Asset markets

Equilibrium with certainty

$$p_a = \frac{V_a}{R_0} = \frac{V_a}{r_0 + 1},$$

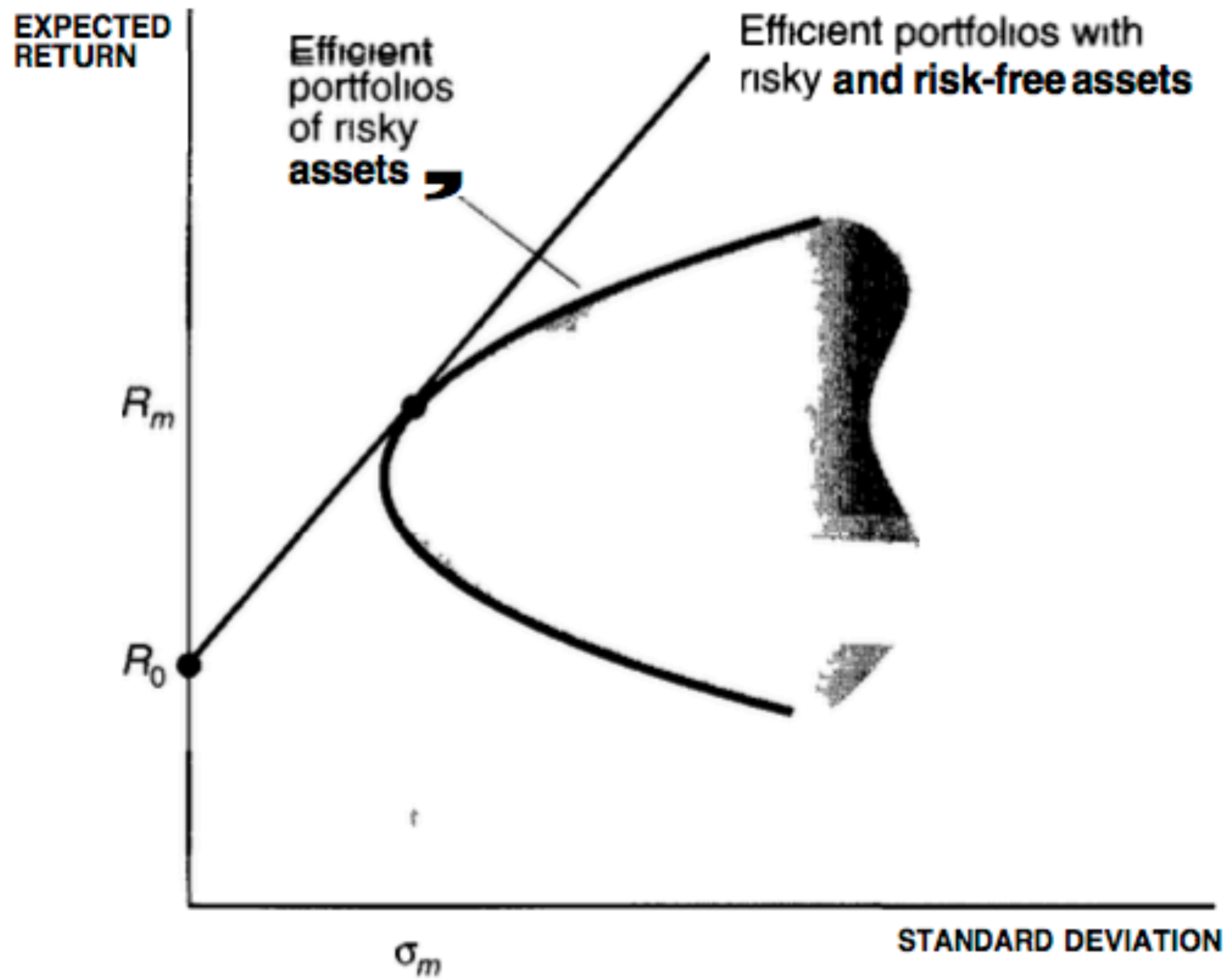
Capital asset pricing model

$$\tilde{C} = (W - c)\sum_{a=0}^{A} x_a \tilde{R}_a = (W - c)\left[x_0 R_0 + \sum_{a=1}^{A} x_a \tilde{R}_a\right]$$

Capital asset pricing model

$$\tilde{C} = (W - c)\left[R_0 + \sum_{a=1}^{A} x_a(\tilde{R}_a - R_0)\right]$$

Capital asset pricing model



EXPECTED RETURN
Efficient portfolios of risky assets
Efficient portfolios with risky and risk-free assets
R_m
R_0
σ_m
STANDARD DEVIATION

Arbitrage pricing theory

What is arbitrage pricing theory

$$E(R_i) = \lambda_0 + \lambda_1 b_{i1} + \lambda_2 b_{i2} + \ldots + \lambda_k b_{ik}$$

where:

λ_0 = the expected return on an asset with zero systematic risk where

λ_1 = the risk premium related to the common *j*th factor

b_{ij} = the pricing relationship between the risk premium and asset - that is how responsive asset *i* is to *j*th common factor

What is arbitrage pricing theory

Expected return = r(f) + b(1) x rp(1) + b(2) x rp(2) + ... + b(n) x rp(n)

Pure Arbitrage

- A pure (or risk-free) arbitrage opportunity exists when an investor can construct a zero-investment portfolio that yields a sure profit.
- Zero-investment means that the investor does not have to use any of his or her own money.