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# Exploring the Asset Quality–Stock Price Volatility Nexus: Empirical Evidence from Select Indian Public Sector Banks

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**ABSTRACT**

The Indian banking system is nearly equivalent to the nation's financial system. It significantly influences the allocation of idle savings towards productive endeavours. Nonperforming assets obstruct this process. It exerts a multifaceted influence on various elements of the banking sector, including profitability, liquidity, safety, flexibility, and expansion. Moreover, the increasing trend of NPAs engenders scepticism among investors, since it signifies inadequate asset management quality within banks. Our research aims to elucidate the impact of non-performing assets (NPAs) on the volatility of stock prices of selected Indian public sector banks listed on the National Stock Exchange (NSE). The selected sample banks are determined by their market capitalisation. We have constructed a research model comprising bank-specific, sector-specific, and macroeconomic variables to substantiate our purpose. Multiple regression analysis utilising panel data methodology has been used to the dataset covering the period from 2011-12 to 2022-23. Quarterly data for the relevant variables has been sourced from secondary sources, including the

ProwwssIQ database, publications from the Reserve Bank of India, and the World Bank. The empirical findings of the study demonstrate that non-performing assets (NPAs) significantly negatively impact stock price volatility, but profitability metrics and business size exert a considerable favourable effect. The research indicates that a deterioration in asset quality leads to an increased perception of market risk, thereby intensifying stock price volatility.

## I. Introduction

The banking system plays a crucial role in directing money towards productive investments, including the stock market. However, the sector's success largely depends on how well banks can manage their assets. The quality of the assets it holds is of paramount importance. The non-performing assets is the superior indicator of assets quality as it has multifaced impact on profitability, financial stability and operational efficiency (Barakat et al., 2024; Kanimozhi & Ganesh, 2024; Ravindra & Ramesh, 2024) It has become a significant issue in the banking sector globally, especially in emerging markets such as India. NPAs reflect loans that fails to generate income for banks due to borrower default, leading to significant financial losses and instability within the banking system and so on. Thus, the efficient management and resolution of NPAs are essential for sustaining growth and stability in the banking system. Several banking crises worldwide have highlighted the devastating consequences of an elevated extent of NPA on the entire financial system. NPAs erode banks' profitability and solvency, undermine depositor confidence, restrict credit flow to productive sectors, and impede economic growth.

Various factors influence the volatility of stock prices in Indian public sector banks, underscoring the complex interplay between internal dynamics, sector-specific variables, and the broader economic environment. Firstly, the performance and financial health of individual banks, including factors like profitability, asset quality, and capital adequacy, significantly impact stock price volatility. Non-performing assets (NPAs) represent a key determinant, with higher levels of NPAs often correlating with increased volatility due to concerns over asset quality and potential financial losses. Furthermore, macroeconomic variables that impact lending practices, borrowing prices, and general market mood, like interest rate, the rate of inflation, and the GDP growth rate, have a noteworthy bearing on the volatility of stock price. Regulatory changes and government policies, including those related to banking regulations, taxation, and fiscal stimulus measures, can also induce fluctuations in stock prices by altering market

expectations and risk perceptions. Geopolitical developments, global economic conditions, and investor mood all significantly impact stock price volatility as they introduce uncertainty and volatility in financial markets. Overall, an assortment of internal bank-specific factors, macroeconomic indices, regulatory policies, and external market dynamics collectively determine the volatility of stock prices.

Our research investigates how non-performing assets (NPAs) influence stock price volatility by considering select public sector banks listed in the National Stock Exchange. This research aims to elucidate the cascading effect that these NPAs have led, towards stock price volatility and ensuing investor disparities in relation with overall market dynamics.

Such insights are essential for formulating effective risk management strategies, enhancing market efficiency, and fostering sustainable economic development. Therefore, the study holds significant ramifications for investors, bank management, policymakers, and other players in the Indian financial ecosystem.

## II. Review of Literature

The review of the empirical research on the banking sector around the world done in the last few decades strongly established the interconnectedness among the asset quality, profitability, and volatility of their stock prices. High levels of NPAs indicate poor asset quality, which directly impacts a bank's profitability by lowering interest income and raising provisioning needs. This erosion of profitability weakens investor confidence, often resulting in heightened stock price volatility. Conversely, banks with strong asset quality tend to have better financial performance, leading to consistent profitability and more stable stock prices. Against this backdrop, our review of the literature has been spread over into two arenas – the influence of NPA on profitability and its effect on the volatility of stock prices.

### NPAs and Profitability

Extensive research in recent decades has explored the fundamental association between the profitability and non-performing assets within the banking sector. Globally, various factors have influenced the banking industry's profitability, which can be categorized into external or macroeconomic variables and internal or bank-specific factors. Studies by (Bapat, 2018; Bepari & Sarkar, 2020; Bougatef, 2017; Lutf & Omarkhil, 2018; Rashid & Jabeen, 2016) have examined a single nation’s banking industry to ascertain the factors influencing performance. (Demirguc-Kunt & Huizinga, 1999; Kassem & Sakr, 2018; Le & Ngo, 2020; Tan, 2016) had taken into account the banking sector of different countries.

**NPAs and Volatility of Stock Price**

NPAs pose a significant financial risk to banking institutions and have far-reaching consequences for the economy, affecting investor confidence, credit availability, and market stability. In this context, the elaborate connection between NPAs and stock price volatility is of utmost importance, as it would shed light into the underlying mechanisms driving market dynamics and investor behavior.

