HW4: PORTFOLIO OPTIMIZATION

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Instructions

ASSET ALLOCATION

FRE 6991

Spring 2025

Homework 4

Due by April 20th

PORTFOLIO OPTIMIZATION

OPTIMIZATION

Consider the daily closing prices of the following companies from January 1st, 2024 until December 31st 2024:

MICROSOFT (MSFT)

JP Morgan (JPM)

a. Determine the average daily return and daily volatility of these two stocks.
b. Since there are 252 trading days in a year, the annualized version of these numbers are 252*Average Daily Return and SQRT(252)* Daily Volatility.
c. Construct a portfolio, long only, that maximizes the Sharpe Ratio, assuming that the risk free rate is zero, i.e. , maximize (Annual Return/Annual Risk).
d. What are the Risk, Return, and Sharpe Ratio of this portfolio?
e. For an investor who can tolerate up to 18% annual volatility, construct a portfolio with annual volatility of 18% or less and maximum return.
f. What are the Risk, Return, and Sharpe Ratio of this portfolio?
g. How portfolios in part c and e would have performed from January 1st 2025 until April 1st 2025

PORTFOLIO OPTIMIZATION

Due on Apr 20, 2025 11:59 PM

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