Time series plot

Time series plot
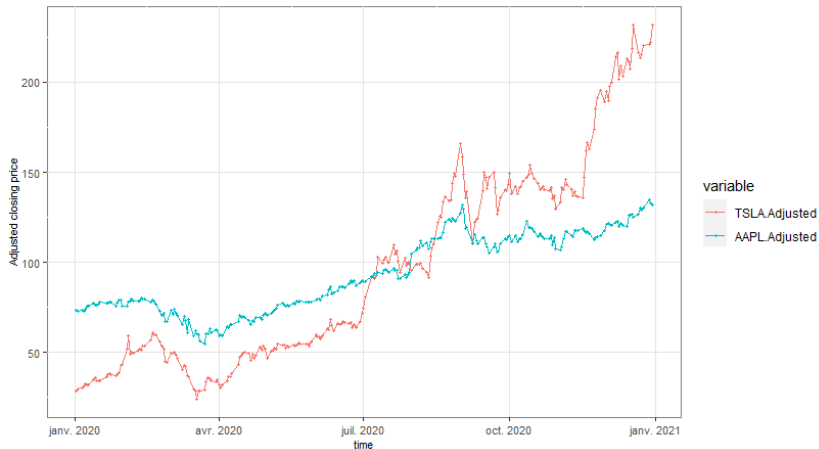*Tesla stock*

Multiple time series plots

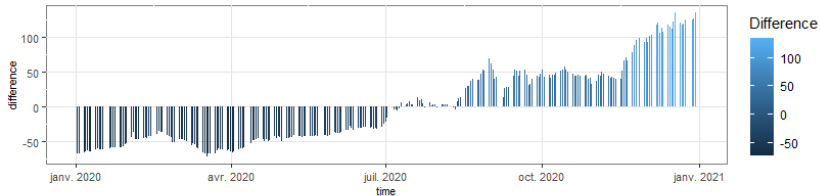Multiple time series plot

Tesla and Apple stocks
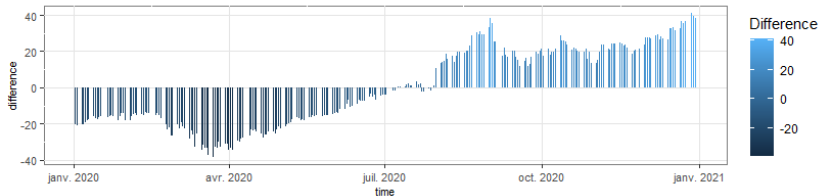
Diverging bar plots

Diverging time series bar plot
Tesla

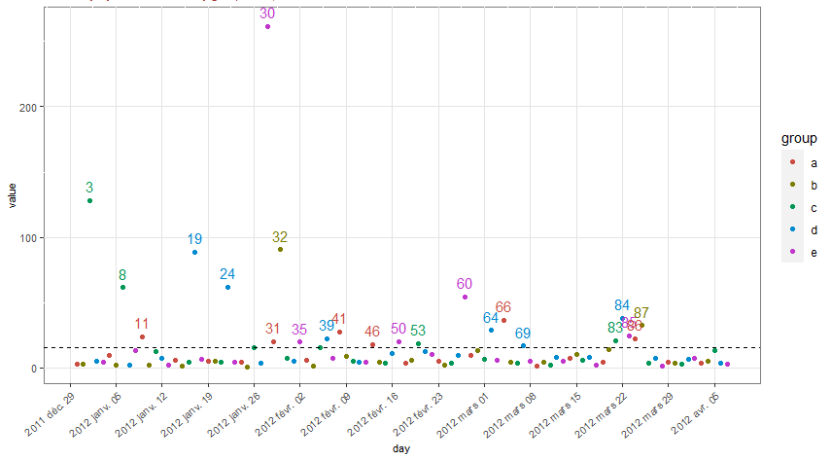### Diverging time series bar plot
Apple

Time data with labels above a threshold

Time data with labels above average
variable y by month colored by group label, on artificial dataset

