducted review of NPAs' trends and challenges faced by the banking sector and proposed solutions based on analysis.
Mukhopadhyay (2018)	Explored innovative solutions to India's NPA issues. Discussed strategies for NPA management.	Reviewed existing literature and proposed innovative strategies for NPA management based on analysis.
Dey (2018)	Investigated recovery mechanisms of NPAs in Indian commercial banks. Discussed methods for NPA resolution.	Conducted empirical study and reviewed NPA recovery mechanisms in Indian commercial banks.
Kumar et al. (2018)	Analyzed the genesis of NPAs in Indian banks through empirical analysis.	Conducted empirical study and analyzed factors leading to the increase in NPAs in Indian banks.
Kumar (2018)	Studied NPA trends and recovery in Indian banks. Analyzed strategies for NPA resolution.	Conducted empirical study and analyzed NPAs' trends and recovery strategies in Indian banks.

Source: Author (2023).

3. METHODOLOGY

This section presents the research methodology, including sources of data, statistical tools, and techniques for analysis of the NPA of two banks, i.e., HDFC and SBI.

3.1. Sources of Data

The study is based on secondary data collected from different sources in the public domain. These sources include financial aggregating websites such as Yahoo

Finance and Money Control, the websites of two banks under reference, and research reports on NPAs by research agencies. The data is collected for the financial parameters, such as NPA, Profit, Net NPA, etc., for the period of 2007-2008 to 2021-2022.

3.2. Statistical Analysis

The secondary data is subjected to descriptive analysis, trend analysis correlation, and regression analysis to identify the relationship between NPAs and bank profitability.

4. RESULT AND DISCUSSION

Analysis and presentation of secondary data collected from secondary sources is subjected to descriptive statistical analysis. The analysis and interpretation are detailed in the following sub-sections

4.1. Descriptive statistics of Net Profits and Net NPAs

Descriptive statistics of net profits and Net NPAs of State Bank of India and HDFC Bank from 2007-08 to 2021-22 reveal many key insights. The data of net profits and net NPAs of the two banks under reference are given in Table 2 and Table 3. It can be seen from the data given in Table 2 that 2017-18 was a bad year for the State Bank of India in terms of profit and net NPA. Hence, SBI observed substantial growth in its profits and a reduction in net NPAs. Policy initiatives have contributed to this scenario, along with proactive management by the State Bank of India.

Table 2. Net Profit and Net Non-Performing Assets (NPA) of SBI (2008-22)

Years	Net NPA (In ₹ millions)	Net NPAs ($ Million)	Profit (In ₹ millions)	Profit ($ Million)	Exchange Rate ($ v/s INR)
2007-08	108,701.70	$2,498.32	91,660.50	$2,106.65	43.51
2008-09	95,520.00	$1,973.15	91,212.40	$1,884.16	48.41
2009-10	74,243.40	$1,623.52	67,291.20	$1,471.49	45.73
2010-11	123,468.90	$2,645.57	82,645.20	$1,770.84	46.67
2011-12	158,188.50	$2,960.11	117,072.90	$2,190.74	53.44
2012-13	219,564.80	$3,881.29	141,049.80	$2,493.37	56.57
2013-14	310,960.00	$4,988.93	108,911.70	$1,747.34	62.33
2014-15	275,905.80	$4,381.54	131,015.70	$2,080.61	62.97
2015-16	558,070.20	$8,397.08	99,506.50	$1,497.24	66.46
2016-17	582,773.80	$8,596.75	104,841.00	$1,546.56	67.79
2017-18	1,108,547.00	$15,816.05	-65,474.50	$-934.15	70.09
2018-19	658,947.40	$9,361.38	8,622.30	$122.49	70.39
2019-20	518,713.00	$6,791.21	144,881.10	$1,896.85	76.38
2020-21	368,097.20	$4,936.26	204,104.70	$2,737.09	74.57
2021-22	279,657.10	$3,437.7	316,759.80	$3,893.79	81.35

Source: https://www.moneycontrol.com/financials/statebankindia/results/yearly/SBI

Net profit and net NPAs of HDFC bank are presented in Table 3 for the period 2007-08 to 2021-22. It can be inferred from the data presented in Table 3 that the net NPAs of HDFC banks have increased during all years. However, there was a big reduction in the net NPAs during 2015-16. After 2015-16, net NPAs had observed a sudden increase year after year. On the other hand, profits of HDFC Bank have

recorded a continuous increase since 2017-18. However, the rate of change varies year after year. These values indicate that HDFC Bank has better credit and risk management in comparison to the largest public sector bank, i.e., State Bank of India.

