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PUBLIC vs. PRIVATE SECTOR BANKS: A CAMEL COMPARATIVE ANALYSIS AND ITS IMPLICATIONS FOR PPP-BASED EDUCATIONAL FINANCING

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Abstract:

The Indian banking sector serves as the primary financial intermediary for Public-Private Partnership (PPP) initiatives in education financing. This paper examines the financial soundness of selected public and private sector banks in India over the period 2015–2023, employing the CAMEL model — Capital Adequacy, Asset Quality, Management Efficiency, Earnings Quality, and Liquidity — as the analytical framework. Using secondary data sourced from Reserve Bank of India annual reports, SEBI disclosures, and individual bank balance sheets, the study evaluates ten banks — five from the public sector and five from the private sector — across five CAMEL parameters. Findings reveal that private sector banks consistently demonstrate superior performance in Capital Adequacy Ratio (CAR), Return on Assets (ROA), and Liquidity Coverage Ratio (LCR), while public sector banks exhibit significantly higher Non-Performing Asset (NPA) ratios, particularly during the 2017–2019 NPA crisis period. The paper extends these findings to assess the PPP readiness of Indian banks as institutional partners for education financing schemes under the National Education Policy 2020. The study concludes with policy recommendations for structuring CAMEL-calibrated PPP agreements in education financing, offering a novel framework linking bank soundness to institutional capacity for educational investment in emerging economies.

Keywords: *CAMEL Model, Public Sector Banks, Private Sector Banks, PPP, Education Financing, NPA, Capital Adequacy, India*

Introduction:

The financing of education in India has undergone significant transformation since the introduction of liberalisation policies in the 1990s. The National Education Policy 2020 (NEP 2020) envisions a dramatic increase in Gross Enrolment Ratio (GER) from the current 26.3% to 50% by 2035, necessitating an unprecedented mobilisation of financial resources estimated at ₹1.7 lakh crore annually by 2030. Public-Private Partnerships (PPPs) have emerged as a critical mechanism to bridge the funding gap, with banks serving as the primary financial intermediaries in operationalising such partnerships.

However, the capacity of banks to participate meaningfully in long-term education financing PPPs is contingent upon their financial soundness. A bank burdened with high non-performing assets, inadequate capital buffers, or poor liquidity management cannot serve as a reliable PPP partner, regardless of regulatory mandates. This creates a compelling research question: which Indian banks — public or private sector — are better positioned as institutional partners for PPP-based education financing, and how do CAMEL indicators explain this differential capacity?

The CAMEL model, adopted by the Reserve Bank of India (RBI) and international banking supervisors, provides a comprehensive, multi-dimensional assessment of bank health across five parameters.[11]

The study period 2015–2023 is strategically significant, encompassing the RBI's Asset Quality Review (2015-16), the twin balance sheet crisis (2017-18), the COVID-19 disruption (2020-21), and the

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subsequent recovery phase — providing a complete financial cycle that rigorously tests bank resilience across diverse macroeconomic conditions.

Literature Review:

The CAMEL framework has been extensively applied in evaluating Indian bank performance. Misra and Aspal (2013) applied CAMEL ratings to public sector banks, finding significant disparities in management efficiency scores across State Bank of India group banks and other nationalised banks. Prasad and Ravinder (2012) conducted a comparative CAMEL analysis of select public and private banks, concluding that private sector banks demonstrated superior earnings quality and capital adequacy ratios. More recently, Singh and Singh (2021) examined post-merger performance of public sector banks using CAMEL parameters, revealing that government-mandated bank mergers of 2019-20 produced mixed results in asset quality improvement.

On the intersection of banking sector performance and education financing, Tilak (2009) argued that bank-led education loan disbursement in India is fundamentally constrained by bank health metrics, particularly NPA ratios in the priority sector lending category. The India Education Report (2023) by the Ministry of Education noted that education loans constitute approximately 3.2% of total priority sector lending, with public sector banks accounting for over 70% of disbursements but also carrying disproportionately higher education NPA ratios.

Regarding PPP frameworks in education, Patrinos, Barrera-Osorio, and Guáqueta (2009) in their seminal World Bank study established that successful education PPPs require financially robust institutional partners with demonstrated long-term commitment capacity — a criterion directly measurable through CAMEL parameters. Mehrotra and Delamonica (2005) emphasised that in developing economies, government-owned banks serve as natural PPP anchors due to their rural penetration, even when financial metrics are inferior to private counterparts.

The literature reveals a significant gap: no existing study systematically employs CAMEL model findings to assess differential PPP readiness between public and private sector banks specifically for education financing in the Indian context. This study addresses that gap directly, constituting its primary scholarly contribution.

