

# 2023 CFA Program: Level II Errata

31 October 2023

If you find something in the curriculum that you think is in error, please submit full details via the form at <http://cfa.is/Errata>.

- The eBook for the 2023 curriculum is formatted for continuous flow, so the text will fit all screen sizes. Therefore, eBook page numbering—which is linked to section heads—does not match page numbering in the print curriculum.
- Corrections below are in bold, and new corrections will be shown in red; page numbers shown are for the print volumes.
- The short scale method of numeration is used in the CFA Program curriculum. A billion is  $10^9$  and a trillion is  $10^{12}$ . This is in contrast to the long scale method where a billion is 1 million squared and a trillion is 1 million cubed. The short scale method of numeration is the prevalent method internationally and in the finance industry.

## Glossary

### Volume 1

#### Basics of Multiple Regression and Underlying Assumptions (Quant LM1)

- In the first Knowledge Check in the lesson “The Basics of Multiple Regression,” the Solution to 1 (page 9) should read, “If the market excess return, SMB, and HML are each zero, then we expect a return on the portfolio of **1.5324%**.”

#### Evaluating Regression Model Fit and Interpreting Model Results (Quant LM2)

- In Exhibit 1, the coefficient of the intercept (page 28 of print) should be **-2.1876 (negative, not positive)**.
- In the Knowledge Check under Exhibit 3, the fourth sentence in the solution (page 31 of print) should read, “The lower adjusted R2 is consistent with the |t-statistic| for ADV’s coefficient  $< 1.0$  (i.e., **0.3320**) and the coefficient not being different from zero at typical significance levels (P-value = 0.7429).”
- In the lesson “Testing Joint Hypotheses for Coefficients,” the formula for a one-sided coefficient test, right side (page 34 of print), should read, “ $H_0: b_j \leq B_j$ ,  $H_a: b_j > B_j$ .”

#### Model Misspecification (Quant LM3)

- In Practice Problems 1-6 (pages 74 and 75 of print), the references to the exhibits should be Exhibits 1, 2, and 3, respectively, not Exhibits 15, 16, and 17.

#### Extensions of Multiple Regression (Quant LM4)

- [Updated:] In the Extensions of Multiple Regression section, please disregard the Cook’s  $D$  formula as a means to identify data points and the associated content/questions.
- In the Knowledge Check under Exhibit 13, Option C for Problem 3 (page 95 of print) should read, “For each increase in market share, **a regulated firm will have an increasingly lower ROA than an unregulated firm.**”

- In the Knowledge Check under Exhibit 14, the bullets under the table in the Solution to 2 (page 99 of print) should be replaced with the following: “A one-unit change in a variable with negative coefficient in a logistic regression would decrease the odds, and therefore probability of an event.”

### Time-Series Analysis (Quant LM5)

- In the third paragraph of the lesson “Trend Models and Testing for Correlated Errors” (page 124 of print), the first sentence should read, “In Example 1, estimating a linear trend in the monthly CPI inflation yielded a Durbin–Watson statistic of **1.2145**.” The fifth sentence in that same paragraph should read, “Because the value of the Durbin–Watson statistic (**1.2145**) is below this critical value, we can reject the hypothesis of no positive serial correlation in the errors.”
- In Practice Problem 11 (page 173 of print), the callout to the exhibit should read “Exhibit 1.” In Practice Problem 12 (page 174 of print), the callout to the exhibit should read “Exhibit 2” and the exhibit that follows should be labeled “Exhibit 2.”
- In Exhibit 1 in the information for Practice Problem 19-21 (page 176 of print), the 3Q 2019 Changes in Log of Sales should be **0.0403**.
- In Exhibit 1 in the information for Practice Problems 23 and 24 (page 177 of print), the Actual Value of Changes in the Log of Sales  $\Delta \ln(\text{Sales}_t)$  for 3Q 2019 should be **0.0403**.

