**Project Title:** Equities (and other assets) vs the S&P 500

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**Part 1: Data Collection**

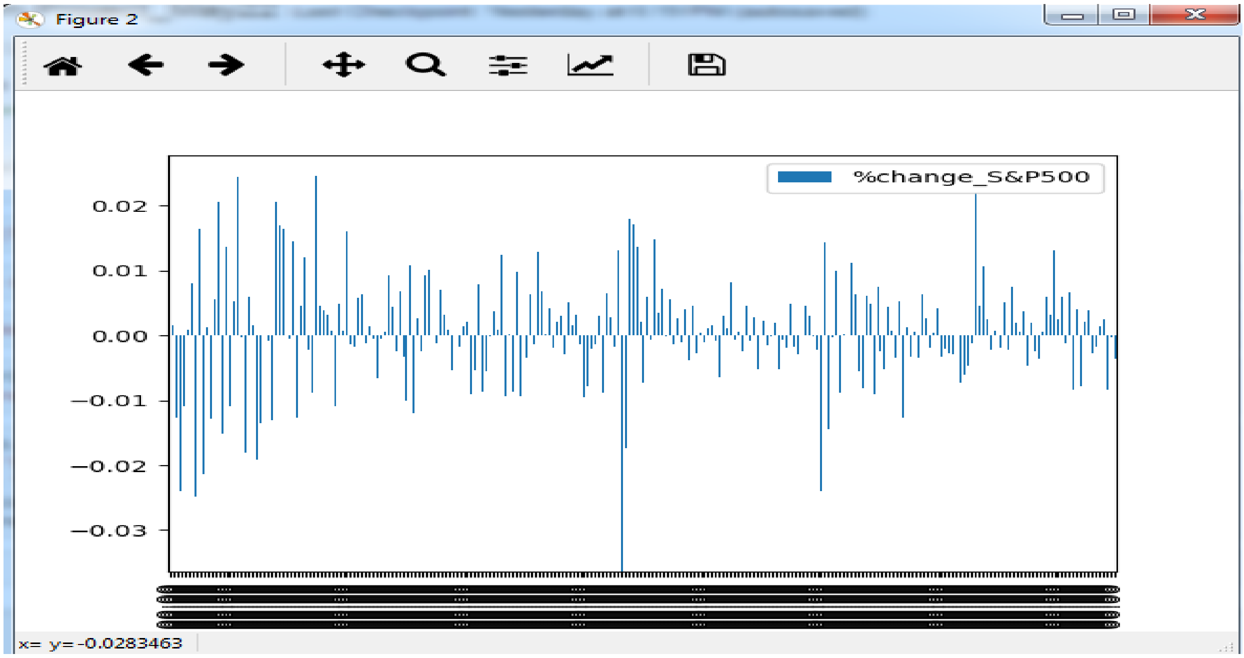
We have taken one equity and four distinct assets. All the data for the below asset classes were imported using quandl and google.
Start date:**1/1/2016** and End date: **12/31/2016**.

