



A2: NON-LINEAR OPTIMIZATION



GROUP 5

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JOSH GOTTHEIMER
DEMOCRATIC / HOUSE / NEW JERSEY

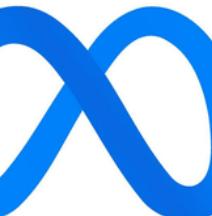
VS



SCOTT FRANKLIN
REPUBLICAN / HOUSE / FLORIDA

PORTFOLIO: TOP 10 STOCKS

	
Josh Gottheimer	
Democratic / House / New Jersey	
\$49.25M	\$323.57M
Net Worth Est.	Trade Volume
3,180	Jan 31, 2025
Total Trades	Last Traded
Current Member	Yes
Years Active	2017 - Present
Age	49

1.MSFT		58.45%
2.AAPL		3.28%
3.META		1.44%
4.AMZ		1.61%
5.JNJ		0.35%
6.GS		0.33%
7.UAL		0.32%
8.TSLA		0.29%
9.MA		0.28%
10.GOOG		0.28%

PORTFOLIO: TOP 10 STOCKS

	Scott Franklin
Republican / House / Florida	
\$25.78M	\$18.37M
Net Worth Est.	Trade Volume
166	Feb 7, 2025
Total Trades	Last Traded
Current Member	Yes
Years Active	2021 - Present
Age	60

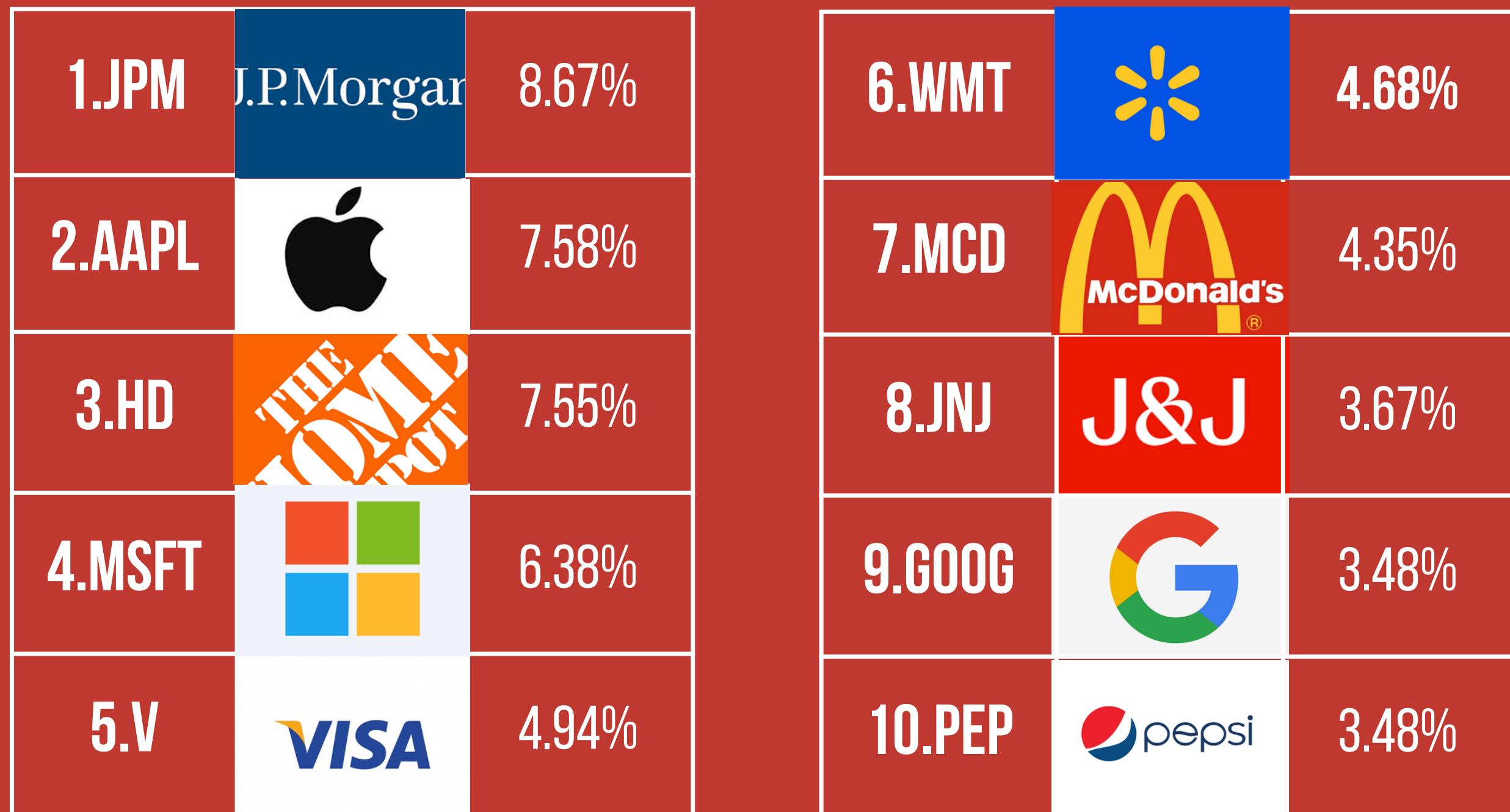


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Scatter Plots

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MODELING

DATASET: 01/02/2024 TO 02/24/2025

(YAHOO FINANCE & QUIVER QUANT)

METRICS	
1	DATE
2	OPEN
3	HIGH
4	LOW
5	CLOSE
6	ADJ CLOSE
7	VOLUME

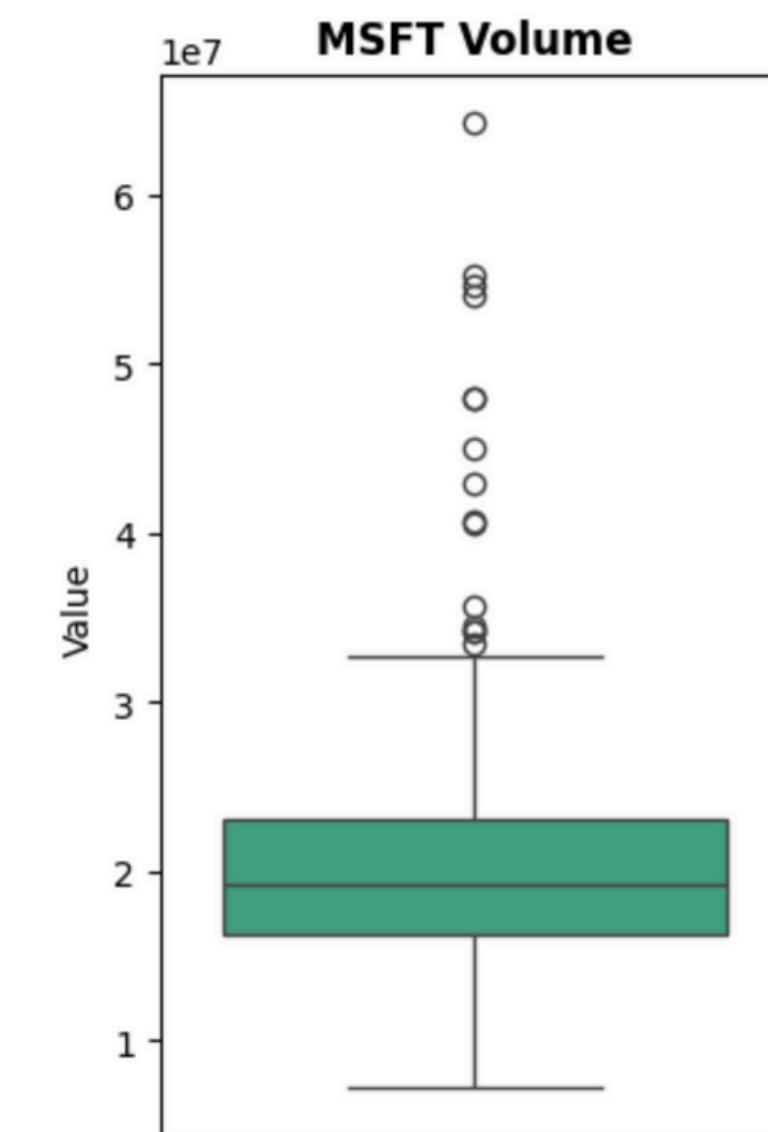
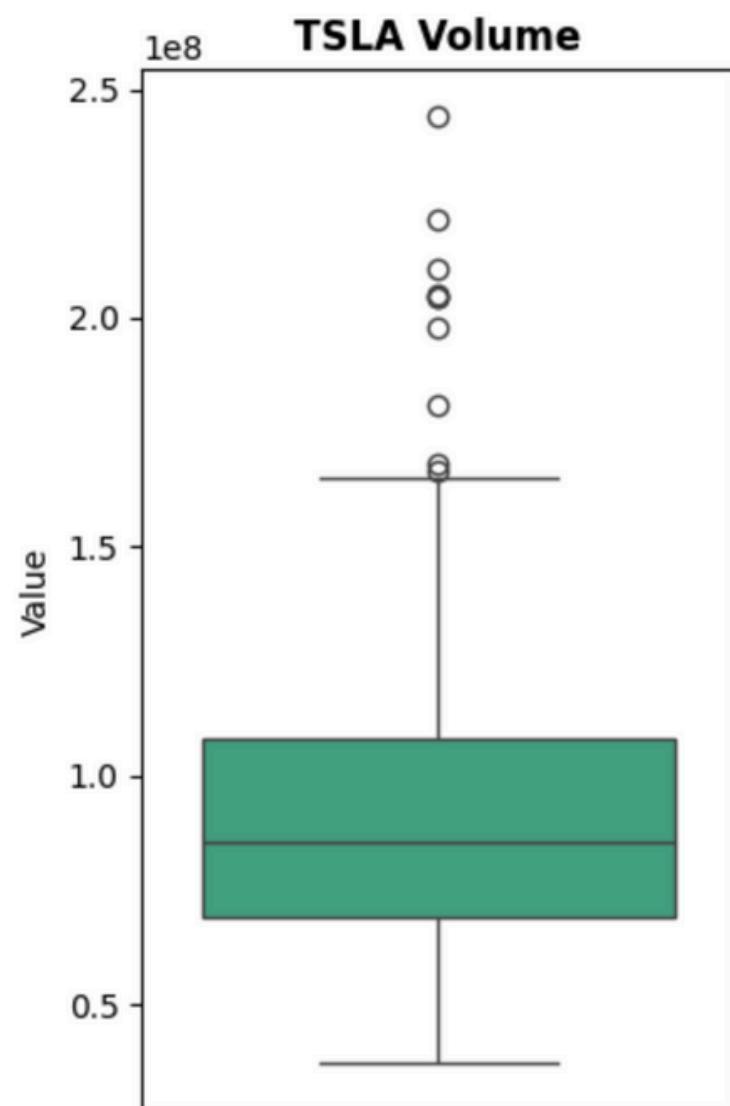
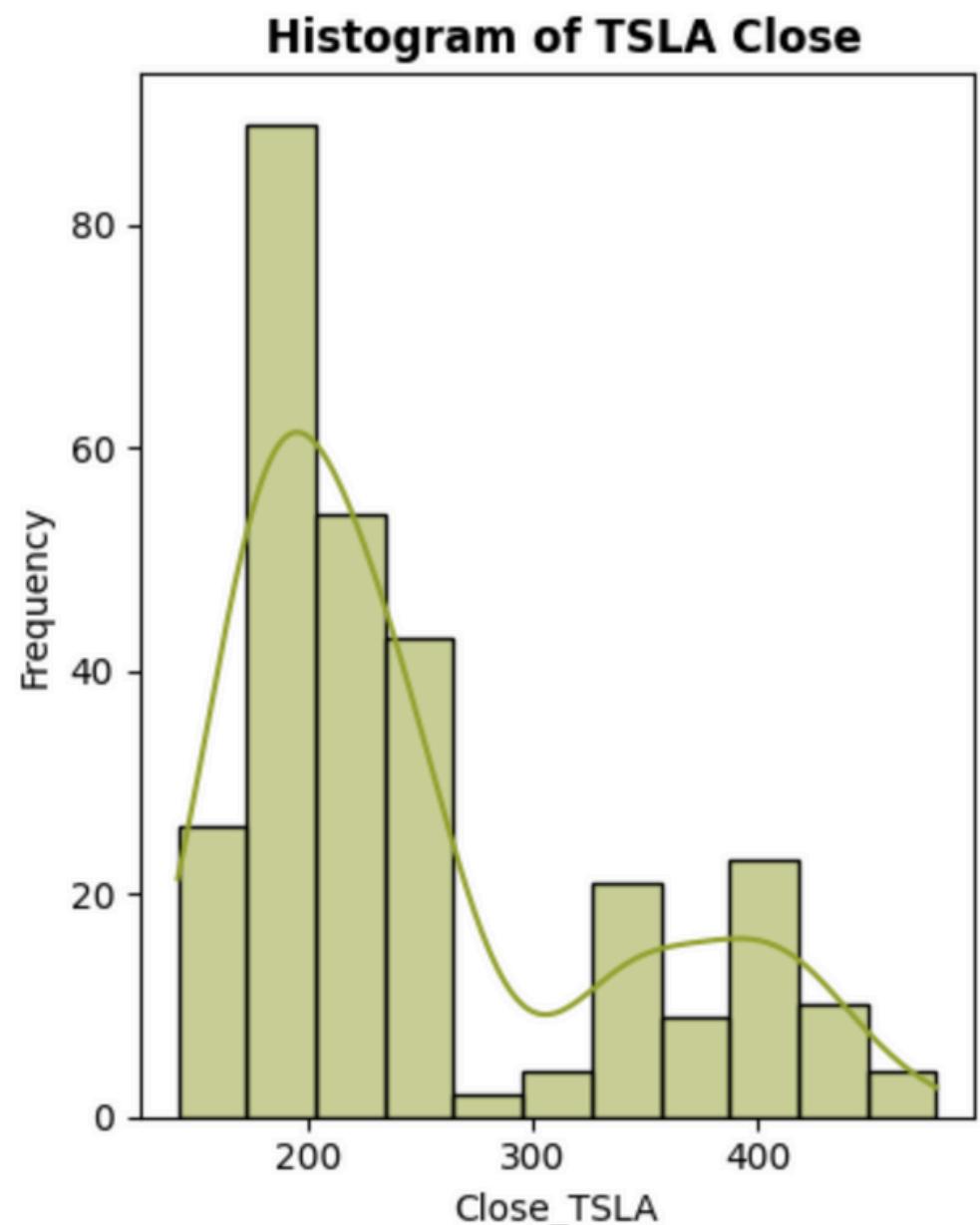


