

Creating buy and signals for growth stocks

Perebibowei Azazi

2022-05-22

```
library(quantmod)

## Loading required package: xts
## Loading required package: zoo
##
## Attaching package: 'zoo'
## The following objects are masked from 'package:base':
##
## as.Date, as.Date.numeric
## Loading required package: TTR
## Registered S3 method overwritten by 'quantmod':
## method from
## as.zoo.data.frame zoo
library(tidyverse)

## -- Attaching packages ----- tidyverse 1.3.1 --
## v ggplot2 3.3.6 v purrr 0.3.4
## v tibble 3.1.7 v dplyr 1.0.9
## v tidyr 1.2.0 v stringr 1.4.0
## v readr 2.1.2 v forcats 0.5.1

## -- Conflicts ----- tidyverse_conflicts() -- ## x dplyr::filter() masks
stats::filter()
## x dplyr::first() masks xts::first()
## x dplyr::lag() masks stats::lag()
## x dplyr::last() masks xts::last()

twlo <- getSymbols("TWLO", auto.assign = F)
Sq <- getSymbols("SQ", auto.assign = FALSE)
head(twlo)

## TWLO.Open TWLO.High TWLO.Low TWLO.Close TWLO.Volume TWLO.Adjusted ##
2016-06-23 23.99 29.610 23.66 28.79 21272000 28.79 ## 2016-06-24 27.54 28.739 26.05
26.30 4667800 26.30 ## 2016-06-27 27.35 28.190 26.30 27.25 3907500 27.25 ##
2016-06-28 30.40 33.411 29.57 29.92 10608500 29.92 ## 2016-06-29 31.98 37.190 31.75
37.08 13783000 37.08 ## 2016-06-30 39.68 41.890 34.80 36.50 18512600 36.50

head(Sq)

1

## SQ.Open SQ.High SQ.Low SQ.Close SQ.Volume SQ.Adjusted ##
2015-11-19 11.20 14.78 9.00 13.07 47466100 13.07 ## 2015-11-20 13.92
14.05 12.50 12.85 16550300 12.85 ## 2015-11-23 13.00 13.15 12.10 12.12
5172200 12.12 ## 2015-11-24 12.00 12.23 11.52 12.02 4714700 12.02 ##
```

```
2015-11-25 12.12 12.40 11.85 11.90 3583400 11.90 ## 2015-11-27 12.05
12.31 11.90 12.05 942300 12.05
```

now we need to get the closing cost of each stock

```
twlo.cl <- twlo$TWLO.Close
head(twlo.cl)
```

```
## TWLO.Close
## 2016-06-23 28.79
## 2016-06-24 26.30
## 2016-06-27 27.25
## 2016-06-28 29.92
## 2016-06-29 37.08
## 2016-06-30 36.50
```

```
Sq.cl <- Sq$SQ.Close
head(Sq.cl)
```

```
## SQ.Close
## 2015-11-19 13.07
## 2015-11-20 12.85
## 2015-11-23 12.12
## 2015-11-24 12.02
## 2015-11-25 11.90
## 2015-11-27 12.05
```

now we will calculate the daily percent change

```
head(Lag(twlo.cl, 2))
```

```
## Lag.2
## 2016-06-23 NA
## 2016-06-24 NA
## 2016-06-27 28.79
## 2016-06-28 26.30
## 2016-06-29 27.25
## 2016-06-30 29.92
```

```
head(Lag(Sq.cl, 2))
```

```
## Lag.2
## 2015-11-19 NA
## 2015-11-20 NA
## 2015-11-23 13.07
## 2015-11-24 12.85
## 2015-11-25 12.12
## 2015-11-27 12.02
```

remove scientific notation

```
options(scipen = 9999)
```

create daily change vector

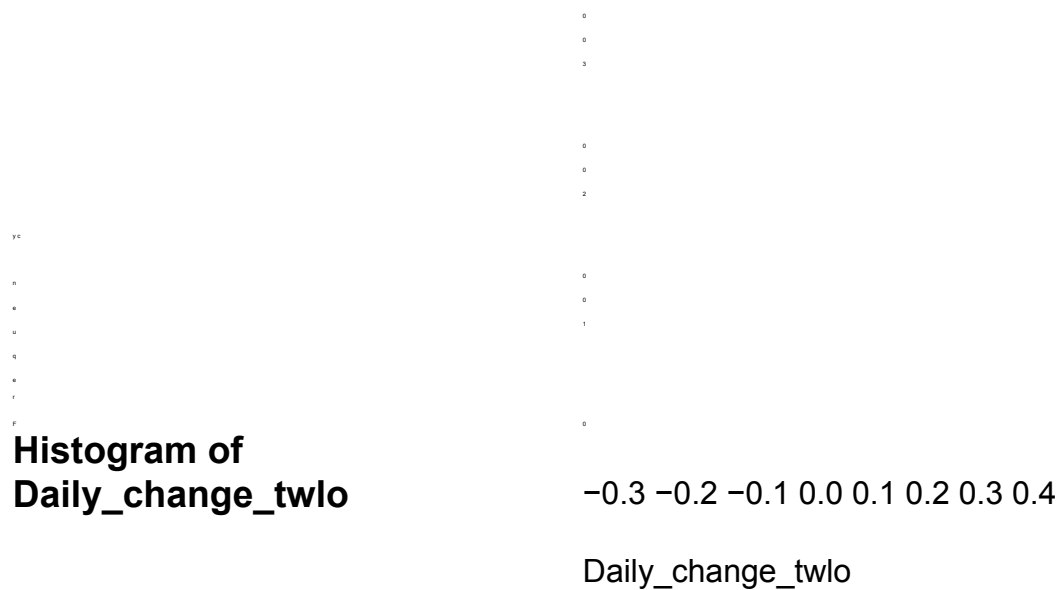
```
Daily_change_twlo <- twlo.cl/Lag(twlo.cl, 1) -1  
daily_change_Sq <- Sq.cl/Lag(Sq.cl, 1) -1  
head(Daily_change_twlo)
```

```
## TWLO.Close  
## 2016-06-23 NA  
## 2016-06-24 -0.08648843  
## 2016-06-27 0.03612171  
## 2016-06-28 0.09798165  
## 2016-06-29 0.23930488  
## 2016-06-30 -0.01564191  
head(daily_change_Sq)
```

```
## SQ.Close  
## 2015-11-19 NA  
## 2015-11-20 -0.016832441  
## 2015-11-23 -0.056809339  
## 2015-11-24 -0.008250825  
## 2015-11-25 -0.009983361  
## 2015-11-27 0.012605042
```