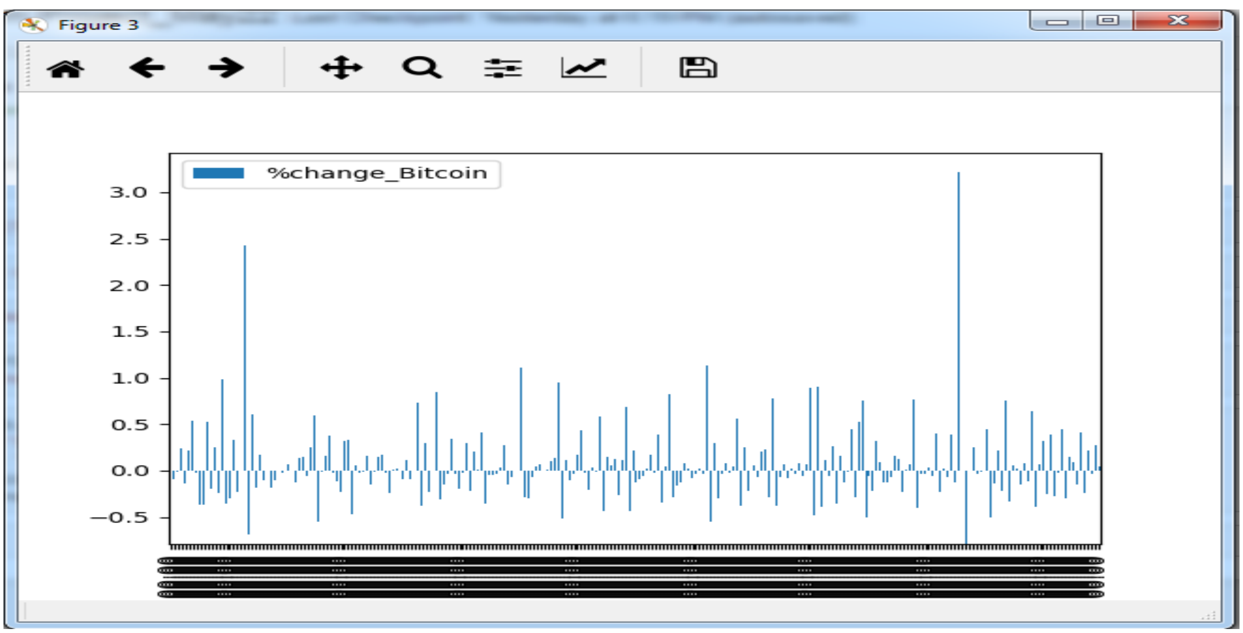
1. Equity - Apple
2. Bitcoin
3. Oil
4. Gold
5. Treasury

**Part 2: Data Processing**

| S. no | Statistics | S&P500 | Apple | Bitcoin | Gold | Oil | Treasury |
|---|---|---|---|---|---|---|---|
| 1 | Count | 252.0000 | 252.0000 | 244.00000 | 252.00000 | 252.00000 | 250.000000 |
| 2 | Mean | 209.4399 | 104.6040 | 737.13647 | 119.36269 | 40.833214 | 0.857040 |
| 3 | Standard Deviation | 10.14405 | 7.640743 | 310.23456 | 6.874433 | 7.225594 | 0.203884 |
| 4 | Min | 182.8600 | 90.34000 | 359.71000 | 102.89000 | 22.480000 | 0.520000 |
| 5 | 25 percentile | 204.5450 | 97.13750 | 534.75250 | 116.09750 | 36.250000 | 0.680000 |
| 6 | 50 percentile | 210.5450 | 105.7500 | 689.77500 | 120.03000 | 42.610000 | 0.850000 |
| 7 | 75 percentile | 216.7550 | 110.9775 | 832.98000 | 125.33250 | 45.422500 | 1.000000 |
| 8 | Max | 227.7600 | 118.2500 | 3623.1900 | 130.52000 | 53.460000 | 1.330000 |
| 9 | Variance | 102.9019 | 58.3809 | 96245.485 | 47.25783 | 52.2092 | 0.041568 |

