ARIMAX Analysis for 2024_French Senate election_FRFNN

```
                    SARIMAX Results
==============================================================================
Dep. Variable:             index   No. Observations:          361
Model:          SARIMAX(0, 1, 1)   Log Likelihood          1362.110
Date:           Thu, 11 Jul 2024   AIC                    -2718.221
Time:                   17:32:32   BIC                    -2706.563
Sample:                        0   HQIC                   -2713.585
                           - 361
Covariance Type:             opg
==============================================================================
             coef    std err       z     P>|z|    [0.025    0.975]
------------------------------------------------------------------------------
election  -6.419e-09  1.44e-10  -44.557    0.000   -6.7e-09  -6.14e-09
ma.L1        0.1052     0.018    5.778     0.000     0.070     0.141
sigma2    3.026e-05  7.91e-07   38.229    0.000   2.87e-05   3.18e-05
===================================================================================
Ljung-Box (L1) (Q):          0.00   Jarque-Bera (JB):       3295.30
Prob(Q):                     0.99   Prob(JB):                  0.00
Heteroskedasticity (H):      0.00   Skew:                     -1.69
Prob(H) (two-sided):         0.00   Kurtosis:                 17.43
===================================================================================
```

Warnings:
[1] Covariance matrix calculated using the outer product of gradients (complex-step).
[2] Covariance matrix is singular or near-singular, with condition number 7.87e+23. Standard errors may be unstable.
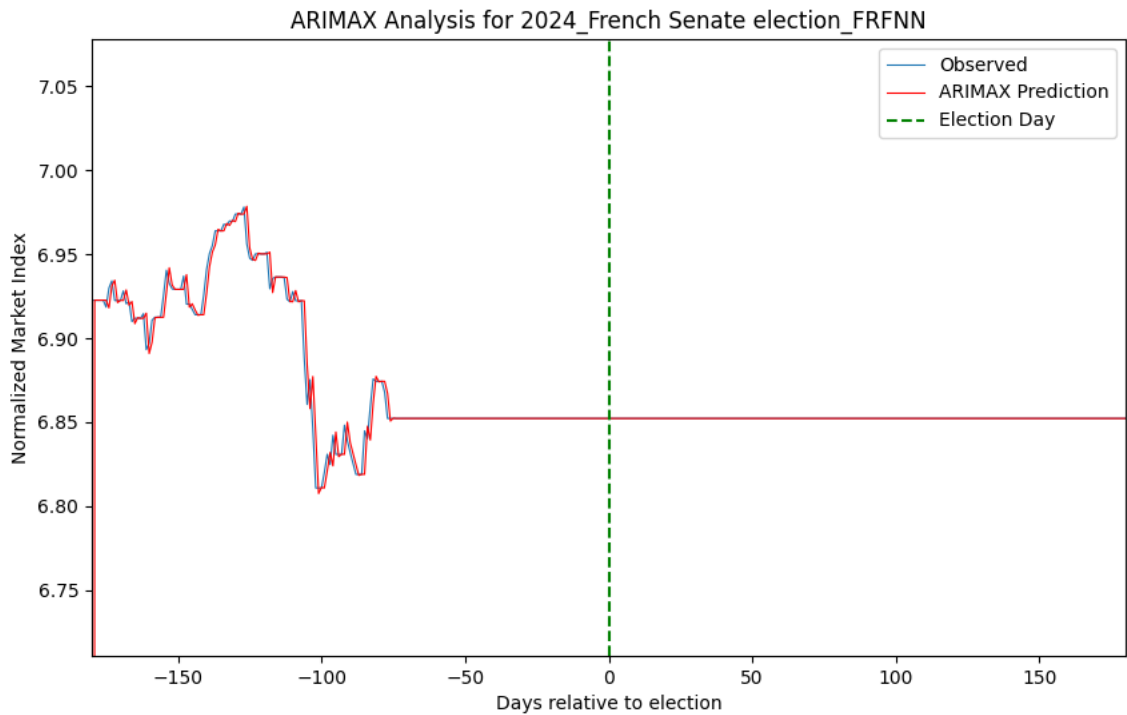
ARIMAX Analysis for 2024_French Senate election_FRFNN

ARIMAX Analysis for 2023_Spanish general election_IBEXIB

SARIMAX Results

```
==============================================================================
Dep. Variable:                    index   No. Observations:           361
Model:            SARIMAX(0, 1, 0)   Log Likelihood          1047.928
Date:            Thu, 11 Jul 2024   AIC                     -2091.856
Time:                    17:32:33   BIC                     -2084.083
Sample:                         0   HQIC                    -2088.765
                            - 361
Covariance Type:              opg
==============================================================================
                 coef    std err          z      P>|z|      [0.025      0.975]
------------------------------------------------------------------------------
election   -3.597e-08   1.19e-16  -3.01e+08      0.000   -3.6e-08    -3.6e-08
sigma2         0.0002   5.85e-06     29.668      0.000      0.000       0.000
===================================================================================
Ljung-Box (L1) (Q):                   1.21   Jarque-Bera (JB):          1030.76
Prob(Q):                              0.27   Prob(JB):                     0.00
Heteroskedasticity (H):               0.27   Skew:                        -1.22
Prob(H) (two-sided):                  0.00   Kurtosis:                    10.92
===================================================================================
```
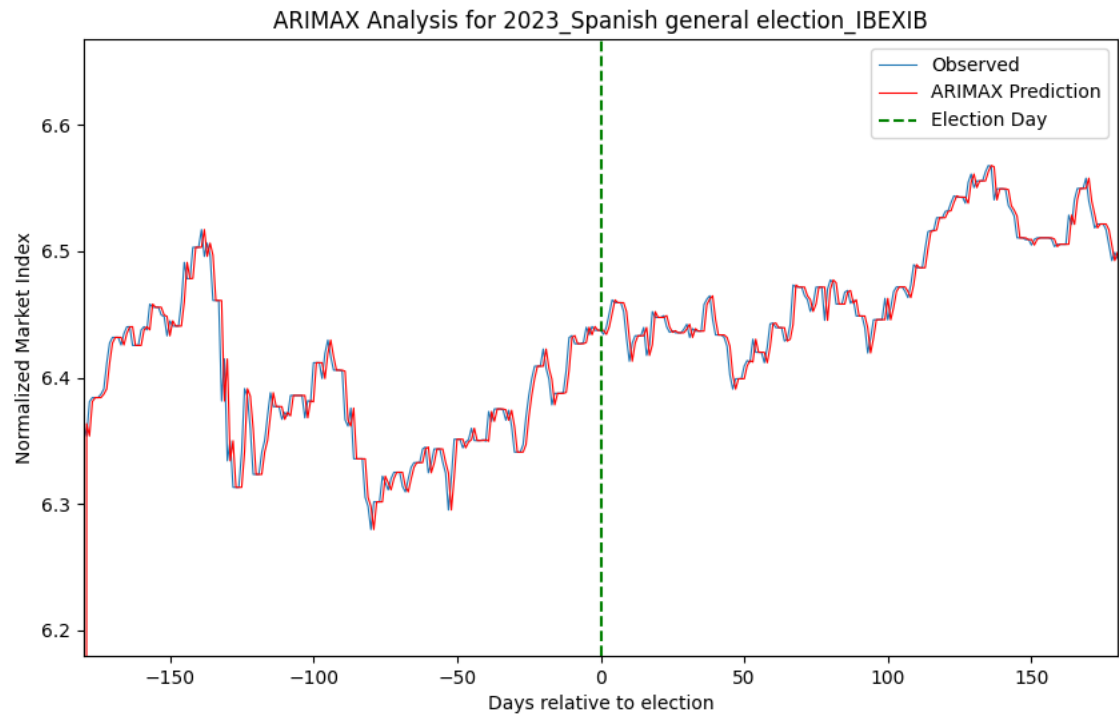
Warnings:
[1] Covariance matrix calculated using the outer product of gradients (complex-step).
[2] Covariance matrix is singular or near-singular, with condition number 5.47e+26. Standard errors may be unstable.

ARIMAX Analysis for 2023_Spanish general election_IBEXIB

ARIMAX Analysis for 2023_Dutch general election_NLFIN

SARIMAX Results

```
==============================================================================
Dep. Variable:               index   No. Observations:          361
Model:           SARIMAX(0, 1, 1)   Log Likelihood          1294.746
Date:            Thu, 11 Jul 2024   AIC                     -2583.493
Time:                    17:32:34   BIC                     -2571.834
Sample:                         0   HQIC                    -2578.857
                            - 361
Covariance Type:              opg
==============================================================================
               coef    std err          z      P>|z|      [0.025      0.975]
------------------------------------------------------------------------------
election     0.0003      0.107      0.003      0.997     -0.210       0.211
ma.L1        0.1041      0.049      2.135      0.033      0.009       0.200
sigma2    4.396e-05   1.97e-06     22.324      0.000   4.01e-05    4.78e-05
===================================================================================
Ljung-Box (L1) (Q):                0.03   Jarque-Bera (JB):           257.92
Prob(Q):                           0.87   Prob(JB):                     0.00
Heteroskedasticity (H):            0.95   Skew:                        -0.72
Prob(H) (two-sided):               0.79   Kurtosis:                     6.89
===================================================================================
```

Warnings:
[1] Covariance matrix calculated using the outer product of gradients (complex-step).

ARIMAX Analysis for 2023_Dutch general election_NLFIN
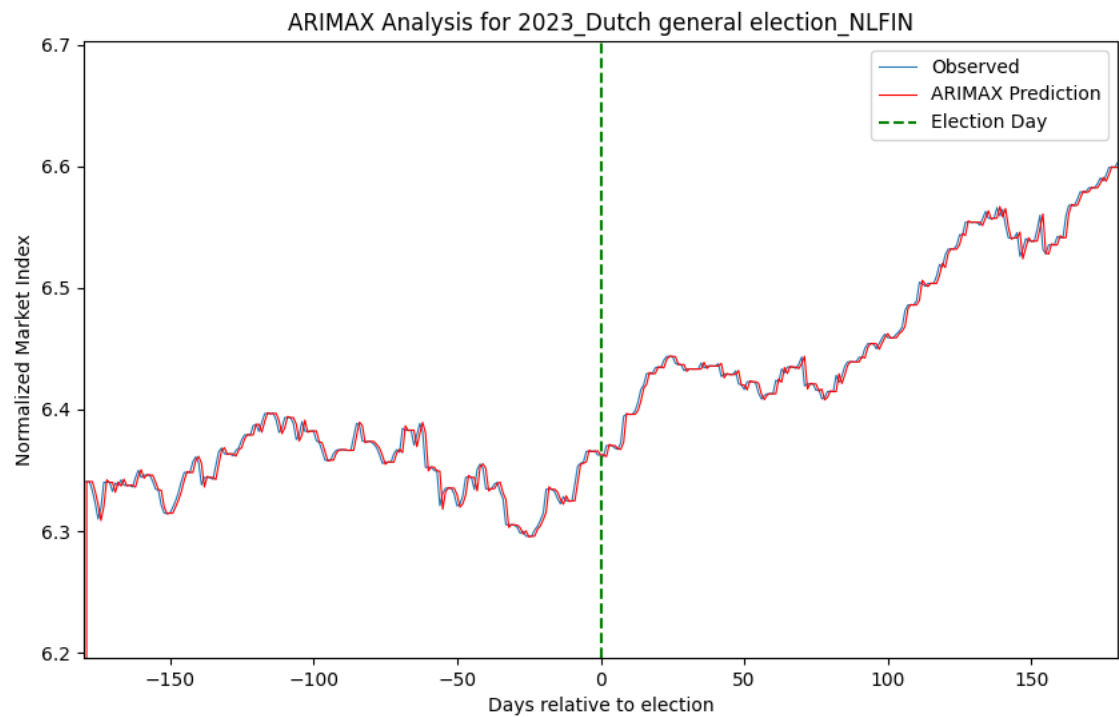
ARIMAX Analysis for 2023_Polish parliamentary election_BNKI

```
                    SARIMAX Results
==============================================================================
Dep. Variable:              index   No. Observations:          361
Model:           SARIMAX(0, 1, 0)   Log Likelihood          1022.842
Date:            Thu, 11 Jul 2024   AIC                     -2041.685
Time:                    17:32:34   BIC                     -2033.913
Sample:                         0   HQIC                    -2038.595
                            - 361
Covariance Type:              opg
==============================================================================
               coef    std err         z     P>|z|     [0.025     0.975]
------------------------------------------------------------------------------
election   -3.696e-08   1.86e-16  -1.99e+08    0.000   -3.7e-08   -3.7e-08
sigma2        0.0002    7.37e-06     27.085    0.000      0.000      0.000
===================================================================================
Ljung-Box (L1) (Q):              0.12   Jarque-Bera (JB):          579.57
Prob(Q):                         0.72   Prob(JB):                    0.00
Heteroskedasticity (H):          0.68   Skew:                        1.12
Prob(H) (two-sided):             0.04   Kurtosis:                    8.80
===================================================================================

Warnings:
[1] Covariance matrix calculated using the outer product of gradients (complex-step).
[2] Covariance matrix is singular or near-singular, with condition number 2.59e+26. Standard errors may be unstable.
```
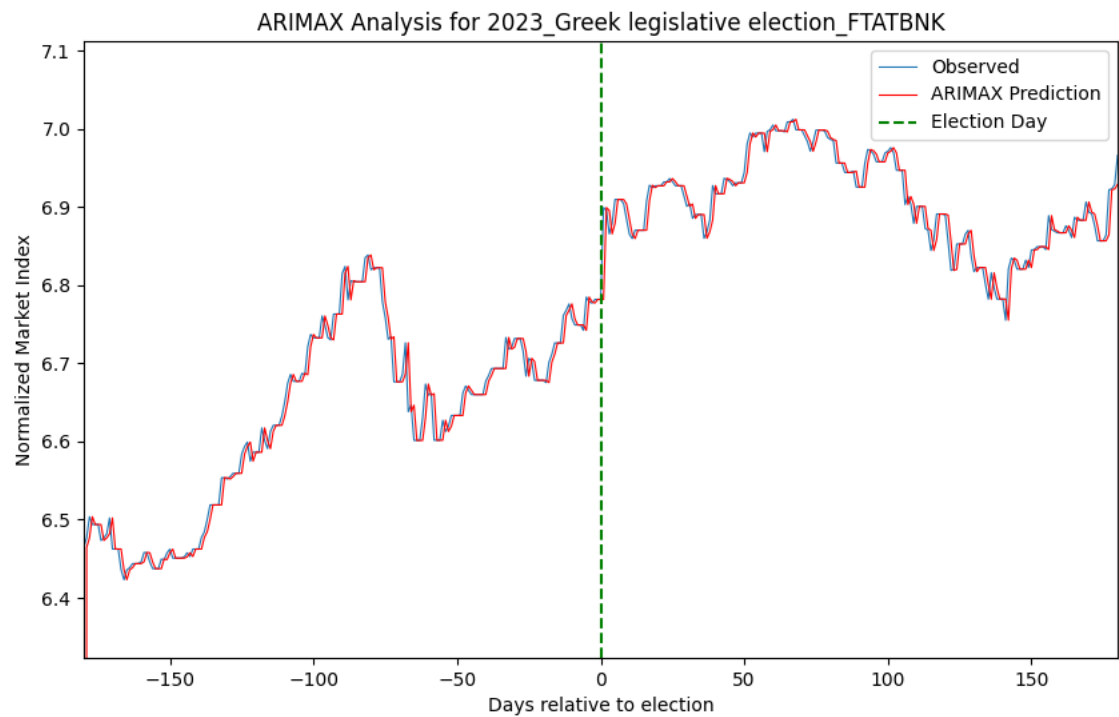

ARIMAX Analysis for 2023_Polish parliamentary election_BNKI
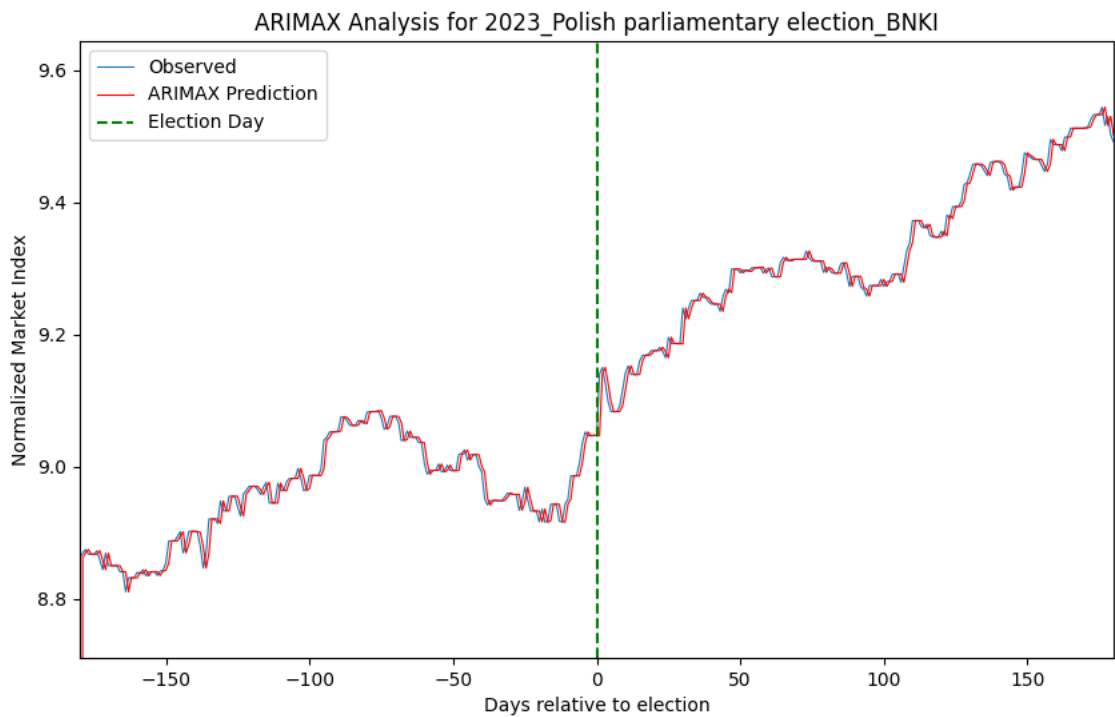
ARIMAX Analysis for 2023_Greek legislative election_FTATBNK

```
                  SARIMAX Results
==============================================================================
Dep. Variable:              index   No. Observations:            361
Model:          SARIMAX(0, 1, 0)   Log Likelihood           933.044
Date:           Thu, 11 Jul 2024   AIC                    -1862.088
Time:                   17:32:35   BIC                    -1854.315
Sample:                        0   HQIC                   -1858.997
                           - 361
Covariance Type:             opg
==============================================================================
               coef    std err         z      P>|z|     [0.025     0.975]
------------------------------------------------------------------------------
election   -3.112e-08    2.2e-16  -1.41e+08    0.000  -3.11e-08  -3.11e-08
sigma2         0.0003   1.15e-05     28.533    0.000      0.000      0.000
===================================================================================
Ljung-Box (L1) (Q):              0.29   Jarque-Bera (JB):           744.83
Prob(Q):                         0.59   Prob(JB):                     0.00
Heteroskedasticity (H):          0.77   Skew:                         0.50
Prob(H) (two-sided):             0.16   Kurtosis:                     9.97
===================================================================================
```

Warnings:
[1] Covariance matrix calculated using the outer product of gradients (complex-step).
[2] Covariance matrix is singular or near-singular, with condition number 9.6e+26. Standard errors may be unstable.

ARIMAX Analysis for 2023_Greek legislative election_FTATBNK

ARIMAX Analysis for 2023_Finnish parliamentary election_N3020PI

```
                    SARIMAX Results
==============================================================================
Dep. Variable:                  index   No. Observations:           361
Model:             SARIMAX(0, 1, 0)    Log Likelihood          1024.135
Date:              Thu, 11 Jul 2024    AIC                     -2044.271
Time:                  17:32:35        BIC                     -2036.498
Sample:                       0        HQIC                    -2041.180
                          - 361
Covariance Type:              opg
==============================================================================
              coef    std err         z      P>|z|     [0.025     0.975]
------------------------------------------------------------------------------
election   -2.556e-08  1.64e-16  -1.56e+08    0.000  -2.56e-08  -2.56e-08
sigma2       0.0002   7.95e-06    24.899      0.000     0.000      0.000
===================================================================================
Ljung-Box (L1) (Q):               0.05   Jarque-Bera (JB):            376.14
Prob(Q):                          0.83   Prob(JB):                      0.00
Heteroskedasticity (H):           0.40   Skew:                          0.56
Prob(H) (two-sided):              0.00   Kurtosis:                      7.88
===================================================================================
```
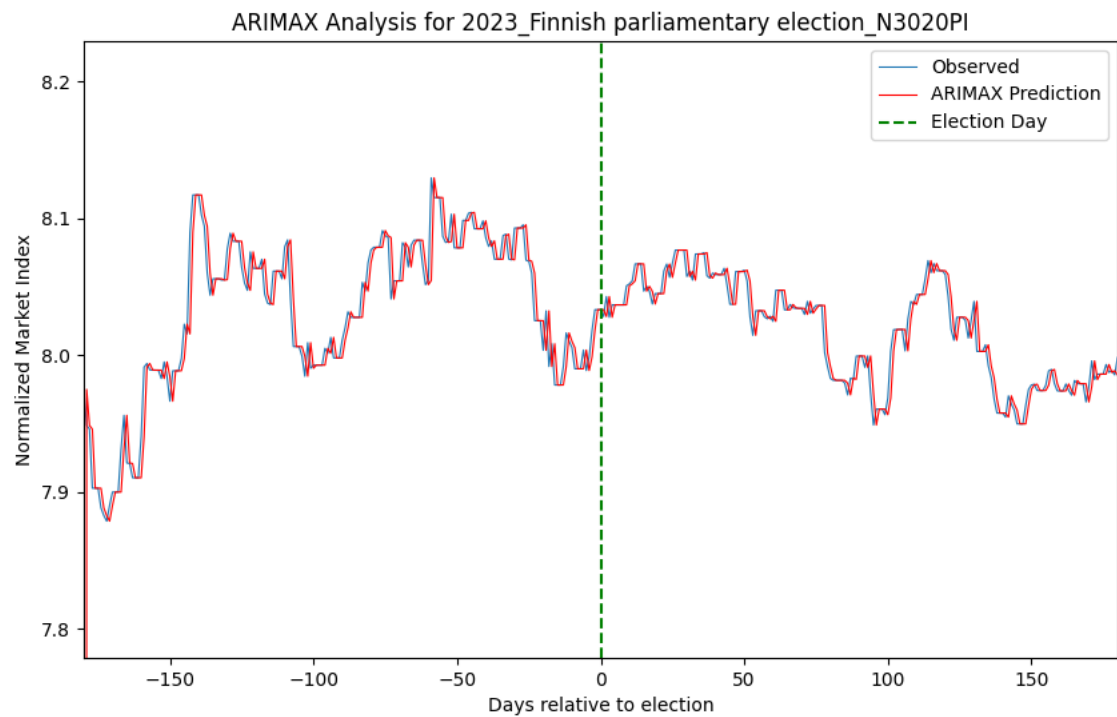
Warnings:
[1] Covariance matrix calculated using the outer product of gradients (complex-step).
[2] Covariance matrix is singular or near-singular, with condition number 2.4e+26. Standard errors may be unstable.

