9. Portfolio Management

99.1. Markowitz's Theory

99.1.1. 重要知识点

99.1.1.1. Assumptions

- Returns distribution: Each investment can be measured by a probability distribution of expected returns over a given horizon.
- Utility maximization: Investor intends to maximize their expected utility over time horizon.
- Risk is variability: Risk is measured in terms of variance (standard deviation) of expected returns.
- Risk/return: Investors make their decision based on expected returns and risk.
- Risk aversion: Investors prefer the portfolio with less risk given the same returns.

99.1.1.2. Minimum-variance frontier

- **Minimum-variance portfolio** is the portfolio available that has the lowest standard deviation with a given expected return.
- **Minimum-variance frontier** is the entire collection of minimum-variance portfolios.

99.1.1.3. Global minimum-variance portfolio

- The left-most point on the minimum-variance frontier is the portfolio with the minimum variance among all portfolios of risky assets.

99.1.1.4. Efficient frontier

- The curve that **lies above and to the right** of the global minimum-variance portfolio is referred to as the Markowitz efficient frontier.
- Those portfolios that have the greatest expected return with a given level of risk make up the efficient frontier.
- All portfolios of risky assets that rational, **risk-averse** investors will choose.
- **Efficient portfolio:** well-diversified or fully-diversified.

99.1.1.5. Utility Theory

- **Assumptions**
  - Investors are risk averse.
  - They always prefer more to less (greater return to lesser return).
  - They are able to rank different portfolios in the order of their preference.
- **Utility function** $U = E(r) - \frac{1}{2} A\sigma^2$
  - U: the utility of an investment
  - E(r): the expected return
  - σ^2: the variance of the investment

- A: a measure of risk aversion, which is measured as the marginal reward that an investor requires to accept additional risk.
  - A is higher for more risk-averse individuals.
  - Risk-aversion: A>0
  - Risk-neutral: A=0
  - Risk-seeking: A<0

99.1.1.6. 投资者分类

- **Risk-aversion**
  - Refers to the fact that individuals prefer less risk to more risk
  - Risk-averse investors:
    - Prefer lower to higher risk for a given level of expected returns
    - Will only accept a riskier investment if they are compensated in the form of greater expected return
- **Risk-neutral**
  - an investor is indifferent about the gamble or the guaranteed outcome
  - Risk neutrality investor cares only about return and not about risk, so higher return investments are more desirable even if they come with higher risk.
- **Risk-seeking**
  - Refers to the fact that investor is said to be risk loving or risk seeking.
  - Risk seeking investors:
    - Prefer higher risk to lower risk for a given level of expected returns
    - Will accept less expected return because of the extra utility from the risk
    - The gamble has an uncertain outcome, but with the same expected value as the guaranteed outcome. Thus, an investor choosing the gamble means that the investor gets extra "utility" from the uncertainty associated with the gamble.

99.1.1.7. Indifference curve

- Plots combinations of risk(standard deviation) and expected return among which an investor is indifferent.

99.1.2. 基础题

Q-1. In the context of utility theory, when an investor has a high level of risk aversion coefficient, which of the following statements is most accurate?

A. The risk-averse investor has a steeper indifference curve.

B. The risk-seeking investor’s indifference curve exhibits a negative slope.

C. The risk-neutral investor maximizes return irrespective of risk.

Q-2. As one moves to the right along an investor's efficient frontier, a set increase in risk is most likely to lead to:

A. sequentially larger increases in expected return.

B. consistent increases in expected return.

C. sequentially smaller increases in expected return.

Q-3. When considering a portfolio that is optimal for one investor, a second investor with a higher risk aversion would most likely:

A. expect a higher variance for the portfolio.

B. derive a lower utility from the portfolio.

C. have a lower return expectation for the portfolio.

Q-4. What is the best description of the Markowitz efficient frontier?

