Capital Asset Pricing Model - CAPM

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- CAPM is an equilibrium model
- The concept of the model is explicitly built on the maximization of utility and the available set of investment portfolios

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- Enables the identification of incorrectly valued assets

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- A rational subject makes decisions based on the von Neumann-Morgenstein utility function

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$$\rightarrow \quad r_i, \sigma_i, \sigma_{i,j}$$

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- This means that the risk portion of each investor's portfolio is the same

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  - IP-CAPM *(Amihud & Mendelson, 1986)*

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$$\bar{R_p} = r_f + \frac{\bar{r_m} - r_f}{\sigma_m} * \sigma_p$$

Derivation of CML

- Graphic projection . . .

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- Graphic projection ...
- Using the similarity of right triangles ...

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where we can derive,

$$\beta_i = \frac{\sigma_{i,m}}{\sigma_m^2}$$