

Cooler Charts from Econ 457

*This is not meant to be a comprehensive review for the final, but
it's a decent place to start...*

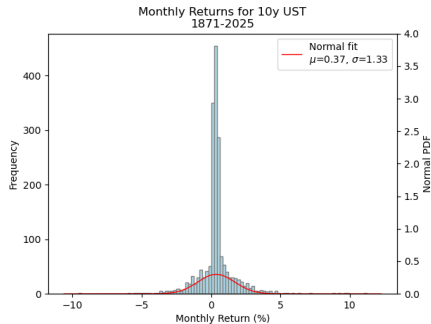
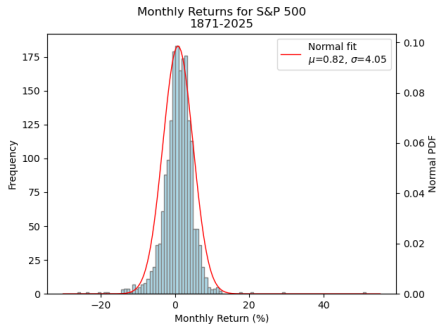
Econ 457

Material Covered

Subject	Book Chapters	Sub-topics
Intro	5	Measuring Returns, Distribution of Returns, Evaluating Returns
Portfolio Construction	6, 7, 8	Capital Allocation, Diversification, Index Model
Market Equilibrium	9, 10, 11, 12	CAPM, Fama-French Factors, Efficient Market Hypothesis
Fixed Income	14, 15, 16	Prices, Yields, Yield Curve, Duration and Convexity
Equity	18	Dividend Discount Models, Price-Earnings Ratios
Derivatives	20, 21, 22, 23	Futures, Swaps, Options

Note, this is subject to change throughout the semester.

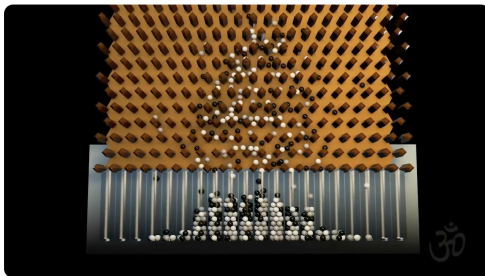
Distributions of Returns of Financial Assets



Distributions of Returns of Financial Assets

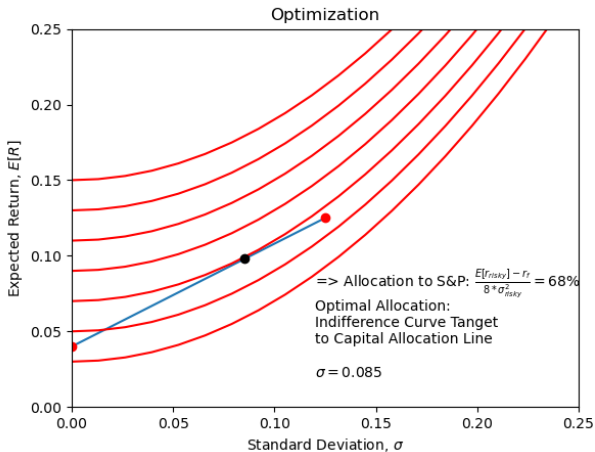
Galton Board

<https://youtu.be/3m4bxse2JEQ?si=SIhl4vECWSKwkQV->



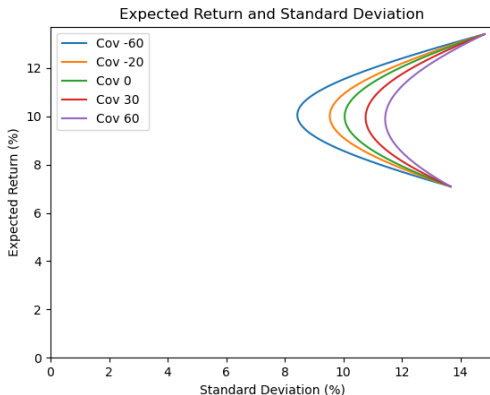
Galtonboard / Galtonbrett Simulation (or Bean machine or quincunx or Galton box)

