

Updates and Errata for ACTEX Study Manual
Exam FM/2, Fall 2009 Edition
October 9, 2009

Page M1-10, sentence above the formula (1.16)

Replace "the discount d " with "the rate of discount d ".

Page M1-17

Delete the second sentence "The next few lines give a derivation.."

Page M6-5, Example (6.4)

Fourth line from the bottom, replace "reinvest the accumulation at the one year forward rate $i_{2,3}$." with "reinvest the accumulation at the two year forward rate $i_{2,3}$."

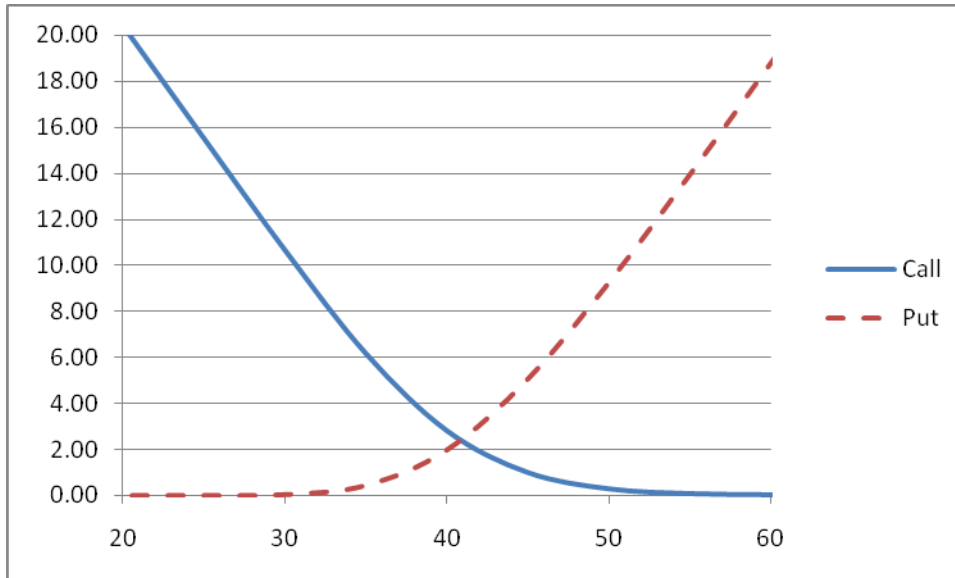
Page M7-7

Delete the final line "It can be shown that.."

Module 10: Additional Discussion of Collars

A purchased collar is created when you purchase a put at strike price K_1 and write a call at strike price $K_2 \geq K_1$. You can create a zero-cost purchased collar if you can find a higher strike call that has the same price as lower strike put.

We can say a bit more about the possible strike prices which can be used to create a zero-cost collar. Recall that the value of a call is a decreasing function of exercise price and the value of a put is an increasing function of exercise price. Below is a graph of the put and call option values as a function of exercise price for options on a stock with current value of 40. The put and the call have the same maturity.



Note that the call and put curves intersect when the exercise price equals the forward price. This was noted in section 10.3 in equation 10.10. Thus you clearly have a zero-cost collar if you buy a put and write a call at the forward price.

For any collar where the forward price does not equal the strike price, the graph shows clearly that the lower strike put must have a strike lower than the forward price and the higher strike call must have a strike higher than the strike price. To write a collar you must have either

$$K_1 < F_{0,T} < K_2 \text{ or } K_1 = F_{0,T} = K_2 .$$

This will help with the solution of question 1 of the EXAM FM sample questions FM-09-07. That problem was:

Which statement about zero-cost purchased collars is FALSE?

- A. A zero-width, zero-cost collar can be created by setting both the put and call strike prices at the forward price.
- B. There are an infinite number of zero-coast collars.
- C. The put option can be at-the-money.
- D. The call option can be at-the-money.
- E. The strike price on the put option must be at or below the forward price.

Recall that the option is at-the-money if the strike price equals the asset value, i.e. $K = S_0$. For an at-the-money option we have $K = S_0 < e^{rT} S_0 = F_{0,T}$. Thus D is false. The remaining choices are true, as can be seen from the discussion on the preceding page.

Page M14-5

Fifth line under **The Market Value of a Swap** header, replace "buy oil for 20.43809" with "buy oil for 20.48309".

Page M14-10

Delete the second paragraph under the swap curve header –starting with the words “It is worth looking” and through the displayed inequality which is incorrect. Leave in the final paragraph but delete the words “Not surprisingly,” which begin the second sentence of the final paragraph.

Page PE4-4: Problem 21.

In choice E, change the word “profit” to “payoff”.

Page PE6-13, Question number 15

Replace $P = 200a_{\overline{5}|0.05} + v_{0.05}^5 200a_{\overline{5}|0.06} + v_{0.05}^5 v_{0.06}^8 5000 = 4296.9726$

with $P = 200a_{\overline{5}|0.05} + v_{0.05}^5 200a_{\overline{8}|0.06} + v_{0.05}^5 v_{0.06}^8 5000 = 4296.9726$

Page PE8-4, problem 12.

Change choices C and D to

C) Sell the put and buy the call at a cost of 16.

D) Sell the put and buy the call at a cost of 15.53

Page PE8-9, problem #30

Replace "extra 1000 with the 5th and 8th payment." with "extra 1000 with the 5th and 10th payment."

Replace "interest portion of the 9th payment?" with "interest portion of the 11th payment?"