



## **Recommended Asset Allocation**

**— 11/20/2020**

FRONTIER CURVE OPTIMAL PORTFOLIO ANALYSIS

MONTE CARLO SIMULATION OF RETURNS

SIMULATED BACK TESTING

CORRELATION MATRIX

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# 1 Statistical Terminology & Asset Class Descriptions

**Expected Return** - Of an investing strategy is the amount of money you are expected to get back from your investment. For example, if 90 dollars is invested for 1 year with an expected return of 100 dollars, then in the average case the investment will yield back 100 dollars.

**Risk** - Or standard deviation of an investing strategy is a measure of how much the return of an investment strategy will vary from it's expected return. For example, an investment strategy with an expected return of 20% and a risk of 8% will yield 112% to 128% return with a probability of 68.2% , and 104% to 136% return with a probability of 94.4%

## The 18 Asset Classes :

| Asset Class        | Index     | Description                                 |
|--------------------|-----------|---|
| Large Cap Growth   | FSPGX     | Fastly growing stocks from big companies.   |
| Large Cap Value    | SVX       | Undervalued stocks from big companies.      |
| Small Cap Growth   | RUT       | Fastly growing stocks from small companies. |
| Small Cap Value    | RUJ       | Undervalued stocks from small companies.    |
| Mid Cap            | SP400     | Stocks from mid sized companies.            |
| International      | VTIAX     | Stocks not traded in U.S.A. exchanges.      |
| Emerging Mkt.      | VEMAX     | Stocks from emerging Mkt. countries.        |
| Real Estate        | DJUSRE    | Land and buildings.                         |
| Venture Capital    | AMZX      | New and innovative companies.               |
| Inter. Govt. Bonds | GVI       | Govt. bonds that mature in 5-10 years.      |
| Long Govt. Bonds   | ILTB      | Govt. bonds mature in more than 10 years.   |
| Corporate Bonds    | SPDBDACPT | Bonds issued by a corporation.              |
| High Yield Bond    | HYG       | Lower credit rating higher return bonds.    |
| Municipal Bond     | MUB       | Bonds Issued by local government.           |
| Foreign Bonds      | BNDX      | Bonds issued in other countries.            |
| Emerging Mkt. Debt | JEDAX     | Bonds issued by emerging countries.         |
| Commodities        | DJCI      | Basic goods used in commerce.               |
| Cash               | BIL       | Currencies, Foreign Currencies              |

## 2 Investment Profile — Prescribed Allocation Changes

### Investment Profile:

Name :

Birthday : 11/20/1960

Time Frame : 9 Years

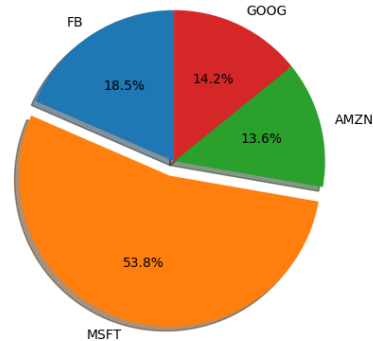
Available Funds : \$1,232,683.45

Preferred Risk : ( $\pm 8\%$  Yearly)

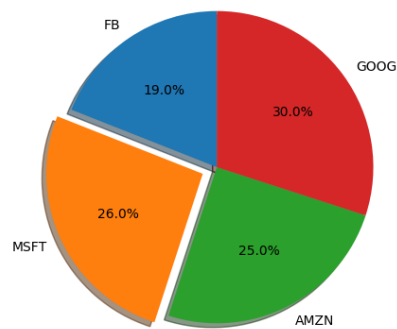
### **Preffered Asset Classes:**

- Large Cap Growth Stocks
- Large Cap Value Stocks
- High Yield Bonds
- Emerging Mkt. Stocks
- Venture Capital
- Cash

