

Stochastic_RSI

September 29, 2021

1 Stochastic RSI (STOCH RSI)

[https://www.tradingview.com/wiki/Stochastic_RSI_\(STOCH_RSI\)#CALCULATION](https://www.tradingview.com/wiki/Stochastic_RSI_(STOCH_RSI)#CALCULATION)

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

```
[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 = '2018-06-01'
end = '2018-12-31'

# 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						
2018-06-01	187.990005	190.259995	187.750000	190.240005	188.109222	
2018-06-04	191.639999	193.419998	191.350006	191.830002	189.681396	
2018-06-05	193.070007	193.940002	192.360001	193.309998	191.144821	
2018-06-06	193.630005	194.080002	191.919998	193.979996	191.807312	
2018-06-07	194.139999	194.199997	192.339996	193.460007	191.293152	

	Volume
Date	
2018-06-01	23442500
2018-06-04	26266200
2018-06-05	21566000
2018-06-06	20933600
2018-06-07	21347200

```
[3]: import talib as ta

df['RSI'] = ta.RSI(df['Adj Close'], timeperiod=14)
df.head(10)
```

```
[3]:
```

	Open	High	Low	Close	Adj Close \
Date					
2018-06-01	187.990005	190.259995	187.750000	190.240005	188.109222
2018-06-04	191.639999	193.419998	191.350006	191.830002	189.681396
2018-06-05	193.070007	193.940002	192.360001	193.309998	191.144821
2018-06-06	193.630005	194.080002	191.919998	193.979996	191.807312
2018-06-07	194.139999	194.199997	192.339996	193.460007	191.293152
2018-06-08	191.169998	192.000000	189.770004	191.699997	189.552856
2018-06-11	191.350006	191.970001	190.210007	191.229996	189.088135
2018-06-12	191.389999	192.610001	191.149994	192.279999	190.126358
2018-06-13	192.419998	192.880005	190.440002	190.699997	188.564056
2018-06-14	191.550003	191.570007	190.220001	190.800003	188.662933

	Volume	RSI
Date		
2018-06-01	23442500	NaN
2018-06-04	26266200	NaN
2018-06-05	21566000	NaN
2018-06-06	20933600	NaN
2018-06-07	21347200	NaN
2018-06-08	26656800	NaN
2018-06-11	18308500	NaN
2018-06-12	16911100	NaN
2018-06-13	21638400	NaN
2018-06-14	21610100	NaN

```
[4]: df = df.dropna()
df.head()
```

```
[4]:
```

	Open	High	Low	Close	Adj Close \
Date					
2018-06-21	187.250000	188.350006	184.940002	185.460007	183.382751
2018-06-22	186.119995	186.149994	184.699997	184.919998	182.848785
2018-06-25	183.399994	184.919998	180.729996	182.169998	180.129608

2018-06-26	182.990005	186.529999	182.539993	184.429993	182.364288
2018-06-27	185.229996	187.279999	184.029999	184.160004	182.097321

	Volume	RSI
Date		
2018-06-21	25711900	35.228595
2018-06-22	27200400	34.006310
2018-06-25	31663100	28.570086
2018-06-26	24569200	37.423516
2018-06-27	25285300	36.836118

```
[5]: LL_RSI = df['RSI'].rolling(14).min()
      HH_RSI = df['RSI'].rolling(14).max()
```

```
[6]: df['Stoch_RSI'] = (df['RSI'] - LL_RSI) / (HH_RSI - LL_RSI)
      df = df.dropna()
      df.head(10)
```

```
[6]:
```

	Open	High	Low	Close	Adj Close \
Date					
2018-07-11	188.500000	189.779999	187.610001	187.880005	185.775650
2018-07-12	189.529999	191.410004	189.309998	191.029999	188.890366
2018-07-13	191.080002	191.839996	190.899994	191.330002	189.187012
2018-07-16	191.520004	192.649994	190.419998	190.910004	188.771713
2018-07-17	189.750000	191.869995	189.199997	191.449997	189.305664
2018-07-18	191.779999	191.800003	189.929993	190.399994	188.267410
2018-07-19	189.690002	192.550003	189.690002	191.880005	189.730850
2018-07-20	191.779999	192.429993	190.169998	191.440002	189.295776
2018-07-23	190.679993	191.960007	189.559998	191.610001	189.463867
2018-07-24	192.449997	193.660004	192.050003	193.000000	190.838303

	Volume	RSI	Stoch_RSI
Date			
2018-07-11	18831500	49.966019	0.749868
2018-07-12	18041100	56.792525	0.989118
2018-07-13	12513900	57.388821	1.000000
2018-07-16	15043100	56.219069	0.943085
2018-07-17	15534500	57.420751	1.000000
2018-07-18	16393400	54.299782	0.823262
2018-07-19	20286800	57.782876	1.000000
2018-07-20	20676200	56.406463	0.923621
2018-07-23	15989400	56.834277	0.947361
2018-07-24	18697900	60.267799	1.000000

