|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Date: 09/12/19 Time: 09:15 | | |  |  |  |
| Sample: 2011M03 2017M12 | | |  |  |  |
| Included observations: 79 | | |  |  |  |
| Series: SPREAD SELIC INAD\_IPEA | | |  |  |  |
| Lags interval: 1 to 2 | | |  |  |  |
|  |  |  |  |  |  |
| Selected (0.05 level\*) Number of Cointegrating Relations by Model |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
| Data Trend: | None | None | Linear | Linear | Quadratic |
| Test Type | No Intercept | Intercept | Intercept | Intercept | Intercept |
|  | No Trend | No Trend | No Trend | Trend | Trend |
| Trace | 1 | 1 | 1 | 1 | 1 |
| Max-Eig | 1 | 1 | 1 | 1 | 1 |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
| \*Critical values based on MacKinnon-Haug-Michelis (1999) | | | | |  |
|  |  |  |  |  |  |
| Information Criteria by Rank and Model |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
| Data Trend: | None | None | Linear | Linear | Quadratic |
| Rank or | No Intercept | Intercept | Intercept | Intercept | Intercept |
| No. of CEs | No Trend | No Trend | No Trend | Trend | Trend |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  | Log Likelihood by Rank (rows) and Model (columns) |  |  |  |  |
| 0 | 568.8045 | 568.8045 | 570.9127 | 570.9127 | 574.4097 |
| 1 | 589.1603 | 590.2346 | 591.8619 | 591.8846 | 595.3447 |
| 2 | 592.0697 | 594.2883 | 594.7891 | 598.5222 | 601.1493 |
| 3 | 592.3470 | 594.7976 | 594.7976 | 601.4424 | 601.4424 |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  | Akaike Information Criteria by Rank (rows) and Model (columns) |  |  |  |  |
| 0 | -13.94442 | -13.94442 | -13.92184 | -13.92184 | -13.93442 |
| 1 | -14.30785 | -14.30974 | -14.30030 | -14.27556 | -14.31252\* |
| 2 | -14.22961 | -14.23515 | -14.22251 | -14.26639 | -14.30758 |
| 3 | -14.08473 | -14.07083 | -14.07083 | -14.16310 | -14.16310 |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  | Schwarz Criteria by Rank (rows) and Model (columns) |  |  |  |  |
| 0 | -13.40454 | -13.40454 | -13.29199 | -13.29199 | -13.21459 |
| 1 | -13.58802\* | -13.55991 | -13.49049 | -13.43576 | -13.41273 |
| 2 | -13.32982 | -13.27537 | -13.23274 | -13.21663 | -13.22783 |
| 3 | -13.00499 | -12.90110 | -12.90110 | -12.90339 | -12.90339 |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

VEC

|  |  |  |  |
| --- | --- | --- | --- |
| Vector Error Correction Estimates | | |  |
| Date: 09/12/19 Time: 09:19 | | |  |
| Sample (adjusted): 2011M06 2017M12 | | | |
| Included observations: 79 after adjustments | | | |
| Standard errors in ( ) & t-statistics in [ ] | | | |
|  |  |  |  |
|  |  |  |  |
| Cointegrating Eq: | CointEq1 |  |  |
|  |  |  |  |
|  |  |  |  |
| SPREAD(-1) | 1.000000 |  |  |
|  |  |  |  |
| SELIC(-1) | -3.279537 |  |  |
|  | (0.37084) |  |  |
|  | [-8.84350] |  |  |
|  |  |  |  |
| INAD\_IPEA(-1) | 0.232474 |  |  |