ADDED METRICS	
8	BUY
9	SELL
10	HOLDING
11	TRADE ACTION
12	NEXT DAY RETURN
13	TRADE IMPACT
14	NET CHANGE
15	PORTFOLIO IMPACT

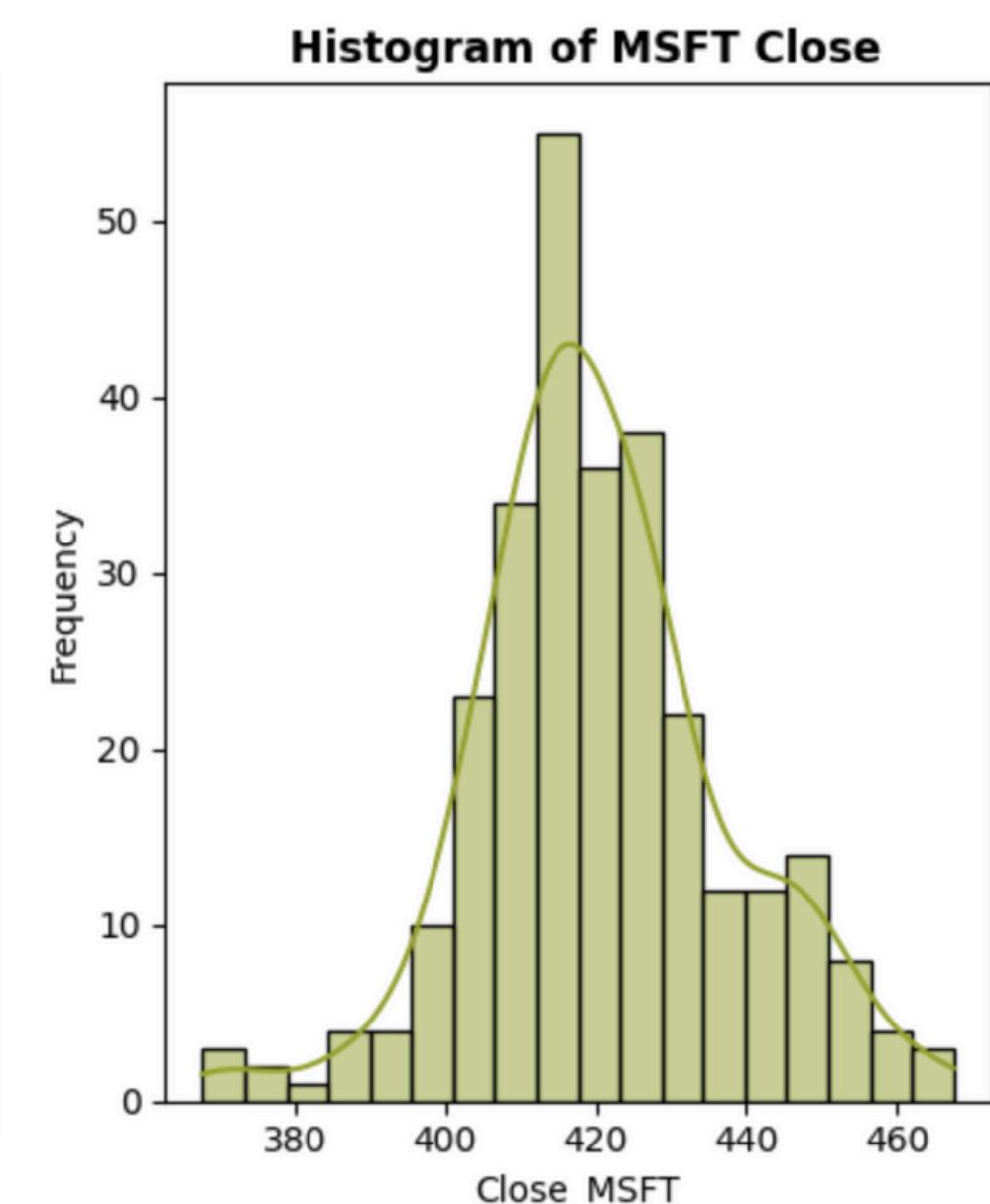
JOSH GOTTHEIMER



GROWTH



DEFENSIVE

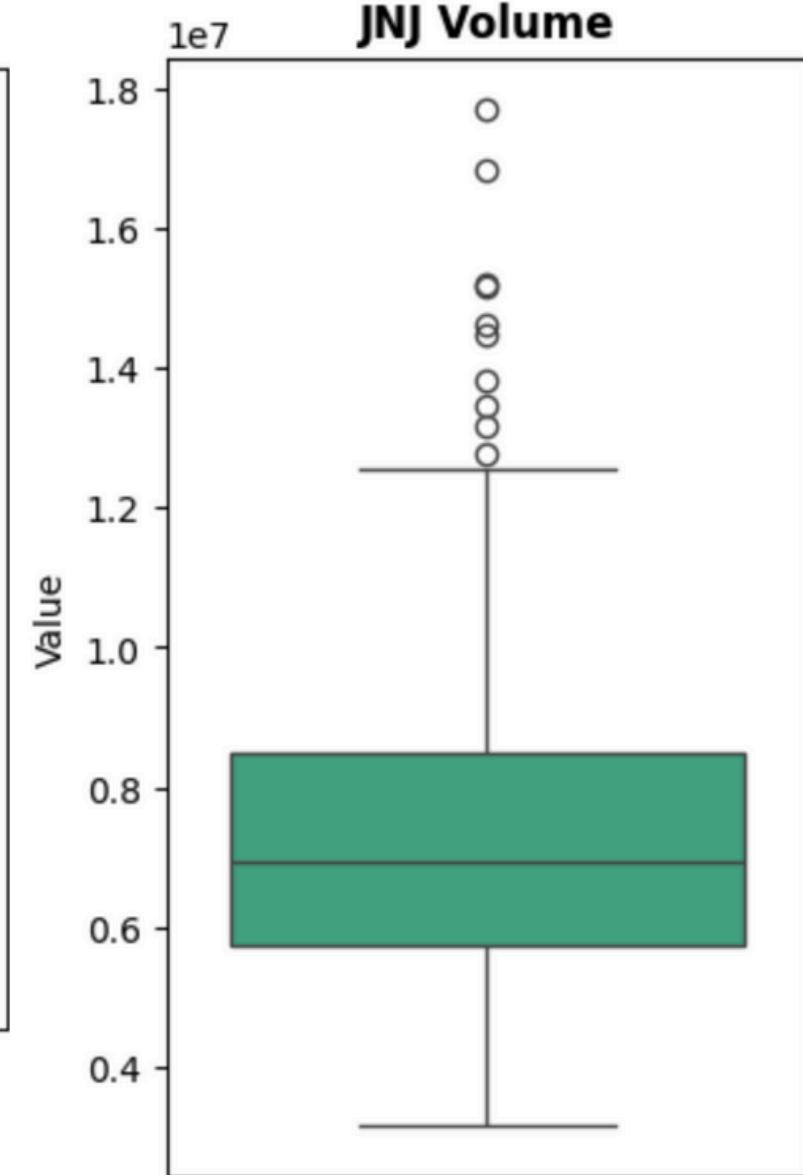
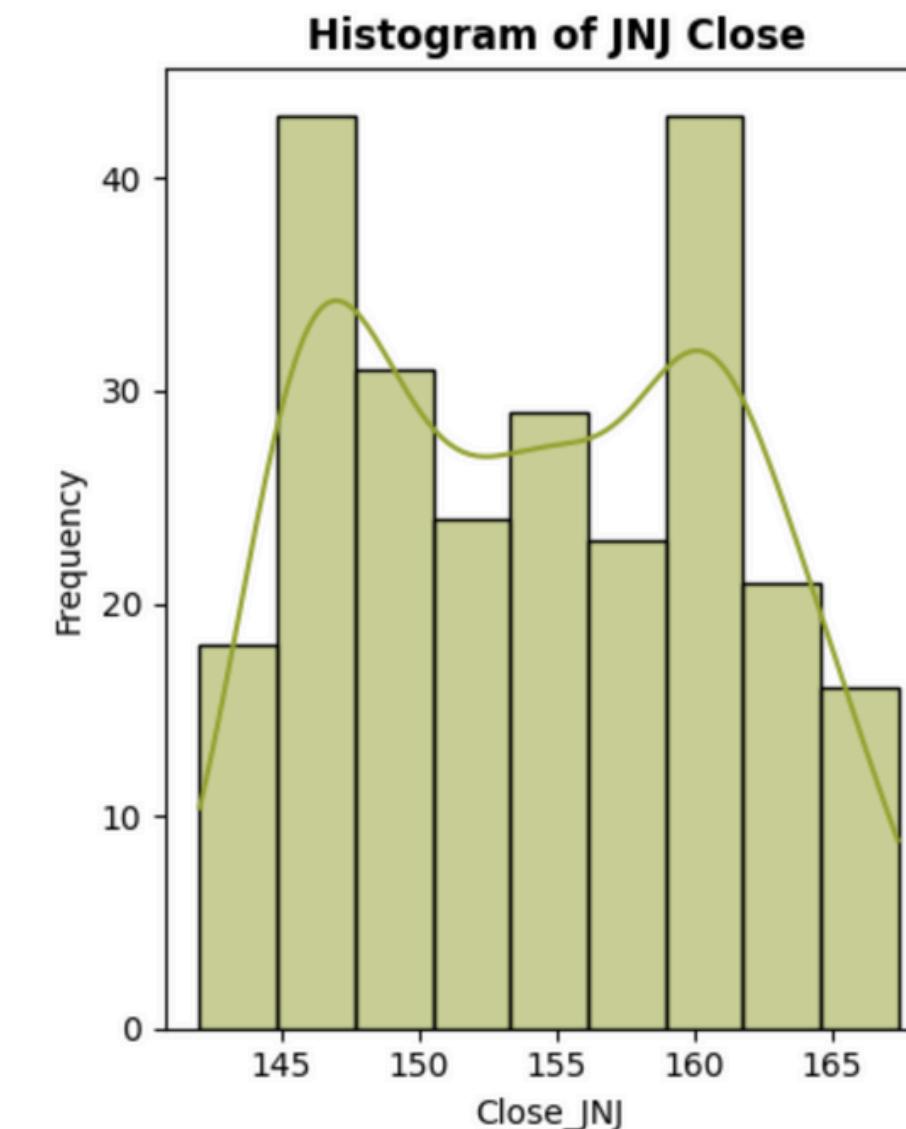
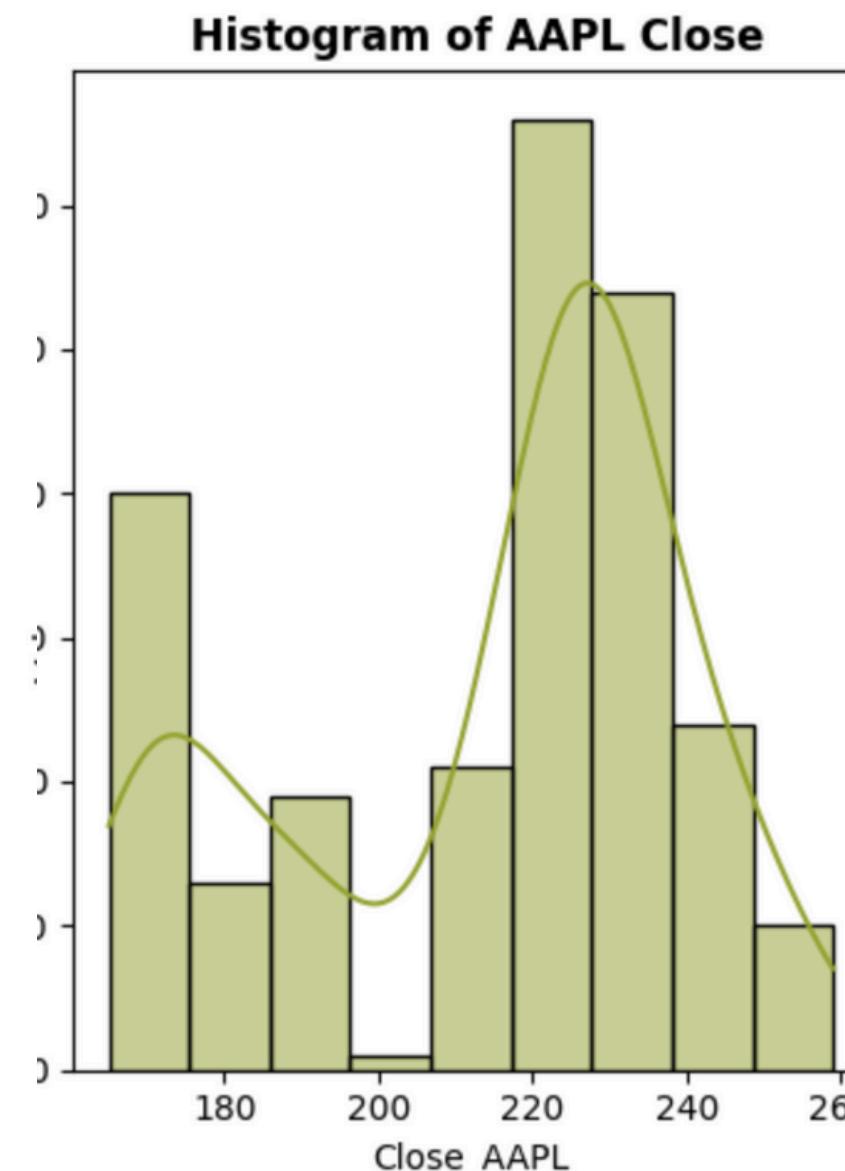
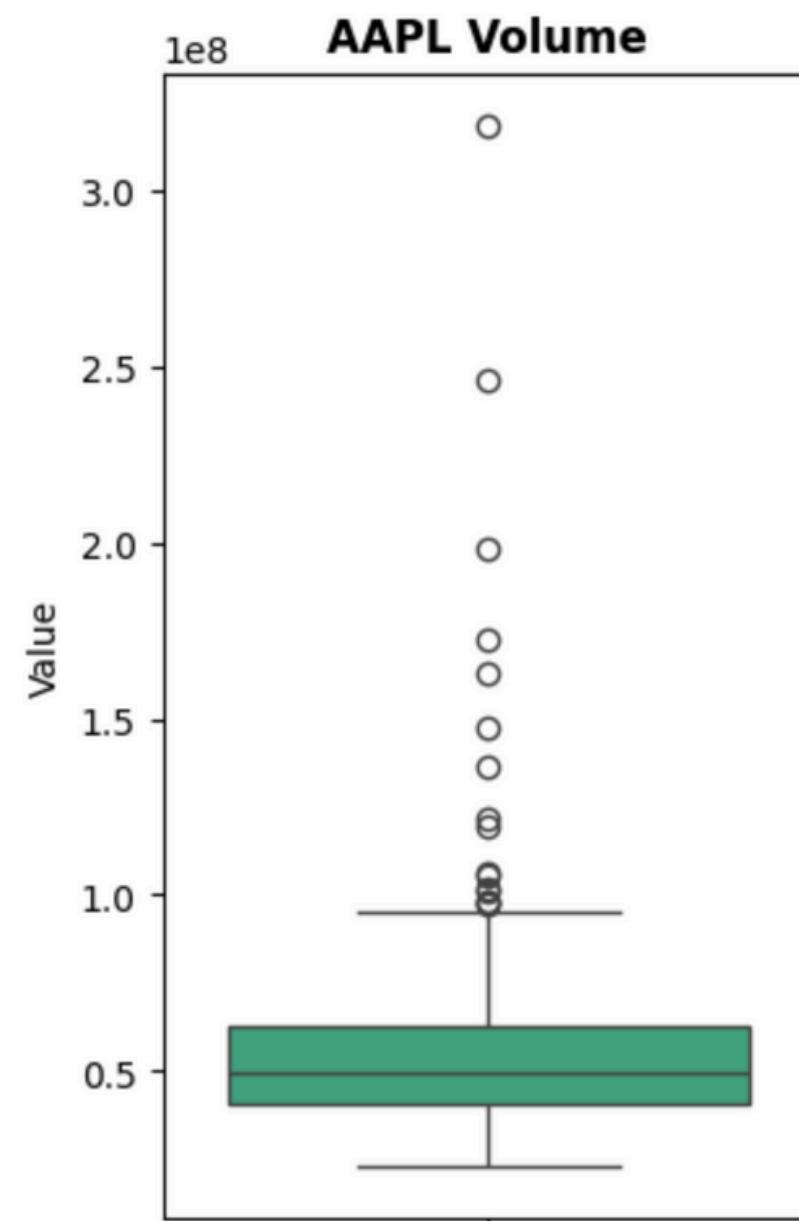