Various methodologies and numerous variables have been under consideration in the body of research that looks at the impact factors on stock price volatility in the banking sector, thereby coming up with major conclusions. Rawlin & Shanmugam (2014) and Dubey & Kumari (2015), found that productivity metrics (business per employee, profit per employee) and advances significantly impacted share prices. While Ghauri (2014) and Hossain (2020) observed a significant positive impact of bank size on share prices through panel regression, other studies reported ambiguous results with regard to variables such as dividend yield and return on assets. Arshad et al. (2015) revealed that EPS drives share prices upward, while interest rates and the book-to-market ratio had a negative effect, a finding reverberated in the studies by Chhipa & Nabi (2016) and Chadi & Rasha (2022). Non-performing assets (NPAs) and capital adequacy ratios (CARs) also appeared as crucial components affecting stock price movement, as highlighted by Tayal et al. (2019) and Djamaluddin et al. (2019), although with different implications for public versus private banks. Lastly, Pradhan & Dahal (2016) emphasized external macroeconomic factors like GDP and money supply as influential factors, particularly in foreign markets. The bulk of research is founded on profitability and risk factors, but these factors' relative weight changes depending on geographic and bank-specific contexts.

## III. Objectives of the Study

This review integrates all available literature regarding the topic, including various types of research, analytical studies, and conceptual models. By critically analyzing prior research endeavors, this review aims to elucidate the mechanisms through which NPAs impact stock price volatility and the factors contributing to the variability in this relationship. Additionally, it aims to pinpoint deficiencies in the existing comprehension of NPAs and stock price volatility concerning Indian public banks, thus directing future research trajectories in this field.

**Research Model**

We have created a pool of explanatory variables to arrest their influence on the stock price volatility of selected public sector banks. The volatility in stock prices of the banks studied is affected by a

combination of macroeconomic, sector-specific, and bank-specific, indicators. Thus, the model of the study is presented below.

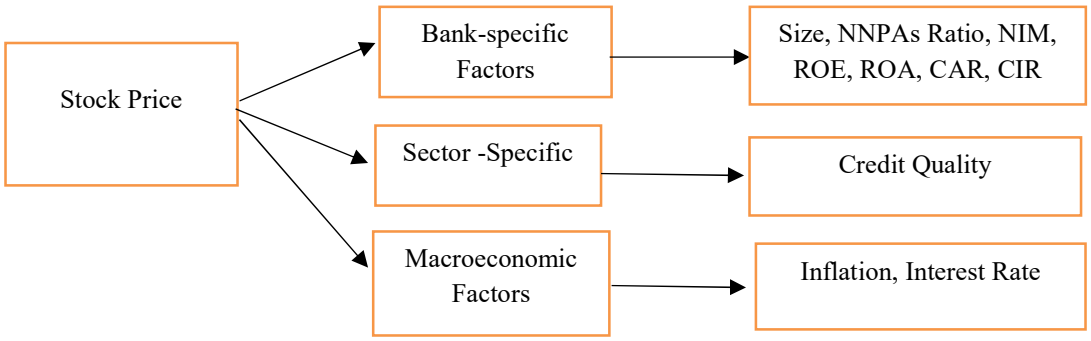


**Figure. 1 Model of the study**

## IV. Description of variables

### Dependent Variable:

**Stock Price:** Banks' stock price indicates the current market valuation of the bank's equity, reflecting investors' perceptions of its financial health, performance, growth prospects, and overall market conditions. Following the studies of (Chhipa & Nabi, 2016a; Hossain, 2020; Madhvi et al., 2017; Rawlin & Shanmugam, 2015) we have selected the stock price in our study.

### Independent Factors:

### Bank-specific Factors

**Size:** banks' size can be measured with a variety of financial metrics such as total assets, total deposits, total outstanding loans, market capitalization, number of employees, and so on. The natural logarithmic value of total assets has been used as a proxy for the size of the selected bank in our study (Ghauri, 2014; Rawlin & Shanmugam, 2014) Banks with higher asset values are better able to diversify their operations and make money. This diversification may result in increased stability and possibly higher profits, luring investors and raising share values.

**Assets Quality:** The NNPAs ratio measures the percentage of defaulted loans about the net advances of a bank. High NNPA ratios indicate more credit risk and instability, which usually undermines investor confidence and share prices. On the other hand, low NNPA ratios signal good asset quality and financial stability, which generally supports share prices. As per the previous studies of (Borse, 2016; Dubey & Kumari, 2015; Madhvi et al., 2017) the net NPA ratio has been considered one of the principal explanatory variables in our study.

**Net Interest Margin (NIM):** It is the difference between the interest income banks receive and the interest they pay out (Dietrich & Wanzenried, 2011). The higher the NIM, the greater the banks' efficacy in generating profit (Sarkar & Rakshit, 2023). NIM directly impacts a bank's earnings, and consequently, its share price. A bank with a higher NIM is regarded as very efficient and highly profitable, attracting investors' interest and leading to higher share prices. Monetary policy set by the central bank plays a vital role in this regard. (Aswal & Sharma, 2020; Djamaluddin et al., 2019; Nureny, 2019) have considered NIM as an independent variable in their studies.

**Return on Equity (ROE):** It is a financial ratio used to measure a company's profitability with the equity invested by its shareholders (Sarkar & Rakshit, 2021) ROE significantly affects the share price of banks. If investors consider banks generating higher ROE as having effectively utilized their capital in profit-making activities, the price of the stock of such banks could increase because of investor confidence instilled in such notions of profitability. ROE is considered one of the determining factors of share price following the studies of (Chadi & Rasha, 2022; Safri et al., 2020).

