1. **Learning Objectives:**

2. The candidate will understand and be able to apply the components of an effective risk management system.

**Learning Outcomes:**

(2a) Explain the importance of risk culture in an investment firm.

(2b) Identify and describe the various kinds of risks, including market, credit, operational, etc.

(2c) Identify and describe various approaches for managing risks including risk budgeting, position limits, etc.

(2d) Explain the features of a best practices enterprise risk management system.

(2e) Evaluate a company’s risk management process.

**Sources:**

The Ten Commandments of Operational Due Diligence

Advances in Risk Management and Risk Governance

Risk Management, Ch. 9

The Ten Commandments of Operational Due Diligence

The Top Ten Operational Risks

The Top Ten Operational Risks

**Commentary on Question:**

This question tested candidates’ understanding of operational due diligence, risk culture, and how various forms of documentation or diagrams support risk management. Candidates performed poorly on this question.
1. Continued

Solution:
(a) Describe two ways that documentation facilitates a risk management process.

Commentary on Question:
Candidates performed well on this question. Most candidates were able to list at least one of the below bullet points.

Documentation facilitates a risk management process in the following ways:

• Provides details of the current operational infrastructure
• As external events impacting the company change, documentation can be used as the first step to know what risks the current process is minimizing.

(b) Describe four ways to create a risk-conscious culture at XYZ.

Commentary on Question:
Candidates performed very well on this question. Most candidates were able to list multiple actions from the below list.

Four ways to create a risk-conscious culture at XYZ include:

• Educate employees on their role in risk awareness and management
• Responsibility for risk should be clearly delineated, perhaps by establishing a CRO
• Compensation should be adjusted for risk in order to align employees with company risk appetite
• Have a clear risk appetite statement with board members in agreement

(c) Critique the positive and negative aspects of the facts noted above from an operational due diligence perspective.

Commentary on Question:
Candidate performance was fair on this question. Many candidates failed to include both positive and negative aspects of each bullet point.

Bullet 1:

Pros:
• It’s a good thing employee turnover has been relatively low.

Cons:
• Potentially not letting go of employees who are not performing well
1. Continued

Bullet 2:

Cons:
• Propensity for extremely speculative stocks indicates volatility of character in employees.
• Employees that show signs of impulse, extreme risk-taking, or other unpredictable behaviors are more likely to not follow protocols and guidelines.

Bullet 3:

Pros:
• It’s good that each manager has an operational risk management philosophy at all

Cons:
• If each manager has a different operational risk management philosophy, there is lack of support for an independent operational infrastructure.

Bullet 4:

Pros:
• It’s good that the investment manager is interviewed at all.

Cons:
• It is not enough to have investment team interview investment managers. Your operational due diligence team needs to independently conduct interviews with investment managers.

(d) Compare and contrast the two approaches above.

Commentary on Question:
Candidates performed very poorly on this question. Few candidates knew what a system diagram was. Candidates were more successful in describing a workflow diagram. The similarities between the two were not very well understood.

System and workflow diagrams share the following similarities and differences:

Similarities:
• Workflow diagrams and system diagrams both show visually a process that the hedge fund undertakes on a routine basis.
• Both diagrams can show systems.
1. Continued

- Both diagrams can show how information flows between parties (hedge fund, counterparties, service provider, clients, administrators, etc.).

Differences:
- System diagrams primarily identify all applications and their interfaces.
- Workflow diagrams primarily display hand-offs between teams/departments and between the firm and external counterparties/service providers/clients.
- It shows the flow of work and the responsibilities of each party involved with “swimming lanes”.

(e) Your assistant draws the following workflow diagram:

Recommend improvements to this workflow diagram. Justify your response.

Commentary on Question:
Candidates performed very poorly on this question. Many candidates were only able to identify one or two of the revisions needed, and many did not justify their revisions.

The following revisions are necessary, along with their justifications:

- There should be lines drawn between the rows of boxes that indicate swimming lanes or work flows that different parties are responsible for. There should be labels for each swim lane that indicate the responsible party.

  Justification: This clarifies which party is responsible for which parts of the workflow diagram.

- There should be arrows drawn on the lines linking the boxes, going from left to right.
1. Continued

   Justification: Drawing arrows shows the direction the workflow is going in and thus adds clarity.

- There should be a line/arrow connecting the “Report Request Sent” box and the “Query Data” box.

   Justification: This clarifies that the “Report Request Sent” box is a step in the whole process.