Capital Allocation

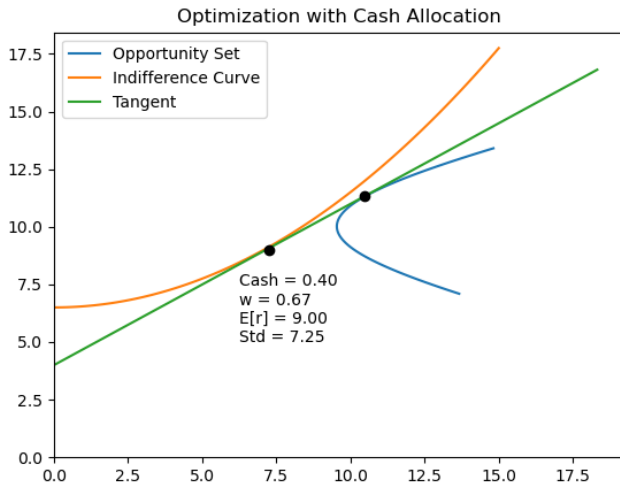


Diversification

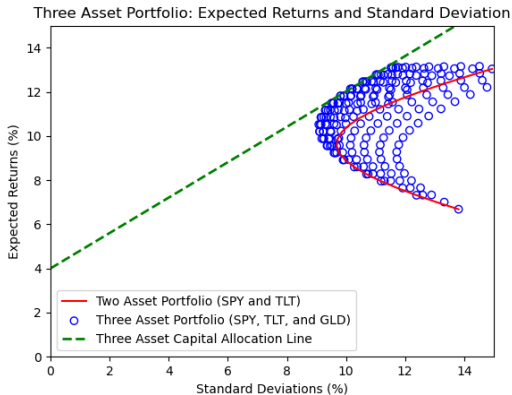
Two assets: Opportunity set for different covariances



Diversification

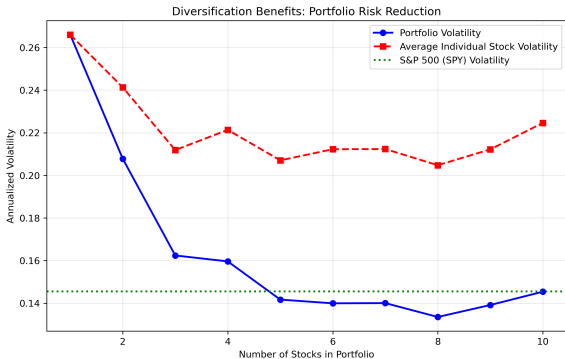


Diversification



Data Source: Yahoo Finance

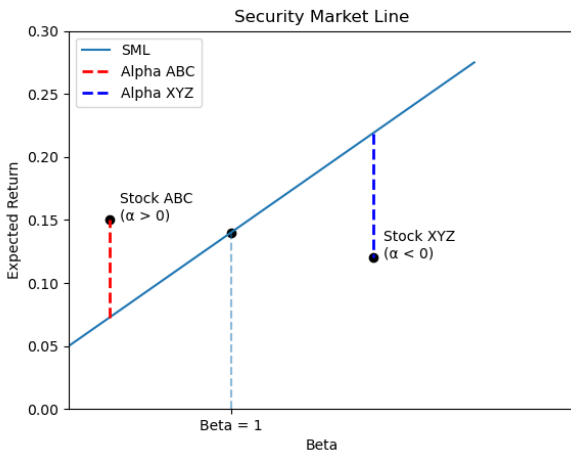
Limits of Diversification



Monthly returns since 2010. Portfolios created from non-randomly selected stocks (previous slide). Stocks added to the portfolio in order. While a different order of adding stocks may change the chart slightly, the broader point is that it doesn't take all that many stocks to replicate the volatility of the S&P 500.

