Stock_Value_at_Risk_Ratio_Normalilty_Chart

September 29, 2021

1 Stock Value-at-Risk Ratio Normality Chart

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

import warnings
warnings.filterwarnings("ignore")

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

[2]:
```
start = '2016-01-01' #input
end = '2020-07-01' #input
symbol = 'AMD'
```

[3]:
```
df = yf.download("AMD", start, end)
```

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

[4]:
```
returns = df['Adj Close'].pct_change()[1:].dropna()
```

[5]:
```
# risk free
rf = yf.download('BIL', start=start, end=end)['Adj Close'].pct_change()[1:]
```

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

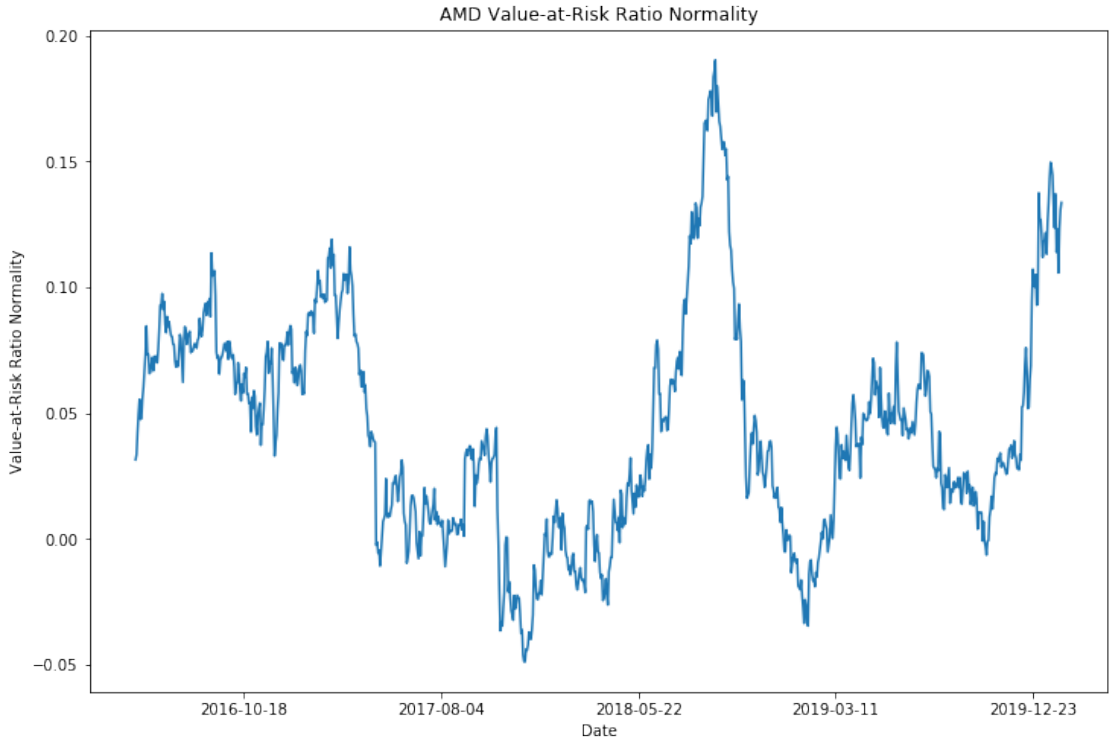
[6]:
```
def var_ratio_normality(symbol, rf):
    sr = np.mean(symbol - rf)/np.std(symbol - rf)
    t = 2.33
    var_n = sr  / (t - sr)
    return var_n
```

[7]:
```
# Compute the running Value-at-Risk Ratio Normality
```

```
running_sharpe = [var_ratio_normality(returns[i-90:i], rf[i-90:i]) for i in␣
 ↪range(90, len(returns))]

# Plot running Value-at-Risk Ratio Normality up to 100 days before the end of␣
 ↪the data set
_, ax1 = plt.subplots(figsize=(12,8))
ax1.plot(range(90, len(returns)-100), running_sharpe[:-100])
ticks = ax1.get_xticks()
ax1.set_xticklabels([df['Adj Close'].index[int(i)].date() for i in ticks[:-1]])␣
 ↪# Label x-axis with dates
plt.title(symbol + ' Value-at-Risk Ratio Normality')
plt.xlabel('Date')
plt.ylabel('Value-at-Risk Ratio Normality')
```

[7]: Text(0, 0.5, 'Value-at-Risk Ratio Normality')



[8]:
```
var_ratio_normality(returns, rf)
```

[8]: 0.03630708714594483