### Machine Learning (Quant LM6)

- In Practice Problem 6 (page 270 of print), Option C should read, “Statements 1, 2, and 3.”
- In the Solution to Practice Problem 10 (page 273 of print), the first two sentences should read, “A is correct. It is the least accurate answer because neural networks with many hidden layers—at least **2**, but often more than 20 hidden layers—are known as deep learning nets.”

### Economic Growth (Economics LM2)

- In the “Theories of Growth” lesson, under Neoclassical Model, under Balanced or Steady-State Rate of Growth (page 499 of print), the first equation should read:

$$y = Y/L = Ak^\alpha$$

- In Example 15, the first sentence in the fourth paragraph in the Solution to 1 (page 523 of print) should read, “The growth rate in total factor productivity (Exhibit 19) is calculated by using a geometric average of the growth rates for **2006–2015** and is equal to **-0.85%**.” The calculation in the next paragraph should read:

$$\begin{aligned} \text{Growth in potential GDP} &= \alpha \Delta K/K + (1 - \alpha) \Delta L/L + \Delta A/A \\ &= (0.413)0.04 + (0.587)(-0.0127) + (-0.0085) \end{aligned}$$

The last line of this solution should read, “TFP = **-0.85%**.”

- In Example 15, the second-to-last sentence before Exhibit 21 in the Solution to 3 (page 524 of print) should read, “In contrast to capital deepening, TFP made a negative contribution to growth; the average rate of growth for TFP from 2006 to 2015 was **-0.85%**.”

- In Example 15, the second calculation in the Solution to 4 (page 525 of print) should read:

$$\text{Steady-state growth rate} = -0.85\% / (1 - 0.413) + (-1.27\%) = -2.7\%$$

## Volume 2

### Intercorporate Investments (FSA LM1)

- In the lesson “Amortization of Excess Purchase Price, Fair Value Option, and Impairment,” the second-to-last paragraph of the lesson (page 19 of print) should read, “US GAAP prohibits the reversal of impairment losses even if the fair value later increases. However, IFRS permits the reversal of a previous impairment loss, in line with IAS 36, to the extent that the recoverable amount of the net investment subsequently increases. ~~Both IFRS and US GAAP prohibit the reversal of impairment losses even if the fair value later increases.~~”
- In Example 9 (page 29 of print), the first sentence should read, “Exhibit 16 (see the Example8 sheet in the downloadable Microsoft Excel workbook) shows revenues, COGS, and year-end working capital account balances for YY Ltd., a fictional company, for years 1–3.”
- In Example 10, in the text after Question 2 (page 32 of print), the first sentence in the paragraph above Exhibit 18 should read, “Exhibit 18 shows financial data for YY Ltd. related to its capital structure and profitability.”
- In the Information for Practice Questions 23-29 (page 53 of print), the title of Exhibit 2 should be, “Selected Financial Data for Rainer Co., 1 January 2016 (Acquisition Date) (\$ millions).” In the first paragraph after Exhibit 2, the first sentence should read, “Thronen notes that, for fiscal year 2016, Rainer reported total revenue of \$1,740 million and net income of \$360 million, and paid dividends of \$220 million.”

### Employee Compensation: Post-Employment and Share-Based (FSA LM2)

- In the information for Practice Problems 21-25 (page 109 of print), there should be a note under Exhibit 2 that reads, “**All transactions (including plan amendments) are assumed to occur at year-end.**” In Practice Problem 22, Option B should be **530**.
- **In Practice Problem 23 (page 110 of print), Option A should be 20.**
- The last two sentences in the solution to Practice Problem 22 (page 117 of print) should read, “Here, the service costs are 320 (= 200 + 120) and the net interest expense is **210** [= (42,000 – 39,000) × 7%]. Thus, the amount of periodic pension cost **that would be reported in P&L under IFRS** is equal to **530**.”
- **[Updated:] The last two sentences in the solution to Practice Problem 23 (pages 117 of print) should read, “Under US GAAP—assuming the company chooses not to immediately recognise the actuarial loss and assuming there is no amortisation of past service costs or actuarial gains and losses—the components of periodic pension cost that would be reported in P&L include the current service cost of 200, the interest expense on the pension obligation at the beginning of the period of 2,940 [= 7.0% × 42,000], and the expected return on plan assets, which is a reduction of the cost of 3,120 (= 8.0% × 39,000). Summing these three components gives 20.”**

### Multinational Operations (FSA LM3)

- In the solution to Practice Problem 11 (page 204 of print), the first sentence should read, “**C** is correct.” The last sentence should read, “Thus, the translation adjustment for liabilities is **positive**.”

