

Gold in the Whirlwind of Geopolitics: Mapping the Threshold Reaction of Gold Prices to Geopolitical Shocks

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Abstract

The aim of this article is to identify nonlinear and threshold-based relationships between geopolitical risk categories and monthly gold prices from 1968 to 2025, taking into account time lags (Lag10). The starting point for the analysis is the growing importance of geopolitical risk as a key factor destabilizing financial markets and increasing investment uncertainty. Gold, traditionally considered a protective asset, plays a particular role during periods of international tension, yet previous research rarely differentiates the impact of individual geopolitical risk components. This justifies the need for in-depth analysis to determine whether different risks trigger symmetric or divergent reactions in the gold market, and whether risk thresholds exist that determine a change in the direction of this reaction.

The study uses a regression tree model to detect heterogeneous, nonlinear responses of gold prices to different types of geopolitical threats over a long horizon. The results confirm that a moderate increase in tensions favours the appreciation of gold by activating the safe haven mechanism, while exceeding certain risk thresholds, especially those related to the escalation of armed conflicts and the expansion of military capabilities leads to different effects, including capital outflows and price declines. Other risk categories play a modulating role, either strengthening or weakening the market's response. Ultimately, the study confirms the threshold nature of the relationship between geopolitical risk and gold prices and indicates that the intensity of the response increases with growing global instability.

Keywords: Gold, uncertainty, geopolitical risk, prices, regression tree model.