

Five_Indicators

September 29, 2021

1 Five Indicators To Build A Trend Following Strategy

```
[1]: import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns
plt.style.use('bmh')

import warnings
warnings.filterwarnings("ignore")

import yfinance as yf
yf.pdr_override()
```

```
[2]: # input
symbol = 'AMD'
start = '2007-01-01'
end = '2018-12-31'

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

# View Columns
data.head()
```

[*****100%*****] 1 of 1 completed

```
[2]:
```

	Adj Close	Close	High	Low	Open	Volume
Date						
2007-01-03	19.520000	19.520000	20.400000	19.350000	20.080000	28350300
2007-01-04	19.790001	19.790001	19.860001	19.320000	19.660000	23652500
2007-01-05	19.709999	19.709999	19.910000	19.540001	19.540001	15902400
2007-01-08	19.469999	19.469999	19.860001	19.370001	19.709999	15814800
2007-01-09	19.650000	19.650000	19.709999	19.370001	19.450001	14494200

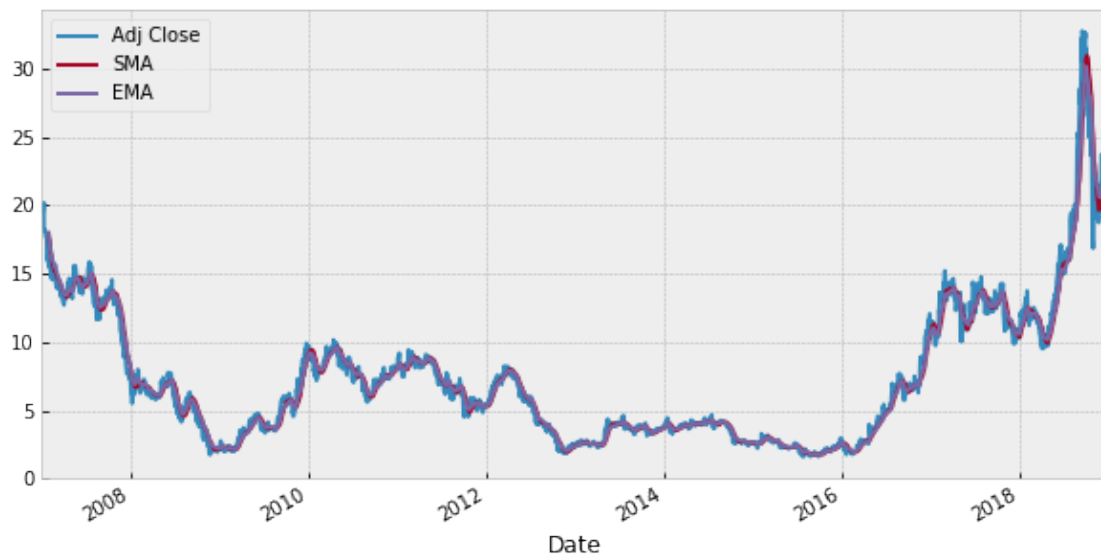
1.1 SMA and EMA

```
[3]: # Import libraries
import talib as ta

# Simple Moving Average
data['SMA'] = ta.SMA(data['Adj Close'], timeperiod = 20)

# Exponential Moving Average
data['EMA'] = ta.EMA(data['Adj Close'], timeperiod = 20)

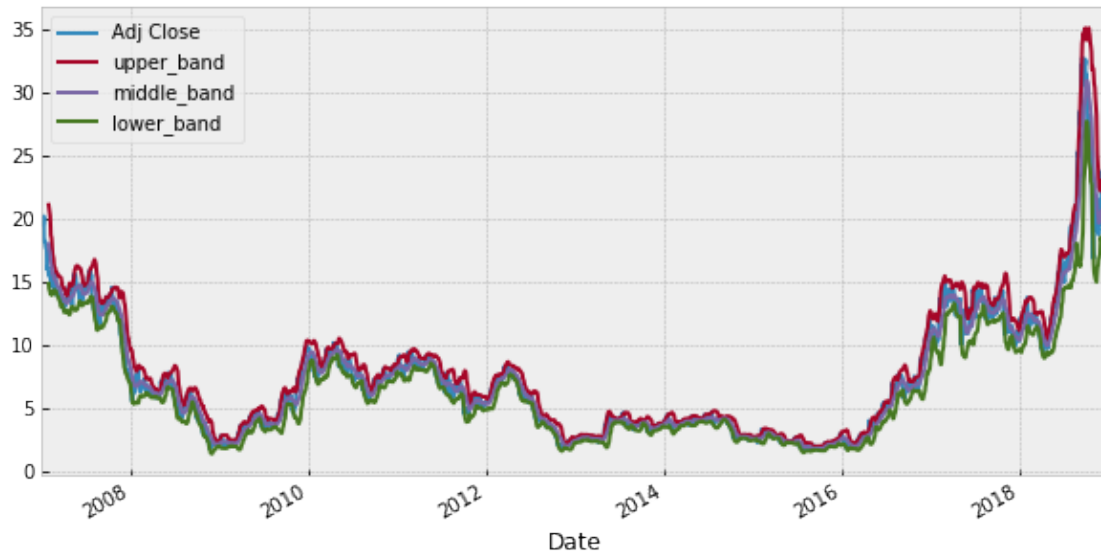
# Plot
data[['Adj Close', 'SMA', 'EMA']].plot(figsize=(10,5))
plt.show()
```