### Evaluating Quality of Financial Reports (FSA LM5)

- In the Information for Practice Problems 1-7 (page 363 of print), the last two statements (the statements Pereira makes to Matei, should be Statement **4** and Statement **5**.

## Volume 3

### Financial Statement Modeling (FSA LM1)

- In Example 5, the Solution to 2 (page 19 of print), the second sentence should read, “The projected beauty EBIT is EUR2,689 million, while **the projected mass market EBIT is EUR 3,249 million**, assuming mass market sales of EUR14,937 million, gross margin of 60.75%, A&P % of 15.4%, and SG&A/Other % of 23.6%.”
- In Exhibit 25 (page 41 of print), the following figures should be corrected.
  - For FY2019, the weighted average basic shares should be **49.9** and the weighted average diluted shares should be **52.2**.
  - For FY2021, the weighted average diluted shares should be **52.7**.

### Analysis of Dividends and Share Repurchases (Corporate Issuers LM2)

- In the lesson “Dividend Policy and Company Value: Theories, under Dividend Policy Matters: The Tax Argument,” the second sentence of the first paragraph (page 146 of print) should read, “In the United States since 2012, for instance, dividends on shares held at least 60 days, **as well as long-term capital gains**, have been taxed at a maximum rate of 20%, ~~which exceeds the long-term capital gains tax rate of 15%.~~”

### Cost of Capital: Advanced Topics (Corporate Issuers LM4)

- In Example 8 (page 261 of print), the calculations in the Solution to 1 should read,

$$\text{ERP} = \{2.2 + 0 + [1.6 + 3.0 - (-0.7)]\} - 2.5 = \mathbf{5\%}$$

and

$$\text{ERP} = \{2.0 + 1.0 + [3.0 + 2.0 - 0.0]\} - 3.0 = 5.0\%.$$

### Corporate Restructuring (Corporate Issuers LM5)

- In Example 12, Practice Question 3 (page 333 of print), C should read, “Tulor earns 50 bps in annualized interest income on its cash and pays an interest rate of **600** bps on its debt, and”

- The Solution to Practice Question 7 (page 355 of print) should read,

C is correct. Materiality can be defined along two dimensions: size and fit. Although the acquisition does not signal a change in strategy or focus for Stratton, the transaction is considered large and material because it exceeds 10% of Stratton’s enterprise value prior to the transaction. The total consideration is **USD40 billion**, based on share prices just prior to the announcement; thus, it represents **23.5%** of Stratton’s enterprise value just prior to the announcement of **USD170 billion**. A is incorrect because materiality can be defined along two dimensions: size and fit. Although the acquisition does not signal a change in strategy or focus for Stratton, the transaction is considered large and material because it exceeds 10% of Stratton’s enterprise value prior to the transaction. B is incorrect because the transaction is considered large and material because it exceeds 10% of Stratton’s enterprise value prior to the transaction.

### Equity Valuation: Applications and Processes (Equity LM1)

- In Example 4, the text introducing Case 2 is missing. Before “State the effect of Livent’s accounting for preproduction costs on its reported earnings per share” (page 377 of print), the following text should appear:

“CASE B.

Livent, Inc., was a publicly traded theatrical production company that staged a number of smash hits, such as Tony-award winning productions of Showboat and Fosse. Livent capitalized preproduction costs, including expenses for pre-opening advertising, publicity and promotion, set construction, props, costumes, and salaries and fees paid to the cast, crew, and musicians during rehearsals. The company then amortized these capitalized costs over the expected life of the theatrical production based on anticipated revenues.”

