

 ISSN (O): 2320-5407 ISSN (P): 3107-4928	Journal Homepage: www.journalijar.com INTERNATIONAL JOURNAL OF ADVANCED RESEARCH (IJAR) Article DOI: 10.21474/IJAR01/22104 DOI URL: http://dx.doi.org/10.21474/IJAR01/22104	
--	--	---

RESEARCH ARTICLE

NON-PERFORMING ASSETS AND CAPITAL ADEQUACY IN BANKS: INSIGHTS FROM THE LITERATURE

Izhar Ahmad¹, Sajada², Mohammad Yameen³ and Eram Khan²

1. Assistant Professor, Department of Commerce and Business Studies, Jamia Millia Islamia, Jamia Nagar, New Delhi, India.
2. Research Scholar, Department of Commerce and Business Studies, Jamia Millia Islamia, Jamia Nagar, New Delhi, India.
3. Professor, Department of Commerce, Aligarh Muslim University, Aligarh, Uttar Pradesh (UP).

Manuscript Info

Manuscript History

Received: 04 September 2025

Final Accepted: 06 October 2025

Published: November 2025

Key words: -

Non-performing Assets (NPA), Bank profitability indicators (ROA, ROE), Capital adequacy buffers, Gross domestic product (GDP), Indian banking sector

Abstract

The increasing issue of NPAs has become a serious concern worldwide and presents a major challenge for the Indian banking sector as well. Different indicators often used to judge the financial soundness of banks are ROA and ROE, which are negatively affected by NPAs while depicting the profitability and overall efficiency of banks. The capital buffer is usually explained as the difference between the banks' actual capital adequacy ratio and the minimum regulatory requirement fixed by the central bank. Banks use these buffers during bad times to maintain stability. Due to their importance, studies on NPAs, profitability, and capital buffer have been given substantial importance. We determined that the majority of the studies rely on secondary data. Furthermore, recent academic research, between 2015 and 2024, are reviewed with a view to identifying emerging themes, insights, and research gaps regarding non-performing assets and their relationship with profitability and capital buffers. The review has identified that the usual determinants selected in earlier studies include capital adequacy ratio, non-performing loans, inflation, and gross domestic product as independent variables, while ROA and ROE have been widely considered as a measure of bank performance. The findings highlight the predominance of studies relying on secondary data and emphasize the need for further exploration of the unexplored aspects of NPAs in the Indian context.

"© 2025 by the Author(s). Published by IJAR under CC BY 4.0. Unrestricted use allowed with credit to the author."

Introduction: -

The banking industry is important to a nation's economic development. It involves at the center of any nation's economy. It serves as a fuel for the economy because it helps in inflow of fund and development of an economy. India is a developing country so it is necessary to have a stable financial system for the development of an economy. Accepting deposits and lending advances is the main objective of commercial bank. Banking sector helps

Corresponding Author: - Izhar Ahmad

Address: - Assistant Professor, Department of Commerce and Business Studies, Jamia Millia Islamia, Jamia Nagar, New Delhi, India.

Indian economy by accelerating and supporting financial stability of the country. Banking in the modern economies is all about risk management because the economic ramifications of a bank failure could be disastrous but the entire monetary system. The performance assessment of the banking sector in India has shown that, over a period of time, the financial sector's performance has been negatively impacted due to deteriorating productivity and impaired asset use combined with a high-cost structure, which in large part was driven by technological backwardness. Among these issues, the deteriorating asset quality factor has become the significant barrier to creating a sound and feasible banking system, as noted by policymakers. Asset quality has become a key issue because it directly impacts the profitability, liquidity, credibility, costs of intermediation, income-generating capabilities, and other general operating efficiencies of banks. The decline of asset quality generally tends to increase the level of non-performing assets in banks.

Theoretical side:**Non-performing assets (NPA):**

Non-performing assets are like a disease that is gradually disrupting the Indian banking industry. NPA refers to all those assets which do not generate income in the form of principle payments and interest. The bank classifies loans and advances as non-performing assets when they are due for a period of more than 90 days. Additionally, NPAs increase collection, legal, and administrative expenses, and they lock down loaned funds. The bank's liquidity may be at risk if the loan stops performing since it will need to set aside additional funds to cover possible credit losses.

The Reserve Bank of India defines non-performing assets with much more elaboration in its Master Circular, with all the criteria that should be used when classifying loans as NPAs:

“(i) Interest and/or installment of principal remain overdue for a period of more than 90 days in respect of a Term Loan.”

“(ii) The account remains out of order for a period of more than 90 days, in respect of an Overdraft/Cash Credit (OD/CC).”

“(iii) The bill remains overdue for a period of more than 90 days in the case of bills purchased and discounted,”

“(iv) For short duration crops, the interest or principal is overdue for two crop seasons.”

“(v) For long duration crops, the interest or principal is overdue for one crop season.”

Non-Performing Asset (NPA) Classification:

Banks classify their assets into four major groups in conformity with the Reserve Bank of India's (RBI) Master Circular on Income Recognition, Asset Classification, and Provisioning related to Advances:

1. Standard Assets: These are the performing assets about which the bank is not worried. They are still generating income and repayments are also being made in due time.
2. Substandard Assets: When either the principal or interest payments are overdue for a period not exceeding a year, an asset is classified as substandard. These accounts begin to show certain signs of financial weakness that may put bank credit at risk.
3. Doubtful assets: Assets that have not performed for more than 12 months within a given time frame are considered questionable assets.
4. Lost assets: An asset is considered as lost when a loss has been detected by either an internal or external auditor, bank, cooperation department, or RBI, but the full value has not yet been written off. It gives an indication that those assets have some salvage value.

