1. 沪深300情绪指数与沪深300收益率的关系

选用居民消费价格指数环比增长值(dlncpi)、工业增加值环比增长值作为控制变量(dlniv)，取自然对数。数据来源为统计局编撰的《中国经济景气月报》。

1. 月度化数据研究
2. 数据处理

沪深300情绪指数(msgbsi)为日度数据，进行月度化处理：每日指数取盘前情绪与盘中情绪的均值，然后取月内平均。

沪深300月度收益率(hs300\_return)：取沪深300指数的月内均值，然后取自然对数作差分。

1. 时序图



1. 平稳性检验

ADF检验结果：

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 变量 | 检验形式 | 滞后阶数(SIC) | t值 | P值 | 10%临界值 | 5%临界值 | 1%临界值 |
| hs300\_return | C | 3 | -4.499368 | 0.0008 | -2.605836 | -2.935001 | -3.600987 |
| dlncpi | C | 0 | -6.119031 | 0.0000 | -2.603064 | -2.929734 | -3.588509 |
| dlniv | C | 0 | -7.507253 | 0.0000 | -2.603064 | -2.929734 | -3.588509 |
| msgbsi | C | 0 | -3.773151 | 0.0061 | -2.603064 | -2.929734 | -3.588509 |

1. 一般计量模型

1）同期回归结果：

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Dependent Variable: HS300\_RETURNS | | | |  |
| Method: Least Squares | | |  |  |
| Date: 02/15/19 Time: 16:48 | | |  |  |
| Sample: 2015M01 2018M09 | | |  |  |
| Included observations: 45 | | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| LNCPI | -2.299036 | 1.234686 | -1.862041 | 0.0698 |
| LNIV | 0.071731 | 0.030802 | 2.328793 | 0.0249 |
| MSGBSIS | 0.277211 | 0.037057 | 7.480633 | 0.0000 |
| C | 0.006428 | 0.023725 | 0.270923 | 0.7878 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.648543 | Mean dependent var | | 0.000396 |
| Adjusted R-squared | 0.622827 | S.D. dependent var | | 0.065292 |
| S.E. of regression | 0.040099 | Akaike info criterion | | -3.510256 |
| Sum squared resid | 0.065924 | Schwarz criterion | | -3.349664 |
| Log likelihood | 82.98076 | Hannan-Quinn criter. | | -3.450389 |
| F-statistic | 25.21911 | Durbin-Watson stat | | 1.738320 |
| Prob(F-statistic) | 0.000000 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

简单分析：从以上结果可以看出，调整R^2有0.623，说明模型拟合效果较好，DW量接近2，残差项不存在自相关，同时各解释变量系数10%水平下显著，F统计量显著，说明自变量作用显著。此外，沪深300指数的收益率与cpi增长显著负相关，与工业增加值增长显著正相关。这一结论与之前的相关研究结论基本一致，说明控制变量选择得当，模型适宜。

同期的情绪指数与收益率显著正相关。

2）滞后期回归结果：

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Dependent Variable: HS300\_RETURNS | | | |  |
| Method: Least Squares | | |  |  |
| Date: 02/18/19 Time: 16:25 | | |  |  |
| Sample (adjusted): 2015M02 2018M09 | | | |  |
| Included observations: 44 after adjustments | | | |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| LNCPI | -3.814293 | 1.630652 | -2.339121 | 0.0244 |
| LNIV | 0.074345 | 0.041647 | 1.785114 | 0.0818 |
| MSGBSIS(-1) | 0.160022 | 0.049798 | 3.213386 | 0.0026 |
| C | 0.027983 | 0.032452 | 0.862298 | 0.3937 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.356076 | Mean dependent var | | -0.001578 |
| Adjusted R-squared | 0.307782 | S.D. dependent var | | 0.064674 |
| S.E. of regression | 0.053809 | Akaike info criterion | | -2.920252 |
| Sum squared resid | 0.115815 | Schwarz criterion | | -2.758053 |
| Log likelihood | 68.24554 | Hannan-Quinn criter. | | -2.860101 |
| F-statistic | 7.373041 | Durbin-Watson stat | | 2.122318 |
| Prob(F-statistic) | 0.000480 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Dependent Variable: HS300\_RETURNS | | | |  |
| Method: Least Squares | | |  |  |
| Date: 02/18/19 Time: 16:27 | | |  |  |
| Sample (adjusted): 2015M03 2018M09 | | | |  |
| Included observations: 43 after adjustments | | | |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| LNCPI | -4.019452 | 1.897575 | -2.118204 | 0.0406 |
| LNIV | 0.102878 | 0.045635 | 2.254348 | 0.0299 |
| MSGBSIS(-2) | 0.101669 | 0.056929 | 1.785886 | 0.0819 |
| C | 0.057006 | 0.033588 | 1.697215 | 0.0976 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.253369 | Mean dependent var | | -0.000932 |
| Adjusted R-squared | 0.195936 | S.D. dependent var | | 0.065296 |
| S.E. of regression | 0.058551 | Akaike info criterion | | -2.749442 |
| Sum squared resid | 0.133699 | Schwarz criterion | | -2.585610 |
| Log likelihood | 63.11301 | Hannan-Quinn criter. | | -2.689026 |
| F-statistic | 4.411549 | Durbin-Watson stat | | 1.509970 |
| Prob(F-statistic) | 0.009153 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

从以上结果可以看出，滞后期（-1和-2）的情绪指数对沪深300指数收益率依然有解释预测能力，不过解释预测能力随着滞后期变长而变弱。同期的情绪指数解释预测能力最强。且情绪指数与收益率都为正相关，说明情绪指数对股票价格有促进作用。

1. 建立向量自回归方程

初始建立时选择滞后阶数3，所有变量认为内生，AR根都在单位圆内，根据滞后阶数检验，滞后阶数为1适宜，因此重新选择滞后阶数为1建立VAR方程。随后格兰杰因果检验/外生性检验中，dlncpi和dlniv作为因变量时，自变量无法作为格兰杰原因，说明这两个变量外生于系统。

|  |  |  |  |
| --- | --- | --- | --- |
| VAR Granger Causality/Block Exogeneity Wald Tests | | | |
| Date: 02/18/19 Time: 16:47 | | |  |
| Sample: 2015M01 2018M09 | | |  |
| Included observations: 44 | | |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
| Dependent variable: HS300\_RETURNS | | |  |
|  |  |  |  |
|  |  |  |  |
| Excluded | Chi-sq | df | Prob. |
|  |  |  |  |
|  |  |  |  |
| LNCPI | 0.006239 | 1 | 0.9370 |
| LNIV | 0.515684 | 1 | 0.4727 |
| MSGBSIS | 7.256900 | 1 | 0.0071 |
|  |  |  |  |
|  |  |  |  |
| All | 9.162491 | 3 | 0.0272 |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
| Dependent variable: LNCPI | | |  |
|  |  |  |  |
|  |  |  |  |
| Excluded | Chi-sq | df | Prob. |
|  |  |  |  |
|  |  |  |  |
| HS300\_RETURNS | 0.003978 | 1 | 0.9497 |
| LNIV | 0.070926 | 1 | 0.7900 |
| MSGBSIS | 0.090380 | 1 | 0.7637 |
|  |  |  |  |
|  |  |  |  |
| All | 0.420062 | 3 | 0.9361 |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
| Dependent variable: LNIV | | |  |
|  |  |  |  |
|  |  |  |  |
| Excluded | Chi-sq | df | Prob. |
|  |  |  |  |
|  |  |  |  |
| HS300\_RETURNS | 0.048119 | 1 | 0.8264 |
| LNCPI | 1.463872 | 1 | 0.2263 |
| MSGBSIS | 0.299849 | 1 | 0.5840 |
|  |  |  |  |
|  |  |  |  |
| All | 2.178083 | 3 | 0.5363 |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
| Dependent variable: MSGBSIS | | |  |
|  |  |  |  |
|  |  |  |  |
| Excluded | Chi-sq | df | Prob. |
|  |  |  |  |
|  |  |  |  |
| HS300\_RETURNS | 3.087834 | 1 | 0.0789 |
| LNCPI | 2.049371 | 1 | 0.1523 |
| LNIV | 0.055875 | 1 | 0.8131 |
|  |  |  |  |
|  |  |  |  |
| All | 7.487093 | 3 | 0.0579 |
|  |  |  |  |
|  |  |  |  |

因此，将上述变量作为外生变量，重新建立var模型。

此时滞后阶数检验为：

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| VAR Lag Order Selection Criteria | | |  |  |  |  |
| Endogenous variables: HS300\_RETURNS MSGBSIS | | | |  |  |  |
| Exogenous variables: C LNCPI LNIV | | |  |  |  |  |
| Date: 02/20/19 Time: 12:42 | | |  |  |  |  |
| Sample: 2015M01 2018M09 | | |  |  |  |  |
| Included observations: 37 | | |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
| Lag | LogL | LR | FPE | AIC | SC | HQ |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
| 0 | 98.42295 | NA | 2.32e-05 | -4.995835 | -4.734605\* | -4.903739 |
| 1 | 104.6490 | 10.76942 | 2.06e-05 | -5.116163 | -4.680780 | -4.962670\* |
| 2 | 107.7108 | 4.965040 | 2.18e-05 | -5.065448 | -4.455912 | -4.850558 |
| 3 | 114.8616 | 10.82288\* | 1.86e-05 | -5.235764 | -4.452074 | -4.959476 |
| 4 | 119.4806 | 6.491501 | 1.83e-05\* | -5.269221\* | -4.311378 | -4.931536 |
| 5 | 121.7218 | 2.907518 | 2.07e-05 | -5.174151 | -4.042155 | -4.775069 |
| 6 | 123.3713 | 1.961569 | 2.43e-05 | -5.047097 | -3.740947 | -4.586618 |
| 7 | 125.8284 | 2.656343 | 2.78e-05 | -4.963698 | -3.483395 | -4.441822 |
| 8 | 130.4214 | 4.468848 | 2.88e-05 | -4.995751 | -3.341295 | -4.412478 |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
| \* indicates lag order selected by the criterion | | | |  |  |  |
| LR: sequential modified LR test statistic (each test at 5% level) | | | | |  |  |
| FPE: Final prediction error | | |  |  |  |  |
| AIC: Akaike information criterion | | |  |  |  |  |
| SC: Schwarz information criterion | | |  |  |  |  |
| HQ: Hannan-Quinn information criterion | | | |  |  |  |
|  |  |  |  |  |  |  |

综合考虑各项准则，选择滞后阶数为4，得到如下VAR模型：

|  |  |  |
| --- | --- | --- |
| Vector Autoregression Estimates | | |
| Date: 02/20/19 Time: 12:14 | | |
| Sample (adjusted): 2015M05 2018M09 | | |
| Included observations: 41 after adjustments | | |
| Standard errors in ( ) & t-statistics in [ ] | | |
|  |  |  |
|  |  |  |
|  | HS300\_RETURNS | MSGBSIS |
|  |  |  |
|  |  |  |
| HS300\_RETURNS(-1) | -0.070344 | -0.571285 |
|  | (0.19298) | (0.53332) |
|  | [-0.36452] | [-1.07118] |
|  |  |  |
| HS300\_RETURNS(-2) | 0.012630 | -0.103643 |
|  | (0.19339) | (0.53446) |
|  | [ 0.06531] | [-0.19392] |
|  |  |  |
| HS300\_RETURNS(-3) | -0.567874 | -0.369683 |
|  | (0.19390) | (0.53589) |
|  | [-2.92864] | [-0.68985] |
|  |  |  |
| HS300\_RETURNS(-4) | 0.182171 | 0.974535 |
|  | (0.20156) | (0.55706) |
|  | [ 0.90379] | [ 1.74943] |
|  |  |  |
| MSGBSIS(-1) | 0.101035 | 0.532164 |
|  | (0.07946) | (0.21959) |
|  | [ 1.27156] | [ 2.42340] |
|  |  |  |
| MSGBSIS(-2) | 0.063343 | 0.177071 |
|  | (0.08508) | (0.23513) |
|  | [ 0.74453] | [ 0.75308] |
|  |  |  |
| MSGBSIS(-3) | 0.075713 | 0.221148 |
|  | (0.08604) | (0.23777) |
|  | [ 0.88002] | [ 0.93008] |
|  |  |  |
| MSGBSIS(-4) | -0.077969 | -0.510474 |
|  | (0.08976) | (0.24806) |
|  | [-0.86865] | [-2.05783] |
|  |  |  |
| C | 0.053052 | 0.202979 |
|  | (0.04329) | (0.11964) |
|  | [ 1.22553] | [ 1.69662] |
|  |  |  |
| LNCPI | -0.879400 | -2.714563 |
|  | (1.67816) | (4.63788) |
|  | [-0.52403] | [-0.58530] |
|  |  |  |
| LNIV | 0.125076 | 0.169997 |
|  | (0.03953) | (0.10925) |
|  | [ 3.16405] | [ 1.55605] |
|  |  |  |
|  |  |  |
| R-squared | 0.602307 | 0.464830 |
| Adj. R-squared | 0.469742 | 0.286440 |
| Sum sq. resids | 0.054318 | 0.414873 |
| S.E. equation | 0.042551 | 0.117597 |
| F-statistic | 4.543499 | 2.605693 |
| Log likelihood | 77.66626 | 35.98728 |
| Akaike AIC | -3.252013 | -1.218892 |
| Schwarz SC | -2.792274 | -0.759153 |
| Mean dependent | -0.007479 | 0.143281 |
| S.D. dependent | 0.058434 | 0.139214 |
|  |  |  |
|  |  |  |
| Determinant resid covariance (dof adj.) | | 1.60E-05 |
| Determinant resid covariance | | 8.57E-06 |
| Log likelihood | | 122.8301 |
| Akaike information criterion | | -4.918543 |
| Schwarz criterion | | -3.999065 |
|  |  |  |
|  |  |  |

此时AR根检验如下：

|  |  |
| --- | --- |
| Roots of Characteristic Polynomial | |
| Endogenous variables: HS300\_RETURNS MSGBSIS | |
| Exogenous variables: C LNCPI LNIV | |
| Lag specification: 1 4 | |
| Date: 02/20/19 Time: 12:43 | |
|  |  |
|  |  |
| Root | Modulus |
|  |  |
|  |  |
| -0.861982 | 0.861982 |
| 0.417096 - 0.709964i | 0.823419 |
| 0.417096 + 0.709964i | 0.823419 |
| 0.695456 - 0.367028i | 0.786364 |
| 0.695456 + 0.367028i | 0.786364 |
| -0.490028 - 0.597955i | 0.773096 |
| -0.490028 + 0.597955i | 0.773096 |
| 0.078752 | 0.078752 |
|  |  |
|  |  |
| No root lies outside the unit circle. | |
| VAR satisfies the stability condition. | |



AR根都在单位圆内，说明VAR模型稳定，可以进一步分析。

1. 格兰杰因果检验

滞后阶数选为4.

F统计量：

|  |  |  |  |
| --- | --- | --- | --- |
| Pairwise Granger Causality Tests | | | |
| Date: 02/20/19 Time: 12:44 | | | |
| Sample: 2015M01 2018M09 | | | |
| Lags: 4 | |  |  |
|  |  |  |  |
|  |  |  |  |
| Null Hypothesis: | Obs | F-Statistic | Prob. |
|  |  |  |  |
|  |  |  |  |
| MSGBSIS does not Granger Cause HS300\_RETURNS | 41 | 2.09560 | 0.1045 |
| HS300\_RETURNS does not Granger Cause MSGBSIS | | 2.50362 | 0.0617 |
|  |  |  |  |
|  |  |  |  |

从以上的结果可以看出，情绪指数和沪深300收益率的互为格兰杰因果（10%水平）。这说明情绪指数能够引起沪深300收益率的变化，并且其滞后期（根据VAR的系数看尤其是滞后1期）对沪深300收益率有预测作用，其解释预测能比收益率的滞后期要弱。同时，沪深300收益率的滞后期对情绪指数也有显著的预测能力，且其能力比情绪指数的滞后期强。

1. SVAR模型的建立

根据残差相关系数矩阵，可以看出，残差具有很强的同期相关性。

|  |  |  |
| --- | --- | --- |
|  | HS300\_Return | MsgBSI |
| HS300\_Return | 1 | 0.6259333242841931 |
| MsgBSI | 0.6259333242841931 | 1 |

这说明内生变量间有较强的同期相关性（与前述一般计量模型分析结果一致），此时这一同期相关性被隐藏在了VAR的残差项中，此时若进行脉冲响应的分析，一个变量的冲击会同期引起另一个变量的变化，很难观测到“纯粹”的一个内生变量的冲击对其他内生变量的影响。因此，更好的分析模型是SVAR（结构向量自回归），即在VAR模型中加入同期项。通过构建SVAR模型，可以分析结构冲击对各内生变量的影响。

参考相关文献（《计量经济分析方法与建模Eviews应用与实例》（第3版）和《金融计量学》张思成），SVAR模型（结构式）和VAR模型（简化式）可以互相转换。

对于k元VAR，从简化式和结构式的无穷阶的VMA(∞)形式出发，可以得到如下方程：

且有：

其中，为简化式中各内生变量的残差（扰动项），为结构式中各方程的残差（扰动项）。以上方程称为AB形式的SVAR模型。利用极大似然法能够估计方程的参数（也即AB矩阵的参数），得到AB矩阵之后可以在简化式中左乘转化为SVAR。

A和B矩阵共有个参数，也就需要个约束条件。同时，以上方程组一旦成立，可以推导出以下关系：

以上表达式，两侧都是对称矩阵，因此AB模型一旦成立，就对AB中的系数施加了个约束条件，因此还需要添加个约束条件。

参考相关教材和文献（Does investor sentiment and stock return affect each

other: (S)VAR model approach、基于SVAR模型的政府投资

挤出效应研究、基于SVAR模型的居民消费\_固定资产投资与经济增长研究\_王云），B矩阵设定为对角矩阵，对角元素为待估计值，即：

A矩阵对角元素为1，即：

根据推导，A矩阵中的为沪深300收益率方程中，同期情绪指数的系数。为情绪指数方程中，同期收益率的系数。以上矩阵设定中，仍缺少一个约束条件。

参考（基于SVAR模型的居民消费\_固定资产投资与经济增长研究\_王云和《计量经济分析方法与建模Eviews应用与实例》以及税收和政府支出政策对产出动态冲击效应的计量分析\_李晓芳），对沪深300收益率和情绪指数直接回归可以得到平均弹性系数为0.141906（加入AR(1)和AR(3)消除序列相关，并用ARMA Generalized Least Squares (Gauss-Newton)方法进行估计），因此假设在SVAR中其同期系数也相同，即。

然后可以估计得到以下结果：

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Structural VAR Estimates | | |  |  |
| Date: 02/20/19 Time: 12:14 | | |  |  |
| Sample (adjusted): 2015M05 2018M09 | | | |  |
| Included observations: 41 after adjustments | | | |  |
| Estimation method: method of scoring (analytic derivatives) | | | | |
| Convergence achieved after 5 iterations | | | |  |
| Structural VAR is just-identified | | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Model: Ae = Bu where E[uu']=I | | |  |  |
| Restriction Type: short-run text form | | | |  |
| @e1 = 0.141906\*@e2 + C(1)\*@u1 | | |  |  |
| @e2 = C(2)\*@e1 + C(3)\*@u2 | | |  |  |
| where | |  |  |  |
| @e1 represents HS300\_RETURNS residuals | | | |  |
| @e2 represents MSGBSIS residuals | | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| C(2) | 0.753958 | 0.403108 | 1.870362 | 0.0614 |
| C(1) | 0.035156 | 0.003882 | 9.055385 | 0.0000 |
| C(3) | 0.101615 | 0.012973 | 7.832985 | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
| Log likelihood | 110.0228 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Estimated A matrix: | | |  |  |
| 1.000000 | -0.141906 |  |  |  |
| -0.753958 | 1.000000 |  |  |  |
| Estimated B matrix: | | |  |  |
| 0.035156 | 0.000000 |  |  |  |
| 0.000000 | 0.101615 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

可以看出，估计的参数显著，因此假设的约束基本合理。

1. 脉冲响应

建立完SVAR方程后可以得到以下脉冲响应图：



由以上结果可以看出，收益率的冲击短期内会给其自身和情绪指数带来正向的冲击，随后会使收益率和情绪指数上下波动并逐渐趋于0。而情绪指数的结构冲击会给沪深300收益率和情绪指数带来短期持续的正向影响。这说明网络舆论中的看涨情绪的增加会带来股指的上升，从而带来收益率的上升。

1. 方差分解

|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  |  |
|  |  |  |  |
| Variance Decomposition of HS300\_RETURNS: |  |  |  |
| Period | S.E. | Shock1 | Shock2 |
|  |  |  |  |
|  |  |  |  |
| 1 | 0.042551 | 85.59921 | 14.40079 |
| 2 | 0.043795 | 80.80871 | 19.19129 |
| 3 | 0.045406 | 75.31352 | 24.68648 |
| 4 | 0.050348 | 78.49140 | 21.50860 |
| 5 | 0.050560 | 78.58742 | 21.41258 |
| 6 | 0.050729 | 78.09056 | 21.90944 |
| 7 | 0.052865 | 79.59027 | 20.40973 |
| 8 | 0.052983 | 79.31616 | 20.68384 |
| 9 | 0.052984 | 79.31624 | 20.68376 |
| 10 | 0.053734 | 79.85542 | 20.14458 |
|  |  |  |  |
|  |  |  |  |
| Variance Decomposition of MSGBSIS: |  |  |  |
| Period | S.E. | Shock1 | Shock2 |
|  |  |  |  |
|  |  |  |  |
| 1 | 0.117597 | 6.370750 | 93.62925 |
| 2 | 0.128486 | 5.608182 | 94.39182 |
| 3 | 0.134554 | 5.148790 | 94.85121 |
| 4 | 0.141321 | 5.329873 | 94.67013 |
| 5 | 0.144216 | 8.584031 | 91.41597 |
| 6 | 0.145244 | 9.441849 | 90.55815 |
| 7 | 0.146692 | 11.03908 | 88.96092 |
| 8 | 0.148191 | 10.96340 | 89.03660 |
| 9 | 0.148492 | 11.12674 | 88.87326 |
| 10 | 0.149123 | 11.70500 | 88.29500 |
|  |  |  |  |
|  |  |  |  |
| Factorization: Structural |  |  |  |
|  |  |  |  |
|  |  |  |  |

从以上结果可以看出，情绪指数的结构冲击刚开始对沪深300收益率的影响较小，随后逐渐增加到24%左右，但仍比其自身的结构冲击的影响要小。

1. 日度化数据研究
2. 数据处理

宏观变量选择了M1(狭义货币发行量)、cpi（居民消费价格指数）、iv（居民消费价格指数）。为了得到日度化的数据，将宏观变量的月度数据认为是每月的最后一天的值，然后用二阶的样条插值得到每日的数据。

收益率以对数差分的形式进行计算。除了由收盘收益率之外，还有开盘收益率（今日开盘价-昨日收盘价）和日内收益率（今日收盘-今日开盘）。

情绪指数按照收集的帖子时间分为premsgbsi（盘前情绪）、intmsgbsi(盘中情绪)、aftmsgbsi(盘后情绪)、preallmsgbsi(盘前+前一交易日日盘中情绪)、aftallmsgbsi（盘中情绪+盘后情绪）。盘前时间为今日9:30-前一交易日15:00。

1. 时序图

频率太高画的很难看，待定

1. 平稳性检验

ADF检验结果：

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 变量 | 检验形式 | 滞后阶数(SIC) | t值 | P值 | 10%临界值 | 5%临界值 | 1%临界值 |
| Cpi | C | 5 | -1.257948 | 0.6507 | -2.568403 | -2.864507 | -3.437322 |
| Iv | C | 10 | 1.942992 | 0.9999 | -2.568403 | -2.864507 | -3.437322 |
| M1 | C | 7 | -0.955414 | 0.7704 | -2.568403 | -2.864507 | -3.437322 |
| dlncpi | C | 4 | -4.732046 | 0.0001 | -2.568403 | -2.864507 | -3.437322 |
| dlniv | C | 9 | -6.049323 | 0.0000 | -2.568403 | -2.864507 | -3.437322 |
| dlnm1 | C | 6 | -5.484019 | 0.0000 | -2.568403 | -2.864507 | -3.437322 |
| Close\_return | C | 0 | -28.54463 | 0.0000 | -2.568403 | -2.864507 | -3.437322 |
| Open\_return | C | 1 | -23.13656 | 0.0000 | -2.568403 | -2.864507 | -3.437322 |
| Today\_return | C | 0 | -30.03006 | 0.0000 | -2.568403 | -2.864507 | -3.437322 |
| premsgbsi | C | 3 | -8.153178 | 0.0000 | -2.568399 | -2.864500 | -3.437306 |
| Intmsgbsi | C | 2 | -9.849962 | 0.0000 | -2.568397 | -2.864496 | -3.437298 |
| Aftmsgbsi | C | 3 | -8.606793 | 0.0000 | -2.568399 | -2.864500 | -3.437306 |
| Preallmsgbsi | C | 4 | -6.921956 | 0.0000 | -2.568401 | -2.864503 | -3.437314 |
| Aftallmsgbsi | C | 4 | -7.391836 | 0.0000 | -2.568401 | -2.864503 | -3.437314 |
| preargs | C | 15 | -2.833413 | 0.0540 | -2.568422 | -2.864542 | -3.437401 |
| Intargs | C | 6 | -2.909240 | 0.0447 | -2.568405 | -2.864510 | -3.437330 |
| Aftargs | C | 4 | -3.761146 | 0.0035 | -2.568401 | -2.864503 | -3.437314 |
| Preallargs | C | 4 | -4.071052 | 0.0011 | -2.568401 | -2.864503 | -3.437314 |
| aftallargs | C | 4 | -4.220975 | 0.0006 | -2.568401 | -2.864503 | -3.437314 |

1. 一般计量模型
2. 开盘收益率-盘前情绪、前日盘中情绪

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Dependent Variable: OPEN\_RETURN | | | |  |
| Method: Least Squares | | |  |  |
| Date: 02/21/19 Time: 21:45 | | |  |  |
| Sample (adjusted): 2 915 | | |  |  |
| Included observations: 914 after adjustments | | | |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| DLNCPI | -3.036065 | 1.049237 | -2.893592 | 0.0039 |
| DLNIV | 3.585613 | 1.452279 | 2.468957 | 0.0137 |
| DLNM1 | -0.496112 | 0.232592 | -2.132969 | 0.0332 |
| T\_PREBSI | 0.005386 | 0.000528 | 10.19260 | 0.0000 |
| C | -0.003337 | 0.000418 | -7.977017 | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.126390 | Mean dependent var | | -0.001110 |
| Adjusted R-squared | 0.122546 | S.D. dependent var | | 0.007765 |
| S.E. of regression | 0.007274 | Akaike info criterion | | -7.003595 |
| Sum squared resid | 0.048095 | Schwarz criterion | | -6.977239 |
| Log likelihood | 3205.643 | Hannan-Quinn criter. | | -6.993534 |
| F-statistic | 32.87751 | Durbin-Watson stat | | 2.006878 |
| Prob(F-statistic) | 0.000000 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

简单分析：以上结果说明盘前情绪与开盘收益率显著正相关，但与前日盘中情绪关系不太显著。

1. 日内收益率-盘中情绪、盘前情绪和前日盘中情绪

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Dependent Variable: TODAY\_RETURN | | | |  |
| Method: Least Squares | | |  |  |
| Date: 02/20/19 Time: 22:45 | | |  |  |
| Sample (adjusted): 2 915 | | |  |  |
| Included observations: 914 after adjustments | | | |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| DLNCPI | -0.050038 | 1.544284 | -0.032402 | 0.9742 |
| DLNIV | -2.060482 | 2.128293 | -0.968138 | 0.3332 |
| DLNM1 | -0.006131 | 0.345975 | -0.017722 | 0.9859 |
| T\_PREBSI | -0.006106 | 0.001106 | -5.522404 | 0.0000 |
| T\_INTBSI | 0.032193 | 0.001195 | 26.93963 | 0.0000 |
| T\_INTBSI(-1) | -0.010388 | 0.001545 | -6.724666 | 0.0000 |
| C | 0.016273 | 0.001290 | 12.61578 | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.451457 | Mean dependent var | | 0.001047 |
| Adjusted R-squared | 0.447828 | S.D. dependent var | | 0.014283 |
| S.E. of regression | 0.010614 | Akaike info criterion | | -6.245710 |
| Sum squared resid | 0.102174 | Schwarz criterion | | -6.208812 |
| Log likelihood | 2861.290 | Hannan-Quinn criter. | | -6.231625 |
| F-statistic | 124.4119 | Durbin-Watson stat | | 1.727781 |
| Prob(F-statistic) | 0.000000 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

以上结果说明，日内收益率与当日盘中情绪显著正相关，与昨日盘中情绪和盘前情绪显著负相关。这说明情绪短期内能使沪深300指数上升，但是过热的情绪会使资产偏离真正的价值，一段时间后资产价格回落，收益率便会下降。

1. 收盘收益率-盘前情绪、盘中情绪和前日盘中情绪

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Dependent Variable: CLOSE\_RETURN | | | |  |
| Method: Least Squares | | |  |  |
| Date: 02/20/19 Time: 22:45 | | |  |  |
| Sample (adjusted): 2 915 | | |  |  |
| Included observations: 914 after adjustments | | | |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| DLNCPI | -3.252312 | 1.826478 | -1.780646 | 0.0753 |
| DLNIV | 1.220887 | 2.517206 | 0.485017 | 0.6278 |
| DLNM1 | -0.594423 | 0.409197 | -1.452658 | 0.1467 |
| T\_PREBSI | 0.000842 | 0.001308 | 0.643644 | 0.5200 |
| T\_INTBSI | 0.033624 | 0.001413 | 23.78992 | 0.0000 |
| T\_INTBSI(-1) | -0.014096 | 0.001827 | -7.715397 | 0.0000 |
| C | 0.011222 | 0.001526 | 7.355564 | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.401981 | Mean dependent var | | -6.27E-05 |
| Adjusted R-squared | 0.398025 | S.D. dependent var | | 0.016180 |
| S.E. of regression | 0.012553 | Akaike info criterion | | -5.910052 |
| Sum squared resid | 0.142928 | Schwarz criterion | | -5.873154 |
| Log likelihood | 2707.894 | Hannan-Quinn criter. | | -5.895967 |
| F-statistic | 101.6125 | Durbin-Watson stat | | 1.859613 |
| Prob(F-statistic) | 0.000000 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

1. 格兰杰因果检验
2. 开盘收益率

建立VAR模型，滞后阶数选择基于各项准则，综合考虑。

与盘前情绪

|  |  |  |  |
| --- | --- | --- | --- |
| Pairwise Granger Causality Tests | | | |
| Date: 02/21/19 Time: 16:18 | | | |
| Sample: 1 915 | | |  |
| Lags: 10 | |  |  |
|  |  |  |  |
|  |  |  |  |
| Null Hypothesis: | Obs | F-Statistic | Prob. |
|  |  |  |  |
|  |  |  |  |
| T\_PREBSI does not Granger Cause OPEN\_RETURN | 904 | 4.08098 | 2.E-05 |
| OPEN\_RETURN does not Granger Cause T\_PREBSI | | 2.60676 | 0.0040 |
|  |  |  |  |
|  |  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| Pairwise Granger Causality Tests | | | |
| Date: 02/21/19 Time: 16:21 | | | |
| Sample: 1 915 | | |  |
| Lags: 10 | |  |  |
|  |  |  |  |
|  |  |  |  |
| Null Hypothesis: | Obs | F-Statistic | Prob. |
|  |  |  |  |
|  |  |  |  |
| T\_PREBSI(1) does not Granger Cause OPEN\_RETURN | 903 | 18.7919 | 2.E-31 |
| OPEN\_RETURN does not Granger Cause T\_PREBSI(1) | | 0.57898 | 0.8320 |
|  |  |  |  |
|  |  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| Pairwise Granger Causality Tests | | | |
| Date: 02/21/19 Time: 16:23 | | | |
| Sample: 1 915 | | |  |
| Lags: 9 | |  |  |
|  |  |  |  |
|  |  |  |  |
| Null Hypothesis: | Obs | F-Statistic | Prob. |
|  |  |  |  |
|  |  |  |  |
| T\_INTBSI does not Granger Cause OPEN\_RETURN | 905 | 5.08029 | 1.E-06 |
| OPEN\_RETURN does not Granger Cause T\_INTBSI | | 2.37971 | 0.0116 |
|  |  |  |  |
|  |  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| Pairwise Granger Causality Tests | | | |
| Date: 02/21/19 Time: 16:48 | | | |
| Sample: 1 915 | | |  |
| Lags: 11 | |  |  |
|  |  |  |  |
|  |  |  |  |
| Null Hypothesis: | Obs | F-Statistic | Prob. |
|  |  |  |  |
|  |  |  |  |
| T\_PREALLBSI(1) does not Granger Cause OPEN\_RETURN | 902 | 12.9433 | 5.E-23 |
| OPEN\_RETURN does not Granger Cause T\_PREALLBSI(1) | | 1.52791 | 0.1160 |
|  |  |  |  |
|  |  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| Pairwise Granger Causality Tests | | | |
| Date: 02/21/19 Time: 16:49 | | | |
| Sample: 1 915 | | |  |
| Lags: 10 | |  |  |
|  |  |  |  |
|  |  |  |  |
| Null Hypothesis: | Obs | F-Statistic | Prob. |
|  |  |  |  |
|  |  |  |  |
| T\_PREALLBSI does not Granger Cause OPEN\_RETURN | 904 | 2.54475 | 0.0050 |
| OPEN\_RETURN does not Granger Cause T\_PREALLBSI | | 2.21532 | 0.0152 |
|  |  |  |  |
|  |  |  |  |

1. 日内收益率

|  |  |  |  |
| --- | --- | --- | --- |
| Pairwise Granger Causality Tests | | | |
| Date: 02/21/19 Time: 16:57 | | | |
| Sample: 1 915 | | |  |
| Lags: 15 | |  |  |
|  |  |  |  |
|  |  |  |  |
| Null Hypothesis: | Obs | F-Statistic | Prob. |
|  |  |  |  |
|  |  |  |  |
| T\_PREBSI does not Granger Cause TODAY\_RETURN | 900 | 0.73375 | 0.7513 |
| TODAY\_RETURN does not Granger Cause T\_PREBSI | | 53.1935 | 8E-112 |
|  |  |  |  |
|  |  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| Pairwise Granger Causality Tests | | | |
| Date: 02/21/19 Time: 16:58 | | | |
| Sample: 1 915 | | |  |
| Lags: 14 | |  |  |
|  |  |  |  |
|  |  |  |  |
| Null Hypothesis: | Obs | F-Statistic | Prob. |
|  |  |  |  |
|  |  |  |  |
| T\_PREBSI(1) does not Granger Cause TODAY\_RETURN | 900 | 0.60701 | 0.8608 |
| TODAY\_RETURN does not Granger Cause T\_PREBSI(1) | | 1.88219 | 0.0249 |
|  |  |  |  |
|  |  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| Pairwise Granger Causality Tests | | | |
| Date: 02/21/19 Time: 16:36 | | | |
| Sample: 1 915 | | |  |
| Lags: 7 | |  |  |
|  |  |  |  |
|  |  |  |  |
| Null Hypothesis: | Obs | F-Statistic | Prob. |
|  |  |  |  |
|  |  |  |  |
| T\_INTBSI does not Granger Cause TODAY\_RETURN | 908 | 1.31727 | 0.2387 |
| TODAY\_RETURN does not Granger Cause T\_INTBSI | | 6.22530 | 4.E-07 |
|  |  |  |  |
|  |  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| Pairwise Granger Causality Tests | | | |
| Date: 02/21/19 Time: 16:55 | | | |
| Sample: 1 915 | | |  |
| Lags: 15 | |  |  |
|  |  |  |  |
|  |  |  |  |
| Null Hypothesis: | Obs | F-Statistic | Prob. |
|  |  |  |  |
|  |  |  |  |
| T\_PREALLBSI does not Granger Cause TODAY\_RETURN | 900 | 1.99140 | 0.0135 |
| TODAY\_RETURN does not Granger Cause T\_PREALLBSI | | 54.7519 | 2E-114 |
|  |  |  |  |
|  |  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| Pairwise Granger Causality Tests | | | |
| Date: 02/21/19 Time: 17:00 | | | |
| Sample: 1 915 | | |  |
| Lags: 14 | |  |  |
|  |  |  |  |
|  |  |  |  |
| Null Hypothesis: | Obs | F-Statistic | Prob. |
|  |  |  |  |
|  |  |  |  |
| T\_PREALLBSI(1) does not Granger Cause TODAY\_RETURN | 900 | 1.90889 | 0.0223 |
| TODAY\_RETURN does not Granger Cause T\_PREALLBSI(1) | | 5.88284 | 4.E-11 |
|  |  |  |  |
|  |  |  |  |

1. 日间收盘收益率

|  |  |  |  |
| --- | --- | --- | --- |
| Pairwise Granger Causality Tests | | | |
| Date: 02/21/19 Time: 16:40 | | | |
| Sample: 1 915 | | |  |
| Lags: 14 | |  |  |
|  |  |  |  |
|  |  |  |  |
| Null Hypothesis: | Obs | F-Statistic | Prob. |
|  |  |  |  |
|  |  |  |  |
| T\_PREBSI does not Granger Cause CLOSE\_RETURN | 900 | 0.53692 | 0.9121 |
| CLOSE\_RETURN does not Granger Cause T\_PREBSI | | 54.4393 | 1E-108 |
|  |  |  |  |
|  |  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| Pairwise Granger Causality Tests | | | |
| Date: 02/21/19 Time: 16:43 | | | |
| Sample: 1 915 | | |  |
| Lags: 14 | |  |  |
|  |  |  |  |
|  |  |  |  |
| Null Hypothesis: | Obs | F-Statistic | Prob. |
|  |  |  |  |
|  |  |  |  |
| T\_PREBSI(1) does not Granger Cause CLOSE\_RETURN | 899 | 1.61095 | 0.0704 |
| CLOSE\_RETURN does not Granger Cause T\_PREBSI(1) | | 1.86620 | 0.0265 |
|  |  |  |  |
|  |  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| Pairwise Granger Causality Tests | | | |
| Date: 02/21/19 Time: 16:44 | | | |
| Sample: 1 915 | | |  |
| Lags: 14 | |  |  |
|  |  |  |  |
|  |  |  |  |
| Null Hypothesis: | Obs | F-Statistic | Prob. |
|  |  |  |  |
|  |  |  |  |
| T\_INTBSI does not Granger Cause CLOSE\_RETURN | 900 | 1.63132 | 0.0653 |
| CLOSE\_RETURN does not Granger Cause T\_INTBSI | | 4.17585 | 4.E-07 |
|  |  |  |  |
|  |  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| Pairwise Granger Causality Tests | | | |
| Date: 02/21/19 Time: 16:45 | | | |
| Sample: 1 915 | | |  |
| Lags: 14 | |  |  |
|  |  |  |  |
|  |  |  |  |
| Null Hypothesis: | Obs | F-Statistic | Prob. |
|  |  |  |  |
|  |  |  |  |
| T\_PREALLBSI does not Granger Cause CLOSE\_RETURN | 900 | 1.73335 | 0.0446 |
| CLOSE\_RETURN does not Granger Cause T\_PREALLBSI | | 48.5160 | 7.E-99 |
|  |  |  |  |
|  |  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| Pairwise Granger Causality Tests | | | |
| Date: 02/21/19 Time: 16:46 | | | |
| Sample: 1 915 | | |  |
| Lags: 14 | |  |  |
|  |  |  |  |
|  |  |  |  |
| Null Hypothesis: | Obs | F-Statistic | Prob. |
|  |  |  |  |
|  |  |  |  |
| T\_PREALLBSI(1) does not Granger Cause CLOSE\_RETURN | 899 | 2.46950 | 0.0020 |
| CLOSE\_RETURN does not Granger Cause T\_PREALLBSI(1) | | 5.81264 | 6.E-11 |
|  |  |  |  |
|  |  |  |  |

1. GARCH模型

对于月频数据的处理，我们采用的是VAR模型。对于低频的序列数据，其自身表现出较高的持久性，或者是平滑性，对其进行VAR回归之后的残差一般不表现很强的异方差性。但是对于高频数据（如日频的股指收益率），其明显表现的集群现象：波动在一些较长的时间内非常小，在其他一些较长的时间内非常大。

如沪深300的日间收盘收益率：



此时大多数的研究都采用ARCH相关的模型进行建模。

而在以上的估计中，残差仍存在序列相关。同时有异方差性。这时的OLS估计不是BLUE（最佳线性无偏估计）的。如，在第一个模型中，其残差各阶的自相关、偏相关系数和其Q统计量如下：