ARIMAX Analysis for 2023_Finnish parliamentary election_N3020PI

ARIMAX Analysis for 2023_Italian local elections_FTITLMS30

```
                      SARIMAX Results
==============================================================================
Dep. Variable:             index   No. Observations:              361
Model:          SARIMAX(2, 1, 0)   Log Likelihood             1098.422
Date:           Thu, 11 Jul 2024   AIC                        -2188.845
Time:                   17:32:37   BIC                        -2173.300
Sample:                        0   HQIC                       -2182.664
                           - 361
Covariance Type:             opg
==============================================================================
                 coef    std err          z      P>|z|      [0.025      0.975]
------------------------------------------------------------------------------
election       0.0226      1.645      0.014      0.989     -3.201       3.247
ar.L1         -0.0815      0.042     -1.937      0.053     -0.164       0.001
ar.L2          0.1502      0.036      4.215      0.000      0.080       0.220
sigma2         0.0001   5.15e-06     25.437      0.000      0.000       0.000
==============================================================================
Ljung-Box (L1) (Q):                0.00   Jarque-Bera (JB):           805.07
Prob(Q):                           0.95   Prob(JB):                     0.00
Heteroskedasticity (H):            1.15   Skew:                        -1.10
Prob(H) (two-sided):               0.46   Kurtosis:                     9.99
==============================================================================
```
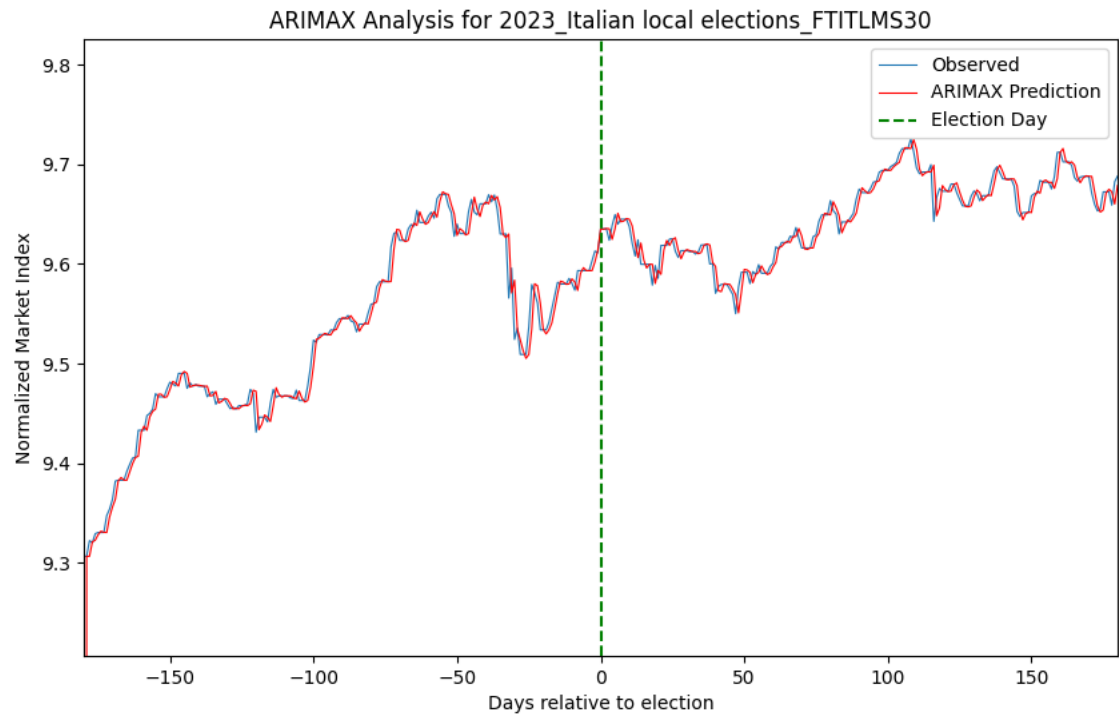
Warnings:
[1] Covariance matrix calculated using the outer product of gradients (complex-step).

ARIMAX Analysis for 2023_Italian local elections_FTITLMS30

ARIMAX Analysis for 2023_Spanish local elections_IBEXIB

```
                        SARIMAX Results
================================================================================
Dep. Variable:              index   No. Observations:            361
Model:          SARIMAX(0, 1, 0)   Log Likelihood           1042.213
Date:          Thu, 11 Jul 2024   AIC                      -2080.427
Time:                  17:32:37   BIC                      -2072.654
Sample:                       0   HQIC                     -2077.336
                          - 361
Covariance Type:            opg
================================================================================
             coef    std err          z      P>|z|      [0.025      0.975]
--------------------------------------------------------------------------------
election  -5.349e-08     2e-16  -2.68e+08      0.000   -5.35e-08   -5.35e-08
sigma2       0.0002   6.21e-06     28.842      0.000       0.000       0.000
===================================================================================
Ljung-Box (L1) (Q):                1.26   Jarque-Bera (JB):           944.72
Prob(Q):                           0.26   Prob(JB):                     0.00
Heteroskedasticity (H):            0.34   Skew:                        -1.19
Prob(H) (two-sided):               0.00   Kurtosis:                    10.57
===================================================================================
```

Warnings:
[1] Covariance matrix calculated using the outer product of gradients (complex-step).
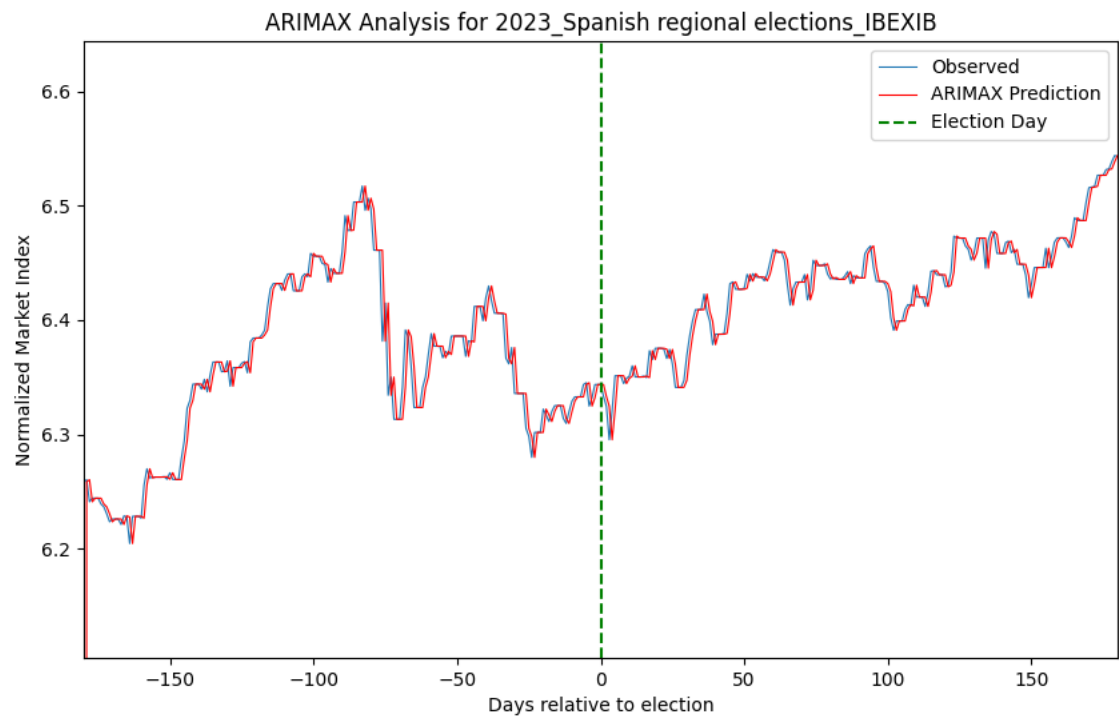[2] Covariance matrix is singular or near-singular, with condition number 5.04e+26. Standard errors may be unstable.

ARIMAX Analysis for 2023_Spanish local elections_IBEXIB

ARIMAX Analysis for 2023_Spanish regional elections_IBEXIB

```
                        SARIMAX Results
==============================================================================
Dep. Variable:              index   No. Observations:              361
Model:             SARIMAX(0, 1, 0)   Log Likelihood            1042.213
Date:            Thu, 11 Jul 2024   AIC                      -2080.427
Time:                    17:32:38   BIC                      -2072.654
Sample:                         0   HQIC                     -2077.336
                            - 361
Covariance Type:              opg
==============================================================================
             coef    std err          z      P>|z|      [0.025      0.975]
------------------------------------------------------------------------------
election   -5.349e-08     2e-16   -2.68e+08      0.000   -5.35e-08   -5.35e-08
sigma2        0.0002   6.21e-06      28.842      0.000       0.000       0.000
===================================================================================
Ljung-Box (L1) (Q):               1.26   Jarque-Bera (JB):              944.72
Prob(Q):                          0.26   Prob(JB):                        0.00
Heteroskedasticity (H):           0.34   Skew:                           -1.19
Prob(H) (two-sided):              0.00   Kurtosis:                       10.57
===================================================================================

Warnings:
[1] Covariance matrix calculated using the outer product of gradients (complex-step).
[2] Covariance matrix is singular or near-singular, with condition number 5.04e+26. Standard errors may be unstable.
```


ARIMAX Analysis for 2023_Spanish regional elections_IBEXIB

ARIMAX Analysis for 2022_United States elections_NYK

SARIMAX Results

```
==============================================================================
Dep. Variable:                index   No. Observations:           361
Model:            SARIMAX(3, 0, 2)   Log Likelihood          1088.221
Date:             Thu, 11 Jul 2024   AIC                    -2162.442
Time:                     17:32:43   BIC                    -2135.220
Sample:                          0   HQIC                   -2151.619
                             - 361
Covariance Type:               opg
==============================================================================
             coef    std err          z      P>|z|      [0.025      0.975]
------------------------------------------------------------------------------
election    0.0051      0.138      0.037      0.971      -0.265       0.275
ar.L1      -0.7777      0.241     -3.231      0.001      -1.250      -0.306
ar.L2       0.9124      0.050     18.332      0.000       0.815       1.010
ar.L3       0.8654      0.224      3.869      0.000       0.427       1.304
ma.L1       1.7730      0.231      7.667      0.000       1.320       2.226
ma.L2       0.8725      0.208      4.203      0.000       0.466       1.279
sigma2      0.0001   8.05e-06     16.917      0.000       0.000       0.000
===================================================================================
Ljung-Box (L1) (Q):            0.03   Jarque-Bera (JB):            63.71
Prob(Q):                       0.87   Prob(JB):                     0.00
Heteroskedasticity (H):        0.66   Skew:                         0.13
Prob(H) (two-sided):           0.02   Kurtosis:                     5.04
===================================================================================
```

Warnings:
[1] Covariance matrix calculated using the outer product of gradients (complex-step).

ARIMAX Analysis for 2022_United States elections_NYK
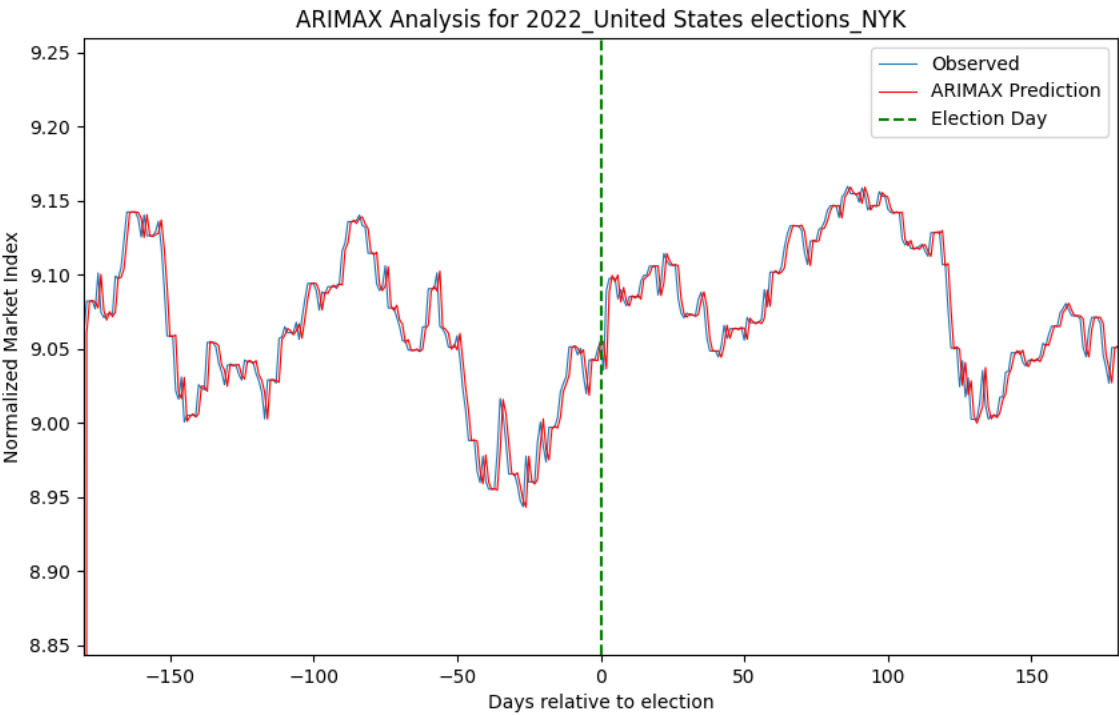
ARIMAX Analysis for 2022_French presidential election_FRFNN

```
                    SARIMAX Results
==============================================================================
Dep. Variable:              index   No. Observations:           361
Model:          SARIMAX(0, 1, 0)   Log Likelihood          1032.822
Date:           Thu, 11 Jul 2024   AIC                     -2061.644
Time:                   17:32:43   BIC                     -2053.872
Sample:                        0   HQIC                    -2058.553
                           - 361
Covariance Type:             opg
==============================================================================
                 coef    std err          z      P>|z|      [0.025      0.975]
------------------------------------------------------------------------------
election   -3.697e-08   2.04e-16  -1.81e+08      0.000   -3.7e-08    -3.7e-08
sigma2         0.0002   7.32e-06     25.763      0.000      0.000       0.000
===================================================================================
Ljung-Box (L1) (Q):                0.09   Jarque-Bera (JB):            431.67
Prob(Q):                           0.77   Prob(JB):                      0.00
Heteroskedasticity (H):            2.16   Skew:                         -0.23
Prob(H) (two-sided):               0.00   Kurtosis:                      8.34
===================================================================================
```

Warnings:
[1] Covariance matrix calculated using the outer product of gradients (complex-step).
[2] Covariance matrix is singular or near-singular, with condition number 3.74e+26. Standard errors may be unstable.

ARIMAX Analysis for 2022_French presidential election_FRFNN
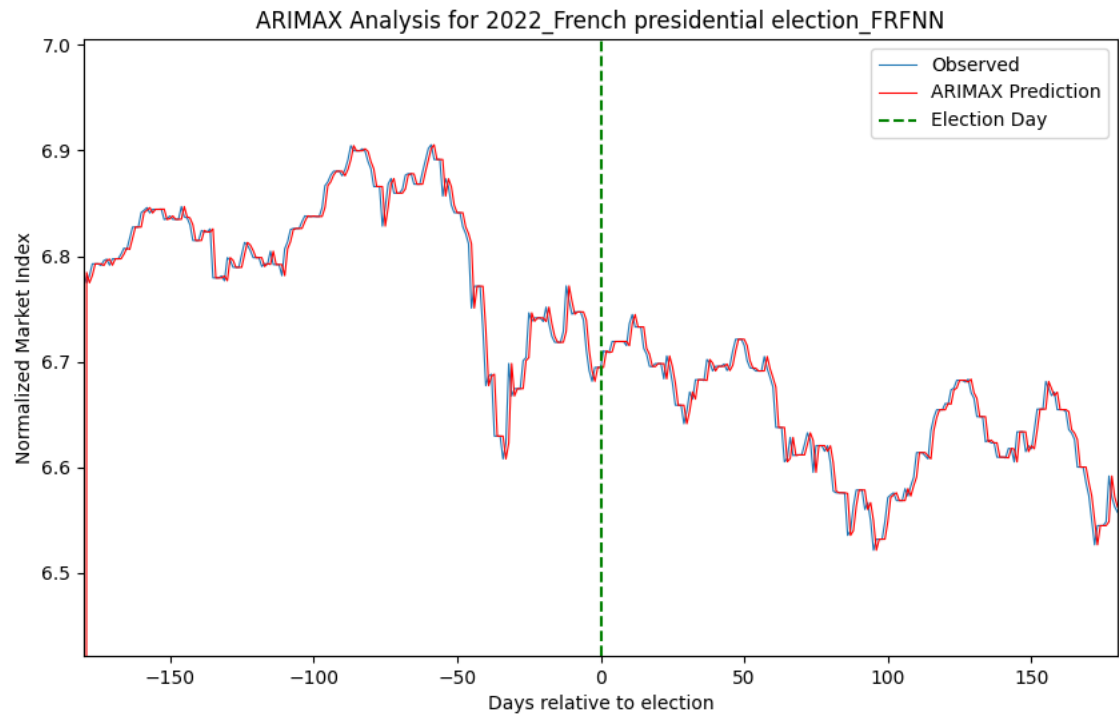
ARIMAX Analysis for 2022_French legislative election_FRFNN

SARIMAX Results

```
==============================================================================
Dep. Variable:                index   No. Observations:          361
Model:            SARIMAX(0, 1, 0)   Log Likelihood          1035.773
Date:            Thu, 11 Jul 2024   AIC                     -2067.546
Time:                    17:32:44   BIC                     -2059.773
Sample:                         0   HQIC                    -2064.455
                            - 361
Covariance Type:              opg
==============================================================================
              coef    std err          z      P>|z|      [0.025      0.975]
------------------------------------------------------------------------------
election  -3.515e-08   1.93e-16  -1.82e+08      0.000   -3.51e-08   -3.51e-08
sigma2       0.0002   7.23e-06     25.652      0.000       0.000       0.000
===================================================================================
Ljung-Box (L1) (Q):              0.33   Jarque-Bera (JB):           421.94
Prob(Q):                         0.57   Prob(JB):                     0.00
Heteroskedasticity (H):          0.38   Skew:                        -0.18
Prob(H) (two-sided):             0.00   Kurtosis:                     8.29
===================================================================================
```

Warnings:
[1] Covariance matrix calculated using the outer product of gradients (complex-step).
[2] Covariance matrix is singular or near-singular, with condition number 3.51e+26. Standard errors may be unstable.
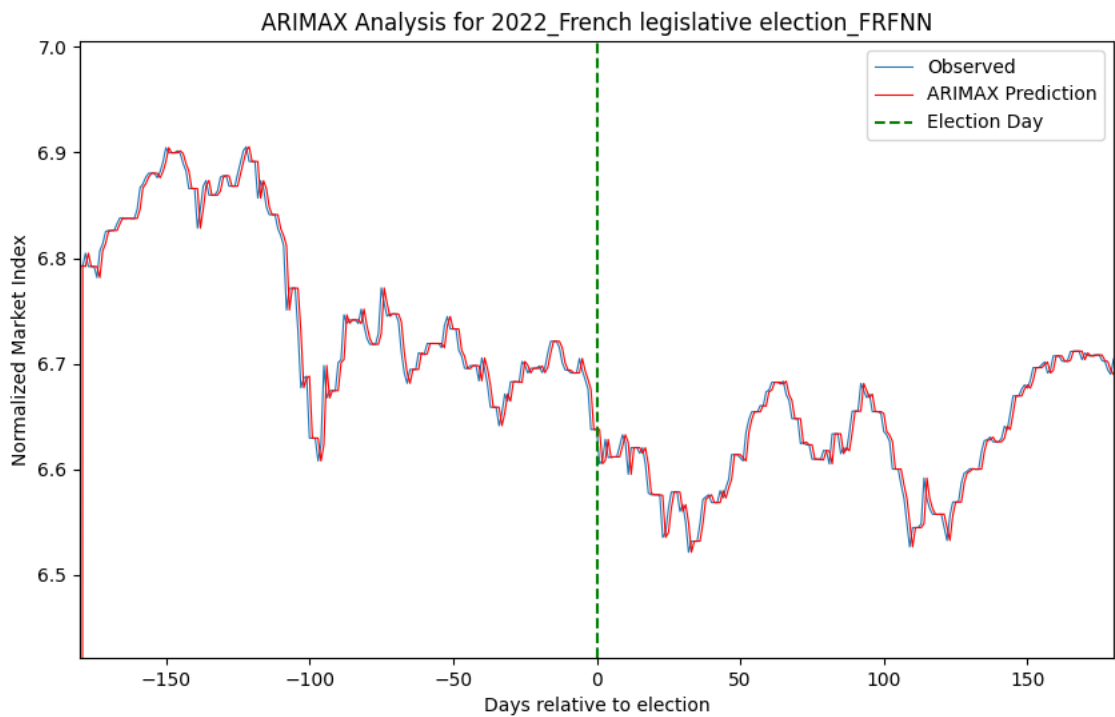
ARIMAX Analysis for 2022_Swedish general election_SX3010GI

```
                      SARIMAX Results
==============================================================================
Dep. Variable:              index   No. Observations:          361
Model:            SARIMAX(0, 1, 0)   Log Likelihood          1091.246
Date:            Thu, 11 Jul 2024   AIC                     -2178.492
Time:                    17:32:45   BIC                     -2170.719
Sample:                         0   HQIC                    -2175.401
                            - 361
Covariance Type:              opg
==============================================================================
                 coef    std err          z      P>|z|      [0.025      0.975]
------------------------------------------------------------------------------
election    -3.181e-08   2.05e-16  -1.55e+08      0.000   -3.18e-08   -3.18e-08
sigma2         0.0001   6.21e-06     21.953      0.000       0.000       0.000
===================================================================================
Ljung-Box (L1) (Q):               1.06   Jarque-Bera (JB):             187.44
Prob(Q):                          0.30   Prob(JB):                       0.00
Heteroskedasticity (H):           0.40   Skew:                          -0.34
Prob(H) (two-sided):              0.00   Kurtosis:                       6.47
===================================================================================

Warnings:
[1] Covariance matrix calculated using the outer product of gradients (complex-step).
[2] Covariance matrix is singular or near-singular, with condition number 2.21e+26. Standard errors may be unstable.
```
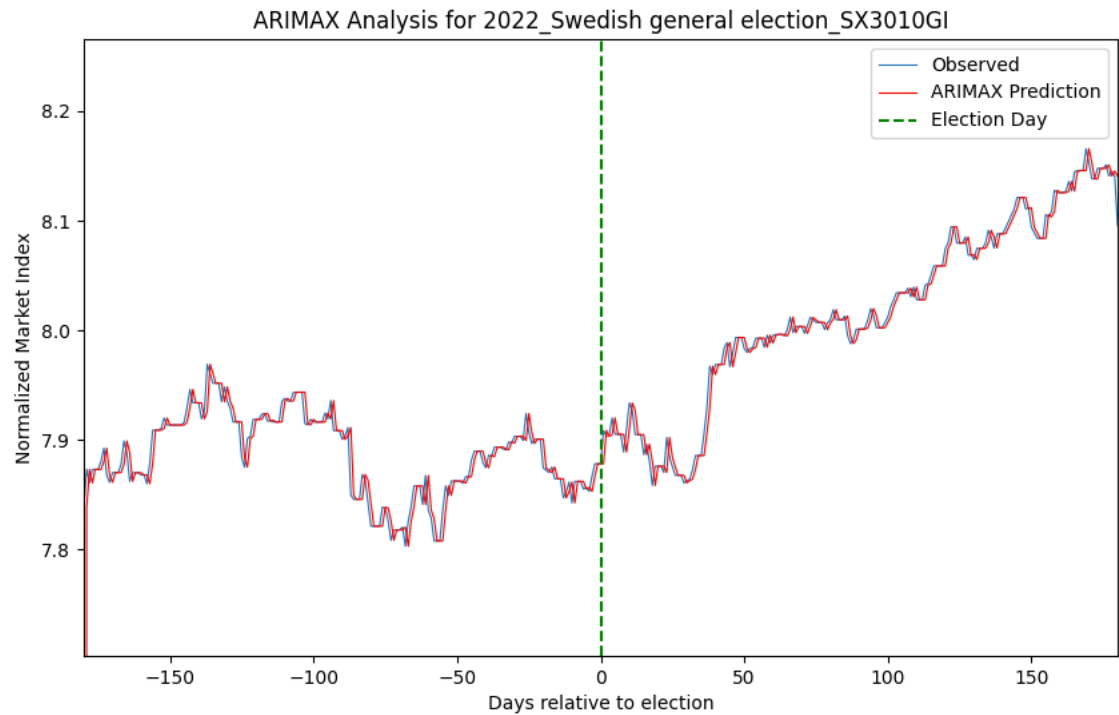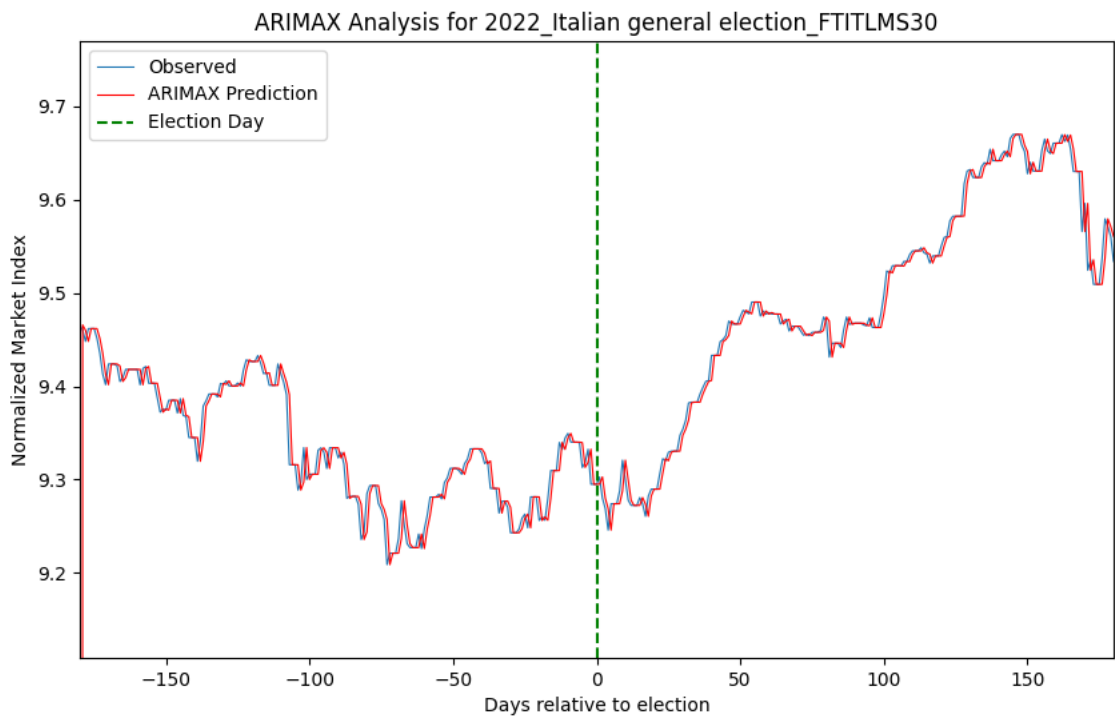