|  | (0.85867) |  |  |
|  | [ 0.27074] |  |  |
|  |  |  |  |
| C | 4.048004 |  |  |
|  |  |  |  |
|  |  |  |  |
| Error Correction: | D(SPREAD) | D(SELIC) | D(INAD\_IPEA) |
|  |  |  |  |
|  |  |  |  |
| CointEq1 | -0.033752 | 0.006083 | -0.034153 |
|  | (0.00733) | (0.00530) | (0.00528) |
|  | [-4.60672] | [ 1.14764] | [-6.46757] |
|  |  |  |  |
| D(SPREAD(-1)) | -0.021151 | 0.054389 | -0.020341 |
|  | (0.11293) | (0.08170) | (0.08139) |
|  | [-0.18730] | [ 0.66570] | [-0.24992] |
|  |  |  |  |
| D(SPREAD(-2)) | -0.407552 | -0.018223 | 0.001038 |
|  | (0.11148) | (0.08066) | (0.08035) |
|  | [-3.65583] | [-0.22594] | [ 0.01292] |
|  |  |  |  |
| D(SELIC(-1)) | 0.255855 | 0.454118 | -0.082677 |
|  | (0.14884) | (0.10768) | (0.10727) |
|  | [ 1.71904] | [ 4.21717] | [-0.77072] |
|  |  |  |  |
| D(SELIC(-2)) | 0.053676 | 0.491146 | -0.136845 |
|  | (0.15776) | (0.11414) | (0.11371) |
|  | [ 0.34023] | [ 4.30294] | [-1.20350] |
|  |  |  |  |
| D(INAD\_IPEA(-1)) | -0.550710 | -0.184974 | -0.383004 |
|  | (0.17190) | (0.12437) | (0.12390) |
|  | [-3.20358] | [-1.48725] | [-3.09127] |
|  |  |  |  |
| D(INAD\_IPEA(-2)) | -0.060408 | 0.080472 | -0.223815 |
|  | (0.17562) | (0.12706) | (0.12657) |
|  | [-0.34397] | [ 0.63334] | [-1.76825] |
|  |  |  |  |
| C | 0.378898 | -0.003396 | 1.015010 |
|  | (0.36133) | (0.26142) | (0.26042) |
|  | [ 1.04863] | [-0.01299] | [ 3.89756] |
|  |  |  |  |
| IGP\_DI | 0.000449 | 0.000183 | -0.000125 |
|  | (0.00042) | (0.00030) | (0.00030) |
|  | [ 1.07963] | [ 0.60864] | [-0.41828] |
|  |  |  |  |
| PIB\_MENSAL | -0.028707 | 4.64E-05 | -0.077612 |
|  | (0.02766) | (0.02001) | (0.01994) |
|  | [-1.03782] | [ 0.00232] | [-3.89305] |
|  |  |  |  |
|  |  |  |  |
| R-squared | 0.462637 | 0.721259 | 0.412712 |
| Adj. R-squared | 0.392547 | 0.684901 | 0.336109 |
| Sum sq. resids | 0.048261 | 0.025262 | 0.025070 |
| S.E. equation | 0.026447 | 0.019134 | 0.019061 |
| F-statistic | 6.600544 | 19.83794 | 5.387679 |
| Log likelihood | 180.2269 | 205.7954 | 206.0975 |
| Akaike AIC | -4.309542 | -4.956846 | -4.964494 |
| Schwarz SC | -4.009612 | -4.656916 | -4.664564 |
| Mean dependent | 0.002123 | -0.006738 | 0.000500 |
| S.D. dependent | 0.033933 | 0.034087 | 0.023394 |
|  |  |  |  |
|  |  |  |  |
| Determinant resid covariance (dof adj.) | | 8.23E-11 |  |
| Determinant resid covariance | | 5.48E-11 |  |
| Log likelihood | | 596.9556 |  |
| Akaike information criterion | | -14.27736 |  |
| Schwarz criterion | | -13.28759 |  |
|  |  |  |  |
|  |  |  |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Date: 09/12/19 Time: 09:26 | | |  |  |  |
| Sample: 2011M03 2017M12 | | |  |  |  |
| Included observations: 79 | | |  |  |  |
| Series: IHH INAD\_IPEA SELIC SPREAD | | | |  |  |
| Lags interval: 1 to 2 | | |  |  |  |
|  |  |  |  |  |  |
