Tirone_Levels

September 29, 2021

1 Tirone Levels

https://www.metastock.com/customer/resources/taaz/?p=110

[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 = '2018-08-01'
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
2018-08-01	199.130005	201.759995	197.309998	201.500000	199.243088	
2018-08-02	200.580002	208.380005	200.350006	207.389999	205.067123	
2018-08-03	207.029999	208.740005	205.479996	207.990005	205.660416	
2018-08-06	208.000000	209.250000	207.070007	209.070007	206.728317	
2018-08-07	209.320007	209.500000	206.759995	207.110001	204.790268	

```
2018-08-01  67935700
2018-08-02  62404000
2018-08-03  33447400
2018-08-06  25425400
2018-08-07  25587400
```

[3]:
```
df.tail()
```

[3]:
```
                 Open        High         Low       Close   Adj Close  \
Date
2018-12-24  148.149994  151.550003  146.589996  146.830002  146.202972
2018-12-26  148.300003  157.229996  146.720001  157.169998  156.498810
2018-12-27  155.839996  156.770004  150.070007  156.149994  155.483154
2018-12-28  157.500000  158.520004  154.550003  156.229996  155.562820
2018-12-31  158.529999  159.360001  156.479996  157.740005  157.066376

              Volume
Date
2018-12-24  37169200
2018-12-26  58582500
2018-12-27  53117100
2018-12-28  42291400
2018-12-31  35003500
```

[4]:
```
df['Adj Close'][-1]
```

[4]:
```
157.06637599999999
```

[5]:
```
print('Lowest Price:', df['Adj Close'].min())
print('Highest Price:', df['Adj Close'].max())
print('Mean Price:', df['Adj Close'].mean())
print('Lowest Low:', df['Low'].min())
print('Highest High:', df['High'].max())
```

```
Lowest Price: 146.202972
Highest Price: 230.275482
Mean Price: 201.84617995238094
Lowest Low: 146.589996
Highest High: 233.470001
```

1.1 Midpoint Method

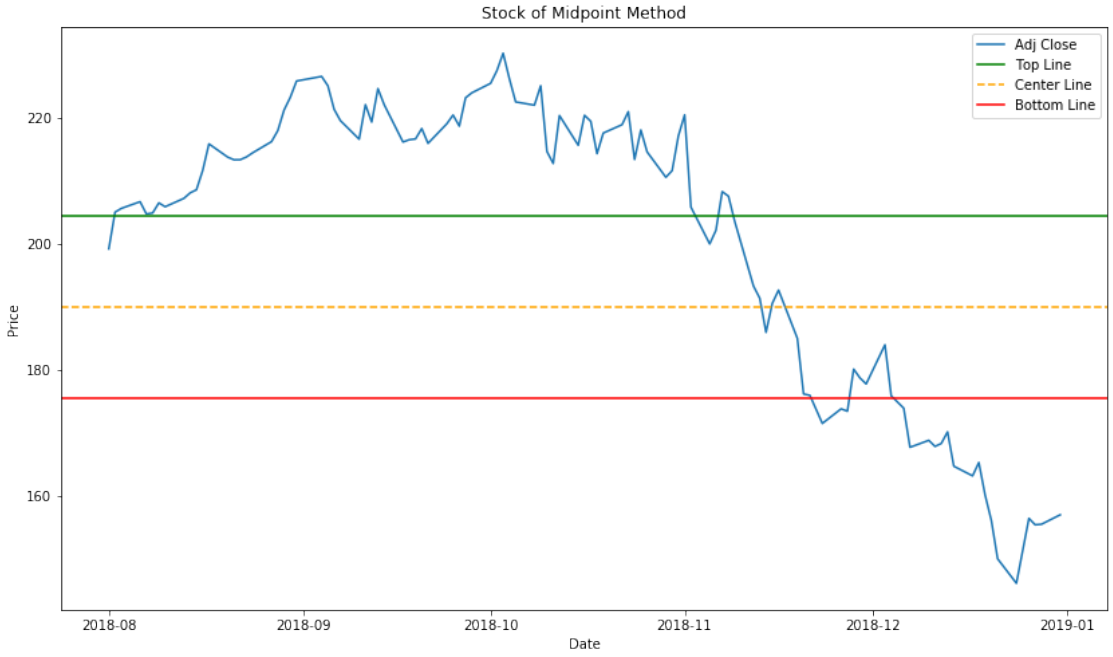
[6]:
```
Top_Line = abs(((df['High'].max() - df['Low'].min())/3) - df['High'].max())
Center_Line = ((df['High'].max() - df['Low'].min())/2) + df['Low'].min()
Bottom_Line = ((df['High'].max() - df['Low'].min())/3) + df['Low'].min()
```

