Domestic and International Influences on Business Cycle Regimes in Europe: Addendum

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1 Notation

Variable names are prefixed as follows: Dxx indicates differencing over xx periods e.g. D12 indicates differencing over 12 periods and D00 indicates no differencing. Lxx indictaes lagging over xx period e.g. L03 indicates the variable is lagged over 3 periods. If _LOG_ appears in the name then the natural log transform was applied before differencing.

Specific names are as follows.

inter	Intercept
BDCLI	German CLI
CLI	Composite Leading Indicator
CM	French short interest rate
DAX	German stock prices
FIBOR	German short interest rates
IOP	Index of production
LR	Long interest rate
RM0	Real Money 0
RM1	Real Money 1
SP	Stock prices
SR	Sales
USCLI	US CLI
USTB	US treasury bill rate

2 Germany

2.1 Domestic Variables

```
Dependent Variable: R4 Regimes of upturn

Variable               Coeff         StdErr       t-value
--------------       ---------      -------       -------
inter                 11.26          3.804         2.96
D12L03_LOG_CLI         4.319         1.312         3.292
D06L03_LOG_DAX        -6.803         2.616        -2.6
D12L03_LOG_RM1         4.373         1.772         2.467
D00L03_FIBOR          -9.941         3.825        -2.599

Error counts with CutOff Value : 0.5
Error Count 1  : 2 from 184 obs: 1%
Error Count 0  : 1 from 56 obs: 1%
Total Count    : 3 from 240 obs: 1%

Error counts with Sample Prop : 0.7667
Error Count 1  : 3 from 184 obs: 1%
Error Count 0  : 0 from 56 obs: 0%
Total Count    : 3 from 240 obs: 1%

Mean Error     : 1.308e-009
MAE            : 0.02459
MSE  (Sample)  : 0.01108
RMSE (Sample)  : 0.1053
log Likelihood : -10.77
-2logL         : 21.54
SIC            : 48.94


Error analysis of Predicted Values

Error counts with CutOff Value : 0.5
Error Count 1  : 5 from 94 obs: 5%
```

```
Error Count 0  : 28 from 50 obs: 56%
Total Count    : 33 from 144 obs: 22%

Error counts with Sample Prop : 0.7667
Error Count 1  : 7 from 94 obs: 7%
Error Count 0  : 25 from 50 obs: 50%
Total Count    : 32 from 144 obs: 22%

Mean Error     : -0.156
MAE            : 0.2273
MSE  (Sample)  : 0.2101
RMSE Pred      : 0.4584
```

2.2 With International Variables

```
Dependent Variable: R4 Regimes of upturn

Variable           Coeff        StdErr       t-value
--------           -----        ------       -------
inter               16.3         7.305        2.231
D03L03_LOG_RM1       2.533       1.01         2.507
D00L09_FIBOR       -11.4         4.994       -2.283
D00L03_USTB         -7.363       3.263       -2.257
D09L03_LOG_USCLI     7.559       3.86         1.958

Error counts with CutOff Value : 0.5
Error Count 1  : 1 from 184 obs: 0%
Error Count 0  : 1 from 56 obs: 1%
Total Count    : 2 from 240 obs: 0%

Error counts with Sample Prop : 0.7667
Error Count 1  : 3 from 184 obs: 1%
Error Count 0  : 0 from 56 obs: 0%
Total Count    : 3 from 240 obs: 1%
```

```
Mean Error     : 1.358e-006
MAE            : 0.0155
MSE  (Sample)  : 0.007167
RMSE (Sample)  : 0.08466
log Likelihood : -6.609
-2logL         : 13.22
SIC            : 40.62


Error analysis of Predicted Values

Error counts with CutOff Value : 0.5
Error Count 1  : 0 from 94 obs: 0%
Error Count 0  : 50 from 50 obs: 100%
Total Count    : 50 from 144 obs: 34%

Error counts with Sample Prop : 0.7667
Error Count 1  : 0 from 94 obs: 0%
Error Count 0  : 49 from 50 obs: 98%
Total Count    : 49 from 144 obs: 34%

Mean Error     : -0.3429
MAE            : 0.3438
MSE  (Sample)  : 0.3406
RMSE Pred      : 0.5836
```