| Selected (0.05 level\*) Number of Cointegrating Relations by Model |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
| Data Trend: | None | None | Linear | Linear | Quadratic |
| Test Type | No Intercept | Intercept | Intercept | Intercept | Intercept |
|  | No Trend | No Trend | No Trend | Trend | Trend |
| Trace | 1 | 1 | 1 | 1 | 1 |
| Max-Eig | 1 | 1 | 1 | 1 | 1 |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
| \*Critical values based on MacKinnon-Haug-Michelis (1999) | | | | |  |
|  |  |  |  |  |  |
| Information Criteria by Rank and Model |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
| Data Trend: | None | None | Linear | Linear | Quadratic |
| Rank or | No Intercept | Intercept | Intercept | Intercept | Intercept |
| No. of CEs | No Trend | No Trend | No Trend | Trend | Trend |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  | Log Likelihood by Rank (rows) and Model (columns) |  |  |  |  |
| 0 | 825.6610 | 825.6610 | 830.4340 | 830.4340 | 834.2873 |
| 1 | 846.5273 | 846.8238 | 851.4935 | 853.8311 | 857.6793 |
| 2 | 853.6004 | 854.0845 | 857.7644 | 860.9139 | 864.5092 |
| 3 | 856.7727 | 860.3021 | 861.0262 | 866.2634 | 868.8653 |
| 4 | 857.2250 | 863.4500 | 863.4500 | 869.0357 | 869.0357 |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  | Akaike Information Criteria by Rank (rows) and Model (columns) |  |  |  |  |
| 0 | -20.09268 | -20.09268 | -20.11225 | -20.11225 | -20.10854 |
| 1 | -20.41841 | -20.40060 | -20.44287 | -20.47674 | -20.49821\* |
| 2 | -20.39495 | -20.35657 | -20.39910 | -20.42820 | -20.46859 |
| 3 | -20.27273 | -20.28613 | -20.27914 | -20.33578 | -20.37634 |
| 4 | -20.08165 | -20.13797 | -20.13797 | -20.17812 | -20.17812 |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  | Schwarz Criteria by Rank (rows) and Model (columns) |  |  |  |  |
| 0 | -19.13291 | -19.13291 | -19.03250 | -19.03250 | -18.90882 |
| 1 | -19.21869\* | -19.17089 | -19.12318 | -19.12705 | -19.05855 |
| 2 | -18.95528 | -18.85692 | -18.83946 | -18.80858 | -18.78898 |
| 3 | -18.59312 | -18.51654 | -18.47956 | -18.44622 | -18.45678 |
| 4 | -18.16209 | -18.09845 | -18.09845 | -18.01862 | -18.01862 |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Vector Error Correction Estimates | | |  |  |
| Date: 09/12/19 Time: 09:31 | | |  |  |
| Sample (adjusted): 2011M06 2017M12 | | | |  |
| Included observations: 79 after adjustments | | | |  |
| Standard errors in ( ) & t-statistics in [ ] | | | |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Cointegrating Eq: | CointEq1 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| SPREAD(-1) | 1.000000 |  |  |  |
|  |  |  |  |  |
| SELIC(-1) | -1.282255 |  |  |  |
|  | (0.13767) |  |  |  |
|  | [-9.31394] |  |  |  |
|  |  |  |  |  |
| INAD\_IPEA(-1) | -0.491019 |  |  |  |
|  | (0.29980) |  |  |  |
|  | [-1.63780] |  |  |  |
|  |  |  |  |  |
| IHH(-1) | -3.682107 |  |  |  |
