Negative Outlier prediction

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These are the results considering today's negative outlier condition (TRUE or FALSE), and having a look at a n-day ahead window, for each ticker (40 of them) and the whole available time series.

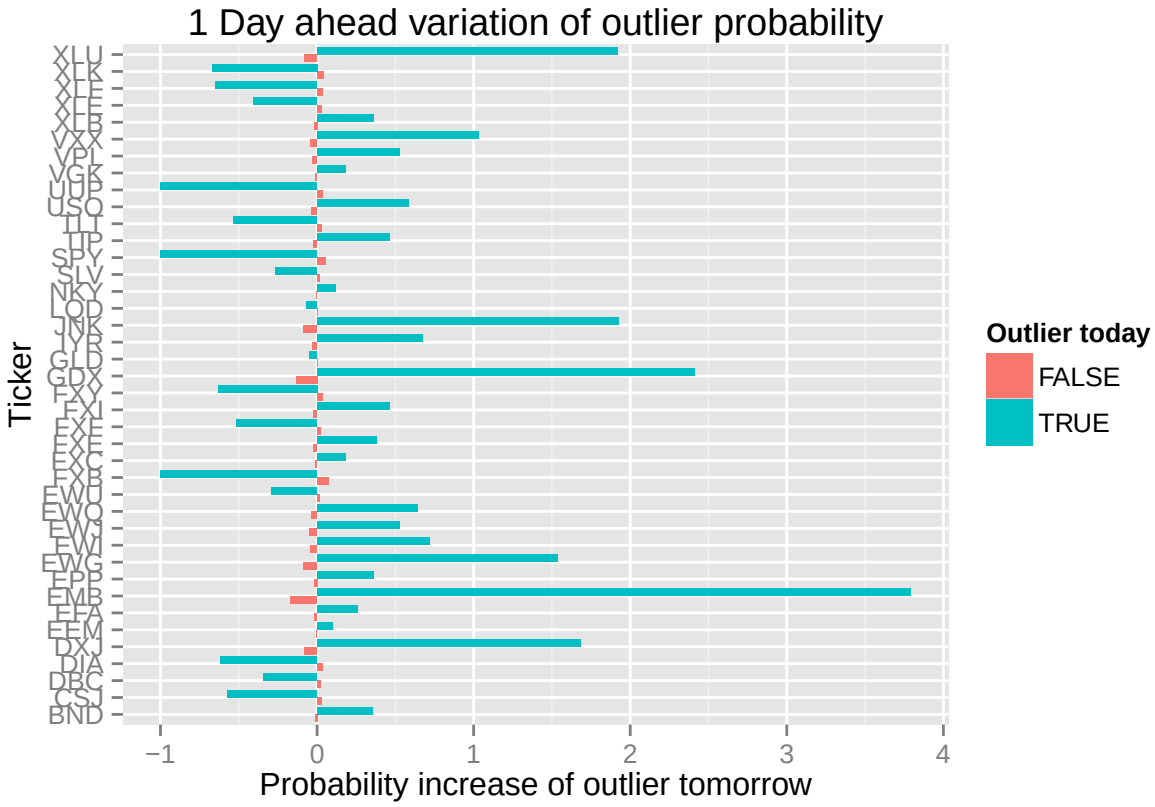
Calculations and plots

We apply the same methodology, first considering only one day ahead, then to a sequence of multiple days ahead window, ranging from 1 to 10 days. The outcome is the increase in 1-day probability of outlier, if today is an outlier.

