

**Package Name:** TARCOINT

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**Add-in Type:** Groups and Global

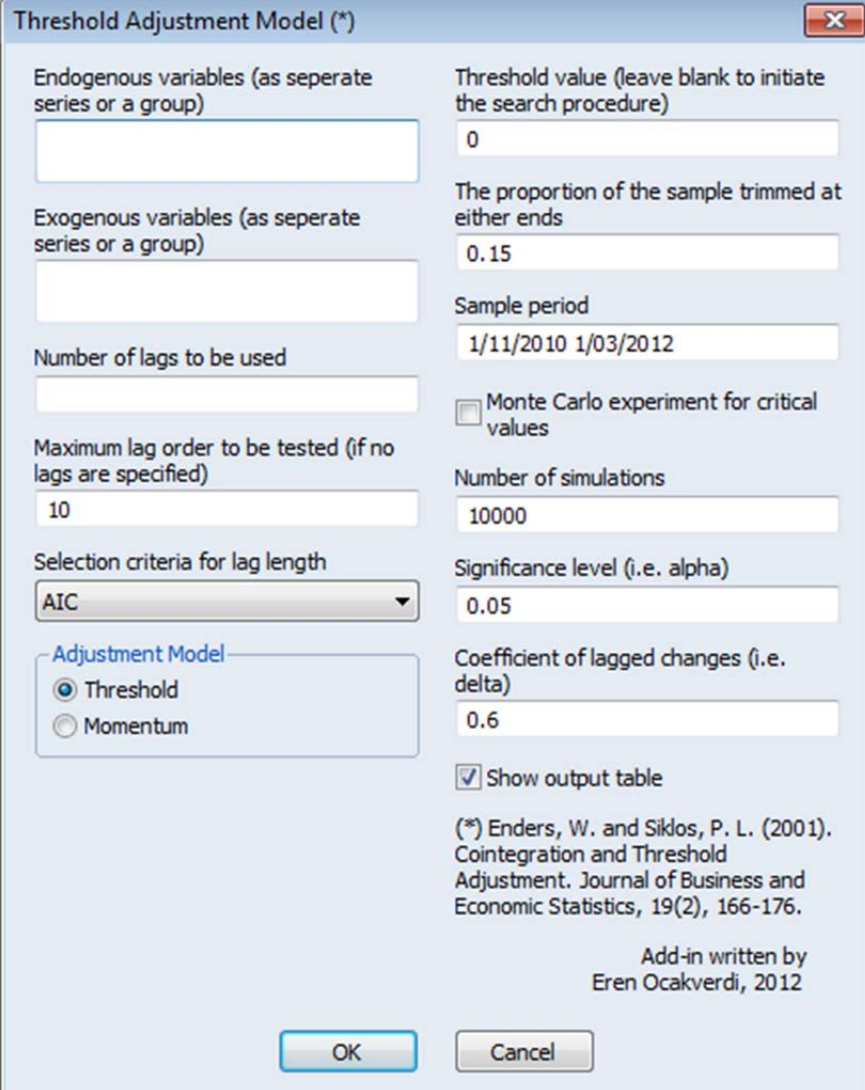
**Default Proc Name:** tarcoint

**Default Menu Text:** Threshold Adjustment

**Interface:** Dialog and Command Line

**Description:** This add-in provides a procedure that allows for either threshold autoregressive (TAR) or momentum-TAR (M-TAR) adjustment toward a cointegrating vector (Enders and Siklos, 2001).

**Dialog:** Upon running the add-in from the menus or command line, a dialog will appear:



The dialog box is titled "Threshold Adjustment Model (\*)" and contains the following fields and options:

- Endogenous variables (as separate series or a group):** A text input field.
- Exogenous variables (as separate series or a group):** A text input field.
- Number of lags to be used:** A text input field.
- Maximum lag order to be tested (if no lags are specified):** A text input field with the value "10".
- Selection criteria for lag length:** A dropdown menu with "AIC" selected.
- Adjustment Model:** Two radio buttons: "Threshold" (selected) and "Momentum".
- Threshold value (leave blank to initiate the search procedure):** A text input field with the value "0".
- The proportion of the sample trimmed at either ends:** A text input field with the value "0.15".
- Sample period:** A text input field with the value "1/11/2010 1/03/2012".
- Monte Carlo experiment for critical values:** An unchecked checkbox.
- Number of simulations:** A text input field with the value "10000".
- Significance level (i.e. alpha):** A text input field with the value "0.05".
- Coefficient of lagged changes (i.e. delta):** A text input field with the value "0.6".
- Show output table:** A checked checkbox.