- Write a “yes” next to the line connecting the “Changes Needed?” and “Run Report” boxes and a “no” to the line connecting the “Changes Needed?” and “Send Report” boxes

   Justification: This clarifies when each outcome should arise from this decision point.
2. Learning Objectives:

1. The candidate will understand the requirements and methods of governing investments.

Learning Outcomes:

(1c) Describe governance mechanisms that attempt to address these conflicts.

(1f) Demonstrate understanding of how ethics relates to business decision-making, and relate ethics in business to personal ethics.

Sources:

Ch. 9 “Investment Ethics” by Sarah Peck

Commentary on Question:

This question tested candidates’ understanding of ethics and governance. It asked them to describe pros and cons of self-directed investing, devise appropriate gifting policies, and recommend actions to take to address potential fraud. Candidate performance was fair on this question.

Solution:

(a) Describe three advantages and three disadvantages of investors doing their own independent research.

Commentary on Question:

Candidate performance on this question was fair. While most candidates were able to cite at least one to two advantages and disadvantages, few were able to describe three of each.

Advantages

- Investor would save on the advisory fees
- Investor could focus on own customized needs and goals
- Investor would not need to deal with shifting priorities of advisor who may be working on multiple clients.

Disadvantages

- Investor would need to dedicate substantial time to conduct the research
- Investor would not have access to tools/information advisor may have
- Investor may not have the skills or expertise required to do research
2. Continued

(b) List two issues with a research analyst accepting a gift from a subject company.

**Commentary on Question:**
Candidate performance was fair on this question. Most candidates who responded were able to earn partial credit.

- Reputational risk – could be seen negatively by others
- Bias – could cause analyst to treat clients differently

(c) Describe two ways that the policy addresses the issues related to accepting gifts.

**Commentary on Question:**
Candidates performance was fair on this question. Most candidates were able to describe at least one way the policy addresses the issues and earn credit; candidates who restated the questions or listed items without sufficiently describing them received no credit.

The limit on gifting amounts is small, which helps reduce the risk of bias and mitigate negative perceptions.

Disclosure prevents unknown conflicts of interest.

(d)  

(i) Identify the action the analyst should take in this situation. Justify your response.

(ii) Recommend two improvements that can be made to your company’s current gift policy.

**Commentary on Question:**
Candidate performance was fair on this question. While most candidates were able to state that the analyst should not accept the 2nd ticket, some failed to provide sufficient justification for their statement. Most candidates were able to identify at least one improvement to make to the policy.

(i)  
- The analyst should refuse the 2nd ticket from the manager.
- The value of the combined tickets exceeds the $100 gift policy limit.
- Analyst could consult with compliance.
2. Continued

(ii)

- Disclosure should be made to parties beyond the manager.
- Improve the policy to address ambiguity when gifts channel through internal sources.

(e)

(i) Identify two signs of potential fraud in this situation.

(ii) Recommend two actions to address the potential fraud in (i).

(iii) Propose four rules to include in the fraud policy that would prevent fraud in similar situations in the future.

Commentary on Question:

Candidate performance was fair on this question. Most candidates did not provide the requested number of answers in the question.

(i) Weak support in financials with strong buy recommendation may be an indication of fraud risk

Strong potential of bias (or favoritism) with analyst for Mr. Johnson as there appears to be a pattern

(ii) Escalate this with your manager

Check if analyst’s analysis was peer-reviewed, and recommend peer-review if none exists

(iii)

- Set minimum standards for financial support, required for all recommendations of a subject company
- Rotate the analysts
- Require peer reviews
- Show evidence of industry analysis and/or a comparison against the financials of similar companies
3. **Learning Objectives:**
3. Understand and be able to apply different approaches to measuring risk exposures.

**Learning Outcomes:**
(3a) Explain the advantages and limitations of different risk metrics
(3d) Evaluate different measures of rare event risks.
(3e) Evaluate a company’s or a portfolio’s exposures to various risks.

**Sources:**
QFII-119-19: Chapter 3 of “The Known, the Unknown, and the Unknowable in Financial Risk Management: Measurement and Theory Advancing Practice”

QFII-108-14: Developments in Modelling Risk Aggregation

**Commentary on Question:**
This question tested candidates’ ability to classify rare events and other tail risks as well as the relative merits of distribution families or methods used to model such risks. Most candidates displayed a basic knowledge of relevant tools and concepts, but many were not able to apply the knowledge in this scenario.

**Solution:**
(a) 
(i) Define “wild randomness”.

(ii) Identify whether the type of randomness expected for each variable is mild or wild. Justify your response.