Table 3. Net Profit and Net Non-Performing Assets (NPAs) of HDFC (2008-22)

Years	Net NPA (In ₹ millions)	Net NPAs ($ Million)	Profit (In ₹ millions)	Profit ($ Million)	Exchange Rate ($ v/s INR)
2007-08	2474.00	$29.68	29,486.90	$353.68	43.51
2008-09	3946.00	$47.32	22,449.50	$269.21	48.41
2009-10	6276.00	$75.23	15,901.80	$190.58)	45.73
2010-11	2,961.00	$35.52	39,264.00	$470.94)	46.67
2011-12	3,523.00	$42.25	51,670.90	$619.45)	53.44
2012-13	4,689.50	$56.23	67,262.80	$806.28)	56.57
2013-14	8,200.30	$98.27	84,783.80	$1,015.42	62.33
2014-15	8,962.80	$107.44	102,159.20	$1,224.20	62.97
2015-16	1,320.40	$15.82	122,962.10	$1,472.27	66.46
2016-17	18,439.90	$221.27	145,496.40	$1,743.53	67.79
2017-18	26,010.20	$311.69	174,867.50	$2,096.50	70.09
2018-19	32,142.00	$385.36	210,781.40	$2,525.74	70.39
2019-20	35,423.60	$424.55	262,573.20	$3,147.71	76.38
2020-21	45,548.20	$546.25	311,165.30	$3,729.98	74.57
2021-22	44,076.80	$528.71	369,613.30	$4,429.91	81.35

Source: https://www.moneycontrol.com/financials/hdfcbank/results/yearly/HDF01

The values of net NPAs and profits of the two banks under reference, as given in Table 2 and Table 3, are also shown graphically in the figures from Figure 1 to Figure 4 with a view to have better pattern identification and make comparisons between the parameters of the two banks. It is evident from Figure 1 that the net profits of HDFC bank have increased during the period of study, while the net profits of SBI had a sharp dip during 2017-18. It is worth mentioning that the size of SBI and HDFC may be considered to draw better conclusions and determine the constraints of a public sector bank.
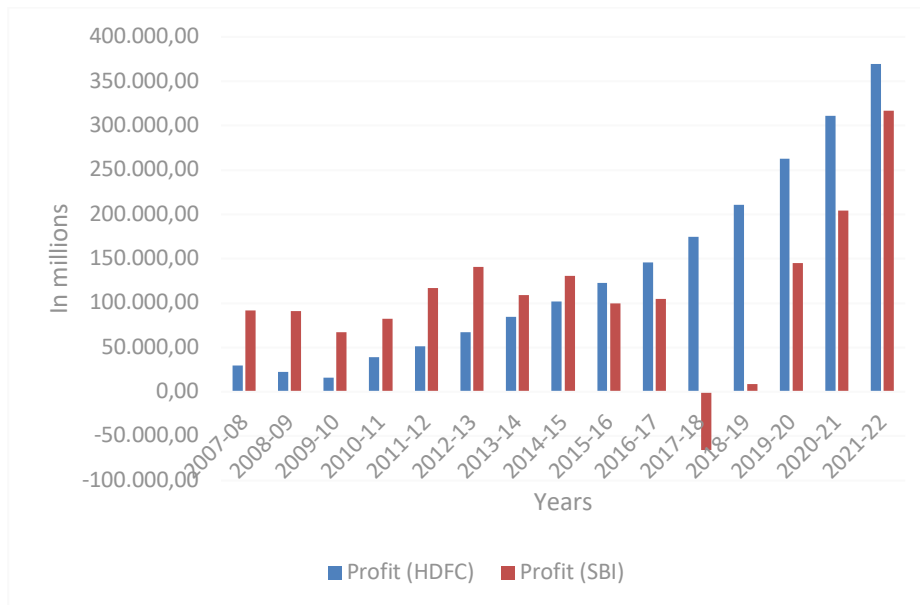

