

**MERGERS OF PUBLIC SECTOR BANKS IN INDIA:
IMPACT ON FINANCIAL PERFORMANCE
AND FINANCIAL STABILITY**

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CERTIFICATE

This is to certify that the thesis titled *Mergers of Public Sector Banks in India: Impact on Financial Performance and Financial Stability*, submitted by **Mr. Sameer Shukla**, to the Indian Institute of Technology, Delhi, for the award of the degree of **Doctor of Philosophy**, is a Bonafide record of the research work done by him under our supervision and guidance. The contents of this thesis, in full or in parts, have not been submitted to any other Institute or University for the award of any degree or diploma.

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SAMEER SHUKLA

DEDICATED TO

This dissertation is lovingly dedicated to **my parents**,
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capable of realizing them.

Abstract

The focus of the study is the most recent mergers in Indian banking during fiscal year 2019-20 and 2020-21, wherein thirteen public sector banks (PSB) were merged to create five large banks to create robust and efficient banking businesses. The thesis has empirically discussed three different and diversified objectives; (a) the impact of mergers of PSBs on the overall financial stability of the banking system in India; (b) the causal inference of merger on the financial performance of PSBs in India; and (c) understanding the challenges in the merger in Indian banking sector and the learning therefrom through a case study approach.

The first objective of investigating the impact of mergers of PSBs on the overall financial stability of the banking system in India is empirically evaluated using both qualitative as well as quantitative information. Using factor analysis, a new index, CAMELSS, has been created. The index is developed in three stages to capture the financial stability of the banking system. It is seen that the new index is more robust in comparison to the existing index available in the literature, as the new index has not only considered an additional parameter 'size' that has high significance in merger but also identified the best suited variables for components of the index. The stability of the banking system measured via the CAMELSS index for the five PSBs, all PSBs and all scheduled commercial banks (SCB) have improved in post-merger period compared to pre-merger. This leads to the conclusion that mergers have improved the financial stability of the banking system in India.

The second objective of investigating the causal inference of mergers on the financial performance of PSBs in India is conducted through the application of synthetic control methods in evaluating the effect of intervention in comparative case studies. Deploying balanced panel data on quarterly frequency from March 2010 to March 2024, i.e., 41 quarters of pretreatment for all banks except Bank of Baroda (37) and 16 quarters of post treatment period for all banks (for Bank of Baroda - 20 quarters) for the analysis, the study finds that merger has significant positive impacts on financial performance of the banks. The sensitivity of the results is validated using both in-time as well as in-place placebo effect, and leave-one-out analysis, further establishing robustness of the output.

The final objective of understanding the challenges confronted during the mega merger exercise in Indian banking in the fiscal year 2019-20 and 2020-21 and the learning therefrom, is studied via a case study approach. The merger was meticulously executed by the respective banks, ensuring seamless banking services to customers of the merged entities. This involved, inter alia, harmonizing, and standardizing products, processes, IT integration, and aligning human resources. Following the case study approach, the journey of merger is documented in this chapter, covering the road map, challenges encountered, strategies to overcome those challenges, unforeseen issues post-merger, and valuable learnings for the future. Given the nature of the problem, the study has deployed exploratory case study approach.

Overall, the result from the thesis has important implications for understanding the consolidation of banking sector in India.

Keywords: *Asset Quality; Merger; Bank; Profitability; Capital Adequacy; Financial Inclusion; Efficiency; Stability; Management; Synthetic Control; Factor Analysis*

सार

इस अध्ययन का केंद्र वित्तीय वर्ष 2019-20 और 2020-21 के दौरान भारतीय बैंकिंग में हुए हालिया विलय हैं, जिनमें एक सुदृढ़ और प्रभावी बैंकिंग कारोबार का सृजन करने के लिए सार्वजनिक क्षेत्र के तेरह बैंकों (पीएसबी) का विलय करके पांच बड़े बैंक बनाए गए थे। इस थीसिस ने अनुभवजन्य रूप से तीन अलग-अलग और विविध प्रकार के उद्देश्यों को मान्यता दी है; (क) भारत में बैंकिंग प्रणाली की समग्र वित्तीय स्थिरता पर पीएसबी के विलय का प्रभाव; (ख) भारत में पीएसबी के वित्तीय कार्य-निष्पादन पर विलय का कारकीय प्रभाव; और (ग) भारतीय बैंकिंग क्षेत्र में विलय की चुनौतियों को समझना और केस स्टडी के माध्यम से उससे सीखना।