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Date: 02/20/19 Time: 22:43 | | | |  |  |  |
| Sample: 1 915 | |  |  |  |  |  |
| Included observations: 914 | | |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
| Autocorrelation | Partial Correlation |  | AC | PAC | Q-Stat | Prob |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
| .| | | .| | | 1 | -0.002 | -0.002 | 0.0053 | 0.942 |
| \*| | | \*| | | 2 | -0.109 | -0.109 | 10.848 | 0.004 |
| .| | | .| | | 3 | -0.033 | -0.034 | 11.839 | 0.008 |
| .| | | .| | | 4 | 0.024 | 0.012 | 12.365 | 0.015 |
| .|\* | | .|\* | | 5 | 0.135 | 0.130 | 29.112 | 0.000 |
| .| | | .| | | 6 | -0.013 | -0.009 | 29.265 | 0.000 |
| .| | | .|\* | | 7 | 0.058 | 0.090 | 32.391 | 0.000 |
| .|\* | | .|\* | | 8 | 0.080 | 0.089 | 38.338 | 0.000 |
| .|\* | | .|\* | | 9 | 0.093 | 0.110 | 46.358 | 0.000 |
| .| | | .|\* | | 10 | 0.068 | 0.081 | 50.672 | 0.000 |
| .| | | .| | | 11 | -0.049 | -0.018 | 52.881 | 0.000 |
| .| | | .| | | 12 | 0.024 | 0.025 | 53.417 | 0.000 |
| .|\* | | .| | | 13 | 0.076 | 0.052 | 58.761 | 0.000 |
| .|\* | | .|\* | | 14 | 0.096 | 0.074 | 67.314 | 0.000 |
| .| | | .| | | 15 | 0.014 | 0.004 | 67.483 | 0.000 |
| .| | | .| | | 16 | -0.029 | -0.019 | 68.277 | 0.000 |
| .| | | .| | | 17 | 0.023 | -0.007 | 68.758 | 0.000 |
| .| | | .| | | 18 | 0.016 | -0.024 | 68.991 | 0.000 |
| .| | | .| | | 19 | 0.051 | 0.018 | 71.378 | 0.000 |
| .| | | .| | | 20 | 0.040 | 0.028 | 72.902 | 0.000 |
| .| | | .| | | 21 | 0.023 | 0.015 | 73.404 | 0.000 |
| .| | | .| | | 22 | 0.001 | -0.024 | 73.405 | 0.000 |
| .| | | .| | | 23 | -0.006 | -0.022 | 73.435 | 0.000 |
| .| | | .| | | 24 | 0.061 | 0.044 | 76.892 | 0.000 |
| .| | | .| | | 25 | 0.008 | 0.003 | 76.960 | 0.000 |
| .| | | .| | | 26 | 0.027 | 0.025 | 77.661 | 0.000 |
| \*| | | \*| | | 27 | -0.080 | -0.103 | 83.658 | 0.000 |
| .| | | .| | | 28 | 0.053 | 0.039 | 86.324 | 0.000 |
| .| | | .| | | 29 | 0.041 | -0.002 | 87.940 | 0.000 |
| .| | | .|\* | | 30 | 0.071 | 0.084 | 92.720 | 0.000 |
| .| | | .| | | 31 | 0.043 | 0.045 | 94.444 | 0.000 |
| .| | | .| | | 32 | -0.033 | 0.000 | 95.479 | 0.000 |
| .|\* | | .|\* | | 33 | 0.093 | 0.081 | 103.76 | 0.000 |
| .|\* | | .|\* | | 34 | 0.093 | 0.096 | 112.08 | 0.000 |
| .| | | .| | | 35 | 0.014 | 0.036 | 112.25 | 0.000 |
| \*| | | \*| | | 36 | -0.126 | -0.113 | 127.47 | 0.000 |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |

其残差自相关检验如下：

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Breusch-Godfrey Serial Correlation LM Test: | | | |  |
|  |  |  |  |  |
|  |  |  |  |  |
| F-statistic | 6.261596 | Prob. F(10,898) | | 0.0000 |
| Obs\*R-squared | 59.57739 | Prob. Chi-Square(10) | | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Test Equation: | |  |  |  |
| Dependent Variable: RESID | | |  |  |
| Method: Least Squares | | |  |  |
| Date: 02/20/19 Time: 22:53 | | |  |  |
| Sample: 2 915 | |  |  |  |
| Included observations: 914 | | |  |  |
| Presample missing value lagged residuals set to zero. | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| DLNCPI | -0.208394 | 1.028078 | -0.202703 | 0.8394 |
| DLNIV | 0.517846 | 1.409617 | 0.367367 | 0.7134 |
| DLNM1 | -0.076004 | 0.229508 | -0.331162 | 0.7406 |
| T\_PREBSI | 0.000789 | 0.000756 | 1.043513 | 0.2970 |
| T\_INTBSI(-1) | -0.001280 | 0.000991 | -1.291006 | 0.1970 |
| C | -0.001074 | 0.000833 | -1.289730 | 0.1975 |
| RESID(-1) | -0.035287 | 0.033505 | -1.053177 | 0.2925 |
| RESID(-2) | -0.132140 | 0.033161 | -3.984833 | 0.0001 |
| RESID(-3) | -0.037241 | 0.033380 | -1.115687 | 0.2649 |
| RESID(-4) | 0.000426 | 0.033178 | 0.012848 | 0.9898 |
| RESID(-5) | 0.134707 | 0.033368 | 4.037005 | 0.0001 |
| RESID(-6) | 0.010609 | 0.033391 | 0.317715 | 0.7508 |
| RESID(-7) | 0.109957 | 0.033216 | 3.310356 | 0.0010 |
| RESID(-8) | 0.104150 | 0.033348 | 3.123113 | 0.0018 |
| RESID(-9) | 0.117289 | 0.033312 | 3.520927 | 0.0005 |
| RESID(-10) | 0.085021 | 0.033417 | 2.544254 | 0.0111 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.065183 | Mean dependent var | | -1.31E-19 |
| Adjusted R-squared | 0.049568 | S.D. dependent var | | 0.007220 |
| S.E. of regression | 0.007039 | Akaike info criterion | | -7.057438 |
| Sum squared resid | 0.044490 | Schwarz criterion | | -6.973100 |
| Log likelihood | 3241.249 | Hannan-Quinn criter. | | -7.025244 |
| F-statistic | 4.174398 | Durbin-Watson stat | | 1.991206 |
| Prob(F-statistic) | 0.000000 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

表明残差存在强烈的序列相关。同时，其残差平方的自相关系数、偏相关系数如下：

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Date: 02/20/19 Time: 22:54 | | | |  |  |  |
| Sample: 1 915 | |  |  |  |  |  |
| Included observations: 914 | | |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
| Autocorrelation | Partial Correlation |  | AC | PAC | Q-Stat | Prob |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
| .|\* | | .|\* | | 1 | 0.157 | 0.157 | 22.577 | 0.000 |
| .|\*\* | | .|\*\* | | 2 | 0.346 | 0.330 | 132.77 | 0.000 |
| .| | | .| | | 3 | 0.047 | -0.047 | 134.79 | 0.000 |
| .| | | \*| | | 4 | 0.029 | -0.098 | 135.57 | 0.000 |
| .| | | .|\* | | 5 | 0.066 | 0.085 | 139.56 | 0.000 |
| .|\* | | .|\* | | 6 | 0.077 | 0.100 | 145.06 | 0.000 |
| .| | | .| | | 7 | 0.046 | -0.024 | 147.04 | 0.000 |
| .| | | .| | | 8 | 0.017 | -0.054 | 147.30 | 0.000 |
| .| | | .| | | 9 | 0.004 | 0.006 | 147.31 | 0.000 |
| .| | | .| | | 10 | 0.025 | 0.051 | 147.88 | 0.000 |
| .| | | .| | | 11 | 0.017 | 0.003 | 148.16 | 0.000 |
| .| | | .| | | 12 | 0.005 | -0.039 | 148.18 | 0.000 |
| .| | | .| | | 13 | 0.045 | 0.047 | 150.07 | 0.000 |
| .| | | .| | | 14 | 0.024 | 0.040 | 150.63 | 0.000 |
| .| | | .| | | 15 | 0.026 | -0.014 | 151.28 | 0.000 |
| .| | | .| | | 16 | 0.038 | 0.010 | 152.66 | 0.000 |
| .| | | .| | | 17 | 0.013 | 0.008 | 152.82 | 0.000 |
| .| | | .| | | 18 | 0.001 | -0.018 | 152.82 | 0.000 |
| .| | | .| | | 19 | 0.024 | 0.017 | 153.37 | 0.000 |
| .| | | .| | | 20 | 0.035 | 0.040 | 154.50 | 0.000 |
| .| | | .| | | 21 | 0.015 | -0.013 | 154.70 | 0.000 |
| .| | | .| | | 22 | 0.010 | -0.025 | 154.79 | 0.000 |
| .| | | .| | | 23 | 0.016 | 0.022 | 155.02 | 0.000 |
| .| | | .| | | 24 | 0.003 | 0.011 | 155.03 | 0.000 |
| .| | | .| | | 25 | 0.046 | 0.034 | 157.04 | 0.000 |
| .| | | .| | | 26 | 0.014 | -0.011 | 157.22 | 0.000 |
| .| | | .| | | 27 | 0.005 | -0.030 | 157.24 | 0.000 |
| .| | | .| | | 28 | -0.003 | 0.003 | 157.25 | 0.000 |
| .| | | .| | | 29 | -0.005 | 0.008 | 157.28 | 0.000 |
| .| | | .| | | 30 | 0.008 | 0.001 | 157.34 | 0.000 |
| .| | | .| | | 31 | -0.001 | -0.011 | 157.34 | 0.000 |
| .| | | .| | | 32 | 0.003 | -0.002 | 157.35 | 0.000 |
| .| | | .| | | 33 | 0.050 | 0.066 | 159.70 | 0.000 |
| .|\* | | .|\* | | 34 | 0.158 | 0.180 | 183.33 | 0.000 |
| .|\* | | .| | | 35 | 0.096 | 0.019 | 192.18 | 0.000 |
| .|\*\* | | .|\* | | 36 | 0.253 | 0.140 | 253.20 | 0.000 |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |

其ARCH检验如下：

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Heteroskedasticity Test: ARCH | | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| F-statistic | 21.04945 | Prob. F(10,893) | | 0.0000 |
| Obs\*R-squared | 172.4404 | Prob. Chi-Square(10) | | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Test Equation: | |  |  |  |
| Dependent Variable: RESID^2 | | |  |  |
| Method: Least Squares | | |  |  |
| Date: 02/20/19 Time: 22:54 | | |  |  |
| Sample (adjusted): 12 915 | | |  |  |
| Included observations: 904 after adjustments | | | |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 2.40E-05 | 9.88E-06 | 2.425220 | 0.0155 |
| RESID^2(-1) | 0.117974 | 0.030308 | 3.892527 | 0.0001 |
| RESID^2(-2) | 0.393048 | 0.030515 | 12.88038 | 0.0000 |
| RESID^2(-3) | -0.057274 | 0.032672 | -1.753001 | 0.0799 |
| RESID^2(-4) | -0.160407 | 0.032717 | -4.902890 | 0.0000 |
| RESID^2(-5) | 0.073815 | 0.032838 | 2.247862 | 0.0248 |
| RESID^2(-6) | 0.133391 | 0.032838 | 4.062125 | 0.0001 |
| RESID^2(-7) | -0.014017 | 0.032717 | -0.428428 | 0.6684 |
| RESID^2(-8) | -0.075013 | 0.032671 | -2.295991 | 0.0219 |
| RESID^2(-9) | -0.001693 | 0.030515 | -0.055494 | 0.9558 |
| RESID^2(-10) | 0.050927 | 0.030307 | 1.680370 | 0.0932 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.190753 | Mean dependent var | | 4.81E-05 |
| Adjusted R-squared | 0.181690 | S.D. dependent var | | 0.000311 |
| S.E. of regression | 0.000281 | Akaike info criterion | | -13.50448 |
| Sum squared resid | 7.05E-05 | Schwarz criterion | | -13.44599 |
| Log likelihood | 6115.026 | Hannan-Quinn criter. | | -13.48214 |
| F-statistic | 21.04945 | Durbin-Watson stat | | 1.942177 |
| Prob(F-statistic) | 0.000000 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

以上结果表明其存在很强的ARCH效应。

而GARCH模型能够获得较好的估计结果。

1. 开盘收益率与情绪指数、情绪分歧度

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Dependent Variable: OPEN\_RETURN | | | |  |
| Method: ML ARCH - Normal distribution (Marquardt / EViews legacy) | | | | |
| Date: 02/21/19 Time: 21:14 | | |  |  |
| Sample (adjusted): 2 915 | | |  |  |
| Included observations: 914 after adjustments | | | |  |
| Convergence achieved after 18 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(6) + C(7)\*RESID(-1)^2 + C(8)\*RESID(-2)^2 + C(9)\*GARCH(-1) | | | | |
| + C(10)\*T\_PREALLARGS | | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| T\_PREBSI | 0.003391 | 0.000374 | 9.059990 | 0.0000 |
| DLNCPI | -3.029974 | 0.663164 | -4.568964 | 0.0000 |
| DLNIV | 3.588011 | 0.740719 | 4.843956 | 0.0000 |
| DLNM1 | -0.395931 | 0.131752 | -3.005116 | 0.0027 |
| C | -0.002179 | 0.000217 | -10.05683 | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 4.24E-06 | 1.22E-07 | 34.73485 | 0.0000 |
| RESID(-1)^2 | 0.146870 | 0.025846 | 5.682585 | 0.0000 |
| RESID(-2)^2 | 0.081723 | 0.035714 | 2.288268 | 0.0221 |
| GARCH(-1) | 0.813119 | 0.008922 | 91.13410 | 0.0000 |
| T\_PREALLARGS | -4.61E-05 | 2.14E-06 | -21.49382 | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.107264 | Mean dependent var | | -0.001110 |
| Adjusted R-squared | 0.103335 | S.D. dependent var | | 0.007765 |
| S.E. of regression | 0.007353 | Akaike info criterion | | -7.735899 |
| Sum squared resid | 0.049148 | Schwarz criterion | | -7.683187 |
| Log likelihood | 3545.306 | Hannan-Quinn criter. | | -7.715778 |
| Durbin-Watson stat | 1.997924 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Dependent Variable: OPEN\_RETURN | | | |  |
| Method: ML ARCH - Normal distribution (Marquardt / EViews legacy) | | | | |
| Date: 02/21/19 Time: 21:21 | | |  |  |
| Sample (adjusted): 2 915 | | |  |  |
| Included observations: 914 after adjustments | | | |  |
| Convergence achieved after 10 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(6) + C(7)\*RESID(-1)^2 + C(8)\*RESID(-2)^2 + C(9)\*GARCH(-1) | | | | |
| + C(10)\*T\_PREALLARGS | | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| T\_PREBSI(-1) | -0.001074 | 0.000303 | -3.549164 | 0.0004 |
| DLNCPI | -4.596280 | 0.522741 | -8.792651 | 0.0000 |
| DLNIV | 6.442609 | 0.709199 | 9.084351 | 0.0000 |
| DLNM1 | -0.562135 | 0.104931 | -5.357178 | 0.0000 |
| C | -0.002056 | 0.000233 | -8.833420 | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 2.21E-05 | 7.93E-07 | 27.90701 | 0.0000 |
| RESID(-1)^2 | 0.390982 | 0.043360 | 9.017000 | 0.0000 |
| RESID(-2)^2 | 0.112749 | 0.031572 | 3.571205 | 0.0004 |
| GARCH(-1) | 0.404936 | 0.030392 | 13.32383 | 0.0000 |
| T\_PREALLARGS | -0.000202 | 4.66E-06 | -43.34751 | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.022385 | Mean dependent var | | -0.001110 |
| Adjusted R-squared | 0.018083 | S.D. dependent var | | 0.007765 |
| S.E. of regression | 0.007695 | Akaike info criterion | | -7.505787 |
| Sum squared resid | 0.053821 | Schwarz criterion | | -7.453076 |
| Log likelihood | 3440.145 | Hannan-Quinn criter. | | -7.485666 |
| Durbin-Watson stat | 1.908245 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Dependent Variable: OPEN\_RETURN | | | |  |
| Method: ML ARCH - Normal distribution (Marquardt / EViews legacy) | | | | |
| Date: 02/21/19 Time: 21:22 | | |  |  |
| Sample (adjusted): 3 915 | | |  |  |
| Included observations: 913 after adjustments | | | |  |
| Convergence achieved after 121 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(6) + C(7)\*RESID(-1)^2 + C(8)\*RESID(-2)^2 + C(9)\*GARCH(-1) | | | | |
| + C(10)\*T\_PREALLARGS | | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| T\_PREBSI(-2) | 0.000829 | 0.000290 | 2.854536 | 0.0043 |
| DLNCPI | -1.780996 | 0.485601 | -3.667608 | 0.0002 |
| DLNIV | 4.033220 | 0.547213 | 7.370475 | 0.0000 |
| DLNM1 | -0.322726 | 0.106404 | -3.033034 | 0.0024 |
| C | -0.001972 | 0.000191 | -10.32315 | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 2.72E-07 | 8.85E-08 | 3.069565 | 0.0021 |
| RESID(-1)^2 | 0.311672 | 0.021114 | 14.76128 | 0.0000 |
| RESID(-2)^2 | -0.278344 | 0.021612 | -12.87943 | 0.0000 |
| GARCH(-1) | 0.961904 | 0.002427 | 396.2857 | 0.0000 |
| T\_PREALLARGS | -3.00E-06 | 1.37E-06 | -2.194726 | 0.0282 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.018824 | Mean dependent var | | -0.001101 |
| Adjusted R-squared | 0.014502 | S.D. dependent var | | 0.007765 |
| S.E. of regression | 0.007708 | Akaike info criterion | | -7.784114 |
| Sum squared resid | 0.053953 | Schwarz criterion | | -7.731357 |
| Log likelihood | 3563.448 | Hannan-Quinn criter. | | -7.763974 |
| Durbin-Watson stat | 1.969749 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Dependent Variable: OPEN\_RETURN | | | |  |
| Method: ML ARCH - Normal distribution (Marquardt / EViews legacy) | | | | |
| Date: 02/21/19 Time: 21:24 | | |  |  |
| Sample (adjusted): 2 915 | | |  |  |
| Included observations: 914 after adjustments | | | |  |
| Convergence achieved after 29 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(6) + C(7)\*RESID(-1)^2 + C(8)\*RESID(-2)^2 + C(9)\*GARCH(-1) | | | | |
| + C(10)\*T\_PREALLARGS | | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| T\_INTBSI(-1) | 0.001261 | 0.000672 | 1.877532 | 0.0604 |
| DLNCPI | -3.973401 | 0.720484 | -5.514905 | 0.0000 |
| DLNIV | 5.101880 | 0.849308 | 6.007106 | 0.0000 |
| DLNM1 | -0.336613 | 0.141075 | -2.386062 | 0.0170 |
| C | -0.001147 | 0.000619 | -1.854034 | 0.0637 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 1.04E-05 | 1.59E-06 | 6.536376 | 0.0000 |
| RESID(-1)^2 | 0.366176 | 0.051343 | 7.131982 | 0.0000 |
| RESID(-2)^2 | -0.164224 | 0.048340 | -3.397246 | 0.0007 |
| GARCH(-1) | 0.756919 | 0.035859 | 21.10821 | 0.0000 |
| T\_PREALLARGS | -0.000103 | 1.38E-05 | -7.485563 | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.039293 | Mean dependent var | | -0.001110 |
| Adjusted R-squared | 0.035066 | S.D. dependent var | | 0.007765 |
| S.E. of regression | 0.007628 | Akaike info criterion | | -7.566563 |
| Sum squared resid | 0.052890 | Schwarz criterion | | -7.513852 |
| Log likelihood | 3467.919 | Hannan-Quinn criter. | | -7.546442 |
| Durbin-Watson stat | 1.974922 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Dependent Variable: OPEN\_RETURN | | | |  |
| Method: ML ARCH - Normal distribution (Marquardt / EViews legacy) | | | | |
| Date: 02/21/19 Time: 21:25 | | |  |  |
| Sample (adjusted): 3 915 | | |  |  |
| Included observations: 913 after adjustments | | | |  |
| Convergence achieved after 129 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(6) + C(7)\*RESID(-1)^2 + C(8)\*RESID(-2)^2 + C(9)\*GARCH(-1) | | | | |
| + C(10)\*T\_PREALLARGS | | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| T\_INTBSI(-2) | 0.000760 | 0.000409 | 1.856612 | 0.0634 |
| DLNCPI | -1.787021 | 0.477690 | -3.740968 | 0.0002 |
| DLNIV | 3.870610 | 0.541505 | 7.147873 | 0.0000 |
| DLNM1 | -0.304082 | 0.101112 | -3.007365 | 0.0026 |
| C | -0.001249 | 0.000315 | -3.964487 | 0.0001 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 3.77E-07 | 9.61E-08 | 3.919456 | 0.0001 |
| RESID(-1)^2 | 0.296848 | 0.022056 | 13.45890 | 0.0000 |
| RESID(-2)^2 | -0.259441 | 0.022579 | -11.49043 | 0.0000 |
| GARCH(-1) | 0.957834 | 0.002711 | 353.3117 | 0.0000 |
| T\_PREALLARGS | -4.62E-06 | 1.46E-06 | -3.159594 | 0.0016 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.022015 | Mean dependent var | | -0.001101 |
| Adjusted R-squared | 0.017707 | S.D. dependent var | | 0.007765 |
| S.E. of regression | 0.007696 | Akaike info criterion | | -7.779815 |
| Sum squared resid | 0.053778 | Schwarz criterion | | -7.727058 |
| Log likelihood | 3561.486 | Hannan-Quinn criter. | | -7.759676 |
| Durbin-Watson stat | 1.978933 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Dependent Variable: OPEN\_RETURN | | | |  |
| Method: ML ARCH - Normal distribution (Marquardt / EViews legacy) | | | | |
| Date: 02/21/19 Time: 21:25 | | |  |  |
| Sample (adjusted): 3 915 | | |  |  |
| Included observations: 913 after adjustments | | | |  |
| Convergence achieved after 129 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(6) + C(7)\*RESID(-1)^2 + C(8)\*RESID(-2)^2 + C(9)\*GARCH(-1) | | | | |
| + C(10)\*T\_PREALLARGS | | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| T\_INTBSI(-2) | 0.000760 | 0.000409 | 1.856612 | 0.0634 |
| DLNCPI | -1.787021 | 0.477690 | -3.740968 | 0.0002 |
| DLNIV | 3.870610 | 0.541505 | 7.147873 | 0.0000 |
| DLNM1 | -0.304082 | 0.101112 | -3.007365 | 0.0026 |
| C | -0.001249 | 0.000315 | -3.964487 | 0.0001 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 3.77E-07 | 9.61E-08 | 3.919456 | 0.0001 |
| RESID(-1)^2 | 0.296848 | 0.022056 | 13.45890 | 0.0000 |
| RESID(-2)^2 | -0.259441 | 0.022579 | -11.49043 | 0.0000 |
| GARCH(-1) | 0.957834 | 0.002711 | 353.3117 | 0.0000 |
| T\_PREALLARGS | -4.62E-06 | 1.46E-06 | -3.159594 | 0.0016 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.022015 | Mean dependent var | | -0.001101 |
| Adjusted R-squared | 0.017707 | S.D. dependent var | | 0.007765 |
| S.E. of regression | 0.007696 | Akaike info criterion | | -7.779815 |
| Sum squared resid | 0.053778 | Schwarz criterion | | -7.727058 |
| Log likelihood | 3561.486 | Hannan-Quinn criter. | | -7.759676 |
| Durbin-Watson stat | 1.978933 |  |  |  |
|  |  |  |  |  |
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| --- | --- | --- | --- | --- |
| Dependent Variable: OPEN\_RETURN | | | |  |
| Method: ML ARCH - Normal distribution (Marquardt / EViews legacy) | | | | |
| Date: 02/21/19 Time: 21:26 | | |  |  |
| Sample (adjusted): 4 915 | | |  |  |
| Included observations: 912 after adjustments | | | |  |
| Convergence achieved after 137 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(6) + C(7)\*RESID(-1)^2 + C(8)\*RESID(-2)^2 + C(9)\*GARCH(-1) | | | | |
| + C(10)\*T\_PREALLARGS | | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| T\_INTBSI(-3) | 0.000770 | 0.000419 | 1.838689 | 0.0660 |
| DLNCPI | -1.808050 | 0.474149 | -3.813251 | 0.0001 |
| DLNIV | 3.950745 | 0.548688 | 7.200344 | 0.0000 |
| DLNM1 | -0.315770 | 0.102860 | -3.069902 | 0.0021 |
| C | -0.001264 | 0.000327 | -3.864050 | 0.0001 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 3.15E-07 | 9.41E-08 | 3.349153 | 0.0008 |
| RESID(-1)^2 | 0.317314 | 0.023082 | 13.74748 | 0.0000 |
| RESID(-2)^2 | -0.280829 | 0.023548 | -11.92597 | 0.0000 |
| GARCH(-1) | 0.958781 | 0.002711 | 353.6543 | 0.0000 |
| T\_PREALLARGS | -3.60E-06 | 1.44E-06 | -2.495045 | 0.0126 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.020137 | Mean dependent var | | -0.001096 |
| Adjusted R-squared | 0.015815 | S.D. dependent var | | 0.007768 |
| S.E. of regression | 0.007706 | Akaike info criterion | | -7.796768 |
| Sum squared resid | 0.053862 | Schwarz criterion | | -7.743964 |
| Log likelihood | 3565.326 | Hannan-Quinn criter. | | -7.776609 |
| Durbin-Watson stat | 1.974664 |  |  |  |
|  |  |  |  |  |
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| --- | --- | --- | --- | --- |
| Dependent Variable: OPEN\_RETURN | | | |  |
| Method: ML ARCH - Normal distribution (Marquardt / EViews legacy) | | | | |
| Date: 02/21/19 Time: 21:26 | | |  |  |
| Sample (adjusted): 5 915 | | |  |  |
| Included observations: 911 after adjustments | | | |  |
| Failure to improve Likelihood after 13 iterations | | | | |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(6) + C(7)\*RESID(-1)^2 + C(8)\*RESID(-2)^2 + C(9)\*GARCH(-1) | | | | |
| + C(10)\*T\_PREALLARGS | | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| T\_INTBSI(-4) | -0.000867 | 0.000753 | -1.150374 | 0.2500 |
| DLNCPI | -4.161619 | 0.823048 | -5.056351 | 0.0000 |
| DLNIV | 6.076188 | 0.895462 | 6.785530 | 0.0000 |
| DLNM1 | -0.562860 | 0.181217 | -3.106001 | 0.0019 |
| C | -0.002622 | 0.000680 | -3.852499 | 0.0001 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 2.99E-05 | 1.87E-06 | 16.00444 | 0.0000 |
| RESID(-1)^2 | 0.202908 | 0.031398 | 6.462411 | 0.0000 |
| RESID(-2)^2 | 0.105908 | 0.043717 | 2.422591 | 0.0154 |
| GARCH(-1) | 0.497913 | 0.036131 | 13.78061 | 0.0000 |
| T\_PREALLARGS | -0.000247 | 1.18E-05 | -20.98743 | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.019460 | Mean dependent var | | -0.001100 |
| Adjusted R-squared | 0.015131 | S.D. dependent var | | 0.007772 |
| S.E. of regression | 0.007712 | Akaike info criterion | | -7.382599 |
| Sum squared resid | 0.053891 | Schwarz criterion | | -7.329750 |
| Log likelihood | 3372.774 | Hannan-Quinn criter. | | -7.362422 |
| Durbin-Watson stat | 1.952509 |  |  |  |
|  |  |  |  |  |
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| --- | --- | --- | --- | --- |
| Dependent Variable: OPEN\_RETURN | | | |  |
| Method: ML ARCH - Normal distribution (Marquardt / EViews legacy) | | | | |
| Date: 02/21/19 Time: 21:49 | | |  |  |
| Sample (adjusted): 2 915 | | |  |  |
| Included observations: 914 after adjustments | | | |  |
| Convergence achieved after 21 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(6) + C(7)\*RESID(-1)^2 + C(8)\*GARCH(-1) + C(9) | | | | |
| \*T\_PREALLARGS | | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| T\_PREALLBSI | 0.002675 | 0.000479 | 5.583545 | 0.0000 |
| DLNCPI | -3.005815 | 0.837772 | -3.587869 | 0.0003 |
| DLNIV | 1.518329 | 1.221903 | 1.242594 | 0.2140 |
| DLNM1 | -0.405298 | 0.178980 | -2.264488 | 0.0235 |
| C | -0.000830 | 0.000420 | -1.977332 | 0.0480 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 1.45E-05 | 3.26E-07 | 44.64517 | 0.0000 |
| RESID(-1)^2 | 0.257470 | 0.018735 | 13.74265 | 0.0000 |
| GARCH(-1) | 0.663483 | 0.008653 | 76.67228 | 0.0000 |
| T\_PREALLARGS | -0.000137 | 4.02E-06 | -34.03450 | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.074265 | Mean dependent var | | -0.001110 |
| Adjusted R-squared | 0.070191 | S.D. dependent var | | 0.007765 |
| S.E. of regression | 0.007488 | Akaike info criterion | | -7.571754 |
| Sum squared resid | 0.050964 | Schwarz criterion | | -7.524314 |
| Log likelihood | 3469.292 | Hannan-Quinn criter. | | -7.553645 |
| Durbin-Watson stat | 1.995684 |  |  |  |
|  |  |  |  |  |
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| Dependent Variable: OPEN\_RETURN | | | |  |
| Method: ML ARCH - Normal distribution (Marquardt / EViews legacy) | | | | |
| Date: 02/21/19 Time: 21:54 | | |  |  |
| Sample (adjusted): 2 915 | | |  |  |
| Included observations: 914 after adjustments | | | |  |
| Convergence achieved after 100 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(6) + C(7)\*RESID(-1)^2 + C(8)\*RESID(-2)^2 + C(9)\*GARCH(-1) | | | | |
| + C(10)\*T\_PREALLARGS | | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| T\_PREALLBSI(-1) | 0.000828 | 0.000256 | 3.232307 | 0.0012 |
| DLNCPI | -1.687861 | 0.469123 | -3.597907 | 0.0003 |
| DLNIV | 3.902942 | 0.530182 | 7.361510 | 0.0000 |
| DLNM1 | -0.285965 | 0.100970 | -2.832184 | 0.0046 |
| C | -0.001536 | 0.000182 | -8.431644 | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 3.66E-07 | 9.31E-08 | 3.933148 | 0.0001 |
| RESID(-1)^2 | 0.302732 | 0.024203 | 12.50800 | 0.0000 |
| RESID(-2)^2 | -0.264882 | 0.024498 | -10.81259 | 0.0000 |
| GARCH(-1) | 0.957750 | 0.002620 | 365.5351 | 0.0000 |
| T\_PREALLARGS | -4.47E-06 | 1.43E-06 | -3.130892 | 0.0017 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.017750 | Mean dependent var | | -0.001110 |
| Adjusted R-squared | 0.013428 | S.D. dependent var | | 0.007765 |
| S.E. of regression | 0.007713 | Akaike info criterion | | -7.778944 |
| Sum squared resid | 0.054076 | Schwarz criterion | | -7.726233 |
| Log likelihood | 3564.978 | Hannan-Quinn criter. | | -7.758823 |
| Durbin-Watson stat | 1.989367 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

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| --- | --- | --- | --- | --- |
| Dependent Variable: OPEN\_RETURN | | | |  |
| Method: ML ARCH - Normal distribution (Marquardt / EViews legacy) | | | | |
| Date: 02/21/19 Time: 21:56 | | |  |  |
| Sample (adjusted): 3 915 | | |  |  |
| Included observations: 913 after adjustments | | | |  |
| Convergence achieved after 27 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(6) + C(7)\*RESID(-1)^2 + C(8)\*RESID(-2)^2 + C(9)\*GARCH(-1) | | | | |
| + C(10)\*T\_PREALLARGS | | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| T\_PREALLBSI(-2) | 0.000886 | 0.000267 | 3.321945 | 0.0009 |
| DLNCPI | -4.287863 | 0.400276 | -10.71225 | 0.0000 |
| DLNIV | 5.964812 | 0.372472 | 16.01411 | 0.0000 |
| DLNM1 | -0.552121 | 0.055328 | -9.979055 | 0.0000 |
| C | -0.002273 | 0.000196 | -11.59420 | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 9.95E-06 | 1.50E-06 | 6.609517 | 0.0000 |
| RESID(-1)^2 | 0.595882 | 0.063198 | 9.428855 | 0.0000 |
| RESID(-2)^2 | -0.127769 | 0.056907 | -2.245237 | 0.0248 |
| GARCH(-1) | 0.612433 | 0.053194 | 11.51310 | 0.0000 |
| T\_PREALLARGS | -0.000105 | 1.42E-05 | -7.410754 | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.023037 | Mean dependent var | | -0.001101 |
| Adjusted R-squared | 0.018734 | S.D. dependent var | | 0.007765 |
| S.E. of regression | 0.007692 | Akaike info criterion | | -7.598697 |
| Sum squared resid | 0.053722 | Schwarz criterion | | -7.545940 |
| Log likelihood | 3478.805 | Hannan-Quinn criter. | | -7.578557 |
| Durbin-Watson stat | 1.960860 |  |  |  |
|  |  |  |  |  |
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| --- | --- | --- | --- | --- |
| Dependent Variable: OPEN\_RETURN | | | |  |
| Method: ML ARCH - Normal distribution (Marquardt / EViews legacy) | | | | |
| Date: 02/21/19 Time: 21:56 | | |  |  |
| Sample (adjusted): 4 915 | | |  |  |
| Included observations: 912 after adjustments | | | |  |
| Convergence achieved after 105 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(6) + C(7)\*RESID(-1)^2 + C(8)\*RESID(-2)^2 + C(9)\*GARCH(-1) | | | | |
| + C(10)\*T\_PREALLARGS | | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| T\_PREALLBSI(-3) | 0.000434 | 0.000282 | 1.540016 | 0.1236 |
| DLNCPI | -1.830559 | 0.479266 | -3.819502 | 0.0001 |
| DLNIV | 4.013203 | 0.553531 | 7.250190 | 0.0000 |
| DLNM1 | -0.336148 | 0.105140 | -3.197148 | 0.0014 |
| C | -0.001602 | 0.000208 | -7.694010 | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 2.69E-07 | 9.29E-08 | 2.896297 | 0.0038 |
| RESID(-1)^2 | 0.332987 | 0.022947 | 14.51100 | 0.0000 |
| RESID(-2)^2 | -0.298605 | 0.023350 | -12.78822 | 0.0000 |
| GARCH(-1) | 0.961122 | 0.002661 | 361.1625 | 0.0000 |
| T\_PREALLARGS | -2.93E-06 | 1.43E-06 | -2.048250 | 0.0405 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.021546 | Mean dependent var | | -0.001096 |
| Adjusted R-squared | 0.017231 | S.D. dependent var | | 0.007768 |
| S.E. of regression | 0.007701 | Akaike info criterion | | -7.794052 |
| Sum squared resid | 0.053784 | Schwarz criterion | | -7.741249 |
| Log likelihood | 3564.088 | Hannan-Quinn criter. | | -7.773894 |
| Durbin-Watson stat | 1.973072 |  |  |  |
|  |  |  |  |  |
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| Convergence achieved after 10 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(6) + C(7)\*RESID(-1)^2 + C(8)\*GARCH(-1) + C(9)\*T\_PREARGS | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| T\_PREBSI | 0.004637 | 0.000909 | 5.103600 | 0.0000 |
| DLNCPI | -3.036099 | 1.434892 | -2.115907 | 0.0344 |
| DLNIV | 3.585607 | 1.673536 | 2.142534 | 0.0322 |
| DLNM1 | -0.495945 | 0.333011 | -1.489278 | 0.1364 |
| C | -0.003038 | 0.000604 | -5.027060 | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 4.27E-05 | 7.83E-06 | 5.453439 | 0.0000 |
| RESID(-1)^2 | 0.152064 | 0.028798 | 5.280425 | 0.0000 |
| GARCH(-1) | 0.590483 | 0.079032 | 7.471406 | 0.0000 |
| T\_PREARGS | -0.000215 | 3.28E-05 | -6.567260 | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.124330 | Mean dependent var | | -0.001110 |
| Adjusted R-squared | 0.120477 | S.D. dependent var | | 0.007765 |
| S.E. of regression | 0.007282 | Akaike info criterion | | -7.324096 |
| Sum squared resid | 0.048208 | Schwarz criterion | | -7.276655 |
| Log likelihood | 3356.112 | Hannan-Quinn criter. | | -7.305986 |
| Durbin-Watson stat | 2.011839 |  |  |  |
|  |  |  |  |  |
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| --- | --- | --- | --- | --- |
| Dependent Variable: OPEN\_RETURN | | | |  |
| Method: ML ARCH - Normal distribution (Marquardt / EViews legacy) | | | | |
| Date: 02/21/19 Time: 22:03 | | |  |  |
| Sample (adjusted): 2 915 | | |  |  |
| Included observations: 914 after adjustments | | | |  |
| Convergence achieved after 16 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(6) + C(7)\*RESID(-1)^2 + C(8)\*GARCH(-1) + C(9)\*T\_INTARGS( | | | | |
| -1) | |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| T\_PREBSI | 0.002944 | 0.000600 | 4.908306 | 0.0000 |
| DLNCPI | -3.035481 | 0.872394 | -3.479482 | 0.0005 |
| DLNIV | 3.586842 | 1.014976 | 3.533918 | 0.0004 |
| DLNM1 | -0.493156 | 0.207699 | -2.374375 | 0.0176 |
| C | -0.003162 | 0.000426 | -7.423781 | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 3.53E-05 | 5.27E-06 | 6.693535 | 0.0000 |
| RESID(-1)^2 | 0.199461 | 0.028334 | 7.039712 | 0.0000 |
| GARCH(-1) | 0.558326 | 0.063980 | 8.726605 | 0.0000 |
| T\_INTARGS(-1) | -0.000210 | 2.88E-05 | -7.281784 | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.097975 | Mean dependent var | | -0.001110 |
| Adjusted R-squared | 0.094006 | S.D. dependent var | | 0.007765 |
| S.E. of regression | 0.007391 | Akaike info criterion | | -7.456921 |
| Sum squared resid | 0.049659 | Schwarz criterion | | -7.409480 |
| Log likelihood | 3416.813 | Hannan-Quinn criter. | | -7.438811 |
| Durbin-Watson stat | 1.993874 |  |  |  |
|  |  |  |  |  |
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| --- | --- | --- | --- | --- |
| Dependent Variable: OPEN\_RETURN | | | |  |
| Method: ML ARCH - Normal distribution (Marquardt / EViews legacy) | | | | |
| Date: 02/21/19 Time: 22:04 | | |  |  |
| Sample (adjusted): 3 915 | | |  |  |
| Included observations: 913 after adjustments | | | |  |
| Convergence achieved after 13 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(6) + C(7)\*RESID(-1)^2 + C(8)\*GARCH(-1) + C(9)\*T\_PREARGS( | | | | |
| -2) | |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| T\_PREBSI | 0.003833 | 0.000627 | 6.108645 | 0.0000 |
| DLNCPI | -3.040724 | 1.079853 | -2.815868 | 0.0049 |
| DLNIV | 3.550375 | 1.225351 | 2.897435 | 0.0038 |
| DLNM1 | -0.496086 | 0.256359 | -1.935121 | 0.0530 |
| C | -0.002826 | 0.000533 | -5.306484 | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 3.74E-05 | 9.25E-07 | 40.44886 | 0.0000 |
| RESID(-1)^2 | 0.172415 | 0.018282 | 9.430903 | 0.0000 |
| GARCH(-1) | 0.563286 | 0.023106 | 24.37858 | 0.0000 |
| T\_PREARGS(-2) | -0.000188 | 2.44E-08 | -7694.650 | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.118228 | Mean dependent var | | -0.001101 |
| Adjusted R-squared | 0.114344 | S.D. dependent var | | 0.007765 |
| S.E. of regression | 0.007308 | Akaike info criterion | | -7.393290 |
| Sum squared resid | 0.048487 | Schwarz criterion | | -7.345809 |
| Log likelihood | 3384.037 | Hannan-Quinn criter. | | -7.375164 |
| Durbin-Watson stat | 2.016390 |  |  |  |
|  |  |  |  |  |
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| --- | --- | --- | --- | --- |
| Dependent Variable: OPEN\_RETURN | | | |  |
| Method: ML ARCH - Normal distribution (Marquardt / EViews legacy) | | | | |
| Date: 02/21/19 Time: 22:04 | | |  |  |
| Sample (adjusted): 3 915 | | |  |  |
| Included observations: 913 after adjustments | | | |  |
| Convergence achieved after 29 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(6) + C(7)\*RESID(-1)^2 + C(8)\*GARCH(-1) + C(9)\*T\_INTARGS( | | | | |
| -2) | |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| T\_PREBSI | 0.003060 | 0.000467 | 6.546725 | 0.0000 |
| DLNCPI | -3.027054 | 0.831481 | -3.640558 | 0.0003 |
| DLNIV | 3.562675 | 1.073728 | 3.318043 | 0.0009 |
| DLNM1 | -0.453428 | 0.187655 | -2.416291 | 0.0157 |
| C | -0.003018 | 0.000281 | -10.75658 | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 1.56E-05 | 2.67E-08 | 582.5548 | 0.0000 |
| RESID(-1)^2 | 0.239012 | 0.018042 | 13.24783 | 0.0000 |
| GARCH(-1) | 0.655211 | 0.013560 | 48.32085 | 0.0000 |
| T\_INTARGS(-2) | -9.53E-05 | 2.42E-06 | -39.30019 | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.103953 | Mean dependent var | | -0.001101 |
| Adjusted R-squared | 0.100006 | S.D. dependent var | | 0.007765 |
| S.E. of regression | 0.007366 | Akaike info criterion | | -7.650289 |
| Sum squared resid | 0.049272 | Schwarz criterion | | -7.602807 |
| Log likelihood | 3501.357 | Hannan-Quinn criter. | | -7.632163 |
| Durbin-Watson stat | 2.004236 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

