Assignment note

- Please submit the assignment by end of April 11
- The assignment can be prepared in PPT, Word or PDF format, with answers and descriptions for charts or tables.

Course Assignment

- Download monthly returns data (since 2000) for US equities, US 10Yr treasury bonds, US REITs and US commodities

- Use full historical return/covariance assumptions to setup portfolio optimization with following objectives (no short constraint):
  - ➤Maximize return subject to annualized volatility less than 10%
  - ➤Minimize volatility subject to annualized return more than 4%
  - ➤Maximize Sharpe Ratio

- If assuming all assets have the same Sharpe Ratio, what are the optimization portfolios with these three objectives? Will the optimization results depend on the Sharpe Ratio assumption?

Course Assignment

- Is there any regime change for the risk assumption observed from the historical data? If yes, what is the impact on the portfolio optimization results?

- Using the historical data, setup backtesting study for three risk-based optimal portfolios (equal weight, min vol, max diversification) for comparison and recommendation