**Updates and Errata for ACTEX Study Manual**
**for SOA Exam FM, Spring 2017 Edition**
**June 6, 2017**

Note: Only the last 3 items below apply to the Second Printing of the Spring 2017 Edition of the manual. (All of the items in this list apply to the original 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:**

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

**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. Its yield equals the coupon rate, so we have:

$$D_{\text{mac}} = \frac{50(Ia)_{\overline{3}|0.05} + 3(1{,}000)v^3}{50(a_{\overline{3}|0.05}) + (1{,}000)v^3} = \frac{50(5.35795) + 3{,}000(.86384)}{50(2.72325) + 1{,}000(.86384)} = 2.86 = \ddot{a}_{\overline{3}|0.05}$$

**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 $D_{\text{mac}}$ 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 "$D_{\text{mac}}$ = 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:**

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

The following items apply to the Second Printing of the Spring 2017 Edition of the manual (and also to the original printing):

**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 PE8-6, Problem 24., last sentence should read:**

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