**Unit Root Test**

Unit Root Test (LNHDI) – Level with Intercept

|  |  |
| --- | --- |
| Null Hypothesis: LNHDI has a unit root |  |
| Exogenous: Constant |  |  |
| Bandwidth: 0 (Newey-West automatic) using Bartlett kernel |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  | Adj. t-Stat |   Prob.\* |
|  |  |  |  |  |
|  |  |  |  |  |
| Phillips-Perron test statistic |  3.712804 |  1.0000 |
| Test critical values: | 1% level |  | -3.670170 |  |
|  | 5% level |  | -2.963972 |  |
|  | 10% level |  | -2.621007 |  |
|  |  |  |  |  |
|  |  |  |  |  |
| \*MacKinnon (1996) one-sided p-values. |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Residual variance (no correction) |  8.57E-06 |
| HAC corrected variance (Bartlett kernel) |  8.57E-06 |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Phillips-Perron Test Equation |  |  |
| Dependent Variable: D(LNHDI) |  |  |
| Method: Least Squares |  |  |
| Date: 02/28/15 Time: 12:37 |  |  |
| Sample (adjusted): 1982 2011 |  |  |
| Included observations: 30 after adjustments |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | t-Statistic | Prob.   |
|  |  |  |  |  |
|  |  |  |  |  |
| LNHDI(-1) | 0.014988 | 0.004037 | 3.712804 | 0.0009 |
| C | 0.028940 | 0.003536 | 8.183614 | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.329902 |     Mean dependent var | 0.015972 |
| Adjusted R-squared | 0.305970 |     S.D. dependent var | 0.003637 |
| S.E. of regression | 0.003030 |     Akaike info criterion | -8.696010 |
| Sum squared resid | 0.000257 |     Schwarz criterion | -8.602597 |
| Log likelihood | 132.4401 |     Hannan-Quinn criter. | -8.666126 |
| F-statistic | 13.78491 |     Durbin-Watson stat | 2.205648 |
| Prob(F-statistic) | 0.000903 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

Unit Root Test (LNHDI) – First difference with intercept

|  |  |
| --- | --- |
| Null Hypothesis: D(LNHDI) has a unit root |  |
| Exogenous: Constant |  |  |
| Bandwidth: 2 (Newey-West automatic) using Bartlett kernel |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  | Adj. t-Stat |   Prob.\* |
|  |  |  |  |  |
|  |  |  |  |  |
| Phillips-Perron test statistic | -4.119893 |  0.0034 |
| Test critical values: | 1% level |  | -3.679322 |  |
|  | 5% level |  | -2.967767 |  |
|  | 10% level |  | -2.622989 |  |
|  |  |  |  |  |
|  |  |  |  |  |
| \*MacKinnon (1996) one-sided p-values. |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Residual variance (no correction) |  1.18E-05 |
| HAC corrected variance (Bartlett kernel) |  1.16E-05 |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Phillips-Perron Test Equation |  |  |
| Dependent Variable: D(LNHDI,2) |  |
| Method: Least Squares |  |  |
| Date: 02/28/15 Time: 12:37 |  |  |
| Sample (adjusted): 1983 2011 |  |  |
| Included observations: 29 after adjustments |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | t-Statistic | Prob.   |
|  |  |  |  |  |
|  |  |  |  |  |
| D(LNHDI(-1)) | -0.756393 | 0.183233 | -4.128049 | 0.0003 |
| C | 0.012249 | 0.002985 | 4.102756 | 0.0003 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.386932 |     Mean dependent var | 0.000231 |
| Adjusted R-squared | 0.364226 |     S.D. dependent var | 0.004466 |
| S.E. of regression | 0.003561 |     Akaike info criterion | -8.371139 |
| Sum squared resid | 0.000342 |     Schwarz criterion | -8.276842 |
| Log likelihood | 123.3815 |     Hannan-Quinn criter. | -8.341606 |
| F-statistic | 17.04079 |     Durbin-Watson stat | 2.088512 |
| Prob(F-statistic) | 0.000315 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