### Discounted Dividend Valuation (Equity LM2)

- In the lesson “The H-Model and Three-Stage Dividend Discount Models,” in the text right before Example 16 (page 440 of print), the computation should read,

$$\begin{aligned}
 V_0 &= \frac{D_0(1+g_L) + D_0H(g_S - g_L)}{r - g_L} \\
 &= \frac{0.55(1.05) + 0.55(5)(0.09 - 0.05)}{0.0588 - 0.05} \\
 &= 78.13
 \end{aligned}$$

## Volume 4

### Free Cash Flow Valuation (Equity LM1)

- The eighth and ninth sentences after Exhibit 14 in Example 16 (page 47 of print) should read:

“At the end of 2023, the value of the future FCFE is

$$V_{2023} = \frac{\text{FCFE}_{2024}}{r - g} = \frac{3.759}{0.104 - 0.07} = \$110.56 \text{ per share.}$$

To find the present value of  $V_{2023}$  as of the end of 2019,  $V_{2019}$ , we discount  $V_{2023}$  at 10.4% for four years...”

The final calculation before the Solution should read:

“ $V_{2019} = -0.027 + 0.867 + 1.504 + 1.965 + 74.42 = \$78.73$  per share.”

- In Solution to the first question in Example 16 (page 47 of print), the terms referring to years should be corrected as follows:  $V_{2016}$  should be  $V_{2023}$ ,  $\text{FCFE}_{2017}$  should be  $\text{FCFE}_{2024}$ , and  $V_{2012}$  should be  $V_{2019}$ .
- In the Information for Questions 30-32 (page 71 of print), in Exhibit 1, under the Balance Sheet panel, the first row header should read, “Current assets (includes \$5 cash in **2019** and **2020**.”
- In the Solution to Practice Question 2 (page 81 of print), the PV equation should read:

$$\text{PV} = \frac{\text{FCFE}_1}{r - g} = \frac{\text{FCFE}_0(1 + g)}{r - g} = \frac{1.3(\mathbf{1.075})}{0.13 - 0.075} = \frac{1.3975}{0.055}$$

### Market-Based Valuation: Price and Enterprise Value Multiples (Equity LM2)

- In the second line of the Solution to the first question in Example 8 (page 117 of print) should read, “Forecasted **2020** EPS = ¥720.”
- The third sentence in Example 11 (page 124 of print) should read, “These data are reported in Exhibit 6, ~~which lists companies in order of descending earnings growth forecast.~~”
- [UPDATED:] The Solutions to Example 30 (page 156 of print) should read:

Solution to 1:

Calculate intrinsic value as  $(1.032 \times \$2.66)/(0.074 - 0.032) = \mathbf{\$65.36}$ .

Solution to 2:

Calculate a justified P/CF based on forecasted fundamentals as  $\mathbf{\$65.36}/\$3.26 = \mathbf{20.05}$ .

Solution to 3:

The justified P/FCFE is  $\mathbf{\$65.36}/\$2.66 = \mathbf{24.57}$ .

- The Solution to Example 34 (pages 164 of print) should read as follows:

Solution:

For EV, we first calculate the total value of CL's equity: 863 million shares outstanding times \$66.48 price per share equals \$57,372 million market capitalization.

CL has only one class of common stock, no preferred shares, **but has** minority interest. For companies that have multiple classes of common stock, market capitalization includes the total value of all classes of common stock. Similarly, for companies that have preferred stock and/or minority interest, the market value of preferred stock and the amount of minority interest are added to market capitalization.

EV also includes the value of long-term debt obligations. Per CL's balance sheet, this is the sum of long-term debt (\$6,354 million), the current portion of long-term debt (\$0 million), and other non-current liabilities (**\$2,269 million**), or **\$8,623 million**. Typically, the book value of long-term debt is used in EV. If, however, the market value of the debt is readily available and materially different from the book value, the market value should be used.