A. A curve that contains all portfolios of risky assets that rational, risk-averse investors will choose.

B. A curve that connects the minimum-variance portfolios for all possible returns.

C. A curve that lies above and to the left of the minimum-variance frontier.

99.2. Capital Market Theory

99.2.1. 重要知识点

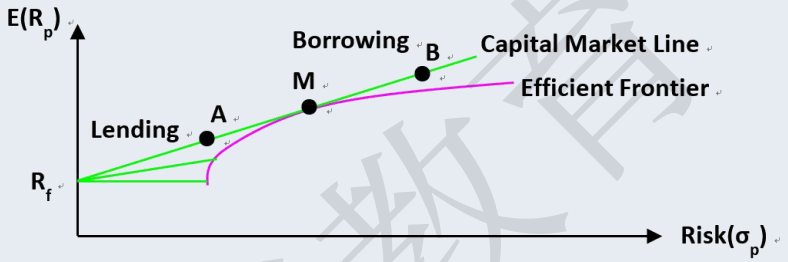
99.2.1.1. CAL

- Given the risk-free rate and the risk and return of a portfolio of risky assets, the line of possible portfolio risk and return combinations is referred as capital allocation line.
- **Two-fund separation theorem**
  - All investors will hold a combination of two portfolios or funds: a risk-free asset and an optimal portfolio of risky assets.

99.2.1.2. CML

- **CAL vs. CML**
  - The CML is a special case of the CAL, where the risky portfolio is the market portfolio
- **Market portfolio**
  - Is the tangent point where the CML touches the Markowitz efficient frontier
  - Consists of every risky assets.
  - The weights on each asset are equal to the percentage of the market value of the asset to the market value of the entire market portfolio.

- **CML** formula
  - under the assumption of homogeneous expectations, given the risk-free rate and the risk and return of market portfolio of all risky assets, the risk and return combination is referred as capital market line
  - $$E(R_P) = R_F + \frac{E(R_M) - R_F}{\sigma_M}\sigma_P$$
- **CML** 的作用
  - Investment using CML follow a passive investment strategy (i.e., invest in an index of risky assets that serves as a proxy for the market portfolio and allocate a portion of their investable assets to a risk-free asset.)
- **Lending and borrowing portfolio:** 在 CML 线上，如果投资组合要获得比市场组合更高的收益，应使用杠杆，使用无风险利率借款投资市场组合。



99.2.2. 基础题

Q-5. Which of the following is not an assumption of the Capital Asset Pricing Model?

A. Investors plan for the same, single holding period.

B. Investors have heterogeneous expectations.

C. There are no limitations imposed on the practice of short selling assets.

Q-6. Compared to the efficient frontier of risky assets, the dominant capital allocation line has higher rates of return for levels of risk greater than the optimal risky portfolio because of the investor's ability to:

A. lend at the risk-free rate.

B. borrow at the risk-free rate.

C. purchase the risk-free asset.

Q-7. The capital market line (CML) is the graph of the risk and return of portfolio combinations consisting of the risk-free asset and:

A. any risky portfolio.

B. the market portfolio.

C. the leveraged portfolio.

Q-8. Which of the following statements is least accurate? An investor may construct a portfolio located on the capital market line (CML) by:

A. investing a portion of his capital in the risk-free asset and the balance in a fully diversified portfolio of all equities.

B. investing a portion of his capital in the risk-free asset and the balance in a fully diversified portfolio of all risky assets.

C. borrowing capital at the risk-free rate and investing all his capital plus all borrowed capital in a fully diversified portfolio of all risky assets.

Q-9. If investors borrow at a rate that exceeds the risk-free lending rate, the resulting borrowing portfolios will:

A. plot on a flatter line.

B. plot on a steeper line.

C. no longer plot on a straight line.

Q-10. Relative to an investor with a steeper indifference curve, the optimal portfolio for an investor with a flatter indifference curve will most likely have:

A. a lower level of risk and return.

B. a higher level of risk and return.

C. the same level of risk and return.

Q-11. If investors share identical beliefs about the future returns of assets, what is depicted by plotting total risk versus expected return for portfolios consisting of the risk-free asset and optimal risky portfolio？

A. Security Market Line

B. Capital Allocation Line

C. Capital Market Line

99.3. SML

99.3.1. 重要知识点

99.3.1.1. Systematic risk and unsystematic risk

- **Systematic risk:** the risk that cannot be eliminated by diversification, which is measured by beta.
- **Unsystematic risk:** the risk that is eliminated by diversification.

