

7.9: Beta and Required Return- Capital Asset Pricing Model (CAPM)

During the mid-1960's and early-1970's some finance professors developed the Capital Asset Pricing Model (CAPM). (Sharpe, 1964; Lintner, 1965; Black, 1972) One of the key components of this model is the Security Market Line (SML) which states that the required rate of return for a stock is dependent on the beta of that stock. While technically, the SML is a subset of the larger model (CAPM), in practice the two terms are typically used interchangeably. Thus, think of them as the same basic model. Specifically, the SML states that

$$k_A = k_{RF} + \beta_A (\overline{k_m} - k_{RF})$$

where

k_A is the required return for stock A ,

k_{RF} is the risk-free rate of interest (often approximated by the yield on 10 -year Treasury bond),

β_A is the beta for stock A ,

$\overline{k_m}$ is the expected return on the market (often approximated by the S\&P 500)

Let's calculate the required return for a particular stock. Stock B has a beta of 1.4. The expected return on the market is 11% and the Treasury bond rate is 5%. Based on this, we can calculate the required return for stock B as follows

$$k = 5\% + (1.4)(11\% - 5\%)$$

$$k = 5\% + (1.4)(6\%)$$

$$k = 5\% + 8.4\%$$

$$k = 13.4\%$$

Video [Beta and the SML Part One](#)



Video [Beta and the SML Part Two](#)



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