**Commentary on Question:**
Candidate performance was fair on this question. Most candidates provided an appropriate definition of “wild randomness” and correctly classified the variables as “mild” or “wild.”

(i) Wild randomness is an environment in which a single observation can impact the total in a disproportionate way.

(ii) 
- Foreign exchange rates are wild: FX rates are manmade variables reflecting wealth, which can be extremely concentrated.

- Yearly sick days are mild: the range is limited to the number of workdays in a year and the aggregate results of natural processes such as illnesses tend to yield Gaussian distributions.
3. Continued

(b) (i) Identify whether the distribution of $Y$ is scalable. Justify your response.

(ii) Explain whether this is an appropriate distribution for modeling revenue loss.

(iii) Calculate the value of $a$.

Commentary on Question:
Candidates performed well on this section. Most candidates identified $Y$ as scalable, but some did not provide sufficient justification. Most candidates correctly stated the distribution is appropriate but provided inadequate or incorrect explanations. Most candidates calculated the value of $\alpha$ correctly.

(i) $Y$ is a scalable distribution: \( \frac{P(Y>y)}{P(Y>ny)} \) does not depend on $y$, only $n$.

(ii) $Y$ is an appropriate distribution:
- Scalable distributions are appropriate for financial variables
- Revenue loss has a wide variety of outcomes and no “typical” member
- Probability of revenue losses is decreasing for increasing losses

(iii) The result is obtained in a straightforward manner:
\[
P(Y >$1M) = 0.01 = K(1,000,000)^{-\alpha} \\
P(Y >$4M) = 0.000625 = K(4,000,000)^{-\alpha}
\]
\[
\frac{0.01}{0.000625} = 16 = 4^\alpha
\]
\[
\Rightarrow \alpha = 2
\]

(c) (i) Compare and contrast the copula and fractal approaches to modeling tail risks.

(ii) Explain whether the copula or fractal approach is more appropriate in each scenario above. Justify your response.

Commentary on Question:
Candidates performed poorly on this question. Most candidates correctly identified either one major similarity or difference, but few were able to do both. Most candidates paired the scenario with the correct distribution, but some were not able to sufficiently justify the choice.
3. Continued

(i) 
- Both fractal distributions and copulas can capture those tail risks via scalable distributions, overcoming the weakness of a Gaussian distribution.
- Copulas provide a model of joint behaviors of risks or assets using a multivariate structure while fractals model single variables.

(ii) 
- The copula approach should be used to model the portfolio losses
- Using standard deviations as the measure of unlikely events is most appropriate in a copula (especially Gaussian) framework and is undefined for fractal distributions.
- The fractal approach should be used to model the stock-market crash
- Fractals can capture large shocks not readily extrapolated from historical observations, while copulas are calibrated from historical data.
4. **Learning Objectives:**

3. Understand and be able to apply different approaches to measuring risk exposures.

**Learning Outcomes:**

(3a) Explain the advantages and limitations of different risk metrics

(3e) Evaluate a company’s or a portfolio’s exposures to various risks.

**Sources:**

Managing Investment Portfolios” by Maginn & Tuttle, Chapter 9: Risk Management (section 5)

**Commentary on Question:**

*This question tested candidates’ understanding of VaR as a risk measure and risks embedded in various financial transactions. Candidates performed well on this question.*

**Solution:**

(a) Use the analytical method to complete the following:

(i) Calculate a 1% weekly VaR of the new USD 300 million portfolio.

(ii) Calculate the change in the weekly VaR due to addition of bonds in the portfolio.

(iii) Interpret your results.

**Commentary on Question:**

*Most candidates were able to perform the calculation parts correctly. Some candidates did not explain a 1% weekly VaR and the diversifying effect of adding bonds.*

(i)

1. Calculate the annual portfolio expected return and standard deviation:

\[
\mu_p = w_s \mu_s + w_b \mu_b = .75 \times .09 + .25 \times .035 = .07625
\]

\[
\sigma_p^2 = w_s^2 \sigma_s^2 + w_b^2 \sigma_b^2 + 2w_s w_b \rho_{w_s w_b} \sigma_s \sigma_b
\]

\[
= .75^2 \times .15^2 + .25^2 \times .04^2 + 2 \times .35 \times .75 \times .25 \times .15 \times .04
\]

\[
= .01354375
\]

\[
\sigma_p = \sqrt{.01354375} = .116377
\]