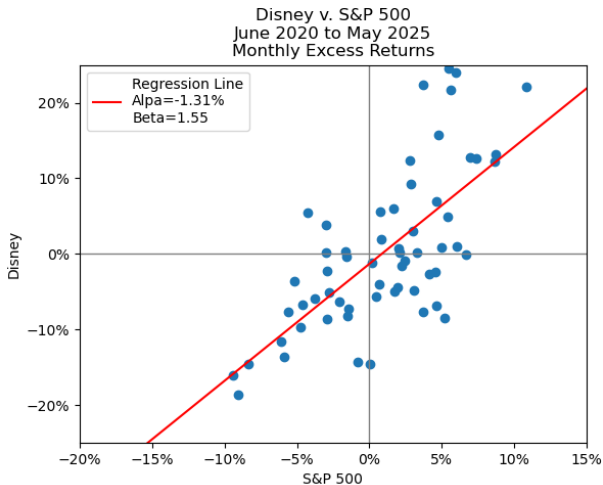
CAPM

Prices Adjust!



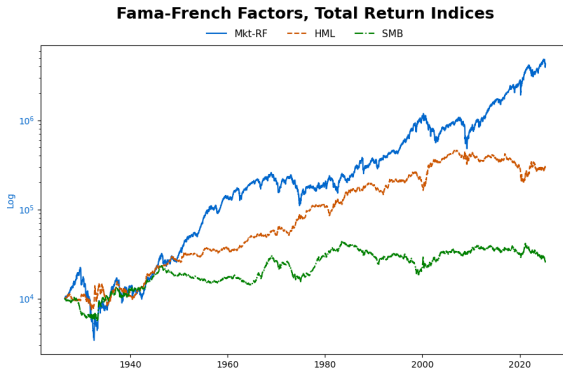
2. Applied CAPM: Disney (DIS)

Plot



Fama-French Factors

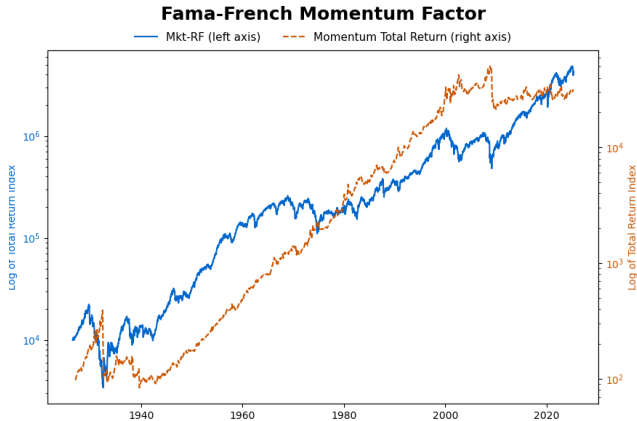
Factor Performance



Conclusion: Both SML and HML are factor portfolios that have significant risk premiums associated with them. Investors have been rewarded for bearing exposure to these factor portfolios.