|  | (1.03353) |  |  |  |
|  | [-3.56264] |  |  |  |
|  |  |  |  |  |
| C | 27.56719 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Error Correction: | D(SPREAD) | D(SELIC) | D(INAD\_IPEA) | D(IHH) |
|  |  |  |  |  |
|  |  |  |  |  |
| CointEq1 | -0.112228 | 0.018772 | -0.085210 | 0.021445 |
|  | (0.01841) | (0.01509) | (0.01572) | (0.00820) |
|  | [-6.09522] | [ 1.24411] | [-5.41941] | [ 2.61549] |
|  |  |  |  |  |
| D(SPREAD(-1)) | 0.032028 | 0.048645 | 0.030046 | -0.020631 |
|  | (0.10372) | (0.08500) | (0.08857) | (0.04619) |
|  | [ 0.30879] | [ 0.57229] | [ 0.33923] | [-0.44667] |
|  |  |  |  |  |
| D(SPREAD(-2)) | -0.325652 | -0.022597 | 0.052663 | 0.043059 |
|  | (0.10186) | (0.08347) | (0.08698) | (0.04536) |
|  | [-3.19704] | [-0.27070] | [ 0.60544] | [ 0.94928] |
|  |  |  |  |  |
| D(SELIC(-1)) | 0.137175 | 0.452055 | -0.117574 | 0.008952 |
|  | (0.13815) | (0.11321) | (0.11797) | (0.06152) |
|  | [ 0.99296] | [ 3.99300] | [-0.99665] | [ 0.14552] |
|  |  |  |  |  |
| D(SELIC(-2)) | -0.043961 | 0.512383 | -0.175177 | 0.077263 |
|  | (0.14883) | (0.12197) | (0.12709) | (0.06628) |
|  | [-0.29537] | [ 4.20097] | [-1.37834] | [ 1.16574] |
|  |  |  |  |  |
| D(INAD\_IPEA(-1)) | -0.508601 | -0.171632 | -0.291538 | 0.101676 |
|  | (0.16081) | (0.13179) | (0.13733) | (0.07161) |
|  | [-3.16265] | [-1.30234] | [-2.12297] | [ 1.41978] |
|  |  |  |  |  |
| D(INAD\_IPEA(-2)) | -0.040553 | 0.078077 | -0.131853 | 0.058571 |
|  | (0.15552) | (0.12745) | (0.13281) | (0.06926) |
|  | [-0.26075] | [ 0.61260] | [-0.99281] | [ 0.84570] |
|  |  |  |  |  |
| D(IHH(-1)) | 0.408365 | 0.119095 | 0.045597 | 0.004559 |
|  | (0.30537) | (0.25025) | (0.26077) | (0.13599) |
|  | [ 1.33728] | [ 0.47591] | [ 0.17486] | [ 0.03353] |
|  |  |  |  |  |
| D(IHH(-2)) | 0.037893 | 0.090110 | -0.160290 | -0.018389 |
|  | (0.29490) | (0.24167) | (0.25183) | (0.13132) |
|  | [ 0.12849] | [ 0.37286] | [-0.63651] | [-0.14003] |
|  |  |  |  |  |
| C | 3.108839 | -0.471830 | 2.953815 | -0.612328 |
|  | (0.64155) | (0.52575) | (0.54784) | (0.28569) |
|  | [ 4.84582] | [-0.89744] | [ 5.39172] | [-2.14331] |
|  |  |  |  |  |
| IGP\_DI | 0.000850 | 0.000177 | 8.46E-05 | 7.96E-05 |
|  | (0.00038) | (0.00031) | (0.00033) | (0.00017) |
|  | [ 2.21979] | [ 0.56486] | [ 0.25870] | [ 0.46673] |
|  |  |  |  |  |
| PIB\_MENSAL | -0.238165 | 0.035874 | -0.226221 | 0.047096 |
|  | (0.04911) | (0.04025) | (0.04194) | (0.02187) |
|  | [-4.84958] | [ 0.89137] | [-5.39429] | [ 2.15347] |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.583451 | 0.722786 | 0.360940 | 0.139483 |
| Adj. R-squared | 0.515063 | 0.677273 | 0.256019 | -0.001795 |
| Sum sq. resids | 0.037410 | 0.025124 | 0.027280 | 0.007419 |
| S.E. equation | 0.023630 | 0.019365 | 0.020178 | 0.010523 |
| F-statistic | 8.531408 | 15.88094 | 3.440129 | 0.987292 |