ARIMAX Analysis for 2022_Swedish general election_SX3010GI

ARIMAX Analysis for 2022_Italian general election_FTITLMS30

```
                      SARIMAX Results
================================================================================
Dep. Variable:              index   No. Observations:             361
Model:           SARIMAX(0, 1, 0)   Log Likelihood             1010.910
Date:            Thu, 11 Jul 2024   AIC                        -2017.820
Time:                    17:32:45   BIC                        -2010.048
Sample:                         0   HQIC                       -2014.729
                            - 361
Covariance Type:              opg
================================================================================
                 coef    std err         z      P>|z|     [0.025     0.975]
--------------------------------------------------------------------------------
election   -4.388e-08    3.2e-16  -1.37e+08      0.000  -4.39e-08  -4.39e-08
sigma2         0.0002   8.72e-06     24.442      0.000      0.000      0.000
===================================================================================
Ljung-Box (L1) (Q):               0.40   Jarque-Bera (JB):          378.94
Prob(Q):                          0.53   Prob(JB):                    0.00
Heteroskedasticity (H):           0.79   Skew:                       -0.90
Prob(H) (two-sided):              0.19   Kurtosis:                    7.69
===================================================================================
```

Warnings:
[1] Covariance matrix calculated using the outer product of gradients (complex-step).
[2] Covariance matrix is singular or near-singular, with condition number 1.87e+26. Standard errors may be unstable.

ARIMAX Analysis for 2022_Italian general election_FTITLMS30

ARIMAX Analysis for 2021_German federal election_CXPVX

```
                    SARIMAX Results
==============================================================================
Dep. Variable:              index   No. Observations:           361
Model:          SARIMAX(1, 1, 0)   Log Likelihood          1187.555
Date:           Thu, 11 Jul 2024   AIC                     -2369.109
Time:                   17:32:47   BIC                     -2357.451
Sample:                        0   HQIC                    -2364.474
                           - 361
Covariance Type:             opg
==============================================================================
                 coef    std err          z      P>|z|      [0.025      0.975]
------------------------------------------------------------------------------
election    1.234e-06      0.083    1.5e-05      1.000      -0.162       0.162
ar.L1         -0.1486      0.044     -3.402      0.001      -0.234      -0.063
sigma2      7.978e-05   3.07e-06     25.977      0.000    7.38e-05    8.58e-05
===================================================================================
Ljung-Box (L1) (Q):               0.00   Jarque-Bera (JB):           689.53
Prob(Q):                          0.99   Prob(JB):                     0.00
Heteroskedasticity (H):           3.25   Skew:                         0.28
Prob(H) (two-sided):              0.00   Kurtosis:                     9.76
===================================================================================
```

Warnings:
[1] Covariance matrix calculated using the outer product of gradients (complex-step).

ARIMAX Analysis for 2021_German federal election_CXPVX
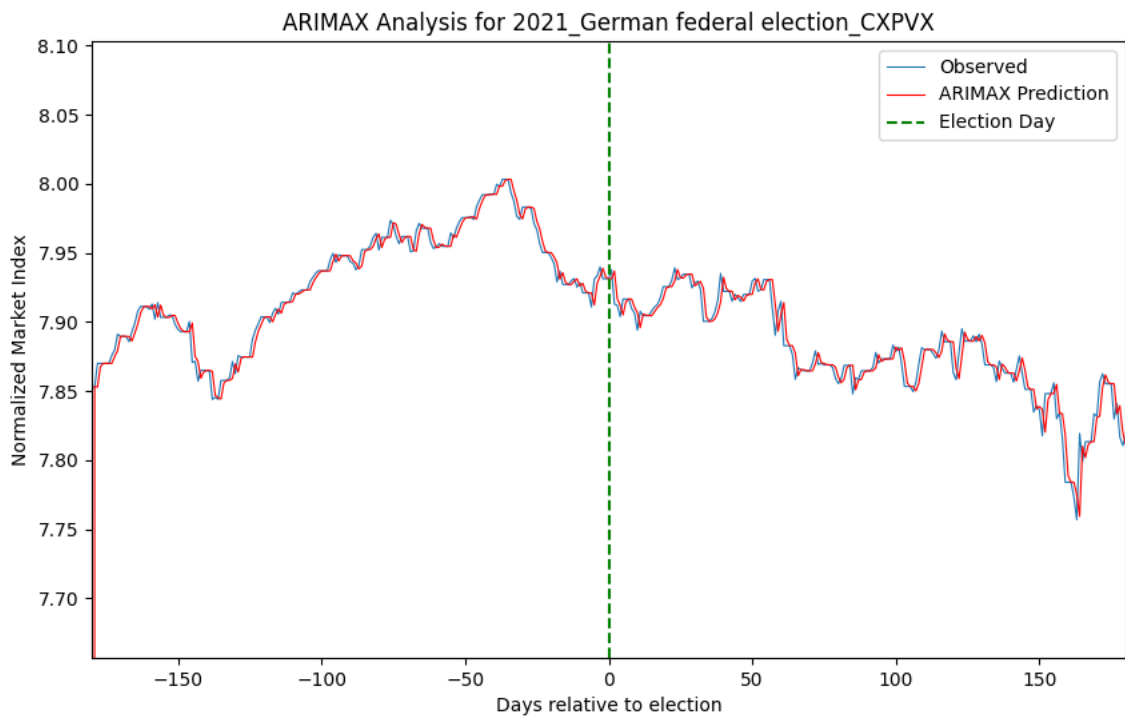
ARIMAX Analysis for 2021_Canadian federal election_TRGSPTS40

SARIMAX Results

```
==============================================================================
Dep. Variable:                  index   No. Observations:              361
Model:           SARIMAX(0, 1, 0)   Log Likelihood              1601.354
Date:            Thu, 11 Jul 2024   AIC                        -3198.708
Time:                    17:32:47   BIC                        -3190.936
Sample:                         0   HQIC                       -3195.618
                            - 361
Covariance Type:              opg
==============================================================================
              coef    std err          z      P>|z|      [0.025      0.975]
------------------------------------------------------------------------------
election   -5.69e-08   1.13e-18  -5.03e+10      0.000   -5.69e-08   -5.69e-08
sigma2     8.043e-06   1.37e-07     58.692      0.000    7.77e-06    8.31e-06
===================================================================================
Ljung-Box (L1) (Q):                   1.44   Jarque-Bera (JB):         20170.15
Prob(Q):                              0.23   Prob(JB):                     0.00
Heteroskedasticity (H): 9143480758936800003813998592.00   Skew:         0.79
Prob(H) (two-sided):                  0.00   Kurtosis:                    39.64
===================================================================================
```
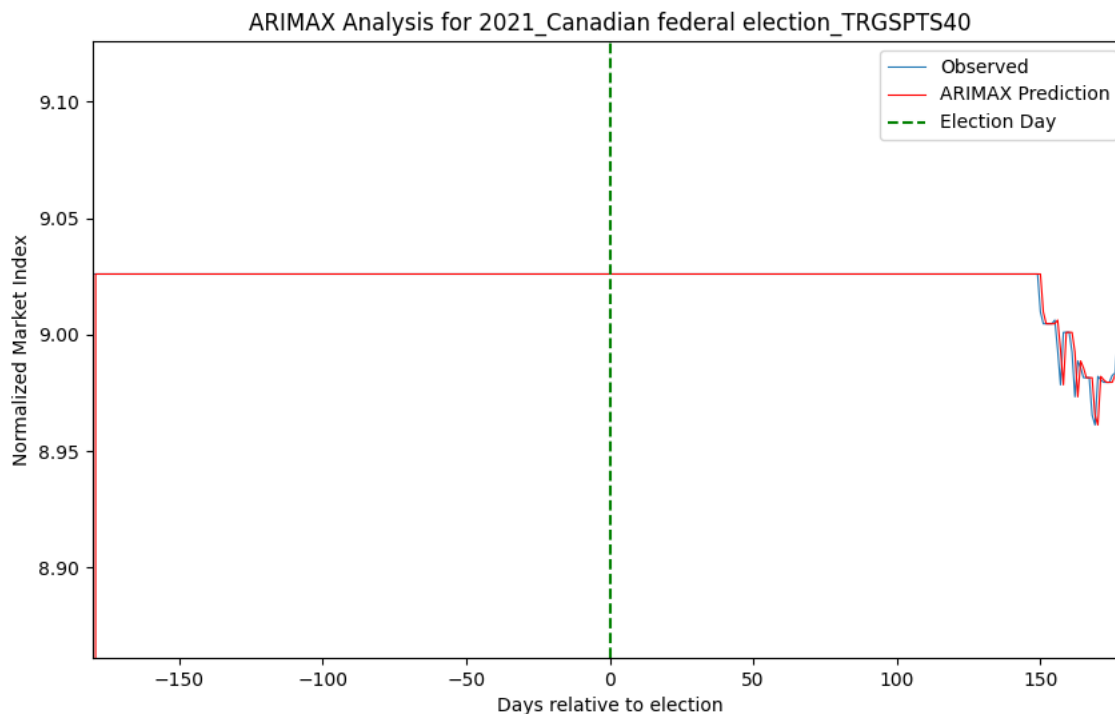
Warnings:
[1] Covariance matrix calculated using the outer product of gradients (complex-step).
[2] Covariance matrix is singular or near-singular, with condition number 1.91e+27. Standard errors may be unstable.

ARIMAX Analysis for 2021_Canadian federal election_TRGSPTS40

ARIMAX Analysis for 2021_Norwegian parliamentary election_OFING

```
                    SARIMAX Results
==============================================================================
Dep. Variable:              index   No. Observations:             361
Model:           SARIMAX(0, 1, 0)   Log Likelihood            1190.111
Date:            Thu, 11 Jul 2024   AIC                       -2376.222
Time:                    17:32:48   BIC                       -2368.450
Sample:                         0   HQIC                      -2373.132
                            - 361
Covariance Type:              opg
==============================================================================
                 coef    std err          z      P>|z|      [0.025      0.975]
------------------------------------------------------------------------------
election       0.0024   4.32e-17   5.53e+13      0.000       0.002       0.002
sigma2      7.87e-05   2.86e-06     27.564      0.000    7.31e-05    8.43e-05
===================================================================================
Ljung-Box (L1) (Q):                1.28   Jarque-Bera (JB):              718.46
Prob(Q):                           0.26   Prob(JB):                        0.00
Heteroskedasticity (H):            1.95   Skew:                           -1.05
Prob(H) (two-sided):               0.00   Kurtosis:                        9.59
===================================================================================
```
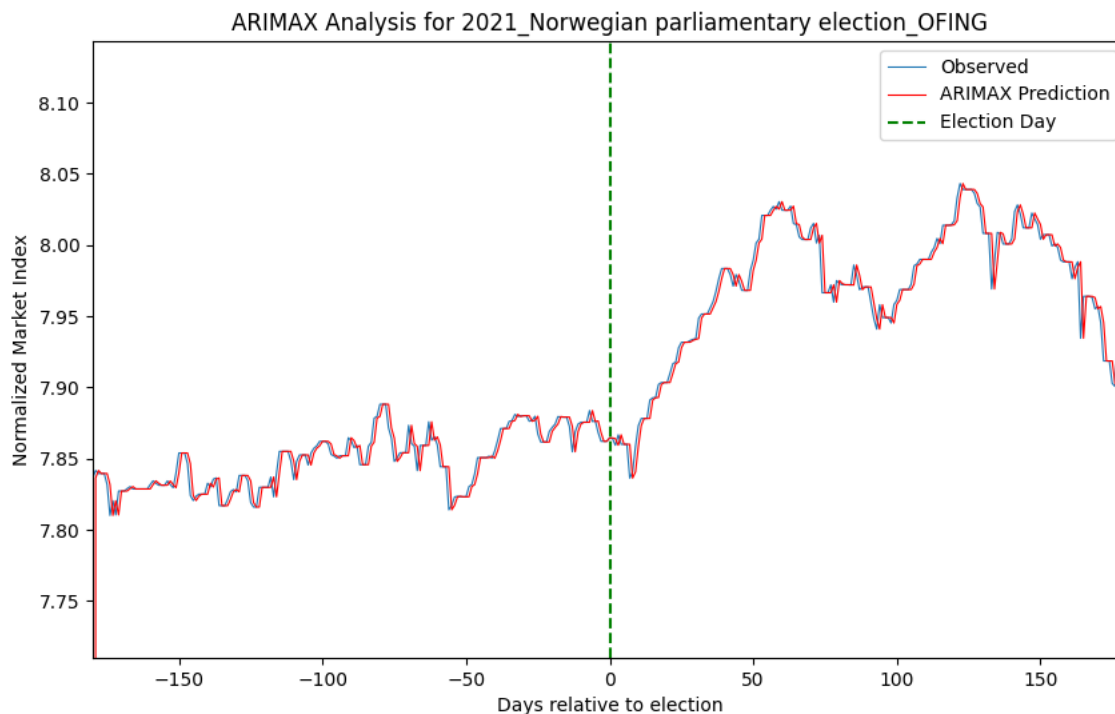
Warnings:
[1] Covariance matrix calculated using the outer product of gradients (complex-step).
[2] Covariance matrix is singular or near-singular, with condition number 9.17e+26. Standard errors may be unstable.

ARIMAX Analysis for 2021_Norwegian parliamentary election_OFING

ARIMAX Analysis for 2021_Dutch general election_NLFIN

SARIMAX Results

```
==============================================================================
Dep. Variable:                  index   No. Observations:              361
Model:             SARIMAX(0, 1, 0)   Log Likelihood             1102.186
Date:              Thu, 11 Jul 2024   AIC                       -2200.373
Time:                      17:32:49   BIC                       -2192.600
Sample:                           0   HQIC                      -2197.282
                              - 361
Covariance Type:                opg
==============================================================================
                 coef    std err          z      P>|z|      [0.025      0.975]
------------------------------------------------------------------------------
election       0.0024   1.88e-16   1.28e+13      0.000       0.002       0.002
sigma2         0.0001   4.45e-06     28.841      0.000       0.000       0.000
===================================================================================
Ljung-Box (L1) (Q):                 0.29   Jarque-Bera (JB):            787.63
Prob(Q):                            0.59   Prob(JB):                      0.00
Heteroskedasticity (H):             0.25   Skew:                          0.72
Prob(H) (two-sided):                0.00   Kurtosis:                     10.10
===================================================================================
```

Warnings:
[1] Covariance matrix calculated using the outer product of gradients (complex-step).
[2] Covariance matrix is singular or near-singular, with condition number 3.98e+26. Standard errors may be unstable.
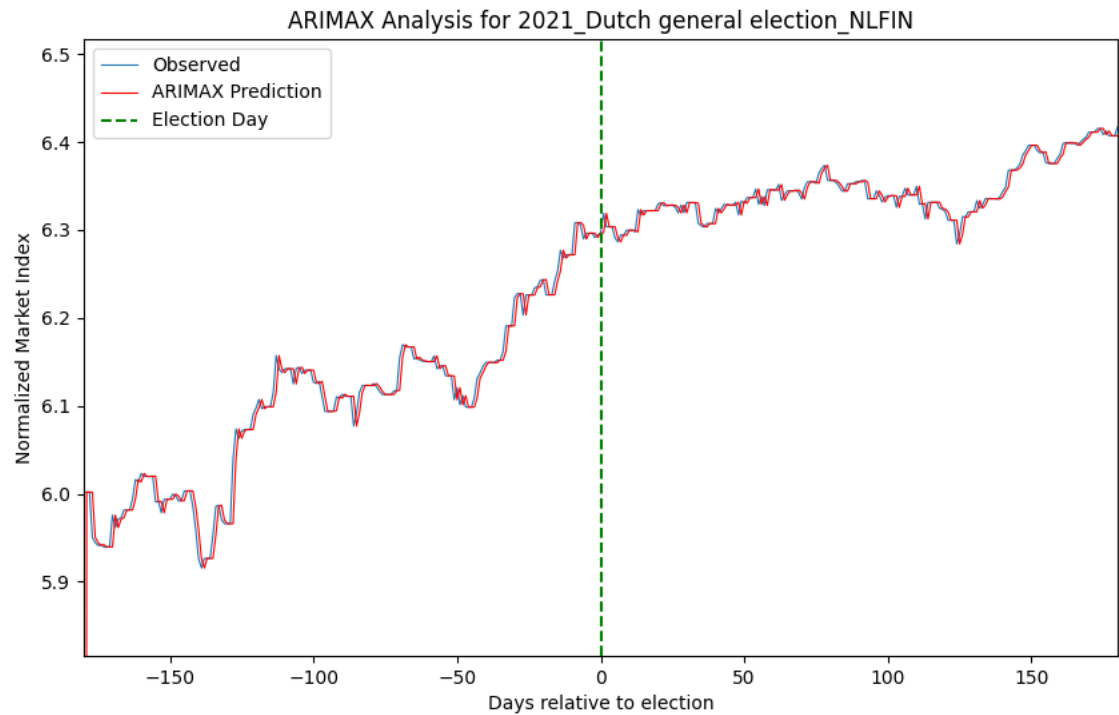
ARIMAX Analysis for 2021_Dutch general election_NLFIN

