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Copula dynamics in CDOs

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Abstract

Values of tranche spreads of collateralized debt obligations (CDOs) are driven by the joint default performance of the assets in the collateral pool. The dependence between the entities in the portfolio mainly depends on current economic conditions. Therefore, a correlation implied from tranches can be seen as a measure of the general situation of the credit market. We analyse the European market of standardized CDOs using tranches of the iTraxx index in the periods before and during the global financial crisis. We investigate the evolution of the correlations using different copula models: the standard Gaussian, the NIG, the double-t, and the Gumbel copula model. After calibration of these models, one obtains a time varying vector of parameters. We analyse the dynamic pattern of these coefficients. That enables us to forecast future parameters and consequently calculate Value-at-Risk measures for iTraxx Europe tranches.

Keywords:

CDO Multivariate distributions Copula Implied correlations Value-at-Risk

JEL Classification:

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