

CCI

September 29, 2021

1 Commodity Channel Index (CCI)

https://stockcharts.com/school/doku.php?id=chart_school:technical_indicators:commodity_channel_index_cci

```
[1]: import numpy as np
import pandas as pd
import matplotlib.pyplot as plt

import warnings
warnings.filterwarnings("ignore")

# fix_yahoo_finance is used to fetch data
import fix_yahoo_finance as yf
yf.pdr_override()
```

```
[2]: # input
symbol = 'AAPL'
start = '2016-01-01'
end = '2019-01-01'

# Read data
df = yf.download(symbol, start, end)

# View Columns
df.head()
```

[*****100%*****] 1 of 1 downloaded

```
[2]:
```

	Open	High	Low	Close	Adj Close	\
Date						
2016-01-04	102.610001	105.370003	102.000000	105.349998	99.499107	
2016-01-05	105.750000	105.849998	102.410004	102.709999	97.005730	
2016-01-06	100.559998	102.370003	99.870003	100.699997	95.107361	
2016-01-07	98.680000	100.129997	96.430000	96.449997	91.093399	
2016-01-08	98.550003	99.110001	96.760002	96.959999	91.575073	

	Volume
Date	

```

2016-01-04 67649400
2016-01-05 55791000
2016-01-06 68457400
2016-01-07 81094400
2016-01-08 70798000

```

```

[3]: n = 20
df['TP'] = (df['High'] + df['Low'] + df['Adj Close'])/3
df['SMA_TP'] = df['TP'].rolling(n).mean()
df['SMA_STD'] = df['TP'].rolling(n).std()
df['CCI'] = (df['TP'] - df['SMA_TP']) / (0.015*df['SMA_STD'])
df = df.drop(['TP', 'SMA_TP', 'SMA_STD'],axis=1)

```

```

[4]: df.head(30)

```

```

[4]:
      Date      Open      High      Low      Close  Adj Close  \
2016-01-04  102.610001  105.370003  102.000000  105.349998  99.499107
2016-01-05  105.750000  105.849998  102.410004  102.709999  97.005730
2016-01-06  100.559998  102.370003   99.870003  100.699997  95.107361
2016-01-07   98.680000  100.129997   96.430000   96.449997  91.093399
2016-01-08   98.550003   99.110001   96.760002   96.959999  91.575073
2016-01-11   98.970001   99.059998   97.339996   98.529999  93.057869
2016-01-12  100.550003  100.690002   98.839996   99.959999  94.408447
2016-01-13  100.320000  101.190002   97.300003   97.389999  91.981194
2016-01-14   97.959999  100.480003   95.739998   99.519997  93.992889
2016-01-15   96.199997   97.709999   95.360001   97.129997  91.735634
2016-01-19   98.410004   98.650002   95.500000   96.660004  91.291718
2016-01-20   95.099998   98.190002   93.419998   96.790001  91.414520
2016-01-21   97.059998   97.879997   94.940002   96.300003  90.951736
2016-01-22   98.629997  101.459999   98.370003  101.419998  95.787369
2016-01-25  101.519997  101.529999   99.209999   99.440002  93.917336
2016-01-26   99.930000  100.879997   98.070000   99.989998  94.436790
2016-01-27   96.040001   96.629997   93.339996   93.419998  88.231659
2016-01-28   93.790001   94.519997   92.389999   94.089996  88.864449
2016-01-29   94.790001   97.339996   94.349998   97.339996  91.933960
2016-02-01   96.470001   96.709999   95.400002   96.430000  91.074501
2016-02-02   95.419998   96.040001   94.279999   94.480003  89.232796
2016-02-03   95.000000   96.839996   94.080002   96.349998  90.998932
2016-02-04   95.860001   97.330002   95.190002   96.599998  91.730110
2016-02-05   96.519997   96.919998   93.690002   94.019997  89.280190
2016-02-08   93.129997   95.699997   93.040001   95.010002  90.220276
2016-02-09   94.290001   95.940002   93.930000   94.989998  90.201294
2016-02-10   95.919998   96.349998   94.099998   94.269997  89.517586
2016-02-11   93.790001   94.720001   92.589996   93.699997  88.976318
2016-02-12   94.190002   94.500000   93.010002   93.989998  89.251686
2016-02-16   95.019997   96.849998   94.610001   96.639999  91.768089