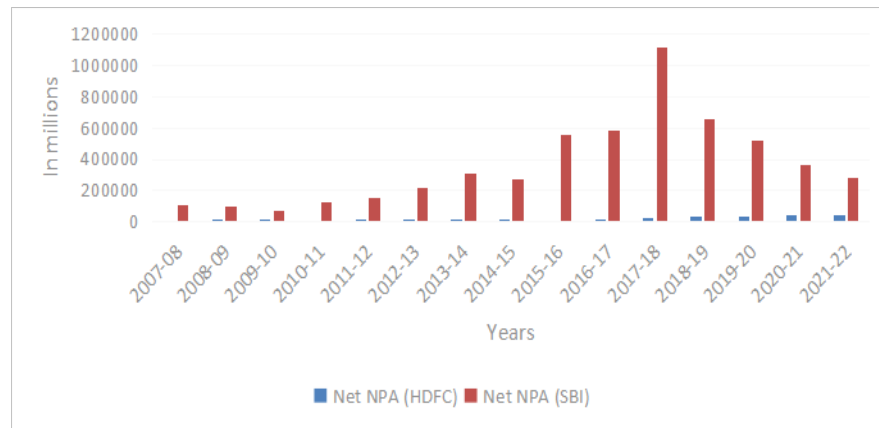**Figure 1.** Profits (₹ million) of SBI and HDFC Bank

Figure 2. Net NPAs of HDFC and State Bank of India

The graphical presentation in Figure 2 of net NPAs also indicates that HDFC Bank manages NPAs better than the State Bank of India. The NPAs of HDFC banks are much lower than those of SBI but have increased over the years, which is not a good sign. On the other hand, SBI net NPAs were observed to have a steep rise during 2017-18 and a continuous decline after 2017-18. The trends in values of net NPAs indicate the not-so-good management of net NPAs by the State Bank of India.
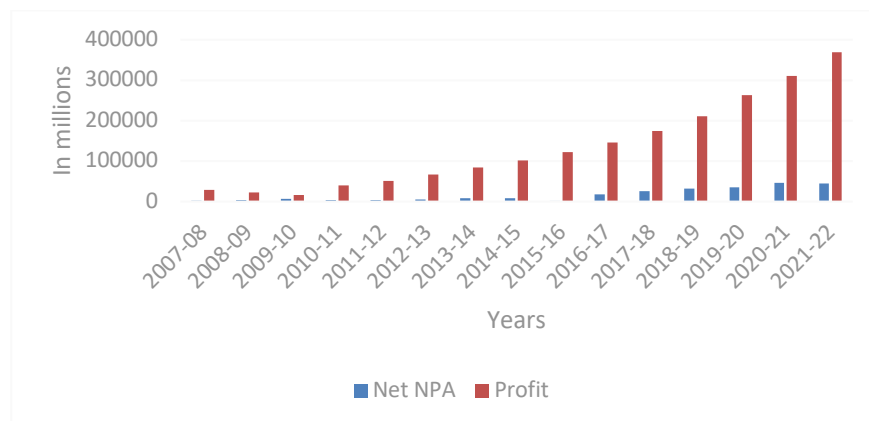