(a) Current Portfolio



(b) New Portfolio



### Prescribed Allocation Changes

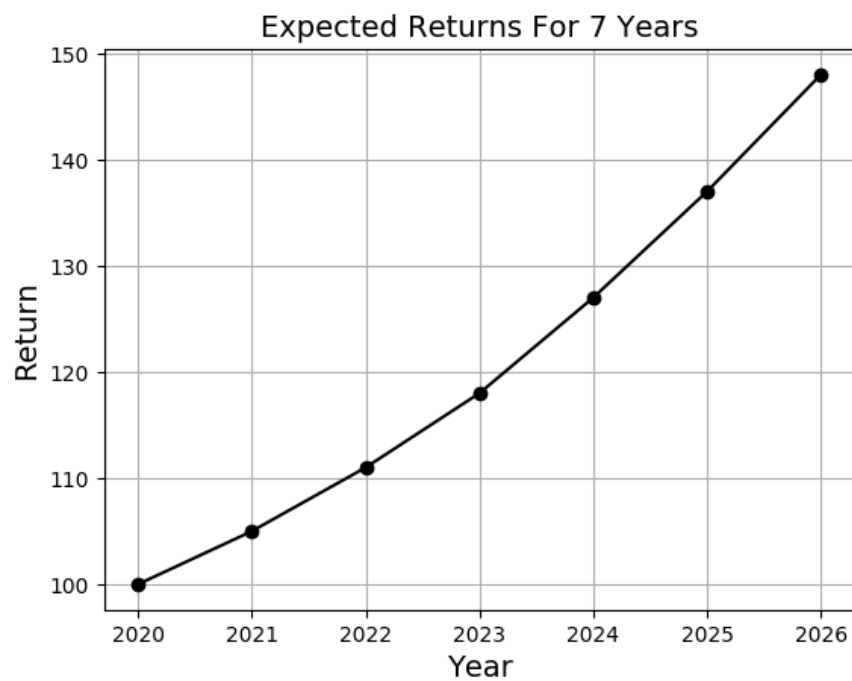
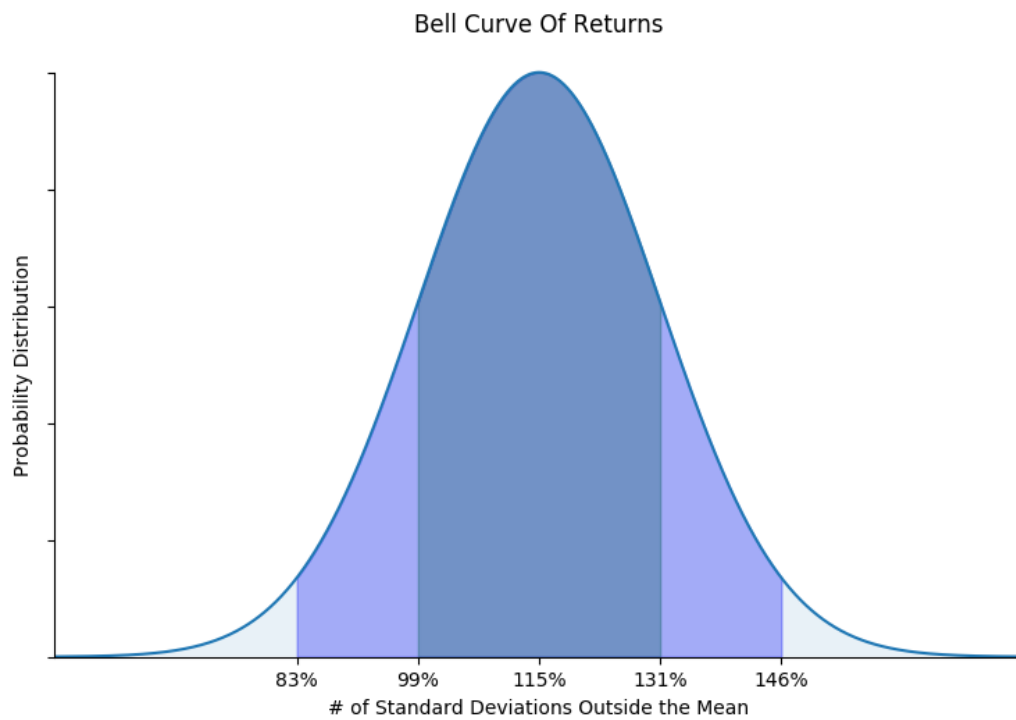
| Asset Class         | Current     | Suggested   | Change       |
|---------------------|-------------|-------------|--------------|
| Large Cap Growth    | \$54,441.73 | \$43,210.22 | +\$34,321.34 |
| Large Cap Value     | \$54,441.73 | \$43,210.22 | +\$34,321.34 |
| Small Cap Growth    | \$54,441.73 | \$43,210.22 | +\$34,321.34 |
| Small Cap Value     | \$54,441.73 | \$43,210.22 | +\$34,321.34 |
| Mid Cap             | \$54,441.73 | \$43,210.22 | +\$34,321.34 |
| International Stock | \$54,441.73 | \$43,210.22 | +\$34,321.34 |
| Emerging Mkt Stock  | \$54,441.73 | \$43,210.22 | +\$34,321.34 |
| Real Estate         | \$54,441.73 | \$43,210.22 | +\$34,321.34 |
| Venture Capital     | \$54,441.73 | \$43,210.22 | +\$34,321.34 |