- Since unsystematic risk can be eliminated through diversification, only systematic risk is compensated.

99.3.1.2. Beta

- **Definition:** the sensitivity of an asset's return to the return on the market index in the market model. A standardized measure of systematic risk.
- **Formula:** $\beta_i = \frac{Cov_{i,mkt}}{\sigma^2_{mkt}} = (\frac{\sigma_i}{\sigma_{mkt}}) \times \rho_{i,mkt}$

99.3.1.3. Return generate model: multifactor models

$E(R_i) - R_f = \beta_{i1} \times E(factor_1) + \beta_{i2} \times E(factor_2) + \beta_{i3} \times E(factor_3) + ... + \beta_{ij} \times E(factor_j)$

- Macroeconomic factors: GDP growth, interest rate, inflation rate, productivity, employment or consumer confidence.
- Fundamental factors: earnings, earnings growth, firm size, and research expenditures.
- Statistical factors: no obvious economic interpretations with asset returns.
- Single factor Model
  - Market model: $R_i=\alpha_i + \beta_i R_m + e_i$
  - Single-index model: $R_i - Rf=\alpha_i + \beta_i(R_m - Rf) + e_i$

99.3.1.4. Assumptions of the CAPM

- Investors are risk-averse, utility-maximizing, rational individuals.
- Markets are frictionless, including no transaction costs and no taxes.
- Investors plan for the same single holding period.
- Investors have homogeneous expectations or beliefs.
- All investments are infinitely divisible.
- Investors are price takers.

99.3.1.5. CAPM equation

$$E(R_i) = R_f + \beta_i[E(R_m) - R_f]$$

99.3.1.6. Security market line (SML)

- A graphical representation of the CAPM with beta, reflecting systematic risk, on the x-axis and expected return on the y-axis.

99.3.1.7. Application

- **Undervalued**
  - Estimated return > Required return from the SML, price undervalued.
  - Investors should buy.
- **Overvalued**
  - Estimated return < Required return from the SML, price overvalued.

- Investors should sell.

➢ **Properly valued**

- Estimated return = Required return from the SML, price fair valued.
- Investors are indifferent between buying or selling.

99.3.1.8. SML & CML

	SML	CML
Measure of risk	Uses systematic risk (non-diversifiable risk)	Uses standard deviation (total risk)
Application	Tool used to determine the appropriate expected (benchmark) returns for securities	Tool used to determine the appropriate asset allocation (percentages allocated to the risk-free asset and to the market portfolio) for the investor
Definition	Graph of the capital asset pricing model	Graph of the efficient frontier
Slope	Market risk premium	Market portfolio Sharpe ratio

99.3.2. 基础题

Q-12. According to capital market theory, an efficient market does not reward investors for taking on:

A. systematic risk

B. market risk

C. idiosyncratic risk.

Q-13. An analyst gathers the following information:

Security	Expected Annual Return (%)	Expected Standard Deviation (%)	Correlation between Security and the Market
Security 1	12	26	0.7
Security 2	12	21	0.8
Security 3	15	21	0.9
Market	11	16	1.0

Which security has the *least* amount of market risk?

A. Security 1

B. Security 2

C. Security 3

Q-14. With respect to the capital market theory, investors are most likely compensate for:

A. unexpected negative political events.

B. recent development of a new drug of a pharmaceutical company.

C. CEO's retirement of a public company.

Q-15. An analyst gathered the following information about the stock of UG and the market.

Expected Return of UG's stock E(R_{UG})	15%
Expected Return of market R_M	10%
Standard deviation of market return σ_M	12%
Covariance between UG's stock and market Cov (UG,M)	0.03

If the risk-free rate is 4%, is UG's stock overvalued?

A. Yes.

B. No, it is fairly valued.

C. No, it is undervalued.

Q-16. Which of the following represents the graphical depiction of the capital asset pricing model?

