

Louvain School of Management

Pouvoir prédictif des ventes à découvert institutionnelles sur le rendement d'actions belges

Annexes

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Annexe 1 : Formules Bloomberg

Prix O, +1,+2,+3,+4,+5, Closing, O-1, O-6

=@BDH(Ticker Bloomberg; "PX_LAST"; Date; Date; "Days=A"; "Fill=P")

Evolution Bel20

=@BDH("BEL20 Index"; "PX_LAST"; Date; Date; "Days=A"; "Fill=P")

Market Cap

=@BDH(Ticker Bloomberg; "CUR_MKT_CAP"; Date; Date; "Days=A"; "Fill=P")

Propriété insit

=@BDH(Ticker Bloomberg; "EQY_INST_PCT_SH_OUT"; Date; Date; "Days=A"; "Fill=P"; "Per=AW")

BTM

=1/@BDH(Ticker Bloomberg; "MARKET_CAPITALIZATION_TO_BV"; Date; Date; "Days=A"; "Fill=P")

Annexe 2 : Matrice de corrélation

	Return T+1 Norm	Return Bel20 T+1 Norm	Mark Cap Norm	BTM Norm	Momentum Norm	Inst Owner Norm	% of issued share capital Norm
Return T+1 Norm	1,0000	0,2560	0,0331	-0,0220	0,0191	0,0714	-0,0122
Return Bel20 T+1 Norm	0,2560	1,0000	-0,0008	0,0261	-0,0186	-0,0557	-0,0037
Mark Cap Norm	0,0331	-0,0008	1,0000	-0,1741	0,0645	0,3398	-0,1559
BTM Norm	-0,0220	0,0261	-0,1741	1,0000	-0,1596	-0,1614	0,0103
Momentum Norm	0,0191	-0,0186	0,0645	-0,1596	1,0000	-0,0541	-0,0202
Inst Owner Norm	0,0714	-0,0557	0,3398	-0,1614	-0,0541	1,0000	-0,1330
% of issued share capital Norm	-0,0122	-0,0037	-0,1559	0,0103	-0,0202	-0,1330	1,0000

Annexe 3 : Test de colinéarité

```
> vif(M1)
      DB$`Return Bel20 T+1 Norm`      DB$`Mark Cap Norm`      DB$`BTM Norm`
      1.004396                      1.172126                    1.073191
      DB$`Momentum Norm`            DB$`Inst Owner Norm` DB$`% of issued share capital Norm`
      1.038825                      1.169497                    1.033915
> vif_values<-vif(M1)
> print(vif_values)
      DB$`Return Bel20 T+1 Norm`      DB$`Mark Cap Norm`      DB$`BTM Norm`
      1.004396                      1.172126                    1.073191
      DB$`Momentum Norm`            DB$`Inst Owner Norm` DB$`% of issued share capital Norm`
      1.038825                      1.169497                    1.033915
> |
```

Annexe 4 : Régression linéaire T+1

Call:

```
lm(formula = DB$`Return T+1 Norm` ~ DB$`Return Bel20 T+1 Norm` +
    DB$`Mark Cap Norm` + DB$`BTM Norm` + DB$`Momentum Norm` +
    DB$`Inst Owner Norm` + DB$`% of issued share capital Norm`)
```

Residuals:

```
      Min       1Q   Median       3Q      Max
-5.9862 -0.2477 -0.0036  0.2432 10.0491
```

Coefficients:

	Estimate	Std. Error	t value	Pr(> t)
(Intercept)	-5.440e-16	3.691e-02	0.000	1.0000
DB\$`Return Bel20 T+1 Norm`	2.616e-01	3.699e-02	7.072	3.8e-12 ***
DB\$`Mark Cap Norm`	8.174e-04	3.996e-02	0.020	0.9837
DB\$`BTM Norm`	-1.055e-02	3.823e-02	-0.276	0.7826
DB\$`Momentum Norm`	2.693e-02	3.762e-02	0.716	0.4743
DB\$`Inst Owner Norm`	8.554e-02	3.991e-02	2.143	0.0324 *
DB\$`% of issued share capital Norm`	9.217e-04	3.753e-02	0.025	0.9804