SCOTT FRANKLIN



GROWTH

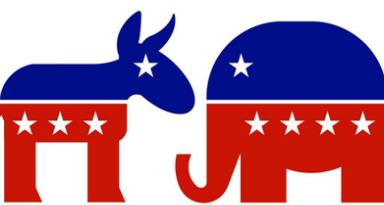
J&J DEFENSIVE



MULTIVARIATE

JOSH GOTTHEIMER

DOES HIGHER **VOLUME OF GOOG**
CORRELATE WITH LOWER **CLOSE MSFT**
AND IS CORRELATED TO **CLOSE APPL**



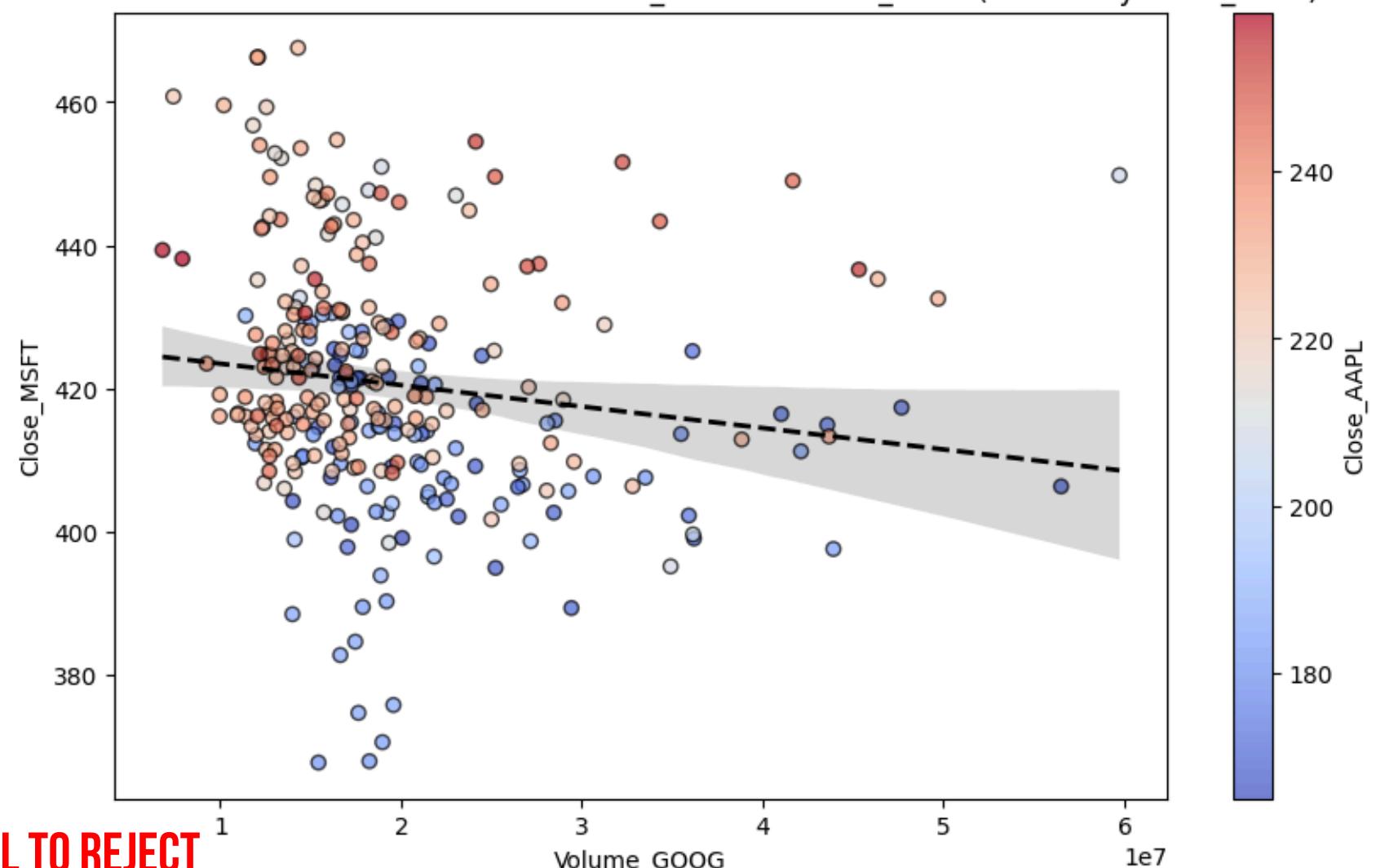
SCOTT FRANKLIN

DOES HIGHER **VOLUME HD**,
CORRELATE WITH LOWER **CLOSE JNJ**,
AND IS CORRELATED TO **CLOSE V**

- Magnificent 7 - driving market growth
- Trading patterns 1nd influence 2nd

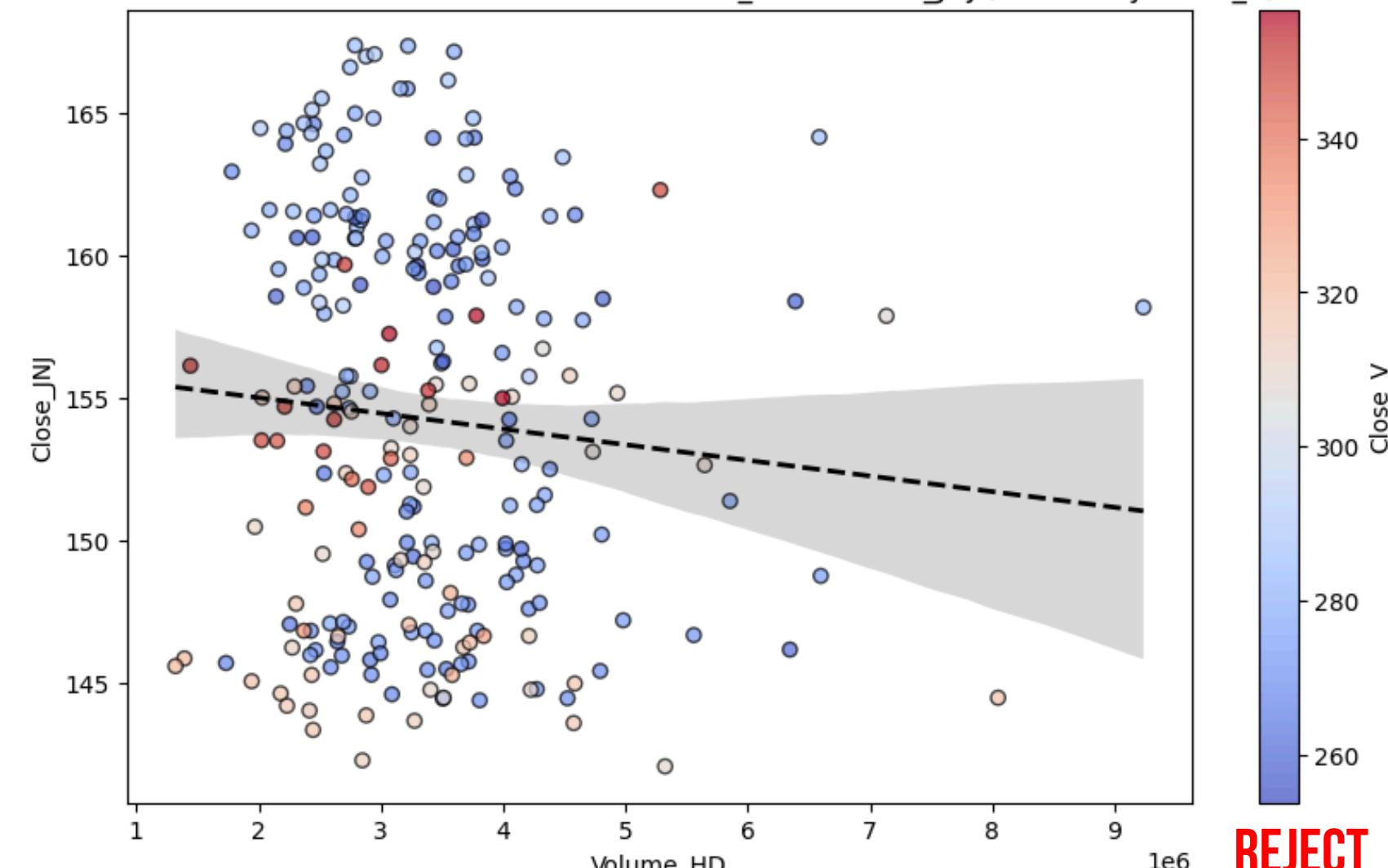
- DJIA
- Leaders in their sectors (Retail, Healthcare, and Finance)
- J&J Close decrease, Visa Close increase

Multivariate Scatter Plot with Trend Line: Volume_GOOG vs Close_MSFT (colored by Close_APPL)



FAIL TO REJECT

Multivariate Scatter Plot with Trend Line: Volume_HD vs Close_JNJ (colored by Close_V)