Data Source: Ken French data library

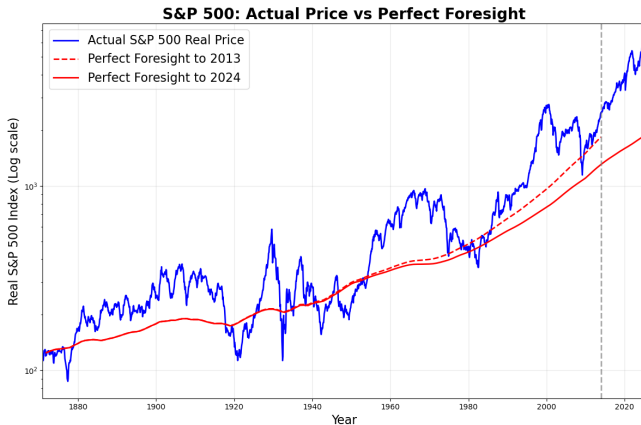
Momentum Factor



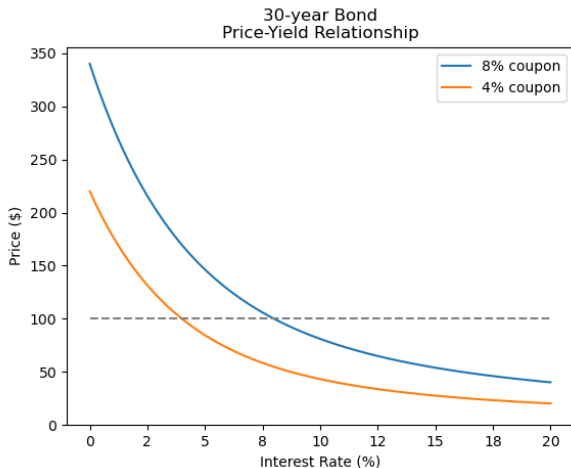
Data Source: Ken French data library

Efficient Markets Hypothesis

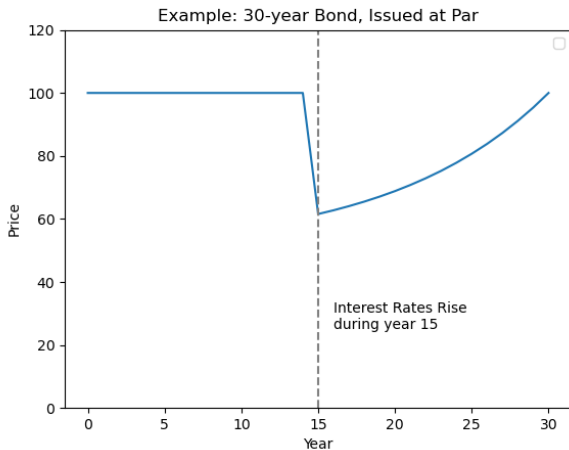
Robert Shiller Chart



Bond Price and Yields

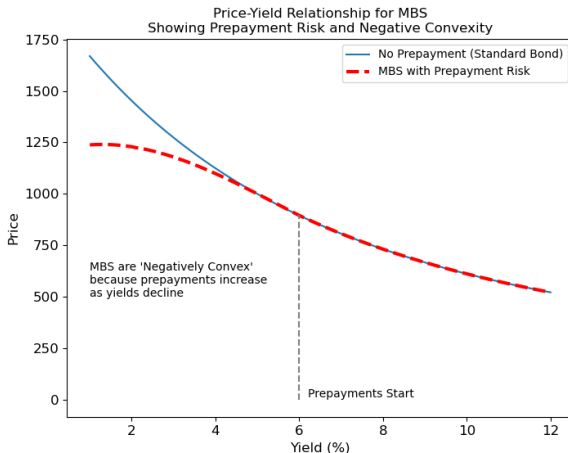


Bond Prices

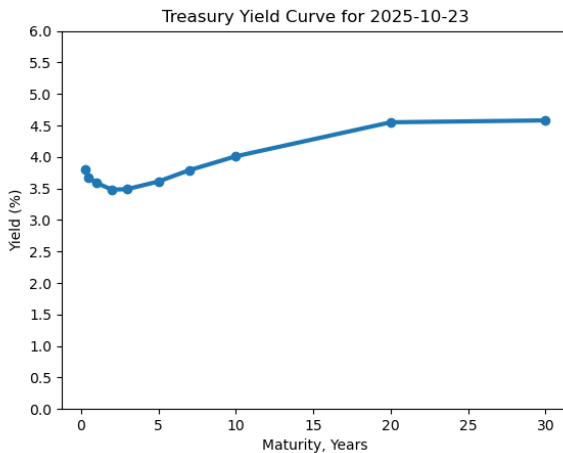


Mortgage Bonds

Prepayment Risk and Negative Convexity