**Bar Graphs**: Percentage Change in Prices over the course of 2016-2017



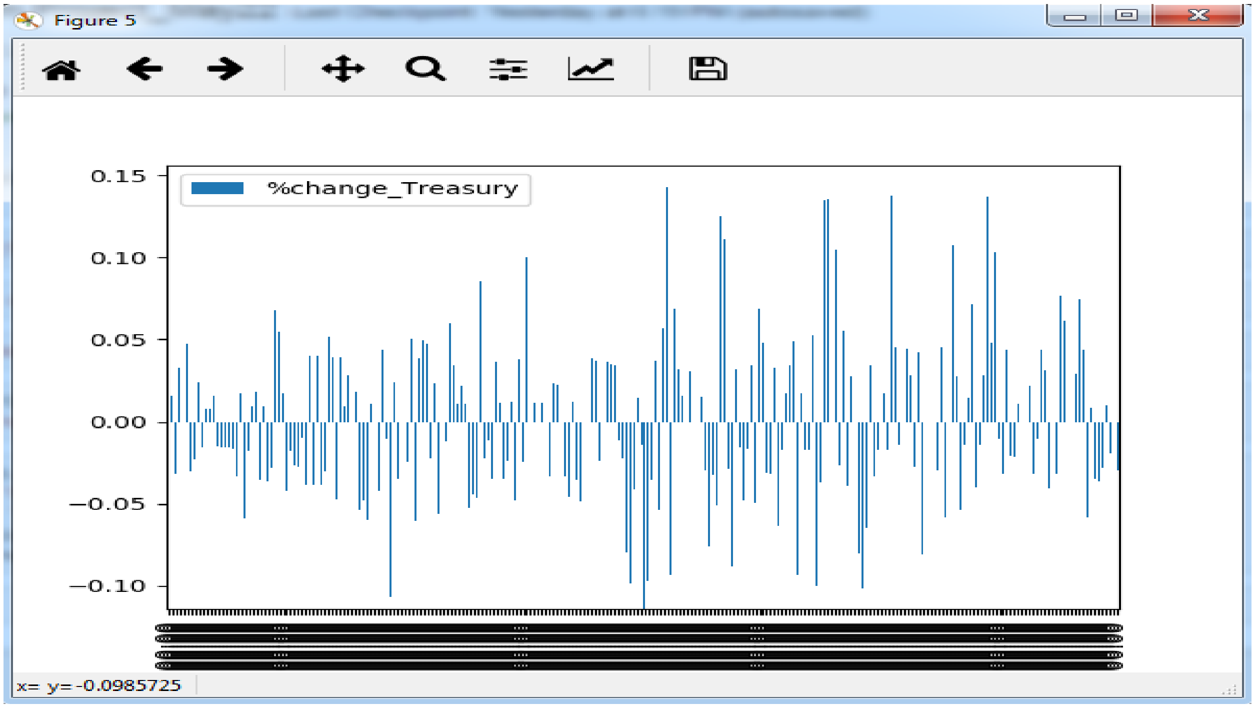


Figure 5
0.15
0.10
0.05
0.00
−0.05
−0.10
%change_Treasury
