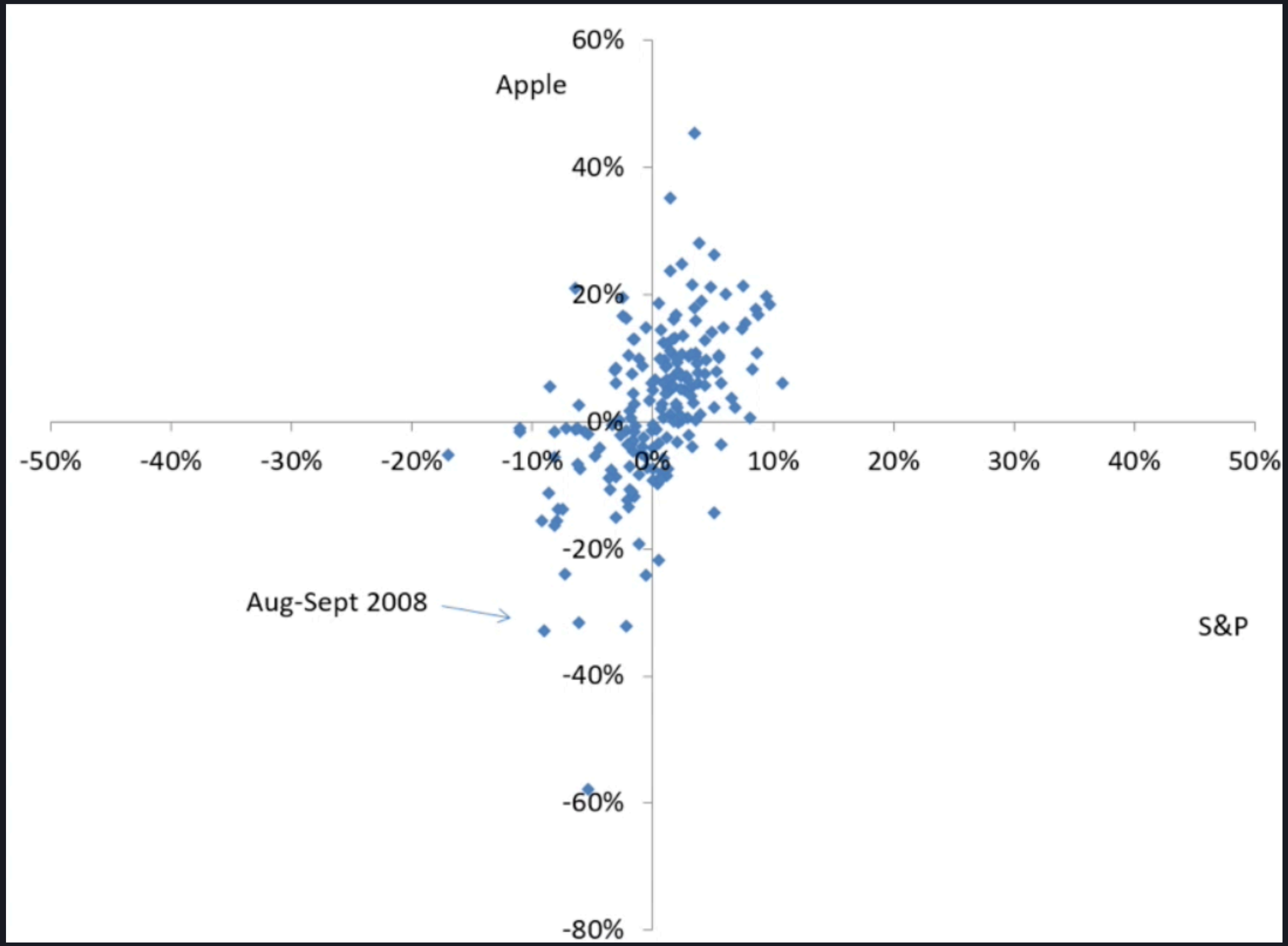
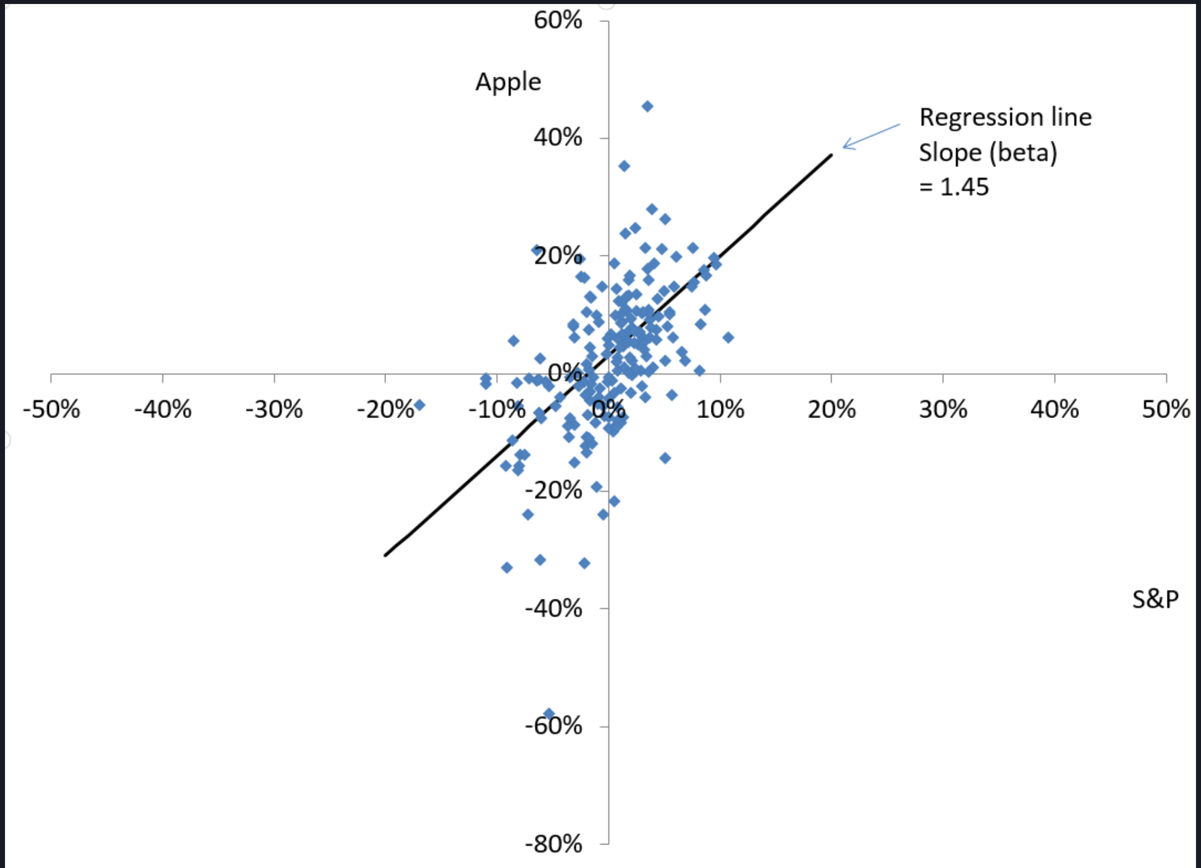
Capital Asset Pricing Model (CAPM)

