Qstick

September 29, 2021

1 Qstick Indicator

https://www.investopedia.com/terms/q/qstick.asp

[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 = 'GLD'
start = '2018-01-01'
end = '2019-01-01'

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

# View Columns
df.head()
```

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

[2]:

Date	Open	High	Low	Close	Adj Close	Volume
2018-01-02	124.660004	125.180000	124.389999	125.150002	125.150002	
2018-01-03	125.050003	125.089996	124.099998	124.820000	124.820000	
2018-01-04	124.889999	125.849998	124.739998	125.459999	125.459999	
2018-01-05	124.930000	125.480003	124.830002	125.330002	125.330002	
2018-01-08	125.199997	125.320000	124.900002	125.309998	125.309998	

```
2018-01-02  11762500
2018-01-03   7904300
2018-01-04   7329700
2018-01-05   5739900
2018-01-08   3566700
```

[3]:
```
import talib as ta
```

[4]:
```
#EMAC = ta.EMA(df['Adj Close'], timeperiod=10)
#EMAO = ta.EMA(df['Open'], timeperiod=10)
CO = df['Adj Close'] - df['Open']
#df['QStick'] = EMAC - EMAO
df['QStick'] = ta.EMA(CO, timeperiod=10)
```

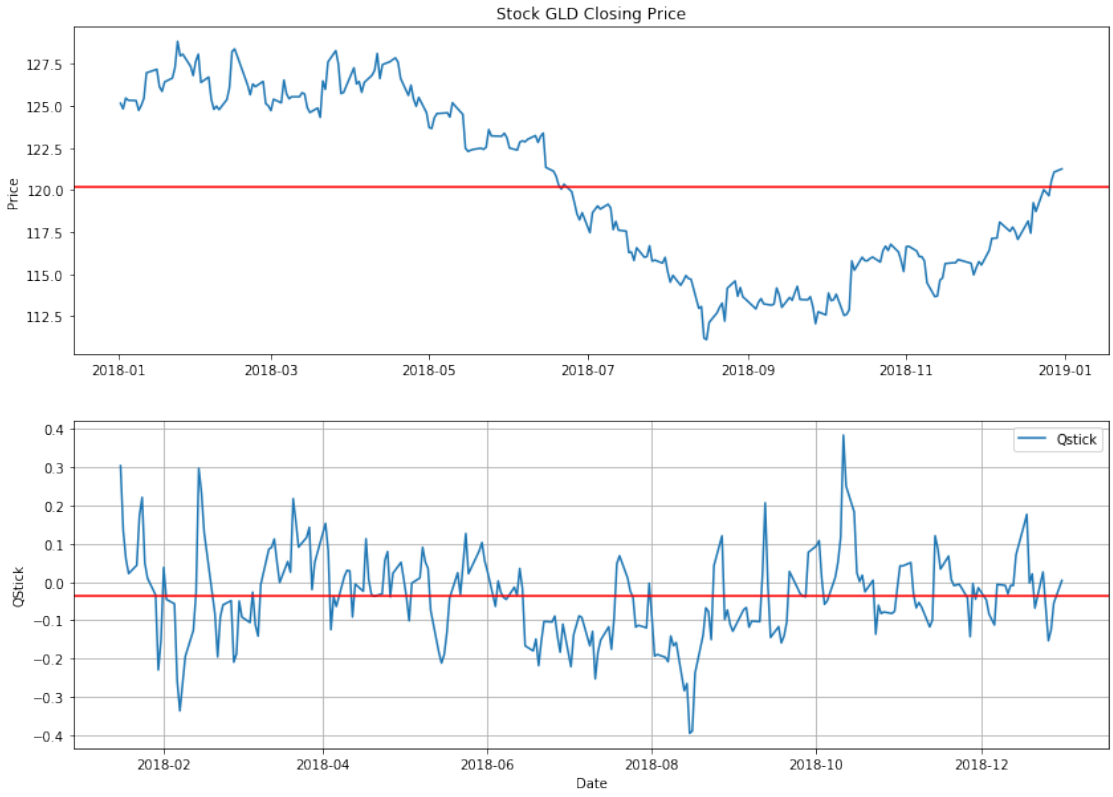
[5]:
```
df.head(20)
```

[5]:
```
                  Open        High         Low       Close   Adj Close  \
Date
2018-01-02  124.660004  125.180000  124.389999  125.150002  125.150002
2018-01-03  125.050003  125.089996  124.099998  124.820000  124.820000
2018-01-04  124.889999  125.849998  124.739998  125.459999  125.459999
2018-01-05  124.930000  125.480003  124.830002  125.330002  125.330002
2018-01-08  125.199997  125.320000  124.900002  125.309998  125.309998
2018-01-09  124.489998  124.860001  124.230003  124.730003  124.730003
2018-01-10  125.169998  125.309998  124.720001  125.029999  125.029999
2018-01-11  125.370003  125.660004  125.250000  125.440002  125.440002
2018-01-12  126.010002  127.129997  125.809998  126.959999  126.959999
2018-01-16  126.599998  127.180000  126.400002  127.169998  127.169998
2018-01-17  126.769997  127.220001  125.900002  126.139999  126.139999
2018-01-18  126.129997  126.519997  125.800003  125.860001  125.860001
2018-01-19  126.570000  126.730003  126.410004  126.419998  126.419998
2018-01-22  126.510002  126.750000  126.279999  126.650002  126.650002
2018-01-23  126.529999  127.349998  126.339996  127.279999  127.279999
2018-01-24  128.389999  129.259995  128.229996  128.830002  128.830002
2018-01-25  128.690002  129.509995  127.360001  127.970001  127.970001
2018-01-26  128.240005  128.520004  127.970001  128.070007  128.070007
2018-01-29  127.580002  127.629997  126.919998  127.349998  127.349998
2018-01-30  127.910004  127.919998  126.739998  126.800003  126.800003