ARIMAX Analysis for 2020_United States presidential election_NYK

SARIMAX Results

```
==============================================================================
Dep. Variable:                    index   No. Observations:          361
Model:              SARIMAX(0, 1, 0)   Log Likelihood          1065.588
Date:               Thu, 11 Jul 2024   AIC                     -2127.176
Time:                       17:32:49   BIC                     -2119.404
Sample:                            0   HQIC                    -2124.086
                               - 361
Covariance Type:                 opg
==============================================================================
                coef    std err          z      P>|z|      [0.025      0.975]
------------------------------------------------------------------------------
election      0.0233   1.34e-16   1.74e+14      0.000       0.023       0.023
sigma2        0.0002   5.37e-06     29.255      0.000       0.000       0.000
===================================================================================
Ljung-Box (L1) (Q):                0.32   Jarque-Bera (JB):          876.38
Prob(Q):                           0.57   Prob(JB):                    0.00
Heteroskedasticity (H):            0.31   Skew:                       -0.03
Prob(H) (two-sided):               0.00   Kurtosis:                   10.64
===================================================================================
```
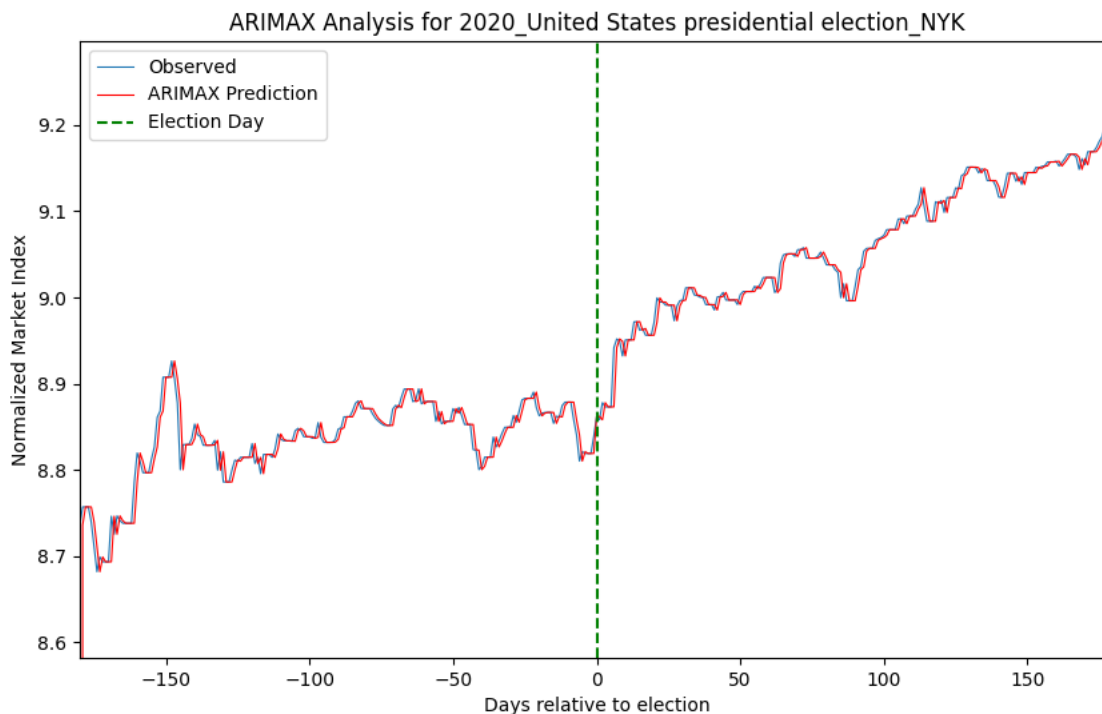
Warnings:
[1] Covariance matrix calculated using the outer product of gradients (complex-step).
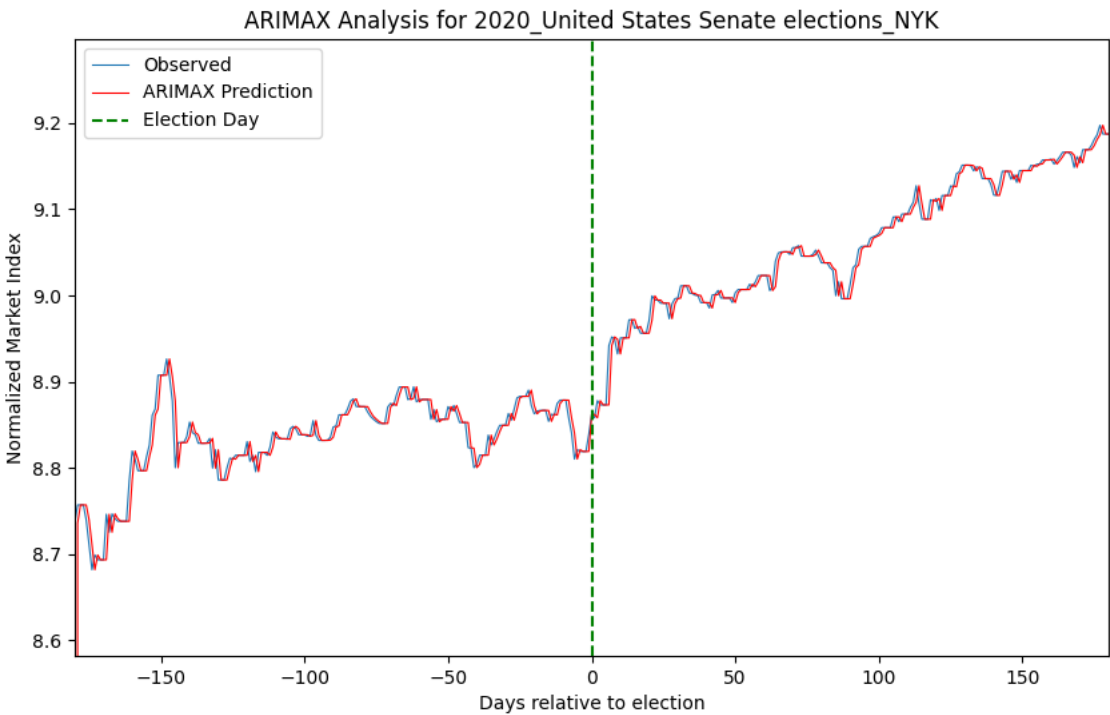[2] Covariance matrix is singular or near-singular, with condition number 1.5e+26. Standard errors may be unstable.

ARIMAX Analysis for 2020_United States presidential election_NYK

ARIMAX Analysis for 2020_United States Senate elections_NYK

SARIMAX Results

```
==============================================================================
Dep. Variable:                 index   No. Observations:           361
Model:            SARIMAX(0, 1, 0)   Log Likelihood          1065.588
Date:            Thu, 11 Jul 2024   AIC                     -2127.176
Time:                    17:32:50   BIC                     -2119.404
Sample:                         0   HQIC                    -2124.086
                            - 361
Covariance Type:              opg
==============================================================================
              coef    std err          z      P>|z|      [0.025      0.975]
------------------------------------------------------------------------------
election     0.0233   1.34e-16   1.74e+14      0.000       0.023       0.023
sigma2       0.0002   5.37e-06     29.255      0.000       0.000       0.000
===================================================================================
Ljung-Box (L1) (Q):               0.32   Jarque-Bera (JB):          876.38
Prob(Q):                          0.57   Prob(JB):                    0.00
Heteroskedasticity (H):           0.31   Skew:                       -0.03
Prob(H) (two-sided):              0.00   Kurtosis:                   10.64
===================================================================================
```

Warnings:
[1] Covariance matrix calculated using the outer product of gradients (complex-step).
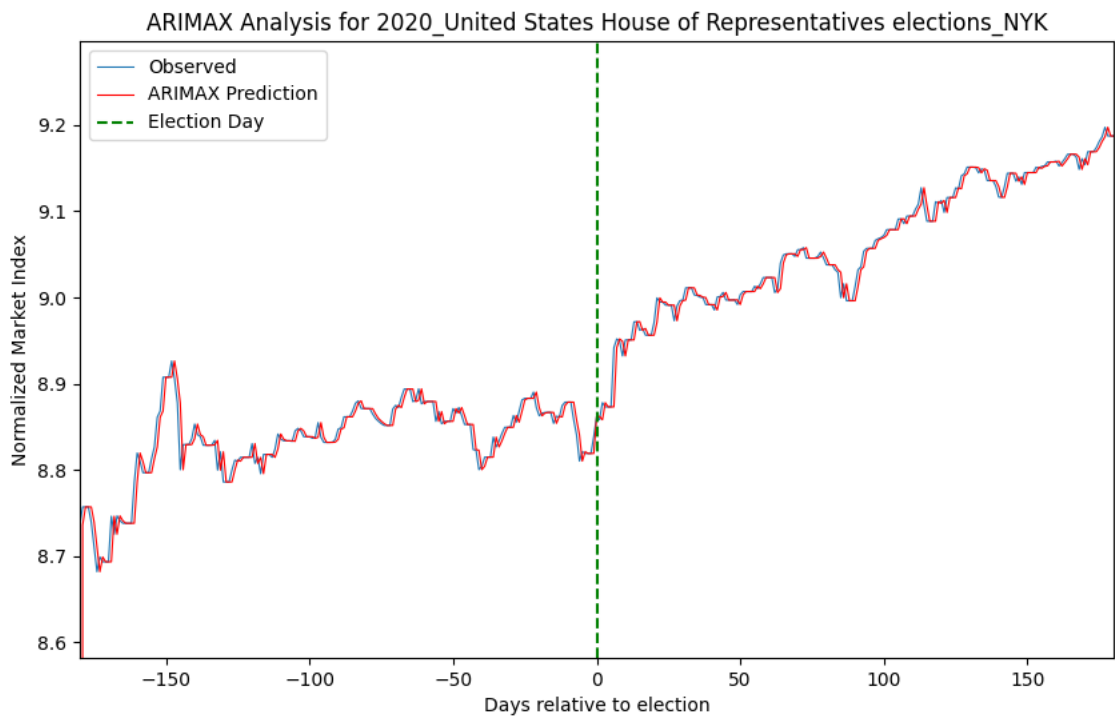[2] Covariance matrix is singular or near-singular, with condition number 1.5e+26. Standard errors may be unstable.

ARIMAX Analysis for 2020_United States Senate elections_NYK

ARIMAX Analysis for 2020_United States House of Representatives electic

```
                    SARIMAX Results
==============================================================================
Dep. Variable:                  index   No. Observations:              361
Model:              SARIMAX(0, 1, 0)   Log Likelihood              1065.588
Date:               Thu, 11 Jul 2024   AIC                        -2127.176
Time:                       17:32:50   BIC                        -2119.404
Sample:                            0   HQIC                       -2124.086
                               - 361
Covariance Type:                 opg
==============================================================================
                 coef    std err          z      P>|z|      [0.025      0.975]
------------------------------------------------------------------------------
election       0.0233   1.34e-16   1.74e+14      0.000       0.023       0.023
sigma2         0.0002   5.37e-06     29.255      0.000       0.000       0.000
===================================================================================
Ljung-Box (L1) (Q):                   0.32   Jarque-Bera (JB):           876.38
Prob(Q):                              0.57   Prob(JB):                     0.00
Heteroskedasticity (H):               0.31   Skew:                        -0.03
Prob(H) (two-sided):                  0.00   Kurtosis:                    10.64
===================================================================================
```

Warnings:
[1] Covariance matrix calculated using the outer product of gradients (complex-step).
[2] Covariance matrix is singular or near-singular, with condition number 1.5e+26. Standard errors may be unstable.

ARIMAX Analysis for 2020_United States House of Representatives elections_NYK

ARIMAX Analysis for 2019_Spanish general election_IBEXIB_x

```
                      SARIMAX Results
==============================================================================
Dep. Variable:              index   No. Observations:          361
Model:           SARIMAX(0, 1, 0)   Log Likelihood          1055.611
Date:            Thu, 11 Jul 2024   AIC                    -2107.223
Time:                    17:32:51   BIC                    -2099.451
Sample:                         0   HQIC                   -2104.133
                            - 361
Covariance Type:              opg
==============================================================================
                 coef    std err          z      P>|z|      [0.025      0.975]
------------------------------------------------------------------------------
election    -4.604e-08   7.29e-16  -6.32e+07      0.000   -4.6e-08    -4.6e-08
sigma2          0.0002   9.56e-06     17.376      0.000      0.000       0.000
===================================================================================
Ljung-Box (L1) (Q):               0.16   Jarque-Bera (JB):            29.91
Prob(Q):                          0.69   Prob(JB):                     0.00
Heteroskedasticity (H):           1.52   Skew:                         0.18
Prob(H) (two-sided):              0.02   Kurtosis:                     4.37
===================================================================================

Warnings:
[1] Covariance matrix calculated using the outer product of gradients (complex-step).
[2] Covariance matrix is singular or near-singular, with condition number 2.33e+26. Standard errors may be unstable.
```
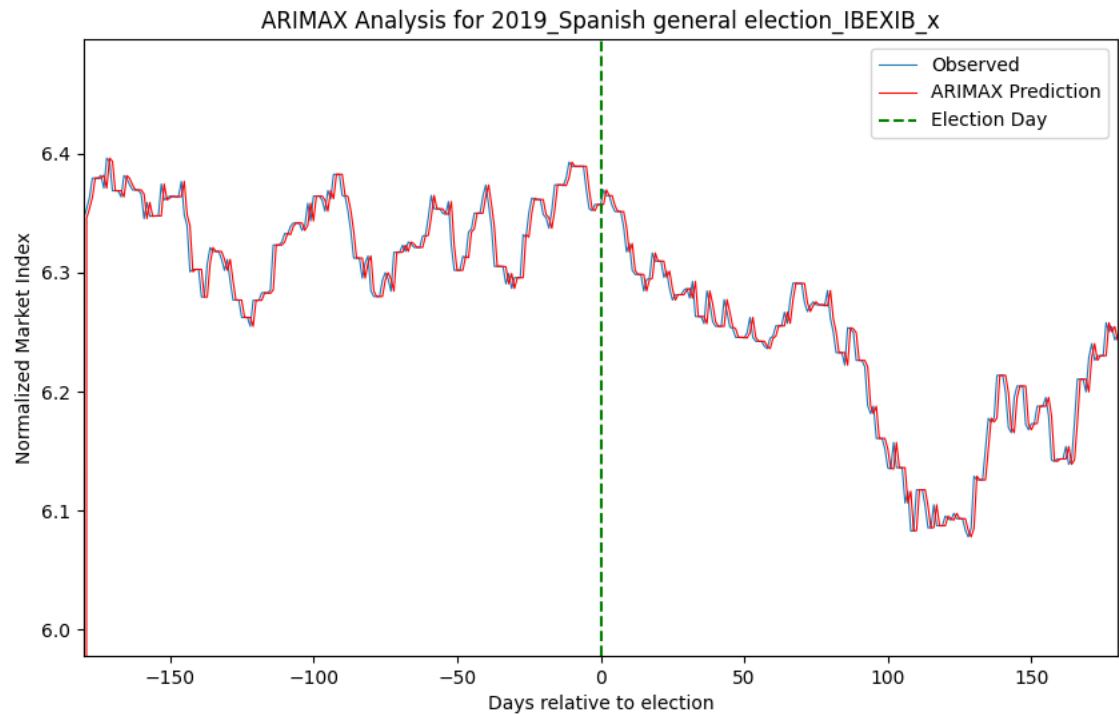

ARIMAX Analysis for 2019_Spanish general election_IBEXIB_x

ARIMAX Analysis for 2019_Spanish general election_IBEXIB_y

```
                        SARIMAX Results
==============================================================================
Dep. Variable:                  index   No. Observations:          361
Model:              SARIMAX(0, 1, 0)   Log Likelihood          862.814
Date:               Thu, 11 Jul 2024   AIC                    -1721.628
Time:                       17:32:51   BIC                    -1713.856
Sample:                            0   HQIC                   -1718.538
                               - 361
Covariance Type:                 opg
==============================================================================
                 coef    std err          z      P>|z|      [0.025      0.975]
------------------------------------------------------------------------------
election   -6.054e-08   2.05e-16  -2.95e+08      0.000   -6.05e-08   -6.05e-08
sigma2         0.0005   1.17e-05     41.507      0.000       0.000       0.001
===================================================================================
Ljung-Box (L1) (Q):                  0.94   Jarque-Bera (JB):          4426.13
Prob(Q):                             0.33   Prob(JB):                     0.00
Heteroskedasticity (H):              6.68   Skew:                        -2.03
Prob(H) (two-sided):                 0.00   Kurtosis:                    19.69
===================================================================================
```

Warnings:
[1] Covariance matrix calculated using the outer product of gradients (complex-step).
[2] Covariance matrix is singular or near-singular, with condition number 2.46e+26. Standard errors may be unstable.
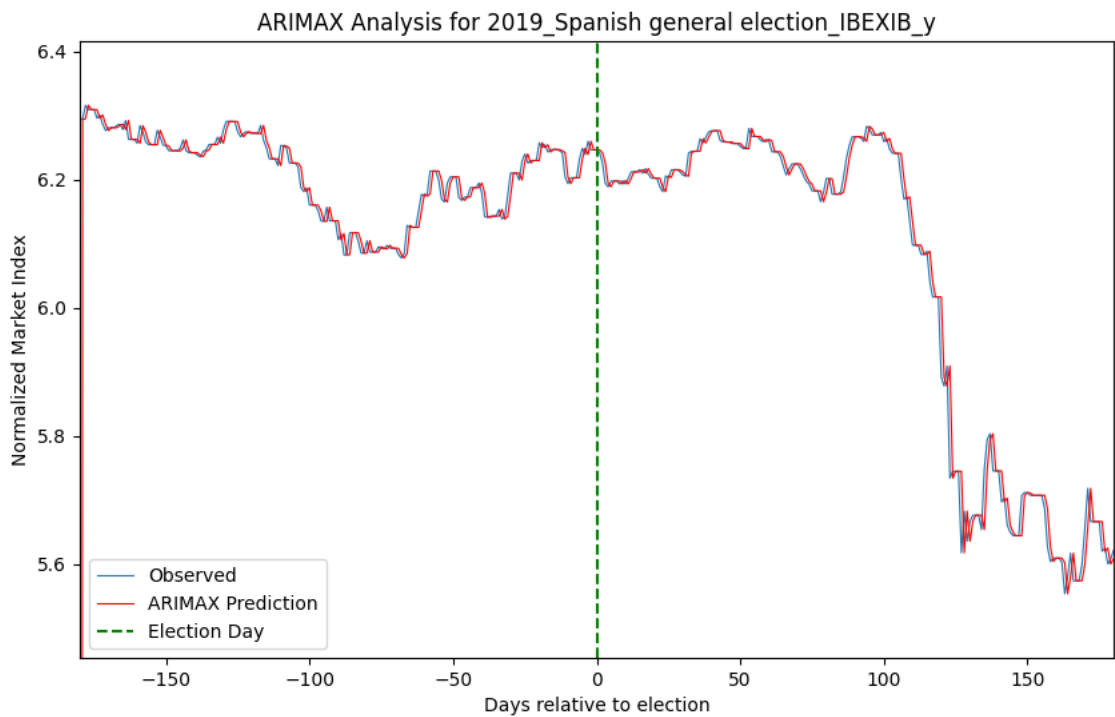
ARIMAX Analysis for 2019_Spanish general election_IBEXIB_y

ARIMAX Analysis for 2019_Portuguese legislative election_PTFIN

SARIMAX Results

```
==============================================================================
Dep. Variable:              index   No. Observations:           361
Model:          SARIMAX(5, 2, 2)   Log Likelihood           906.548
Date:           Thu, 11 Jul 2024   AIC                     -1795.097
Time:                   17:33:01   BIC                     -1760.147
Sample:                        0   HQIC                    -1781.199
                           - 361
Covariance Type:             opg
==============================================================================
              coef    std err          z      P>|z|      [0.025      0.975]
------------------------------------------------------------------------------
election    -0.0119      0.030     -0.400      0.689      -0.070       0.046
ar.L1       -0.8511      0.169     -5.050      0.000      -1.181      -0.521
ar.L2       -0.1544      0.076     -2.023      0.043      -0.304      -0.005
ar.L3        0.1991      0.071      2.796      0.005       0.060       0.339
ar.L4        0.3408      0.067      5.080      0.000       0.209       0.472
ar.L5        0.2352      0.040      5.943      0.000       0.158       0.313
ma.L1       -0.2932      0.174     -1.683      0.092      -0.635       0.048
ma.L2       -0.6492      0.166     -3.905      0.000      -0.975      -0.323
sigma2       0.0004   1.79e-05     20.541      0.000       0.000       0.000
===================================================================================
Ljung-Box (L1) (Q):                0.15   Jarque-Bera (JB):            564.56
Prob(Q):                           0.69   Prob(JB):                      0.00
Heteroskedasticity (H):            2.75   Skew:                         -1.00
Prob(H) (two-sided):               0.00   Kurtosis:                      8.81
===================================================================================
```
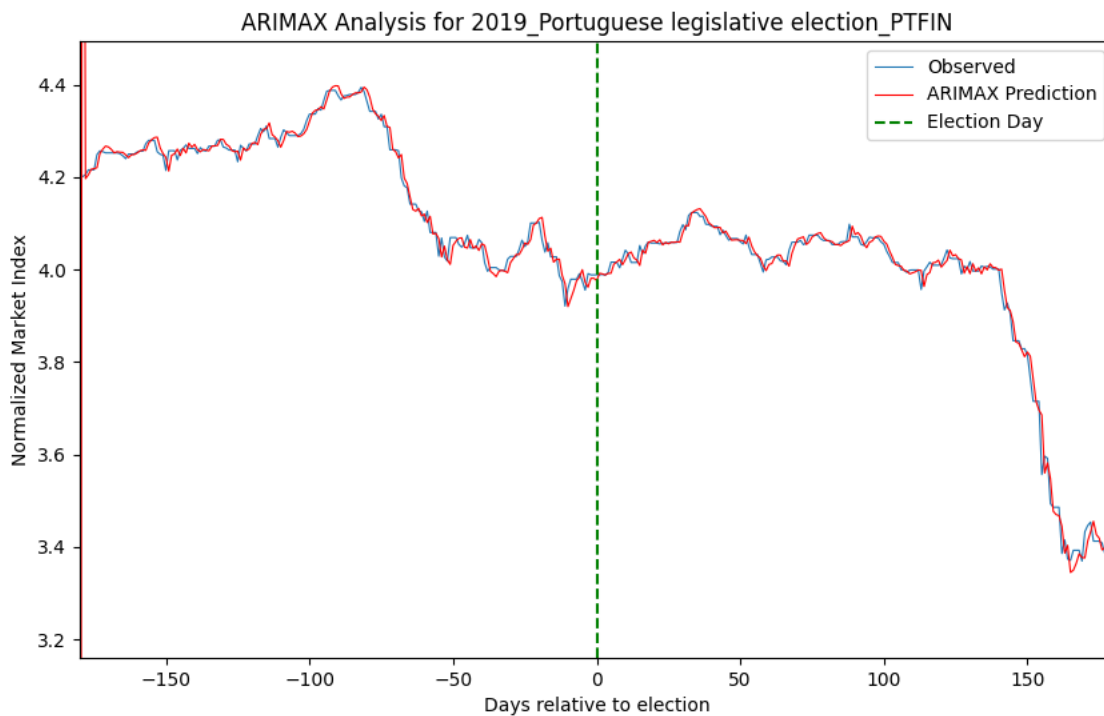
Warnings:
[1] Covariance matrix calculated using the outer product of gradients (complex-step).

