

# **Machine Learning models for the analysis and forecast of the financial situation of banks - Bolivian Case**

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## **Abstract**

In order to analyze and forecast the financial behavior of the major banks in Bolivia (period January 2001 to February 2020), machine learning models were estimated: supervised neural networks, unsupervised neural networks and support vector machines. Obtained results highlight the 99% precisión achieved by the supervised neural network model and the coincident classification of the unsupervised neural network model. The support vector machine model achieved an accuracy of 85.1%. The proposed models are robust tools for financial risk analysis and forecasting since they have the ability to abstract recurring patterns and generalize unobserved information. Likewise, they highlight their importance for the design, proposal and evaluation of macroprudential policies aimed at preserving financial stability.

***JEL Classification:***            *C45, C53*

***Keywords:***                    *Prediction, neural networks*