```
[7]: fig = plt.figure(figsize=(14,10))
      ax1 = plt.subplot(2, 1, 1)
      ax1.plot(df['Adj Close'])
```

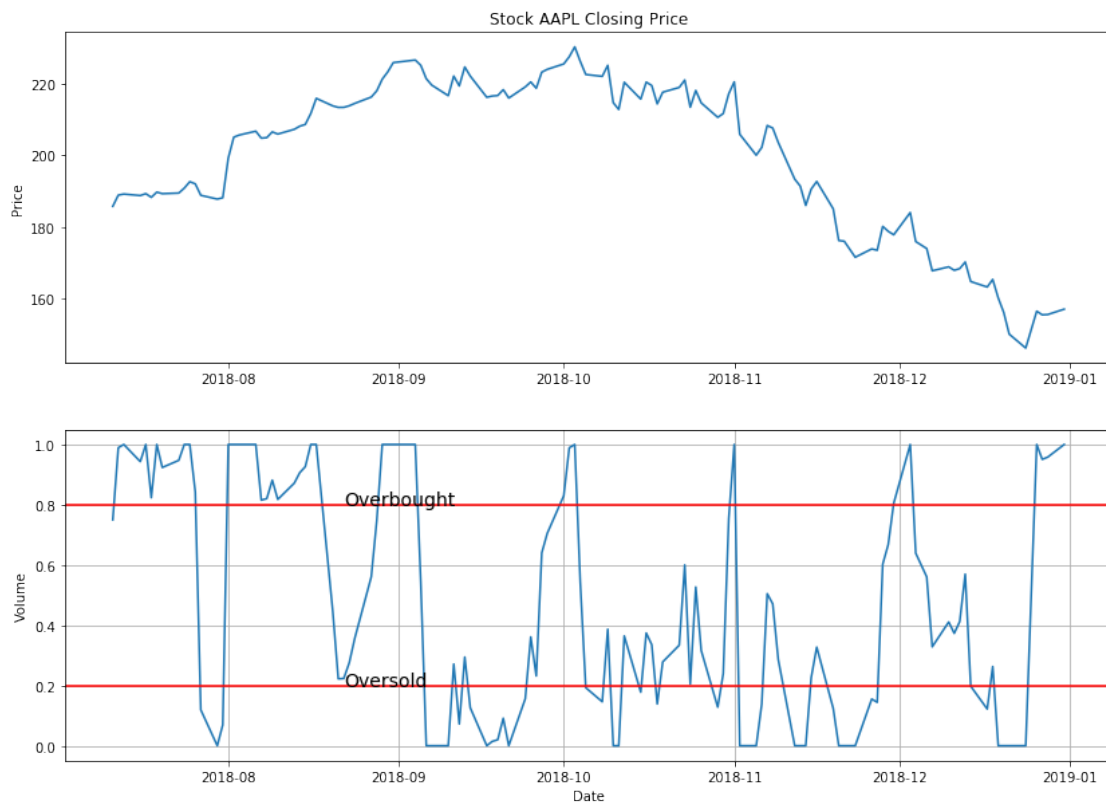
```

ax1.set_title('Stock ' + symbol + ' Closing Price')
ax1.set_ylabel('Price')

ax2 = plt.subplot(2, 1, 2)
ax2.plot(df['Stoch_RSI'], label='Stoch RSI')
ax2.text(s='Overbought', x=df.RSI.index[30], y=0.8, fontsize=14)
ax2.text(s='Oversold', x=df.RSI.index[30], y=0.2, fontsize=14)
ax2.axhline(y=0.8, color='red')
ax2.axhline(y=0.2, color='red')
ax2.grid()
ax2.set_ylabel('Volume')
ax2.set_xlabel('Date')

```

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



1.1 Candlestick with Stoch RSI