- CAPM Asserts that all investors hold their optimal portfolio
- Consequence of the mutual fund theorem: all investors hold the same portfolio of risky assets, the tangency portfolio
- Therefore the CAPM says that the tangency portfolio equals the market portfolio

Scatter, Apple vs S&P 500 Returns Monthly Feb 2000-Jan 2016



Scatter, Apple vs S&P 500 Returns Monthly Feb 2000-Jan 2016



Beta

- The CAPM implies that the expected return on the ith asset is determined from its beta
- Beta (β_i) is the regression slope coefficient when the return on the ith asset is regressed on the return on the market

Investment Companies as Providers of Diversification

- Investment trusts (before 1940s)
- Mutual funds (especially index funds)
- Closed end investment companies
- Unit investment trusts
  - All these institutions can enable small investors to overcome transactions cost and lumpiness problems in achieving diversified portfolios

Doubts about Diversification

- Complete diversification would imply holding much in fixed incomes, real estate, etc. But hasn't stock market outperformed these?

The (in a Sense Fallacious) Risk/Return Pyramid

Equity Premium Puzzle

- US Geometric average real stock market return 1802-2012: 6.6% (Siegel *Stocks for the Long Run* 5th Edition 2014 Figure 1-1)
- US Geometric average real short-term governments return 1802-2012: 2.7% (Siegel Figure 1-1)
- Equity premium = 6.6%-2.7%=3.9%
- Puzzle: Why has equity premium been so high?

International Evidence

- Median real stock market appreciation rate for 39 countries 1926-96: 0.8% per year
- Real stock market appreciation rate for US 1926-96: 4.3% per year

  (Philippe Jorion and William Goetzmann, *Journal of Finance* 54:953-80, 1999.)
- So, US equity premium may reflect a selection bias