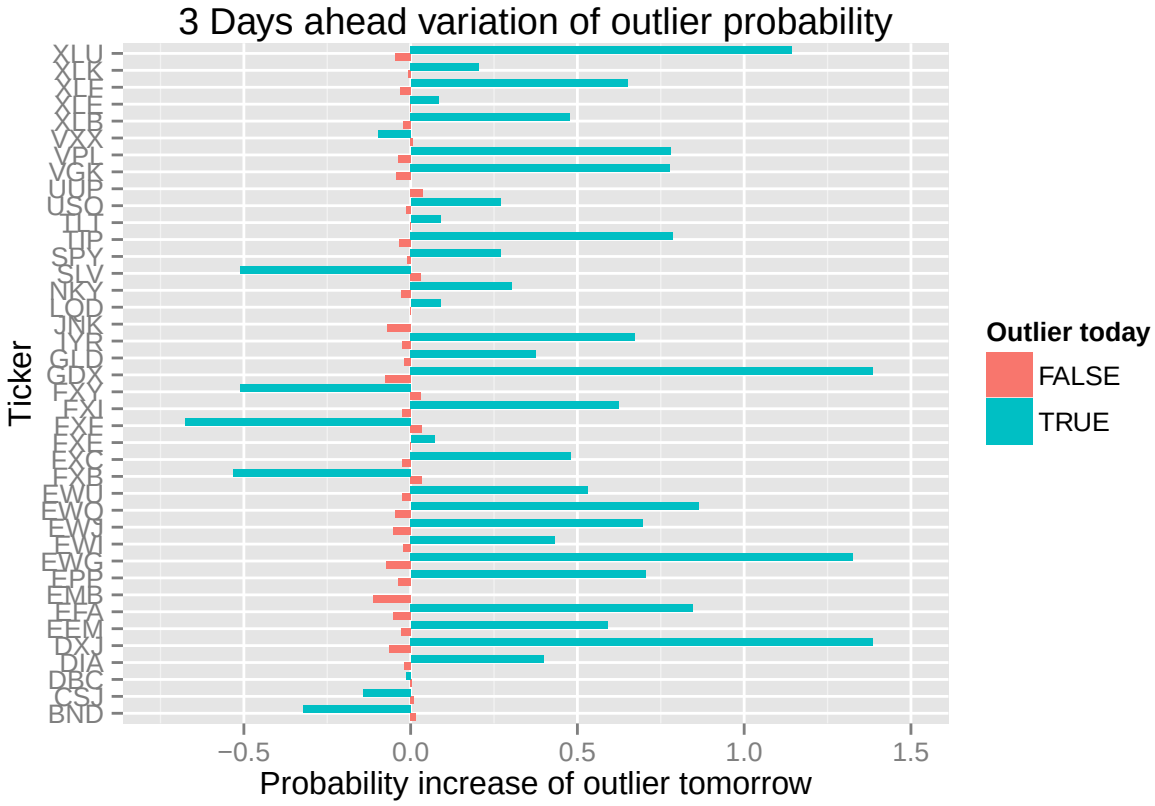
One day ahead

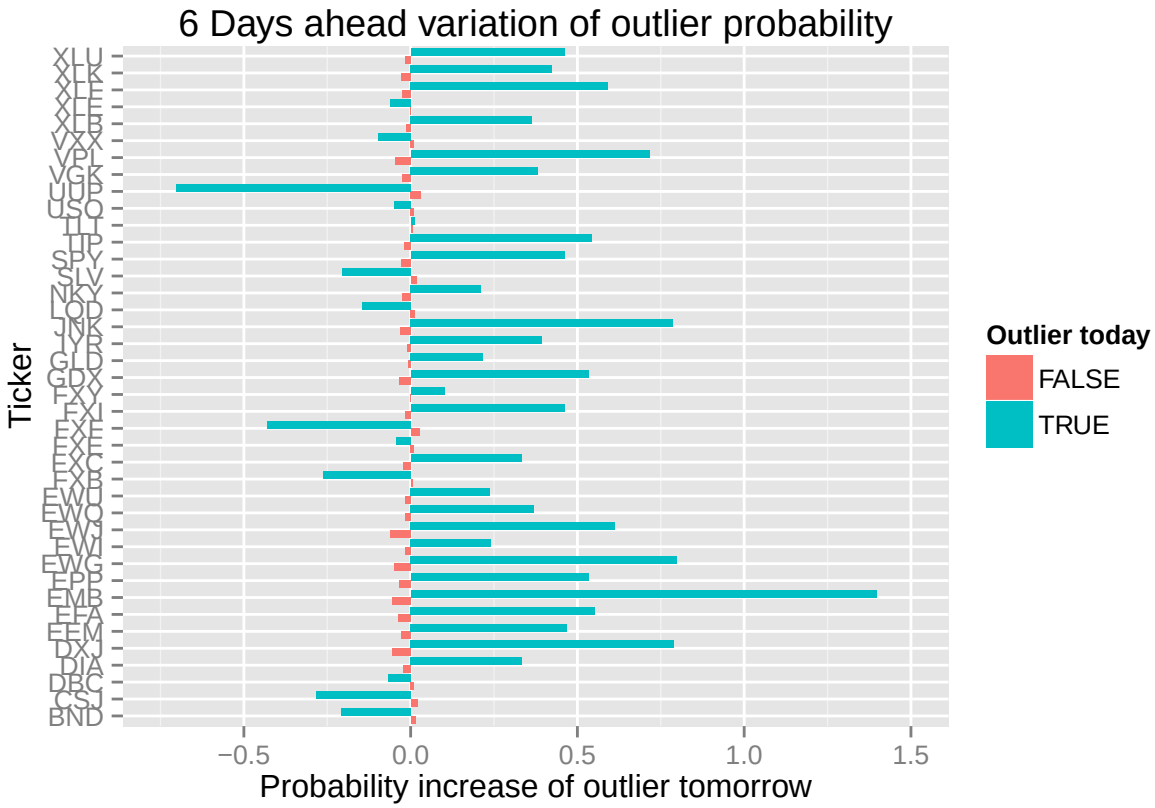
```
## Standard summary (probability increase w/r to today's condition
```