**Return on Assets (ROA):** (Chhipa & Nabi, 2016; Ghauri, 2014; Pradhan & Dahal, 2016; Safri et al., 2020) have considered return on assets as one of the factors driving bank share prices. ROA measures a firm's profitability in respect of its asset base (Gaur & Mohapatra, 2020) It helps maintain a more robust solvency ratio amid a fluctuating fiscal environment (Doyran, 2013). Banks that demonstrate a consistent and sustainable return on assets can foster investor confidence, resulting in heightened demand for the bank's shares and subsequently elevated share prices. Thus, ROA is taken as another predictor variable in our study.

**Capital Adequacy Ratio (CAR):** It evaluates a bank's ability to absorb potential losses, safeguard depositors, and ensure financial stability. It guarantees that banks possess enough capital to accommodate

different kinds of risks, such as market, operational, and credit risks. A robust CAR strengthens a bank's capacity to expand and turn a profit, encourages adherence to legal requirements, and increases investor confidence. Understanding its importance and following the studies of (Hossain, 2020; Nureny, 2019; Rawlin & Shanmugam, 2015) CAR is also used as an independent variable in our study.

**Cost Efficiency:** The cost-to-income ratio (CIR), also known as the operating cost-to-operating income ratio, is a crucial performance indicator that shows the efficiency of a bank in managing its expenses and generating profits. A low CIR indicates that the bank is effectively controlling costs and maximizing revenue, while a high CIR suggests the opposite. Investors and stakeholders are usually more attracted to banks with lower CIRs as they are seen as more efficient, profitable, and stable. In line with the studies of (Endri, 2018; Nureny, 2019; Rjoub et al., 2017; Safri et al., 2020) CIR is also used as an independent variable in our study.

**Sector-Specific Indices**

**Credit Quality:** The ratio of Gross Non-Performing Assets (GNPA) for the priority sector reflects the loan performance in mandated areas like agriculture, MSMEs, education, and housing for low-income groups. The RBI requires that banks maintain 40% of their loans in priority sectors which makes it essential to control GNPAs for compliance with regulations as well as overall balance sheet health (Kumar et al., 2020; Selvi, 2014). Increasing GNPAs ratio suggests worsening credit standards especially within sensitive and thin-margin industries such as farming or small businesses (Kumar et al., 2020; Reddy & Reddy, 2023). For public sector banks in India, prioritizing GNPA ratio is instrumental to risk management illustrates the bank's agility managing risk in vital lending zones critical to business growth but also geopolitical stability. Its relevance towards earning results after taxes, restricted ratios imposed by authorities on banking institutions, fiscal soundness and reputation on the market build a strong base when devising metrics toward weighing efficiency while analyzing dynamics between operational functioning of the bank and stock price volatility.

**Macroeconomic Indices**

**Inflation:** It is the rate at which the overall price level of goods and services increases, diminishing buying power. The previous studies exhibited both significantly positive, significantly negative, and even insignificant impacts on the variances in the stock prices of several nations' banking industries. The studies of (Laichena & Obwogi, 2015; Victor & Kuwornu, 2011) exhibited a substantial positive impact

on the stock price. On the other hand, (Al-Abadi & Al-Sabbagh, 2006) exhibited a notable adverse impact of inflation, and the studies of (Khan et al., 2015; Kirui et al., 2014) explored the insignificant effects of inflation on stock price volatility. Our study used the quarterly CPI as a measure of inflation.

**Monetary Policy Interest Rate (Repo rate**): Following the studies of (Alam et al., 2009; Mugambi & Okech, 2016; Okechukwu et al., 2019) monetary policy interest rate has been considered another macroeconomic determinant of the volatility of share prices in our study. In general, a higher repo rate would lead to higher borrowing costs for companies, eating into profitability and eventually hurting investor sentiment, thus lowering share prices. A lower repo rate, on the other hand, would reduce borrowing costs for the company and could lift corporate earnings, therefore tending to increase investment and share prices.

Table 2 represents a brief account of the selected variables and their likely impact on the volatility of stock price

**Table 2: Selected Variables and their Expected Impact**

| Variables | Abbreviation | Measurement | Variable Type | Expected Impact |
|---|---|---|---|---|
| Stock Price | SP | Quarterly average stock Price | Dependent | - |
| Size of banks | Size | Ln of Total assets | Independent | Positive |
| Assets Quality | NNPAs Ratio | $\frac{(GrossNPAs - Provisions)}{Total\ advances} \times 100$ | Independent | Negative |
| Net Interest Margin | NIM | Interest Income - Interest expanded | Independent | Positive |
| Return on Assets | ROA | Net Income/ Total assets | Independent | Positive |
| Return on Equity | ROE | Net Income/ Shareholders' equity | Independent | Positive |
| Capital Adequacy Ratio | CAR | Total capital/ Rise weighted assets | Independent | Positive/Negative |
| Cost Efficiency | CIR | Operating cost/ Operating income | Independent | Positive |

| | | | | |
|---|---|---|---|---|
| Credit Quality | CRQ | GNPAs ratio to Priority sector | Independent | Negative |
| Inflation | INF | Quarterly average inflation in India (CPI) | Independent | Positive/Negative |
| Monetary policy interest rate | INT | Repo rate of the RBI | Independent | Negative |

Source: Authors' Compilation

## V. Data and Research Methodology

### Data Source and Sample Selection

This study examines five public sector banks listed on the National Stock Exchange (NSE) according to their market capitalisation as of March 2021: State Bank of India, Punjab National Bank, Bank of Baroda, Canara Bank, and Union Bank. As of that date, the cumulative proportion of the sample banks in the entire stock market capitalisation at the NSE is 82.71% (SBI: 57.87%, PNB: 8.04%, Bank of Baroda: 7.23%, Canara Bank: 5.00%, and Union Bank: 4.57%) (https://www.nseindia.com assessed on 31.03.2021).