2. Adjust the mean and volatility to represent weekly values:

\[
\mu_p = \frac{.07625}{52} = .001466
\]

\[
\sigma_p = \frac{.116377}{\sqrt{52}} = .00161
\]
4. Continued

3. Calculate 1 percent weekly VaR

\[ \mu_p - 2.33\sigma_p = .001466 ... - 2.33 \cdot .00161 ... = -.0361 \]

4. Calculate VaR for the portfolio:

\[ $300M \cdot (.0361) = $10.84M \]

(ii)

1. Calculate the 1% weekly VaR of just the stock portfolio:

\[ \mu_s = \frac{.09}{52} = .00173 \]
\[ \sigma_p = \frac{.15}{\sqrt{52}} = .0208 \]

\[ \mu_p - 2.33\sigma_p = .00173 ... - 2.33 \cdot .0208 ... = -.0467 \]
\[ $225M \cdot .0467 ... = $10.52M \]

2. Calculate incremental VaR for bond portion of portfolio:

\[ $10.84M - $10.52M = $0.325M \]

(iii)

- Part (i) means that there is a 1% chance that the portfolio will lose at least $10.84M over a one week time horizon.
- Part (ii) means that the bond portion of the portfolio contributes $0.325M to the VaR of the overall asset portfolio.
  - Considering the bond portion has a market value of $75M, but a much smaller incremental VaR, we can see that the bonds act as a diversifying force.

(b) For each option above:

(i) Describe the impact on the 1% weekly VaR of the portfolio.

(ii) Explain whether the analytical VaR method is appropriate.
4. Continued

**Commentary on Question:**
*Candidates performed well on this part.*

(i) Cash:
- There would be a reduction in VaR.
- The volatility of the portfolio will decrease.
- Even if cash holdings produce 0% return, this will still reduce the losses in the worst scenarios.

Put Options:
- There would be a reduction in VaR.
- Put options have a positive skew as they will produce many small negative returns (premium payments) and relatively few large returns (during large market downturns).
- Because we are looking at the largest 1% of losses, the put options will act as a hedge to large market downturns.

(ii) Cash:
- We can still use the analytical method.
- Cash is another asset class, so simple return/volatility/correlation assumptions are sufficient.

Put Options:
- The analytical method is no longer applicable.
- This method assumes a normal distribution of returns, but options do not follow a normal distribution.

(c) For each of the above concerns:

(i) Evaluate the use of VaR to quantify the risk.

(ii) Recommend an alternate risk measure to supplement VaR.

**Commentary on Question:**
*Candidates performed well on this part.*

(i) Loss in excess of a 1 in 100 annual event:
- 1% annual VaR would not be adequate to use.
- VaR does not capture the severity of losses within the tail of the distribution.
4. Continued

2008 Financial Crisis:
- 1% annual VaR does not capture the scale/magnitude of the worst scenarios that can be many standard deviations from the mean.

(ii)
Loss in excess of a 1 in 100 annual event:
- Recommend Conditional Tail Expectation (CTE)
- CTE provides additional information beyond the VaR measure, capturing the severity of the portfolio’s value above a particular confidence level.
- CTE captures the tail risk and poor scenarios better than other metrics, incorporating a level of conservatism.

2008 Financial Crisis:
- Recommend scenario analysis or stress testing
- Scenario analysis can be used to test situations outside the normal range of probability and can be designed to simulate actual extreme events.

(d)
(i) Determine the payoff structure by completing the table above.

(ii) Explain the implicit options that each capital supplier faces.

(iii) Identify the supplier that is more exposed to credit risk. Justify your response.

Commentary on Question:
Most candidates performed well on parts (i) and (ii). Few candidates correctly identified that bondholders are exposed to more credit risk for part (iii).

(i) | Bondholders | Stockholders |
---|---|---|
| $A_1 < \$250M$ | $A_1 \geq \$250M$ | $A_1$ | $\$250M$ | $0$ | $A_1 - \$250M$

(ii) Stockholders effectively hold a long call option on the assets of the firm with the face value of the liabilities as the strike price.
- Bondholders have implicitly written the stockholders a put on the assets (i.e. short put).

(iii) The bondholders are more exposed to credit risk.
- By effectively writing a put option, the potential losses to bondholders are much larger than those of the stockholders.
4. Continued

- By holding a long call option, the stockholders have only put up the initial premium payment; they have unlimited potential to gain but are only limited to small potential losses.

(e) Explain how BCD and XYZ are each exposed to the following risks with respect to these transactions:

(i) Credit risk

(ii) Liquidity risk

(iii) Exchange rate risk

Commentary on Question:
Most candidates performed well on parts (i) and (ii). Candidates performed poorly on part (iii).

