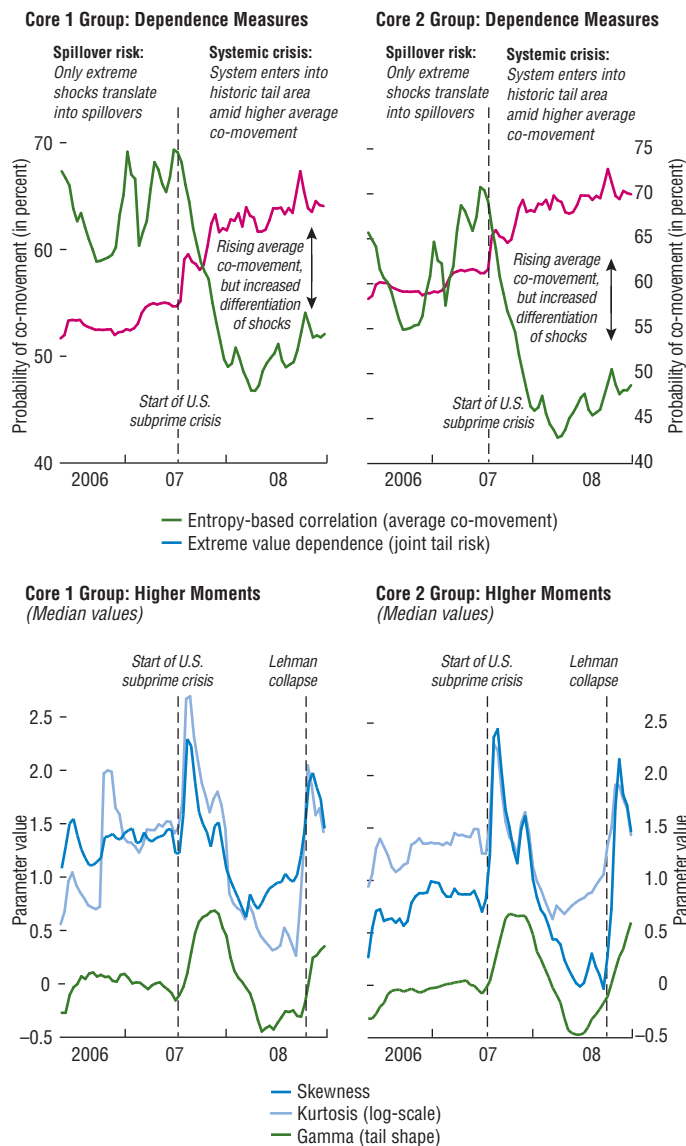


Figure 3.6. Higher Moments and Multivariate Dependence of Implied Equity Volatility



Sources: Bloomberg L.P.; Datastream; and IMF staff estimates.

Note: Estimates are based on implied volatility derived from at-the-money equity put options. Rolling window (one year) estimation with bi-monthly updating. The gamma parameter represents the shape parameter of the generalized extreme value distribution, estimated via the linear ratio of spacings method. The higher the tail shape parameter ("gamma"), the greater the univariate tail risk. The entropy-based correlation coefficient is based on the expected mutual information and the joint distribution of individual entropies of each constituent time series vector. It represents the nonparametric estimate of general multivariate dependence. In contrast, the nonparametric estimate of multivariate extreme value dependence represents the joint tail risk of ordered maxima. For Core 1 and Core 2 Groups, see Annex 3.2.