



Money Printer

Keeno Glanville

A decorative vertical bar on the left side of the slide, featuring a golden-yellow background with various 3D financial symbols including the dollar sign (\$), yen sign (¥), and Euro sign (€).

Scenario

You are a 37-year-old bond trader in a major investment firm. Your investment portfolio, largely holding high return equities is valued today at \$6.2 M. You have just read Jamie Dimon's financial hurricane warning and decided to rebalance your portfolio.



Assumptions

September 2021, Jamie Dimon, the CEO of JPMorgan Chase, warned of a potential "financial hurricane" due to various economic factors, including inflation, fiscal and monetary policy, and geopolitical tensions. He advised that businesses and policymakers should remain vigilant and prepared for potential economic challenges and uncertainties.

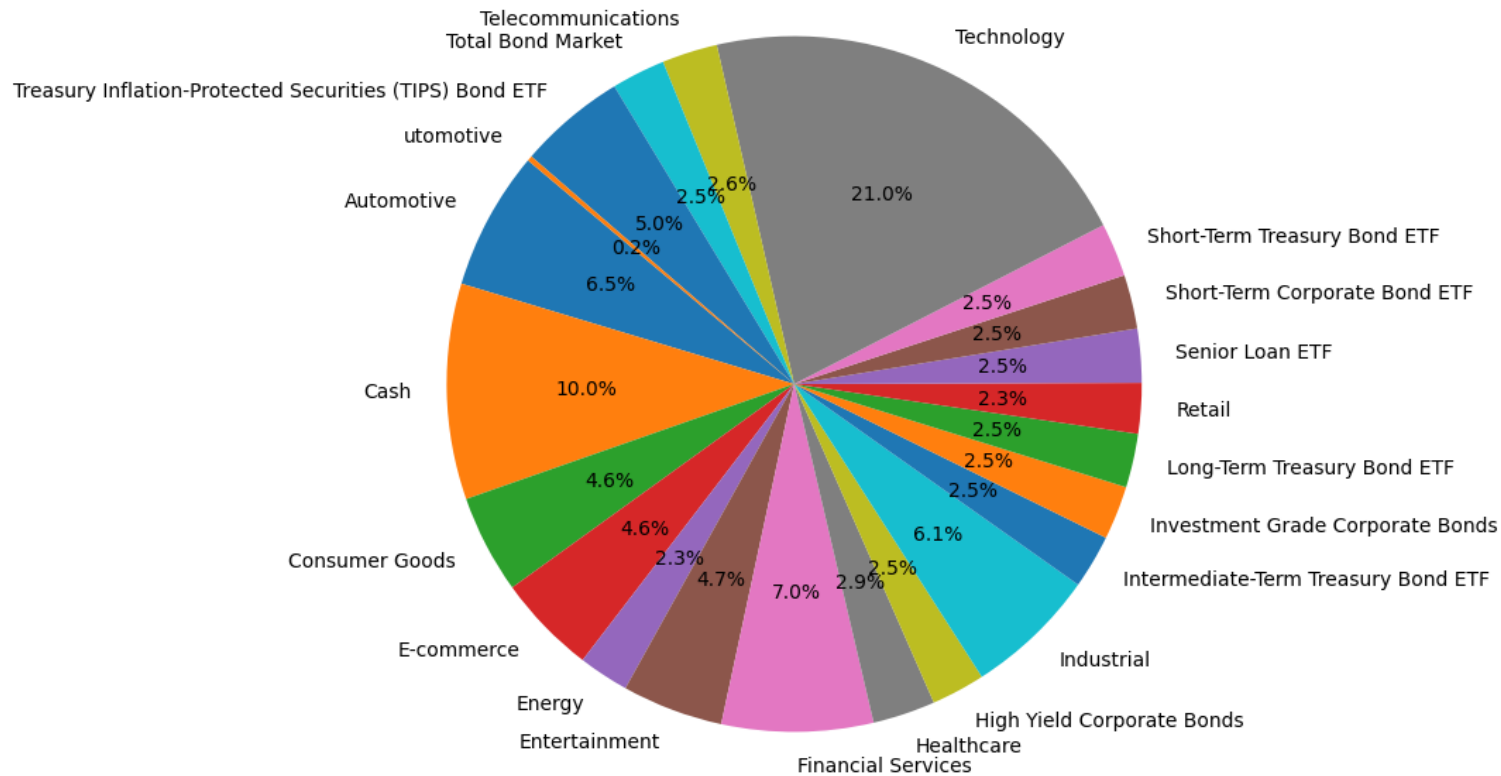
- We will need to diversify the high yield equities portfolio
- We need to add more bonds since I am a bond trader and know the tolerance
- Need to stress diversification as to not get too heavily weighted on one medium