### 3 Performance Improvements Of Prescribed Portfolio

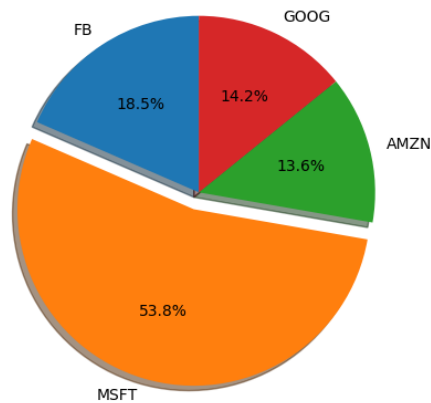
Below are 7 year simulation results of your current investing strategy versus the investment strategy prescribed in this report.

Change In Expected Return : \$124,432.23

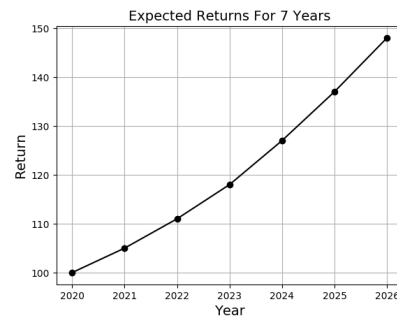
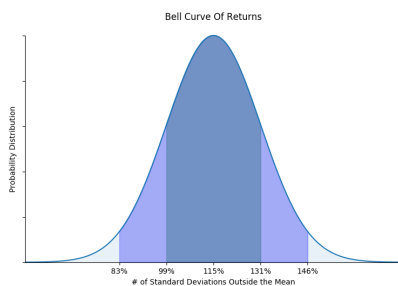
Change in Risk : ( -3% )



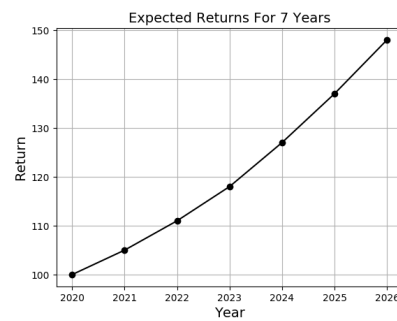
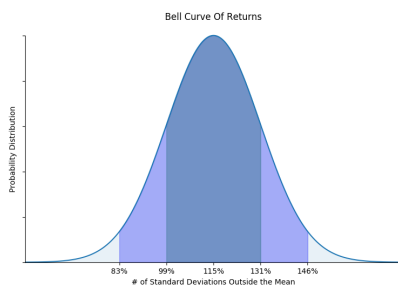
## 4 Current Portfolio Overview - Statistical Analysis



Portfolio Breakdown



Current Portfolio 1 Year Projections



Current Portfolio 7 Year Projections

1 Year Expected Return (\$) : \$343,203.20 (33.3%)

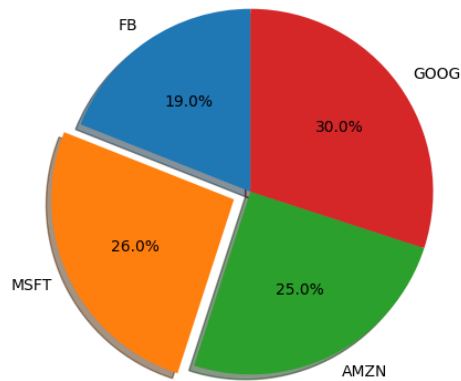
1 Year Risk (Standard Deviation %) :  $\pm 3.54\%$

