

2020 CFA Program: Level I Errata

13 October 2021

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 2020 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.

Volume 1

Reading 1

- The authors for this reading (page 5 of print) should include **Colin McLean**, MBA, SIA, FSIP (SVM Asset Management, United Kingdom), and **Nitin Mehta**, CFA (United Kingdom).
- In Example 6, the solution to 4 (page 27 of print), the last sentence should read, “Although **B** is accurate...”

Reading 2

- Practice Problem 7 (page 50) should be replaced with, “Which of the following **responses most** represents an ethical principle of CFA Institute as outlined in the *Standards of Practice Handbook*?” The solution (page 53) should read, “A is correct. Within the *Standards of Practice Handbook*, CFA Institute addresses ethical principles for the profession in the following Standards: individual professionalism; integrity in capital markets; responsibilities to clients, responsibilities to employers; ethics involved in investment analysis, recommendations, and actions; and possible conflicts of interest. B is incorrect because it represents, and combines, two ethical principles, those relating to the Standards “Duties to Clients” and “Duties to Employers.” C is incorrect because the ethical principle (and Standard) relating to ethics in investment analysis and recommendations also includes actions.”

Reading 3

- In Practice Problem 32 (page 216), the second sentence should read, “Local is currently **not** listed on a stock exchange and...”

Reading 5

- Practice Problem 6 (page 304 of print) should read, “What is the **initial** minimum period of compliant performance...” The solution (page 306) should read, “**A** is correct. **When a firm initially claims compliance with the GIPS standards, it must present a minimum of 5 years of GIPS-compliant performance. After initially claiming compliance, the firm must present an additional year of performance, building up to a minimum of 10 years of GIPS-compliant performance.**”

Reading 6

- In Table 4 in Example 18 (page 341 of print), row 2013, column $(1 + g)_t$ should read $8.87/7.35 = 1.206803$.

Reading 7

- In the second paragraph of Example 3 (page 388 of print), there are two references to 16 European markets in the EAFE. Both should read **15**: “We want to find the sample mean total annual return across these **15** markets over the past five years. ... Rather it is an average of returns in local currencies of the **15** countries.”
- In the solution to Example 3 (page 389 of print), there is a plus sign missing between 6.81 and 2.32. The calculation should read $(5.44 + 5.70 + 10.05 + 9.94 + 7.43 + 5.01 + 6.81 + 2.32 + 9.14 + 7.20 - 1.35 + 1.68 + 8.16 + 5.37 + 4.46)/15 = 87.36/15 = 5.82$ percent.
- In the Solution to 2 in Example 5 (page 395 of print), the first sentence should read as follows: “For the group $n = 6$, an **even** number...”
- In the Solution to 2 in Example 7 (page 400 of print), the minus sign in the calculation for R-bar should be a plus sign: $(34.90 + 6.13 + 2.69 + 11.66 + 21.77)/5 = 77.15/5 = 15.43\%$.
- In Solution to 4 in Example 7 (page 401 of print), “6.18” should be “**16.18**”
- In footnote 25 (page 401 of print), the second sentence should read, “But note, for example, the 15.31 percentage point swing in returns between **2014** and **2015** for PRFDX versus the 3.44 percentage point for SLASX.”
- [Updated] In Exhibit 23 (page 409 of print), under Liquidity, the Geometric Mean for “Spread in Return, Q1 to Q4” should be **7.46**
- In the Solution to 2 in Example 11 (page 415 of print), there is an extraneous calculation. The fourth, fifth, sixth, and seventh lines should be deleted.
- In Example 12, the Solution to 1, B, i. (page 417 of print), should read:
“The sample mean is
 $R = (31.69 + 7.75 - 7.56 + 18.25 + 16.18)/5 = 66.31/5 = 13.26\%$.”
- In Example 12, the Solution to 1, B, ii. (page 417 of print), the following line should read,
 $(7.75 - 13.26)^2 = (-0.725.51)^2 = 30.38$
- In the final bullet point of the Summary (page 437 of text), the second-to-last sentence should read, “The calculation for kurtosis involves finding the average of deviations from the mean raised to the fourth power and then standardizing that average by **dividing by** the standard deviation raised to the fourth power.”

- In Practice Problems 15 and 16, the text of the question does not match the time frames of the exhibits. Therefore, Question 15 (page 443 of print) should be “The median annual return from portfolio creation to **Year 5** for:” and Question 16 should be “The portfolio return **for last year** is *closest to*.”

Reading 8

- In Equation 15 (page 482 of print), the summation should be over $t = 1$, not $i = 1$. The same correction should be made in the summary on page 500.