Portfolio Allocation

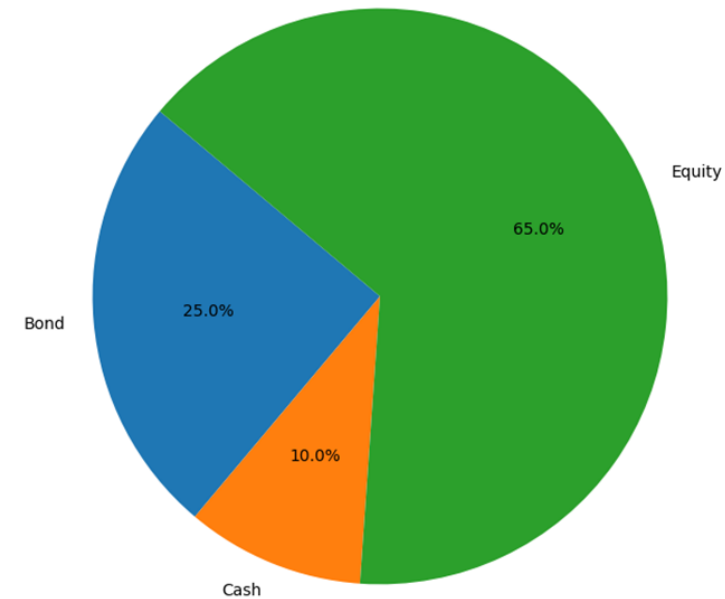
Asset	Ticker	Type	Subtype	Date	Price	Units	Amount
Apple Inc.	AAPL	Equity	Technology	12-Sep-23	\$176.30	648	\$114,242
Amazon.com Inc.	AMZN	Equity	E-commerce	12-Sep-23	\$142.32	1,000	\$142,320
Microsoft Corporation	MSFT	Equity	Technology	12-Sep-23	\$331.77	500	\$165,885
Alphabet Inc.	GOOGL	Equity	Technology	12-Sep-23	\$135.19	800	\$108,152
META	META	Equity	Technology	12-Sep-23	\$324.40	500	\$162,200
Tesla, Inc.	TSLA	Equity	Automotive	12-Sep-23	\$250.10	1,599	\$399,910
NVIDIA Corporation	NVDA	Equity	Technology	12-Sep-23	\$447.38	850	\$380,273
Advanced Micro Devices	AMD	Equity	Technology	12-Sep-23	\$104.20	1,208	\$125,874
JPMorgan Chase & Co.	JPM	Equity	Financial Services	12-Sep-23	\$146.34	995	\$145,608
Johnson & Johnson	JNJ	Equity	Healthcare	12-Sep-23	\$163.93	886	\$145,242
Visa Inc.	V	Equity	Financial Services	12-Sep-23	\$247.30	588	\$145,412
Procter & Gamble Company	PG	Equity	Consumer Goods	12-Sep-23	\$155.15	938	\$145,531
Johnson Controls International plc	JCI	Equity	Industrial	12-Sep-23	\$56.66	1,577	\$89,353
General Electric Company	GE	Equity	Industrial	12-Sep-23	\$114.00	1,279	\$145,806
Coca-Cola Company	KO	Equity	Consumer Goods	12-Sep-23	\$57.84	1,521	\$87,975
Verizon Communications Inc.	VZ	Equity	Telecommunications	12-Sep-23	\$34.18	4,262	\$145,675
Boeing Co.	BA	Equity	Industrial	12-Sep-23	\$210.65	690	\$145,349
AT&T Inc.	T	Equity	Telecommunications	12-Sep-23	\$14.19	1,025	\$14,545
Pfizer Inc.	PFE	Equity	Healthcare	12-Sep-23	\$34.15	1,025	\$35,004
Netflix, Inc.	NFLX	Equity	Entertainment	12-Sep-23	\$434.69	335	\$145,621
Alibaba Group Holding Limited	BABA	Equity	E-commerce	12-Sep-23	\$88.19	1,650	\$145,514
Intel Corporation	INTC	Equity	Technology	12-Sep-23	\$38.65	1,770	\$68,411
Walt Disney Company	DIS	Equity	Entertainment	12-Sep-23	\$84.67	1,720	\$145,632
Exxon Mobil Corporation	XOM	Equity	Energy	12-Sep-23	\$115.34	1,262	\$145,559
Ford Motor Company	F	Equity	Automotive	12-Sep-23	\$12.23	1,209	\$14,786
Goldman Sachs Group, Inc.	GS	Equity	Financial Services	12-Sep-23	\$324.01	450	\$145,805
Home Depot, Inc.	HD	Equity	Retail	12-Sep-23	\$326.83	445	\$145,439
IBM (International Business Machines Corporation)	IBM	Equity	Technology	12-Sep-23	\$146.30	995	\$145,569
Starbucks Corporation	SBUX	Equity	Consumer Goods	12-Sep-23	\$95.50	527	\$50,329
Cisco Systems, Inc.	CSCO	Equity	Technology	12-Sep-23	\$56.65	582	\$32,970
iShares iBoxx \$ Investment Grade Corporate Bond ETF	LQD	Bond	Investment Grade Corporate Bonds	12-Sep-23	\$104.53	1,480	\$154,704
iShares iBoxx \$ High Yield Corporate Bond ETF	HYG	Bond	High Yield Corporate Bonds	12-Sep-23	\$74.56	2,076	\$154,787
iShares 7-10 Year Treasury Bond ETF	IEF	Bond	Intermediate-Term Treasury Bond ETF	12-Sep-23	\$93.24	1,660	\$154,778
Vanguard Total Bond Market ETF	BND	Bond	Total Bond Market	12-Sep-23	\$70.93	2,182	\$154,769
iShares 1-3 Year Treasury Bond ETF	SHY	Bond	Short-Term Treasury Bond ETF	12-Sep-23	\$80.91	1,910	\$154,538
Vanguard Short-Term Corporate Bond ETF	VCSH	Bond	Short-Term Corporate Bond ETF	12-Sep-23	\$75.35	2,060	\$155,221
Invesco Senior Loan ETF	BKLN	Bond	Senior Loan ETF	12-Sep-23	\$21.20	7,312	\$155,014
iShares TIPS Bond ETF	TIP	Bond	Treasury Inflation-Protected Securities (TIPS) Bond ETF	12-Sep-23	\$105.38	1,469	\$154,803
Schwab U.S. TIPS ETF	SCHP	Bond	Treasury Inflation-Protected Securities (TIPS) Bond ETF	12-Sep-23	\$51.31	3,014	\$154,648
iShares 20+ Year Treasury Bond ETF	TLT	Bond	Long-Term Treasury Bond ETF	12-Sep-23	\$93.89	1,653	\$155,200
Cash (Min 620k)	Cash	Cash	Cash	12-Sep-23			\$621,547
Total Bonds (Max 1.56mil)	Total Bonds	Total Bonds					\$1,548,464
Total Equities(Max 4.03mil)	Total Equities	Total Equities					\$4,029,989