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.9673 on 680 degrees of freedom

Multiple R-squared: 0.07383, Adjusted R-squared: 0.06566

F-statistic: 9.035 on 6 and 680 DF, p-value: 1.617e-09

Annexe 5 : Régression linéaire T+2

```
Call:
lm(formula = DB$`Return T+2 Norm` ~ DB$`Return Bel20 T+2 Norm` +
  DB$`Mark Cap Norm` + DB$`Momentum Norm` + DB$`BTM Norm` +
  DB$`Inst Owner Norm` + DB$`% of issued share capital Norm`)

Residuals:
    Min       1Q   Median       3Q      Max
-3.4881 -0.2495 -0.0319  0.1829 11.3560

Coefficients:
                Estimate Std. Error t value Pr(>|t|)
(Intercept)      5.272e-16  3.532e-02   0.000  1.0000
DB$`Return Bel20 T+2 Norm`
 3.781e-01  3.540e-02  10.681 <2e-16 ***
DB$`Mark Cap Norm`
-2.330e-02  3.824e-02  -0.609  0.5425
DB$`Momentum Norm`
-3.802e-03  3.599e-02  -0.106  0.9159
DB$`BTM Norm`
 7.255e-02  3.659e-02   1.983  0.0478 *
DB$`Inst Owner Norm`
 8.542e-02  3.818e-02   2.237  0.0256 *
DB$`% of issued share capital Norm`
 1.606e-03  3.593e-02   0.045  0.9644
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.9257 on 680 degrees of freedom
Multiple R-squared:  0.1518,    Adjusted R-squared:  0.1443
F-statistic: 20.28 on 6 and 680 DF,  p-value: < 2.2e-16
```

Annexe 6 : Régression linéaire en T+3

```
Call:
lm(formula = DB$`Return T+3 Norm` ~ DB$`Return Bel20 T+3 Norm` +
  DB$`Mark Cap Norm` + DB$`Momentum Norm` + DB$`BTM Norm` +
  DB$`Inst Owner Norm` + DB$`% of issued share capital Norm`)

Residuals:
    Min       1Q   Median       3Q      Max
-7.2114 -0.2573 -0.0073  0.2273 11.1328

Coefficients:
                Estimate Std. Error t value Pr(>|t|)
(Intercept)      7.144e-17  3.537e-02   0.000  1.0000
DB$`Return Bel20 T+3 Norm`
 3.791e-01  3.547e-02  10.688 <2e-16 ***
DB$`Mark Cap Norm`
-2.739e-02  3.832e-02  -0.715  0.4750
DB$`Momentum Norm`
 4.661e-02  3.604e-02   1.293  0.1964
DB$`BTM Norm`
 1.012e-02  3.664e-02   0.276  0.7825
DB$`Inst Owner Norm`
 9.781e-02  3.827e-02   2.556  0.0108 *
DB$`% of issued share capital Norm`
-1.323e-02  3.596e-02  -0.368  0.7131
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.927 on 680 degrees of freedom
Multiple R-squared:  0.1494,    Adjusted R-squared:  0.1419
F-statistic: 19.9 on 6 and 680 DF,  p-value: < 2.2e-16
```