AIC和SC、对数似然值得到提升，说明模型有更好的拟合效果。

以上结果说明，情绪指数能够影响股价，从而影响收益率。盘前情绪越高，开盘的股价越高，从而开盘收益率越高。而盘中情绪越高，当日收盘的情绪越高，从而开盘收益率越低。而且盘前情绪的系数比滞后期的盘中情绪更大，说明情绪的影响具有短期性，对于越近的时间，其影响越大。

此外，一致性指数与收益率方差显著负相关。这正说明情绪一致性越大，收益率的方差越小，也就是散户的情绪越一致，股指收益的风险就越小。



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| --- | --- | --- | --- | --- |
| Heteroskedasticity Test: ARCH | | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| F-statistic | 0.505451 | Prob. F(10,893) | | 0.8869 |
| Obs\*R-squared | 5.087968 | Prob. Chi-Square(10) | | 0.8852 |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Test Equation: | |  |  |  |
| Dependent Variable: WGT\_RESID^2 | | | |  |
| Method: Least Squares | | |  |  |
| Date: 02/21/19 Time: 01:14 | | |  |  |
| Sample (adjusted): 12 915 | | |  |  |
| Included observations: 904 after adjustments | | | |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 0.623387 | 0.086474 | 7.208944 | 0.0000 |
| WGT\_RESID^2(-1) | 0.006653 | 0.015920 | 0.417916 | 0.6761 |
| WGT\_RESID^2(-2) | 0.000994 | 0.015920 | 0.062434 | 0.9502 |
| WGT\_RESID^2(-3) | 0.007202 | 0.015919 | 0.452410 | 0.6511 |
| WGT\_RESID^2(-4) | -0.000454 | 0.015919 | -0.028530 | 0.9772 |
| WGT\_RESID^2(-5) | 0.000456 | 0.015918 | 0.028636 | 0.9772 |
| WGT\_RESID^2(-6) | 0.018140 | 0.015918 | 1.139570 | 0.2548 |
| WGT\_RESID^2(-7) | 0.009323 | 0.015920 | 0.585627 | 0.5583 |
| WGT\_RESID^2(-8) | 0.011569 | 0.015920 | 0.726719 | 0.4676 |
| WGT\_RESID^2(-9) | 0.001181 | 0.015920 | 0.074172 | 0.9409 |
| WGT\_RESID^2(-10) | 0.025154 | 0.015920 | 1.580014 | 0.1145 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.005628 | Mean dependent var | | 0.689621 |
| Adjusted R-squared | -0.005507 | S.D. dependent var | | 2.277566 |
| S.E. of regression | 2.283828 | Akaike info criterion | | 4.501677 |
| Sum squared resid | 4657.773 | Schwarz criterion | | 4.560167 |
| Log likelihood | -2023.758 | Hannan-Quinn criter. | | 4.524016 |
| F-statistic | 0.505451 | Durbin-Watson stat | | 1.920938 |
| Prob(F-statistic) | 0.886944 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

1. 日内收益率

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| --- | --- | --- | --- | --- |
| Dependent Variable: TODAY\_RETURN | | | |  |
| Method: ML ARCH - Normal distribution (Marquardt / EViews legacy) | | | | |
| Date: 02/21/19 Time: 22:12 | | |  |  |
| Sample (adjusted): 2 915 | | |  |  |
| Included observations: 914 after adjustments | | | |  |
| Convergence achieved after 31 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(6) + C(7)\*RESID(-1)^2 + C(8)\*GARCH(-1) + C(9)\*T\_INTARGS | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| T\_INTBSI | 0.015856 | 0.000694 | 22.85488 | 0.0000 |
| DLNIV | -2.994144 | 1.159953 | -2.581264 | 0.0098 |
| DLNM1 | 0.052191 | 0.214848 | 0.242921 | 0.8081 |
| DLNCPI | 1.330630 | 1.142354 | 1.164814 | 0.2441 |
| C | 0.010136 | 0.000521 | 19.44837 | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 2.29E-06 | 1.18E-06 | 1.935184 | 0.0530 |
| RESID(-1)^2 | 0.065511 | 0.011060 | 5.923065 | 0.0000 |
| GARCH(-1) | 0.927339 | 0.009731 | 95.29419 | 0.0000 |
| T\_INTARGS | -1.72E-05 | 1.06E-05 | -1.620223 | 0.1052 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.290146 | Mean dependent var | | 0.001047 |
| Adjusted R-squared | 0.287022 | S.D. dependent var | | 0.014283 |
| S.E. of regression | 0.012061 | Akaike info criterion | | -6.560584 |
| Sum squared resid | 0.132221 | Schwarz criterion | | -6.513143 |
| Log likelihood | 3007.187 | Hannan-Quinn criter. | | -6.542475 |
| Durbin-Watson stat | 1.983207 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

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| --- | --- | --- | --- | --- |
| Dependent Variable: TODAY\_RETURN | | | |  |
| Method: ML ARCH - Normal distribution (Marquardt / EViews legacy) | | | | |
| Date: 02/21/19 Time: 22:13 | | |  |  |
| Sample (adjusted): 2 915 | | |  |  |
| Included observations: 914 after adjustments | | | |  |
| Convergence achieved after 25 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(4) + C(5)\*RESID(-1)^2 + C(6)\*GARCH(-1) + C(7)\*T\_INTARGS | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| T\_INTBSI | 0.015698 | 0.000673 | 23.31549 | 0.0000 |
| DLNIV | -2.373128 | 0.984274 | -2.411045 | 0.0159 |
| C | 0.010001 | 0.000512 | 19.54831 | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 2.43E-06 | 1.18E-06 | 2.060399 | 0.0394 |
| RESID(-1)^2 | 0.065752 | 0.010965 | 5.996319 | 0.0000 |
| GARCH(-1) | 0.926734 | 0.009726 | 95.27958 | 0.0000 |
| T\_INTARGS | -1.84E-05 | 1.06E-05 | -1.739135 | 0.0820 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.288529 | Mean dependent var | | 0.001047 |
| Adjusted R-squared | 0.286967 | S.D. dependent var | | 0.014283 |
| S.E. of regression | 0.012061 | Akaike info criterion | | -6.562557 |
| Sum squared resid | 0.132522 | Schwarz criterion | | -6.525659 |
| Log likelihood | 3006.089 | Hannan-Quinn criter. | | -6.548472 |
| Durbin-Watson stat | 1.982683 |  |  |  |
|  |  |  |  |  |
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| --- | --- | --- | --- | --- |
| Dependent Variable: TODAY\_RETURN | | | |  |
| Method: ML ARCH - Normal distribution (Marquardt / EViews legacy) | | | | |
| Date: 02/21/19 Time: 22:18 | | |  |  |
| Sample (adjusted): 2 915 | | |  |  |
| Included observations: 914 after adjustments | | | |  |
| Convergence achieved after 3 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(5) + C(6)\*RESID(-1)^2 + C(7)\*GARCH(-1) + C(8)\*T\_INTARGS | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| T\_PREBSI | -0.002283 | 0.001043 | -2.189215 | 0.0286 |
| DLNM1 | -0.800343 | 0.318214 | -2.515113 | 0.0119 |
| DLNCPI | -2.967432 | 1.407041 | -2.108987 | 0.0349 |
| C | 0.001325 | 0.000645 | 2.054214 | 0.0400 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 0.000141 | 3.15E-06 | 44.76216 | 0.0000 |
| RESID(-1)^2 | 0.140328 | 0.030986 | 4.528772 | 0.0000 |
| GARCH(-1) | 0.540152 | 0.030609 | 17.64702 | 0.0000 |
| T\_INTARGS | -0.000834 | 6.70E-06 | -124.3126 | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | -0.001843 | Mean dependent var | | 0.001047 |
| Adjusted R-squared | -0.005145 | S.D. dependent var | | 0.014283 |
| S.E. of regression | 0.014320 | Akaike info criterion | | -5.894496 |
| Sum squared resid | 0.186608 | Schwarz criterion | | -5.852327 |
| Log likelihood | 2701.785 | Hannan-Quinn criter. | | -5.878399 |
| Durbin-Watson stat | 1.892203 |  |  |  |
|  |  |  |  |  |
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| Dependent Variable: TODAY\_RETURN | | | |  |
| Method: ML ARCH - Normal distribution (Marquardt / EViews legacy) | | | | |
| Date: 02/21/19 Time: 22:19 | | |  |  |
| Sample (adjusted): 2 915 | | |  |  |
| Included observations: 914 after adjustments | | | |  |
| Convergence achieved after 7 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(5) + C(6)\*RESID(-1)^2 + C(7)\*GARCH(-1) + C(8)\*T\_INTARGS | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| T\_PREBSI(-1) | -0.001512 | 0.001075 | -1.405891 | 0.1598 |
| DLNM1 | -0.823229 | 0.329960 | -2.494935 | 0.0126 |
| DLNCPI | -2.991336 | 1.442265 | -2.074054 | 0.0381 |
| C | 0.001726 | 0.000662 | 2.609360 | 0.0091 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 0.000142 | 5.72E-06 | 24.74749 | 0.0000 |
| RESID(-1)^2 | 0.144615 | 0.032720 | 4.419736 | 0.0000 |
| GARCH(-1) | 0.533368 | 0.039346 | 13.55572 | 0.0000 |
| T\_INTARGS | -0.000824 | 1.38E-06 | -596.7042 | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.002591 | Mean dependent var | | 0.001047 |
| Adjusted R-squared | -0.000697 | S.D. dependent var | | 0.014283 |
| S.E. of regression | 0.014288 | Akaike info criterion | | -5.919501 |
| Sum squared resid | 0.185782 | Schwarz criterion | | -5.877332 |
| Log likelihood | 2713.212 | Hannan-Quinn criter. | | -5.903404 |
| Durbin-Watson stat | 1.990610 |  |  |  |
|  |  |  |  |  |
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| Dependent Variable: TODAY\_RETURN | | | |  |
| Method: ML ARCH - Normal distribution (Marquardt / EViews legacy) | | | | |
| Date: 02/21/19 Time: 22:20 | | |  |  |
| Sample (adjusted): 3 915 | | |  |  |
| Included observations: 913 after adjustments | | | |  |
| Convergence achieved after 7 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(5) + C(6)\*RESID(-1)^2 + C(7)\*GARCH(-1) + C(8)\*T\_INTARGS | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| T\_PREBSI(-2) | -0.001193 | 0.000949 | -1.258070 | 0.2084 |
| DLNM1 | -0.814666 | 0.334338 | -2.436652 | 0.0148 |
| DLNCPI | -2.950379 | 1.463539 | -2.015920 | 0.0438 |
| C | 0.001631 | 0.000667 | 2.443433 | 0.0145 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 0.000142 | 1.88E-06 | 75.51230 | 0.0000 |
| RESID(-1)^2 | 0.144978 | 0.033168 | 4.370981 | 0.0000 |
| GARCH(-1) | 0.533666 | 0.033259 | 16.04584 | 0.0000 |
| T\_INTARGS | -0.000825 | 3.05E-05 | -27.04703 | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.003115 | Mean dependent var | | 0.001039 |
| Adjusted R-squared | -0.000175 | S.D. dependent var | | 0.014289 |
| S.E. of regression | 0.014290 | Akaike info criterion | | -5.918845 |
| Sum squared resid | 0.185622 | Schwarz criterion | | -5.876639 |
| Log likelihood | 2709.953 | Hannan-Quinn criter. | | -5.902733 |
| Durbin-Watson stat | 1.985812 |  |  |  |
|  |  |  |  |  |
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| --- | --- | --- | --- | --- |
| Dependent Variable: TODAY\_RETURN | | | |  |
| Method: ML ARCH - Normal distribution (Marquardt / EViews legacy) | | | | |
| Date: 02/21/19 Time: 22:27 | | |  |  |
| Sample (adjusted): 2 915 | | |  |  |
| Included observations: 914 after adjustments | | | |  |
| Convergence achieved after 30 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(5) + C(6)\*RESID(-1)^2 + C(7)\*GARCH(-1) + C(8)\*T\_INTARGS | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| T\_INTBSI(-1) | -0.000883 | 0.000929 | -0.950614 | 0.3418 |
| DLNM1 | -0.211888 | 0.215959 | -0.981151 | 0.3265 |
| DLNCPI | -1.593882 | 1.053857 | -1.512427 | 0.1304 |
| C | 0.000942 | 0.000588 | 1.601468 | 0.1093 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 3.92E-06 | 1.25E-06 | 3.140877 | 0.0017 |
| RESID(-1)^2 | 0.060636 | 0.009526 | 6.365319 | 0.0000 |
| GARCH(-1) | 0.933166 | 0.007873 | 118.5228 | 0.0000 |
| T\_INTARGS | -3.20E-05 | 1.09E-05 | -2.935361 | 0.0033 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | -0.000271 | Mean dependent var | | 0.001047 |
| Adjusted R-squared | -0.003569 | S.D. dependent var | | 0.014283 |
| S.E. of regression | 0.014309 | Akaike info criterion | | -6.202067 |
| Sum squared resid | 0.186316 | Schwarz criterion | | -6.159898 |
| Log likelihood | 2842.345 | Hannan-Quinn criter. | | -6.185970 |
| Durbin-Watson stat | 1.961838 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Dependent Variable: TODAY\_RETURN | | | |  |
| Method: ML ARCH - Normal distribution (Marquardt / EViews legacy) | | | | |
| Date: 02/21/19 Time: 22:28 | | |  |  |
| Sample (adjusted): 3 915 | | |  |  |
| Included observations: 913 after adjustments | | | |  |
| Convergence achieved after 3 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(5) + C(6)\*RESID(-1)^2 + C(7)\*GARCH(-1) + C(8)\*T\_INTARGS | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| T\_INTBSI(-2) | 0.000517 | 0.001522 | 0.339967 | 0.7339 |
| DLNM1 | -0.798825 | 0.332988 | -2.398963 | 0.0164 |
| DLNCPI | -2.807680 | 1.459356 | -1.923917 | 0.0544 |
| C | 0.000998 | 0.001118 | 0.892573 | 0.3721 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 0.000141 | 7.42E-07 | 190.5412 | 0.0000 |
| RESID(-1)^2 | 0.140784 | 0.030819 | 4.568119 | 0.0000 |
| GARCH(-1) | 0.540586 | 0.026174 | 20.65355 | 0.0000 |
| T\_INTARGS | -0.000837 | 3.42E-05 | -24.47977 | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | -0.000365 | Mean dependent var | | 0.001039 |
| Adjusted R-squared | -0.003666 | S.D. dependent var | | 0.014289 |
| S.E. of regression | 0.014315 | Akaike info criterion | | -5.665086 |
| Sum squared resid | 0.186270 | Schwarz criterion | | -5.622880 |
| Log likelihood | 2594.112 | Hannan-Quinn criter. | | -5.648974 |
| Durbin-Watson stat | 1.981652 |  |  |  |
|  |  |  |  |  |
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| --- | --- | --- | --- | --- |
| Dependent Variable: TODAY\_RETURN | | | |  |
| Method: ML ARCH - Normal distribution (Marquardt / EViews legacy) | | | | |
| Date: 02/21/19 Time: 22:35 | | |  |  |
| Sample (adjusted): 2 915 | | |  |  |
| Included observations: 914 after adjustments | | | |  |
| Failure to improve Likelihood after 5 iterations | | | | |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(5) + C(6)\*RESID(-1)^2 + C(7)\*GARCH(-1) + C(8)\*T\_INTARGS | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| T\_PREALLBSI | -0.001435 | 0.001197 | -1.198478 | 0.2307 |
| DLNCPI | -0.399358 | 0.986809 | -0.404696 | 0.6857 |
| DLNIV | 0.272532 | 2.804834 | 0.097165 | 0.9226 |
| C | 0.000196 | 0.001046 | 0.187851 | 0.8510 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 0.000126 | 3.07E-06 | 40.99463 | 0.0000 |
| RESID(-1)^2 | 0.179775 | 0.037198 | 4.832854 | 0.0000 |
| GARCH(-1) | 0.540640 | 0.029102 | 18.57742 | 0.0000 |
| T\_INTARGS | -0.000736 | 3.31E-05 | -22.27140 | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | -0.003072 | Mean dependent var | | 0.001047 |
| Adjusted R-squared | -0.006379 | S.D. dependent var | | 0.014283 |
| S.E. of regression | 0.014329 | Akaike info criterion | | -5.947584 |
| Sum squared resid | 0.186837 | Schwarz criterion | | -5.905415 |
| Log likelihood | 2726.046 | Hannan-Quinn criter. | | -5.931487 |
| Durbin-Watson stat | 1.931954 |  |  |  |
|  |  |  |  |  |
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| --- | --- | --- | --- | --- |
| Dependent Variable: TODAY\_RETURN | | | |  |
| Method: ML ARCH - Normal distribution (Marquardt / EViews legacy) | | | | |
| Date: 02/21/19 Time: 22:30 | | |  |  |
| Sample (adjusted): 2 915 | | |  |  |
| Included observations: 914 after adjustments | | | |  |
| Convergence achieved after 24 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(4) + C(5)\*RESID(-1)^2 + C(6)\*GARCH(-1) + C(7)\*T\_INTARGS( | | | | |
| -1) | |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| T\_INTBSI | 0.015690 | 0.000674 | 23.28380 | 0.0000 |
| DLNIV | -2.309167 | 1.000296 | -2.308485 | 0.0210 |
| C | 0.009984 | 0.000513 | 19.46000 | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 2.33E-06 | 1.17E-06 | 1.985150 | 0.0471 |
| RESID(-1)^2 | 0.065886 | 0.010944 | 6.020498 | 0.0000 |
| GARCH(-1) | 0.926884 | 0.009668 | 95.87547 | 0.0000 |
| T\_INTARGS(-1) | -1.75E-05 | 1.06E-05 | -1.661308 | 0.0967 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.288481 | Mean dependent var | | 0.001047 |
| Adjusted R-squared | 0.286919 | S.D. dependent var | | 0.014283 |
| S.E. of regression | 0.012061 | Akaike info criterion | | -6.562273 |
| Sum squared resid | 0.132531 | Schwarz criterion | | -6.525375 |
| Log likelihood | 3005.959 | Hannan-Quinn criter. | | -6.548188 |
| Durbin-Watson stat | 1.982891 |  |  |  |
|  |  |  |  |  |
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| --- | --- | --- | --- | --- |
| Dependent Variable: TODAY\_RETURN | | | |  |
| Method: ML ARCH - Normal distribution (Marquardt / EViews legacy) | | | | |
| Date: 02/21/19 Time: 22:30 | | |  |  |
| Sample (adjusted): 2 915 | | |  |  |
| Included observations: 914 after adjustments | | | |  |
| Convergence achieved after 29 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(4) + C(5)\*RESID(-1)^2 + C(6)\*GARCH(-1) + C(7)\*T\_PREARGS( | | | | |
| -1) | |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| T\_INTBSI | 0.015832 | 0.000682 | 23.19906 | 0.0000 |
| DLNIV | -2.291960 | 1.018268 | -2.250841 | 0.0244 |
| C | 0.010047 | 0.000515 | 19.49516 | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 1.73E-06 | 8.61E-07 | 2.003189 | 0.0452 |
| RESID(-1)^2 | 0.065887 | 0.010777 | 6.113506 | 0.0000 |
| GARCH(-1) | 0.928668 | 0.009325 | 99.58594 | 0.0000 |
| T\_PREARGS(-1) | -1.17E-05 | 7.37E-06 | -1.588202 | 0.1122 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.289638 | Mean dependent var | | 0.001047 |
| Adjusted R-squared | 0.288078 | S.D. dependent var | | 0.014283 |
| S.E. of regression | 0.012052 | Akaike info criterion | | -6.562863 |
| Sum squared resid | 0.132316 | Schwarz criterion | | -6.525965 |
| Log likelihood | 3006.229 | Hannan-Quinn criter. | | -6.548778 |
| Durbin-Watson stat | 1.980566 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

与格兰杰因果检验矛盾的原因是，格兰杰因果检验本身是通过建立VAR模型然后用OLS估计的，但是VAR模型存在异方差性，因此估计不是BLUE的，因此其结果存在偏差。

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| VAR Residual Heteroskedasticity Tests: No Cross Terms (only levels and squares) | | | | | |
| Date: 02/21/19 Time: 22:53 | | |  |  |  |
| Sample: 1 915 | |  |  |  |  |
| Included observations: 900 | | |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
| Joint test: | |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
| Chi-sq | df | Prob. |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
| 597.1385 | 180 | 0.0000 |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
| Individual components: | | |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
| Dependent | R-squared | F(60,839) | Prob. | Chi-sq(60) | Prob. |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
| res1\*res1 | 0.316608 | 6.478327 | 0.0000 | 284.9473 | 0.0000 |
| res2\*res2 | 0.125895 | 2.013980 | 0.0000 | 113.3054 | 0.0000 |
| res2\*res1 | 0.229933 | 4.175256 | 0.0000 | 206.9396 | 0.0000 |
|  |  |  |  |  |  |
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| --- | --- | --- | --- | --- | --- |
| VAR Residual Heteroskedasticity Tests: No Cross Terms (only levels and squares) | | | | | |
| Date: 02/21/19 Time: 22:54 | | |  |  |  |
| Sample: 1 915 | |  |  |  |  |
| Included observations: 900 | | |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
| Joint test: | |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
| Chi-sq | df | Prob. |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
| 530.0267 | 168 | 0.0000 |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
| Individual components: | | |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
| Dependent | R-squared | F(56,843) | Prob. | Chi-sq(56) | Prob. |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
| res1\*res1 | 0.301594 | 6.500601 | 0.0000 | 271.4343 | 0.0000 |
| res2\*res2 | 0.126279 | 2.175700 | 0.0000 | 113.6514 | 0.0000 |
| res2\*res1 | 0.188474 | 3.496133 | 0.0000 | 169.6264 | 0.0000 |
|  |  |  |  |  |  |
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3) 日间收盘收益率

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| Dependent Variable: CLOSE\_RETURN | | | |  |
| Method: ML ARCH - Normal distribution (Marquardt / EViews legacy) | | | | |
| Date: 02/21/19 Time: 22:57 | | |  |  |
| Sample (adjusted): 2 915 | | |  |  |
| Included observations: 914 after adjustments | | | |  |
| Convergence achieved after 33 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(6) + C(7)\*RESID(-1)^2 + C(8)\*GARCH(-1) + C(9)\*T\_INTARGS | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| T\_INTBSI | 0.017692 | 0.000711 | 24.89764 | 0.0000 |
| DLNCPI | -0.006910 | 1.183084 | -0.005841 | 0.9953 |
| DLNIV | -0.279180 | 1.075265 | -0.259638 | 0.7951 |
| DLNM1 | -0.176007 | 0.204604 | -0.860234 | 0.3897 |
| C | 0.009838 | 0.000537 | 18.33089 | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 3.26E-06 | 1.32E-06 | 2.460566 | 0.0139 |
| RESID(-1)^2 | 0.059538 | 0.009207 | 6.466483 | 0.0000 |
| GARCH(-1) | 0.932203 | 0.008457 | 110.2340 | 0.0000 |
| T\_INTARGS | -2.57E-05 | 1.17E-05 | -2.191042 | 0.0284 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.301145 | Mean dependent var | | -6.27E-05 |
| Adjusted R-squared | 0.298070 | S.D. dependent var | | 0.016180 |
| S.E. of regression | 0.013555 | Akaike info criterion | | -6.376579 |
| Sum squared resid | 0.167028 | Schwarz criterion | | -6.329138 |
| Log likelihood | 2923.097 | Hannan-Quinn criter. | | -6.358470 |
| Durbin-Watson stat | 1.951900 |  |  |  |
|  |  |  |  |  |
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| --- | --- | --- | --- | --- |
| Dependent Variable: CLOSE\_RETURN | | | |  |
| Method: ML ARCH - Normal distribution (Marquardt / EViews legacy) | | | | |
| Date: 02/21/19 Time: 22:58 | | |  |  |
| Sample (adjusted): 2 915 | | |  |  |
| Included observations: 914 after adjustments | | | |  |
| Convergence achieved after 3 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(6) + C(7)\*RESID(-1)^2 + C(8)\*GARCH(-1) + C(9)\*T\_INTARGS | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| T\_PREBSI | 0.002754 | 0.001214 | 2.268381 | 0.0233 |
| DLNCPI | -7.106700 | 2.329905 | -3.050210 | 0.0023 |
| DLNIV | 6.668458 | 3.335629 | 1.999160 | 0.0456 |
| DLNM1 | -1.483483 | 0.430880 | -3.442918 | 0.0006 |
| C | -0.003113 | 0.000882 | -3.531787 | 0.0004 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 0.000178 | 3.93E-06 | 45.14830 | 0.0000 |
| RESID(-1)^2 | 0.150220 | 0.031248 | 4.807363 | 0.0000 |
| GARCH(-1) | 0.528695 | 0.039435 | 13.40672 | 0.0000 |
| T\_INTARGS | -0.001048 | 2.75E-05 | -38.10883 | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.015514 | Mean dependent var | | -6.27E-05 |
| Adjusted R-squared | 0.011182 | S.D. dependent var | | 0.016180 |
| S.E. of regression | 0.016089 | Akaike info criterion | | -5.653254 |
| Sum squared resid | 0.235294 | Schwarz criterion | | -5.605814 |
| Log likelihood | 2592.537 | Hannan-Quinn criter. | | -5.635145 |
| Durbin-Watson stat | 1.965175 |  |  |  |
|  |  |  |  |  |
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| --- | --- | --- | --- | --- |
| Dependent Variable: CLOSE\_RETURN | | | |  |
| Method: ML ARCH - Normal distribution (Marquardt / EViews legacy) | | | | |
| Date: 02/21/19 Time: 22:58 | | |  |  |
| Sample (adjusted): 2 915 | | |  |  |
| Included observations: 914 after adjustments | | | |  |
| Convergence achieved after 37 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(6) + C(7)\*RESID(-1)^2 + C(8)\*GARCH(-1) + C(9)\*T\_INTARGS | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| T\_PREBSI(-1) | -0.000227 | 0.000768 | -0.295867 | 0.7673 |
| DLNCPI | -3.229639 | 1.346672 | -2.398237 | 0.0165 |
| DLNIV | 4.788227 | 1.217375 | 3.933239 | 0.0001 |
| DLNM1 | -0.461062 | 0.241526 | -1.908959 | 0.0563 |
| C | -0.000235 | 0.000520 | -0.452237 | 0.6511 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 5.02E-06 | 1.31E-06 | 3.819121 | 0.0001 |
| RESID(-1)^2 | 0.057782 | 0.007885 | 7.328135 | 0.0000 |
| GARCH(-1) | 0.935906 | 0.006619 | 141.3917 | 0.0000 |
| T\_INTARGS | -4.16E-05 | 1.14E-05 | -3.647061 | 0.0003 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.009223 | Mean dependent var | | -6.27E-05 |
| Adjusted R-squared | 0.004863 | S.D. dependent var | | 0.016180 |
| S.E. of regression | 0.016140 | Akaike info criterion | | -5.986828 |
| Sum squared resid | 0.236798 | Schwarz criterion | | -5.939388 |
| Log likelihood | 2744.981 | Hannan-Quinn criter. | | -5.968719 |
| Durbin-Watson stat | 1.895205 |  |  |  |
|  |  |  |  |  |
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| --- | --- | --- | --- | --- |
| Dependent Variable: CLOSE\_RETURN | | | |  |
| Method: ML ARCH - Normal distribution (Marquardt / EViews legacy) | | | | |
| Date: 02/21/19 Time: 23:00 | | |  |  |
| Sample (adjusted): 2 915 | | |  |  |
| Included observations: 914 after adjustments | | | |  |
| Convergence achieved after 38 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(6) + C(7)\*RESID(-1)^2 + C(8)\*GARCH(-1) + C(9)\*T\_INTARGS | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| T\_INTBSI(-1) | 0.001319 | 0.001072 | 1.229602 | 0.2188 |
| DLNCPI | -2.940352 | 1.344690 | -2.186640 | 0.0288 |
| DLNIV | 4.481009 | 1.239577 | 3.614951 | 0.0003 |
| DLNM1 | -0.419211 | 0.241174 | -1.738211 | 0.0822 |
| C | 0.000396 | 0.000785 | 0.504336 | 0.6140 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 4.86E-06 | 1.28E-06 | 3.799584 | 0.0001 |
| RESID(-1)^2 | 0.058379 | 0.007984 | 7.311863 | 0.0000 |
| GARCH(-1) | 0.935450 | 0.006637 | 140.9530 | 0.0000 |
| T\_INTARGS | -4.01E-05 | 1.12E-05 | -3.583505 | 0.0003 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.014113 | Mean dependent var | | -6.27E-05 |
| Adjusted R-squared | 0.009775 | S.D. dependent var | | 0.016180 |
| S.E. of regression | 0.016100 | Akaike info criterion | | -5.988589 |
| Sum squared resid | 0.235629 | Schwarz criterion | | -5.941149 |
| Log likelihood | 2745.785 | Hannan-Quinn criter. | | -5.970480 |
| Durbin-Watson stat | 1.931511 |  |  |  |
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| Dependent Variable: CLOSE\_RETURN | | | |  |
| Method: ML ARCH - Normal distribution (Marquardt / EViews legacy) | | | | |
| Date: 02/21/19 Time: 23:02 | | |  |  |
| Sample (adjusted): 3 915 | | |  |  |
| Included observations: 913 after adjustments | | | |  |
| Convergence achieved after 3 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(6) + C(7)\*RESID(-1)^2 + C(8)\*GARCH(-1) + C(9)\*T\_INTARGS | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| T\_INTBSI(-2) | 0.002134 | 0.001621 | 1.315956 | 0.1882 |
| DLNCPI | -7.824755 | 2.280966 | -3.430457 | 0.0006 |
| DLNIV | 8.560318 | 3.119426 | 2.744197 | 0.0061 |
| DLNM1 | -1.507504 | 0.426698 | -3.532951 | 0.0004 |
| C | -0.001413 | 0.001455 | -0.971130 | 0.3315 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 0.000179 | 2.21E-06 | 81.01757 | 0.0000 |
| RESID(-1)^2 | 0.151012 | 0.030560 | 4.941428 | 0.0000 |
| GARCH(-1) | 0.528389 | 0.036792 | 14.36157 | 0.0000 |
| T\_INTARGS | -0.001062 | 3.88E-05 | -27.35799 | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.003754 | Mean dependent var | | -6.26E-05 |
| Adjusted R-squared | -0.000635 | S.D. dependent var | | 0.016188 |
| S.E. of regression | 0.016194 | Akaike info criterion | | -5.561763 |
| Sum squared resid | 0.238105 | Schwarz criterion | | -5.514282 |
| Log likelihood | 2547.945 | Hannan-Quinn criter. | | -5.543638 |
| Durbin-Watson stat | 1.886883 |  |  |  |
|  |  |  |  |  |
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| Dependent Variable: CLOSE\_RETURN | | | |  |
| Method: ML ARCH - Normal distribution (Marquardt / EViews legacy) | | | | |
| Date: 02/21/19 Time: 23:02 | | |  |  |
| Sample (adjusted): 3 915 | | |  |  |
| Included observations: 913 after adjustments | | | |  |
| Convergence achieved after 34 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(6) + C(7)\*RESID(-1)^2 + C(8)\*GARCH(-1) + C(9)\*T\_INTARGS | | | | |
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|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| T\_PREBSI(-2) | -0.000347 | 0.000760 | -0.456533 | 0.6480 |
| DLNCPI | -3.191113 | 1.337777 | -2.385385 | 0.0171 |
| DLNIV | 4.786863 | 1.214813 | 3.940412 | 0.0001 |
| DLNM1 | -0.465077 | 0.240198 | -1.936227 | 0.0528 |
| C | -0.000191 | 0.000544 | -0.351070 | 0.7255 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
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|  |  |  |  |  |
| C | 4.73E-06 | 1.30E-06 | 3.646388 | 0.0003 |
| RESID(-1)^2 | 0.056177 | 0.007753 | 7.245563 | 0.0000 |
| GARCH(-1) | 0.937241 | 0.006518 | 143.8018 | 0.0000 |
| T\_INTARGS | -3.92E-05 | 1.14E-05 | -3.430175 | 0.0006 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.008894 | Mean dependent var | | -6.26E-05 |
| Adjusted R-squared | 0.004528 | S.D. dependent var | | 0.016188 |
| S.E. of regression | 0.016152 | Akaike info criterion | | -5.992239 |
| Sum squared resid | 0.236876 | Schwarz criterion | | -5.944757 |
| Log likelihood | 2744.457 | Hannan-Quinn criter. | | -5.974113 |
| Durbin-Watson stat | 1.896055 |  |  |  |
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| Dependent Variable: CLOSE\_RETURN | | | |  |
| Method: ML ARCH - Normal distribution (Marquardt / EViews legacy) | | | | |
| Date: 02/21/19 Time: 23:03 | | |  |  |
| Sample (adjusted): 2 915 | | |  |  |
| Included observations: 914 after adjustments | | | |  |
| Convergence achieved after 3 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(6) + C(7)\*RESID(-1)^2 + C(8)\*GARCH(-1) + C(9)\*T\_INTARGS | | | | |
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|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| T\_PREALLBSI | 0.004412 | 0.001350 | 3.268660 | 0.0011 |
| DLNCPI | -6.808797 | 2.297919 | -2.963027 | 0.0030 |
| DLNIV | 4.241200 | 3.671906 | 1.155041 | 0.2481 |
| DLNM1 | -1.413694 | 0.421971 | -3.350213 | 0.0008 |
| C | -0.000510 | 0.001243 | -0.410757 | 0.6813 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
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|  |  |  |  |  |
| C | 0.000178 | 2.41E-05 | 7.372539 | 0.0000 |
| RESID(-1)^2 | 0.150221 | 0.023256 | 6.459572 | 0.0000 |
| GARCH(-1) | 0.529068 | 0.029224 | 18.10397 | 0.0000 |
| T\_INTARGS | -0.001050 | 0.000171 | -6.156382 | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.019459 | Mean dependent var | | -6.27E-05 |
| Adjusted R-squared | 0.015144 | S.D. dependent var | | 0.016180 |
| S.E. of regression | 0.016057 | Akaike info criterion | | -5.273581 |
| Sum squared resid | 0.234351 | Schwarz criterion | | -5.226141 |
| Log likelihood | 2419.027 | Hannan-Quinn criter. | | -5.255472 |
| Durbin-Watson stat | 2.012017 |  |  |  |
|  |  |  |  |  |
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| Dependent Variable: CLOSE\_RETURN | | | |  |
| Method: ML ARCH - Normal distribution (Marquardt / EViews legacy) | | | | |
| Date: 02/21/19 Time: 23:03 | | |  |  |
| Sample (adjusted): 2 915 | | |  |  |
| Included observations: 914 after adjustments | | | |  |
| Convergence achieved after 3 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(6) + C(7)\*RESID(-1)^2 + C(8)\*GARCH(-1) + C(9)\*T\_INTARGS | | | | |
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|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| T\_PREALLBSI(-1) | 9.98E-05 | 0.001272 | 0.078465 | 0.9375 |
| DLNCPI | -7.929033 | 2.318892 | -3.419319 | 0.0006 |
| DLNIV | 8.792357 | 3.196252 | 2.750833 | 0.0059 |
| DLNM1 | -1.533927 | 0.430616 | -3.562166 | 0.0004 |
| C | -0.002300 | 0.001002 | -2.296086 | 0.0217 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 0.000179 | 6.34E-06 | 28.32702 | 0.0000 |
| RESID(-1)^2 | 0.151620 | 0.031389 | 4.830311 | 0.0000 |
| GARCH(-1) | 0.528801 | 0.043303 | 12.21172 | 0.0000 |
| T\_INTARGS | -0.001059 | 1.43E-05 | -73.91249 | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.007892 | Mean dependent var | | -6.27E-05 |
| Adjusted R-squared | 0.003526 | S.D. dependent var | | 0.016180 |
| S.E. of regression | 0.016151 | Akaike info criterion | | -5.660214 |
| Sum squared resid | 0.237116 | Schwarz criterion | | -5.612774 |
| Log likelihood | 2595.718 | Hannan-Quinn criter. | | -5.642105 |
| Durbin-Watson stat | 1.888943 |  |  |  |
|  |  |  |  |  |
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| Dependent Variable: CLOSE\_RETURN | | | |  |
| Method: ML ARCH - Normal distribution (Marquardt / EViews legacy) | | | | |
| Date: 02/21/19 Time: 23:03 | | |  |  |
| Sample (adjusted): 3 915 | | |  |  |
| Included observations: 913 after adjustments | | | |  |
| Convergence achieved after 34 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(6) + C(7)\*RESID(-1)^2 + C(8)\*GARCH(-1) + C(9)\*T\_INTARGS | | | | |
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|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| T\_PREALLBSI(-2) | -0.000456 | 0.000787 | -0.579348 | 0.5624 |
| DLNCPI | -3.259965 | 1.348575 | -2.417341 | 0.0156 |
| DLNIV | 4.796783 | 1.210912 | 3.961297 | 0.0001 |
| DLNM1 | -0.479087 | 0.241143 | -1.986739 | 0.0470 |
| C | -0.000372 | 0.000490 | -0.759133 | 0.4478 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 4.79E-06 | 1.30E-06 | 3.691356 | 0.0002 |
| RESID(-1)^2 | 0.055961 | 0.007750 | 7.220839 | 0.0000 |
| GARCH(-1) | 0.937342 | 0.006527 | 143.6015 | 0.0000 |
| T\_INTARGS | -3.96E-05 | 1.14E-05 | -3.475331 | 0.0005 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.008641 | Mean dependent var | | -6.26E-05 |
| Adjusted R-squared | 0.004273 | S.D. dependent var | | 0.016188 |
| S.E. of regression | 0.016154 | Akaike info criterion | | -5.992401 |
| Sum squared resid | 0.236937 | Schwarz criterion | | -5.944919 |
| Log likelihood | 2744.531 | Hannan-Quinn criter. | | -5.974275 |
| Durbin-Watson stat | 1.894927 |  |  |  |
|  |  |  |  |  |
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| Dependent Variable: CLOSE\_RETURN | | | |  |
| Method: ML ARCH - Normal distribution (Marquardt / EViews legacy) | | | | |
| Date: 02/21/19 Time: 23:08 | | |  |  |
| Sample (adjusted): 2 915 | | |  |  |
| Included observations: 914 after adjustments | | | |  |
| Convergence achieved after 40 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(6) + C(7)\*RESID(-1)^2 + C(8)\*GARCH(-1) + C(9)\*T\_PREARGS | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| T\_PREBSI | 0.001916 | 0.000759 | 2.525197 | 0.0116 |
| DLNCPI | -2.911812 | 1.388328 | -2.097351 | 0.0360 |
| DLNIV | 4.207428 | 1.368042 | 3.075511 | 0.0021 |
| DLNM1 | -0.540766 | 0.246885 | -2.190355 | 0.0285 |
| C | -0.000895 | 0.000503 | -1.777840 | 0.0754 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 2.34E-06 | 8.52E-07 | 2.748441 | 0.0060 |
| RESID(-1)^2 | 0.059536 | 0.007708 | 7.724196 | 0.0000 |
| GARCH(-1) | 0.937846 | 0.006094 | 153.8946 | 0.0000 |
| T\_PREARGS | -1.67E-05 | 7.17E-06 | -2.329380 | 0.0198 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.019429 | Mean dependent var | | -6.27E-05 |
| Adjusted R-squared | 0.015114 | S.D. dependent var | | 0.016180 |
| S.E. of regression | 0.016057 | Akaike info criterion | | -5.987167 |
| Sum squared resid | 0.234359 | Schwarz criterion | | -5.939727 |
| Log likelihood | 2745.136 | Hannan-Quinn criter. | | -5.969058 |
| Durbin-Watson stat | 1.959720 |  |  |  |
|  |  |  |  |  |
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| Dependent Variable: CLOSE\_RETURN | | | |  |
| Method: ML ARCH - Normal distribution (Marquardt / EViews legacy) | | | | |
| Date: 02/21/19 Time: 23:08 | | |  |  |
| Sample (adjusted): 2 915 | | |  |  |
| Included observations: 914 after adjustments | | | |  |
| Convergence achieved after 35 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(6) + C(7)\*RESID(-1)^2 + C(8)\*GARCH(-1) + C(9)\*T\_INTARGS( | | | | |
| -1) | |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| T\_PREBSI | 0.001836 | 0.000770 | 2.382816 | 0.0172 |
| DLNCPI | -2.811431 | 1.392259 | -2.019331 | 0.0435 |
| DLNIV | 4.045924 | 1.325073 | 3.053361 | 0.0023 |
| DLNM1 | -0.486941 | 0.245758 | -1.981386 | 0.0475 |
| C | -0.000787 | 0.000508 | -1.550884 | 0.1209 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 4.93E-06 | 1.37E-06 | 3.608511 | 0.0003 |
| RESID(-1)^2 | 0.059725 | 0.008254 | 7.235699 | 0.0000 |
| GARCH(-1) | 0.934093 | 0.006859 | 136.1892 | 0.0000 |
| T\_INTARGS(-1) | -4.07E-05 | 1.19E-05 | -3.414904 | 0.0006 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.018540 | Mean dependent var | | -6.27E-05 |
| Adjusted R-squared | 0.014221 | S.D. dependent var | | 0.016180 |
| S.E. of regression | 0.016064 | Akaike info criterion | | -5.992663 |
| Sum squared resid | 0.234571 | Schwarz criterion | | -5.945223 |
| Log likelihood | 2747.647 | Hannan-Quinn criter. | | -5.974554 |
| Durbin-Watson stat | 1.956021 |  |  |  |
|  |  |  |  |  |
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| Dependent Variable: CLOSE\_RETURN | | | |  |
| Method: ML ARCH - Normal distribution (Marquardt / EViews legacy) | | | | |
| Date: 02/21/19 Time: 23:08 | | |  |  |
| Sample (adjusted): 3 915 | | |  |  |
| Included observations: 913 after adjustments | | | |  |
| Convergence achieved after 31 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(6) + C(7)\*RESID(-1)^2 + C(8)\*GARCH(-1) + C(9)\*T\_PREARGS( | | | | |
| -2) | |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| T\_PREBSI | 0.001898 | 0.000755 | 2.513186 | 0.0120 |
| DLNCPI | -2.935476 | 1.392175 | -2.108554 | 0.0350 |
| DLNIV | 4.337397 | 1.388285 | 3.124283 | 0.0018 |
| DLNM1 | -0.564862 | 0.247920 | -2.278406 | 0.0227 |
| C | -0.000909 | 0.000502 | -1.811846 | 0.0700 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 2.10E-06 | 8.17E-07 | 2.572075 | 0.0101 |
| RESID(-1)^2 | 0.058807 | 0.007651 | 7.686670 | 0.0000 |
| GARCH(-1) | 0.938216 | 0.006032 | 155.5503 | 0.0000 |
| T\_PREARGS(-2) | -1.45E-05 | 6.97E-06 | -2.077271 | 0.0378 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.019493 | Mean dependent var | | -6.26E-05 |
| Adjusted R-squared | 0.015173 | S.D. dependent var | | 0.016188 |
| S.E. of regression | 0.016065 | Akaike info criterion | | -5.992309 |
| Sum squared resid | 0.234343 | Schwarz criterion | | -5.944827 |
| Log likelihood | 2744.489 | Hannan-Quinn criter. | | -5.974183 |
| Durbin-Watson stat | 1.959656 |  |  |  |
|  |  |  |  |  |
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| Dependent Variable: CLOSE\_RETURN | | | |  |
| Method: ML ARCH - Normal distribution (Marquardt / EViews legacy) | | | | |
| Date: 02/21/19 Time: 23:09 | | |  |  |
| Sample (adjusted): 3 915 | | |  |  |
| Included observations: 913 after adjustments | | | |  |
| Convergence achieved after 35 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(6) + C(7)\*RESID(-1)^2 + C(8)\*GARCH(-1) + C(9)\*T\_INTARGS( | | | | |
| -2) | |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| T\_PREBSI | 0.001825 | 0.000768 | 2.377136 | 0.0174 |
| DLNCPI | -2.791196 | 1.393902 | -2.002434 | 0.0452 |
| DLNIV | 4.198764 | 1.342237 | 3.128183 | 0.0018 |
| DLNM1 | -0.519357 | 0.246649 | -2.105658 | 0.0352 |
| C | -0.000818 | 0.000507 | -1.613816 | 0.1066 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 4.76E-06 | 1.38E-06 | 3.461179 | 0.0005 |
| RESID(-1)^2 | 0.058787 | 0.008184 | 7.183314 | 0.0000 |
| GARCH(-1) | 0.934467 | 0.006817 | 137.0837 | 0.0000 |
| T\_INTARGS(-2) | -3.90E-05 | 1.20E-05 | -3.240817 | 0.0012 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.018652 | Mean dependent var | | -6.26E-05 |
| Adjusted R-squared | 0.014329 | S.D. dependent var | | 0.016188 |
| S.E. of regression | 0.016072 | Akaike info criterion | | -5.997807 |
| Sum squared resid | 0.234544 | Schwarz criterion | | -5.950325 |
| Log likelihood | 2746.999 | Hannan-Quinn criter. | | -5.979681 |
| Durbin-Watson stat | 1.956452 |  |  |  |
|  |  |  |  |  |
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| Dependent Variable: CLOSE\_RETURN | | | |  |
| Method: ML ARCH - Normal distribution (Marquardt / EViews legacy) | | | | |
| Date: 02/21/19 Time: 23:09 | | |  |  |
| Sample (adjusted): 2 915 | | |  |  |
| Included observations: 914 after adjustments | | | |  |
| Convergence achieved after 31 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(6) + C(7)\*RESID(-1)^2 + C(8)\*GARCH(-1) + C(9) | | | | |
| \*T\_PREALLARGS | | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| T\_PREBSI | 0.001925 | 0.000753 | 2.555150 | 0.0106 |
| DLNCPI | -2.872717 | 1.418668 | -2.024940 | 0.0429 |
| DLNIV | 4.106607 | 1.397852 | 2.937799 | 0.0033 |
| DLNM1 | -0.514842 | 0.248987 | -2.067743 | 0.0387 |
| C | -0.000858 | 0.000502 | -1.707631 | 0.0877 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 2.53E-06 | 1.13E-06 | 2.237490 | 0.0253 |
| RESID(-1)^2 | 0.061798 | 0.007859 | 7.863445 | 0.0000 |
| GARCH(-1) | 0.936082 | 0.006201 | 150.9684 | 0.0000 |
| T\_PREALLARGS | -3.31E-05 | 1.78E-05 | -1.862130 | 0.0626 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.019219 | Mean dependent var | | -6.27E-05 |
| Adjusted R-squared | 0.014903 | S.D. dependent var | | 0.016180 |
| S.E. of regression | 0.016059 | Akaike info criterion | | -5.985848 |
| Sum squared resid | 0.234409 | Schwarz criterion | | -5.938407 |
| Log likelihood | 2744.532 | Hannan-Quinn criter. | | -5.967738 |
| Durbin-Watson stat | 1.959428 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Dependent Variable: CLOSE\_RETURN | | | |  |
| Method: ML ARCH - Normal distribution (Marquardt / EViews legacy) | | | | |
| Date: 02/21/19 Time: 23:10 | | |  |  |
| Sample (adjusted): 2 915 | | |  |  |
| Included observations: 914 after adjustments | | | |  |
| Convergence achieved after 41 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(6) + C(7)\*RESID(-1)^2 + C(8)\*GARCH(-1) + C(9) | | | | |
| \*T\_PREALLARGS(-1) | | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| T\_PREBSI | 0.001940 | 0.000753 | 2.575309 | 0.0100 |
| DLNCPI | -2.899561 | 1.413869 | -2.050799 | 0.0403 |
| DLNIV | 4.174787 | 1.399763 | 2.982496 | 0.0029 |
| DLNM1 | -0.535852 | 0.249598 | -2.146861 | 0.0318 |
| C | -0.000872 | 0.000503 | -1.734243 | 0.0829 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 2.47E-06 | 1.13E-06 | 2.185157 | 0.0289 |
| RESID(-1)^2 | 0.062223 | 0.007898 | 7.878808 | 0.0000 |
| GARCH(-1) | 0.935705 | 0.006237 | 150.0365 | 0.0000 |
| T\_PREALLARGS(-1) | -3.20E-05 | 1.77E-05 | -1.806035 | 0.0709 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.019410 | Mean dependent var | | -6.27E-05 |
| Adjusted R-squared | 0.015095 | S.D. dependent var | | 0.016180 |
| S.E. of regression | 0.016057 | Akaike info criterion | | -5.985719 |
| Sum squared resid | 0.234363 | Schwarz criterion | | -5.938279 |
| Log likelihood | 2744.474 | Hannan-Quinn criter. | | -5.967610 |
| Durbin-Watson stat | 1.960248 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Dependent Variable: CLOSE\_RETURN | | | |  |
| Method: ML ARCH - Normal distribution (Marquardt / EViews legacy) | | | | |
| Date: 02/21/19 Time: 23:11 | | |  |  |
| Sample (adjusted): 3 915 | | |  |  |
| Included observations: 913 after adjustments | | | |  |
| Convergence achieved after 31 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(6) + C(7)\*RESID(-1)^2 + C(8)\*GARCH(-1) + C(9) | | | | |
| \*T\_PREALLARGS(-2) | | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| T\_PREBSI | 0.001900 | 0.000753 | 2.523849 | 0.0116 |
| DLNCPI | -2.913931 | 1.408775 | -2.068415 | 0.0386 |
| DLNIV | 4.253002 | 1.398091 | 3.042007 | 0.0024 |
| DLNM1 | -0.551704 | 0.248617 | -2.219092 | 0.0265 |
| C | -0.000874 | 0.000501 | -1.742643 | 0.0814 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 2.44E-06 | 1.08E-06 | 2.250874 | 0.0244 |
| RESID(-1)^2 | 0.060473 | 0.007795 | 7.757911 | 0.0000 |
| GARCH(-1) | 0.936717 | 0.006141 | 152.5335 | 0.0000 |
| T\_PREALLARGS(-2) | -3.15E-05 | 1.71E-05 | -1.838907 | 0.0659 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.019355 | Mean dependent var | | -6.26E-05 |
| Adjusted R-squared | 0.015035 | S.D. dependent var | | 0.016188 |
| S.E. of regression | 0.016066 | Akaike info criterion | | -5.991835 |
| Sum squared resid | 0.234376 | Schwarz criterion | | -5.944354 |
| Log likelihood | 2744.273 | Hannan-Quinn criter. | | -5.973709 |
| Durbin-Watson stat | 1.959320 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