Capital Buffer:-

The capital buffer consists of the difference between banks' CARs in excess of the minimum banking capital standards defined by the central bank. The capital buffers can be considered as a reserve of capital that banks utilize during a negative economic downturn. A bank can be managed to increase public trust by maintaining a sizable capital buffer. The 2007–2008 global financial crisis exposed weaknesses in the balance sheets of several banks. Bank lending practices were far too risky, as the issue of subprime house loans has shown, and bank capital was insufficient to absorb prospective losses. Due to their systemic significance to the global economy, certain financial institutions gained the reputation of being too large to fail. Market forces encourage banks to keep their capital levels positive. This allows banks to take on necessary lending risks in addition to helping them draw in capital and keep enduring client connections. The Basel Committee on Banking Supervision issued official regulatory standards in December 2010 to further strengthen the resiliency of the global banking system, particularly in regards to liquidity matters.

Conceptual Linkage between NPAs, Profitability, and Capital Buffer:

NPAs, bank profitability, and capital buffers are all closely linked. The level of NPAs impacts directly on the earning capability, capital adequacy, and lending behavior of a bank. With higher NPAs, banks see their interest income falling and provisioning requirements increasing, which in turn reduces profitability or ROA and ROE. Reduced profitability diminishes retained earnings, thereby eroding the capital base and weakening the capital buffer. The Capital Buffer Theory: banks build up surplus capital over and above the legal requirements to absorb unexpected losses, but the emergence of a sharp rise in NPAs depletes the capital buffer which is used by the banks to cover credit losses.

Thus, it is actually close to falls under the Risk Absorption Theory, which postulates that capital acts as a cushioning mechanism for shocks impinging on asset quality. The Moral Hazard Hypothesis suggests that poorly capitalized banks have an incentive to take excessive risks, which in turn would lead to increases in NPAs. Hence, a feedback loop emerges wherein high NPAs reduce profitability and capital buffers, and weak capital buffers amplify future risk exposure. Banks will have a buffer to absorb losses in times of stress without breaching minimum capital thresholds due to the introduction of the Basel III framework with a capital conservation buffer above the minimum requirement of 2.5%. How this relationship works is crucial in the design of mechanisms by policymakers and regulators that improve asset quality without compromising financial stability.

Objectives of the study: -

To examine the research gaps on the basis of available literature related to non-performing assets and capital buffer.
To explore the determinants of non-performing assets and capital buffer on the basis of available study and to identify the most appropriate variable used in the study.

Literature reviews:-

Xu, Y. et.al., (2025) The paper reviews the impact brought about by digital transformation of bank credit risk, indicating the potential to reduce NPLs and improve risk management facilitated by technologies such as AI and big data. It also considers market concentration-estimated with indicators such as HHI-and its determinants in the level of competition and efficiency that will characterize the banking industry. The study has identified a research gap in the systematic analysis of interactive effects brought about by digital transformation and market concentration on credit risk, especially within China's unique banking landscape. Feleke, T. M., & Tafere, H. T. (2025) The study aims to assess the determinants of credit risk in selected Ethiopian commercial banks, considering both bank-specific and macroeconomic variables between 2010 and 2019. Using a purposive sampling technique with an explanatory research design, the researchers applied a fixed-effect multiple regression model by taking the NPL ratio as the dependent variable. The independent variables included bank size, loan growth, profitability represented by ROE, efficiency ratio, capital adequacy, GDP, inflation, interest rate, and foreign exchange rate.

Key findings indicate that bank size, profitability, inefficiency, and inflation had a statistically positive relationship with credit risk, while loan growth, capital adequacy, interest rate, and foreign exchange rate showed an inverse relationship. The influence of GDP on credit risk was insignificant during the period of the study. Li Shang et. al., (2024) evaluated the financial vulnerability of 15 Chinese banks. This study makes a meaningful contribution to the study of financial vulnerability in two ways. First, the study analyzes cross-sectional study of 15 Chinese banks' vulnerability on the basis of capital adequacy, nonperforming loans, liquidity ratio, and return on assets. The results show that Bank of Ningbo has the lowest fragility score, while China Minsheng Bank has the highest fragility score. Second, the study utilizes data from China's financial system from 2007 to 2022, establishing the fragility evaluation model of the financial system based on four subsystems: financial market early warning, financial export-oriented, financial monitoring, and economic environment.

The results show that there is a fluctuation in the trend of the degree of vulnerability of China's financial system, which is mainly due to the great recession in 2008, huge financial volatility in 2015, and the COVID-19 pandemic in 2019. Jehona Shkodra et.al. (2024) investigated, in 2024, the effect of non-performing loans on the profitability of commercial banks in Western Balkan nations, that is, Albania, Kosovo, Montenegro, Northern Macedonia, and Serbia, using a dynamic specification model. The study uses annual data for the period 2010-2020, and the variables were extracted from the central bank publications of the western Balkan countries, the World Bank, and the International Monetary Fund (IMF). The results show that there is a significant negative relationship between return on assets (ROA) and non-performing loans (NPLs), which means that an increase in non-performing loans causes a

decrease in bank profitability. Furthermore, it is found that Albania and Serbia have the highest non-performing loan values, while Kosovo has the lowest non-performing loan values. Nada Milenkovic et.al. (2024) uses static and dynamic models for quarterly data from 2015 to 2020 to analyze determinants of non-performing loans in Europe based on static and dynamic models for quarterly data ranging from 2015 to 2020. The study estimated various models, such as random and fixed effects model, pooled mean group (PMG), mean group, and dynamic fixed effect model, to analyze the relationship between variables. The study uses bank-specific and microeconomic determinants and found that ROA, ROE, loan-to-deposit ratio, GDP, inflation, and exchange rate have a significant impact on non-performing loans in the short run as well as the long run. Additionally, the results show that ROA and ROE had the greatest impact on the level of NPA among the independent variable. The study also analyzes the long-run relationship within variables. The study also confirms the spillover effect, which means that when shocks happen in one country, then it will also affect the other countries of the Eurozone. Further, the study suggested developing NPL reduction strategy policy; if effects are to be attended in the long term, then policy should consider microeconomic determinants.