The dependent variable in our analysis is the quarterly average stock price of the selected institutions. A variety of bank-specific and macroeconomic indicators, as detailed in Section IV, function as the regressors in our model.

The analysis encompasses the timeframe from 2011-12 to 2022-23. Quarterly data on bank-specific and sector-specific characteristics were obtained from the ProwwssIQ database and the RBI, respectively. Inflation data and the monetary policy interest rate (Repo rate) were obtained from World Bank publications and the Reserve Bank of India (RBI) respectively (https://data.rbi.org.in).

### Methodology

The research is quantitative in character. A panel regression methodology is utilised to determine the effects of banking and macroeconomic variables on the volatility of stock prices of certain public sector banks listed on the NSE. By integrating cross-sectional and time-series data, it provides a comprehensive perspective on social, financial, and economic issues.

Panel data regression effectively addresses unobserved heterogeneity by incorporating individual-specific effects, hence minimising omitted variable bias. Three often employed models in panel regression are pooled ordinary least squares, the random effects model, and the fixed effects model. The pooled OLS

model assumes uniformity among the cross-sectional units. The estimate obtained from the pooled model may be biassed due to unobserved heterogeneity. This bias can be alleviated or eradicated by integrating cross-sectional or temporal errors. A fixed-effect model is employed when the error component is non-random, while a random effect model is used when it is random (Das, 2019). The fixed-effects model analyses the link between explanatory and dependent variables within a particular entity, while accounting for the influence of time-invariant unobserved traits. A fixed-effects model enables the calculation of the net effect of explanatory factors on the dependent variable. In a random-effects model, the intercept's distribution signifies the random effects associated with unobserved heterogeneity. The random-effects model possesses augmented degrees of freedom, making it more appropriate for micro-panel or short-panel data. The Hausman test is employed to determine the appropriate model between fixed effects and random effects. Following the rejection of the null hypothesis, which posits that individual effects are uncorrelated with other regressors, a fixed effects model is employed (Das, 2019). The criteria set forth by Park (2011) are utilised to evaluate the most appropriate model among the three options. The functional form of the model (Figure 1) that is to be estimated in this analysis can be represented as follows.

$$Stock\ Price = f\begin{pmatrix} NNPAs\ ratio, Size, NIM, ROE, ROA, CAR, Cost\ efficiency, \\ Credit\ Quality, Inflation, Monetary\ Policy\ Interest\ Rate \end{pmatrix} \quad (1)$$

The regression equation following form 1 can be as under:

$$SP = \alpha_i + \beta_1 NNPR + \beta_2 Size + \beta_3 NIM + \beta_4 ROE + \beta_5 ROA + \beta_6 CAR + +\beta_7 CIR + \beta_8 CRQ + \beta_9 INF + \beta_{10} INT + u_i t \quad (2)$$

In equation (2) $\beta_1$ to $\beta_{10}$ are the coefficients of the independent variables, *i* denotes individual banks, *t* is time and *u* represent the error term.

## VI. Data Analysis and Interpretations

### Descriptive Statistics

**Table 3: Descriptive Statistics**

| Variables | Obs. | Mean | Std. Dev. | Min | Max |
|---|---|---|---|---|---|
| NNPR | 240 | .9659612 | .8340091 | .094723 | 4.435878 |
| Size | 240 | 12.81869 | .8858221 | 10.77582 | 14.51901 |
| NIM | 240 | 4.181379 | .5228154 | 2.846463 | 5.001067 |
| ROE | 240 | 13.30267 | 3.750542 | 2.731661 | 20.021326 |

| Variables | Obs. | Mean | Std. Dev. | Min | Max |
|---|---|---|---|---|---|
| ROA | 240 | 1.572743 | .3928099 | .294941 | 2.111899 |
| CAR | 240 | 2.326605 | 1.585647 | .406178 | 6.279249 |
| CIR | 240 | 44.563 | 5.180894 | 29.50082 | 68.13776 |
| CRQ | 240 | 1.954995 | .7002222 | .74575 | 4.451288 |
| INF | 240 | 4.430227 | 4.302318 | -4.55 | 14.33 |
| INT | 240 | 6.430436 | 1.415632 | 4 | 8.5 |

Source: Authors' Calculation

Table 3 depicts the descriptive statistics of the variables concerned. The NNPA ratio ranges from 0.09472 to 4.4358 having a mean value of 0.9659612 with a standard deviation of less than unity. The size of these banks is found to have an average value of 12.81869 with a lowest value of 10.77582, and a maximum value of 14.51901 with a variability of 0.8858.NIM also has a standard deviation of less than unity (0.52281) with a mean value of 4.18 ranging between 3.00 and 5.00. ROE has a mean value of 13.30 and varies between 2.73 and 20.02 with a variability of 3.75. With an average of 1.572743, the variability of ROA is less than one, ranging from 0.294 to 2.11. The sample banks' capital adequacy ratio (CAR) has an average value of 2.32, with a least value of 0.41 and a maximum value of 6.28 with a variability of 1.585647. Table 3 also exhibits that the average CIR is 44.56 with most ratios within 5.18 of the mean. The lowest CIR is 29.50, and the highest is 68.14. The credit quality to the priority sector (GNPAs ratio) is found to have a standard deviation of less than unity (0.77222), ranging from 0.74575 to 4.451288 with a mean value of 1.954995

it is also observed from the table (Table: 3) that the two macroeconomic indicators inflation and Repo rate have 4.43 and 6.43 with a variability of 4.302318 and 1.4156 respectively.