At the bottom right, there is a citation: "(\*) Enders, W. and Siklos, P. L. (2001). Cointegration and Threshold Adjustment. Journal of Business and Economic Statistics, 19(2), 166-176." and the text "Add-in written by Eren Ocakverdi, 2012". At the bottom center are "OK" and "Cancel" buttons.

In the first box and second box, you should enter the variable list as separate series or simply provide the name of the group that contains these series. The name of your group will automatically appear, if you run the add-in from the menu. When supplying the variable list as separate series, you can use any transformations (e.g.  $\log(y1)$ ,  $d(y1)$ , etc.). Maximum lag order will only be effective only if no lags are specified and the best lag is determined by the specified information criterion. By design, residuals of the error correction model are used as the threshold series in the analysis. The basic difference between Threshold and Momentum adjustment methods is that the latter uses the first difference of threshold series. The default threshold value (i.e.  $\tau$ ) is zero. If you do not supply any value, then the add-in will interpret it as “unknown” and will initiate a search procedure over the values of threshold series. The search procedure will discard a certain portion of the largest and smallest values of threshold series, which is determined by the trim value. Sample period is the workfile sample.

Each model specification/combination requires a separate Monte Carlo study to test the null hypothesis of no cointegration against the alternative of cointegration with threshold. If you wish to experiment for critical values, simply tick the related checkbox and supply the number of simulations along with a significance level. When generating random data, you can define the coefficient (i.e.  $\delta$ ) of lagged changes in the simulated series. Same  $\delta$  value will be used for each simulated series, which is set to 0.6 by default.

You can follow the progress of simulation from the status line (thanks Gareth for this).

#### Command Line:

*Syntax-1:* tarcoint

*Syntax-2:* group\_name.tarcoint(options)

#### Options:

Argument	Type	Explanation
xvar	<i>string</i>	List of exogenous variables ( <i>as separate series or a group</i> )
lag	<i>numeric</i>	Number of lags
maxlag	<i>numeric</i>	Maximum order of lags to be tested ( <i>default is 10</i> )
crit	<i>string</i>	Selection criteria for lag length ( <i>default is “AIC”</i> )
method	<i>numeric</i>	Adjustment model ( <i>default is 1, Threshold</i> )
thval	<i>numeric</i>	Threshold value ( $\tau$ , <i>default is 0</i> )
trim	<i>numeric</i>	Fraction of trimmed values at both ends ( <i>default is 0.15</i> )
smpl	<i>string</i>	Sample period ( <i>default is the workfile sample</i> )
simul	<i>numeric</i>	Number of simulations ( <i>default is 10000</i> )
alpha	<i>numeric</i>	Significance level ( <i>default is 0.05</i> )
delta	<i>numeric</i>	Coefficient of lagged changes ( <i>default is 0.6</i> )
mcexp		Monte Carlo simulation
disp		Show the output table
prompt		Open the GUI

**Examples:**

- 1) `mygr.tarcoint(method=2,thval=0.6, smpl = "2003m07 2011m12")`
- 2) `mygr.tarcoint(xvar="log(ser01)",lag="",maxlag=10,crit="SIC",method=1,thval="",trim=0.15,smpl = "2003m07 2011m12",simul=1000,alpha=0.1,delta=0.8,mcexp,disp,prompt)`

**Reference:** Enders, W. and Siklos, P. L. (2001). "Cointegration and Threshold Adjustment", *Journal of Business and Economic Statistics*, 19(2), 166-176.