However, if it is achieved in the short run, then they should consider bank-specific determinants. H.A. Barakat (2024) investigated asset quality and bank performance using data from ten banks with the help of panel data analysis ranging from the period 2017 to 2021. The main aim of this study is to examine the relationship between the asset quality of banks and their performance. The study uses return on equity (ROE) and return on asset (ROA) as dependent variables and non-performing loan ratio (NPLR), impairment charges to total operating income, and impairment charges to gross total loan as independent variables. The study reveals that effective asset quality management leads to higher profitability of banks. In addition, banks that provide more provision for their loan loss asset have financial stability and better performance. However, banks that have a conservative provision policy adversely affect bank performance. B. Abu Khalaf and A. B. Awad (2024) created an ordinary least square (OLS) panel regression (fixed effect and random effect) dataset of 11 banks in the MENA region for the period of 11 years from 2012-2022 to examine the impact of liquidity risk on the profitability of MENA banks. The study found empirical evidence that liquidity risk has a positive and significant association with profitability, which implies that with the increase in the number of loans, the profitability of banks also goes up.

Moreover, there is a negative relationship between bank size, NPL, and operational efficiency with the profitability of bank, but growth, income diversification, and capital adequacy affect the profitability of the bank positively and significantly. In addition, for the robustness of results, a dynamic panel method in which GMM (generalized method of moments) was employed. S.A. Abbas Ahmad et.al. (2024) provided insights into bank lending behavior from the top ten banks in the Arab world with the help of OLS regression analysis and panel analysis (fixed effect and random effect) models for the analysis of data for the period 2016-2020. The primary goal of this research is to find out the determinants of the lending behavior of banks and to explore the relationship between non-performing loans and the lending behavior of banks. The finding revealed that non-performing loans and capital adequacy ratio significantly and negatively impact a bank's lending behavior. Nevertheless, bank size and growth of deposits affect the lending behavior of banks positively. In addition, return on assets and equity as a percentage of total asset impact the lending behavior of bank positively, but results are not significant at all. The results are helpful for policymakers that they should focus on lending policies so that the NPA of banks could be minimized. VT. Quy and PD. Tuan (2024) conducted a study on 25 Vietnamese commercial banks with the aim of identifying the determinants of a bank's profitability and analyzed the mediating role of interest rate spread from the period 2008 to 2020 with the help of the structural equation modeling (SEM) model.

They found empirical evidence regarding the causal mediation effect of interest rate spread (IRS) on return on asset (ROA) and return on equity (ROE) of Vietnamese commercial banks. They found there are positive effects of mediating roles of variable IRS on cost efficiency (CE), income diversification (ID), and liquidity (LIQ) but negative effects on capital adequacy ratio (CAR) and ownership structure (OWS). Moreover, the results found that ROA is negatively related to income diversification and ownership structure but positively related to cost efficiency, capital adequacy ratio, and asset size. In addition, there is a negative association between ROE and income diversification and ownership structure but a positive association between ROE and cost efficiency, bank size, and asset structure. Furthermore, IRS as a mediator affects CE, ID, OWS, and ROE, and CE, CAR, ID, OWS, and ROA are affected by the mediating variable IRS. Tsitohaina Razermera et.al. (2024) aimed to explore how the management of risk impacted the profitability of six major banks in South Africa listed in the JSE from 2013 to 2020. The study uses various methodology such as panel regression model, T- test, F- test etc. for the analysis of data. The paper analyzed the effects of credit risk, liquidity risk, and market risk on the banks' ROA and ROE pre and post COVID-

19 pandemic. The study found empirical evidence of the fact that the NPLs influence the banks' profitability levels. The capital adequacy ratio was observed to be negative and statistically non-significant pertaining to credit risk, while the provision of the loan loss ratio was found to have a positive influence on the bank's ROA and ROE. Additionally, the liquidity risk was proved to be negative and non-related to profitability pertaining to the loan to deposit ratio. Nevertheless, there is a positive and strong correlation relating bank profitability with equity in respect of total assets. In addition, regarding market risk, every element, such as market capitalization, GDP growth, foreign exchange rate, inflation rate, and loan rate have a positive but insignificant impact on market risk. In addition, the findings showed that NPL was greater in the COVID-19 era than during the pre-Covid era.