Reading 10

- In the Summary, the 7th bullet point should read, “An estimator is a formula for **computing a sample statistic used to estimate a population parameter...**”
- In practice problem 2 (page 598 of print), the first sentence in 2A should read, “How large a random sample does Munzi need if she wants the 95 percent confidence interval for the **population** mean return?”
- In the solution to practice problem 2A (page 603 of print), the first sentence should read, “Assume the sample size will be large and thus the 95 percent confidence interval for the **population mean** of manager returns is...”
- In the footnote 18, in section 4 (page 588 of print), footnote 18 should reference footnote **5**.

Reading 11

- In Exhibit 12 (page 646 of print), the first number in the row Sharpe Ratio (X) should be **0.68** and not 0.65

Volume 2

Reading 12

- In Example 1 (page 17 of print), in the Solution to 1, the term in parentheses “.0005” should be “**0.0005**”
- The solution to 25 (page 59 of print) should read “C is correct. The firm should shut down production when marginal revenue is less than **or equal to** average variable cost.”

Reading 13

- Under Exhibit 14, the reference to Footnote 10 should be Footnote **12**.
- In Section 5.1, second to last paragraph before 5.2, in factor 6 (p. 91 of print), second to last sentence should be: “If OPEC had held crude oil prices down before \$30 per barrel, there would **not** have been a viable economic argument to develop US shale oil fields through tracking or expand extraction from Canada’s tar sands.”
- In the last paragraph of text before Exhibit 19 (page 99 of text), the first sentence should refer to Q_{DE} .
- In the last sentence of the first paragraph of Section 6.4 (page 101 of print), “perfect competition” should be replaced with “monopoly”

Reading 14

- In Example 2, final row of the second table (page 125 of print), the Implicit GDP price deflator for 2016 is **113.9**. The two final sentences in the example should state, “For 2016,

the annual inflation rate is equal to $[(113.9/113.2) - 1]$ or **0.62** percent. This shows that Canada experienced a very low rate of **inflation** in 2016.”

- In Example 3 (page 133 of print), under the Solution to 2, the second sentence should read, “Substituting in the numbers from Exhibit 9a, we get indirect business taxes **less subsidies** equal to the sum of taxes less subsidies on production plus taxes less subsidies on products and imports...”
- In Exhibit 11 (page 139 of print), the vertical axis should not be labelled Real Interest Rate. It should be labelled “\$ Balance”.
- In Example 5, Solution to 4 (page 142 of print), the second line for “Change in (S – I)” should read $0.0244(500) = 12.2$
- Practice Problem 9 (page 189 of print) should read, “If the GDP deflator values for year 1 and year **3** were 190 and 212.8, respectively, which of the following *best* describes the annual growth rate of the overall price level?”

Reading 15

- In Section 4.2.1, in the paragraph that begins “Exhibit 2 shows recent episodes of disinflation in selected countries around the world” (page 224 of print), the 4th sentence should read, “In Exhibit 2, the annual inflation rates in most **countries** around 1980 ranged between...”

Reading 16

- In Example 11, last paragraph before Exhibit 12 (page 299 of print), third sentence, mid-2108 should be mid-**2018**.

Reading 17

- In Exhibit 14 (page 368 of print), in the 1970 column, the item “Income receipts” should be **11,747**
- In the paragraph before Exhibit 5 (page 339 of text), the fifth sentence should read, “Exhibit 5 shows that trade as a percentage of GDP for the world as a whole increased from 39 percent in 1990 to **57** percent in 2010.”

Reading 18

- In the LES, LOS h is not linked to any lesson. It should be linked to 3.3 Forward Calculations.

Volume 3

Reading 19

- In Section 3.1.2.1, paragraph beginning “Next, operating profit is increased by Volkswagen’s share...” (p. 19 in print), the first sentence has an instance of €2.3 million which should be €2.3 billion: “Next, operating profit is increased...and by interest expense of €2.3 **billion**, resulting in profit (earnings) before tax of €13.9 billion.”

Reading 20

- The first three paragraphs of L1V3 page 84 refer to the IFRS conceptual framework prior to its 2018 revision. The revised definition of expenses is 'decreases in assets, or increases in liabilities, that result in decreases in equity, other than those relating to distributions to holders of equity claims.' The discussion of that definition cited in the Reading just below the definition also no longer appears in the 2018 revision. That said, it is not incorrect, as the definition of an expense has only changed modestly.

Reading 21

- Near the end of Section 7 (page 112 of print), in the paragraph that begins “AB InBev’s gross profit (shown in Exhibit 1)...”, the last sentence should read “However, AB InBev’s profit *margin* was **approximately constant between 2015 and 2016.**”
- In practice problem 12 (page 120 of print), the question stem should refer to Question **11**, not 16.