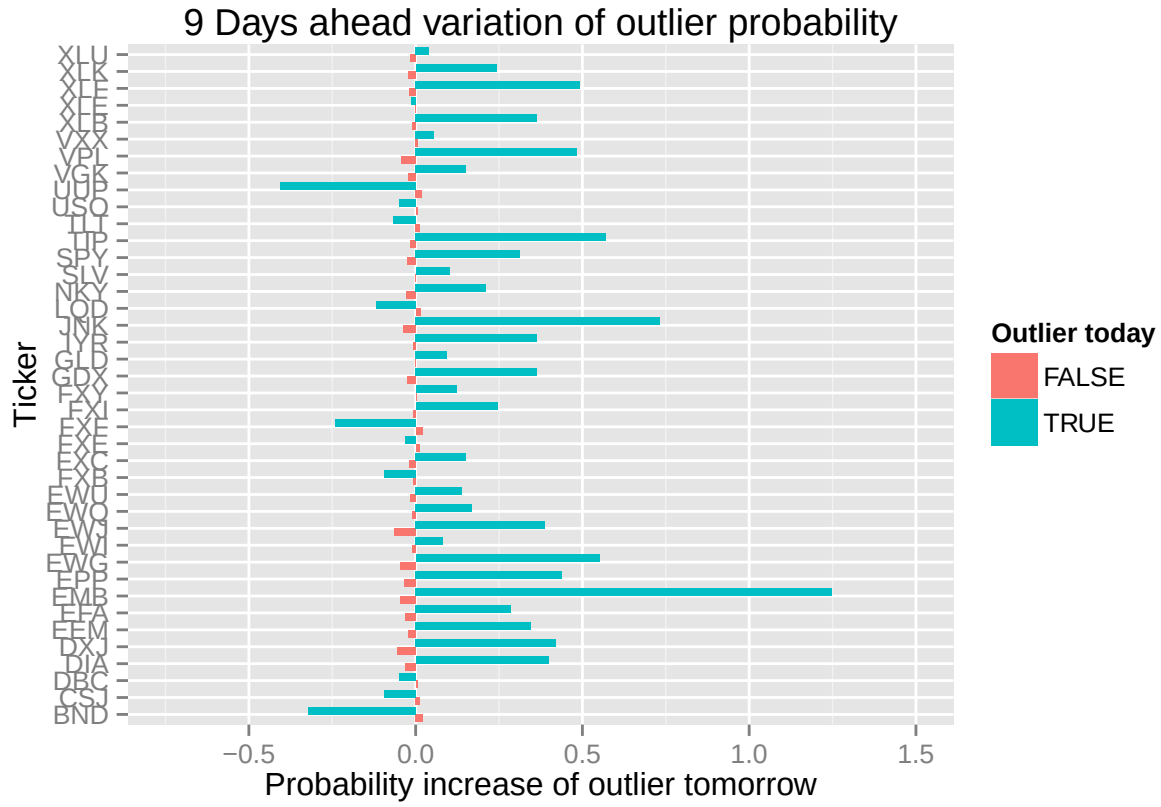
```
## $`FALSE`
##    Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
## -0.1680 -0.0340 -0.0116 -0.0147  0.0252  0.0706
##
## $`TRUE`
##    Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##  -1.000  -0.434   0.222   0.315   0.601   3.790
```


1 Day ahead variation of outlier probability
Ticker
XLU
XLK
XLF
XLE
XLB
VXX
VPL
VGK
UUP
USO
TLT
TIP
SPY
SLV
NKY
LQD
JNK
IYR
GLD
GDX
FXY
FXI
FXE
EXC
FXB
EWU
EWO
EWJ
EWI
EWG
EPP
EMB
EFA
EEM
DXJ
DIA
DBC
CSJ
BND
−1
0
1
2
3
4
Probability increase of outlier tomorrow
Outlier today
FALSE
TRUE

