Stock_Higher_Partial_Moment_Chart

September 29, 2021

1 Stock Higher Partial Moment Chart

[1]:
```
# Library
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
import math
import statistics

import warnings
warnings.filterwarnings("ignore")

from pandas_datareader import data as pdr
import yfinance as yf
yf.pdr_override()
```

[2]:
```
start = '2019-01-01' #input
end = '2020-07-01' #input
symbol = 'AMD' #input
```

[3]:
```
stocks = yf.download(symbol, start=start, end=end)['Adj Close']
```

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

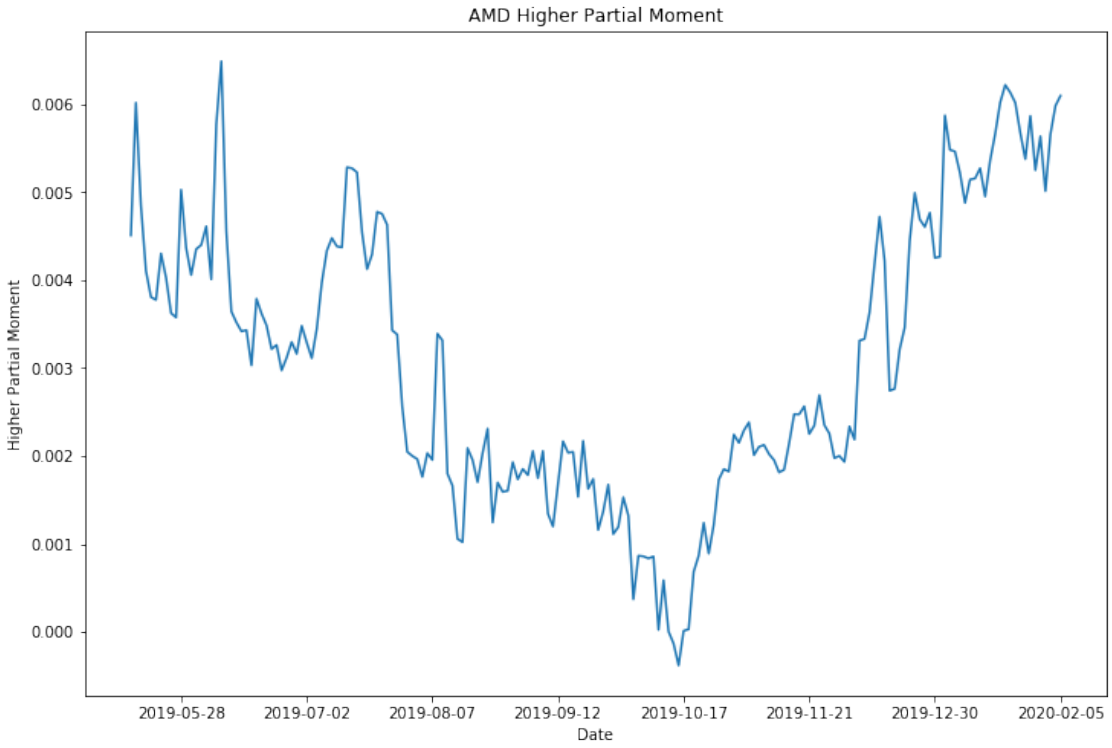
[4]:
```
stocks_returns = stocks.pct_change().dropna()
```

[5]:
```
def hpm(stock_returns, threshold=0.0, order=1):
    threshold_array = np.empty(len(stock_returns))
    threshold_array.fill(threshold)
    diff = stock_returns - threshold_array
    diff = diff.clip()
    return np.sum(diff ** order) / len(stock_returns)
```

[6]:
```
# Compute the running Higher Partial Moment
running = [hpm(stocks_returns[i-90:i]) for i in range(90, len(stocks_returns))]
```

```
# Plot running Higher Partial Moment up to 100 days before the end of the data␣
↪set
_, ax1 = plt.subplots(figsize=(12,8))
ax1.plot(range(90, len(stocks_returns)-100), running[:-100])
ticks = ax1.get_xticks()
ax1.set_xticklabels([stocks.index[int(i)].date() for i in ticks[:-1]]) # Label␣
↪x-axis with dates
plt.title(symbol + ' Higher Partial Moment')
plt.xlabel('Date')
plt.ylabel('Higher Partial Moment')
```

[6]: Text(0, 0.5, 'Higher Partial Moment')



[7]:
```
stock_hpm = hpm(stocks_returns)
stock_hpm
```

[7]: 0.003408584638949311

[8]:
```
running = [hpm(stocks_returns[i-90:i]) for i in range(90, len(stocks_returns))]
running
```

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