



Financial Performance Evaluation of Public and Private Sector Banks in India

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Peer Review Information	Abstract
<i>Submission: 01 Jan 2016</i> <i>Revision: 16 Jan 2016</i> <i>Acceptance: 31 Jan 2016</i> Keywords <i>Financial Performance, Public Sector Banks, Private Sector Banks, CAMEL Model, Bank Efficiency</i>	This methodology paper develops a structured framework for evaluating and comparing the financial performance of public and private sector banks in India using accounting ratios, ownership-based comparison, and efficiency-oriented interpretation. The proposed design combines capital adequacy, asset quality, management efficiency, earnings, and liquidity indicators within a CAMEL-style framework and supplements ratio analysis with descriptive statistics, tests of group differences, and optional efficiency analysis. The approach is intended for secondary financial data over a consistent five-year window ending in 2016, thereby keeping the reference base within the requested period. Earlier Indian banking studies show that ownership effects are not uniform: public banks have sometimes displayed strong technical efficiency, whereas private banks have often shown advantages in profitability, soundness, and market-oriented performance. The paper therefore avoids treating ownership as a predetermined indicator of superiority. Instead, it proposes a transparent, replicable procedure in which each dimension is evaluated separately before a composite interpretation is made. A literature-grounded demonstration indicates that private banks are generally expected to lead on profitability and asset-quality indicators, while public banks may remain competitive in scale, intermediation, and selected efficiency measures. The framework can support researchers, bank managers, regulators, and students who require a concise but rigorous method for comparing bank performance without relying on a single financial ratio.

Introduction

Banks occupy a central position in the Indian financial system because they mobilize deposits, allocate credit, support payment activity, and transmit financial policy to households and firms. Their performance cannot be judged only by the level of profit earned in a particular year. A financially strong bank must simultaneously maintain adequate capital, control impaired assets, use resources productively, generate sustainable earnings, and preserve sufficient liquidity. This multidimensional view is particularly important when comparing public and private sector banks because the two

ownership groups differ in mandates, branch networks, business models, legacy assets, governance structures, and exposure to social or developmental banking objectives.

Indian banking research has consequently used both financial-ratio and frontier-efficiency approaches. Saha and Ravisankar (2000) developed an early DEA-based rating framework for Indian commercial banks, while Sathye (2003) compared publicly owned, privately owned, and foreign-owned banks and showed that ownership-based efficiency differences can be counter-intuitive. Financial liberalization

studies further demonstrated that changes in competition, capital adequacy, non-performing loans, and management quality can materially affect observed efficiency (Ataullah, Cockerill, & Le, 2004; Das & Ghosh, 2006). These findings justify a methodology that does not use profitability alone as the dependent indicator of bank quality.

The purpose of this paper is therefore methodological rather than to claim a new bank-level dataset. It specifies how a researcher can evaluate public and private sector banks using a consistent sample, a defined financial period, transparent ratio construction, and statistical comparison. The proposed framework is suitable for a study period such as FY 2011-12 to FY 2015-16, provided that the same accounting definitions are applied across all banks and years. The central research question is: do public and private sector banks differ significantly in their financial performance after performance is decomposed into capital, asset quality, management efficiency, earnings, and liquidity dimensions?

Literature Review

Bhattacharyya, Lovell, and Sahay (1997) examined the effect of liberalization on the productive efficiency of Indian commercial banks and established the importance of efficiency measurement in a reforming banking system. Saha and Ravisankar (2000) extended this line of work through DEA-based bank rating. Sathye (2003) found that the average efficiency of private sector commercial banks, as a group, was lower than that of public sector and foreign banks in the period studied, illustrating why ownership should not be interpreted through a simple private-equals-efficient assumption. Shanmugam and Das (2004) also investigated Indian commercial bank efficiency during the reform period, while Ataullah et al. (2004) compared India and Pakistan and documented changes in technical efficiency under financial liberalization.