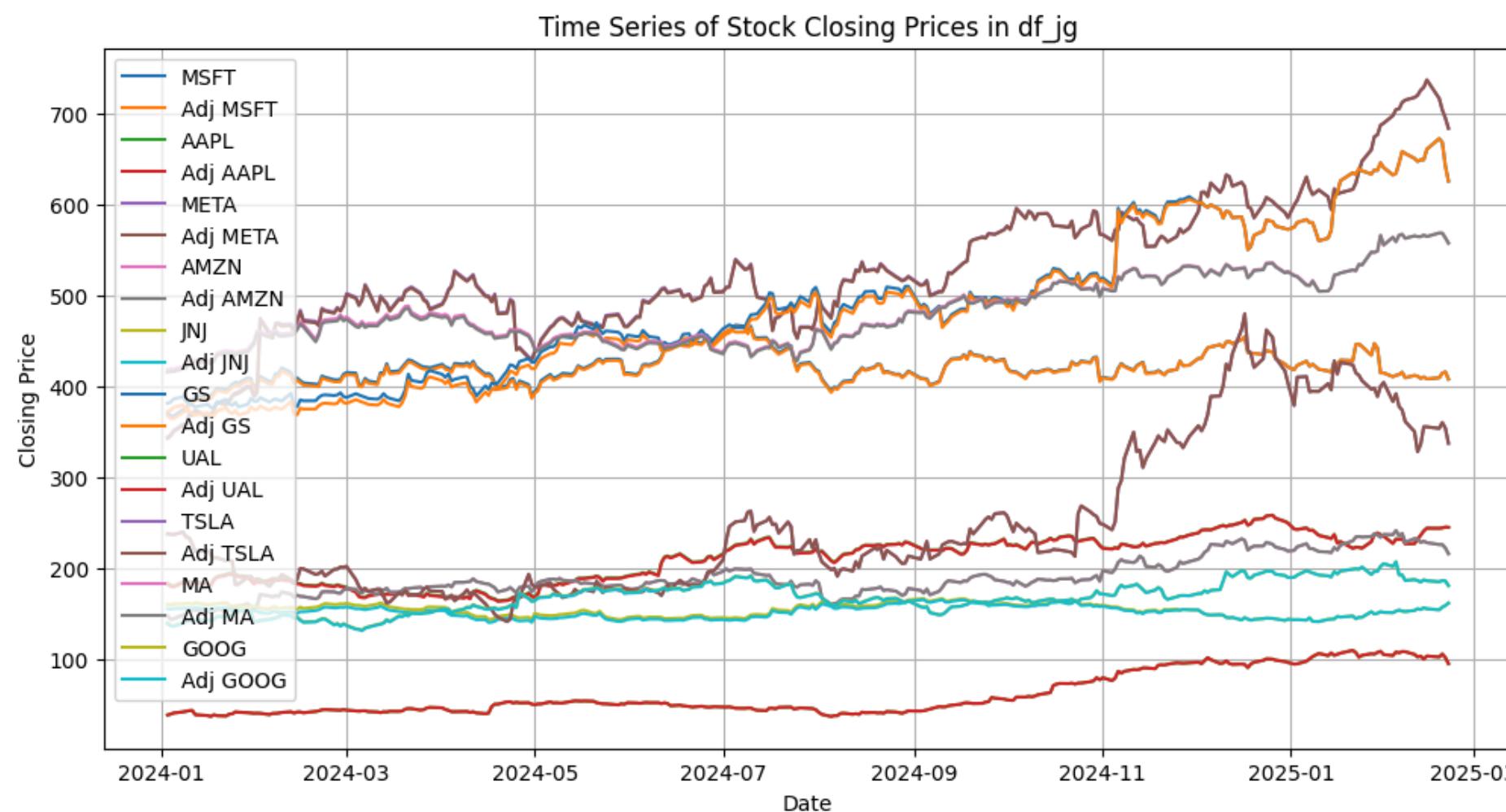


REJECT

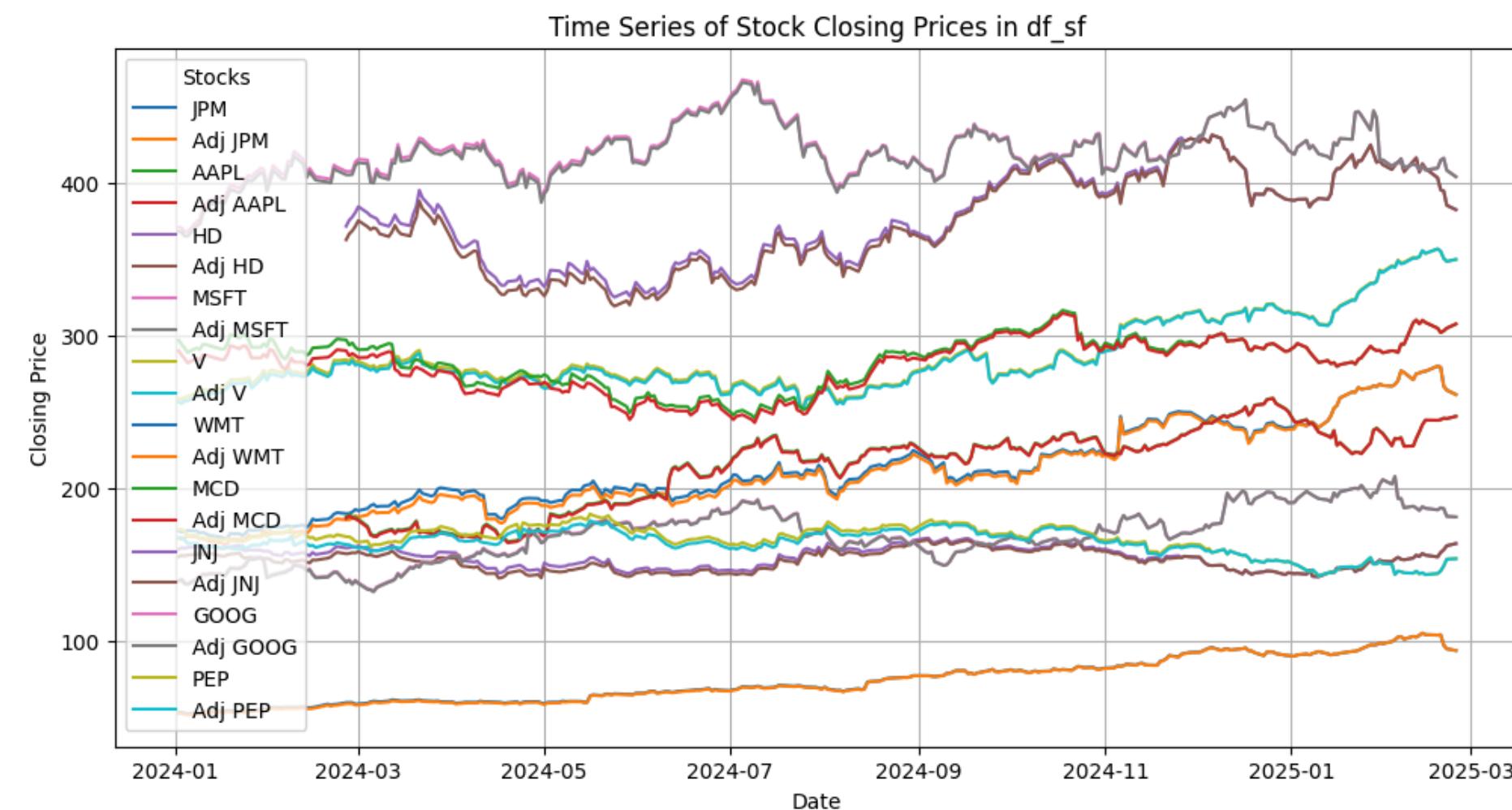
TIME SERIES

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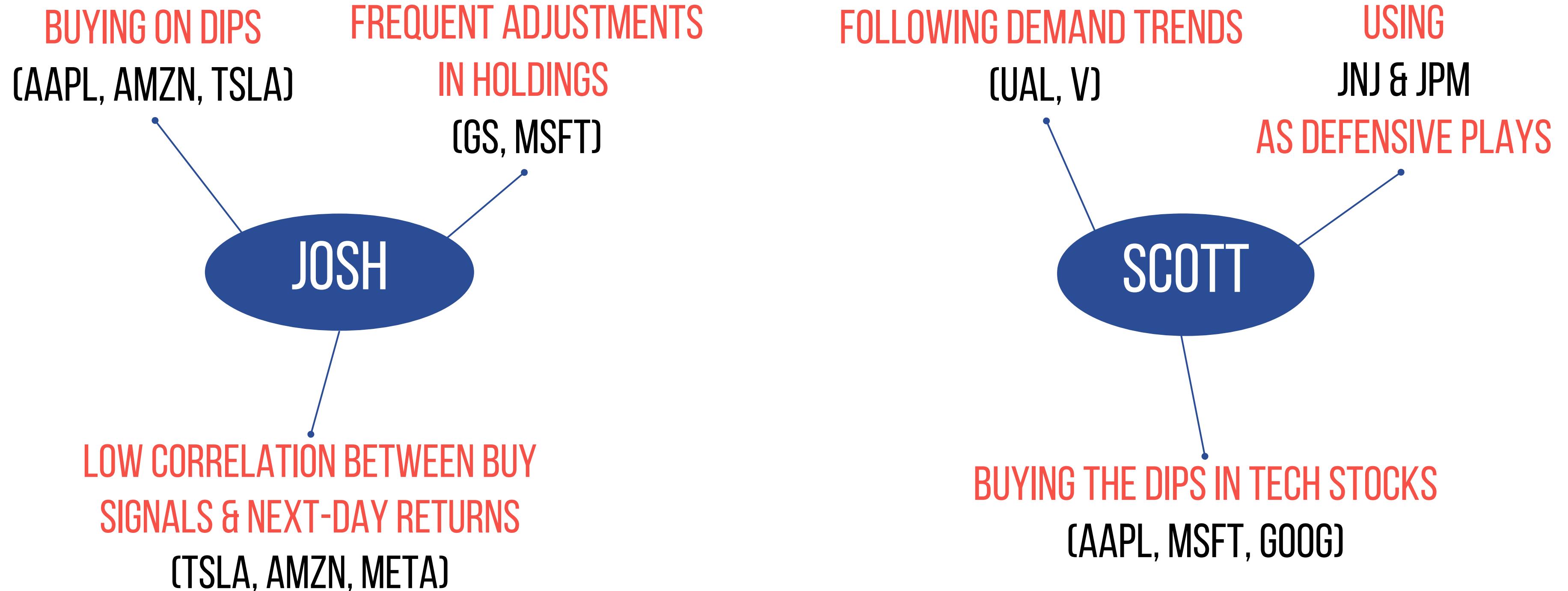
JOSH