Title and Content Layout with Chart

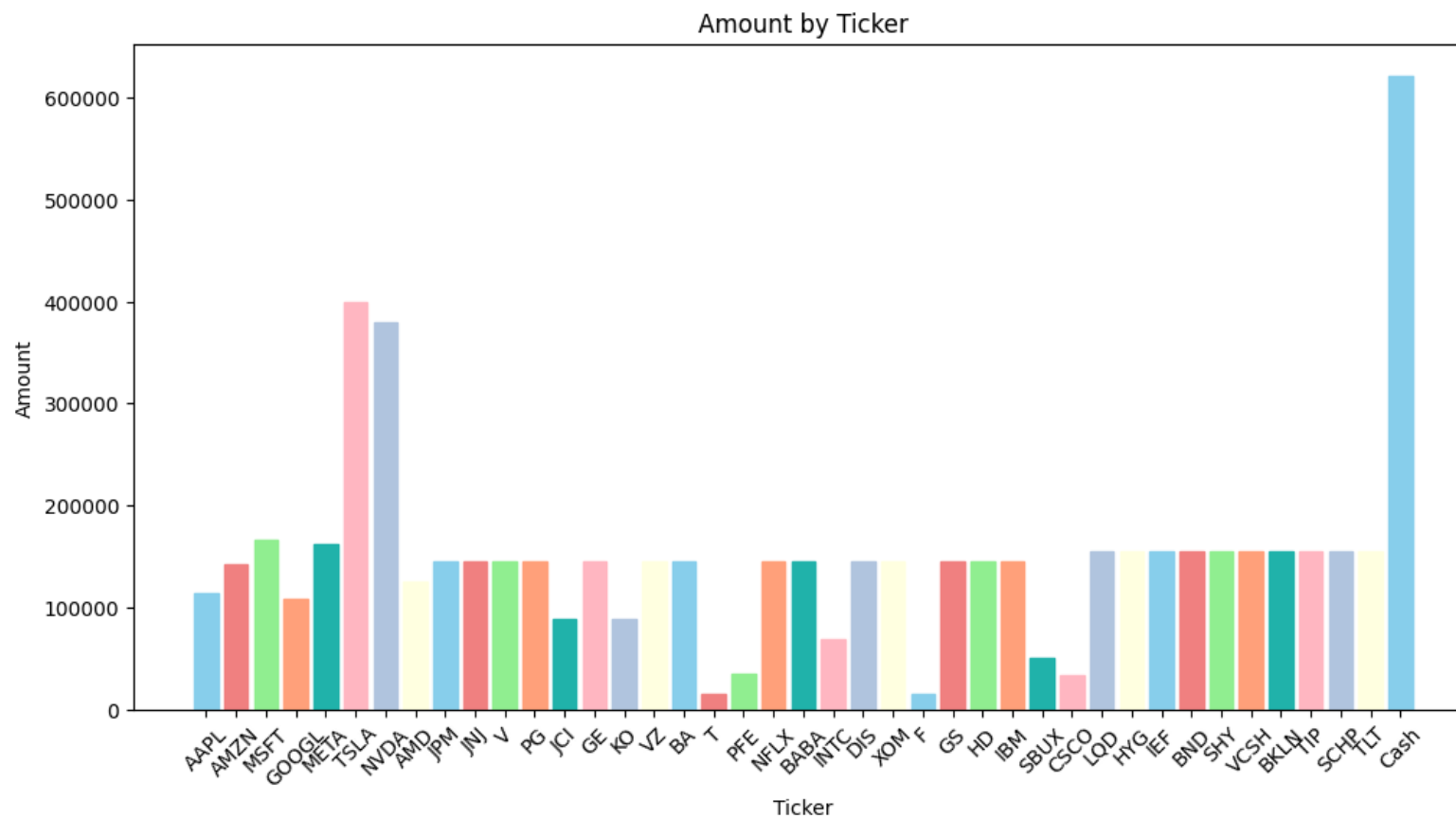
Portfolio Allocation by Subtype



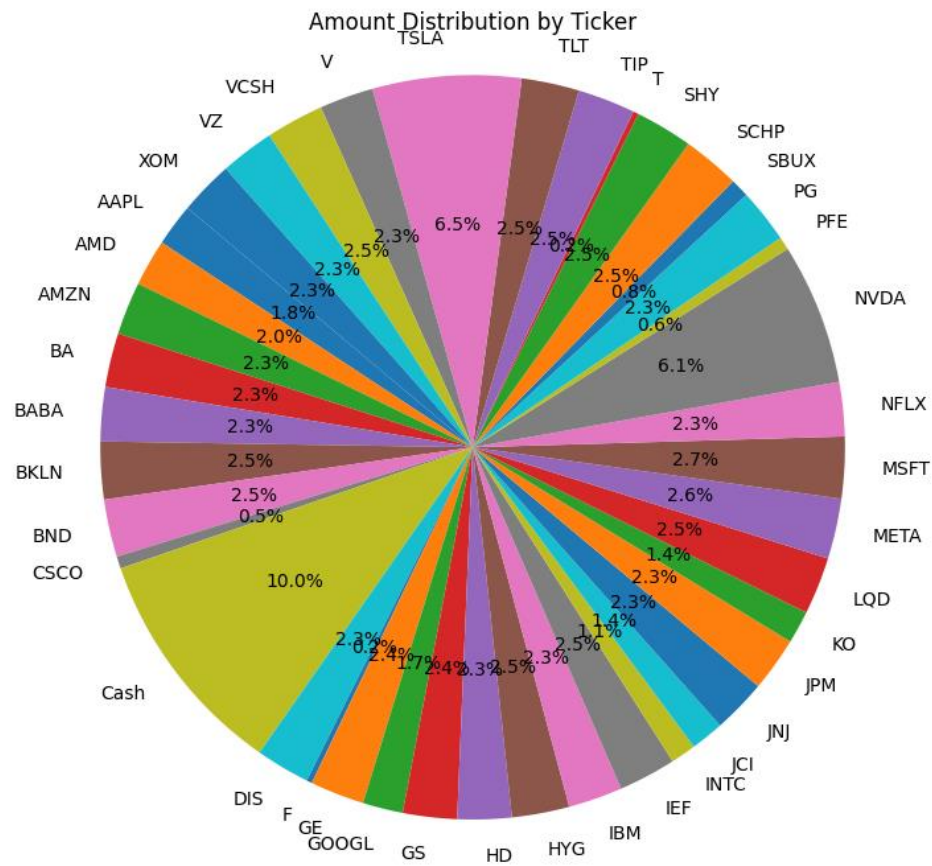
Portfolio Allocation



Ticker bar visualization



Ticker Pie Chart



What is Value at Risk?

- Value at Risk (VaR) is a financial metric that estimates the risk of an investment, it estimates how much a portfolio or investment might lose given normal conditions in a time period