ARIMAX Analysis for 2019_Portuguese legislative election_PTFIN

ARIMAX Analysis for 2019_Greek legislative election_FTATBNK

```
                    SARIMAX Results
================================================================================
Dep. Variable:              index   No. Observations:             361
Model:          SARIMAX(0, 1, 0)   Log Likelihood            841.825
Date:           Thu, 11 Jul 2024   AIC                     -1679.649
Time:                   17:33:02   BIC                     -1671.877
Sample:                        0   HQIC                    -1676.559
                           - 361
Covariance Type:             opg
================================================================================
                 coef    std err          z      P>|z|      [0.025      0.975]
--------------------------------------------------------------------------------
election   -4.715e-08   1.08e-15  -4.35e+07      0.000   -4.71e-08   -4.71e-08
sigma2         0.0005   2.39e-05     22.800      0.000       0.000       0.001
===================================================================================
Ljung-Box (L1) (Q):               1.54   Jarque-Bera (JB):            213.97
Prob(Q):                          0.21   Prob(JB):                      0.00
Heteroskedasticity (H):           0.48   Skew:                          0.32
Prob(H) (two-sided):              0.00   Kurtosis:                      6.72
===================================================================================
```

Warnings:
[1] Covariance matrix calculated using the outer product of gradients (complex-step).
[2] Covariance matrix is singular or near-singular, with condition number 5.49e+26. Standard errors may be unstable.
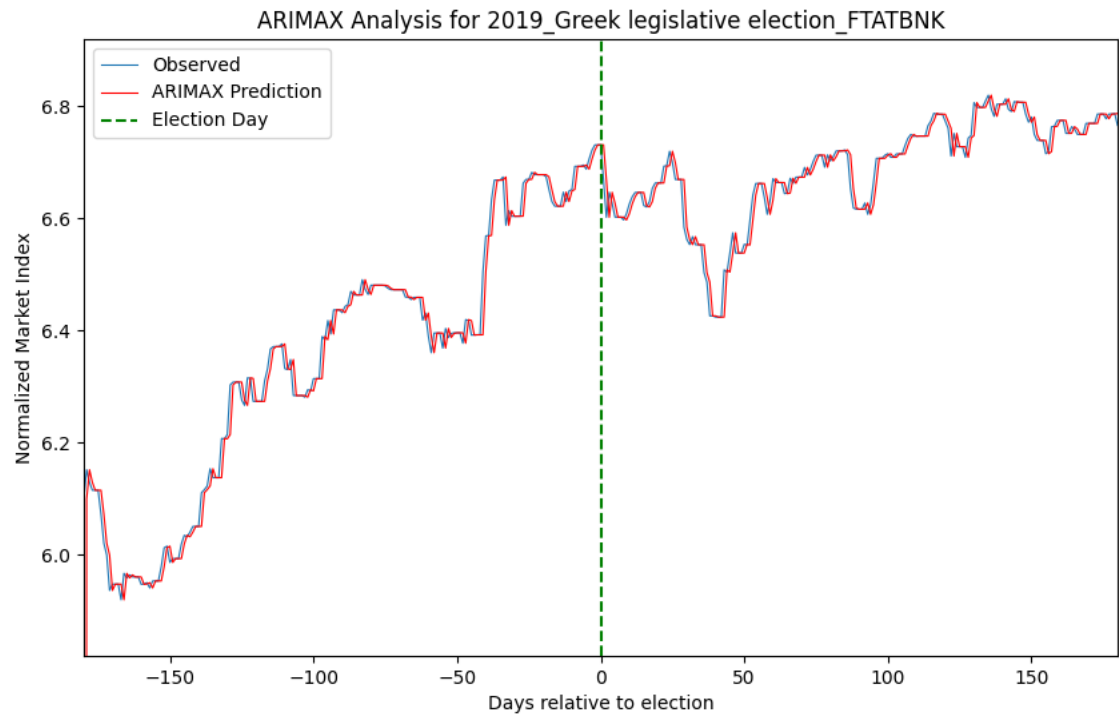
ARIMAX Analysis for 2019_Greek legislative election_FTATBNK

ARIMAX Analysis for 2019_Belgian federal election_BEFIN

```
                      SARIMAX Results
================================================================================
Dep. Variable:                  index   No. Observations:              361
Model:            SARIMAX(0, 1, 0)   Log Likelihood            1219.542
Date:            Thu, 11 Jul 2024   AIC                      -2435.084
Time:                    17:33:03   BIC                      -2427.312
Sample:                        0   HQIC                     -2431.993
                           - 361
Covariance Type:             opg
================================================================================
                 coef    std err          z      P>|z|      [0.025      0.975]
--------------------------------------------------------------------------------
election     -5.206e-08   1.92e-16  -2.71e+08      0.000   -5.21e-08   -5.21e-08
sigma2        6.693e-05   3.21e-06     20.845      0.000    6.06e-05    7.32e-05
===================================================================================
Ljung-Box (L1) (Q):                0.92   Jarque-Bera (JB):            137.49
Prob(Q):                           0.34   Prob(JB):                     0.00
Heteroskedasticity (H):            0.75   Skew:                        -0.40
Prob(H) (two-sided):               0.11   Kurtosis:                     5.92
===================================================================================
```
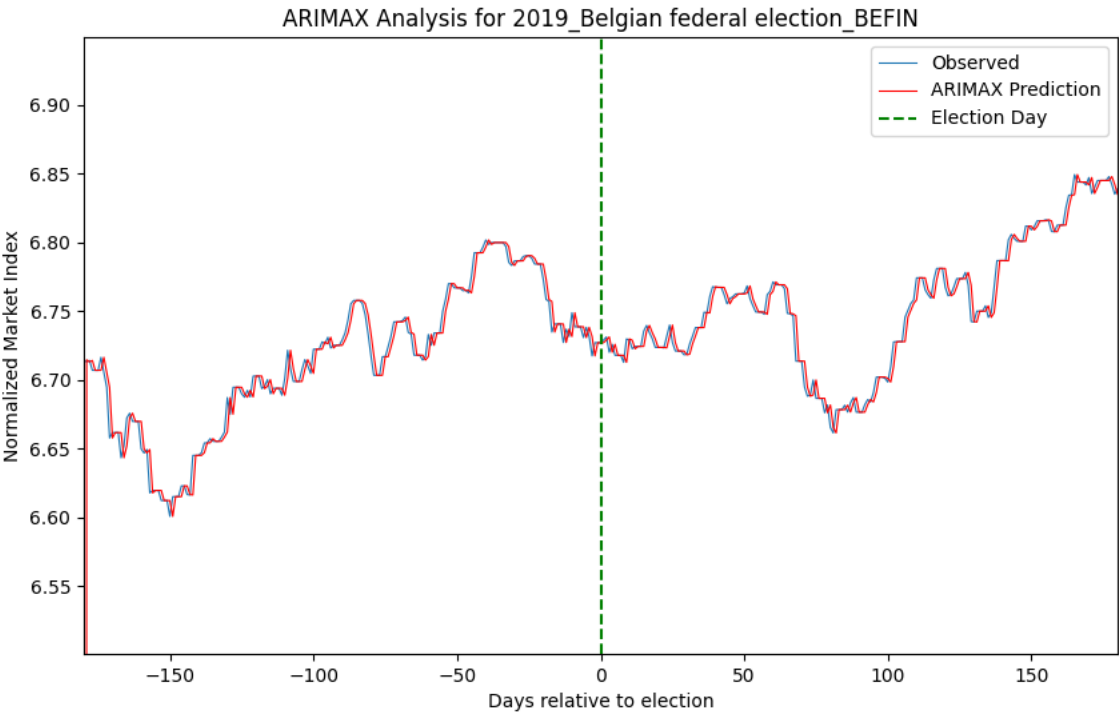
Warnings:
[1] Covariance matrix calculated using the outer product of gradients (complex-step).
[2] Covariance matrix is singular or near-singular, with condition number 1.03e+26. Standard errors may be unstable.


ARIMAX Analysis for 2019_Belgian federal election_BEFIN

ARIMAX Analysis for 2019_Danish general election_OMXC20

```
                    SARIMAX Results
================================================================================
Dep. Variable:            index   No. Observations:            361
Model:        SARIMAX(0, 1, 0)   Log Likelihood          1251.714
Date:         Thu, 11 Jul 2024   AIC                     -2499.429
Time:                 17:33:03   BIC                     -2491.657
Sample:                      0   HQIC                    -2496.338
                         - 361
Covariance Type:           opg
================================================================================
            coef    std err      z     P>|z|    [0.025    0.975]
------------------------------------------------------------------------
election  -3.471e-08  1.43e-16  -2.43e+08   0.000  -3.47e-08  -3.47e-08
sigma2     5.588e-05  2.95e-06    18.940    0.000   5.01e-05   6.17e-05
===================================================================================
Ljung-Box (L1) (Q):           1.12   Jarque-Bera (JB):          60.95
Prob(Q):                      0.29   Prob(JB):                   0.00
Heteroskedasticity (H):       1.46   Skew:                      -0.05
Prob(H) (two-sided):          0.04   Kurtosis:                   5.01
===================================================================================
```

Warnings:
[1] Covariance matrix calculated using the outer product of gradients (complex-step).
[2] Covariance matrix is singular or near-singular, with condition number 2.44e+26. Standard errors may be unstable.
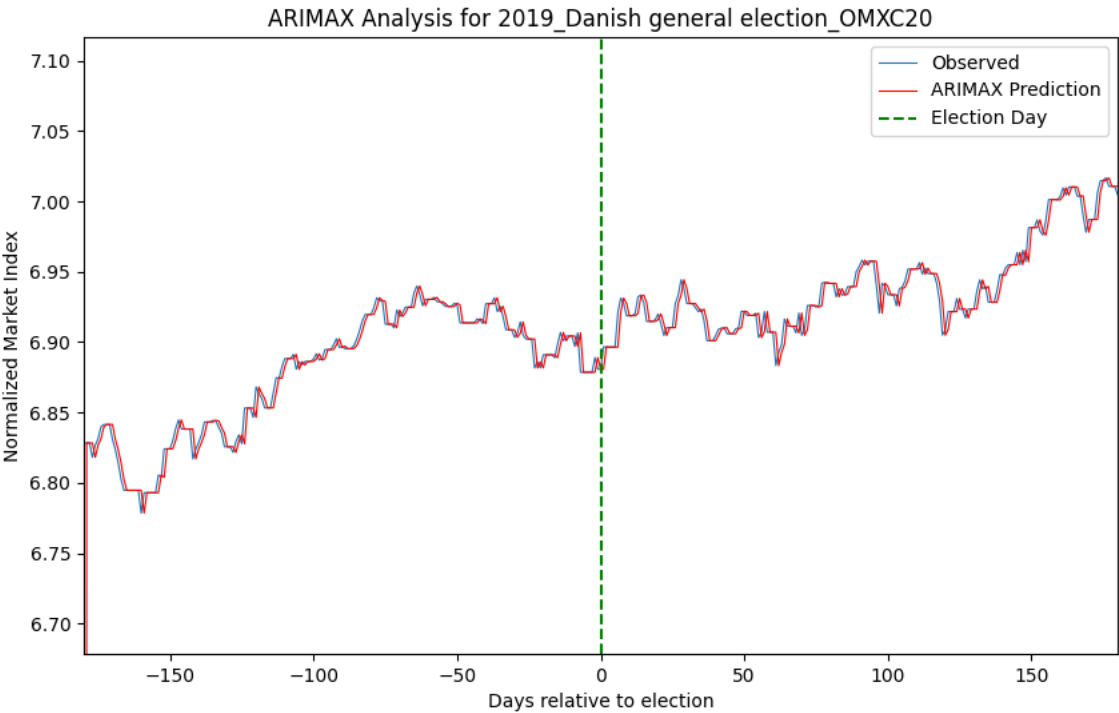
ARIMAX Analysis for 2019_Danish general election_OMXC20

ARIMAX Analysis for 2019_Finnish parliamentary election_N3020PI

SARIMAX Results

```
==============================================================================
Dep. Variable:                  index   No. Observations:          361
Model:            SARIMAX(0, 1, 0)   Log Likelihood          1192.748
Date:            Thu, 11 Jul 2024   AIC                     -2381.497
Time:                   17:33:04   BIC                     -2373.724
Sample:                        0   HQIC                    -2378.406
                           - 361
Covariance Type:             opg
==============================================================================
              coef    std err        z     P>|z|    [0.025    0.975]
------------------------------------------------------------------------------
election   -3.511e-08  1.61e-16  -2.18e+08   0.000  -3.51e-08  -3.51e-08
sigma2      7.749e-05   3.8e-06    20.375    0.000     7e-05   8.49e-05
===================================================================================
Ljung-Box (L1) (Q):              0.07   Jarque-Bera (JB):        124.16
Prob(Q):                         0.79   Prob(JB):                  0.00
Heteroskedasticity (H):          0.77   Skew:                     -0.54
Prob(H) (two-sided):             0.14   Kurtosis:                  5.66
===================================================================================
```

Warnings:
[1] Covariance matrix calculated using the outer product of gradients (complex-step).
[2] Covariance matrix is singular or near-singular, with condition number 1.02e+27. Standard errors may be unstable.
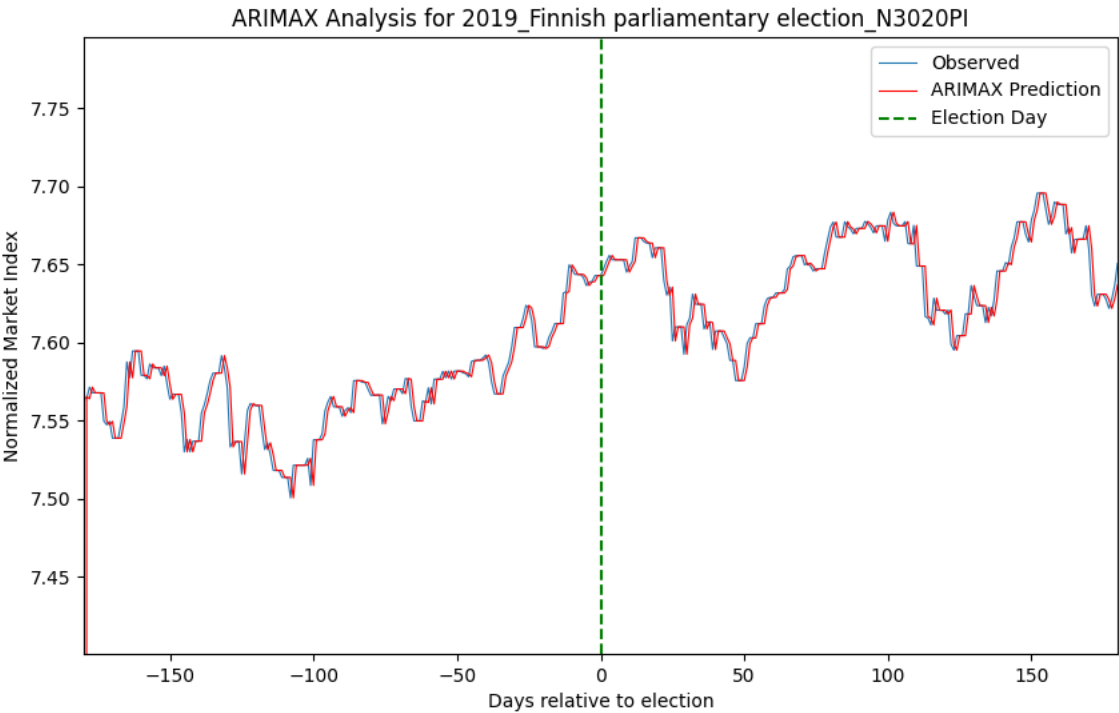
ARIMAX Analysis for 2019_Finnish parliamentary election_N3020PI

ARIMAX Analysis for 2019_Spanish general election_IBEXIB

```
                          SARIMAX Results
==============================================================================
Dep. Variable:                  index   No. Observations:             361
Model:              SARIMAX(0, 1, 0)   Log Likelihood           1055.611
Date:               Thu, 11 Jul 2024   AIC                      -2107.223
Time:                       17:33:05   BIC                      -2099.451
Sample:                            0   HQIC                     -2104.133
                               - 361
Covariance Type:                 opg
==============================================================================
               coef    std err          z      P>|z|      [0.025      0.975]
------------------------------------------------------------------------------
election   -4.604e-08   7.29e-16  -6.32e+07      0.000   -4.6e-08    -4.6e-08
sigma2        0.0002   9.56e-06     17.376      0.000      0.000       0.000
===================================================================================
Ljung-Box (L1) (Q):               0.16   Jarque-Bera (JB):            29.91
Prob(Q):                          0.69   Prob(JB):                     0.00
Heteroskedasticity (H):           1.52   Skew:                         0.18
Prob(H) (two-sided):              0.02   Kurtosis:                     4.37
===================================================================================
```

Warnings:
[1] Covariance matrix calculated using the outer product of gradients (complex-step).
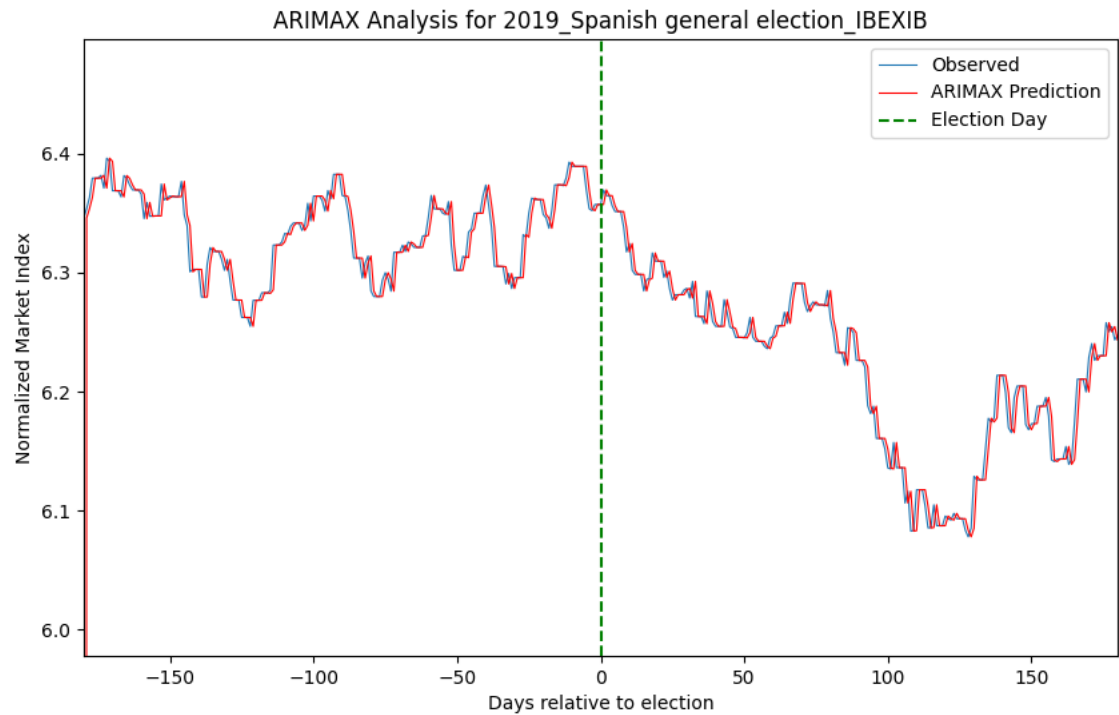[2] Covariance matrix is singular or near-singular, with condition number 2.33e+26. Standard errors may be unstable.

ARIMAX Analysis for 2019_Spanish general election_IBEXIB

ARIMAX Analysis for 2018_Swedish general election_SX3010GI

SARIMAX Results

```
==============================================================================
Dep. Variable:                 index   No. Observations:           361
Model:             SARIMAX(0, 1, 0)   Log Likelihood          1179.187
Date:              Thu, 11 Jul 2024   AIC                     -2354.373
Time:                      17:33:05   BIC                     -2346.601
Sample:                           0   HQIC                    -2351.283
                              - 361
Covariance Type:                opg
==============================================================================
              coef    std err          z      P>|z|      [0.025      0.975]
------------------------------------------------------------------------------
election   -3.861e-08   8.86e-17  -4.36e+08      0.000   -3.86e-08   -3.86e-08
sigma2      8.374e-05   3.18e-06     26.329      0.000    7.75e-05       9e-05
===================================================================================
Ljung-Box (L1) (Q):                   0.05   Jarque-Bera (JB):          557.03
Prob(Q):                              0.82   Prob(JB):                    0.00
Heteroskedasticity (H):               1.62   Skew:                       -1.17
Prob(H) (two-sided):                  0.01   Kurtosis:                    8.63
===================================================================================
```

Warnings:
[1] Covariance matrix calculated using the outer product of gradients (complex-step).
[2] Covariance matrix is singular or near-singular, with condition number 1.25e+26. Standard errors may be unstable.
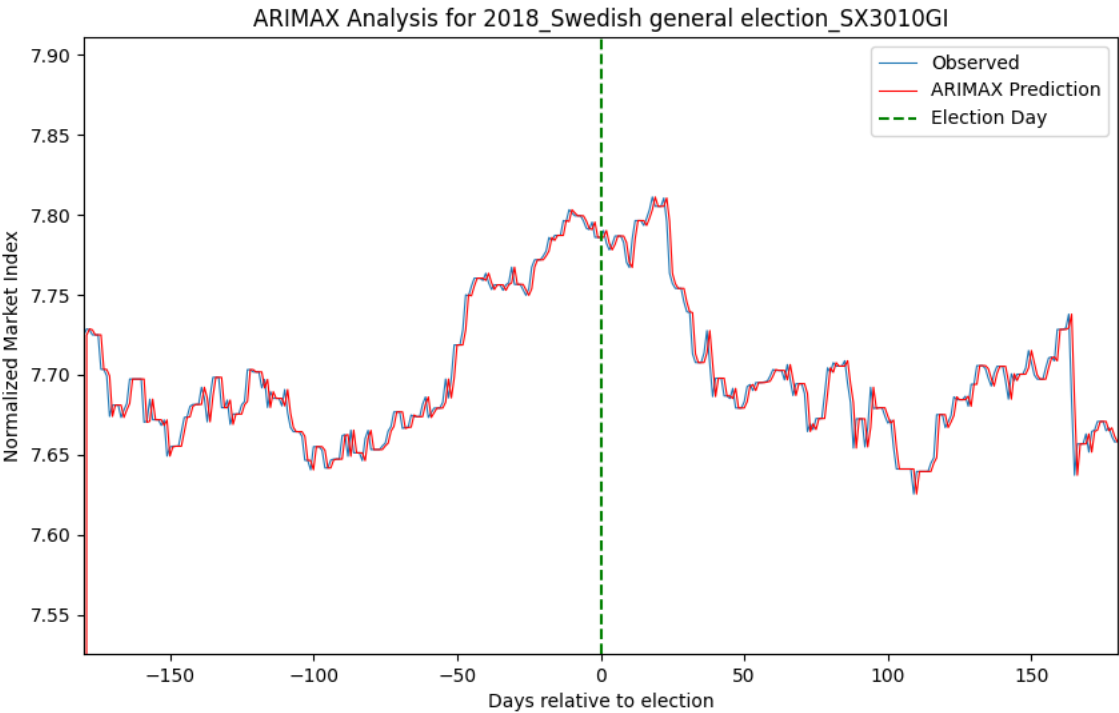
ARIMAX Analysis for 2018_Swedish general election_SX3010GI

ARIMAX Analysis for 2018_Italian general election_FTITLMS30

```
                      SARIMAX Results
==============================================================================
Dep. Variable:                  index   No. Observations:          361
Model:             SARIMAX(0, 1, 0)   Log Likelihood          1139.431
Date:             Thu, 11 Jul 2024   AIC                     -2274.863
Time:                    17:33:06   BIC                     -2267.091
Sample:                         0   HQIC                    -2271.772
                            - 361
Covariance Type:              opg
==============================================================================
              coef    std err      z     P>|z|    [0.025    0.975]
------------------------------------------------------------------------
election  -5.78e-08  2.81e-16  -2.06e+08   0.000  -5.78e-08  -5.78e-08
sigma2      0.0001   4.73e-06    22.062    0.000   9.51e-05    0.000
===================================================================================
Ljung-Box (L1) (Q):            0.29   Jarque-Bera (JB):         175.46
Prob(Q):                       0.59   Prob(JB):                   0.00
Heteroskedasticity (H):        3.47   Skew:                      -0.22
Prob(H) (two-sided):           0.00   Kurtosis:                   6.39
===================================================================================
```

Warnings:
[1] Covariance matrix calculated using the outer product of gradients (complex-step).
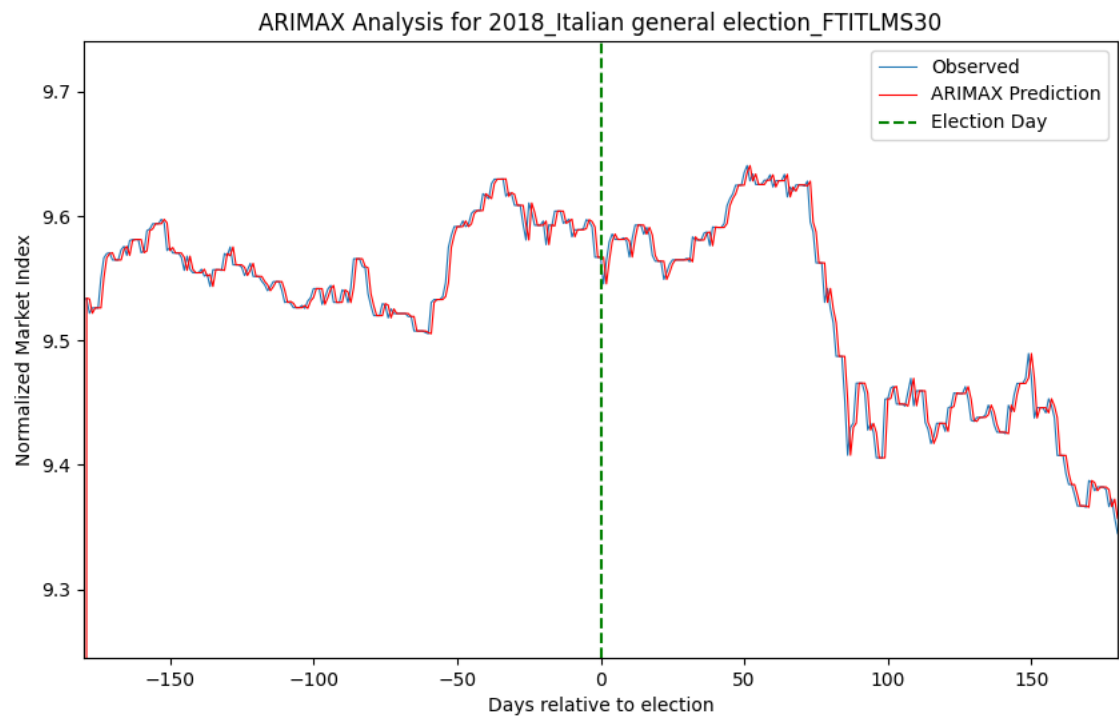[2] Covariance matrix is singular or near-singular, with condition number 2.24e+26. Standard errors may be unstable.