There is a strong and positive correlation between bank profitability with equity relative to total assets. Besides, all the variables used in the study—market capitalization, GDP growth, foreign exchange rate, inflation rate, and loan rate—are positively affecting market risk; however, they are all insignificant except from market capitalization. In addition, the findings showed that NPL was greater in the COVID-19 era than during the pre-Covid era. G.N. Masdjoja et.al. (2023) studied the relationship between profitability and capital buffer in the Indonesian banking industry, using the multiple regression technique and the Sobel test for assessing profitability's mediating function between 2017 and 2020. Results indicate that while non-performing loans negatively affect profitability, income diversification, the loan to deposit ratio, and the loan to total asset ratio all have a favorable influence. However, income diversity and the loan to deposit ratio did not attain statistical significance. Further, the capital buffer is significantly negatively influenced by non-performing loans, the loan to total asset ratio, and income diversification, but positively by the loan to deposit ratio. The capital cushion is negatively influenced by profitability. Moreover, there is a mediation path of profitability on NPL's, LDR in capital buffer which means that if banks generate profit, it might withstand NPL's and LDR as a result bank will be able to provide more capital buffer which helps them to mitigate liquidity risk. K. Alnabulsi et.al. (2023) explored non-performing loans (NPL) and net interest margin (NIM) in the MENA (Middle East and North African) region.

The study uses system-generalized method of moments (SGMM) as a linear approach and panel smooth transition regression (PSTR) model as a nonlinear approach with the help of sample of 74 banks in 11 MENA countries over the period 2005-2020. The main aim of this study is to investigate the relationship between bank profitability and NPLs based on bank specific, industry specific and macroeconomic factors. The findings of the SGMM regression model revealed that NPL's has a negative impact on profitability of bank. Bank size, loan to deposit ratio and GDP are significantly and negatively associated with bank profitability. However, bank concentration, financial crisis, and inflation have a direct and significant effect on net interest margin. Regarding the effect of PSTR model, confirm that model has threshold limit of 4.42%. Beyond this limit, NPLs significantly and negatively associated with profitability of banks. In addition, the study found that like SGMM model, bank size, loan to deposit ratio, and GDP has a positive and significant effect on profitability. Whereas, bank concentration, crisis, and unemployment have a negative effect on profitability. V. Qehaja Keka et.al. (2023) examined the determinants of bank profitability of Kosovo and Albania over the period of 2010-2020 with the help of multiple linear regression and ordinary least square (OLS) method. The study uses return on equity (ROE) and return on assets (ROA) as dependent variable and number of employees, number of loans, non-performing loan, and interest rates as independent variable.

The results found that there was statistical significance in quantity of loan, the percentage of non-performing loan on profitability of banks. Whereas, number of banks were statistically insignificant on the profitability of banks. In addition, Kosovo bank has better performance than Albania. Moreover, most influencing factors that affect profitability of bank in Kosovo and Albania was non-performing loans and number of employees of bank. Z. Veizi and R. Celo (2023) analyzed the impact of the non-performing loans ratio on the profitability of banks in Albania. The study uses data for an 8-year study period on 16 commercial banks in Albania with the help of multiple regression techniques. The main objective of this study is to explore the relationship between the non-performing loans ratio and the profitability of banks and to examine the stability of this relationship if present. They found that the model did not ensure stability in the relationship between non-performing loans and return on asset and return on equity. The study found that there is a negative relationship between non-performing loans and the profitability of banks in Albania.

In addition, this study suggested banks should make an effective strategy for credit risk management. Prakhar Agrawal et.al. (2021) studied how non-performing assets impacted bank performance under the Basel regime. The study estimates panel data method, which contains 64 scheduled commercial banks (SCBs) from 2008 to 2018. The

study uses bank-specific and macroeconomic variables to analyze the effect of NPAs on the performance of banks. The results show that non-performing assets negatively impact return on assets (ROA) and return on equity (ROE) of public sector banks (PSBs) and private sector banks (PVBs). Capital adequacy ratio and net interest margin have a positive impact for PSBs and PVBs. However, it is difficult for the foreign banks to adhere to Basel norms. Sanju Kumar Singh et.al. (2021) examined the effect of non-performing loans on the profitability of Nepalese conventional banks. The sampling area for this study was 74 Nepalese commercial banks from the period 2015-2019. This research uses secondary data in which multiple regression techniques are used for the analysis. The results show that bank size and capital adequacy ratio negatively affect non-performing loans, but CAR has an insignificant effect on NPL of banks. Whereas gross domestic product, inflation, and return on asset have a positive and significant effect on NPL, which means that if GDP of Nepal will grow, then the growth of Nepalese banks also increases. In addition, while making decisions regarding NPL, bankers and policymakers need to consider these factors (i.e., GDP, inflation, ROA, etc.).

Muhammad Asif Khan (2020) explored the determinants of non-performing loans in the banking sector in developing states. In this study, nine different banks were used from the period 2005 to 2017 with the help of the regression analysis technique in which random effects (RE) were used. The outcome of the results shows that return on assets (ROA), capital, operating efficiency of the bank, and income diversification had a negative effect on non-performing loans of the banking sector in Pakistan. Only ROA and efficiency of banks are statistically significant for determining the NPLs of banks. Whereas income diversification and capital were insignificant. The study concluded that bank should maintain their cost of operating efficiency for a better financial position. Richa Verma Bajaj et.al (2019) explored the Impact Assessment Study of NPAs and Rate of Recovery. The study compares public and private sector banks using data from 1998 to 2018 to investigate the factors that influence non-performing assets (NPAs) and recovery rates in Indian banks. Important conclusions show that priority sector lending, operational inefficiencies, and collateral availability have a major influence on non-performing assets (NPAs) and recovery results.