SCOTT

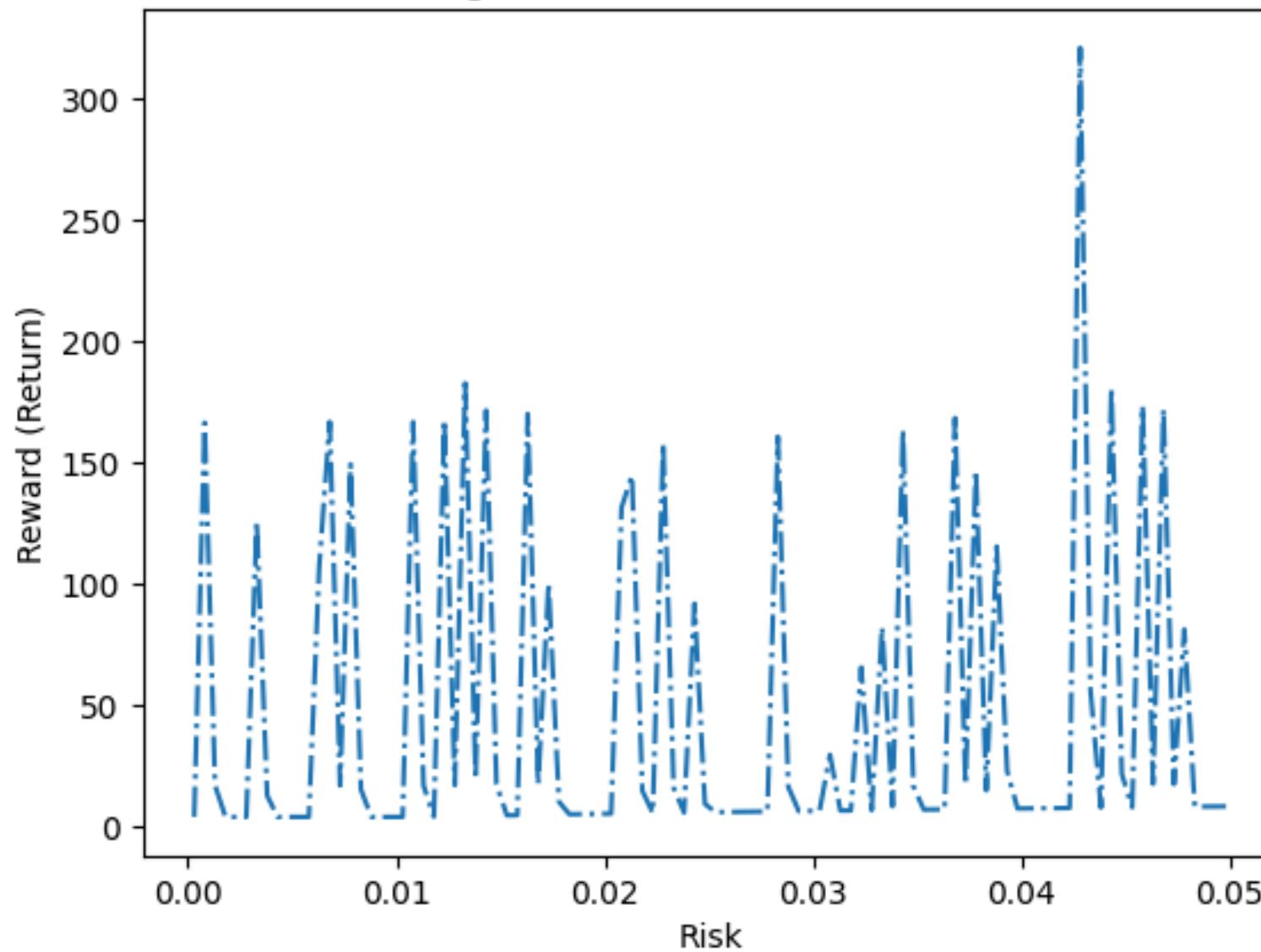


BUYING/SELLING TRENDS



JOSH'S BASELINE AND OPTIMAL MODEL

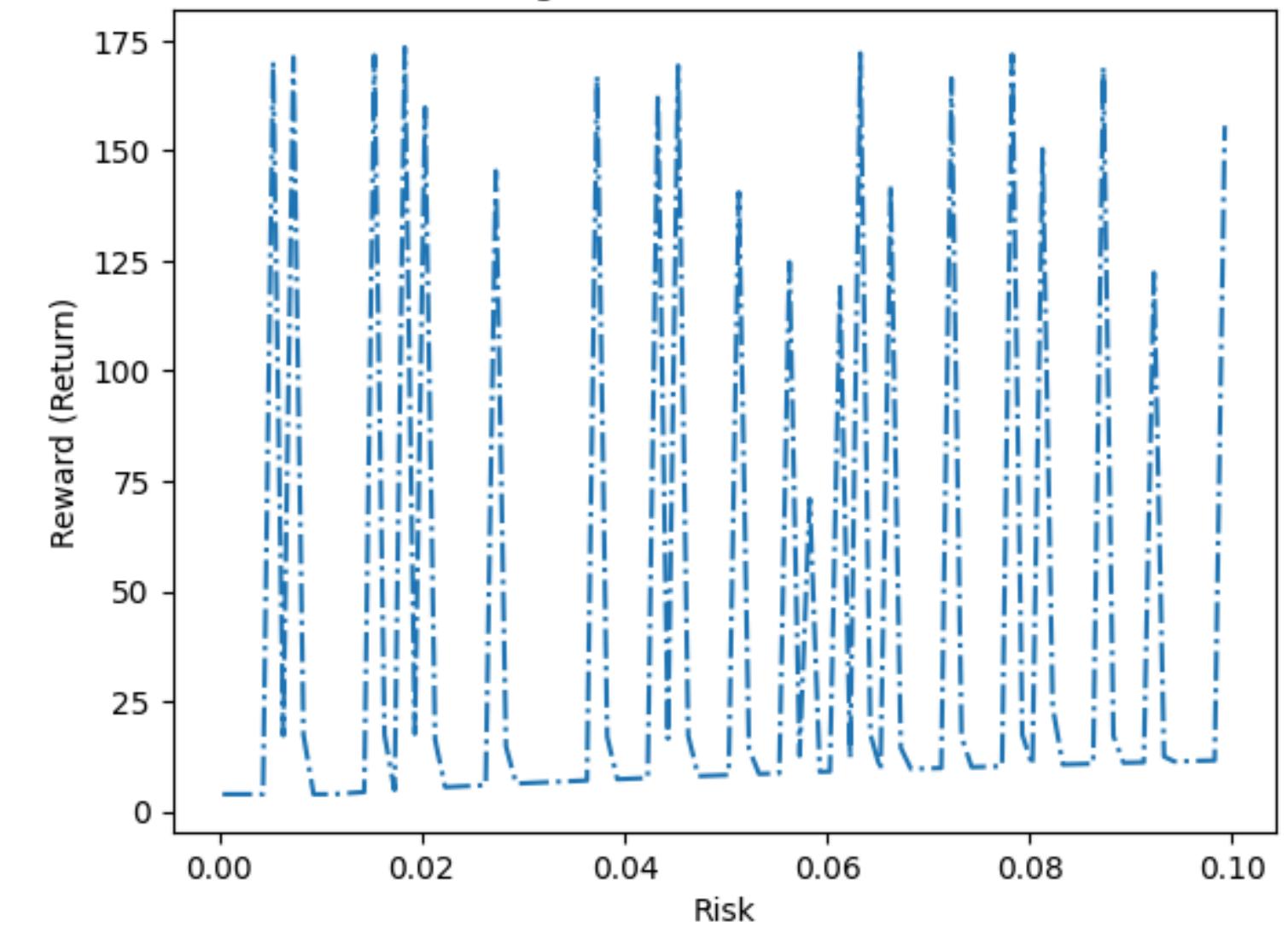
Modeling BASELINE: The Efficient Frontier



MAX. RISK = 5%

MAX. RETURN = 300%

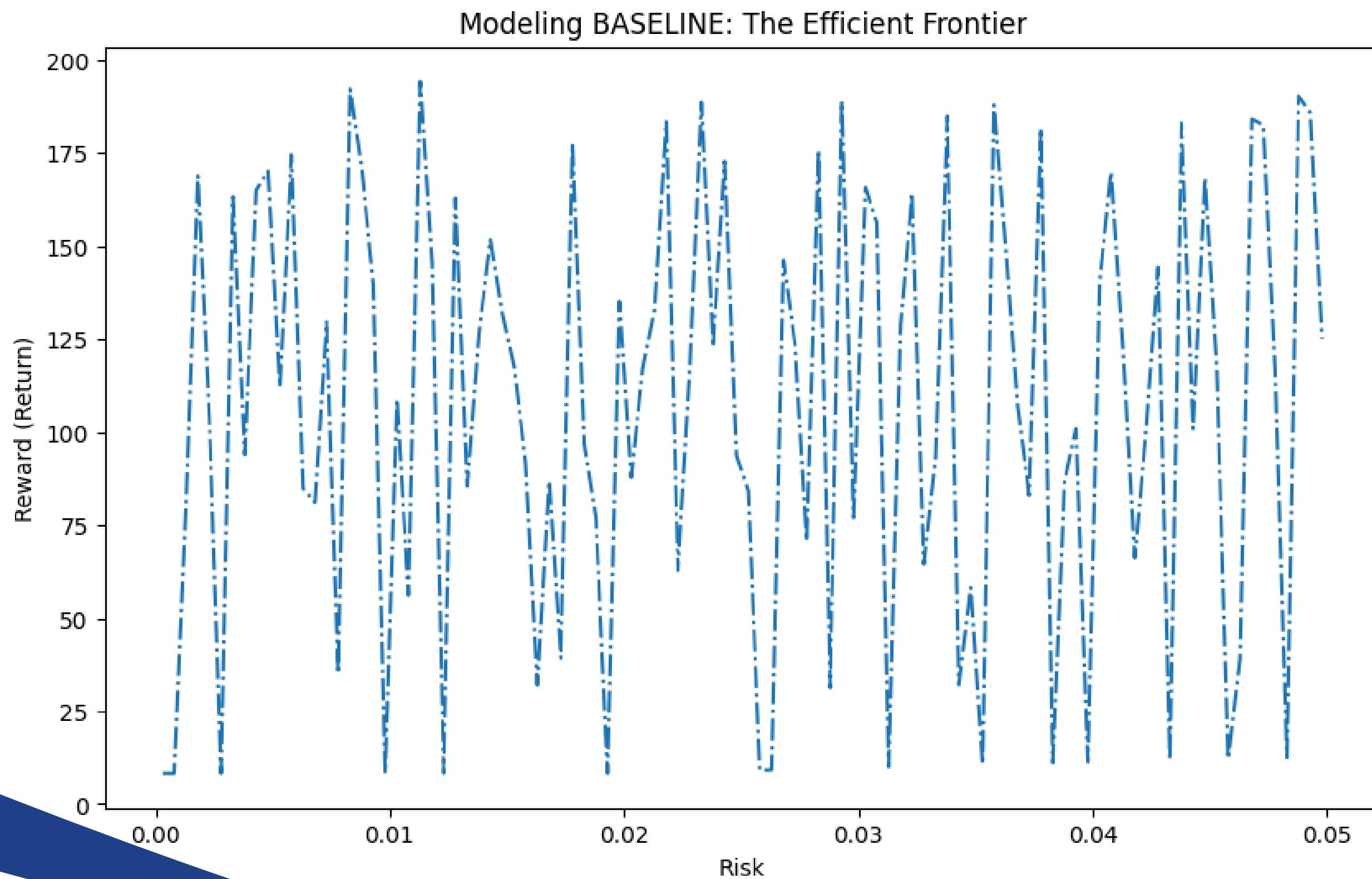
Modeling 10%: The Efficient Frontier



MAX. RISK = 10%

MAX. RETURN = 175%

SCOTT'S BASELINE AND OPTIMAL MODEL



MAX. RISK = 5%

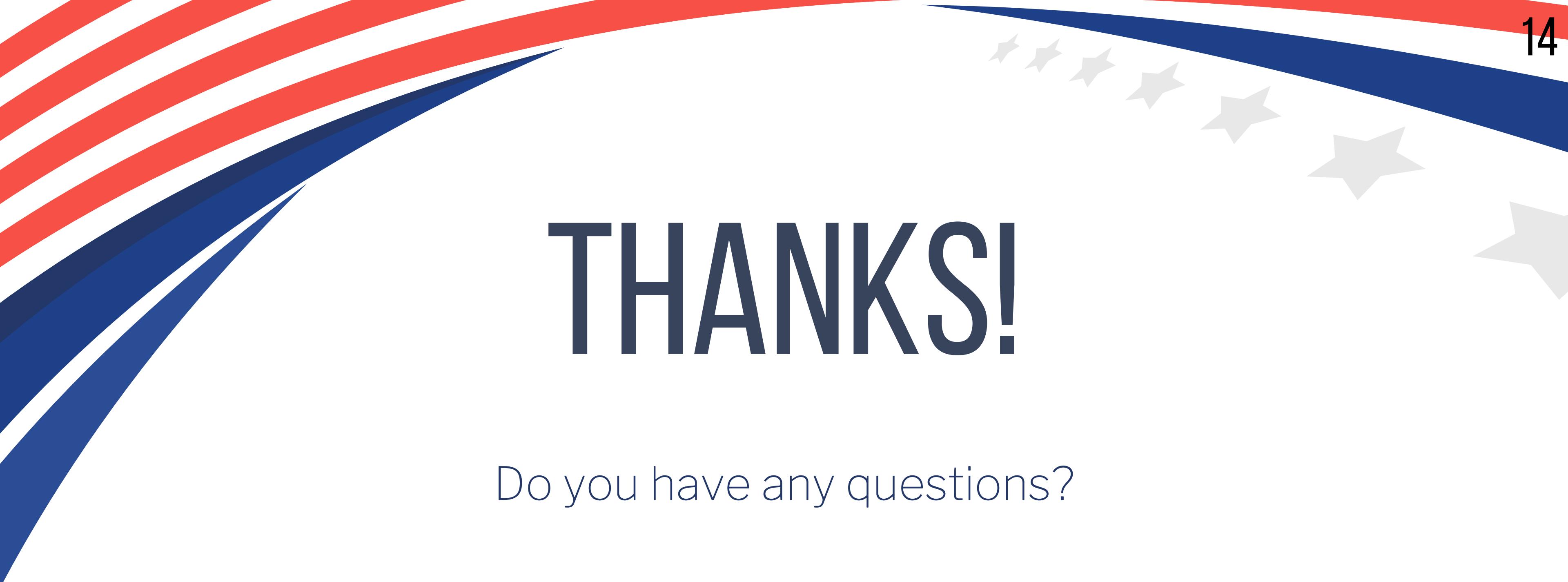
MAX. RETURN = 200%

STOCK PORTFOLIO

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ALLOCATION VS HOLDINGS RANKING

JOSH	HOLDING	SCOTT	HOLDING
1.JNJ	1.MSFT	1.PEP	1. JPM
2.MSFT	2. AAPL	2.JNJ	2. AAPL
3.GOOG	3. META	3.MSFT	3. HD
4.AMZN	4.AMZ	4.GOOG	4.MSFT
5. UAL	5.JNJ	5. WMT	5. V
6. AAPL	6. GS	6. MCD	6. WMT
7. MA	7. UAL	7. V	7. MCD
8. META	8. TSLA	8. AAPL	8.JNJ
9. TSLA	9. MA	9. JPM	9.GOOG
10. GS	10.GOOG	10. HD	10.PEP



THANKS!