x= y=-0.0985725

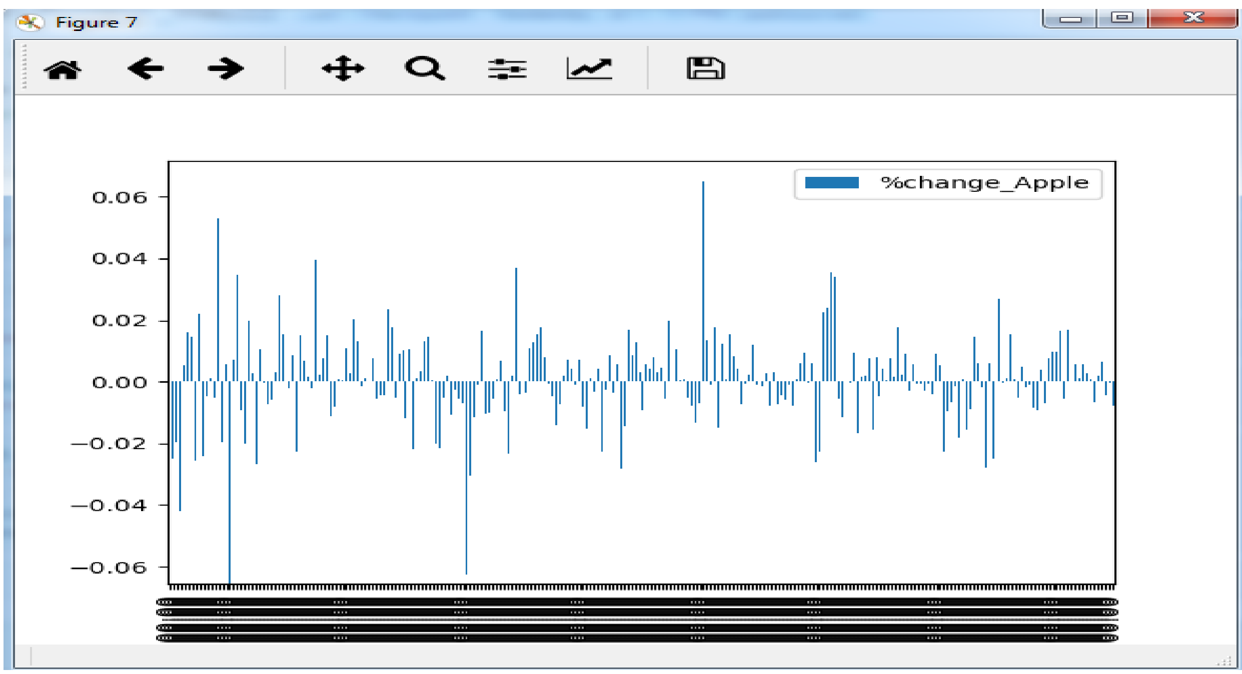


Figure 7
0.06
0.04
0.02
0.00
−0.02
−0.04
−0.06
%change_Apple

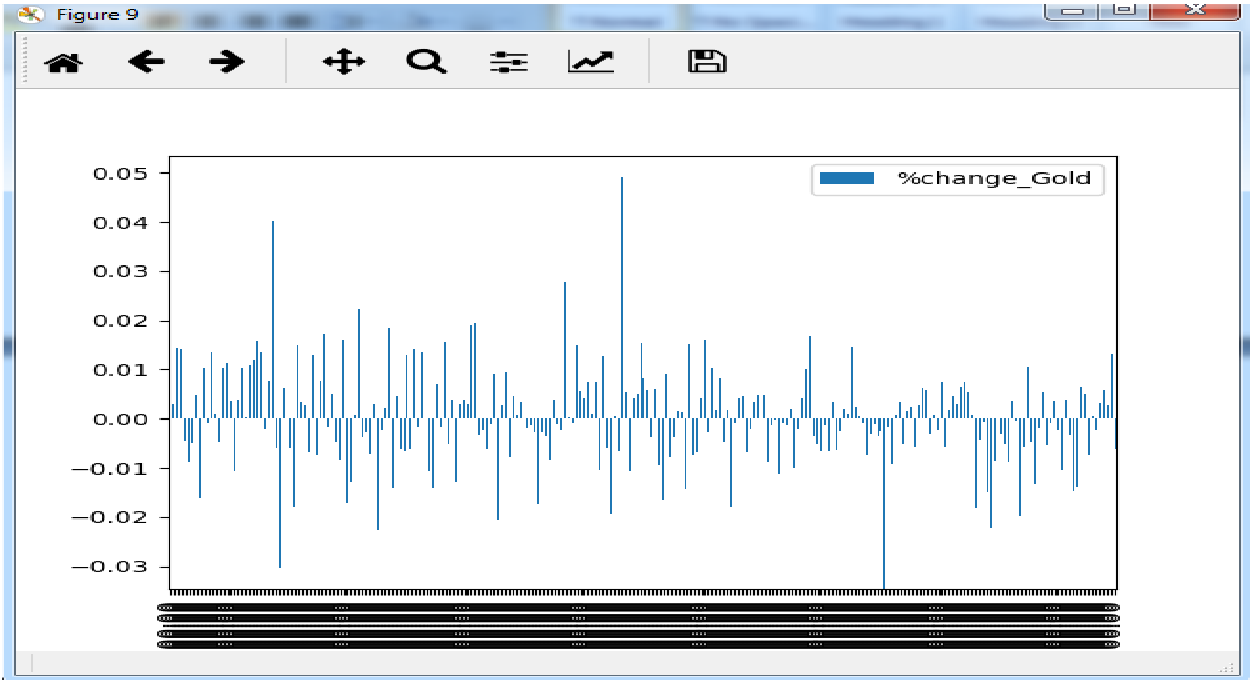


Figure 9
%change_Gold
