

Errata and updates for ASM Exam MFE/3F (Seventh Edition) sorted by date

Note: practice exam 4 question 7 is defective. Change it as indicated in the erratum for page 503.

[3/3/2010] On page 346, in the solution to exercise 15.23, on the top line of the table, 3rd column, change Z to Z_i . Also, on the first line under the heading of the third column, change 0.2667 to 0.0267. However, the table does not use the SOA rounding rules to compute the second column. The following table uses the rounding rules:

u_i	Z_i	$n_i = (0.10)(2) + (0.2\sqrt{2})Z_i$	e^{n_i}
0.27	-0.61	"0.0275	1.0278
0.73	"0.61	"0.3725	1.4514
0.83	"0.95	"0.4687	1.5979
0.17	-0.95	-0.0687	0.9336
0.15	-1.04	-0.0942	0.9101
0.85	"1.04	"0.4942	1.6391

The final answer is then 1.26001 instead of 1.26007.

[2/26/2010] On page 503, change the last line of question 7 to "Calculate $\alpha(2, 4)$."

[2/26/2010] On page 603, change the last 3 lines of the solution to question 7 to

$$dY(t) = (1.5X^3 + 2X^2 + 12X + 8 + 4)dt + \sigma(t, X(t))dZ$$

So setting $t = 2$, $X(t) = 4$.

$$\alpha(2, 4) = 1.5(4^3) + 2(4^2) + 12(4) + 12 = \boxed{188} \quad (\mathbf{A})$$

[2/25/2010] On page 439, three lines above Example 20A, the sign of N is incorrect. Replace the phrase starting with is $-N$ through the parenthetical sentence with

is $N = -t_1P(0, t_1)/t_2P(0, t_2)$. (In other words, N is the number of bonds to buy; it is negative, so you should sell bonds.)

[2/15/2010] On page 132, in Table 7.1, four lines from the bottom, change $-m$ to $+m$.

[2/12/2010] On page 696, in the solution to question 25, on the second line, change $e^{-0.05}$ to $e^{-0.05/4}$.

[2/12/2010] On page 697, in the solution to question 28, on the second displayed line, change 6.98 to 8.74.

[2/11/2010] On page 334, in exercise 15.5, add the words "nondividend paying" before "stock" on the first line.

[2/11/2010] On page 350, on the first line of Quiz 16-1, add at the end of the first sentence "with time measured in days".

[2/5/2010] On page 299, on the 1st and 2nd lines of Section 14.3, interchange "call" and "put": "... you may give (for a put option) or receive (for a call option)...".

[1/29/2010] On page 138, 2 lines above Example 7C, change S to S_0 .

[1/23/2010] On page 203, although the solution given to exercise 10.19 is mechanically correct, the information given is impossible, since delta for a put option should decrease, not increase, as an option is more in-the-money.

- [1/6/2010] On page 74, on the line below the table, change “ending call” to “ending put”.
- [12/30/2009] On page 349, last line of page, note that $X(t)$ has a scaled and shifted binomial distribution. $0.5(X(t)+t)$ is binomial with the indicated parameters.
- [12/30/2009] On page 352, change “in” to “is” on the 2nd line and $X(t)$ to $X(t)/X(0)$ on the 6th line.
- [12/30/2009] On page 353, 7 lines from the bottom, change α to μ .
- [12/30/2009] On page 356, 3 lines from the bottom, $C(50, 40, 1)$ should be $C(40, 50, 1)$.
- [12/30/2009] On page 371, in Table 17.1, 3 lines from the end, change “an” to “and”.
- [12/30/2009] On page 378, on the 2nd displayed line of the answer to Example 17L, change the third expression $0.15 + 0.3 - 0.060.25$ to $\frac{0.15 + 0.03 - 0.06}{0.25}$.
- [12/30/2009] On page 396, in the solution to exercise 17.8, on the second line of (iii), in the last expression, delete d in the numerator.
- [12/30/2009] On page 401, the solution to exercise 17.26 is incorrect. The correct solution is

