# Portfolio Analysis Project

Quantitative Finance – ECO 43000 (Fall 2025)

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# 1. Introduction

- Goal: Create a portfolio of 7 NYSE stocks and compare it to DIA, SPY, IWM.

- Tools: Pandas & yfinance
- Metrics: Volatility, Beta, Tracking Error, Sharpe Ratio

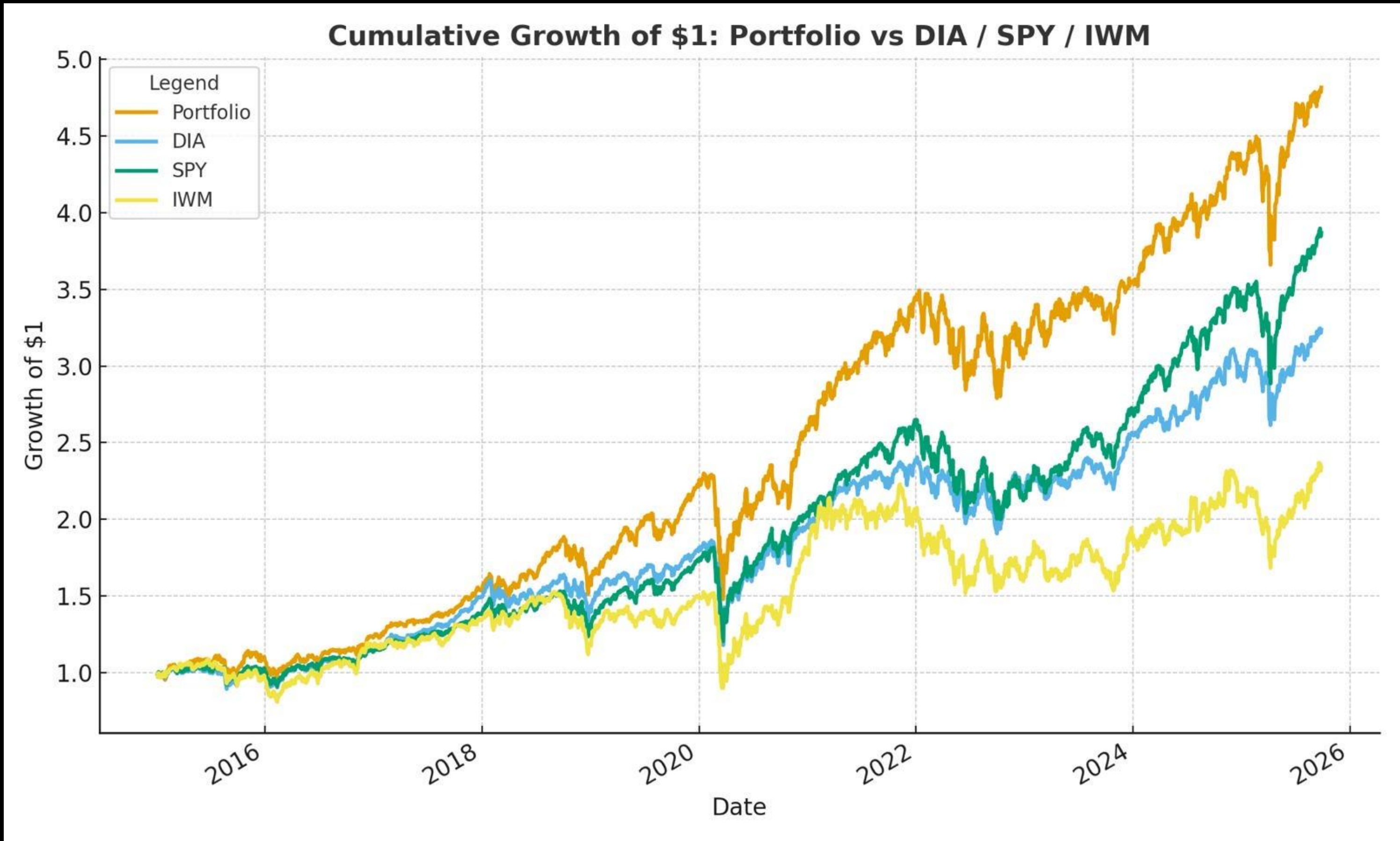
# Data & Methodology

- Data source: Yahoo Finance (via yfinance)
- Period: 2015–2025
- Portfolio: AAPL, MSFT, JPM, XOM, V, PFE, DIS
- Benchmarks: DIA, SPY, IWM
- Calculations:
- - Volatility
- - Beta
- - Tracking Error
- - Sharpe Ratio