**Relationship Matrix and Diagnostic of Multicollinearity**

**Table 4: Relationship Matrix**

| | Stock Price | NNPR | Size | NIM | ROE | ROA | CAR | CIR | LCPS | INF | INT |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Stock Price | 1.000 | | | | | | | | | | |

| | Stock Price | NNPR | Size | NIM | ROE | ROA | CAR | CIR | LCPS | INF | INT |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NNPR | -0.408 | 1.000 | | | | | | | | | |
| Size | 0.132 | 0.245 | 1.000 | | | | | | | | |
| NNPR | -0.408 | 1.000 | 0.245 | | | | | | | | |
| NIM | 0.3237 | -0.434 | - 0.088 | 1.000 | | | | | | | |
| ROE | 0.241 | -0.607 | -0.261 | 0.519 | 1.000 | | | | | | |
| ROA | 0.342 | -0.417 | -0.205 | 0.548 | 0.697 | 1.000 | | | | | |
| CAR | -0.273 | 0.151 | 0.168 | -0.366 | -0.050 | -0.176 | 1.000 | | | | |
| CIR | -0.028 | -0.138 | -0.653 | -0.012 | -0.006 | -0.142 | -0.024 | 1.000 | | | |
| CRQ | - 0.004 | 0.4692 | 0.562 | -0.3492 | -0.5752 | -0.3775 | 0.2682 | -0.3758 | 1.000 | | |
| INF | 0.1074 | -0.1414 | -0.0499 | -0.0764 | 0.0634 | 0.0314 | 0.1329 | 0.0903 | 0.1881 | 1.0000 | |
| INT | -0.1755 | -0.1188 | -0.5751 | -0.0660 | 0.3590 | 0.2194 | 0.4905 | 0.4778 | -0.0770 | -0.0770 | 1.0000 |

Source: Authors' Calculation

**Table 5: VIF Value**

| Variables | VIF |
|---|---|
| INT | 6.36 |
| ROE | 5.40 |
| ROA | 4.58 |
| Size | 3.35 |
| CAR | 3.24 |

| | |
|---|---|
| CIR | 2.49 |
| CRQ | 2.61 |
| NIM | 1.88 |
| NNPR | 1.86 |
| INF | 1.32 |
| Mean VIF | 3.31 |

Source: Authors' Calculation

If the correlation coefficient between two independent variables lies between $\pm 0.80$, multicollinearity may be a problem (Rahaman & Sur, 2021; Williams, 2015). Table 4 demonstrates that every correlation coefficient among the selected variables in the study are in the given range. To achieve a more consistent outcome VIF value (Table 5) of the explanatory variables have been calculated. The highest VIF value is 3.31 which indicates the absence of multicollinearity among independent variables used in the study.

Equation (2) has been estimated using panel regression analysis to shed light on the importance of a collection of macroeconomic, sector-specific, and bank-specific indicators in general and non-performing assets in particular concerning the volatility of the stock prices of selected public sector banks. Among the three commonly used models (Pooled OLS, RE, and FE) we have used both RE and pooled OLS models. The most suitable model between these two has been selected by using the value of Breusch and Pagan Lagrangian multiplier. The findings of the test favour the pooled OLS model as the $prob. > \chi^2 = 1.0000$. The Hausman specification test has been used to choose between FE and RE. The FE model is more appropriate than the RE model as the $prob. > \chi^2 = 0.0000$ (value of test statistic 76.34). By comparing polled OLS and FE, the later model is the most appropriate as Prob > F = 0.0000 (value of test statistic 19.75). The result of fixed effect estimation has been produced in Table 6

**Table 6: Fixed Effect Regression Result**

| R-sq.: overall = 0.624 Prob > F = 0.0000 | | |
|---|---|---|
| **Stock Price** | **Coefficient** | **P value** |
| Size | 904.8318 | $0.000^{***}$ |
| NNPR | -188.2738 | $0.000^{***}$ |
| NIM | -114.7599 | 0.109 |
| ROE | 42.86617 | $0.025^{**}$ |
| ROA | 679.675 | $0.000^{***}$ |
| CAR | 5.319127 | 0.863 |

| | | |
|---|---|---|
| CIR | 4.029237 | 0.639 |
| CRQ | 145.5543 | 0.410 |
| INF | 20.97038 | 0.001*** |
| INT | -240.8698 | 0.000*** |
| Value of F Statistic = 19.75 Prob > F = 0.0000 | | |

Source: Authors' Calculation

Note: *** indicate significant at 10%; ** indicate significant at 5%; * indicate significant at 1%

## VII. Panel Regression Results

Table 6 explores the panel regression result of the best-fit model. It has been observed that risk-weighted assets ratio (CAR), NIM, and cost efficiency (CIR) have no impact on the volatility of stock prices of sample banks. This finding supports the previous study of (Aswal & Sharma, 2020; Hossain, 2020) In line with the studies of (Alaagam, 2019; Endri, 2018; Ghauri, 2014)

ROA and Size of the banks have impacted the volatility of their stock price in a highly significant positive way whereas ROE and operational efficiency impacted the same in a moderately significant way. It is also revealed that the net non-performing assets ratio has a significant adverse impact on the volatility of stock prices of the banks under study. This finding of our study is as per to the studies of (Bhatia & Mulenga, 2019; Rjoub et al., 2017; Safri et al., 2020) etc. It is also evident that credit quality (GNPAs ratio of priority sector lending) has no statistically significant impact on the volatility of stock prices of the banks under investigation

Out of the two macroeconomic determinants, inflation has a noteworthy positive effect but the REPO rate exhibits a noteworthy adverse impact on the response variable. The findings of our investigation align with the results of (Abdullahi, 2020; Amata et al., 2016; Amatya, 2016; Siagian, 2023)

## VIII. Conclusion, Findings and Suggestions

The substantial positive impact of ROA and ROE on the volatility of share prices in the banking sector underscores the critical importance of these financial metrics in evaluating banking performance and investor confidence. Our analysis demonstrates that banks with higher ROA and ROE tend to experience reduced volatility in their share prices, indicating stronger financial health and operational efficiency. This correlation highlights the value for investors in closely monitoring these metrics as key indicators of stability and profitability in the banking sector. The research of (Dietrich & Wanzenried, 2011) underscores how ROA impacts profitability and stability in Swiss banks. Further evidence from

(Demirguc-Kunt & Huizinga, 1999) supports the notion that robust financial ratios contribute to lower risk and volatility in global banking.