The Sharpe ratio is $(0.18 - 0.04)/0.25 = 0.56$. Then $d\tilde{Z}(t) = 0.56 + dZ(t)$, so it's an arithmetic Brownian motion with drift 0.56 and volatility 1. The mean of the $\tilde{Z}(2)$ is $2(0.56) = 1.12$ and the variance is 2, so

$$\Pr(\tilde{Z}(2) > 0) = 1 - N\left(\frac{-1.12}{\sqrt{2}}\right) = N(0.79) = \boxed{0.7852}$$

- [12/30/2009] On page 402, in the solution to exercise 17.28, add “dt” after the first ϕ .
- [12/30/2009] On page 412, 2 lines above Quiz 18-4, add “for” between “nodes” and “one”.
- [12/30/2009] On page 441, on the first line of the fourth paragraph, add “to” between “leads” and “an”.
- [12/30/2009] On page 442, on the line after the 4th displayed equation, a slash is missing: $P_r(t, t, T) = -q(r, t, T)P(r, t, T)/\sigma(r)$.
- [12/28/2009] On page 415, in Quiz 18-5, change 3-year to 4-year.
- [12/28/2009] On page 429, in the solution to Quiz 18-5, change “2-year” to “3-year” twice (first line, second line).
- [12/25/2009] On page 447, on the third line of Quiz 20-3, the interest rate risk premium is -0.05 (not 0.05). In general, the interest rate process has a negative risk premium.
- [12/18/2009] On page 398, the solution to exercise 17.14 is incorrect. The correct solution is

Let's back out r and σ from (i), (ii) and (iii). The logarithm of $S(1)/S(0)$ has a normal distribution with parameters $m = r - \delta - 0.5\sigma^2$ and $v = \sigma$. The 50th percentile of a standard normal is 0 and the 80th percentile is 0.842.

From (ii):

$$m = \ln \frac{59.40}{60} = -0.010$$

$$r - \delta - 0.5v^2 = -0.010$$

From (iii),

$$m + 0.842v = \ln \frac{90.50}{60} = 0.411005$$

$$\begin{aligned} v &= \frac{0.411005 - (-0.010)}{0.842} = 0.050 \\ r - \delta - 0.5(0.050^2) &= -0.010 \\ r - 0.06 - 0.125 &= -0.010 \\ r &= 0.175 \end{aligned}$$

We can now calculate α , the rate of return on the stock, from the Sharpe ratio.

$$\begin{aligned} \phi &= 0.3 = \frac{\alpha - 0.175}{0.5} \\ \alpha &= (0.3)(0.5) + 0.175 = 0.325 \end{aligned}$$

Then $\alpha - \delta = 0.265$, and the expected value of $S(2)$ is $60e^{2(\alpha - \delta)} = 60e^{0.53} = \boxed{101.94}$.

[12/15/2009] On page 332, in Table 15.1, replace the last line with

$$\beta = \frac{\text{Cov}(X, Y)}{\text{Var}(Y)} = \frac{\sum x_i y_i - n\bar{X}\bar{Y}}{\sum y_i^2 - n\bar{Y}^2}$$

[12/15/2009] On page 344, the solution to exercise 15.16 is incorrect. The correct solution is

First we calculate β . In Example 15H, we derived the following formula for β , with Y the control variate:

$$\beta = \frac{\sum x_i y_i - n\bar{X}\bar{Y}}{\sum y_i^2 - n\bar{Y}^2}$$

substituting our data, with x_i the simulated price of the put option and y_i the simulated price of the call option (the control variate),

$$\begin{aligned} \sum x_i &= 5.11 & \sum y_i &= 7.89 \\ \sum y_i^2 &= 26.3133 & \sum x_i y_i &= 2.873 \\ \beta &= \frac{2.873 - (5.11)(7.89)/5}{26.3133 - 7.89^2/5} = -0.374423 \\ X^* &= \frac{5.11}{5} - 0.374423 \left(3.85 - \frac{7.89}{5} \right) = \boxed{0.171} \end{aligned}$$

[12/14/2009] On page 119, on the sixth line of the “Lognormal tree” paragraph, change σh to $\sigma\sqrt{h}$.

