Updates and Errata for ACTEX Study Manual
for SOA Exam FM, Spring 2017 Edition
July 13, 2017

The first 6 items listed below apply to both the original printing and the second printing of the Spring 2017 Edition of the manual. The remaining items (beginning on the second page) apply only to the original printing; they have been corrected in the second printing.

Page M6-6, Exercise 6.3:

The last line should read: "Answers: Price = 988.31 Yield to maturity = 3.6184%"
Note: The incorrect answers that appear in the manual are for a 4-year bond.

Page M6-10, Example 6.6:

The paragraph labeled "Two-year forward rate" should read as follows:
"Two-year forward rate: We are given $s_2 = 0.03$ and $s_3 = 0.0365$. Two ways to find the accumulation factor for a three-year investment are:

a) Invest for the entire 3 years at the 3-year spot rate $s_3 = 0.0365$. The accumulation factor is $a(3) = 1.0365^3 = 1.1135$."

The final formula should be:

$$1.03^2(1+i_{2,3}) = 1.0365^3 \rightarrow (1+i_{2,3}) = \frac{1.0365^3}{1.03^2} = 1.0496 \rightarrow i_{2,3} = 0.0496$$

Page MT2-3, Problem 11., 2nd paragraph, 2nd line:

Replace "8 annual payments" with "5 annual payments"

Page M9-31, Problem 1.:

Replace "3-year interest rate swap" with "5-year interest rate swap."

Page PE2-6, Problem 25., last sentence should read:

If its current price is 975, what is the quoted rate for this T-bill?

Page PE8-6, Problem 24., second line:

Replace "1-year-deferred, 2-year interest rate swap"
with "3-year interest rate swap"

The following items apply to the original printing of the Spring 2017 Edition of the manual, but have been corrected in the second printing.

Page M1-48, Problem 7., last line:

Replace "$d(4)$" with "$\delta(4)$"

Page M1-65, Solution to Problem 1., 4th line:

Replace "$(1 - 0.05/4)^{-4} = 1.05160 - 1 + i$" with "$(1 - 0.05/4)^{-4} = 1.05160 = 1 + i$"

Page M2-14, Example 2.31, last 2 lines should read:

FV = 20,000, and CPT PMT = –712.91
The level payment is 712.91.

Page M2-15, first 2 paragraphs should read:

The problem of Example (2.31) could also have been solved with the calculator in END mode. In that case, you would enter the same values:

N = 12, I/Y = 4.5, PV = –5,000, FV = 20,000, and CPT PMT = –744.99

744.99 is the amount you would need to deposit at the *end* of each year. Since this problem involves deposits made one year earlier (at the beginning of each year), the deposits should be smaller by a factor of $1/(1+i)$:

$$\frac{744.99}{1.045} = 712.91$$

Page M2-15, Exercise 2.32, the answer shown is incorrect:

Replace "708.43" with "668.33"

Page M2-34, Exercise 2.82, the answer shown is incorrect:

Replace "2,286.96" with "2,113.35"

Page M2-52, equations at bottom of page, the first line should read:

$$\left(\overline{I}\overline{a}\right)_{\overline{n}|} = \int_{t=0}^{n} t \cdot v^t \cdot dt = \left[\frac{t \cdot v^t}{-\delta} + \frac{v^t}{-\delta^2}\right]\Bigg|_{t=0}^{n}$$

Page M5-14, Example 5.21, 2nd line of 4th paragraph:

Replace "I=15" with "I=10"

Page M5-14, Exercise 5.22, Answers:

Replace "NPV(B)=5,646.33" with "NPV(B)=5,646.53"

Page M6-11, Exercise 6.9, Answer:

Replace "0.0551" with "0.05546"

Page M6-20, Problem 5., 2nd paragraph, 2nd line:

Replace "$j_n = i_{1,n}$" with "$j_n = i_{1,n+1}$"

Page M7-12, Example (7.21) and Exercise (7.22) should read as follows:

Example (7.21)

An annual-coupon par bond has a face value of 1,000, a coupon rate of 5%, and 3 years to maturity. Because it is a par bond, its yield equals the coupon rate, so we have:

$$D_{\text{mac}} = \frac{50(Ia)_{\overline{3}|0.05} + 3(1{,}000)v^3}{50(a_{\overline{3}|0.05}) + (1{,}000)v^3} = \frac{50(5.35795) + 3{,}000(.863838)}{50(2.72325) + 1{,}000(.863838)} = 2.8594 = \ddot{a}_{\overline{3}|0.05}$$

Exercise (7.22)

An annual-coupon par bond has a face value of 1,000, a coupon rate of 6%, and 5 years to maturity. Find D_{mac} using **Formula (7.20)**, and confirm that it equals $\ddot{a}_{\overline{5}|6\%}$.

Answer: 4.47

Page M7-32, Inequality near bottom of page:

Replace "$PV^A(i_0) > PV^L(i)$" with "$PV^A(i) > PV^L(i)$"

Page M7-47, Equation in 3rd paragraph:

Replace "D = 0.2638(3) + 0.7362(4) = 3.7362"
with "D_{mac} = 0.2638(3) + 0.7362(4) = 3.7362"

Page M9-12, Exercise (9.5), the question should read:

In Example **(9.3)**, if the 1-year spot rate at time 2 is 7.4%, what payments will be made or received at time 3 by XYZ, by Contra, and by the lender?

Page M9-20, Example (9.14), the last sentence of the large paragraph should read:

What is the fixed interest rate that WXY will pay to the counterparty in return for receiving payments at times 2 through 5 based on the 1-year spot rates in effect at the beginning of the 2nd through 5th years?

Page M9-21, last formula on the page:

Replace $R \cdot a_{\overline{n}|} + v^n_{s_n} = 1$ with $R \cdot a_{\overline{n}|} + v^n = 1$.

Page M9-37, last paragraph, next-to-last line:

Replace *4.5% 4% + 3% = 3.5%* with *4.5% - 4% + 3% = 3.5%*.

Page PE5-8, Problem 33., last sentence should read:

Calculate the present value of the perpetuity at a 3.4% annual effective interest rate.

Page PE6-17, the last 3 paragraphs should read:

The last payment includes this outstanding balance plus interest for one period. So the last payment is $564.89(1+i) = 567.19$.

In total, there are 99 payments of 1,060.11, then 158 payments of 1,460.11, and a final payment of 567.19. The total amount paid is 336,215.56, and the amount of interest paid is 336,215.56 – 200,000 = 136,215.56.

This problem can also be solved entirely on the BA II Plus:
N=360, I/Y=0.004074, PV=200,000, and FV=0. CPT PMT = -1,060.11.
N=261 (no. of pmts. remaining after 99 pmts.) CPT PV = 170,162.81.
PMT=-1,460.11, CPT N = 158.3880.
N=158, CPT FV = -564.98.
$564.89 \times 1.004074 + 158 \times 1,460.11 + 99 \times 1,060.11 = 336,215.56$
$336,215.56 - 200,000 = 136,215.56$

Page PE7-7, Problem 23., last sentence should read:

If the present value is 40, calculate *X*.

Page PE11-18, Problem 19., 5th line of formulas should read:

$$100c \cdot \left[(1+s_1)^{-1} + (1+s_2)^{-2} + (1+s_3)^{-3} + (1+s_4)^{-4} \right] + 100 \cdot (1+s_4)^{-4} = 100$$