The significant positive impact of banks' size on stock price volatility underscores the intricate dynamics between a bank's scale and market behavior. Larger banks, due to their extensive operations and broader market influence, tend to exhibit higher volatility in their share prices

Maintaining high-quality assets is essential for sustaining financial stability and building investor trust, as evidenced by the significant negative impact of the quality of assets on stock price change in the banking sector. The deterioration of asset quality leads to increased market perception of risk, thereby amplifying stock price volatility.

The statistically insignificant relationship between credit quality concerning priority sector lending and the volatility of stock prices of the selected public sector banks may explore different phenomena. These include a well-diversified loan portfolio, maintaining a strong capital adequacy ratio (Reddy & Reddy, 2023), investors' inclination to financial metrics (Rane & Gupta, 2022), dilution of risk perception associated with priority sector lending (Kanyan & Singh, 2024), adopting stronger risk management practices, and so forth.

The dual impact of inflation rates and the Repo rate on the volatility of share prices in the banking sector reveals the complex interplay between macroeconomic policies and market stability. Higher inflation rates contribute to increased volatility in bank share prices by fostering uncertainty and risk. Conversely, the Repo rate—a tool used by the RBI to control monetary policy—has a statistically significant negative impact on share price volatility. This indicates that higher Repo rates, which typically signal tightening monetary policy, can stabilize bank share prices by curbing inflationary pressures and reducing speculative activities.

## IX. Limitations and Scope of Further Research

As the study is entirely based on the secondary sources of the data the results of the study depend on the accuracy of such data. Apart from inflation and monetary policy interest rate, external factors like GDP, exchange rate, and the effect of Covid 19 and subsequent lockdown may also be considered. The study focuses primarily on quantitative analysis and does not explore the behavioral aspects of investors that might amplify or dampen the effects of NPAs on stock prices Future studies may be conducted by incorporating all these lacunas to have a more comprehensive understanding. Moreover, future study can be conducted to find out the impacts of NPAs on the volatility of stock prices of the banking sector by considering the pre- and post-COVID-19 pandemic effects.

**References**


- Abdullahi, I. B. (2020). Effect of Unstable Macroeconomic Indicators on Banking Sector Stock Price Behaviour in Nigerian Stock Market. *International Journal of Economics and Financial Issues*, *10*(2), 1–5. https://doi.org/10.32479/ijefi.9041

- Alaagam, A. (2019). *The Relationship Between Profitability and Stock Prices: Evidence from the Saudi Banking Sector*. *10*(14). https://doi.org/10.7176/RJFA

- Al-Abadi, M. I., & Al-Sabbagh, O. W. (2006). Interest Rate Sensitivity, Market Risk, Inflation and Bank Stock Returns. In *Journal of Accounting-Business & Management* (Vol. 13).

- Alam, M. M., Gazi, M., & Uddin, S. (2009). Relationship between Interest Rate and Stock Price: Empirical Evidence from Developed and Developing Countries. *International Journal of Business and Management*, *4*(3), 43–51.

- Amata, E. O., Muturi, W., & Mbewa, M. (2016). The Causal Relationship Between Inflation, Interest Rate and Stock Market Volatility In Kenya. *European Journal of Business, Economics and Accountancy*, *4*(6). www.idpublications.org

- Amatya, S. (2016). Effect of Firm Specific and Macroeconomic Variables on Market Price of Shares and Financial Performance in Commercial Banks of Nepal. *Nepalese Journal of Business*, *3*, 80–92. www.uniglobe.edu.np

- Aswal, N., & Sharma, S. (2020). Determinants of Stock Price of Banking Sectors with Referance to Private Sector Banks. *Annals of the "Constantin Brâncuşi" University of Târgu Jiu, Economy Series*, *5*, 5–14. https://www.utgjiu.ro/revista/ec/pdf/2020-05/01_Aswal.pdf

- Bapat, D. (2018). Profitability drivers for Indian banks: a dynamic panel data analysis. *Eurasian Business Review*, *8*(4), 437–451. https://doi.org/10.1007/s40821-017-0096-2

- Barakat, H. A., Elwahab, S. A., Yassin, N. M., Ibrahim, S. M. M., Ismail, M. H., & Eldin, N. W. S. (2024). Asset Quality and Banks Performance: A Panel Data Analysis of Commercial Banks. *Risk Governance and Control: Financial Markets and Institutions*, *14*(3), 111–121. https://doi.org/10.22495/rgcv14i3p11

- Bepari, R., & Sarkar, U. (2020). Impact of Non-performing Assets on Profitability Performance of selected public sector banks and private sector banks in India: A Comparative Study. *International Journal of Multidisciplinary Educational Research*, *9*(5), 46–52.

