

Asymmetry and Long Memory in Realized Covariance

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We propose a fractionally integrated matrix-exponential dynamic conditional correlation model for Realized Covariance. The new model captures the asymmetric effects and long- and short-range dependences of a correlation process. We also propose employing an inverse Wishart distribution for the disturbance of a covariance structure. Using the inverse Wishart distribution, we present a three-step procedure to obtain initial values for estimating a high-dimensional dynamic correlation model. We investigated the finite sample properties of the ML estimator. Empirical results for 7 assets returns in the US indicate that the new model outperforms the other dynamic correlation models for the AIC and BIC and for forecasting the future covariance and the value-at-risk thresholds. Furthermore, the new model captures the stronger connection among the 7 assets for the period right after the global financial crisis.

Keywords: Realized Covariance; Matrix-exponential; Long memory; Asymmetric effects; Dynamic correlation; Inverse Wishart distribution.