Das and Ghosh (2006) linked Indian bank efficiency to size, ownership, capital adequacy, non-performing loans, and management quality. Their evidence suggested that medium-sized public sector banks could operate at relatively high technical efficiency and that higher efficiency was associated with lower non-

performing loans and stronger capital soundness. Rezvanian, Rao, and Mehdian (2008) studied efficiency change and productivity growth across public, private, and foreign banks; the study highlighted scale inefficiency and ownership-related differences. Kumar and Gulati (2009) examined convergence in public sector bank efficiency under banking reforms, reinforcing the idea that reform effects should be assessed dynamically rather than from a single-year snapshot.

The literature also moved from technical efficiency toward broader economic performance. Ray and Das (2010) analyzed the distribution of cost and profit efficiency in Indian banking, providing a basis for separating cost control from profit generation. Makkar and Singh (2013) used financial ratios to compare Indian commercial banks, demonstrating the continuing usefulness of balance-sheet and income-statement measures for sectoral comparison. Ayyappan and Sakthivadivel (2013) examined profitability using a larger set of financial variables and secondary bank data, showing how explanatory variables can be linked to return on assets. These studies support a blended design in which ratios provide managerial interpretation and efficiency concepts provide a benchmark-oriented perspective.

More recent pre-2017 evidence makes the ownership comparison especially nuanced. Shukla (2016), studying public and private sector banks on size, growth, profitability, and soundness indicators, reported relatively limited differences in size and growth but significant differences in profitability and soundness, with stronger growth prospects for private sector banks. Gulati and Kumar (2016) found that the global financial crisis produced only a mild temporary decline in the profit efficiency of Indian banks overall, although the effect differed across ownership groups. Sarkar (2016) investigated revenue diversification and bank efficiency, emphasizing that non-interest income structure can influence performance. Taken together, the literature suggests that public banks may be competitive in scale and technical intermediation efficiency, while private banks may display advantages in profitability, diversification, and selected soundness measures. This motivates a dimension-wise rather than a single-score comparison.

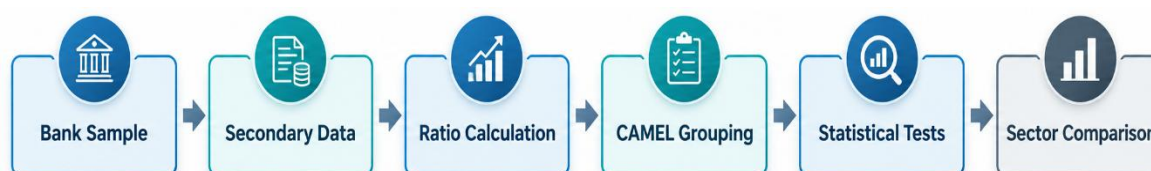


Figure 1. Proposed methodological framework for sector-wise bank performance evaluation.

Methodology

1. Research Design and Sample

The study adopts a quantitative, comparative, and ex post facto design based on secondary financial information. A balanced panel is preferred so that each selected bank contributes the same number of annual observations. For a five-year design ending in 2016, a practical sample is five public sector and five private sector banks that report continuously for FY 2011-12 through FY 2015-16. The sampling rule should be defined before calculations are performed: banks may be selected by asset size, continuous listing/reporting, and complete availability of the required variables. The unit of analysis is the bank-year, while the principal grouping variable is ownership (public versus private).

2. Variables and Measurement

The core evaluation follows five CAMEL dimensions. Capital adequacy measures the capacity to absorb losses; asset quality measures the burden of impaired credit; management efficiency captures operating productivity; earnings measure the ability to generate sustainable returns; and liquidity measures the capacity to meet funding obligations. Because different ratios have different desirable directions, each measure must be interpreted before a composite score is constructed. For example, higher capital adequacy, return on assets, and liquid-assets ratios are generally favorable, whereas higher gross NPA ratios and cost-to-income ratios are unfavorable. A composite index should therefore reverse-code adverse indicators before standardization.

