

# **GEOPOLITICAL INSTABILITY AND ITS IMPACT ON FINANCIAL MARKET DYNAMICS: AN ARTIFICIAL INTELLIGENCE APPROACH AND SENTIMENT ANALYSIS**

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## **Abstract**

This paper investigates the impact of geopolitical instability, specifically the Russia-Ukraine conflict, on the dynamics of the Ukrainian financial market. The study focuses on key indices and companies, including the PFTS Index, Kernel Holding SA (KER), MHP SA DRC (MHPC), and Ukrnafta (UNAF). Utilizing advanced machine learning models—decision trees, Random Forest, and Long Short-Term Memory (LSTM) networks—the research predicts stock price changes in response to market volatility induced by geopolitical events. The analysis reveals a significant correlation between the onset of conflict and stock price fluctuations, particularly in the agricultural and energy sectors, with notable resilience differences across industries. The findings underscore the importance of incorporating predictive analytics for decision-making in turbulent market environments, offering valuable insights for investors and policymakers navigating uncertainty.

## **Keywords**

Geopolitical events, decision trees, random forest, LSTM, sentiment analysis.

## **JEL Classification**

G12, G13.

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