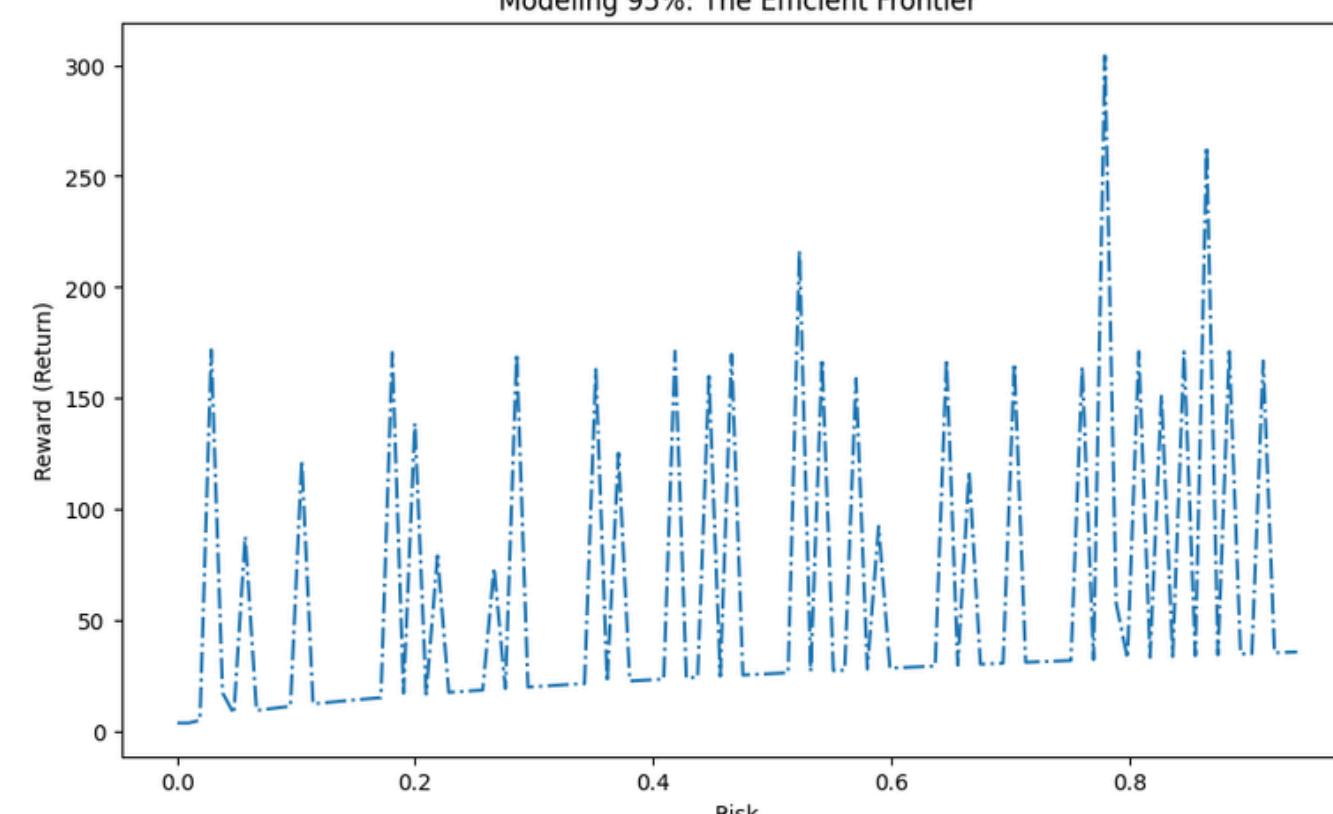
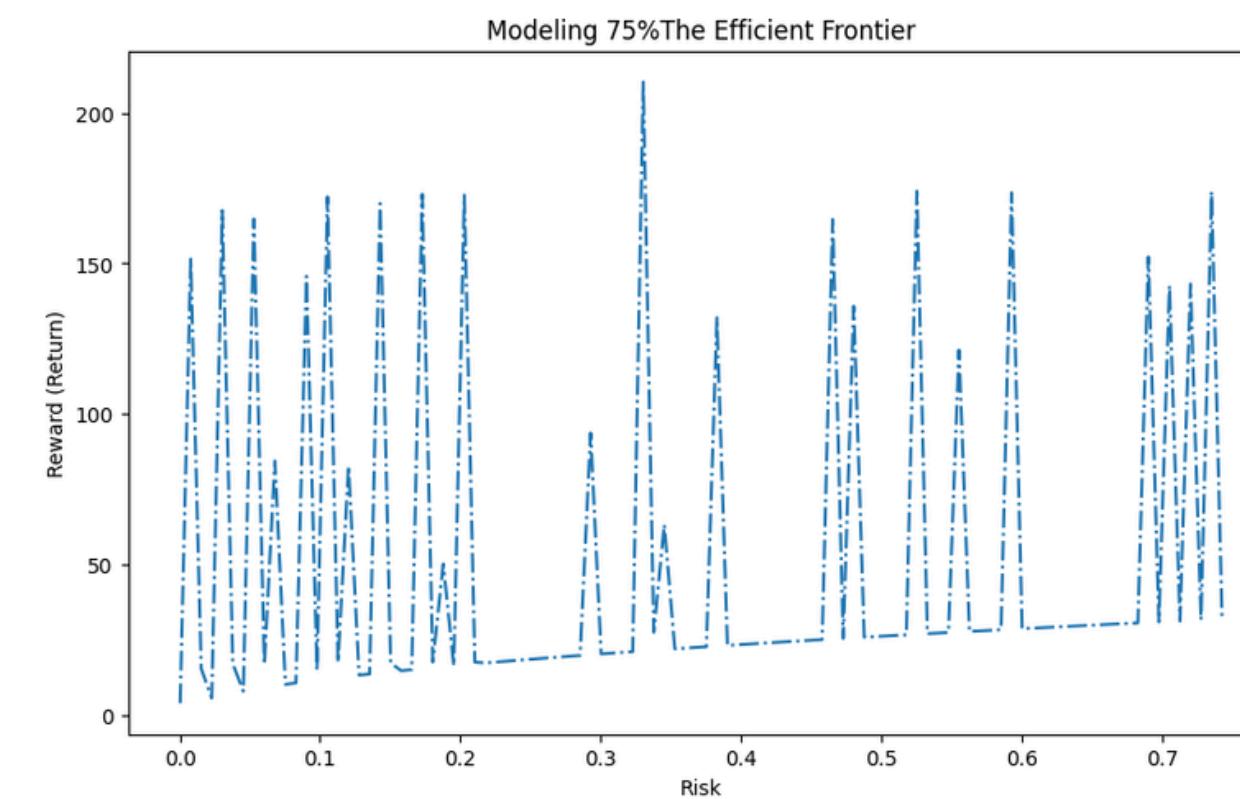
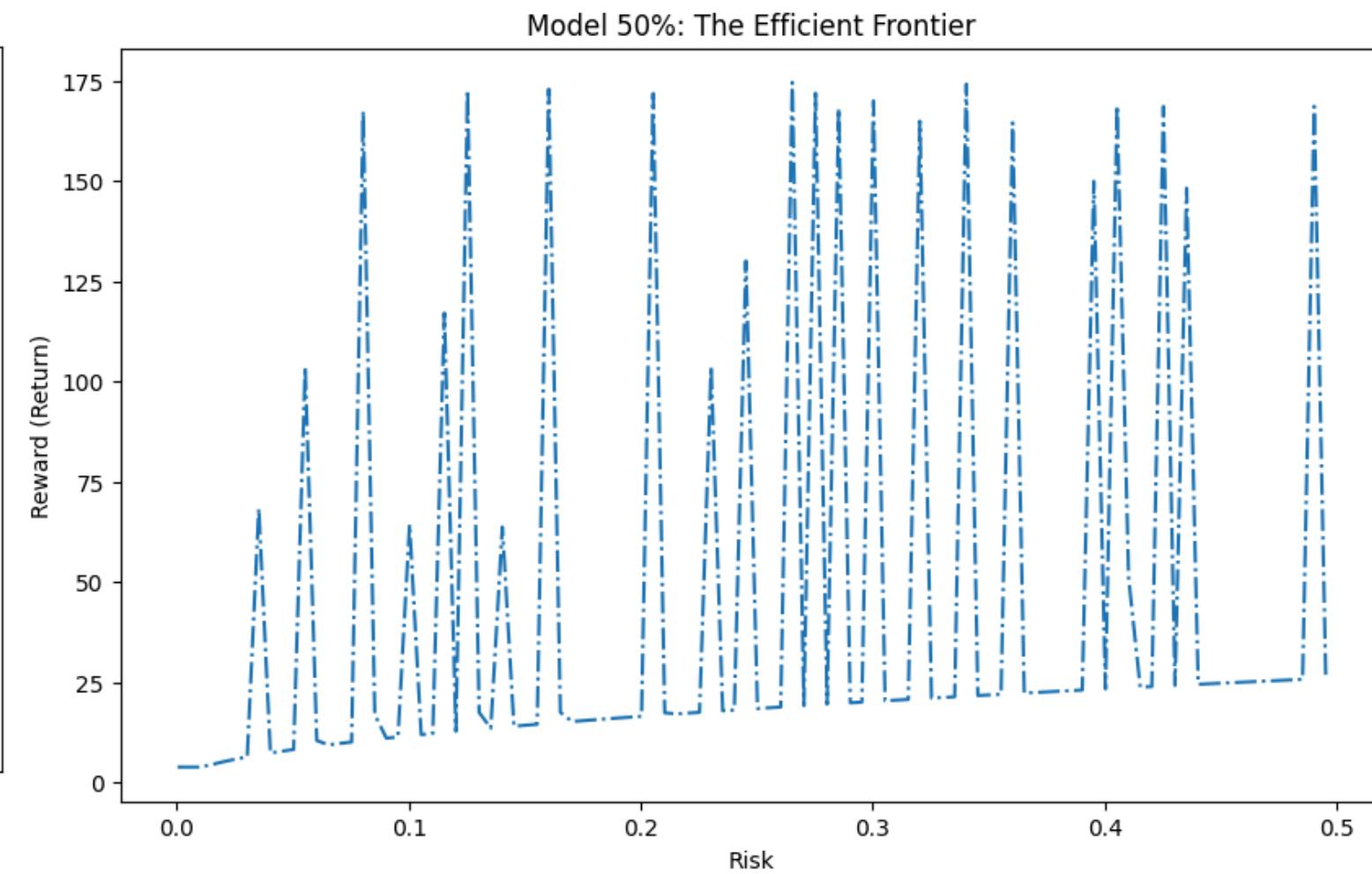
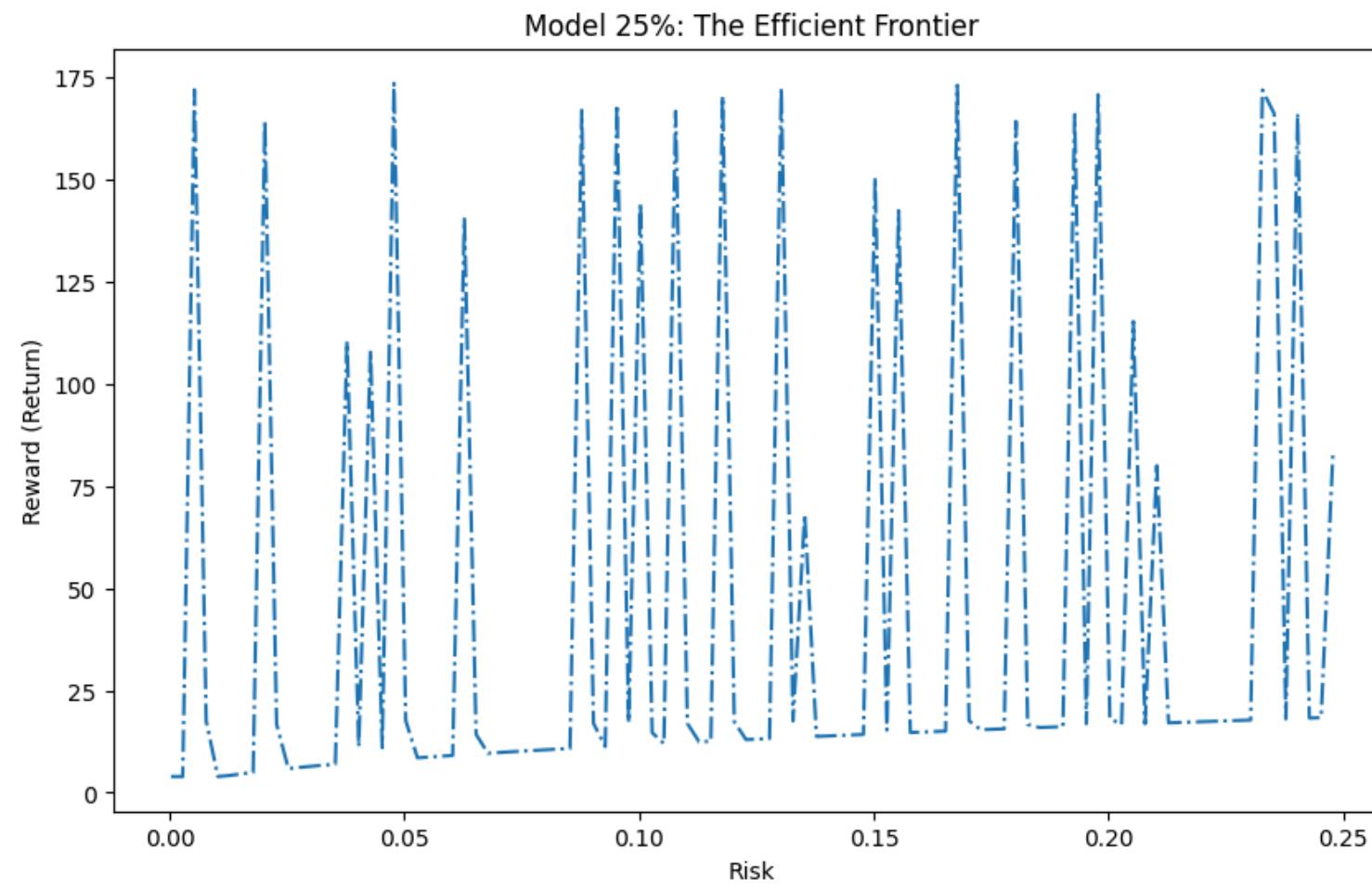
Do you have any questions?