Research Methodology:

This study employs a descriptive and analytical research design, utilising secondary data for the period 2015–2023. The sample comprises ten banks — five public sector banks (State Bank of India, Punjab National Bank, Bank of Baroda, Canara Bank, and Union Bank of India) and five private sector banks (HDFC Bank, ICICI Bank, Axis Bank, Kotak Mahindra Bank, and IndusInd Bank) — selected on the basis of market capitalisation, total asset size, and data availability.[1]

Data has been sourced from RBI Annual Reports, the Handbook of Statistics on the Indian Economy, SEBI-mandated Annual Reports of individual banks, and Basel III Pillar 3 Disclosure Documents. Each bank is scored on a composite CAMEL rating scale of 1–5 (1 = Strongest; 5 = Weakest) for each parameter annually. A composite CAMEL score is computed as the simple average of the five parameter scores, and paired t-tests are employed to test the statistical significance of performance differentials between the two groups.

[1] Sample banks were selected on the basis of: (i) market capitalisation above ₹10,000 crore as of March 2015; (ii) continuous listing on NSE/BSE throughout the study period; and (iii) uninterrupted availability of Annual Reports and Basel III Pillar 3 disclosures for all nine years (2015–2023).

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Table 1: CAMEL Parameter Operationalisation

CAMEL Parameter	Proxy Indicator(s) Used
Capital Adequacy (C)	Capital Adequacy Ratio (CAR) as per Basel III norms
Asset Quality (A)	Gross NPA Ratio; Net NPA Ratio; NPA Provision Coverage Ratio
Management Efficiency (M)	Business per Employee; Profit per Employee; Cost-to-Income Ratio
Earnings Quality (E)	Return on Assets (ROA); Return on Equity (ROE); Net Interest Margin (NIM)
Liquidity (L)	Liquidity Coverage Ratio (LCR); Current Ratio; Credit-Deposit Ratio

Data Analysis and Findings:

Table 2: Average CAMEL Composite Scores — Selected Indian Banks (2015–2023)

Bank	Sector	C	A	M	E	L	Composite
State Bank of India	Public	2.1	3.8	2.4	2.6	2.2	**2.62**
Punjab National Bank	Public	2.8	4.2	3.1	3.4	2.7	**3.24**
Bank of Baroda	Public	2.5	3.9	2.8	3.0	2.5	**2.94**
Canara Bank	Public	2.6	4.0	3.0	3.1	2.6	**3.06**
Union Bank of India	Public	2.9	4.1	3.2	3.3	2.8	**3.26**
Public Sector Average		**2.58**	**4.00**	**2.90**	**3.08**	**2.56**	**3.02**
HDFC Bank	Private	1.2	1.4	1.3	1.3	1.5	**1.34**
ICICI Bank	Private	1.5	2.1	1.6	1.8	1.7	**1.74**
Axis Bank	Private	1.7	2.3	1.8	2.0	1.9	**1.94**
Kotak Mahindra Bank	Private	1.3	1.6	1.4	1.5	1.4	**1.44**
IndusInd Bank	Private	1.8	2.0	1.7	1.9	1.8	**1.84**
Private Sector Average		**1.50**	**1.88**	**1.56**	**1.70**	**1.66**	**1.66**

Note: Score scale 1–5 (1 = Strongest performance; 5 = Weakest). Source: RBI and bank annual reports.

1. **Capital Adequacy (C)**

   Private sector banks maintained Capital Adequacy Ratios consistently above 16% throughout the study period, well above the RBI's minimum requirement of 11.5% under Basel III norms. Public sector banks, while meeting regulatory minimums, showed lower CAR averaging 13.2%, with Punjab National Bank and Union Bank of India briefly declining below 12% during 2017-18 following mandatory NPA reclassification under the RBI's Asset Quality Review.

2. **Asset Quality (A)**

   This parameter reveals the starkest contrast between the two groups. Public sector banks' Gross NPA ratio peaked at 14.6% in 2018 before declining to 7.3% by 2023, driven by Insolvency and Bankruptcy Code (IBC) resolutions, one-time settlements, and strategic write-offs.[2]

   Private sector banks maintained Gross NPA ratios below 3.5% throughout the study period, with HDFC Bank sustaining the sector's lowest at 1.2% in 2023. This differential directly constrains public sector banks' capacity to underwrite new education loan portfolios.

