

Flashcards for SOA Exam IFM

1st Edition, Second Printing

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Table 2: Rating system

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Essential—appears repeatedly on every exam

Important—appears on every exam

Average importance—regularly appears on exams

Not so important—appears occasionally on exams, or

easy to derive as needed

Obscure—on syllabus, but unlikely to appear on exam. Sometimes this indicates a formula not covered by all the reading options. No released exam uses this formula or concept, and students have never reported a question from an unreleased exam requiring this formula or concept.



NPV in terms of free cash flows

Project Analysis



$$NPV = \sum_{n=0}^{\infty} \frac{FCF_n}{(1+r)^n}$$

where

 FCF_n is free cash flow at time n r is the cost of capital



NPV at interest rate i if cash flows are 1 in the first year and grow at rate g perpetually.

Project Analysis

$$NPV = \frac{1}{i - g}$$



Downside semi-variance

Project Analysis

$$\sigma_{SV}^2 = \mathbf{E}\big[\min\big(0, (R-\mu)\big)^2\big]$$

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Formula to estimate downside semi-variance from a sample

Project Analysis



$$\hat{\sigma}_{SV}^2 = \frac{1}{n} \sum_{i=1}^n \min(0, (R_i - \bar{R}))^2$$



T – t forward price at time t of nondividend paying stock



$$F_{t,T}(S) = S_t e^{r(T-t)}$$



T – t forward price at time t of stock with discrete dividends



$$F_{t,T}(S) = S_t e^{r(T-t)} - \text{CumValue}(Dividends)$$



T-t forward price at time t of stock paying continuous dividends at rate δ



$$F_{t,T}(S) = S_t e^{(r-\delta)(T-t)}$$



T-t forward price at time t of currency, if domestic continuously compounded risk-free interest rate is r_d and foreign continuously compounded risk-free interest rate is r_f



$$F_{t,T}(x) = x_t e^{(r_d - r_f)(T - t)}$$



Forward premium



$$\frac{F_{0,T}}{S_0}$$



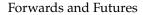
Annualized forward premium



$$\frac{1}{T}\ln\left(\frac{F_{0,T}}{S_0}\right)$$



Relation of forward price to expected future price of underlying risky asset





Forward price is less than the expected future price of risky asset.