# Results – Table 1: Asset Factors

Sample metrics for each stock:

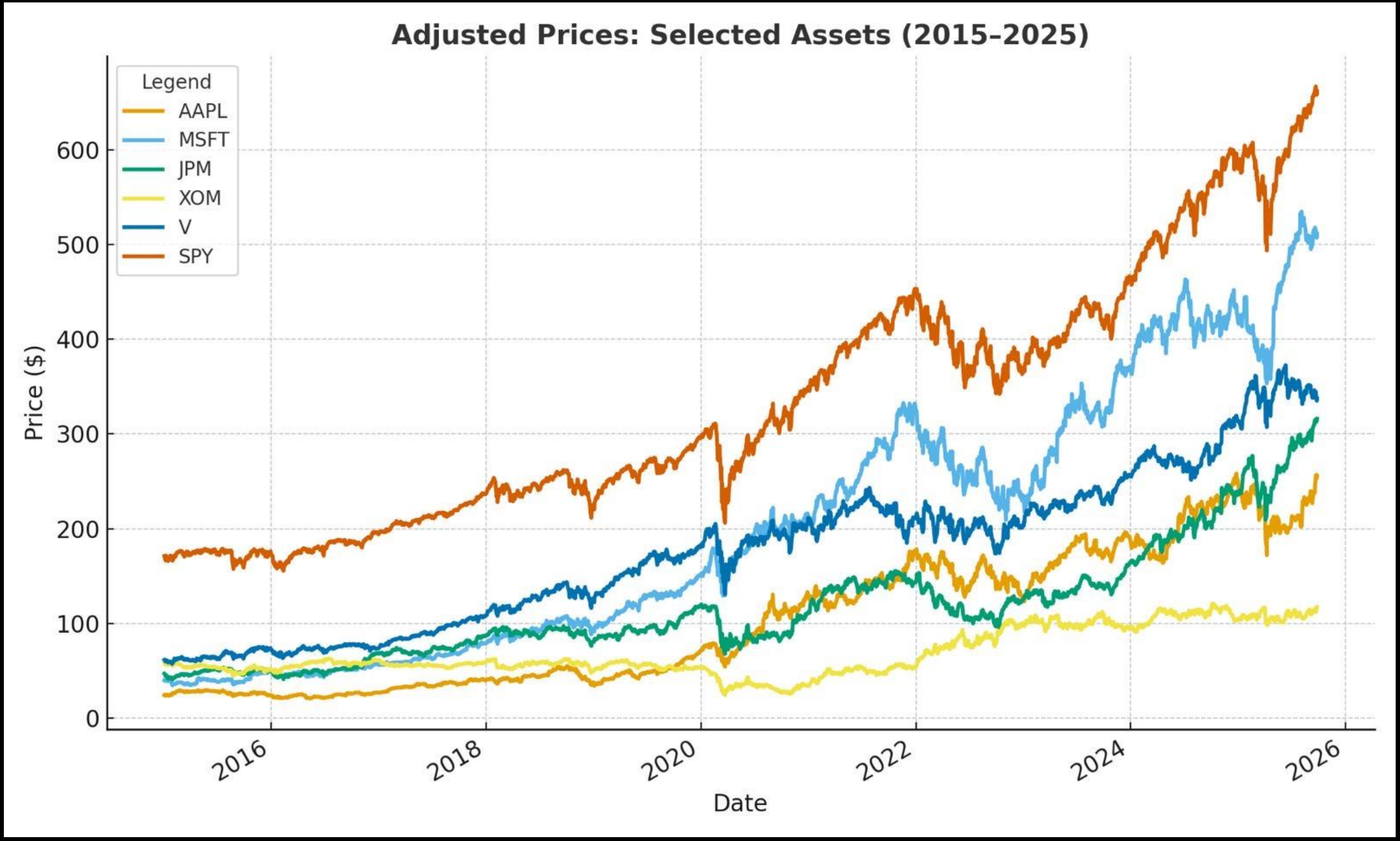
- Annual Volatility
- Beta vs SPY, IWM, DIA
- Returns (1Y, 3Y)