A. Capital allocation line

B. Capital market line

C. Security market line

Q-17. An analyst gathers the following data about an asset and the market, if the risk-free rate is 3.5%, the expected return for the asset based on the capital asset pricing model (CAPM) is closest to:

	Standard Deviation	**Expected Return**	**Correlation between the Market and the Asset**
Market	0.15	10%	0.65
Asset	0.35	----	-----

A. 18.7%.

B. 13.4%.

C. 11.8%.

Q-18. An investor with $20,000 decides to borrow an additional $10,000 at the risk-free rate and invest all the available funds in the market portfolio. This investor's portfolio beta is

closest to:

A. 0.5.

B. 1.5.

C. 1.0.

Q-19. With respect to return-generating models, the intercept term and slope of the market model is the asset's estimated:

A. Beta and alpha respectively.

B. Alpha and beta respectively.

C. Variance and correlation respectively.

Q-20. What kind of measure of risk does the Security Market Line (SML) plot against expected returns of a portfolio?

A. Unsystematic risk

B. Systematic risk

C. Total risk

99.4. Performance Measures

99.4.1. 重要知识点

99.4.1.1. Performance evaluation

- Sharpe ratio $= \frac{R_p - R_f}{\sigma_p}$
- Treynor measure $= \frac{R_p - R_f}{\beta_p}$
- M − squared alpha: $M^2 alpha = (R_p - R_f)\frac{\sigma_m}{\sigma_p} - (R_M - R_f)$
- Jensen's α: $\alpha_p = R_P - \{R_f + \beta_p[R_m - R_f]\}$

99.4.1.2. Comparison of four measures

- Jensen's alpha 和 M-squared alpha 是可以根据大小来判断投资业绩
  - We are not only able to determine the rank of a portfolio but also which, if any, of our portfolios beat the market on a risk-adjusted basis.
- Sharpe ratio 和 Treynor measure 需要再和其他的组合的指标进行比较
  - To rank portfolios, the Sharpe ratio or Treynor ratio of one portfolio must be compared with the Sharpe ratio or Treynor ratio of another portfolio.
- For non-diversified portfolio, Sharpe ratio and M-squared alpha are appropriate.
- For fully diversified portfolio, Jensen Alpha and Treynor are appropriate.

99.4.2. 基础题

Q-21. Which of the following performance measures is most appropriate for an investor who is not fully diversified?

A. M-squared alpha.

B. Treynor ratio.

C. Jensen's alpha.

Q-22. A portfolio manager gathered the following information about a fund.

Fund's rate of return	15%
Market rate of return	8%
Risk-free rate	3%
Beta of the fund	1.5

The Jensen's alpha for the fund is *closest* to:

A. 4.5%

B. 7.1%

C. 10.3%

Q-23. With respect to portfolio performance appraisal measures, which of the following statements is most accurate about Jensen's Alpha?

A. The difference between the actual portfolio return and the calculated risk-adjusted return is a measure of the portfolio's performance relative to the market portfolio.

B. Jensen's Alpha is a commonly used measure of performance, which is defined as the portfolio's risk premium divided by its systematic risk.

C. Jensen's Alpha is defined as the portfolio's risk premium divided by its total risk.

Q-24. Which of the following performance indicators use total risk as the risk measure?

A. Sharpe ratio

B. M^2 alpha

C. Both Sharpe ratio and M^2 alpha

Q-25. Given the following data for a portfolio and the market:

Portfolio's Sharpe Ratio	0.9
Portfolio's Volatility	15%
Market Volatility	8%
Correlation coefficient between portfolio returns and market returns	0.85

Approximately what is the portfolio's Treynor ratio?

A. 0.060

B. 0.085

C. 0.114

99.5. Expected Return and Expected Standard Deviation

99.5.1. 重要知识点

常考计算：

99.5.1.1. An individual investment:

- Expected Return $E(R) = \sum_{i=1}^{n} P_i R_i = P_1 R_1 + P_2 R_2 + \cdots + P_n R_n$
- Variance of Return $Var = \sigma^2 = \frac{1}{T}\sum_{i=1}^{T}(R_t - \mu)^2$
- Standard Deviation of Return

$\sigma = \sqrt{\frac{1}{T}\sum_{i=1}^{T}(R_t - \mu)^2}$ $(population)$ $\quad s = \sqrt{\frac{1}{T-1}\sum_{t=1}^{T}(R_t - \overline{R})^2}$ $(sample)$