```

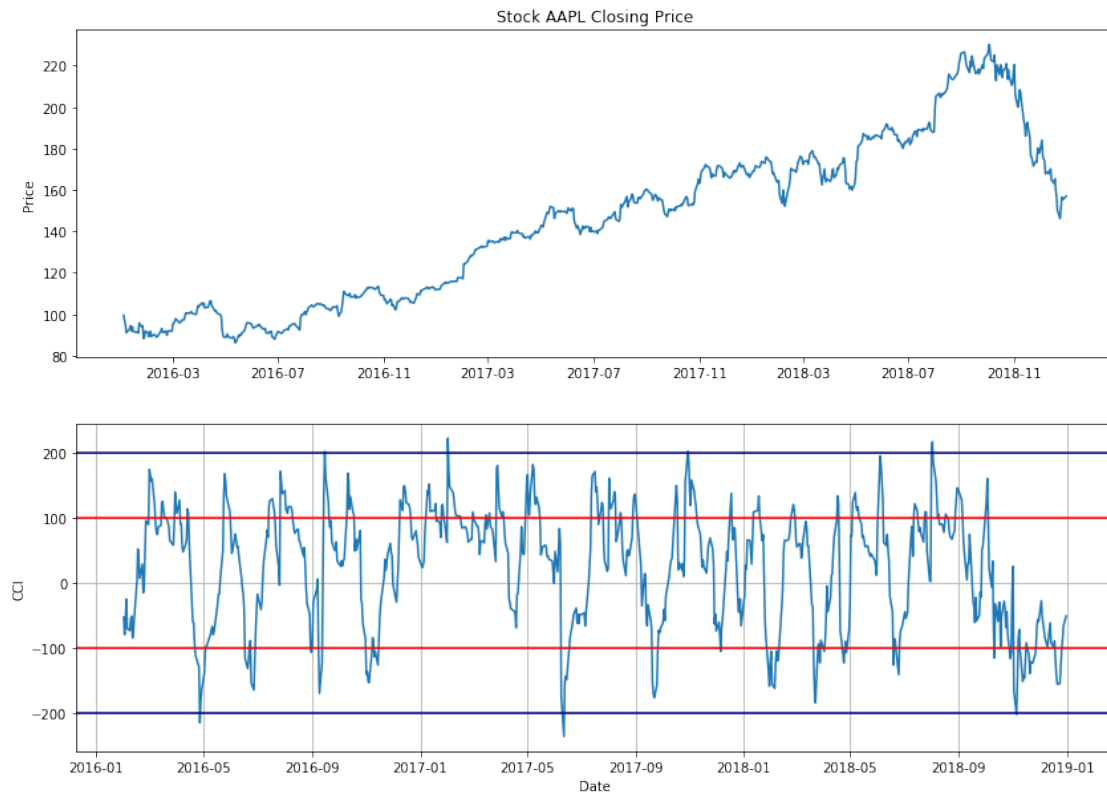
Date	Volume	CCI
2016-01-04	67649400	NaN
2016-01-05	55791000	NaN
2016-01-06	68457400	NaN
2016-01-07	81094400	NaN
2016-01-08	70798000	NaN
2016-01-11	49739400	NaN
2016-01-12	49154200	NaN
2016-01-13	62439600	NaN
2016-01-14	63170100	NaN
2016-01-15	79010000	NaN
2016-01-19	53087700	NaN
2016-01-20	72334400	NaN
2016-01-21	52161500	NaN
2016-01-22	65800500	NaN
2016-01-25	51794500	NaN
2016-01-26	75077000	NaN
2016-01-27	133369700	NaN
2016-01-28	55678800	NaN
2016-01-29	64416500	NaN
2016-02-01	40943500	-52.531367
2016-02-02	37357200	-79.573568
2016-02-03	45964300	-55.444984
2016-02-04	46471700	-24.688585
2016-02-05	46418100	-69.950759
2016-02-08	54021400	-73.359752
2016-02-09	44331200	-55.261025
2016-02-10	42343600	-51.068884
2016-02-11	50074700	-84.620257
2016-02-12	40351400	-71.686873
2016-02-16	49057900	4.055258

```
[5]: fig = plt.figure(figsize=(14,10))
ax1 = plt.subplot(2, 1, 1)
ax1.plot(df['Adj Close'])
ax1.set_title('Stock ' + symbol + ' Closing Price')
ax1.set_ylabel('Price')

ax2 = plt.subplot(2, 1, 2)
ax2.plot(df['CCI'], label='Commodity Channel Index')
ax2.axhline(y=100, color='red')
ax2.axhline(y=-100, color='red')
ax2.axhline(y=200, color='darkblue')
ax2.axhline(y=-200, color='darkblue')
ax2.grid()
```

```
ax2.set_ylabel('CCI')
ax2.set_xlabel('Date')
```

```
[5]: Text(0.5,0,'Date')
```



