

Curriculum Errata Notice

2025 Level I CFA Program

UPDATED 21 NOVEMBER 2024

This document outlines the errors submitted to CFA Institute that have been corrected.

Due to the nature of our publishing process, we may not be able to correct errors submitted after 1 September 2025 in time for the publication of the following year's print materials. However, we update all errors in the Learning Ecosystem (LES) and in this document at the end of each month.

We recommend checking either the LES or this document regularly for the most current information. Depending on when you purchase the print materials, they may or may not have the errors corrected.



All errors can be submitted via <https://cfainst.is/errata>

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Quantitative Methods

Rates and Returns

Lesson	Location	PDF Pg	Revised	Correction
Rates Of Return	Third paragraph	9	26 August 2024	<p>Replace: For example, an analyst may need to compute a one-year holding period return from three annual returns. In that case, the one-year holding period return is computed by compounding the three annual returns...</p> <p>With: For example, an analyst may need to compute a three-year holding period return from three annual returns. In that case, the three-year holding period return is computed by compounding the three annual returns...</p>
Rates of Return	First sentence after Exhibit 2	10	1 November 2024	<p>Replace: Beginning with an initial investment of EUR1.0000, we will have a balance of EURO.8573 at the end of the three-year period as shown in the fourth column of Exhibit 2.</p> <p>With: Beginning with an initial investment of EUR1.0000, we will have a balance of EURO.8574 at the end of the three-year period as shown in the fourth column of Exhibit 2.</p>
Money-Weighted and Time-Weighted Return	Example 8, Solution 4	23	26 August 2024	<p>Replace the sum in the second calculation: 1.1471</p> <p>With: 1.1476</p>
Annualized Return	Equations	29	26 August 2024	<p>Replace: Equation numbers</p> <p>With: Starting on page 29, the equation numbers do not match up with the equation numbers referenced in the text. For example, on page 29, the equation is labeled as equation “7” but the text below it refers to it as “Equation 8.” Each subsequent reference to an equation in the text should be one number less than written for the rest of the learning module. For example, “Equation 9” should be “Equation 8” and “Equation 10” should be “Equation 9.”</p>

Lesson	Location	PDF Pg	Revised	Correction
Other Major Returns and Their Applications	Gross and Net Return	33	26 August 2024	The first paragraph under Gross and Net Return should read: <p>A gross return is the return on assets managed less any trading expenses and commissions. Gross return is intended to reflect the investment skill of the manager. Expenses including management fees, custody fees, and taxes are not included in the gross return because they may be different for different investors. For example, most asset managers provide lower management fee rates to larger accounts. Excluding these expenses in gross returns provides a basis for evaluation and comparison of investment management skill.</p>
Other Major Returns and Their Applications	Equation 14	34	26 August 2024	Replace: Fix the equation by removing the denominator: (1+inflation premium) $(1 + \text{real return}) = \frac{(1 + \text{real risk-free rate})(1 + \text{risk premium})}{1 + \text{inflation premium}}$ With: $(1 + \text{real return}) = (1 + \text{real risk-free rate})(1 + \text{risk premium})$

The Time Value of Money in Finance

Lesson	Location	PDF Pg	Revised	Correction
Time Value of Money in Fixed Income and Equity	Example 2, Solution to 1	51	26 August 2024	Replace: $PV = \text{EUR}100$ $= \frac{2}{1.20} + \frac{2}{1.02^2} + \frac{2}{1.02^3} + \frac{2}{1.02^4} + \frac{2}{1.02^5} + \frac{2}{1.02^6} + \frac{2}{1.02^7}$ With: $PV = \text{EUR}100$ $= \frac{2}{1.20} + \frac{2}{1.02^2} + \frac{2}{1.02^3} + \frac{2}{1.02^4} + \frac{2}{1.02^5} + \frac{2}{1.02^6} + \frac{102}{1.02^7}$
Time Value of Money in Fixed Income and Equity	Example 2, Question 2	51	26 August 2024	Replace: Next, let's assume that exactly one year later, a sharp rise ... With: Next, let's assume that, exactly two years later, a sharp rise ...

Lesson	Location	PDF Pg	Revised	Correction	
Time Value of Money in Fixed Income and Equity	Example 3, Question 3	52	1 November 2024	Replace: Recalculate the discount bond price for the final principal payment in 20 years from Example 1 using a 6.70 percent semiannual discount rate.	With: Recalculate the discount bond price for the single principal payment in 20 years from Example 1, where YTM = 6.70, and discounting is done semiannually.
Time Value of Money in Fixed Income and Equity	Example 3, Solution to 3	52	1 November 2024	Replace: INR26.77	With: INR26.77
				Note that the PV calculation using the same annual discount rate for 40 semiannual periods will differ slightly using Equation 5, as follows: $PV = \text{INR}27.66 = (PMT_{40} + FV_{40}) / (1+r/2)^{40},$ $PV(PMT_{40}) = \text{INR}0.90 = 3.35 / (1.0335)^{40},$ $PV(FV_{40}) = \text{INR}26.77 = 100 / (1.0335)^{40}.$	Using Equation 5: $PV = \text{INR}27.66 = (PMT_{40} + FV_{40}) / (1+r/2)^{40},$ $PV(PMT_{40}) = \text{INR}0.90 = 3.35 / (1.0335)^{40},$ $PV(FV_{40}) = \text{INR}26.77 = 100 / (1.0335)^{40}.$
				Compounding on a semiannual basis for 40 periods, $PV(FV_{40})$ of 26.77 is less than the original PV of 27.33 using 20 annual periods from Example 1 (since $1/(1+r)^t > 1/(1+r/2)^{2t}$ when $r \geq 0$).	Discounting on a semiannual basis for 40 periods, $PV(FV_{40})$ of 26.77 is less than the original PV of 27.33 using 20 annual periods from Example 1 (since $1/(1+r)^t > 1/(1+r/2)^{2t}$ when $r \geq 0$).
Time Value of Money in Fixed Income and Equity	Exhibit 6	58	26 August 2024	Within the exhibit, the bar representing the fifth year is incorrectly labeled. The exponent 4 should be 3, so replace this expression on top of the bar: $D(1+g_s)^4 (1+g)^2$	With: $D(1+g_s)^3 (1+g)^2$
Time Value of Money in Fixed Income and Equity	Example 7, Solution to 2	59	26 August 2024	Replace: We may solve for D4 as GBP1.894 ($=1.787 \times 1.02 = D3(1 + g!)$) and the second expression to be GBP9.22 as follows:	With: We may solve for D4 as GBP1.823 ($=1.787 \times 1.02 = D3(1 + g!)$) and the second expression to be GBP9.22 as follows:
				$\text{GBP}9.22 = \frac{1.894(0.15 - 0.02)}{(1.15)^3}$	$\text{GBP}9.22 = \frac{1.823}{(0.15 - 0.02)} \cdot \frac{1}{(1.15)^3}$

Lesson	Location	PDF Pg	Revised	Correction
Cash Flow Additivity	Example 14 – Solution to 1	76	26 August 2024	Replace: Foreign Strategy: Convert GBP1,000 at 1.2602 to receive USD1,260.20, which invested at the one-year US-dollar risk-free rate of 2.667 percent returns USD1,294.27 ($=1,260.20 e^{(0.02667)}$) in one year.
				With: Foreign Strategy: Convert GBP1,000 at 1.2602 to receive USD1,260.20, which invested at the one-year US-dollar risk-free rate of 2.667 percent returns USD1,294.26 ($=1,260.20 e^{(0.02667)}$) in one year.
Solutions	Solution to 5	85	26 August 2024	Replace: 2.29 percent = $(92.25/89)^{(1/3)} - 1$.
				Replace: 2.29 percent = (95.25/89) (1/3) – 1.

Statistical Measures of Asset Returns

Lesson	Location	PDF Pg	Revised	Correction
Measures of Central Tendency and Location	Paragraph following Exhibit 2	91	26 August 2024	Replace: The modal interval always has the highest bar in the histogram; in this case, the modal interval is 0.0 to 0.9 percent, and this interval has 493 observations out of a total of 1,258 observations.
				With: The modal interval always has the highest bar in the histogram; in this case, the modal interval is 0.0 to 1.0 percent, and this interval has 555 observations out of a total of 1,258 observations.
Measures of Dispersion	Question Set – Question 2	109	26 August 2024	Replace: 2. The fund with the mean absolute deviation (MAD) is Fund:
				Replace: 2. The fund with the highest mean absolute deviation (MAD) is Fund:
Measures of Shape of a Distribution	Interpreting Skewness and Kurtosis – Question 2	115	26 August 2024	Replace: 2. Does the distribution displays kurtosis? Explain.
				Replace: 2. Does the distribution display kurtosis? Explain.

Portfolio Mathematics

Lesson	Location	PDF Pg	Revised	Correction
Portfolio Expected Return and Variance of Return	Equation 2	155	26 August 2024	Replace: $\sigma^2(R_p) = E\{[R_p E(R_p)]^2\}$. With: $\sigma^2(R_p) = E\{[R_p - E(R_p)]^2\}$.
Portfolio Expected Return and Variance of Return	Equation 4	156	26 August 2024	Replace: $\text{Cov}(R_i, R_j) = \sum_{t=1}^n (R_{i,t} - \bar{R}_i)(R_{j,t} - \bar{R}_j) / (n - 1)$ With: $\text{Cov}(R_i, R_j) = \sum_{t=1}^n (R_{i,t} - \bar{R}_i)(R_{j,t} - \bar{R}_j) / (n - 1)$
Portfolio Expected Return and Variance of Return	Calculation under Equation 5	156	26 August 2024	Replace: $= w_1^2 \sigma^2(R_1) + w_1 w_2 \text{Cov}(R_1, R_2) + w_1 w_3 \text{Cov}(R_1, R_3) + w_1 w_2 \text{Cov}(R_1, R_2) + w_2^2 \sigma^2(R_2) + w_2 w_3 \text{Cov}(R_2, R_3) + w_1 w_3 \text{Cov}(R_1, R_3) + w_2 w_3 \text{Cov}(R_2, R_3) + w_2^2 \sigma^2(R_3)$ With: $= w_1^2 \sigma^2(R_1) + w_1 w_2 \text{Cov}(R_1, R_2) + w_1 w_3 \text{Cov}(R_1, R_3) + w_1 w_2 \text{Cov}(R_1, R_2) + w_2^2 \sigma^2(R_2) + w_2 w_3 \text{Cov}(R_2, R_3) + w_1 w_3 \text{Cov}(R_1, R_3) + w_2 w_3 \text{Cov}(R_2, R_3) + w_2^2 \sigma^2(R_3)$

Hypothesis Testing

Lesson	Location	PDF Pg	Revised	Correction
Tests of Return and Risk in Finance	Exhibit 6	226	26 August 2024	Replace the text in “Step 4: State the decision rule.”: We reject the null hypothesis if the calculated χ^2 statistic is less than 13.09051. With: We reject the null hypothesis if the calculated χ^2 statistic is greater than 13.09051. Replace the text in “Step 6: Make a decision.”: Fail to reject the null hypothesis because the calculated χ^2 statistic is greater than the critical value. There is insufficient evidence to indicate that the variance is less than 16% (or, equivalently, that the standard deviation is less than 4%). With: “ Reject the null hypothesis because the calculated χ^2 statistic is greater than the critical value. There is sufficient evidence to indicate that the variance is less than 16% (or, equivalently, that the standard deviation is less than 4%).”

Lesson	Location	PDF Pg	Revised	Correction
Tests of Return and Risk in Finance	Question Set – Solution to 4	234	26 August 2024	Replace: Because 5.06 is not less than 3.325, we do not reject the null hypothesis; the calculated test statistic falls to the right of the critical value, where the critical value separates the left-side rejection region from the region where we fail to reject.

With:
 Because 5.06 is **greater than** 3.325, we **reject the** null hypothesis; the calculated test statistic falls to the right of the critical value, **where the critical value separates the left-side region from the region where we reject the null.**

Parametric and Non-Parametric Tests of Independence

Lesson	Location	PDF Pg	Revised	Correction
Tests Concerning Correlation	Question Set, Practice Problem 2	252	26 August 2024	Replace: $r s = 1 - 6(91(4840.)5)$ $= -0.20416.$
				With: $r s = 1 - 6(91(4840.)5)$ $= -\mathbf{0.20417}.$
Tests Concerning Correlation	Question Set, Practice Problem 3	255	26 August 2024	Replace: $t = \frac{r\sqrt{n-2}}{\sqrt{1-r^2}}$ is $t = \frac{-0.2416\sqrt{7}}{\sqrt{1-0.041681}} = \frac{-0.540156}{0.978937} = -0.55177.$
				With: $t = \frac{r\sqrt{n-2}}{\sqrt{1-r^2}}$ is $t = \frac{-\mathbf{0.20417}\sqrt{7}}{\sqrt{1-0.041681}} = \frac{-\mathbf{0.540183}}{0.978937} = -\mathbf{0.55181}.$
Tests of Independence Using Contingency Table Data	Exhibit 9 – Step 4	258	26 August 2024	Replace: We reject the null hypothesis if the calculated χ^2 statistic is greater than 9.4877.
				With: We reject the null hypothesis if the calculated χ^2 statistic is greater than 9.4877.

Simple Linear Regression

Lesson	Location	PDF Pg	Revised	Correction
Hypothesis Tests in the Simple Linear Regression Model	Exhibit 22 – Step 5	289	1 November 2024	Replace: = 4.00131 With: = 4.00163
Hypothesis Tests in the Simple Linear Regression Model	Equation 20	290	26 August 2024	Replace: $t_{intercept} = \frac{\hat{b}_0 - B_0}{s\hat{b}_0} = \frac{\hat{b}_0 - B_0}{\sqrt{\frac{1}{n} + \frac{\bar{X}^2}{\sum_{i=1}^n (X_i - \bar{X})^2}}}$ With: $t_{intercept} = \frac{\hat{b}_0 - B_0}{s\hat{b}_0} = \frac{\hat{b}_0 - B_0}{\mathbf{s} \sqrt{\frac{1}{n} + \frac{\bar{X}^2}{\sum_{i=1}^n (X_i - \bar{X})^2}}}$
Hypothesis Tests in the Simple Linear Regression Model	Exhibit 24	290	26 August 2024	Replace equation in Step 5: $t_{intercept} = \frac{4.875 - 3.0}{\sqrt{\frac{1}{6} + \frac{6.1^2}{122.64}}} = \frac{1.875}{0.68562} = 2.73475$ With: $t_{intercept} = \frac{4.875 - 3.0}{3.4596 \times \sqrt{\frac{1}{6} + \frac{6.1^2}{122.64}}} = \frac{1.875}{3.4596 \times 0.68562} = \mathbf{0.7905}$
Hypothesis Tests in the Simple Linear Regression Model	Exhibit 24	290	26 August 2024	Replace text in Step 6: Reject the null hypothesis. There is sufficient evidence to indicate that the intercept is greater than 3%. With: Do not reject the null hypothesis. There is not sufficient evidence to indicate that the intercept is greater than 3%.
Hypothesis Tests in the Simple Linear Regression Model	Test of Hypotheses: Level of Significance and p-Values	293	26 August 2024	Replace second sentence in third paragraph under the section: The p-value corresponding to this test statistic is 0.016, which means there is just a 0.16 percent chance of rejecting the null hypotheses when it is true. With: The p-value corresponding to this test statistic is 0.016, which means that, assuming the null hypothesis is true, there is a 1.6% chance of observing a test statistic as extreme as the one observed, or more extreme.

Economics

Monetary Policy

Lesson	Location	PDF Pg	Revised	Correction
Practice Problems	Practice Problem 7	137-138	26 August 2024	<p>Replace answer options:</p> <p>accurately determine the neutral rate of interest.</p> <p>A. regulate the willingness of financial institutions to lend.</p> <p>B. control amounts that economic agents deposit into banks.</p>

With:

- A. accurately determine the neutral rate of interest.
- B. regulate the willingness of financial institutions to lend.
- C. control amounts that economic agents deposit into banks.

Introduction to Geopolitics


Lesson	Location	PDF Pg	Revised	Correction
Geopolitical Risk and the Investment Process	Exhibit 14	183	26 August 2024	<p>Replace:</p> <p>Pipeline Disruption Takes Several Quarters to Fix, Impacting the Energy Sector of Impacting Countries</p> <p>Low Velocity/Short-Term Impacts</p>

With:

Pipeline Disruption Takes Several Quarters to Fix, Impacting the Energy Sector of **Impacted** Countries

Low Velocity/**Long-Term** Impacts

Exhibit 14: Risk Velocity



High Velocity Short-Term Impacts


Low Velocity Short-Term Impacts

An Unexpected Protest Event May Increase Investor Concern right Away, and Then Resolve

Pipeline Disruption Takes Several Quarters to Fix, Impacting the Energy Sector of Impacting Countries

Patter Migration Unfolds Over Years Impacting Countries' Political Processes and Economic Growth

Exhibit 14: Risk Velocity



High Velocity Short-Term Impacts

Low Velocity Long-Term Impacts

An Unexpected Protest Event May Increase Investor Concern right Away, and Then Resolve

Pipeline Disruption Takes Several Quarters to Fix, Impacting the Energy Sector of **Impacted** Countries

Patter Migration Unfolds Over Years Impacting Countries' Political Processes and Economic Growth

Corporate Issuers

Working Capital and Liquidity

Lesson	Location	PDF Pg	Revised	Correction
Cash Conversion Cycle	Question Set, Solution 3	109	26 August 2024	<p>Replace: B is correct. The issuer that uses the vendor financing by delaying payments is increasing its days payable outstanding and thus lengthening its cash conversion cycle. The issuer is reducing its need for liquidity by taking advantage of the vendor financing at the cost of the forgone discount.</p> <p>With: A is correct. The issuer that uses the vendor financing by delaying payments is increasing its days payable outstanding and thus shortening its cash conversion cycle. The issuer is reducing its need for liquidity by taking advantage of the vendor financing at the cost of the forgone discount.</p>

Capital Structure

Lesson	Location	PDF Pg	Revised	Correction
The Cost of Capital	Question Set – Solution to 3	181	4 November 2024	<p>Replace: A is correct.</p> <p>With: C is correct.</p>
Modigliani-Miller Capital Structure Propositions	Firm Value with Taxes (MM Proposition II with Taxes)	197	25 September 2024	<p>Replace: Firm Value with Taxes (MM Proposition II with Taxes)</p> <p>With: Firm Value with Taxes (MM Proposition I with Taxes)</p>

Lesson	Location	PDF Pg	Revised	Correction
Optimal Capital Structure	Paragraph following Exhibit 7	204	26 August 2024	<p>Replace: However, as debt increases, the possible financial distress costs rise substantially and equal the tax benefit of debt at D^*. Beyond this point, greater leverage reduces firm value, the present value of financial distress costs outweigh the tax benefit.</p> <p>With: However, as debt increases, the present value of expected financial distress costs begins to rise and offset the tax benefit of debt, with the optimal amount of debt D^* at the point at which the marginal benefit of the tax shield equals the marginal cost of expected financial distress. Beyond this point, greater leverage reduces firm value, as the increased present value of expected financial distress costs outweighs the marginal tax benefit.</p>

Financial Statement Analysis

Analyzing Income Statements

Lesson	Location	PDF Pg	Revised	Correction
Earnings per Share	Example 10 – first sentence	71	26 August 2024	<p>Replace: 1. Assume the same facts as Example 7 except that on 1 December 2018, a previously declared 2-for-1 stock split took effect.</p> <p>With: 1. Assume the same facts as Example 9 except that on 1 December 2018, a previously declared 2-for-1 stock split took effect.</p>

Analyzing Statements of Cash Flows I

Lesson	Location	PDF Pg	Revised	Correction
Linkages between the Financial Statements	Exhibit 4	128	26 August 2024	Replace table header: Income Statement for year ended 31 December 20X1 <hr/> Replace table header: Statement of Cash Flows for year ended 31 December 20X1 With: Income Statement for year ended 31 December 20X2 <hr/> With: Statement of Cash Flows for year ended 31 December 20X2
Linkages between the Financial Statements	Exhibit 5 table – last statement of cash flows item	128	26 September 2024	Replace: Cash flows from operating activities increases by USD100 With: Cash flows from operating activities increases by USD150

Analyzing Statements of Cash Flows II

Lesson	Location	PDF Pg	Revised	Correction
Ratios and Common-Size Analysis	Paragraph under Exhibit 4	162-163	26 August 2024	Replace: The common-size statement in Exhibit 5 has been developed based on Acme's cash flow statement using the indirect method for operating cash flows and using net revenue (cash received from customers) for the company in 2018 of USD23,598 from Exhibit 3. With: The common-size statement in Exhibit 5 has been developed based on Acme's cash flow statement using the indirect method for operating cash flows and using net revenue (cash received from customers) for the company in 2018 of USD23,543 from Exhibit 3.

Analysis of Inventories

Lesson	Location	PDF Pg	Revised	Correction
Solutions	Solution to 34	208-209	26 August 2024	<p>Replace solution: B is correct.</p> <hr/> <p>Explanatory text should read:</p>
				<p>With: C is correct.</p> <hr/> <p>In a period of rising inventory costs, inventory valued using FIFO would have relatively higher values compared to inventory valued using LIFO. Thus, any mark downs of inventory values to NRV would have the least impact on inventories valued using the LIFO method as they are already conservatively valued.</p>

Analysis of Income Tax

Lesson	Location	PDF Pg	Revised	Correction
Deferred Tax Assets and Liabilities	First paragraph under Realizability of Deferred Tax Assets	288	26 August 2024	<p>Replace: Assume Pinto Construction (a hypothetical company) depreciates equipment on a straight-line basis of 10 percent per year. The tax authorities allow depreciation of 15 percent per year. At the end of the fiscal year, the carrying amount of the equipment for accounting purposes would be greater than the tax base of the equipment thus resulting in a temporary difference.</p>
				<p>With: Pinto Construction receives advance payments from customers that are immediately taxable but these payments are not recognized as accounting income until Pinto Construction fulfills its obligations in later reporting periods.</p>

Financial Analysis Techniques

Lesson	Location	PDF Pg	Revised	Correction
Integrated Financial Ratio Analysis	Example 14 – Solution last sentence	432	12 September 2024	Replace: Choices B and C are incorrect because DOH and receivables turnover are misinterpreted.
				With: Choices A and C are incorrect because DOH and receivables turnover are misinterpreted.

Introduction to Financial Statement Modeling

Lesson	Location	PDF Pg	Revised	Correction
Modeling Inflation and Deflation	Example 8 – Solution to 3	489	26 August 2024	Replace: The highest gross profit is projected by Analyst D.
				With: The highest gross profit is projected by Analyst C .

Equity Investments

Company Analysis: Past and Present

Lesson	Location	PDF Pg	Revised	Correction
Operating Profitability and Working Capital Analysis	Example 3 – Solution to 4	228	26 August 2024	<p>Replace:</p> <p>C is correct.</p> <p>Last 12 months' sales: \$7,688</p> <p>Last 12 months' operating profit: \$1,244</p> <p>Low end of guidance</p> <p>Next 12 months' sales: $156.360 \times \\$62.50 = \\$9,773$</p> <p>Next 12 months' operating profit: $\\$9,773 - (156.360 \times 17.34) - 1,565 = 5,496$</p> <p>Degree of operating leverage: $(5,496/1,244 - 1)/(9,773/7,688 - 1) = 1.95$</p> <p>High end of guidance</p> <p>Next 12 months' sales: $167.197 \times \\$62.50 = \\$10,450$</p> <p>Next 12 months' operating profit: $\\$10,450 - (167.197 \times 17.34) - 1,565 = 5,986$</p> <p>Degree of operating leverage: $(5,986/1,244 - 1)/(10,450/7,688 - 1) = 1.85$</p>
				<p>With:</p> <p>C is correct.</p> <p>Last 12 months' sales: \$7,688</p> <p>Last 12 months' operating profit: \$3,594</p> <p>Low end of guidance</p> <p>Next 12 months' sales: $156.360 \times \\$62.50 = \\$9,773$</p> <p>Next 12 months' operating profit: $\\$9,773 - (156.360 \times 17.34) - 1,565 = 5,496$</p> <p>Degree of operating leverage: $(5,496/\mathbf{3,594} - 1)/(9,773/7,688 - 1) = 1.95$</p> <p>High end of guidance</p> <p>Next 12 months' sales: $167.197 \times \\$62.50 = \\$10,450$</p> <p>Next 12 months' operating profit: $\\$10,450 - (167.197 \times 17.34) - 1,565 = 5,986$</p> <p>Degree of operating leverage: $(5,986/\mathbf{3,594} - 1)/(10,450/7,688 - 1) = 1.85$</p>
Practice Problems	The following information relates to questions 1-7	242	26 August 2024	<p>Replace the sentence before Practice Problem 1:</p> <p>On average, NewShips' commission, which it receives as a broker from the customer, was 6% of the freight rate.</p>
				<p>With:</p> <p>On average, NewShips' commission, which it receives as a broker from the customer, was 5% of the freight rate.</p>
Practice Problems	Question 4	243	26 August 2024	<p>Question should be disregarded as there is not sufficient information about Net Profit to provide a complete answer.</p>

Fixed Income

Yield and Yield Spread Measures for Fixed-Rate Bonds

Lesson	Location	PDF Pg	Revised	Correction
Introduction	Learning Module Self-Assessment – Question 3	157	29 August 2024	Replace: The G-spread for Bond B is $(0.01271 - 0.011) = 173\text{bps}$. With: The G-spread for Bond B is $(\mathbf{0.01213} - 0.011) = \mathbf{11.3\text{bps}}$.
Other Yield Measures, Conventions, and Accounting for Embedded Options	Question Set – Solution to 4	171	26 August 2024	Replace the solution to question 4: $r = 0.0762 \times 2 = 0.1512$. The yield-to-first call for the bond is 15.12%. With: $r = 0.0762 \times 2 = \mathbf{0.1525}$. The yield-to-first call for the bond is 15.25% .
Yield Spread Measures for Fixed-Rate Bonds and Matrix Pricing	Example 9	177	1 November 2024	Replace: <div style="background-color: #f0f0f0; padding: 10px; margin: 10px 0;"> $100.45 = \frac{0.375}{(1+r)^1} + \frac{0.375}{(1+r)^2} + \frac{0.375}{(1+r)^3} + \frac{100.375}{(1+r)^4}$ $r = 0.0018662 \times 2 = 0.00373.$ </div> With: <div style="background-color: #f0f0f0; padding: 10px; margin: 10px 0;"> $\mathbf{100.75} = \frac{0.375}{(1+r)^1} + \frac{0.375}{(1+r)^2} + \frac{0.375}{(1+r)^3} + \frac{100.375}{(1+r)^4}$ $r = 0.0018662 \times 2 = 0.00373.$ </div>
Yield Spread Measures for Fixed-Rate Bonds and Matrix Pricing	Example 9, Solution to 1	177	26 August 2024	Replace the G-spread of: $R = 0.0018662 \times 2 = 0.00373$. $0.01271 - 0.00373 = 89\text{ bps}$. With: $R = \mathbf{0.002618} \times 2 = \mathbf{0.005235}$. Therefore, the G-spread is $0.01271 - 0.005235 = 75\text{ bps}$.

Yield and Yield Spread Measures for Floating-Rate Instruments

Lesson	Location	PDF Pg	Revised	Correction
Yield and Yield Spread Measures for Floating Rate Notes	Second equation from top	191	30 October 2024	Replace: $PV = \frac{\frac{(0.0125 + 0.0050) \times 100}{2}}{\left(1 + \frac{0.0125 + 0.040}{2}\right)^1} + \frac{\frac{(0.0125 + 0.0050) \times 100}{2}}{\left(1 + \frac{0.0125 + 0.040}{2}\right)^2} + \frac{\frac{(0.0125 + 0.0050) \times 100}{2}}{\left(1 + \frac{0.0125 + 0.040}{2}\right)^3} + \frac{\frac{(0.0125 + 0.0050)}{2}}{\left(1 + \frac{0.0125}{2}\right)}$ With: $PV = \frac{\frac{(0.0125 + 0.0050) \times 100}{2}}{\left(1 + \frac{0.0125 + \mathbf{0.0040}}{2}\right)^1} + \frac{\frac{(0.0125 + 0.0050) \times 100}{2}}{\left(1 + \frac{0.0125 + \mathbf{0.0040}}{2}\right)^2} + \frac{\frac{(0.0125 + 0.0050) \times 100}{2}}{\left(1 + \frac{0.0125 + \mathbf{0.0040}}{2}\right)^3} + \frac{\frac{(0.0125 + 0.0050) \times 100}{2} + 100}{\left(1 + \frac{0.0125 + \mathbf{0.0040}}{2}\right)^4}$
Yield Measures for Money Market Instruments	Example 2	196	26 August 2024	Replace: $PV = 20,004,918 / (1 + 45/365 \times 0.0006) .$ With: $PV = \mathbf{20,005,918} / (1 + 45/365 \times 0.0006) .$
Yield Measures for Money Market Instruments	Example 3	197-198	26 August 2024	Replace the first equation and preceding text: The price of the commercial paper is 98.560 per 100 of face value, calculated using Equation 2 and entering $FV = 100$, Days = 90, Year = 360, and $DR = 0.0012$. $PV = FV \times \left(1 - \frac{\text{Days}}{\text{Year}} \times DR\right) .$ $PV = 100 \times \left(1 - \frac{90}{360} \times 0.0012\right) .$ $PV = 99.970 .$ Next, use Equation 5 to solve for AOR for a 365-day year, where Year = 365, Days = 90, $FV = 100$, and $PV = 99.970$. $AOR = \frac{\text{Year}}{\text{Days}} \times \frac{FV - PV}{PV} .$ $AOR = \frac{365}{90} \times \frac{100 - 99.970}{99.970} .$ $AOR = 0.00122 .$ The 90-day commercial paper discount rate of 0.120% converts to an add-on rate for a 365-day year of 0.122%. With: The price of the commercial paper is 99.975 per 100 of face value, calculated using Equation 2 and entering $FV = 100$, Days = 90, Year = 360, and $DR = \mathbf{0.0010}$. $PV = FV \times \left(1 - \frac{\text{Days}}{\text{Year}} \times DR\right) .$ $PV = 100 \times \left(1 - \frac{90}{360} \times \mathbf{0.0010}\right)$ $PV = \mathbf{99.975}$ Next, use Equation 5 to solve for AOR for a 365-day year, where Year = 365, Days = 90, $FV = 100$, and $PV = \mathbf{99.975}$. $AOR = \frac{\text{Year}}{\text{Days}} \times \frac{FV - PV}{PV} .$ $AOR = \frac{365}{90} \times \frac{100 - \mathbf{99.975}}{\mathbf{99.975}} .$ $AOR = 0.00122 .$ The 90-day commercial paper discount rate of 0.10% converts to an add-on rate for a 365-day year of 0.1014% .

Lesson	Location	PDF Pg	Revised	Correction
Yield Measures for Money Market Instruments	Question Set - Question 6	201	1 November 2024	Replace: 6. A portfolio manager has asked you to evaluate the following Thai baht–denominated money market instruments with equivalent credit risk.
				With: 6. A portfolio manager has asked you to evaluate the following Thai baht–denominated 180 days money market instruments with equivalent credit risk.
Solutions	Solution to 1	205	19 September 2024	Delete the first sentence: The estimated discount margin is 195 bps.
				The estimated discount margin is 195 bps.
				Replace the calculation: $\frac{(MRR + QM) \times FV}{m} = \frac{(-0.0055 + 0.016) \times 100}{4} = 0.275.$
				With: $\frac{(MRR + QM) \times FV}{m} = \frac{(-0.055 + 0.016) \times 100}{4} = 0.2625.$
				...
				...
				$DM=0.4525.DM=0.502144$
				$DM=0.4525.DM=0.4525.$
				The estimated discount margin is 50.2 bps.
				The estimated discount margin is 45.25 bps .
Practice Problems/Solutions	Question and Solution to 5	204, 205-206	26 August 2024	Replace the answer C: 0.28%.
				With: 0.56%.
				Replace the solution: C is correct. The bond equivalent yield is closest to 0.28%. The present value of the banker’s certificate of deposit is calculated as follows:
				With: C is correct. The bond equivalent yield is closest to 0.56% . The present value of the banker’s certificate of deposit is calculated as follows:
				The bond equivalent yield (AOR using a 365-day year) is calculated to be approximately 0.28%: $AOR = \frac{\text{Year}}{\text{Days}} \times \frac{FV - PV}{PV}.$
				The bond equivalent yield (AOR using a 365-day year) is calculated to be approximately 0.56%: $AOR = \frac{\text{Year}}{\text{Days}} \times \frac{FV - PV}{PV}.$
				$AOR = \frac{365}{90} \times \frac{100 - 99.8625}{99.8625}.$
				$AOR = \frac{365}{90} \times \frac{100 - 99.8625}{99.8625}.$
				$AOR = 0.0028.$
				$AOR = 0.0056.$

The Term Structure of Interest Rates: Spot, Par, and Forward Curves

Lesson	Location	PDF Pg	Revised	Correction
Introduction	Learning Module Self Assessment - Solution to 3	209	25 September 2024	Replace: $IFR2,1 = 3.01\%$. With: $IFR2,1 = 2.50\%$.
Maturity Structure of Interest Rates and Spot Rates	Example 1 – Solution to 2	215	26 August 2024	Replace: $PV = 100.01$ With: $PV = 99.99$
Par and Forward Rates	Example 2 - Solution to 1	218	26 August 2024	Replace: $100 = \frac{PMT}{(1+z_1)^1} + \frac{PMT}{(1+z_2)^2} + \dots + \frac{PMT+100}{(1+z_N)^N}$ $100 = \frac{PMT}{(1+0.003117)^1} + \frac{PMT}{(1+0.568)^2} + \frac{PMT+100}{(1+0.7977)^3}$ We can factor out PMT and then solve for it: $100 = PMT \times \left(\frac{1}{(1+0.003117)^1} + \frac{1}{(1+0.568)^2} + \frac{1}{(1+0.7977)^3} \right) + \frac{100}{(1+0.7977)^3}$ $PMT = 0.7952$. With: $100 = \frac{PMT}{(1+z_1)^1} + \frac{PMT}{(1+z_2)^2} + \dots + \frac{PMT+100}{(1+z_N)^N}$ $100 = \frac{PMT}{(1+0.003117)^1} + \frac{PMT}{(1+0.00568)^2} + \frac{PMT+100}{(1+0.007977)^3}$ We can factor out PMT and then solve for it: $100 = PMT \times \left(\frac{1}{(1+0.003117)^1} + \frac{1}{(1+0.00568)^2} + \frac{1}{(1+0.007977)^3} \right) + \frac{100}{(1+0.007977)^3}$ $PMT = 0.7952$.
Par and Forward Rates	Example 3, Solution to 1	220	26 August 2024	Replace: Therefore, $A = 1$, $B = 3$, ZA is the two-year spot rate, and ZB is the three-year spot rate: With: Therefore, $A = 2$, $B = 3$, ZA is the two-year spot rate, and ZB is the three-year spot rate:

Lesson	Location	PDF Pg	Revised	Correction
Par and Forward Rates	Example 3 – Solution to 1	220	26 August 2024	Replace second from last equation: $(1 + 0.00568)^2 \times (1 + \text{IFR}_{2,1})^1 = (1 + 0.007977)^3$

With:
 $(1+0.0188) \times (1+0.0277)=(1+Z)^2$

Interest Rate Risk and Return

Lesson	Location	PDF Pg	Revised	Correction
Macaulay Duration	Equation 3	254	26 August 2024	There is a missing bracket in the denominator of the second term, after subtracting 1. Replace: $MacDur = \left\{ \frac{1+r}{r} - \frac{1+r + [N \times (c-r)]}{c \times [(1+r)^N - 1 + r]} \right\} - \frac{t}{T}$
Solutions	Solution to 2	260	26 August 2024	Replace: A is correct. The future value of reinvested coupon interest is $= FV(0.054, 6, 6.4, 0, 0) = 46.245$.

With:

$$MacDur = \left\{ \frac{1+r}{r} - \frac{1+r + [N \times (c-r)]}{c \times [(1+r)^N - 1] + r} \right\} - \frac{t}{T}$$
 A is correct. The future value of reinvested coupon interest is
 $= FV(\mathbf{0.074}, 6, 6.4, 0, 0) = 46.245$.

Yield-Based Bond Duration Measures and Properties

Lesson	Location	PDF Pg	Revised	Correction
Introduction	Learning Module Self Assessment - Solution to 3	265	26 August 2024	Replace: Two instances in calculation that says “308” with “380”: C is correct. The money duration is 380: $MoneyDur = 308$. $\Delta PV_{Full} \approx -308 \times 0.005$.

With:
 C is correct. The money duration is 380:
 $MoneyDur = \mathbf{380}$.
 $\Delta PV_{Full} \approx -\mathbf{380} \times 0.005$.

Lesson	Location	PDF Pg	Revised	Correction	
Modified Duration	Example 1	269	26 August 2024	Replace row in first table: Maturity 15 Oct. 2035 <hr/> Replace row in third table: Settlement date 15 Oct. 2025 Maturity 15 Oct. 2035	With: Maturity 15 Oct. 2030 <hr/> With: Settlement date 11 Dec. 2025 Maturity 15 Oct. 2030
Money Duration and Price Value of a Basis Point	Equation 7	278	24 September 2024	Replace: $\% \Delta PV_{Full} \approx -MoneyDur \times \Delta Yield$	With: $\Delta PV_{Full} \approx -MoneyDur \times \Delta Yield$
Properties of Duration	Lesson's first paragraph	284	26 August 2024	There is a missing bracket in the denominator of the second term, after subtracting 1. Replace: $MacDur = \left\{ \frac{1+r}{r} - \frac{1+r + [N \times (c-r)]}{c \times [(1+r)^N - 1] + r} \right\} - \frac{t}{T}$	With: $MacDur = \left\{ \frac{1+r}{r} - \frac{1+r + [N \times (c-r)]}{c \times [(1+r)^N - 1] + r} \right\} - \frac{t}{T}$
Properties of Duration	Question Set, Solution to 1	287	26 August 2024	Replace last cell in "Second bond" column: 4% coupon, paid semiannually, and five years to maturity, priced to yield 4%	With: 4% coupon, paid semiannually, and five years to maturity, priced to yield 8%

Yield-Based Bond Convexity and Portfolio Properties

Lesson	Location	PDF Pg	Revised	Correction
Bond Risk and Return Using Duration and Convexity	Knowledge Check	305-306	24 September 2024	<div style="display: flex; justify-content: space-between;"> <div style="width: 48%;"> <p>Replace:</p> <p>1. Calculate the full price of the bond per 100 of par value.</p> <p>Solution: Because Excel's PRICE function does not work for negative yields, the equation for PV of a zero-coupon bond must be used. There are five annual periods, settlement is 30 days into the 365-day year, and because $1 + r = 1 + (-0.0072) = 0.9928$, the full price of the bond is 103.6175 per 100 of par value:</p> $PV_0 = \left[\frac{100}{(0.9928)^5} \right] \times (0.9928)^{\frac{30}{365}}$ $PV_0 = 103.6175.$ <hr/> <p>2. Calculate $ApproxModDur$ and $ApproxCon$ using a 1 bp increase and decrease in the yield-to-maturity.</p> <p>Solution: $PV_+ = 103.5662$, and $PV_- = 103.6689$:</p> $PV_+ = \left[\frac{100}{(0.9929)^5} \right] \times (0.9929)^{\frac{30}{365}}$ $PV_+ = 103.5662.$ <hr/> $PV_- = \left[\frac{100}{(0.9927)^5} \right] \times (0.9927)^{\frac{30}{365}}$ $PV_- = 103.6689.$ <p>The approximate modified duration is 4.9535:</p> $ApproxModDur = \frac{103.6689 - 103.5662}{2 \times (0.0001) \times 103.6175} = 4.9535.$ <p>The approximate convexity is 29.918:</p> $ApproxCon = \frac{103.6689 + 103.5662 - (2 \times 103.6175)}{(0.0001)^2 \times 103.6175} = 29.918.$ </div> <div style="width: 48%;"> <p>With:</p> <p>1. Calculate the full price of the bond per 100 of par value.</p> <p>Solution: Because Excel's PRICE function does not work for negative yields, the equation for PV of a zero-coupon bond must be used. There are five annual periods, settlement is 30 days into the 365-day year, and because $1 + r = 1 + (-0.0072) = 0.9928$, the full price of the bond is 103.6175 per 100 of par value:</p> $PV_0 = \left[\frac{100}{(0.9928)^5} \right] \times (0.9928)^{\frac{30}{365}}$ $PV_0 = 103.617526.$ <hr/> <p>2. Calculate $ApproxModDur$ and $ApproxCon$ using a 1 bp increase and decrease in the yield-to-maturity.</p> <p>Solution: $PV_+ = 103.566215$, and $PV_- = 103.668868$:</p> $PV_+ = \left[\frac{100}{(0.9929)^5} \right] \times (0.9929)^{\frac{30}{365}}$ $PV_+ = 103.566215.$ <hr/> $PV_- = \left[\frac{100}{(0.9927)^5} \right] \times (0.9927)^{\frac{30}{365}}$ $PV_- = 103.668868$ <p>The approximate modified duration is 4.9535:</p> $ApproxModDur = \frac{103.668868 - 103.566215}{2 \times (0.0001) \times 103.617526} = 4.9535.$ <p>The approximate convexity is 29.918:</p> $ApproxCon = \frac{103.668868 + 103.566215 - (2 \times 103.617526)}{(0.0001)^2 \times 103.617526} = 29.918.$ </div> </div>

Lesson	Location	PDF Pg	Revised	Correction
Bond Risk and Return Using Duration and Convexity	Question Set	307	26 August 2024	Replace Question Set introductory text: An investor purchases a €10 million semi-annual 3.75% coupon bond with a yield-to-maturity of 2.95%, settling 30 June 2025 and maturing 30 June 2032.
				With: An investor purchases a €10 million semi-annual 2.95% coupon bond with a yield-to-maturity of 2.95%, settling 30 June 2025 and maturing 30 June 2032.
Bond Risk and Return Using Duration and Convexity	Question Set – Solution to 4	307	26 August 2024	Replace: $PV^{Full} = \text{PRICE}(\text{DATE}(2025,6,30), \text{DATE}(2032,6,30), 0.0295, 0.0345, 100, 2, 0)$ $= 103.198.$ The actual increase in the bond price is 3.1984%: $\Delta PV^{Full} = 3.1984\% \times \$10,000,000 = \text{EUR}319,840.$ The difference between the actual and the estimated price change is EUR73 (= 319,840 – 319,767).
				With: $PV^{Full} = \text{PRICE}(\text{DATE}(2025,6,30), \text{DATE}(2032,6,30), \mathbf{0.0246}, 0.0345, 100, 2, 0)$ $= \mathbf{103.1333}.$ The actual increase in the bond price is 3.1333% : $\Delta PV^{Full} = \mathbf{3.1333\%} \times \$10,000,000 = \mathbf{\text{EUR}313,330}.$ The difference between the actual and the estimated price change is EUR6,437 (= 313,330 – 319,767).
Practice Problems	Question 1	312	24 September 2024	Replace: For a 5bps increase and decrease in yield-to-maturity, PV ₊ and PV ₋ are 98.245077 and 101.792534, respectively.
				With: For a 50bps increase and decrease in yield-to-maturity, PV ₊ and PV ₋ are 99.82283 and 100.177546 , respectively.
Practice Problems	Question 2	312	26 August 2024	Replace text in question: A bond pays a semiannual fixed coupon of 4.75%.
				With: A bond pays a semiannual fixed coupon of 4.70% .
Solutions	Solution to 1	314	24 September 2024	Replace: ApproxCon = $\frac{101.792534 + 98.245077 - (2 \times 100)}{(0.0005) 2 \times 100} = 15.044498$
				With: ApproxCon = $\frac{\mathbf{100.177546} + \mathbf{98.82283} - (2 \times 100)}{\mathbf{(0.005)} 2 \times 100} = \mathbf{15.04}$
Practice Problems	Solution to 8	315	26 August 2024	Replace: All else equal, the portfolio should outperform the lower-duration benchmark portfolio in both rising and falling interest rate environments.
				With: All else equal, the portfolio should outperform the lower-convexity benchmark portfolio in both rising and falling interest rate environments.

Curve-Based and Empirical Fixed-Income Risk Measures

Lesson	Location	PDF Pg	Revised	Correction
Curve-Based Interest Rate Risk Measures	Example 1	324	26 August 2024	Replace: $EffDur = \frac{(PV_-) - (PV_+)}{2 \times (\Delta Curve) \times (PV_0)}$ $EffDur = \frac{(102.891) - (99.050)}{2 \times (0.00025) \times (101.060)}$ $EffDur = 7.601.$ $EffCon = \frac{[(PV_-) + (PV_+) - 2 \times (PV_0)]}{(\Delta Curve)^2 \times (PV_0)}$ $EffCon = \frac{[(102.891) + (99.050)] - [2 \times (101.060)]}{(0.00025)^2 \times (101.060)}$ $EffCon = -283.$
				With: $EffDur = \frac{(PV_-) - (PV_+)}{2 \times (\Delta Curve) \times (PV_0)}$ $EffDur = \frac{(102.891) - (99.050)}{2 \times (0.0025) \times (101.060)}$ $EffDur = 7.601.$ $EffCon = \frac{[(PV_-) + (PV_+) - 2 \times (PV_0)]}{(\Delta Curve)^2 \times (PV_0)}$ $EffCon = \frac{[(102.891) + (99.050)] - [2 \times (101.060)]}{(0.0025)^2 \times (101.060)}$ $EffCon = -283.$
Curve-Based Interest Rate Risk Measures	Question Set – Solution 2	325	26 August 2024	Replace: $EffDur = \frac{(PV_-) - (PV_+)}{2 \times (\Delta Curve) \times (PV_0)}$ $EffDur = \frac{(103.891) - (100.004)}{2 \times (0.00025) \times (102.208)}$ $EffDur = 76.061.$
				With: $EffDur = \frac{(PV_-) - (PV_+)}{2 \times (\Delta Curve) \times (PV_0)}$ $EffDur = \frac{(103.891) - (100.004)}{2 \times (0.0025) \times (102.208)}$ $EffDur = 7.6061.$

Lesson	Location	PDF Pg	Revised	Correction
Curve-Based Interest Rate Risk Measures	Question Set – Solution to 4	326	26 August 2024	<p>Replace:</p> <p>Solution:</p> $EffCon = \frac{[(PV_-) + (PV_+)] - [2 \times (PV_0)]}{(\Delta Curve)^2 \times (PV_0)}$ $EffCon = \frac{[(103.891) + (98.504)] - [2 \times (102.208)]}{(0.00025)^2 \times (102.208)}$ $EffCon = -3,164.$
				<p>With:</p> <p>Solution:</p> $EffCon = \frac{[(PV_-) + (PV_+)] - [2 \times (PV_0)]}{(\Delta Curve)^2 \times (PV_0)}$ $EffCon = \frac{[(103.891) + (98.504)] - [2 \times (102.208)]}{(0.0025)^2 \times (102.208)}$ $EffCon = -3,164.$
Key Rate Duration as a Measure of Yield Curve Risk	Exhibit 5	331	26 August 2024	<p>Replace:</p> <p>Assume the portfolio is weighted by the prices of the respective 2-, 5-, and 10-year bonds for a total portfolio value of \$293 million, or \$1 million \times (99.50 + 98.31 + 95.43). The portfolio's modified duration is calculated as</p> $5.345 = [1.991 \times (99.5/293.2)] + [4.869 \times (98.3/293.2)] + [9.333 \times (95.4/293.2)].$ <p>Alternatively, we could calculate each key rate duration by maturity. For example, the two-year key rate duration (KeyRateDur2) is</p> $0.676 = 1.991 \times (99.5/293.2).$ <p>Note that the three key rate duration values sum to the portfolio duration value of 5.345.</p>
				<p>With:</p> <p>Assume the portfolio is weighted by the prices of the respective 2-, 5-, and 10-year bonds for a total portfolio value of \$277 million, or \$1 million \times (99.006 + 93.96 + 81.01). The portfolio's modified duration is calculated as</p> $5.368 = [1.990 \times (99.006/277)] + [4.938 \times 93.96/277] + [9.828 \times (84.01/277)]$ <p>Alternatively, we could calculate each key rate duration by maturity. For example, the two-year key rate duration (KeyRateDur2) is</p> $0.711 = 1.990 \times (99.006/277).$ <p>Note that the three key rate duration values sum to the portfolio duration value of 5.368.</p>
Solutions	Solution to 3	339	15 October 2024	<p>Replace:</p> <p>$\% \Delta PV_{Full}$ Bond A $\approx (-7.48621 \times 0.0100) + [\frac{1}{2} \times 29.35972 \times (-0.0100)^2]$ $= -7.33941\%$. $\% \Delta PV_{Full}$ Bond B $\approx (-7.23853 \times 0.0100) + [\frac{1}{2} \times -321.75618 \times (0.0100)^2]$ $= -8.84730\%$.</p>
				<p>With:</p> <p>$\% \Delta PV_{Full}$ Bond A $\approx (-7.48621 \times 0.0200) + [\frac{1}{2} \times 29.35972 \times (-0.0200)^2]$ $= -7.33941\%$. $\% \Delta PV_{Full}$ Bond B $\approx (-7.23853 \times 0.0200) + [\frac{1}{2} \times -321.75618 \times (0.0200)^2]$ $= -8.84730\%$.</p>

Credit Risk

Lesson	Location	PDF Pg	Revised	Correction
Introduction	Learning Module Self Assessment, Question and Solution 2	342-343	26 August 2024	<p>Replace question: A EUR500,000 loan has the following characteristics:</p> <ul style="list-style-type: none"> • Probability of default 5% • Collateral EUR100,000 • Recovery rate 90% • Expected exposure EUR400,000 <p>The expected loss for this loan in event of default is: A. EUR1,500 B. EUR2,000</p> <hr/> <p>Replace solution:</p> <p>The correct answer is A. We solve for expected loss (EL) as follows: $EL = POD \times (EE - \text{Collateral}) \times (1 - RR).$ Since probability of default (POD) is 5%, expected exposure (EE) is EUR400,000, collateral is EUR100,000, and the recovery rate (RR) is 90%: $EL = EUR1,500 = 0.05 \times (400,000 - 100,000) \times (1 - 0.9).$ B is incorrect as it fails to reduce the expected exposure by the collateral, while C is incorrect as it simply multiplies EE and POD.</p>
				<p>With: A EUR500,000 loan has the following characteristics:</p> <ul style="list-style-type: none"> • Probability of default 5% • Collateral EUR100,000 • Recovery rate 90% • Expected exposure EUR400,000 <p>The expected loss for this loan in event of default is: A. EUR1,500 B. EUR2,000</p> <hr/> <p>With:</p> <p>The correct answer is B. We solve for expected loss (EL) as follows: $EL = POD \times LGD = POD \times EE \times (1 - RR).$ Since probability of default (POD) is 5%, expected exposure (EE) is EUR400,000, collateral is EUR100,000, and the recovery rate (RR) is 90%: $EL = \mathbf{EUR2,000} = 0.05 \times (400,000 - \mathbf{100,000}) \times (1 - 0.9)$ </p>

Lesson	Location	PDF Pg	Revised	Correction
Factors Impacting Yield Spreads	Question Set, Question and Solution 2	373-374	26 August 2024	<p>Replace option C in question: C. 54 bps.</p> <hr/> <p>Replace solution:</p> <p style="padding-left: 40px;">Bid yield: $93.75 = 100 / (1 + r)^5$ $r_{bid} = 1.2937\%$ Offer yield: $93.75 = 100 / (1 + r)^5$ $r_{offer} = 1.2991\%$</p> <p>The liquidity spread of 54 bps (0.0054%) is equal to the difference in the bid yield and the offer yield (= 1.2991% – 1.2937%).</p>
				<p>With: C. 0.54 bps</p> <hr/> <p>With:</p> <p style="padding-left: 40px;">Bid yield: $93.75 = 100 / (1 + r)^5$ $r_{bid} = \mathbf{1.2991\%}$ Offer yield: $\mathbf{93.7755} = 100 / (1 + r)^5$ $r_{offer} = \mathbf{1.2937\%}$</p> <p>The liquidity spread of 0.54 bps (0.0054%) is equal to the difference in the bid yield and the offer yield (= 1.2991% – 1.2937%).</p>
Solutions	Solution to 6	377-378	26 August 2024	<p>Replace: $\Delta\text{Spread} = -0.015 = -1.5\%$.</p> <p>Lower spreads make the first expression in the equation positive, along with the equation's second convexity-based term. The answer must therefore involve a decline in spreads as in answers A and B. However, B is incorrect since it fails to rescale convexity.</p>
				<p>With: $\Delta\text{Spread} = \mathbf{-0.0135} = \mathbf{-1.35\%}$</p> <p>Lower spreads make the first expression in the equation positive, along with the equation's second convexity-based term. The answer must therefore involve a decline in spreads as in answers A. and B. However, B is incorrect since it fails to rescale convexity.</p>

Mortgage-Backed Security (MBS) Instrument and Market Features

Lesson	Location	PDF Pg	Revised	Correction
Practice Problems	Practice Problem 7 – 8	524	26 August 2024	<p>Replace:</p>
				<p>With:</p> <p>Practice Problems 7 and 8 should be together as one question. The solution to this Practice Problem appears as the solution to 7, and the subsequent solutions are all off one number: (Solution to 8 in print is actually the solution to Practice Problem 9, solution to 9 is actually the solution to Practice Problem 10, etc.)</p>

Derivatives

Derivative Benefits, Risks, and Issuer and Investor Uses

Lesson	Location	PDF Pg	Revised	Correction
Derivative Risks	Question Set – Derivative Risks – Solution to 2	67	26 August 2024	<p>Replace: The seller of a call option receives an upfront premium in exchange for the right to purchase the underlying at the exercise price at maturity. Once the seller of a call option receives the premium from the option buyer, it has no further counterparty credit risk to the option buyer.</p> <p>With: The seller of a call option receives an upfront premium in exchange for the obligation to sell the underlying asset at the exercise price if the option is exercised. Once the seller of a call option receives the premium from the option buyer, it has no further counterparty credit risk to the option buyer.</p>

Arbitrage, Replication, and the Cost of Carry in Pricing Derivatives

Lesson	Location	PDF Pg	Revised	Correction
Costs and Benefits Associated with Owning the Underlying	Example 6 - Diagram	92	26 August 2024	<p>Replace the formula:</p> $F_{0,(f/d)}(T) = 1.3325 = \frac{\text{AUD}1,333.80}{\text{AUD}1,001}$ <p>With:</p> $F_{0,(f/d)}(T) = 1.3325 = \frac{\text{AUD}1,333.83}{\text{USD}1,001}$
Costs and Benefits Associated with Owning the Underlying	Question Set, Question 2	95	26 August 2024	<p>Replace: B. A foreign currency forward where the domestic risk-free rate is greater than the foreign risk-free rate</p> <p>With: B. A foreign currency forward where the foreign risk-free rate is greater than the domestic risk-free rate</p>

Lesson	Location	PDF Pg	Revised	Correction
Costs and Benefits Associated with Owning the Underlying	Question Set, Solution to 2	95	26 August 2024	Replace: B is correct. The FX forward rate is greater than the spot rate if the domestic risk-free rate is greater than the foreign risk-free rate.
				With: B is correct. The FX forward rate is greater than the spot rate if the foreign risk-free rate is greater than the domestic risk-free rate.

Pricing and Valuation of Forward Contracts

Lesson	Location	PDF Pg	Revised	Correction
Pricing and Valuation of Forward Contracts	Question Set - Solution to 5	113	26 August 2024	Replace all references to “gain” in the answer with “loss”
				<p>An immediate appreciation in the ZAR/EUR spot price after contract inception will result in an MTM loss from Rook Point’s perspective as the forward seller of ZAR/EUR.</p> <p>The FX forward MTM from Rook Point’s perspective equals the present value of the forward price discounted at the interest rate differential between the foreign currency and the domestic currency minus the spot price:</p> $V_0(T) = F_{0,f/d}(T) e^{-(r_f - r_d)T} - S_{0,f/d}$ <p>Note that ZAR is the price, or foreign, currency and EUR is the base, or domestic, currency, so we can rewrite the equation as:</p> $V_0(T) = F_{0,ZAR/EUR}(T) e^{-(r_{ZAR} - r_{EUR})T} - S_{0,ZAR/EUR}$ <p>If the ZAR price ($S_{0,ZAR/EUR}$) appreciates from 16.909 to 16.5, we can show that Rook Point would have a 0.4090 loss, as follows:</p> $V_t(T) = 17.2506e^{-(0.035 - -0.005) \times (0.5)} - 16.5$ $= 16.909 - 16.5$ $= 0.4090$

Lesson	Location	PDF Pg	Revised	Correction
Pricing and Valuation of Interest Rate Forward Contracts	Exhibit 9	120	15 October 2024	<p>Replace: Mentions of the word “player”</p> <p>Exhibit 9: Forward Rate Agreement (FRA) Mechanics</p> <p>Fixed rate = $IFR_{A,B-A}$ set at $t = 0$</p> <p>Floating rate = MRR_{B-A} set at $t = A$</p> <p>Time: $t = 0$ — $t = A$ — $t = B$</p> <p>Fixed rate player (top), Floating rate player (bottom)</p> <p>Contract: $MRR_{B-A} \times \text{Notional} \times \text{Period}$ (to Fixed rate player), $IFR_{A,B-A} \times \text{Notional} \times \text{Period}$ (to Floating rate player)</p> <p>FRA cash settled on a PV basis at $t = A$</p>
				<p>With: The word “payer”</p> <p>Fixed rate = $IFR_{A,B-A}$ set at $t = 0$</p> <p>Floating rate = MRR_{B-A} set at $t = A$</p> <p>Time: $t = 0$ — $t = A$ — $t = B$</p> <p>Fixed rate payer (top), Floating rate payer (bottom)</p> <p>Contract: $MRR_{B-A} \times \text{Notional} \times \text{Period}$ (to Fixed rate payer), $IFR_{A,B-A} \times \text{Notional} \times \text{Period}$ (to Floating rate payer)</p> <p>FRA cash settled on a PV basis at $t = A$</p>

Pricing and Valuation of Futures Contracts

Lesson	Location	PDF Pg	Revised	Correction
Pricing of Futures Contracts at Inception	Example 2	133	11 November 2024	<p>Replace: $PV_0(C) = \\$1.99 = [\\$2(1.02)^{0.24982}]$.</p> <p>With $PV_0(C) = \\$1.99 = [\\$2(1.02)^{-0.24982}]$.</p>

Option Replication Using Put–Call Parity

Lesson	Location	PDF Pg	Revised	Correction
Put-Call Parity	Exhibit 3	200	26 August 2024	<p>Replace:</p> <p>With:</p>

Valuing a Derivative Using a One-Period Binomial Model

Lesson	Location	PDF Pg	Revised	Correction
Pricing a European Call Option	Second sentence	225	23 September 2024	<p>Replace:</p> <p>Equation 4 gives us the hedge ratio of the option, or the proportion of the underlying that will offset the risk associated with an option.</p> <p>With:</p> <p>Equation 6 gives us the hedge ratio of the option, or the proportion of the underlying that will offset the risk associated with an option.</p>

Alternative Investments

Alternative Investment Features, Methods, Structures

Lesson	Location	PDF Pg	Revised	Correction
Practice Problems	Solution to 6	32	26 August 2024	<p>Replace:</p> <ul style="list-style-type: none"> A. 2 is correct. In alternative fund investing, the fund manager pays the net return (gross return less management fees) to investors. B. 3 is correct. The returns generated by fund investments are gross returns. From these, management deducts its fees, paying the remainder (net fees) to fund investors. C. 1 is correct. Management fees and performance fees are how alternative fund managers are compensated for managing the fund and its investments. <p>With:</p> <ul style="list-style-type: none"> A. 3 is correct. The returns generated by fund investments are gross returns. From these, management deducts its fees, paying the remainder (net fees) to fund investors. B. 2 is correct. In alternative fund investing, the fund manager pays the net return (gross return less management fees) to investors. C. 1 is correct. Management fees and performance fees are how alternative fund managers are compensated for managing the fund and its investments.

Alternative Investment Performance and Returns

Lesson	Location	PDF Pg	Revised	Correction
Alternative Investment Returns	Example 4, Question 2	47	26 August 2024	<p>Replace:</p> <p>In the second year, Kettleside fund value declines to \$110 million. The fee structure is as specified in Question 1 but also includes the use of a high-water mark (PHWM) computed net of fees.</p> <p>With:</p> <p>In the second year, Kettleside fund value declines to \$110 million. The fee structure is as specified in Question 1 of Example 3 but also includes the use of a high-water mark (PHWM) computed net of fees.</p>

Lesson	Location	PDF Pg	Revised	Correction
Alternative Investment Returns	Example 4, Solution to 2	48	26 August 2024	<p>Replace solution: We must again alter Equation 4 to include the high-water mark (P_{HWM}) provision, as follows:</p> $R_{GP(\text{Net with High-Water Mark})} = (P_2 \times r_m) + \max\{0, (P_2 - P_{HWM}) \times p\}$ <p>where P_{HWM} is defined as the maximum fund value at the end of any previous period net of fees. We may solve for investor return r_i in Period 2 as follows:</p> $r_i = (P_2 - P_1 - R_{GP})/P_1,$ $R_{GP(\text{Net with High-Water Mark})}$ $= \$110 \text{ million} \times 1\% + \max\{0, (\$110 \text{ million} - \$122.7 \text{ million}) \times 20\%$ $= \$1.1 \text{ million}.$ $r_i = (\$110 \text{ million} - \$122.7 \text{ million} - \$1.1 \text{ million})/\$122.7 \text{ million}$ $= -11.247\%.$ <p>The beginning capital position in the second year for the investors is $\\$130 \text{ million} - \\$7.3 \text{ million} = \\$122.7 \text{ million}$. The ending capital position at the end of the second year is $\\$110 \text{ million} - \\$1.1 \text{ million} = \\$108.9 \text{ million}$.</p>
				<p>With: We must again alter Equation 4 to include the high-water mark (P_{HWM}) provision, as follows:</p> $R_{GP(\text{Net with High-Water Mark})} = (P_2 \times r_m) + \max\{0, P_2(1 - r_m) - P_{HWM}\} \times p$ <p>where P_{HWM} is defined as the maximum fund value at the end of any previous period net of fees. We may solve for investor return r_i in Period 2 as follows:</p> $r_i = (P_2 - P_1 - R_{GP})/P_1,$ $R_{GP(\text{Net with High-Water Mark})}$ $= \$110 \text{ million} \times 1\% + \max\{0, [\$110 \times 0.99 - \$124.16] \times 20\%$ $= \$1.1 \text{ million}.$ $r_i = (\$110 \text{ million} - \$124.16 \text{ million} - \$1.1 \text{ million})/\$124.16 \text{ million}$ $= -12.291\%$ <p>The beginning capital position in the second year for the investors is $\\$130 \text{ million} - \\$5.84 \text{ million} = \\124.16 million. The ending capital position at the end of the second year is $\\$110 \text{ million} - \\$1.1 \text{ million} = \\$108.9 \text{ million}$.</p>

Lesson	Location	PDF Pg	Revised	Correction																
Alternative Investment Returns	Example 4, Solution to 3	48-49	26 August 2024	<p>Replace the Solution: We amend Equations 8 and 9 to reflect returns for the third period and calculate as follows:</p> $R_{GP(\text{High-Water Mark})} = (P_3 \times r_m) + \max[0, (P_3 - P_{HWM}) \times p].$ $r_i = (P_3 - P_2 - RGP)/P_2.$ <p>Note that the high-water mark, PHWM, is the highest value of the fund after fees in all previous years. In Kettleside's case, it was \$122.7 million, the ending value in the first year, P1.</p> <div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 5px; width: 45%;"> <p style="text-align: center; background-color: black; color: white; margin: 0;">Kettleside Timberland LP Performance Fee Modifications</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;">Year</th> <th style="width: 65%;">Fund Value (\$m), after Fees</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">0</td> <td style="text-align: center;">100.00</td> </tr> <tr> <td style="text-align: center;">1</td> <td style="text-align: center;">122.70</td> </tr> <tr> <td style="text-align: center;">2</td> <td style="text-align: center;">108.90</td> </tr> </tbody> </table> <div style="text-align: right; margin-top: 5px;"> High-Water Mark </div> </div> <div style="border: 1px solid black; padding: 5px; width: 45%;"> <p style="text-align: center; background-color: black; color: white; margin: 0;">Kettleside Timberland LP Performance Fee Modifications</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;">Year</th> <th style="width: 65%;">Fund Value (\$m), after Fees</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">0</td> <td style="text-align: center;">100.00</td> </tr> <tr> <td style="text-align: center;">1</td> <td style="text-align: center;">122.70</td> </tr> <tr> <td style="text-align: center;">2</td> <td style="text-align: center;">108.90</td> </tr> </tbody> </table> <div style="text-align: right; margin-top: 5px;"> High-Water Mark </div> </div> </div> <p>RGP(High-Water Mark)</p> $= \$128 \text{ million} \times 1\% + \max[0, (\$128 \text{ million} - \$122.7 \text{ million}) \times 20\%]$ $= \$2.34 \text{ million.}$ $r_i = (\$128 \text{ million} - \$108.9 \text{ million} - \$2.34 \text{ million})/\$108.9 \text{ million}$ $= 15.39\%.$ <p>The beginning capital position in the third year for the investors is \$110 million – \$1.1 million = \$108.9 million. The ending capital position for the third year is \$128 million – \$2.34 million = \$125.66 million, which represents a new high-water mark to be applied the following year for this investor.</p>	Year	Fund Value (\$m), after Fees	0	100.00	1	122.70	2	108.90	Year	Fund Value (\$m), after Fees	0	100.00	1	122.70	2	108.90
Year	Fund Value (\$m), after Fees																			
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Investments in Private Capital: Equity and Debt

Lesson	Location	PDF Pg	Revised	Correction
Introduction	Self-Assessment – Question 4	67	4 November 2024	<p>Replace: As the loan amortizes, its outstanding principal declines, increasing LTV.</p> <p>With: As the loan amortizes, its outstanding principal declines, decreasing LTV.</p>
Private Debt Investment Characteristics	Example 4	81	29 August 2024	<p>Replace: As Peterburgh amortizes the loan, the outstanding principal of the mortgages decline, which increases the LTV value.</p> <p>With: As Peterburgh amortizes the loan, the outstanding principal of the mortgages decline, which decreases the LTV value.</p>
Solutions	Solution to 7	90	26 August 2024	<p>The Solution to Practice Problem 7 should be changed to:</p> <p>C is correct. Private capital can have overall positive contributions to diversification. Note, however, that direct lending can involve a large capital commitment to a single borrower, with increased concentration risk and reduced diversification.</p>

Real Estate and Infrastructure

Lesson	Location	PDF Pg	Revised	Correction
Practice Problems	Question 6	117	26 August 2024	<p>Replace: Akasaka Investment Company established a portfolio of warehouse properties with a total market value of THB3.60 billion. It secured mortgage financing of THB2.61 billion. The terms of the mortgage required Akasaka to maintain a loan-to-value ratio of 0.725.</p> <p>After 18 months, the portfolio value had dropped to THB2.23 billion and the mortgage liability was THB2.35 billion.</p> <p>With: Akasaka Investment Company established a portfolio of warehouse properties with a total market value of THB3.60 billion. It secured mortgage financing of THB2.61 billion. The terms of the mortgage required Akasaka to maintain a loan-to-value ratio of 0.725.</p> <p>After 18 months, the portfolio value had dropped to THB3.23 billion and the mortgage liability was THB2.35 billion.</p>

Natural Resources

Lesson	Location	PDF Pg	Revised	Correction
Introduction	Learning Module Self-Assessment – Solution to 4	123	13 September 2024	Replace: A and B are both incorrect because interest and storage reflect costs associated with owning the physical commodity.
				With: A and C are both incorrect because interest and storage reflect costs associated with owning the physical commodity.

Portfolio Management

Portfolio Risk and Return: Part I

Lesson	Location	PDF Pg	Revised	Correction
Portfolio Risk & Portfolio of Two Risky Assets	Example 5	28	26 August 2024	Replace formula under “The expected return of this portfolio is”: $R_p = w_1 \times R_1 + (1 - w_1) \times R_2 = 0.6 \times 0.055 + 0.4 \times 0.07 = 0.0358 \approx 3.6\%$.
				With: $R_p = w_1 \times R_1 + (1 - w_1) \times R_2 = 0.6 \times 0.055 + 0.4 \times \mathbf{0.007} = 0.0358 \approx 3.6\%$.

Portfolio Risk and Return: Part II

Lesson	Location	PDF Pg	Revised	Correction
Capital Asset Pricing Model: Assumptions and the Security Market Line	Example 8 – Solution to 1	91	26 August 2024	Replace the second calculation: $E(R_i) = R_f + \beta_i[E(R_m) - R_f] = 0.04 + 1.30 \times (0.16 - 0.04) = 0.196 = 19.6\%$
				With: $E(\mathbf{R}_p) = R_f + \beta_p[E(R_m) - R_f] = 0.04 + 1.30 \times (0.16 - 0.04) = 0.196 = 19.6\%$
Portfolio Performance Appraisal Measures	Example 10 – paragraph after Exhibit 8	101	1 November 2024	Replace: M ² and α^i are performance measures relative to the market, so they are both equal to zero for the market portfolio.
				Replace: M ² alpha and α^i are performance measures relative to the market, so they are both equal to zero for the market portfolio.

Glossary

Lesson	Location	PDF Pg	Revised	Correction
	Amortizing debt	G-1	4 November 2024	Replace: A loan or bond with a payment schedule that calls for periodic payments of interest and repayments of principal.
				Replace: A loan or bond with a payment schedule that calls for the complete repayment of principal over the instrument's time to maturity.