भारत में बैंकिंग प्रणाली की समग्र वित्तीय स्थिरता पर पीएसबी के विलय के प्रभाव की जांच करने का पहला उद्देश्य गुणात्मक और मात्रात्मक दोनों सूचना का उपयोग करके अनुभवजन्य रूप से जांचा गया है। कारक विश्लेषण (Factor Analysis) का उपयोग करके, एक नया सूचकांक, सीएएमईएलएसएस (CAMELSS), बनाया गया है। बैंकिंग प्रणाली की वित्तीय स्थिरता को कैप्चर करने के लिए सूचकांक को तीन चरणों में तैयार किया गया है। यह देखा गया है कि नया सूचकांक साहित्य में उपलब्ध मौजूदा सूचकांक की तुलना में अधिक सुदृढ़ है, क्योंकि नए सूचकांक में न केवल एक अतिरिक्त मानदंड 'आकार' (Size), जिसका विलय में अत्यधिक महत्व है, पर विचार किया है, अपितु, सूचकांक के घटकों के लिए सर्वाधिक उपयुक्त कारकों को भी अभिचिह्नित किया है। सीएएमईएलएसएस सूचकांक के माध्यम से पांच पीएसबी के लिए बैंकिंग प्रणाली की स्थिरता मापी गई, विलय-पूर्व अवधि की तुलना में विलयोपरांत सभी पीएसबी और सभी अनुसूचित वाणिज्यिक बैंकों (एससीबी) में सुधार हुआ है। इससे यह निष्कर्ष निकलता है कि विलय से भारत में बैंकिंग प्रणाली की वित्तीय स्थिरता में सुधार हुआ है।

भारत में पीएसबी के विलय का उनके वित्तीय कार्य-निष्पादन पर पड़े प्रभाव की जांच करने के दूसरे उद्देश्य को तुलनात्मक केस स्टडी में हस्तक्षेप के प्रभाव का मूल्यांकन करने में कृत्रिम नियंत्रण (Synthetic Control) पद्धतियों के प्रयोग के माध्यम से पूरा किया गया है। मार्च 2010 से मार्च 2024 तक, अर्थात्, विश्लेषण के लिए बैंक ऑफ बड़ौदा (37) को छोड़कर सभी बैंकों के लिए पूर्वोपचार की 41 तिमाही और सभी बैंक (बैंक ऑफ बड़ौदा 20 तिमाही) के लिए उपचारोपरांत 16 तिमाही की अवधि, तिमाही आधार पर संतुलित पैनल डाटा को अभिनियोजित करके इस अध्ययन में यह पाया गया है कि बैंकों के वित्तीय कार्य-निष्पादन पर विलय का महत्वपूर्ण सकारात्मक प्रभाव पड़ा है। इन परिणामों की संवेदनशीलता को समय और स्थान दोनों के प्रायोगिक प्रभाव (in-

time as well as in-place placebo effect) और लीव-वन-आउट विश्लेषण (leave-one-out analysis) का उपयोग करके सत्यापित किया गया है, जो प्रतिफल की दृढ़ता स्थापित करता है।