Even when they have enough total collateral, private banks have trouble recovering illiquid collateral. Recovery rates are also impacted by macroeconomic variables like real interest rates and unemployment. The study emphasizes how crucial it is to keep a healthy loan portfolio and a high net interest margin in order to manage non-performing assets (NPAs) in the Indian banking industry. Dr. Irfan Ahmad and Nisha Khan (2019) evaluated a comparative analysis of non-performing assets between the State Bank of India and ICICI Bank. This study uses data from the period of 2009 to 2018. The main objective of this study is to find out the trend of NPA between SBI and ICICI Bank. The results show that both banks' gross non-performing assets and net non-performing assets follow an increasing trend. It is analyzed that there is a difference between the gross non-performing assets of both banks. It is found that there is no difference between net non-performing assets of SBI and ICICI Banks, but in 2017, the net NPA of ICICI Bank is high as compared to SBI bank, which means that non-performing assets of the private sector increase with a high magnitude. Faozi A. Almaqtari (2018) examined factors that influence the profitability of Indian commercial banks.

The main objective of this study is to determine bank-specific and macroeconomic factors of 69 Indian commercial banks over a period ranging from 2008 to 2017 in which some financial changes take place, like demonetization. The study uses panel data along with pooled, fixed, and random effects for the analysis of the data. They found that bank-specific factors, i.e., bank size, number of branches, asset management ratio, and operational efficiency impact return on asset (ROA) positively. Leverage has a negative impact on ROA. Furthermore, there is a positive impact of bank size, asset management ratio, asset quality ratio, liquidity ratio, and inflation rate on return on equity (ROE). In addition to macroeconomic factors, such as inflation, exchange rate demonetization, and interest rate influences ROA is negatively affected. Further economic growth, exchange rates, interest rates, and financial crises have a negative impact on ROE. Peter Stephen Kingu et.al. (2018) investigated the impact of non-performing loans on the profitability of the bank with the help of information asymmetry theory and the bad management hypothesis. The study uses multiple regression methods along with ordinary least squares (OLS), fixed effects and random effects from the period ranging from 2007 to 2015 of 16 commercial banks in Tanzania.

The study used return on assets (ROA) as a dependent variable and non-performing loans as an independent variable. In addition, the liquidity ratio, capital adequacy ratio, and GDP are control variables. The finding supports that non-performing loans have a negative and significant effect on the ROA of banks. The study supports information theory and the bad management hypothesis for the reason for non-performing loans, which result in

adverse selection and management's inability to control operating efficiency, which resulted in a decrease in profitability of Tanzanian commercial banks. M. Mostak Ahmad (2017) explored non-interest income, asset quality, ownership and bank profitability of Indian banks from the period 1998 to 2014. This study shows how non-interest income influence bank profitability and explores different groups of owners and asset quality as moderators. In this study static and sys GMM dynamic panel method were used for the analysis. The results show shift towards non-interest income activities affect the profitability of Indian banks which means that banks were able to generate higher income by shifting their activities on non-interest income. In addition, foreign banks earn more risk-adjusted profits by diversifying their income activities as compared to private and public banks. However, banks with lower asset quality gain more from income diversification than banks with higher asset quality. The study provides diversification benefits for banks, particularly to those banks that have worse loan portfolio.

Vivek Rajbahadur Singh (2016) conducted a study of non-performing assets of commercial banks and their recovery in India. This study is undertaken to study the concept of NPAs and their status or trend in Indian scheduled commercial banks for the period ranging from 2000 to 2014. They found that NPAs are increasing but are comparatively very high in public sector banks. Gross and net NPAs are increases. Analysis of NPAs has been taken with reference to Lok Adalat, debt recovery tribunal (DRT), and the SARFAESI Act. Among these, SARFAESI Act is the most effective channel of non-performing loans recovery. In addition, NPAs in banks rise because of inefficient recovery, willful defaults, and defective lending processes. Khurshid Djalilov et.al. (2016) examine the determinants of banks profitability in transition countries with reference to Central and Eastern Europe (CEE) and Baltic state that is considered as early transition countries and format Soviet Union that is considered as late transition group over the period 2000 to 2013. The studies estimated 27 banks from 16 transition countries and applied GMM technique for the analysis.

The finding indicate that overtime profitability endures, implying that the banking industry is more competitive in early transition nation. Credit risk significantly influencing both transition economies but in late transition countries, credit risk had a negative impact on profitability, which means that late transition countries should improve their transparency in their activities. The impact of government spending and monetary freedom is negative only in late transaction countries, which implies that policy maker should make policy to increase government spending and monetary freedom in the late transition countries. Further, fiscal freedom (freedom of text burden) has significant only in late transition countries. Moreover, GDP growth inflation is not statistically significant. Khaled Subhi Rajha (2016) investigated determinants of non-performing loans in the Jordanian banking sector. The study uses panel data regression of 12 Jordanian banks during the period 2008 to 2012 to identify the determinants of non-performing loans. The study uses macroeconomic and bank-specific factors. The results showed that lagged NPLs and the ratio of loans to total assets affect non-performing loans positively. However, bank size and lending rate are not necessarily more effective in screening their borrower's ability to repay. In addition, economic growth and inflation rate have an inverse impact on non-performing loans, and the global financial crisis affects non-performing loans positively.

Dr. Mohd. Yameen and Izhar Ahmad (2015) examine the impact of non-performing assets on the financial performance of the banking sector in India. The main purpose of this study is to find out the relationship between non-performing assets and financial performance (i.e., profitability and liquidity) of the banking sector with special reference to SBI and ICICI. The results show that non-performing assets affect the profitability and liquidity position of the banking sector in India. Because of faulty management, improper screening of borrower's profile, recession, etc. Additionally, the study found that non-performing assets had continuously decreased in ICICI since 2009. C.S. Balasubramaniam (2012) explored non-performing assets and profitability of commercial banks in India. The main aim of this paper is to analyze the trend of non-performing assets (NPAs) of banks in the recent decade since 2000 and also to identify the importance and effectiveness of Basel III norms introduced by the RBI in India. They found that the trend of NPAs is increasing in all banks. Maintaining profitability and liquidity position of banks is a challenge for the banks, but the trend show that banks have overall good performance. It is important to note that due to capital adequacy requirement of Basel III norms, private sector banks have been able to increase their common equity proportion.