0.05
0.04
0.03
0.02
0.01
0.00
−0.01
−0.02
−0.03

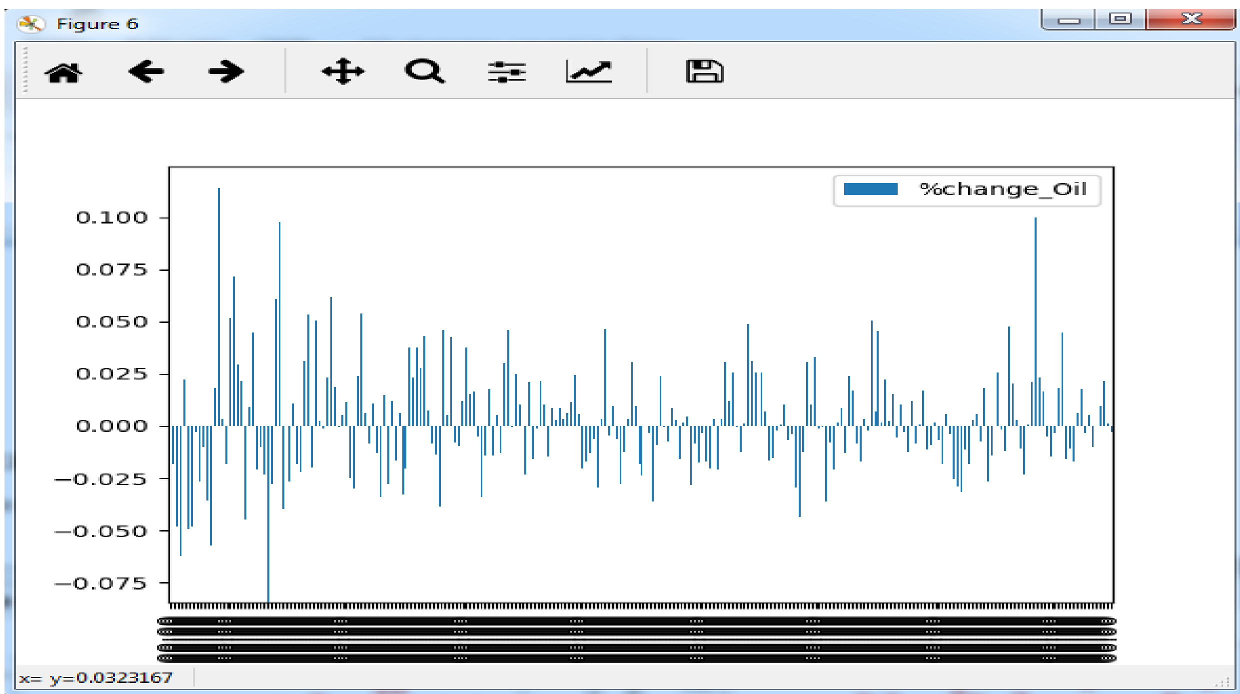
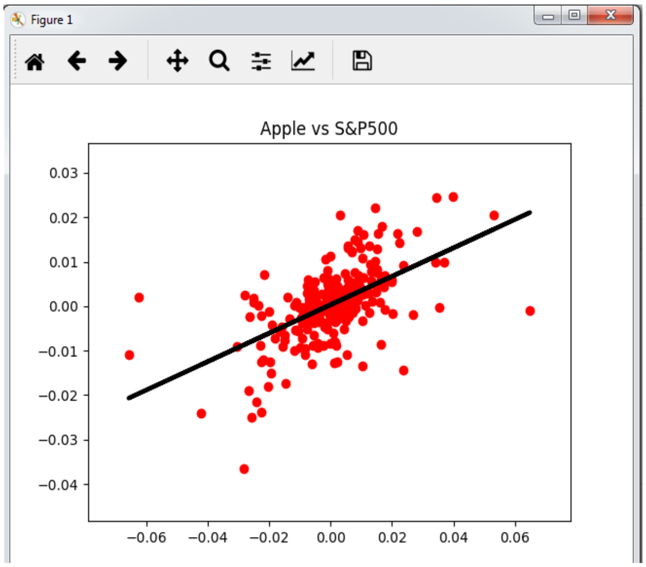
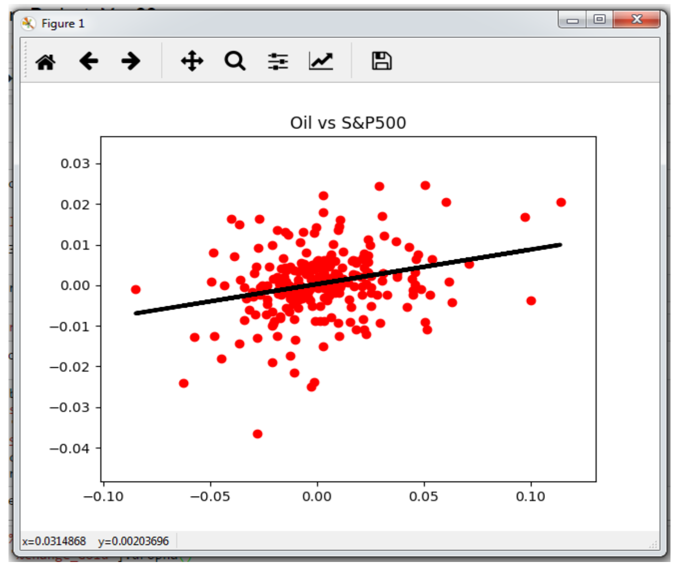