- One of the simplest methods for calculating VaR is the Historical Method

$$\text{Value at Risk} = v_m \frac{v_i}{v_{i-1}}$$

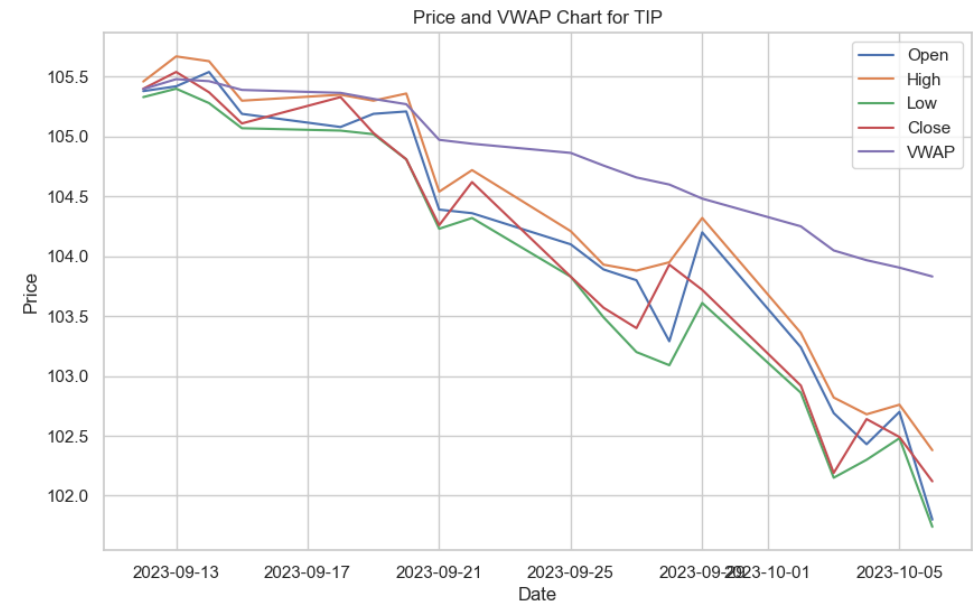
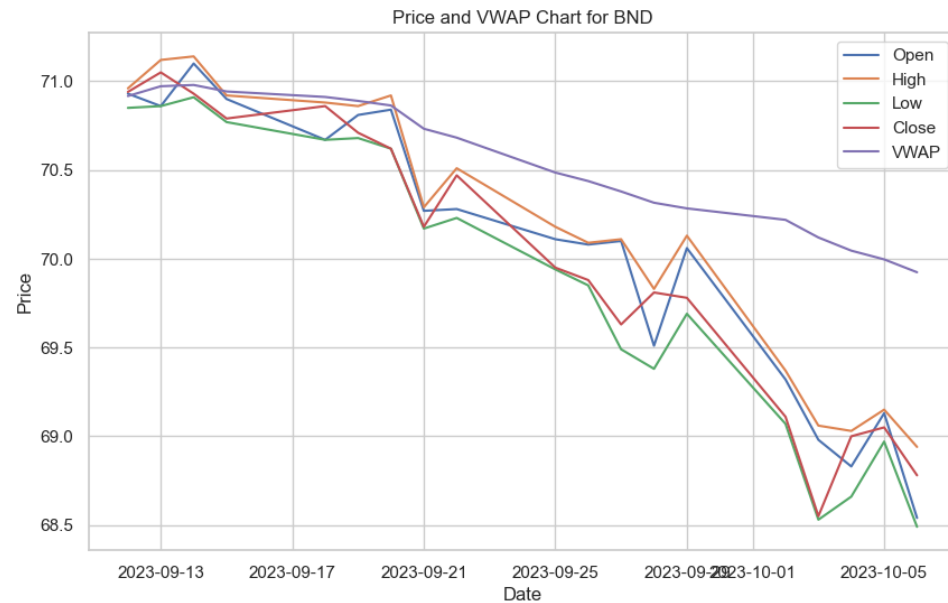
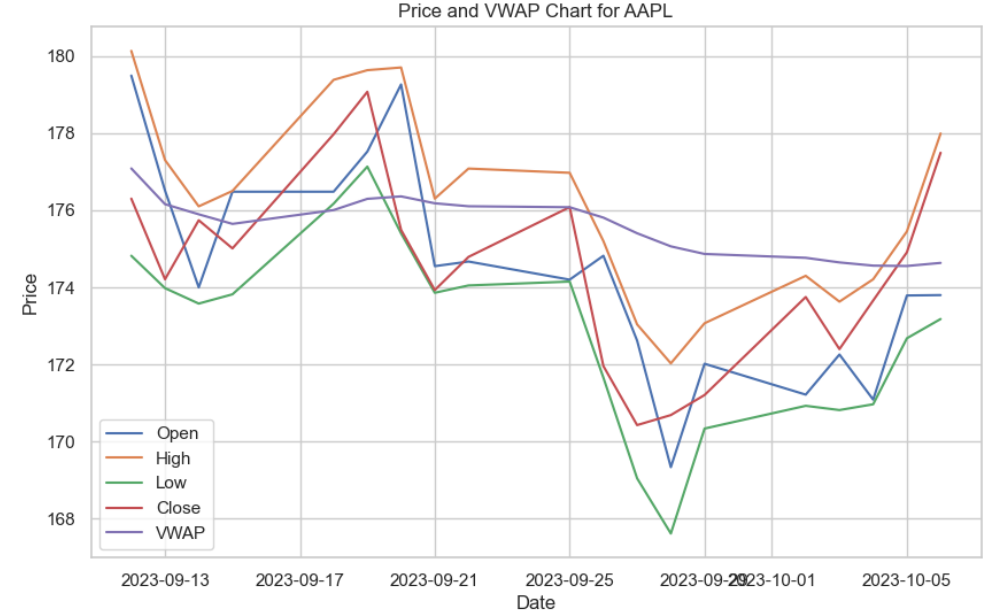
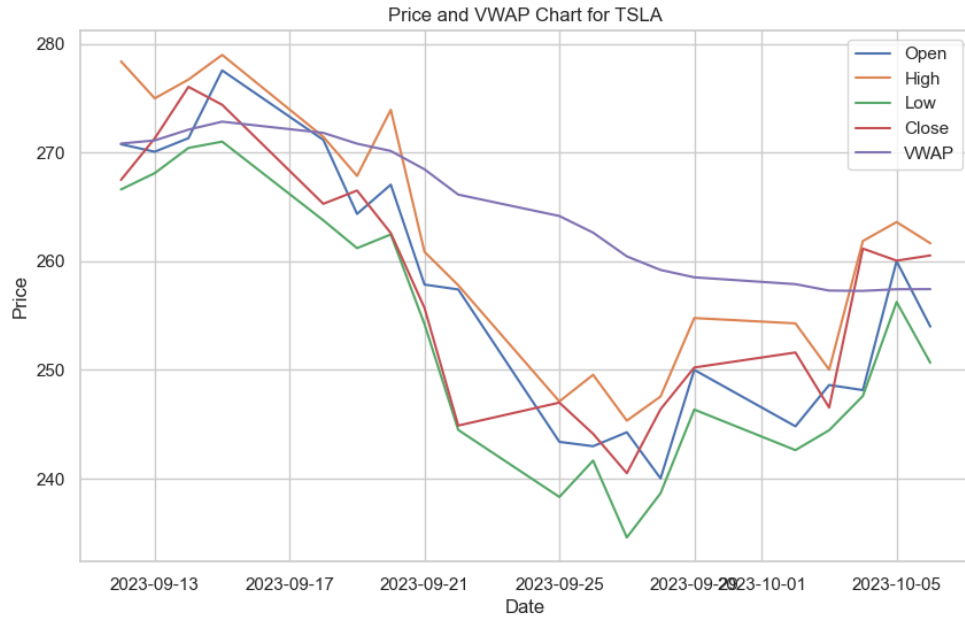
v_i is the number of variables on day i
 m is the number of days from which historical data is taken

