

PVT

September 29, 2021

1 Price Volume Trend (PVT)

https://www.incrediblecharts.com/indicators/price_and_volume_trend.php

```
[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]:
```

	Open	High	Low	Close	Adj Close	\
Date						
2018-08-01	199.130005	201.759995	197.309998	201.500000	198.478760	
2018-08-02	200.580002	208.380005	200.350006	207.389999	204.280457	
2018-08-03	207.029999	208.740005	205.479996	207.990005	204.871445	
2018-08-06	208.000000	209.250000	207.070007	209.070007	205.935257	
2018-08-07	209.320007	209.500000	206.759995	207.110001	204.004639	

	Volume
Date	

```

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

```

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[3]: df['Momentum_1D'] = (df['Adj Close'] - df['Adj Close'].shift(1)).fillna(0)
df['PVT'] = (df['Momentum_1D'] / df['Adj Close'].shift(1)) * df['Volume']
df["PVT"] = df["PVT"] - df["PVT"].shift(1)
df["PVT"] = df["PVT"].fillna(0)
df.tail()

```

```

[3]:
      Open      High      Low      Close  Adj Close  \
Date
2018-12-24  148.149994  151.550003  146.589996  146.830002  145.642090
2018-12-26  148.300003  157.229996  146.720001  157.169998  155.898438
2018-12-27  155.839996  156.770004  150.070007  156.149994  154.886688
2018-12-28  157.500000  158.520004  154.550003  156.229996  154.966034
2018-12-31  158.529999  159.360001  156.479996  157.740005  156.463837

```

```

      Volume  Momentum_1D      PVT
Date
2018-12-24  37169200    -3.868454  2.762322e+06
2018-12-26  58582500    10.256348  5.087193e+06
2018-12-27  53117100    -1.011750 -4.470192e+06
2018-12-28  42291400     0.079346  3.663847e+05
2018-12-31  35003500     1.497803  3.166563e+05

```

```

[4]: 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')

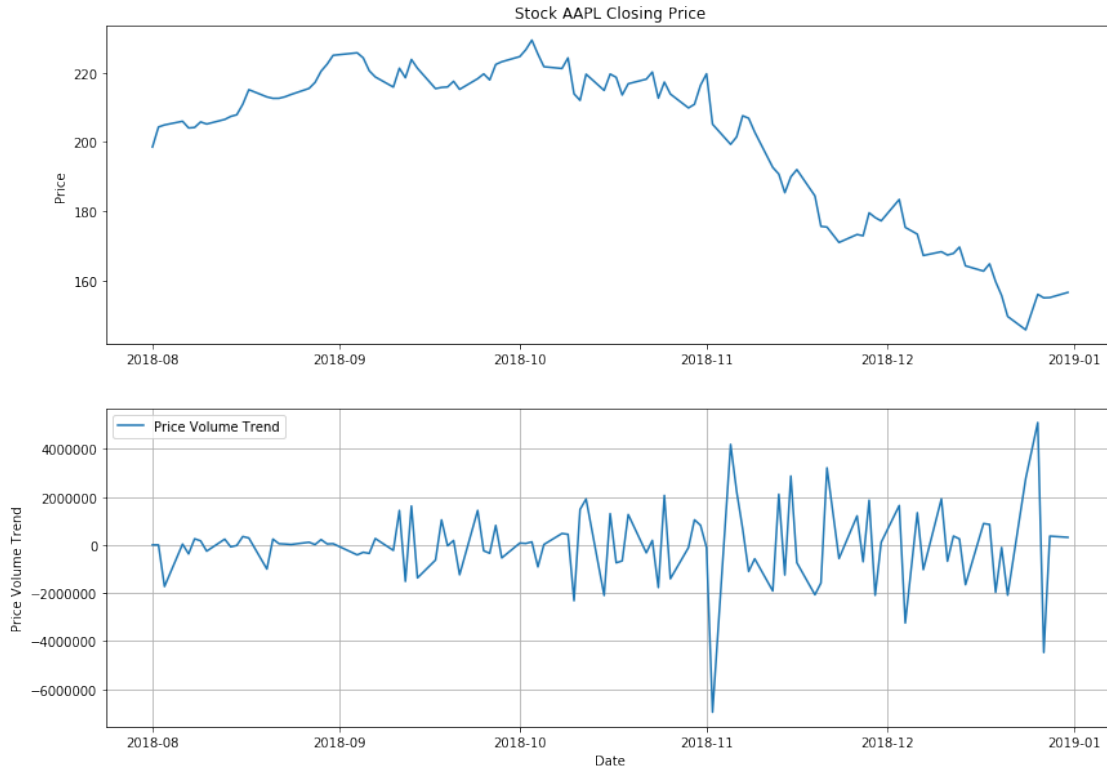
ax2 = plt.subplot(2, 1, 2)
ax2.plot(df['PVT'], label='Price Volume Trend')
ax2.grid()
ax2.legend(loc='best')
ax2.set_ylabel('Price Volume Trend')
ax2.set_xlabel('Date')

```

```

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

```



1.1 Candlestick with Price Volume Trend (PVT)

```
[5]: 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()
```

```
[5]:
```

	Date	Open	High	Low	Close	Adj Close	\
0	736907.0	199.130005	201.759995	197.309998	201.500000	198.478760	
1	736908.0	200.580002	208.380005	200.350006	207.389999	204.280457	
2	736909.0	207.029999	208.740005	205.479996	207.990005	204.871445	
3	736912.0	208.000000	209.250000	207.070007	209.070007	205.935257	
4	736913.0	209.320007	209.500000	206.759995	207.110001	204.004639	

	Volume	Momentum_1D	PVT	VolumePositive
0	67935700	0.000000	0.000000e+00	False
1	62404000	5.801697	0.000000e+00	True

2	33447400	0.590988	-1.727356e+06	False
3	25425400	1.063812	3.525941e+04	False
4	25587400	-1.930618	-3.719023e+05	False

```
[6]: 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['PVT'], label='Price Volume Trend')
ax2.grid()
ax2.legend(loc='best')
ax2.set_ylabel('Price Volume Trend')
ax2.set_xlabel('Date')
```

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