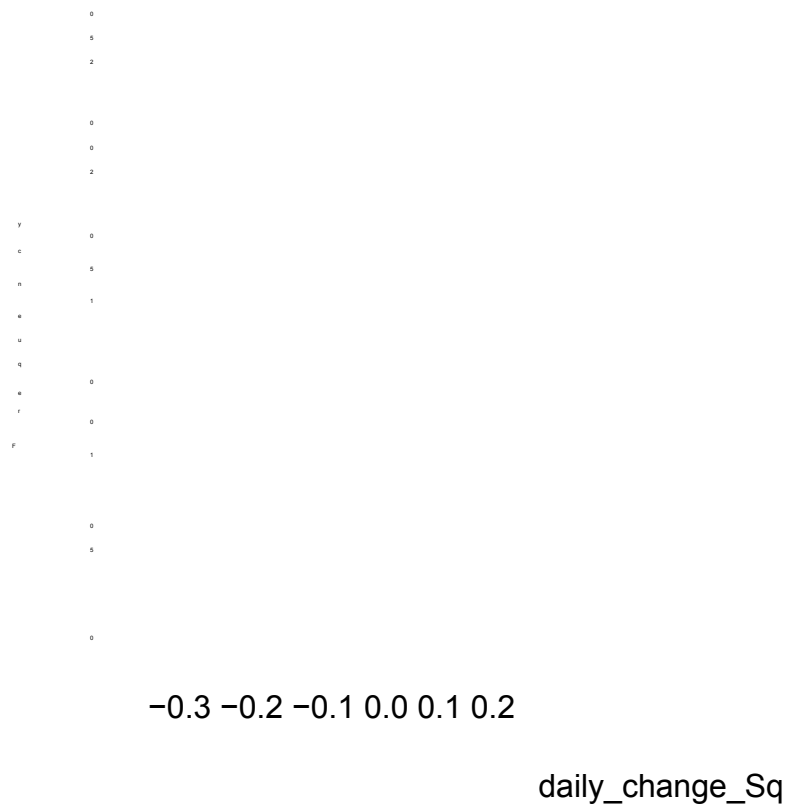
create histogram

```
hist(Daily_change_twlo, 40, col = "blue") 3
```



```
hist(daily_change_Sq, 40, col = "yellow")
```

Histogram of daily_change_Sq



```
create_buy signal
buy_signal <- .04
```

##

```
buy_signal2 <- .02
```

4

Loop over all trading days (except the first)

```
##buy_signal == parameter
##tsla_cl == Data
##Daily_change == % change
##signal == 1 or 0 buy/sell
signals <- c(NULL)
signal <- c(NULL)
for(i in 2:length(Sq.cl)){
  if(daily_change_Sq[i] > buy_signal2){
    signals[i] <- 1
  } else
    signals[i] <- 0
}

for(i in 2:length(twlo.cl)){
  if(Daily_change_twlo[i] > buy_signal2){
    signal[i] <- 1
  } else
    signal[i] <- 0
}
head(signal, 40)

## [1] NA 0 1 1 1 0 0 0 1 0 0 1 1 1 0 1 0 0 1 0 0 0 0 1 0 ## [26] 0 0 0 0 1 1 1 0 0 1 1 1 0 0 0
head(signals, 40)

## [1] NA 0 0 0 0 0 0 0 0 0 0 1 0 0 0 0 1 0 0 0 0 0 0 0 0 ## [26] 0 0 0 1 0 0 0 0 0 1 1 0 0 0 0
```

reclassify signal to ans xts object(tying it to date)

```
signaltwlo <- reclass(signal, twlo.cl)
head(signaltwlo)
```

```
## [,1]
## 2016-06-23 NA
## 2016-06-24 0
## 2016-06-27 1
## 2016-06-28 1
## 2016-06-29 1
## 2016-06-30 0
```

```
signalsq <- reclass(signals, Sq.cl)
head(signals)
```

```
## [1] NA 0 0 0 0 0
```

Stock_Charts

,

```
``{r}
```

```
chartSeries(twlo, "bar" = "line", subset = "2022-01::2022-05", theme = chartTheme("white"))
```

```
addTA(signaltwlo, type = "S", col = "red")
```

```
chartSeries(Sq, "bar" = "line", subset = "2022-01::2022-05", theme = chartTheme("white"))
```

```
addTA(signals, type = "S", col = "red")
```

```
...
```