VaR Results

- VaR(95.0) (Value at Risk at 95% confidence level) gives you an estimate of the maximum potential loss over a specified time frame. In this case, it suggests a loss of approximately 1.8%, 3.7%, 1.8%, and 2.7% for different instances of your portfolio.
- CVaR(95.0) (Conditional Value at Risk at 95% confidence level) is a measure of the expected loss given that the loss exceeds the VaR. The expected loss can be as much as 2.4%, 2.3%, and 2.9% for your portfolio.
- CDaR(95.0) (Conditional Drawdown at Risk at 95% confidence level) is an estimate of the potential drawdown or decline in the portfolio over a specified time frame. It indicates a significant drawdown of around 24% in one instance and 67% in another.

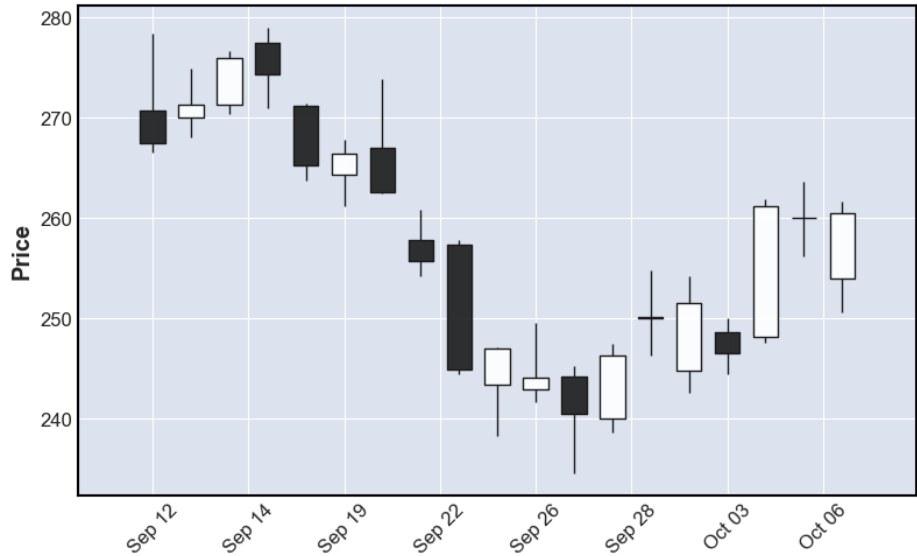
Type	VaR	CVaR	CDaR
Historic	-0.018029	-0.024314	-0.240734
Parametric	-0.037458	NaN	-0.240734
Monte Carlo	-0.018728	-0.023443	-0.240734
Monte Carlo (Stressed)	-0.027205	-0.029711	-0.671511

Volume Weighted Average Price (VWAP)