- Bhatia, M., & Mulenga, M. J. (2019). Do Accounting Numbers Have Any Relation with Stock Prices? A Case of Public and Private Sector Banks of India. *Theoretical Economics Letters*, *09*(05), 1682–1698. https://doi.org/10.4236/tel.2019.95107

- Borse, N. Bajirao. (2016). The Study of the Effect of Non Performing Assets (NPA) on Return on Assets (ROA) of Major Indian Commercial banks. *International Journal in Management and Social Science*, *4*(1), 222–227.

- Bougatef, K. (2017). Determinants of bank profitability in Tunisia: does corruption matter? *Journal of Money Laundering Control*, *20*(1), 70–78. https://doi.org/10.1108/JMLC-10-2015-0044

- Chadi, A., & Rasha, H. (2022). Internal financial determinants of stock prices in the banking sector: comparative evidence from Dubai and Abu Dhabi Stock markets. *REVISTA DE MÉTODOS CUANTITATIVOS PARA LA ECONOMÍA Y LA EMPRESA*, *34*, 3–16. www.upo.es/revistas/index.php/RevMetCuant/article/view/6057

- Chhipa, M. A., & Nabi, A. A. (2016). Factors Affecting Share Prices of Banking sector of Pakistan. *Journal of Economic Info*, *3*(1), 1–5. https://doi.org/10.31580/jei.v3i1.82

- Demirguc-Kunt, A., & Huizinga, H. (1999). Determinants of Commercial Bank Interest Margins and Profitability: Some International Evidence. *The World Bank Economic Review*, *13*(2), 379–408. http://wber.oxfordjournals.org/

- Dietrich, A., & Wanzenried, G. (2011). Determinants of bank profitability before and during the crisis: Evidence from Switzerland. *Journal of International Financial Markets, Institutions and Money*, *21*(3), 307–327. https://doi.org/10.1016/j.intfin.2010.11.002

- Djamaluddin, S., Sari, I. N., & Herawaty, A. (2019). Effect of Car, ROA, NIM, LDR and NPL on Stock Prices in Banking That Shared Listed In LQ45 Period 2013-2018. *International Journal of Innovative Research and Development*, *8*(7). https://doi.org/10.24940/ijird/2019/v8/i7/jul19047

- Doyran, M. A. (2013). Net interest margins and firm performance in developing countries: Evidence from Argentine commercial banks. *Management Research Review*, *36*(7), 720–742. https://doi.org/10.1108/MRR-05-2012-0100

- Dubey, D. D., & Kumari, P. (2015). Impact of Non -Performing Assets on Stock Market Performance of listed bank stocks in India An empirical assessment of how the two stocks – NPA and Share are related. *IOSR Journal of Economics and Finance*, 16–22.

- Endri. (2018). Long-Term Analysis Banking Share Price: Application of Data Panel Regression Model. *International Journal of Economics, Business and Management Research*, *2*(04). www.ijebmr.com

- Gaur, D., & Mohapatra, D. R. (2020). Non-performing Assets and Profitability: Case of Indian Banking Sector. *Vision*, 1–12. https://doi.org/10.1177/0972262920914106

- Ghauri, S. M. K. (2014). Determinants of changes in share prices in banking sector of Pakistan. *Journal of Economic and Administrative Sciences*, *30*(2), 121–130. https://doi.org/10.1108/jeas-05-2013-0014

- Hossain, M. Z. (2020). Factors of Share Price Volatility: Empirical Evidence from Private Commercial Banks in Bangladesh. *Research Journal of Finance and Accounting*, *11*(4), 110–117. https://doi.org/10.7176/rjfa/11-4-12

- Kanimozhi, V., & Ganesh, M. (2024). Impact of Non-Performing Assets on Financial Health of Banks. *International Journal of Innovative Science and Research Technology (IJISRT)*, *9*(6), 1598–1603. https://doi.org/10.38124/ijisrt/ijisrt24jun1696

- Kanyan, K., & Singh, S. (2024). Priority and Non-priority Sector GNPAS in Indian Commercial Banks: A Comparison between Sub-sectors. *Vilakshan - XIMB Journal of Management*, *21*(1), 141–158. https://doi.org/10.1108/xjm-03-2023-0041

- Kassem, N. M., & Sakr, A. (2018). The Impact of Bank-Specific Characteristics on the Profitability of Commercial Banks in Egypt. *JOURNAL OF FINANCE AND BANK MANAGEMENT*, *6*(2), 76–90. https://doi.org/10.15640/jfbm.v6n2a8

- Khan, Q. M., Kauser, R., & Abbas, U. (2015). Impact of Bank Specific and Macroeconomic Factors on Banks Profitability: A Study on Banking Sector of Pakistan. *Journal of Accounting and Finance in Emerging Economies*, *1*(2), 99–110. https://doi.org/10.26710/jafee.v1i2.100

- Kirui, E., Wawire, N. H. W., & Onono, P. O. (2014). Macroeconomic Variables, Volatility and Stock Market Returns: A Case of Nairobi Securities Exchange, Kenya. *International Journal of Economics and Finance*, *6*(8), 214–228. https://doi.org/10.5539/ijef.v6n8p214

- Kumar, S., Singh, R., Thombare, P. B., & Kale, P. A. (2020). Priority Sector Lending and Non-Performing Assets: Status, Impact & Issues. *Journal of Pharmacognosy and Phytochemistry*, *9*(1), 1746–1749. http://www.phytojournal.com

- Laichena, K. E., & Obwogi, T. N. (2015). Effects of Macroeconomic Variables on Stock Returns in the East African Community Stock Exchange Market. *International Journal of Education and Research*, *3*(10), 305–320. www.ijern.com

- Le, T. D., & Ngo, T. (2020). The determinants of bank profitability: A cross-country analysis. *Central Bank Review*, *20*(2), 65–73. https://doi.org/10.1016/j.cbrev.2020.04.001