Policy and Regulatory Context in India: -

Since 2015, the Indian banking sector has undertaken several policy reforms in response to spiraling NPAs. The Asset Quality Review undertaken by the RBI in 2015 exposed large hidden NPAs, triggering a rapid increase in the reported bad loans. For recovery improvement and to ensure financial discipline among banks, the problem was

addressed through the introduction of the IBC, 2016, coupled with the PCA framework issued by the RBI. The RBI, during the COVID-19 pandemic in 2020, proposed a loan moratorium scheme along with restructuring frameworks to preserve asset quality and liquidity. Both NPAs and capital buffers were impacted by these interventions: while moratoria delayed the recognition of NPAs, they also forced banks to increase their capital cushions against contingencies arising from future losses. Post-COVID studies on NPAs and capital buffers are thus essential to understand how systemic shocks impact the resilience of the Indian banking sector. N

Research Methodology: -

We get information from a variety of websites, databases, and journals, including Sci-Hub, Research Gate, Google Scholar, and Scopus, etc. In this study, we use inductive approach to analyze the data because we gather data, identify research gaps, and variables, etc. Our study utilizes secondary data through a narrative examination. It assists researchers in comprehending existing knowledge and identifying areas requiring further investigation.

Discussion and Synthesis of Literature: -

A review of studies conducted between 2012 and 2024 suggests that there is some consistent evidence of a negative relationship between NPA and bank profitability across various regions. However, variations arise depending on economic conditions, regulatory regimes, and methodological frameworks. The regional comparison denotes that in South Asia, this ratio in countries like India, Nepal, and Pakistan affects the profits more strongly in comparison with European or MENA regions, reflecting differences in asset quality management and governance.

Methodological trend: Most studies use panel regression or GMM estimation; very few studies apply advanced analysis techniques such as SEM or mediation analysis.

Linkage of the capital buffer: Only a few studies, such as Masdjoja et al. (2023), are investigating profitability as a mediating effect on the relationship between NPA and capital buffer, hence an emerging but less explored research dimension.

Post-COVID: New studies have indicated that Non-Performing Loans, or NPLs, surged during the pandemic and that capital buffers cushion these kinds of shocks. Thus, though much literature is available on the aspects of NPAs and profitability, studies incorporating the capital buffer as a moderating or mediating variable remain scant in relation to Indian banks.

Results of The Study: -

On the basis of foregoing discussion certain observation, and certain gaps related to non-performing assets and capital buffer would be appropriate as discussed below:

Research Gap: -

While various studies have compared the performances of public and private sector banks, only little attention has been paid to sectoral-level analyses of NPAs generated by the borrowers, both individual and corporate. Despite the voluminous literature on the subject, the interlinking of non-performing assets with lending and buffer building remains an important gap regarding the contribution of capital buffers in managing and mitigating NPAs. Furthermore, most of these studies have used only trend analyses to identify the causes and patterns of increasing NPAs in the banking sector. There is also limited empirical evidence on the relationship between the profitability of Indian banks and their capital cushions. Other than a few, most of the existing studies relate to commercial banks only, while there is a noticeable dearth of studies regarding NPAs in development banks operating within India. Moreover, literature related to NPAs in the post-liberalization, privatization, and globalization era, particularly post-1991, is still limited. Our review of existing literature also suggests that while many studies have used panel data with both static and dynamic models, only a few studies have used advanced analytical techniques like structural equation modeling to investigate the antecedents and consequences of NPAs. Variables used in the study as per the literature review

Determinants of non-performing assets: After reading many research paper we have found many variables used in the study are as follows

Authors	Dependent variables	Independent variables
Xu, Y. et.al., (2025)	Bank Credit Risk	Digital Transformation and Market Concentration
Feleke, T. M., &Tafere, H. T. (2025)	credit risk	Bank size, loan growth, profitability (ROE), efficiency ratio, capital adequacy, GDP, inflation, interest rate, and foreign exchange rate
JehonaShkodra et.al (2024)	ROA	NPL, CAR, OCE, Liquidity
S.A. Abbas Ahmad et.al. (2024)	Bank behavior	Lagged of NPL, growth of total deposit, BS, CAR, ROA, Equity as a % of total asset.
TsitohainaRazermara et.al. (2024)	ROA and ROE	NPL, CAR, Inflation, exchange rate, average market capitalization, lending interest rate, GDP, provision for loan losses ratio, asset growth, loan to deposit ratio.
V.T. Quy and P.D. Tuan (2024)	ROA and ROE	CE, CAR, BS, income diversity, liquidity risk, NPL, provision for bad and doubtful debts, AS, NIE, economic condition, ownership structure, interest rate spread.
B. Abu Khalaf and A. B. Awad (2024)	ROE	Income diversity, liquidity risk, NPL, size, growth, GDP, CAR, inflation, operational efficiency.
Z. Veizi and R. Celo (2023)	ROA and ROE	NPL rate
V.Qehaja Keka et.al. (2023)	ROA and ROE	NPL, no. of loans, no. of employees, interest rate.
K. Alnabulsi et.al. (2023)	NIM	NPL, BS, CAR, liquidity risk, bank concentration, financial crisis, GDP, inflation rate, unemployment rate, control of corruption.
G.N. Masdjoja et.al. (2023)	ROE and capital buffer	NPL, loan to total deposit, loan to total asset, income diversification, ROE.
Prakhar Agrawal et.al. (2021)	ROA, ROE and NIM	NPA, CAR, Bank size, PSL, IIN, Salary to total Income, Bank diversification, credit to deposit ratio, management efficiency, GDP growth rate, inflation.
Muhammad Asif Khan (2020)	NPL	ROA, Income diversification, Bank capital, Bank efficiency
Dr. Irfan Ahmad and Nisha Khan (2019)	profitability	Gross NPA and Net NPA