Multiple days ahead







Summary

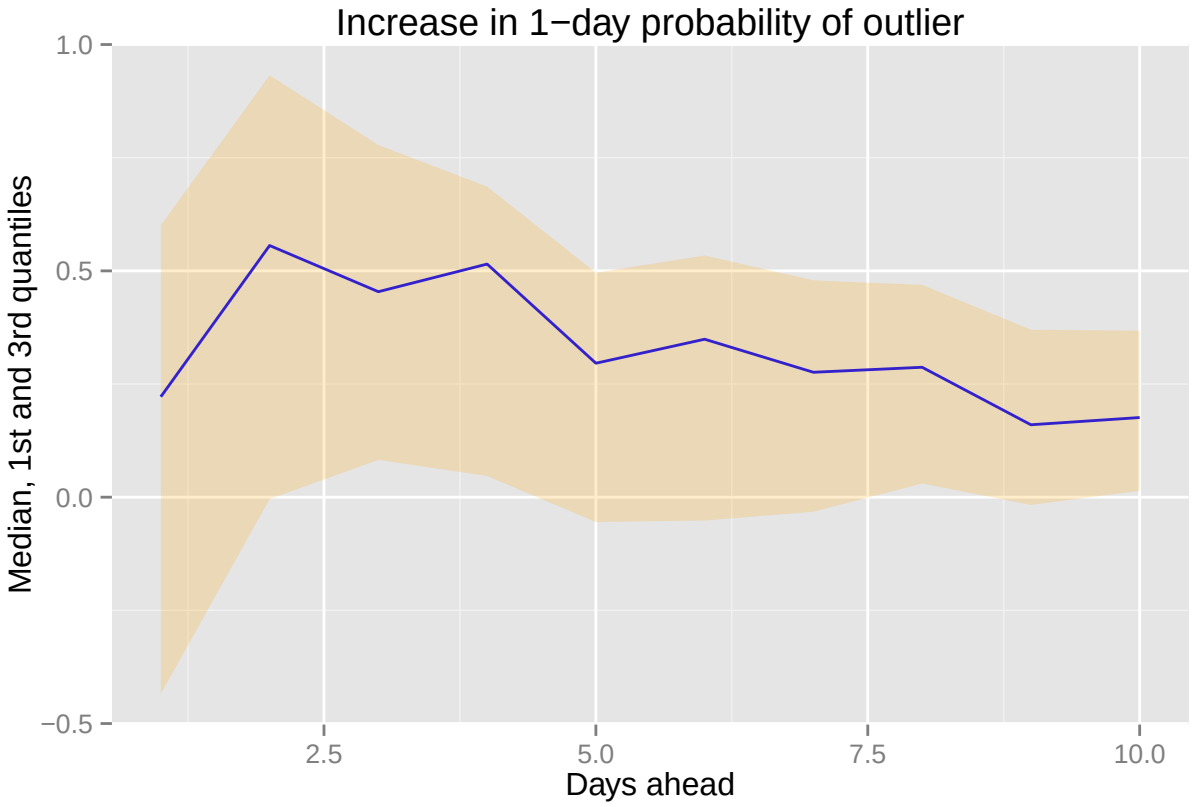
Here we can see the summary of result for diffent days ahead prediction. It can be shown that typically there is an increase in probability of outlier (although the variability is high), but this probability fades progressively if we increase the time window. The increase in probability is higher than in the general outlier case (positive and negative), and there is a trend to have bigger probability increase in a 2 days ahead window than a 1 day ahead window.

