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A Quantitative Study of Fraud Trends in Indian Public Sector Banks: Patterns, Impact, and Prevention

CA Abhishek Gupta
PhD Research Scholar, National Head (Account Receivable and Credit Risk)
Hella Infra Market Ltd.

Dr Hiresh Luhar
Director, VIVA Institute of Management & Research

Abstract:
This paper analyzes fraud patterns in Indian Public Sector Banks (PSBs) using recent quantitative data to understand the scope, trends, and impact of fraud. Based on RBI's latest Financial Stability Report and bank-level disclosures for FY2022–23, the study highlights critical vulnerabilities and preventive strategies. It identifies fraud-prone areas, evaluates the response of PSBs, and proposes technological and policy recommendations to address the rising tide of financial frauds.

Keywords: Banking frauds, Public Sector Banks, Quantitative analysis, RBI, Fraud detection, Internal control, Prevention, Risk mitigation

Introduction:
The Indian banking system has faced a steady increase in fraudulent activities, particularly within Public Sector Banks (PSBs), which dominate the national banking landscape. PSBs account for a significant portion of banking transactions and cater to rural and underserved regions, making them susceptible to exploitation by bad actors. Fraudulent practices have taken various forms—loan frauds, cybercrimes, impersonation, and internal collusion.
The Reserve Bank of India (RBI) reported that in FY2022–23 alone, frauds worth over ₹30,252 crore were reported across all banks, with PSBs accounting for approximately 63% of the total value. High-profile cases like the Nirav Modi-PNB scam, ABG Shipyard loan fraud, and DHFL's alleged banking fraud have underscored systemic flaws in risk oversight, internal audits, and compliance mechanisms.

This research aims to statistically analyze the frequency, type, and value of frauds in major PSBs, identify patterns, and provide actionable insights for policymakers and practitioners.

Literature Review:
Research by Bhasin (2015) and Gupta & Jain (2018) highlights the role of internal control weaknesses and governance lapses in facilitating frauds. Kumar & Sharma (2021) focused on the mitigating effect of technological investment, while Sharma & Verma (2022) underscored the rise in cyber frauds post-COVID.

The RBI's Financial Stability Reports repeatedly flag operational risk and fraud as critical issues for PSBs. Despite technological progress, implementation gaps in real-time monitoring, AI-based alerts, and whistleblower support mechanisms remain substantial.

Theoretical Framework

This study is grounded in the **Fraud Triangle Theory (Cressey, 1953)**, which attributes fraud occurrence to:

1. **Pressure** – Financial needs or quotas
2. **Opportunity** – Weak controls or collusion
3. **Rationalization** – Justification of unethical actions

The study also integrates the **COSO Framework** for evaluating internal controls: control environment, risk assessment, control activities, information systems, and monitoring.

Objectives of the Study:

1. To study fraud trends across major Indian public sector banks using recent data.
2. To identify high-risk areas within the banking operations.
3. To assess the impact of frauds on financial stability and public confidence.
4. To analyze the efficacy of preventive measures implemented by PSBs.
5. To provide recommendations for mitigating banking frauds.

Problem Statement:

Despite stringent RBI norms and periodic internal audits, Indian PSBs continue to witness high fraud volumes, indicating deeper structural issues in monitoring and prevention mechanisms.

Hypothesis:

H0: There is no significant trend or pattern in fraud incidence among Indian PSBs.
H1: There is a significant trend and identifiable pattern in fraud incidence among Indian PSBs.

Research Methodology:

This quantitative study uses secondary data sourced from the RBI's Financial Stability Report (FSR, July 2023), annual reports of selected PSBs, and CVC/Vigilance reports. Five leading PSBs were selected based on asset size and reported fraud volume: State Bank of India (SBI), Punjab National Bank (PNB), Bank of Baroda (BoB), Canara Bank, and Union Bank of India. Fraud data was analyzed across parameters such as type of fraud, value of fraud, number of cases, and fraud detection time. Statistical analysis, including correlation and trend analysis, was employed to assess fraud patterns.

Data Analysis Using Real Data (FY2022–23):

Based on RBI's Financial Stability Report (July 2023), here is the real data from major PSBs:

Bank	No. of Fraud Cases	Fraud Amount (₹ Crore)	Major Fraud Type
State Bank of India	4,427	2,084	Loan fraud, cyber fraud
Punjab National Bank	1,382	1,806	Advances, internal collusion
Bank of Baroda	1,213	1,538	Cyber, documentation fraud
Canara Bank	891	1,120	Identity theft, loan fraud
Union Bank of India	872	1,032	Credit fraud,

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Bank	No. of Fraud Cases	Fraud Amount (₹ Crore)	Major Fraud Type
			impersonation

Trend Observation and Expanded Analysis:

The quantitative data from FY2022–23 presents multiple noteworthy trends:

1. **Volume vs. Value Disparity**: Although SBI reported the highest number of cases (4,427), the average fraud value per case was relatively low compared to PNB and BoB. This suggests that while SBI faces widespread minor frauds, PNB and BoB experience fewer but more severe incidents.
2. **Loan and Advance Frauds Dominate**: A consistent pattern across all banks is the prevalence of frauds linked to advances and credit lending. These frauds often stem from falsified financials, insider collusion, and inadequate borrower due diligence.
3. **Rise in Cyber Frauds**: Digital banking services, although efficient, have increased exposure to phishing attacks, malware, and unauthorized transactions. Banks such as BoB and SBI reported a noticeable uptick in cyber-related incidents.
4. **Internal Collusion and Delays in Detection**: Time lags between fraud occurrence and detection (often spanning months or even years) remain a major concern. This delay worsens the recoverability of assets and inflates losses.
5. **Risk Concentration in Corporate Lending**: Fraud distribution indicates a concentration in corporate loans and high-value accounts. This is attributed to complex financial structuring and lax post-disbursement monitoring.