Richa Verma Bajaj et.al (2019)	Net NPA	NIM, Loan maturity, collateral, priority sector lending, IIN, salary to total income, BS, GDP, WPI, Real interest rate, operating expense, credit to deposit ratio.
Faozi A. Almaqtari (2018)	ROA, ROE	GDP, Inflation, Exchange rate, financial crisis, demonetization, CAD, Asset quality, liquidity, BS, Asset management, operating efficiency, leverage, branch size.
Peter Stephen Kingu et.al. (2018)	ROA	NPL, Liquidity, CAR, GDP
M. Mostak Ahmad (2017)	ROA	NIN, Asset growth, equity ratio, loan loss provision, loan ratio, asset growth
Khurshid Djalilov et.al. (2016)	ROA	Capital, credit risk, cost, size, GDP growth, inflation, government spending, fiscal freedom.
Dr. Mohd. Yameen and Izhar Ahmad (2015)	Profitability and liquidity	Non-performing assets

Conclusion and Policy Implications: -

This study has reviewed recent literature on non-performing assets, capital buffer, and bank profitability, covering a period of 2015–2024, to identify key determinants, methodological trends, and research gaps. The synthesis therefore done reveals that though NPAs drastically lower profitability both at ROA and ROE levels, the capital buffer acts as a crucial stabilizer that enables banks to sustain lending and absorb losses during adverse conditions. However, in India, empirical studies combining NPAs and capital buffer remain limited. This presents an opportunity for further investigation into how capital adequacy and buffer policies influence asset quality and lending behavior. Regulators such as the RBI must focus on dynamic provisioning policies, while banks should enhance credit risk management, diversify income sources, and strengthen internal controls to reduce future NPAs. The review sums up that a healthy capital buffer not only helps meet the Basel norms but also acts as a hedge against financial instability. Future research with an integrated approach using behavioral and macro-financial perspectives might provide a comprehensive overview of the changing risk–return–capital nexus in the Indian banking system.

This paper is based on secondary data analysis. We believe that this study provides a better understanding about NPAs and buffer capital. This study helps researchers and policymakers in various ways. It assists researchers in examining the gaps we discovered for the future and the areas they ought to investigate. In addition, it assists policymakers in formulating policies by providing them with information on factors that affect capital buffers and non-performing assets (NPA).

Future Research Directions: -

Future research based on the observed gaps could focus on:

Developing a dynamic model using Structural Equation Modeling or Vector Autoregression to link NPAs, profitability, and capital buffer. NPA analysis at the sectoral level: corporate, retail, and agricultural lending. Post-COVID and Basel III regime analysis, assessing how capital buffers helped banks absorb pandemic-related credit shocks. Cross-country comparison studies, especially between India and other emerging economies, with a view to understand regulatory effectiveness. Inclusion of qualitative insights such as management efficiency, governance structure, and risk culture, together with financial variables.

We believe this review will provide insight and understanding about capital buffer and non-performing assets to the researcher. Furthermore, Future studies may explore the correlation between fintech and non-performing assets. Moreover, reviews can also be conducted on the factors of non-performing assets across multiple countries.

Limitations of the study: -

This review is necessarily limited to secondary data sources available in public databases such as Scopus, Google Scholar, and ResearchGate. Recent conference papers and unpublished working papers may be missed. The analysis has focused mainly on empirical studies; theoretical and policy papers could add depth in the understanding of capital buffer mechanisms. The present study is based on the review of literature related with NPAs and Buffer Capital research papers. This study did not employ any statistical tools and techniques. This analysis is confined to the time-period from 2012 to 2024.

Abbreviations:

NPL: Non-performing loans
NPA: Non-performing assets
CAR: Capital adequacy ratio
BS: Bank Size
NIM: Net Interest Margin
GDP: Gross Domestic Product
OCE: Operating Cost Efficiency
PSL: Priority Sector Lending
IIN: Interest Income
CAD: Capital Adequacy
WPI: Wholesale Price Index
ROE: Return on Equity
ROA: Return on Assets
NIN: Non-interest income
NIE: Non-Interest Income
CE: Cost Efficiency
AS: Asset Size