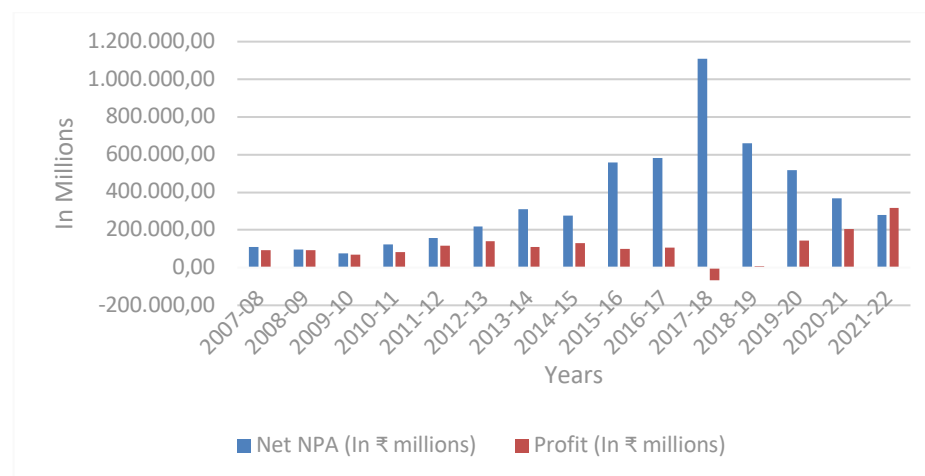**Figure 3.** Net NPA and Profit (₹ million) of HDFC

Figure 4. Net NPAs and Profits ((₹ million) of SBI

Net NPAs, along with profits, are plotted in Figure 3 and Figure 4 for HDFC Bank and State Bank of India, respectively. The trends shown in Figure 3 and Figure 4 support one unusual parameter, i.e., the relation between net NPAs and profits. The HDFC Bank indicates a positive correlation between net NPAs and profits over the years. On the other hand, the State Bank of India's trends indicate a mix of negative and positive correlations between net NPAs and profits.

Overall, both SBI and HDFC are strong banks with healthy financial positions. However, SBI faces some challenges due to its larger size and exposure to different sectors of the economy. HDFC, on the other hand, has a more stable Net Profit and is less exposed to bad loans.

4.2. Summary Statistics of Net Profits and Net NPAs of SBI and HDFC Bank

The summary statistics provide a concise overview of the financial dynamics, indicating variability, central tendencies, and relationships that give further insights for making better decisions. It can be seen from the data given in Table 4 that SBI's net profit exhibits a mean value of ₹109,607.00 million, while HDFC's mean Net Profit is ₹134,029.20 million. The net NPA of SBI has a mean of ₹362,757 million, and HDFC bank has a mean net NPA value of ₹16,266.00 million. The correlation between net profits and net NPAs for SBI is -0.46, suggesting a moderate negative relationship, while HDFC shows a strong positive correlation of 0.98, which did not go well with the basic hypothesis that NPAs negatively impact the profitability of a bank. The reason for this scenario of HDFC banks is explained in the next section.

Table 4. Summary Statistics for Net Profit and Net Non-Performing Assets (NPAs) - SBI & HDFC (2007-08 to 2021-22)

Bank	SBI		HDFC	
	Net Profit (in ₹/$ Million.)	Net NPA (in ₹/$ Million.)	Net Profit (in ₹/$ Million)	Net NPA (in ₹/$ Million)
Mean	₹109,607.00 ($1768.004)	₹362,757.00 ($5485.92)	₹134,029.20 ($1940.58)	₹16,266.00 ($233.18)
Median	₹104,841.00 ($1884.16)	₹279,657.10 ($4381.54)	₹102,159.20 ($1622.34)	₹8,200.30 ($137.24)
Standard Deviation	₹83,983.00 ($1,089.74)	₹281,676.00 ($3786.78)	₹110,908.95 ($1334.70)	₹16,050.39 ($201.46)
Minimum	-₹65,475.00 (-$934.14)	₹74,243.40 ($1623.51)	₹15,901.80 ($347.73)	₹1,320.37 ($19.8)
Maximum	₹316,760.00 ($3893.78)	₹1,108,547.00 ($15,816.05)	₹369,613.30 ($4543.49)	₹45,548.20 ($ 610.82)
Coefficient of Variation (CV)	0.77	0.78	0.83	0.99
Correlation Coefficient		-0.46		0.98

Source: Processed (2023).

