Subject CT8

Corrections to 2014 study material

Comment

This document contains details of any errors and ambiguities in the Subject CT8 study materials for the 2014 exams that have been brought to our attention. We will incorporate these changes in the study material each year. We are always happy to receive feedback from students, particularly details concerning any errors, contradictions or unclear statements in the courses, If you have any such comments on this course please email them to CT8@bpp.com.

You may also find it useful to refer to the Subject CT8 Frequently Asked Questions thread on the Actuarial Discussion Forum (you can reach the forums by clicking on the "Discussion Forum" button at the top of ActEd's Home page). This contains useful questions asked by students studying CT8, with answers written by ActEd's tutors.

Important note

This document was produced on 17 March 2014. The dates on which any subsequent corrections have been added are noted below.

Course Notes

Chapter 13, page 24

There is a typo in the section, "Step 2: Starting at State (1,2)", where State (1,**1**) is incorrectly referred to. This sentence should read:

Starting from State (1,**2**), the possible derivative payoffs at time 2 are $c_2(1) = 0$ and $c_2(2) = 0$.

X Assignments

Solution X1.7 (i)

Half way through the solution, a percentage sign is missing from the value for $E[AB]$. *The solution should read:*

Using the data given:

$$E[A] = 6.0\% \qquad E[B] = 6.1\% \qquad E[AB] = 19\%\%$$

Solution X1.6 (i)(a)

This solution is missing a ½ mark for the fact that $B_0 = 0$. *The solution should read:*

(i)(a) ***Definition of standard Brownian motion***

Standard Brownian motion is a continuous-time stochastic process with state space $\mathbf{R}$. [½]

It has:

- independent increments [½]
- stationary increments [½]
- Gaussian increments [½]
- continuous sample paths [½]
- $B_0 = 0$ [½]

The distribution of the increments $B_t - B_s$ $(0 \le s < t)$ is given by:

$$B_t - B_s \sim N(0, t-s) \qquad [½]$$

[Maximum 3]

Revision Booklet 4

Past exam question 27: Subject CT8, April 2010, Question 3

On the binomial tree diagram in part (iii), the average share price in the third node at maturity should be 92 (and not 60). This error does not affect the option payoff, nor the value of the special call option. (Added 21 July 2014)

Revision Booklet 6

Past exam question 10: Subject CT8, September 2006, Question 4

There is an error in the final paragraph of the solution to part (ii) of this question. The solution should refer to modelling inflation as a "white noise" process, rather than a "random walk" process. The paragraph should therefore read:

So, the standard deviations in the two runs would be expected to be the same only if inflation rates are modelled as being statistically independent of each other in different years, ie if they are modelled as a *white noise* process.

ASET

Subject CT8, April 2010, Solution 3(iii)

On the binomial tree diagram on page 11, the average share price in the third node at maturity should be 92 (and not 60). This error does not affect the option payoff, nor the value of the special call option. (Added 21 July 2014)

Subject CT8, September 2013, Solution 6(i)

Half way down page 24, the value of $1-q_d$ *should be 0.41 and NOT 0.31. This solution should read:*

The risk-neutral probabilities of the up and down movements are given by:

$$q = \frac{S(1+i) - S_{down}}{S_{up} - S_{down}} = \frac{306 - 270}{330 - 270} = \frac{36}{60} = 0.6, \quad 1 - q = 0.4$$

$$q_u = \frac{S(1+i) - S_{down}}{S_{up} - S_{down}} = \frac{330 \times 1.02 - 300}{360 - 300} = \frac{36.6}{60} = 0.61, \quad 1 - q_u = 0.39$$

$$q_d = \frac{S(1+i) - S_{down}}{S_{up} - S_{down}} = \frac{270 \times 1.02 - 240}{300 - 240} = \frac{35.4}{60} = 0.59, \quad 1 - q_d = 0.41$$