[12/14/2009] On page 150, on the last line, replace “stock prices” with “stock returns”.

[12/14/2009] On page 182, on the second line (in Ke^{-rt}) and third line (in $Se^{-\delta t}$), change t to T .

[12/14/2009] On page 245, in exercise 12.11, on the third line, change “next” to “net”.

[12/14/2009] On page 250, in the solution to exercise 12.3, on the third line from the end, change “ x long” to “ $-x$ long”.

[12/14/2009] On page 253, in the solution to exercise 12.13, on the fifth line, change 46.60 to 44.60.

[12/14/2009] On page 253, in the solution to exercise 12.14, on the first line, put a period after 1.66.

[12/14/2009] On page 253, in the solution to exercise 12.18, on the second line, replace 0.09 with 0.0915.

[12/14/2009] On page 259, two lines below the second displayed equation, add the word “on” after “based”.

- [12/14/2009] On page 262, on the line after the first display, change $\ln S(0)$ to $3 \ln S(0)$.
- [12/14/2009] On page 270, on the last line of the page, change S_t to S_{t_1} .
- [12/14/2009] On page 282, in the solution to exercise 13.12, on the third and fourth lines (once apiece), remove the negative sign from -0.00865 .
- [12/14/2009] On page 289, on the fifth line of Section 14.1, change t to T .
- [12/14/2009] On page 289, in the paragraph numbered 3, on the second line, replace “is” with “when”.
- [12/14/2009] On page 294, on the 3rd line, add a period after “strike price”.
- [12/14/2009] On page 306, in exercise 14.8, delete “midrule” from the second line of the table and instead put a line under the first line of the table so that it looks like this:

Date	Price
Feb. 1	52
Feb. 2	66
Feb. 3	58
Feb. 4	47

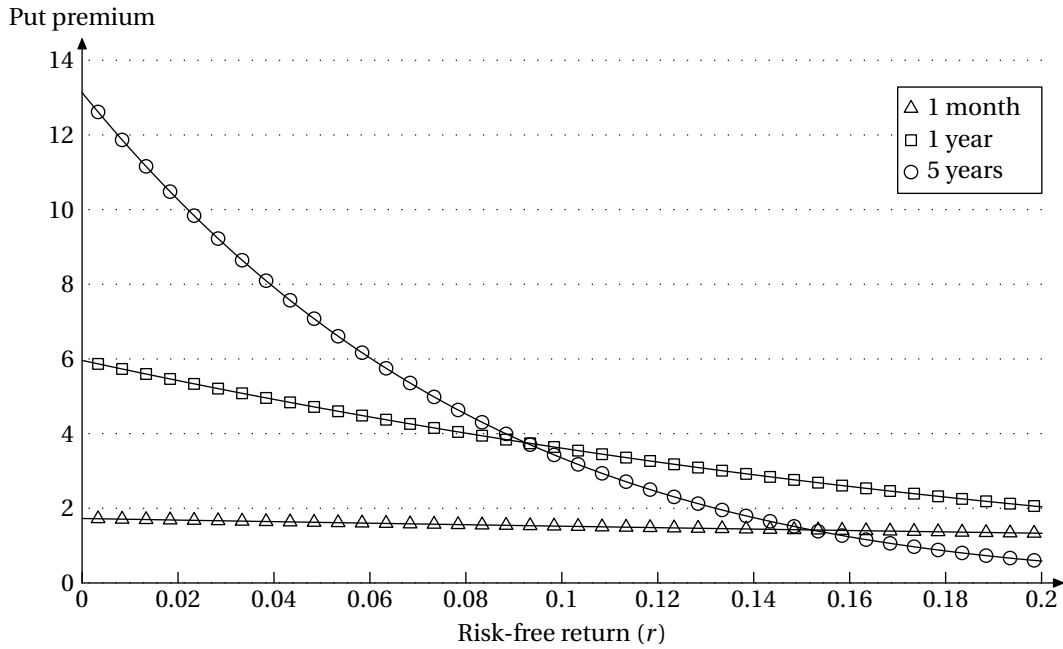
- [12/14/2009] On page 312, in the solution to exercise 14.1, replace the last line with