7 Year Expected Return (\$) : \$343,203.20 (33.3%)

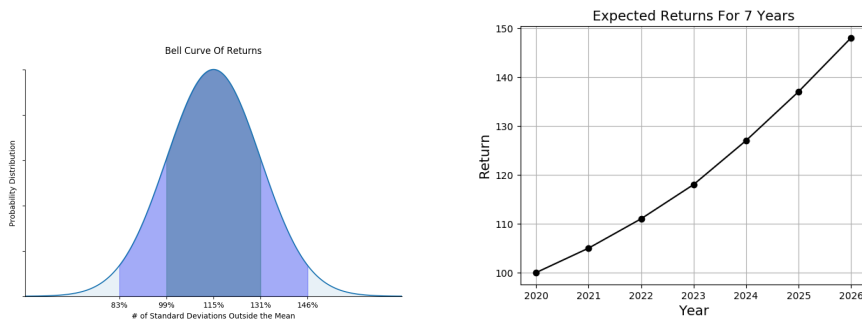
7 Year Risk (Standard Deviation %) :  $\pm 3.54\%$

Sharpe Ratio : .37

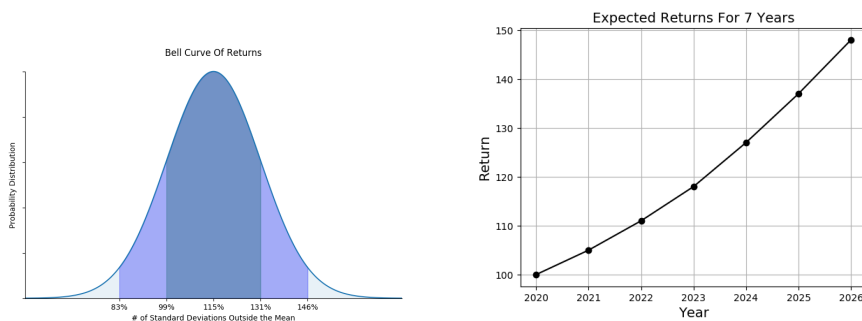
## 5 Prescribed Portfolio Overview - Statistical Analysis



Portfolio Breakdown



Prescribed Portfolio 1 Year Projections



Prescribed Portfolio 7 Year Projections

1 Year Expected Return (\$) : \$343,203.20 (33.3%)

1 Year Risk (Standard Deviation %) :  $\pm 3.54\%$

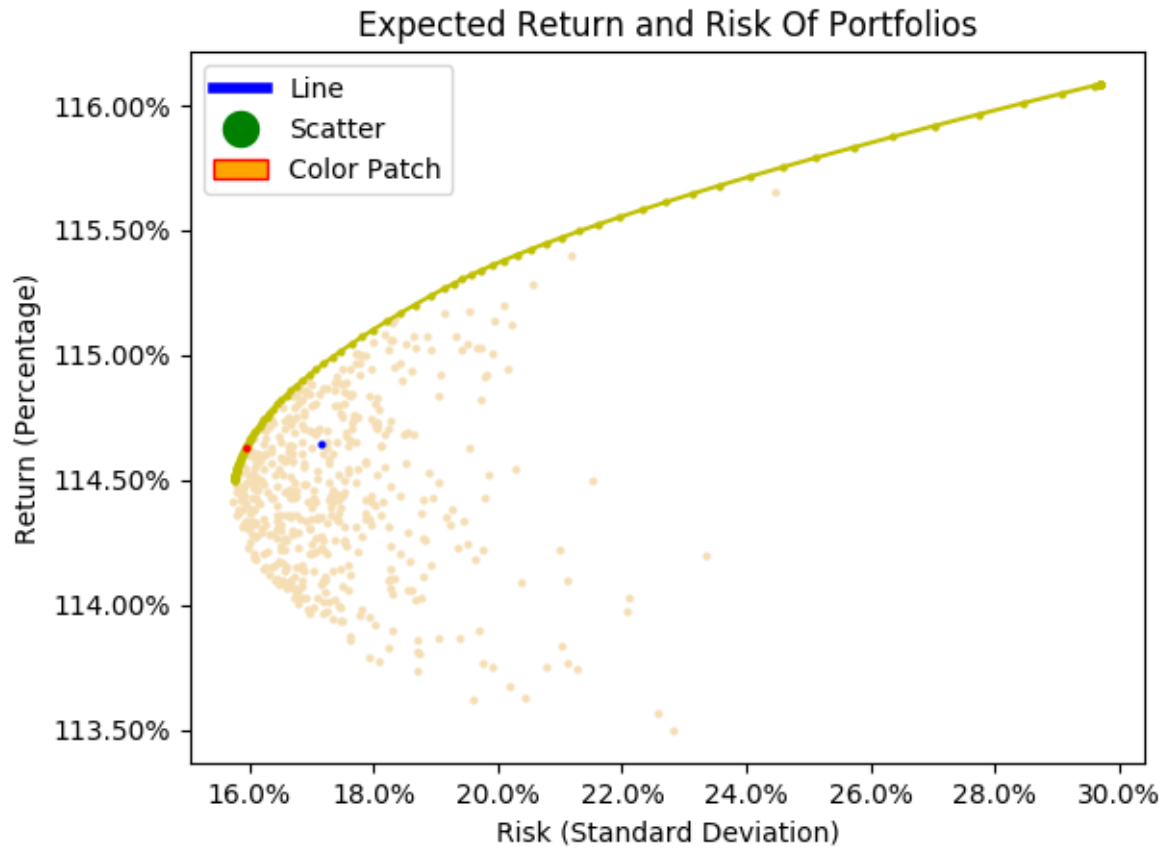
7 Year Expected Return (\$) : \$343,203.20 (33.3%)

