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Actuarial Study Materials

Learning Made Easier

Flashcards for SOA Exam MFE

4th Edition, Third Printing

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.

★★★★★

$T - t$ 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 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

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

★★★★★

General put-call parity equation (time 0 to time T) for European options

Put-Call Parity ★★★★★

$$C(K,T) - P(K,T) = e^{-rT}(F_{0,T} - K)$$

Lesson 6, page 65, formula (6.1) 37B

★★★

Put-call parity (time 0 to time T) for European options on stock paying discrete dividends

Put-Call Parity ★★★

$$C(S,K,T) - P(S,K,T) = S_0 - \mathrm{PV}_{0,T}(Dividends) - Ke^{-rT}$$

Lesson 6, page 66, formula (6.3) 38B

★★★★★

Put-call parity (time 0 to time T) for European options on a stock paying continuous dividends at rate δ

Put-Call Parity ★★★★★

$$C(S,K,T) - P(S,K,T) = S_0 e^{-\delta T} - Ke^{-rT}$$

Lesson 6, page 67, formula (6.4)

★

Equation for synthetic stock with continuous dividends

Put-Call Parity ★

$$S_0 = \left(C(K,T) - P(K,T) + Ke^{-rT}\right)e^{\delta T}$$

Lesson 6, page 67, formula (6.5) 40B

★★

Equation for synthetic stock with discrete dividends

Put-Call Parity ★★

$$S_0 = C(K,T) - P(K,T) + \text{PV}(dividends) + Ke^{-rT}$$

Lesson 6, page 68, formula (6.6) 41B

★

Equation for synthetic Treasury bill maturing for K, continuous dividends

★

$$Ke^{-rT} = S_0 e^{-\delta T} - C(S, K, T) + P(S, K, T)$$

★★

Equation for synthetic Treasury bill maturing for $K + \text{CumValue}(\textit{dividends})$*, discrete dividends*

Put-Call Parity ★★

$$Ke^{-rT} + \text{PV}(dividends) = S_0 - C(K,T) + P(K,T)$$

Lesson 6, page 68, formula (6.8) 43B