Unit Root Test (LNHDI) – level with intercept and trend

|  |  |
| --- | --- |
| Null Hypothesis: LNHDI has a unit root |  |
| Exogenous: Constant, Linear Trend |  |
| Bandwidth: 1 (Newey-West automatic) using Bartlett kernel |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  | Adj. t-Stat |   Prob.\* |
|  |  |  |  |  |
|  |  |  |  |  |
| Phillips-Perron test statistic | -0.880790 |  0.9453 |
| Test critical values: | 1% level |  | -4.296729 |  |
|  | 5% level |  | -3.568379 |  |
|  | 10% level |  | -3.218382 |  |
|  |  |  |  |  |
|  |  |  |  |  |
| \*MacKinnon (1996) one-sided p-values. |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Residual variance (no correction) |  8.20E-06 |
| HAC corrected variance (Bartlett kernel) |  7.74E-06 |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Phillips-Perron Test Equation |  |  |
| Dependent Variable: D(LNHDI) |  |  |
| Method: Least Squares |  |  |
| Date: 02/28/15 Time: 12:38 |  |  |
| Sample (adjusted): 1982 2011 |  |  |
| Included observations: 30 after adjustments |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | t-Statistic | Prob.   |
|  |  |  |  |  |
|  |  |  |  |  |
| LNHDI(-1) | -0.072250 | 0.078664 | -0.918468 | 0.3665 |
| C | -0.067982 | 0.087353 | -0.778245 | 0.4432 |
| @TREND(1981) | 0.001383 | 0.001246 | 1.110445 | 0.2766 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.359168 |     Mean dependent var | 0.015972 |
| Adjusted R-squared | 0.311699 |     S.D. dependent var | 0.003637 |
| S.E. of regression | 0.003018 |     Akaike info criterion | -8.674001 |
| Sum squared resid | 0.000246 |     Schwarz criterion | -8.533881 |
| Log likelihood | 133.1100 |     Hannan-Quinn criter. | -8.629175 |
| F-statistic | 7.566376 |     Durbin-Watson stat | 2.111337 |
| Prob(F-statistic) | 0.002461 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

Unit Root Test (LNHDI) – First difference with intercept and Trend

|  |  |
| --- | --- |
| Null Hypothesis: D(LNHDI) has a unit root |  |
| Exogenous: Constant, Linear Trend |  |
| Bandwidth: 0 (Newey-West automatic) using Bartlett kernel |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  | Adj. t-Stat |   Prob.\* |
|  |  |  |  |  |
|  |  |  |  |  |
| Phillips-Perron test statistic | -5.658736 |  0.0004 |
| Test critical values: | 1% level |  | -4.309824 |  |
|  | 5% level |  | -3.574244 |  |
|  | 10% level |  | -3.221728 |  |
|  |  |  |  |  |
|  |  |  |  |  |
| \*MacKinnon (1996) one-sided p-values. |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Residual variance (no correction) |  8.62E-06 |
| HAC corrected variance (Bartlett kernel) |  8.62E-06 |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Phillips-Perron Test Equation |  |  |
| Dependent Variable: D(LNHDI,2) |  |
| Method: Least Squares |  |  |
| Date: 02/28/15 Time: 12:38 |  |  |
| Sample (adjusted): 1983 2011 |  |  |
| Included observations: 29 after adjustments |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | t-Statistic | Prob.   |
|  |  |  |  |  |
|  |  |  |  |  |
| D(LNHDI(-1)) | -1.105008 | 0.195275 | -5.658736 | 0.0000 |
| C | 0.013613 | 0.002637 | 5.161988 | 0.0000 |
| @TREND(1981) | 0.000261 | 8.42E-05 | 3.097671 | 0.0046 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.552198 |     Mean dependent var | 0.000231 |
| Adjusted R-squared | 0.517752 |     S.D. dependent var | 0.004466 |
| S.E. of regression | 0.003101 |     Akaike info criterion | -8.616297 |
| Sum squared resid | 0.000250 |     Schwarz criterion | -8.474853 |
| Log likelihood | 127.9363 |     Hannan-Quinn criter. | -8.571999 |
| F-statistic | 16.03068 |     Durbin-Watson stat | 1.978809 |
| Prob(F-statistic) | 0.000029 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