1. 沪深300情绪一致性指数、情绪指数与沪深300交易量的关系
2. 单位根检验

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 变量 | 检验形式 | 滞后阶数(SIC) | t值 | P值 | 10%临界值 | 5%临界值 | 1%临界值 |
| Lnvolume | C | 2 | -3.983938 | 0.0016 | -2.568397 | -2.864496 | -3.437298 |

1. 格兰杰因果检验

|  |  |  |  |
| --- | --- | --- | --- |
| Pairwise Granger Causality Tests | | | |
| Date: 02/22/19 Time: 01:15 | | | |
| Sample: 1 915 | | |  |
| Lags: 6 | |  |  |
|  |  |  |  |
|  |  |  |  |
| Null Hypothesis: | Obs | F-Statistic | Prob. |
|  |  |  |  |
|  |  |  |  |
| T\_INTBSI does not Granger Cause LNVOLUME | 909 | 4.36968 | 0.0002 |
| LNVOLUME does not Granger Cause T\_INTBSI | | 2.01385 | 0.0613 |
|  |  |  |  |
|  |  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| Pairwise Granger Causality Tests | | | |
| Date: 02/22/19 Time: 01:16 | | | |
| Sample: 1 915 | | |  |
| Lags: 11 | |  |  |
|  |  |  |  |
|  |  |  |  |
| Null Hypothesis: | Obs | F-Statistic | Prob. |
|  |  |  |  |
|  |  |  |  |
| T\_PREBSI does not Granger Cause LNVOLUME | 904 | 2.26666 | 0.0100 |
| LNVOLUME does not Granger Cause T\_PREBSI | | 1.04620 | 0.4030 |
|  |  |  |  |
|  |  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| Pairwise Granger Causality Tests | | | |
| Date: 02/22/19 Time: 01:17 | | | |
| Sample: 1 915 | | |  |
| Lags: 11 | |  |  |
|  |  |  |  |
|  |  |  |  |
| Null Hypothesis: | Obs | F-Statistic | Prob. |
|  |  |  |  |
|  |  |  |  |
| T\_PREBSI(1) does not Granger Cause LNVOLUME | 903 | 6.68880 | 8.E-11 |
| LNVOLUME does not Granger Cause T\_PREBSI(1) | | 1.35339 | 0.1900 |
|  |  |  |  |
|  |  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| Pairwise Granger Causality Tests | | | |
| Date: 02/22/19 Time: 01:17 | | | |
| Sample: 1 915 | | |  |
| Lags: 11 | |  |  |
|  |  |  |  |
|  |  |  |  |
| Null Hypothesis: | Obs | F-Statistic | Prob. |
|  |  |  |  |
|  |  |  |  |
| T\_PREALLBSI does not Granger Cause LNVOLUME | 904 | 3.13122 | 0.0004 |
| LNVOLUME does not Granger Cause T\_PREALLBSI | | 0.99479 | 0.4491 |
|  |  |  |  |
|  |  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| Pairwise Granger Causality Tests | | | |
| Date: 02/22/19 Time: 01:19 | | | |
| Sample: 1 915 | | |  |
| Lags: 11 | |  |  |
|  |  |  |  |
|  |  |  |  |
| Null Hypothesis: | Obs | F-Statistic | Prob. |
|  |  |  |  |
|  |  |  |  |
| T\_PREALLBSI(1) does not Granger Cause LNVOLUME | 903 | 8.09744 | 1.E-13 |
| LNVOLUME does not Granger Cause T\_PREALLBSI(1) | | 1.08235 | 0.3722 |
|  |  |  |  |
|  |  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| Pairwise Granger Causality Tests | | | |
| Date: 02/22/19 Time: 01:20 | | | |
| Sample: 1 915 | | |  |
| Lags: 7 | |  |  |
|  |  |  |  |
|  |  |  |  |
| Null Hypothesis: | Obs | F-Statistic | Prob. |
|  |  |  |  |
|  |  |  |  |
| T\_INTARGS does not Granger Cause LNVOLUME | 908 | 1.37268 | 0.2134 |
| LNVOLUME does not Granger Cause T\_INTARGS | | 5.13580 | 1.E-05 |
|  |  |  |  |
|  |  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| Pairwise Granger Causality Tests | | | |
| Date: 02/22/19 Time: 01:22 | | | |
| Sample: 1 915 | | |  |
| Lags: 15 | |  |  |
|  |  |  |  |
|  |  |  |  |
| Null Hypothesis: | Obs | F-Statistic | Prob. |
|  |  |  |  |
|  |  |  |  |
| T\_PREARGS does not Granger Cause LNVOLUME | 900 | 1.83419 | 0.0265 |
| LNVOLUME does not Granger Cause T\_PREARGS | | 2.40051 | 0.0021 |
|  |  |  |  |
|  |  |  |  |

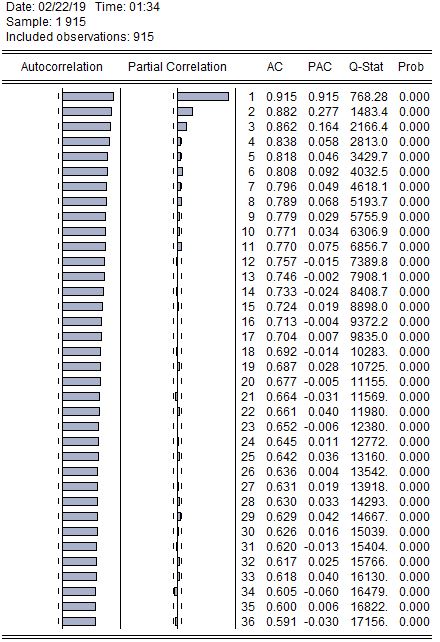
|  |  |  |  |
| --- | --- | --- | --- |
| Pairwise Granger Causality Tests | | | |
| Date: 02/22/19 Time: 01:22 | | | |
| Sample: 1 915 | | |  |
| Lags: 15 | |  |  |
|  |  |  |  |
|  |  |  |  |
| Null Hypothesis: | Obs | F-Statistic | Prob. |
|  |  |  |  |
|  |  |  |  |
| T\_PREARGS(1) does not Granger Cause LNVOLUME | 899 | 1.83096 | 0.0268 |
| LNVOLUME does not Granger Cause T\_PREARGS(1) | | 2.31580 | 0.0031 |
|  |  |  |  |
|  |  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| Pairwise Granger Causality Tests | | | |
| Date: 02/22/19 Time: 01:24 | | | |
| Sample: 1 915 | | |  |
| Lags: 6 | |  |  |
|  |  |  |  |
|  |  |  |  |
| Null Hypothesis: | Obs | F-Statistic | Prob. |
|  |  |  |  |
|  |  |  |  |
| T\_PREALLARGS does not Granger Cause LNVOLUME | 909 | 0.96990 | 0.4444 |
| LNVOLUME does not Granger Cause T\_PREALLARGS | | 7.71217 | 4.E-08 |
|  |  |  |  |
|  |  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| Pairwise Granger Causality Tests | | | |
| Date: 02/22/19 Time: 01:26 | | | |
| Sample: 1 915 | | |  |
| Lags: 6 | |  |  |
|  |  |  |  |
|  |  |  |  |
| Null Hypothesis: | Obs | F-Statistic | Prob. |
|  |  |  |  |
|  |  |  |  |
| T\_PREALLARGS(1) does not Granger Cause LNVOLUME | 908 | 1.45638 | 0.1902 |
| LNVOLUME does not Granger Cause T\_PREALLARGS(1) | | 5.84453 | 5.E-06 |
|  |  |  |  |
|  |  |  |  |

1. 建立AR模型

观察lnvolume的自相关和偏自相关函数图：



可以看出，自相关函数是拖尾的，偏自相关函数是截尾的。可以用AR模型进行建模。根据偏自相关截尾的阶数，选择1,2,3,6,8阶，并加入dlnm1，dlniv, dlncpi外生控制变量，得到如下模型：

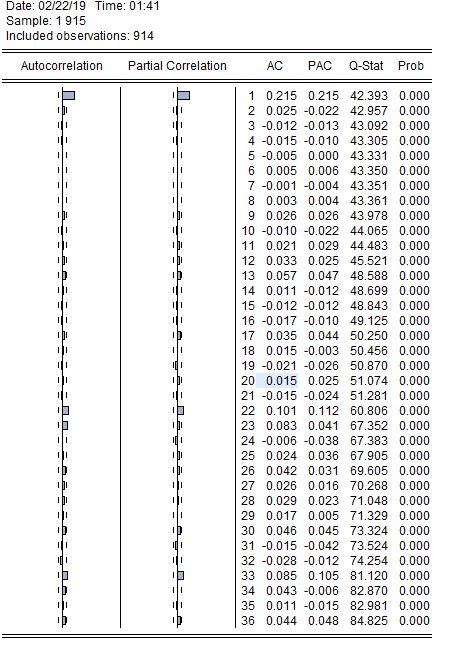
|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Dependent Variable: LNVOLUME | | |  |  |
| Method: ARMA Generalized Least Squares (Gauss-Newton) | | | | |
| Date: 02/22/19 Time: 01:38 | | |  |  |
| Sample: 2 915 | |  |  |  |
| Included observations: 914 | | |  |  |
| Convergence achieved after 9 iterations | | | |  |
| Coefficient covariance computed using outer product of gradients | | | | |
| d.f. adjustment for standard errors & covariance | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| DLNM1 | 12.88690 | 8.765637 | 1.470162 | 0.1419 |
| DLNIV | 104.5831 | 39.75013 | 2.631014 | 0.0087 |
| DLNCPI | -13.74502 | 39.73175 | -0.345946 | 0.7295 |
| C | 18.67931 | 0.218123 | 85.63656 | 0.0000 |
| AR(1) | 0.583259 | 0.033147 | 17.59608 | 0.0000 |
| AR(2) | 0.147485 | 0.038344 | 3.846376 | 0.0001 |
| AR(3) | 0.115386 | 0.035495 | 3.250815 | 0.0012 |
| AR(6) | 0.054946 | 0.031707 | 1.732935 | 0.0834 |
| AR(8) | 0.069944 | 0.028092 | 2.489844 | 0.0130 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.865416 | Mean dependent var | | 18.67446 |
| Adjusted R-squared | 0.864227 | S.D. dependent var | | 0.557626 |
| S.E. of regression | 0.205471 | Akaike info criterion | | -0.314585 |
| Sum squared resid | 38.20755 | Schwarz criterion | | -0.267145 |
| Log likelihood | 152.7654 | Hannan-Quinn criter. | | -0.296476 |
| F-statistic | 727.4298 | Durbin-Watson stat | | 2.003930 |
| Prob(F-statistic) | 0.000000 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Inverted AR Roots | .99 | .56-.45i | .56+.45i | .03-.65i |
|  | .03+.65i | -.44+.53i | -.44-.53i | -.69 |
|  |  |  |  |  |
|  |  |  |  |  |

上述模型中，dlncpi不显著，去掉后重新构建模型如下：

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Dependent Variable: LNVOLUME | | |  |  |
| Method: ARMA Generalized Least Squares (Gauss-Newton) | | | | |
| Date: 02/22/19 Time: 01:39 | | |  |  |
| Sample: 2 915 | |  |  |  |
| Included observations: 914 | | |  |  |
| Convergence achieved after 8 iterations | | | |  |
| Coefficient covariance computed using outer product of gradients | | | | |
| d.f. adjustment for standard errors & covariance | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| DLNM1 | 15.45594 | 4.691354 | 3.294558 | 0.0010 |
| DLNIV | 95.03032 | 28.62130 | 3.320265 | 0.0009 |
| C | 18.67927 | 0.218018 | 85.67760 | 0.0000 |
| AR(1) | 0.582764 | 0.033116 | 17.59772 | 0.0000 |
| AR(2) | 0.148255 | 0.038271 | 3.873809 | 0.0001 |
| AR(3) | 0.115482 | 0.035480 | 3.254812 | 0.0012 |
| AR(6) | 0.054419 | 0.031669 | 1.718355 | 0.0861 |
| AR(8) | 0.070100 | 0.028072 | 2.497163 | 0.0127 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.865398 | Mean dependent var | | 18.67446 |
| Adjusted R-squared | 0.864359 | S.D. dependent var | | 0.557626 |
| S.E. of regression | 0.205371 | Akaike info criterion | | -0.316641 |
| Sum squared resid | 38.21259 | Schwarz criterion | | -0.274472 |
| Log likelihood | 152.7050 | Hannan-Quinn criter. | | -0.300544 |
| F-statistic | 832.1400 | Durbin-Watson stat | | 2.004035 |
| Prob(F-statistic) | 0.000000 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Inverted AR Roots | .99 | .56+.45i | .56-.45i | .03-.65i |
|  | .03+.65i | -.44-.53i | -.44+.53i | -.69 |
|  |  |  |  |  |
|  |  |  |  |  |

上述模型拟合效果良好。

但是，观察上述方程的残差平方的自相关函数和偏相关函数图：



并通过ARCH异方差检验

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Heteroskedasticity Test: ARCH | | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| F-statistic | 4.555061 | Prob. F(10,893) | | 0.0000 |
| Obs\*R-squared | 43.87377 | Prob. Chi-Square(10) | | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Test Equation: | |  |  |  |
| Dependent Variable: RESID^2 | | |  |  |
| Method: Least Squares | | |  |  |
| Date: 02/22/19 Time: 01:40 | | |  |  |
| Sample (adjusted): 12 915 | | |  |  |
| Included observations: 904 after adjustments | | | |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 0.033800 | 0.004550 | 7.429260 | 0.0000 |
| RESID^2(-1) | 0.220728 | 0.033457 | 6.597415 | 0.0000 |
| RESID^2(-2) | -0.018493 | 0.034247 | -0.539976 | 0.5893 |
| RESID^2(-3) | -0.011079 | 0.034253 | -0.323456 | 0.7464 |
| RESID^2(-4) | -0.009478 | 0.034251 | -0.276715 | 0.7821 |
| RESID^2(-5) | -0.003380 | 0.034279 | -0.098602 | 0.9215 |
| RESID^2(-6) | 0.008125 | 0.034287 | 0.236969 | 0.8127 |
| RESID^2(-7) | -0.004128 | 0.034294 | -0.120364 | 0.9042 |
| RESID^2(-8) | -0.002101 | 0.034291 | -0.061271 | 0.9512 |
| RESID^2(-9) | 0.030535 | 0.034282 | 0.890689 | 0.3733 |
| RESID^2(-10) | -0.021796 | 0.033462 | -0.651369 | 0.5150 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.048533 | Mean dependent var | | 0.041675 |
| Adjusted R-squared | 0.037878 | S.D. dependent var | | 0.083692 |
| S.E. of regression | 0.082092 | Akaike info criterion | | -2.149859 |
| Sum squared resid | 6.018014 | Schwarz criterion | | -2.091369 |
| Log likelihood | 982.7361 | Hannan-Quinn criter. | | -2.127520 |
| F-statistic | 4.555061 | Durbin-Watson stat | | 1.998454 |
| Prob(F-statistic) | 0.000003 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

因此更好的选择是建立GARCH模型。

1. Garch模型

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Dependent Variable: LNVOLUME | | |  |  |
| Method: ML ARCH - Normal distribution (Newton-Raphson / Marquardt | | | | |
| steps) | |  |  |  |
| Date: 02/22/19 Time: 01:44 | | |  |  |
| Sample (adjusted): 2 915 | | |  |  |
| Included observations: 914 after adjustments | | | |  |
| Convergence achieved after 13 iterations | | | |  |
| Coefficient covariance computed using outer product of gradients | | | | |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(10) + C(11)\*RESID(-1)^2 + C(12)\*RESID(-2)^2 | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| T\_INTBSI | 0.056534 | 0.019045 | 2.968527 | 0.0030 |
| DLNM1 | 16.10867 | 4.703539 | 3.424798 | 0.0006 |
| DLNIV | 83.49442 | 26.98987 | 3.093546 | 0.0020 |
| C | 18.67701 | 0.221319 | 84.38957 | 0.0000 |
| AR(1) | 0.592294 | 0.035153 | 16.84895 | 0.0000 |
| AR(2) | 0.159089 | 0.043108 | 3.690522 | 0.0002 |
| AR(3) | 0.102749 | 0.037253 | 2.758092 | 0.0058 |
| AR(6) | 0.058856 | 0.033418 | 1.761207 | 0.0782 |
| AR(8) | 0.059429 | 0.028673 | 2.072640 | 0.0382 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 0.033831 | 0.002128 | 15.90029 | 0.0000 |
| RESID(-1)^2 | 0.092574 | 0.028940 | 3.198773 | 0.0014 |
| RESID(-2)^2 | 0.088012 | 0.030500 | 2.885635 | 0.0039 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.866612 | Mean dependent var | | 18.67446 |
| Adjusted R-squared | 0.865433 | S.D. dependent var | | 0.557626 |
| S.E. of regression | 0.204556 | Akaike info criterion | | -0.344221 |
| Sum squared resid | 37.86816 | Schwarz criterion | | -0.280967 |
| Log likelihood | 169.3090 | Hannan-Quinn criter. | | -0.320076 |
| Durbin-Watson stat | 2.036008 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Inverted AR Roots | .99 | .54+.45i | .54-.45i | .03-.63i |
|  | .03+.63i | -.43+.52i | -.43-.52i | -.68 |
|  |  |  |  |  |
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| Dependent Variable: LNVOLUME | | |  |  |
| Method: ML ARCH - Normal distribution (Newton-Raphson / Marquardt | | | | |
| steps) | |  |  |  |
| Date: 02/22/19 Time: 01:45 | | |  |  |
| Sample (adjusted): 2 915 | | |  |  |
| Included observations: 914 after adjustments | | | |  |
| Convergence achieved after 12 iterations | | | |  |
| Coefficient covariance computed using outer product of gradients | | | | |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(10) + C(11)\*RESID(-1)^2 + C(12)\*RESID(-2)^2 | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| T\_INTBSI(-1) | 0.081711 | 0.022095 | 3.698212 | 0.0002 |
| DLNM1 | 16.73293 | 4.744470 | 3.526828 | 0.0004 |
| DLNIV | 87.30989 | 26.93526 | 3.241472 | 0.0012 |
| C | 18.69693 | 0.215759 | 86.65638 | 0.0000 |
| AR(1) | 0.585760 | 0.035915 | 16.30941 | 0.0000 |
| AR(2) | 0.165403 | 0.044347 | 3.729721 | 0.0002 |
| AR(3) | 0.104115 | 0.037371 | 2.785999 | 0.0053 |
| AR(6) | 0.063241 | 0.033573 | 1.883670 | 0.0596 |
| AR(8) | 0.053025 | 0.028597 | 1.854226 | 0.0637 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 0.033125 | 0.002020 | 16.39827 | 0.0000 |
| RESID(-1)^2 | 0.098060 | 0.029379 | 3.337787 | 0.0008 |
| RESID(-2)^2 | 0.096743 | 0.026010 | 3.719498 | 0.0002 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.866825 | Mean dependent var | | 18.67446 |
| Adjusted R-squared | 0.865648 | S.D. dependent var | | 0.557626 |
| S.E. of regression | 0.204393 | Akaike info criterion | | -0.351672 |
| Sum squared resid | 37.80763 | Schwarz criterion | | -0.288418 |
| Log likelihood | 172.7141 | Hannan-Quinn criter. | | -0.327527 |
| Durbin-Watson stat | 2.043419 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Inverted AR Roots | .99 | .53+.44i | .53-.44i | .02-.61i |
|  | .02+.61i | -.42-.52i | -.42+.52i | -.68 |
|  |  |  |  |  |
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| --- | --- | --- | --- | --- |
| Dependent Variable: LNVOLUME | | |  |  |
| Method: ML ARCH - Normal distribution (Newton-Raphson / Marquardt | | | | |
| steps) | |  |  |  |
| Date: 02/22/19 Time: 01:46 | | |  |  |
| Sample (adjusted): 3 915 | | |  |  |
| Included observations: 913 after adjustments | | | |  |
| Convergence achieved after 12 iterations | | | |  |
| Coefficient covariance computed using outer product of gradients | | | | |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(10) + C(11)\*RESID(-1)^2 + C(12)\*RESID(-2)^2 | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| T\_INTBSI(-2) | 0.018749 | 0.025207 | 0.743785 | 0.4570 |
| DLNM1 | 16.32634 | 4.539592 | 3.596434 | 0.0003 |
| DLNIV | 89.06783 | 26.40873 | 3.372667 | 0.0007 |
| C | 18.65119 | 0.221537 | 84.18994 | 0.0000 |
| AR(1) | 0.593628 | 0.035160 | 16.88384 | 0.0000 |
| AR(2) | 0.160417 | 0.043380 | 3.697959 | 0.0002 |
| AR(3) | 0.099888 | 0.037358 | 2.673795 | 0.0075 |
| AR(6) | 0.062313 | 0.033462 | 1.862209 | 0.0626 |
| AR(8) | 0.055724 | 0.028629 | 1.946414 | 0.0516 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 0.033695 | 0.002082 | 16.18148 | 0.0000 |
| RESID(-1)^2 | 0.097194 | 0.029528 | 3.291550 | 0.0010 |
| RESID(-2)^2 | 0.092948 | 0.028978 | 3.207558 | 0.0013 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.865062 | Mean dependent var | | 18.67316 |
| Adjusted R-squared | 0.863868 | S.D. dependent var | | 0.556552 |
| S.E. of regression | 0.205346 | Akaike info criterion | | -0.339440 |
| Sum squared resid | 38.11887 | Schwarz criterion | | -0.276132 |
| Log likelihood | 166.9545 | Hannan-Quinn criter. | | -0.315273 |
| Durbin-Watson stat | 2.035441 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Inverted AR Roots | .99 | .54+.45i | .54-.45i | .02-.62i |
|  | .02+.62i | -.42-.52i | -.42+.52i | -.68 |
|  |  |  |  |  |
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| --- | --- | --- | --- | --- |
| Dependent Variable: LNVOLUME | | |  |  |
| Method: ML ARCH - Normal distribution (Newton-Raphson / Marquardt | | | | |
| steps) | |  |  |  |
| Date: 02/22/19 Time: 01:46 | | |  |  |
| Sample (adjusted): 2 915 | | |  |  |
| Included observations: 914 after adjustments | | | |  |
| Convergence achieved after 12 iterations | | | |  |
| Coefficient covariance computed using outer product of gradients | | | | |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(10) + C(11)\*RESID(-1)^2 + C(12)\*RESID(-2)^2 | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| T\_PREBSI | 0.088784 | 0.015045 | 5.901021 | 0.0000 |
| DLNM1 | 14.64751 | 4.349345 | 3.367751 | 0.0008 |
| DLNIV | 54.48740 | 27.48447 | 1.982480 | 0.0474 |
| C | 18.65034 | 0.211054 | 88.36769 | 0.0000 |
| AR(1) | 0.591754 | 0.035558 | 16.64195 | 0.0000 |
| AR(2) | 0.155712 | 0.044333 | 3.512347 | 0.0004 |
| AR(3) | 0.105708 | 0.037596 | 2.811664 | 0.0049 |
| AR(6) | 0.060341 | 0.033301 | 1.812000 | 0.0700 |
| AR(8) | 0.057643 | 0.028568 | 2.017756 | 0.0436 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 0.032635 | 0.001912 | 17.06569 | 0.0000 |
| RESID(-1)^2 | 0.099118 | 0.029926 | 3.312121 | 0.0009 |
| RESID(-2)^2 | 0.088521 | 0.023303 | 3.798670 | 0.0001 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.869703 | Mean dependent var | | 18.67446 |
| Adjusted R-squared | 0.868551 | S.D. dependent var | | 0.557626 |
| S.E. of regression | 0.202172 | Akaike info criterion | | -0.373845 |
| Sum squared resid | 36.99066 | Schwarz criterion | | -0.310591 |
| Log likelihood | 182.8470 | Hannan-Quinn criter. | | -0.349699 |
| Durbin-Watson stat | 2.033523 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Inverted AR Roots | .99 | .54+.45i | .54-.45i | .02-.62i |
|  | .02+.62i | -.42-.52i | -.42+.52i | -.68 |
|  |  |  |  |  |
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| --- | --- | --- | --- | --- |
| Dependent Variable: LNVOLUME | | |  |  |
| Method: ML ARCH - Normal distribution (Newton-Raphson / Marquardt | | | | |
| steps) | |  |  |  |
| Date: 02/22/19 Time: 01:46 | | |  |  |
| Sample (adjusted): 2 915 | | |  |  |
| Included observations: 914 after adjustments | | | |  |
| Convergence achieved after 14 iterations | | | |  |
| Coefficient covariance computed using outer product of gradients | | | | |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(10) + C(11)\*RESID(-1)^2 + C(12)\*RESID(-2)^2 | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| T\_PREBSI(-1) | 0.014496 | 0.016893 | 0.858130 | 0.3908 |
| DLNM1 | 16.54633 | 4.537205 | 3.646812 | 0.0003 |
| DLNIV | 90.43789 | 26.55015 | 3.406304 | 0.0007 |
| C | 18.62408 | 0.222611 | 83.66191 | 0.0000 |
| AR(1) | 0.591241 | 0.035281 | 16.75817 | 0.0000 |
| AR(2) | 0.166177 | 0.043762 | 3.797296 | 0.0001 |
| AR(3) | 0.099160 | 0.037351 | 2.654797 | 0.0079 |
| AR(6) | 0.058728 | 0.033622 | 1.746686 | 0.0807 |
| AR(8) | 0.056810 | 0.028318 | 2.006150 | 0.0448 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 0.033502 | 0.002083 | 16.08317 | 0.0000 |
| RESID(-1)^2 | 0.098954 | 0.030063 | 3.291503 | 0.0010 |
| RESID(-2)^2 | 0.098502 | 0.029307 | 3.361084 | 0.0008 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.865232 | Mean dependent var | | 18.67446 |
| Adjusted R-squared | 0.864040 | S.D. dependent var | | 0.557626 |
| S.E. of regression | 0.205612 | Akaike info criterion | | -0.337853 |
| Sum squared resid | 38.25993 | Schwarz criterion | | -0.274599 |
| Log likelihood | 166.3988 | Hannan-Quinn criter. | | -0.313707 |
| Durbin-Watson stat | 2.036344 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Inverted AR Roots | .99 | .54+.44i | .54-.44i | .03-.62i |
|  | .03+.62i | -.42-.52i | -.42+.52i | -.68 |
|  |  |  |  |  |
|  |  |  |  |  |

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| --- | --- | --- | --- | --- |
| Dependent Variable: LNVOLUME | | |  |  |
| Method: ML ARCH - Normal distribution (Newton-Raphson / Marquardt | | | | |
| steps) | |  |  |  |
| Date: 02/22/19 Time: 01:48 | | |  |  |
| Sample (adjusted): 2 915 | | |  |  |
| Included observations: 914 after adjustments | | | |  |
| Convergence achieved after 32 iterations | | | |  |
| Coefficient covariance computed using outer product of gradients | | | | |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(10) + C(11)\*RESID(-1)^2 + C(12)\*RESID(-2)^2 | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| T\_PREALLBSI | 0.102353 | 0.017704 | 5.781346 | 0.0000 |
| DLNM1 | 13.54799 | 4.595415 | 2.948153 | 0.0032 |
| DLNIV | -1.894165 | 32.20658 | -0.058813 | 0.9531 |
| C | 18.71337 | 0.210866 | 88.74551 | 0.0000 |
| AR(1) | 0.586706 | 0.035557 | 16.50053 | 0.0000 |
| AR(2) | 0.160085 | 0.044604 | 3.588984 | 0.0003 |
| AR(3) | 0.107029 | 0.037480 | 2.855650 | 0.0043 |
| AR(6) | 0.064615 | 0.033365 | 1.936587 | 0.0528 |
| AR(8) | 0.052736 | 0.028502 | 1.850258 | 0.0643 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 0.032652 | 0.001934 | 16.88707 | 0.0000 |
| RESID(-1)^2 | 0.098912 | 0.029726 | 3.327492 | 0.0009 |
| RESID(-2)^2 | 0.091026 | 0.023324 | 3.902730 | 0.0001 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.869226 | Mean dependent var | | 18.67446 |
| Adjusted R-squared | 0.868070 | S.D. dependent var | | 0.557626 |
| S.E. of regression | 0.202542 | Akaike info criterion | | -0.371102 |
| Sum squared resid | 37.12602 | Schwarz criterion | | -0.307849 |
| Log likelihood | 181.5938 | Hannan-Quinn criter. | | -0.346957 |
| Durbin-Watson stat | 2.040461 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Inverted AR Roots | .99 | .53+.44i | .53-.44i | .02-.61i |
|  | .02+.61i | -.41-.52i | -.41+.52i | -.68 |
|  |  |  |  |  |
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| --- | --- | --- | --- | --- |
| Dependent Variable: LNVOLUME | | |  |  |
| Method: ML ARCH - Normal distribution (Newton-Raphson / Marquardt | | | | |
| steps) | |  |  |  |
| Date: 02/22/19 Time: 01:48 | | |  |  |
| Sample (adjusted): 2 915 | | |  |  |
| Included observations: 914 after adjustments | | | |  |
| Convergence achieved after 11 iterations | | | |  |
| Coefficient covariance computed using outer product of gradients | | | | |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(10) + C(11)\*RESID(-1)^2 + C(12)\*RESID(-2)^2 | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| T\_PREALLBSI(-1) | 0.028246 | 0.017983 | 1.570693 | 0.1163 |
| DLNM1 | 16.75242 | 4.600258 | 3.641626 | 0.0003 |
| DLNIV | 98.26468 | 27.46826 | 3.577390 | 0.0003 |
| C | 18.63270 | 0.222264 | 83.83124 | 0.0000 |
| AR(1) | 0.585604 | 0.035163 | 16.65380 | 0.0000 |
| AR(2) | 0.170571 | 0.043655 | 3.907229 | 0.0001 |
| AR(3) | 0.099897 | 0.036998 | 2.700052 | 0.0069 |
| AR(6) | 0.061592 | 0.033546 | 1.836029 | 0.0664 |
| AR(8) | 0.054548 | 0.028428 | 1.918787 | 0.0550 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 0.033377 | 0.002087 | 15.99484 | 0.0000 |
| RESID(-1)^2 | 0.100503 | 0.030418 | 3.304039 | 0.0010 |
| RESID(-2)^2 | 0.098761 | 0.030283 | 3.261209 | 0.0011 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.865470 | Mean dependent var | | 18.67446 |
| Adjusted R-squared | 0.864281 | S.D. dependent var | | 0.557626 |
| S.E. of regression | 0.205430 | Akaike info criterion | | -0.339898 |
| Sum squared resid | 38.19230 | Schwarz criterion | | -0.276644 |
| Log likelihood | 167.3334 | Hannan-Quinn criter. | | -0.315753 |
| Durbin-Watson stat | 2.036160 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Inverted AR Roots | .99 | .54+.44i | .54-.44i | .02-.61i |
|  | .02+.61i | -.42-.52i | -.42+.52i | -.68 |
|  |  |  |  |  |
|  |  |  |  |  |