ARIMAX Analysis for 2018_Italian general election_FTITLMS30

ARIMAX Analysis for 2017_German federal election_CXPVX

```
                        SARIMAX Results
================================================================================
Dep. Variable:                index   No. Observations:            361
Model:           SARIMAX(0, 1, 0)   Log Likelihood            1311.380
Date:            Thu, 11 Jul 2024   AIC                       -2618.760
Time:                    17:33:07   BIC                       -2610.988
Sample:                         0   HQIC                      -2615.670
                            - 361
Covariance Type:              opg
================================================================================
              coef    std err         z     P>|z|      [0.025     0.975]
--------------------------------------------------------------------------------
election  -1.199e-07   3.38e-16   -3.55e+08    0.000   -1.2e-07   -1.2e-07
sigma2      4.02e-05   2.09e-06      19.248    0.000   3.61e-05   4.43e-05
===================================================================================
Ljung-Box (L1) (Q):              0.97   Jarque-Bera (JB):             68.81
Prob(Q):                         0.33   Prob(JB):                      0.00
Heteroskedasticity (H):          2.08   Skew:                          0.11
Prob(H) (two-sided):             0.00   Kurtosis:                      5.13
===================================================================================
```

Warnings:
[1] Covariance matrix calculated using the outer product of gradients (complex-step).
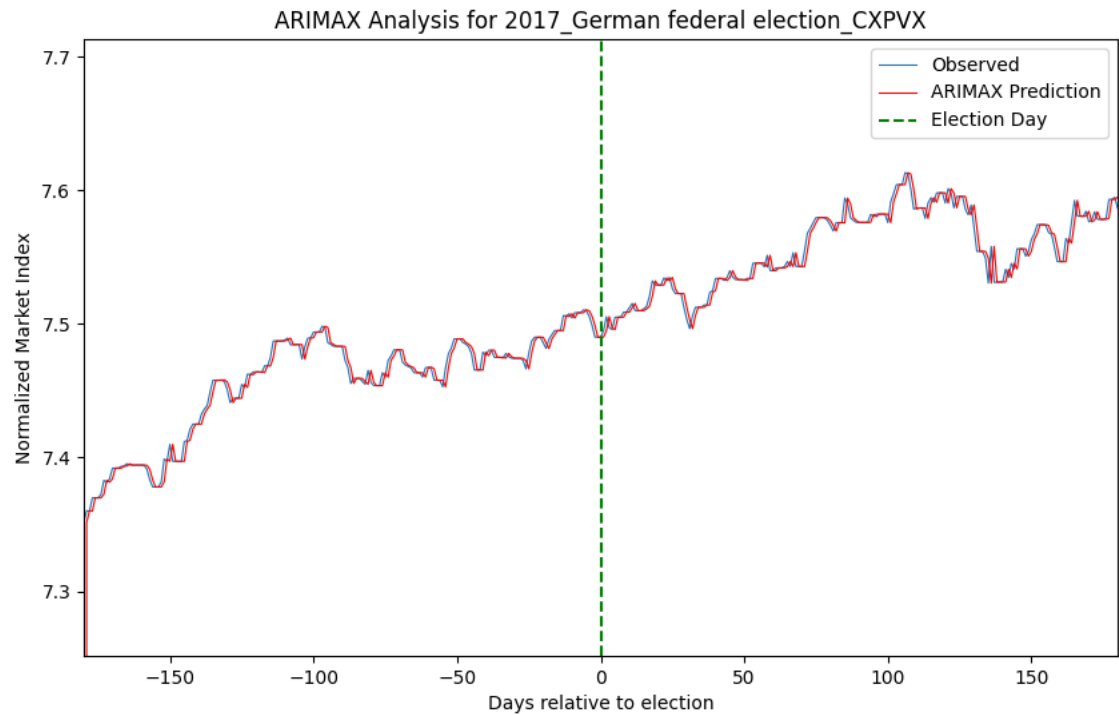[2] Covariance matrix is singular or near-singular, with condition number 1.99e+25. Standard errors may be unstable.

ARIMAX Analysis for 2017_German federal election_CXPVX

ARIMAX Analysis for 2017_French presidential election_FRFNN

```
                      SARIMAX Results
==============================================================================
Dep. Variable:              index   No. Observations:           361
Model:          SARIMAX(1, 1, 0)   Log Likelihood          1231.408
Date:           Thu, 11 Jul 2024   AIC                     -2456.817
Time:                   17:33:08   BIC                     -2445.158
Sample:                        0   HQIC                    -2452.181
                           - 361
Covariance Type:             opg
==============================================================================
               coef    std err          z      P>|z|      [0.025      0.975]
------------------------------------------------------------------------------
election    -0.0105      0.005     -1.964      0.050      -0.021   -2.04e-05
ar.L1        0.1769      0.052      3.426      0.001       0.076       0.278
sigma2    6.253e-05   2.67e-06     23.395      0.000    5.73e-05    6.78e-05
===================================================================================
Ljung-Box (L1) (Q):               0.03   Jarque-Bera (JB):          1259.89
Prob(Q):                          0.87   Prob(JB):                     0.00
Heteroskedasticity (H):           0.47   Skew:                         1.51
Prob(H) (two-sided):              0.00   Kurtosis:                    11.65
===================================================================================
```

Warnings:
[1] Covariance matrix calculated using the outer product of gradients (complex-step).

ARIMAX Analysis for 2017_French presidential election_FRFNN
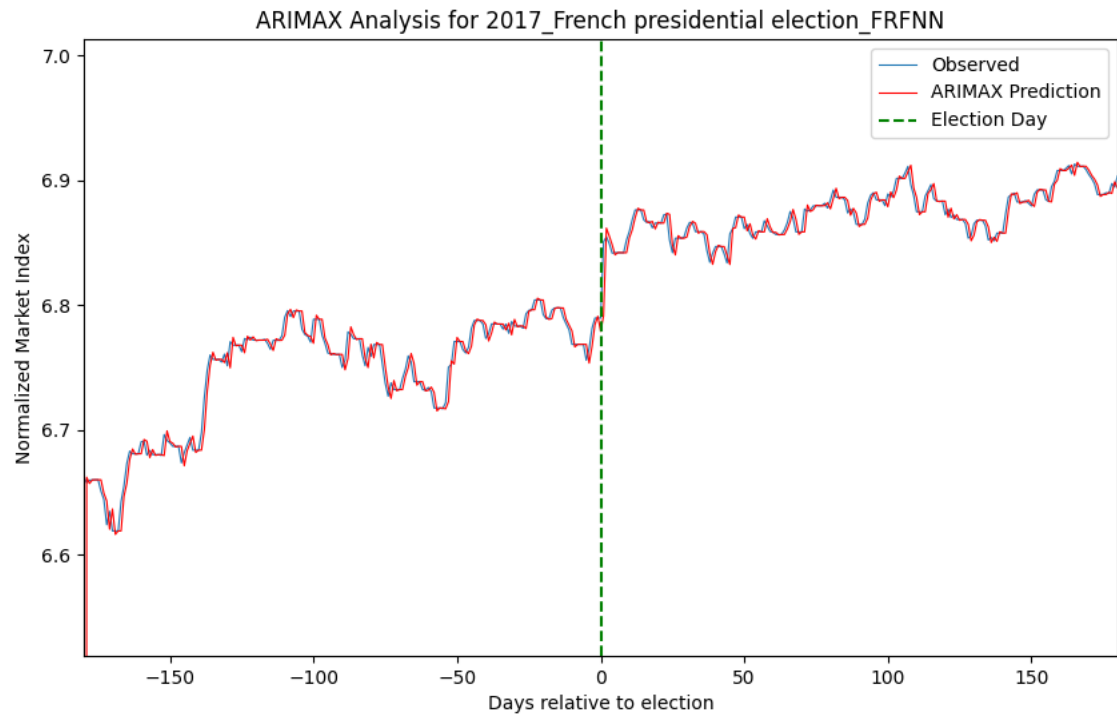
ARIMAX Analysis for 2017_French legislative election_FRFNN

```
                    SARIMAX Results
==============================================================================
Dep. Variable:              index   No. Observations:              361
Model:            SARIMAX(0, 1, 1)   Log Likelihood            1258.204
Date:            Thu, 11 Jul 2024   AIC                      -2510.407
Time:                    17:33:10   BIC                      -2498.749
Sample:                         0   HQIC                     -2505.772
                            - 361
Covariance Type:              opg
==============================================================================
                 coef    std err          z      P>|z|      [0.025      0.975]
------------------------------------------------------------------------------
election      1.901e-06      0.048   3.94e-05      1.000      -0.095       0.095
ma.L1            0.1192      0.066      1.811      0.070      -0.010       0.248
sigma2        5.389e-05   1.45e-06     37.249      0.000    5.11e-05    5.67e-05
===================================================================================
Ljung-Box (L1) (Q):               0.08   Jarque-Bera (JB):          2813.98
Prob(Q):                          0.78   Prob(JB):                     0.00
Heteroskedasticity (H):           0.51   Skew:                         1.92
Prob(H) (two-sided):              0.00   Kurtosis:                    16.15
===================================================================================
```

Warnings:
[1] Covariance matrix calculated using the outer product of gradients (complex-step).

ARIMAX Analysis for 2017_French legislative election_FRFNN
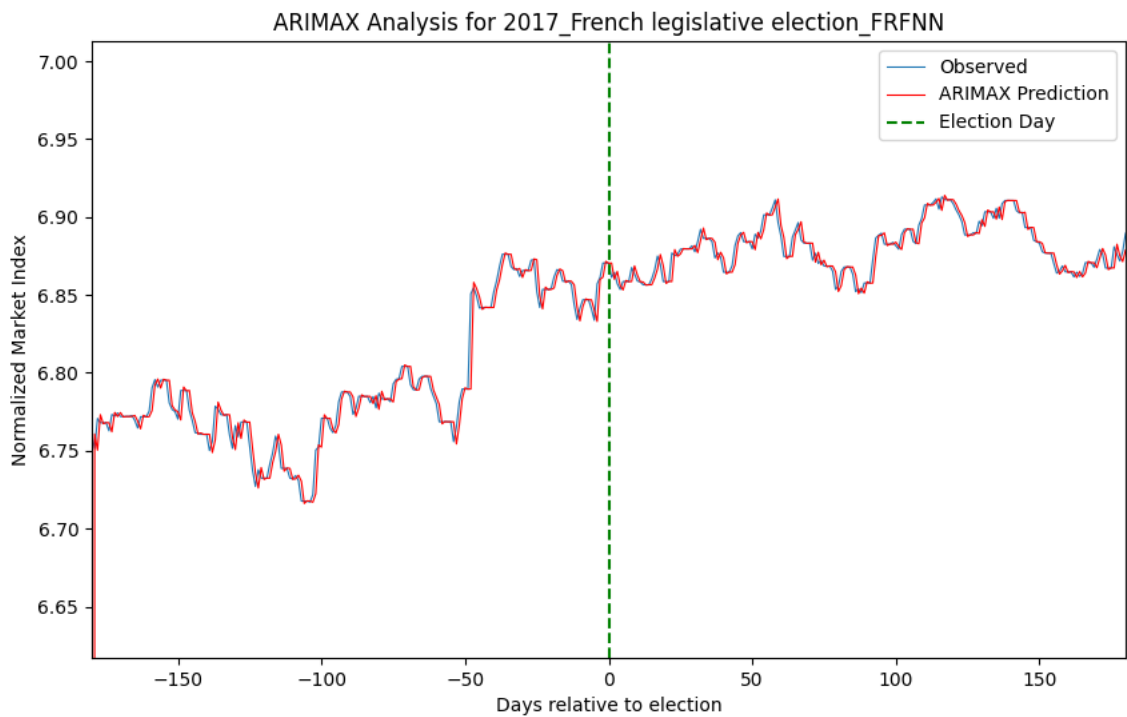
ARIMAX Analysis for 2017_United Kingdom general election_TRINMX3020

```
                    SARIMAX Results
================================================================================
Dep. Variable:              index   No. Observations:          361
Model:          SARIMAX(0, 1, 0)   Log Likelihood          1364.729
Date:          Thu, 11 Jul 2024   AIC                    -2725.457
Time:                  17:33:10   BIC                    -2717.685
Sample:                       0   HQIC                   -2722.367
                          - 361
Covariance Type:            opg
================================================================================
              coef    std err        z      P>|z|     [0.025     0.975]
--------------------------------------------------------------------------------
election    -0.0035   1.05e-16  -3.38e+13   0.000     -0.004     -0.004
sigma2     2.979e-05  1.58e-06    18.797    0.000    2.67e-05   3.29e-05
===================================================================================
Ljung-Box (L1) (Q):           1.66   Jarque-Bera (JB):          57.40
Prob(Q):                      0.20   Prob(JB):                   0.00
Heteroskedasticity (H):       1.81   Skew:                      -0.01
Prob(H) (two-sided):          0.00   Kurtosis:                   4.96
===================================================================================
```

Warnings:
[1] Covariance matrix calculated using the outer product of gradients (complex-step).
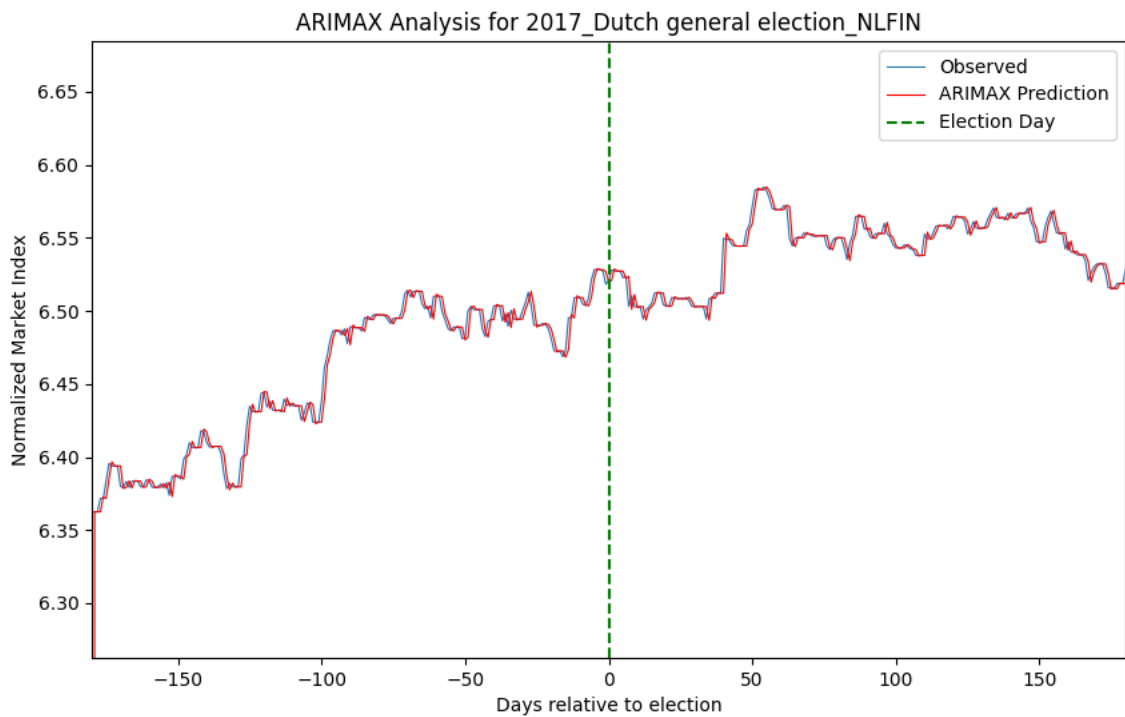[2] Covariance matrix is singular or near-singular, with condition number 2.47e+26. Standard errors may be unstable.
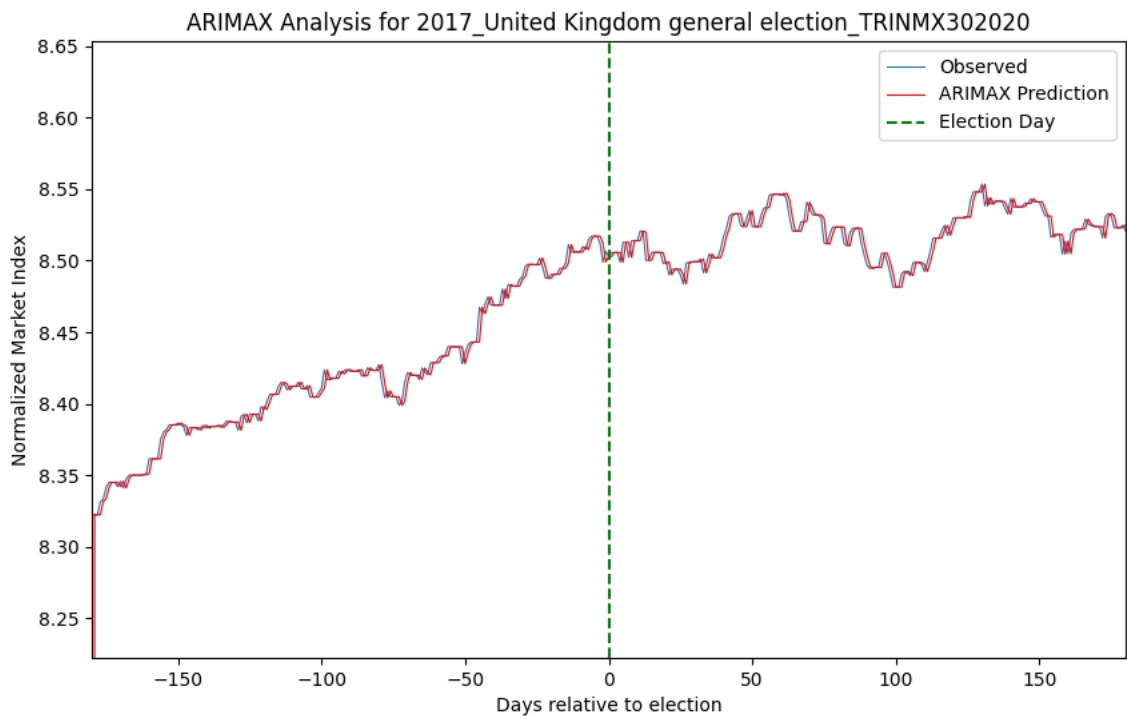
ARIMAX Analysis for 2017_United Kingdom general election_TRINMX302020

ARIMAX Analysis for 2017_Dutch general election_NLFIN

                          SARIMAX Results
==
Dep. Variable: index   No. Observations: 361
Model: SARIMAX(1, 1, 0)   Log Likelihood   1311.774
Date: Thu, 11 Jul 2024   AIC   -2617.548
Time: 17:33:12   BIC   -2605.890
Sample: 0   HQIC   -2612.913
                              - 361
Covariance Type: opg
==
                 coef   std err   z   P>|z| [0.025   0.975]
----
election   0.0025   0.038   0.066   0.947   -0.072   0.077
ar.L1   0.0918   0.055   1.682   0.093   -0.015   0.199
sigma2   4e-05   1.66e-06   24.127   0.000   3.67e-05   4.32e-05
===
Ljung-Box (L1) (Q):   0.04   Jarque-Bera (JB):   329.92
Prob(Q):   0.84   Prob(JB):   0.00
Heteroskedasticity (H):   0.59   Skew: 0.84
Prob(H) (two-sided):   0.00   Kurtosis: 7.37
===

Warnings:
[1] Covariance matrix calculated using the outer product of gradients (complex-step).

