

IMPACT OF EARNINGS VARIABILITY AND REGULATORY MEASURES ON  
INCOME SMOOTHING IN INDIAN BANKS: EVIDENCE FROM AN  
EMERGING MARKET

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**Abstract**

*This study investigates the impact of earnings variability and regulatory measures on income smoothing practices among Indian banks listed on the National Stock Exchange (NSE) during the period 2010–2018. Using Loan Loss Provisions (LLPs) as a proxy for earnings management, the research explores whether Indian banks engage in discretionary provisioning to stabilize profits. Secondary data were obtained from Reserve Bank of India (RBI) publications, bank annual reports, and the CMIE Prowess IQ database. Panel regression techniques were applied to examine the relationships among loan loss provisions, earnings before tax and provisions (EBTP), capital adequacy ratio (CAR), non-performing assets (NPA), total loans (TL), bank size, and GDP growth.*

*The findings reveal that Indian banks employ income-smoothing practices to maintain stable earnings, particularly in years of high profits or increased credit risk. However, Basel III norms and the RBI's prudential regulations have reduced the extent of earnings manipulation. The study recommends strengthened monitoring and transparency mechanisms to promote fair reporting and ensure financial system stability.*

**Keywords:** Income Smoothing, Loan Loss Provisions, Basel III, Earnings Management, Indian Banks, Capital Adequacy Ratio, NPA

**JEL Codes:** G21, G28

## 1. Introduction

Banks play a pivotal role in maintaining financial stability and supporting economic growth. However, the inherent risks associated with lending, market operations, and asset management often lead banks to engage in earnings management or income smoothing—adjusting loan loss provisions to stabilize profits over time.

Globally, income smoothing has been documented in both conventional and Islamic banking systems (Leventis et al., 2018; Malik et al., 2020). In India, where banks operate under the dual oversight of **Basel III capital regulations** and **RBI prudential norms**, the motivation for such practices remains an important area of academic and policy interest.

The Indian banking sector—comprising **12 public sector banks, 21 private sector banks, and several foreign entities**—has undergone significant reforms since 2010. Notable developments include the implementation of **Basel III guidelines in 2013** and the adoption of **Ind AS 109 (equivalent to IFRS 9)** for expected credit loss (ECL) provisioning.

Despite these regulatory advancements, several studies (Das & Ghosh, 2007; RBI, 2022) indicate that **income smoothing persists** as banks attempt to reduce reported earnings volatility, particularly during periods of financial stress such as rising **Non-Performing Assets (NPAs)**.

Accordingly, the objectives of this study are to:

1. Identify the **determinants of income smoothing** in Indian banks; and
2. Examine the **effects of regulatory measures** (such as the Capital Adequacy Ratio and Basel III norms) and **macroeconomic factors** (such as GDP growth) on these practices.

## 2. Literature Review

### 2.1 Concept of Income Smoothing

Income smoothing refers to the deliberate adjustment of accounting entries—particularly **Loan Loss Provisions (LLPs)**—to reduce fluctuations in reported earnings. Greenawalt and Sinkey (1988) first highlighted this behavior in U.S. banks, suggesting that managers manipulate LLPs to maintain consistent profit trends.

### 2.2 International Evidence

Othman and Mersni (2014) found that Islamic banks in the Middle East used discretionary provisions to smooth income. Similarly, Skala (2015) and Kim & Kross (1998) confirmed income smoothing in European and Japanese banks. Regulatory reforms like Basel II and Basel III reduced such practices by enforcing capital buffers and risk-based provisioning (Barakat & Hussainey, 2013).

### 2.3 Indian Evidence

Das and Ghosh (2007) examined Indian state-owned banks and identified significant discretionary behavior in provisioning, especially during low-profit periods. Bhattacharya et al. (2019) observed that private sector banks exhibit higher earnings transparency than public sector counterparts. The **RBI Financial Stability Report (2022)** also notes that while regulatory tightening has curtailed manipulation, discretion in provisioning persists due to subjective credit assessment practices.

### 2.4 Regulatory Context in India

The **Basel III Accord**, implemented in India from 2013 onward, requires banks to maintain a **minimum CAR of 9%**, higher than the global standard of 8%. The **Prompt Corrective Action (PCA)** framework (RBI, 2017) further restricts banks with weak capital or asset quality. These mechanisms aim to reduce opportunistic behavior and enhance the integrity of financial reporting.

## 3. Research Methodology

### 3.1 Data and Sample

The study analyzes a panel of **30 Indian banks** (12 public, 15 private, and 3 foreign) over **2010–2018**, covering pre- and post-Basel III phases.