4.3. Analysis based on the Ratio of Net NPAs of HDFC Bank and State Bank of India

Over the past fifteen years, the net NPA ratio for HDFC has been less than 1%, whereas it has surpassed 5% in the case of SBI during the same period (Table 5 & Figure 5). HDFC displays greater stability in its NPAs, as indicated by a significantly

lower standard deviation of 0.11 compared to the SBI standard deviation of 1.20. This implies that HDFC's NPAs exhibit a more consistent trend compared to SBI, highlighting a distinct level of stability in HDFC's non-performing assets. It has no impact on the profitability of the HDFC bank since its value is within 1%, which is much less than the average NPAs of 3.2% as of September 2023 of Indian banks (Indiainfoline.com (2024)).

Table 5. Net NPA (%) of HDFC and SBI during 2007-08 to 2021-22 (Millions)

Banks	HDFC			SBI			
Year	Advances (HDFC)	Net NPA (HDFC)	% of Net NPA	Advances (SBI)	Net NPA (SBI)	% of Net NPA	INR/ USD
2008	₹21,112.80 ($485.24)	₹2474.00 ($29.68)	0.30	₹32,162.68 ($739.20)	₹108,701.70 ($2,498.32)	1.76	43.51
2009	₹9,888.30 ($204.26)	₹3946.00 ($47.32)	0.64	₹54,250.30 ($1,120.64)	₹95,520.00 ($2,498.32)	1.72	48.41
2010	₹12,583.10 ($275.16)	₹6276.00 ($75.23)	0.33	₹63,191.40 ($1,381.84)	₹74,243.40 ($1,623.52)	1.78	45.73
2011	₹15,998.30 ($342.80)	₹2,961.00 ($35.52)	0.21	₹75,671.90 ($1,621.42)	₹123,468.90 ($2,645.57)	1.63	46.67
2012	₹19,542.00 ($365.68)	₹3,523.00 ($42.25)	0.23	₹86,757.90 ($1,623.46)	₹158,188.50 ($2,960.11)	1.82	53.44
2013	₹23,972.10 ($423.76)	₹4,689.50 ($56.23)	0.20	₹104,561.70 ($1,848.36)	₹219,564.80 ($3,881.29)	2.10	56.57
2014	₹30,300.00 ($486.12)	₹8,200.30 ($98.27)	0.32	₹120,982.90 ($1,941.01)	₹310,960.00 ($4,988.93)	2.57	62.33
2015	₹36,549.50 ($580.43)	₹8,962.80 ($107.44)	0.20	₹130,002.60 ($2,064.52)	₹275,905.80 ($4,381.54)	2.12	62.97
2016	₹46,459.40 ($699.06)	₹1,320.40 ($15.82)	0.28	₹146,370.00 ($2,202.38)	₹558,070.20 ($8,397.08)	3.81	66.46
2017	₹55,456.80 ($818.07)	₹18,439.90 ($221.27)	0.33	157,107.80 ($2,317.57)	₹582,773.80 ($8,596.75)	3.71	67.79
2018	₹65,833.30 ($939.27)	₹26,010.20 ($311.69)	0.40	₹193,488.00 ($2,760.56)	₹1,108,547.00 ($15,816.05)	5.73	70.09
2019	₹81,940.10 ($1,164.09)	₹32,142.00 ($385.36)	0.39	₹218,587.70 ($3,105.38)	₹658,947.40 ($9,361.38)	3.01	70.39
2020	₹99,370.30 ($1,301.00)	35,423.60 ($424.55)	0.36	₹232,529.00 ($3,044.37)	₹518,713.00 ($6,791.21)	2.23	76.38
2021	₹113,283.70 ($1,519.16)	₹45,548.20 ($546.25)	0.40	₹244,949.80 ($3,284.83)	₹368,097.20 ($4,936.26)	1.50	74.57
2022	₹136,882.10 ($1,682.63)	₹44,076.80 ($528.71)	0.32	₹273,396.70 ($3,360.75)	₹279,657.10 ($3,437.7)	1.02	81.35
Mean	₹51,278.10 ($752.45)	₹2474.00 ($29.68)	0.33	₹150132.00 ($2161.09)	₹362757.25 ($5485.93)	2.43	
Max.	₹136,882.10 ($1,682.63)	₹45548.20 ($546.25)	0.64	₹273396.70 ($3,279.31)	₹1108547 ($15816.05)	5.73	
Min.	₹9,888.30 ($204.26)	₹1320.37 ($15.82)	0.20	₹54250.30 ($739.20)	₹74243.4 ($1623.52)	1.02	
SD	₹40,047.40 ($499.93)	₹16050.39 ($201.47)	0.11	₹71922.30 ($863.13)	₹281676.03 ($3786.78)	1.20	
CV	0.78 (0.66)	0.99 (0.99)	0.34	0.48 (0.40)	.78 (0.69)	0.49	