99.5.1.2. A Portfolio:

- Expected Return $E(R) = \sum_{i=1}^{n} w_i R_i$
- Standard deviation $s_P = \sqrt{s_P^2} = \sqrt{\sum_{i=1}^{n} w_i^2 s_i^2 + \sum_{i=1}^{n}\sum_{j=1}^{n} w_i w_j Cov_{i,j}}$
- Covariance $Cov_{1,2} = \sum_{i=1}^{n} P_i[R_{i,1} - E(R_1)][R_{i,2} - E(R_2)]$
- Covariance (given equal weights, variance and covariance)

$$s_P^2 = \frac{s^2}{N} + \frac{N-1}{N}\overline{Cov}$$

- Correlation $\rho_{1,2} = \frac{Cov_{1,2}}{\sigma_1 \sigma_2}$
- Variance of returns for a portfolio of two risky assets:

$$\sigma_p^2 = w_1^2\sigma_1^2 + w_2^2\sigma_2^2 + 2w_1 w_2 \sigma_1 \sigma_2 \rho_{1,2}$$

99.5.2. 基础题

Q-26. If the correlation between assets in a portfolio increases during a market turmoil, given other conditions unchanged, the portfolio risk is most likely to:

A. Increase.

B. Unchange.

C. Decrease.

Q-27. A portfolio includes two assets. The portfolio's standard deviation equals to the weighted average mean of the two assets' standard deviation. The correlation of these two assets is closest to:

A. -1.

B. 0.

C. 1.

Q-28. A portfolio manager creates a portfolio and the correlation coefficient between two securities equals to zero. Comparing the weighted average of two securities' standard deviation, the portfolio's standard deviation is:

A. lower.

B. higher.

C. no difference.

Q-29. A correlation matrix of the returns for securities A, B, and C is reported below:

Security	A	B	C
A	1		
B	0.7	1	
C	0	–0.3	1

Assuming that the expected return and the standard deviation of each security are the same, a portfolio consisting of an equal allocation of which two securities will be most effective for portfolio diversification?

A. Securities A and B.

B. Securities A and C.

C. Securities B and C.

Q-30. What correlation coefficient between assets contributes most effectively to risk reduction when constructing a long-only portfolio?

A. 1.

B. 0.

C. -1.

Q-31. Two assets have the following characteristics:

Variance of returns for Asset 1	0.03

Variance of returns for Asset 2	0.07
Correlation of returns between Asset 1 and Asset 2	-0.6

The variance of returns for an equally weighted portfolio of the two assets is closest to:

A. 0.011.

B. 0.018.

C. 0.050.

99.6. Different Types of Investors & Investment Products

99.6.1. 重要知识点

99.6.1.1. Portfolio overview

- Portfolio approach: **From the perspective of risk and returns**, evaluate individual securities in relation to their contribution to the investment characteristics of the whole portfolio.
- Diversification provides an investor with a way to reduce the risk without necessarily decreasing their expected rate of return.
  - During times of severe market turmoil, correlations among assets tend to increase, which makes the diversification less effective.

99.6.1.2. Mutual funds and other forms of pooled investments

- Mutual funds: open-end funds and closed-end funds, money market funds, bond funds, stock funds.
- Exchange-traded funds (ETFs)
- Separately managed account
- Hedge funds
- Buyout funds (private equity funds)
- Venture capital funds
- The key to a DC plan is that the employee accepts the investment risk and is responsible for ensuring that there are enough funds in the plan to meet his or her needs upon retirement.

99.6.1.3. Comparison among pooled investments

- An investor investing in an index mutual fund buys the fund shares directly from the fund and all investments are settled at the net asset value. In the case of an ETF, however, investors buy the shares from other investors just as if they were buying or selling shares of stock.
- Expenses are lower for ETFs but, unlike mutual funds, investors do incur brokerage costs.
- All purchases and redemptions in a mutual fund take place at the same price at the close of business. ETFs are constantly traded throughout the business day, and

as such each purchase or sale takes place at the prevailing market price at that time.