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| --- | --- | --- | --- | --- |
| Dependent Variable: LNVOLUME | | |  |  |
| Method: ML ARCH - Normal distribution (Newton-Raphson / Marquardt | | | | |
| steps) | |  |  |  |
| Date: 02/22/19 Time: 01:48 | | |  |  |
| Sample (adjusted): 3 915 | | |  |  |
| Included observations: 913 after adjustments | | | |  |
| Convergence achieved after 13 iterations | | | |  |
| Coefficient covariance computed using outer product of gradients | | | | |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(10) + C(11)\*RESID(-1)^2 + C(12)\*RESID(-2)^2 | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| T\_PREALLBSI(-2) | 0.029792 | 0.016390 | 1.817678 | 0.0691 |
| DLNM1 | 16.52112 | 4.584274 | 3.603869 | 0.0003 |
| DLNIV | 93.71947 | 26.83532 | 3.492392 | 0.0005 |
| C | 18.64767 | 0.223591 | 83.40098 | 0.0000 |
| AR(1) | 0.595501 | 0.035155 | 16.93907 | 0.0000 |
| AR(2) | 0.148911 | 0.043327 | 3.436917 | 0.0006 |
| AR(3) | 0.107217 | 0.037307 | 2.873877 | 0.0041 |
| AR(6) | 0.057802 | 0.033541 | 1.723322 | 0.0848 |
| AR(8) | 0.062804 | 0.028923 | 2.171394 | 0.0299 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 0.034229 | 0.002088 | 16.39399 | 0.0000 |
| RESID(-1)^2 | 0.093989 | 0.028401 | 3.309394 | 0.0009 |
| RESID(-2)^2 | 0.077312 | 0.030700 | 2.518339 | 0.0118 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.865897 | Mean dependent var | | 18.67316 |
| Adjusted R-squared | 0.864710 | S.D. dependent var | | 0.556552 |
| S.E. of regression | 0.204709 | Akaike info criterion | | -0.342286 |
| Sum squared resid | 37.88294 | Schwarz criterion | | -0.278977 |
| Log likelihood | 168.2536 | Hannan-Quinn criter. | | -0.318118 |
| Durbin-Watson stat | 2.031864 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Inverted AR Roots | .99 | .55+.45i | .55-.45i | .03-.64i |
|  | .03+.64i | -.43-.52i | -.43+.52i | -.68 |
|  |  |  |  |  |
|  |  |  |  |  |

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| --- | --- | --- | --- | --- |
| Dependent Variable: LNVOLUME | | |  |  |
| Method: ML ARCH - Normal distribution (Newton-Raphson / Marquardt | | | | |
| steps) | |  |  |  |
| Date: 02/22/19 Time: 01:50 | | |  |  |
| Sample (adjusted): 4 915 | | |  |  |
| Included observations: 912 after adjustments | | | |  |
| Convergence achieved after 13 iterations | | | |  |
| Coefficient covariance computed using outer product of gradients | | | | |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(10) + C(11)\*RESID(-1)^2 + C(12)\*RESID(-2)^2 | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| T\_PREALLBSI(-3) | -0.010195 | 0.016319 | -0.624748 | 0.5321 |
| DLNM1 | 16.30514 | 4.519589 | 3.607661 | 0.0003 |
| DLNIV | 89.37414 | 26.31783 | 3.395954 | 0.0007 |
| C | 18.62306 | 0.216562 | 85.99411 | 0.0000 |
| AR(1) | 0.598315 | 0.035414 | 16.89499 | 0.0000 |
| AR(2) | 0.157755 | 0.043547 | 3.622654 | 0.0003 |
| AR(3) | 0.099930 | 0.037462 | 2.667512 | 0.0076 |
| AR(6) | 0.060884 | 0.033572 | 1.813563 | 0.0697 |
| AR(8) | 0.054045 | 0.028377 | 1.904540 | 0.0568 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 0.033708 | 0.002085 | 16.16376 | 0.0000 |
| RESID(-1)^2 | 0.096730 | 0.029358 | 3.294907 | 0.0010 |
| RESID(-2)^2 | 0.093717 | 0.029494 | 3.177525 | 0.0015 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.864766 | Mean dependent var | | 18.67216 |
| Adjusted R-squared | 0.863568 | S.D. dependent var | | 0.556037 |
| S.E. of regression | 0.205382 | Akaike info criterion | | -0.338570 |
| Sum squared resid | 38.09007 | Schwarz criterion | | -0.275207 |
| Log likelihood | 166.3881 | Hannan-Quinn criter. | | -0.314380 |
| Durbin-Watson stat | 2.029654 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Inverted AR Roots | .99 | .54+.44i | .54-.44i | .02-.61i |
|  | .02+.61i | -.42-.52i | -.42+.52i | -.68 |
|  |  |  |  |  |
|  |  |  |  |  |

（4） GARCH模型 情绪一致性指数

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Dependent Variable: LNVOLUME | | |  |  |
| Method: ML ARCH - Normal distribution (Newton-Raphson / Marquardt | | | | |
| steps) | |  |  |  |
| Date: 02/22/19 Time: 01:57 | | |  |  |
| Sample (adjusted): 2 915 | | |  |  |
| Included observations: 914 after adjustments | | | |  |
| Convergence achieved after 17 iterations | | | |  |
| Coefficient covariance computed using outer product of gradients | | | | |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(10) + C(11)\*RESID(-1)^2 + C(12)\*RESID(-2)^2 | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| T\_INTARGS | -3.067696 | 0.358489 | -8.557287 | 0.0000 |
| DLNM1 | 14.93512 | 4.748900 | 3.144965 | 0.0017 |
| DLNIV | 116.1266 | 26.01356 | 4.464079 | 0.0000 |
| C | 18.91122 | 0.176500 | 107.1456 | 0.0000 |
| AR(1) | 0.573177 | 0.034810 | 16.46595 | 0.0000 |
| AR(2) | 0.154688 | 0.041373 | 3.738847 | 0.0002 |
| AR(3) | 0.112138 | 0.036082 | 3.107894 | 0.0019 |
| AR(6) | 0.045297 | 0.033198 | 1.364445 | 0.1724 |
| AR(8) | 0.080499 | 0.029023 | 2.773608 | 0.0055 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 0.033323 | 0.002089 | 15.95500 | 0.0000 |
| RESID(-1)^2 | 0.074237 | 0.026507 | 2.800633 | 0.0051 |
| RESID(-2)^2 | 0.061481 | 0.030242 | 2.032922 | 0.0421 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.875657 | Mean dependent var | | 18.67446 |
| Adjusted R-squared | 0.874558 | S.D. dependent var | | 0.557626 |
| S.E. of regression | 0.197499 | Akaike info criterion | | -0.403377 |
| Sum squared resid | 35.30031 | Schwarz criterion | | -0.340123 |
| Log likelihood | 196.3432 | Hannan-Quinn criter. | | -0.379231 |
| Durbin-Watson stat | 2.033916 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Inverted AR Roots | .98 | .57+.45i | .57-.45i | .03-.67i |
|  | .03+.67i | -.45-.53i | -.45+.53i | -.70 |
|  |  |  |  |  |
|  |  |  |  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Dependent Variable: LNVOLUME | | |  |  |
| Method: ML ARCH - Normal distribution (Newton-Raphson / Marquardt | | | | |
| steps) | |  |  |  |
| Date: 02/22/19 Time: 01:58 | | |  |  |
| Sample (adjusted): 2 915 | | |  |  |
| Included observations: 914 after adjustments | | | |  |
| Convergence achieved after 18 iterations | | | |  |
| Coefficient covariance computed using outer product of gradients | | | | |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(10) + C(11)\*RESID(-1)^2 + C(12)\*RESID(-2)^2 | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| T\_INTARGS(-1) | -0.390248 | 0.408595 | -0.955097 | 0.3395 |
| DLNM1 | 16.30241 | 4.536372 | 3.593710 | 0.0003 |
| DLNIV | 86.49793 | 26.57974 | 3.254281 | 0.0011 |
| C | 18.66631 | 0.223319 | 83.58594 | 0.0000 |
| AR(1) | 0.587610 | 0.037884 | 15.51097 | 0.0000 |
| AR(2) | 0.165656 | 0.043617 | 3.797970 | 0.0001 |
| AR(3) | 0.100631 | 0.037703 | 2.669050 | 0.0076 |
| AR(6) | 0.058133 | 0.033762 | 1.721840 | 0.0851 |
| AR(8) | 0.059107 | 0.029044 | 2.035071 | 0.0418 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 0.033748 | 0.002091 | 16.13946 | 0.0000 |
| RESID(-1)^2 | 0.099025 | 0.030137 | 3.285816 | 0.0010 |
| RESID(-2)^2 | 0.090869 | 0.028589 | 3.178464 | 0.0015 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.865325 | Mean dependent var | | 18.67446 |
| Adjusted R-squared | 0.864134 | S.D. dependent var | | 0.557626 |
| S.E. of regression | 0.205541 | Akaike info criterion | | -0.338026 |
| Sum squared resid | 38.23350 | Schwarz criterion | | -0.274773 |
| Log likelihood | 166.4781 | Hannan-Quinn criter. | | -0.313881 |
| Durbin-Watson stat | 2.036149 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Inverted AR Roots | .99 | .54+.44i | .54-.44i | .03-.63i |
|  | .03+.63i | -.43-.52i | -.43+.52i | -.68 |
|  |  |  |  |  |
|  |  |  |  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Dependent Variable: LNVOLUME | | |  |  |
| Method: ML ARCH - Normal distribution (Newton-Raphson / Marquardt | | | | |
| steps) | |  |  |  |
| Date: 02/22/19 Time: 01:58 | | |  |  |
| Sample (adjusted): 3 915 | | |  |  |
| Included observations: 913 after adjustments | | | |  |
| Convergence achieved after 15 iterations | | | |  |
| Coefficient covariance computed using outer product of gradients | | | | |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(10) + C(11)\*RESID(-1)^2 + C(12)\*RESID(-2)^2 | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| T\_INTARGS(-2) | -0.633890 | 0.434342 | -1.459426 | 0.1444 |
| DLNM1 | 16.11614 | 4.526264 | 3.560585 | 0.0004 |
| DLNIV | 87.25626 | 25.92457 | 3.365774 | 0.0008 |
| C | 18.69313 | 0.213643 | 87.49720 | 0.0000 |
| AR(1) | 0.598272 | 0.035154 | 17.01884 | 0.0000 |
| AR(2) | 0.146068 | 0.044022 | 3.318065 | 0.0009 |
| AR(3) | 0.105852 | 0.037371 | 2.832488 | 0.0046 |
| AR(6) | 0.063063 | 0.033487 | 1.883197 | 0.0597 |
| AR(8) | 0.057254 | 0.028544 | 2.005793 | 0.0449 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 0.033629 | 0.002106 | 15.96555 | 0.0000 |
| RESID(-1)^2 | 0.099597 | 0.029590 | 3.365946 | 0.0008 |
| RESID(-2)^2 | 0.090330 | 0.029298 | 3.083110 | 0.0020 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.865285 | Mean dependent var | | 18.67316 |
| Adjusted R-squared | 0.864093 | S.D. dependent var | | 0.556552 |
| S.E. of regression | 0.205176 | Akaike info criterion | | -0.341423 |
| Sum squared resid | 38.05591 | Schwarz criterion | | -0.278115 |
| Log likelihood | 167.8598 | Hannan-Quinn criter. | | -0.317256 |
| Durbin-Watson stat | 2.035496 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Inverted AR Roots | .99 | .54+.45i | .54-.45i | .02-.62i |
|  | .02+.62i | -.42-.52i | -.42+.52i | -.68 |
|  |  |  |  |  |
|  |  |  |  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Dependent Variable: LNVOLUME | | |  |  |
| Method: ML ARCH - Normal distribution (Newton-Raphson / Marquardt | | | | |
| steps) | |  |  |  |
| Date: 02/22/19 Time: 01:58 | | |  |  |
| Sample (adjusted): 2 915 | | |  |  |
| Included observations: 914 after adjustments | | | |  |
| Convergence achieved after 19 iterations | | | |  |
| Coefficient covariance computed using outer product of gradients | | | | |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(10) + C(11)\*RESID(-1)^2 + C(12)\*RESID(-2)^2 | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| T\_PREARGS | 0.418785 | 0.338900 | 1.235718 | 0.2166 |
| DLNM1 | 16.98782 | 4.548432 | 3.734874 | 0.0002 |
| DLNIV | 111.8773 | 32.10937 | 3.484256 | 0.0005 |
| C | 18.59751 | 0.227393 | 81.78565 | 0.0000 |
| AR(1) | 0.600947 | 0.035393 | 16.97917 | 0.0000 |
| AR(2) | 0.158445 | 0.043523 | 3.640471 | 0.0003 |
| AR(3) | 0.098518 | 0.037313 | 2.640321 | 0.0083 |
| AR(6) | 0.058267 | 0.033477 | 1.740513 | 0.0818 |
| AR(8) | 0.056546 | 0.028317 | 1.996876 | 0.0458 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 0.033725 | 0.002093 | 16.11453 | 0.0000 |
| RESID(-1)^2 | 0.098628 | 0.029509 | 3.342332 | 0.0008 |
| RESID(-2)^2 | 0.091268 | 0.029021 | 3.144869 | 0.0017 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.865487 | Mean dependent var | | 18.67446 |
| Adjusted R-squared | 0.864298 | S.D. dependent var | | 0.557626 |
| S.E. of regression | 0.205417 | Akaike info criterion | | -0.338760 |
| Sum squared resid | 38.18738 | Schwarz criterion | | -0.275506 |
| Log likelihood | 166.8132 | Hannan-Quinn criter. | | -0.314614 |
| Durbin-Watson stat | 2.034352 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Inverted AR Roots | .99 | .54+.44i | .54-.44i | .03-.62i |
|  | .03+.62i | -.42-.52i | -.42+.52i | -.68 |
|  |  |  |  |  |
|  |  |  |  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Dependent Variable: LNVOLUME | | |  |  |
| Method: ML ARCH - Normal distribution (Newton-Raphson / Marquardt | | | | |
| steps) | |  |  |  |
| Date: 02/22/19 Time: 01:59 | | |  |  |
| Sample (adjusted): 2 915 | | |  |  |
| Included observations: 914 after adjustments | | | |  |
| Convergence achieved after 19 iterations | | | |  |
| Coefficient covariance computed using outer product of gradients | | | | |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(10) + C(11)\*RESID(-1)^2 + C(12)\*RESID(-2)^2 | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| T\_PREARGS | 0.418785 | 0.338900 | 1.235718 | 0.2166 |
| DLNM1 | 16.98782 | 4.548432 | 3.734874 | 0.0002 |
| DLNIV | 111.8773 | 32.10937 | 3.484256 | 0.0005 |
| C | 18.59751 | 0.227393 | 81.78565 | 0.0000 |
| AR(1) | 0.600947 | 0.035393 | 16.97917 | 0.0000 |
| AR(2) | 0.158445 | 0.043523 | 3.640471 | 0.0003 |
| AR(3) | 0.098518 | 0.037313 | 2.640321 | 0.0083 |
| AR(6) | 0.058267 | 0.033477 | 1.740513 | 0.0818 |
| AR(8) | 0.056546 | 0.028317 | 1.996876 | 0.0458 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 0.033725 | 0.002093 | 16.11453 | 0.0000 |
| RESID(-1)^2 | 0.098628 | 0.029509 | 3.342332 | 0.0008 |
| RESID(-2)^2 | 0.091268 | 0.029021 | 3.144869 | 0.0017 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.865487 | Mean dependent var | | 18.67446 |
| Adjusted R-squared | 0.864298 | S.D. dependent var | | 0.557626 |
| S.E. of regression | 0.205417 | Akaike info criterion | | -0.338760 |
| Sum squared resid | 38.18738 | Schwarz criterion | | -0.275506 |
| Log likelihood | 166.8132 | Hannan-Quinn criter. | | -0.314614 |
| Durbin-Watson stat | 2.034352 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Inverted AR Roots | .99 | .54+.44i | .54-.44i | .03-.62i |
|  | .03+.62i | -.42-.52i | -.42+.52i | -.68 |
|  |  |  |  |  |
|  |  |  |  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Dependent Variable: LNVOLUME | | |  |  |
| Method: ML ARCH - Normal distribution (Newton-Raphson / Marquardt | | | | |
| steps) | |  |  |  |
| Date: 02/22/19 Time: 01:59 | | |  |  |
| Sample (adjusted): 2 915 | | |  |  |
| Included observations: 914 after adjustments | | | |  |
| Convergence achieved after 15 iterations | | | |  |
| Coefficient covariance computed using outer product of gradients | | | | |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(10) + C(11)\*RESID(-1)^2 + C(12)\*RESID(-2)^2 | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| T\_PREARGS(-1) | 0.116123 | 0.291274 | 0.398674 | 0.6901 |
| DLNM1 | 16.33398 | 4.521302 | 3.612672 | 0.0003 |
| DLNIV | 86.11048 | 26.66494 | 3.229352 | 0.0012 |
| C | 18.62396 | 0.224900 | 82.80991 | 0.0000 |
| AR(1) | 0.598356 | 0.035185 | 17.00590 | 0.0000 |
| AR(2) | 0.158955 | 0.043559 | 3.649157 | 0.0003 |
| AR(3) | 0.099650 | 0.037448 | 2.661024 | 0.0078 |
| AR(6) | 0.057235 | 0.033547 | 1.706146 | 0.0880 |
| AR(8) | 0.058042 | 0.028383 | 2.044988 | 0.0409 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 0.033805 | 0.002092 | 16.15933 | 0.0000 |
| RESID(-1)^2 | 0.097154 | 0.029456 | 3.298280 | 0.0010 |
| RESID(-2)^2 | 0.091835 | 0.029004 | 3.166256 | 0.0015 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.865298 | Mean dependent var | | 18.67446 |
| Adjusted R-squared | 0.864107 | S.D. dependent var | | 0.557626 |
| S.E. of regression | 0.205561 | Akaike info criterion | | -0.337191 |
| Sum squared resid | 38.24112 | Schwarz criterion | | -0.273937 |
| Log likelihood | 166.0962 | Hannan-Quinn criter. | | -0.313045 |
| Durbin-Watson stat | 2.036510 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Inverted AR Roots | .99 | .54+.44i | .54-.44i | .03-.62i |
|  | .03+.62i | -.42-.52i | -.42+.52i | -.68 |
|  |  |  |  |  |
|  |  |  |  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Dependent Variable: LNVOLUME | | |  |  |
| Method: ML ARCH - Normal distribution (Newton-Raphson / Marquardt | | | | |
| steps) | |  |  |  |
| Date: 02/22/19 Time: 02:00 | | |  |  |
| Sample (adjusted): 2 915 | | |  |  |
| Included observations: 914 after adjustments | | | |  |
| Convergence achieved after 14 iterations | | | |  |
| Coefficient covariance computed using outer product of gradients | | | | |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(10) + C(11)\*RESID(-1)^2 + C(12)\*RESID(-2)^2 | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| T\_PREALLARGS | -0.623341 | 0.549558 | -1.134260 | 0.2567 |
| DLNM1 | 15.58838 | 4.484384 | 3.476148 | 0.0005 |
| DLNIV | 81.91491 | 26.64019 | 3.074862 | 0.0021 |
| C | 18.66553 | 0.220955 | 84.47659 | 0.0000 |
| AR(1) | 0.594397 | 0.036086 | 16.47164 | 0.0000 |
| AR(2) | 0.159115 | 0.043648 | 3.645429 | 0.0003 |
| AR(3) | 0.099769 | 0.037702 | 2.646257 | 0.0081 |
| AR(6) | 0.058706 | 0.033733 | 1.740311 | 0.0818 |
| AR(8) | 0.059280 | 0.028887 | 2.052133 | 0.0402 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 0.033715 | 0.002088 | 16.15024 | 0.0000 |
| RESID(-1)^2 | 0.098373 | 0.030319 | 3.244582 | 0.0012 |
| RESID(-2)^2 | 0.091943 | 0.028052 | 3.277597 | 0.0010 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.865397 | Mean dependent var | | 18.67446 |
| Adjusted R-squared | 0.864207 | S.D. dependent var | | 0.557626 |
| S.E. of regression | 0.205485 | Akaike info criterion | | -0.338536 |
| Sum squared resid | 38.21292 | Schwarz criterion | | -0.275282 |
| Log likelihood | 166.7108 | Hannan-Quinn criter. | | -0.314390 |
| Durbin-Watson stat | 2.037562 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Inverted AR Roots | .99 | .54+.45i | .54-.45i | .03-.63i |
|  | .03+.63i | -.43-.52i | -.43+.52i | -.68 |
|  |  |  |  |  |
|  |  |  |  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Dependent Variable: LNVOLUME | | |  |  |
| Method: ML ARCH - Normal distribution (Newton-Raphson / Marquardt | | | | |
| steps) | |  |  |  |
| Date: 02/22/19 Time: 02:00 | | |  |  |
| Sample (adjusted): 2 915 | | |  |  |
| Included observations: 914 after adjustments | | | |  |
| Convergence achieved after 28 iterations | | | |  |
| Coefficient covariance computed using outer product of gradients | | | | |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(10) + C(11)\*RESID(-1)^2 + C(12)\*RESID(-2)^2 | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| T\_PREALLARGS(-1) | 0.028520 | 0.507918 | 0.056151 | 0.9552 |
| DLNM1 | 16.35654 | 4.529441 | 3.611161 | 0.0003 |
| DLNIV | 88.39308 | 26.33984 | 3.355870 | 0.0008 |
| C | 18.63110 | 0.224775 | 82.88791 | 0.0000 |
| AR(1) | 0.598151 | 0.035285 | 16.95216 | 0.0000 |
| AR(2) | 0.158713 | 0.043777 | 3.625464 | 0.0003 |
| AR(3) | 0.099424 | 0.037495 | 2.651675 | 0.0080 |
| AR(6) | 0.057269 | 0.033597 | 1.704590 | 0.0883 |
| AR(8) | 0.058486 | 0.028377 | 2.061080 | 0.0393 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 0.033796 | 0.002098 | 16.11059 | 0.0000 |
| RESID(-1)^2 | 0.097834 | 0.029610 | 3.304138 | 0.0010 |
| RESID(-2)^2 | 0.091616 | 0.029043 | 3.154502 | 0.0016 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.865277 | Mean dependent var | | 18.67446 |
| Adjusted R-squared | 0.864086 | S.D. dependent var | | 0.557626 |
| S.E. of regression | 0.205577 | Akaike info criterion | | -0.337002 |
| Sum squared resid | 38.24705 | Schwarz criterion | | -0.273748 |
| Log likelihood | 166.0097 | Hannan-Quinn criter. | | -0.312856 |
| Durbin-Watson stat | 2.035898 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Inverted AR Roots | .99 | .54+.44i | .54-.44i | .03-.63i |
|  | .03+.63i | -.43-.52i | -.43+.52i | -.68 |
|  |  |  |  |  |
|  |  |  |  |  |

从以上结果可以看出，情绪一致性指数不具有超前的预测解释作用。只有同期的盘中情绪一致性指数有解释预测作用。

1. 情绪指数、情绪一致性指数对股市影响的非对称效应
2. 看涨看跌的非对称效应
3. 开盘收益率

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Dependent Variable: OPEN\_RETURN | | | |  |
| Method: ML ARCH - Normal distribution | | | |  |
| Date: 02/22/19 Time: 15:24 | | |  |  |
| Sample (adjusted): 2 915 | | |  |  |
| Included observations: 914 after adjustments | | | |  |
| Convergence achieved after 27 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(7) + C(8)\*RESID(-1)^2 + C(9)\*RESID(-2)^2 + C(10)\*GARCH(-1) | | | | |
| + C(11)\*T\_PREALLARGS | | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| D\_BSI0\*T\_PREBSI | 0.001660 | 0.000541 | 3.070110 | 0.0021 |
| (1-D\_BSI0)\*T\_PREBSI | 0.005028 | 0.000853 | 5.893938 | 0.0000 |
| DLNCPI | -3.015858 | 0.758636 | -3.975370 | 0.0001 |
| DLNIV | 3.492923 | 1.107095 | 3.155035 | 0.0016 |
| DLNM1 | -0.394646 | 0.163284 | -2.416924 | 0.0157 |
| C | -0.002089 | 0.000384 | -5.437196 | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 1.70E-05 | 8.11E-07 | 21.01075 | 0.0000 |
| RESID(-1)^2 | 0.290222 | 0.048330 | 6.005035 | 0.0000 |
| RESID(-2)^2 | 0.146284 | 0.056345 | 2.596211 | 0.0094 |
| GARCH(-1) | 0.519171 | 0.034791 | 14.92245 | 0.0000 |
| T\_PREALLARGS | -0.000152 | 9.98E-06 | -15.22300 | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.102095 | Mean dependent var | | -0.001110 |
| Adjusted R-squared | 0.097151 | S.D. dependent var | | 0.007765 |
| S.E. of regression | 0.007378 | Akaike info criterion | | -7.618596 |
| Sum squared resid | 0.049432 | Schwarz criterion | | -7.560613 |
| Log likelihood | 3492.698 | Hannan-Quinn criter. | | -7.596462 |
| Durbin-Watson stat | 2.001181 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

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| --- | --- | --- | --- | --- |
| Dependent Variable: OPEN\_RETURN | | | |  |
| Method: ML ARCH - Normal distribution (Newton-Raphson / EViews legacy) | | | | |
| Date: 02/22/19 Time: 19:25 | | |  |  |
| Sample (adjusted): 2 915 | | |  |  |
| Included observations: 914 after adjustments | | | |  |
| Convergence achieved after 95 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(7) + C(8)\*RESID(-1)^2 + C(9)\*RESID(-2)^2 + C(10)\*GARCH(-1) | | | | |
| + C(11)\*T\_PREALLARGS | | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| D\_PREBSI00(-1)\*T\_PREBSI(-1) | 0.000446 | 0.000395 | 1.127939 | 0.2593 |
| (1-D\_PREBSI00(-1))\*T\_PREBSI(-1) | -0.000534 | 0.000850 | -0.628723 | 0.5295 |
| DLNCPI | -1.884714 | 0.490820 | -3.839929 | 0.0001 |
| DLNIV | 3.949611 | 0.559141 | 7.063718 | 0.0000 |
| DLNM1 | -0.326201 | 0.106866 | -3.052438 | 0.0023 |
| C | -0.001817 | 0.000268 | -6.781475 | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 3.27E-07 | 9.02E-08 | 3.622934 | 0.0003 |
| RESID(-1)^2 | 0.309263 | 0.022765 | 13.58511 | 0.0000 |
| RESID(-2)^2 | -0.276217 | 0.023087 | -11.96438 | 0.0000 |
| GARCH(-1) | 0.962159 | 0.002513 | 382.9226 | 0.0000 |
| T\_PREALLARGS | -3.91E-06 | 1.38E-06 | -2.834246 | 0.0046 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.018199 | Mean dependent var | | -0.001110 |
| Adjusted R-squared | 0.012793 | S.D. dependent var | | 0.007765 |
| S.E. of regression | 0.007715 | Akaike info criterion | | -7.769055 |
| Sum squared resid | 0.054051 | Schwarz criterion | | -7.711072 |
| Log likelihood | 3561.458 | Hannan-Quinn criter. | | -7.746922 |
| Durbin-Watson stat | 1.967811 |  |  |  |
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| --- | --- | --- | --- | --- |
| Dependent Variable: OPEN\_RETURN | | | |  |
| Method: ML ARCH - Normal distribution | | | |  |
| Date: 02/22/19 Time: 15:27 | | |  |  |
| Sample (adjusted): 2 915 | | |  |  |
| Included observations: 914 after adjustments | | | |  |
| Convergence achieved after 24 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(7) + C(8)\*RESID(-1)^2 + C(9)\*RESID(-2)^2 + C(10)\*GARCH(-1) | | | | |
| + C(11)\*T\_PREALLARGS | | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| D\_BSI0(-1)\*T\_INTBSI(-1) | 0.023862 | 0.004736 | 5.038230 | 0.0000 |
| (1-D\_BSI0(-1))\*T\_INTBSI(-1) | 0.001184 | 0.000630 | 1.878011 | 0.0604 |
| DLNCPI | -3.764051 | 0.668846 | -5.627677 | 0.0000 |
| DLNIV | 5.384772 | 0.815299 | 6.604656 | 0.0000 |
| DLNM1 | -0.356094 | 0.128692 | -2.767023 | 0.0057 |
| C | -0.001484 | 0.000595 | -2.494639 | 0.0126 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 6.48E-06 | 7.21E-07 | 8.993241 | 0.0000 |
| RESID(-1)^2 | 0.316750 | 0.042401 | 7.470274 | 0.0000 |
| RESID(-2)^2 | -0.180084 | 0.042920 | -4.195765 | 0.0000 |
| GARCH(-1) | 0.834969 | 0.015408 | 54.18993 | 0.0000 |
| T\_PREALLARGS | -7.05E-05 | 6.66E-06 | -10.58344 | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.036026 | Mean dependent var | | -0.001110 |
| Adjusted R-squared | 0.030718 | S.D. dependent var | | 0.007765 |
| S.E. of regression | 0.007645 | Akaike info criterion | | -7.598036 |
| Sum squared resid | 0.053070 | Schwarz criterion | | -7.540053 |
| Log likelihood | 3483.302 | Hannan-Quinn criter. | | -7.575903 |
| Durbin-Watson stat | 1.982655 |  |  |  |
|  |  |  |  |  |
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| --- | --- | --- | --- | --- |
| Dependent Variable: OPEN\_RETURN | | | |  |
| Method: ML ARCH - Normal distribution (Newton-Raphson / EViews legacy) | | | | |
| Date: 02/22/19 Time: 19:24 | | |  |  |
| Sample (adjusted): 3 915 | | |  |  |
| Included observations: 913 after adjustments | | | |  |
| Convergence achieved after 239 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(7) + C(8)\*RESID(-1)^2 + C(9)\*RESID(-2)^2 + C(10)\*GARCH(-1) | | | | |
| + C(11)\*T\_PREALLARGS | | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| D\_INTBSI00(-2)\*T\_INTBSI(-2) | 0.003490 | 0.008574 | 0.407088 | 0.6839 |
| (1-D\_INTBSI00(-2))\*T\_INTBSI(-2) | 0.000470 | 0.000414 | 1.135534 | 0.2562 |
| DLNCPI | -3.676481 | 0.450748 | -8.156394 | 0.0000 |
| DLNIV | 4.952692 | 0.507523 | 9.758551 | 0.0000 |
| DLNM1 | -0.656404 | 0.091873 | -7.144708 | 0.0000 |
| C | -0.001430 | 0.000319 | -4.478597 | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 3.90E-07 | 1.10E-07 | 3.552453 | 0.0004 |
| RESID(-1)^2 | 0.306323 | 0.024686 | 12.40871 | 0.0000 |
| RESID(-2)^2 | -0.264747 | 0.025111 | -10.54301 | 0.0000 |
| GARCH(-1) | 0.953714 | 0.003295 | 289.4625 | 0.0000 |
| T\_PREALLARGS | -4.65E-06 | 1.66E-06 | -2.809273 | 0.0050 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.027020 | Mean dependent var | | -0.001101 |
| Adjusted R-squared | 0.021656 | S.D. dependent var | | 0.007765 |
| S.E. of regression | 0.007680 | Akaike info criterion | | -7.769845 |
| Sum squared resid | 0.053503 | Schwarz criterion | | -7.711812 |
| Log likelihood | 3557.934 | Hannan-Quinn criter. | | -7.747692 |
| Durbin-Watson stat | 1.977770 |  |  |  |
|  |  |  |  |  |
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| Dependent Variable: OPEN\_RETURN | | | |  |
| Method: ML ARCH - Normal distribution | | | |  |
| Date: 02/22/19 Time: 15:32 | | |  |  |
| Sample (adjusted): 2 915 | | |  |  |
| Included observations: 914 after adjustments | | | |  |
| Convergence achieved after 15 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(7) + C(8)\*RESID(-1)^2 + C(9)\*RESID(-2)^2 + C(10)\*GARCH(-1) | | | | |
| + C(11)\*T\_PREALLARGS | | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| D\_BSI0\*T\_PREALLBSI | 0.005690 | 0.002114 | 2.691194 | 0.0071 |
| (1-D\_BSI0)\*T\_PREALLBSI | -0.000828 | 0.000742 | -1.115760 | 0.2645 |
| DLNCPI | -2.967587 | 1.116443 | -2.658072 | 0.0079 |
| DLNIV | 1.398834 | 1.987544 | 0.703800 | 0.4816 |
| DLNM1 | -0.434831 | 0.240680 | -1.806674 | 0.0708 |
| C | -0.001913 | 0.000664 | -2.879639 | 0.0040 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 3.66E-05 | 1.76E-06 | 20.78306 | 0.0000 |
| RESID(-1)^2 | 0.200812 | 0.030942 | 6.489930 | 0.0000 |
| RESID(-2)^2 | 0.117352 | 0.042288 | 2.775100 | 0.0055 |
| GARCH(-1) | 0.403259 | 0.042358 | 9.520348 | 0.0000 |
| T\_PREALLARGS | -0.000268 | 2.26E-05 | -11.85712 | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.039979 | Mean dependent var | | -0.001110 |
| Adjusted R-squared | 0.034692 | S.D. dependent var | | 0.007765 |
| S.E. of regression | 0.007629 | Akaike info criterion | | -7.380003 |
| Sum squared resid | 0.052852 | Schwarz criterion | | -7.322021 |
| Log likelihood | 3383.661 | Hannan-Quinn criter. | | -7.357870 |
| Durbin-Watson stat | 1.981130 |  |  |  |
|  |  |  |  |  |
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| --- | --- | --- | --- | --- |
| Dependent Variable: OPEN\_RETURN | | | |  |
| Method: ML ARCH - Normal distribution (Newton-Raphson / EViews legacy) | | | | |
| Date: 02/22/19 Time: 19:25 | | |  |  |
| Sample (adjusted): 2 915 | | |  |  |
| Included observations: 914 after adjustments | | | |  |
| Convergence achieved after 87 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(7) + C(8)\*RESID(-1)^2 + C(9)\*RESID(-2)^2 + C(10)\*GARCH(-1) | | | | |
| + C(11)\*T\_PREALLARGS | | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| D\_PREALLBSI00(-1)\*T\_PREALLBSI(-1) | 0.003192 | 0.000431 | 7.403749 | 0.0000 |
| (1-D\_PREALLBSI00(-1))\*T\_PREALLBSI(-1) | -0.000538 | 0.000376 | -1.430299 | 0.1526 |
| DLNCPI | -1.811610 | 0.463119 | -3.911758 | 0.0001 |
| DLNIV | 4.105606 | 0.519595 | 7.901553 | 0.0000 |
| DLNM1 | -0.300868 | 0.099385 | -3.027295 | 0.0025 |
| C | -0.002161 | 0.000205 | -10.55782 | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 2.64E-07 | 9.67E-08 | 2.731491 | 0.0063 |
| RESID(-1)^2 | 0.346387 | 0.028552 | 12.13195 | 0.0000 |
| RESID(-2)^2 | -0.307468 | 0.028631 | -10.73909 | 0.0000 |
| GARCH(-1) | 0.958082 | 0.002686 | 356.6284 | 0.0000 |
| T\_PREALLARGS | -2.95E-06 | 1.48E-06 | -1.987763 | 0.0468 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.019228 | Mean dependent var | | -0.001110 |
| Adjusted R-squared | 0.013827 | S.D. dependent var | | 0.007765 |
| S.E. of regression | 0.007711 | Akaike info criterion | | -7.792397 |
| Sum squared resid | 0.053994 | Schwarz criterion | | -7.734414 |
| Log likelihood | 3572.125 | Hannan-Quinn criter. | | -7.770263 |
| Durbin-Watson stat | 1.985453 |  |  |  |
|  |  |  |  |  |
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| --- | --- | --- | --- | --- |
| Dependent Variable: OPEN\_RETURN | | | |  |
| Method: ML ARCH - Normal distribution (Newton-Raphson / EViews legacy) | | | | |
| Date: 02/22/19 Time: 19:26 | | |  |  |
| Sample (adjusted): 3 915 | | |  |  |
| Included observations: 913 after adjustments | | | |  |
| Convergence achieved after 111 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(7) + C(8)\*RESID(-1)^2 + C(9)\*RESID(-2)^2 + C(10)\*GARCH(-1) | | | | |
| + C(11)\*T\_PREALLARGS | | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| D\_PREALLBSI00(-2)\*T\_PREALLBSI(-2) | 0.001616 | 0.000561 | 2.880631 | 0.0040 |
| (1-D\_PREALLBSI00(-2))\*T\_PREALLBSI(-2) | 0.000377 | 0.000381 | 0.990937 | 0.3217 |
| DLNCPI | -1.763957 | 0.479712 | -3.677113 | 0.0002 |
| DLNIV | 4.109442 | 0.547825 | 7.501376 | 0.0000 |
| DLNM1 | -0.306988 | 0.105092 | -2.921128 | 0.0035 |
| C | -0.001777 | 0.000238 | -7.466211 | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 2.74E-07 | 9.59E-08 | 2.860314 | 0.0042 |
| RESID(-1)^2 | 0.319053 | 0.025267 | 12.62726 | 0.0000 |
| RESID(-2)^2 | -0.283539 | 0.025606 | -11.07305 | 0.0000 |
| GARCH(-1) | 0.960120 | 0.002597 | 369.7267 | 0.0000 |
| T\_PREALLARGS | -3.02E-06 | 1.47E-06 | -2.055443 | 0.0398 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.020716 | Mean dependent var | | -0.001101 |
| Adjusted R-squared | 0.015318 | S.D. dependent var | | 0.007765 |
| S.E. of regression | 0.007705 | Akaike info criterion | | -7.783503 |
| Sum squared resid | 0.053849 | Schwarz criterion | | -7.725470 |
| Log likelihood | 3564.169 | Hannan-Quinn criter. | | -7.761349 |
| Durbin-Watson stat | 1.974659 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

1. 日内收益率

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| --- | --- | --- | --- | --- |
| Dependent Variable: TODAY\_RETURN | | | |  |
| Method: ML ARCH - Normal distribution (OPG - BHHH / Marquardt steps) | | | | |
| Date: 02/22/19 Time: 15:55 | | |  |  |
| Sample (adjusted): 2 915 | | |  |  |
| Included observations: 914 after adjustments | | | |  |
| Convergence achieved after 42 iterations | | | |  |
| Coefficient covariance computed using outer product of gradients | | | | |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(5) + C(6)\*RESID(-1)^2 + C(7)\*GARCH(-1) + C(8)\*T\_INTARGS | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| D\_INTBSI0\*T\_INTBSI | -0.005239 | 0.005565 | -0.941392 | 0.3465 |
| (1-D\_INTBSI0)\*T\_INTBSI | 0.016452 | 0.000753 | 21.83773 | 0.0000 |
| DLNIV | -2.227337 | 0.977265 | -2.279153 | 0.0227 |
| C | 0.010412 | 0.000570 | 18.26611 | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 2.45E-06 | 1.20E-06 | 2.032651 | 0.0421 |
| RESID(-1)^2 | 0.068131 | 0.011440 | 5.955549 | 0.0000 |
| GARCH(-1) | 0.924758 | 0.010098 | 91.57770 | 0.0000 |
| T\_INTARGS | -1.88E-05 | 1.08E-05 | -1.739382 | 0.0820 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.284627 | Mean dependent var | | 0.001047 |
| Adjusted R-squared | 0.282269 | S.D. dependent var | | 0.014283 |
| S.E. of regression | 0.012101 | Akaike info criterion | | -6.569649 |
| Sum squared resid | 0.133249 | Schwarz criterion | | -6.527480 |
| Log likelihood | 3010.330 | Hannan-Quinn criter. | | -6.553552 |
| Durbin-Watson stat | 1.970898 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