R code for figure 1

```r
1 library(quantmod)
2 library(reshape2)
3 library(tidyverse)
4
5 # 1. retrieve stock prices from Yahoo finance
6
7 # Tesla, Inc.
8 TSLA <- getSymbols("TSLA", src = "yahoo", from = "2020-01-01", to = "2020-12-31"
      , auto.assign = FALSE)
9 # Apple Inc.
10 AAPL <- getSymbols("AAPL", src = "yahoo", from = "2020-01-01", to = "2020-12-31"
      , auto.assign = FALSE)
11
12 # 2. Create dataset
13
14 dates <- index(TSLA)
15 dataset <- data.frame('dates' = dates, TSLA[, 6], AAPL[, 6])
16
17 # 1. Time series plot of one stock
18
19 ggplot(dataset, aes(x = dates, y = TSLA.Adjusted)) +
20   geom_line(color = 'darkblue') +
21   geom_point(size = 0.6) +
22   labs(title = 'Time series plot',
23        subtitle = 'Tesla stock',
24        y="Adjusted closing price", x="time") +
25   theme(axis.text=element_text(size=8),
26         axis.title=element_text(size=8),
27         plot.subtitle=element_text(size=9, face="italic", color="darkred"),
28         panel.background = element_rect(fill = "white", colour = "grey50"),
29         panel.grid.major = element_line(colour = "grey90"))
```

R code for figure 2

```
1 dataset_long <- melt(dataset, id.vars = "dates")
2 head(dataset_long)
3
4 ggplot(dataset_long, aes(x = dates, y = value, col = variable)) +
5   geom_line() +
6   geom_point(size = 0.6) +
7   labs(title = 'Multiple time series plot',
8        subtitle = 'Tesla and Apple stocks',
9        y="Adjusted closing price", x="time") +
10   theme(axis.text=element_text(size=8),
11         axis.title=element_text(size=8),
12         plot.subtitle=element_text(size=9, face="italic", color="darkred"),
13         panel.background = element_rect(fill = "white", colour = "grey50"),
14         panel.grid.major = element_line(colour = "grey90"))
```

R code for figure 3

```r
1 library(gridExtra)
2
3 # compute the mean of the variable 'var3' for each 'subcategory' group
4 dataset_2 <- dataset %>%
5   mutate(Mean_TSLA = mean(TSLA.Adjusted)) %>%
6   mutate(Diff_TSLA = TSLA.Adjusted - Mean_TSLA) %>%
7   mutate(Mean_AAPL = mean(AAPL.Adjusted)) %>%
8   mutate(Diff_AAPL = AAPL.Adjusted - Mean_AAPL)
9
10 p1 <- ggplot(dataset_2, aes(x = dates, y = Diff_TSLA)) +
11   geom_bar(stat='identity', width=.5, aes(fill=Diff_TSLA),
12            show.legend = TRUE) +
13   scale_fill_continuous(name="Difference") +
14   customization
15
16 p2 <- ggplot(dataset_2, aes(x = dates, y = Diff_AAPL)) +
17   geom_bar(stat='identity', width=.5, aes(fill=Diff_AAPL),
18            show.legend = TRUE) +
19   scale_fill_continuous(name="Difference") +
20   customization
21
22 final.plot <- grid.arrange(p1, p2, nrow = 2)
```

R code for figure 4

```
1 set.seed(2023)
2 x <- seq(from = as.Date("2011-12-30"), to = as.Date("2011-12-30") + 99, by="days
       ")
3 y <- abs(rt(n = 100, df = 1, ncp = 4))
4 group <- rep(c('a', 'b', 'c', 'd', 'e'), 20)
5 ID <- 1:100
6
7 # Create dataset in the form of a data frame
8
9 dataset <- data.frame(x, y, group, ID)
10
11 # Create plot
12
13 ggplot(dataset, aes(x = x, y = y, color = group))+
14   geom_point() +
15   scale_colour_discrete(l = 50) +
                    # change the color tone
16   geom_hline(yintercept = mean(y), linetype="dashed", color = 'black') +
                    # add horizontal line
17   geom_text(aes(label = ID), dataset %>% filter(y>mean(y)),
18            show_guide = FALSE, vjust = -0.6, nudge_y = 1.2) +
                    # add ID if point > criterion
                       # fixed legend label
19   scale_x_date(date_labels = "%Y %b %d", date_breaks = "7 day") +
                    # fix x-axis labels
20   customization
```