Treasury Yield Curve

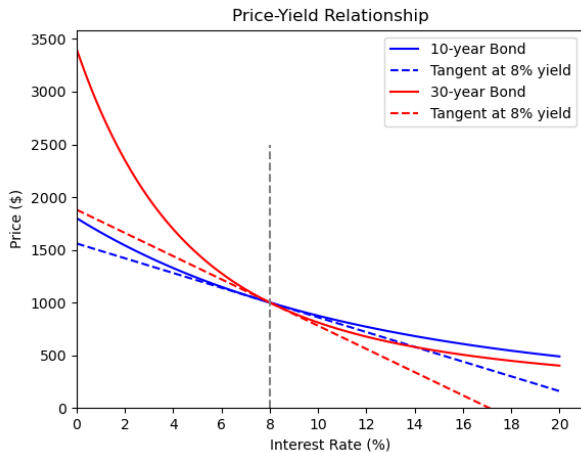


Treasury Yield Curve

Spot Rates and Forward Rates

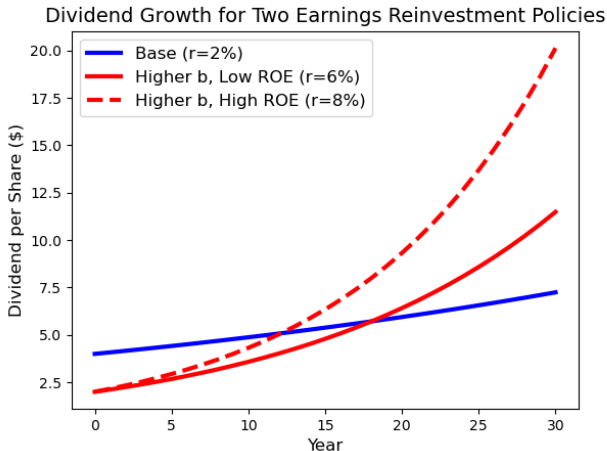


Bond Duration



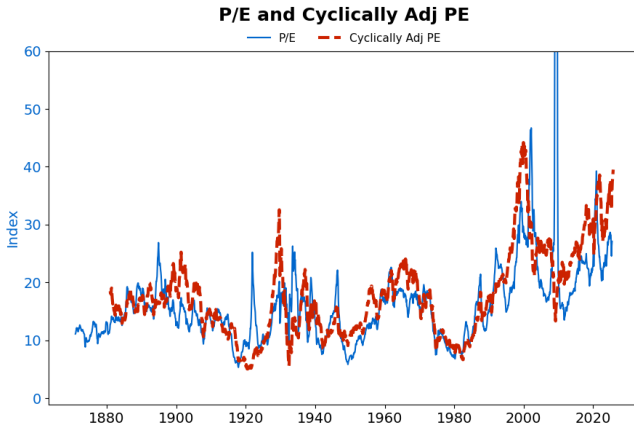
Dividend Discount Model

Dividend Growth



Cyclically Adjusted P/E (CAPE)

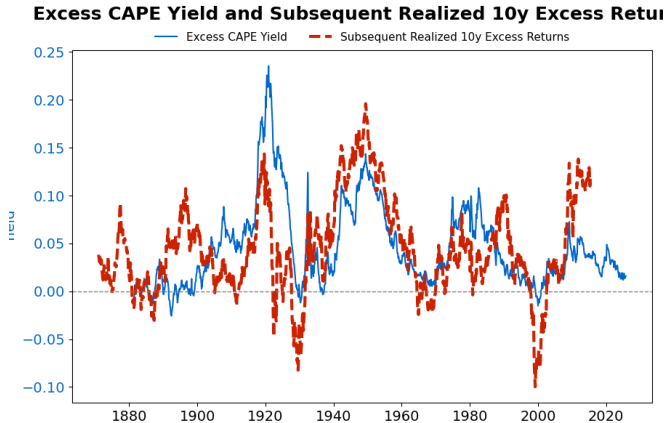
Historical Comparisons



Data Source: Robert Shiller, available on his Yale website

Cyclically Adjusted P/E (CAPE)