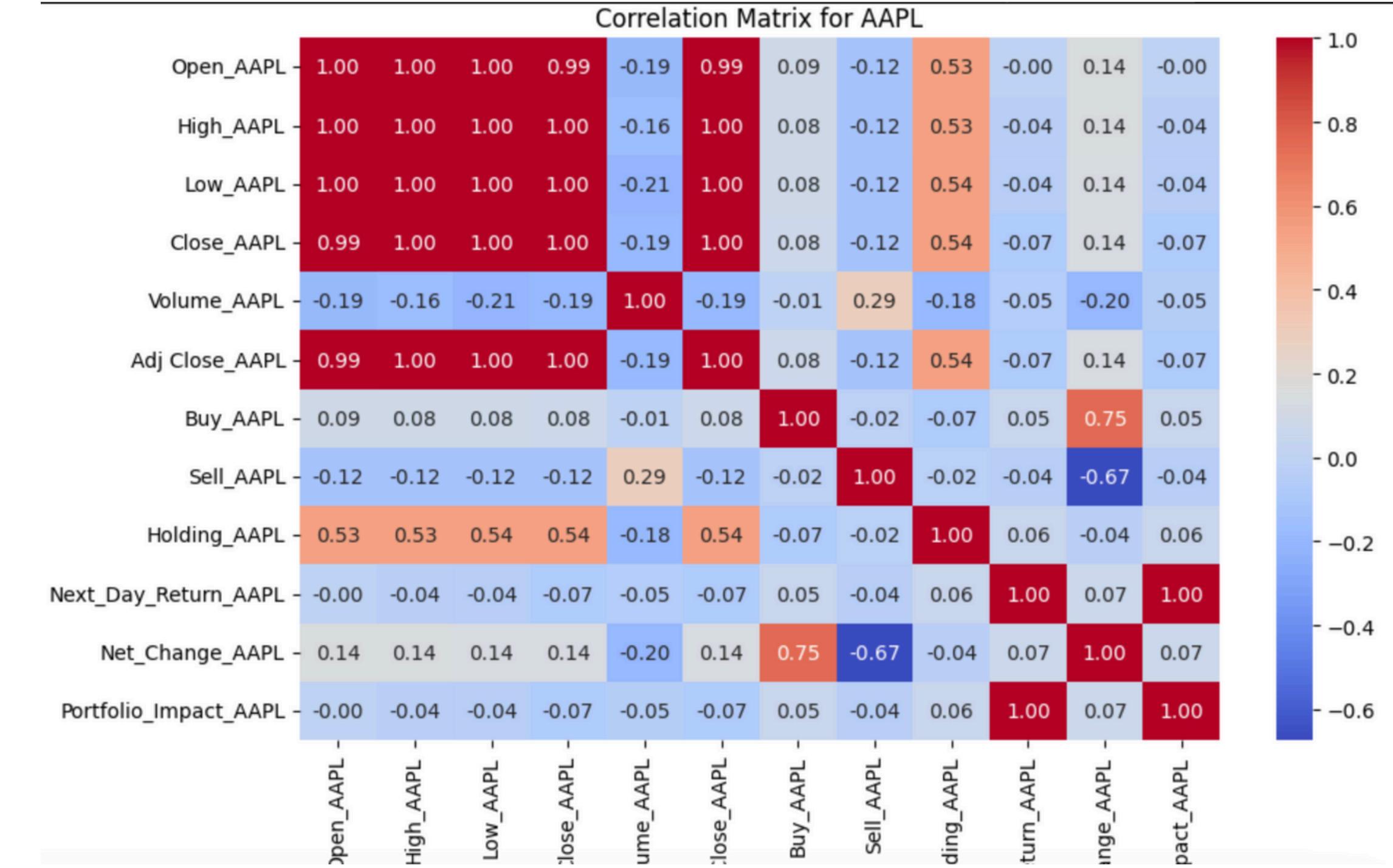
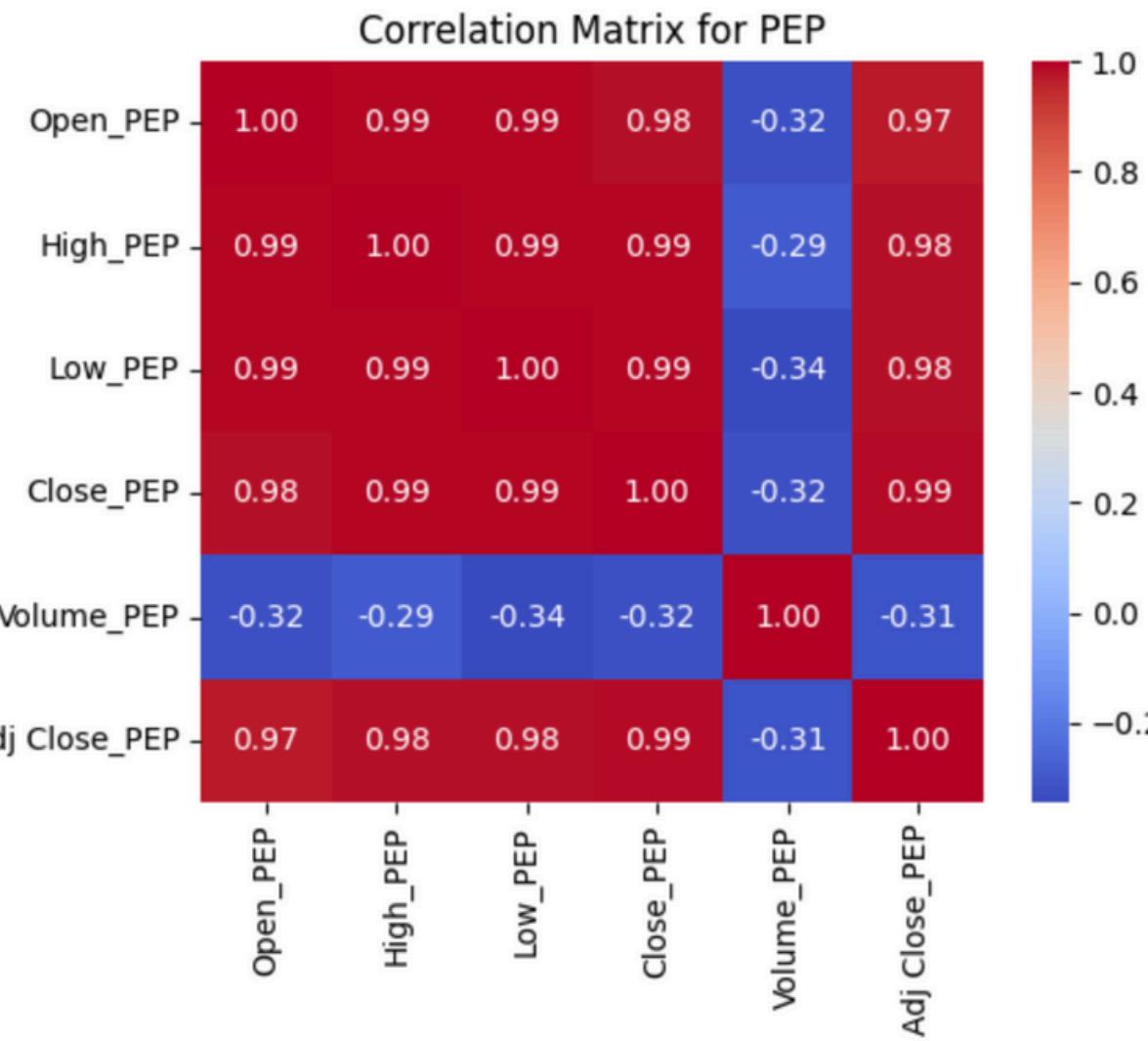