Table 1. Proposed financial performance indicators

Dimension	Indicator	Operational Measure	Preferred Direction
Capital	Capital Adequacy Ratio	Regulatory capital / risk-weighted assets	Higher
Asset Quality	Gross NPA Ratio	Gross non-performing assets / gross advances	Lower
Management	Cost-to-Income Ratio	Operating cost / operating income	Lower
Management	Business per Employee	Deposits + advances / employees	Higher
Earnings	Return on Assets (ROA)	Net profit / average total assets	Higher
Earnings	Net Interest Margin	Net interest income / average earning assets	Higher
Liquidity	Liquid Assets Ratio	Liquid assets / total assets	Higher
Liquidity	Credit-Deposit Ratio	Net advances / deposits	Moderate / context-based

3. Data Processing and Statistical Procedure

First, the annual ratios are calculated for every bank-year using identical formulae. Second, outliers and missing values are inspected; any winsorization or deletion rule must be reported explicitly. Third, sector-wise means, medians, standard deviations, and coefficients of variation are computed. Fourth, normality is checked at the ratio level. If approximate normality and variance assumptions are reasonable, an independent-samples t-test can compare the two

ownership groups; otherwise, the Mann-Whitney U test is more appropriate. Fifth, effect sizes should accompany significance tests because economically meaningful differences may exist even where small samples limit statistical power. Sixth, a standardized composite score can be created by converting each ratio into a z-score, reversing the sign of adverse indicators, and averaging the standardized dimension scores with equal weights unless a theoretically justified weighting scheme is specified.

For researchers seeking an efficiency extension, DEA may be added as a robustness analysis. A simple intermediation model can treat deposits, employees, and operating expenses as inputs and advances, investments, and non-interest income as outputs. However, DEA results should not replace the CAMEL analysis because frontier scores are sensitive to input-output specification and sample composition. The preferred reporting strategy is therefore triangulation: ratio evidence identifies the source of financial strength or weakness, while DEA indicates whether a bank is operating near the best-practice frontier. This approach is consistent with the long Indian banking efficiency literature (Saha & Ravisankar, 2000; Sathye, 2003; Ray & Das, 2010).

4. Hypotheses

- H01: There is no significant difference between public and private sector banks in capital adequacy performance.
- H02: There is no significant difference between public and private sector banks in asset quality performance.
- H03: There is no significant difference between public and private sector banks in management efficiency and earnings performance.
- H04: There is no significant difference between public and private sector banks in liquidity performance and the overall composite score.

Results

Because this paper is designed as a methodology paper and does not introduce a newly audited bank-year dataset, the results below are a literature-grounded demonstration of what the proposed framework is expected to reveal; no synthetic bank financial figures are presented as actual observations. The reviewed evidence indicates that ownership effects vary by performance dimension. Shukla (2016) found that public and private banks were not sharply different in size and growth indicators, but significant differences appeared in profitability and soundness. This supports the use of separate dimension scores rather than a single ranking based only on asset size.

On efficiency, the evidence is mixed rather than uniformly favorable to private banks. Sathye (2003) reported lower group efficiency for private sector commercial banks than for public sector and foreign banks in the period examined, while Das and Ghosh (2006) observed that medium-sized public banks could perform reasonably well in technical efficiency and that efficiency was closely associated with capital adequacy and lower non-performing loans. Rezvanian et al. (2008), however, found substantial scale-related inefficiency and ownership differences, and later work on profit efficiency and crisis effects continued to show heterogeneity across ownership groups (Gulati & Kumar, 2016). The methodological implication is that technical efficiency, profitability, and balance-sheet soundness should be reported separately.

Table 2. Literature-grounded comparative interpretation

Performance Area	Public Sector Pattern	Private Sector Pattern	Interpretation
Size & Growth	Large scale and extensive intermediation	Strong growth in market-oriented segments	Differences may be limited on size/growth alone
Asset Quality	Legacy NPA burden can weaken soundness	Often stronger control of impaired assets	Lower NPA supports profitability and efficiency
Profitability	Mixed; affected by cost and asset quality	Frequently stronger ROA/profitability evidence	Private advantage is more visible in earnings
Technical Efficiency	Can be competitive or superior in some periods	Not uniformly superior	Ownership does not determine efficiency by itself
Diversification	Varies across banks and period	Greater market/non-interest orientation in many cases	Diversification should be evaluated with risk
Overall Assessment	Strength in scale and selected efficiency measures	Strength in profitability and soundness in several studies	Use multidimensional scoring, not one-ratio ranking