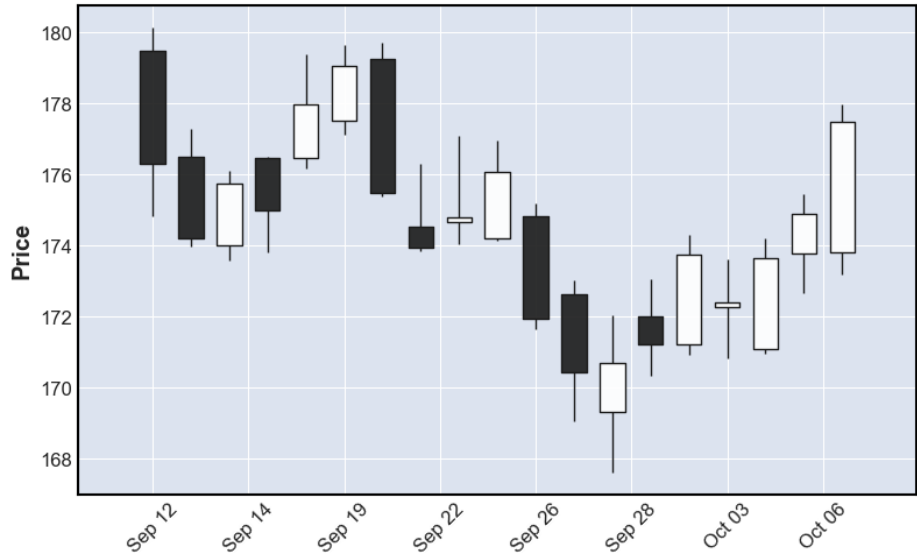




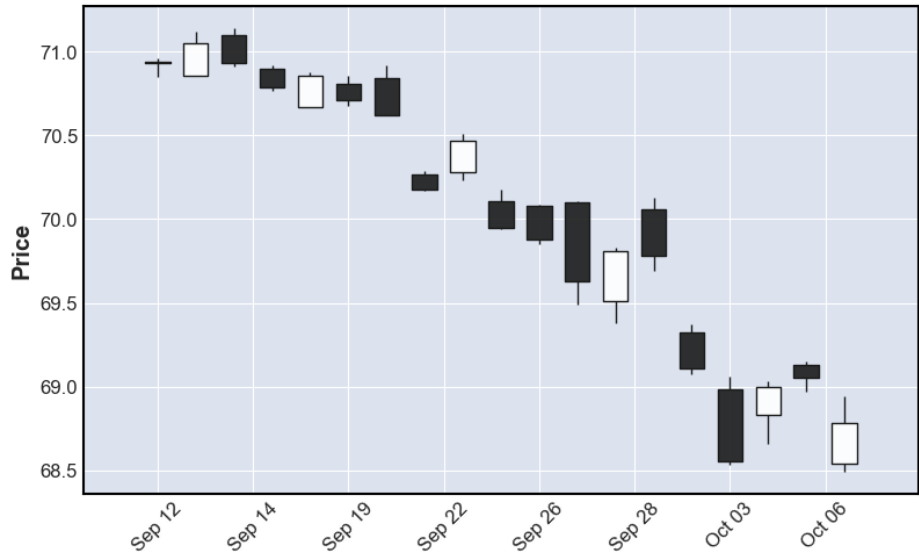
Candlestick Chart for TSLA



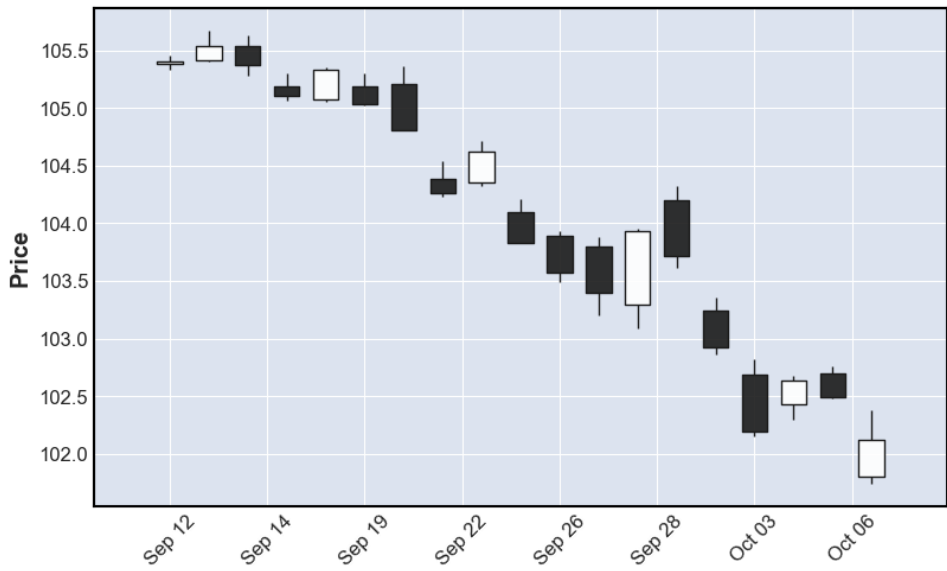
Candlestick Chart for AAPL



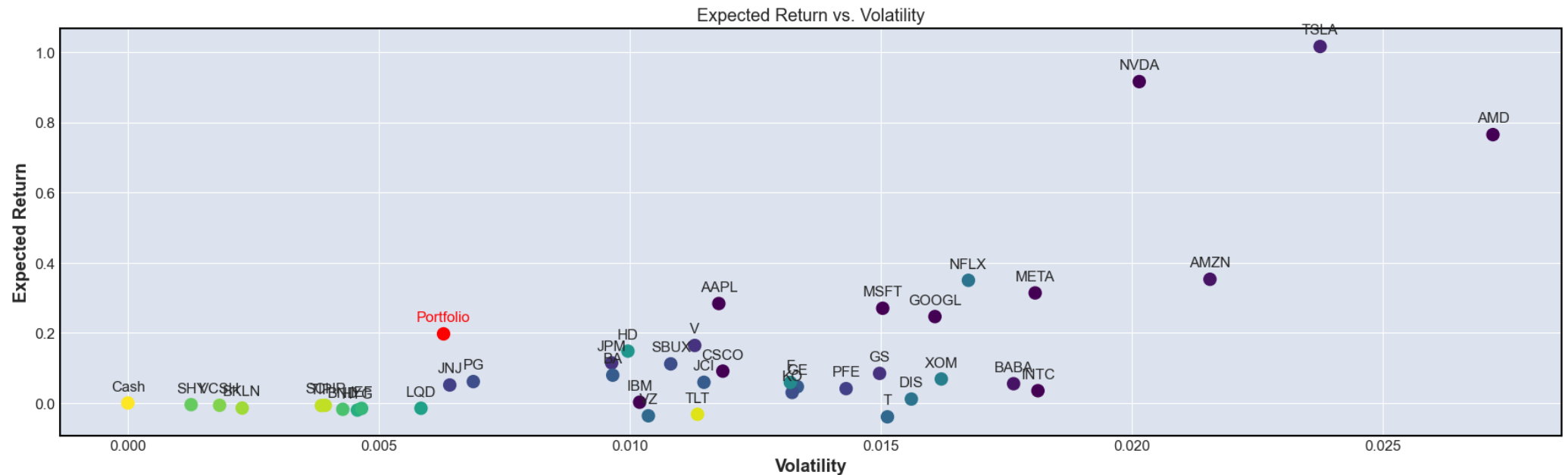
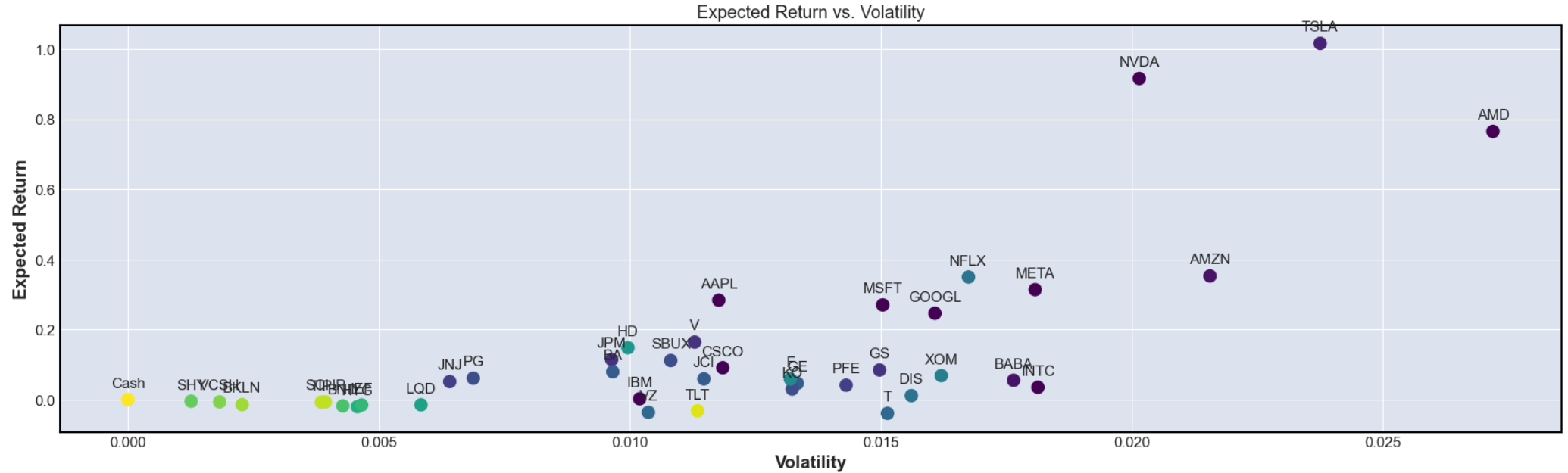
Candlestick Chart for BND