Unit Root Test (LNRMT) – level with intercept

|  |  |
| --- | --- |
| Null Hypothesis: LNRMT has a unit root |  |
| Exogenous: Constant |  |  |
| Bandwidth: 14 (Newey-West automatic) using Bartlett kernel |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  | Adj. t-Stat |   Prob.\* |
|  |  |  |  |  |
|  |  |  |  |  |
| Phillips-Perron test statistic |  0.871264 |  0.9936 |
| Test critical values: | 1% level |  | -3.670170 |  |
|  | 5% level |  | -2.963972 |  |
|  | 10% level |  | -2.621007 |  |
|  |  |  |  |  |
|  |  |  |  |  |
| \*MacKinnon (1996) one-sided p-values. |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Residual variance (no correction) |  0.015993 |
| HAC corrected variance (Bartlett kernel) |  0.008438 |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Phillips-Perron Test Equation |  |  |
| Dependent Variable: D(LNRMT) |  |  |
| Method: Least Squares |  |  |
| Date: 02/28/15 Time: 12:38 |  |  |
| Sample (adjusted): 1982 2011 |  |  |
| Included observations: 30 after adjustments |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | t-Statistic | Prob.   |
|  |  |  |  |  |
|  |  |  |  |  |
| LNRMT(-1) | 0.011385 | 0.024463 | 0.465402 | 0.6452 |
| C | 0.039233 | 0.181332 | 0.216358 | 0.8303 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.007676 |     Mean dependent var | 0.122888 |
| Adjusted R-squared | -0.027764 |     S.D. dependent var | 0.129120 |
| S.E. of regression | 0.130900 |     Akaike info criterion | -1.164424 |
| Sum squared resid | 0.479775 |     Schwarz criterion | -1.071011 |
| Log likelihood | 19.46637 |     Hannan-Quinn criter. | -1.134541 |
| F-statistic | 0.216599 |     Durbin-Watson stat | 1.470704 |
| Prob(F-statistic) | 0.645243 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

Unit Root Test (LNRMT) – First Difference with intercept

|  |  |
| --- | --- |
| Null Hypothesis: D(LNRMT) has a unit root |  |
| Exogenous: Constant |  |  |
| Bandwidth: 2 (Newey-West automatic) using Bartlett kernel |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  | Adj. t-Stat |   Prob.\* |
|  |  |  |  |  |
|  |  |  |  |  |
| Phillips-Perron test statistic | -5.252829 |  0.0002 |
| Test critical values: | 1% level |  | -3.679322 |  |
|  | 5% level |  | -2.967767 |  |
|  | 10% level |  | -2.622989 |  |
|  |  |  |  |  |
|  |  |  |  |  |
| \*MacKinnon (1996) one-sided p-values. |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Residual variance (no correction) |  0.011836 |
| HAC corrected variance (Bartlett kernel) |  0.011006 |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Phillips-Perron Test Equation |  |  |
| Dependent Variable: D(LNRMT,2) |  |
| Method: Least Squares |  |  |
| Date: 02/28/15 Time: 12:39 |  |  |
| Sample (adjusted): 1983 2011 |  |  |
| Included observations: 29 after adjustments |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | t-Statistic | Prob.   |
|  |  |  |  |  |
|  |  |  |  |  |
| D(LNRMT(-1)) | -0.847629 | 0.162241 | -5.224501 | 0.0000 |
| C | 0.091868 | 0.028998 | 3.168066 | 0.0038 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.502720 |     Mean dependent var | -0.012951 |
| Adjusted R-squared | 0.484303 |     S.D. dependent var | 0.157008 |
| S.E. of regression | 0.112751 |     Akaike info criterion | -1.460800 |
| Sum squared resid | 0.343244 |     Schwarz criterion | -1.366504 |
| Log likelihood | 23.18160 |     Hannan-Quinn criter. | -1.431268 |
| F-statistic | 27.29541 |     Durbin-Watson stat | 2.014115 |
| Prob(F-statistic) | 0.000017 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

Unit Root Test (LNRMT) – level with Intercept and Trend

|  |  |
| --- | --- |
| Null Hypothesis: LNRMT has a unit root |  |
| Exogenous: Constant, Linear Trend |  |
| Bandwidth: 5 (Newey-West automatic) using Bartlett kernel |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  | Adj. t-Stat |   Prob.\* |
|  |  |  |  |  |
|  |  |  |  |  |
| Phillips-Perron test statistic | -1.165915 |  0.8996 |
| Test critical values: | 1% level |  | -4.296729 |  |
|  | 5% level |  | -3.568379 |  |
|  | 10% level |  | -3.218382 |  |
|  |  |  |  |  |
|  |  |  |  |  |
| \*MacKinnon (1996) one-sided p-values. |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Residual variance (no correction) |  0.015048 |
| HAC corrected variance (Bartlett kernel) |  0.015120 |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Phillips-Perron Test Equation |  |  |
| Dependent Variable: D(LNRMT) |  |  |
| Method: Least Squares |  |  |
| Date: 02/28/15 Time: 12:39 |  |  |
| Sample (adjusted): 1982 2011 |  |  |
| Included observations: 30 after adjustments |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | t-Statistic | Prob.   |
|  |  |  |  |  |
|  |  |  |  |  |
| LNRMT(-1) | -0.123972 | 0.106742 | -1.161415 | 0.2556 |
| C | 0.790691 | 0.604366 | 1.308298 | 0.2018 |
| @TREND(1981) | 0.015685 | 0.012048 | 1.301876 | 0.2040 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.066289 |     Mean dependent var | 0.122888 |
| Adjusted R-squared | -0.002875 |     S.D. dependent var | 0.129120 |
| S.E. of regression | 0.129305 |     Akaike info criterion | -1.158640 |
| Sum squared resid | 0.451437 |     Schwarz criterion | -1.018520 |
| Log likelihood | 20.37959 |     Hannan-Quinn criter. | -1.113814 |
| F-statistic | 0.958428 |     Durbin-Watson stat | 1.331965 |
| Prob(F-statistic) | 0.396161 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

