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Analysing Credit Risk Dynamics in BRICS Nations: Insights from Post-Pandemic Economic Recovery and Resilience Strategies

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Abstract

This study examines credit risk dynamics and financial stability in BRICS nations — Brazil, Russia, India, China, and South Africa — during the post-pandemic economic recovery period (2015–2024). Using panel regression, ARIMA forecasting, and Chow's Structural Break Test, the research finds that foreign direct investment (FDI) significantly reduces non-performing loan (NPL) ratios, while unemployment is a primary driver of rising loan defaults. Contrary to conventional expectations, GDP growth alone does not significantly reduce credit risk. Capital adequacy, while important, is insufficient without robust risk management frameworks. Forecast results indicate divergent recovery trends, with India and Brazil improving, Russia facing rising risk, and China remaining stable. The study underscores the need for investment promotion, employment generation, and adaptive fiscal policies for sustainable financial resilience in emerging markets.

Keywords: Credit Risk, Non-Performing Loans (NPLs), BRICS Nations, Financial Stability, Post-Pandemic Recovery, FDI, Panel Regression

1. Introduction and Background

The COVID-19 pandemic constituted one of the most profound shocks to global financial systems in recent history, triggering unprecedented increases in non-performing loans (NPLs), fiscal stress, and credit market instability. Emerging economies, and the BRICS bloc in particular — comprising Brazil, Russia, India, China, and South Africa — bore a disproportionate share of this disruption. Collectively representing over 40% of the world's population and approximately 25% of global GDP, the financial health of these nations carries significant systemic implications for global markets.

In the pre-pandemic era, BRICS economies demonstrated strong macroeconomic fundamentals, rising foreign investment, and progressive banking reforms. However, the pandemic exposed structural vulnerabilities in their credit markets and regulatory frameworks. Loan defaults surged, fiscal deficits widened, and capital adequacy ratios declined across several BRICS economies. The heterogeneity of recovery trajectories — China and India recovering faster owing to stronger regulatory ecosystems, while Brazil, Russia, and South Africa faced prolonged distress — underscores the complexity of credit risk management in emerging markets.

Understanding how macroeconomic variables interact with credit risk outcomes in these diverse economies, and evaluating the effectiveness of post-pandemic recovery strategies, is essential for policymakers, financial institutions, and investors seeking to strengthen financial resilience.

2. Research Problem / Problem Statement

Despite a growing body of literature on credit risk determinants, there exists a significant gap in comprehensive, BRICS-specific research that integrates macroeconomic, financial, and policy variables within a unified analytical framework, particularly in the context of post- pandemic recovery. Most existing studies are either focused on developed economies or examine emerging markets in isolation, limiting cross-country comparative insights.

A critical unresolved question concerns how post-pandemic recovery strategies — including fiscal stimulus packages, monetary interventions, and banking regulations — have influenced credit risk dynamics, financial stability, and economic resilience across BRICS nations. Traditional assumptions posit that GDP growth reduces credit risk; however, emerging evidence challenges this, suggesting that employment levels, investment inflows, and targeted policy measures may be more determinative.

Additionally, there is limited application of advanced forecasting and structural break analysis to predict future credit risk trends and identify pandemic-induced shifts in financial behaviour. This study addresses these gaps by providing an integrated empirical analysis of credit risk dynamics in BRICS nations from 2015 to 2024.

3. Objectives of the Study

Main Objective: To analyse credit risk dynamics in BRICS nations and evaluate the influence of macroeconomic conditions, policy interventions, and financial sector indicators on financial stability during the post-pandemic recovery period.

Specific Objectives:

1. To examine the impact of macroeconomic variables (GDP growth, unemployment, inflation, FDI, government debt) on credit risk indicators (NPL ratios and loan loss provisions) across BRICS nations.
2. To evaluate the effectiveness of government fiscal and monetary policy interventions implemented during and after COVID-19 in stabilising credit markets.
3. To conduct a comparative analysis of credit risk trends and financial resilience across BRICS countries from 2015 to 2024.
4. To forecast future credit risk trajectories using ARIMA models and identify structural breaks caused by the pandemic using Chow's F-Test.

4. Research Questions and Hypotheses

The following research questions guide the study:

- What macroeconomic factors most significantly influence NPL ratios in BRICS nations in the post-pandemic period?
- To what extent did government stimulus programmes and banking regulations stabilise credit risk across BRICS economies?
- Do credit risk trends and recovery trajectories differ significantly across BRICS nations?

