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CONDITIONAL DEPENDENCE STRUCTURE IN THE PRECIOUS METALS FUTURES MARKET

Abstract:

The purpose of this paper was to assess the conditional dependence structure in the precious metals futures market in the period spanning from the beginning of 2000 to mid 2018. These time frames correspond to large fluctuations of quoted contract prices during the financial crisis. The dynamic Kendall’s tau coefficients and the dynamic tail dependence coefficients were used to assess the strength and dynamics of the nexus between rates of return on quoted prices of precious metals futures contracts. The coefficients were determined using the copula-based multivariate GARCH models, whereas the daily changes in the conditional dependence structure (changes in market state) were identified with the fuzzy c-means method. In the study period, the conditional dependence structure in the precious metals futures market changed over time, as confirmed by the three identified market states. Of the contracts considered, gold and silver futures contracts demonstrated the strongest interrelationship and a relatively high likelihood of extreme events being transferred between them.

Keywords:

precious metals, copula-GARCH, dynamic dependencies, Kendall's tau coefficient, tail dependence, market states, fuzzy clustering method

JEL Classification: C58, C32, Q02