|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Date: 07/25/18 Time: 10:50 | | |  |  |
| Sample (adjusted): 6 720 | | |  |  |
| Included observations: 715 after adjustments | | | |  |
| Trend assumption: Linear deterministic trend | | | |  |
| Series: DOM OS | |  |  |  |
| Lags interval (in first differences): 1 to 4 | | | |  |
|  |  |  |  |  |
| Unrestricted Cointegration Rank Test (Trace) | | | |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Hypothesized |  | Trace | 0.05 |  |
| No. of CE(s) | Eigenvalue | Statistic | Critical Value | Prob.\*\* |
|  |  |  |  |  |
|  |  |  |  |  |
| None \* | 0.214287 | 301.1760 | 15.49471 | 0.0001 |
| At most 1 \* | 0.164781 | 128.7437 | 3.841466 | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
| Trace test indicates 2 cointegrating eqn(s) at the 0.05 level | | | | |
| \* denotes rejection of the hypothesis at the 0.05 level | | | | |
| \*\*MacKinnon-Haug-Michelis (1999) p-values | | | |  |
|  |  |  |  |  |
| Unrestricted Cointegration Rank Test (Maximum Eigenvalue) | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
| Hypothesized |  | Max-Eigen | 0.05 |  |
| No. of CE(s) | Eigenvalue | Statistic | Critical Value | Prob.\*\* |
|  |  |  |  |  |
|  |  |  |  |  |
| None \* | 0.214287 | 172.4324 | 14.26460 | 0.0001 |
| At most 1 \* | 0.164781 | 128.7437 | 3.841466 | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
| Max-eigenvalue test indicates 2 cointegrating eqn(s) at the 0.05 level | | | | |
| \* denotes rejection of the hypothesis at the 0.05 level | | | | |
| \*\*MacKinnon-Haug-Michelis (1999) p-values | | | |  |
|  |  |  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| Pairwise Granger Causality Tests | | | |
| Date: 07/25/18 Time: 10:50 | | | |
| Sample: 1 720 | | |  |
| Lags: 8 | |  |  |
|  |  |  |  |
|  |  |  |  |
| Null Hypothesis: | Obs | F-Statistic | Prob. |
|  |  |  |  |
|  |  |  |  |
| OS does not Granger Cause DOM | 712 | 4.70930 | 1.E-05 |
| DOM does not Granger Cause OS | | 1.83562 | 0.0675 |
|  |  |  |  |
|  |  |  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Date: 07/25/18 Time: 10:51 | | |  |  |
| Sample (adjusted): 6 720 | | |  |  |
| Included observations: 715 after adjustments | | | |  |
| Trend assumption: Linear deterministic trend | | | |  |
| Series: DOM SA | |  |  |  |
| Lags interval (in first differences): 1 to 4 | | | |  |
|  |  |  |  |  |
| Unrestricted Cointegration Rank Test (Trace) | | | |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Hypothesized |  | Trace | 0.05 |  |
| No. of CE(s) | Eigenvalue | Statistic | Critical Value | Prob.\*\* |
|  |  |  |  |  |
|  |  |  |  |  |
| None \* | 0.210780 | 310.9472 | 15.49471 | 0.0001 |
| At most 1 \* | 0.179779 | 141.6995 | 3.841466 | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
| Trace test indicates 2 cointegrating eqn(s) at the 0.05 level | | | | |
| \* denotes rejection of the hypothesis at the 0.05 level | | | | |
| \*\*MacKinnon-Haug-Michelis (1999) p-values | | | |  |
|  |  |  |  |  |
| Unrestricted Cointegration Rank Test (Maximum Eigenvalue) | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
| Hypothesized |  | Max-Eigen | 0.05 |  |
| No. of CE(s) | Eigenvalue | Statistic | Critical Value | Prob.\*\* |
|  |  |  |  |  |
|  |  |  |  |  |
| None \* | 0.210780 | 169.2477 | 14.26460 | 0.0001 |
| At most 1 \* | 0.179779 | 141.6995 | 3.841466 | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
| Max-eigenvalue test indicates 2 cointegrating eqn(s) at the 0.05 level | | | | |
| \* denotes rejection of the hypothesis at the 0.05 level | | | | |
| \*\*MacKinnon-Haug-Michelis (1999) p-values | | | |  |

|  |  |  |  |
| --- | --- | --- | --- |
| Pairwise Granger Causality Tests | | | |
| Date: 07/25/18 Time: 10:51 | | | |
| Sample: 1 720 | | |  |
| Lags: 8 | |  |  |
|  |  |  |  |
|  |  |  |  |
| Null Hypothesis: | Obs | F-Statistic | Prob. |
|  |  |  |  |
|  |  |  |  |
| SA does not Granger Cause DOM | 712 | 2.09835 | 0.0339 |
| DOM does not Granger Cause SA | | 6.72022 | 2.E-08 |
|  |  |  |  |
|  |  |  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Date: 07/25/18 Time: 10:52 | | |  |  |
| Sample (adjusted): 6 720 | | |  |  |
| Included observations: 715 after adjustments | | | |  |
| Trend assumption: Linear deterministic trend | | | |  |
| Series: DOM TQ | |  |  |  |
| Lags interval (in first differences): 1 to 4 | | | |  |
|  |  |  |  |  |
| Unrestricted Cointegration Rank Test (Trace) | | | |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Hypothesized |  | Trace | 0.05 |  |
| No. of CE(s) | Eigenvalue | Statistic | Critical Value | Prob.\*\* |
|  |  |  |  |  |
|  |  |  |  |  |
| None \* | 0.230237 | 326.7460 | 15.49471 | 0.0001 |
| At most 1 \* | 0.177425 | 139.6504 | 3.841466 | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
| Trace test indicates 2 cointegrating eqn(s) at the 0.05 level | | | | |
| \* denotes rejection of the hypothesis at the 0.05 level | | | | |
| \*\*MacKinnon-Haug-Michelis (1999) p-values | | | |  |
|  |  |  |  |  |
| Unrestricted Cointegration Rank Test (Maximum Eigenvalue) | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
| Hypothesized |  | Max-Eigen | 0.05 |  |
| No. of CE(s) | Eigenvalue | Statistic | Critical Value | Prob.\*\* |
|  |  |  |  |  |
|  |  |  |  |  |
| None \* | 0.230237 | 187.0955 | 14.26460 | 0.0001 |
| At most 1 \* | 0.177425 | 139.6504 | 3.841466 | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
| Max-eigenvalue test indicates 2 cointegrating eqn(s) at the 0.05 level | | | | |
| \* denotes rejection of the hypothesis at the 0.05 level | | | | |
| \*\*MacKinnon-Haug-Michelis (1999) p-values | | | |  |

|  |  |  |  |
| --- | --- | --- | --- |
| Pairwise Granger Causality Tests | | | |
| Date: 07/25/18 Time: 10:52 | | | |
| Sample: 1 720 | | |  |
| Lags: 8 | |  |  |
|  |  |  |  |
|  |  |  |  |
| Null Hypothesis: | Obs | F-Statistic | Prob. |
|  |  |  |  |
|  |  |  |  |
| TQ does not Granger Cause DOM | 712 | 2.21798 | 0.0245 |
| DOM does not Granger Cause TQ | | 2.95448 | 0.0030 |
|  |  |  |  |
|  |  |  |  |