- For ETFs, dividends are paid out to the shareholders, whereas index mutual funds usually reinvest the dividends. Hence, there is a direct cash flow from the ETF that is not there with the index mutual fund. Depending on the investor, this cash flow may or may not be desirable.
- The minimum required investment in an ETF is usually smaller. Investors can purchase as little as one share in an ETF, which is usually not the case with an index mutual fund.
- ETFs are often cited as having tax advantages over index mutual funds.
- The main disadvantage of an SMA is that the required minimum investment is usually much higher than is the case with a mutual fund.
- Hedge fund strategies generally involve a significant amount of risk, driven in large measure by the liberal use of leverage and complexity. More recently, it has also involved the extensive use of derivatives.
- A key difference between hedge funds and mutual funds is that the vast majority of hedge funds are exempt from many of the reporting requirements for the typical public investment company.

99.6.1.4. Characteristics of different types of investors:

Investor	Time Horizon	Risk Tolerance	Liquidity Needs	Income Needs
Individuals	Varies by individual	Varies by individual	Varies by individual	Varies by individual
DB plan	Long	High	Quite low	High for mature funds; Low for growing funds
Banks	Short	Quite low	High	Pay interest and operational expenses
Endowments and Foundations	Very long	High	Quite low	Meet spending commitments
Insurance	Long – life Short - P&C	Quite low	High	Low
Mutual funds	Varies by fund	Varies by fund	High	Varies by fund
Sovereign wealth funds	Varies by fund	Varies by fund	Varies by fund	Varies by fund

99.6.1.5. Asset Management Industry

- Asset management firms are referred to as buy-side firms, in contrast with sell-side firms such as broker-dealers and investment banks.
- Active management attempts to outperform a chosen benchmark through manager skill; Passive managers attempt to replicate the returns of a chosen market index.
- Traditional asset managers focus on equities and fixed-income securities; Alternative asset managers focus on asset classes such as private equity, hedge funds, real estate, or commodities.
- Asset Management Industry Trends:
  - The market share for passive management has been growing over time;
  - The amount of data available to asset managers has grown exponentially in recent years;
  - Robo-Advisers are a technology that can offer investors advice and recommendations based on their investment requirements and constraints, using a computer algorithm.

99.6.2. 基础题

Q-32. Which type of institution typically has the highest risk tolerance?

A. Defined benefit pension plans

B. Endowments and foundation

C. Life Insurance

Q-33. Which of the following is most likely to trade at a price significantly below its Net Asset Value (NAV)?

A. Close-end mutual funds.

B. Open-end mutual funds.

C. Exchange traded funds.

Q-34. Which of the following institutions will on average have the greatest need for liquidity?

A. Banks.

B. Investment companies.

C. Non-life insurance companies.

Q-35. With respect to mutual funds, which of the following statements is least accurate?

A. If it is an open-end fund, it will accept new investment money and issue additional shares at

a value equal to the net asset value of the fund at the time of investment.

B. If it is a closed-end fund, no new investment money is accepted into the fund. New investors invest by buying existing shares, and investors in the fund liquidate by selling their shares to other investors.

C. Unlike closed-end funds in which new shares are created and sold at the current net asset value per share, open-end funds can sell for a premium or discount to net asset value depending on the demand for the shares.

Q-36. What is the most accurate statement regarding differences among investor types?

A. Banks prioritize the liquidity of their investments above all else.

B. Endowments typically have shorter investment horizons due to immediate spending requirements.

C. Insurance companies' general and surplus accounts generally have similar levels of risk tolerance.

Q-37. Which aspect of pension plans is true?

A. Defined benefit plans tend to have a lower risk tolerance compared to defined contribution plans.

B. Defined contribution plans usually have a lower risk tolerance compared to defined benefit plans.

C. The employer sponsoring a defined benefit plan sets out how much money will be paid to the participant during retirement.

Q-38. Which of the following financial products is least likely to have a capital gain distribution?

A. Exchange traded funds.

B. Open-end mutual funds.

C. Closed-end mutual funds.

99.7. Portfolio Management Process

99.7.1. 重要知识点

99.7.1.1. Planning step

- Analysis of the investor's risk tolerance, return objectives, time horizon, tax exposure, liquidity needs, income needs, unique circumstances;
- Develop an IPS: describes the investor's investment objectives and constraints; state an objective benchmark; reviewed and updated regularly.