The price of the option is $e^{-0.03} (10(0.4801) + 20(0.9616)) = \boxed{23.323}$.

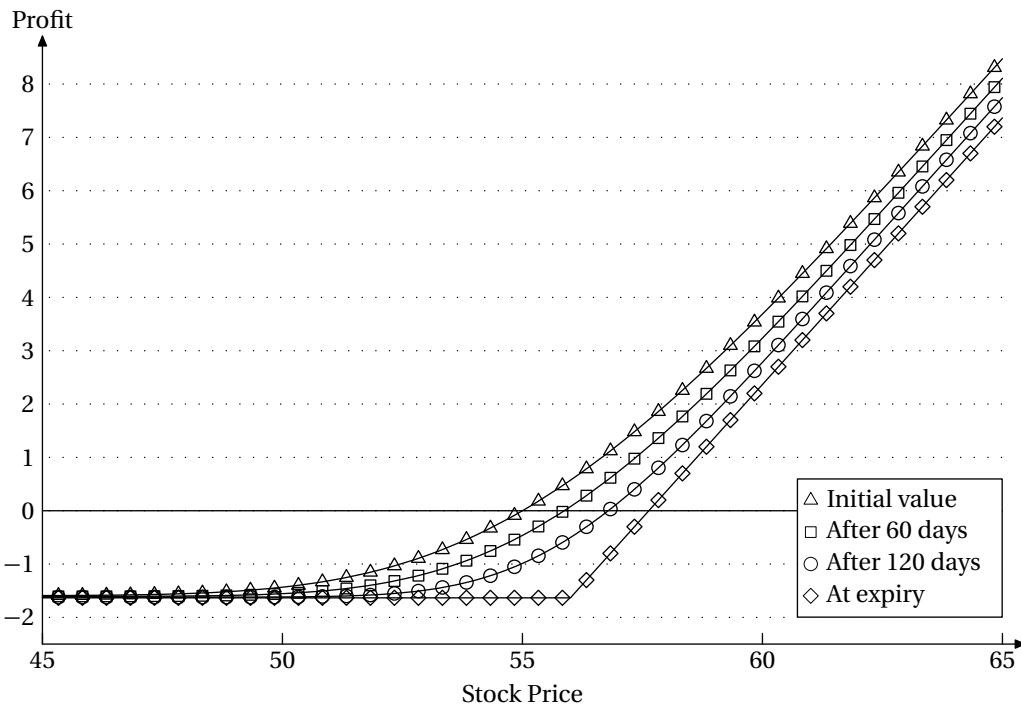
- [12/14/2009] On page 328, on the second line, replace “distribution” with “sample mean”.
- [12/14/2009] On page 338, in exercise 15.17(ii), delete the word “bar”.
- [12/14/2009] On page 339, in the solution to exercise 15.1, on the last line, change $\frac{1}{1}.2138$ to (1.2138) .
- [12/14/2009] On page 345, the solution to exercise 15.22 has several errors. The correct solution is

The lognormal parameters are $m = 0.05 - 0.5(0.3^2) = 0.005$ and $\nu = 0.3$. The first number 0.56 goes to the first stratum: $0.25(0.56) = 0.14$, and $N^{-1}(0.14) = -1.08$, so the resulting stock price is $50e^{0.005 - 1.08(0.3)} = 36.344$, and the option pays $40 - 36.344 = 3.656$. The second number 0.32 goes to the second stratum: $0.25 + 0.25(0.32) = 0.33$, and $N^{-1}(0.33) = -0.44$, so the resulting stock price is $50e^{0.005 - 0.44(0.3)} = 44.04$ and the option doesn't pay. Clearly the option doesn't pay for numbers in the third and fourth strata, for which $N^{-1}(x) > 0$, so the resulting put option price is $e^{-0.05}(3.656/4) = \boxed{0.869}$.

