Chaikin_Oscillator

September 29, 2021

1 Chaikin Oscillator

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

[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 = 'AMD'
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]:

Date	Open	High	Low	Close	Adj Close	Volume
2016-01-04	2.77	2.82	2.63	2.77	2.77	32516800
2016-01-05	2.77	2.80	2.64	2.75	2.75	12972300
2016-01-06	2.66	2.71	2.47	2.51	2.51	23759400
2016-01-07	2.43	2.48	2.26	2.28	2.28	22203500
2016-01-08	2.36	2.42	2.10	2.14	2.14	31822400

[3]:
```
df['MF_Multiplier'] = (2*df['Adj Close']-df['Low']-df['High'])/
 ↪(df['High']-df['Low'])
```

```
df['MF_Volume'] = df['MF_Multiplier']*df['Volume']
df['ADL'] = df['MF_Volume'].cumsum()
df = df.drop(['MF_Multiplier','MF_Volume'],axis=1)
```

[4]:
```
df['ADL_3_EMA'] = df['ADL'].
 ↪ewm(ignore_na=False,span=3,min_periods=2,adjust=True).mean()
df['ADL_10_EMA'] = df['ADL'].
 ↪ewm(ignore_na=False,span=10,min_periods=9,adjust=True).mean()
df['Chaikin_Oscillator'] = df['ADL_3_EMA'] - df['ADL_10_EMA']
df = df.drop(['ADL','ADL_3_EMA','ADL_10_EMA'],axis=1)
```

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

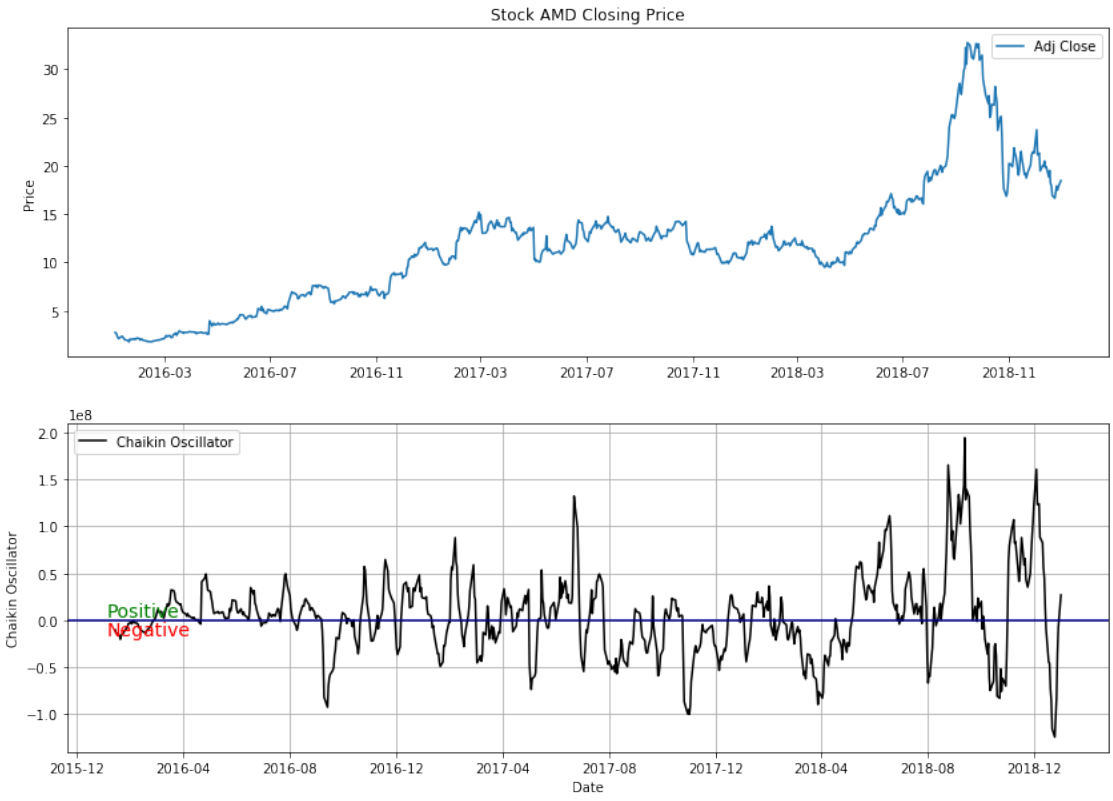
[5]:

Date	Open	High	Low	Close	Adj Close	Volume	Chaikin_Oscillator
2016-01-04	2.77	2.82	2.63	2.77	2.77	32516800	NaN
2016-01-05	2.77	2.80	2.64	2.75	2.75	12972300	NaN
2016-01-06	2.66	2.71	2.47	2.51	2.51	23759400	NaN
2016-01-07	2.43	2.48	2.26	2.28	2.28	22203500	NaN
2016-01-08	2.36	2.42	2.10	2.14	2.14	31822400	NaN
2016-01-11	2.16	2.36	2.12	2.34	2.34	19623600	NaN
2016-01-12	2.40	2.46	2.28	2.39	2.39	17986100	NaN
2016-01-13	2.40	2.45	2.21	2.25	2.25	12749700	NaN
2016-01-14	2.29	2.35	2.21	2.21	2.21	15666600	-1.058306e+07
2016-01-15	2.10	2.13	1.99	2.03	2.03	21199300	-1.375160e+07
2016-01-19	2.08	2.11	1.90	1.95	1.95	18978900	-1.662890e+07
2016-01-20	1.81	1.95	1.75	1.80	1.80	29243600	-2.058159e+07
2016-01-21	1.82	2.18	1.81	2.09	2.09	26387900	-1.610417e+07
2016-01-22	2.11	2.17	1.98	2.02	2.02	16245500	-1.565080e+07
2016-01-25	2.01	2.15	2.01	2.12	2.12	13080900	-1.169038e+07
2016-01-26	2.14	2.15	2.03	2.07	2.07	11092900	-1.013741e+07
2016-01-27	2.08	2.18	2.07	2.13	2.13	10833200	-8.256568e+06
2016-01-28	2.16	2.17	2.07	2.08	2.08	7118400	-8.509615e+06
2016-01-29	2.09	2.20	2.07	2.20	2.20	11998100	-4.059779e+06
2016-02-01	2.17	2.19	2.11	2.14	2.14	8816100	-2.564649e+06

[6]:
```
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')
ax1.legend(loc='best')

ax2 = plt.subplot(2, 1, 2)
ax2.plot(df['Chaikin_Oscillator'], label='Chaikin Oscillator', color='black')
ax2.axhline(y=0, color='darkblue')
```

```
ax2.text(s='Positive', x=df.index[0], y=1, verticalalignment='bottom',␣
 ↪fontsize=14, color='green')
ax2.text(s='Negative', x=df.index[0], y=1, verticalalignment='top',␣
 ↪fontsize=14, color='red')
ax2.grid()
ax2.legend(loc='best')
ax2.set_ylabel('Chaikin Oscillator')
ax2.set_xlabel('Date')
```