Candlestick Chart for TIP

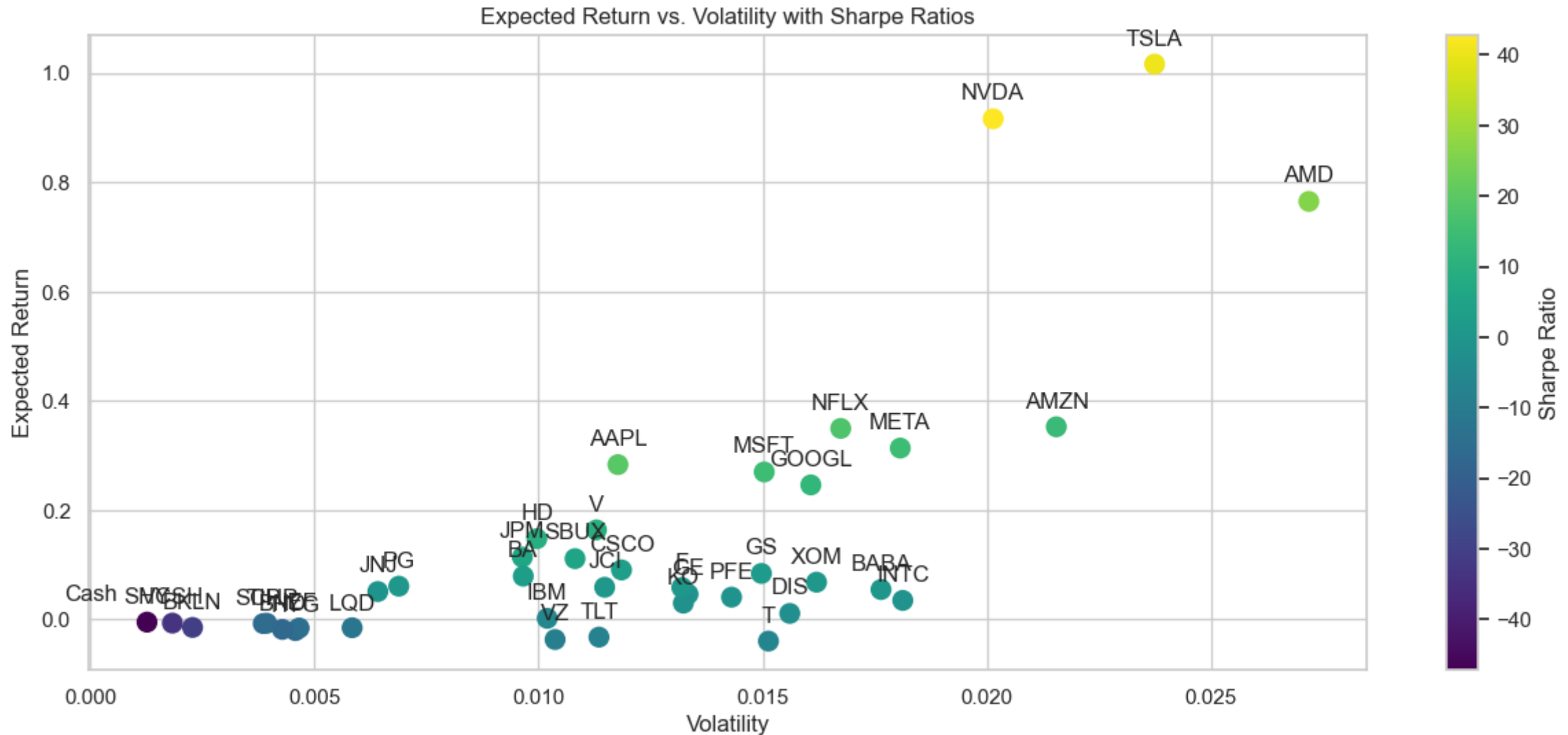


Expected Returns vs Volatility

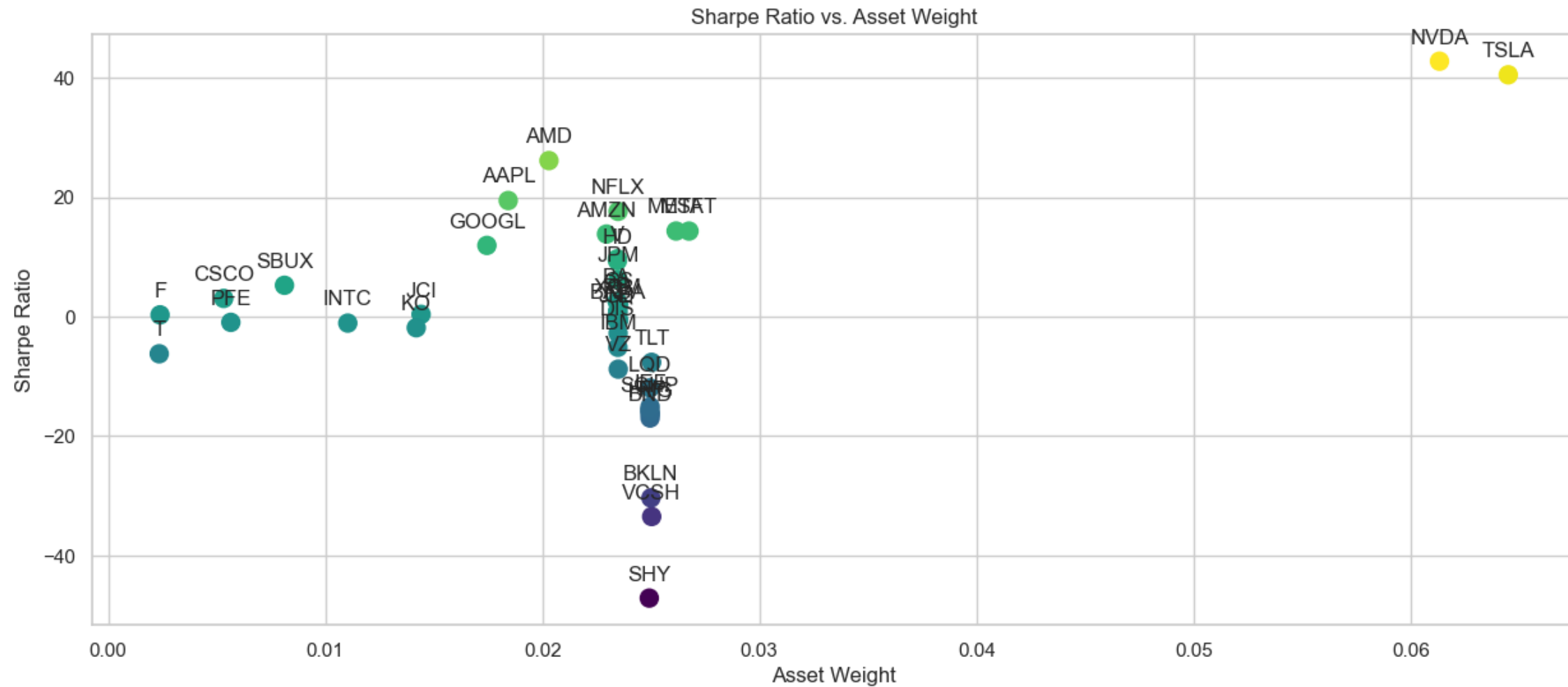


Sharpe Ratio

The Sharpe Ratio is a measure of risk-adjusted return, quantifying the excess return generated by an investment or portfolio per unit of risk taken. A positive Sharpe Ratio indicates that the investment or portfolio is delivering a return higher than the risk-free rate for each unit of risk incurred, making it an attractive choice. Conversely, a negative Sharpe Ratio suggests that the investment's return is insufficient for the level of risk taken, making it less desirable than a risk-free investment.