References: -

1. Shang, L., Zhou, B., Li, J., Tang, D., Boamah, V., & Pan, Z. (2024). Evaluating financial fragility: a case study of Chinese banking and finance systems. *Humanities and Social Sciences Communications*, 11(1), 1-9.
2. Feleke, T. M., & Tafere, H. T. (2025). Determinants of credit risk of commercial banks in Ethiopia. *Journal of Innovation and Entrepreneurship*, 14(1), 1-29.
3. Ahmad, D.I., & Khan, N. (2019). A Comparative Analysis of NPA between SBI and ICICI Bank.
4. Шкодра, Й., Анастасиуб, Д., & Калландраніск, X. X. (2024). the Impact of Non-Performing Loans on Commercial Bank Profitability: Evidence from the Western Balkans. *Financial and credit activity problems of theory and practice*, 3(56), 49-58.
5. Rajha, K. S. (2016). Determinants of non-performing loans: Evidence from the Jordanian banking sector. *Journal of Finance and Bank Management*, 4(1), 125-136.
6. Xu, Y., Mohseinbt Abdul Mohsin, A., & Yang, F. (2025). Market concentration, digital transformation, and bank credit risk in China: evidence from GMM estimation. *Humanities and Social Sciences Communications*, 12(1), 1-13.
7. Bajaj, R. V., Sanati, G., & Lodha, C. (2024). Impact assessment study of NPAs and rate of recovery: Are private sector banks in India better off?. *Global Business Review*, 25(3), 724-749.
8. Balasubramaniam, C. S. (2012). Non-performing assets and profitability of commercial banks in India: assessment and emerging issues. *Abhinav, National Monthly Refereed Journal of Research in Commerce & Management*, 1(7), 41-52.
9. Agarwal, P., Arora, D., Kashiramka, S., & Jain, P. K. (2021). The impact of non-performing assets on bank performance under Basel regime—Empirical evidence from India. *Journal of Commerce & Accounting Research*, 10(3), 36-45.
10. Singh, V. R. (2016). A Study of Non-Performing Assets of Commercial Banks and it's recovery in India. *Annual Research Journal of SCMS, Pune*, 4(1), 110-125.

11. Singh, S. K., Basuki, B., & Setiawan, R. (2021). The effect of non-performing loan on profitability: Empirical evidence from Nepalese commercial banks. *The Journal of Asian Finance, Economics and Business*, 8(4), 709-716.
12. Khan, M. A., Siddique, A., & Sarwar, Z. (2020). Determinants of non-performing loans in the banking sector in developing state. *Asian Journal of Accounting Research*, 5(1), 135-145.
13. Almaqtari, F. A., Al-Homaidi, E. A., Tabash, M. I., & Farhan, N. H. (2019). The determinants of profitability of Indian commercial banks: A panel data approach. *International Journal of Finance & Economics*, 24(1), 168-185.
14. Kingu, P. S., Macha, S., & Gwahula, R. (2018). Impact of non-performing loans on bank's profitability: Empirical evidence from commercial banks in Tanzania. *International Journal of Scientific Research and Management*, 6(1), 71-79.
15. Milenković, N., Kalaš, B., Mirović, V., & Andrašić, J. (2024). Static and Dynamic Modeling of Non-Performing Loan Determinants in the Eurozone. *Mathematics*, 12(21), 3323.
16. Djalilov, K., & Piesse, J. (2016). Determinants of bank profitability in transition countries: What matters most?. *Research in International Business and Finance*, 38, 69-82.
17. Qehaja-Keka, V., Ahmeti, S., & Aliu, M. (2023). Bank profitability determinants: Evidence from Kosovo and Albania. *Journal of Liberty and International Affairs*, 9(2), 297-311.
18. Alnabulsi, K., Kozarević, E., & Hakimi, A. (2023). Non-performing loans and net interest margin in the MENA region: Linear and non-linear analyses. *International Journal of Financial Studies*, 11(2), 64.
19. Masdjojo, G. N., Suwanti, T., Nuswandari, C., & Sudiyatno, B. (2023). The relationship between profitability and capital buffer in the Indonesian banking sector. *Banks and Bank Systems*, 18(2), 13-23.
20. Veizi, Z. A. M. I. R. A., & Çelo, R. O. B. E. R. T. (2024). The Impact of Non-Performing Loans Ratio on Banking Profitability in the Albanian Banking System. *WSEAS Transactions on Business and Economics*, 21, 448-457.
21. Abu Khalaf, B., & Awad, A. B. (2024). Exploring the bearing of liquidity risk in the Middle East and North Africa (MENA) banks. *Cogent Economics & Finance*, 12(1), 2330840.
22. Ahmed, S. A., Sayed, O. A., & Ahmed, I. E. (2024). The bank lending behaviour: Does non-performing loans matter? Evidence from the top-ten banks in the Arab world. *Asian Development Policy Review*, 12(2), 100-110.
23. Razmerera, T., Brijlal, P., & Jwara, N. (2024). The Impact of Risk Management on Banks' Profitability: A South African Perspective. *International Journal of Economics and Financial Issues*, 14(4), 56-65.
24. Ahamed, M. M. (2017). Asset quality, non-interest income, and bank profitability: Evidence from Indian banks. *Economic Modelling*, 63, 1-14.
25. Yameen, M., & Ahmad, I. (2015). Impact of Non-Performing Assets on Financial Performance of Banking Sector in India: A Comparative Study of SBI and ICICI. *International Journal of Applied Financial Management Perspectives*, 4(1), pp 1509-1519. ISSN (P): 2279-0896, ISSN(O): 2279-090X.
26. Quy, V. T., & Tuan, P. D. (2024). Determinants of a bank's profitability with the mediating role of interest rate spread: A case of Vietnam. *Asian Economic and Financial Review*, 14(5), 339-355.
27. https://www.researchgate.net/publication/384184381_Asset_quality_and_banks_performance_A_panel_data_analysis_of_commercial_banks
https://www.investopedia.com/terms/c/capital_buffer.asp https://www.rbi.org.in/scripts/BS_ViewMasCircularde tails.aspx?Id=449#:~:text=of%20other%20accounts.,2.1.,in%20respect%20of%20other%20accounts