ARIMAX Analysis for 2017_Dutch general election_NLFIN

ARIMAX Analysis for 2016_United States presidential election_NYK

```
                    SARIMAX Results
================================================================================
Dep. Variable:              index   No. Observations:              361
Model:          SARIMAX(0, 1, 0)   Log Likelihood             1249.340
Date:           Thu, 11 Jul 2024   AIC                        -2494.680
Time:                   17:33:13   BIC                        -2486.908
Sample:                        0   HQIC                       -2491.590
                           - 361
Covariance Type:             opg
================================================================================
              coef    std err         z     P>|z|    [0.025    0.975]
--------------------------------------------------------------------------------
election    0.0022   1.74e-17   1.26e+14    0.000     0.002     0.002
sigma2    5.663e-05   1.39e-06     40.694    0.000   5.39e-05   5.94e-05
===================================================================================
Ljung-Box (L1) (Q):             1.61   Jarque-Bera (JB):          4524.13
Prob(Q):                        0.20   Prob(JB):                     0.00
Heteroskedasticity (H):         0.34   Skew:                        -1.73
Prob(H) (two-sided):            0.00   Kurtosis:                    20.02
===================================================================================
```
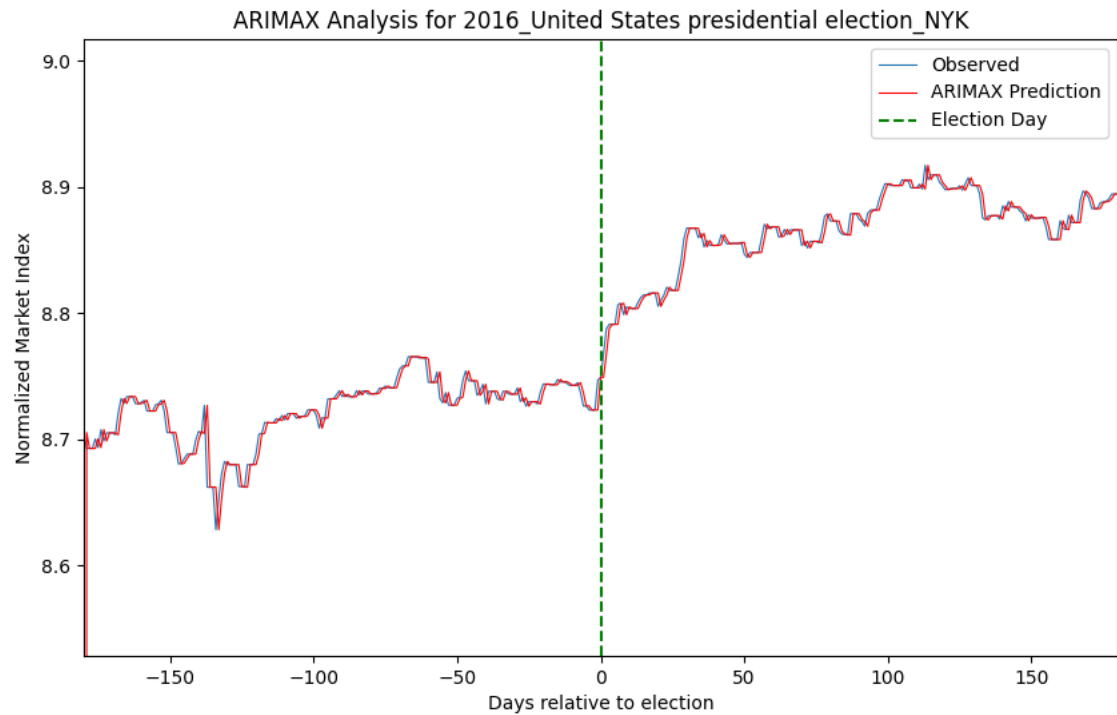
Warnings:
[1] Covariance matrix calculated using the outer product of gradients (complex-step).
[2] Covariance matrix is singular or near-singular, with condition number 4.6e+26. Standard errors may be unstable.

ARIMAX Analysis for 2016_United States presidential election_NYK

ARIMAX Analysis for 2016_United States Senate elections_NYK

```
                  SARIMAX Results
================================================================================
Dep. Variable:              index   No. Observations:            361
Model:           SARIMAX(0, 1, 0)   Log Likelihood          1249.340
Date:           Thu, 11 Jul 2024   AIC                     -2494.680
Time:                   17:33:14   BIC                     -2486.908
Sample:                        0   HQIC                    -2491.590
                           - 361
Covariance Type:             opg
================================================================================
              coef    std err        z     P>|z|     [0.025     0.975]
--------------------------------------------------------------------------------
election    0.0022   1.74e-17   1.26e+14    0.000     0.002      0.002
sigma2    5.663e-05   1.39e-06    40.694     0.000   5.39e-05   5.94e-05
===================================================================================
Ljung-Box (L1) (Q):              1.61   Jarque-Bera (JB):         4524.13
Prob(Q):                         0.20   Prob(JB):                    0.00
Heteroskedasticity (H):          0.34   Skew:                       -1.73
Prob(H) (two-sided):             0.00   Kurtosis:                   20.02
===================================================================================
```
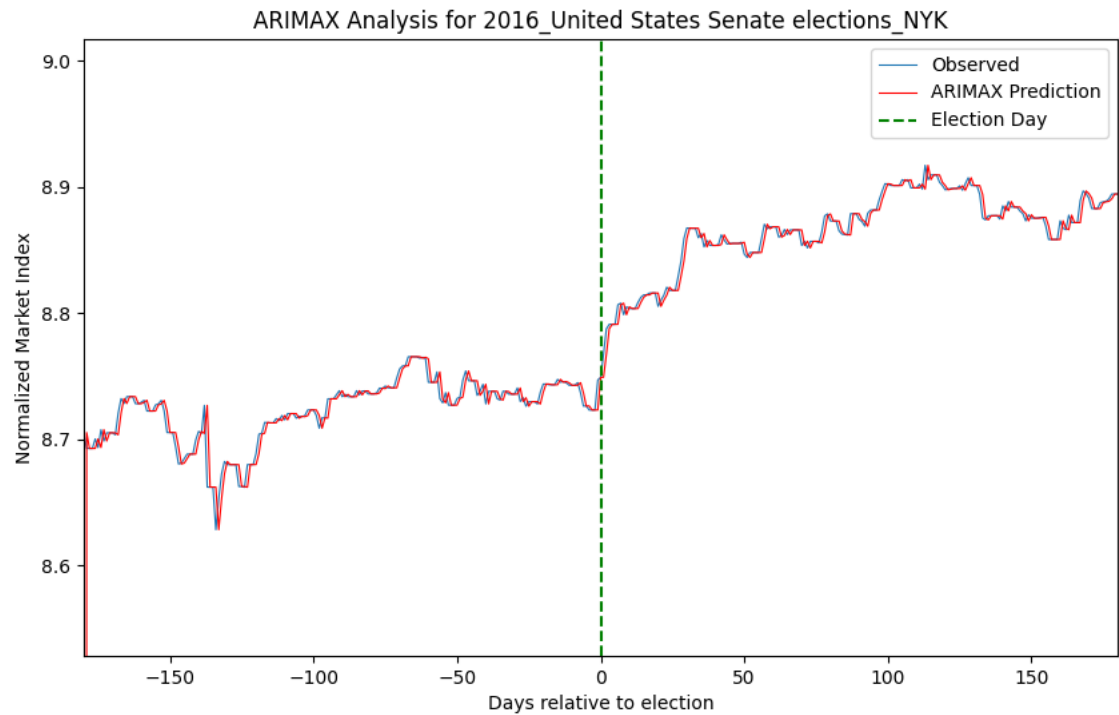
Warnings:
[1] Covariance matrix calculated using the outer product of gradients (complex-step).
[2] Covariance matrix is singular or near-singular, with condition number 4.6e+26. Standard errors may be unstable.

ARIMAX Analysis for 2016_United States Senate elections_NYK

ARIMAX Analysis for 2016_United States House of Representatives electio

```
                    SARIMAX Results
==============================================================================
Dep. Variable:              index   No. Observations:         361
Model:          SARIMAX(0, 1, 0)   Log Likelihood         1249.340
Date:           Thu, 11 Jul 2024   AIC                    -2494.680
Time:                   17:33:15   BIC                    -2486.908
Sample:                        0   HQIC                   -2491.590
                           - 361
Covariance Type:             opg
==============================================================================
             coef    std err      z      P>|z|    [0.025    0.975]
------------------------------------------------------------------------------
election   0.0022   1.74e-17   1.26e+14   0.000    0.002     0.002
sigma2   5.663e-05  1.39e-06    40.694    0.000   5.39e-05  5.94e-05
===================================================================================
Ljung-Box (L1) (Q):             1.61   Jarque-Bera (JB):        4524.13
Prob(Q):                        0.20   Prob(JB):                   0.00
Heteroskedasticity (H):         0.34   Skew:                      -1.73
Prob(H) (two-sided):            0.00   Kurtosis:                  20.02
===================================================================================
```
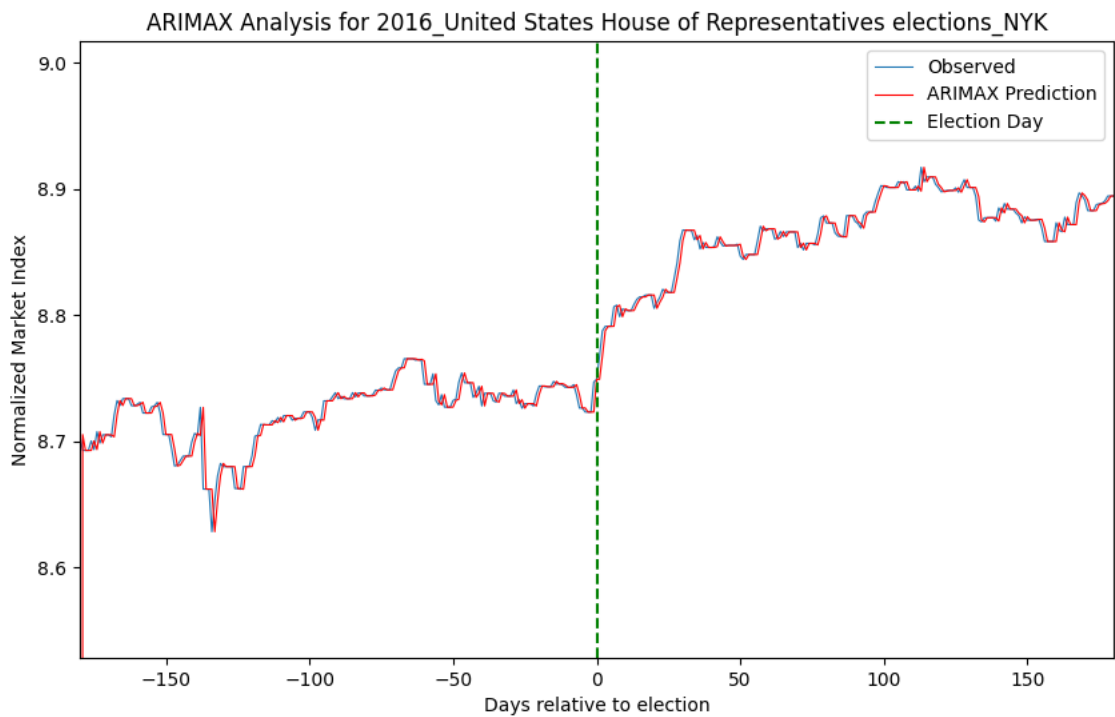
Warnings:
[1] Covariance matrix calculated using the outer product of gradients (complex-step).
[2] Covariance matrix is singular or near-singular, with condition number 4.6e+26. Standard errors may be unstable.

ARIMAX Analysis for 2016_United States House of Representatives elections_NYK

ARIMAX Analysis for 2016_Spanish general election_IBEXIB

```
                    SARIMAX Results
================================================================================
Dep. Variable:                 index   No. Observations:           361
Model:              SARIMAX(0, 1, 0)   Log Likelihood           867.782
Date:             Thu, 11 Jul 2024   AIC                     -1731.564
Time:                     17:33:15   BIC                     -1723.792
Sample:                          0   HQIC                    -1728.473
                             - 361
Covariance Type:               opg
================================================================================
              coef    std err        z     P>|z|     [0.025     0.975]
--------------------------------------------------------------------------------
election   -7.03e-08   2.09e-16   -3.36e+08    0.000   -7.03e-08   -7.03e-08
sigma2       0.0005    1.1e-05     42.956      0.000    0.000       0.000
===================================================================================
Ljung-Box (L1) (Q):                0.00   Jarque-Bera (JB):          5318.60
Prob(Q):                           0.97   Prob(JB):                     0.00
Heteroskedasticity (H):            0.33   Skew:                        -1.90
Prob(H) (two-sided):               0.00   Kurtosis:                    21.44
===================================================================================
```

Warnings:
[1] Covariance matrix calculated using the outer product of gradients (complex-step).
[2] Covariance matrix is singular or near-singular, with condition number 2.65e+27. Standard errors may be unstable.

ARIMAX Analysis for 2016_Spanish general election_IBEXIB
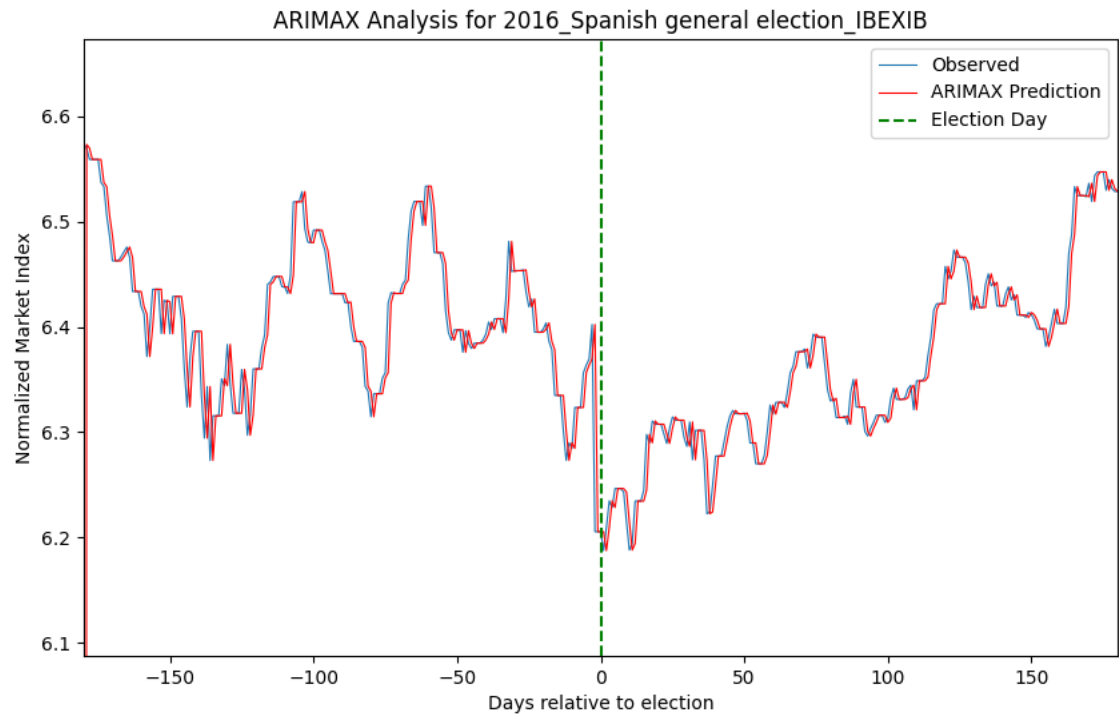
ARIMAX Analysis for 2016_United Kingdom Brexit_TRINMX302020

```
                    SARIMAX Results
================================================================================
Dep. Variable:               index   No. Observations:          361
Model:            SARIMAX(0, 1, 0)   Log Likelihood          1030.171
Date:            Thu, 11 Jul 2024   AIC                     -2056.342
Time:                    17:33:16   BIC                     -2048.570
Sample:                         0   HQIC                    -2053.251
                            - 361
Covariance Type:              opg
================================================================================
                 coef    std err          z      P>|z|      [0.025      0.975]
--------------------------------------------------------------------------------
election       0.0219   3.96e-17   5.54e+14      0.000       0.022       0.022
sigma2         0.0002   4.39e-06     43.579      0.000       0.000       0.000
===================================================================================
Ljung-Box (L1) (Q):               0.08   Jarque-Bera (JB):          5738.78
Prob(Q):                          0.77   Prob(JB):                     0.00
Heteroskedasticity (H):           0.34   Skew:                        -2.26
Prob(H) (two-sided):              0.00   Kurtosis:                    22.03
===================================================================================
```

Warnings:
[1] Covariance matrix calculated using the outer product of gradients (complex-step).
[2] Covariance matrix is singular or near-singular, with condition number 1.16e+27. Standard errors may be unstable.
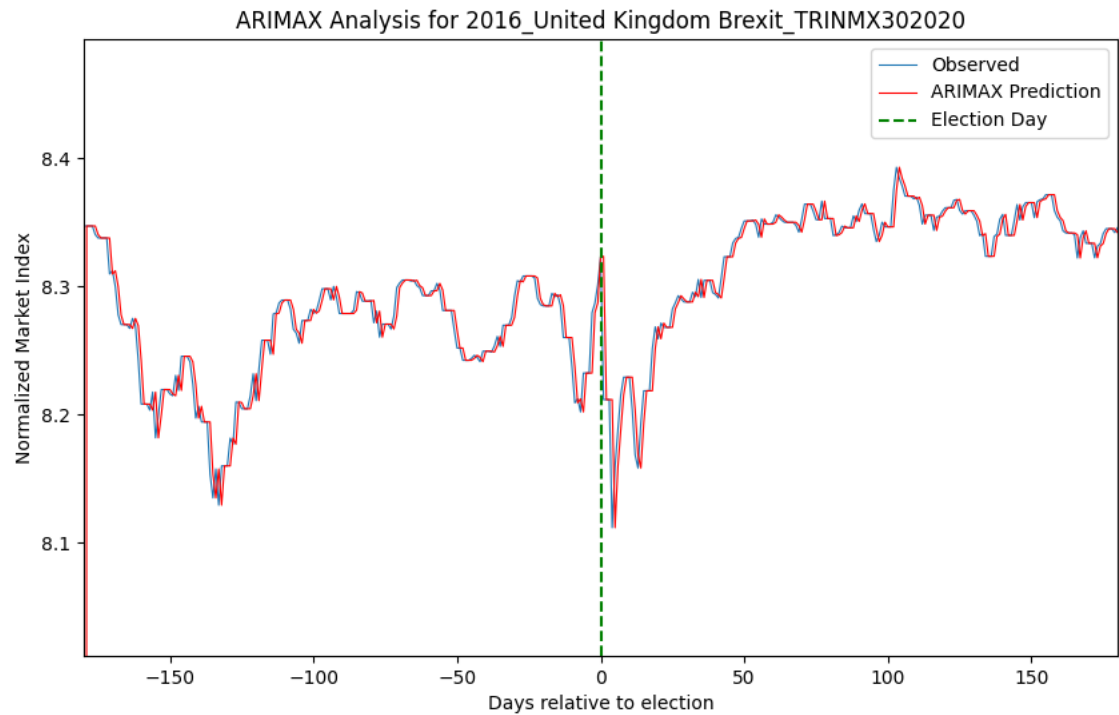
ARIMAX Analysis for 2016_United Kingdom Brexit_TRINMX302020

ARIMAX Analysis for 2015_Portuguese legislative election_PTFIN

```
                    SARIMAX Results
==============================================================================
Dep. Variable:              index   No. Observations:           361
Model:          SARIMAX(0, 1, 0)   Log Likelihood           851.457
Date:           Thu, 11 Jul 2024   AIC                    -1698.914
Time:                   17:33:17   BIC                    -1691.142
Sample:                        0   HQIC                   -1695.824
                           - 361
Covariance Type:             opg
==============================================================================
             coef    std err      z     P>|z|     [0.025    0.975]
------------------------------------------------------------------------
election  -4.744e-08  1.36e-15  -3.48e+07    0.000  -4.74e-08  -4.74e-08
sigma2       0.0005   2.48e-05    20.786    0.000     0.000     0.001
===================================================================================
Ljung-Box (L1) (Q):            0.73   Jarque-Bera (JB):          118.06
Prob(Q):                       0.39   Prob(JB):                    0.00
Heteroskedasticity (H):        1.64   Skew:                       -0.07
Prob(H) (two-sided):           0.01   Kurtosis:                    5.80
===================================================================================

Warnings:
[1] Covariance matrix calculated using the outer product of gradients (complex-step).
[2] Covariance matrix is singular or near-singular, with condition number 5.55e+25. Standard errors may be unstable.
```
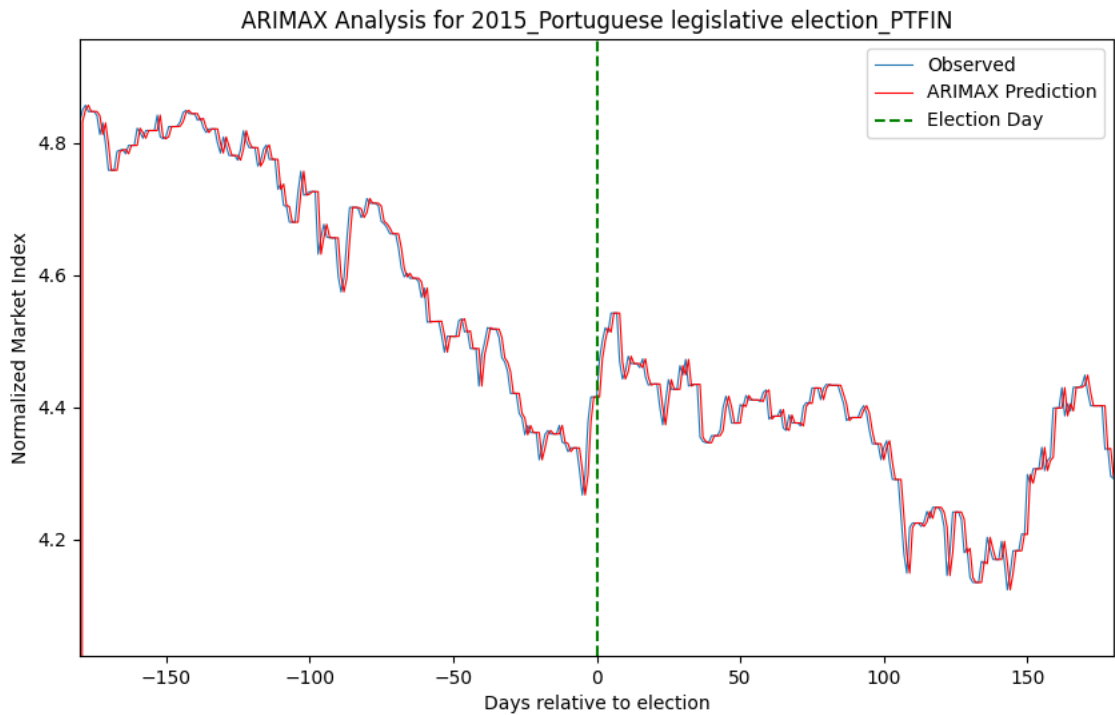

ARIMAX Analysis for 2015_Portuguese legislative election_PTFIN

ARIMAX Analysis for 2015_Spanish general election_IBEXIB

```
                      SARIMAX Results
==============================================================================
Dep. Variable:              index   No. Observations:              361
Model:          SARIMAX(0, 1, 0)   Log Likelihood             971.763
Date:            Thu, 11 Jul 2024   AIC                      -1939.526
Time:                    17:33:17   BIC                      -1931.754
Sample:                         0   HQIC                     -1936.435
                            - 361
Covariance Type:              opg
==============================================================================
                 coef    std err          z      P>|z|      [0.025      0.975]
------------------------------------------------------------------------------
election   -4.973e-08   4.64e-16  -1.07e+08      0.000   -4.97e-08   -4.97e-08
sigma2         0.0003   1.09e-05     24.213      0.000       0.000       0.000
==============================================================================
Ljung-Box (L1) (Q):                   0.02   Jarque-Bera (JB):           314.28
Prob(Q):                              0.88   Prob(JB):                     0.00
Heteroskedasticity (H): 6227923045693057660 1809158144.00   Skew:          0.13
Prob(H) (two-sided):                  0.00   Kurtosis:                     7.57
==============================================================================
```

