RISK, RETURN, AND THE COST OF CAPITAL

Beta and the Cost of Equity

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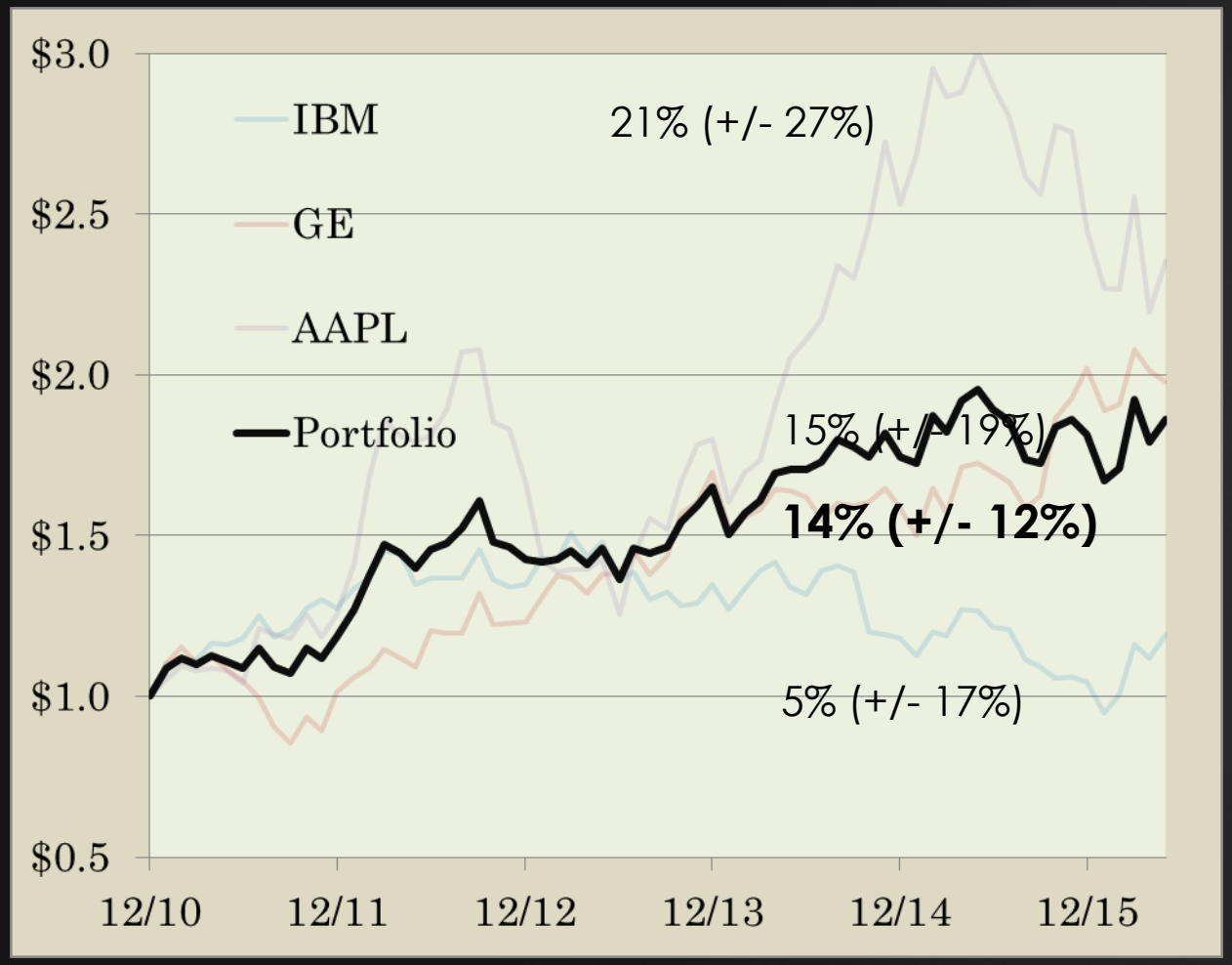
EQUITY RISK ON STOCKS

- Equity market premium is 5.5%
- Premium for a single stock?
- How to measure stock risk?

MEASURING STOCK RISK

- What makes a single stock risky?
  - Wiggles a lot?
  - “Jumps” around too much?
  - Has gone down in the past?
- These are all stock specific risks….
- Diversification reduces these risks!

HOLD MULTIPLE STOCKS!



DIVERSIFICATION

- Holding multiple stocks reduces risk!
- Why not hold lots of stocks?
- Why not hold the market?

HOW TO MEASURE RISK

- Wiggles and jumps might be good!
- How does a stock change my portfolio?
- Does a stock make me wiggle more or less?

BETA: ONE MEASURE OF RISK

- How much wiggle with the market?
- Variance (wiggle)
- Covariance (wiggle together)

MARKET BETA

- Average beta around 1
- Most betas between 0.25 and 2.5
- Beta = 2 ： Stock return up/down twice the market return
  - Two servings of market risk
  - Should have higher returns

COST OF EQUITY

Rate of return = risk free rate
+ risk premium

Risk Premium = Beta * (Equity Premium)

CAPITAL ASSET PRICING MODEL (CAPM)

Return = risk free rate

+ Beta * (Equity Premium)

COST OF EQUITY USING CAPM

Stock has a beta of 1.8.

Equity premium is 5.5%.

Risk-free rate is 3%.

What is the cost of equity?

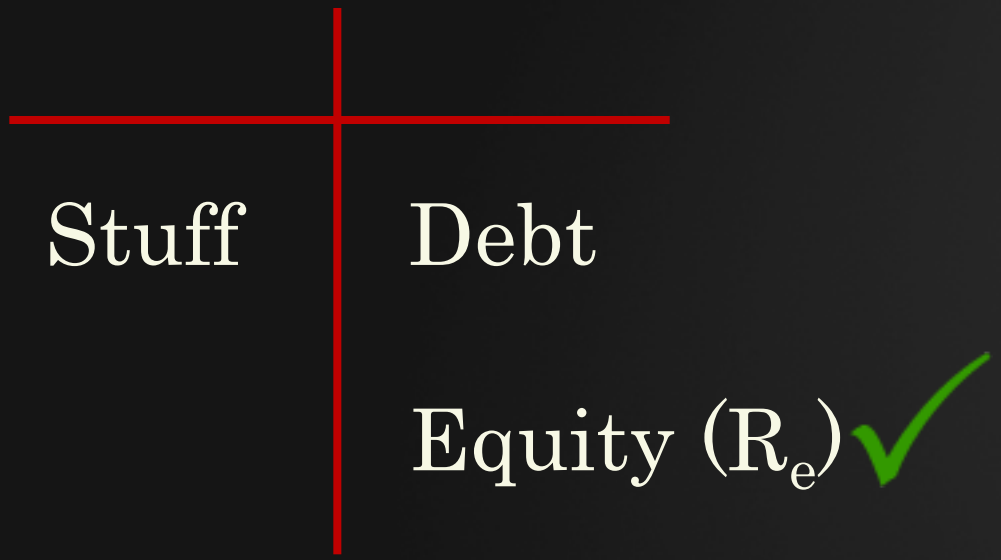
R_e = r.f. + Beta * (equity premium)

= 3% + 1.8 *(5.5%)

= 12.9%

COST OF EQUITY (R_e)

Simple Balance Sheet



SUMMARY

- Diversification changes risk
- Market risk can't be diversified
- Beta is sensitivity to market risk
- R_e = r.f. + Beta * (Equity Premium)