| Log likelihood | 190.2864 | 206.0124 | 202.7605 | 254.1950 |
| Akaike AIC | -4.513579 | -4.911707 | -4.829378 | -6.131518 |
| Schwarz SC | -4.153662 | -4.551790 | -4.469462 | -5.771602 |
| Mean dependent | 0.002123 | -0.006738 | 0.000500 | 0.003154 |
| S.D. dependent | 0.033933 | 0.034087 | 0.023394 | 0.010513 |
|  |  |  |  |  |
|  |  |  |  |  |
| Determinant resid covariance (dof adj.) | | 7.98E-15 |  |  |
| Determinant resid covariance | | 4.13E-15 |  |  |
| Log likelihood | | 859.8947 |  |  |
| Akaike information criterion | | -20.45303 |  |  |
| Schwarz criterion | | -18.89339 |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Date: 09/12/19 Time: 09:36 | | |  |  |  |
| Sample: 2011M03 2017M12 | | |  |  |  |
| Included observations: 79 | | |  |  |  |
| Series: SPREAD SELIC IHH | | |  |  |  |
| Lags interval: 1 to 2 | | |  |  |  |
|  |  |  |  |  |  |
| Selected (0.05 level\*) Number of Cointegrating Relations by Model |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
| Data Trend: | None | None | Linear | Linear | Quadratic |
| Test Type | No Intercept | Intercept | Intercept | Intercept | Intercept |
|  | No Trend | No Trend | No Trend | Trend | Trend |
| Trace | 1 | 1 | 1 | 0 | 1 |
| Max-Eig | 1 | 1 | 1 | 0 | 0 |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
| \*Critical values based on MacKinnon-Haug-Michelis (1999) | | | | |  |
|  |  |  |  |  |  |
| Information Criteria by Rank and Model |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
| Data Trend: | None | None | Linear | Linear | Quadratic |
| Rank or | No Intercept | Intercept | Intercept | Intercept | Intercept |
| No. of CEs | No Trend | No Trend | No Trend | Trend | Trend |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  | Log Likelihood by Rank (rows) and Model (columns) |  |  |  |  |
| 0 | 620.6986 | 620.6986 | 626.0230 | 626.0230 | 627.5694 |
| 1 | 631.5131 | 632.0216 | 636.9269 | 637.7835 | 638.0410 |
| 2 | 635.9175 | 638.9266 | 640.9679 | 642.5272 | 642.6159 |
| 3 | 637.5913 | 641.2177 | 641.2177 | 646.5374 | 646.5374 |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  | Akaike Information Criteria by Rank (rows) and Model (columns) |  |  |  |  |
| 0 | -15.25819 | -15.25819 | -15.31704 | -15.31704 | -15.28024 |
| 1 | -15.38008 | -15.36764 | -15.44119\* | -15.43756 | -15.39344 |
| 2 | -15.33968 | -15.36523 | -15.39159 | -15.38043 | -15.35736 |
| 3 | -15.23016 | -15.24602 | -15.24602 | -15.30474 | -15.30474 |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  | Schwarz Criteria by Rank (rows) and Model (columns) |  |  |  |  |
| 0 | -14.71832\* | -14.71832\* | -14.68718 | -14.68718 | -14.56041 |
| 1 | -14.66024 | -14.61781 | -14.63138 | -14.59775 | -14.49365 |
| 2 | -14.43989 | -14.40545 | -14.40182 | -14.33068 | -14.27762 |
| 3 | -14.15041 | -14.07629 | -14.07629 | -14.04504 | -14.04504 |
|  |  |  |  |  |  |
|  |  |  |  |  |  |