Figure 6
%change_Oil
0.100
0.075
0.050
0.025
0.000
−0.025
−0.050
−0.075
x= y=0.0323167

## Regression Analysis:

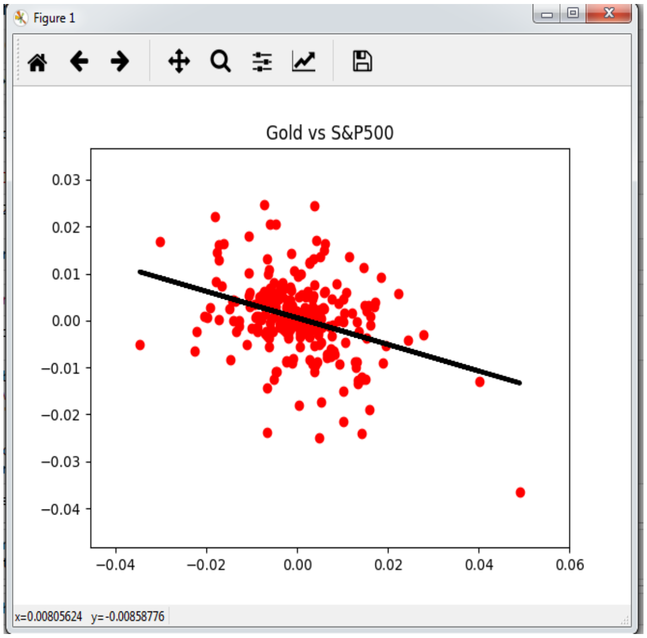
Apple (Equity) is highly correlated with S&P500 as compared to all the other assets