The study tests the following hypotheses:

- H01: Macroeconomic factors do not have a significant impact on NPL ratios in BRICS nations. (Ha1: Macroeconomic factors, particularly FDI and unemployment, significantly influence NPL ratios, while GDP growth does not.)
- H02: Government stimulus programmes did not significantly stabilise post-pandemic credit risk. (Ha2: Targeted fiscal interventions played a crucial role in stabilising post- pandemic credit markets.)
- H03: Credit risk trends are uniform across all BRICS nations. (Ha3: Credit risk trends vary significantly across BRICS nations due to differing economic structures and policy responses.)

5. Review of Literature

Farmanesh and Athari (2023) demonstrated, via panel data analysis spanning 2004–2020, that elevated country risk — particularly political instability — significantly increases credit risk in BRICS banking sectors. Sithole and Eita (2023) employed a Markov Switching Model on quarterly data (2000–2021) and found that slower growth, rising inflation, appreciating currencies, and higher interest rates are associated with increased credit risk, with effects varying across economic regimes.

Chauhan and Sharma (2025), using a two-step GMM approach on 499 commercial banks, found that while liquidity creation improves profitability, it simultaneously elevates credit risk. Kumar et al. (2022) established that economies with larger fiscal stimulus packages experienced slower NPL growth during COVID-19, reinforcing the value of proactive policy intervention. Wang and Li (2023) found that BRICS countries with stronger Basel III compliance — notably China and India — registered lower post-pandemic NPL surges.

Silva and Ferreira (2021) documented a negative correlation between FDI inflows and credit risk across BRICS nations from 2015 to 2021, suggesting that foreign investment improves liquidity and reduces defaults. Das and Gupta (2024) employed ARIMA models to forecast NPL trends, warning that inflationary pressures could drive further credit deterioration, especially in high-debt economies. Collectively, these studies underscore the multi- dimensional nature of credit risk and motivate an integrated analytical framework specific to the post-pandemic BRICS context.

6. Proposed Methodology

Research Design

This study adopts a quantitative, descriptive-explanatory research design, combining cross- sectional and time-series data in a panel data framework covering five BRICS countries from 2015 to 2024.

Data Sources

Data is sourced from the World Bank, International Monetary Fund (IMF), OECD Economic Outlook Reports, and the central banks of respective BRICS nations (RBI, PBOC, Bank of Russia, Central Bank of Brazil, and SARB). Annual data spanning 2015 to 2024 is used to capture pre-pandemic, pandemic, and post-pandemic dynamics.

Variables

Dependent Variables: Non-Performing Loan (NPL) Ratio and Loan Loss Provisions (LLP).

Independent Variables: GDP Growth Rate, Unemployment Rate, Government Debt-to-GDP Ratio, Capital Adequacy Ratio (CAR), FDI Inflows, Inflation Rate, Interest Rates, and Credit Default Swap (CDS) Spreads.

Analytical Techniques

- Panel Least Squares Regression: To quantify the relationship between macroeconomic variables and credit risk indicators across countries and time periods.
- ARIMA Forecasting: To project NPL and loan loss trends for 2025–2027 for each BRICS nation.
- Chow's Structural Break Test: To determine whether COVID-19 caused statistically significant shifts in the relationships between key variables and credit risk outcomes.

7. Expected Contribution and Significance

Theoretical Contribution

The study extends Credit Risk Theory by empirically validating that unemployment and FDI — rather than GDP growth alone — are more powerful determinants of loan default risk in emerging markets. It challenges the Macroeconomic Stability Theory's assumption that economic expansion automatically improves financial stability. The findings also advance Risk Management Theory by demonstrating the value of predictive analytics (ARIMA) and structural break analysis in financial decision-making.

Practical Contribution

For policymakers, the findings highlight that targeted fiscal interventions, investment-friendly regulations, and employment-generation programmes are more effective tools for credit risk mitigation than broad stimulus measures. For financial institutions in BRICS nations, the research advocates for risk assessment frameworks that integrate employment indicators, CDS spreads, and FDI trends alongside traditional capital

adequacy metrics. For investors, the divergent NPL forecasts across BRICS nations provide actionable insights for portfolio risk calibration in emerging markets.

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