[6]:
```
Text(0.5,0,'Date')
```



1.1 Candlestick with Chaikin Oscillator

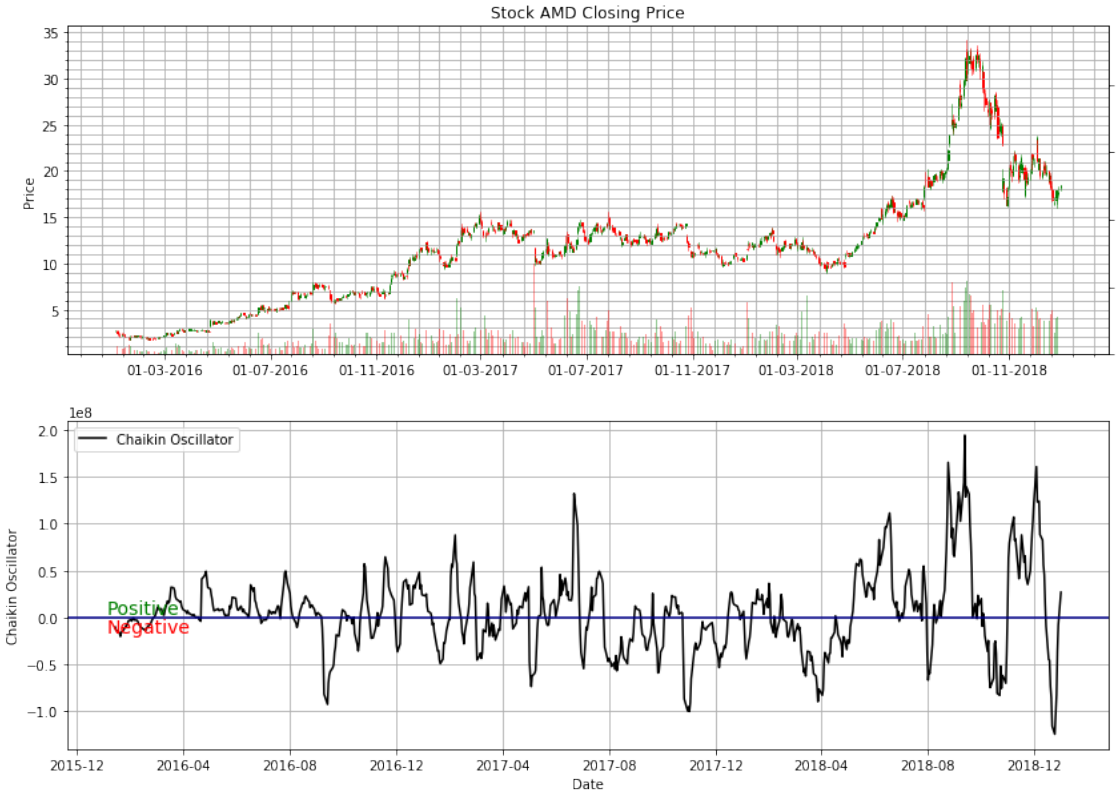
[7]:
```
from matplotlib import dates as mdates
import datetime as dt

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()
```

[7]:
```
        Date  Open  High   Low  Close  Adj Close    Volume  Chaikin_Oscillator  \
0  735967.0  2.77  2.82  2.63   2.77       2.77  32516800                 NaN
1  735968.0  2.77  2.80  2.64   2.75       2.75  12972300                 NaN
2  735969.0  2.66  2.71  2.47   2.51       2.51  23759400                 NaN
3  735970.0  2.43  2.48  2.26   2.28       2.28  22203500                 NaN
4  735971.0  2.36  2.42  2.10   2.14       2.14  31822400                 NaN

   VolumePositive
0           False
1           False
2           False
3           False
4           False
```

[8]:
```
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['Chaikin_Oscillator'], label='Chaikin Oscillator', color='black')
ax2.axhline(y=0, color='darkblue')
ax2.text(s='Positive', x=dfc.Date[0], y=1, verticalalignment='bottom',␣
 ↪fontsize=14, color='green')
ax2.text(s='Negative', x=dfc.Date[0], y=1, verticalalignment='top',␣
 ↪fontsize=14, color='red')
ax2.grid()
ax2.legend(loc='best')
ax2.set_ylabel('Chaikin Oscillator')
ax2.set_xlabel('Date')
```

[8]:
```
Text(0.5,0,'Date')
```


Stock AMD Closing Price
Price
35
30
25
20
15
10
5
01-03-2016
01-07-2016
01-11-2016
01-03-2017
01-07-2017
01-11-2017
01-03-2018
01-07-2018
01-11-2018
1e8
Chaikin Oscillator
Positive
Negative
2.0
1.5
1.0
0.5
0.0
−0.5
−1.0
2015-12
2016-04
2016-08
2016-12
2017-04
2017-08
2017-12
2018-04
2018-08
2018-12
Date