1.1 Commodity Channel Index

```
[6]: from matplotlib import dates as mdates
import datetime as dt

dfc = df.copy()
dfc['VolumePositive'] = dfc['Open'] < dfc['Adj Close']
#dfc = dfc.dropna()
dfc = dfc.reset_index()
dfc['Date'] = mdates.date2num(dfc['Date'].astype(dt.date))
dfc.head()
```

```
[6]:      Date      Open      High      Low      Close  Adj Close  \
0  735967.0  102.610001  105.370003  102.000000  105.349998  99.499107
1  735968.0  105.750000  105.849998  102.410004  102.709999  97.005730
2  735969.0  100.559998  102.370003   99.870003  100.699997  95.107361
```

3	735970.0	98.680000	100.129997	96.430000	96.449997	91.093399
4	735971.0	98.550003	99.110001	96.760002	96.959999	91.575073

	Volume	CCI	VolumePositive
0	67649400	NaN	False
1	55791000	NaN	False
2	68457400	NaN	False
3	81094400	NaN	False
4	70798000	NaN	False

```
[7]: from mpl_finance import candlestick_ohlc

fig = plt.figure(figsize=(14,10))
ax1 = plt.subplot(2, 1, 1)
candlestick_ohlc(ax1,dfc.values, width=0.5, colorup='g', colordown='r', alpha=1.
    ↪0)
ax1.xaxis_date()
ax1.xaxis.set_major_formatter(mdates.DateFormatter('%d-%m-%Y'))
ax1.grid(True, which='both')
ax1.minorticks_on()
ax1v = ax1.twinx()
colors = dfc.VolumePositive.map({True: 'g', False: 'r'})
ax1v.bar(dfc.Date, dfc['Volume'], color=colors, alpha=0.4)
ax1v.axes.yaxis.set_ticklabels([])
ax1v.set_ylim(0, 3*df.Volume.max())
ax1.set_title('Stock '+' symbol +' Closing Price')
ax1.set_ylabel('Price')

ax2 = plt.subplot(2, 1, 2)
ax2.plot(df['CCI'], label='Commodity Channel Index')
ax2.axhline(y=100, color='red')
ax2.axhline(y=-100, color='red')
ax2.axhline(y=200, color='darkblue')
ax2.axhline(y=-200, color='darkblue')
ax2.grid()
ax2.set_ylabel('CCI')
ax2.set_xlabel('Date')
```

```
[7]: Text(0.5,0,'Date')
```