```

[8]: 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()
```

```
[8]:
```

	Date	Open	High	Low	Close	Adj Close	\
0	736886.0	188.500000	189.779999	187.610001	187.880005	185.775650	
1	736887.0	189.529999	191.410004	189.309998	191.029999	188.890366	
2	736888.0	191.080002	191.839996	190.899994	191.330002	189.187012	
3	736891.0	191.520004	192.649994	190.419998	190.910004	188.771713	
4	736892.0	189.750000	191.869995	189.199997	191.449997	189.305664	

	Volume	RSI	Stoch_RSI	VolumePositive
0	18831500	49.966019	0.749868	False
1	18041100	56.792525	0.989118	False
2	12513900	57.388821	1.000000	False
3	15043100	56.219069	0.943085	False
4	15534500	57.420751	1.000000	False

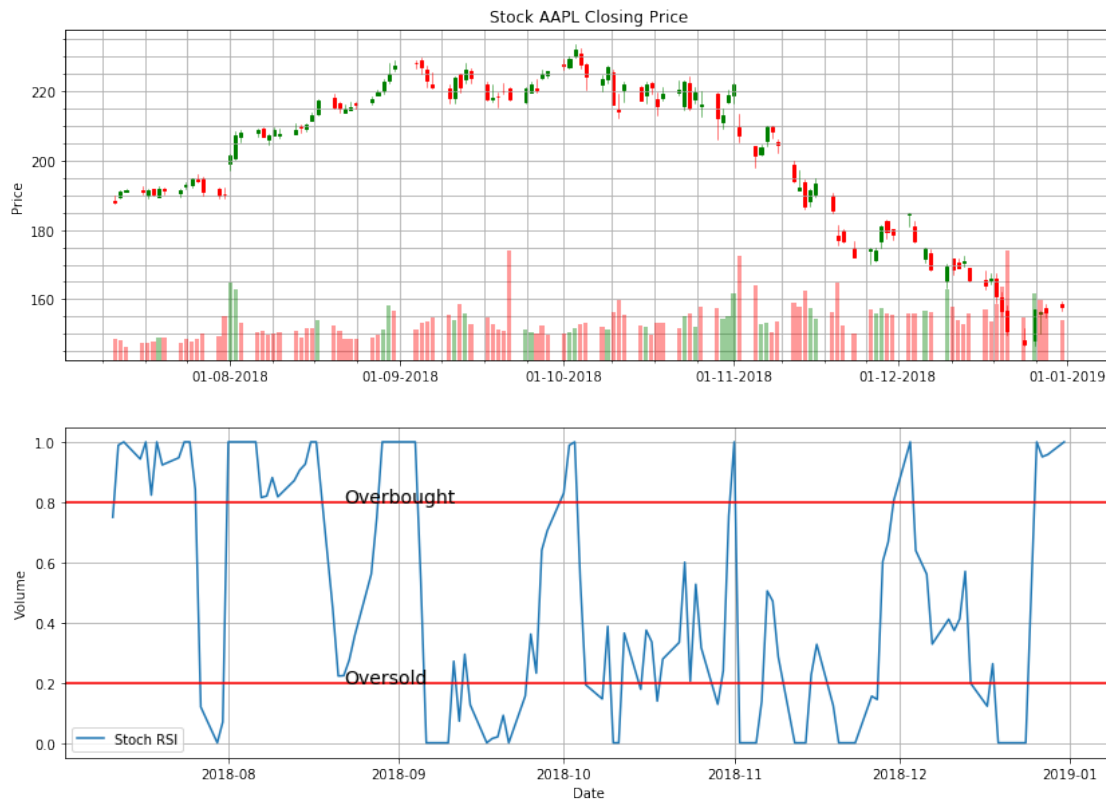
```
[9]: from mpl_finance import candlestick_ohlc

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*dfc.Volume.max())
ax1.set_title('Stock ' + symbol + ' Closing Price')
ax1.set_ylabel('Price')

ax2 = plt.subplot(2, 1, 2)
ax2.plot(df['Stoch_RSI'], label='Stoch RSI')
ax2.text(s='Overbought', x=df.RSI.index[30], y=0.8, fontsize=14)
ax2.text(s='Oversold', x=df.RSI.index[30], y=0.2, fontsize=14)
ax2.axhline(y=0.8, color='red')
ax2.axhline(y=0.2, color='red')
ax2.grid()
ax2.set_ylabel('Volume')
ax2.set_xlabel('Date')
```

```
ax2.legend(loc='best')
```

[9]: <matplotlib.legend.Legend at 0x22dd86b5048>



```
[14]: 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['Stoch_RSI'], label='Stoch RSI')
ax2.text(s='Overbought', x=df.RSI.index[30], y=0.8, fontsize=14)
ax2.text(s='Oversold', x=df.RSI.index[30], y=0.2, fontsize=14)
ax2.fill_between(df.index, y1=0.2, y2=0.8, color='#adccff', alpha='0.3')
ax2.axhline(y=0.8, color='red')
ax2.axhline(y=0.2, color='red')
ax2.grid(True, which='both')
ax2.minorticks_on()
ax2.set_ylabel('Volume')
ax2.set_xlabel('Date')
ax2.legend(loc='best')

```

[14]: <matplotlib.legend.Legend at 0x22ddc0faef0>