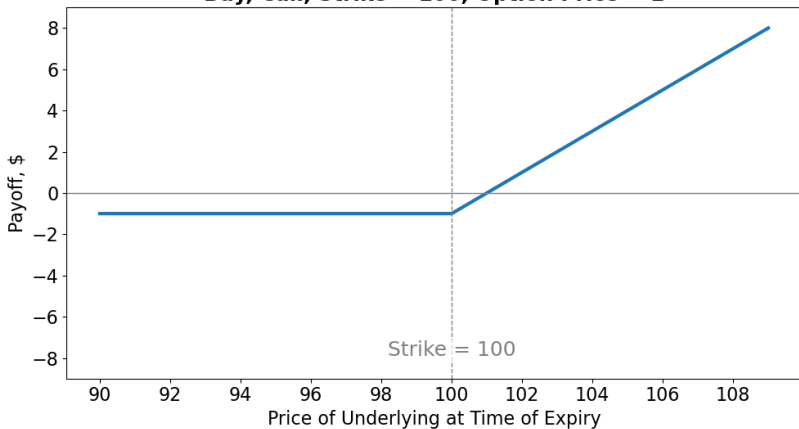
A Good Measure of Value?



Data Source: Robert Shiller, available on his Yale website

Call Options

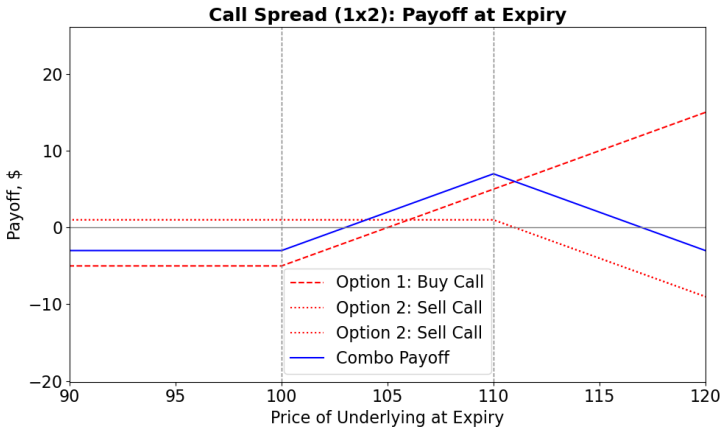
**Option Payoff at Expiry:
Buy, Call, Strike = 100, Option Price = 1**



Common Option Strategies

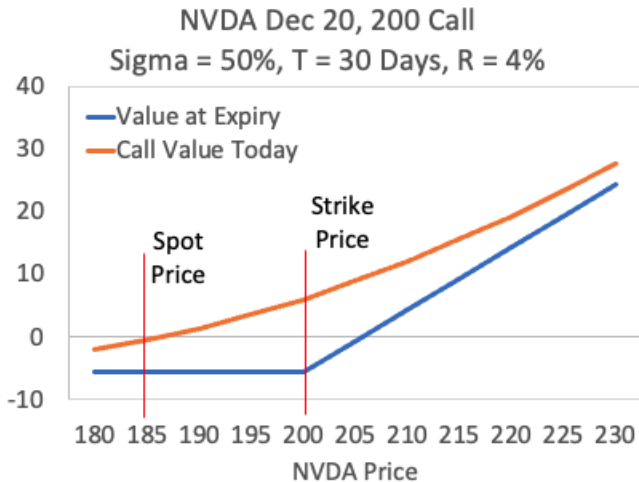
Call Spread (1x2)

Payoff at Expiry from **Call Spread (1x2)**



Option Valuation

NVDA calls



Option Valuation

NVDA calls - Change in Volatility