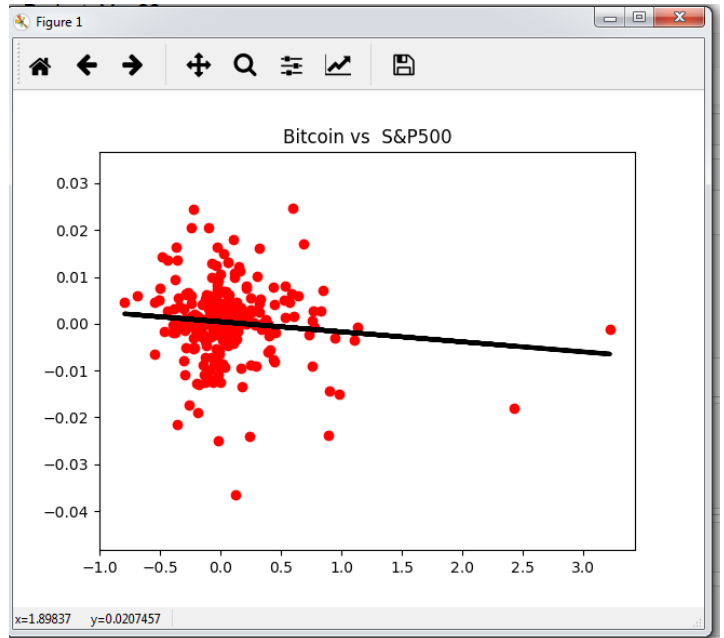



Intercept (Apple): 0.00030157
Regression coefficient (Apple): 0.31977638
Slope (Apple) 0.3259559133
Mean Squared Error (Apple): 0.000146109533435
**Positively Correlated**

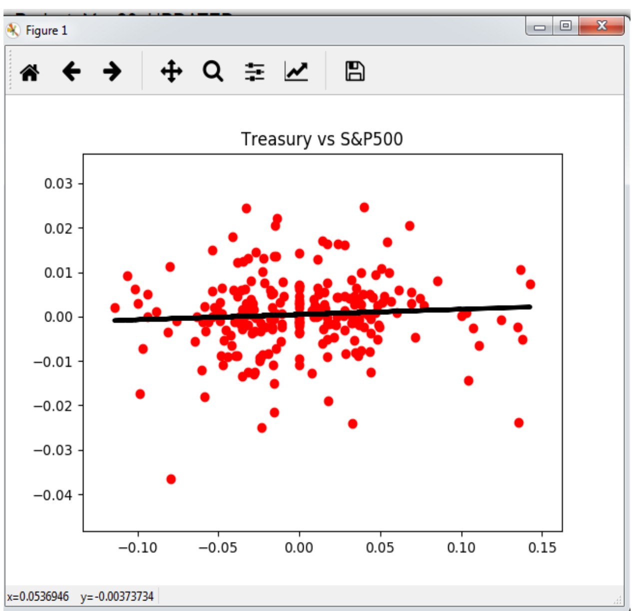
Intercept (Oil): 0.00025268
Regression coefficient (Oil) : 0.08498233
Slope (Oil) 0.073908628772
Mean Squared Error (Oil): 0.0006493208606
**Positively Correlated**




Intercept(gold): 0.00054281
Regression coefficient(gold): 0.28266353
Slope (gold) 0.121237877335
Mean Squared Error (gold): 0.0002295053694
**Negatively Correlated**

Intercept(Bitcoin): 0.00040244
Regression coefficient(Bitcoin): - 0.0021412
Slope (Bitcoin) 0.01146888
Mean Squared Error (Bitcoin): 0.170659178555
**Negatively Correlated**




Intercept(Treasury): 0.00044744
Regression coefficient(Treasury): 0.0118197
Slope (Treasury) 0.00441808008949
Mean Squared Error (Treasury): 0.00218093990129 **Positively Correlated**