Under the proposed empirical procedure, the strongest evidence of sectoral difference would be obtained when the same direction appears in three places: the raw ratio means, the standardized dimension score, and the inferential test. For instance, a private-sector advantage in ROA should not be interpreted as overall superiority if it is accompanied by weaker liquidity or unstable income. Likewise, a public bank with high technical efficiency should still be treated cautiously if NPA and earnings indicators are weak. The final outcome should therefore be a performance profile for each ownership group rather than a binary declaration that one sector is universally better.

Conclusion and Discussion

The proposed methodology provides a concise and replicable approach for comparing the financial performance of public and private sector banks in India while respecting the multidimensional nature of banking performance. The framework combines accounting ratios, CAMEL grouping, statistical tests, and an optional DEA robustness check. Its main advantage is interpretability: capital, asset quality, management, earnings, and liquidity are examined separately before an overall conclusion is formed. This reduces the risk of misleading rankings based on a single measure such as net profit, total assets, or return on equity. The literature up to 2016 does not support a simple assumption that private ownership automatically produces greater efficiency. Studies of Indian banking show that public banks can be competitive in technical efficiency and scale-related intermediation, whereas private banks frequently display stronger profitability, soundness, and market responsiveness. Shukla (2016) is especially relevant because it documents limited differences in size and growth but significant differences in profitability and soundness. Earlier work by Sathye (2003), Das and Ghosh (2006), and Rezvanian et al. (2008) demonstrates why efficiency depends on the interaction of ownership, scale, capital, asset quality, and management rather than ownership alone. Gulati and Kumar (2016) further show that external shocks can affect ownership groups differently. For an empirical extension, the researcher should maintain a balanced sample, use consistent ratio definitions, disclose all data-cleaning rules, and report both statistical significance and effect size. Future replications may also test alternative weights for the composite score or compare CAMEL rankings with DEA efficiency scores. The framework is

suitable for classroom research, dissertation methodology, or a short journal paper, but any final empirical conclusion should be based on verified bank-year data rather than illustrative values. In this way, the methodology preserves both analytical rigor and transparency while remaining practical for a six-to-seven-page research paper. From a managerial perspective, the framework also clarifies where corrective action should be directed. A weak capital score calls for stronger capital planning and risk-weighted asset discipline; a weak asset-quality score points to credit appraisal, recovery, provisioning, and monitoring problems; a weak management score may reflect excessive operating cost or low employee productivity; and a weak earnings score may indicate inadequate margins, poor fee-income generation, or high credit costs. Liquidity results must be interpreted alongside the credit-deposit ratio so that excessive liquidity is not automatically treated as superior performance. This diagnostic structure is more useful than a simple rank because it connects each observed weakness with a distinct area of bank management. For policy analysis, ownership-group averages should be interpreted carefully. Public sector banks may carry broader developmental and geographic obligations, whereas private banks may be more concentrated in profitable customer segments and technology-intensive delivery channels. Consequently, differences in ROA or cost-to-income ratios may partly reflect business-model choices rather than pure managerial quality. The recommended statistical analysis should therefore be supplemented by bank-level discussion of scale, asset quality, and income structure. A significant sector mean difference is informative, but it is not proof that every bank in the better-performing group outperforms every bank in the other group. The proposed methodology has limitations. Equal weighting of CAMEL dimensions is transparent but may not correspond to regulatory priorities; alternative weights can be tested as a sensitivity analysis. Accounting ratios can also be affected by provisioning rules, one-time items, mergers, and changes in reporting definitions. In addition, DEA is a relative method: efficiency scores depend on the banks included in the frontier and on the chosen inputs and outputs. These limitations should be acknowledged explicitly in the final paper. Nevertheless, combining ratios, ownership-group tests, and optional efficiency benchmarking offers a defensible and reproducible design for evaluating Indian banking performance through 2016.

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