a/s/m

*Actuarial Study Materials*

Learning Made Easier

# Flashcards for SOA Exam IFM

## 1st Edition, Second Printing

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**Table 2:** Rating system

| | |
|---|---|
| ★★★★★ | 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*

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

*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.*

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

★★★

*Downside semi-variance*

11F

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

★★★

*Formula to estimate downside semi-variance from a sample*

12F

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

★★★★★

*$T - t$ 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*

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

★★★★★

*$T - t$ forward price at time $t$ of stock paying continuous dividends at rate $\delta$*

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

★★★★

*$T - t$ 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.*