वित्तीय वर्ष 2019-20 और 2020-21 में भारतीय बैंकिंग में बृहत विलय कार्य के दौरान पेश आई चुनौतियों का समझने और उनसे सीखने का अंतिम उद्देश्य केस स्टडी दृष्टिकोण के माध्यम से अध्ययन किया जा रहा है। इस विलय को संबंधित बैंकों द्वारा पूरी श्रम-साध्यता के साथ क्रियान्वित किया गया है, जिसमें विलयित संस्थाओं के ग्राहकों को सुचारु बैंकिंग सेवाएं सुनिश्चित की गई हैं। इसमें, अन्य बातों के साथ-साथ, उत्पादों, प्रक्रियाओं, आईटी इंटीग्रेशन का एकीकरण और मानकीकरण तथा मानव संसाधन का अनुरूपण शामिल है। केस स्टडी दृष्टिकोण को अपनाते हुए इस अध्याय में विलय की यात्रा को प्रलेखित किया गया है, जिसमें रोड मैप, सामना की गई चुनौतियों, उन चुनौतियों से पार पाने की कार्यनीति, विलयोपरांत अप्रत्याशित मामले और भविष्य के लिए महत्वपूर्ण ज्ञान शामिल हैं। समस्या की प्रकृति को देखते हुए इस अध्ययन में अन्वेषी केस स्टडी दृष्टिकोण को अभिनियोजित किया गया है।

कुल मिलाकर, थीसिस के परिणाम का भारत में बैंकिंग क्षेत्र के समेकन को समझने के लिए महत्वपूर्ण निहितार्थ हैं।

महत्वपूर्ण शब्द: *आस्ति गुणवत्ता; विलय; बैंक; लाभप्रदता; पूंजी पर्याप्तता; वित्तीय समावेशन; दक्षता; स्थिरता; प्रबंधन; कृत्रिम नियंत्रण; कारक विश्लेषण*

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List of Abbreviations

AB	Associate Bank
AIC	Akaike information criterion
BFS	Banking and Financial Sector
BoB	Bank of Baroda
BoI	Bank of India
BL-TVP	Time Varying Parameter Bayesian Lasso
CA	Current Account
CAEMC	Central African Economic and Monetary Community
CAMEL	Capital Asset Management Earnings Liquidity
CAMELS	Capital Asset Management Earnings Liquidity Sensitivity
CAMELSS	Capital Asset Management Earnings Liquidity Sensitivity Size
CASA	Current Account and Savings Accounts
CBI	Central Bank of India
CCB	Capital Conservation Buffer
CD Ratio	Credit To Deposit Ratio
CET1	Common Equity Tier 1
CIR	Cost to Income ratio
CNB	Canara Bank
CRAR	Capital to Risk Weighted Asset Ratio
DFI	Development Financial Institution
DID	Difference in Differences
FA	Factor Analysis
GDP	Gross Domestic Product
GLM	General Linear Model
GNPA	Gross Non-Performing Asset
IOB	Indian Overseas Bank
HR	Human Resource
IMF	International Monetary Fund
IRR	Interest Rate Risk
IT	Information Technology
LASSO	Least Absolute Shrinkage and Selection Operator
MIP	Master Integration Plan

MR	Market Risk
M&A	Merger & Acquisition
NABARD	National Bank for Agriculture and Rural Development
NBFC	Non-Banking Financial Companies
NIM	Net Interest Margin
NPA	Non-Performing Asset
NNPA	Net Non-Performing Asset
OCC	Comptroller of the Currency
OECD	Organisation for Economic Co-operation and Development
PCR	Provisioning Coverage Ratio
PSB	Public Sector Bank
PSI	Policy Support Instruments
P&SB	Punjab & Sindh Bank
PNB	Punjab National Bank
P/B ratio	Price to Book Ratio
RBI	Reserve Bank of India
ROA	Return on Asset
ROE	Return on Equity
RRBs	Regional Rural Banks
RMSPE	Root Mean-Squared Prediction Error
RWA	Risk Weighted Asset
SA	Savings Accounts
SBI	State Bank of India
SCB	Schedule Commercial Bank
SCM	Synthetic Control Method
SDID	Synthetic Difference in Differences
TWO	Technical Write-Offs
UBI	Union Bank of India
UCO	UCO Bank
UFIRS	Uniform Financial Institutions Rating System