- Lutf, L., & Omarkhil, H. (2018). Impact of Macroeconomic Factors on Banking Profitability. *International Finance and Banking*, *5*(1), 44–69. https://doi.org/10.5296/ifb.v5i1.13080

- Madhvi, Gautam, A., & Srivastava, A. (2017). Is NPA and Stock Return Related: An Empirical Study of Back Testing Model. *Purshartha*, *X*(1), 89–96. http://journals.smsvaranasi.com/index.php/purushartha/article/view/237/224

- Mugambi, M., & Okech, T. C. (2016). Effect of Macroeconomic Variables on Stock Returns of Listed Commercial Banks in Kenya. *International Journal of Economics, Commerce and Management*, *IV*(6), 390–418. http://ijecm.co.uk/

- Nureny. (2019). Financial Performance and Share Prices of Banks of State-Owned Enterprises in Indonesia. *Jurnal Pemikiran Dan Penelitian Administrasi Publik*, *9*(2), 315–326. https://doi.org/10.26858/jiap.v9i2.12335

- Okechukwu, I. A., Samuel Mbadike, N., Geoffrey, U., & Ozurumba, B. A. (2019). Effects of Exchange Rate, Interest Rate, and Inflation on Stock Market Returns Volatility in Nigeria. *International Journal of Management Science and Business Administration*, *5*(6), 38–47. https://doi.org/10.18775/ijmsba.1849-5664-5419.2014.56.1005

- Pradhan, R. S., & Dahal, S. (2016). *Factors Affecting the Share Price: Evidence from Nepalese Commercial Banks*. *June*, 1–16. https://doi.org/10.13140/RG.2.1.2141.1440

- Rahaman, S. M., & Sur, D. (2021). Identifying Key Drivers of Non-Performing Assets in Indian Public Sector Banks: A Panel Data Analysis. *IIM Kozhikode Society & Management Review*, 1–17. https://doi.org/10.1177/22779752211000146

- Rane, N., & Gupta, P. (2022). Impact of Financial Ratios on Stock Price: Evidence from Indian Listed Banks on NSE. *Cardiometry*, *24*, 449–455. https://doi.org/10.18137/cardiom

- Rashid, A., & Jabeen, S. (2016). Analyzing performance determinants: Conventional versus Islamic Banks in Pakistan. *Borsa Istanbul Review*, *16*(2), 92–107. https://doi.org/10.1016/j.bir.2016.03.002

- Ravindra, B., & Ramesh, G. (2024). Impact of Non-Performing Assets (NPA) on the Profitability of Public and Private Sector Banks in India. *International Journal of Research Publication and Reviews*, *5*(1), 1872–1879. https://doi.org/10.55248/gengpi.5.0124.0227

- Rawlin, R., & Shanmugam, R. (2014). Non-Linear Relationships of Key Determinants in Influencing the Share Price of India's Largest Public Sector Bank. *International Journal of Economics, Commerce and Management*, *II* (3), 1–13.

- Rawlin, R., & Shanmugam, R. (2015). A Comparison of the Effects of Key Determinants on Share Prices of India's Largest Public and Private Sector Banks. In *Great Lakes Herald* (Vol. 9).

- Reddy, S., & Reddy, S. G. (2023). Implications of Priority Sector Lending on Capital Adequacy Ratio: An Evaluative Study on Non- Performing Assets. *DHARANA - Bhavan's International Journal of Business*, *14*, 79–85. https://doi.org/10.18311/dbijb/2023/33985

- Rjoub, H., Civcir, I., & Resatofglu, N. G. (2017). Micro and Macroeconomic Determinants of Stock Prices: The Case of Turkish Banking Sector. *Romanian Journal of Economic Forecasting*, *XX* (1), 150–166.

- Safri, H., Dan, Y. P., & Hendry, R. S. M. (2020). Analysis the Banking Health Level and Return of Stock of Banking in Indonesian Stock Exchange. *Journal Ecobisma*, *7*(1), 129–138.

- Sarkar, S., & Rakshit, D. (2021). Factors Influencing the Performance of Commercial Banks: A Dynamic Panel Study on India. *FIIB Business Review*, *12*(1), 85–99. https://doi.org/10.1177/23197145211021564

- Sarkar, S., & Rakshit, D. (2023). Macroeconomic Factors Affecting the Profitability of Commercial Banks: A Case Study of Public Sector Banks in India. *Asia-Pacific Journal of Management Research and Innovation*, 1–12. https://doi.org/10.1177/2319510X231181891

- Selvi, D. V. (2014). Lending to Priority Sector: A Scenario from Indian Scheduled Commercial Banks. *EPRA International Journal of Economic and Business Review*, *2*(7), 44–49. www.epratrust.com

- Siagian, P. (2023). Determinants of Banking Operational Efficiency and the Relationship Between the Factors to Market Price: Evidence from Indonesia. *ECONOMICS - Innovative and Economics Research Journal*, *11*(2), 153–168. https://doi.org/10.2478/eoik-2023-0051

- Tan, Y. (2016). The impacts of risk and competition on bank profitability in China. *Journal of International Financial Markets, Institutions and Money*, *40*, 85–110. https://doi.org/10.1016/j.intfin.2015.09.003

- Victor, O.-N., & Kuwornu, J. k. M. (2011). Analyzing the effect of macroeconomic variables on stock market returns: Evidence from Ghana. *Journal of Economics and International Finance*, *3*(11), 605–615. http://www.academicjournals.org/JEIF

- Williams, R. (2015). *Multicollinearity*. https://www3.nd.edu/~rwilliam/