EV excludes cash, cash equivalents, and short-term investments. Per CL's balance sheet, the total of cash and cash equivalents is \$726 million.

So, CL's EV is \$57,372 million + **\$8,623 million** + **\$299 million** – \$720 million = **\$65,568 million**.

For EBITDA, we use the trailing 12-month (TTM) data, which are shown in the table above for the year ending 31 December 2018. The EBITDA calculation is

EBITDA = Net income + Interest + Income taxes + Depreciation and amortization.

EBITDA = \$2,400 + \$143 + \$906 + \$511 = \$3,960 million.

CL does not have preferred equity. Companies that do have preferred equity typically present in their financial statement net income available to common shareholders. In those cases, the EBITDA calculation uses net income available to both preferred and common equity holders.

For CL, we conclude that  $EV/EBITDA = (\$65,568 \text{ million})/(\$3,960 \text{ million}) = 16.6$ .

- In the solution to Problem 6 (page 199 of print) should read, "Because investing looks to the future, analysts often favor forward P/E when earnings forecasts are available, as they are here. A specific reason to use forward P/Es is the fact given that RUF had some unusual items affecting EPS for **2020**. The data to make appropriate adjustments to RUF's **2020** EPS are not given. In summary, Stewart should use forward P/Es."

- The solution to Practice Problem 22 (pages 206–207) should read:  
A is correct. Based on the method of average ROE, normalized EPS are calculated as the average ROE from the most recent full business cycle multiplied by current book value per share. The most recent business cycle was 2011–2014, and the average ROE over that period was

$$\frac{0.1301+0.1371+0.1158+0.1421}{4} = 0.131.$$

The book value of (common) equity, or simply book value, is the value of shareholders' equity less any value attributable to the preferred stock: €1,027 million – **€80 million = €947 million.**

Current book value per share (BVPS) is calculated as €947 million/41.94 million = €22.58.

So, normalized EPS is calculated as

$$\text{Average ROE} \times \text{BVPS} = 0.131 \times €22.58 = €2.96.$$

- In the solution to Practice Problem 22 (page 207 of print), after the first calculation, it should read:

The book value of (common) equity, or simply book value, is the value of shareholders' equity less any value attributable to the preferred stock: €1,027 million – **€80 million = €947 million.**

Current book value per share (BVPS) is calculated as **€947 million/41.94 million = €22.58.**

So, normalized EPS is calculated as

$$\text{Average ROE} \times \text{BVPS} = 0.131 \times €22.48 = €2.96.$$

- In the solution to Practice Problem 39 (page 209 of print), the second equation should read:

$$\frac{P_0}{B_0} = \frac{ROE - g}{r - g} = \frac{0.20 - 0.08}{0.115 - 0.08} = 3.4$$

### Residual Income Valuation (Equity LM3)

- In Example 11 (page 233 of print), a bullet point should be added after the first bullet that reads, "Cost of equity equals 7.95%."
- In the solution to Practice Question 37 (page 276 of print), both instances of 4.37 should be corrected to **5.37.**

## The Term Structure and Interest Rate Dynamics (Fixed Income LM1)

- In Example 1, Questions 3 and 4 (page 344 of print) should read:

3. Calculate the forward price of a two-year bond to be issued in one year:  $F_{A,B-A} = F_{1,2}$ .

Solution:

Using Equation 2,

$$0.7722 = 0.9346 \times F_{1,2}.$$

$$F_{1,2} = 0.7722 \div 0.9346 = 0.8262.$$

4. Interpret your answer to Problem 3.

Solution:

The forward contract price of  $F_{1,2} = 0.8262$  is the price agreed on today...