Sharpe Ratio vs Asset Weight



Alpha

benchmarked against the S&P500

Alpha value of 0.1043 meaning we outperformed the SPY by 10.43% in the portfolio

OLS Regression Results

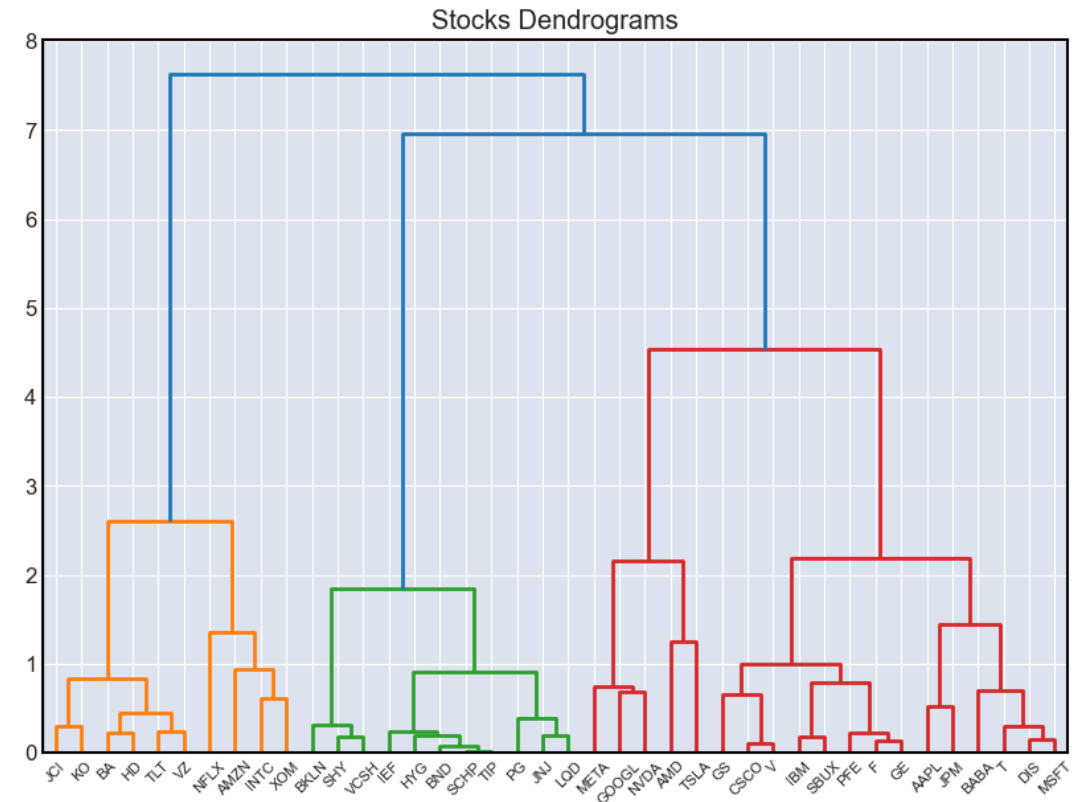
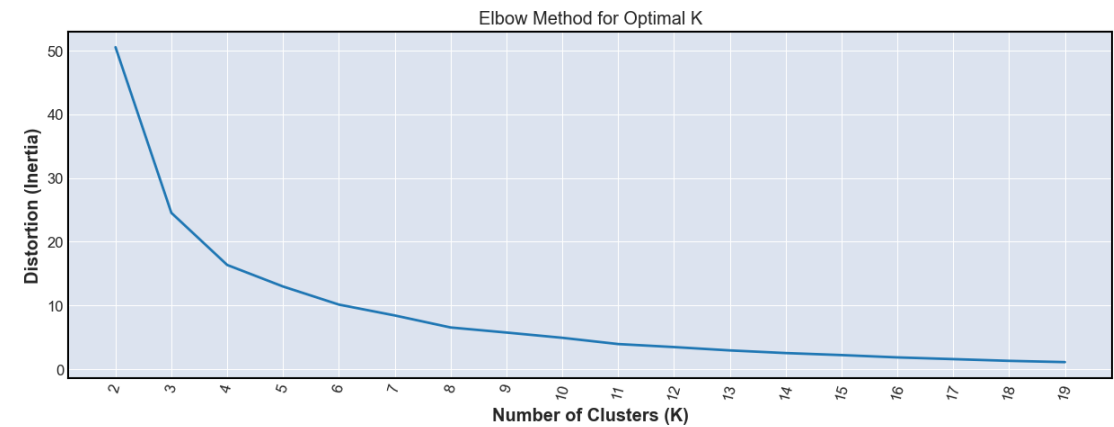
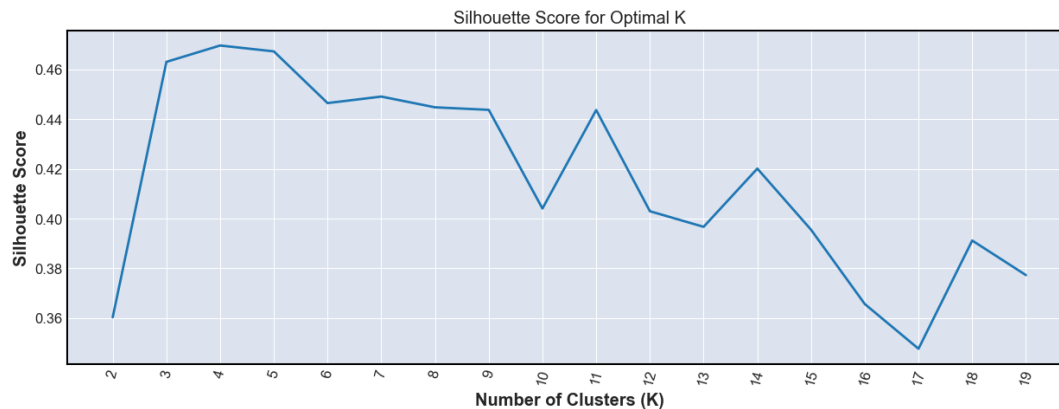
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Dep. Variable:          y      R-squared:                0.811
Model:                  OLS    Adj. R-squared:             0.784
Method:                 Least Squares    F-statistic:          30.09
Date:                   Thu, 19 Oct 2023    Prob (F-statistic):    0.000921
Time:                   19:08:52    Log-Likelihood:        11.415
No. Observations:       9      AIC:                  -18.83
Df Residuals:           7      BIC:                  -18.43
Df Model:                1
Covariance Type:        nonrobust
=====
```

	coef	std err	t	P> t	[0.025	0.975]
const	0.0494	0.031	1.614	0.151	-0.023	0.122
Close	0.9422	0.172	5.485	0.001	0.536	1.348

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Omnibus:                0.870    Durbin-Watson:          2.307
Prob(Omnibus):           0.647    Jarque-Bera (JB):        0.654
Skew:                    0.540    Prob(JB):                0.721
Kurtosis:                2.241    Cond. No.                 6.74
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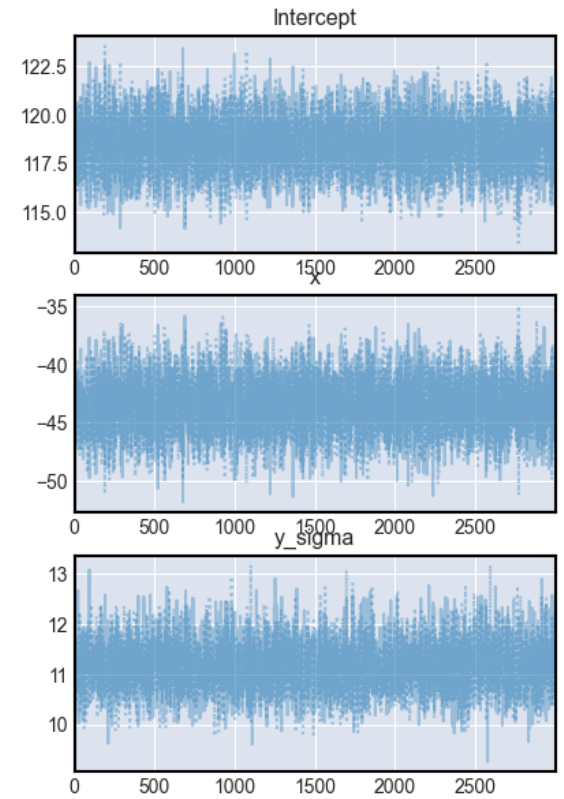
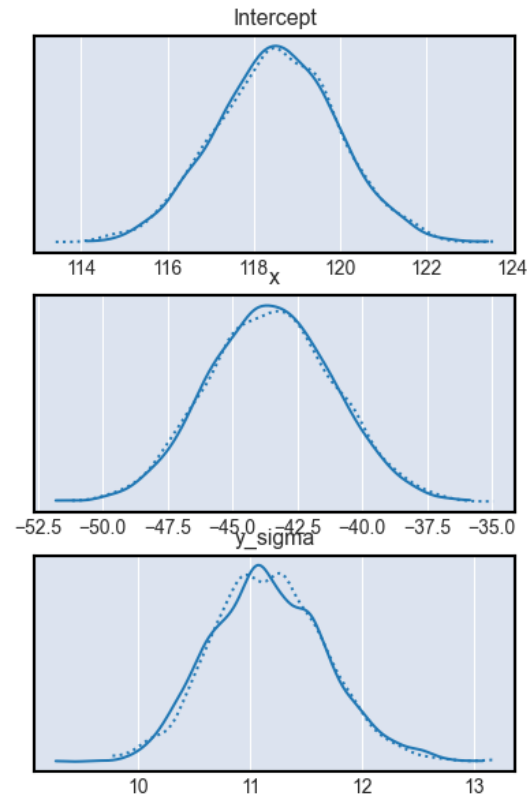
Clustering

The Silhouette Score and Elbow Method serve as valuable tools in determining the optimal number of clusters in KMeans clustering. The Silhouette Score quantifies the cohesion and separation of clusters, with a higher score indicating well-defined clusters. On the other hand, the Elbow Method identifies the point of diminishing returns in distortion reduction, signaling the optimal K. Choosing between these methods depends on the dataset characteristics; Silhouette Score suits well-separated, similarly dense clusters, while the Elbow Method is effective for compact, distinct clusters. A comprehensive approach involves considering results from both techniques and aligning the optimal K for a more robust clustering solution.



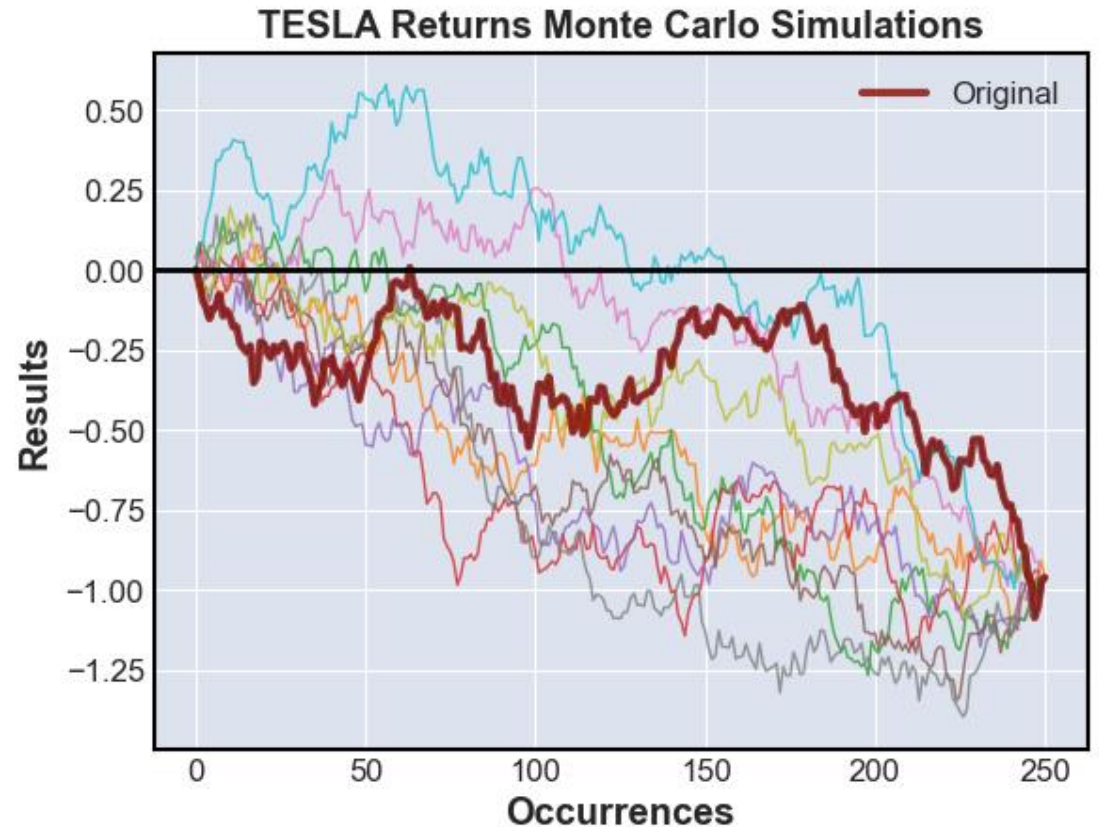
Bayes Volatility Forecast

The scatter plot method provides a visual snapshot of the relationship between expected return and volatility in a portfolio, offering a quick and intuitive overview. It is particularly useful for initial exploration and communication. On the other hand, Bayesian volatility forecasting, involving the use of statistical models, captures underlying relationships explicitly, providing uncertainty estimates through the posterior distribution. This method is advantageous for a more rigorous and quantitative analysis, especially when detailed insights into the statistical nature of the data are essential.



Monte Carlo Simulation

The estimated option prices from the Monte Carlo simulations suggest a positive value for the European Call option at approximately \$69.76, indicating a potential profit if the option is exercised. However, the European Put option shows a negative value of approximately -\$7434.13, suggesting a substantial expected loss if the option is exercised. These results highlight the inherent risk and speculative nature of financial options, emphasizing the importance of careful consideration and risk management in option trading strategies.



Conclusion

Hedge against the downside. Buy the dip!

Incorporate some reverse Bond ETFs to accommodate for the bond declines.

This could help bolster our returns while in the downturn of the market

