

Option Implied Degree of Nonlinear Dependence: Definition, Properties, and Information Contents

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Abstract

Dependence is one of the most important characteristics of financial market when it comes to risk management, capital allocation, asset pricing, etc. In this paper, we propose a parsimonious measure that quantifies the nonlinear dependence between securities under the worst theoretical scenario. We develop a procedure to calibrate the proposed gauge from the equity and index options, and name the resulting metric as Nonlinear Implied Dependence (NLID). We further analyze the statistical properties of the NLID, its relation with other dependence measures and economic indicators. The results indicate that the NLID contains incremental information on the top of gauges for the strength of dependence, which can be valuable for market forecast and risk management.