- [12/13/2009] On page 330, on the third line of the answer to Example 15H, delete the first left parenthesis in the numerator.
- [12/13/2009] On page 337, in exercise 15.16, on the last line, replace “call” with “put”.
- [12/13/2009] On page 394, in exercise 17.41, change dt to ds and $dZ(t)$ to $dZ(s)$.
- [12/10/2009] On page 138, in equation (7.6), d_2 should be $-d_2$.
- [12/5/2009] On page 189, in Figure 10.14, the vertical scale should be multiplied by 40. The correct figure is



[12/5/2009] On page 214, Figure 11.2 is incorrect. The correct figure is



[12/5/2009] On page 729, Table C.1 is not correct. A replacement page is at the end of these errata.

[11/22/2009] On page 10, in the second bullet, change “exercise” to “exercises”.

[11/22/2009] On page 24, in the solution to quiz 1-3, on the first displayed line, change e^{-rt} to e^{-rT} .

[11/22/2009] On pages 29-30, in all displayed equations, the last argument of P and C should be $T - t$ instead of T . This affects ten T 's, seven on page 29 and three on page 30.

[11/22/2009] On page 63, one line above "Solutions", change MFE/3F-3 to MFE/3F-S09:3.

[11/22/2009] On page 56, 3 lines from the end of the answer, change ds to dS .

[11/22/2009] On page 79, 3 lines above Example 4E, replace $e^{(r-\delta)h}$ with $Se^{(r-\delta)h}$.

[11/22/2009] On page 96, in the caption of Figure 4.11, change Binary to Binomial.

[11/22/2009] On page 96, in the solution to exercise 4.19, the fourth word should be "is".

Appendix C. Lessons Corresponding to Questions on Released and Practice Exams

Table C.1: Lessons Corresponding to Practice Exam Questions

Question Number	Practice Exam											
	1	2	3	4	5	6	7	8	9	10	11	12
1	2	1	6	2	2	5	1	1	1	1	1	2
2	1	3	17	7	6	17	17	2	15	15	6	12
3	13	10	12	17	17	13	12	1	14	14	9	17
4	9	17	8	12	13	10	16	20	17	17	12	10
5	18	16	14	9	18	12	4	16	20	17	8	20
6	16	12	1	17	12	17	16	7	13	20	18	15
7	12	9	20	17	1	17	12	18	12	1	4	4
8	9	18	16	13	14	16	17	16	12	10	7	4
9	8	14	16	15	12	14	10	13	4	19	16	13
10	1	15	9	13	20	20	13	5	10	4	1	14
11	17	17	18	1	5	19	13	4	18	16	20	17
12	6	17	7	17	14	10	9	14	17	5	17	17
13	12	15	12	10	1	1	6	17	16	14	9	17
14	7	10	19	16	3	9	1	17	13	3	13	1
15	20	17	1	1	16	4	17	12	17	5	17	1
16	10	7	17	12	15	3	9	9	15	17	10	6
17	14	1	13	13	7	17	18	8	9	20	15	10
18	17	20	16	20	17	7	2	10	7	9	17	9
19	4	8	4	4	14	9	20	7	17	4	10	18
20	11	13	5	5	4	6	15	4	1	7	3	7
21	7	3	3	20	19	20	1	3	2	12	17	15
22	15	6	15	18	17	8	4	17	5	17	12	20
23	17	20	5	3	9	15	3	9	5	7	13	16
24	3	5	10	15	8	18	7	15	9	13	4	6
25	10	13	1	10	12	9	10	19	19	10	15	13