              Volume    QStick
Date
2018-01-02  11762500       NaN
2018-01-03   7904300       NaN
2018-01-04   7329700       NaN
2018-01-05   5739900       NaN
2018-01-08   3566700       NaN
2018-01-09   9153600       NaN
```

```
2018-01-10  14809300       NaN
2018-01-11   5994700       NaN
2018-01-12   9258600       NaN
2018-01-16   8083900  0.303000
2018-01-17  10095000  0.133364
2018-01-18   6289300  0.060026
2018-01-19   8773800  0.021839
2018-01-22   4893500  0.043323
2018-01-23   6190400  0.171810
2018-01-24  11827600  0.220572
2018-01-25  15219700  0.049559
2018-01-26   7828700  0.009639
2018-01-29   6956400 -0.033932
2018-01-30   9736100 -0.229581
```

[6]:
```
# Line Chart
fig = plt.figure(figsize=(14,10))
ax1 = plt.subplot(2, 1, 1)
ax1.plot(df.index, df['Adj Close'])
ax1.axhline(y=df['Adj Close'].mean(),color='r')
ax1.set_title('Stock '+ symbol +' Closing Price')
ax1.set_ylabel('Price')

ax2 = plt.subplot(2, 1, 2)
ax2.plot(df.index, df['QStick'], label='Qstick')
ax2.axhline(y=df['QStick'].mean(),color='r')
ax2.grid()
ax2.set_ylabel('QStick')
ax2.set_xlabel('Date')
ax2.legend(loc='best')
```

[6]:
```
<matplotlib.legend.Legend at 0x2b83b928128>
```



1.1 Candlestick with QStick

[7]:
```
from matplotlib import dates as mdates
import datetime as dt