(i) BCD:
- The purchase of the bond exposes BCD to the credit risk that XYZ defaults on its payment.

XYZ:
- The forward contract exposes XYZ to credit risk.
- There is a chance that the counterparty to the forward contract will not be able to pay the amount owed.

(ii) BCD:
- Based on how the bond is trading in the market, the firm may not be able to sell it at market price.

XYZ:
- The firm’s commitment to paying the face value of the bond exposes the firm to liquidity risk.
- The market value of its assets might exceed $250M, but they need to be able to sell these assets and produce cash to pay for the liability.

(iii) BCD:
- The firm is exposed to FX risk because the redemption value of the bond is Yen denominated.
- A weakening value of the Yen will result in losses for BCD.
4. Continued

XYZ:

- Although the debt was issued in yen, the forward contract has effectively hedged all FX exposure and replaced it with credit risk.

- In one year, XYZ will be able to exchange $250M for ¥27.5B, regardless of how the foreign exchange rates move during that time period.
5. **Learning Objectives:**

2. The candidate will understand and be able to apply the components of an effective risk management system.

**Learning Outcomes:**

(2a) Explain the importance of risk culture in an investment firm.

(2c) Identify and describe various approaches for managing risks including risk budgeting, position limits, etc.

(2e) Evaluate a company’s risk management process.

(2f) Examine examples of risk management failure.

**Sources:**


Investment Ethics, Peck, Sarah, 2011; Ch. 9: Cases

Investment Ethics, Peck, Sarah, 2011; Ch. 7: Investing in Companies with Good Corporate Governance Standards

QFII-103-14: Advances in Risk Management and Risk Governance

**Commentary on Question:**

This question tested candidates’ understanding of risk identification tools, risk management culture, and case studies of risk management failures. Candidates performed very well on this question.

**Solution:**

(a) Describe six risk identification tools or techniques.

**Commentary on Question:**

Candidates performed well on this question. Most candidates were able to correctly list risk identification tools or techniques; however, many did not provide descriptions.

- **Risk Check Lists** – List of risks based on experiential knowledge and historical information to reference for identifying relevant risks
- **Risk Prompt Lists** – Identify categories of risk to consider; intended to prompt analysis specific to the organization (e.g., PESTELI)
5. Continued

- **Brainstorming** – Unrestrained or unstructured group discussion to explore potential risks
- **Independent Group Analysis** – Group analysis in which participants individually write down ideas on potential risks, these are aggregated, and a discussion ensues
- **Gap Analysis** – Survey with two types of questions to identify the desired and actual levels of risk exposure.
- **Delphi Technique** – Iterative series of surveys to subject matter experts, completed anonymously and independently, and continued until consensus or stalemate is reached

(b) Identify two relevant case studies for the managers of the firm.

**Commentary on Question:**
Candidates performed well on this question. Most candidates were able to identify two risk management failure case studies. Most candidates appropriately selected case studies directly relevant to the facts presented in the question.

- **LTCM:** similar strategy of arbitrage through government bonds and leverage
- **Barings Bank:** hands-off culture with little oversight of traders and a bonus structure incentivizing risk allowed a rogue trader to compromise the organization

(c) Identify two lessons from the risk management failures in each of the case studies.

**Commentary on Question:**
Candidates performed well on this question. Most candidates were able to identify lessons from the case studies they chose in the previous part.

- **LTCM**
  - Models are not a substitute for good decision-making; they should simply inform decisions.
  - Beware of star-struck investors.
- **Barings Bank**
  - A more direct reporting line with clear responsibilities should have been in place.
  - Compensation structure should have been closer in size to base salary and tied to longer-term profit metrics.

(d) Recommend three ways that the firm could improve its risk management culture.

**Commentary on Question:**
Candidates performed poorly on this question. Few candidates sufficiently supported recommendations relevant to the facts presented in the question.
5. Continued

- The company has a hands-off culture that may encourage risk-taking. The Board should increase its oversight of the CEO and the CEO of the employees. I recommend the Board meet more frequently to be more involved and knowledgeable of the operations of the firm and oversee the adequacy of the risk management framework.
- The CEO’s compensation should not be redesigned so frequently since this creates a moving target that may lead to more risk-taking and too much focus on the short-term. I recommend the CEO’s compensation be redesigned less frequently, incorporate long-term objectives, and incentivize behavior consistent with the firm’s risk management philosophy.
- I recommend the CRO have a direct reporting line to the Board, keeping them apprised of risk matters.