Unit Root Test (LNRMT) – First difference with Intercept and Trend

|  |  |
| --- | --- |
| Null Hypothesis: D(LNRMT) has a unit root |  |
| Exogenous: Constant, Linear Trend |  |
| Bandwidth: 28 (Newey-West automatic) using Bartlett kernel |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  | Adj. t-Stat |   Prob.\* |
|  |  |  |  |  |
|  |  |  |  |  |
| Phillips-Perron test statistic | -14.79982 |  0.0000 |
| Test critical values: | 1% level |  | -4.309824 |  |
|  | 5% level |  | -3.574244 |  |
|  | 10% level |  | -3.221728 |  |
|  |  |  |  |  |
|  |  |  |  |  |
| \*MacKinnon (1996) one-sided p-values. |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Residual variance (no correction) |  0.010373 |
| HAC corrected variance (Bartlett kernel) |  0.000646 |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Phillips-Perron Test Equation |  |  |
| Dependent Variable: D(LNRMT,2) |  |
| Method: Least Squares |  |  |
| Date: 02/28/15 Time: 12:40 |  |  |
| Sample (adjusted): 1983 2011 |  |  |
| Included observations: 29 after adjustments |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | t-Statistic | Prob.   |
|  |  |  |  |  |
|  |  |  |  |  |
| D(LNRMT(-1)) | -0.895132 | 0.156755 | -5.710370 | 0.0000 |
| C | 0.023672 | 0.045099 | 0.524877 | 0.6041 |
| @TREND(1981) | 0.004629 | 0.002418 | 1.914658 | 0.0666 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.564171 |     Mean dependent var | -0.012951 |
| Adjusted R-squared | 0.530646 |     S.D. dependent var | 0.157008 |
| S.E. of regression | 0.107565 |     Akaike info criterion | -1.523737 |
| Sum squared resid | 0.300829 |     Schwarz criterion | -1.382293 |
| Log likelihood | 25.09419 |     Hannan-Quinn criter. | -1.479438 |
| F-statistic | 16.82821 |     Durbin-Watson stat | 2.240653 |
| Prob(F-statistic) | 0.000020 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

**Co-integration Test**

**Option3**

|  |  |  |
| --- | --- | --- |
| Date: 02/28/15 Time: 13:00 |  |  |
| Sample (adjusted): 1984 2011 |  |  |
| Included observations: 28 after adjustments |  |
| Trend assumption: Linear deterministic trend |  |
| Series: LNHDI LNRMT  |  |  |
| Lags interval (in first differences): 1 to 2 |  |
|  |  |  |  |  |
| Unrestricted Cointegration Rank Test (Trace) |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Hypothesized |  | Trace | 0.05 |  |
| No. of CE(s) | Eigenvalue | Statistic | Critical Value | Prob.\*\* |
|  |  |  |  |  |
|  |  |  |  |  |
| None \* |  0.547360 |  23.05677 |  15.49471 |  0.0030 |
| At most 1 |  0.030328 |  0.862332 |  3.841466 |  0.3531 |
|  |  |  |  |  |
|  |  |  |  |  |
|  Trace test indicates 1 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 \* |  0.547360 |  22.19444 |  14.26460 |  0.0023 |
| At most 1 |  0.030328 |  0.862332 |  3.841466 |  0.3531 |
|  |  |  |  |  |
|  |  |  |  |  |
|  Max-eigenvalue test indicates 1 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 Cointegrating Coefficients (normalized by b'\*S11\*b=I):  |
|  |  |  |  |  |
|  |  |  |  |  |
| LNHDI | LNRMT |  |  |  |
|  0.367345 | -1.745827 |  |  |  |
|  60.61868 | -7.883265 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  Unrestricted Adjustment Coefficients (alpha):  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| D(LNHDI) | -0.001653 | -0.000415 |  |  |
| D(LNRMT) | -0.043563 |  0.010843 |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| 1 Cointegrating Equation(s):  | Log likelihood |  160.7516 |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Normalized cointegrating coefficients (standard error in parentheses) |
| LNHDI | LNRMT |  |  |  |
|  1.000000 | -4.752549 |  |  |  |
|  |  (0.89618) |  |  |  |
|  |  |  |  |  |
| Adjustment coefficients (standard error in parentheses) |  |
| D(LNHDI) | -0.000607 |  |  |  |
|  |  (0.00022) |  |  |  |
| D(LNRMT) | -0.016002 |  |  |  |
|  |  (0.00578) |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