Source: Processed (2023).

The computation of the net NPA ratio is done using the formula given as net NPA Ratio = (Net NPAs/Net Advances) ×100, where Net NPAs = Gross NPAs – Provisions, and Net Advances = Total Advances - Specific Provisions. This ratio helps in assessing the asset quality of a bank by measuring the proportion of its net NPAs to net advances (RBI, 2009).

This observation is further supported by the comparison of the Coefficient of Variation, which is notably higher for SBI (49%) than HDFC (34%). This indicates that the HDFC net NPA ratio remained more consistent over the past 15 years than the SBI.

Notably, both banks faced an upward trend in net NPAs around 2016-2018, aligning with industry challenges, yet HDFC's ratios remained comparatively stable. In 2021-2022, HDFC's NPA ratio declined to 0.32%, indicating a robust position, while SBI's ratio also reduced significantly to 1.02%, showcasing an improved asset quality. This divergence in trends between the two banks suggests distinct risk management strategies and market responses, warranting further investigation.

Figure 5. Net NPA Ratio of SBI and HDFC

Several key trends emerge in analyzing the financial data for the State Bank of India (SBI) and HDFC from 2007-08 to 2021-22. Both banks have witnessed substantial revenue growth over the years, with SBI experiencing some fluctuations in growth rates, particularly between 2015-16 and 2020-21. In contrast, HDFC demonstrates a more consistent upward trajectory. The data underscores the financial stability of both institutions, with significant revenue figures for the latest year (2021-22).

Analyzing the financial data from 2007-08 to 2021-22, some clear patterns stand out. There was a dip in earnings in 2017-18, linked to a high NPA ratio (5.7%) and resulting in negative profits. However, subsequent years show a recovery, with positive profits in 2018-19. The NPA ratio peaked in 2015-16 and 2017-18 but has since improved, hitting a low of 1% in 2021-22. This suggests better financial health and stability. The revenue-to-NPA ratio, indicating the ability to generate income compared to non-performing assets, has seen a positive shift lately. Investigating the factors behind these changes could offer insights into the company's financial resilience.

4.4. Analysis of the Impact of Net NPAs on the Net Profits

Data is subjected to linear regression analysis to analyze the impact of net NPAs on net profit. The results of regression analysis are presented in Tables 5A and 5B. Based on the regression analysis, the following hypotheses are tested.

- **Null Hypothesis (H0):** There is no significant impact of net NPA on the net profit of SBI.
- **Alternative Hypothesis (H1):** There is a significant impact of net NPA on the net profit of SBI.
- **Null Hypothesis (H0):** There is no significant impact of net NPA on the net profit of HDFC Bank
- **Alternative Hypothesis (H1):** There is a significant impact of net NPA on the net profit of HDFC Bank.

Table 6A. Statistics of Regression Analysis of SBI

Multiple R	R-Sq.	Adj R	F	Sig. F	Standard Error	t-statistic	p-value
0.466	0.217	0.217	3.612	0.079	7709.794	-1.901	0.080

Regression Equation: Net Profit = 16004.120 -0.139 (Net NPA) & p-value for regression coefficient is 0.079762, which is greater than 0.05.

Source: Processed (2023).