# Results – Table 2: Portfolio vs ETF

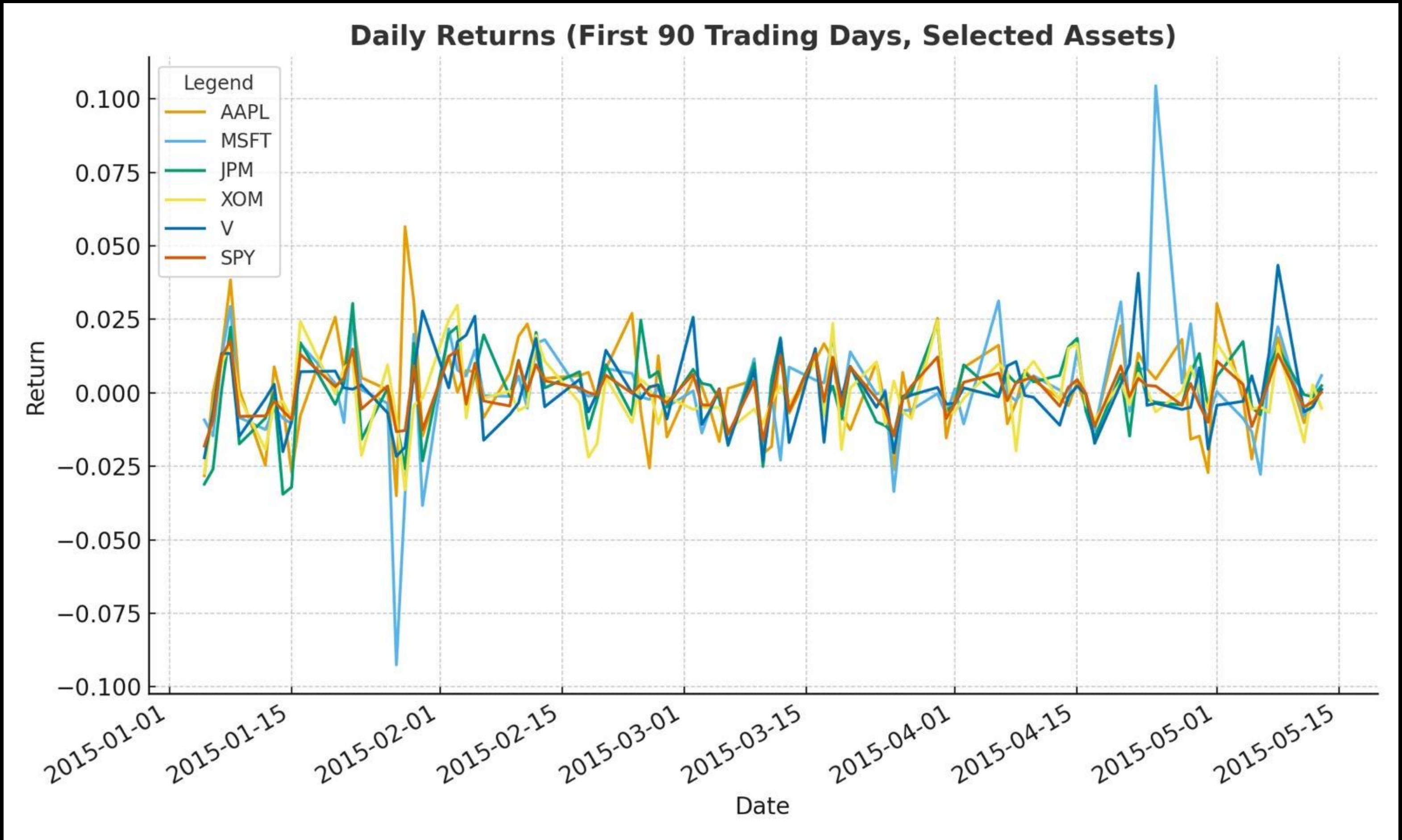
Portfolio vs DIA, SPY, IWM:

- Correlation
- Covariance
- Tracking Error
- Sharpe Ratio
- Volatility Spread



# Results – Chart: Cumulative Returns

- Cumulative performance of:
- Portfolio
- DIA
- SPY
- IWm



# Discussion

- Portfolio closely tracks SPY
- Higher beta vs large-cap ETFs
- PFE underperformed, dragging returns
- Tracking error vs SPY is low

# Conclusion

Portfolio built using Pandas & yfinance
Performance competitive with SPY
Lacked small-cap diversification
Future: optimize weights & expand factors

# Code

VSc and python to get the data