Package Name: Dyindex
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Default Proc Name: Dyindex
Default Menu Text: Diebold-Yilmaz index
Interface: Dialog and command line

Description

The add-in estimates the Diebold-Yilmaz index of spillover using forecast error variance decomposition method of VAR model. We consider first the simple example of a covariance stationary, *N*-variable VAR(1):

$$x_t = \Phi x_{t-1} + \varepsilon_t$$

The moving average representation is given by

$$x_t = \Theta(L)\varepsilon_t$$

The structural moving average representation form is given by

$$x_t = A(L)u_t$$

where $A(L) = \Theta(L)Q^{-1}$, $u_t = Q\varepsilon_t$, $E(u_t u_t') = I$, and Q^{-1} is the unique lower-triangular Cholesky factor of the covariance matrix of ε_t. The spillover index (S) is estimated as the following H-step-ahead forecast relative total forecast error variation:

$$S = \frac{\sum_{h=0}^{H-1} \sum_{i,j=1}^{N} a_{h,ij(i \neq j)}^2}{\sum_{h=0}^{H-1} trace(A_h A_h')} \times 100.$$

Dialog

Upon running the add-in from the menus, a dialog will appear:
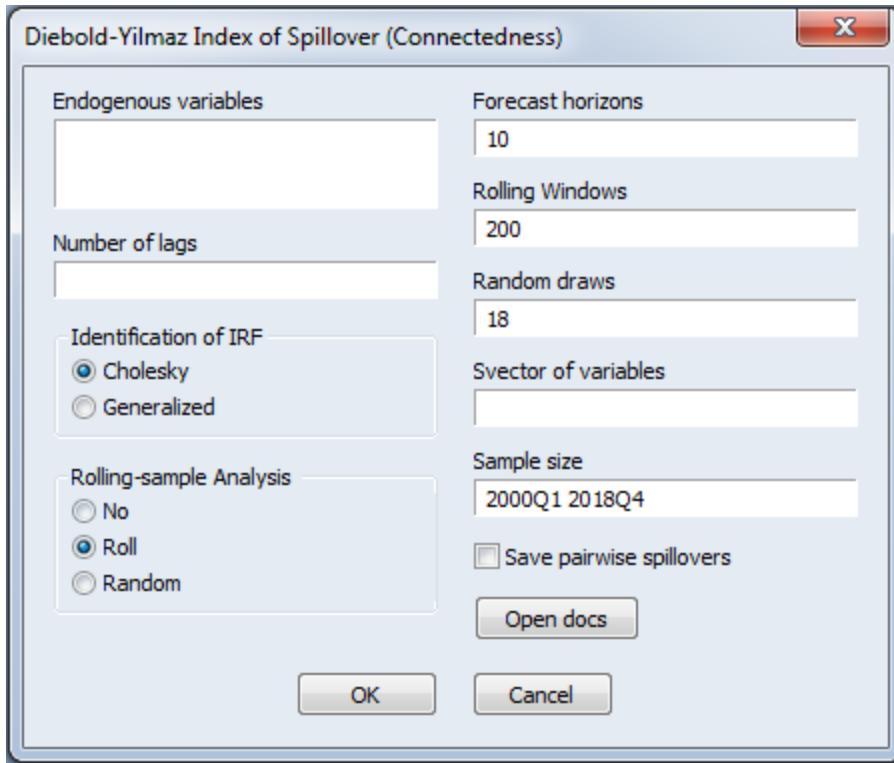
Command line:

dyindex(options) lags @ endogenous variables

for example:
dyindex 2 @ rrdjia rrftse rrfra

Options

ident	1=Cholesky (default), 2= Generalized
horizon	Horizon of forecast error variance decomposition (10=default)
roll	Rolling-sample analysis. 1=No, 2 = Roll (default), 3=Random,
window	Rolling window (200=default)
random	Number of random orderings (18=default)
svector	Svector of variable names for the spillover table
sample	Sample size
save	Save the pairwise spillovers

References:

Diebold, F.,and Yilmaz K., 2009, "Measuring financial asset return and volatility spillovers, with application to global equity markets" *The Economic Journal*, 119, 158-171