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| --- | --- | --- | --- | --- |
| Dependent Variable: TODAY\_RETURN | | | |  |
| Method: ML ARCH - Normal distribution | | | |  |
| Date: 02/22/19 Time: 19:28 | | |  |  |
| Sample (adjusted): 2 915 | | |  |  |
| Included observations: 914 after adjustments | | | |  |
| Convergence achieved after 40 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(6) + C(7)\*RESID(-1)^2 + C(8)\*GARCH(-1) + C(9)\*T\_INTARGS | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| D\_INTBSI00(-1)\*T\_INTBSI(-1) | 0.010488 | 0.009356 | 1.121056 | 0.2623 |
| (1-D\_INTBSI00(-1))\*T\_INTBSI(-1) | -0.001570 | 0.001033 | -1.519713 | 0.1286 |
| DLNM1 | -0.216190 | 0.215704 | -1.002251 | 0.3162 |
| DLNCPI | -1.634307 | 1.050129 | -1.556291 | 0.1196 |
| C | 0.000512 | 0.000659 | 0.777337 | 0.4370 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 3.85E-06 | 1.24E-06 | 3.103084 | 0.0019 |
| RESID(-1)^2 | 0.061944 | 0.009676 | 6.402115 | 0.0000 |
| GARCH(-1) | 0.932438 | 0.007897 | 118.0793 | 0.0000 |
| T\_INTARGS | -3.15E-05 | 1.09E-05 | -2.904826 | 0.0037 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.002680 | Mean dependent var | | 0.001047 |
| Adjusted R-squared | -0.001708 | S.D. dependent var | | 0.014283 |
| S.E. of regression | 0.014296 | Akaike info criterion | | -6.202611 |
| Sum squared resid | 0.185766 | Schwarz criterion | | -6.155170 |
| Log likelihood | 2843.593 | Hannan-Quinn criter. | | -6.184502 |
| Durbin-Watson stat | 1.958486 |  |  |  |
|  |  |  |  |  |
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| --- | --- | --- | --- | --- |
| Dependent Variable: TODAY\_RETURN | | | |  |
| Method: ML ARCH - Normal distribution | | | |  |
| Date: 02/22/19 Time: 19:31 | | |  |  |
| Sample (adjusted): 2 915 | | |  |  |
| Included observations: 914 after adjustments | | | |  |
| Convergence achieved after 3 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(6) + C(7)\*RESID(-1)^2 + C(8)\*GARCH(-1) + C(9)\*T\_INTARGS | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| D\_PREBSI00\*T\_PREBSI | -0.001050 | 0.001687 | -0.622019 | 0.5339 |
| (1-D\_PREBSI00)\*T\_PREBSI | -0.005570 | 0.002935 | -1.898066 | 0.0577 |
| DLNM1 | -0.809841 | 0.318206 | -2.545023 | 0.0109 |
| DLNCPI | -2.951034 | 1.404610 | -2.100963 | 0.0356 |
| C | 0.000598 | 0.000967 | 0.618564 | 0.5362 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 0.000141 | 4.36E-06 | 32.33741 | 0.0000 |
| RESID(-1)^2 | 0.139331 | 0.031203 | 4.465362 | 0.0000 |
| GARCH(-1) | 0.536505 | 0.033892 | 15.82978 | 0.0000 |
| T\_INTARGS | -0.000831 | 2.88E-06 | -288.7882 | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | -0.000460 | Mean dependent var | | 0.001047 |
| Adjusted R-squared | -0.004863 | S.D. dependent var | | 0.014283 |
| S.E. of regression | 0.014318 | Akaike info criterion | | -5.907013 |
| Sum squared resid | 0.186351 | Schwarz criterion | | -5.859572 |
| Log likelihood | 2708.505 | Hannan-Quinn criter. | | -5.888904 |
| Durbin-Watson stat | 1.877532 |  |  |  |
|  |  |  |  |  |
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| --- | --- | --- | --- | --- |
| Dependent Variable: TODAY\_RETURN | | | |  |
| Method: ML ARCH - Normal distribution | | | |  |
| Date: 02/22/19 Time: 19:29 | | |  |  |
| Sample (adjusted): 2 915 | | |  |  |
| Included observations: 914 after adjustments | | | |  |
| Convergence achieved after 27 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(6) + C(7)\*RESID(-1)^2 + C(8)\*GARCH(-1) + C(9)\*T\_INTARGS | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| D\_PREBSI00(-1)\*T\_PREBSI(-1) | -0.000457 | 0.001019 | -0.448472 | 0.6538 |
| (1-D\_PREBSI00(-1))\*T\_PREBSI(-1) | -0.000119 | 0.001903 | -0.062540 | 0.9501 |
| DLNM1 | -0.215861 | 0.214769 | -1.005084 | 0.3149 |
| DLNCPI | -1.626942 | 1.056698 | -1.539647 | 0.1236 |
| C | 0.001571 | 0.000566 | 2.774167 | 0.0055 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 3.84E-06 | 1.26E-06 | 3.055022 | 0.0023 |
| RESID(-1)^2 | 0.060973 | 0.009546 | 6.387555 | 0.0000 |
| GARCH(-1) | 0.932937 | 0.007862 | 118.6568 | 0.0000 |
| T\_INTARGS | -3.12E-05 | 1.10E-05 | -2.845777 | 0.0044 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.002258 | Mean dependent var | | 0.001047 |
| Adjusted R-squared | -0.002133 | S.D. dependent var | | 0.014283 |
| S.E. of regression | 0.014299 | Akaike info criterion | | -6.199157 |
| Sum squared resid | 0.185845 | Schwarz criterion | | -6.151716 |
| Log likelihood | 2842.015 | Hannan-Quinn criter. | | -6.181048 |
| Durbin-Watson stat | 1.988544 |  |  |  |
|  |  |  |  |  |
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| Dependent Variable: TODAY\_RETURN | | | |  |
| Method: ML ARCH - Normal distribution | | | |  |
| Date: 02/22/19 Time: 19:35 | | |  |  |
| Sample (adjusted): 2 915 | | |  |  |
| Included observations: 914 after adjustments | | | |  |
| Convergence achieved after 3 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(6) + C(7)\*RESID(-1)^2 + C(8)\*GARCH(-1) + C(9)\*T\_INTARGS | | | | |
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|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| D\_PREALLBSI00\*T\_PREALLBSI | 0.004716 | 0.003335 | 1.414011 | 0.1574 |
| (1-D\_PREALLBSI00)\*T\_PREALLBSI | -0.002285 | 0.001546 | -1.477678 | 0.1395 |
| DLNM1 | -0.814184 | 0.330326 | -2.464787 | 0.0137 |
| DLNCPI | -2.910966 | 1.407826 | -2.067702 | 0.0387 |
| C | -0.000390 | 0.000957 | -0.407976 | 0.6833 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 0.000141 | 1.24E-06 | 113.3020 | 0.0000 |
| RESID(-1)^2 | 0.139569 | 0.031005 | 4.501510 | 0.0000 |
| GARCH(-1) | 0.537218 | 0.029506 | 18.20693 | 0.0000 |
| T\_INTARGS | -0.000831 | 2.70E-05 | -30.80060 | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.004991 | Mean dependent var | | 0.001047 |
| Adjusted R-squared | 0.000612 | S.D. dependent var | | 0.014283 |
| S.E. of regression | 0.014279 | Akaike info criterion | | -5.840431 |
| Sum squared resid | 0.185336 | Schwarz criterion | | -5.792991 |
| Log likelihood | 2678.077 | Hannan-Quinn criter. | | -5.822322 |
| Durbin-Watson stat | 1.960773 |  |  |  |
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1. 日间收盘收益率

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| Dependent Variable: CLOSE\_RETURN | | | |  |
| Method: ML ARCH - Normal distribution (Marquardt / EViews legacy) | | | | |
| Date: 02/22/19 Time: 16:17 | | |  |  |
| Sample (adjusted): 2 915 | | |  |  |
| Included observations: 914 after adjustments | | | |  |
| Convergence achieved after 34 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(7) + C(8)\*RESID(-1)^2 + C(9)\*GARCH(-1) + C(10)\*T\_INTARGS | | | | |
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| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
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|  |  |  |  |  |
| D\_INTBSI0\*T\_INTBSI | -0.001398 | 0.005424 | -0.257680 | 0.7967 |
| (1-D\_INTBSI0)\*T\_INTBSI | 0.018443 | 0.000810 | 22.76592 | 0.0000 |
| DLNCPI | 0.123917 | 1.198289 | 0.103412 | 0.9176 |
| DLNIV | 0.094534 | 1.080985 | 0.087452 | 0.9303 |
| DLNM1 | -0.132609 | 0.205995 | -0.643745 | 0.5197 |
| C | 0.010166 | 0.000588 | 17.27756 | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 3.19E-06 | 1.33E-06 | 2.394502 | 0.0166 |
| RESID(-1)^2 | 0.060789 | 0.009528 | 6.380078 | 0.0000 |
| GARCH(-1) | 0.931464 | 0.008586 | 108.4908 | 0.0000 |
| T\_INTARGS | -2.54E-05 | 1.18E-05 | -2.149117 | 0.0316 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.301039 | Mean dependent var | | -6.27E-05 |
| Adjusted R-squared | 0.297190 | S.D. dependent var | | 0.016180 |
| S.E. of regression | 0.013564 | Akaike info criterion | | -6.381414 |
| Sum squared resid | 0.167053 | Schwarz criterion | | -6.328702 |
| Log likelihood | 2926.306 | Hannan-Quinn criter. | | -6.361293 |
| Durbin-Watson stat | 1.954940 |  |  |  |
|  |  |  |  |  |
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| --- | --- | --- | --- | --- |
| Dependent Variable: CLOSE\_RETURN | | | |  |
| Method: ML ARCH - Normal distribution (Marquardt / EViews legacy) | | | | |
| Date: 02/22/19 Time: 16:18 | | |  |  |
| Sample (adjusted): 2 915 | | |  |  |
| Included observations: 914 after adjustments | | | |  |
| Convergence achieved after 6 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(7) + C(8)\*RESID(-1)^2 + C(9)\*GARCH(-1) + C(10)\*T\_INTARGS | | | | |
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|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| D\_PREBSI0\*T\_PREBSI | 0.000346 | 0.001291 | 0.267707 | 0.7889 |
| (1-D\_PREBSI0)\*T\_PREBSI | -0.001558 | 0.002291 | -0.679914 | 0.4966 |
| DLNCPI | -7.105230 | 1.541588 | -4.609032 | 0.0000 |
| DLNIV | 6.670870 | 2.165061 | 3.081146 | 0.0021 |
| DLNM1 | -1.434378 | 0.306345 | -4.682232 | 0.0000 |
| C | -0.002300 | 0.000766 | -3.001102 | 0.0027 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 8.06E-05 | 2.62E-06 | 30.77365 | 0.0000 |
| RESID(-1)^2 | 0.236699 | 0.033217 | 7.125926 | 0.0000 |
| GARCH(-1) | 0.592928 | 0.030168 | 19.65444 | 0.0000 |
| T\_INTARGS | -0.000498 | 2.29E-05 | -21.73689 | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.004166 | Mean dependent var | | -6.27E-05 |
| Adjusted R-squared | -0.001317 | S.D. dependent var | | 0.016180 |
| S.E. of regression | 0.016190 | Akaike info criterion | | -5.784475 |
| Sum squared resid | 0.238006 | Schwarz criterion | | -5.731764 |
| Log likelihood | 2653.505 | Hannan-Quinn criter. | | -5.764354 |
| Durbin-Watson stat | 1.873391 |  |  |  |
|  |  |  |  |  |
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| Dependent Variable: CLOSE\_RETURN | | | |  |
| Method: ML ARCH - Normal distribution | | | |  |
| Date: 02/22/19 Time: 19:40 | | |  |  |
| Sample (adjusted): 2 915 | | |  |  |
| Included observations: 914 after adjustments | | | |  |
| Convergence achieved after 34 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(7) + C(8)\*RESID(-1)^2 + C(9)\*GARCH(-1) + C(10)\*T\_INTARGS | | | | |
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|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| D\_PREBSI00(-1)\*T\_PREBSI(-1) | -0.000529 | 0.001085 | -0.487906 | 0.6256 |
| (1-D\_PREBSI00(-1))\*T\_PREBSI(-1) | 0.000762 | 0.002210 | 0.344955 | 0.7301 |
| DLNCPI | -3.240654 | 1.349651 | -2.401105 | 0.0163 |
| DLNIV | 4.765883 | 1.222368 | 3.898894 | 0.0001 |
| DLNM1 | -0.464336 | 0.241858 | -1.919871 | 0.0549 |
| C | -6.05E-05 | 0.000661 | -0.091560 | 0.9270 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 5.02E-06 | 1.31E-06 | 3.821725 | 0.0001 |
| RESID(-1)^2 | 0.057355 | 0.007971 | 7.195708 | 0.0000 |
| GARCH(-1) | 0.936254 | 0.006646 | 140.8646 | 0.0000 |
| T\_INTARGS | -4.17E-05 | 1.14E-05 | -3.648731 | 0.0003 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.010145 | Mean dependent var | | -6.27E-05 |
| Adjusted R-squared | 0.004695 | S.D. dependent var | | 0.016180 |
| S.E. of regression | 0.016141 | Akaike info criterion | | -5.984809 |
| Sum squared resid | 0.236577 | Schwarz criterion | | -5.932097 |
| Log likelihood | 2745.058 | Hannan-Quinn criter. | | -5.964687 |
| Durbin-Watson stat | 1.895468 |  |  |  |
|  |  |  |  |  |
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| Dependent Variable: CLOSE\_RETURN | | | |  |
| Method: ML ARCH - Normal distribution (Marquardt / EViews legacy) | | | | |
| Date: 02/22/19 Time: 16:19 | | |  |  |
| Sample (adjusted): 2 915 | | |  |  |
| Included observations: 914 after adjustments | | | |  |
| Convergence achieved after 3 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(7) + C(8)\*RESID(-1)^2 + C(9)\*GARCH(-1) + C(10)\*T\_INTARGS | | | | |
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|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| D\_PREALLBSI0\*T\_PREALLBSI | 0.007450 | 0.004349 | 1.713139 | 0.0867 |
| (1-D\_PREALLBSI0)\*T\_PREALLBSI | 0.002415 | 0.001660 | 1.454835 | 0.1457 |
| DLNCPI | -6.425168 | 2.347436 | -2.737100 | 0.0062 |
| DLNIV | 2.982598 | 3.981598 | 0.749096 | 0.4538 |
| DLNM1 | -1.345693 | 0.427671 | -3.146564 | 0.0017 |
| C | -0.001465 | 0.001304 | -1.122824 | 0.2615 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 0.000177 | 7.90E-06 | 22.41064 | 0.0000 |
| RESID(-1)^2 | 0.151159 | 0.032101 | 4.708837 | 0.0000 |
| GARCH(-1) | 0.526981 | 0.045727 | 11.52462 | 0.0000 |
| T\_INTARGS | -0.001044 | 1.07E-06 | -979.3578 | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.018958 | Mean dependent var | | -6.27E-05 |
| Adjusted R-squared | 0.013556 | S.D. dependent var | | 0.016180 |
| S.E. of regression | 0.016069 | Akaike info criterion | | -5.626832 |
| Sum squared resid | 0.234471 | Schwarz criterion | | -5.574120 |
| Log likelihood | 2581.462 | Hannan-Quinn criter. | | -5.606711 |
| Durbin-Watson stat | 1.982181 |  |  |  |
|  |  |  |  |  |
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| Dependent Variable: CLOSE\_RETURN | | | |  |
| Method: ML ARCH - Normal distribution (Marquardt / EViews legacy) | | | | |
| Date: 02/22/19 Time: 16:21 | | |  |  |
| Sample (adjusted): 2 915 | | |  |  |
| Included observations: 914 after adjustments | | | |  |
| Convergence achieved after 39 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(7) + C(8)\*RESID(-1)^2 + C(9)\*GARCH(-1) + C(10)\*T\_INTARGS | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| D\_PREALLBSI0(-1)\*T\_PREALLBSI(-1) | 0.002819 | 0.002223 | 1.268142 | 0.2047 |
| (1-D\_PREALLBSI0(-1))\*T\_PREALLBSI(-1) | -4.18E-05 | 0.001130 | -0.036969 | 0.9705 |
| DLNCPI | -2.931216 | 1.364976 | -2.147449 | 0.0318 |
| DLNIV | 4.814642 | 1.202079 | 4.005263 | 0.0001 |
| DLNM1 | -0.406193 | 0.241910 | -1.679108 | 0.0931 |
| C | -0.000654 | 0.000623 | -1.049206 | 0.2941 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 4.94E-06 | 1.30E-06 | 3.793066 | 0.0001 |
| RESID(-1)^2 | 0.057499 | 0.007831 | 7.342806 | 0.0000 |
| GARCH(-1) | 0.936270 | 0.006533 | 143.3177 | 0.0000 |
| T\_INTARGS | -4.10E-05 | 1.14E-05 | -3.611375 | 0.0003 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.010749 | Mean dependent var | | -6.27E-05 |
| Adjusted R-squared | 0.005301 | S.D. dependent var | | 0.016180 |
| S.E. of regression | 0.016137 | Akaike info criterion | | -5.987543 |
| Sum squared resid | 0.236433 | Schwarz criterion | | -5.934831 |
| Log likelihood | 2746.307 | Hannan-Quinn criter. | | -5.967422 |
| Durbin-Watson stat | 1.905492 |  |  |  |
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| Dependent Variable: CLOSE\_RETURN | | | |  |
| Method: ML ARCH - Normal distribution (Marquardt / EViews legacy) | | | | |
| Date: 02/22/19 Time: 16:22 | | |  |  |
| Sample (adjusted): 2 915 | | |  |  |
| Included observations: 914 after adjustments | | | |  |
| Convergence achieved after 14 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(7) + C(8)\*RESID(-1)^2 + C(9)\*GARCH(-1) + C(10)\*T\_INTARGS | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| D\_INTBSI0(-1)\*T\_INTBSI(-1) | 0.037764 | 0.013057 | 2.892184 | 0.0038 |
| (1-D\_INTBSI0(-1))\*T\_INTBSI(-1) | -0.000154 | 0.001337 | -0.115395 | 0.9081 |
| DLNCPI | -7.233020 | 1.537752 | -4.703634 | 0.0000 |
| DLNIV | 8.097646 | 2.199459 | 3.681653 | 0.0002 |
| DLNM1 | -1.109030 | 0.310660 | -3.569918 | 0.0004 |
| C | -0.000825 | 0.001088 | -0.758166 | 0.4484 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 3.75E-05 | 1.32E-06 | 28.47450 | 0.0000 |
| RESID(-1)^2 | 0.154319 | 0.020481 | 7.534735 | 0.0000 |
| GARCH(-1) | 0.768999 | 0.017103 | 44.96289 | 0.0000 |
| T\_INTARGS | -0.000247 | 1.74E-05 | -14.20876 | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.022847 | Mean dependent var | | -6.27E-05 |
| Adjusted R-squared | 0.017466 | S.D. dependent var | | 0.016180 |
| S.E. of regression | 0.016038 | Akaike info criterion | | -5.871562 |
| Sum squared resid | 0.233542 | Schwarz criterion | | -5.818851 |
| Log likelihood | 2693.304 | Hannan-Quinn criter. | | -5.851441 |
| Durbin-Watson stat | 1.939181 |  |  |  |
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1. 交易量

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| Dependent Variable: LNVOLUME | | |  |  |
| Method: ML ARCH - Normal distribution | | | |  |
| Date: 02/22/19 Time: 17:21 | | |  |  |
| Sample (adjusted): 2 915 | | |  |  |
| Included observations: 914 after adjustments | | | |  |
| Convergence achieved after 72 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(11) + C(12)\*RESID(-1)^2 + C(13)\*RESID(-2)^2 | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| D\_INTBSI0\*T\_INTBSI | 0.196114 | 0.128631 | 1.524629 | 0.1274 |
| (1-D\_INTBSI0)\*T\_INTBSI | 0.049029 | 0.020947 | 2.340685 | 0.0192 |
| DLNIV | 82.02247 | 27.15216 | 3.020845 | 0.0025 |
| DLNM1 | 15.93854 | 4.762630 | 3.346584 | 0.0008 |
| C | 18.66887 | 0.219985 | 84.86436 | 0.0000 |
| AR(1) | 0.593811 | 0.035109 | 16.91328 | 0.0000 |
| AR(2) | 0.156145 | 0.043244 | 3.610748 | 0.0003 |
| AR(3) | 0.105013 | 0.037290 | 2.816081 | 0.0049 |
| AR(6) | 0.058506 | 0.033416 | 1.750817 | 0.0800 |
| AR(8) | 0.058685 | 0.028607 | 2.051372 | 0.0402 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 0.033659 | 0.002134 | 15.77482 | 0.0000 |
| RESID(-1)^2 | 0.093445 | 0.029073 | 3.214170 | 0.0013 |
| RESID(-2)^2 | 0.091177 | 0.030869 | 2.953689 | 0.0031 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.866645 | Mean dependent var | | 18.67446 |
| Adjusted R-squared | 0.865317 | S.D. dependent var | | 0.557626 |
| S.E. of regression | 0.204644 | Akaike info criterion | | -0.342991 |
| Sum squared resid | 37.85873 | Schwarz criterion | | -0.274466 |
| Log likelihood | 169.7468 | Hannan-Quinn criter. | | -0.316833 |
| Durbin-Watson stat | 2.036986 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Inverted AR Roots | .99 | .54-.44i | .54+.44i | .03+.63i |
|  | .03-.63i | -.42+.52i | -.42-.52i | -.68 |
|  |  |  |  |  |
|  |  |  |  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Dependent Variable: LNVOLUME | | |  |  |
| Method: ML ARCH - Normal distribution | | | |  |
| Date: 02/22/19 Time: 17:22 | | |  |  |
| Sample (adjusted): 2 915 | | |  |  |
| Included observations: 914 after adjustments | | | |  |
| Convergence achieved after 38 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(11) + C(12)\*RESID(-1)^2 + C(13)\*RESID(-2)^2 | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| D\_INTBSI0(-1)\*T\_INTBSI(-1) | 0.110944 | 0.178416 | 0.621828 | 0.5341 |
| (1-D\_INTBSI0(-1))\*T\_INTBSI(-1) | 0.080221 | 0.022877 | 3.506572 | 0.0005 |
| DLNIV | 87.62934 | 26.98387 | 3.247471 | 0.0012 |
| DLNM1 | 16.72126 | 4.746496 | 3.522864 | 0.0004 |
| C | 18.69634 | 0.215866 | 86.61091 | 0.0000 |
| AR(1) | 0.585313 | 0.035895 | 16.30613 | 0.0000 |
| AR(2) | 0.166595 | 0.044428 | 3.749749 | 0.0002 |
| AR(3) | 0.103481 | 0.037458 | 2.762624 | 0.0057 |
| AR(6) | 0.063287 | 0.033584 | 1.884459 | 0.0595 |
| AR(8) | 0.052885 | 0.028639 | 1.846573 | 0.0648 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 0.033117 | 0.002025 | 16.35341 | 0.0000 |
| RESID(-1)^2 | 0.097684 | 0.029289 | 3.335125 | 0.0009 |
| RESID(-2)^2 | 0.097319 | 0.026222 | 3.711369 | 0.0002 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.866842 | Mean dependent var | | 18.67446 |
| Adjusted R-squared | 0.865516 | S.D. dependent var | | 0.557626 |
| S.E. of regression | 0.204493 | Akaike info criterion | | -0.349526 |
| Sum squared resid | 37.80288 | Schwarz criterion | | -0.281001 |
| Log likelihood | 172.7335 | Hannan-Quinn criter. | | -0.323369 |
| Durbin-Watson stat | 2.043399 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Inverted AR Roots | .99 | .53+.44i | .53-.44i | .02-.61i |
|  | .02+.61i | -.42-.52i | -.42+.52i | -.68 |
|  |  |  |  |  |
|  |  |  |  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Dependent Variable: LNVOLUME | | |  |  |
| Method: ML ARCH - Normal distribution | | | |  |
| Date: 02/22/19 Time: 17:23 | | |  |  |
| Sample (adjusted): 3 915 | | |  |  |
| Included observations: 913 after adjustments | | | |  |
| Convergence achieved after 32 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(11) + C(12)\*RESID(-1)^2 + C(13)\*RESID(-2)^2 | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| D\_INTBSI0(-2)\*T\_INTBSI(-2) | 0.230774 | 0.192434 | 1.199235 | 0.2304 |
| (1-D\_INTBSI0(-2))\*T\_INTBSI(-2) | 0.007298 | 0.026096 | 0.279656 | 0.7797 |
| DLNIV | 88.28247 | 26.40185 | 3.343799 | 0.0008 |
| DLNM1 | 16.41329 | 4.515459 | 3.634910 | 0.0003 |
| C | 18.64784 | 0.219508 | 84.95284 | 0.0000 |
| AR(1) | 0.594431 | 0.035201 | 16.88674 | 0.0000 |
| AR(2) | 0.158383 | 0.043375 | 3.651462 | 0.0003 |
| AR(3) | 0.102101 | 0.037468 | 2.725032 | 0.0064 |
| AR(6) | 0.061863 | 0.033645 | 1.838689 | 0.0660 |
| AR(8) | 0.054889 | 0.028721 | 1.911084 | 0.0560 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 0.033770 | 0.002081 | 16.22995 | 0.0000 |
| RESID(-1)^2 | 0.094565 | 0.028708 | 3.294022 | 0.0010 |
| RESID(-2)^2 | 0.091068 | 0.028830 | 3.158792 | 0.0016 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.865439 | Mean dependent var | | 18.67316 |
| Adjusted R-squared | 0.864098 | S.D. dependent var | | 0.556552 |
| S.E. of regression | 0.205172 | Akaike info criterion | | -0.339544 |
| Sum squared resid | 38.01244 | Schwarz criterion | | -0.270959 |
| Log likelihood | 168.0017 | Hannan-Quinn criter. | | -0.313362 |
| Durbin-Watson stat | 2.035379 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Inverted AR Roots | .99 | .54+.44i | .54-.44i | .02-.61i |
|  | .02+.61i | -.42-.52i | -.42+.52i | -.68 |
|  |  |  |  |  |
|  |  |  |  |  |

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| --- | --- | --- | --- | --- |
| Dependent Variable: LNVOLUME | | |  |  |
| Method: ML ARCH - Normal distribution | | | |  |
| Date: 02/22/19 Time: 17:24 | | |  |  |
| Sample (adjusted): 2 915 | | |  |  |
| Included observations: 914 after adjustments | | | |  |
| Convergence achieved after 29 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(11) + C(12)\*RESID(-1)^2 + C(13)\*RESID(-2)^2 | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| D\_PREBSI0\*T\_PREBSI | 0.169983 | 0.022283 | 7.628352 | 0.0000 |
| (1-D\_PREBSI0)\*T\_PREBSI | -0.092629 | 0.036799 | -2.517176 | 0.0118 |
| DLNIV | 52.91086 | 27.28385 | 1.939274 | 0.0525 |
| DLNM1 | 13.76029 | 4.234489 | 3.249575 | 0.0012 |
| C | 18.59677 | 0.212355 | 87.57395 | 0.0000 |
| AR(1) | 0.579930 | 0.035917 | 16.14650 | 0.0000 |
| AR(2) | 0.168521 | 0.043222 | 3.898950 | 0.0001 |
| AR(3) | 0.100215 | 0.036849 | 2.719607 | 0.0065 |
| AR(6) | 0.073376 | 0.033134 | 2.214511 | 0.0268 |
| AR(8) | 0.049846 | 0.028994 | 1.719189 | 0.0856 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 0.032337 | 0.001877 | 17.22638 | 0.0000 |
| RESID(-1)^2 | 0.090590 | 0.029553 | 3.065327 | 0.0022 |
| RESID(-2)^2 | 0.072397 | 0.027882 | 2.596604 | 0.0094 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.874766 | Mean dependent var | | 18.67446 |
| Adjusted R-squared | 0.873519 | S.D. dependent var | | 0.557626 |
| S.E. of regression | 0.198315 | Akaike info criterion | | -0.405383 |
| Sum squared resid | 35.55331 | Schwarz criterion | | -0.336858 |
| Log likelihood | 198.2600 | Hannan-Quinn criter. | | -0.379225 |
| Durbin-Watson stat | 2.026764 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Inverted AR Roots | .99 | .53+.45i | .53-.45i | .02-.59i |
|  | .02+.59i | -.41-.52i | -.41+.52i | -.68 |
|  |  |  |  |  |
|  |  |  |  |  |

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| --- | --- | --- | --- | --- |
| Dependent Variable: LNVOLUME | | |  |  |
| Method: ML ARCH - Normal distribution | | | |  |
| Date: 02/22/19 Time: 17:24 | | |  |  |
| Sample (adjusted): 2 915 | | |  |  |
| Included observations: 914 after adjustments | | | |  |
| Convergence achieved after 33 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(11) + C(12)\*RESID(-1)^2 + C(13)\*RESID(-2)^2 | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| D\_PREBSI0(-1)\*T\_PREBSI(-1) | 0.004518 | 0.023530 | 0.192000 | 0.8477 |
| (1-D\_PREBSI0(-1))\*T\_PREBSI(-1) | 0.035837 | 0.039613 | 0.904683 | 0.3656 |
| DLNIV | 90.44160 | 26.54936 | 3.406546 | 0.0007 |
| DLNM1 | 16.48085 | 4.606933 | 3.577402 | 0.0003 |
| C | 18.62685 | 0.223885 | 83.19829 | 0.0000 |
| AR(1) | 0.595050 | 0.035864 | 16.59181 | 0.0000 |
| AR(2) | 0.165015 | 0.044230 | 3.730814 | 0.0002 |
| AR(3) | 0.096024 | 0.037498 | 2.560801 | 0.0104 |
| AR(6) | 0.059126 | 0.033625 | 1.758392 | 0.0787 |
| AR(8) | 0.056941 | 0.028358 | 2.007925 | 0.0447 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 0.033390 | 0.002094 | 15.94903 | 0.0000 |
| RESID(-1)^2 | 0.100674 | 0.031085 | 3.238706 | 0.0012 |
| RESID(-2)^2 | 0.099618 | 0.031064 | 3.206806 | 0.0013 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.865215 | Mean dependent var | | 18.67446 |
| Adjusted R-squared | 0.863873 | S.D. dependent var | | 0.557626 |
| S.E. of regression | 0.205738 | Akaike info criterion | | -0.336135 |
| Sum squared resid | 38.26471 | Schwarz criterion | | -0.267610 |
| Log likelihood | 166.6135 | Hannan-Quinn criter. | | -0.309977 |
| Durbin-Watson stat | 2.037854 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Inverted AR Roots | .99 | .54+.44i | .54-.44i | .03-.62i |
|  | .03+.62i | -.42-.52i | -.42+.52i | -.68 |
|  |  |  |  |  |
|  |  |  |  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Dependent Variable: LNVOLUME | | |  |  |
| Method: ML ARCH - Normal distribution | | | |  |
| Date: 02/22/19 Time: 17:24 | | |  |  |
| Sample (adjusted): 2 915 | | |  |  |
| Included observations: 914 after adjustments | | | |  |
| Convergence achieved after 33 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(11) + C(12)\*RESID(-1)^2 + C(13)\*RESID(-2)^2 | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| D\_PREALLBSI0(-1)\*T\_PREALLBSI(-1) | 0.041327 | 0.038530 | 1.072607 | 0.2834 |
| (1-D\_PREALLBSI0(-1))\*T\_PREALLBSI(-1) | 0.021823 | 0.023302 | 0.936559 | 0.3490 |
| DLNIV | 99.04802 | 27.50734 | 3.600785 | 0.0003 |
| DLNM1 | 16.73902 | 4.613100 | 3.628583 | 0.0003 |
| C | 18.63390 | 0.221789 | 84.01652 | 0.0000 |
| AR(1) | 0.584510 | 0.035298 | 16.55938 | 0.0000 |
| AR(2) | 0.170676 | 0.043740 | 3.902057 | 0.0001 |
| AR(3) | 0.101420 | 0.037048 | 2.737525 | 0.0062 |
| AR(6) | 0.061109 | 0.033761 | 1.810016 | 0.0703 |
| AR(8) | 0.054470 | 0.028486 | 1.912153 | 0.0559 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 0.033480 | 0.002097 | 15.96355 | 0.0000 |
| RESID(-1)^2 | 0.098578 | 0.029906 | 3.296292 | 0.0010 |
| RESID(-2)^2 | 0.097413 | 0.030219 | 3.223612 | 0.0013 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.865572 | Mean dependent var | | 18.67446 |
| Adjusted R-squared | 0.864234 | S.D. dependent var | | 0.557626 |
| S.E. of regression | 0.205465 | Akaike info criterion | | -0.337897 |
| Sum squared resid | 38.16328 | Schwarz criterion | | -0.269372 |
| Log likelihood | 167.4187 | Hannan-Quinn criter. | | -0.311739 |
| Durbin-Watson stat | 2.035245 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Inverted AR Roots | .99 | .54+.44i | .54-.44i | .02-.61i |
|  | .02+.61i | -.42-.52i | -.42+.52i | -.68 |
|  |  |  |  |  |
|  |  |  |  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Dependent Variable: LNVOLUME | | |  |  |
| Method: ML ARCH - Normal distribution | | | |  |
| Date: 02/22/19 Time: 17:25 | | |  |  |
| Sample (adjusted): 2 915 | | |  |  |
| Included observations: 914 after adjustments | | | |  |
| Convergence achieved after 43 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(11) + C(12)\*RESID(-1)^2 + C(13)\*RESID(-2)^2 | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| D\_PREALLBSI0\*T\_PREALLBSI | 0.199082 | 0.042518 | 4.682268 | 0.0000 |
| (1-D\_PREALLBSI0)\*T\_PREALLBSI | 0.067470 | 0.020920 | 3.225171 | 0.0013 |
| DLNIV | -25.16811 | 33.80138 | -0.744588 | 0.4565 |
| DLNM1 | 12.89436 | 4.451781 | 2.896449 | 0.0038 |
| C | 18.70309 | 0.214316 | 87.26876 | 0.0000 |
| AR(1) | 0.579728 | 0.035354 | 16.39790 | 0.0000 |
| AR(2) | 0.168620 | 0.044186 | 3.816130 | 0.0001 |
| AR(3) | 0.107583 | 0.037059 | 2.902987 | 0.0037 |
| AR(6) | 0.066881 | 0.033828 | 1.977099 | 0.0480 |
| AR(8) | 0.048945 | 0.028729 | 1.703658 | 0.0884 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 0.032435 | 0.001903 | 17.04336 | 0.0000 |
| RESID(-1)^2 | 0.089765 | 0.027584 | 3.254215 | 0.0011 |
| RESID(-2)^2 | 0.099090 | 0.025955 | 3.817787 | 0.0001 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.870544 | Mean dependent var | | 18.67446 |
| Adjusted R-squared | 0.869255 | S.D. dependent var | | 0.557626 |
| S.E. of regression | 0.201630 | Akaike info criterion | | -0.376976 |
| Sum squared resid | 36.75189 | Schwarz criterion | | -0.308451 |
| Log likelihood | 185.2781 | Hannan-Quinn criter. | | -0.350819 |
| Durbin-Watson stat | 2.042160 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Inverted AR Roots | .99 | .52+.44i | .52-.44i | .02-.60i |
|  | .02+.60i | -.41-.52i | -.41+.52i | -.68 |
|  |  |  |  |  |
|  |  |  |  |  |