99.7.1.2. Execution step

- Asset allocation; top-down analysis & bottom-up
- Security analysis;
- Portfolio construction.

99.7.1.3. Feedback step

- Monitor and rebalance the portfolio;
- Measure portfolio performance.

99.7.2. 基础题

Q-39. With respect to the portfolio management process, the investment objectives and constrains is determined in the:

A. planning step.

B. feedback step.

C. execution step.

Q-40. What does the feedback step of portfolio management entail?

A. Portfolio monitoring.

B. Security analysis.

C. Understanding the client's needs.

99.8. Portfolio Planning and Construction

99.8.1. 重要知识点

99.8.1.1. Component of IPS

- **Introduction.** This section describes the client.
- **Statement of Purpose.** This section states the purpose of the IPS.
- **Statement of Duties and Responsibilities.** This section details the duties and responsibilities of the client, the custodian of the client's assets, and the investment managers.
- **Procedures.** This section explains the steps to take to keep the IPS current and the procedures followed able to respond to various contingencies.
- **Investment Objectives.** This section explains the client's objectives in investing.
- **Investment Constraints.** This section presents the factors that constrain the client in seeking to achieve the investment objectives.
- **Investment Guidelines.** This section provides information about how policy should be executed (e.g., on the permissible use of leverage and derivatives) and specific types of assets excluded from investment, if any.

- **Evaluation and Review.** This section provides guidance on obtaining feedback on investment results.
- **Appendices: (A) Strategic Asset Allocation, (B) Rebalancing Policy.** Many investors specify a strategic asset allocation (SAA), also known as the policy portfolio, which is the baseline allocation of portfolio assets to asset classes in view of the investor's investment objectives and the investor's policy with respect to rebalancing asset class weights.

99.8.1.2. Strategic asset allocation

- the set of exposures to IPS-permissible asset classes that is expected to achieve the client's **long-term objectives** given the client's investment constrains.
- Correlations within the class is **higher** than correlations between asset classes.

99.8.1.3. Active portfolio management

- **Tactical asset allocation:** is the decision to **deliberately deviate** from the policy exposures to systematic risk factors with the intent to add value based on forecasts of the **near-term returns** of those asset classes.
  - The manager's ability to identify shot-term opportunities in specific asset classes;
  - The existence of such short-term opportunities.
- **Security selection:** is an attempt to generate higher returns than the asset class benchmark by **selecting securities with a higher expected return.**
  - The manager's skill
  - The opportunities with in a particular asset class.

99.8.2. 基础题

Q-41. Which of the following is least likely to be placed in the appendices to an investment policy statement (IPS)?

A. Rebalancing policy.

B. Strategic asset allocation.

C. Statement of duties and responsibilities.

Q-42. What is developed by integrating a client's investment objectives and limitations with long-term market expectations?

A. Investment policy statement

B. Strategic asset allocation

C. Risk budget

Q-43. In which section of an investment policy statement would you expect to find guidance

on evaluating investment results?

A. Statement of Duties and Responsibilities
B. Evaluation and Review
C. Appendices

99.9. Investment Objectives and Constraints

99.9.1. 重要知识点

99.9.1.1. Risk objective

- The risk objective limits how high the investor can set the return objective
- **Risk measurement**
  - Absolute: variance or standard deviation
  - Relative: relate risk relative to one or more benchmarks perceived to represent appropriate risk standards (tracking risk)
  - Downside risk: VaR
    - Value at risk (VaR) is a measure of the size of the tail of the distribution of profits on a portfolio or for an entity, which
    - e.g. A VaR of $100 at 1% for one day means it is expected to lose a minimum of $100 in one day 1% of the time.
- Risk tolerance: willingness and ability

99.9.1.2. Return objectives: absolute or relative basis

- Return measurement
  - Absolute basis
    - percentage rate of return: total return (balance between capital gains and income), inflation-adjusted return (real)
  - Relative
    - Relative to a benchmark return: Some institutions also set their return objective relative to a peer group or universe of managers
      - ✧ when limited information is known about the investment strategies
      - ✧ or the returns calculation methodology being used by peers,
      - ✧ the impossibility of all institutions being "above average."
      - ✧ Furthermore, a good benchmark should be investable
- Stated return desire vs. required return
- Consistent with risk objective