In Table 6A, regression analysis of SBI is presented where net profit is the dependent variable, and net NPA is a predictor or independent variable. The level of significance chosen is 0.05. It can be seen from the values of R-Square, Adjusted R-Square, and p-value that net NPAs and net profit have a negative correlation for the State Bank of India. However, the p-value is indicative of not a good fit of the regression equation. Only 21.7% variability of the net profit is explained by net NPAs. Further, based on the p-value, which is greater than the chosen level of signification of 5%, it is inferred that there is no evidence against the null hypothesis. This means that net NPAs have no significant impact on net profit.

It is not in line with the general perception that net NPAs have an adverse effect on the net profit of a bank or lender. The reason for this conclusion is only statistical analysis. However, looking at the percentage of net NPA out of total loans given by SBI and its overall profit from good-risk loans might have nullified the impact of net NPAs. In addition, these results of regression analysis could be due to (i) small data size, (ii) the assumption of regression analysis may not satisfied by data, and (iii) high variability in the data where a few values may be borderline outliers.

Table 6B. Statistics of Regression Analysis of HDFC

Multiple R	R-Sq.	Adj R	F	Sig. F	Standard Error	t-statistic	p-value
0.977	0.955	0.955	275.020	0.000	955.437	16.584	0.000

Regression Equation: Net Profit =1510.390+6.971(Net NPA), the p-value is less than 0.05.

Source: Processed (2023).

Table 6B embodies the results of linear regression analysis of HDFC banks that includes net profit as the dependent variable and net NPA as a predictor or independent variable. The level of significance is assumed to be 0.05 for testing the null hypothesis. Based on the value of R-Square, Adjusted R-Square, and p-value, it can be inferred that Net profit is highly correlated with net NPA, and a high position correlation coefficient (0.98) suggests a strong correlation between variables. The R-square value of 0.955 suggests that the variation in net profitability can be explained by net NPA to an extent of 95.0%. As the p-value of F-Test statistics (275.02) is less than the level of signification of 5%, the null hypothesis stands rejected. Hence, it is concluded that net NPA has a significant influence on HDFC Bank's net profit.

5. CONCLUSION

Based on the comparisons of data of net NPAs and net profits, HDFC Bank had better consistency and financial control in comparison to the State Bank of India. The results of a simple regression analysis of HDFC bank of data of net NPAs (independent variable) and net Profits (dependent variable) are somewhat out of the basics. The values of positive correlation coefficients and regression coefficients force a conclusion that net NPAs and net profits are moving together in the same direction and magnitude. This may be true since some NPAs may be compensated with the bank's income in the form of interest earned from loans and advances, which are good risks. Therefore, it is in sync with the basics of financial management that NPAs had adverse effects on profits. Another reason could be the percentage of Net NPAs of State Bank of India (being one of the largest lenders) in comparison to overall advances given by the bank. Based on this fact, high positive values of correlation and regression coefficients can be treated in line with the statement that NPAs had adverse effects on profits. The analysis data of the State Bank of India resulted in a negative correlation coefficient. It is also visible from the graphs that the State Bank of India's profit is adversely affected by NPAs. The regression analysis indicates a negative, non-significant regression coefficient. This indicates that NPAs adversely impacted SBI's profits, but the impacts are not statistically significant.

This finding suggests that banks with lower net NPAs in terms of magnitude may adversely affect their profits, but overall profits may still be higher. The reason is that these net NPAs may potentially be offset by interest income of good loans, which are categorized as good risk or asset sales. However, data and analysis suggest that potential risk is associated with high net NPAs, as they can lead to increased credit costs and lower the overall profitability of the banks. To mitigate these risks, banks can implement measures such as effective credit risk assessment, prudent lending practices, regular monitoring of loans, asset quality review (AQR), loan recovery mechanisms, diversification of risks, Loan Loss Provisioning, stress

testing, effective legal framework, customer education and financial literacy, technological solutions, regulatory compliance, and training of executives. In addition, banks may seek the help of debt recovery tribunals, Lok Adalats, credit information bureau, securitization and reconstruction of financial assets, and enforcement of security interest (SARFAESI) Act 2002, and may go for a compromise settlement.

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