APPENDIX

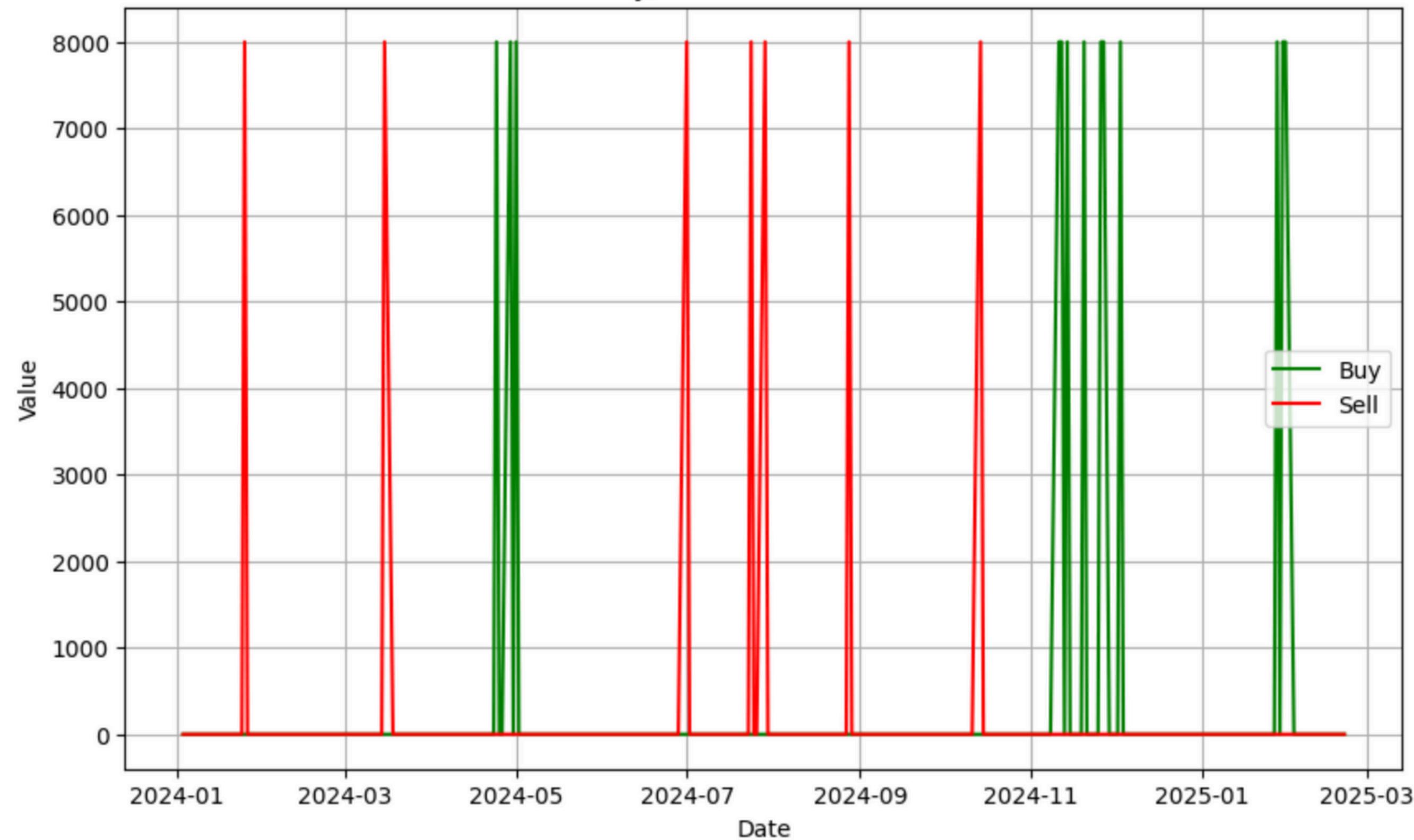
	LOW RISK	HIGH RISK	BIG TRADES	SMALL TRADES
SCOTT	 	 	 	 
JOSH	 	 	 	 

JOSH'S OTHER MODELS

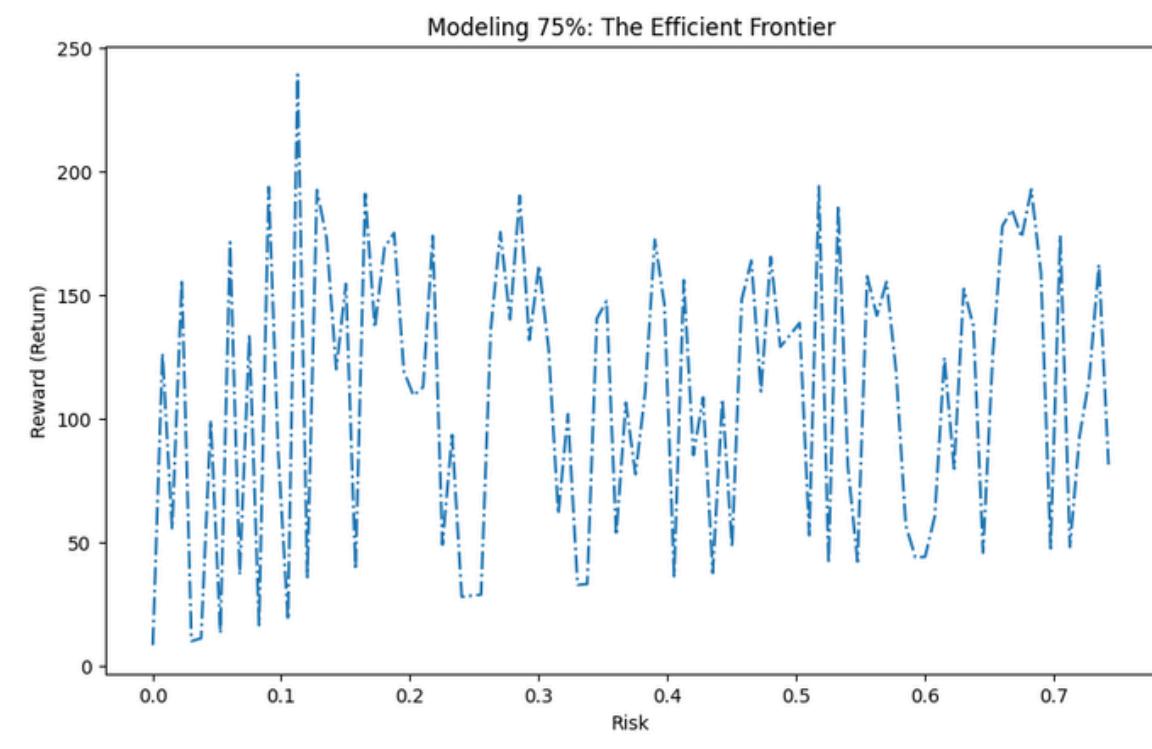
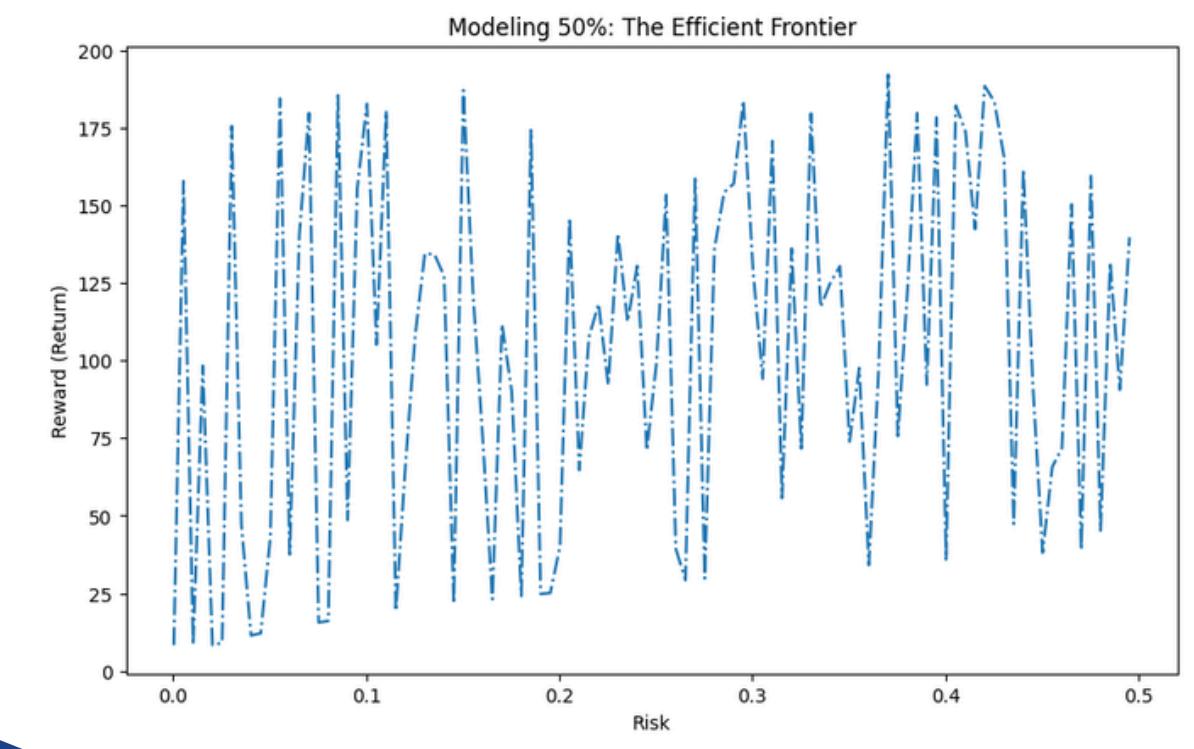
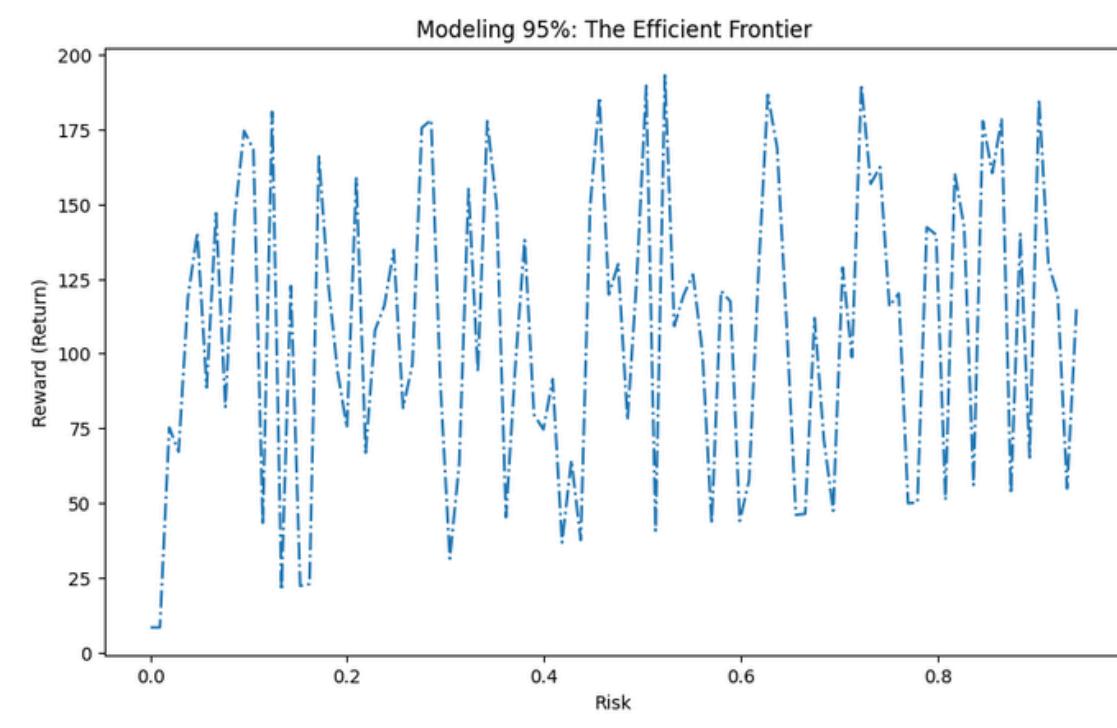
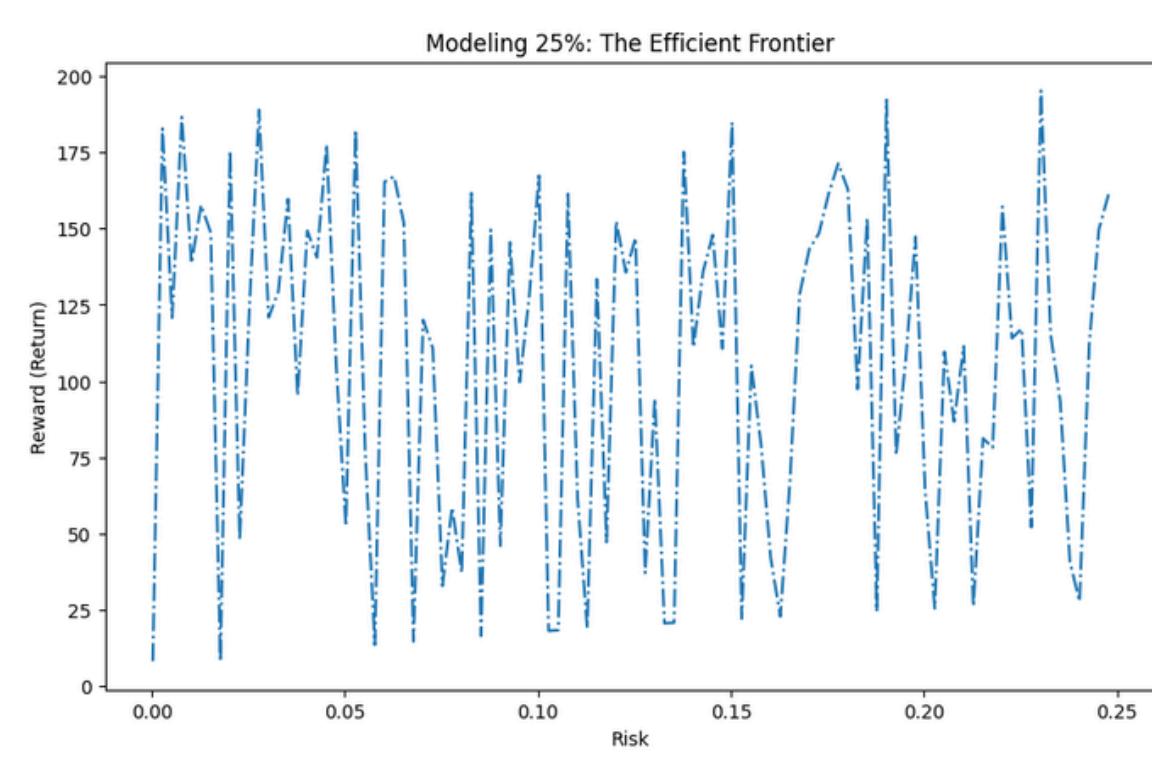
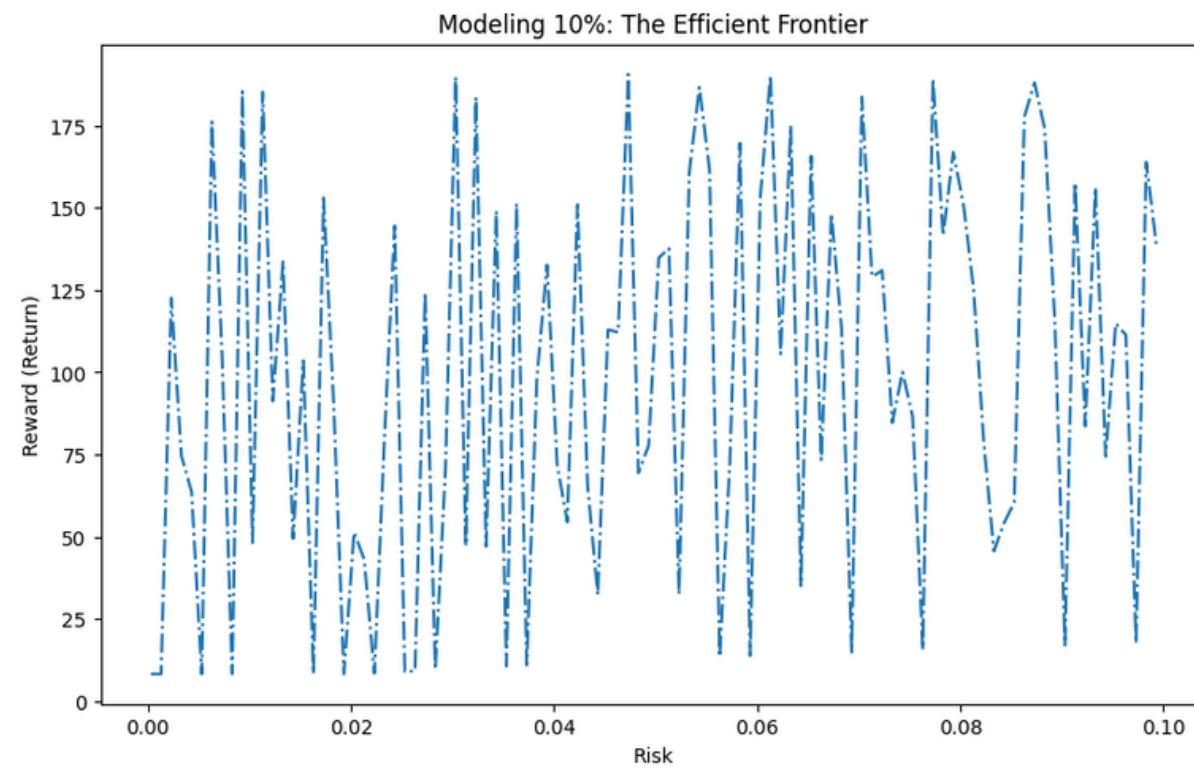




Buy/Sell Trends for TSLA



SCOTT'S OTHER MODELS



- **BUY** = DID THEY BUY ON THAT DAY?
- **SELL** = DID THEY SELL ON THAT DAY?
- **HOLDING** = HOW MUCH DO THEY HOLD IN THAT CERTAIN STOCK ON THAT CERTAIN DAY?
- **TRADE ACTION** = WAS THE TRADE A BUY OR SELL? OR NO TRADE?
- **NEXT DAY RETURN** = CALCULATES THE NET DAY RETURN BASED ON THE CLOSED PRICE OF THAT STOCK FROM THE PREVIOUS DAY
- **TRADE IMPACT** = IF THEY MADE A TRADE, WAS IT “GOOD” OR “BAD” THE NEXT DAY? “NO TRADE” → NOT EVALUATED.
- **NET CHANGE** = CALCULATES THE NET CHANGE OF THEIR HOLDINGS IN THAT STOCK FROM THE PREVIOUS DAY TO THE CURRENT DAY
- **PORTFOLIO IMPACT** = HOW MUCH DID THEIR OVERALL HOLDING'S VALUE CHANGE BECAUSE OF PRICE MOVEMENT, WHETHER YOU TRADED OR NOT?

DIVERSIFIED SECTORS - REDUCING INDUSTRY-SPECIFIC RISKS. BLUE-CHIP – ALL STOCKS (\$200B+ MARKET CAP) BALANCED GROWTH & STABILITY – TECH GIANTS (AAPL, MSFT, GOOG) PROVIDE HIGH GROWTH, WHILE DEFENSIVE STOCKS (JNJ, WMT, PEP) ENSURE STABILITY IN DOWNTURNS. PREFERENCE FOR LOW-RISK, HIGH-REWARD STOCKS BUY-AND-HOLD STRATEGY (LONG-TERM INVESTING)