1. 相对正向、负向的非对称效应
2. 开盘收益率

0: 大于均值

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Dependent Variable: OPEN\_RETURN | | | |  |
| Method: ML ARCH - Normal distribution (OPG - BHHH / Marquardt steps) | | | | |
| Date: 02/22/19 Time: 16:28 | | |  |  |
| Sample (adjusted): 2 915 | | |  |  |
| Included observations: 914 after adjustments | | | |  |
| Failure to improve likelihood (non-zero gradients) after 220 iterations | | | | |
| Coefficient covariance computed using outer product of gradients | | | | |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(7) + C(8)\*RESID(-1)^2 + C(9)\*RESID(-2)^2 + C(10)\*GARCH(-1) | | | | |
| + C(11)\*T\_PREALLARGS | | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| D\_PREBSI0\*T\_PREBSI | 0.001974 | 0.000288 | 6.866091 | 0.0000 |
| (1-D\_PREBSI0)\*T\_PREBSI | 0.003663 | 0.000543 | 6.745729 | 0.0000 |
| DLNCPI | -1.125324 | 0.588840 | -1.911086 | 0.0560 |
| DLNIV | 3.044810 | 0.864865 | 3.520559 | 0.0004 |
| DLNM1 | 0.191903 | 0.132530 | 1.447997 | 0.1476 |
| C | -0.002796 | 0.000149 | -18.69996 | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 2.60E-05 | 3.76E-06 | 6.921133 | 0.0000 |
| RESID(-1)^2 | 0.512439 | 0.064848 | 7.902102 | 0.0000 |
| RESID(-2)^2 | 0.239061 | 0.087045 | 2.746420 | 0.0060 |
| GARCH(-1) | 0.245598 | 0.087195 | 2.816636 | 0.0049 |
| T\_PREALLARGS | -0.000226 | 3.31E-05 | -6.824737 | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.085532 | Mean dependent var | | -0.001110 |
| Adjusted R-squared | 0.080496 | S.D. dependent var | | 0.007765 |
| S.E. of regression | 0.007446 | Akaike info criterion | | -7.612169 |
| Sum squared resid | 0.050344 | Schwarz criterion | | -7.554186 |
| Log likelihood | 3489.761 | Hannan-Quinn criter. | | -7.590035 |
| Durbin-Watson stat | 1.987732 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Dependent Variable: OPEN\_RETURN | | | |  |
| Method: ML ARCH - Normal distribution (Marquardt / EViews legacy) | | | | |
| Date: 02/22/19 Time: 20:18 | | |  |  |
| Sample (adjusted): 2 915 | | |  |  |
| Included observations: 914 after adjustments | | | |  |
| Convergence achieved after 103 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(7) + C(8)\*RESID(-1)^2 + C(9)\*RESID(-2)^2 + C(10)\*GARCH(-1) | | | | |
| + C(11)\*T\_PREALLARGS | | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| D\_PREBSI00\*T\_PREBSI | 0.003847 | 0.000250 | 15.40748 | 0.0000 |
| (1-D\_PREBSI00)\*T\_PREBSI | 0.002756 | 0.000397 | 6.939856 | 0.0000 |
| DLNCPI | -0.994240 | 0.461477 | -2.154475 | 0.0312 |
| DLNIV | 1.760213 | 0.477549 | 3.685934 | 0.0002 |
| DLNM1 | -0.227295 | 0.101509 | -2.239169 | 0.0251 |
| C | -0.002422 | 0.000115 | -21.03681 | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 1.46E-07 | 5.81E-08 | 2.519852 | 0.0117 |
| RESID(-1)^2 | 0.380009 | 0.016500 | 23.03097 | 0.0000 |
| RESID(-2)^2 | -0.346707 | 0.016746 | -20.70357 | 0.0000 |
| GARCH(-1) | 0.963241 | 0.002178 | 442.2042 | 0.0000 |
| T\_PREALLARGS | -1.51E-06 | 9.31E-07 | -1.624372 | 0.1043 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.103959 | Mean dependent var | | -0.001110 |
| Adjusted R-squared | 0.099025 | S.D. dependent var | | 0.007765 |
| S.E. of regression | 0.007371 | Akaike info criterion | | -7.953132 |
| Sum squared resid | 0.049330 | Schwarz criterion | | -7.895149 |
| Log likelihood | 3645.581 | Hannan-Quinn criter. | | -7.930998 |
| Durbin-Watson stat | 2.009626 |  |  |  |
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| Dependent Variable: OPEN\_RETURN | | | |  |
| Method: ML ARCH - Normal distribution (Marquardt / EViews legacy) | | | | |
| Date: 02/22/19 Time: 20:12 | | |  |  |
| Sample (adjusted): 2 915 | | |  |  |
| Included observations: 914 after adjustments | | | |  |
| Convergence achieved after 63 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(6) + C(7)\*RESID(-1)^2 + C(8)\*RESID(-2)^2 + C(9)\*GARCH(-1) | | | | |
| + C(10)\*T\_PREALLARGS | | |  |  |
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| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| D\_INTBSI00(-1)\*T\_INTBSI(-1) | 0.002439 | 0.000455 | 5.357157 | 0.0000 |
| (1-D\_INTBSI00(-1))\*T\_INTBSI(-1) | 0.002628 | 0.000192 | 13.70870 | 0.0000 |
| DLNCPI | -1.298079 | 0.456668 | -2.842499 | 0.0045 |
| DLNIV | 2.579418 | 0.450877 | 5.720888 | 0.0000 |
| DLNM1 | -0.172046 | 0.097391 | -1.766552 | 0.0773 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 4.86E-07 | 9.53E-08 | 5.098003 | 0.0000 |
| RESID(-1)^2 | 0.284698 | 0.020991 | 13.56278 | 0.0000 |
| RESID(-2)^2 | -0.239334 | 0.021745 | -11.00655 | 0.0000 |
| GARCH(-1) | 0.949941 | 0.002984 | 318.3857 | 0.0000 |
| T\_PREALLARGS | -6.21E-06 | 1.44E-06 | -4.306845 | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.042290 | Mean dependent var | | -0.001110 |
| Adjusted R-squared | 0.038076 | S.D. dependent var | | 0.007765 |
| S.E. of regression | 0.007616 | Akaike info criterion | | -7.814117 |
| Sum squared resid | 0.052725 | Schwarz criterion | | -7.761406 |
| Log likelihood | 3581.052 | Hannan-Quinn criter. | | -7.793996 |
| Durbin-Watson stat | 2.001025 |  |  |  |
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| Dependent Variable: OPEN\_RETURN | | | |  |
| Method: ML ARCH - Normal distribution (Marquardt / EViews legacy) | | | | |
| Date: 02/22/19 Time: 20:05 | | |  |  |
| Sample (adjusted): 2 915 | | |  |  |
| Included observations: 914 after adjustments | | | |  |
| Convergence achieved after 21 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(7) + C(8)\*RESID(-1)^2 + C(9)\*RESID(-2)^2 + C(10)\*GARCH(-1) | | | | |
| + C(11)\*T\_PREALLARGS | | |  |  |
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| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
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|  |  |  |  |  |
| D\_PREBSI00(-1)\*T\_PREBSI(-1) | -0.001763 | 0.000706 | -2.498513 | 0.0125 |
| (1-D\_PREBSI00(-1))\*T\_PREBSI(-1) | 0.001129 | 0.001452 | 0.777621 | 0.4368 |
| DLNCPI | -4.617298 | 0.910296 | -5.072305 | 0.0000 |
| DLNIV | 6.468120 | 1.019796 | 6.342561 | 0.0000 |
| DLNM1 | -0.642512 | 0.203457 | -3.157966 | 0.0016 |
| C | -0.001439 | 0.000568 | -2.535503 | 0.0112 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
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|  |  |  |  |  |
| C | 3.69E-05 | 1.81E-06 | 20.35120 | 0.0000 |
| RESID(-1)^2 | 0.201031 | 0.033419 | 6.015468 | 0.0000 |
| RESID(-2)^2 | 0.107912 | 0.044180 | 2.442585 | 0.0146 |
| GARCH(-1) | 0.428964 | 0.046206 | 9.283665 | 0.0000 |
| T\_PREALLARGS | -0.000291 | 1.05E-05 | -27.59462 | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.018277 | Mean dependent var | | -0.001110 |
| Adjusted R-squared | 0.012871 | S.D. dependent var | | 0.007765 |
| S.E. of regression | 0.007715 | Akaike info criterion | | -7.338959 |
| Sum squared resid | 0.054047 | Schwarz criterion | | -7.280977 |
| Log likelihood | 3364.904 | Hannan-Quinn criter. | | -7.316826 |
| Durbin-Watson stat | 1.919486 |  |  |  |
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| Dependent Variable: OPEN\_RETURN | | | |  |
| Method: ML ARCH - Normal distribution (Marquardt / EViews legacy) | | | | |
| Date: 02/22/19 Time: 20:06 | | |  |  |
| Sample (adjusted): 3 915 | | |  |  |
| Included observations: 913 after adjustments | | | |  |
| Convergence achieved after 30 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(7) + C(8)\*RESID(-1)^2 + C(9)\*RESID(-2)^2 + C(10)\*GARCH(-1) | | | | |
| + C(11)\*T\_PREALLARGS | | |  |  |
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| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
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|  |  |  |  |  |
| D\_PREBSI00(-2)\*T\_PREBSI(-2) | 0.001110 | 0.000213 | 5.204177 | 0.0000 |
| (1-D\_PREBSI00(-2))\*T\_PREBSI(-2) | 0.000656 | 0.000500 | 1.310596 | 0.1900 |
| DLNCPI | -4.737074 | 0.309069 | -15.32690 | 0.0000 |
| DLNIV | 5.538893 | 0.270956 | 20.44203 | 0.0000 |
| DLNM1 | -0.709194 | 0.044143 | -16.06571 | 0.0000 |
| C | -0.002425 | 0.000133 | -18.22938 | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 3.51E-06 | 2.14E-07 | 16.38910 | 0.0000 |
| RESID(-1)^2 | 0.855529 | 0.081985 | 10.43523 | 0.0000 |
| RESID(-2)^2 | -0.386330 | 0.049549 | -7.797006 | 0.0000 |
| GARCH(-1) | 0.728037 | 0.022220 | 32.76513 | 0.0000 |
| T\_PREALLARGS | -4.33E-05 | 1.86E-06 | -23.33948 | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.023819 | Mean dependent var | | -0.001101 |
| Adjusted R-squared | 0.018437 | S.D. dependent var | | 0.007765 |
| S.E. of regression | 0.007693 | Akaike info criterion | | -7.659378 |
| Sum squared resid | 0.053679 | Schwarz criterion | | -7.601345 |
| Log likelihood | 3507.506 | Hannan-Quinn criter. | | -7.637224 |
| Durbin-Watson stat | 1.963024 |  |  |  |
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| Dependent Variable: OPEN\_RETURN | | | |  |
| Method: ML ARCH - Normal distribution (Marquardt / EViews legacy) | | | | |
| Date: 02/22/19 Time: 20:07 | | |  |  |
| Sample (adjusted): 3 915 | | |  |  |
| Included observations: 913 after adjustments | | | |  |
| Convergence achieved after 171 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(7) + C(8)\*RESID(-1)^2 + C(9)\*RESID(-2)^2 + C(10)\*GARCH(-1) | | | | |
| + C(11)\*T\_PREALLARGS | | |  |  |
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| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
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|  |  |  |  |  |
| D\_INTBSI00(-2)\*T\_INTBSI(-2) | 0.001125 | 0.000844 | 1.333828 | 0.1823 |
| (1-D\_INTBSI00(-2))\*T\_INTBSI(-2) | 0.000792 | 0.000451 | 1.756715 | 0.0790 |
| DLNCPI | -1.831049 | 0.478287 | -3.828344 | 0.0001 |
| DLNIV | 3.869412 | 0.540212 | 7.162765 | 0.0000 |
| DLNM1 | -0.310103 | 0.100775 | -3.077181 | 0.0021 |
| C | -0.001174 | 0.000368 | -3.185938 | 0.0014 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 3.79E-07 | 9.67E-08 | 3.917119 | 0.0001 |
| RESID(-1)^2 | 0.301475 | 0.023678 | 12.73236 | 0.0000 |
| RESID(-2)^2 | -0.264114 | 0.024146 | -10.93821 | 0.0000 |
| GARCH(-1) | 0.957932 | 0.002713 | 353.1529 | 0.0000 |
| T\_PREALLARGS | -4.66E-06 | 1.47E-06 | -3.174462 | 0.0015 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.022489 | Mean dependent var | | -0.001101 |
| Adjusted R-squared | 0.017100 | S.D. dependent var | | 0.007765 |
| S.E. of regression | 0.007698 | Akaike info criterion | | -7.778027 |
| Sum squared resid | 0.053752 | Schwarz criterion | | -7.719994 |
| Log likelihood | 3561.669 | Hannan-Quinn criter. | | -7.755873 |
| Durbin-Watson stat | 1.978786 |  |  |  |
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| Dependent Variable: OPEN\_RETURN | | | |  |
| Method: ML ARCH - Normal distribution (Marquardt / EViews legacy) | | | | |
| Date: 02/22/19 Time: 20:20 | | |  |  |
| Sample (adjusted): 2 915 | | |  |  |
| Included observations: 914 after adjustments | | | |  |
| Convergence achieved after 129 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(7) + C(8)\*RESID(-1)^2 + C(9)\*RESID(-2)^2 + C(10)\*GARCH(-1) | | | | |
| + C(11)\*T\_PREALLARGS | | |  |  |
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|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| D\_PREALLBSI00\*T\_PREALLBSI | 0.004616 | 0.000596 | 7.750036 | 0.0000 |
| (1-D\_PREALLBSI00)\*T\_PREALLBSI | 0.002265 | 0.000345 | 6.563381 | 0.0000 |
| DLNCPI | -1.494021 | 0.446717 | -3.344445 | 0.0008 |
| DLNIV | 0.560422 | 0.644408 | 0.869670 | 0.3845 |
| DLNM1 | -0.268160 | 0.099085 | -2.706352 | 0.0068 |
| C | -0.000612 | 0.000192 | -3.182678 | 0.0015 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 2.71E-07 | 8.03E-08 | 3.374883 | 0.0007 |
| RESID(-1)^2 | 0.317959 | 0.020409 | 15.57936 | 0.0000 |
| RESID(-2)^2 | -0.276706 | 0.020905 | -13.23643 | 0.0000 |
| GARCH(-1) | 0.954601 | 0.002653 | 359.8589 | 0.0000 |
| T\_PREALLARGS | -3.07E-06 | 1.23E-06 | -2.508401 | 0.0121 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.075151 | Mean dependent var | | -0.001110 |
| Adjusted R-squared | 0.070059 | S.D. dependent var | | 0.007765 |
| S.E. of regression | 0.007488 | Akaike info criterion | | -7.882502 |
| Sum squared resid | 0.050916 | Schwarz criterion | | -7.824519 |
| Log likelihood | 3613.303 | Hannan-Quinn criter. | | -7.860369 |
| Durbin-Watson stat | 2.002258 |  |  |  |
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| Dependent Variable: OPEN\_RETURN | | | |  |
| Method: ML ARCH - Normal distribution (Marquardt / EViews legacy) | | | | |
| Date: 02/22/19 Time: 20:21 | | |  |  |
| Sample (adjusted): 2 915 | | |  |  |
| Included observations: 914 after adjustments | | | |  |
| Convergence achieved after 89 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(7) + C(8)\*RESID(-1)^2 + C(9)\*RESID(-2)^2 + C(10)\*GARCH(-1) | | | | |
| + C(11)\*T\_PREALLARGS | | |  |  |
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|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| D\_PREALLBSI00(-1)\*T\_PREALLBSI(-1) | 0.002621 | 0.000387 | 6.775750 | 0.0000 |
| (1-D\_PREALLBSI00(-1))\*T\_PREALLBSI(-1) | -0.000213 | 0.000352 | -0.604621 | 0.5454 |
| DLNCPI | -1.845681 | 0.463421 | -3.982735 | 0.0001 |
| DLNIV | 4.017077 | 0.514778 | 7.803518 | 0.0000 |
| DLNM1 | -0.302372 | 0.099511 | -3.038582 | 0.0024 |
| C | -0.001949 | 0.000186 | -10.46420 | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 2.82E-07 | 9.90E-08 | 2.848572 | 0.0044 |
| RESID(-1)^2 | 0.344899 | 0.027990 | 12.32231 | 0.0000 |
| RESID(-2)^2 | -0.305684 | 0.028067 | -10.89116 | 0.0000 |
| GARCH(-1) | 0.957801 | 0.002696 | 355.2549 | 0.0000 |
| T\_PREALLARGS | -3.25E-06 | 1.51E-06 | -2.148812 | 0.0316 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.017771 | Mean dependent var | | -0.001110 |
| Adjusted R-squared | 0.012362 | S.D. dependent var | | 0.007765 |
| S.E. of regression | 0.007717 | Akaike info criterion | | -7.790095 |
| Sum squared resid | 0.054075 | Schwarz criterion | | -7.732112 |
| Log likelihood | 3571.073 | Hannan-Quinn criter. | | -7.767961 |
| Durbin-Watson stat | 1.986112 |  |  |  |
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| Dependent Variable: TODAY\_RETURN | | | |  |
| Method: ML ARCH - Normal distribution (OPG - BHHH / Marquardt steps) | | | | |
| Date: 02/22/19 Time: 16:37 | | |  |  |
| Sample (adjusted): 2 915 | | |  |  |
| Included observations: 914 after adjustments | | | |  |
| Convergence achieved after 45 iterations | | | |  |
| Coefficient covariance computed using outer product of gradients | | | | |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(5) + C(6)\*RESID(-1)^2 + C(7)\*GARCH(-1) + C(8)\*T\_INTARGS | | | | |
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|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| D\_INTBSI0\*T\_INTBSI | 0.013689 | 0.001318 | 10.38403 | 0.0000 |
| (1-D\_INTBSI0)\*T\_INTBSI | 0.015341 | 0.000674 | 22.75594 | 0.0000 |
| DLNIV | -2.346582 | 0.962432 | -2.438180 | 0.0148 |
| C | 0.009460 | 0.000538 | 17.57463 | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 2.43E-06 | 1.19E-06 | 2.037522 | 0.0416 |
| RESID(-1)^2 | 0.066209 | 0.011122 | 5.953246 | 0.0000 |
| GARCH(-1) | 0.926457 | 0.009841 | 94.13780 | 0.0000 |
| T\_INTARGS | -1.85E-05 | 1.07E-05 | -1.740237 | 0.0818 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.287386 | Mean dependent var | | 0.001047 |
| Adjusted R-squared | 0.285036 | S.D. dependent var | | 0.014283 |
| S.E. of regression | 0.012077 | Akaike info criterion | | -6.562685 |
| Sum squared resid | 0.132735 | Schwarz criterion | | -6.520516 |
| Log likelihood | 3007.147 | Hannan-Quinn criter. | | -6.546588 |
| Durbin-Watson stat | 1.981273 |  |  |  |
|  |  |  |  |  |
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| Dependent Variable: TODAY\_RETURN | | | |  |
| Method: ML ARCH - Normal distribution (Marquardt / EViews legacy) | | | | |
| Date: 02/22/19 Time: 20:27 | | |  |  |
| Sample (adjusted): 2 915 | | |  |  |
| Included observations: 914 after adjustments | | | |  |
| Convergence achieved after 3 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(6) + C(7)\*RESID(-1)^2 + C(8)\*GARCH(-1) + C(9)\*T\_INTARGS | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| D\_PREBSI00\*T\_PREBSI | -0.001723 | 0.001409 | -1.223088 | 0.2213 |
| (1-D\_PREBSI00)\*T\_PREBSI | -0.004083 | 0.002204 | -1.852542 | 0.0639 |
| DLNM1 | -0.804295 | 0.320831 | -2.506909 | 0.0122 |
| DLNCPI | -2.965702 | 1.408398 | -2.105727 | 0.0352 |
| C | 0.001096 | 0.000771 | 1.421761 | 0.1551 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 0.000141 | 1.80E-06 | 78.56791 | 0.0000 |
| RESID(-1)^2 | 0.139292 | 0.031311 | 4.448606 | 0.0000 |
| GARCH(-1) | 0.536666 | 0.030326 | 17.69685 | 0.0000 |
| T\_INTARGS | -0.000829 | 2.70E-05 | -30.68991 | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | -0.001265 | Mean dependent var | | 0.001047 |
| Adjusted R-squared | -0.005671 | S.D. dependent var | | 0.014283 |
| S.E. of regression | 0.014324 | Akaike info criterion | | -5.911396 |
| Sum squared resid | 0.186501 | Schwarz criterion | | -5.863955 |
| Log likelihood | 2710.508 | Hannan-Quinn criter. | | -5.893287 |
| Durbin-Watson stat | 1.881440 |  |  |  |
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| Dependent Variable: TODAY\_RETURN | | | |  |
| Method: ML ARCH - Normal distribution (Marquardt / EViews legacy) | | | | |
| Date: 02/22/19 Time: 20:27 | | |  |  |
| Sample (adjusted): 2 915 | | |  |  |
| Included observations: 914 after adjustments | | | |  |
| Convergence achieved after 3 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(6) + C(7)\*RESID(-1)^2 + C(8)\*GARCH(-1) + C(9)\*T\_INTARGS | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| D\_PREALLBSI00\*T\_PREALLBSI | 0.003698 | 0.003065 | 1.206645 | 0.2276 |
| (1-D\_PREALLBSI00)\*T\_PREALLBSI | -0.001670 | 0.001436 | -1.163318 | 0.2447 |
| DLNM1 | -0.826293 | 0.332320 | -2.486435 | 0.0129 |
| DLNCPI | -2.979960 | 1.423964 | -2.092721 | 0.0364 |
| C | 3.01E-05 | 0.000877 | 0.034280 | 0.9727 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
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|  |  |  |  |  |
| C | 0.000141 | 2.04E-06 | 69.19734 | 0.0000 |
| RESID(-1)^2 | 0.139652 | 0.031493 | 4.434310 | 0.0000 |
| GARCH(-1) | 0.537264 | 0.031908 | 16.83812 | 0.0000 |
| T\_INTARGS | -0.000831 | 2.32E-05 | -35.77642 | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.004267 | Mean dependent var | | 0.001047 |
| Adjusted R-squared | -0.000115 | S.D. dependent var | | 0.014283 |
| S.E. of regression | 0.014284 | Akaike info criterion | | -5.872115 |
| Sum squared resid | 0.185470 | Schwarz criterion | | -5.824675 |
| Log likelihood | 2692.557 | Hannan-Quinn criter. | | -5.854006 |
| Durbin-Watson stat | 1.967295 |  |  |  |
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| Dependent Variable: TODAY\_RETURN | | | |  |
| Method: ML ARCH - Normal distribution (Marquardt / EViews legacy) | | | | |
| Date: 02/22/19 Time: 20:29 | | |  |  |
| Sample (adjusted): 2 915 | | |  |  |
| Included observations: 914 after adjustments | | | |  |
| Convergence achieved after 7 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(6) + C(7)\*RESID(-1)^2 + C(8)\*GARCH(-1) + C(9)\*T\_INTARGS | | | | |
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| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
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|  |  |  |  |  |
| D\_PREBSI00(-1)\*T\_PREBSI(-1) | -0.002441 | 0.001429 | -1.707684 | 0.0877 |
| (1-D\_PREBSI00(-1))\*T\_PREBSI(-1) | 0.000983 | 0.002084 | 0.471653 | 0.6372 |
| DLNM1 | -0.805226 | 0.331361 | -2.430054 | 0.0151 |
| DLNCPI | -2.899866 | 1.442688 | -2.010043 | 0.0444 |
| C | 0.002126 | 0.000753 | 2.824441 | 0.0047 |
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|  |  |  |  |  |
|  | Variance Equation | |  |  |
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|  |  |  |  |  |
| C | 0.000142 | 2.27E-06 | 62.46722 | 0.0000 |
| RESID(-1)^2 | 0.144251 | 0.032580 | 4.427613 | 0.0000 |
| GARCH(-1) | 0.530200 | 0.033425 | 15.86241 | 0.0000 |
| T\_INTARGS | -0.000818 | 3.99E-05 | -20.47537 | 0.0000 |
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|  |  |  |  |  |
| R-squared | 0.004665 | Mean dependent var | | 0.001047 |
| Adjusted R-squared | 0.000285 | S.D. dependent var | | 0.014283 |
| S.E. of regression | 0.014281 | Akaike info criterion | | -5.920425 |
| Sum squared resid | 0.185396 | Schwarz criterion | | -5.872984 |
| Log likelihood | 2714.634 | Hannan-Quinn criter. | | -5.902315 |
| Durbin-Watson stat | 1.988222 |  |  |  |
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| Dependent Variable: TODAY\_RETURN | | | |  |
| Method: ML ARCH - Normal distribution (Marquardt / EViews legacy) | | | | |
| Date: 02/22/19 Time: 20:28 | | |  |  |
| Sample (adjusted): 2 915 | | |  |  |
| Included observations: 914 after adjustments | | | |  |
| Convergence achieved after 3 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(6) + C(7)\*RESID(-1)^2 + C(8)\*GARCH(-1) + C(9)\*T\_INTARGS | | | | |
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| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
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|  |  |  |  |  |
| D\_INTBSI00(-1)\*T\_INTBSI(-1) | 0.007571 | 0.003822 | 1.980872 | 0.0476 |
| (1-D\_INTBSI00(-1))\*T\_INTBSI(-1) | 0.002409 | 0.001812 | 1.329195 | 0.1838 |
| DLNM1 | -0.735217 | 0.326955 | -2.248675 | 0.0245 |
| DLNCPI | -2.604930 | 1.428263 | -1.823845 | 0.0682 |
| C | 0.002805 | 0.001623 | 1.727603 | 0.0841 |
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|  |  |  |  |  |
|  | Variance Equation | |  |  |
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|  |  |  |  |  |
| C | 0.000141 | 5.15E-06 | 27.34372 | 0.0000 |
| RESID(-1)^2 | 0.139107 | 0.031874 | 4.364354 | 0.0000 |
| GARCH(-1) | 0.537129 | 0.037337 | 14.38607 | 0.0000 |
| T\_INTARGS | -0.000827 | 3.30E-06 | -250.8112 | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.003139 | Mean dependent var | | 0.001047 |
| Adjusted R-squared | -0.001247 | S.D. dependent var | | 0.014283 |
| S.E. of regression | 0.014292 | Akaike info criterion | | -5.831083 |
| Sum squared resid | 0.185680 | Schwarz criterion | | -5.783643 |
| Log likelihood | 2673.805 | Hannan-Quinn criter. | | -5.812974 |
| Durbin-Watson stat | 2.020682 |  |  |  |
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| Dependent Variable: TODAY\_RETURN | | | |  |
| Method: ML ARCH - Normal distribution (Marquardt / EViews legacy) | | | | |
| Date: 02/22/19 Time: 20:30 | | |  |  |
| Sample (adjusted): 2 915 | | |  |  |
| Included observations: 914 after adjustments | | | |  |
| Convergence achieved after 3 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(6) + C(7)\*RESID(-1)^2 + C(8)\*GARCH(-1) + C(9)\*T\_INTARGS | | | | |
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| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
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|  |  |  |  |  |
| D\_PREALLBSI00(-1)\*T\_PREALLBSI(-1) | 0.000687 | 0.003131 | 0.219414 | 0.8263 |
| (1-D\_PREALLBSI00(-1))\*T\_PREALLBSI(-1) | -0.001369 | 0.001378 | -0.993979 | 0.3202 |
| DLNM1 | -0.750694 | 0.335866 | -2.235098 | 0.0254 |
| DLNCPI | -2.587073 | 1.494434 | -1.731139 | 0.0834 |
| C | 0.000459 | 0.000801 | 0.573400 | 0.5664 |
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|  |  |  |  |  |
|  | Variance Equation | |  |  |
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|  |  |  |  |  |
| C | 0.000142 | 3.27E-06 | 43.32797 | 0.0000 |
| RESID(-1)^2 | 0.139659 | 0.031075 | 4.494299 | 0.0000 |
| GARCH(-1) | 0.537585 | 0.034029 | 15.79804 | 0.0000 |
| T\_INTARGS | -0.000831 | 1.41E-05 | -59.05815 | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.000716 | Mean dependent var | | 0.001047 |
| Adjusted R-squared | -0.003681 | S.D. dependent var | | 0.014283 |
| S.E. of regression | 0.014310 | Akaike info criterion | | -5.910541 |
| Sum squared resid | 0.186132 | Schwarz criterion | | -5.863100 |
| Log likelihood | 2710.117 | Hannan-Quinn criter. | | -5.892432 |
| Durbin-Watson stat | 1.987155 |  |  |  |
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| Dependent Variable: CLOSE\_RETURN | | | |  |
| Method: ML ARCH - Normal distribution (Marquardt / EViews legacy) | | | | |
| Date: 02/22/19 Time: 16:52 | | |  |  |
| Sample (adjusted): 2 915 | | |  |  |
| Included observations: 914 after adjustments | | | |  |
| Convergence achieved after 33 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(7) + C(8)\*RESID(-1)^2 + C(9)\*GARCH(-1) + C(10)\*T\_INTARGS | | | | |
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| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
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| D\_INTBSI0\*T\_INTBSI | 0.015470 | 0.001422 | 10.88018 | 0.0000 |
| (1-D\_INTBSI0)\*T\_INTBSI | 0.017308 | 0.000703 | 24.62209 | 0.0000 |
| DLNCPI | 0.078725 | 1.183342 | 0.066528 | 0.9470 |
| DLNIV | -0.249969 | 1.079912 | -0.231471 | 0.8169 |
| DLNM1 | -0.142696 | 0.206054 | -0.692519 | 0.4886 |
| C | 0.009225 | 0.000568 | 16.24044 | 0.0000 |
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|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 3.17E-06 | 1.31E-06 | 2.412430 | 0.0158 |
| RESID(-1)^2 | 0.059725 | 0.009336 | 6.397464 | 0.0000 |
| GARCH(-1) | 0.932404 | 0.008452 | 110.3221 | 0.0000 |
| T\_INTARGS | -2.51E-05 | 1.15E-05 | -2.175897 | 0.0296 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.300519 | Mean dependent var | | -6.27E-05 |
| Adjusted R-squared | 0.296667 | S.D. dependent var | | 0.016180 |
| S.E. of regression | 0.013569 | Akaike info criterion | | -6.376891 |
| Sum squared resid | 0.167178 | Schwarz criterion | | -6.324179 |
| Log likelihood | 2924.239 | Hannan-Quinn criter. | | -6.356769 |
| Durbin-Watson stat | 1.953056 |  |  |  |
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| Dependent Variable: CLOSE\_RETURN | | | |  |
| Method: ML ARCH - Normal distribution (Marquardt / EViews legacy) | | | | |
| Date: 02/22/19 Time: 16:56 | | |  |  |
| Sample (adjusted): 2 915 | | |  |  |
| Included observations: 914 after adjustments | | | |  |
| Convergence achieved after 6 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(7) + C(8)\*RESID(-1)^2 + C(9)\*GARCH(-1) + C(10)\*T\_INTARGS | | | | |
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| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| D\_PREBSI0\*T\_PREBSI | 0.000469 | 0.001077 | 0.435230 | 0.6634 |
| (1-D\_PREBSI0)\*T\_PREBSI | -0.001644 | 0.001836 | -0.895591 | 0.3705 |
| DLNCPI | -7.112707 | 1.640206 | -4.336472 | 0.0000 |
| DLNIV | 6.676809 | 2.327035 | 2.869234 | 0.0041 |
| DLNM1 | -1.436085 | 0.321997 | -4.459933 | 0.0000 |
| C | -0.002313 | 0.000711 | -3.252517 | 0.0011 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 9.96E-05 | 3.59E-06 | 27.69799 | 0.0000 |
| RESID(-1)^2 | 0.260003 | 0.038793 | 6.702265 | 0.0000 |
| GARCH(-1) | 0.538099 | 0.035963 | 14.96274 | 0.0000 |
| T\_INTARGS | -0.000591 | 3.81E-05 | -15.51678 | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.004116 | Mean dependent var | | -6.27E-05 |
| Adjusted R-squared | -0.001368 | S.D. dependent var | | 0.016180 |
| S.E. of regression | 0.016191 | Akaike info criterion | | -5.771955 |
| Sum squared resid | 0.238018 | Schwarz criterion | | -5.719243 |
| Log likelihood | 2647.783 | Hannan-Quinn criter. | | -5.751833 |
| Durbin-Watson stat | 1.873410 |  |  |  |
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| Dependent Variable: CLOSE\_RETURN | | | |  |
| Method: ML ARCH - Normal distribution (Marquardt / EViews legacy) | | | | |
| Date: 02/22/19 Time: 16:58 | | |  |  |
| Sample (adjusted): 2 915 | | |  |  |
| Included observations: 914 after adjustments | | | |  |
| Convergence achieved after 24 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(7) + C(8)\*RESID(-1)^2 + C(9)\*GARCH(-1) + C(10)\*T\_INTARGS | | | | |
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| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
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|  |  |  |  |  |
| D\_PREALLBSI0\*T\_PREALLBSI | 0.005436 | 0.001675 | 3.245233 | 0.0012 |
| (1-D\_PREALLBSI0)\*T\_PREALLBSI | -6.15E-05 | 0.001082 | -0.056837 | 0.9547 |
| DLNCPI | -2.989506 | 1.311917 | -2.278731 | 0.0227 |
| DLNIV | 2.284150 | 1.438370 | 1.588012 | 0.1123 |
| DLNM1 | -0.465434 | 0.239790 | -1.941006 | 0.0523 |
| C | -8.76E-05 | 0.000605 | -0.144788 | 0.8849 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 4.45E-06 | 1.30E-06 | 3.413116 | 0.0006 |
| RESID(-1)^2 | 0.062745 | 0.008280 | 7.577649 | 0.0000 |
| GARCH(-1) | 0.931942 | 0.006747 | 138.1286 | 0.0000 |
| T\_INTARGS | -3.63E-05 | 1.14E-05 | -3.193419 | 0.0014 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.020439 | Mean dependent var | | -6.27E-05 |
| Adjusted R-squared | 0.015044 | S.D. dependent var | | 0.016180 |
| S.E. of regression | 0.016057 | Akaike info criterion | | -5.995801 |
| Sum squared resid | 0.234117 | Schwarz criterion | | -5.943090 |
| Log likelihood | 2750.081 | Hannan-Quinn criter. | | -5.975680 |
| Durbin-Watson stat | 1.933546 |  |  |  |
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| Dependent Variable: CLOSE\_RETURN | | | |  |
| Method: ML ARCH - Normal distribution (Marquardt / EViews legacy) | | | | |
| Date: 02/22/19 Time: 16:59 | | |  |  |
| Sample (adjusted): 2 915 | | |  |  |
| Included observations: 914 after adjustments | | | |  |
| Convergence achieved after 11 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(7) + C(8)\*RESID(-1)^2 + C(9)\*GARCH(-1) + C(10)\*T\_INTARGS | | | | |
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| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| D\_INTBSI0(-1)\*T\_INTBSI(-1) | 0.001629 | 0.003246 | 0.501774 | 0.6158 |
| (1-D\_INTBSI0(-1))\*T\_INTBSI(-1) | 0.000713 | 0.001590 | 0.448385 | 0.6539 |
| DLNCPI | -7.135431 | 1.729034 | -4.126831 | 0.0000 |
| DLNIV | 7.923681 | 2.547965 | 3.109808 | 0.0019 |
| DLNM1 | -1.186182 | 0.338520 | -3.504029 | 0.0005 |
| C | -0.000602 | 0.001505 | -0.400047 | 0.6891 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 8.25E-05 | 3.77E-06 | 21.88874 | 0.0000 |
| RESID(-1)^2 | 0.211879 | 0.033495 | 6.325731 | 0.0000 |
| GARCH(-1) | 0.616471 | 0.034226 | 18.01163 | 0.0000 |
| T\_INTARGS | -0.000490 | 1.02E-05 | -47.83847 | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.018189 | Mean dependent var | | -6.27E-05 |
| Adjusted R-squared | 0.012783 | S.D. dependent var | | 0.016180 |
| S.E. of regression | 0.016076 | Akaike info criterion | | -5.812376 |
| Sum squared resid | 0.234655 | Schwarz criterion | | -5.759664 |
| Log likelihood | 2666.256 | Hannan-Quinn criter. | | -5.792255 |
| Durbin-Watson stat | 1.915787 |  |  |  |
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| Dependent Variable: CLOSE\_RETURN | | | |  |
| Method: ML ARCH - Normal distribution (Marquardt / EViews legacy) | | | | |
| Date: 02/22/19 Time: 17:00 | | |  |  |
| Sample (adjusted): 2 915 | | |  |  |
| Included observations: 914 after adjustments | | | |  |
| Convergence achieved after 33 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(7) + C(8)\*RESID(-1)^2 + C(9)\*GARCH(-1) + C(10)\*T\_INTARGS | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| D\_PREBSI0(-1)\*T\_PREBSI(-1) | -0.000277 | 0.000916 | -0.302321 | 0.7624 |
| (1-D\_PREBSI0(-1))\*T\_PREBSI(-1) | -2.11E-05 | 0.001630 | -0.012972 | 0.9896 |
| DLNCPI | -3.234674 | 1.347739 | -2.400074 | 0.0164 |
| DLNIV | 4.786205 | 1.219327 | 3.925283 | 0.0001 |
| DLNM1 | -0.463293 | 0.241727 | -1.916595 | 0.0553 |
| C | -0.000215 | 0.000558 | -0.385356 | 0.7000 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 5.03E-06 | 1.32E-06 | 3.815626 | 0.0001 |
| RESID(-1)^2 | 0.057678 | 0.007896 | 7.304660 | 0.0000 |
| GARCH(-1) | 0.935974 | 0.006629 | 141.1965 | 0.0000 |
| T\_INTARGS | -4.17E-05 | 1.14E-05 | -3.644581 | 0.0003 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.009440 | Mean dependent var | | -6.27E-05 |
| Adjusted R-squared | 0.003986 | S.D. dependent var | | 0.016180 |
| S.E. of regression | 0.016147 | Akaike info criterion | | -5.984658 |
| Sum squared resid | 0.236746 | Schwarz criterion | | -5.931946 |
| Log likelihood | 2744.989 | Hannan-Quinn criter. | | -5.964536 |
| Durbin-Watson stat | 1.895351 |  |  |  |
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| Dependent Variable: CLOSE\_RETURN | | | |  |
| Method: ML ARCH - Normal distribution (Marquardt / EViews legacy) | | | | |
| Date: 02/22/19 Time: 17:00 | | |  |  |
| Sample (adjusted): 2 915 | | |  |  |
| Included observations: 914 after adjustments | | | |  |
| Convergence achieved after 35 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(7) + C(8)\*RESID(-1)^2 + C(9)\*GARCH(-1) + C(10)\*T\_INTARGS | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| D\_PREALLBSI0(-1)\*T\_PREALLBSI(-1) | 0.002837 | 0.001875 | 1.513390 | 0.1302 |
| (1-D\_PREALLBSI0(-1))\*T\_PREALLBSI(-1) | -5.20E-05 | 0.001018 | -0.051136 | 0.9592 |
| DLNCPI | -2.949421 | 1.374027 | -2.146553 | 0.0318 |
| DLNIV | 4.837775 | 1.199068 | 4.034613 | 0.0001 |
| DLNM1 | -0.400036 | 0.241462 | -1.656724 | 0.0976 |
| C | -0.000606 | 0.000560 | -1.082066 | 0.2792 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 4.89E-06 | 1.31E-06 | 3.718787 | 0.0002 |
| RESID(-1)^2 | 0.057593 | 0.007826 | 7.359515 | 0.0000 |
| GARCH(-1) | 0.936308 | 0.006522 | 143.5626 | 0.0000 |
| T\_INTARGS | -4.06E-05 | 1.15E-05 | -3.550001 | 0.0004 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.010713 | Mean dependent var | | -6.27E-05 |
| Adjusted R-squared | 0.005266 | S.D. dependent var | | 0.016180 |
| S.E. of regression | 0.016137 | Akaike info criterion | | -5.988176 |
| Sum squared resid | 0.236442 | Schwarz criterion | | -5.935465 |
| Log likelihood | 2746.597 | Hannan-Quinn criter. | | -5.968055 |
| Durbin-Watson stat | 1.905301 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

