

## **Leveraging Machine Learning for Financial Risk Prediction in Global Supply Chains: A Network-Based Approach**

### **Abstract**

This paper explores the use of machine learning techniques to econometric modeling to enhance financial risk prediction within worldwide supply chains. Owing to the increasing level of complexity and interconnection in supply networks, the study employs a network approach to identify the key risk transmission channels and system weaknesses. Through the Autoregressive Distributed Lag (ARDL) model, the study captures the short-run variability as well as long-run equilibrium relationships between the most significant financial and operational metrics. The results emphasize the effectiveness of combining machine learning with ARDL for refining early warning systems and supporting strategic decision-making in issues concerning supply chain resilience and financial stability in an extremely uncertain global environment.