- Equations 5 and 6 (page 347 of print) should read as follows:

$$(1 + z_t)^T = (1 + z_1)(1 + f_{1,1})(1 + f_{2,1})(1 + f_{3,1}) \dots (1 + f_{T-1,1}) \quad (5)$$

$$z_T = \{(1 + z_1)(1 + f_{1,1})(1 + f_{2,1})(1 + f_{3,1}) \dots (1 + f_{T-1,1})\}^{1/T} - 1 \quad (6)$$

- At the end of the lesson “Yield Curve Movement and the Forward Curve,” the third-from-last calculation (page 356 of print) should read:

$$DF_1^{new} = \frac{DF_2}{DF_1} = \frac{0.9246}{0.9615} = \mathbf{0.9615}$$

The last calculation should read:

$$F_{2,1}^{new} = \frac{DF_2^{new}}{DF_1^{new}} = \frac{0.9246}{0.9615} = \mathbf{0.9615}$$

And the sentence following that calculation should read, “The price of the forward contract is **nearly** unchanged.”

- In the lesson “Active Bond Portfolio Management,” the third and fourth paragraphs after Exhibit 4 (page 359 of print) should read:

The 6% five-year purchased for 100 returns **117.67** in two years [(6 × 1.02) + 6 + **105.55**], which consists of the first year’s coupon reinvested at the one-year rate, the second annual coupon, and the capital gain on the sale of the 6% bond with three years to maturity at an unchanged three-year yield of 4% [**105.55** = 6/1.04 + 6/(1.04)<sup>2</sup> + 106/(1.04)<sup>3</sup>]. The annualized rate of return is **8.476%** [solve for  $r$ , where (117.67/100) = (1 +  $r$ )<sup>2</sup>].

The 7% six-year bond purchased at par returns **121.23** in two years [(7 × 1.02) + 7 + 107.09] with an annualized return of 1 bond **0.104%**. The excess return of nearly 2% results from both higher coupon income than the five-year matched maturity bond as well as a larger capital gain on the sale of the 7% bond with four years to maturity at an

unchanged four-year yield of 5% [ $107.09 = 7/1.05 + 7/(1.05)^2 + 7/(1.05)^3 + 107/(1.05)^4$ ].

- In the paragraph before Equation 13 (page 363 of print), the second sentence should read, “Because the value of a swap at origination is set to zero, the swap rates must satisfy Equation 12.”
- Equation 15 (page 378 of print) should read [delete extra minus symbol before  $3.3333\Delta z_{10}$ ]:

$$\begin{aligned} KeyDur_{Full} = \% \Delta P &= \left( \frac{\Delta P}{P} \right) \approx -KeyDur_1 \Delta z_1 - KeyDur_5 \Delta z_5 - KeyDur_{10} \Delta z_{10} \\ &= -0.3333 \Delta z_1 - 1.667 \Delta z_5 - 3.3333 \Delta z_{10} \end{aligned}$$

- The fifth paragraph in the lesson “Developing Interest Rate Views Using Macroeconomic Variables” (page 381 of print) should read:

Research shows that although inflation, GDP, and monetary policy explain most of the variance of bond yields, short- and intermediate-term bond yields are driven mostly by **monetary policy**, whereas other factors such as **inflation** are key drivers of long-term yields. **Monetary policy** explains about two-thirds of short- and intermediate-term bond yield variation, with the remaining third roughly equally attributable to economic growth and factors including **inflation**. In contrast, **inflation** explains nearly two-thirds of long-term yield variation, and the remaining third is largely attributable to **monetary policy**.

### The Arbitrage-Free Valuation Framework (Fixed Income LM2)

- Under Arbitrage-Free Models, the Kalotay – Williams – Fabozzi model (page 437 of print), the first sentence should read, “The Kalotay–Williams–Fabozzi (KWF) model is analogous to the Ho–Lee model in that it assumes ~~constant drift~~, no mean reversion, and constant volatility.

