Measuring Financial Contagion: 
A Copula Approach

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Abstract: This paper studies financial contagion using a methodology that goes beyond the simple analysis of correlation breakdown, and, at the same time, is careful in the characterization of nonlinearity and asymptotic dependence. It also avoids discretion in the identification of the contagious episodes and in the definition of extreme outcomes. It accomplishes these objectives by the use of copulas with Markov switching parameters. Using daily returns of stock indices from five East Asian countries during the Asian Crisis, and from four Latin-American countries during the Mexican Crisis, I find evidence of changing dependence structures during periods of financial turmoil. Increased tail dependence and asymmetry in times of high volatility characterize the Asian countries, while symmetry and tail independence describe better the Latin-American case. This paper makes the case that structural breaks in tail dependence are a potentially important dimension of contagion. If contagion is a nonlinear phenomenon, as the results of this paper suggest, it is dangerous to consider, without further investigation, the rejection of the correlation breakdown hypothesis as evidence of a stable dependence structure.

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