1.2 Bollinger Bands

```
[4]: # Bollinger Bands
data['upper_band'], data['middle_band'], data['lower_band'] = ta.
    ↳BBANDS(data['Adj Close'], timeperiod =20)

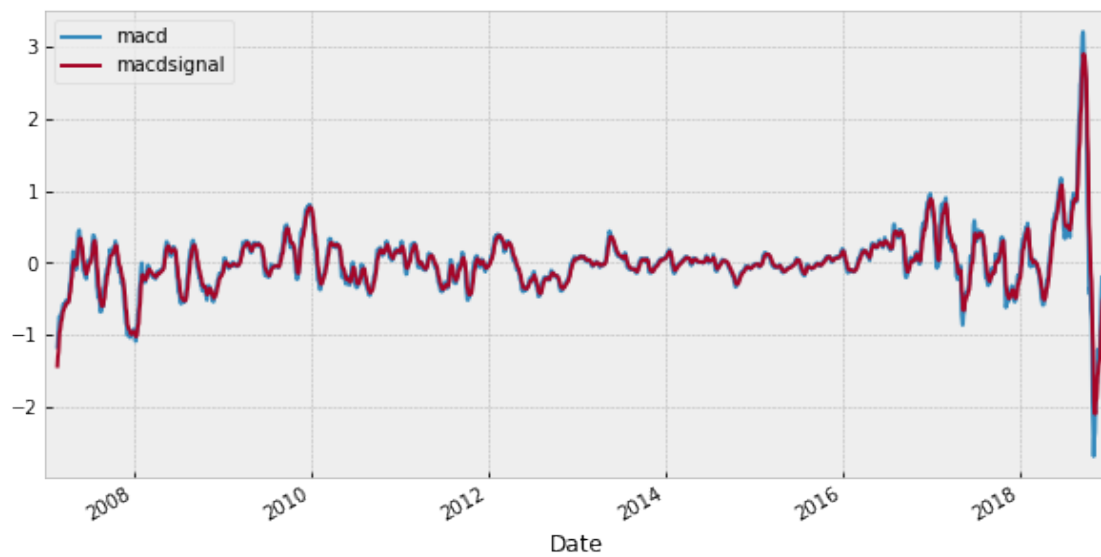
# Plot
data[['Adj Close', 'upper_band', 'middle_band', 'lower_band']].plot(figsize=(10,5))
plt.show()
```



1.3 MACD (Moving Average Convergence Divergence)

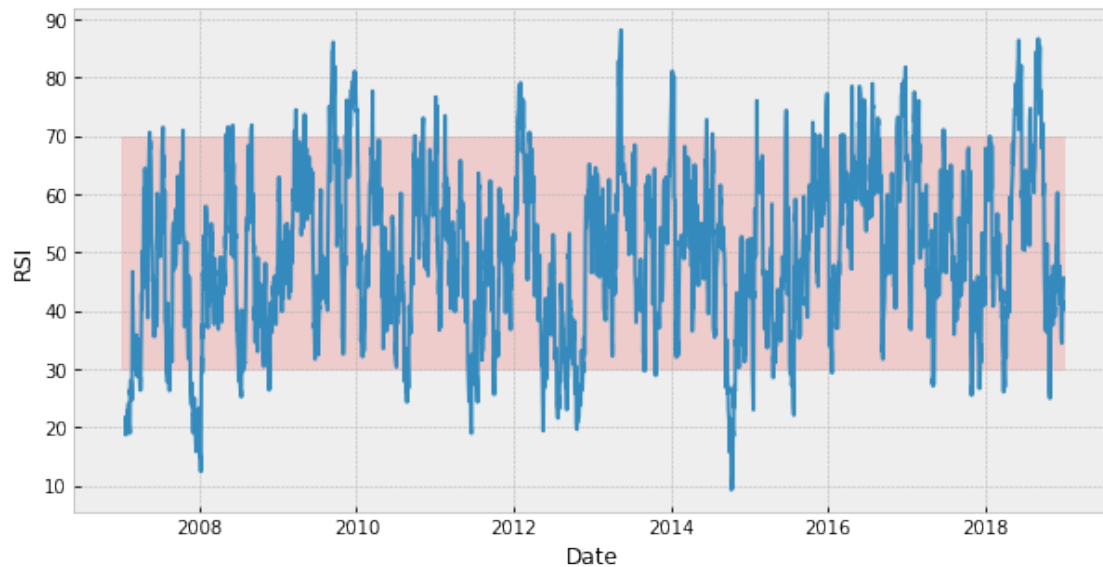
```
[5]: # MACD
data['macd'], data['macdsignal'], data['macdhist'] = ta.MACD(data['Adj Close'],
    ↳ fastperiod=12, slowperiod=26, signalperiod=9)
data[['macd', 'macdsignal']].plot(figsize=(10,5))

plt.show()
```



1.4 RSI (Relative Strength Index)

```
[6]: # RSI
data['RSI'] = ta.RSI(data['Adj Close'], timeperiod=14)
# Plotting RSI
fig, ax = plt.subplots(figsize=(10, 5))
ax.plot(data.index, data.RSI, label='RSI')
ax.fill_between(data.index, y1=30, y2=70, color='lightcoral', alpha='0.3')
ax.set_xlabel('Date')
ax.set_ylabel('RSI')
plt.show()
```



1.5 OBV (On Balance Volume)

```
[7]: # OBV
data['OBV'] = ta.OBV(data['Adj Close'], data['Volume'])/10**6

data['Adj Close'].plot()
plt.ylabel('Close')
plt.show()

data.OBV.plot()
plt.ylabel('On Balance Volume (in millions)')
plt.show()
```

