

## Errata and Updates for ASM Exam IFM (First Edition Third Printing) Sorted by Date

[11/12/2018] On page 492, in exercise 31.3, change the five choices to (only (B), (D), and (E) are changed):

- (A)  $\int_0^{10} (C(S, 55000, t) + 55,000(1 - e^{-rt}))f(t) dt + F(10)C(S, 50000, 10)$   
 (B)  $\int_0^{10} (C(S, 50000, t) + 50,000(e^{-rt} - 1))f(t) dt + F(10)(C(S, 55000, 10) + 55000e^{-10r} - 50000)$   
 (C)  $\int_0^{10} (C(S, 50000, t) + 50,000(e^{-rt} - 1))f(t) dt + (1 - F(10))(C(S, 55000, 10) + 55000e^{-10r} - 50000)$   
 (D)  $\int_0^{10} (C(S, 50000, t) + 50,000(1 - e^{-rt}))f(t) dt + (1 - F(10))C(S, 55000, 10)$   
 (E)  $\int_0^{10} (C(S, 55000, t) + 50,000(e^{-rt} - 1))f(t) dt + (1 - F(10))(C(S, 55000, 10) + 55,000e^{-10r} - 50000)$

[11/12/2018] On page 494, on the second line from the end of the solution to exercise 31.3, change 55000 to 50000.

[11/6/2018] On page 65, on the eighth line, replace  $f(a, b, \lambda)$  with  $h(a, b, \lambda)$ .

[11/6/2018] On page 107, the second paragraph discusses NPV, but NPV is not relevant to Modigliani-Miller. Replace the second paragraph with the following two paragraphs:

What is the best combination of debt and equity to finance a project? Which combination maximizes the value of the company's securities? Usually, the cost of debt capital is less than the cost of equity capital. Suppose a company has only one project. The project generates 1.5 million of cash flows per year perpetually. If the cost of equity capital is 15%, then the present value of future cash flows is  $1.5/0.15$  million = 10 million. That is the market value of the company's equity.

Now assume the company issues 5 million of bonds to fund the project. The cost of debt capital is 5%, so the company pays annual interest of  $0.05(5,000,000) = 250,000$ . The annual net cash flows after interest will be  $1,500,000 - 250,000 = 1,250,000$ . The present value of future cash flows is  $1.25/0.15$  million =  $8\frac{1}{3}$  million. Thus the total value of the company's equity and debt, its enterprise value, is now  $8\frac{1}{3}$  million + 5 million =  $13\frac{1}{3}$  million. Seemingly the total value of the company's securities has increased as a result of issuing bonds. However, this assumes that the cost of equity capital is still 15% after the bonds are issued. This assumption is not correct.

[11/6/2018] On the second line of the third paragraph of page 107, change "value of a project" to "value of a company's securities".

[11/6/2018] On page 110, in the box before exercise 9.3, on the second-to-last line, change "the cost of capital is 0.10" to "the cost of equity capital is 0.10".

[11/6/2018] On page 479, in Example 30B, on the third line, change "at that time" to "at the current time".

[11/3/2018] On page 333, in Table 24.2, in the formula for call premium on futures, replace the two  $t$ s with  $T$ s.

[10/28/2018] On page 607, in the solution to question 13, on the second displayed line, change 0.66589 to 0.42858.

[10/25/2018] On page 165, in exercise 15.8, change the last line to

Determine the lowest price per unit such that the futures contract does not require a margin call.

[10/21/2018] On pages 63–64, Example 5G is defective since the correlation of a stock with the portfolio changes as a stock gets added to it. When solved correctly, it is found that there is no real solution to the question.

Replace the example and its solution with:

**EXAMPLE 0A** A portfolio consists of \$4000 of Stock A and \$6000 of Stock B. The returns on the two stocks are uncorrelated. The volatility of Stock A is 0.3 and the volatility of Stock B is 0.4

Calculate the contribution of Stock A to the volatility of the portfolio.

**SOLUTION:** Let  $A$  and  $B$  be the returns on Stocks A and B respectively. The variance of the portfolio is

$$\text{Var}(0.4A + 0.6B) = 0.4^2 \text{Var}(A) + 0.6^2 \text{Var}(B) = 0.4^2(0.3^2) + 0.6^2(0.4^2) = 0.072$$

The covariance of Stock A with the portfolio is

$$\text{Cov}(A, 0.4A + 0.6B) = 0.4 \text{Var}(A) = 0.4(0.3^2) = 0.036$$

The correlation of Stock A with the portfolio is  $0.036 / (0.3\sqrt{0.072}) = 0.447214$ . The contribution of Stock A to the volatility of the portfolio is  $0.4(0.447214)(0.3) = \boxed{0.053666}$ . □

[10/19/2018] On page 487, on the second line of the paragraph containing the displayed line  $\int_0^{\infty} P(t)f_{T_x}(t)dt$ , change  $\max(0, K - S_T)$  to  $S_T + \max(0, K - S_T)$ , and change “So it is” to “So it contains”.