Data sources include:

- **RBI Statistical Tables Relating to Banks in India**
- **Bank Annual Reports**
- **CMIE ProwessIQ Database**
- **World Bank GDP data**

### 3.2 Model Specification

The econometric model used in the study is specified as follows:

$$LLP_{it} = \beta_0 + \beta_1 EBTP_{it} + \beta_2 CAR_{it} + \beta_3 NPA_{it} + \beta_4 TL_{it} + \beta_5 SIZE_{it} + \beta_6 GDP_t + \varepsilon_{it}$$

Where:

LLP<sub>it</sub> = Loan Loss Provisions for bank i at time t EBTP<sub>it</sub> = Earnings Before Tax and Provisions CAR<sub>it</sub> = Capital Adequacy Ratio

NPA<sub>it</sub> = Non-Performing Assets ratio TL<sub>it</sub> = Total Loans

SIZE<sub>it</sub> = Size of the bank (log of total assets)

GDP<sub>t</sub> = GDP growth rate at time t  $\varepsilon_{it}$  = Error term

### 3.3 Estimation Method

Panel regression techniques (Fixed and Random Effects) were applied. The **Hausman test** was used to choose the appropriate model. Heteroskedasticity and autocorrelation were controlled using robust standard errors.

## 4. Results and Discussion

### 4.1 Descriptive Statistics

Average LLPs constituted **0.47% of total advances**, with considerable variation across banks. Mean CAR was **13.8%**, exceeding regulatory minimums, while mean NPAs were **6.1%**, reflecting asset quality challenges during 2014–2018.

### 4.2 Correlation Analysis

Correlation results indicate that **LLP** is positively correlated with **EBTP**, **NPA**, and **Total Loans**, but negatively with **CAR**, **Bank Size**, and **GDP**. This implies that profitable yet riskier banks tend to smooth income, while larger and well-capitalized banks engage less in such behavior.

### 4.3 Regression Findings

Regression results (Random Effects Model) show:

<i>Variable</i>	<i>Coefficient</i>	<i>Significance</i>	<i>Relationship</i>
<i>EBTP</i>	<i>0.62</i>	<i>***</i>	<i>Positive &amp; significant</i>
<i>CAR</i>	<i>-0.004</i>	<i>***</i>	<i>Negative &amp; significant</i>
<i>NPA</i>	<i>0.29</i>	<i>**</i>	<i>Positive</i>
<i>TL</i>	<i>0.55</i>	<i>***</i>	<i>Positive</i>
<i>SIZE</i>	<i>-0.03</i>	<i>**</i>	<i>Negative</i>
<i>GDP</i>	<i>0.002</i>	<i>*</i>	<i>Slightly positive</i>

(\*\*\*, \*\*, \* denote significance at 1%, 5%, and 10% respectively.)

### Interpretation:

- Higher profits (EBTP) lead to increased LLPs, confirming income smoothing.
- Stronger capital ratios (CAR) reduce smoothing, supporting Basel III's effectiveness.
- Larger banks demonstrate better governance and transparency.
- NPAs and loan growth contribute to income volatility, prompting smoothing efforts.

GDP's positive coefficient suggests Indian banks may still manage earnings in economic upswings to create reserves for downturns.

## 5. Conclusion

The results confirm that Indian banks engage in income smoothing through **discretionary loan loss provisioning**, though the intensity has decreased following **Basel III implementation**.

Public sector banks show more smoothing than private ones, reflecting governance gaps and legacy asset quality issues. The **capital adequacy framework** and **RBI's supervisory vigilance** have played vital roles in moderating such practices.

Thus, while regulatory measures have strengthened reporting integrity, complete elimination of income smoothing requires greater transparency in provisioning and governance.

## 6. Policy Implications

To promote financial stability and integrity in earnings reporting, several measures are recommended. First, the Reserve Bank of India (RBI) should strengthen its oversight by enforcing periodic audits of discretionary provisioning to detect potential bias in income reporting. Second, transparency must be enhanced by requiring banks to publish detailed disclosures on the estimation of Loan Loss Provisions (LLPs) in accordance with Ind AS 109, which follows the expected credit loss model. Third, corporate governance reforms are essential—particularly through empowering audit committees and strengthening risk management frameworks to minimize managerial discretion in financial reporting. Fourth, the adoption of advanced technologies, such as AI-driven credit risk models and real-time data analytics, can significantly reduce subjectivity in Non-Performing Asset (NPA) estimation and improve provisioning accuracy. Finally, continuous training and ethical awareness programs for finance professionals should be institutionalized to promote

responsible and transparent financial reporting practices across the banking sector.

## 7. Limitations and Future Research

The study is limited to secondary data and does not distinguish between discretionary and non- discretionary components of LLPs. Future studies could extend analysis beyond 2018 to include the post-COVID period and examine the effects of RBI's 2020 resolution framework and ESG- related banking disclosures.

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