Warnings:
[1] Covariance matrix calculated using the outer product of gradients (complex-step).
[2] Covariance matrix is singular or near-singular, with condition number 1.24e+26. Standard errors may be unstable.
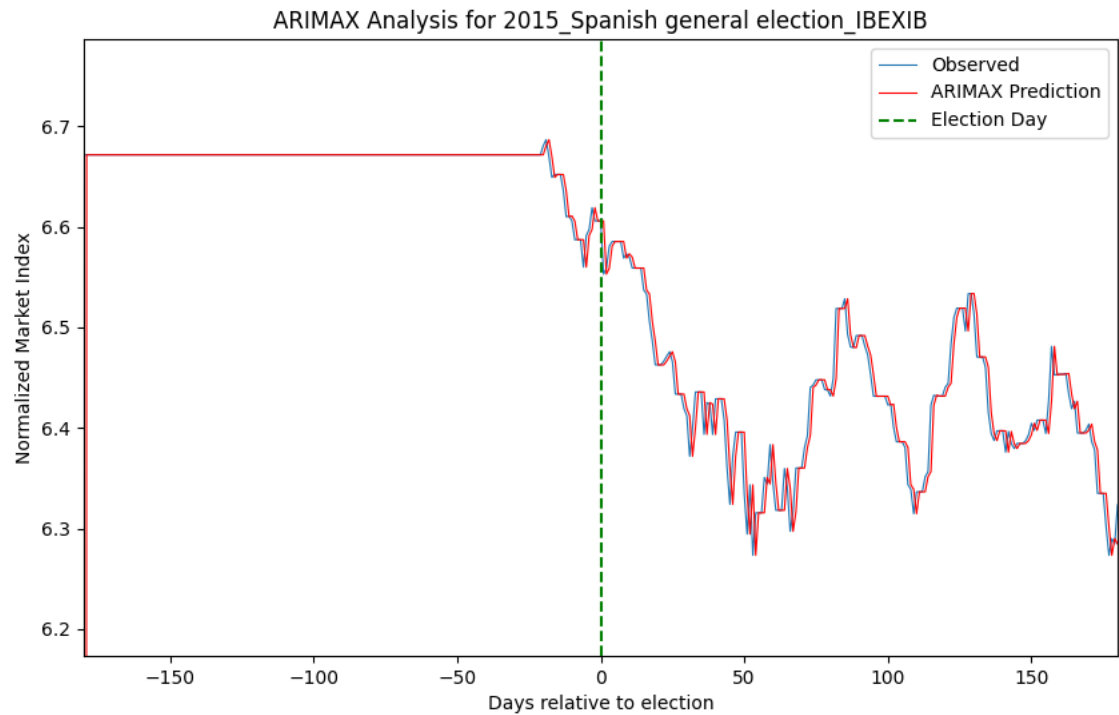
ARIMAX Analysis for 2015_Spanish general election_IBEXIB

ARIMAX Analysis for 2015_United Kingdom general election_TRINMX3020

```
                    SARIMAX Results
==============================================================================
Dep. Variable:              index   No. Observations:          361
Model:           SARIMAX(0, 1, 0)   Log Likelihood          1148.310
Date:            Thu, 11 Jul 2024   AIC                    -2292.620
Time:                    17:33:18   BIC                    -2284.848
Sample:                         0   HQIC                   -2289.530
                            - 361
Covariance Type:              opg
==============================================================================
              coef    std err          z      P>|z|      [0.025      0.975]
------------------------------------------------------------------------------
election    0.0070   3.14e-16   2.24e+13      0.000      0.007       0.007
sigma2    9.94e-05    4.9e-06     20.298      0.000   8.98e-05       0.000
===================================================================================
Ljung-Box (L1) (Q):                0.12   Jarque-Bera (JB):            101.50
Prob(Q):                           0.72   Prob(JB):                      0.00
Heteroskedasticity (H):            2.05   Skew:                         -0.01
Prob(H) (two-sided):               0.00   Kurtosis:                      5.60
===================================================================================
```

Warnings:
[1] Covariance matrix calculated using the outer product of gradients (complex-step).
[2] Covariance matrix is singular or near-singular, with condition number 6.86e+25. Standard errors may be unstable.
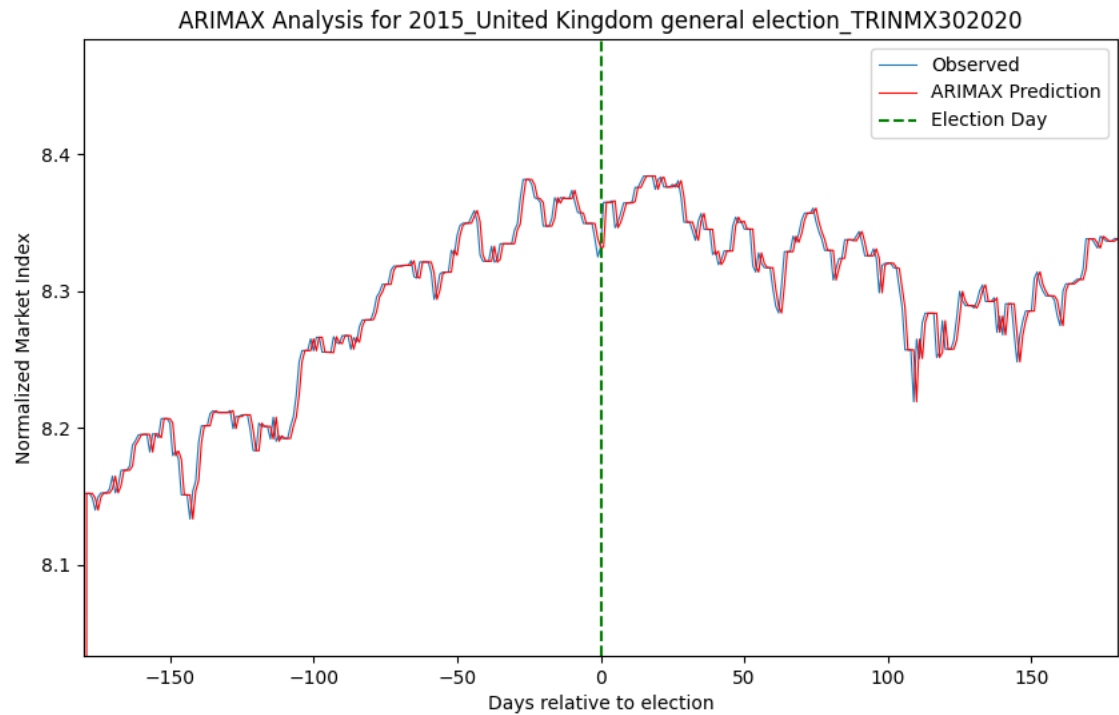
ARIMAX Analysis for 2015_United Kingdom general election_TRINMX302020

ARIMAX Analysis for 2014_Swedish general election_SX3010GI

SARIMAX Results

```
==============================================================================
Dep. Variable:                  index   No. Observations:          361
Model:             SARIMAX(1, 1, 0)   Log Likelihood          1181.086
Date:              Thu, 11 Jul 2024   AIC                     -2356.172
Time:                      17:33:19   BIC                     -2344.514
Sample:                           0   HQIC                    -2351.537
                              - 361
Covariance Type:                opg
==============================================================================
              coef    std err         z      P>|z|     [0.025     0.975]
------------------------------------------------------------------------------
election  -1.413e-07     0.558  -2.53e-07     1.000     -1.095      1.095
ar.L1        -0.1494     0.057     -2.616     0.009     -0.261     -0.037
sigma2     8.276e-05   3.7e-06     22.346     0.000   7.55e-05       9e-05
===================================================================================
Ljung-Box (L1) (Q):                0.01   Jarque-Bera (JB):           222.14
Prob(Q):                           0.94   Prob(JB):                     0.00
Heteroskedasticity (H):            1.82   Skew:                         0.33
Prob(H) (two-sided):               0.00   Kurtosis:                     6.79
===================================================================================
```
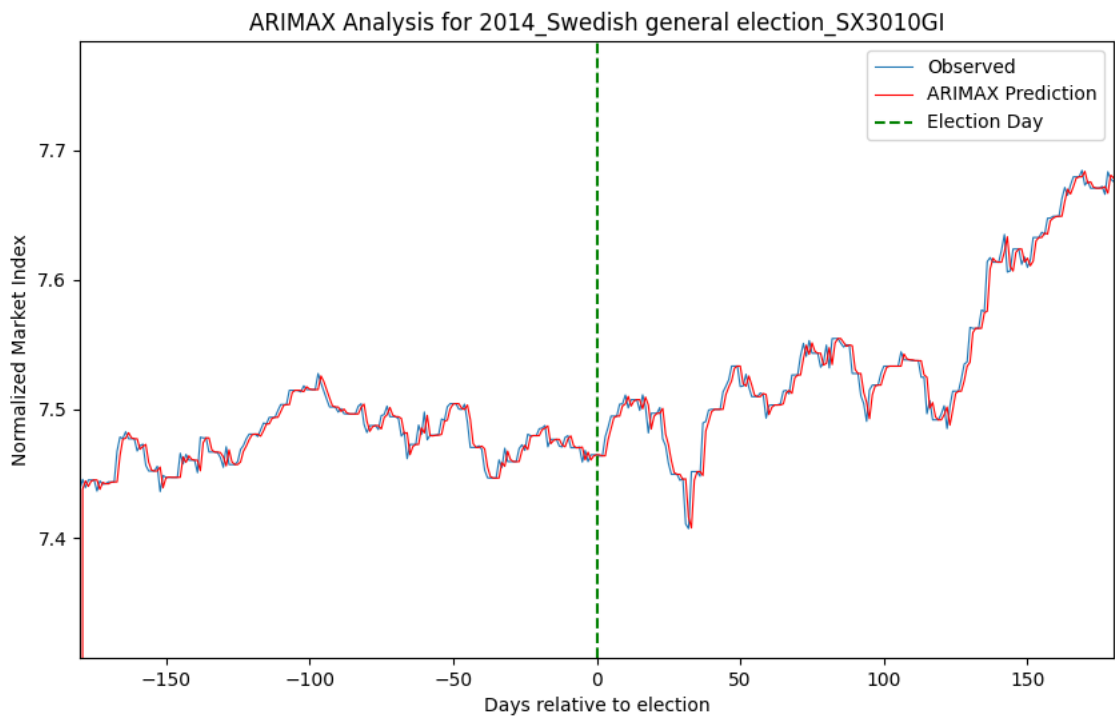
Warnings:
[1] Covariance matrix calculated using the outer product of gradients (complex-step).

ARIMAX Analysis for 2014_Swedish general election_SX3010GI

ARIMAX Analysis for 2014_Belgian federal election_BEFIN

SARIMAX Results

```
==============================================================================
Dep. Variable:                 index   No. Observations:              361
Model:            SARIMAX(0, 1, 0)   Log Likelihood             1157.704
Date:            Thu, 11 Jul 2024   AIC                        -2311.407
Time:                    17:33:20   BIC                        -2303.635
Sample:                         0   HQIC                       -2308.317
                            - 361
Covariance Type:              opg
==============================================================================
              coef    std err          z      P>|z|      [0.025      0.975]
------------------------------------------------------------------------------
election  -4.617e-08   2.45e-16  -1.89e+08      0.000   -4.62e-08   -4.62e-08
sigma2     9.435e-05   4.55e-06     20.727      0.000    8.54e-05       0.000
===================================================================================
Ljung-Box (L1) (Q):                0.01   Jarque-Bera (JB):           121.08
Prob(Q):                           0.93   Prob(JB):                     0.00
Heteroskedasticity (H):            1.17   Skew:                        -0.18
Prob(H) (two-sided):               0.40   Kurtosis:                     5.82
===================================================================================
```
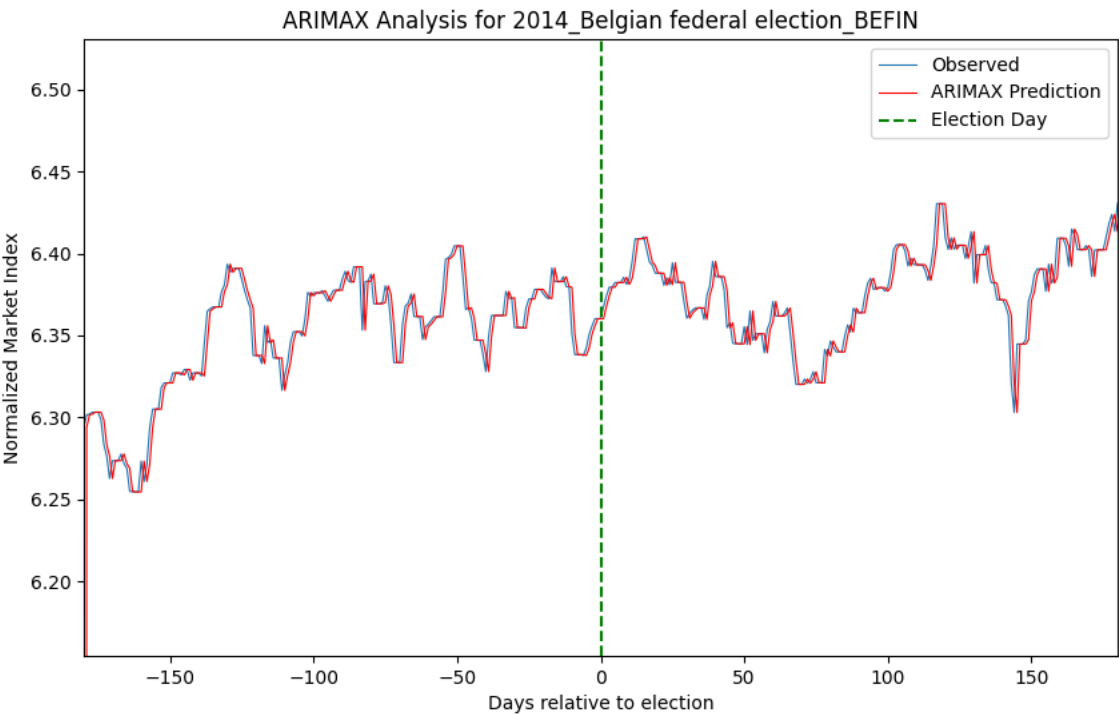
Warnings:
[1] Covariance matrix calculated using the outer product of gradients (complex-step).
[2] Covariance matrix is singular or near-singular, with condition number 2.59e+26. Standard errors may be unstable.
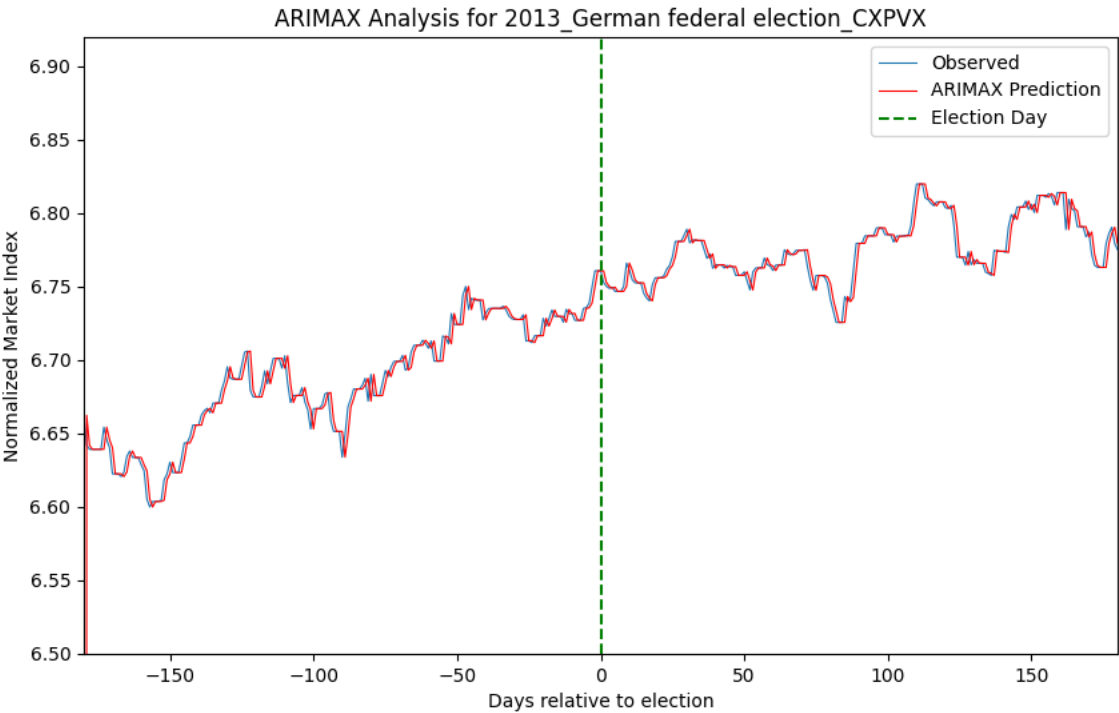

ARIMAX Analysis for 2014_Belgian federal election_BEFIN

ARIMAX Analysis for 2013_German federal election_CXPVX

```
                        SARIMAX Results
==============================================================================
Dep. Variable:               index   No. Observations:              361
Model:            SARIMAX(0, 1, 0)   Log Likelihood             1262.837
Date:            Thu, 11 Jul 2024   AIC                        -2521.674
Time:                    17:33:21   BIC                        -2513.902
Sample:                         0   HQIC                       -2518.584
                            - 361
Covariance Type:              opg
==============================================================================
                 coef    std err          z      P>|z|      [0.025      0.975]
------------------------------------------------------------------------------
election    -3.548e-08   1.54e-16  -2.31e+08      0.000   -3.55e-08   -3.55e-08
sigma2       5.249e-05   2.88e-06     18.221      0.000    4.68e-05    5.81e-05
===================================================================================
Ljung-Box (L1) (Q):                   0.04   Jarque-Bera (JB):              45.99
Prob(Q):                              0.84   Prob(JB):                       0.00
Heteroskedasticity (H):               0.82   Skew:                          -0.17
Prob(H) (two-sided):                  0.29   Kurtosis:                       4.72
===================================================================================
```

Warnings:
[1] Covariance matrix calculated using the outer product of gradients (complex-step).
[2] Covariance matrix is singular or near-singular, with condition number 2.17e+26. Standard errors may be unstable.

ARIMAX Analysis for 2013_German federal election_CXPVX

ARIMAX Analysis for 2013_Italian general election_FTITLMS30

SARIMAX Results

```
==============================================================================
Dep. Variable:                    index   No. Observations:          361
Model:              SARIMAX(0, 1, 0)   Log Likelihood           974.035
Date:              Thu, 11 Jul 2024   AIC                    -1944.069
Time:                      17:33:22   BIC                    -1936.297
Sample:                           0   HQIC                   -1940.979
                              - 361
Covariance Type:                opg
==============================================================================
              coef    std err          z      P>|z|      [0.025      0.975]
------------------------------------------------------------------------------
election   -4.34e-08   6.15e-16  -7.06e+07      0.000   -4.34e-08   -4.34e-08
sigma2        0.0003   1.25e-05     20.975      0.000       0.000       0.000
===================================================================================
Ljung-Box (L1) (Q):                0.82   Jarque-Bera (JB):            139.77
Prob(Q):                           0.36   Prob(JB):                      0.00
Heteroskedasticity (H):            0.72   Skew:                         -0.35
Prob(H) (two-sided):               0.08   Kurtosis:                      5.97
===================================================================================
```
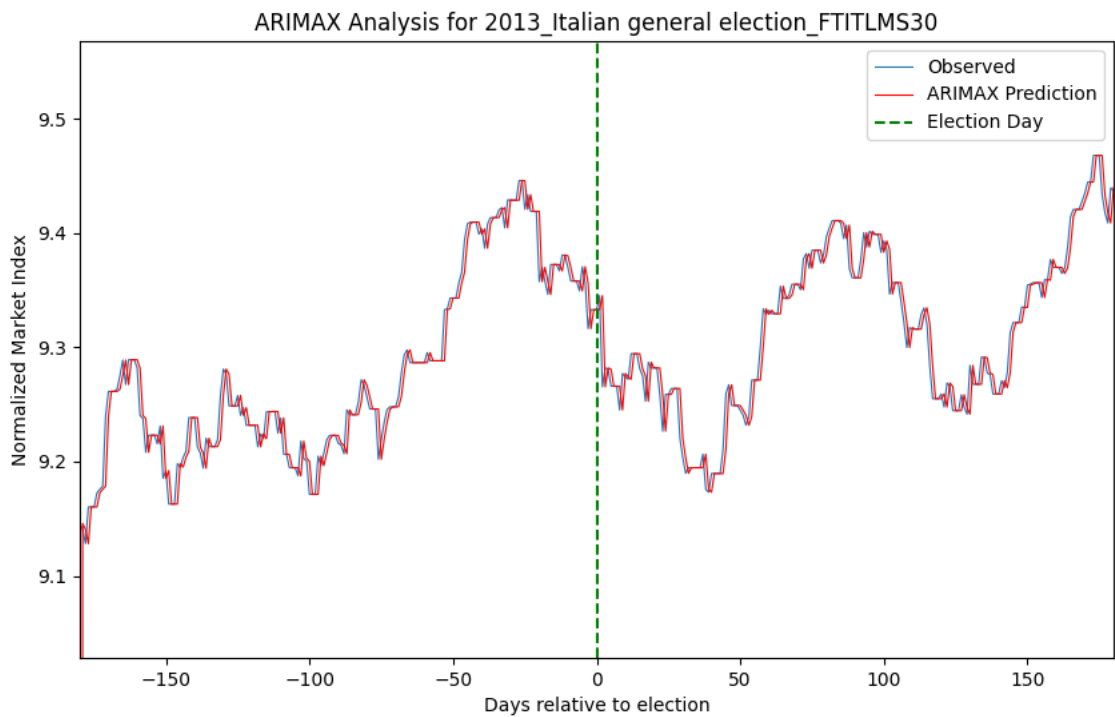
Warnings:
[1] Covariance matrix calculated using the outer product of gradients (complex-step).
[2] Covariance matrix is singular or near-singular, with condition number 7.76e+26. Standard errors may be unstable.

ARIMAX Analysis for 2013_Italian general election_FTITLMS30

ARIMAX Analysis for 2013_Norwegian parliamentary election_OFING

```
                   SARIMAX Results
==============================================================================
Dep. Variable:              index   No. Observations:            361
Model:          SARIMAX(0, 1, 0)   Log Likelihood          1203.630
Date:           Thu, 11 Jul 2024   AIC                    -2403.261
Time:                   17:33:22   BIC                    -2395.488
Sample:                        0   HQIC                   -2400.170
                           - 361
Covariance Type:             opg
==============================================================================
            coef    std err        z    P>|z|    [0.025    0.975]
------------------------------------------------------------------------------
election  -6.068e-08  2.08e-16  -2.92e+08   0.000  -6.07e-08  -6.07e-08
sigma2     7.311e-05  3.32e-06    22.016    0.000   6.66e-05   7.96e-05
===================================================================================
Ljung-Box (L1) (Q):               0.37   Jarque-Bera (JB):          181.39
Prob(Q):                          0.54   Prob(JB):                    0.00
Heteroskedasticity (H):           0.35   Skew:                       -0.12
Prob(H) (two-sided):              0.00   Kurtosis:                    6.47
===================================================================================
```

Warnings:
[1] Covariance matrix calculated using the outer product of gradients (complex-step).
[2] Covariance matrix is singular or near-singular, with condition number 2.61e+26. Standard errors may be unstable.

ARIMAX Analysis for 2013_Norwegian parliamentary election_OFING