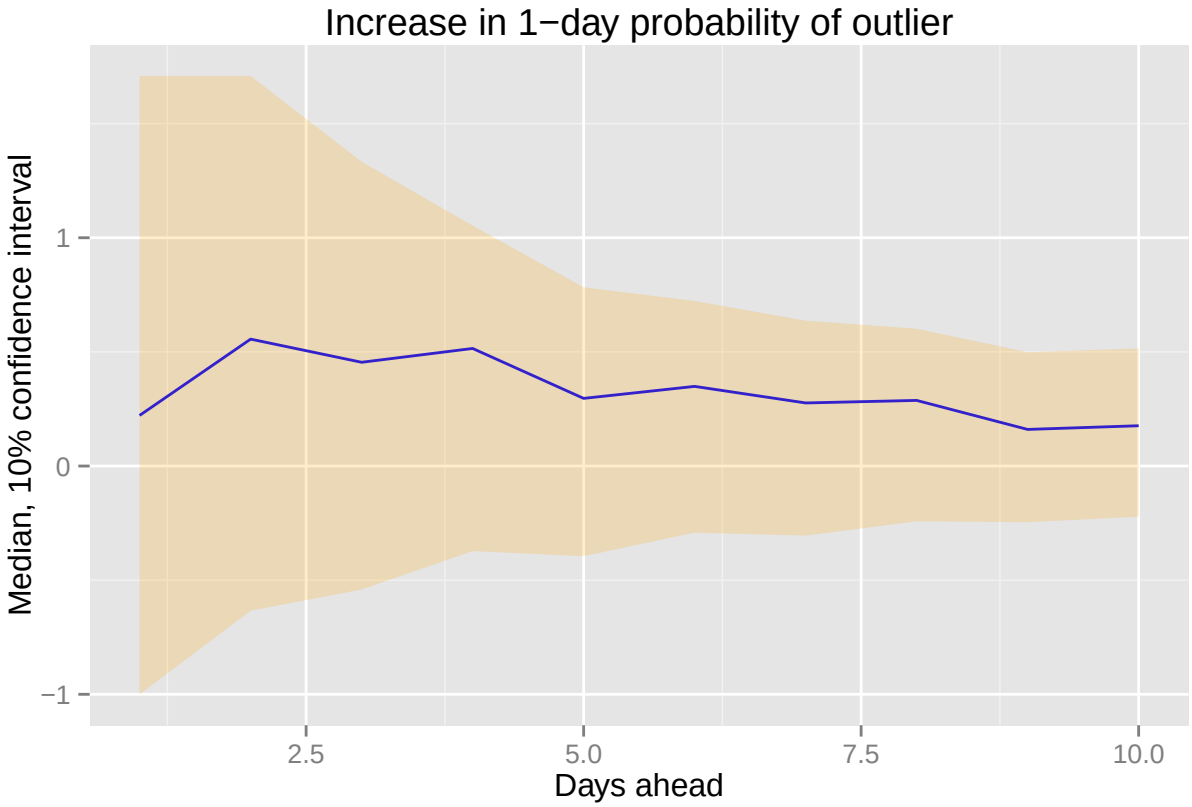
```
## Standard Summary
```

```
##        Min       Q1 Median  Mean    Q3  Max days_ahead
## 1   -1.000 -0.43400  0.222 0.315 0.601 3.79          1
## 2   -1.000 -0.00406  0.556 0.558 0.932 2.73          2
## 3   -1.000  0.08240  0.454 0.441 0.778 2.55          3
## 4   -0.777  0.04680  0.515 0.411 0.686 2.06          4
## 5   -0.822 -0.05490  0.296 0.268 0.496 1.77          5
## 6   -0.703 -0.05150  0.349 0.269 0.534 1.40          6
## 7   -0.618 -0.03210  0.276 0.246 0.479 1.21          7
## 8   -0.443  0.03030  0.287 0.264 0.469 1.20          8
## 9   -0.405 -0.01710  0.160 0.202 0.370 1.25          9
## 10 -0.376  0.01420  0.176 0.208 0.368 1.24         10
```

```
## Summary of quantiles
```

```
##      Q0.05     Q0.25   Q0.5  Q0.75   Q0.9 days_ahead
## 1  -1.0000 -0.433921 0.2216 0.6009 1.7086          1
## 2  -0.6338 -0.004063 0.5559 0.9318 1.7086          2
## 3  -0.5408  0.082444 0.4544 0.7776 1.3329          3
## 4  -0.3726  0.046759 0.5150 0.6861 1.0530          4
## 5  -0.3949 -0.054901 0.2964 0.4956 0.7830          5
## 6  -0.2917 -0.051536 0.3489 0.5337 0.7229          6
## 7  -0.3049 -0.032133 0.2763 0.4791 0.6369          7
## 8  -0.2421  0.030334 0.2874 0.4691 0.6016          8
## 9  -0.2461 -0.017120 0.1604 0.3696 0.4987          9
## 10 -0.2221  0.014228 0.1765 0.3681 0.5149         10
```


Increase in 1−day probability of outlier
Median, 1st and 3rd quantiles
1.0
0.5
0.0
−0.5
2.5
5.0
7.5
10.0
Days ahead


Increase in 1−day probability of outlier
Median, 10% confidence interval
1
0
−1
2.5
5.0
7.5
10.0
Days ahead

This heatmap shows the detail about the particular trend of every ticker. There's a particular group of tickers with stronger increase of outlier probability, whereas there are a few tickers with a decrease trend in its outlier probability following an outlier day.