Annexe 7 : Régression linéaire en T+4

```
Call:
lm(formula = DB$`Return T+4 Norm` ~ DB$`Return Bel20 T+4 Norm` +
  DB$`Mark Cap Norm` + DB$`Momentum Norm` + DB$`BTM Norm` +
  DB$`Inst Owner Norm` + DB$`% of issued share capital Norm`)

Residuals:
    Min       1Q   Median       3Q      Max
-7.2952 -0.2809 -0.0306  0.2439 11.5410

Coefficients:
                Estimate Std. Error t value Pr(>|t|)
(Intercept)      2.744e-16  3.608e-02   0.000  1.0000
DB$`Return Bel20 T+4 Norm`  3.330e-01  3.624e-02   9.191 <2e-16 ***
DB$`Mark Cap Norm`      -3.110e-02  3.912e-02  -0.795  0.4268
DB$`Momentum Norm`     5.965e-03  3.677e-02   0.162  0.8712
DB$`BTM Norm`         -1.069e-02  3.738e-02  -0.286  0.7749
DB$`Inst Owner Norm`   7.937e-02  3.909e-02   2.030  0.0427 *
DB$`% of issued share capital Norm` -4.356e-02  3.669e-02  -1.187  0.2355
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.9457 on 680 degrees of freedom
Multiple R-squared:  0.1148,    Adjusted R-squared:  0.107
F-statistic: 14.7 on 6 and 680 DF,  p-value: 7.847e-16
```

Annexe 8 : Régression linéaire en T+5

```
Call:
lm(formula = DB$`Return T+5 Norm` ~ DB$`Return Bel20 T+5 Norm` +
  DB$`Mark Cap Norm` + DB$`Momentum Norm` + DB$`BTM Norm` +
  DB$`Inst Owner Norm` + DB$`% of issued share capital Norm`)

Residuals:
    Min       1Q   Median       3Q      Max
-6.1200 -0.3077 -0.0143  0.2559 11.2698

Coefficients:
                Estimate Std. Error t value Pr(>|t|)
(Intercept)      3.703e-16  3.594e-02   0.000  1.0000
DB$`Return Bel20 T+5 Norm`  3.428e-01  3.621e-02   9.468 <2e-16 ***
DB$`Mark Cap Norm`      -2.076e-02  3.906e-02  -0.531  0.5954
DB$`Momentum Norm`     1.034e-02  3.662e-02   0.282  0.7778
DB$`BTM Norm`         9.639e-03  3.723e-02   0.259  0.7958
DB$`Inst Owner Norm`   7.518e-02  3.900e-02   1.928  0.0543 .
DB$`% of issued share capital Norm` -5.408e-02  3.654e-02  -1.480  0.1393
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.9419 on 680 degrees of freedom
Multiple R-squared:  0.1219,    Adjusted R-squared:  0.1141
F-statistic: 15.73 on 6 and 680 DF,  p-value: < 2.2e-16
```

Annexe 9 : Régression linéaire de l'ouverture à la fermeture des positions

```
Call:
lm(formula = DB$`Return T0-F Norm` ~ DB$`Return Bel20 T0-F Norm` +
  DB$`Mark Cap Norm` + DB$`Momentum Norm` + DB$`BTM Norm` +
  DB$`Inst Owner Norm` + DB$`% of issued share capital Norm`)

Residuals:
    Min       1Q   Median       3Q      Max
-3.7444 -0.2496 -0.0580  0.2852  5.9110

Coefficients:
                Estimate Std. Error t value Pr(>|t|)
(Intercept)      1.846e-15  3.510e-02   0.000  1.0000
DB$`Return Bel20 T0-F Norm`  3.477e-01  3.670e-02   9.474 < 2e-16 ***
DB$`Mark Cap Norm`          6.369e-02  3.813e-02   1.670  0.0953 .
DB$`Momentum Norm`         3.049e-02  3.580e-02   0.852  0.3947
DB$`BTM Norm`              2.649e-02  3.667e-02   0.723  0.4702
DB$`Inst Owner Norm`       1.120e-03  3.823e-02   0.029  0.9766
DB$`% of issued share capital Norm` -2.602e-01  3.653e-02 -7.122 2.72e-12 ***
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.92 on 680 degrees of freedom
Multiple R-squared:  0.1622,    Adjusted R-squared:  0.1548
F-statistic: 21.94 on 6 and 680 DF,  p-value: < 2.2e-16
```

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