Reading 22

- In Section 3.1.2 (page 135 of print), after the sentence “For example, SAP Group discloses that its other financial assets consist of items such as time deposits, other receivables, and loans to employees and third parties,” please insert the following sentence: “**These do not fall into marketable securities and thus are more properly treated under trade receivables.**”
- In Example 3, under Solution (page 147 of print), for Project 2, the calculation of “Amount Capitalized as an Asset (€’000)” should be $(620 + 320 + \mathbf{470}) = 1,410$
- In Section 4.5, third paragraph (page 151 of text), last sentence should read, “Other types of financial assets measured at **amortised** costs are loans to other companies.”
- In 6.1, the text introducing Exhibits 14 and 15 (page 158 of print), the third sentence of the paragraph that begins “Exhibits 14 and 15 present...” should read: “SAP’s balance sheet also indicates that the company has €1,591 **million** of treasury shares, and the notes to the financial statements disclose...”
- In the last paragraph before Exhibit 14 (page 158 of print), the last sentence should read, “Details of the change in shares outstanding is presented in the Statement of Shareholders’ Equity in Exhibit **16**...”
- In Example 7, the Solution to 2 (page 170 of print), the answer should be, “**A, B and C** are correct. The ratios are shown in the table below. The **cash ratio, quick ratio and current ratio** are lower in 2017 than in 2016.
- The following row should be added to the table in the Solution to 2 in Example 7:

Liquidity Ratios	Calculation	2017 € in millions	2016 € in millions
Cash	$(\text{Cash} + \text{Marketable securities}) \div \text{Current liabilities}$	$(\text{€}4,011 + \text{€}990) \div \text{€}10,210 = 0.49$	$(\text{€}3,702 + \text{€}1,124) \div \text{€}9,674 = 0.50$

- In practice problems 29 and 30 (page 177 in print), some clarification is needed on where to find the referenced exhibits: “29. Using the information presented in Exhibit 4 **of the reading**, ...” and “30. Using the information presented in Exhibit 14 **of the reading**,”

Reading 23

- In Section 2.1, second bullet (page 185 of print), the following should be deleted: “a) any securities considered cash equivalents (very short-term, highly liquid securities) and b)”
- In Section 3.1, in both tables (page 198 and 199 of print), the top left cell should read “**Ending** Balance Sheet at 31 December 20X8”
- In the table in Example 6 (page 206 of print), the second column heading should be 12/31/**2017**, and the third column heading should be 12/31/**2018**.
- In Example 8, Exhibit 13, Solution (page 216 of print), the Cash flows provided by operative activities for 2016 is **2,652** and for 2017 is **2,958**
- In the chart in Example 9 (page 220 of print), under Financing Activities, the three numbers in the row “Payments for dividends and dividend equivalents” should each be negative: **-5.6%**, **-5.6%**, and **-4.9%**
- In Example 10, the Solution (pages 224-225 of print), the fifth sentence should read, “Microsoft’s operating cash flow relative to assets is the same as Apple’s in **2017** and relatively stable with a slight increase since 2015.”
- In Practice Problem 3 (page 226 of print), Item 2 should say “Purchases of securities held for investment”. Option B should read, “Only Item 1 is an operating activity” and Option C should read, “Only Item 2 is an operating activity.”
- The solution to Practice Problem 3 (page 232 of print) should read, “B is correct. The purchase and sale of securities held for trading are considered operating activities even for companies in which this activity is not a primary business activity.”

Reading 24

- In Example 2, Solution to 1 (page 242 of print), the second sentence should read, “Lenovo’s FY 2017 revenues of \$USD45.35 billion are considerably higher than Acer’s USD7.67 **billion** (= TWD237.275 **million**/30.95) ...” After Acer: it should read, “At the assumed average exchange rate of 30.95 TWD/USD, Acer’s FY2017 revenues are equivalent to USD7.67 billion (= TWD237.275 **million** ÷ 30.95 TWD/USD).”

Reading 25

- In Example 5, Exhibit 3 (p. 327 in print), the item for Supplies in 2017 should be **201**.
- In Section 4.2, Example 5 (p. 327 in print), the table in Solution to 1 needs two corrections. The entry for From Note 1.D (LIFO reserve) for 2017 should be **1,924** and the entry for Total inventories (FIFO method) for 2017 should be **11,942**.
- In Example 5, Solution to 8 (page 329 of print), the following sentence should read, “The gross profit margin is lower under FIFO because the cost of goods sold is **higher** from the LIFO reserve reduction.”
- In Example 10, second paragraph (page 345 of print), fourth sentence should read, “...and details on the allocation of the allowance are included in Note **3** (a).” The last sentence in the paragraph should read “Finally, observe that the €1,845 million net value for inventories (excluding construction contracts) at 31 December 2017 in Note 3(a)

reconciles with the balance sheet amount for inventories and work in progress, net, on 31 December 2017, as presented in Exhibit 9.”

- In the information for Questions 29–36, Exhibit 4 (page 359–360 of print), each date in the far-left column should be “**2018**” not “09”
- In The following information for Questions 49–55 (page 365), Exhibit 3, the second sentence should read, “Inventories decreased during fiscal **2018** by ¥122.1 billion...”
- In Practice Problem 53 (page 368 of print), answer choice C should say “Management expects a further downturn in sales during **2019**.”
- In the solution to Practice Problem 28, the second sentence should say, “In an environment of declining inventory unit costs and constant or increasing inventory quantities, FIFO (in comparison with weighted average cost or LIFO) will have higher cost of goods sold and lower net income and inventory.”
- In the solution to Practice Problem 54 (page 375 of print), the third sentence should read, “In actuality, the LIFO reserve increased from ¥10,120 million in 2017 to ¥19,660 million in **2018**.”

Reading 26

- In Example 6, under Solution to 1 (page 393 of print), after “For 2015” should read, “0.49 (\$58,533 / \$118,330) without adjusting for capitalized interest; and **0.38** [(\$58,533 + **\$38,511**) / (\$118,330 + \$134,838)] including an adjustment to EBIT for depreciation of previously capitalised interest and an adjustment to interest expense for the amount of interest capitalised in 2015.”
- In Example 16, Solution to 1 (page 424 of print), “28% (=27,095 ÷ 97,714)” should be changed to “29% (= 27,095 ÷ 94,714)” and “15% (=14,339 ÷ 97,714)” should be “15% (= 14,339 ÷ 94,714).”
- In Practice Problem 27 (page 439 of print), the first sentence should read, “CROCO S.p.A. sells an intangible asset with a historical acquisition cost of €12 million and accumulated **amortization** of €2 million and reports a loss on the sale of €3.2 million.”

Reading 27

- In Example 3 (page 460 of print), the table under “Solutions” has an error. It should appear as follows:

	Carrying Amount (€)	Tax Base (€)	Temporary Difference (€)
1. Donations	0	0	0
2. Interest received in advance	300,00	0	(300,000)
3. Rent received in advance	10,000,000	0	(10,000,000)
4. Loan (capital)	0	0	0
Interest paid	0	0	0

Reading 28

- In the second-to-late paragraph of Section 2.1, the first sentence should be replaced with, “Bonds issued with a coupon rate of zero (zero-coupon bonds) are issued at a

discount to face value if the market rate is greater than zero. If the market rate is zero or negative, zero-coupon bonds will be issued at par or at premium, respectively.”

- In Section 2.2, third paragraph, first sentence (page 494 of print), the phrase “ignoring any bond issuance costs” should be deleted.
- In Example 7 (page 506 of print), the following needs to be added to the first excerpt, after “engage in certain corporate actions”:

Failure to comply with the covenants and financial and operational restrictions under our debt facilities may lead to an event of default under those agreements. An event of default may lead to an acceleration of the repayment of debt. In addition, any default or acceleration under our existing debt facilities or agreements governing our other existing or future indebtedness is likely to lead to an acceleration of the repayment of debt under any other debt instruments that contain cross-acceleration or cross-default provisions. If all or a part of our indebtedness is accelerated, we may not be able to repay that indebtedness or borrow sufficient funds to refinance that debt, which could have a material adverse effect on our future performance, results of operations, cash flows and financial position and could lead to bankruptcy or other insolvency proceedings.

- In the Solution in Example 9 (page 509 of print), after the = it should read, “(RMB 30,000,000,000/[(RMB 100 × 10) × 50.5 shares].”
- The penultimate sentence in Section 3.1 (page 511 of print) should read, “On the statement of cash flows, IFRS allows companies to classify interest paid within operating, ~~investing~~, or financing activities”.
- In Example 10 (page 511 of print), the second sentence of the Solution should read, “C is correct because IFRS requires interest to be reported separately for all leases and further permits companies to classify interest paid within operating, ~~investing~~, or financing activities on the statement of cash flows.”
- Question 3 (p. 523 of print) should be deleted.
- Question 21 (p. 525 of print) should be replaced with “Compared to using a finance lease **with a term longer than one year**, a lessee that makes use of an operating lease will *most likely* report **lower**: A. debt. / B. rent expense. / C. **interest expense**.
Solution: **C is correct. A lessee with an operating lease reports rent expense but no interest expense related to the lease, while a lessee with a finance lease will report interest expense but no rent expense. Thus, the operating lease will result in lower interest expense and higher rent expense compared to a finance lease. Both operating and finance leases require the recognition of a lease liability, so debt should be the same in both cases.**
- Question 22 (p. 525) should be deleted.
- The justification for Question 24 (p. 534) should read: “A is correct. A sales-type lease treats the lease as a sale of the asset, and rev-enu is recorded at the time of sale equal to the **value of the leased asset**. Under a **direct financing lease**, only interest income is reported as earned. Under an operating lease, revenue from **lease receipts** is reported when collected.”
- Question 25 (p. 526) should be deleted.
- In Question 26 (p. 526), the C option should read “term is for the majority of the economic life of the **leased** asset.”
- Questions 27, 28, and 30 (p. 526) should be deleted.

- In Question 29 (p. 526) the last sentence should read, “Based on this information, the value of the **lease liability** reported on the company’s balance sheet **at lease inception** is *closest to*.” The solution should read, “**A is correct. Under the revised reporting standards under IFRS and US GAAP, a lessee must recognize an asset and a lease liability at inception of each of its leases (with an exception for short-term leases). The lessee reports a “right-of-use” (“ROU”) asset and a lease liability, calculated essentially as the present value of fixed lease payments, on its balance sheet. Thus, at lease inception, the company will record a lease liability on the balance sheet of €47,250,188.**”
- Question 31 (p. 527) should be deleted.
- In the solution to Question 32 (page 534 of print), “\$2.452 million” should be simply “**2.452**”

Reading 29

- In the second-to-last paragraph before Exhibit 19 (page 581 of print), the sixth sentence should read, “Some companies may choose to depreciate the equipment to its expected salvage **value**, zero in this case, in its final year of use.”

Reading 30

- In Example 1, Exhibit 1 (page 610 of print), Net Sales by Product rows are incorrect for the 2010 column. The Net Sales by Product for Mac, iPhone and related, iPad and related, Services, Other (includes iPod) should be 17,480; 25,177; 4,957; 10,110; and 7,501, respectively.
- In Example 4 (page 618 and 619 of print), the column headings of the table should be “Variable” instead of “Dividends” and “Assumption” instead of “Non-dividend paying.” A row should be added to the end of the table, after the Working capital as percent of sales row, which reads, “Dividends” in the left column and “Non-dividend paying” in the right column
- Under Exhibit 3 (page 625 of print), the first sentence of the second bullet point should read, “If all the criteria were completely independent of each other, the set of stocks meeting all **five** criteria would be 2, equal to 6,406 times 0.023 percent—the product of the fraction of stocks satisfying the **five** criteria individually (i.e., $0.6801 \times 0.1723 \times 0.0095 \times 0.5478 \times 0.3732 = 0.000228$, or **0.023 percent**).”
- Practice problems 12 and 13 and their solutions (page 639 and 640 of print) should be deleted.

Volume 4

Reading 32

- In Section 4.5, in the paragraph below Exhibit 5 (print page 57), the following formula should read as: “The average book value for this asset is $(\$200,000 + \$0) / 2 = \$100,000$.”

Reading 33

- In Section 3.2, Example 5 (print page 87), the first sentence should read: “Consider...with a \$3.75 cumulative preferred stock **dividend**, for which there are 600,000 shares outstanding.”

- In Example 12 (print page 101), the solution should read: “= **0.032**(1.4286) = 0.0457 or 4.57 percent”
- In the solution to Practice Problem 18 (page 119 of print), the Weighted average cost of capital without the country risk premium: $WACC = [0.80 (0.0925) (1 - 0.375)] + [0.20 (0.2202)] = 0.04625 + 0.04404 = \mathbf{0.09029}$ or 9.03 percent”

Reading 34

- In Example 1 (page 135 of print), at the end of the second paragraph, the following question should be added: “**What is the expected impact to operating income?**”
- In the Solution to Example 1 (page 135 of print), the final sentence should read, “For a 10 percent increase in cars sold, operating income increases by $1.50 \times 10\% = 15.0\%$, or **€34.5 billion.**”

Reading 38

- Footnote 21 (page 330 of print) should be deleted.
- In practice problem 19 (page 346 of print), change “reacts gradually to” to “changes gradually after.”

Reading 39

- In Exhibit 16 (page 374 of print), the total stockholders’ equity for GlaxoSmithKline for 31 Dec 2015 should read, “**\$11,309,250.**”
- In Exhibit 17 (page 375 of print), the return on equity for GlaxoSmithKline for 31 Dec 2016 should read, “**12.9.**” In the paragraph below the exhibit, the second sentence should read, “GlaxoSmithKline almost tripled its return on equity over this period, from **12.9%** to 38.2%”

Reading 41

- In Example 6, Under Case 2, second paragraph (page 458 of print), the fifth sentence should read, “The **semiannual** dividend is expected to increase by ¥132.5...”
- In the solutions to Example 7 (page 461 of print), the solution to 1 is **€185.70** and the solution to 2 is **€136.37**
- In the solution to Example 11 (page 470 of print), the phrase “return on assets and” should be deleted from the first sentence.
- In Example 12 (page 470 of print), the Dividend payout ratio item for 2013 in the table should be 66.4%.
- In the first sentence in the third paragraph of Example 12 (page 370 of print) starting Gladisch decides that the percentage should be 69.0 percent, not 67.7 percent.
- The last sentence in the third paragraph of Example 12 (page 370 of print) should say: "After further analysis (not discussed here) Gladisch settles on an estimate of 68 percent for the dividend....." instead of "Rounding up the 2013-2017 average, Gladisch settles on an estimate of".

Volume 5

Reading 42

- In Section 4.2.4 (page 32 of print), the second sentence should read, “Such bonds are favored by **investors** who are concerned that the issuer may face potential cash flow problems in the future.”
- In Section 5.3, in the paragraph that begins with “Generally...” (page 41 of print), the following sentence should read as: “If the convertible bond includes a call provision and the conversion value is above the current **bond price**...”
- Practice Problem 9 and its solution (page 46-47 and 51 of print) should be removed.

Reading 43

- In the second paragraph of Section 4.2 (page 74 of print), in the second-to-last sentence, the United Kingdom is no longer rated AAA.
- The solution to Practice Problem 1 (page 103 of print) should read, “B is correct. In most countries, the largest issuers of bonds are the national and local governments as well as non-financial corporates. Thus, the bond market sector with the smallest amount of bonds outstanding is the financial institutions.”

Reading 44

- In Example 5 (page 121 of print), the years in the solution need to be updated: 19 March **2019** and 18 June **2019**.

Reading 45

- In Example 6, the Solution to 2 (page 201 of print), the second sentence should read, “The monthly cash flows of a mortgage pass-through security **are not equal to but rather** depend upon the cash flows of the underlying pool of mortgages. **That said, their** amount and timing cannot be known with certainty because of prepayments.”

Reading 46

- In the second paragraph after Exhibit 1 (page 243 of print), the third and fourth sentences should read, “Its price (the carrying value) after one year is **86.395394**, calculated using the original yield-to-maturity of 10.40%. Therefore, the amortized amount for the first year is **0.892320 (=86.395394 – 85.503075)**.”
- In Example 8, the solution (page 254 of print), the three instances of 1.875 circled below should be **101.875**

per 100 of par value.

$$PV_0 = \left[\frac{1.875}{(1.0257)^1} + \frac{1.875}{(1.0257)^2} + \dots + \frac{1.875}{(1.0257)^{42}} \right] \times (1.0257)^{61/184} = 82.96753$$

Interest Rate Risk on Fixed-Rate Bonds

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Raise the yield-to-maturity from 5.14% to 5.19%—therefore, from 2.57% to 2.595% per semiannual period, and the price becomes 82.411395 per 100 of par value.

$$PV_+ = \left[\frac{1.875}{(1.02595)^1} + \frac{1.875}{(1.02595)^2} + \dots + \frac{1.875}{(1.02595)^{42}} \right] \times (1.02595)^{61/184} \\ = 82.411395$$

Lower the yield-to-maturity from 5.14% to 5.09%—therefore, from 2.57% to 2.545% per semiannual period, and the price becomes 83.528661 per 100 of par value.

$$PV_- = \left[\frac{1.875}{(1.02545)^1} + \frac{1.875}{(1.02545)^2} + \dots + \frac{1.875}{(1.02545)^{42}} \right] \times (1.02545)^{61/184} \\ = 83.528661$$

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- In Section 3.6 (page 268 of print), under Equation 12, the PV_+ solution should be 100.594327
- In Example 12 (page 268 of print), the third sentence of the first paragraph should read, “The total market value of the position, including accrued interest, is USD10,495,447, or **104.95447** per 100 of par value.
- In Example 12 (print page 269), the solutions should read as below.

Solution to 1:

The money duration is the annual modified duration times the full price of the bond per 100 of par value.

$$\left(\frac{6.622}{1 + \frac{0.056511}{2}} \right) \times \text{USD}104.95447 = \text{USD}675.91$$

Solution to 2:

For each 1 bp increase in the yield-to-maturity, the loss is estimated to be USD 0.067591 per 100 of par value: $\text{USD } 675.91 \times 0.0001 = \text{USD } 0.067591$.

Given a position size of USD 10 million in par value, the estimated loss per basis-point increase in the yield is USD 6,759.10. The money duration is per 100 of par value, so the position size of USD10 million is divided by USD 100.

$$\text{USD}0.067591 \times \frac{\text{USD}10,000,000}{\text{USD}100} = \text{USD}6,759.10$$

- In the calculation just before Example 13 (page 273 of print), the second row should read $0.145815 + 0.01010811$.
- In Example 13, Solution to 2, the approximate convexity should be 107.046. The Solution to 3 should read, “The convexity-adjusted percentage price drop resulting from a 100 bp increase in the yield-to-maturity is estimated to be 8.1555%. Modified duration alone estimates the percentage drop to be 8.6907%. The convexity adjustment adds 53.52 bps. The equation in Solution to 3 should read:

$$\begin{aligned} \% \Delta PV_{Full} &\approx (-8.6907 \times 0.0100) + \left[\frac{1}{2} \times 107.046 \times (-0.0100)^2 \right] \\ &= -0.086907 + 0.005352 \\ &= -0.081555 \end{aligned}$$

Reading 48

- In Section 4.1.1, paragraph beginning “For an example” (page 396 of print), the final sentence should read, “The gain on owning the underlying, which is $ST - S_0 = 1,275.90 - 1,207.40 = \mathbf{\$68.50}$, differs from the gain ($-\$37.00$) on the forward contract.”
- In Section 4.2.3 (page 417 of print), the first four sentences of the fourth paragraph should read, “CMOs partition **the prepayment risk from** these mortgages into different **sequential-pay** tranches, which are typically called A, B, and C. **Without any support tranche, the Class A tranche bears** the first wave of prepayments until that tranche has been completely repaid its full principal investment. At that point, the Class B tranche holders bear the next prepayments until they have been fully repaid. The Class C tranche holders then bear the next wave of prepayments.”
- In footnote 11 (page 417 of print), the last sentence should read, “Our discussion of the three classes is for illustrative purposes only and serves to emphasize **the sequential-pay structure and differential prepayment risk common to many CMOs.**”

- Practice problem 29 (page 441 of print) should read, “In a declining interest rate environment, compared with a **sequential-pay** CMO’s Class A tranche, its Class C tranche will be repaid...”
- In practice problems 46 and 47 (page 443 of print), the word “profile” should be “profit”: “Determine the value at expiration and the **profit** for a *buyer*...”
- The solution to Practice Problem 29 (page 449 of print) should read, “**C** is correct. Lower interest rates entice homeowners to pay off their mortgages early because they can refinance at lower rates. **With a sequential-pay structure, the A tranche** in a CMO will bear the first wave of prepayments until that tranche has been completely repaid its full principal investment. At that point, the next tranche (**B**) will bear prepayments until that tranche has been fully repaid, **and so on**. Therefore, the Class C tranche of this CMO will be repaid **last, after both the Class A and B tranches**.”

A is incorrect because the **A** tranche in a sequential-pay CMO will bear the first wave of prepayments until that tranche has been completely repaid its full principal investment. At that point, the next tranche will bear prepayments until that tranche has been fully repaid. Therefore, the Class C tranche will be repaid **last, after the Class A and B tranches**.

B is incorrect because the tranches, which have different **rules for the distribution of principal repayments (including prepayments)** made by the underlying mortgages, will see prepayments allocated to the **A tranche first and to the C tranche last**.”

- In the solutions to Practice Problems 46-52, the C should all be lowercase.
- Updated: In the solutions to Practice Problems 53, 54, and 55 (page 453 of print), the following changes should be made: “... $p_T = \text{Max}(0, X - S_T) = \text{Max}...$ ” And in the second line of each solution, “ $C_T - C_0$ ” should be “ $p_T - p_0$ ”

Reading 49

- The first sentence after Equation 5 (page 472 of print) should read, “**From Equation 5, we can** see that the forward price...”
- In Section 3.1.3, the paragraph after Equation 7 (page 473 of print), the final sentence should be replaced with, “Notice how the answer is the same as in the case of no costs and benefits, as this effect is also embedded in the original forward price and completely offsets.”

Volume 6

Reading 51

- In the last row of Exhibit 4 (page 84 of print), the diversification ratio of the equally weighted portfolio is **71.9%**. In the last paragraph on that page, the third sentence should read, “In this case, the equally weighted portfolio’s standard deviation is approximately **72** percent of that of a security selected at random.”

Reading 52

- In Section 4.3.3, the sentence right before Exhibit 23 (page 161 of print) should read, “Similarly, the correlation between T- bills and stocks is close to zero **and is negative for international stocks.**”
- In Example 8 (page 151 of print) the solution should begin:
Portfolio return, $R_P = w_1R_1 + (1 - w_1) R_2 = \dots$ [delete comma before R_2]
- In Example 13 (page 174 of print), Solution to 7, the final line of the calculation should read, “Utility (20%) = $0.20 - 0.5 \times 2.5 \times 3.42^2 = +0.0538$ ”
- Practice Problem 35 (page 183 of print) should be deleted.

Reading 53

- In Example 3 (page 203 of print), there is a typo in the solution, in the following line, -0.275 should be amended to -0.75 as shown:

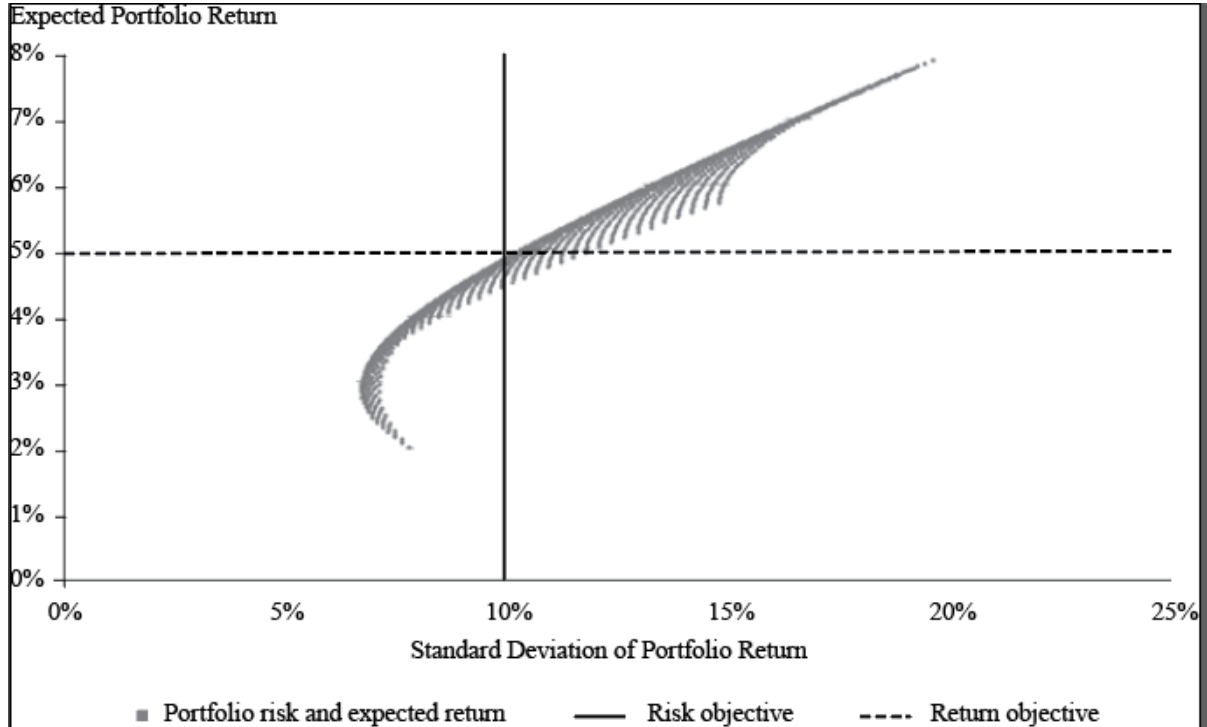
$$\text{Return with } w_1 = -0.275 = (-0.75 \times 7\%) + (1.75 \times 15\%) = 21.0\%$$

- In Section 3.1.1, Solution to 2 (p. 206 of print), the final sentence should be “Because only systematic risk is priced or receives a return, the expected rate of return must be higher for Asset **A**.”

Reading 54

- In the paragraph after Exhibit 2 (page 253 of print), the last sentence should read, “For two random samples drawn from the faculty and staff of large US universities ($n = 406$), the mean score was 12.86 with a standard deviation of 3.01 and a median (i.e., **the middle score**) score of 13.”

- In Exhibit 10 (page 274), the labels for “Risk objective” and “Return objective” should be switched



- In the paragraph under Exhibit 9 (page 274 of print), the final sentence should read, “Gottschalk should aim for portfolios that offer an expected return of at least **5** percent (the straight horizontal line or above) and a standard deviation of return of **10** percent or lower (the straight vertical line to the left).”

Reading 56

- In Exhibit 12 (page 355 of print), the y-axis is missing a “ $\times 10$ ”
- Under Exhibit 25 (page 371), the second sentence should read, “Note that for this stock, the ROC oscillator tends to maintain a range between 85 and 115.”
- In Example 5 (page 383 of print), under Market Information, the second bullet should read, “Mutual fund cash position = **6.0%**”