3 France

3.1 Domestic Variables

```
Dependent Variable: R4 Regimes of upturn

Variable            Coeff     StdErr   t-value
--------            -----     ------   -------
inter               3.256     0.4942    6.589
D06L03_LOG_CLI      3.019     0.566     5.334
D12L03_LOG_IOP     -1.731     0.414    -4.181
D06L03_LOG_SP      -1.655     0.3773   -4.387
D00L12_CM          -3.079     0.5021   -6.132

Error counts with CutOff Value : 0.5
Error Count 1  : 13 from 187 obs: 6%
Error Count 0  : 21 from 53 obs: 39%
Total Count    : 34 from 240 obs: 14%

Error counts with Sample Prop : 0.7792
Error Count 1  : 28 from 187 obs: 14%
Error Count 0  : 6 from 53 obs: 11%
Total Count    : 34 from 240 obs: 14%

Mean Error     : 2.331e-016
MAE            : 0.1599
MSE  (Sample)  : 0.08205
RMSE (Sample)  : 0.2864
log Likelihood : -59.67
-2logL         : 119.3
SIC            : 146.7


Error analysis of Predicted Values

Error counts with CutOff Value : 0.5
Error Count 1  : 7 from 126 obs: 5%
```

```
Error Count 0  : 18 from 18 obs: 100%
Total Count    : 25 from 144 obs: 17%

Error counts with Sample Prop : 0.7792
Error Count 1  : 12 from 126 obs: 9%
Error Count 0  : 18 from 18 obs: 100%
Total Count    : 30 from 144 obs: 20%

Mean Error     : -0.07053
MAE            : 0.1665
MSE  (Sample)  : 0.1354
RMSE Pred      : 0.3679
```

3.2 With International Variables

```
Dependent Variable: R4 Regimes of upturn

Variable           Coeff     StdErr   t-value
--------           -----     ------   -------
inter               4.273    0.6664     6.413
D09L03_LOG_CLI      3.137    0.6351     4.94
D09L03_LOG_SP      -1.735    0.3691    -4.702
D00L03_CM          -3.859    0.636     -6.068
D00L03_FIBOR        3.254    0.6748     4.821

Error counts with CutOff Value : 0.5
Error Count 1  : 11 from 187 obs: 5%
Error Count 0  : 16 from 53 obs: 30%
Total Count    : 27 from 240 obs: 11%

Error counts with Sample Prop : 0.7792
Error Count 1  : 23 from 187 obs: 12%
Error Count 0  : 4 from 53 obs: 7%
Total Count    : 27 from 240 obs: 11%

Mean Error     : 6.388e-016
MAE            : 0.1491
```

```
MSE  (Sample)  : 0.07278
RMSE (Sample)  : 0.2698
log Likelihood : -58.45
-2logL         : 116.9
SIC            : 144.3


Error analysis of Predicted Values

Error counts with CutOff Value : 0.5
Error Count 1  : 0 from 126 obs: 0%
Error Count 0  : 18 from 18 obs: 100%
Total Count    : 18 from 144 obs: 12%

Error counts with Sample Prop : 0.7792
Error Count 1  : 0 from 126 obs: 0%
Error Count 0  : 14 from 18 obs: 77%
Total Count    : 14 from 144 obs: 9%

Mean Error     : -0.1005
MAE            : 0.1231
MSE  (Sample)  : 0.1048
RMSE Pred      : 0.3237
```

4 Italy

4.1 Domestic Variables

```
Dependent Variable: R4 Regimes of upturn

Variable         Coeff      StdErr     t-value
--------         -----      ------     -------
inter             4.066     0.6672      6.093
D12L03_LOG_CLI    5.201     0.9213      5.645
D12L03_LOG_RS    -0.8578    0.385      -2.228
D00L12_SR         3.768     1.101       3.424
D00L09_LR        -4.772     1.122      -4.254

Error counts with CutOff Value : 0.5
Error Count 1  : 9 from 182 obs: 4%
Error Count 0  : 10 from 58 obs: 17%
Total Count    : 19 from 240 obs: 7%

Error counts with Sample Prop : 0.7583
Error Count 1  : 18 from 182 obs: 9%
Error Count 0  : 7 from 58 obs: 12%
Total Count    : 25 from 240 obs: 10%

Mean Error     : 1.085e-015
MAE            : 0.1065
MSE  (Sample)  : 0.05452
RMSE (Sample)  : 0.2335
log Likelihood : -41.47
-2logL         : 82.94
SIC            : 110.3


Error analysis of Predicted Values

Error counts with CutOff Value : 0.5
Error Count 1  : 17 from 124 obs: 13%
Error Count 0  : 9 from 20 obs: 45%
```

```
Total Count    : 26 from 144 obs: 18%

Error counts with Sample Prop : 0.7583
Error Count 1  : 31 from 124 obs: 25%
Error Count 0  : 5 from 20 obs: 25%
Total Count    : 36 from 144 obs: 25%

Mean Error     : 0.09147
MAE            : 0.2018
MSE  (Sample)  : 0.1268
RMSE Pred      : 0.3561
```