7 Year Risk (Standard Deviation %) :  $\pm 3.54\%$

Sharpe Ratio : .37

## 6 Frontier Curve

Harry Markowitz won a nobel prize for inventing a portfolio balancing theory. Markowitz discovered that given assets to buy from and funds to buy with, all of the best portfolios formed a curved line called the "Frontier Curve."



Risk (Std. Deviation) : [15.930762844076593]

Expected Return : [114.62788881671014]

Improvement in risk : [[15.75921799]]

Improvement in return : [[113.48144129]]

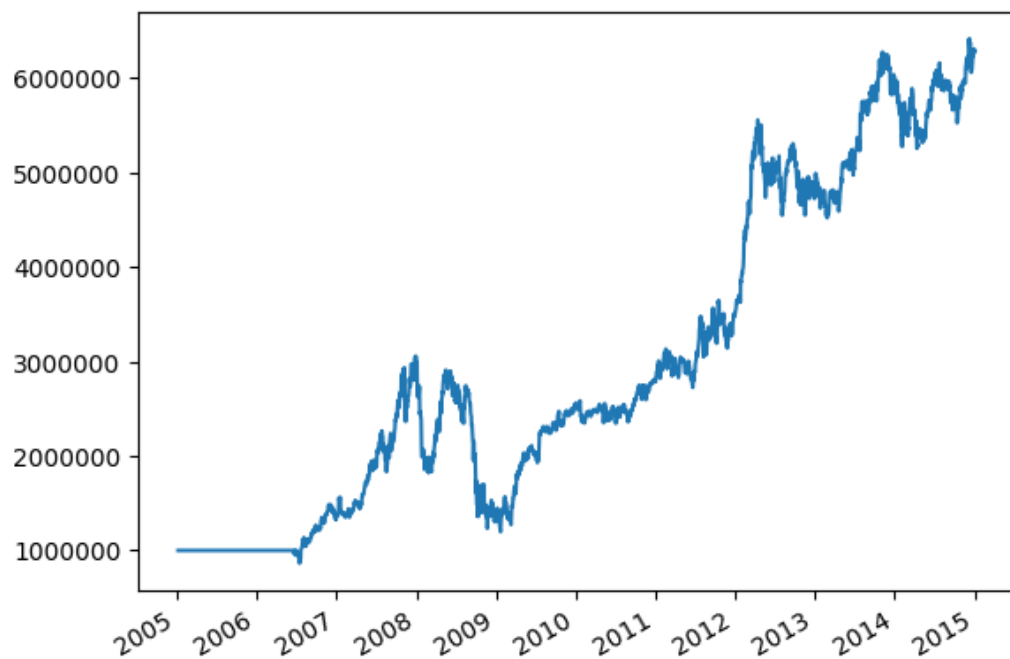
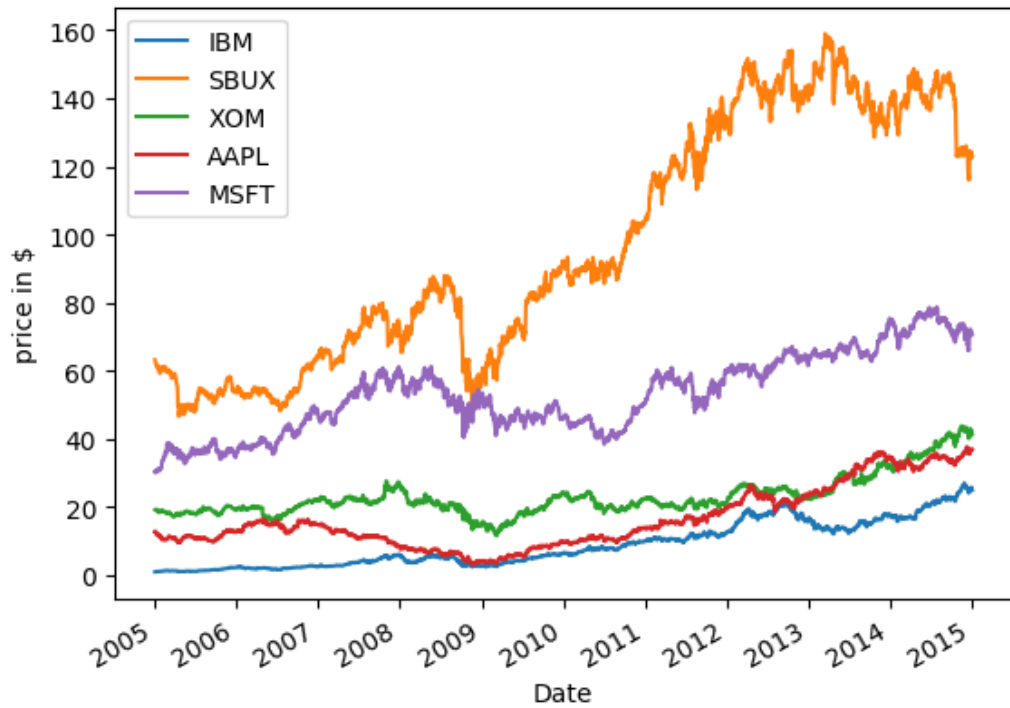