dfc = df.copy()
dfc['QStick'] = (dfc['Adj Close'] - dfc['Open']).rolling(10).mean()
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()
```

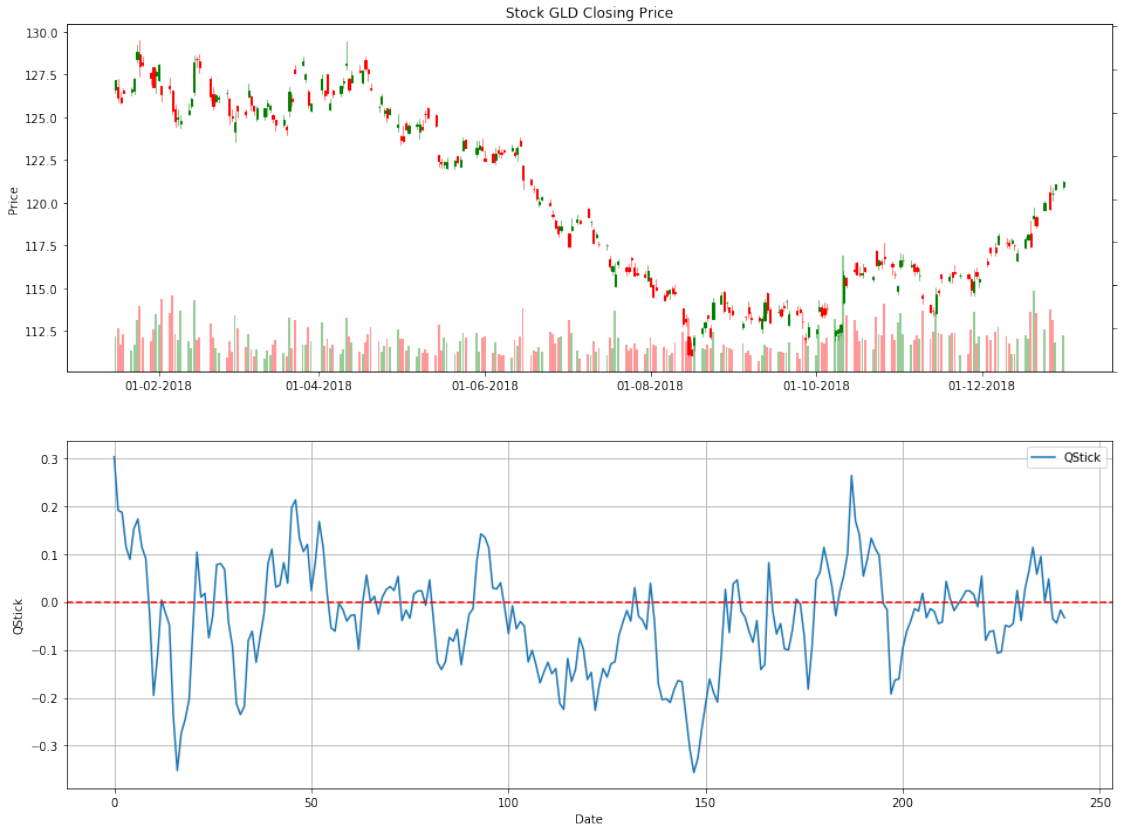
[7]:

	Date	Open	High	Low	Close	Adj Close	Volume	QStick	VolumePositive
0	736710.0	126.599998	127.180000	126.400002	127.169998	127.169998			
1	736711.0	126.769997	127.220001	125.900002	126.139999	126.139999			
2	736712.0	126.129997	126.519997	125.800003	125.860001	125.860001			
3	736713.0	126.570000	126.730003	126.410004	126.419998	126.419998			
4	736716.0	126.510002	126.750000	126.279999	126.650002	126.650002			

```
0   8083900  0.303000            True
1  10095000  0.191000           False
2   6289300  0.187001           False
3   8773800  0.115001           False
4   4893500  0.089001            True
```

[10]:
```
from mpl_finance import candlestick_ohlc

fig = plt.figure(figsize=(16,12))
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'))
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(dfc.index, dfc['QStick'], label='QStick')
ax2.axhline(y=0,color='r', linestyle='--')
ax2.grid()
ax2.set_ylabel('QStick')
ax2.set_xlabel('Date')
ax2.legend(loc='best')
```

[10]:
```
<matplotlib.legend.Legend at 0x2b83e40a668>
```



[11]:
```
fig = plt.figure(figsize=(16,12))
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'))
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)
dfc['Positive'] = dfc['QStick'] > 0
ax2.bar(dfc.index, dfc['QStick'], color=dfc.Positive.map({True: 'g', False:␣
↪'r'}), label='QStick')
ax2.axhline(y=0,color='r', linestyle='--')
ax2.grid()
ax2.set_ylabel('QStick')
```

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

[11]: <matplotlib.legend.Legend at 0x2b8401f62b0>