4.2 With International Variables

```
Dependent Variable: R4 Regimes of upturn

Variable           Coeff      StdErr    t-value
--------           -----      ------    -------
inter               7.133     2.076      3.436
D00L12_SR          12.74      4.442      2.869
D00L09_LR         -13.86      4.657     -2.977
D00L12_FIBOR       -4.982     1.661     -3
D12L03_LOG_BDCLI    4.202     1.206      3.485

Error counts with CutOff Value : 0.5
Error Count 1  : 2 from 182 obs: 1%
Error Count 0  : 1 from 58 obs: 1%
Total Count    : 3 from 240 obs: 1%

Error counts with Sample Prop : 0.7583
Error Count 1  : 3 from 182 obs: 1%
Error Count 0  : 0 from 58 obs: 0%
Total Count    : 3 from 240 obs: 1%

Mean Error     : 3.256e-015
MAE            : 0.0287
MSE  (Sample)  : 0.01306
RMSE (Sample)  : 0.1143
```

```
log Likelihood : -12.82
-2logL         : 25.64
SIC            : 53.05


Error analysis of Predicted Values

Error counts with CutOff Value : 0.5
Error Count 1  : 14 from 124 obs: 11%
Error Count 0  : 2 from 20 obs: 10%
Total Count    : 16 from 144 obs: 11%

Error counts with Sample Prop : 0.7583
Error Count 1  : 19 from 124 obs: 15%
Error Count 0  : 2 from 20 obs: 10%
Total Count    : 21 from 144 obs: 14%

Mean Error     : 0.09898
MAE            : 0.1271
MSE  (Sample)  : 0.1029
RMSE Pred      : 0.3208
```

5 UK

5.1 Domestic Variables

```
Dependent Variable: R4 Regimes of upturn

Variable           Coeff     StdErr    t-value
--------           -----     ------    -------
inter               6.399    1.257      5.092
D12L03_LOG_CLI      2.667    0.6398     4.169
D12L03_LOG_RS      -1.961    0.5834    -3.361
D00L03_SR          -2.081    0.6487    -3.209
D00L09_LR          -3.752    0.8436    -4.447

Error counts with CutOff Value : 0.5
Error Count 1  : 4 from 206 obs: 1%
Error Count 0  : 10 from 34 obs: 29%
Total Count    : 14 from 240 obs: 5%

Error counts with Sample Prop : 0.8583
Error Count 1  : 21 from 206 obs: 10%
Error Count 0  : 2 from 34 obs: 5%
Total Count    : 23 from 240 obs: 9%

Mean Error     : 1.055e-016
MAE            : 0.08175
MSE  (Sample)  : 0.04225
RMSE (Sample)  : 0.2055
log Likelihood : -30.42
-2logL         : 60.85
SIC            : 88.25


Error analysis of Predicted Values

Error counts with CutOff Value : 0.5
Error Count 1  : 0 from 122 obs: 0%
Error Count 0  : 22 from 22 obs: 100%
```

```
Total Count    : 22 from 144 obs: 15%

Error counts with Sample Prop : 0.8583
Error Count 1  : 0 from 122 obs: 0%
Error Count 0  : 22 from 22 obs: 100%
Total Count    : 22 from 144 obs: 15%

Mean Error     : -0.1516
MAE            : 0.1518
MSE  (Sample)  : 0.1506
RMSE Pred      : 0.3881
```

5.2 With International Variables

```
Dependent Variable: R4 Regimes of upturn

Variable         Coeff       StdErr    t-value
--------         -----       ------    -------
inter             8.805      2.007      4.387
D12L03_LOG_RM0   -4.121      1.209     -3.41
D00L09_SR        -5.701      1.506     -3.786
D00L12_LR        -2.505      0.8375    -2.992
D12L03_LOG_USCLI  4.882      1.213      4.025

Error counts with CutOff Value : 0.5
Error Count 1  : 5 from 206 obs: 2%
Error Count 0  : 6 from 34 obs: 17%
Total Count    : 11 from 240 obs: 4%

Error counts with Sample Prop : 0.8583
Error Count 1  : 15 from 206 obs: 7%
Error Count 0  : 1 from 34 obs: 2%
Total Count    : 16 from 240 obs: 6%

Mean Error     : -3.469e-017
MAE            : 0.05878
MSE  (Sample)  : 0.02991
```

```
RMSE (Sample)  : 0.1729
log Likelihood : -22.38
-2logL         : 44.77
SIC            : 72.17


Error analysis of Predicted Values

Error counts with CutOff Value : 0.5
Error Count 1  : 0 from 122 obs: 0%
Error Count 0  : 21 from 22 obs: 95%
Total Count    : 21 from 144 obs: 14%

Error counts with Sample Prop : 0.8583
Error Count 1  : 0 from 122 obs: 0%
Error Count 0  : 17 from 22 obs: 77%
Total Count    : 17 from 144 obs: 11%

Mean Error     : -0.1323
MAE            : 0.1348
MSE  (Sample)  : 0.1233
RMSE Pred      : 0.3511
```