1. 交易量

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Dependent Variable: LNVOLUME | | |  |  |
| Method: ML ARCH - Normal distribution | | | |  |
| Date: 02/22/19 Time: 17:06 | | |  |  |
| Sample (adjusted): 2 915 | | |  |  |
| Included observations: 914 after adjustments | | | |  |
| Convergence achieved after 79 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(11) + C(12)\*RESID(-1)^2 + C(13)\*RESID(-2)^2 | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| D\_INTBSI0\*T\_INTBSI | 0.142678 | 0.034627 | 4.120382 | 0.0000 |
| (1-D\_INTBSI0)\*T\_INTBSI | 0.068048 | 0.019036 | 3.574648 | 0.0004 |
| DLNM1 | 15.33845 | 4.747056 | 3.231151 | 0.0012 |
| DLNIV | 80.53606 | 27.11178 | 2.970519 | 0.0030 |
| C | 18.68174 | 0.218316 | 85.57187 | 0.0000 |
| AR(1) | 0.602743 | 0.035316 | 17.06728 | 0.0000 |
| AR(2) | 0.151561 | 0.043730 | 3.465838 | 0.0005 |
| AR(3) | 0.102131 | 0.037247 | 2.742019 | 0.0061 |
| AR(6) | 0.057726 | 0.033220 | 1.737655 | 0.0823 |
| AR(8) | 0.057956 | 0.028392 | 2.041263 | 0.0412 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 0.033047 | 0.002142 | 15.42561 | 0.0000 |
| RESID(-1)^2 | 0.100284 | 0.030413 | 3.297423 | 0.0010 |
| RESID(-2)^2 | 0.096046 | 0.031513 | 3.047799 | 0.0023 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.867322 | Mean dependent var | | 18.67446 |
| Adjusted R-squared | 0.866001 | S.D. dependent var | | 0.557626 |
| S.E. of regression | 0.204124 | Akaike info criterion | | -0.349590 |
| Sum squared resid | 37.66663 | Schwarz criterion | | -0.281065 |
| Log likelihood | 172.7626 | Hannan-Quinn criter. | | -0.323432 |
| Durbin-Watson stat | 2.042648 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Inverted AR Roots | .99 | .54+.44i | .54-.44i | .03-.62i |
|  | .03+.62i | -.42+.52i | -.42-.52i | -.68 |
|  |  |  |  |  |
|  |  |  |  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Dependent Variable: LNVOLUME | | |  |  |
| Method: ML ARCH - Normal distribution | | | |  |
| Date: 02/22/19 Time: 17:08 | | |  |  |
| Sample (adjusted): 2 915 | | |  |  |
| Included observations: 914 after adjustments | | | |  |
| Convergence achieved after 28 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(11) + C(12)\*RESID(-1)^2 + C(13)\*RESID(-2)^2 | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| D\_INTBSI0(-1)\*T\_INTBSI(-1) | 0.051107 | 0.043633 | 1.171294 | 0.2415 |
| (1-D\_INTBSI0(-1))\*T\_INTBSI(-1) | 0.076754 | 0.024168 | 3.175835 | 0.0015 |
| DLNM1 | 16.67813 | 4.743301 | 3.516143 | 0.0004 |
| DLNIV | 85.91597 | 26.83744 | 3.201348 | 0.0014 |
| C | 18.68649 | 0.215803 | 86.59038 | 0.0000 |
| AR(1) | 0.588377 | 0.036053 | 16.31956 | 0.0000 |
| AR(2) | 0.162289 | 0.044745 | 3.626975 | 0.0003 |
| AR(3) | 0.103786 | 0.037388 | 2.775897 | 0.0055 |
| AR(6) | 0.063298 | 0.033592 | 1.884329 | 0.0595 |
| AR(8) | 0.053770 | 0.028514 | 1.885701 | 0.0593 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 0.033085 | 0.002023 | 16.35122 | 0.0000 |
| RESID(-1)^2 | 0.100403 | 0.029808 | 3.368349 | 0.0008 |
| RESID(-2)^2 | 0.094761 | 0.025962 | 3.649936 | 0.0003 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.866898 | Mean dependent var | | 18.67446 |
| Adjusted R-squared | 0.865573 | S.D. dependent var | | 0.557626 |
| S.E. of regression | 0.204450 | Akaike info criterion | | -0.350381 |
| Sum squared resid | 37.78689 | Schwarz criterion | | -0.281856 |
| Log likelihood | 173.1241 | Hannan-Quinn criter. | | -0.324223 |
| Durbin-Watson stat | 2.043918 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Inverted AR Roots | .99 | .53+.44i | .53-.44i | .02-.61i |
|  | .02+.61i | -.42-.52i | -.42+.52i | -.68 |
|  |  |  |  |  |
|  |  |  |  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Dependent Variable: LNVOLUME | | |  |  |
| Method: ML ARCH - Normal distribution | | | |  |
| Date: 02/22/19 Time: 17:08 | | |  |  |
| Sample (adjusted): 3 915 | | |  |  |
| Included observations: 913 after adjustments | | | |  |
| Convergence achieved after 19 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(11) + C(12)\*RESID(-1)^2 + C(13)\*RESID(-2)^2 | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| D\_INTBSI0(-2)\*T\_INTBSI(-2) | 0.027511 | 0.045491 | 0.604755 | 0.5453 |
| (1-D\_INTBSI0(-2))\*T\_INTBSI(-2) | 0.020081 | 0.026094 | 0.769546 | 0.4416 |
| DLNM1 | 16.39210 | 4.540375 | 3.610296 | 0.0003 |
| DLNIV | 88.83162 | 26.44938 | 3.358552 | 0.0008 |
| C | 18.65419 | 0.223267 | 83.55102 | 0.0000 |
| AR(1) | 0.593635 | 0.035176 | 16.87604 | 0.0000 |
| AR(2) | 0.160020 | 0.043381 | 3.688696 | 0.0002 |
| AR(3) | 0.100568 | 0.037416 | 2.687850 | 0.0072 |
| AR(6) | 0.062084 | 0.033627 | 1.846246 | 0.0649 |
| AR(8) | 0.055637 | 0.028648 | 1.942121 | 0.0521 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 0.033743 | 0.002085 | 16.18496 | 0.0000 |
| RESID(-1)^2 | 0.096945 | 0.029467 | 3.289963 | 0.0010 |
| RESID(-2)^2 | 0.091698 | 0.028896 | 3.173398 | 0.0015 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.865091 | Mean dependent var | | 18.67316 |
| Adjusted R-squared | 0.863747 | S.D. dependent var | | 0.556552 |
| S.E. of regression | 0.205437 | Akaike info criterion | | -0.337322 |
| Sum squared resid | 38.11058 | Schwarz criterion | | -0.268738 |
| Log likelihood | 166.9876 | Hannan-Quinn criter. | | -0.311141 |
| Durbin-Watson stat | 2.035605 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Inverted AR Roots | .99 | .54+.45i | .54-.45i | .02-.62i |
|  | .02+.62i | -.42-.52i | -.42+.52i | -.68 |
|  |  |  |  |  |
|  |  |  |  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Dependent Variable: LNVOLUME | | |  |  |
| Method: ML ARCH - Normal distribution | | | |  |
| Date: 02/22/19 Time: 17:09 | | |  |  |
| Sample (adjusted): 2 915 | | |  |  |
| Included observations: 914 after adjustments | | | |  |
| Convergence achieved after 30 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(11) + C(12)\*RESID(-1)^2 + C(13)\*RESID(-2)^2 | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| D\_PREBSI0\*T\_PREBSI | 0.138145 | 0.018304 | 7.547174 | 0.0000 |
| (1-D\_PREBSI0)\*T\_PREBSI | -0.028703 | 0.027524 | -1.042848 | 0.2970 |
| DLNM1 | 13.83954 | 4.323774 | 3.200800 | 0.0014 |
| DLNIV | 55.92583 | 27.06431 | 2.066405 | 0.0388 |
| C | 18.62078 | 0.213886 | 87.05929 | 0.0000 |
| AR(1) | 0.586451 | 0.035790 | 16.38571 | 0.0000 |
| AR(2) | 0.159808 | 0.043725 | 3.654830 | 0.0003 |
| AR(3) | 0.106359 | 0.037027 | 2.872488 | 0.0041 |
| AR(6) | 0.067725 | 0.033245 | 2.037117 | 0.0416 |
| AR(8) | 0.051644 | 0.029106 | 1.774365 | 0.0760 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 0.032198 | 0.001856 | 17.34533 | 0.0000 |
| RESID(-1)^2 | 0.098254 | 0.031088 | 3.160472 | 0.0016 |
| RESID(-2)^2 | 0.074197 | 0.024876 | 2.982697 | 0.0029 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.873823 | Mean dependent var | | 18.67446 |
| Adjusted R-squared | 0.872567 | S.D. dependent var | | 0.557626 |
| S.E. of regression | 0.199060 | Akaike info criterion | | -0.400574 |
| Sum squared resid | 35.82096 | Schwarz criterion | | -0.332049 |
| Log likelihood | 196.0621 | Hannan-Quinn criter. | | -0.374416 |
| Durbin-Watson stat | 2.034340 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Inverted AR Roots | .99 | .53+.45i | .53-.45i | .02-.60i |
|  | .02+.60i | -.41-.52i | -.41+.52i | -.68 |
|  |  |  |  |  |
|  |  |  |  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Dependent Variable: LNVOLUME | | |  |  |
| Method: ML ARCH - Normal distribution | | | |  |
| Date: 02/22/19 Time: 17:10 | | |  |  |
| Sample (adjusted): 2 915 | | |  |  |
| Included observations: 914 after adjustments | | | |  |
| Convergence achieved after 34 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(11) + C(12)\*RESID(-1)^2 + C(13)\*RESID(-2)^2 | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| D\_PREBSI0(-1)\*T\_PREBSI(-1) | 0.006929 | 0.019962 | 0.347137 | 0.7285 |
| (1-D\_PREBSI0(-1))\*T\_PREBSI(-1) | 0.031345 | 0.028926 | 1.083630 | 0.2785 |
| DLNM1 | 16.39205 | 4.553590 | 3.599808 | 0.0003 |
| DLNIV | 90.75054 | 26.50353 | 3.424092 | 0.0006 |
| C | 18.62509 | 0.224877 | 82.82344 | 0.0000 |
| AR(1) | 0.595879 | 0.035765 | 16.66075 | 0.0000 |
| AR(2) | 0.164091 | 0.044419 | 3.694175 | 0.0002 |
| AR(3) | 0.096137 | 0.037574 | 2.558627 | 0.0105 |
| AR(6) | 0.058991 | 0.033503 | 1.760787 | 0.0783 |
| AR(8) | 0.057162 | 0.028289 | 2.020625 | 0.0433 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 0.033308 | 0.002123 | 15.68600 | 0.0000 |
| RESID(-1)^2 | 0.100730 | 0.030713 | 3.279710 | 0.0010 |
| RESID(-2)^2 | 0.101869 | 0.031324 | 3.252081 | 0.0011 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.865177 | Mean dependent var | | 18.67446 |
| Adjusted R-squared | 0.863835 | S.D. dependent var | | 0.557626 |
| S.E. of regression | 0.205767 | Akaike info criterion | | -0.336263 |
| Sum squared resid | 38.27542 | Schwarz criterion | | -0.267738 |
| Log likelihood | 166.6722 | Hannan-Quinn criter. | | -0.310105 |
| Durbin-Watson stat | 2.038818 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Inverted AR Roots | .99 | .54+.44i | .54-.44i | .03-.62i |
|  | .03+.62i | -.42-.52i | -.42+.52i | -.68 |
|  |  |  |  |  |
|  |  |  |  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Dependent Variable: LNVOLUME | | |  |  |
| Method: ML ARCH - Normal distribution | | | |  |
| Date: 02/22/19 Time: 17:10 | | |  |  |
| Sample (adjusted): 2 915 | | |  |  |
| Included observations: 914 after adjustments | | | |  |
| Convergence achieved after 27 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(11) + C(12)\*RESID(-1)^2 + C(13)\*RESID(-2)^2 | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| D\_PREALLBSI0(-1)\*T\_PREALLBSI(-1) | 0.038711 | 0.034175 | 1.132735 | 0.2573 |
| (1-D\_PREALLBSI0(-1))\*T\_PREALLBSI(-1) | 0.023243 | 0.021650 | 1.073602 | 0.2830 |
| DLNM1 | 16.75844 | 4.616521 | 3.630102 | 0.0003 |
| DLNIV | 99.06144 | 27.51502 | 3.600268 | 0.0003 |
| C | 18.63418 | 0.221754 | 84.03073 | 0.0000 |
| AR(1) | 0.584646 | 0.035425 | 16.50385 | 0.0000 |
| AR(2) | 0.170703 | 0.043779 | 3.899210 | 0.0001 |
| AR(3) | 0.101230 | 0.037101 | 2.728485 | 0.0064 |
| AR(6) | 0.061246 | 0.033748 | 1.814783 | 0.0696 |
| AR(8) | 0.054348 | 0.028460 | 1.909645 | 0.0562 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 0.033475 | 0.002100 | 15.94275 | 0.0000 |
| RESID(-1)^2 | 0.098884 | 0.030004 | 3.295683 | 0.0010 |
| RESID(-2)^2 | 0.097310 | 0.030169 | 3.225496 | 0.0013 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.865559 | Mean dependent var | | 18.67446 |
| Adjusted R-squared | 0.864220 | S.D. dependent var | | 0.557626 |
| S.E. of regression | 0.205476 | Akaike info criterion | | -0.337876 |
| Sum squared resid | 38.16709 | Schwarz criterion | | -0.269351 |
| Log likelihood | 167.4091 | Hannan-Quinn criter. | | -0.311718 |
| Durbin-Watson stat | 2.035350 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Inverted AR Roots | .99 | .54+.44i | .54-.44i | .02-.61i |
|  | .02+.61i | -.42-.52i | -.42+.52i | -.68 |
|  |  |  |  |  |
|  |  |  |  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Dependent Variable: LNVOLUME | | |  |  |
| Method: ML ARCH - Normal distribution | | | |  |
| Date: 02/22/19 Time: 17:11 | | |  |  |
| Sample (adjusted): 2 915 | | |  |  |
| Included observations: 914 after adjustments | | | |  |
| Convergence achieved after 30 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(11) + C(12)\*RESID(-1)^2 + C(13)\*RESID(-2)^2 | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| D\_PREALLBSI0\*T\_PREALLBSI | 0.189706 | 0.037762 | 5.023674 | 0.0000 |
| (1-D\_PREALLBSI0)\*T\_PREALLBSI | 0.073489 | 0.019743 | 3.722281 | 0.0002 |
| DLNM1 | 12.75566 | 4.458774 | 2.860799 | 0.0042 |
| DLNIV | -26.85802 | 33.94128 | -0.791308 | 0.4288 |
| C | 18.70856 | 0.213376 | 87.67879 | 0.0000 |
| AR(1) | 0.579996 | 0.035303 | 16.42928 | 0.0000 |
| AR(2) | 0.168773 | 0.044204 | 3.818064 | 0.0001 |
| AR(3) | 0.106827 | 0.037054 | 2.883053 | 0.0039 |
| AR(6) | 0.067168 | 0.034137 | 1.967588 | 0.0491 |
| AR(8) | 0.048931 | 0.028712 | 1.704213 | 0.0883 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 0.032373 | 0.001892 | 17.10911 | 0.0000 |
| RESID(-1)^2 | 0.088607 | 0.027120 | 3.267256 | 0.0011 |
| RESID(-2)^2 | 0.101375 | 0.025952 | 3.906306 | 0.0001 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.870583 | Mean dependent var | | 18.67446 |
| Adjusted R-squared | 0.869294 | S.D. dependent var | | 0.557626 |
| S.E. of regression | 0.201600 | Akaike info criterion | | -0.377744 |
| Sum squared resid | 36.74085 | Schwarz criterion | | -0.309219 |
| Log likelihood | 185.6288 | Hannan-Quinn criter. | | -0.351586 |
| Durbin-Watson stat | 2.042557 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Inverted AR Roots | .99 | .52+.44i | .52-.44i | .02-.60i |
|  | .02+.60i | -.41-.52i | -.41+.52i | -.68 |
|  |  |  |  |  |
|  |  |  |  |  |

1. 相对大正向、中性、大负向的非对称效应
2. 开盘收益率

0：小于等于-sigma，1:(-sigma, sigma), 2:(sigmam, +)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Dependent Variable: OPEN\_RETURN | | | |  |
| Method: ML ARCH - Normal distribution (Marquardt / EViews legacy) | | | | |
| Date: 02/22/19 Time: 20:34 | | |  |  |
| Sample (adjusted): 2 915 | | |  |  |
| Included observations: 914 after adjustments | | | |  |
| Convergence achieved after 18 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(8) + C(9)\*RESID(-1)^2 + C(10)\*RESID(-2)^2 + C(11)\*GARCH( | | | | |
| -1) + C(12)\*T\_PREALLARGS | | | |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| D\_PREBSI0\*T\_PREBSI | 0.007399 | 0.001503 | 4.923583 | 0.0000 |
| D\_PREBSI1\*T\_PREBSI | -0.001279 | 0.001777 | -0.719920 | 0.4716 |
| D\_PREBSI2\*T\_PREBSI | 0.003355 | 0.001408 | 2.382287 | 0.0172 |
| DLNCPI | -2.947433 | 1.355627 | -2.174221 | 0.0297 |
| DLNIV | 3.400873 | 1.777107 | 1.913714 | 0.0557 |
| DLNM1 | -0.439525 | 0.306187 | -1.435477 | 0.1512 |
| C | -0.000941 | 0.000786 | -1.197037 | 0.2313 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 3.51E-05 | 3.43E-06 | 10.24232 | 0.0000 |
| RESID(-1)^2 | 0.167233 | 0.032393 | 5.162607 | 0.0000 |
| RESID(-2)^2 | 0.120849 | 0.062027 | 1.948322 | 0.0514 |
| GARCH(-1) | 0.470487 | 0.072017 | 6.532988 | 0.0000 |
| T\_PREALLARGS | -0.000257 | 4.03E-07 | -639.1606 | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.111334 | Mean dependent var | | -0.001110 |
| Adjusted R-squared | 0.105455 | S.D. dependent var | | 0.007765 |
| S.E. of regression | 0.007344 | Akaike info criterion | | -7.394857 |
| Sum squared resid | 0.048924 | Schwarz criterion | | -7.331603 |
| Log likelihood | 3391.450 | Hannan-Quinn criter. | | -7.370712 |
| Durbin-Watson stat | 2.012501 |  |  |  |
|  |  |  |  |  |
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|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Dependent Variable: OPEN\_RETURN | | | |  |
| Method: ML ARCH - Normal distribution (Marquardt / EViews legacy) | | | | |
| Date: 02/22/19 Time: 21:12 | | |  |  |
| Sample (adjusted): 2 915 | | |  |  |
| Included observations: 914 after adjustments | | | |  |
| Convergence achieved after 24 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(7) + C(8)\*RESID(-1)^2 + C(9)\*RESID(-2)^2 + C(10)\*GARCH(-1) | | | | |
| + C(11)\*T\_PREALLARGS | | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| D\_PREBSI0\*T\_PREBSI | 0.006382 | 0.000910 | 7.016238 | 0.0000 |
| D\_PREBSI2\*T\_PREBSI | 0.002638 | 0.000933 | 2.827172 | 0.0047 |
| DLNCPI | -1.114292 | 0.913207 | -1.220197 | 0.2224 |
| DLNIV | 3.437092 | 1.232829 | 2.787971 | 0.0053 |
| DLNM1 | 0.110301 | 0.193904 | 0.568843 | 0.5695 |
| C | -0.001652 | 0.000472 | -3.503656 | 0.0005 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 1.08E-05 | 1.75E-06 | 6.148917 | 0.0000 |
| RESID(-1)^2 | 0.158592 | 0.030193 | 5.252696 | 0.0000 |
| RESID(-2)^2 | -0.002082 | 0.041274 | -0.050438 | 0.9598 |
| GARCH(-1) | 0.790929 | 0.028113 | 28.13388 | 0.0000 |
| T\_PREALLARGS | -0.000109 | 1.53E-05 | -7.117404 | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.106515 | Mean dependent var | | -0.001110 |
| Adjusted R-squared | 0.101595 | S.D. dependent var | | 0.007765 |
| S.E. of regression | 0.007360 | Akaike info criterion | | -7.590769 |
| Sum squared resid | 0.049189 | Schwarz criterion | | -7.532787 |
| Log likelihood | 3479.982 | Hannan-Quinn criter. | | -7.568636 |
| Durbin-Watson stat | 2.004203 |  |  |  |
|  |  |  |  |  |
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| --- | --- | --- | --- | --- |
| Dependent Variable: OPEN\_RETURN | | | |  |
| Method: ML ARCH - Normal distribution (Marquardt / EViews legacy) | | | | |
| Date: 02/22/19 Time: 20:50 | | |  |  |
| Sample (adjusted): 2 915 | | |  |  |
| Included observations: 914 after adjustments | | | |  |
| Convergence achieved after 33 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(7) + C(8)\*RESID(-1)^2 + C(9)\*GARCH(-1) + C(10) | | | | |
| \*T\_PREALLARGS | | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| D\_PREBSI0\*T\_PREBSI | 0.007072 | 0.000834 | 8.481023 | 0.0000 |
| D\_PREBSI2\*T\_PREBSI | 0.002366 | 0.000701 | 3.374930 | 0.0007 |
| DLNCPI | -3.037535 | 0.632547 | -4.802071 | 0.0000 |
| DLNIV | 3.589349 | 0.533940 | 6.722382 | 0.0000 |
| DLNM1 | -0.436064 | 0.137952 | -3.160970 | 0.0016 |
| C | -0.001063 | 0.000422 | -2.519509 | 0.0118 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 1.10E-05 | 1.57E-06 | 7.021727 | 0.0000 |
| RESID(-1)^2 | 0.217108 | 0.020786 | 10.44484 | 0.0000 |
| GARCH(-1) | 0.738114 | 0.026406 | 27.95253 | 0.0000 |
| T\_PREALLARGS | -0.000108 | 1.36E-05 | -7.922035 | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.113915 | Mean dependent var | | -0.001110 |
| Adjusted R-squared | 0.109036 | S.D. dependent var | | 0.007765 |
| S.E. of regression | 0.007330 | Akaike info criterion | | -7.640104 |
| Sum squared resid | 0.048782 | Schwarz criterion | | -7.587393 |
| Log likelihood | 3501.528 | Hannan-Quinn criter. | | -7.619983 |
| Durbin-Watson stat | 2.007513 |  |  |  |
|  |  |  |  |  |
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| Dependent Variable: OPEN\_RETURN | | | |  |
| Method: ML ARCH - Normal distribution (Marquardt / EViews legacy) | | | | |
| Date: 02/22/19 Time: 20:40 | | |  |  |
| Sample (adjusted): 2 915 | | |  |  |
| Included observations: 914 after adjustments | | | |  |
| Convergence achieved after 98 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(8) + C(9)\*RESID(-1)^2 + C(10)\*RESID(-2)^2 + C(11)\*GARCH( | | | | |
| -1) + C(12)\*T\_PREALLARGS | | | |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| D\_INTBSI0(-1)\*T\_INTBSI(-1) | 0.002088 | 0.000388 | 5.379140 | 0.0000 |
| D\_INTBSI1(-1)\*T\_INTBSI(-1) | 0.002478 | 0.000468 | 5.294637 | 0.0000 |
| D\_INTBSI2(-1)\*T\_INTBSI(-1) | 0.001775 | 0.002126 | 0.834698 | 0.4039 |
| DLNCPI | -1.265132 | 0.489547 | -2.584290 | 0.0098 |
| DLNIV | 3.085653 | 0.534440 | 5.773622 | 0.0000 |
| DLNM1 | -0.168002 | 0.102138 | -1.644855 | 0.1000 |
| C | -0.000287 | 0.000321 | -0.893963 | 0.3713 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 3.26E-07 | 8.34E-08 | 3.913667 | 0.0001 |
| RESID(-1)^2 | 0.304941 | 0.023012 | 13.25142 | 0.0000 |
| RESID(-2)^2 | -0.264416 | 0.023390 | -11.30470 | 0.0000 |
| GARCH(-1) | 0.955594 | 0.002691 | 355.0458 | 0.0000 |
| T\_PREALLARGS | -3.94E-06 | 1.28E-06 | -3.073846 | 0.0021 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.039045 | Mean dependent var | | -0.001110 |
| Adjusted R-squared | 0.032688 | S.D. dependent var | | 0.007765 |
| S.E. of regression | 0.007637 | Akaike info criterion | | -7.812082 |
| Sum squared resid | 0.052903 | Schwarz criterion | | -7.748829 |
| Log likelihood | 3582.122 | Hannan-Quinn criter. | | -7.787937 |
| Durbin-Watson stat | 1.994740 |  |  |  |
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| Dependent Variable: OPEN\_RETURN | | | |  |
| Method: ML ARCH - Normal distribution | | | |  |
| Date: 02/22/19 Time: 21:00 | | |  |  |
| Sample (adjusted): 2 915 | | |  |  |
| Included observations: 914 after adjustments | | | |  |
| Convergence achieved after 124 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(7) + C(8)\*RESID(-1)^2 + C(9)\*RESID(-2)^2 + C(10)\*GARCH(-1) | | | | |
| + C(11)\*T\_PREALLARGS | | |  |  |
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|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| D\_INTBSI0(-1)\*T\_INTBSI(-1) | 0.002017 | 0.000383 | 5.265674 | 0.0000 |
| D\_INTBSI1(-1)\*T\_INTBSI(-1) | 0.002364 | 0.000454 | 5.209157 | 0.0000 |
| DLNCPI | -1.262841 | 0.487343 | -2.591279 | 0.0096 |
| DLNIV | 3.046490 | 0.524455 | 5.808865 | 0.0000 |
| DLNM1 | -0.168815 | 0.102411 | -1.648409 | 0.0993 |
| C | -0.000346 | 0.000317 | -1.092345 | 0.2747 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 3.25E-07 | 8.31E-08 | 3.905321 | 0.0001 |
| RESID(-1)^2 | 0.298113 | 0.020836 | 14.30740 | 0.0000 |
| RESID(-2)^2 | -0.257809 | 0.021395 | -12.04991 | 0.0000 |
| GARCH(-1) | 0.955681 | 0.002667 | 358.3711 | 0.0000 |
| T\_PREALLARGS | -3.93E-06 | 1.28E-06 | -3.073433 | 0.0021 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.038158 | Mean dependent var | | -0.001110 |
| Adjusted R-squared | 0.032862 | S.D. dependent var | | 0.007765 |
| S.E. of regression | 0.007637 | Akaike info criterion | | -7.813061 |
| Sum squared resid | 0.052952 | Schwarz criterion | | -7.755078 |
| Log likelihood | 3581.569 | Hannan-Quinn criter. | | -7.790927 |
| Durbin-Watson stat | 1.993006 |  |  |  |
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| Dependent Variable: OPEN\_RETURN | | | |  |
| Method: ML ARCH - Normal distribution (Marquardt / EViews legacy) | | | | |
| Date: 02/22/19 Time: 20:36 | | |  |  |
| Sample (adjusted): 2 915 | | |  |  |
| Included observations: 914 after adjustments | | | |  |
| Convergence achieved after 41 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(8) + C(9)\*RESID(-1)^2 + C(10)\*RESID(-2)^2 + C(11)\*GARCH( | | | | |
| -1) + C(12)\*T\_PREALLARGS | | | |  |
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|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| D\_PREALLBSI0\*T\_PREALLBSI | 0.001945 | 0.000482 | 4.035712 | 0.0001 |
| D\_PREALLBSI1\*T\_PREALLBSI | -0.000680 | 0.000882 | -0.771244 | 0.4406 |
| D\_PREALLBSI2\*T\_PREALLBSI | 0.006239 | 0.001249 | 4.997169 | 0.0000 |
| DLNCPI | -2.922123 | 0.730969 | -3.997600 | 0.0001 |
| DLNIV | 1.208856 | 1.284547 | 0.941076 | 0.3467 |
| DLNM1 | -0.258395 | 0.147210 | -1.755280 | 0.0792 |
| C | -0.001687 | 0.000406 | -4.158390 | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 2.05E-05 | 3.36E-07 | 61.01132 | 0.0000 |
| RESID(-1)^2 | 0.339864 | 0.042098 | 8.073195 | 0.0000 |
| RESID(-2)^2 | 0.084859 | 0.046939 | 1.807857 | 0.0706 |
| GARCH(-1) | 0.433189 | 0.031044 | 13.95411 | 0.0000 |
| T\_PREALLARGS | -0.000178 | 6.44E-06 | -27.68806 | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.070056 | Mean dependent var | | -0.001110 |
| Adjusted R-squared | 0.063904 | S.D. dependent var | | 0.007765 |
| S.E. of regression | 0.007513 | Akaike info criterion | | -7.578764 |
| Sum squared resid | 0.051196 | Schwarz criterion | | -7.515510 |
| Log likelihood | 3475.495 | Hannan-Quinn criter. | | -7.554619 |
| Durbin-Watson stat | 1.989909 |  |  |  |
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| Dependent Variable: OPEN\_RETURN | | | |  |
| Method: ML ARCH - Normal distribution (Marquardt / EViews legacy) | | | | |
| Date: 02/22/19 Time: 20:49 | | |  |  |
| Sample (adjusted): 2 915 | | |  |  |
| Included observations: 914 after adjustments | | | |  |
| Convergence achieved after 19 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(7) + C(8)\*RESID(-1)^2 + C(9)\*RESID(-2)^2 + C(10)\*GARCH(-1) | | | | |
| + C(11)\*T\_PREALLARGS | | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| D\_PREALLBSI0\*T\_PREALLBSI | 0.002562 | 0.000533 | 4.810270 | 0.0000 |
| D\_PREALLBSI2\*T\_PREALLBSI | 0.004615 | 0.001666 | 2.769425 | 0.0056 |
| DLNCPI | -3.062476 | 0.921199 | -3.324447 | 0.0009 |
| DLNIV | 1.898912 | 1.377349 | 1.378672 | 0.1680 |
| DLNM1 | -0.371010 | 0.196244 | -1.890552 | 0.0587 |
| C | -0.001382 | 0.000399 | -3.463183 | 0.0005 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 1.61E-05 | 2.66E-06 | 6.066146 | 0.0000 |
| RESID(-1)^2 | 0.189412 | 0.034106 | 5.553647 | 0.0000 |
| RESID(-2)^2 | 0.055742 | 0.048315 | 1.153728 | 0.2486 |
| GARCH(-1) | 0.678385 | 0.043526 | 15.58560 | 0.0000 |
| T\_PREALLARGS | -0.000152 | 2.22E-05 | -6.823345 | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.075347 | Mean dependent var | | -0.001110 |
| Adjusted R-squared | 0.070255 | S.D. dependent var | | 0.007765 |
| S.E. of regression | 0.007487 | Akaike info criterion | | -7.533070 |
| Sum squared resid | 0.050905 | Schwarz criterion | | -7.475087 |
| Log likelihood | 3453.613 | Hannan-Quinn criter. | | -7.510937 |
| Durbin-Watson stat | 1.996429 |  |  |  |
|  |  |  |  |  |
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1. 日内收益率

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| Dependent Variable: TODAY\_RETURN | | | |  |
| Method: ML ARCH - Normal distribution | | | |  |
| Date: 02/22/19 Time: 20:54 | | |  |  |
| Sample (adjusted): 2 915 | | |  |  |
| Included observations: 914 after adjustments | | | |  |
| Convergence achieved after 25 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(6) + C(7)\*RESID(-1)^2 + C(8)\*GARCH(-1) + C(9)\*T\_INTARGS | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| D\_INTBSI0\*T\_INTBSI | 0.017073 | 0.000730 | 23.40329 | 0.0000 |
| D\_INTBSI1\*T\_INTBSI | 0.013078 | 0.000849 | 15.40176 | 0.0000 |
| D\_INTBSI2\*T\_INTBSI | 0.006611 | 0.003271 | 2.020982 | 0.0433 |
| DLNIV | -2.107646 | 0.965909 | -2.182033 | 0.0291 |
| C | 0.008831 | 0.000536 | 16.47791 | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 2.21E-06 | 1.21E-06 | 1.816495 | 0.0693 |
| RESID(-1)^2 | 0.063795 | 0.010526 | 6.060664 | 0.0000 |
| GARCH(-1) | 0.929274 | 0.009647 | 96.32864 | 0.0000 |
| T\_INTARGS | -1.68E-05 | 1.08E-05 | -1.547296 | 0.1218 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.305492 | Mean dependent var | | 0.001047 |
| Adjusted R-squared | 0.302436 | S.D. dependent var | | 0.014283 |
| S.E. of regression | 0.011930 | Akaike info criterion | | -6.580672 |
| Sum squared resid | 0.129363 | Schwarz criterion | | -6.533231 |
| Log likelihood | 3016.367 | Hannan-Quinn criter. | | -6.562562 |
| Durbin-Watson stat | 1.939817 |  |  |  |
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|  |  |  |  |  |

1. 日间收盘收益率

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| --- | --- | --- | --- | --- |
| Dependent Variable: CLOSE\_RETURN | | | |  |
| Method: ML ARCH - Normal distribution | | | |  |
| Date: 02/22/19 Time: 21:09 | | |  |  |
| Sample (adjusted): 2 915 | | |  |  |
| Included observations: 914 after adjustments | | | |  |
| Convergence achieved after 38 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(8) + C(9)\*RESID(-1)^2 + C(10)\*GARCH(-1) + C(11) | | | | |
| \*T\_INTARGS | | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| D\_INTBSI0\*T\_INTBSI | 0.019466 | 0.000776 | 25.07690 | 0.0000 |
| D\_INTBSI1\*T\_INTBSI | 0.015186 | 0.000876 | 17.33283 | 0.0000 |
| D\_INTBSI2\*T\_INTBSI | 0.010630 | 0.003286 | 3.234952 | 0.0012 |
| DLNCPI | 0.647210 | 1.187660 | 0.544946 | 0.5858 |
| DLNIV | -0.134745 | 1.085563 | -0.124124 | 0.9012 |
| DLNM1 | -0.078524 | 0.205438 | -0.382225 | 0.7023 |
| C | 0.008690 | 0.000548 | 15.86380 | 0.0000 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 2.89E-06 | 1.23E-06 | 2.354677 | 0.0185 |
| RESID(-1)^2 | 0.055801 | 0.008880 | 6.284060 | 0.0000 |
| GARCH(-1) | 0.936805 | 0.008003 | 117.0499 | 0.0000 |
| T\_INTARGS | -2.30E-05 | 1.09E-05 | -2.110749 | 0.0348 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.321998 | Mean dependent var | | -6.27E-05 |
| Adjusted R-squared | 0.317513 | S.D. dependent var | | 0.016180 |
| S.E. of regression | 0.013366 | Akaike info criterion | | -6.391639 |
| Sum squared resid | 0.162044 | Schwarz criterion | | -6.333657 |
| Log likelihood | 2931.979 | Hannan-Quinn criter. | | -6.369506 |
| Durbin-Watson stat | 1.929547 |  |  |  |
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1. 交易量

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| Dependent Variable: LNVOLUME | | |  |  |
| Method: ML ARCH - Normal distribution | | | |  |
| Date: 02/22/19 Time: 21:23 | | |  |  |
| Sample (adjusted): 2 915 | | |  |  |
| Included observations: 914 after adjustments | | | |  |
| Convergence achieved after 25 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(12) + C(13)\*RESID(-1)^2 + C(14)\*RESID(-2)^2 | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| D\_INTBSI0\*T\_INTBSI | 0.038174 | 0.019950 | 1.913478 | 0.0557 |
| D\_INTBSI1\*T\_INTBSI | 0.123511 | 0.024186 | 5.106743 | 0.0000 |
| D\_INTBSI2\*T\_INTBSI | 0.148920 | 0.087714 | 1.697792 | 0.0895 |
| DLNIV | 76.21087 | 27.76258 | 2.745094 | 0.0060 |
| DLNM1 | 15.27332 | 4.967805 | 3.074461 | 0.0021 |
| C | 18.67378 | 0.217064 | 86.02906 | 0.0000 |
| AR(1) | 0.590599 | 0.034924 | 16.91121 | 0.0000 |
| AR(2) | 0.166405 | 0.043856 | 3.794355 | 0.0001 |
| AR(3) | 0.108516 | 0.038085 | 2.849332 | 0.0044 |
| AR(6) | 0.055227 | 0.033599 | 1.643691 | 0.1002 |
| AR(8) | 0.050708 | 0.028435 | 1.783327 | 0.0745 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 0.032469 | 0.002182 | 14.88241 | 0.0000 |
| RESID(-1)^2 | 0.089254 | 0.028665 | 3.113693 | 0.0018 |
| RESID(-2)^2 | 0.112614 | 0.028726 | 3.920240 | 0.0001 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.868612 | Mean dependent var | | 18.67446 |
| Adjusted R-squared | 0.867157 | S.D. dependent var | | 0.557626 |
| S.E. of regression | 0.203241 | Akaike info criterion | | -0.358933 |
| Sum squared resid | 37.30018 | Schwarz criterion | | -0.285137 |
| Log likelihood | 178.0324 | Hannan-Quinn criter. | | -0.330763 |
| Durbin-Watson stat | 2.038664 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Inverted AR Roots | .99 | .53+.43i | .53-.43i | .02-.61i |
|  | .02+.61i | -.42+.51i | -.42-.51i | -.67 |
|  |  |  |  |  |
|  |  |  |  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Dependent Variable: LNVOLUME | | |  |  |
| Method: ML ARCH - Normal distribution (Marquardt / EViews legacy) | | | | |
| Date: 02/22/19 Time: 21:32 | | |  |  |
| Sample (adjusted): 2 915 | | |  |  |
| Included observations: 914 after adjustments | | | |  |
| Convergence achieved after 25 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(12) + C(13)\*RESID(-1)^2 + C(14)\*RESID(-2)^2 | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| D\_PREALLBSI0\*T\_PREALLBSI | 0.066192 | 0.019741 | 3.353080 | 0.0008 |
| D\_PREALLBSI1\*T\_PREALLBSI | 0.145426 | 0.030855 | 4.713158 | 0.0000 |
| D\_PREALLBSI2\*T\_PREALLBSI | 0.171585 | 0.038318 | 4.477957 | 0.0000 |
| DLNIV | -26.69198 | 33.98029 | -0.785514 | 0.4322 |
| DLNM1 | 12.65113 | 4.540969 | 2.785997 | 0.0053 |
| C | 18.70944 | 0.213289 | 87.71856 | 0.0000 |
| AR(1) | 0.580072 | 0.035504 | 16.33806 | 0.0000 |
| AR(2) | 0.165975 | 0.044498 | 3.729911 | 0.0002 |
| AR(3) | 0.110180 | 0.037483 | 2.939454 | 0.0033 |
| AR(6) | 0.071870 | 0.033898 | 2.120174 | 0.0340 |
| AR(8) | 0.043603 | 0.029053 | 1.500811 | 0.1334 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 0.032140 | 0.001910 | 16.82857 | 0.0000 |
| RESID(-1)^2 | 0.096492 | 0.029928 | 3.224186 | 0.0013 |
| RESID(-2)^2 | 0.094858 | 0.026610 | 3.564799 | 0.0004 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.871380 | Mean dependent var | | 18.67446 |
| Adjusted R-squared | 0.869955 | S.D. dependent var | | 0.557626 |
| S.E. of regression | 0.201090 | Akaike info criterion | | -0.381347 |
| Sum squared resid | 36.51461 | Schwarz criterion | | -0.307551 |
| Log likelihood | 188.2757 | Hannan-Quinn criter. | | -0.353178 |
| Durbin-Watson stat | 2.041798 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Inverted AR Roots | .99 | .51+.44i | .51-.44i | .02-.58i |
|  | .02+.58i | -.40-.52i | -.40+.52i | -.67 |
|  |  |  |  |  |
|  |  |  |  |  |

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| --- | --- | --- | --- | --- |
| Dependent Variable: LNVOLUME | | |  |  |
| Method: ML ARCH - Normal distribution (Marquardt / EViews legacy) | | | | |
| Date: 02/22/19 Time: 21:33 | | |  |  |
| Sample (adjusted): 2 915 | | |  |  |
| Included observations: 914 after adjustments | | | |  |
| Convergence achieved after 30 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(12) + C(13)\*RESID(-1)^2 + C(14)\*RESID(-2)^2 | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| D\_PREBSI0\*T\_PREBSI | -0.080464 | 0.036102 | -2.228831 | 0.0258 |
| D\_PREBSI1\*T\_PREBSI | 0.155495 | 0.027113 | 5.735147 | 0.0000 |
| D\_PREBSI2\*T\_PREBSI | 0.166627 | 0.023501 | 7.090164 | 0.0000 |
| DLNIV | 51.91224 | 27.46032 | 1.890445 | 0.0587 |
| DLNM1 | 13.89775 | 4.228805 | 3.286449 | 0.0010 |
| C | 18.60403 | 0.212993 | 87.34566 | 0.0000 |
| AR(1) | 0.578852 | 0.035844 | 16.14910 | 0.0000 |
| AR(2) | 0.168237 | 0.043270 | 3.888071 | 0.0001 |
| AR(3) | 0.100965 | 0.036885 | 2.737288 | 0.0062 |
| AR(6) | 0.074358 | 0.033526 | 2.217947 | 0.0266 |
| AR(8) | 0.049553 | 0.029205 | 1.696708 | 0.0898 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 0.032302 | 0.001888 | 17.11113 | 0.0000 |
| RESID(-1)^2 | 0.090406 | 0.029794 | 3.034361 | 0.0024 |
| RESID(-2)^2 | 0.075084 | 0.028063 | 2.675496 | 0.0075 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.874577 | Mean dependent var | | 18.67446 |
| Adjusted R-squared | 0.873188 | S.D. dependent var | | 0.557626 |
| S.E. of regression | 0.198574 | Akaike info criterion | | -0.401741 |
| Sum squared resid | 35.60687 | Schwarz criterion | | -0.327945 |
| Log likelihood | 197.5956 | Hannan-Quinn criter. | | -0.373571 |
| Durbin-Watson stat | 2.027015 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Inverted AR Roots | .99 | .53+.45i | .53-.45i | .02-.59i |
|  | .02+.59i | -.41-.52i | -.41+.52i | -.68 |
|  |  |  |  |  |
|  |  |  |  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Dependent Variable: LNVOLUME | | |  |  |
| Method: ML ARCH - Normal distribution (Marquardt / EViews legacy) | | | | |
| Date: 02/22/19 Time: 21:34 | | |  |  |
| Sample (adjusted): 2 915 | | |  |  |
| Included observations: 914 after adjustments | | | |  |
| Convergence achieved after 26 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(12) + C(13)\*RESID(-1)^2 + C(14)\*RESID(-2)^2 | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| D\_INTBSI0(-1)\*T\_INTBSI(-1) | 0.074355 | 0.022169 | 3.354069 | 0.0008 |
| D\_INTBSI1(-1)\*T\_INTBSI(-1) | 0.112969 | 0.028400 | 3.977811 | 0.0001 |
| D\_INTBSI2(-1)\*T\_INTBSI(-1) | 0.129111 | 0.112893 | 1.143661 | 0.2528 |
| DLNIV | 89.15472 | 26.96619 | 3.306167 | 0.0009 |
| DLNM1 | 16.68588 | 4.768007 | 3.499550 | 0.0005 |
| C | 18.69752 | 0.216626 | 86.31258 | 0.0000 |
| AR(1) | 0.579935 | 0.036103 | 16.06316 | 0.0000 |
| AR(2) | 0.176740 | 0.044597 | 3.963033 | 0.0001 |
| AR(3) | 0.102450 | 0.037264 | 2.749340 | 0.0060 |
| AR(6) | 0.065558 | 0.033861 | 1.936093 | 0.0529 |
| AR(8) | 0.046847 | 0.028840 | 1.624362 | 0.1043 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 0.032869 | 0.002015 | 16.31016 | 0.0000 |
| RESID(-1)^2 | 0.097271 | 0.030062 | 3.235684 | 0.0012 |
| RESID(-2)^2 | 0.101853 | 0.027945 | 3.644762 | 0.0003 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.867390 | Mean dependent var | | 18.67446 |
| Adjusted R-squared | 0.865922 | S.D. dependent var | | 0.557626 |
| S.E. of regression | 0.204184 | Akaike info criterion | | -0.350953 |
| Sum squared resid | 37.64717 | Schwarz criterion | | -0.277157 |
| Log likelihood | 174.3857 | Hannan-Quinn criter. | | -0.322784 |
| Durbin-Watson stat | 2.046326 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Inverted AR Roots | .99 | .52+.44i | .52-.44i | .02-.59i |
|  | .02+.59i | -.41-.52i | -.41+.52i | -.67 |
|  |  |  |  |  |
|  |  |  |  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Dependent Variable: LNVOLUME | | |  |  |
| Method: ML ARCH - Normal distribution (Marquardt / EViews legacy) | | | | |
| Date: 02/22/19 Time: 21:36 | | |  |  |
| Sample (adjusted): 2 915 | | |  |  |
| Included observations: 914 after adjustments | | | |  |
| Convergence achieved after 29 iterations | | | |  |
| Presample variance: backcast (parameter = 0.7) | | | | |
| GARCH = C(12) + C(13)\*RESID(-1)^2 + C(14)\*RESID(-2)^2 | | | | |
|  |  |  |  |  |
|  |  |  |  |  |
| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|  |  |  |  |  |
|  |  |  |  |  |
| D\_PREALLBSI0(-1)\*T\_PREALLBSI(-1) | 0.022640 | 0.022415 | 1.010048 | 0.3125 |
| D\_PREALLBSI1(-1)\*T\_PREALLBSI(-1) | 0.007605 | 0.029353 | 0.259098 | 0.7956 |
| D\_PREALLBSI2(-1)\*T\_PREALLBSI(-1) | 0.050802 | 0.036521 | 1.391014 | 0.1642 |
| DLNIV | 98.44381 | 27.52671 | 3.576301 | 0.0003 |
| DLNM1 | 16.56721 | 4.733127 | 3.500268 | 0.0005 |
| C | 18.63601 | 0.221006 | 84.32357 | 0.0000 |
| AR(1) | 0.584866 | 0.035504 | 16.47331 | 0.0000 |
| AR(2) | 0.172095 | 0.044694 | 3.850515 | 0.0001 |
| AR(3) | 0.100414 | 0.037398 | 2.685027 | 0.0073 |
| AR(6) | 0.060939 | 0.033870 | 1.799199 | 0.0720 |
| AR(8) | 0.053781 | 0.028490 | 1.887733 | 0.0591 |
|  |  |  |  |  |
|  |  |  |  |  |
|  | Variance Equation | |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| C | 0.033383 | 0.002090 | 15.97153 | 0.0000 |
| RESID(-1)^2 | 0.097380 | 0.029516 | 3.299279 | 0.0010 |
| RESID(-2)^2 | 0.100846 | 0.030511 | 3.305242 | 0.0009 |
|  |  |  |  |  |
|  |  |  |  |  |
| R-squared | 0.865651 | Mean dependent var | | 18.67446 |
| Adjusted R-squared | 0.864163 | S.D. dependent var | | 0.557626 |
| S.E. of regression | 0.205519 | Akaike info criterion | | -0.336498 |
| Sum squared resid | 38.14088 | Schwarz criterion | | -0.262702 |
| Log likelihood | 167.7795 | Hannan-Quinn criter. | | -0.308328 |
| Durbin-Watson stat | 2.036377 |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| Inverted AR Roots | .99 | .54+.44i | .54-.44i | .02-.61i |
|  | .02+.61i | -.42-.52i | -.42+.52i | -.68 |
|  |  |  |  |  |
|  |  |  |  |  |

1. 相对情绪一致性正向、负向的非对称效应