### Valuation and Analysis of Bonds with Embedded Options (Fixed Income LM3)

- In Exhibit 2 (page 529 of print), the numbers in the figure should read as follows:

#### Interest Rates Shift Down by 30 bps

Year 1: **3.8395%**

Year 2: **5.3363%**

**4.3943%**

Year 3: **7.1432%**

**5.8737%**

**4.8342%**

#### Interest Rates Shift Up by 30 bps

Year 1: **4.4395%**

Year 2: **6.000%**

**4.9377%**

Year 3: **7.8827%**

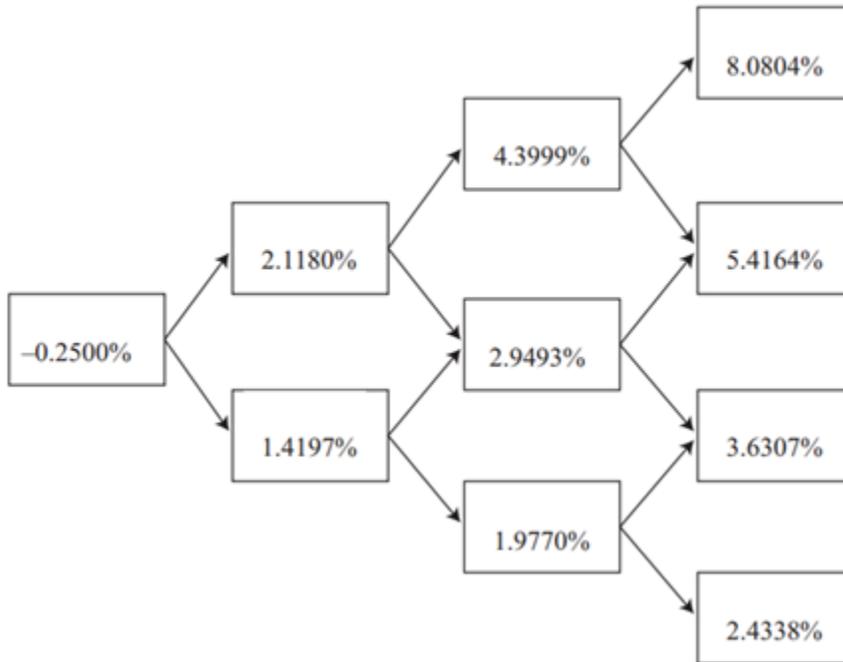
**6.4791%**

**5.3299%**

### Credit Analysis Models (Fixed Income LM4)

- The eighth paragraph under Exhibit 2 (page 543 of print) should read,  
  
Column 7 gives the expected loss for each date. This is the LGD times the POD. For example, if ~~default occurs~~ on Date 3, the expected loss is 0.6894 per 100 of par value. The exposure is 94.2596. At 40% recovery, the LGD is 56.5558. Assuming no prior default, the POD for that date is 1.2189%. The expected loss of 0.6894 is calculated as 56.5558 times 1.2189%.
- Practice Question 21 (page 599 of print) should read, “The floating-rate note, B4, is currently rated BBB by Standard & Poor’s and Fitch Ratings (and Baa by Moody’s Investors Service). Based on the research department assumption about the probability of default in Question **18** and her own assumption in Question **19**, which action does Ibarra most likely expect from the credit rating agencies?”

- The Solutions to Practice Questions 16 and 19 should refer to the following tree:



- In the Solution to Practice Question 17 (page 609 of print), the first sentence of the second paragraph should read, “Valuation of a four-year, 6% coupon bond under no default is computed in the solution to **Question 16** as 1,144.63.”

## Volume 5

### Pricing and Valuation of Forward Commitments (Derivatives LM1)

- In the Solution to Practice Problem 2 (page 72 of print), the AI calculation should read,

$$AI = (60/180) \times (1.5/2) = 0.25$$

- In the Solution to Practice Problem 3 (page 73 of print), the  $AI_T$  calculation should read,

$$AI_T = (120/180 \times 2/2) = 0.67$$

### Valuation of Contingent Claims (Derivatives LM2)

- The Solution to Practice Problem 6 (page 154 of print) should read,

“**B** is correct. Using the expectations approach, the risk-neutral probability of an up move is  $\pi = [FV(1) - d]/(u - d) = (1.03 - 0.800)/(1.300 - 0.800) = 0.46$ .

