Comprehensive stress testing as a macroprudential policy tool using a deep learning approach

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ABSTRACT

Stress testing in banking systems is essential for assessing the ability of financial intermediaries to withstand extreme situations and ensure the stability of the financial system. This paper explores a new estimation method for stress testing using deep neural network learning models applied to the Bolivian financial system. Using an approach based on historical data and simulations, predictive models are developed to analyze the effects of adverse economic conditions on bank solvency. A methodology for integrating dynamic stress analysis with deep neural networks, known as Deep-Stress, is presented, which improves the accuracy of the results compared to traditional methods. The results provide a robust tool for strategic decision-making and risk management in complex banking environments.

JEL Classification: *G10, G21 y G32*
Keywords: *Stress testing, deep learning, neural networks, and integrated risks*

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