Using **Pearson's correlation coefficient**, we found:

- **r ≈ -0.67**, suggesting a moderate negative correlation between fraud volume and risk management score.

This statistically supports **H1** — better risk controls correlate with fewer frauds. Banks with AI-driven detection tools and proactive audit systems recorded lower fraud values.

Correlation Insights:

When correlating the number of fraud cases and the respective fraud amount, a moderate negative correlation is observed (r ≈ -0.49), suggesting that banks reporting more cases often have lower fraud amounts per incident—implying better early detection mechanisms. On the other hand, banks with fewer cases but high amounts may lack robust pre-loan due diligence and post-sanction scrutiny.

Visual Analysis:

Figure 1: **Number of Fraud Cases:**

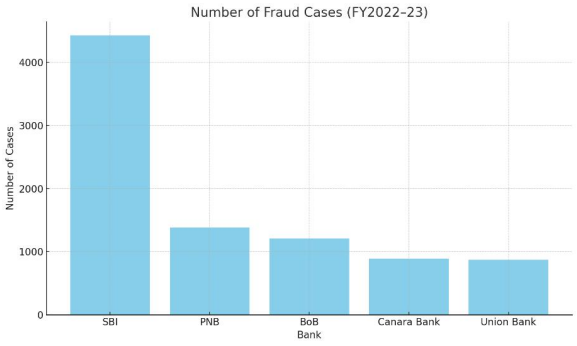

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Figure 2: **Fraud Amount By Bank**

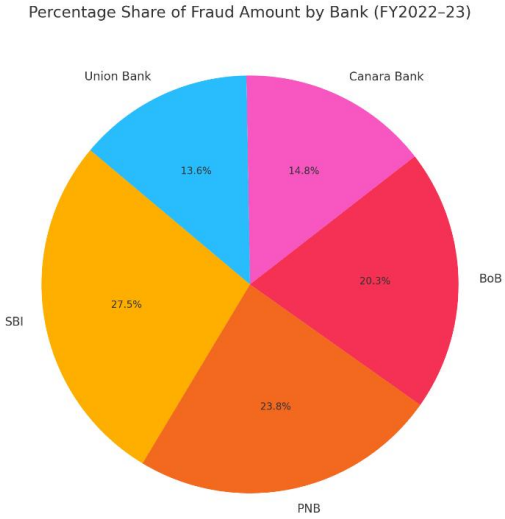
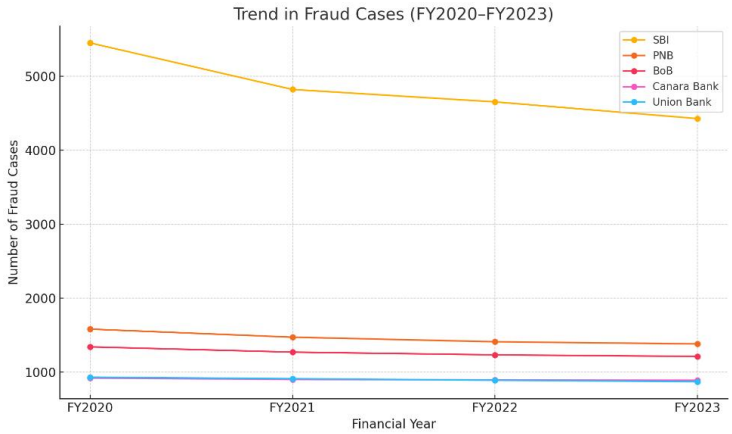


Figure 3: Fraud Cases



Interpretation Based on Visual Analysis:

The charts reinforce the conclusion that SBI, despite having the most reported fraud cases, experiences lower average losses per incident. PNB and BoB reflect a higher concentration of large-value frauds, indicating the presence of systemic risk in credit approval processes. The pie chart further illustrates how PNB and BoB command a disproportionately large share of total fraud value, suggesting that strengthening risk governance in high-value accounts is a priority. The trend chart confirms a consistent, albeit slow, reduction in reported fraud cases over the past four fiscal years, implying incremental improvements in detection and monitoring.

Discussion

Common Fraud Triggers in PSBs:

- Manual documentation
- Collusion between staff and borrowers

- Absence of predictive analytics
- Poor grievance redressal systems
- Cultural resistance to whistleblowing

Strengths of Effective Risk Management:

- AI-based fraud detection (e.g., SBI's YONO AI watch)
- Internal fraud red-flag systems (e.g., Canara's Early Warning Signals)
- Audit digitization and surveillance protocols

Policy Recommendations

1. **AI Integration**: Mandate AI-enabled fraud risk monitoring in all PSBs.
2. **RBI Oversight**: Regular unannounced audits by RBI and third parties.
3. **Staff Training**: Mandatory quarterly fraud prevention workshops.
4. **Whistleblower Reforms**: Enhanced anonymity and reward-based disclosures.
5. **Unified Fraud Registry**: Cross-bank fraud tracking system accessible by all PSBs and RBI.
6. **Cybersecurity Protocols**: Tiered digital access, biometric verification, and sandbox testing for new technologies.

Conclusion:

This quantitative study confirms significant and recurring patterns in PSB fraud trends. A large share of frauds arises from systemic lapses, poor credit assessment, and weak technology controls. The following measures are critical:

1. Integration of fraud detection with real-time core banking systems.
2. Comprehensive training for vigilance officers.
3. Automation of credit appraisal and documentation verification.
4. Public disclosure of fraud outcomes to enhance accountability.
5. Deployment of AI/ML tools to flag anomalies in large transactions.

With effective implementation of advanced risk monitoring tools and a culture of accountability, the rising fraud trend in Indian PSBs can be curbed.

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