

**FINANCIAL  
ECONOMETRICS  
ECO764A**

**LECTURE 7**





## CAPM Model

- The expected return on the market is 10%, the risk-free rate is 2%, and the beta for stock A is 1.2. Compute the rate of return that would be expected on this stock.

Answer:

$$E(R_A) = 2\% + 1.2(10\% - 2\%) = 11.6\%$$

Note: Beta A > 1, so  $E(R_A) > E(R_{mkt})$





## CAPM Model

- Suppose we have another scenario under which the risk-free rate is 7% and market return is 15%. Compute the expected and required return on each stock, determine whether each stock is undervalued, overvalued, or properly valued, and outline an appropriate trading strategy.

### Forecast data

Stock	Price Today	E(Price) in 1 Year	E(Dividend) in 1 Year	Beta
A	25	27	1	1.0
B	40	45	2	0.8
C	15	17	0.50	1.2



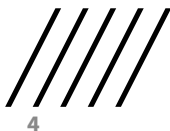
## CAPM Model

### Forecast vs Required Rate of Return

Stock	Forecast return	Required return
A	$(27-25+1)/25 = 12$	$0.07+(1.0)(0.15-0.07) = 15.0$
B	$(45-40+2)/40 = 17.5$	$0.07 + (0.8)(0.15-0.07) = 13.4$
C	$(17-15+0.5)/15 = 16.6$	$0.07 + (1.2)(0.15-0.07) = 16.6$

#### Summary:

- **Stock A is overvalued:** It is expected to earn 12% but based on its systematic risk. It should earn 15%. It plots below the SML.
- **Stock B is undervalued:** It is expected to earn 17.5%, but based on its systematic risk, it should earn 13.4%. It plots above the SML
- **Stock C is properly valued:** It is expected to earn 17.5%, but based on its systematic risk, it should earn 13.4%. It plots above the SML

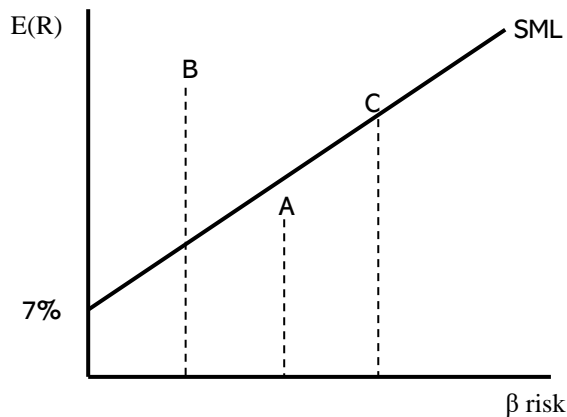




# CAPM Model

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- All stocks should plot on the SML to be properly valued.
- Any stock not plotting on the SML is mispriced.

B is underpriced: is offering an expected return greater than required for its systematic risk.

A is overpriced: stock's expected return is too low given its systematic risk