

which-stock

September 29, 2021

```
[1]: import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns
sns.set()
```

```
[2]: directory = '../dataset/'
ori_name = ['AMD.csv', 'FB.csv', 'FSV.csv', 'INFY.csv', 'KNX.csv',
            'MONDY.csv', 'MTDR.csv', 'SINA.csv', 'TMUS.csv', 'TSLA.csv', 'TWTR.
            ↪csv']
stocks = [directory + s for s in ori_name]
stocks
```

```
[2]: ['../dataset/AMD.csv',
      '../dataset/FB.csv',
      '../dataset/FSV.csv',
      '../dataset/INFY.csv',
      '../dataset/KNX.csv',
      '../dataset/MONDY.csv',
      '../dataset/MTDR.csv',
      '../dataset/SINA.csv',
      '../dataset/TMUS.csv',
      '../dataset/TSLA.csv',
      '../dataset/TWTR.csv']
```

```
[3]: dfs = [pd.read_csv(s)[['Date', 'Close']] for s in stocks]
```

```
[4]: from functools import reduce
data = reduce(lambda left, right: pd.merge(left, right, on='Date'), dfs).iloc[:, 1:
            ↪]
data.head()
```

```
[4]:      Close_x      Close_y      Close_x      Close_y      Close_x      Close_y      Close_x \
0  16.270000  207.320007  78.820000      9.710  37.910000  56.889999  31.809999
1  16.580000  207.229996  78.250000      9.800  36.360001  56.639999  31.670000
2  16.870001  209.990005  77.940002      9.950  36.279999  57.730000  32.020000
3  16.850000  209.360001  77.940002      9.840  37.500000  57.810001  31.740000
```

```
4  16.709999  208.089996  78.055000    9.855  37.990002  52.380001  32.330002
```

```
      Close_y  Close_x  Close_y  Close
0  84.070000  61.680000  318.869995  44.490002
1  83.949997  61.630001  310.100006  44.259998
2  84.870003  61.209999  322.690002  44.709999
3  83.989998  60.520000  323.850006  43.340000
4  82.940002  59.410000  320.230011  43.439999
```

```
[5]: returns = data.pct_change()
     mean_daily_returns = returns.mean()
     volatilities = returns.std()
```

```
[6]: mean_daily_returns * 252
```

```
[6]: Close_x    0.995185
     Close_y   -0.247949
     Close_x    0.119677
     Close_y    0.190845
     Close_x   -0.175416
     Close_y   -0.170502
     Close_x   -0.626256
     Close_y   -0.450914
     Close_x    0.252493
     Close_y   -0.069273
     Close     -0.273753
     dtype: float64
```

```
[7]: volatilities * 252
```

```
[7]: Close_x    12.196632
     Close_y     6.637175
     Close_x     3.677834
     Close_y     3.572859
     Close_x     7.104904
     Close_y     7.909165
     Close_x     8.121732
     Close_y     6.948244
     Close_x     3.863498
     Close_y    10.213733
     Close      8.873234
     dtype: float64
```

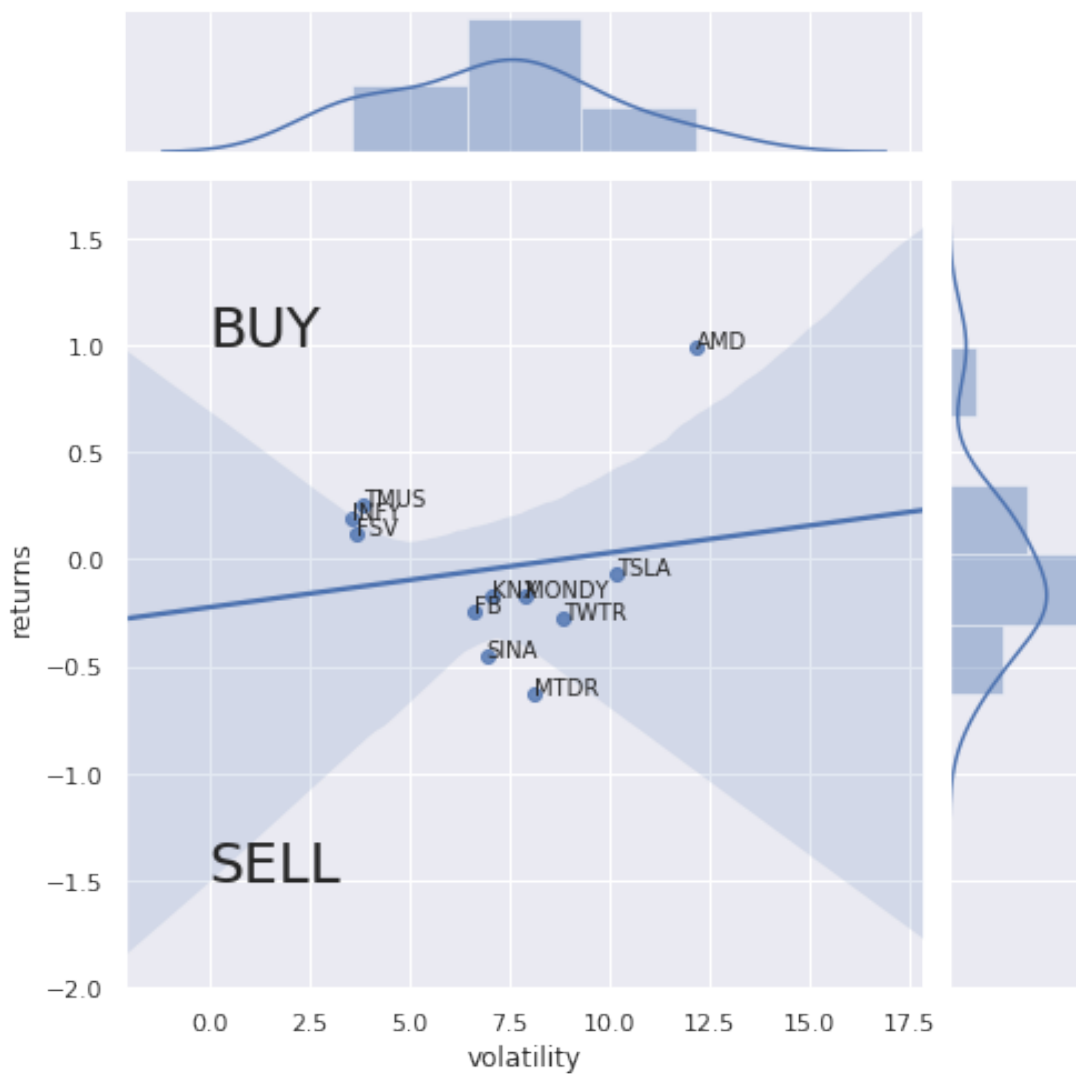
```
[8]: combine = pd.DataFrame({'returns': mean_daily_returns * 252,
                             'volatility': volatilities * 252})
```

```
[9]: g = sns.jointplot("volatility", "returns", data=combine, kind="reg",height=7)

for i in range(combine.shape[0]):
    plt.annotate(ori_name[i].replace('.csv',''), (combine.iloc[i, 1], combine.
    →iloc[i, 0]))

plt.text(0, -1.5, 'SELL', fontsize=25)
plt.text(0, 1.0, 'BUY', fontsize=25)

plt.show()
```



```
[ ]:
```