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Forecasting Cointegrated Nonstationary Time Series with Time-varying Variance

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Abstract

In cointegrated vector autoregressive (VAR) models, error correction terms often have indeterminate effects on forecasting, thus we are concerned with inclusion or exclusion of the cointegration relation in forecast. This paper considers the model averaging strategies for cointegrated VAR models with heterogeneous variance or variance breaks. The estimated cointegration rank along with other data information are used to formulate the model averaging weights. This specific but unknown pattern of time-varying variances has nontrivial effects on the choices of model weights. Our numerical results strongly advocate the Mallows averaging estimator, but caution against the commonly used pre-testing approach.

JEL classification: C32; C52; C53.

Key Words: Cointegration; Error correction model; Model averaging; Pre-testing; Time-varying variance.

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