3. **Management Efficiency (M)**

   Business per Employee at private sector banks averaged ₹21.4 crore compared to ₹16.8 crore at public sector banks. Cost-to-Income ratios averaged 42.3% (private) versus 51.7% (public), indicating superior operational efficiency. However, SBI

[2] The RBI's Asset Quality Review (AQR) of 2015-16 compelled banks to reclassify restructured standard assets as NPAs, causing a sudden surge in reported NPA ratios particularly for public sector banks. This technical reclassification, rather than a sudden deterioration in underlying borrower quality, primarily explains the sharp NPA spikes observed in 2017-18 data for public sector banks

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demonstrated notable improvement in management efficiency metrics post the consolidation of associate banks in 2017, suggesting that scale-driven restructuring can yield efficiency gains in public sector institutions.

4. **Earnings Quality (E)**
   Private sector banks delivered Return on Assets (ROA) averaging 1.72% against public sector banks' 0.48% over the study period. Critically, public sector banks reported negative ROA in 2017-18 due to massive NPA provisioning requirements, which directly constrained their capacity to finance new credit initiatives including education loans and to participate in revenue-sharing PPP structures.
5. **Liquidity (L)**
   Both sectors-maintained Liquidity Coverage Ratios above the RBI-stipulated 100% from 2020 onwards, indicating adequate short-term liquidity buffers. Public sector banks demonstrated marginally higher Credit-Deposit ratios (78.2% versus 75.6%), reflecting more aggressive lending postures. Paired t-test results confirm statistically significant differences between the two groups across all five CAMEL parameters ($p < 0.05$), validating that observed performance differentials are not attributable to random variation.

PPP Implications for Education Financing:

The CAMEL findings carry three direct policy-relevant implications for structuring PPP-based education financing arrangements in India.

1. **Asymmetric PPP Role Design**
   Given their superior composite CAMEL scores, private sector banks — particularly HDFC Bank and Kotak Mahindra Bank — are better positioned as lead financiers or risk underwriters in education PPP structures. Their strong capital adequacy and low NPA ratios enable absorption of inherent credit risk in education loan portfolios, particularly for first-generation college students from lower-income households who lack collateral. Public sector banks, despite lower composite CAMEL scores, possess irreplaceable geographic reach: SBI alone operates over 22,000 branches, with nearly 60% in rural and semi-urban areas where private banks have minimal presence. This creates a natural complementary PPP architecture — private banks underwriting risk and providing capital efficiency, while public banks serve as last-mile delivery agents. Kotak Mahindra Bank also conducts various Investor Education Programs (Kona Kona Shiksha) by using the their CSR fund with the help of SEBI and NISM.
2. **CAMEL-Gated PPP Eligibility Framework**
   Policymakers may consider establishing minimum CAMEL composite score thresholds as eligibility criteria for PPP participation in education financing. A composite score at or below 3.0 on the 1–5 scale could serve as the threshold, ensuring that only financially sound institutions participate in long-term education financing commitments. Under this criterion, SBI (2.62) and Bank of Baroda (2.94) from the public sector would qualify for full PPP participation, while Punjab National Bank (3.24) and Union Bank of India (3.26) would be restricted to supporting roles pending CAMEL score improvement.
3. **Post-COVID Recovery Opportunity**
   The marked improvement in public sector bank CAMEL scores between 2021 and 2023 — driven by IBC-led resolution, Government capital infusions through recapitalisation bonds, and improved provisioning norms — suggests a positive trajectory. Public sector bank Gross NPA ratios declined at an average rate of 1.8 percentage points per year during 2021-23. If this trend continues, public sector banks may reach composite CAMEL scores comparable to the private sector by 2026-27, enabling broader and more equitable PPP participation in education financing.

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Conclusion and Policy Recommendations:

This study demonstrates that Indian private sector banks exhibit significantly superior CAMEL performance compared to public sector banks over the 2015–2023 period, with composite average scores of 1.66 versus 3.02 respectively. However, financial superiority does not automatically translate into PPP superiority in education financing contexts, where geographic reach, regulatory mandate, and public trust are equally critical institutional attributes.

The central contribution of this paper is the proposition of a CAMEL-based PPP readiness framework for education financing — a structured approach to matching institutional financial capacity with PPP role design. Rather than treating PPP participation as binary, policymakers should adopt a tiered, CAMEL-calibrated approach that assigns distinct roles to public and private banks based on demonstrated financial strengths. This framework offers a replicable model for other emerging economies seeking to mobilise banking sector resources for education financing through structured partnerships.

The study has certain limitations. The CAMEL model does not capture qualitative dimensions of bank management such as governance culture, digital infrastructure, or customer service quality. Future research could integrate these qualitative dimensions through a mixed-method approach, or supplement CAMEL analysis with the extended CAMELS framework that incorporates Sensitivity to Market Risk as a sixth parameter. As India embarks on its NEP 2020 implementation journey, the soundness of its banking sector is not merely a financial sector concern — it is a foundational educational policy variable.

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