An American-style put can be exercised early. At Time Step 1, for the up move,  $p+$  is 0.2517 and the put is out of the money and should not be exercised early ( $X < S$ ,  $40 < 49.4$ ). However, at Time Step 1,  $p-$  is 8.4350 and the put is in the money by 9.60 ( $X - S = 40 - 30.40$ ). So, the put is exercised early, and the value of early exercise (9.60)

replaces the value of not exercising early (8.4350) in the binomial tree. The value of the put at Time Step 0 is now

$$p = PV[\pi p^+ + (1 - \pi)p^-] = [1/(1.03)][0.46(0.2517) + 0.54(\mathbf{9.60})] = \mathbf{5.145}.$$

Following is a supplementary note regarding Exhibit 1. **Please note these computations refer to European-style options, not American style.**

### Private Equity Investments (Alternatives LM4)

- In the paragraph after Exhibit 6 (page 273 of print), the third calculation should read:  
Entrepreneurs' ownership =  $[(1 - 6.67\%) \times \mathbf{93.75\%}] = \mathbf{87.50\%}$ .
- In the text after Example 1, under "Corporate Governance Terms" (page 280 of print), in the Distribution waterfall bullet, the following sentence needs two parenthetical notes added, as shown: "In the first alternative, the GP receives carried interest only after the fund has returned the entire committed capital to LPs (**entire committed capital regardless of whether it has been called or not yet**); in the second alternative, the GP receives carried interest on any distribution as long as the value of the investment portfolio exceeds a certain threshold above invested capital (**invested capital here refers to paid-in capital only**), usually 20%."
- At the end of the last lesson, in the table "Europa Venture Partners (EVP)" (page 286 of print) the Hurdle Rate (%) column should be deleted.
- Practice Question 5 (page 293 of print) should read, "For the projects described in **Exhibit 1**, under a deal-by-deal method with a clawback provision and true-up every three years, the cumulative dollar amount the GP receives by the end of the three years is equal to:"

### Introduction to Commodities and Commodity Derivatives (Alternatives LM5)

- In Example 20 (page 335 of print), Option B should read, "**typically can have an important contribution to total return in any single period but is relatively modest over multiple periods.**" The second sentence of the Solution should read, "**Historically, the roll return has been relatively modest compared with price return but can be meaningful in any single period.**"

### Exchange-Traded Funds: Mechanics and Applications (Portfolio Management LM1)

- Option B in Practice Problem 3 (page 398 of print) should read, "**by transacting shareholders.**"

## Volume 6

### Analysis of Active Portfolio Management (Portfolio Management LM2)

- In the calculations under Exhibit 6 (page 113 of print), the second line of the equation should read, "**COV**  $(\Delta w_i, R_A)N$ ."

### Guidance for Standards I-VII (Ethics LM2)

- In the lesson “Standard IV(A): Recommended Procedures,” part of the text under Incident-Reporting Procedures (page 316 of print) is not appearing. The full paragraph is as follows:

Members and candidates should be aware of their firm’s policies related to whistleblowing and encourage their firm to adopt industry best practices in this area. Many firms are required by regulatory mandates to establish confidential and anonymous reporting procedures that allow employees to report potentially unethical and illegal activities in the firm.

### Application of the Code and Standards: Level II (Ethics LM3)

- In the lesson “JR and Associates,” the first sentence in the last paragraph before the Case Questions (page 447 of print) should read, “Ode now has **two** and a half years of experience in the investment industry.”
- In the solution to C (page 452 of print), the third paragraph should read, “B is incorrect. To be a CFA charterholder, Ode needs to have completed the required **three** years of work experience.” The fourth paragraph should read, “C is incorrect. The fact that she has completed all three levels of the CFA Program does not make Ode a CFA charterholder. To be a CFA charterholder, she must also have the required **three** years of work experience.”