(e)

(i) Describe the advantages and disadvantages of using interviews as a risk identification technique.

(ii) Critique the firm’s approach to interviews as a risk identification technique.

(iii) Recommend two improvements to the firm’s approach to interviews.

Commentary on Question:
Candidate performance was fair on this question. Candidates did well recalling the advantages and disadvantages of interviews but did not do well in critiquing and recommending improvements. The question was seeking responses specific to the firm’s interview technique and approach to interviews.

(i) Advantages

- Structured approach and has independence of view
- Clarification can be sought immediately if anything is unclear

Disadvantages

- Time-consuming
- Framing: responses may be influenced by the way questions are asked

(ii) It is not good that only senior personnel were interviewed. This may bias the results, and it’s also likely junior employees will have a clearer idea of the range of risks and actual levels of risk to which the firm is exposed.
- Having the CEO conduct the interviews may be intimidating and pressure interviewees to answer in a certain fashion.

(iii) Improvements:

- Interview individuals at all levels of the firm
- Hire external consultant to conduct the interviews anonymously
6. **Learning Objectives:**

1. The candidate will understand the requirements and methods of governing investments.

**Learning Outcomes:**

(1b) Identify sources of unethical conduct and explain the role of a fiduciary.

(1d) Understand the importance of an organization's culture in effectuating governance.

(1f) Demonstrate understanding of how ethics relates to business decision-making, and relate ethics in business to personal ethics.

**Sources:**

QFI-IRM-2019-111-17

Investment Ethics, Peek - Chapter 2 & 3

**Commentary on Question:**

*This question tested candidates’ understanding of an organization's culture and ethics in its decision-making process. Candidates performed well on this question.*

**Solution:**

(a) Identify the two most relevant ways that a top-down risk culture program can lead to unethical behavior for ABC.

**Commentary on Question:**

*Candidates performed poorly on this question. Most candidates did not elaborate on the relevancy to ABC or identified ways that were not the most relevant ones.*

- Managers have a more optimistic view of their organization’s risk culture and compliance than reality can support. As a result, he made the decision of skipping the peer review and deployed the resource toward other projects.

- The manager avoided being punished for breaching the company policy by not talking about his bad behavior. In this case, upwards reporting of non-compliance is invariably filtered.

(b) Describe the benefits and ethical concerns of ex post reporting.

**Commentary on Question:**

*Candidate performance was fair on this question. Most candidates were able to describe at least one benefit and one ethical concern of ex post reporting.*
6. Continued

Benefits:
- Ex Post reporting helps improve how your reports look since you have the benefit of hindsight
- Using Ex Post can help attract clients since you can always improve your performance by choosing after the fact how you report

Ethical concerns:
- Using Ex Post Reporting allows managers to choose a benchmark that makes their performance look better than it actually was
- Fiduciaries are obligated to disclose to the client the ex ante returns, which outweighs the desire to retain current business (or attract new business)

(c) List the four Fundamental Principles of Investment Ethics.

Commentary on Question:
*Candidates performed very well on this question.*

- Ethical Understanding
- Ethical Use of Information
- Responsible Investing
- Trust and Fairness

(d)

(i) Identify investment strategies used in opportunities #1 and #2.

(ii) Describe the risks of each opportunity.

(iii) Explain how these opportunities could violate the Fundamental Principles of Investment Ethics.

Commentary on Question:
*Candidates performed well on this question. Most were able to explain how these opportunities violated some of the principles in part c.*

(i) Option 1 is leverage
   Option 2 is short selling/leverage

(ii) Option 1: Leverage magnifies return performance and increases risk. If the IPO does not pay off, the client takes a loss on their investment and the manager forfeits the fees.
6. Continued

- Option 2: in a short sell, the investor is betting that the price will decline. If the price rises, the investor must now buy the stock at an even higher price to repay the loan. Like any type of borrowing to make an investment, the use of leverage magnifies positive outcomes as well as negative outcomes.

(iii)

- Leverage is a risky investment strategy that should be explained to the client. Failure to make sure his clients understand the investment opportunity is violation of Principle 3, Responsible investing.
- As an investment professional, the portfolio manager has obligation to ensure that his clients are informed about all relevant information, including the risk taken to achieve the returns.
- If the manager fails to sufficiently explain the strategy, this could be a violation of Principle 4, trust and fairness.
- Short selling is another a risky investment strategy. The client is trusting the investment manager with his money and the manager is making a risky bet that the stock price will decline.