1.2 Mean Method

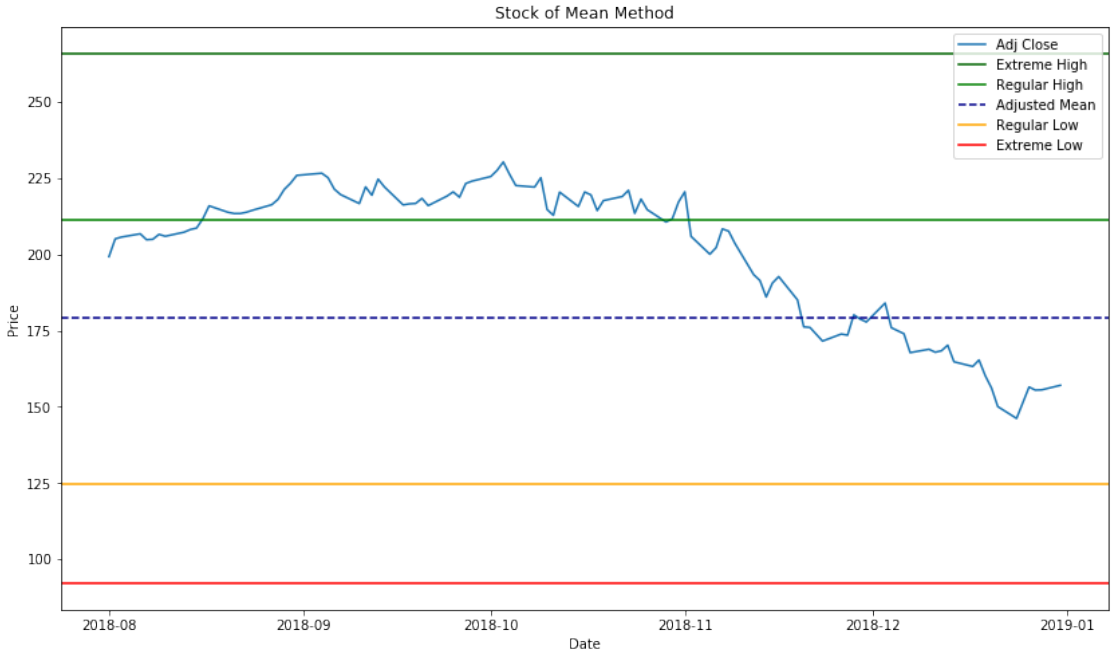
[7]:
```
Adjusted_Mean = abs((df['High'].max() + df['Low'].min() + df['Adj Close'][-1])/
↪3)
#Adjusted_Mean = (df['High'].max() + df['Low'].min() + df['Adj Close'].mean())/3
Extreme_High = abs((df['High'].max()  - df['Low'].min()) + Adjusted_Mean)
Regular_High = abs((Adjusted_Mean*2) - df['Low'].min())
Regular_Low = abs((Adjusted_Mean*2) - df['High'].max())
Extreme_Low = abs((df['High'].max() - df['Low'].min()) - Adjusted_Mean)
```

1.3 Line Chart

[8]:
```
# Line Chart
plt.figure(figsize=(14,8))
plt.plot(df['Adj Close'])
plt.axhline(Top_Line, color='green', label='Top Line')
plt.axhline(Center_Line, color='orange', linestyle='--',label='Center Line')
plt.axhline(Bottom_Line, color='red', label='Bottom Line')
plt.legend(loc='best')
plt.title('Stock of Midpoint Method')
plt.xlabel('Date')
plt.ylabel('Price')
plt.show()
```



[9]:
```
# Line Chart
plt.figure(figsize=(14,8))
plt.plot(df['Adj Close'])
plt.axhline(Extreme_High, color='darkgreen', label='Extreme High')
plt.axhline(Regular_High, color='green', label='Regular High')
plt.axhline(Adjusted_Mean, color='darkblue', linestyle='--',label='Adjusted␣
↪Mean')
plt.axhline(Regular_Low, color='orange', label='Regular Low')
plt.axhline(Extreme_Low, color='red', label='Extreme Low')
plt.legend(loc='best')
plt.title('Stock of Mean Method')
plt.xlabel('Date')
plt.ylabel('Price')
plt.show()
```



1.4 Candlestick

[11]:
```
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()
```

[11]:

	Date	Open	High	Low	Close	Adj Close	Volume	VolumePositive
0	736907.0	199.130005	201.759995	197.309998	201.500000	199.243088	67935700	True
1	736908.0	200.580002	208.380005	200.350006	207.389999	205.067123	62404000	True
2	736909.0	207.029999	208.740005	205.479996	207.990005	205.660416	33447400	False
3	736912.0	208.000000	209.250000	207.070007	209.070007	206.728317	25425400	False
4	736913.0	209.320007	209.500000	206.759995	207.110001	204.790268	25587400	False

[12]:
```
from mpl_finance import candlestick_ohlc

fig = plt.figure(figsize=(18,8))
ax1 = plt.subplot(111)
candlestick_ohlc(ax1,dfc.values, width=0.5, colorup='g', colordown='r', alpha=1.
↪0)
ax1.axhline(Top_Line, color='green', label='Top Line')
ax1.axhline(Center_Line, color='orange', linestyle='--',label='Center Line')
ax1.axhline(Bottom_Line, color='red', label='Bottom Line')
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 (Midpoint Method)')
ax1.set_ylabel('Price')
ax1.legend()
```

[12]:
```
<matplotlib.legend.Legend at 0x2401bcd15c0>
```

[13]:
```
from mpl_finance import candlestick_ohlc

fig = plt.figure(figsize=(18,8))
ax1 = plt.subplot(111)
candlestick_ohlc(ax1,dfc.values, width=0.5, colorup='g', colordown='r', alpha=1.
↪0)
ax1.axhline(Extreme_High, color='darkgreen', label='Extreme High')
ax1.axhline(Regular_High, color='green', label='Regular High')
ax1.axhline(Adjusted_Mean, color='darkblue', linestyle='--',label='Adjusted␣
↪Mean')
ax1.axhline(Regular_Low, color='orange', label='Regular Low')
ax1.axhline(Extreme_Low, color='red', label='Extreme Low')
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 (Mean Method)')
ax1.set_ylabel('Price')
ax1.legend()
```

[13]:
```
<matplotlib.legend.Legend at 0x2401b6fc908>
```


Stock AAPL Closing Price (Mean Method)
Extreme High
Regular High
Adjusted Mean
Regular Low
Extreme Low
Price
250
225
200
175
150
125
100
01-08-2018
01-09-2018
01-10-2018
01-11-2018
01-12-2018
01-01-2019