**Option4**

|  |  |  |
| --- | --- | --- |
| Date: 02/28/15 Time: 13:01 |  |  |
| Sample (adjusted): 1984 2011 |  |  |
| Included observations: 28 after adjustments |  |
| Trend assumption: Linear deterministic trend (restricted) |
| Series: LNHDI LNRMT  |  |  |
| Lags interval (in first differences): 1 to 2 |  |
|  |  |  |  |  |
| Unrestricted Cointegration Rank Test (Trace) |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Hypothesized |  | Trace | 0.05 |  |
| No. of CE(s) | Eigenvalue | Statistic | Critical Value | Prob.\*\* |
|  |  |  |  |  |
|  |  |  |  |  |
| None \* |  0.580575 |  28.80243 |  25.87211 |  0.0210 |
| At most 1 |  0.147676 |  4.474072 |  12.51798 |  0.6729 |
|  |  |  |  |  |
|  |  |  |  |  |
|  Trace test indicates 1 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 \* |  0.580575 |  24.32835 |  19.38704 |  0.0088 |
| At most 1 |  0.147676 |  4.474072 |  12.51798 |  0.6729 |
|  |  |  |  |  |
|  |  |  |  |  |
|  Max-eigenvalue test indicates 1 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 Cointegrating Coefficients (normalized by b'\*S11\*b=I):  |
|  |  |  |  |  |
|  |  |  |  |  |
| LNHDI | LNRMT | @TREND(82) |  |  |
| -66.85468 |  2.605562 |  0.955460 |  |  |
|  232.5607 | -5.281374 | -3.034870 |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  Unrestricted Adjustment Coefficients (alpha):  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| D(LNHDI) |  0.001927 | -0.000795 |  |  |
| D(LNRMT) |  0.038212 |  0.026704 |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| 1 Cointegrating Equation(s):  | Log likelihood |  161.8186 |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Normalized cointegrating coefficients (standard error in parentheses) |
| LNHDI | LNRMT | @TREND(82) |  |  |
|  1.000000 | -0.038974 | -0.014292 |  |  |
|  |  (0.01960) |  (0.00235) |  |  |
|  |  |  |  |  |
| Adjustment coefficients (standard error in parentheses) |  |
| D(LNHDI) | -0.128823 |  |  |  |
|  |  (0.03760) |  |  |  |
| D(LNRMT) | -2.554647 |  |  |  |
|  |  (1.09330) |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

**VEC equation**

|  |  |  |
| --- | --- | --- |
| Dependent Variable: D(LNHDI) |  |  |
| Method: Least Squares |  |  |
| Date: 06/16/15 Time: 16:25 |  |  |
| Sample (adjusted): 1984 2011 |  |  |
| Included observations: 28 after adjustments |  |
| D(LNHDI) = C(1)\*( LNHDI(-1) - 4.75254893958\*LNRMT(-1) + |
|         36.2430262178 ) + C(2)\*D(LNHDI(-1)) + C(3)\*D(LNHDI(-2)) + C(4) |
|         \*D(LNRMT(-1)) + C(5)\*D(LNRMT(-2)) + C(6) |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Coefficient | Std. Error | t-Statistic | Prob.   |
|  |  |  |  |  |
|  |  |  |  |  |
| C(1) | -0.000607 | 0.000221 | -2.750716 | 0.0117 |
| C(2) | -0.173740 | 0.210323 | -0.826063 | 0.4176 |
| C(3) | 0.195000 | 0.352471 | 0.553237 | 0.5857 |
| C(4) | -0.009057 | 0.006171 | -1.467681 | 0.1563 |
| C(5) | -0.000406 | 0.005036 | -0.080693 | 0.9364 |
| C(6) | 0.017038 | 0.006717 | 2.536703 | 0.0188 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.385416 |     Mean dependent var | 0.016180 |
| Adjusted R-squared | 0.245738 |     S.D. dependent var | 0.003661 |
| S.E. of regression | 0.003179 |     Akaike info criterion | -8.476937 |
| Sum squared resid | 0.000222 |     Schwarz criterion | -8.191465 |
| Log likelihood | 124.6771 |     Hannan-Quinn criter. | -8.389665 |
| F-statistic | 2.759313 |     Durbin-Watson stat | 2.029471 |
| Prob(F-statistic) | 0.044132 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |