

# 2019 Level I Mock Exam (B) PM

The afternoon session of the 2019 Level I Chartered Financial Analyst® Mock Examination has 120 questions. To best simulate the exam day experience, candidates are advised to allocate an average of one and a half minutes per question for a total of 180 minutes (3 hours) for this session of the exam.


Questions	Topic	Minutes
1–19	Ethical and Professional Standards	28.5
20–31	Quantitative Methods	18
32–43	Economics	18
44–61	Financial Reporting and Analysis	27
62–73	Corporate Finance	18
74–80	Portfolio Management	10.5
81–93	Equity	19.5
94–106	Fixed Income	19.5
107–113	Derivatives	10.5
114–120	Alternative Investments	10.5
<b>Total:</b>		<b>180</b>

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## 2019 LEVEL I MOCK EXAM (B) PM

- 1 Which of the following is *most likely* found in the CFA Institute Standards of Professional Conduct, Standard I–Professionalism? Members and candidates must:
- A not engage in any professional conduct involving dishonesty, fraud, or deceit or commit any act that reflects adversely on their professional reputation, integrity, or competence.
  - B place the integrity of the investment profession and the interest of clients above their own interest.
  - C maintain and improve their professional competence and strive to maintain and improve the competence of other investment professionals.



A is correct. The statement, “Members and Candidates must not engage in any professional conduct involving dishonesty, fraud, or deceit or commit any act that reflects adversely on their professional reputation, integrity, or competence” can be found in the CFA Institute Standards of Professional Conduct, Standard I–Professionalism (D) Misconduct.


B is incorrect. The statement, “Members and Candidates must place the integrity of the investment profession and the interest of clients above their own interest” can be found in the CFA Institute Code of Ethics. It is not part of the CFA Institute Standards of Professional Conduct, Standard I–Professionalism.

C is incorrect. The statement, “Members and Candidates must maintain and improve their professional competence and strive to maintain and improve the competence of other investment professionals” can be found in the CFA Institute Code of Ethics. It is not part of the CFA Institute Standards of Professional Conduct, Standard I–Professionalism.

Code of Ethics and Standards of Professional Conduct

LOS b

- 2 Beth Kozniak, a CFA candidate, is an independent licensed real estate broker and a well-known property investor. She is currently brokering the sale of a commercial property on behalf of a client in financial distress. If the client’s building is not sold within 30 days, he will lose the building to the bank. A year earlier, another client of Kozniak’s had expressed interest in purchasing this same property. However, she is unable to contact this client, and she has not discovered any other potential buyers. Given her distressed client’s limited time frame, Kozniak purchases the property herself and foregoes any sales commission. Six months later, she sells the property for a nice profit to the client who had earlier expressed interest in the property. Does Kozniak *most likely* violate the CFA Institute Standards of Professional Conduct?
- A No
  - B Yes, she did not disclose her potential conflicts of interest to either client.
  - C Yes, she profited on the real estate to the detriment of her financially stressed client.



A is correct because Kozniak does not appear to have violated any CFA Institute Standards of Professional Conduct. Because she is known in the market for investing and brokering property and both parties have worked with Kozniak in the past, both parties would know of her interests. In addition, in both cases she acts for her own account as a primary investor, not as a broker. She buys the property for her own portfolio and then sells the property from her own portfolio. Therefore, Kozniak did not violate Standard VI(A)–Disclosure of Conflicts. When she purchased the property for her portfolio, she saved her client from losing the building to the bank and did not charge a sales commission. Because the sale of the property to her other client did not take place until six months after her purchase and she was unable to contact the client who had earlier expressed interest prior to her purchase, she cannot be accused of violating any loyalty, prudence, or care to either client [Standard III(A)–Loyalty, Prudence, and Care].

B is incorrect because Kozniak is known in the market for investing and brokering property and both parties have worked with Kozniak in the past, so both parties would know of her interests. In addition, in both cases she is acting as a primary investor, not as a broker. She buys the property for her own portfolio and then sells the property from her own portfolio. Therefore, Kozniak did not violate Standard VI(A)–Disclosure of Conflicts.


C is incorrect because when she purchased the property for her portfolio she saved her client from losing the building to the bank and did not charge a sales commission. As the sale of the property to her other client did not take place until six months after her purchase and she had not contacted the client who had earlier expressed interest prior to her purchase she cannot be accused of violating any loyalty, prudence or care to either client [Standard III(A)–Loyalty, Prudence, and Care].

Guidance for Standards I–VII

LOS a

Standard III(A)–Loyalty, Prudence, and Care, Standard VI(A)–Disclosure of Conflicts

- 3 Colin Caldwell, CFA, is the chief investment officer of Northwest Mutual Fund, whose investment objective is to invest in fixed income emerging market securities. Caldwell allocates the fund's assets primarily to bonds of commodity producers in emerging markets and invests in a combination of several different investments to ensure an acceptable level of risk. The allocation is clearly disclosed in all fund communications. High volatility in the commodities markets at the start of the year makes Caldwell pessimistic about returns, so he shifts the fund into emerging market and US government securities, positions he maintains at the end of the year. This change is noted in the next annual report to fund shareholders. Caldwell's investment change least likely violated the CFA Institute Code of Ethics and Standards of Professional Conduct concerning:
- A diversification.
  - B communication with clients.
  - C investments outside his mandate.



A is correct because the investment officer has invested in a combination of several different investments to ensure an acceptable level of risk rather than having all assets in a single investment, and he has sought a reasonable amount of diversification. However, the shift into emerging market and US government securities was communicated to clients in the annual report and not on an ongoing basis, in violation of Standard V(B)–Communication with Clients and Prospective Clients. Additionally, the investment officer has not followed the investment style previously communicated to fund investors (i.e., to invest in fixed income emerging market securities), specifically when he invested in US government securities, a violation of Standard III(C)–Suitability.

B is incorrect because the changes were communicated to clients in the annual report and not on an ongoing basis in violation of Standard V(B)–Communication with Clients and Prospective Clients.

C is incorrect because the investment officer has not followed the investment style previously communicated to fund investors, to invest in fixed income emerging market securities. The investment officer has taken investment actions inconsistent with the stated objectives and constraints of the portfolio, specifically when he invested in US government securities, a violation of Standard III(C)–Suitability.

Guidance for Standards I–VII

LOS a

Standard III(C)–Suitability, Standard V(B)–Communication with Clients and Prospective Clients

- 4 Christina Ng, a Level I CFA candidate, defaulted on a bank loan she obtained to pay for her Master’s degree tuition when her wedding cost more than expected. A micro finance loan company lent her money to pay off the tuition loan in full including penalties and interest. The micro finance loan company even extended further credit to pay for her parent’s outstanding medical bills. Unfortunately, her parent’s health problems escalated to the point where Ng had to take extensive time away from work to deal with the issues. She was subsequently fired and consequently defaulted on the second loan. As she was no longer employed, Ng decided to file for personal bankruptcy. Do the loan defaults leading up to Ng’s bankruptcy *most likely* violate Standard I(D)–Misconduct?
- A No.
- B Yes, with regard to the first loan default.
- C Yes, with regard to the second loan default.

A is correct because while Ng’s first loan default, which played a part in the subsequent bankruptcy, is a result of poor financial choices (i.e., paying for higher wedding costs rather than her tuition loan), neither of the loan defaults or bankruptcy involves fraudulent or deceitful business conduct but are based on unfortunate personal circumstances. Therefore, she would most likely not be in violation of Standard I(D)–Misconduct.

B is incorrect because while Ng’s bankruptcy may reflect poor financial choices by paying for higher wedding costs rather than her tuition loan, the bankruptcy does not involve fraudulent or deceitful business conduct. Therefore, she would most likely not be in violation of Standard I(D)–Misconduct.

C is incorrect because the bankruptcy does not involve fraudulent or deceitful business conduct. Therefore, she would most likely not be in violation of Standard I(D)–Misconduct.

Guidance for Standards I–VII

LOS a

- 5 Raymond Ortiz, CFA, provides investment advice to high-net-worth investors. Ortiz has just completed an analysis of Continental Wheat, a manufacturer of wheat-based food products. He rated the company a long-term hold for investors seeking growth and income. Ortiz’s analysis included a review of the company’s management team, financial data, pro forma financial positions, dividends and dividend policy, and a comparison of Continental with its competitors. Although he does not tell anyone, five years ago, Ortiz worked for and managed the commodities derivatives trading unit of Continental. As part of his compensation at Continental, he received stock, which he still owns. Based upon his research, Ortiz recommends Continental to clients who have a

moderate risk tolerance. Two weeks later Continental announces its quarterly earnings are 30% less than a year ago. Consequently, shares of Continental drop by 50%. Ortiz most likely violated the CFA Institute Code of Ethics and Standards of Professional Conduct related to his stock:

- A research.
- B ownership.
- C recommendation.

B is correct because there is a violation of Standard VI(A)–Disclosure of Conflicts; the analyst worked for Continental and still has ties to the company in the form of his stock ownership.

A is incorrect because the analyst's actions were consistent with Standard (V)–Diligence and Reasonable Basis as he did complete a well-informed investment recommendation. Analysis of an investment that results in a reasonable basis for recommendation does not guarantee the investment will have no downside risk.

B is incorrect because the analyst's actions were consistent with Standard (V)–Diligence and Reasonable Basis as he did complete a well-informed investment recommendation. Analysis of an investment that results in a reasonable basis for recommendation does not guarantee the investment will have no downside risk.

Guidance for Standards I–VII

LOS b

Standard V(A)–Diligence and Reasonable Basis, Standard VI(A)–Disclosure of Conflicts

- 6 Belen Zapata, CFA, is the owner of Kawah Investments. Kawah promises investors returns of up to 12% per year and claims to achieve this by investing in non-investment-grade bonds and other fixed-income instruments. Over the next 12 months, bond market yields reach unprecedented lows, and Zapata finds it impossible to achieve the returns she expected. No investments are ever made by Kawah, and clients are completely paid back all of their original investment. Zapata most likely violated the CFA Institute Standards of Professional Conduct because of the:

- A return of capital.
- B promised returns.
- C investment mandate.

B is correct because the member has misrepresented the returns she could realistically achieve for her clients, violating Standard I(C), which prohibits members and candidates from guaranteeing clients any specific return on volatile investments.

A is incorrect because the member has returned investor capital, which is not a violation of the Code and Standards. However, the member has violated Standard I(C), which prohibits members and candidates from guaranteeing clients any specific return on volatile investments. With the return of their capital, investors did not lose their original investment, but they did suffer an economic opportunity loss.

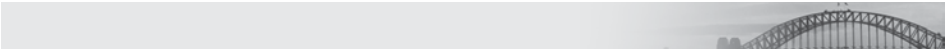
C is incorrect because the investment mandate is not a violation of the Code and Standards. The mandate is very broadly defined and while it may or may not be appropriate, there is not enough information in the vignette to make this determination. The promised, but unachieved, yield is the violation that can be clearly identified.

Guidance for Standards I–VII

Standard I(C)–Misrepresentation

LOS b

- 7 Bryan Barrett, CFA, runs an investment advisory service providing advice on gold and other commodities to several large retail banks. Barrett advertises his services in widely read publications to broaden his business to include retail clients. Because the client base for the institutions that Barrett serves is large, he is comfortable stating in the ads that thousands of his clients have benefited from his advice. Does Barrett's advertisement *most likely* violate any CFA Institute Standards of Professional Conduct?
- A No.
  - B Yes, related to Misrepresentation.
  - C Yes, related to Communication with Clients.



B is correct because Barrett's client base is made up of a small number of large institutions so stating in the advertisement that his client base is a larger number is a misrepresentation and a violation of Standard I(C). In addition, since the advertisement focuses only on the benefits and does not mention the potential risks of these investments it is also potentially misleading to clients.

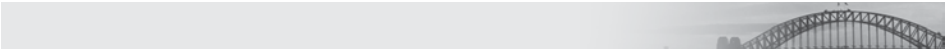
A is incorrect since the advertisement misrepresents the size of Barrett's client base. The advertisement is also potentially misleading to clients as it focuses only on the benefits and does not mention the potential risks of these investments.

C is incorrect because this Standard has not been violated.

Guidance for Standards I–VII

LOS b

- 8 Solomon Sulzberg, CFA, is a research analyst at Blue Water Management. Sulzberg's recommendations typically go through a number of internal reviews before they are published. In developing his recommendations, Sulzberg uses a model developed by a quantitative analyst within the firm. Sulzberg made some minor changes to the model but retained the primary framework. In his reports, Sulzberg attributes the model to both the quantitative analyst and himself. Before the internal reviews of his reports were completed, Sulzberg buys shares in one of the companies. After the internal review is complete he fails to recommend the purchase of the stock to his clients and erases all of his research related to this company. Sulzberg *least likely* violated the CFA Institute Code of Ethics and Standards of Professional Conduct related to:
- A Record Retention.
  - B Misrepresentation.
  - C Priority of Transactions.



B is correct because the research analyst has not violated Standard I(C)–Misrepresentation because he has not knowingly made any misrepresentations related to investment analysis, recommendations, actions, or other professional activities. The research analyst has correctly attributed the model to both the quantitative analyst and to himself as he has revised the original model. Research developed while employed by a firm are the property of the firm, and the analyst is in violation of Standard V(C)–Record Retention as members and candidates must develop and maintain appropriate records to support

their investment analysis, recommendations, actions, and other investment-related communications with clients and prospective clients. As a general matter, records created as part of a member's or candidate's professional activity on behalf of his or her employer are the property of the firm. The analyst also violated Standard VI(B)–Priority of Transactions by taking advantage of his knowledge of the stock's value before allowing his employer to benefit from that information.

A is incorrect because the analyst is in violation of Standard V(C)–Record Retention as members and candidates must develop and maintain appropriate records to support their investment analysis, recommendations, actions, and other investment-related communications with clients and prospective clients. As a general matter, records created as part of a member's or candidate's professional activity on behalf of his or her employer are the property of the firm.

C is incorrect because by taking advantage of his knowledge of the stock's value before allowing his employer to benefit from that information, the analyst violated Standard VI(B)–Priority of Transactions

Guidance for Standards I–VII

LOS b

Standard I(C)–Misrepresentation, Standard V(C)–Record Retention, Standard VI(A)–Disclosure of Conflicts, Standard VI(B)–Priority of Transactions,

- 9 Ri Lin, CFA, is a Portfolio Manager with Dynasty Investment Management. Lin is performing research on Titan Mining for potential inclusion in his fund. Management at Titan is interested in having a well-known fund manager such as Lin as a shareholder. Titan pays for Lin to fly to a company retreat in Tokyo, where a brief introductory meeting is followed by attending a sporting event and then dinner at one of the city's top restaurants. Lin participates after disclosing the activities to Dynasty's compliance department. Which standard did Lin's actions *most likely* violate?
- A Disclosures of Conflicts
  - B Independence and Objectivity
  - C Diligence and Reasonable Basis

B is correct because Lin is placing himself in a situation where his objectivity or appearance of objectivity may be compromised, which is a violation of Standard I(B). It would have been more advisable for Lin to decline having Titan pay for this trip.

A is incorrect because Lin does disclose the activities to Dynasty's compliance department. If Lin recommends the security, he may also want to disclose that he went on this company sponsored trip at that time.

C is incorrect because participating in this trip does not prevent Lin from performing the required analysis to make an informed investment decision.

Guidance for Standards I–VII

LOS b

Standard I(B)–Independence and Objectivity, Standard V(A)–Diligence and Reasonable Basis, Standard VI(A)–Disclosure of Conflicts

- 10 Atlantic Capital Management has access to a limited number of shares in a popular new issue expected to be oversubscribed. Atlantic's portfolio managers have determined the issue to be a prudent addition within Atlantic's developing growth equity strategy. A number of the firm's investment professionals have

family-member accounts that are managed to the developing growth strategy. Which of the following allocation options *most likely* adheres to the Code and Standards? Atlantic should allocate the shares:

- A** to family-member accounts only after non-family accounts have been allocated their shares.
- B** on a prorated basis across all developing growth accounts, including the family-member accounts.
- C** on a prorated basis across all developing growth accounts, excluding the family-member accounts.

B is correct because under Standard III(B) if an investment professional's family member accounts are being managed similarly to other clients of the firm, they should not be excluded from buying such shares as they are considered clients despite their familial relationships.

A is incorrect because as stated above, the family member accounts are being managed in the same strategy as other client accounts and do not need to be treated differently.

C is incorrect because as stated above, the family member accounts are being managed in the same strategy as other client accounts and do not need to be treated differently.

Guidance for Standards I–VII

LOS b

- 11** Teresa Avila, CFA, is a micro cap investment analyst at a hedge fund. The fund requires Avila to hold any securities she recommends for the fund in her own account as well. Because Avila has such a small account, whenever she trades for her own portfolio she combines the transactions with those of the hedge fund so she is sure to have her account aligned with the fund. Has Avila *most likely* violated any CFA Institute Standards of Professional Conduct?

- A** No.
- B** Yes, related to Misconduct.
- C** Yes, related to Priority of Transactions.

C is correct as Standard VI(B) requires that investment transactions for clients and employers have priority over transactions in which members have beneficial ownership. By executing her own accounts transactions with those of the hedge fund the analyst has violated this Standard as micro cap securities can be thinly traded and easily influenced by changes in the volume of activity. So the analyst may benefit when she combines her transactions with the hedge funds and she should let the fund execute its orders before she makes changes to her account.

A is incorrect because the Priority of Transactions Standard has been violated.

B is incorrect because this Standard has not been violated.

Guidance for Standards I–VII

LOS b

Standard I(D)–Misconduct, Standard VI(B)–Priority of Transactions

- 12** Colin Gifford, CFA, is finalizing a monthly newsletter to his clients, who are primarily individual investors. Many of the clients' accounts hold the common stock of Capricorn Technologies. In the newsletter, Gifford writes, "Based upon



the next six month's earnings of \$1.50 per share and a 10% increase in the dividend, the price of Capricorn's stock will be \$22 per share by the end of the year." Regarding his stock analysis, the *least* appropriate action Gifford should take to avoid violating any CFA Institute Standards of Professional Conduct would be to:

- A separate fact from opinion.
- B include earnings estimates.
- C identify limitations of the analysis.

B is correct because while pro forma analysis may be standard industry practice, it is not required by the Standards. Earnings estimates are opinions and must be clearly identified as such.

A is incorrect because facts should be separated from opinion in investment analysis.

C is incorrect because known limitations should be identified.

Guidance for Standards I–VII

Standard V(B)–Communication with Clients and Prospective Clients

LOS c

- 13 Dilshan Kumar, CFA, is a world-renowned mining analyst based in London. Recently he received an invitation from Cerberus Mining, a London Stock Exchange listed company with headquarters in Johannesburg, South Africa. Cerberus asked Kumar to join a group of prominent analysts from around the world on a tour of their mines in South Africa, some of which are in remote locations, not easily accessible. The invitation also includes an arranged wildlife safari to Krueger National Park for the analysts. Kumar accepts the invitation planning to visit other mining companies he covers in Namibia and Botswana after the safari. To prevent violating any CFA Institute Standards of Professional Conduct, it is *most* appropriate for Kumar to only accept which type of paid travel arrangements from Cerberus?

- A Ground transportation to Krueger National Park.
- B Economy class round trip ticket from London to Johannesburg.
- C Flights on a private airplane to the remote mining sites in South Africa.

C is correct because Standard I(B)–Independence and Objectivity requires members and candidates to use reasonable care and judgment to maintain their independence and objectivity in their professional activities. Best practice dictates that Kumar only accept transportation to the remote mining sites in that it is unlikely he would be able to source commercial flights to the locations and ground transport may not be viable. As Kumar would normally visit mining sites around the world as part of his job and the fact that he is combining this trip to other mines site in different countries, it would be inappropriate for Cerberus to pay for the analyst's travel expenses from London. While Kumar could go on safari with the group of analysts, he should pay his own way so as to restrict any influence such a gift could possibly have when making his investment recommendations on Cerberus.

A is incorrect. While Kumar could go on safari with the group of analysts, he should pay his own way so as to restrict any influence such a gift could possibly have when making his investment recommendations on Cerberus.

B is incorrect because Kumar would normally visit mining sites around the world as part of his job and due to the fact that he is combining this trip to other mine sites in different countries, it would be inappropriate for Cerberus to pay for his travel expenses from London

Guidance for Standards I–VII

LOS c

- 14** Oliver Rae, CFA, is an individual investment adviser specializing in commercial real estate. Rae recently packaged a real estate limited partnership (RELP), which he sold in a private placement to his existing advisory clients. The partnership has purchased four properties in which Rae held a 5% minority interest. According to the CFA Institute Code of Ethics and Standards of Professional Conduct, Rae should:

- A** manage the partnership separately from his advisory business.
- B** disclose conflicts related to the real estate he sold to the partnership.
- C** return all profits earned from his minority interest to the limited partners.

B is correct because according to Standard VI(A)–Disclosure of Conflicts, members and candidates must make full and fair disclosure of all matters that could reasonably be expected to impair their independence and objectivity or interfere with respective duties to clients.

A is incorrect because there is no requirement that these businesses be separated, only that full and fair disclosure be made of all matters that could reasonably be expected to impair their independence and objectivity or interfere with respective duties to clients.

C is incorrect because there is no requirement that profits earned be returned to the limited partners, only that full and fair disclosure be made of all matters that could reasonably be expected to impair their independence and objectivity or interfere with respective duties to clients.

Guidance for Standards I–VII

LOS c

Standard VI(A)–Disclosure of Conflicts

- 15** Can an asset management firm who follows the GIPS standards for select performance composites claim that it is GIPS compliant?
- A** No.
  - B** Yes, but only if those composites meet GIPS performance reporting requirements.
  - C** Yes, but only if it uses the GIPS required return calculation requirements for all composites.

A is correct. GIPS compliance is a firm-wide process that cannot be achieved or claimed on just a single product or on selected composites. To be eligible to claim compliance, an asset management firm must fully comply with all requirements of the GIPS standards and claim compliance through the use of the GIPS Compliance Statement.

B is incorrect. To be eligible to claim compliance, an asset management firm must fully comply with all requirements of the GIPS standards on a firm-wide basis, not just for a select group of composites. So whether performance reporting is meeting a certain standard is irrelevant.

C is incorrect. To be eligible to claim compliance, an asset management firm must fully comply with all requirements of the GIPS standards. Return calculations are just a small component of all the GIPS requirements.

Introduction to the Global Investment Performance Standards (GIPS)  
LOS a

**16** To comply with the GIPS standards, firms *most likely* must:

- A** apply standards on a firm-wide basis.
- B** be verified before they can claim compliance.
- C** be defined as separate legal entities.

A is correct. According to requirements for GIPS compliance, GIPS standards must be applied on a firm-wide basis. They cannot be separately applied to composites.

B is incorrect because firms are responsible for their own claims of compliance. While a third party independent verification is recommended it is not required for compliance to be claimed by a firm.

C is incorrect because a firm must be defined as an investment firm, subsidiary, or division held out to clients or prospective clients as a distinct business entity. There is no requirement for the firm to be a separate legal entity.

The GIPS Standards  
LOS a

**17** From the point of view of an investor, unethical behavior by investment professionals can *most likely* lead to which of the following?

- A** Increased willingness to accept risk
- B** Rise in the demand for investments
- C** Demand for a higher return

C is correct. Unethical behavior erodes and destroys trust. Investors with low levels of trust are less willing to accept risk and, therefore, will likely demand a higher return for the use of their capital. They may also choose to invest elsewhere or to not invest at all.

A is incorrect. The loss of trust leads to less willingness to accept risk, not increased willingness to accept risk.

B is incorrect. The loss of trust may lead to less demand for investment, not an increase in the demand for investments.

Ethics and Trust in the Investment Profession  
LOS d  
Section 5

**18** A regulator who requires financial advisers to merely consider the suitability of a product when making recommendations to their clients would *most likely* be setting:

- A** both a legal and an ethical standard.
- B** an ethical standard.
- C** a legal standard.

C is correct. The regulator only sets a legal standard when requiring a financial adviser to merely consider suitability when making recommendations to their clients. Requiring advisers to act as fiduciaries would be setting both a legal and an ethical standard; it would require the interests of the client to be above those of the firm or employee.

A is incorrect. Requiring financial advisers to act as fiduciaries would be setting both a legal and an ethical standard by requiring the interests of the client to be above those of the firm or employee.

B is incorrect. The regulator is not setting an ethical standard by requiring a financial adviser to consider suitability; they are setting a legal standard.

Ethics and Trust in the Investment Profession

LOS e

Section 6

19 A profession is *most likely* described as a group of people that:

- A has a common level of basic knowledge about a particular subject.
- B monitors its members based on an agreed-on code of ethics.
- C puts the interests of its members first.

B is correct. A profession is practiced by members who share and agree to adhere to a common code of ethics, and a profession is based on a specialized knowledge and skills and service to others.

A is incorrect. A profession is based on a specialized knowledge and skills, not basic knowledge.

C is incorrect. A profession is based on service to others that may not necessarily mean the interests of its members come first.

Ethics and Trust in the Investment Profession

LOS b

Section 3

20 When flipping three coins simultaneously, the number of outcomes that contain at least two heads is *most likely*:

- A eight.
- B four.
- C three.

B is correct. The number of outcomes having at least two heads is four, as indicated in the following table.

No. of Heads	Outcomes (Coin 1, Coin 2, Coin 3)	No. of Possible Outcomes
At least 2	(H,H,T), (H,T,H), (T,H,H), and (H,H,H)	4

A is incorrect. The outcome of at least one head is calculated instead.

No. of Head	Outcomes (Coin 1, Coin 2, Coin 3)	No. of possible outcomes
At least 1	(H,T,T), (T,H,T), (T,T,H), (H,H,T), (H,T,H), (T,H,T), (T,H,H), (H,H,H)	8

C is incorrect. The outcome of (H,H,H) is not counted.

Common Probability Distributions

LOS b

Section 2

- 21 A company has an unsecured line of credit and needs to maintain its EBIT-to-interest coverage ratio greater than 2.0. Its EBIT is estimated to be between \$36 million and \$48 million, with all values equally likely. If the forecasted interest charge for the year is \$20 million, the probability that EBIT/interest will be more than 2.0 is *closest* to:

- A 61.5%.
- B 33.3%.
- C 66.7%.

C is correct. The EBIT-to-interest ratio is equal to 2.0 when the EBIT is \$40 million. Given that the values between \$36 million and \$48 million are equally likely, the probability of the ratio being equal to or less than 2.0 is 33.3% ( $= [\$40 \text{ million} - \$36 \text{ million}] / [\$48 \text{ million} - \$36 \text{ million}]$ ). Consequently, the probability of the ratio being greater than 2.0 is 66.7% (i.e.,  $1 - \text{Probability of the ratio being equal to or less than 2.0}$ ).

A is incorrect. This treats the distribution as discrete with increments in \$1M.

	EBIT	Int	EBIT/INT		
	36	20	1.8		
	37	20	1.85		
	38	20	1.9		
	39	20	1.95		
	40	20	2		
	41	20	2.05		
	42	20	2.1		
	43	20	2.15		
	44	20	2.2		
	45	20	2.25		
	46	20	2.3		
	47	20	2.35		
	48	20	2.4		
Cell Count	13		8	0.615	Prob >2.0

B is incorrect. This is the probability of the ratio being equal to or less than 2.0.  
Common Probability Distributions

LOS h

Section 3.1

- 22 An investor purchases 100 shares of stock at \$40 per share. The investor holds the shares for exactly one year and then sells all of them at \$41.50 per share. On the date of sale, the investor receives dividends totaling \$200. The holding period return (HPR) on the investment is *closest* to:
- A 8.75%.
  - B 3.75%.
  - C 8.43%.

A is correct.  $HPR = (P_1 - P_0 + D_1)/P_0$ . In this problem:  $(41.50 - 40 + 2)/40 = 8.75\%$ .  
 B is incorrect; it is calculated as  $(41.50 - 40)/40 = 3.75\%$  (ignores dividends).  
 C is incorrect; it is calculated as  $(41.50 - 40 + 2)/41.50 = 8.43\%$  (wrong denominator).  
 Discounted Cash Flow Applications  
 LOS c  
 Section 3

- 23 When testing a hypothesis, the power of a test is *best* described as the:
- A same as the level of significance of the test.
  - B probability of rejecting a true null hypothesis.
  - C probability of correctly rejecting the null hypothesis.

C is correct. The power of a test is the probability of correctly rejecting the null hypothesis—that is, the probability of rejecting the null when it is false.  
 A is incorrect because this is the definition of Type I error.  
 B is incorrect because this is in fact a Type I error.  
 Hypothesis Testing  
 LOS d  
 Section 2

- 24 If the probability for an event  $Z$  is 14% (i.e.,  $P(Z) = 14\%$ ), the odds for  $Z$  are *closest* to:
- A 0.163.
  - B 0.071.
  - C 0.123.

A is correct. Odds are calculated as  $P(Z)/[1 - P(Z)]$ . In this problem,  $0.14/0.86 = 0.16279 \sim 0.163$ .  
 B is incorrect. It is calculated as the inverse of 14:  $1/14 = 0.07143$ .  
 C is incorrect. It is calculated as  $P(Z)/[1 + P(Z)] = 0.14/(1 + 0.14) = 0.12281$ .  
 Probability Concepts  
 LOS c  
 Section 2

- 25 Assuming no short selling, a diversification benefit is *most likely* to occur when the correlations among the securities contained in the portfolio are:

A greater than +1.  
 B equal to +1.  
 C less than +1.

C is correct. As long as security returns are not perfectly positively correlated, diversification benefits are possible.

A is incorrect; correlation cannot be greater than positive one.

B is incorrect; if correlations equal 1, no diversification benefit occurs.

Probability Concepts

LOS k

Section 3

- 26 The following information applies to a portfolio composed of Fund A and Fund B:

	Fund A	Fund B
Portfolio weights (%)	70	30
Expected returns (%)	10	16
Standard deviations (%)	7	13
Correlation between the returns of Fund A and Fund B	0.80	

The portfolio's standard deviation of return is *closest* to:

A 7.38%.  
 B 8.80%.  
 C 8.35%.

C is correct. The covariance between Fund A and Fund B, given the standard deviation of returns and the correlation between the two funds, is calculated as:

$$\text{Cov}(R_A, R_B) = \rho(R_A, R_B) \sigma(R_A) \sigma(R_B) = 0.80 \times 7\% \times 13\% = 0.00728.$$

$\sigma(R_A)$  and  $\sigma(R_B)$  = the standard deviations of returns of funds A and B, respectively

$\rho(R_A, R_B)$  = the correlation between the returns of funds A and B

Then the portfolio standard deviation of returns is calculated as follow:

$Q_{\text{Pizza}}^D = 11 - 0.50 \times P_{\text{Pizza}} + 0.01 \times I - 0.20 \times P_{\text{Cola}}$  where  $w_A$  and  $w_B$  are the weights of funds A and B in the portfolio.

$$\sigma(R_{\text{portfolio}}) = [0.70^2 \times 0.07^2 + 0.30^2 \times 0.13^2 + 2 \times 0.70 \times 0.30 \times 0.00728]^{0.5} = 8.35\%$$

Alternatively, correlation is used directly in the formula for portfolio standard deviation:

$$Q_{\text{Pizza}}^D$$

$$\sigma(R_{\text{portfolio}}) = [0.70^2 \times 0.07^2 + 0.30^2 \times 0.13^2 + 2 \times 0.70 \times 0.30 \times 0.80 \times 0.07 \times 0.13]^{0.5} = 8.35\%$$

A is incorrect. In the formula of the portfolio standard deviation of returns the term  $w_A w_B \text{Cov}(R_A, R_B)$  is used only once:

$$\left[ w_A^2 \sigma^2(R_A) + w_B^2 \sigma^2(R_B) + w_A w_B \text{Cov}(R_A, R_B) \right]^{0.5}$$

$$= [0.70^2 \times 0.07^2 + 0.30^2 \times 0.13^2 + 0.70 \times 0.30 \times 0.00728]^{0.5} = 7.38\%$$

B is incorrect. It uses a wrong formula:  $w_A \sigma(R_A) + w_B \sigma(R_B) = 0.70 \times 0.07 + 0.30 \times 0.13 = 8.80\%$

Probability Concepts

LOS k, l

Section 3

- 27 A mutual fund manager wants to create a fund based on a high-grade corporate bond index. She first distinguishes between utility bonds and industrial bonds; she then, for each segment, defines maturity intervals of less than 5 years, 5 to 10 years, and greater than 10 years. For each segment and maturity level, she classifies the bonds as callable or noncallable. She then randomly selects bonds from each of the subpopulations she has created. For the manager's sample, which of the following *best* describes the sampling approach?

- A Simple random
- B Systematic
- C Stratified random

C is correct. In stratified random sampling, one divides the population into subpopulations and randomly samples from within the subpopulations.

A is incorrect. The approach described is called stratified random sampling. In stratified random sampling, one divides the population into subpopulations and randomly samples from within the subpopulations.

B is incorrect. The approach described is called stratified random sampling. In stratified random sampling, one divides the population into subpopulations and randomly samples from within the subpopulations.

Sampling and Estimation

LOS c

Section 2.2

- 28 A descriptive measure of a population characteristic is *best* described as a:

- A parameter.
- B sample statistic.
- C frequency distribution.

A is correct. Any descriptive measure of a population characteristic is called a parameter.

B is incorrect. A sample statistic is a quantity computed from or used to describe a sample.

C is incorrect. A frequency distribution is a tabular display of data summarized into a relatively small number of intervals.

Statistical Concepts and Market Returns

LOS b

Section 2.2



- 29 The daily intraday price performance of a security over a specified period could *best* be analyzed with which type of chart?
- A Line
  - B Candlestick
  - C Point and figure

B is correct. A candlestick chart includes four prices per data point entry: the opening and closing prices and the high and low prices during the period. If constructed with daily data points, the daily intraday price performance will be evident in this type of chart.

A is incorrect. Line charts only show one price per data point, typically the closing price, which will not demonstrate intraday price performance.

C is incorrect. Point and figure charts record the number of price changes over time, but not based on a consistent time scale. Consequently, definitive intraday information is not necessarily available.

Technical Analysis

LOS b

Section 3.1.3

- 30 The stated (quoted) annual interest rate on an automobile loan is 10%. The effective annual rate (EAR) of the loan is 10.47%. The frequency of compounding per year for the loan is *closest* to:
- A quarterly.
  - B monthly.
  - C weekly.

B is correct.  $EAR = (1 + \text{Periodic interest rate})^m - 1$ .

The solution is found iteratively by substituting the possible frequency of compounding until the EAR is 10.47%.

For weekly compounding,  $(1 + 0.10/52)^{52} - 1 = 0.10506 = 10.51\%$ .

For monthly compounding,  $(1 + 0.10/12)^{12} - 1 = 0.10471 = 10.47\%$ .

For quarterly compounding,  $(1 + 0.10/4)^4 - 1 = 0.10381 = 10.38\%$ .

Thus, the correct answer is monthly compounding.

C is incorrect;  $(1 + 0.10/52)^{52} - 1 = 0.10506 = 10.51\%$

A is incorrect;  $(1 + 0.10/4)^4 - 1 = 0.10381 = 10.38\%$

The Time Value of Money

LOS c, d

Section 3.3

- 31 A consultant starts a project today that will last for three years. Her compensation package includes the following:

Year	End-of-Year Payment
1	\$100,000
2	\$150,000
3	\$200,000

If she expects to invest these amounts at an annual interest rate of 3%, compounded annually until her retirement 10 years from now, the value at the end of 10 years is *closest* to:

- A \$618,994.
- B \$566,466.
- C \$460,590.

B is correct. First calculate the present value of the three cash flows with the following formula:

$$PV = \frac{FV_N}{(1 + r)^N}$$

We obtain:

$$PV_{\text{Cash flow 1}} = (\$100,000/1.03) = \$97,087 \text{ (rounded)}$$

$$PV_{\text{Cash flow 2}} = [\$150,000/(1.03)^2] = \$141,389 \text{ (rounded)}$$

$$PV_{\text{Cash flow 3}} = [\$200,000/(1.03)^3] = \$183,028 \text{ (rounded)}$$

Then, sum the three present values:

$$\$97,087 + \$141,389 + \$183,028 = \$421,504$$

Calculate the FV of \$421,504 ten years from now with the formula:

$$FV_N = PV \times (1 + r)^N$$

$$FV_{10} = PV \times (1 + r)^{10}$$

$$FV_{10} = \$421,504 \times (1.03)^{10} = \$566,466 \text{ (rounded)}$$

The future value 10 years from now is \$566,466.

Alternatively, calculate directly the FV of each of the cash flows to the end of 10 years:

$$\begin{aligned} FV_{10} &= \$100,000 \times (1.03)^9 + \$150,000 \times (1.03)^8 + \$200,000 \times (1.03)^7 \\ &= \$130,477 + \$190,016 + \$245,975 \\ &= \$566,468 \text{ (rounded)}. \end{aligned}$$

A is incorrect. First calculate the future values of the three cash flows at the end of year three:  $\$100,000 \times (1.03)^2 + \$150,000 \times 1.03 + \$200,000 = \$106,090 + \$154,500 + \$200,000 = \$460,590$ . Then, calculate the FV of \$460,590 at the end of year 13:  $\$460,590 \times (1.03)^{10} = \$618,994$ .

C is incorrect. It is the sum of the future values of the three cash flows at the end of year three:  $\$100,000 \times (1.03)^2 + \$150,000 \times 1.03 + \$200,000 = \$106,090 + \$154,500 + \$200,000 = \$460,590$ .

The Time Value of Money

LOS e

Section 4.2

32 Which of the following is *most likely* to lead to a recessionary gap?

- A Rising stock prices
- B Declining consumer confidence
- C Easing monetary policy

B is correct. A recessionary gap arises when equilibrium GDP is below potential GDP. Decreased confidence lowers aggregate demand, which, in turn, leads to economic contractions. As demand declines, companies reduce their workforce and the unemployment rate rises.

C is incorrect. Tightening of monetary policy (not easing) can lead to reduced aggregate demand and is a possible cause of recession.

A is incorrect. Rising stock prices increase aggregate demand. Companies increase their production and employment.

Aggregate Output, Prices, and Economic Growth

LOS k

Section 3.4.2

	Spot Rate	Expected Spot Rate in One Year
USD/EUR	1.3001	1.3456
USD/GBP	1.5805	1.5489

33 Based on the table, the appreciation of which of the following currencies is *most likely* to occur?

- A The British pound against the US dollar by 2.00%
- B The US dollar against the euro by 3.38%
- C The euro against the US dollar by 3.50%

C is correct. In the exchange rate quotation, USD/EUR, the US dollar is the price currency and the euro is the base currency. The USD/EUR is expected to increase from 1.3001 to 1.3456. This represents a 3.5% appreciation of the euro against the dollar, i.e., a percentage change of  $(1.3456/1.3001) - 1 = +3.50\%$ .

A is incorrect. The USD/GBP is expected to decrease from 1.5805 to 1.5489. This represents a percentage change of  $(1.5489/1.5805) - 1 = -2.00\%$ . The British pound is expected to depreciate, not appreciate, against the US dollar by 2% because the USD/GBP exchange rate is expressed with the US dollar as the price currency.

B is incorrect. The appreciation of the euro against the US dollar can also be expressed as a depreciation of the US dollar against the euro. Inverting the exchange rate quote from USD/EUR to EUR/USD, so the euro is now the price currency, leads to  $(1.3001/1.3456) - 1 = -3.38\%$ . The US dollar is expected to depreciate, not appreciate, against the euro by 3.38%.

Currency Exchange Rates

LOS c

Section 3.1

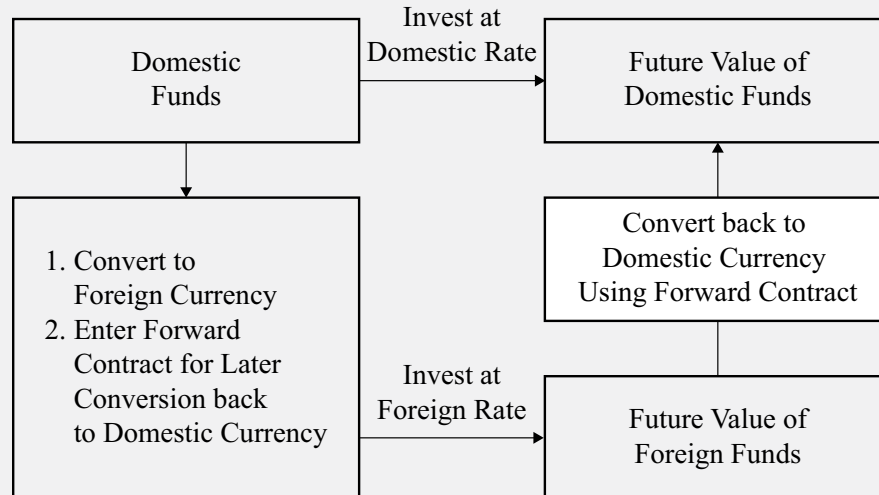
34 An investor examines the following rate quotes for the Brazilian real (BRL) and the Australian dollar (AUD) and shorts BRL500,000.

- Spot rate BRL/AUD: 2.1128
- BRL 1-year interest rate: 4.1%
- Forward rate BRL/AUD: 2.1388
- AUD 1-year interest rate: 3.1%

The risk-free arbitrage profit that is available is *closest* to:

- A -BRL6,327.
- B BRL1,344.
- C BRL6,405.

B is correct. The equation below is often called the “covered interest arbitrage relationship” because if it is not satisfied, a risk-free arbitrage opportunity exists. It is based on the required equivalence of the two possible investment paths: if the two paths do not produce the same terminal result, an arbitrage profit exists.



$$(1 + i_d) = S_{f/d} (1 + i_f) \left( \frac{1}{F_{f/d}} \right) \quad \text{where}$$

$S_{f/d}$  = Spot rate: number of units of foreign currency (price currency) per one unit of domestic currency

$F_{f/d}$  = Forward rate: number of units of foreign currency (price currency) per one unit of domestic currency

$i_d$  = Domestic interest rate

$i_f$  = Foreign interest rate

The left-hand side is 1 plus the return that is earned domestically. The right-hand side represents 1 plus the return from converting to foreign currency at the spot rate, investing at the foreign rate, and converting back to domestic currency using the forward rate.

The arbitrage profit is the right side of the equation minus the left side.

**Left Side of Equation:**  $\text{BRL}500,000 \times (1 + 0.041) = \text{BRL}520,500$

#### Right Side of Equation

Step	Transaction	Explanation
1	$\text{BRL}500,000 \times (1/2.1128 \text{ AUD/BRL}) = \text{AUD}236,653$	Convert domestic to foreign
2	$\text{AUD}236,653 \times (1.031) = \text{AUD}243,989$	Invest foreign at foreign rate
3	$\text{AUD}243,989 \times 2.1388 = \text{BRL}521,844$	Convert foreign to domestic

Arbitrage profit =  $\text{BRL}521,844 - \text{BRL}520,500 = \text{BRL}1,344$

A is incorrect. The right side of the equation uses inverted exchange rates in Steps One and Three and 4.1% in Step Two.

Step One:  $\text{BRL}500,000 \times (2.1128\text{AUD}/\text{BRL}) = \text{AUD}1,056,400$

Step Two:  $\text{AUD}1,056,400 \times (1.041) = \text{AUD}1,099,712$

Step Three:  $\text{AUD}1,099,712 \times (1/2.1388) = \text{BRL}514,173$

Arbitrage profit =  $\text{BRL}514,173$  (right side above) –  $\text{BRL}520,500$  (left side above)  
= –6,327

C is incorrect. The right side of the equation uses 4.1% and thus 1.041 incorrectly in Step Two.

Step One:  $\text{BRL}500,000 \times (1/2.1128\text{AUD}/\text{BRL}) = \text{AUD}236,653$

Step Two:  $\text{AUD}236,653 \times (1.041) = \text{AUD}246,355$

Step Three:  $\text{AUD}246,355 \times 2.1388 = \text{BRL}526,905$

Arbitrage profit =  $\text{BRL}526,905$  (right side above) –  $\text{BRL}520,500$  (left side above)  
= 6,405

Currency Exchange Rates

LOS f, h

Section 3.3

- 35** Consider two countries, A and B. Country A, a closed country with a relative abundance of labor, holds a comparative advantage in the production of textiles. Country B has a relative abundance of capital. When the textile trade is opened between the two countries, Country A will *most likely* experience a favorable impact on:

- A** labor.
- B** both capital and labor.
- C** capital.

A is correct. As a country opens up to trade, the benefit accrues to the abundant factor, which is labor in Country A.

B is incorrect. The favorable impact goes to the factor in relative abundance, which includes labor and excludes capital in Country A.

C is incorrect. Country B has an abundance of capital, therefore the favorable benefit to capital lies in Country B, not in Country A.

International Trade and Capital Flows

LOS c, d, e

Section 2.4.2

- 36** A country implements policies that are expected to increase taxes by €100 million, increase government spending by €50 million, and reduce investments and private sector savings by €25 million each. As a result, the country's current account balance is *most likely* to:

- A** decrease by €50 million.
- B** increase by €100 million.
- C** increase by €50 million.

C is correct.

$$CA = S_p - I + (T - G - R) \text{ where}$$

CA = current account balance

$S_p$  = private sector savings

I = investments

T = taxes

g = government spending

r = transfers

$$\Delta CA = -25 - (-25) + (100 - 50 - 0) = 50$$

A is incorrect. It uses the wrong sign before the parenthesis for government sector:

$$\Delta CA = -25 - (-25) - (100 - 50 - 0) = -50.$$

B is incorrect. It uses the wrong sign on savings:  $\Delta CA = 25 - (-25) + (100 - 50 - 0) = 100$ .

International Trade and Capital Flows

LOS h, i

Section 4.4

**37** The tools used by central banks to implement monetary policy *most likely* include:

- A** transfer payments.
- B** open market operations.
- C** raising or lowering income taxes.

B is correct. Central banks have three primary tools available to them: open market operations, setting the official policy rate, and reserve requirements

A is incorrect because transfer payments are a fiscal policy tool.

C is incorrect because raising or lowering income taxes is a part of fiscal policy, not monetary policy.

Monetary and Fiscal Policy

LOS h

Section 2.3.2.1

**38** An increase in the official policy rate will *most likely* lead to:

- A** gradual increases in commercial banks' base rates.
- B** reduced credit availability.
- C** contracting commercial bank liquidity.

B is correct. An increase in the policy rate will likely raise the potential penalty that banks will have to pay if they run short of liquidity and thereby reduces their willingness to lend.

A is incorrect because commercial banks normally increase their base rates immediately (not gradually) following the announcement of an increased policy rate because they want to avoid the possibility of lending at rates lower than they might be charged by the central bank. Through open market operations, the central bank can essentially force banks to borrow from the central bank at the policy rate.

C is incorrect because an increase in the policy rate will likely lead to a tightening of the money supply and a higher penalty for liquidity shortfalls. As a result, commercial banks will expand their liquidity to avoid potential shortfalls.

Monetary and Fiscal Policy

LOS h

Section 2.3.2.2

- 39 With its existing production facilities, a monopolist firm can produce up to 100 units. It faces the following demand and cost schedules:

Output (units)	Price (\$/unit)	Total Costs (\$)
0	3,000	600
20	2,800	10,600
40	2,600	32,600
60	2,400	66,600
80	2,200	112,600
100	2,000	170,600

The optimal output level for this producer (in units) is *closest* to:

- A 100.
- B 60.
- C 20.

B is correct. The optimal output level is 60 units because that level produces the highest profit:

Output (units)	Price (\$/unit)	Total Revenue (\$)	Total Costs (\$)	Profit (\$)
20	2,800	56,000	10,600	45,400
40	2,600	104,000	32,600	71,400
60	2,400	144,000	66,600	<b>77,400</b>
80	2,200	176,000	112,600	63,400
100	2,000	200,000	170,600	29,400

C is incorrect. Although it is the highest price level (with output > 0), marginal revenue exceeds marginal cost, the profit of \$45,400 can be further increased by additional output. Notice though that this is the widest spread between MR and MC.

A is incorrect. Although this is the production capacity level, and the highest level of revenue possible, it should not be the chosen output level because total profit can be increased by lowering production to only 60 units.

The Firm and Market Structures

LOS b, c, d

Sections 6.1, 6.2, 6.3

- 40 An electricity producer charges lower rates to its high-volume customers and higher rates to its low-volume customers. The degree of price discrimination is *best* described as:
- A second.
  - B first.
  - C third.

A is correct. Second-degree price discrimination involves using the quantity purchased as the basis for the pricing of a particular good.

B is incorrect. First-degree price discrimination (perfect price discrimination) involves charging each customer their reservation price.

C is incorrect. Third-degree price discrimination involves segregating customers by demographic or other traits.

The Firm and Market Structures

LOS d, e

Section 6.4

- 41 A college student's monthly demand for pizza is given by the equation:

$$Q_{\text{Pizza}}^D = 11 - 0.50 \times P_{\text{Pizza}} + 0.01 \times I - 0.20 \times P_{\text{Cola}}$$

where

$Q_{\text{Pizza}}^D$  = the number of pizzas ordered per month

$P_{\text{Pizza}}$  = the price of a pizza

$I$  = her monthly food budget

$P_{\text{Cola}}$  = the price of cola per bottle

The student's current monthly food budget is \$540, the price of a pizza is \$6, and the price of a bottle of cola is \$2. If the student's monthly food budget were to increase to \$740, the slope of her demand curve for pizza would be *closest* to:

- A -2.0.
- B -2.3.
- C -0.5.

A is correct. Initial price quantity relationship:

$$Q_{\text{Pizza}}^D = 11 - 0.50 \times P_{\text{Pizza}} + 0.01 \times \$540 - 0.20 \times 2.00 = 16 - 0.50 \times P_{\text{Pizza}}$$

Resulting demand curve:  $P_{\text{Pizza}} = 32 - 2 \times Q_{\text{Pizza}}^D$

Price quantity relationship at new income level:

$$Q_{\text{Pizza}}^D = 11 - 0.50 \times P_{\text{Pizza}} + 0.01 \times \$740 - 0.20 \times 2.00 = 18 - 0.50 \times P_{\text{Pizza}}$$

Resulting demand curve:  $P_{\text{Pizza}} = 36 - 2 \times Q_{\text{Pizza}}^D$



The slope of her demand curve for pizza will still be  $-2$  even with the higher income of \$740 because the increase in income has shifted the demand curve outward and upward but has not affected its slope.

B is incorrect. The slope of the demand curve through \$6 is:

$$d_y/d_x = (32 - 6)/(0 - 13) = -2$$

Leaving the denominator unchanged but using the y-intercept for a budget of \$740:

$$d_y/d_x = (36 - 6)/(0 - 13) = -2.31, \text{ rounded to } -2.3.$$

A is incorrect. It uses the slope of the demand function:  $-0.50$ .

Topics in Demand and Supply Analysis

LOS a

Section 2.1

- 42 The following data are for a basket of three consumption goods used to measure the rate of inflation:

Goods	Prior Year		Current Year	
	Quantity	Price	Quantity	Price
5 lb. bag sugar	150 bags	\$3.12	180 bags	\$2.92
5 lb. bag flour	800 bags	\$2.18	750 bags	\$3.12
Frozen pizza (each)	250	\$2.90	250	\$3.00

Using the consumption basket for the current year, the Paasche Index is *closest* to:

- A 124.6.
- B 123.7.
- C 125.4.

B is correct. The Paasche index uses the current composition of the basket.

$$\text{Paasche index} = \frac{180 \times 2.92 + 750 \times 3.12 + 250 \times 3.00}{180 \times 3.12 + 750 \times 2.18 + 250 \times 2.90} \times 100 = 123.75$$

A is incorrect. It is the Fisher index, the geometric mean of the Paasche and Laspeyres indexes.

$$\text{Fisher index} = (123.75 \times 125.43)^{0.5} = 124.59$$

C is incorrect. It is the Laspeyres index, which uses the base period composition of the basket.

$$\text{Laspeyres index} = \frac{150 \times 2.92 + 800 \times 3.12 + 250 \times 3.00}{150 \times 3.12 + 800 \times 2.18 + 250 \times 2.90} \times 100 = 125.43$$

Understanding Business Cycles

LOS f, g

Section 4.2.2

- 43 Suppose that inflation increases due to higher capacity utilization. Such inflation is *best* described as:

- A demand-pull inflation.
- B stagflation.
- C cost-push inflation.

A is correct. Demand-pull inflation depends upon the relationship between actual and potential GDP and industrial capacity utilization. The higher the rate of capacity utilization or the closer actual GDP is to potential, the more likely an economy will suffer shortages, bottlenecks, and a general inability to satisfy demand, and hence, price increases.

B is incorrect because stagflation occurs with a high level of unemployment and a slowdown in the economy, accompanied by high inflation: clearly not conditions of high capacity utilization.

C is incorrect because cost-push inflation is kicked off by either an increase in the money wage rate or an increase in the money prices of raw materials.

Understanding Business Cycles

LOS h

Section 4.2.4

- 44 All else being equal, a decrease in which of the following financial metrics would *most likely* result in a lower return on equity (ROE)?

- A The tax rate
- B Leverage
- C Days of sales outstanding

B is correct. Leverage is a component of the return on equity equation under the DuPont Analysis. If leverage decreases, so will return on equity.

$$\text{ROE} = \text{Tax burden} \times \text{Interest burden} \times \text{Earnings before interest and taxes margin} \times \text{Total asset turnover} \times \text{Leverage}$$

A is incorrect. The tax burden is one of the components of ROE in the 5-factor model:  $\text{Tax burden} = \text{Net income}/\text{EBT} = (\text{EBT} - \text{Tax})/\text{EBT} = 1 - \text{Tax}/\text{EBT} = 1 - \text{Effective tax rate}$

A lower tax rate means the company keeps more of its pre-tax profits (and has a higher tax burden). A lower tax rate increases net income and increases ROE: an increase in any of the 5 components increases ROE.

C is incorrect. Days of sales outstanding is a component of the asset turnover measure. All else equal, if days of sales outstanding decreased, total asset turnover would increase. If asset turnover increases, so will return on equity.

Financial Analysis Techniques

LOS d

Section 4.6.2

- 45 The following selected financial information is available:

Metric	
Sales	\$421,000
Cost of goods sold (COGS)	315,000
Cash	30,000
Average accounts receivable	40,000
Average inventories	36,000
Average accounts payable	33,000

The company's cash conversion cycle (in days) is *closest* to:

- A 76.4.

- B** 45.2.  
**C** 38.2.

C is correct. Cash conversion cycle = DOH + DSO – Days of payables

	Formula	Calculation	Days
DOH: Days of inventory on hand	(365/Inventory turnover)	365/8.75	41.7
Inventory turnover	(COGS/Average inventory)	315,000/36,000 = 8.75	
DSO: Days of sales outstanding	(365/Receivables turnover)	365/10.53	34.7
Receivables turnover	(Sales/Average accounts receivable)	421,000/40,000 = 10.53	
Number of days of payables	(365/Payables turnover)	365/9.55	–38.2
Payables turnover	(COGS*/Average accounts payable)	315,000/33,000 = 9.55	
Cash conversion cycle			38.2

\* When purchases are not available (as in this case) the COGS can be used to estimate payables turnover

A is incorrect. This is the operating cycle; it forgot to subtract payables:  $41.7 + 34.7 = 76.4$ .

B is incorrect. It subtracted days in receivable, added days payable outstanding:  $41.7 - 34.7 + 38.2 = 45.2$ .

Financial Analysis Techniques

LOS b

Sections 4.2, 4.3.1, 4.3.2

Working Capital Management

LOS c

Section 2.2

**46** Which of the following descriptions of financial reporting is considered to be of the *highest* quality?

- A** Within GAAP but with earnings management  
**B** Within GAAP but with biased choices  
**C** Outside GAAP but with conservative choices

B is correct. Along the financial reporting quality spectrum, financial reporting that is within GAAP but has biased choices is considered to be better quality than within-GAAP financial reporting that is subject to earnings management. Financial reporting that is non-compliant with GAAP is considered to be even lower quality.

A is incorrect. Along the financial reporting quality spectrum, financial reporting that is within GAAP but subject to earnings management is considered to be inferior to within-GAAP financial reporting that has biased choices.

C is incorrect. Along the financial reporting quality spectrum, financial reporting that is non-compliant with GAAP is considered to be inferior to GAAP-compliant financial reporting.

Financial Reporting Quality

LOS b

Section 2

47 Which of the following statements is *least* accurate?

- A IFRS Foundation trustees appoint members of the IASB.
- B The IASB is monitored by a board that includes the US SEC.
- C IFRS Foundation trustees oversee the policy decisions of the FASB.

C is correct. The Financial Accounting Foundation, not the IFRS, oversees FASB.

A is incorrect. IFRS Foundation trustees do appoint the members of the IASB.

B is incorrect. The Monitoring Board that oversees the IASB includes representatives from the European Commission, IOSCO, the Japan Financial Services Agency, and the US SEC.

Financial Reporting Standards

LOS b

Sections 3.1.1–3.1.2

48 The *best* description of a classified statement of financial position is one that:

- A is supported by note disclosures relevant to understanding its components.
- B distinguishes between current and non-current assets and liabilities.
- C has not been audited.

B is correct. Classified statements of financial position distinguish between current and non-current assets and liabilities. Classified statements are required under International Financial Reporting Standards unless a liquidity-based presentation provides more relevant and reliable information.

A is incorrect. Note disclosures are required under IFRS, but do not constitute classification on the face of the balance sheet.

C is incorrect. Classified is not a type of audit report.

Financial Reporting Standards

LOS e

Section 5.5.3

Understanding Balance Sheets

LOS c

Section 2.2

49 A credit analyst considers selected ratios calculated for three companies:

	Company A	Company B	Company C
EBITDA/Average assets	8.4%	6.2%	4.3%
Debt/EBITDA	2.0	2.8	3.5
Inventory turnover	4.2	5.8	6.3

Based on the information given, which company is *most likely* to receive the highest credit rating?

- A Company C
- B Company A
- C Company B

B is correct. Company A has the highest EBITDA/Average assets and the lowest Debt/EBITDA. It is likely to receive the highest credit rating since these measures suggest it is best able to repay debt. Inventory turnover does not measure debt paying ability.

A is incorrect. Company C is less able to repay its debt based on its lower EBITDA/Average Assets and its higher Debt/EBITDA.

C is incorrect. Company B is less able to repay its debt based on its lower EBITDA/Average Assets and its higher Debt/EBITDA.

Financial Statement Analysis: Applications

LOS c

Section 4

- 50 One of the notable differences between IFRS and US GAAP when dealing with income tax is *best* illustrated by the fundamental treatment of:

- A non-deductible goodwill.
- B the revaluation of property, plant, and equipment.
- C temporary differences between the carrying amount and tax base of assets and liabilities.

B is correct. US GAAP prohibits the revaluation of PP&E. Therefore, this is a source of an important difference between US GAAP and IFRS with respect to reporting of income taxes.

A is incorrect. For non-deductible goodwill, despite some differences, US GAAP and IFRS are fundamentally the same.

C is incorrect. Both US GAAP and IFRS treat temporary differences in the same way fundamentally.

Income Taxes

LOS j

Section 8

- 51 At the beginning of the year, a company purchased a fixed asset for \$500,000 with no expected residual value. The company depreciates similar assets on a straight-line basis over 10 years, whereas the tax authorities allow declining balance depreciation at the rate of 15% per year. In both cases, the company takes a full year's depreciation in the first year. The tax rate is 40%. Which of the following statements concerning this asset at the end of the year is *most* accurate?

- A The tax base is \$500,000.
- B The deferred tax asset is \$10,000.
- C The temporary difference is \$25,000.

C is correct. The temporary difference is the difference between the net book value (NBV) of the asset for accounting purposes and the NBV for taxes

NBV accounting	$[500,000 - (500,000/10)]$	\$450,000
NBV taxes	$[500,000 - 0.15 \times (500,000)]$	\$425,000
Temporary difference		\$25,000

A is incorrect. The tax base of the asset is the amount that will be deductible for tax purposes in future periods. At the end of the year that amount is \$425,000:  $500,000 - 0.15(500,000)$ .

B is incorrect. The difference will create a deferred tax liability of \$10,000 ( $25,000 \times 40\%$ ), not a deferred tax asset.

Income Taxes

LOS c, d, f

Sections 2.2, 4.1, 4.3

Long-Lived Assets

LOS d

Section 3.1

- 52 A firm that prepares its financial statements according to US GAAP and uses a periodic inventory system had the following transactions during the year:

Date	Activity	Tons (thousands)	\$ per Ton
	Beginning inventory	1	600
February	Purchase	5	650
May	Sale	2	700
August	Purchase	3	680
November	Sale	4	750

The cost of sales (in thousands) is *closest* to:

- A \$5,890 using weighted average.
- B \$4,080 using LIFO.
- C \$3,850 using FIFO.

C is correct. Under FIFO, the oldest units are sold first, thus for the six units sold FIFO, cost of sales is \$3,850, as follows: 1 unit at \$600 + 5 units at 650 = \$3,850.

A is incorrect. It is the cost of goods available for sale not the cost of goods sold: 1 unit at \$600 + 5 units at 650 + 3 units at 680 = \$5,890.

B is incorrect. It used the \$680 most recent cost for all 6,000 units sold:  $6 \times \$680 = \$4,080$ .

Inventories

LOS c  
Sections 3.2, 3.5, 3.6

- 53 In a period of rising prices and stable inventory levels, which inventory valuation method will *most likely* result in the highest inventory turnover ratio, all else being equal?
- A Last-in, first-out (LIFO)
  - B Weighted average cost
  - C First-in, first-out (FIFO)

A is correct. In a period of rising prices, the most recently purchased units of inventory carry the highest cost. Under the LIFO approach, it is these high-cost units (those that are "last in") that are transferred to the income statement ("first out") as cost of goods sold. The lowest-cost units remain on the balance sheet as inventory. With a high cost of goods sold value (numerator) and a low inventory value (denominator), the inventory turnover ratio is highest under LIFO.

B is incorrect. Under the weighted average approach, inventory is transferred to the income statement at a cost that falls somewhere between the lowest cost earlier purchases and the higher cost later purchases. The cost of goods sold value is thus higher than the FIFO value, but lower than the LIFO value. Similarly, the inventory value falls between that of LIFO and FIFO. The inventory turnover ratio also falls in between that of LIFO and FIFO.

C is incorrect. Under the FIFO approach, the lower cost inventory purchased earlier is transferred to the income statement as cost of goods sold. The resulting cost of goods sold value is lower while inventory remains high. As a result, the inventory turnover ratio is low with a lower numerator and higher denominator.

Inventories  
LOS d  
Section 3.7

- 54 Holding all else constant, a company that develops intangible assets internally rather than purchasing them is *most likely* to report:
- A lower amounts of assets.
  - B higher investing cash outflows.
  - C lower operating cash outflows.

A is correct. Costs associated with internally developing intangible assets are usually expensed; thus, a company that has internally developed intangible assets through expenditures on R&D will recognize a lower amount of assets than a company that has obtained intangible assets through external purchase.

B is incorrect. Costs of acquiring intangible assets are classified as investing cash outflows. Thus if the company is developing assets internally, it will report lower investing cash outflows than a company that obtains intangibles through external purchase.

C is incorrect. Costs associated with internally developing intangible assets are classified as operating cash outflows. Thus, if the company is developing the intangible assets internally, it will report higher operating cash outflows than a company that obtains the intangibles through external purchase.

Long-Lived Assets

LOS b  
Section 2.2.2

- 55 A company is purchasing a customer list that it expects will provide economic benefits for the next 5 years. The company chooses to use an accelerated amortization method. The choice will *most likely* result in an amortization expense that will be the:
- A highest in the fifth year.
  - B highest in the first year.
  - C same in all five years.

B is correct. With accelerated amortization, first year amortization expense is the highest.  
A is incorrect. With accelerated amortization, year 5 amortization expense should be the lowest.

C is incorrect. With accelerated amortization, amortization expense declines over the years.

Long-Lived Assets  
LOS g  
Sections 3.1, 3.2

- 56 Which of the following is *most likely* a benefit of debt covenants for the borrower?
- A Limitations on the company's ability to pay dividends
  - B Restrictions on how the borrowed money may be invested
  - C Reduction in the cost of borrowing

C is correct. The reduction in the cost of borrowing is a benefit of covenants to the borrower.

A is incorrect. Limiting a company's ability to pay dividends is a benefit to the lender, not the borrower.

B is incorrect. Restrictions on how the borrowed money may be invested is a benefit to the lender, not the borrower.

Non-Current (Long-Term) Liabilities  
LOS d  
Section 2.5

- 57 The following information is available from a company's current financial data, prepared according to US GAAP:

	\$ thousands
<b>Defined-Contribution Plan:</b>	
Contributions to defined contribution plan	1,000
<b>Defined-Benefit Plan:</b>	
Contributions to defined benefit plan	1,500
Employees' service cost for the period	1,400



	\$ thousands
Interest expense accrued on the beginning pension obligation	200
Expected return on plan assets	400
Actuarial gains for the period	100

The pension expense (in \$ thousands) reported in the current year is *closest* to:

- A 2,200.
- B 2,500.
- C 2,400.

A is correct. The pension expense would be the sum of the expense for the defined-contribution plan and the defined-benefit plan as follows:

Plan	Expense Components under US GAAP	\$ thousands
Defined-contribution plan	Contributions	1,000
Defined-benefit plan	Employee service costs	1,400
	Interest expense accrued on beginning pension obligation	200
	Less expected ROA on plan assets	(400)
Total Expense		2,200

B is incorrect. This is the contributions for both plans:  $2,500 = 1,000 + 1,500$ .

C is incorrect. This includes actuarial gains:  $2,100 = 1,000 + \$1,400 + 200 - 400 - 100$ .

Non-Current (Long-Term) Liabilities

LOS j

Section 4

58 The analytical tool that would be *most* appropriate for an analyst to use to identify the percentage of a company's assets that are liquid is the:

- A cash ratio.
- B common-size balance sheet.
- C current ratio.

B is correct. A common-size balance sheet expresses all balance sheet accounts as a percentage of total assets and would provide insight into what portion of a company's assets is liquid. On the other hand, cash and current ratios measure liquidity relative to current liabilities, not relative to total assets.

A is incorrect. The cash ratio is a measure of liquidity relative to current liabilities (but not assets), and it wouldn't tell you the portion of the company's assets that are liquid.

C is incorrect. The current ratio is a measure of liquidity relative to current liabilities (but not assets), and it wouldn't tell you the portion of the company's assets that are liquid. A common-size balance sheet expresses all balance sheet accounts as a percentage of total assets and would provide insight into what portion of a company's assets is liquid.

Understanding Balance Sheets

LOS g

Sections 7.1, 7.2

Financial Analysis Techniques

LOS b, c

Section 3.2.1

59 Data for a firm are presented in the following table:

As of 31 December	£ thousands
Cash	200
Accounts receivable	350
Inventory	1,250
Accounts payable	300
Taxes payable	200
Installment loan payable, due in three equal annual payments on 30 June.	600

The current ratio for the firm's industry is 3.2. Based on the current ratio, the firm's liquidity compared with the industry is *best* described as being:

- A higher.
- B equivalent.
- C lower.

C is correct. The higher the current ratio, the more liquid the company. Thus, with a current ratio of 2.6 (1,800/700), the company is less liquid than the industry, which has a current ratio of 3.2.

Current ratio = Current assets/Current liabilities.

Current Assets	£ thousands	Current Liabilities	£ thousands
Cash	200	Accounts payable	300
Accounts receivable	350	Taxes payable	200
Inventory	1,250	Loan payable, first installment	200
Total	1,800	Total	700

A is incorrect. Failing to include the taxes payable or the loan (or the A/P) gives  $1,800/400 = 4.5$ , which is above the industry average.

B is incorrect. The firm's current ratio is 2.6, which is below the industry average.

Understanding Balance Sheets

LOS h

Section 7.2

Financial Analysis Techniques  
 LOS b  
 Section 4.3  
 Working Capital Management  
 LOS b  
 Sections 2.2

- 60 A company recorded the following events during 2014:

	\$ thousands
Purchase of securities for trading purposes	240
Proceeds from the sale of trading securities	300
Proceeds from issuance of bonds	500
Purchase of 30% of the shares of an affiliated company	275

On the 2014 statement of cash flows, the company's net cash flow from investing activities (in thousands) is *closest* to:

- A \$285.
- B -\$275.
- C -\$215.

B is correct. Only the cash flows for the purchase of the shares in an affiliated company is cash from investing activities, thus the net amount is -\$275,000. Cash flows from trading securities is an operating activity, and cash flow from issuing bonds is a financing activity.

A is incorrect. It also includes the proceeds from the issuance of the bond, but that is a financing activity:  $-275,000 - 240,000 + 300,000 + 500,000 = 285,000$ .

C is incorrect. It includes the proceeds and purchase of the trading securities, but they are operating activities:  $-275,000 - 240,000 + 300,000 = -215,000$

Understanding Cash Flow Statements  
 LOS a  
 Section 2.1

- 61 The converged revenue recognition standards (issued by the International Accounting Standards Board and the Financial Accounting Standards Board in May 2014) are *best* described as differing from pre-converged US GAAP in that they:

- A align the recognition of revenue with the customer's fulfillment of payment obligations.
- B provide extensive additional guidance for specific industries and transactions.
- C provide a principles-based approach applicable to many types of revenue-generating activities.

C is correct. The converged standards aim to take a principles-based approach that avoids the provision of specific rules and requirements characteristic of current US GAAP revenue recognition standards.

A is incorrect. Neither current US GAAP nor the new standard suggests aligning revenue recognition with receipt of payments, except where collectability is uncertain.

B is incorrect. Current US GAAP includes extensive guidance on specific industries and transactions. The new standard moves away from this approach.

Understanding Income Statements

LOS d

Section 3.4

**62** When computing the cash flows for a capital project, which of the following is *least likely* to be included?

- A** Financing costs
- B** Opportunity costs
- C** Tax effects

A is correct. Financing costs are not included in a cash flow calculation but are considered in the calculation of the discount rate.

B is incorrect because opportunity costs are considered in computing a firm's cash flows.

C is incorrect because tax effects are considered in computing a firm's cash flows.

Capital Budgeting

LOS b

Section 3

**63** A project has the following annual cash flows:

Year 0	Year 1	Year 2	Year 3	Year 4
-\$4,662,005	\$22,610,723	-\$41,072,261	\$33,116,550	-\$10,000,000

Which of the following discount rates *most likely* produces the highest net present value (NPV)?

- A** 8%
- B** 15%
- C** 10%

B is correct. The NPV at 15% is \$99.93. The NPV at 10% is -\$0.01. The NPV at 8% is -\$307.59.

A is incorrect. See the above calculation.

C is incorrect. See the above calculation.

Capital Budgeting

LOS d, e

Sections 4.1, 4.7

**64** An analyst gathered the following information about a company that expects to fund its capital budget without issuing any additional shares of common stock:

Source of Capital	Capital Structure Proportion	Marginal After-Tax Cost
Long-term debt	50%	6%
Preferred stock	10%	10%
Common equity	40%	15%

### IRR of Two Independent Projects

Warehouse project	8%
Equipment project	12%

If no significant size or timing differences exist among the project(s) and both projects have the same risk as the company's existing projects, which project(s) should be accepted?

- A The warehouse project only
- B The equipment project only
- C Both projects

B is correct. The company's weighted average cost of capital (WACC) is calculated as  $WACC = 0.5(6\%) + 0.1(10\%) + 0.4(15\%) = 10\%$ . In this scenario, the company should accept projects that have an internal rate of return greater than the cost of capital. The equipment project's IRR exceeds the WACC. The warehouse project does not.

C is incorrect. Accept projects that have an internal rate of return greater than the cost of capital. The equipment project's IRR exceeds the WACC. The warehouse project does not.

A is incorrect. Accept projects that have an internal rate of return greater than the cost of capital. The equipment project's IRR exceeds the WACC. The warehouse project does not.

Capital Budgeting

LOS d

Sections 4.1, 4.2

Cost of Capital

LOS a

Sections 2, 2.1

65 A company's optimal capital budget *most likely* occurs at the intersection of the:

- A net present value and internal rate of return profiles.
- B marginal cost of capital and investment opportunity schedule.
- C marginal cost of capital and net present value profiles.

B is correct. The point at which the marginal cost of capital intersects the investment opportunity schedule is the optimal capital budget.

A is incorrect. The point at which the marginal cost of capital intersects the investment opportunity schedule is the optimal capital budget.

C is incorrect. The point at which the marginal cost of capital intersects the investment opportunity schedule is the optimal capital budget.

Capital Budgeting

LOS e

Section 4.7

Cost of Capital

LOS d

Section 2.3

- 66** A mining company has received government approval for the development of a mining property and has also consulted with members of the local community near the development site throughout the project assessment process. The latter action is *best* described as an example of:
- A** principal–agent conflict mitigation.
  - B** stakeholder management.
  - C** regulatory compliance.

B is correct. Stakeholder theory broadens a company's focus beyond the interests of only its shareholders to those of its customers, suppliers, employees, and others who have an interest in the company. The local community is likely a stakeholder in the company's development plans. By identifying the community and understanding its interests, the company is engaging in stakeholder management.

A is incorrect. The company has not hired the local community as an agent, and the local community has not hired the company as an agent, so any conflict that arises would not be considered principal–agent conflict.

C is incorrect. Regulations do not necessarily require companies to consult with local communities. In this case, the consultations were taken in addition to meeting all the government/regulatory requirements.

Corporate Governance and ESG: An Introduction

LOS d

Section 4.2

- 67** According to good corporate governance practices, which of the following committees is *most likely* to have members from executive management?
- A** Remuneration
  - B** Audit
  - C** Environmental health and safety

C is correct. In good corporate governance practices the audit and remuneration/compensation committees should be composed entirely of independent board members. Other committees such as environmental health and safety may have members from executive management.

A is incorrect. The remuneration/compensation committee should be composed entirely of independent board members.

B is incorrect. The audit committee should be composed entirely of independent board members.

Corporate Governance and ESG: An Introduction

LOS f

## Section 5.3

- 68 When computing the weighted average cost of capital (WACC) and assuming a fixed-rate non-callable bond is currently selling above par value, the before-tax cost of debt is *closest* to the:
- A coupon rate.
  - B yield to maturity.
  - C current yield.

B is correct. With a fixed-rate non-callable bond, the before-tax cost of debt is the bond's yield to maturity.

A is incorrect because the coupon rate is higher than the yield-to-maturity based on the bond selling above par value.

C is incorrect because the current yield is the coupon divided by the bond price which does not equal the yield-to-maturity.

Cost of Capital

LOS f

Section 3.1

- 69 A company's \$100 par value preferred stock with a dividend rate of 9.5% per year is currently priced at \$103.26 per share. The company's earnings are expected to grow at an annual rate of 5% for the foreseeable future. The cost of the company's preferred stock is *closest* to:
- A 9.5%.
  - B 9.2%.
  - C 9.7%.

B is correct.  $r_p = D_p/P_p$  (or Dividend/Price) =  $(\$100 \times 0.095)/\$103.26 = 9.2\%$ .

A is incorrect because it uses \$100 as the denominator, i.e.,  $(\$100 \times 0.095)/\$100 = 9.5\%$ .

C is incorrect because it assumes 5% growth in the dividend, i.e.,  $9.5 \times (1.05)/103.26 = 9.7\%$ .

Cost of Capital

LOS g

Section 3.2

Equity Valuation: Concepts and Basic Tools

LOS f

Section 4.1

- 70 A firm is uncertain about both the number of units the market will demand and the price it will receive for them. This type of risk is *best* described as:
- A sales risk.
  - B operating risk.
  - C business risk.

A is correct. Sales risk is associated with uncertainty with respect to total revenue, which, in turn, depends on price and units sold.

B is incorrect. Operating risk is the risk attributed to the operating cost structure. A company with a greater proportion of fixed costs in its cost structure has greater operating risk.

C is incorrect. Business risk is risk associated with operating earnings and this risk is the combination of sales risk and operating risk.

Measures of Leverage

LOS a

Section 3.1, 3.2

**71** If the degree of financial leverage (DFL) is 1.00, the operating breakeven point compared with the breakeven point is *most likely*:

- A** lower.
- B** the same.
- C** higher.

B is correct. When  $DFL = \text{Operating income} / \text{Net income} = 1.00$ ,  $\text{Operating income} = \text{Net income}$ , meaning the fixed cost of debt is zero.

The breakeven point is:  $\text{Fixed costs} + \text{Fixed cost of debt} / \text{Contribution margin}$ .

Because the fixed cost of debt is zero, the company's breakeven point becomes  $\text{Fixed costs} / \text{Contribution margin}$ , which is the same as the operating breakeven point.

A is incorrect because the breakeven point is equal to the operating breakeven point when  $DFL = 1.00$ .

C is incorrect because the breakeven point is equal to the operating breakeven point when  $DFL = 1.00$ .

Measures of Leverage

LOS b, d, e

Sections 3.4, 3.6

**72** For a 90-day US Treasury bill selling at a discount, which of the following methods *most likely* results in the highest yield?

- A** Discount-basis yield (DBY)
- B** Money market yield (MMY)
- C** Bond equivalent yield (BEY)

C is correct. Note: the face value is greater than the purchase price because the T-Bill sells at a discount.

$$DBY = \frac{\text{Face value} - \text{Purchase price}}{\text{Face value}} \times \frac{360}{\text{Days to maturity}}$$

$$MMY = \frac{\text{Face value} - \text{Purchase price}}{\text{Purchase price}} \times \frac{360}{\text{Days to maturity}}, \text{ MMY} > \text{DBY}$$



$$BEY = \frac{\text{Face value} - \text{Purchase price}}{\text{Purchase price}} \times \frac{365}{\text{Days to maturity}}$$

$$BEY = MMY \times 365/360, BEY > MMY > DBY$$

A is incorrect because bond equivalent yield is the highest yield by construction.

B is incorrect because bond equivalent yield is the highest yield by construction.

Working Capital Management

LOS e

Section 4.1.1

- 73 The effective annualized cost (%) of a banker's acceptance that has an all-inclusive annual rate of 5.25% for a one-month loan of \$2,000,000 is *closest* to:

- A 5.54%.
- B 5.38%.
- C 5.27%.

C is correct. Calculate the effective annualized cost:

$$\frac{\text{Interest}}{\text{Net proceeds}} \times 12 = \frac{2,000,000 \times 0.0525 \times 1/12}{2,000,000 \times (1 - 0.0525 \times 1/12)} \times 12$$

$$= 0.0527 = 5.27\%$$

A is incorrect. No monthly adjustment is made within the calculation.

$$0.0554 = \frac{2,000,000 \times 0.0525}{2,000,000 \times (1 - 0.0525)}$$

B is incorrect. It is the effective annual rate.

$$0.0538 = \left(1 + \frac{0.0525}{12}\right)^{12} - 1$$

Working Capital Management

LOS g

Section 8.4, Example 7

- 74 In the context of strategic asset allocation, adding asset classes with low correlation will *most likely* improve a portfolio's risk–return trade-off as long as the stand-alone risk of the added asset class:

- A does not exceed its diversification effect.
- B equals its diversification effect.
- C exceeds its diversification effect.

A is correct. In general, adding assets classes with low correlation improves the risk–return trade-off as long as the stand-alone risk of the added asset class does not exceed its diversification effect.

B is incorrect because adding assets classes with low correlation will only improve the risk–return trade-off if the stand-alone risk of the added asset class does not exceed its diversification effect.

C is incorrect because adding assets classes with low correlation will only improve the risk–return trade-off if the stand-alone risk of the added asset class does not exceed its diversification effect.

Basics of Portfolio Planning and Construction

LOS f

Section 3.2

**75** Which of the following is *most likely* a part of the feedback step in the portfolio management process?

- A** Performance measurement
- B** Developing the investment policy statement
- C** Portfolio construction

A is correct. Performance measurement, along with portfolio monitoring and rebalancing, is part of the feedback loop.

B is incorrect. Developing the investment policy statement is part of the planning step.

C is incorrect. Portfolio construction is part of the execution step.

Portfolio Management: An Overview

LOS d

Section 4

**76** Selected information about shares of two companies is provided in the following table:

Stock	Standard Deviation	Correlation of Returns*	Portfolio Weights
Cable Incorporated	30%	0.65	68%
GPT Company	20%		32%

\* Correlation of returns between Cable Incorporated and GPT Company.

The standard deviation of returns of the portfolio formed with these two stocks is *closest* to:

- A** 32.85%.
- B** 26.80%.
- C** 25.04%.

C is correct.

$$\text{Portfolio standard deviation} = \sqrt{(0.68^2)(0.3^2) + (0.32^2)(0.2^2) + 2(0.68)(0.32)(0.65)(0.3)(0.2)}$$

$$= 0.2504.$$

A is incorrect. The standard deviation terms are excluded from the third part of the equation and the square root is not taken. This is incorrectly calculated as  $[(0.68^2)(0.3^2) + (0.32^2)(0.2^2) + 2(0.68)(0.32)(0.65)] = 0.3285$ .

B is incorrect. This is the weighted standard deviations =  $0.68 \times 0.30 + 0.32 \times 0.20 = 0.268$ .

Portfolio Risk and Return: Part I

LOS e

Section 2.3.3

**77** For a portfolio consisting of two assets with a correlation coefficient of +1.0, it is *most likely* that portfolio risk is:

- A** equal to the weighted average of the risk of the two assets in the portfolio.
- B** less than the weighted average of the risk of the two assets in the portfolio.
- C** greater than the weighted average of the risk of the two assets in the portfolio.

A is correct. With a correlation coefficient of +1.0, no diversification benefits are obtained and the portfolio risk is equal to the weighted average of the risk of the two assets in the portfolio.

B is incorrect. Portfolio risk is less than the weighted average of the risk of the two assets in the portfolio only when the correlation coefficient is smaller than one.

C is incorrect. Portfolio risk can never be greater than the weighted average of the risk of the two assets in the portfolio.

Portfolio Risk and Return: Part I

LOS f

Section 4.1.3

**78** Stock X and Stock Y have the same level of total risk. Stock X has twice the systematic risk of Stock Y and half its non-systematic risk. Stock X's expected return will *most likely* be:

- A** the same as the expected return of Stock Y.
- B** lower than the expected return of Stock Y.
- C** higher than the expected return of Stock Y.

C is correct. Because Stock X has a higher systematic risk level compared with Stock Y, its expected return will be higher than that of Stock Y.

A is incorrect because Stock X has a higher systematic risk level compared to Stock Y, implying a higher (not the same) expected return compared to Stock Y.

B is incorrect because Stock X has a higher systematic risk level compared to Stock Y, implying a higher (not lower) expected return compared to Stock Y.

Portfolio Risk and Return: Part II

LOS c

Section 3.1

**79** Which of the following is *least likely* an assumption underlying the capital asset pricing model (CAPM)?

- A** Investors analyze securities according to their own future cash flow estimates and probability distributions.
- B** There are no restrictions on short selling assets.

- C** The amount invested in an asset can be as much or as little as the investor wants.

A is correct. The CAPM requires that there are no restrictions on short selling (which is an assumption underlying frictionless markets) and that the amount invested in an asset can be as much or as little as the investor wants (that is, investments are infinitely divisible). The CAPM also assumes that all investors analyze securities in the same way using the same inputs for future cash flows and the same probability distributions; that is, it assumes that investors have homogenous expectations.

B is incorrect because no restrictions on short selling assets (which is an assumption underlying frictionless markets) is an assumption of the CAPM.

C is incorrect because an investor being able to invest as much or as little in an asset (that is, investments are infinitely divisible) is an assumption of the CAPM.

Portfolio Risk and Return: Part II

LOS f

Section 4.1

- 80** In a good risk management process, the duties of Chief Risk Officer (CRO) *least likely* include:

- A** setting the risk tolerance of the organization.  
**B** participating in the key strategic decisions of the organization.  
**C** building the risk framework for the organization.

A is correct. The CRO will be appointed by the CEO and board to build and manage the risk management system, but the CEO and board remain responsible for determining the risk tolerance of the organization as a whole.

B is incorrect because the CRO will participate in strategic decision making for the organization.

C is incorrect because the CRO will build and manage the risk framework of the organization.

Risk Management: An Introduction

LOS c

Section 3.1

- 81** Which of the following statements is *least* accurate? A firm's free cash flow to equity (FCFE):

- A** is a measure of the firm's dividend-paying capacity.  
**B** increases with an increase in the firm's net borrowing.  
**C** is significantly affected by the amount of dividends paid by the firm.

C is correct. Dividends, a discretionary cash flow from financing activities, have no bearing on a firm's free cash flow to equity, as can be seen from the formula:  $FCFE = CFO - FCI_{Inv} + \text{Net borrowing}$ .

A is incorrect. FCFE is a measure of dividend-paying capacity.

B is incorrect. FCFE increases with an increase in the firm's net borrowing.

Equity Valuation: Concepts and Basic Tools  
LOS e  
Section 4

- 82 An investor gathers the following data to estimate the intrinsic value of a company's stock using the justified forward price-to-earnings ratio (P/E) approach.

Next year's earnings per share	\$3.00
Return on equity	12.5%
Dividend payout ratio	60%
Required return on shares	10%

The intrinsic value per share is *closest* to:

- A \$36.
- B \$48.
- C \$72.

A is correct. Given that the intrinsic value is  $P_0 = P_0/E_1 \times E_1$  and the justified forward P/E is  $P_0/E_1 = p/(r - g)$ , where  $p$  = payout ratio,

Dividend growth rate =  $(1 - \text{Payout ratio}) \times \text{ROE} = (1 - 0.6) \times 12.5 = 5\%$

Justified forward P/E =  $P_0/E_1 = 0.60/(0.10 - 0.05) = 12\times$ , so

Intrinsic value =  $12 \times \$3 = \$36$

B is incorrect. It switches between retention ratio and payout ratio in computations.

Dividend growth rate =  $0.6 \times 12.5 = 7.5\%$

$P/E_1 = 0.40/(0.10 - 0.075) = 16\times$

Intrinsic value = Next year's EPS  $\times P/E_1 = \$3 \times 16 = \$48$

C is incorrect. It is the mistake of using payout ratio for computing growth rate.

Dividend growth rate = Payout ratio  $\times \text{ROE} = 0.6 \times 12.5 = 7.5\%$

$P/E_1 = p/(r - g) = 0.60/(0.10 - 0.075) = 24\times$

Intrinsic value = Next year's EPS  $\times P/E_1 = \$3 \times 24 = \$72$

Equity Valuation: Concepts and Basic Tools

LOS j

Section 5.1

- 83 Given the following information for a company:

- Market value per share \$250
- Current dividend per share \$5
- Dividend growth rate 4%
- Required rate of return 6%

and using the Gordon growth model to estimate the intrinsic value, a share of the company is *best* described as being:

- A fairly valued.
- B overvalued.
- C undervalued.

C is correct. The intrinsic value of an equity security based on the Gordon growth model is estimated as follows:

$$V_0 = \frac{D_0(1+g)}{r-g} = \frac{D_1}{r-g} \text{ where:}$$

$V_0$  = the estimate of the intrinsic value

$D_0$  = the current dividend (\$5) and  $D_1$  is the next year's dividend

$g$  = the dividend growth rate (4%)

$r$  = the required rate of return (6%)

The estimate of the intrinsic value is:

$$V_0 = \frac{D_0(1+g)}{r-g} = \frac{\$5(1+0.04)}{(0.06-0.04)} = \$260 \text{ per share}$$

Given that the market value (\$250) is lower than the estimate of the intrinsic value (\$260), a share of the company appears to be undervalued.

B is incorrect. The estimate of the intrinsic value is

$$V_0 = \frac{D_0(1+g)}{r-g} = \frac{\$5(1+0.04)}{(0.06-0.04)} = \$260 \text{ per share}$$

Given that the market value is lower than the estimate of the intrinsic value (\$250 < \$260), a share of the company appears to be undervalued, not overvalued. A share of a company is overvalued when the market value is higher than the intrinsic value.

A is incorrect. The estimate of the intrinsic value is

$$V_0 = \frac{D_0(1+g)}{r-g} = \frac{\$5(1+0.04)}{(0.06-0.04)} = \$260 \text{ per share}$$

Given that the market value is lower than the estimate of the intrinsic value (\$250 < \$260), a share of the company appears to be undervalued. A share of a company is fairly valued when the intrinsic value is equal to the market value. Using \$5 as  $D_1$ , rather than  $D_0$ , would lead to the wrong conclusion that a share of the company is fairly valued:

$$\$5/(0.06-0.04) = \$250 \text{ per share}$$

Equity Valuation: Concepts and Basic Tools

LOS g

Section 4.2

Market Efficiency

LOS b

Section 2.2

**84** Industry analysis is *least* useful to those who are engaged in:

- A** a top-down investment approach.
- B** indexing and passive investing strategies.
- C** portfolio performance attribution.

B is correct. Indexing and passive investing strategies would not engage in over- or underweighting of industries, industry rotation, or timing investments in industries. Therefore, industry analysis is not useful to such investors or portfolio managers.

A is incorrect. In a top-down investing approach, industry analysis is useful to identify industries with positive, neutral, or negative outlooks for profitability and growth, which will then help weighting of industries relative to the benchmark.

C is incorrect. Portfolio performance attribution, which addresses the sources of a portfolio's returns, usually in relation to the portfolio's benchmark, includes industry or sector selection.

Introduction to Industry and Company Analysis

LOS a

Section 2

**85** Unlike commercial industry classification systems, industry classification systems developed by governments *most likely*:

- A** are updated more frequently.
- B** are more transparent.
- C** include private companies.

C is correct. Industry classification systems developed by governments do not distinguish between public and private companies, whereas commercial classification systems include only publicly traded organizations.

A is incorrect. Commercial industry classification systems are updated more frequently than government classification systems.

B is incorrect. Unlike commercial industry classification systems, most government classification systems do not disclose information about specific businesses.

Introduction to Industry and Company Analysis

LOS b

Section 4.3

**86** Which of the following statements concerning companies in different industry environments is *most* accurate?

- A** Companies in mature industries tend to focus on efficiency gains and gain market share through superior products.
- B** An industry's experience curve declines with a decrease in the utilization of capital equipment and spreading overhead over a fewer number of units.
- C** Companies in fragmented industries would not be highly price competitive because they tend to think individualistically, making coordination difficult.

A is correct. Companies in mature industries are likely to pursue replacement demand rather than new buyers and are probably focused on extending successful product lines rather than introducing revolutionary new products. Therefore, they tend to focus on cost rationalization and efficiency gains rather than on taking a lot of market share. Furthermore, companies with superior products or services are likely to gain market share.

B is incorrect. An industry's experience curve declines with an increase in the utilization of capital equipment and spreading overhead over a larger number of units.

C is incorrect. Companies in fragmented industries would be highly price competitive because they tend to think individualistically making coordination difficult.

Introduction to Industry and Company Analysis

LOS e, h

Sections 5, 5.1.2, 5.1.5

- 87 The following table shows some data on a company before and after unexpected news is announced to the public:

	Before the Announcement	After the Announcement
Market value per share	\$30	\$31
Estimated intrinsic value per share	\$30	\$33

Based on the data in the table, the market for this company's shares is *best* described as:

- A relatively inefficient.
- B semi-strong efficient.
- C overvalued.

A is correct. In an inefficient market, (1) the market value of a stock adjusts slowly to an unexpected news, and (2) there are probably discrepancies between market value and intrinsic value. Given that after the unexpected news, the estimated intrinsic value increases to \$33 (from \$30) but the market value increases to only \$31 (from \$30), it is possible to conclude that the market for this company's shares is relatively inefficient.

B is incorrect. In a semi-strong-form efficient market, prices reflect all publicly known and available information. Given that after the unexpected news is announced to the public the stock price did not fully converge to the intrinsic value (\$31 vs. \$33), it means that the price did not fully reflect all publicly available information. Therefore, the market for this company's shares is not semi-strong-form efficient.

C is incorrect. The company's shares are undervalued, not overvalued, because after the announcement the market value per share is lower than the estimated intrinsic value per share ( $\$31 < \$33$ ).

Market Efficiency

LOS a, b

Sections 2.1, 2.2, 2.3

- 88 Which of the following is *most likely* a cross-sectional anomaly in financial markets?

- A Closed-end fund discount
- B Overreaction effect
- C Value effect

C is correct. The value effect—that is, stocks with below-average price-to-earnings and market-to-book ratios and above-average dividend yields have consistently outperformed growth stocks over long periods—is a cross-sectional anomaly.

A is incorrect. A closed-end fund discount is an anomaly where a closed-end fund trades at a discount from its net asset value. It is not a cross-sectional anomaly.

B is incorrect. Overreaction effect is a time-series anomaly, not a cross-sectional anomaly.

Market Efficiency

LOS f

Section 4



- 89 An investor opens a margin account with an initial deposit of \$5,000. He then purchases 300 shares of a stock at \$30 each on margin, and his account requires a maintenance margin of 30%. Ignoring commissions and interest, the price at which the investor will receive a margin call is closest to:
- A \$19.05.
  - B \$23.08.
  - C \$23.81

A is correct.

$$\frac{\text{Equity}}{\text{Market value}} = 30\%$$

$$\frac{5,000 + (P \times 300) - (30 \times 300)}{P \times 300} = 30\%$$

$$P = \$19.05$$

B is incorrect. It uses total purchase price of the stock instead of margin loan.

$$\frac{(P \times 300) - (30 \times 300)}{P \times 300} = 30\%$$

$$P = \$23.08$$

C is incorrect. It subtracts the equity instead of the margin loan in the numerator.

$$\frac{(P \times 300) - 5,000}{P \times 300} = 30\%$$

$$P = \$23.81$$

Market Organization and Structure

LOS f

Section 5.2

- 90 A trader who owns shares of a stock currently trading at \$100 per share places a "GTC, stop \$90, limit \$85 sell" order (GTC means good till cancelled). Assuming the specified stop condition is satisfied and the order becomes executed, which of the following statements is *most* accurate?
- A The order becomes a market order when the price falls below \$85 and remains valid for execution.
  - B The trader faces a maximum realized loss of \$15.
  - C The order will be executed at either \$90 or \$85.

B is correct. The order becomes valid when the price falls to, or below, \$90. The "limit \$85 sell" indicates that the trader is unwilling to sell below \$85. Thus, the trader faces a maximum loss of \$15 (\$100 – \$85).

A is incorrect. The order becomes invalid for execution when the price falls below \$85.


C is incorrect. The order can be executed at any prices between \$85 and \$90.

Market Organization and Structure

LOS h

Section 6.2

- 91 A trader describes her currency contract exposure as “long the euro against the British pound.” Which of the following situations *best* fits her description? She has a:
- A contract that allowed her to sell British pounds and acquire euros.
  - B forward contract to buy euros in exchange for British pounds at a predetermined exchange rate.
  - C forward contract to buy British pounds, using euros she currently holds.



B is correct. The trader has a long forward position in the euro, which means she has committed to purchase euros in exchange for British pounds sometime in the future at an exchange rate determined when the contract was initiated.

A is incorrect. This is a spot transaction, so there is no contract.

C is incorrect. Forward contracts do not require holding one of the currencies; in most cases, one party will be receiving a foreign currency in the future (a payment in a foreign currency for example), and one party wishes to convert that into the domestic currency at that time without worrying about the exchange rate at the time of payment.

Market Organization and Structure

LOS e


Section 5

Currency Exchange Rates

LOS a

Section 2.1

- 92 Participating preference shares are *least likely* to entitle the shareholders to participate in:
- A additional distribution of the company's assets upon liquidation.
  - B corporate decisions through voting rights.
  - C additional dividends if the company's profits exceed a predetermined level.



B is correct. Participating preference shares do not entitle the shareholders to participate in corporate decisions through voting rights. But they do entitle them to (1) an additional dividend if the company's profits exceed a prespecified level and (2) additional distribution of the company's assets upon liquidation, above the par.

A is incorrect. Participating preference shares entitle the shareholders to participate in additional distribution of the company's assets upon liquidation, above the par.

C is incorrect. Participating preference shares entitle the shareholders to participate in additional dividend if the company's profits exceed a pre-specific level.

Overview of Equity Securities

LOS b

Section 3.2

- 93 According to the industry life-cycle model, companies in a mature industry are *most likely* to experience:
- A high barriers to entry.
  - B fierce competition.
  - C low dividend yields.



A is correct. In the mature stage of the industry life-cycle model, brand loyalty and efficient cost structures will create barriers to entry. Fierce competition is a characteristic of the shakeout phase: Demand approaches market saturation levels because few new customers are left to enter the market. Because few growth opportunities are available in the mature phase, there is little need for capital investment, and thus greater amounts of earnings are paid out as dividends, increasing dividend yields.

B is incorrect. Fierce competition is a characteristic of the shakeout phase, not the mature stage. In the mature stage, the remaining companies in the industry aggressively fight for market share.

C is incorrect. Dividends increase in the mature stage, as there are little in the way of growth opportunities, and not much need for capital investment—a greater proportion of earnings are paid out as dividends, increasing dividend yields.


Introduction to Industry and Company Analysis

LOS h

Section 5.1.5

- 94 Zet Bank has entered into a contract with Louly Corporation in which Zet agrees to buy a 2.5% US Treasury bond maturing in 10 years and promises to sell it back next month at an agreed-on price. From Zet Bank's perspective, this contract is *best* described as a:

- A repo.
- B collateralized loan.
- C reverse repo.



C is correct. A reverse repo (repurchase agreement) is collateralized cash lending by purchasing an underlying security now and selling it back in the future.

A is incorrect because it is the contract known for Louly Corporate as a collateralized borrowing, i.e., repo.

B is incorrect because collateralized short-term borrowing involves selling the security and subsequently repurchasing the collateral posted.


Fixed-Income Markets: Issuance, Trading, and Funding

LOS i

Section 7.3

- 95 Which of the following bonds are *most likely* to be bearer bonds?

- A Foreign bonds
- B Domestic bonds
- C Eurobonds



C is correct. Most Eurobonds are bearer bonds, meaning that the trustee does not keep records of who owns the bonds; only the clearing system knows who the bond owners are.

A is incorrect because most domestic bonds are registered bonds.

B is incorrect because most foreign bonds are registered bonds for which ownership is recorded by either name or serial number.

Fixed-Income Securities: Defining Elements

LOS d

## Section 3.2

- 96 If an issuer is required to retire a specified portion of the bond's principal each year, the bond *most likely*:
- A is callable.
  - B is a step-up note.
  - C has a sinking fund provision.

C is correct. A sinking fund provision requires retirement of a portion of the bond's principal every year, rather than retirement of the entire issue at maturity.

A is incorrect because a bond that is currently callable may be retired by the issuer, but the issuer is not required to do so.

B is incorrect because a step-up note has a coupon rate that increases over time according to a predetermined schedule.

Fixed-Income Securities: Defining Elements

LOS e

Section 4.1

- 97 The Delfain Corporation reported a significant improvement in profitability that was followed by a material upgrade in its credit rating. The market responded by immediately requiring a 100 basis point narrower spread to Gilts on Delfain's 8-year bond. If the bond's modified duration is 6.0 and its convexity is 55.0, the return impact of this change is *closest* to:
- A 6.28%.
  - B -5.73%.
  - C 7.10%.

A is correct. The return impact of a 60 bps fall in the bond's yield can be computed as:

$$\text{Return impact} \approx -(\text{MDur} \times \Delta\text{Spread}) + \frac{1}{2}\text{Cvx} \times (\Delta\text{Spread})^2$$

$$\text{Return impact} \approx -(6.0 \times -0.01) + \frac{1}{2}(55.0) \times (-0.01)^2 = 6.28\%$$

B is incorrect because the return impact is incorrectly computed as:

$$\text{Return impact} \approx -(6.0 \times 0.01) + \frac{1}{2}(55.0) \times (0.01)^2 = -5.73\%$$

C is incorrect because the return impact is incorrectly computed as:

$$\text{Return impact} \approx -(6.0 \times -0.01) + 2 \times (55.0) \times (-0.01)^2 = 7.10\%$$

Fundamentals of Credit Analysis

LOS i

Section 6

- 98 An investor who owns a mortgage pass-through security is exposed to extension risk, which is the risk that when interest rates:
- A fall, the security will effectively have a shorter maturity than was anticipated at the time of purchase.
  - B rise, the security will effectively have a shorter maturity than was anticipated at the time of purchase.

- C** rise, the security will effectively have a longer maturity than was anticipated at the time of purchase.

C is correct. Extension risk is the risk faced that when interest rates rise, fewer prepayments will occur because homeowners will be reluctant to give up the benefits of a contractual interest rate that is now lower than the market rate. As a result, the security becomes longer in maturity than anticipated at the time of purchase.

A is incorrect because extension risk is the risk faced that when interest rates rise (not fall), fewer prepayments will occur because homeowners are reluctant to give up the benefits of a contractual interest rate that is now lower than the market rate. As a result, the security becomes longer in maturity than anticipated at the time of purchase.

B is incorrect because extension risk is the risk faced that when interest rates rise, fewer prepayments will occur because homeowners are reluctant to give up the benefits of a contractual interest rate that is now lower than the market rate. As a result, the security becomes longer (not shorter) in maturity than anticipated at the time of purchase.

Introduction to Asset-Backed Securities

LOS f

Section 5.1.2

- 99** A synthetic collateralized debt obligation is a CDO backed by a portfolio of:

- A** leveraged bank loans.  
**B** residential or commercial mortgage-backed securities.  
**C** credit default swaps.

C is correct. Synthetic collateralized debt obligations are CDOs that are backed by a portfolio of credit default swaps.

A is incorrect because CDOs backed by a portfolio of leveraged bank loans are collateralized loan obligations.

B is incorrect because CDOs backed by a portfolio of residential or commercial mortgage-backed securities are structured finance CDOs.

Introduction to Asset-Backed Securities

LOS i

Section 8

- 100** If the annual market discount rate is 6%, the value of a three-year bond that has a 7% coupon rate, has a maturity (par) value of \$1,000, and pays interest annually is *closest to*:

- A** \$1,026.73.  
**B** \$1,049.17.  
**C** \$973.76.

A is correct.

$$\frac{\$70}{1.06^1} + \frac{\$70}{1.06^2} + \frac{\$1,070}{1.06^3} = \$66.04 + \$62.30 + \$898.39 = \$1,026.73$$

B is incorrect because it doubles the number of payments to 6, as if the bond were making semi-annual payments rather than annual.

C is incorrect because the coupon rate and discount rate are reversed.

Introduction to Fixed-Income Valuation

LOS a

Section 2.1

**101** Which of the following is *most likely* a limitation of the yield to maturity measure?

- A** It assumes coupon payments can be invested at the yield to maturity.
- B** It does not consider the capital gain or loss the investor will realize by holding the bond to maturity.
- C** It does not reflect the timing of the cash flows.

A is correct. Yield to maturity does consider reinvestment income; however, it assumes that the coupon payments can be reinvested at an interest rate equal to the yield to maturity. This is one of the limitations for the yield to maturity measure because the investor is facing reinvestment risk (future interest rates will be less than the yield to maturity at the time the bond is purchased).

B is incorrect because the yield to maturity measure considers not only the coupon income but also any capital gain or loss that the investor will realize by holding the bond to maturity.

C is incorrect because the yield to maturity measure considers the timing of the cash flows.

Introduction to Fixed-Income Valuation

LOS b

Section 2.2

**102** A credit analyst is *least likely* to use matrix pricing to estimate the required yield and price of a(n):

- A** newly underwritten bond.
- B** actively traded speculative grade bond.
- C** inactively traded investment grade bond.

B is correct. Matrix pricing is most suited to pricing inactively traded bonds and newly underwritten bonds. A credit analyst is least likely to use matrix pricing to price an actively traded bond.

A is incorrect because matrix pricing is most suited to pricing newly underwritten bonds.

C is incorrect because matrix pricing is most suited to pricing inactively traded bonds.

Introduction to Fixed-Income Valuation

LOS e

Section 3.2

**103** An analyst uses a valuation model to estimate the value of an option-free bond at 92.733 to yield 11%. If the value is 94.474 for a 60 bp decrease in yield and 91.041 for a 60 bp increase in yield, the approximate modified duration of the bond is *closest* to:

- A 3.09.
- B 6.17.
- C 1.85.

A is correct. The approximate modified duration of a bond is

$$\text{ApproxModDur} = \frac{(PV_-) - (PV_+)}{2 \times (\Delta \text{Yield}) \times (PV_0)}$$

where  $PV_-$ ,  $PV_0$ , and  $PV_+$  are the values of the bond when the yield falls, under the current yield, and when the yield rises, respectively, and  $\Delta \text{Yield}$  is the size of the yield change. Therefore,

$$\text{ApproxModDur} = \frac{94.474 - 91.041}{2 \times 0.0060 \times 92.733} = 3.09$$

B is incorrect because it ignores the 2 in the denominator.

C is incorrect because it uses  $\Delta \text{Yield} = 0.01$  (1%).

Understanding Fixed-Income Risk and Return

LOS e

Section 3.2

**104** Which of the following *most likely* exhibits negative convexity?

- A A callable bond
- B An option-free bond
- C A putable bond

A is correct. A callable bond exhibits negative convexity at low yield levels and positive convexity at high yield levels.

B is incorrect because an option-free bond always exhibits positive convexity.

C is incorrect because a putable bond always exhibits positive convexity, higher than an option-free bond.

Understanding Fixed-Income Risk and Return

LOS h

Section 3.6

**105** The duration and convexity of an option-free bond priced at \$90.25 are 10.34 and 151.60, respectively. If yields increase by 200 bps, the percentage change of the price is *closest* to:

- A -17.65%.
- B -23.71%.
- C -20.68%.

A is correct. The percentage change in price is calculated as follows:

$$\text{Duration effect} = -10.34 \times (0.02) = -20.68\%$$

$$\text{Convexity effect} = 0.5 \times 151.60 \times (0.02)^2 = 3.03\%$$

$$\begin{aligned} \text{Total percentage change} &= \text{Duration effect} + \text{Convexity effect} \\ &= -20.68\% + 3.03\% \\ &= -17.65\% \end{aligned}$$

B is incorrect. It is calculated with negative convexity effect:  $-20.68\% - 3.03\% = -23.71\%$ .

C is incorrect. It is calculated as the impact for duration effect only:  $-20.68\%$ .

Understanding Fixed-Income Risk and Return

LOS i

Section 4.1

**106** For an option-free, fixed-rate bond the coupon reinvestment risk would *most likely* dominate market price risk when the investment horizon is:

- A greater than the Macaulay duration of the bond.
- B lower than the Macaulay duration of the bond.
- C equal to the Macaulay duration of the bond.

A is correct. For an option-free, fixed-rate bond when the investment horizon is greater than the Macaulay duration, the coupon reinvestment risk will tend to dominate market price risk. In such situations, the investor's risk is to lower interest rates.

B is incorrect because for an option-free, fixed-rate bond when the investment horizon is greater than the Macaulay duration, the coupon reinvestment risk will tend to dominate market price risk.

C is incorrect because for an option-free, fixed-rate bond when the investment horizon is greater than the Macaulay duration, the coupon reinvestment risk will tend to dominate market price risk.

Understanding Fixed-Income Risk and Return

LOS k

Section 4.2

**107** A perfectly hedged position consisting of a derivative and its underlying asset will *most likely* yield a return that is:

- A equal to the risk-free rate.
- B smaller than the risk-free rate.
- C greater than the risk-free rate.

A is correct. If a risk-free position earns a return that is different from the risk-free return, arbitrage will lead to the elimination of the mispricing.

B is incorrect. If a risk-free position earns a return that is smaller than the risk-free return, arbitrage will lead to the elimination of the mispricing.

C is incorrect. If a risk-free position earns a return that is smaller than the risk-free return, arbitrage will lead to the elimination of the mispricing.

Basics of Derivative Pricing and Valuation



LOS a  
Section 2.3.2

**108** A high convenience yield is *most likely* associated with holding:

- A** bonds.
- B** equities.
- C** commodities.

C is correct. Convenience yield is primarily associated with commodities and generally exists as a result of difficulty in shorting the commodity or unusually tight supplies.

A is incorrect. For most financial assets, convenience yield is either nonexistent or extremely limited.

B is incorrect. For most financial assets, convenience yield is either nonexistent or extremely limited.

Basics of Derivative Pricing and Valuation

LOS d

Section 2.2.5

**109** A swap that involves the exchange of a fixed payment for a floating payment can be interpreted as a series of forward contracts with different expiration dates.

These implied forward contracts will *most likely* have:

- A** different prices due to differences in the price of the underlying at expiration.
- B** identical prices.
- C** different prices due to differences in the cost of carry.

C is correct. Due to differences in the cost of carry, implied forward contracts will have different prices. The differences in the cost of carry stem from the timing differences of the payments.

A is incorrect. Differences in price are due to differences in the cost of carry. The price of the underlying at expiration is irrelevant for the price. It determines the value of the swap.

B is incorrect. The prices will be different due to differences in the cost of carry.


Basics of Derivative Pricing and Valuation

LOS g

Section 3.3

**110** Holding other factors constant, the value of a European put option will *most likely* decrease as the:

- A** risk-free interest rate increases.
- B** volatility of the underlying increases.
- C** value of the underlying decreases.



A is correct. The value of a European put option will decrease as the risk-free interest rate increases.

B is incorrect. The value of a European put option will increase as the volatility of the underlying increases.

C is incorrect. The value of a European put option will increase as the value of the underlying decreases.

Basics of Derivative Pricing and Valuation

LOS k


Section 4.1.5

**111** In contrast to over-the-counter options, futures contracts *most likely*:

**A** are not exposed to default risk.

**B** represent a right rather than a commitment.

**C** are private, customized transactions.



A is correct. Over-the-counter options are exposed to default risk, but futures contracts are standardized transactions that take place on futures exchanges and are not exposed to default risk.

B is incorrect. Futures contracts are commitments, but options represent a right.

C is incorrect. Futures contracts are not private; they are standardized instruments that trade on organized exchanges.

Derivative Markets and Instruments

LOS a, c


Sections 2 and 3

**112** Which of these is *best* classified as a forward commitment?

**A** A convertible bond

**B** A call option

**C** A swap agreement



C is correct. A swap agreement is equivalent to a series of forward agreements, which can be described as forward commitments.

A is incorrect. A convertible bond does not meet the definition of a forward commitment.

B is incorrect. A call option is an example of a contingent claim.

Derivative Markets and Instruments

LOS b


Section 2

**113** In efficient financial markets, risk-free arbitrage opportunities:

**A** will not exist.

**B** may persist in the long run.

**C** may exist temporarily.



C is correct. In efficient financial markets, risk-free arbitrage opportunities may exist temporarily, but their continuous exploitation will eliminate these arbitrage opportunities in the long run.

A is incorrect. Financial markets being efficient does not mean that risk-free arbitrage opportunities cannot exist.

B is incorrect. In efficient financial markets, any risk-free arbitrage opportunities will exist only temporarily because their continuous exploitation will result in these arbitrage opportunities being eliminated in the long run.


Derivative Markets and Instruments

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Section 7.2

**114** Compared with traditional investments, over longer periods, alternative investments are *least likely* to have:

- A** better diversifying power.
- B** higher expected returns.
- C** more efficiently priced assets.



C is correct. Alternative investment strategies are more likely to include securities that trade in less liquid markets than securities that trade in relatively more liquid markets in which traditional, long-only investments trade.

A is incorrect because alternative investments generally have low return correlations with traditional asset markets, providing better diversification benefits.

B is incorrect because alternative investments are expected to produce higher returns (particularly on a risk-adjusted basis) than traditional markets, in part because they focus on less efficient markets.


Introduction to Alternative Investments

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Section 2

**115** Categories of alternative investments would *least likely* be described by which of the following?

- A** Fine wine and other tangibles
- B** Schools and other long-lived real assets
- C** Cash and other liquid investments



C is correct. Cash and other short-term liquid investments would not generally be considered alternative investments. Alternative investments fall outside of the definition of long-only publicly traded investments in stocks, bonds, and cash (often referred to as traditional investments). In other words, these investments are alternatives to long-only positions in stocks, bonds, and cash.

A is incorrect because the category "collectibles" would include tangible assets such as fine wine, art, antique furniture, and automobiles.

B is incorrect because the category "infrastructure" would include capital intensive, long-lived, real assets, such as roads, dams, and schools.

Introduction to Alternative Investments

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Section 2.1

- 116** Based on the historical record, adding alternative investments to a traditional investment portfolio consisting of publicly traded debt and equity will *most likely* decrease the portfolio's:
- A** liquidity.
  - B** downside risk.
  - C** risk-adjusted return.

A is correct. Many categories of alternative assets have low liquidity because of the fund structures used (e.g., limited partnerships for hedge funds and private equity) or high transactions costs for underlying assets (e.g., real estate). Alternative assets have generally had high downside risks. However, low correlations with traditional asset classes suggest strong diversifying potential, and high returns result in relatively strong Sharpe ratios (high risk-adjusted returns).

B is incorrect because many alternative investments have exhibited high downside risks.

C is incorrect because many alternative investments have exhibited strong risk-adjusted returns and low correlations with traditional asset classes.

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Section 2

- 117** Which attribute would a private equity firm *most likely* desire when deciding if a company is particularly attractive as a leveraged buyout target?
- A** Sustainable cash flow
  - B** Efficient management
  - C** Market value exceeds intrinsic value


A is correct. Private equity firms look for companies that have strong cash flows and a significant amount of physical assets. These physical assets can be used as security and borrowed against.

B is incorrect because private equity firms look for companies that are inefficiently managed. The goal is to turn them around and thus perform better.

C is incorrect because private equity firms look for companies that have an intrinsic value that exceeds their market value.

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Section 4.2.1.2

- 118** The three main sources of return for commodities futures contracts *most likely* are:
- A** convenience yield, dividend yield, and spot price return.
  - B** collateral yield, roll yield, and spot price return.
  - C** collateral yield, convenience yield, and roll yield.



B is correct. The three main sources of return for a commodities futures contract are collateral yield, roll yield, and spot price return.

A is incorrect because collateral yield and roll yield are missing. Dividend yield is not a source of return for commodities futures investments.

C is incorrect because spot price return is missing. A high convenience yield results in a situation where the futures price will be below the spot price. In this case, the price of the futures contract rolls up to the spot price as the expiry date of the contract approaches.


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Section 6.4.1

**119** In commodity futures market pricing, when the convenience yield is higher than the cost of carry, the roll yield is positive for:

- A** long futures.
- B** short futures.
- C** both long and short futures.



A is correct. The futures market is in backwardation when the convenience yield is higher than the cost of carry. The futures price then generally rolls up (moves up along the forward curve) to the spot price curve as the expiry date of the futures contract approaches, which results in a positive roll yield for the long positions.

B is incorrect because when the futures market is in backwardation, the roll yield for the short futures is negative.

C is incorrect because when the futures market is in backwardation, the roll yield for the short futures is negative, not positive.


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Section 6.4.1

**120** A measure that is *most likely* well suited to analyzing the performance of alternative investments that may exhibit negative skewness in returns is the:

- A** Sortino ratio.
- B** Sharpe ratio.
- C** safety-first measure.



A is correct. The Sharpe ratio and the safety-first measure use standard deviation as the measure of risk, which ignores the negative skewness in returns. The Sortino ratio uses the downside deviation as the measure of risk, which will reflect negative skewness if present.

B is incorrect because the Sharpe ratio does not reflect negative skewness if present.

C is incorrect because the safety-first measure does not reflect negative skewness if present.

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Section 9.2