Comentário de Conjuntura

Coronavírus, Volatilidade e Ibovespa

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Abstract

Nesse comentário, fazemos uma análise da relação entre a volatilidade global e o índice Bovespa.

1 Pacotes e atualizações

```
## Pacotes utilizados nesse comentário
library(quantmod)
library(dplyr)
library(tidyr)
library(ggplot2)
library(scales)
library(png)
library(grid)
library(ggalt)
```

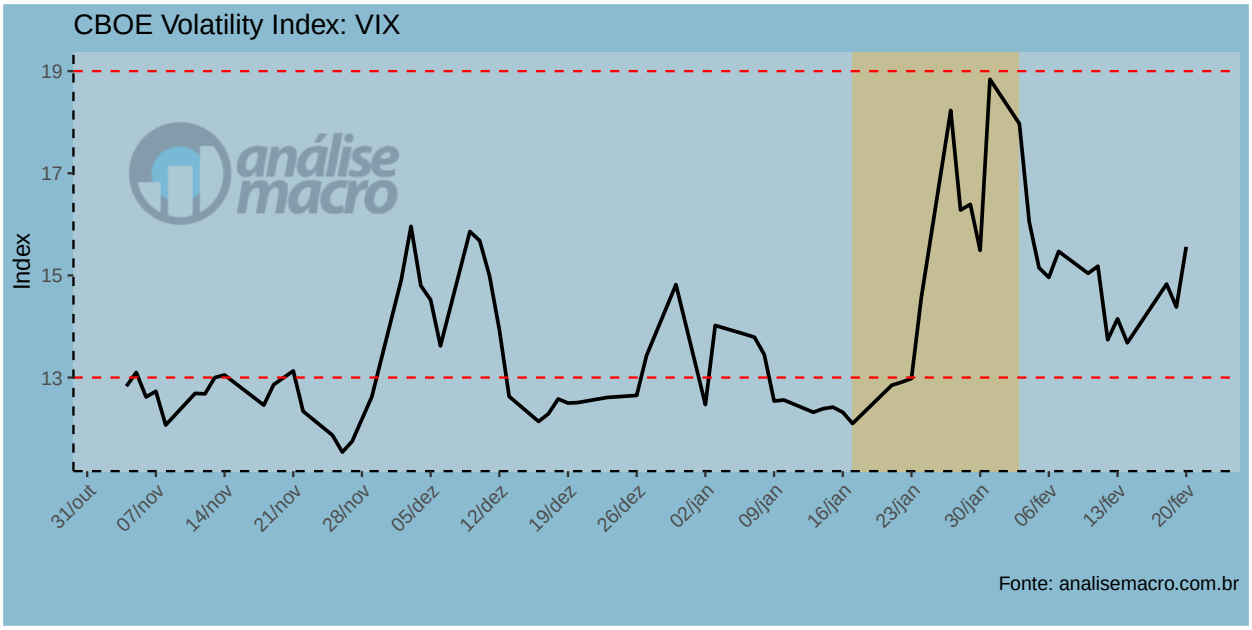
2 Coleta de dados

```
ibov = getSymbols("^BVSP",src="yahoo")
vix = getSymbols('VIXCLS', src='FRED')
data1 = tibble(dates=as.Date(time(VIXCLS)), vix=VIXCLS)
data2 = tibble(dates=as.Date(time(BVSP)), ibov=BVSP$BVSP.Close)
data = inner_join(data1, data2, by='dates') %>%
  drop_na()
```

3 Visualização de dados

```
img <- readPNG('logo.png')
g <- rasterGrob(img, interpolate=TRUE)

filter(data, dates > '2019-11-01') %>%
  ggplot(aes(x=dates, y=vix))+
  annotate("rect", fill = "orange", alpha = 0.3,
           xmin = as.Date('2020-01-17'),
           xmax = as.Date('2020-02-03'),
           ymin = -Inf, ymax = Inf)+
  geom_line(size=.8)+
  geom_hline(yintercept=13, colour='red', linetype='dashed')+
  geom_hline(yintercept=19, colour='red', linetype='dashed')+
  scale_x_date(breaks = date_breaks("7 days"),
               labels = date_format("%d/%b"))+
  theme(axis.text.x=element_text(angle=45, hjust=1))+
  labs(x='', y='Index',
       title='CBOE Volatility Index: VIX',
       caption='Fonte: analisemacro.com.br')+
  theme(panel.background = element_rect(fill='#acc8d4',
                                        colour='#acc8d4'),
        plot.background = element_rect(fill='#8abbd0'),
        axis.line = element_line(colour='black',
                                 linetype = 'dashed'),
        axis.line.x.bottom = element_line(colour='black'),
        panel.grid.major = element_blank(),
        panel.grid.minor = element_blank(),
        legend.position = 'bottom',
        legend.background = element_rect((fill='#acc8d4')),
        legend.key = element_rect(fill='#acc8d4',
                                  colour='#acc8d4'),
        plot.margin=margin(5,5,15,5))+
  annotation_custom(g,
                    xmin=as.Date('2019-10-31'),
                    xmax=as.Date('2019-12-06'),
                    ymin=15, ymax=19)
```




```
data_select = data[data$ibov < 120000 & data$vix > 5 &
                     data$ibov > 90000 & data$vix < 30,]

ggplot(data, aes(x=vix, y=ibov/1000))+
  geom_point(size=.6)+
  geom_encircle(aes(x=vix, y=ibov/1000),
                data=data_select,
                color="blue",
                size=2,
                expand=0.08)+
  geom_smooth(aes(x=vix, y=ibov/1000),
              data=data_select,
              method='lm',
              se=FALSE,
              colour='red',
              size=.8)+
  labs(x='VIX Index', y='Ibovespa (mil)',
       title='Ibovespa vs. Volatilidade Global (VIX Index)',
       caption='Fonte: analisemacro.com.br')+
  theme(panel.background = element_rect(fill='#acc8d4',
                                        colour='#acc8d4'),
        plot.background = element_rect(fill='#8abbd0'),
        axis.line = element_line(colour='black',
                                 linetype = 'dashed'),
        axis.line.x.bottom = element_line(colour='black'),
        panel.grid.major = element_blank(),
        panel.grid.minor = element_blank(),
        legend.position = 'bottom',
        legend.background = element_rect((fill='#acc8d4')),
        legend.key = element_rect(fill='#acc8d4',
                                  colour='#acc8d4'),
        plot.margin=margin(5,5,15,5))+
  annotation_custom(g,
                    xmin=60,
```

```
                    xmax=80,
                    ymin=75, ymax=120)
```