## 7 Back Testing On The 2008 Crisis

Below is a simulated backtest of the prescribed investing strategy on the 2008 economic crisis.

Profit : 214% (\$97,213.23)

Risk : (  $\pm 5\%$  On average.) — Averted Crisis



## 8 Correlation Matrices

| Corr. | MSFT   | NTFX   | HULU   | RUS   | BP    | TR     | SOCK   |
|-------|--------|--------|--------|-------|-------|--------|--------|
| MSFT  | 16.128 | +8.872 | 16.128 | 1.402 | 1.373 | -146.6 | -137.6 |
| NTFX  | 3.442  | -2.509 | 3.442  | 0.299 | 0.343 | 133.2  | 152.4  |
| HULU  | 1.826  | -0.363 | 1.826  | 0.159 | 0.119 | 168.5  | -161.1 |
| RUS   | 0.993  | -0.429 | 0.993  | 0.086 | 0.08  | 25.6   | 90     |
| BP    | 1.29   | +0.099 | 1.29   | 0.112 | 0.097 | -175.6 | -114.7 |
| TR    | 0.483  | -0.183 | 0.483  | 0.042 | 0.063 | 22.3   | 122.5  |
| SOCK  | 0.766  | -0.475 | 0.766  | 0.067 | 0.039 | 141.6  | -122   |

Above is the Semantic Correlation Matrix of the selected Asset Classes. It shows how each asset class is correlated to one another

| Return | MSFT   | NTFX   | HULU   | RUS   | BP    | TR     | SOCK   |
|--------|--------|--------|--------|-------|-------|--------|--------|
| 1      | 16.128 | +8.872 | 16.128 | 1.402 | 1.373 | -146.6 | -137.6 |
| 2      | 3.442  | -2.509 | 3.442  | 0.299 | 0.343 | 133.2  | 152.4  |

Above is the ranking of the selected asset classes by risk

| Risk | MSFT   | NTFX   | HULU   | RUS   | BP    | TR     | SOCK   |
|------|--------|--------|--------|-------|-------|--------|--------|
| 1    | 16.128 | +8.872 | 16.128 | 1.402 | 1.373 | -146.6 | -137.6 |
| 2    | 3.442  | -2.509 | 3.442  | 0.299 | 0.343 | 133.2  | 152.4  |

Above is the ranking of the selected asset classes by return