99.9.1.3. Investment constraints

- **Liquidity** — for cash spending needs (anticipated or unexpected)
- **Time horizon** — the time between making an investment and needing the funds

- **Tax concerns** — the tax treatments of various accounts, and the investor's marginal tax bracket
- **Legal and regulatory factors** — restrictions on investments in retirement, personal, and trust accounts
- **Unique needs and preferences** — constraints because of investor preferences or other factors not already considered

99.9.1.4. ESG considerations

- **Negative screening** — excluding specific companies or industries
- **Positive screening or best-in-class** —invest in companies that have positive ESG practices
- **Thematic investing** —investing in sectors or companies in order to promote specific ESG-related goals
- **Engagement/active ownership investing** —using share ownership as a platform to promote improved ESG practices at a company

99.9.2. 基础题

Q-44. Risk assessment questionnaires for investment management clients are most useful in measuring:

A. value at risk.
B. ability to take risk.
C. willingness to take risk.

Q-45. Which of the following impact(s) one's ability to take risk?

A. investment time horizon
B. financial situation
C. both A and B.

Q-46. An investor has a low ability to bear risk but a high willingness to take risk. What is the most appropriate assessment of the investor's overall risk tolerance?

A. Above average
B. Average
C. Below average

Q-47. A practice that excluding companies or sectors based on business activities or environmental or social concerns is called:

A. exclusionary screening.
B. active ownership.

C. best-in-class approach.

Q-48. Frank Johnson is investing for retirement and has a 20-year horizon. He has an average risk tolerance. Which investment is likely to be the least suitable for a major allocation in Johnson's portfolio?

A. Listed equities.

B. Private equity.

C. US Treasury bills.

Q-49. Regarding an investment policy statement, which of the following statements regarding return objectives is most accurate?

A. Return objectives can only be defined as desired rates of return.

B. Return objectives should be determined without considering risk objectives.

C. When setting a relative return objective, the selected benchmark should reflect realistic market expectations.

Q-50. Which of the following statements regarding shareholder engagement is the least accurate regarding environmental, social, and governance (ESG) considerations?

A. Engagement efforts are not time-consuming based on a required good cooperation between investor (client) and investment manager.

B. Clients and investment managers must be clear with each other about the exercise of voting rights, filing of shareholder proposals, or entering into conversations with company management.

C. Alternatively, the client may instruct some proxy agent to vote on its behalf and according to its own stewardship policies, or the client may instruct voting and maintain dialogue with its investee companies through either individual engagements or collaborative engagements.

99.10. Behavioral Biases of Individuals

99.10.1. 重要知识点

99.10.1.1. **Cognitive Errors** arise from processing information into rational decisions with a lack of capacity or information, e.g., proper statistical analysis techniques or sufficient data. It is easily to correct.

- **Belief perseverance biases** is the tendency to cling to one's previously held beliefs.
  - **Conservatism bias**: Occurs when people maintain their prior views or forecasts by inadequately incorporating new, conflicting information. 由于没有充足分析新的信息，人倾向于保持原有观点。

- ◆ 修正：properly analyzing and weighting new information

- **Confirmation bias**: Refers to the tendency to look for and notice what confirms prior beliefs and to ignore or undervalue whatever contradicts them. 倾向于寻找能够证明自己观点的迹象，忽略与自己观点相冲突的迹象。
  - ◆ 修正：Develop screening criteria, actively seeking out information that challenges your beliefs.
- **Representativeness bias**: Refers to the tendency to classify new information based on past experiences and classifications, e.g., halo effect. 基于过去的经验和分类对新信息进行简单归类，分为两种情况：1）base rate neglect，忽略基本概率；2）sample-size neglect，忽略样本规模，即样本量过小。
  - ◆ 修正：Ask yourself a series of questions.（例如，同等规模的基金表现如何？）
- **Illusion of control bias**: Refers when people tend to believe that they can control or influence outcomes when, in fact, they cannot. 人倾向于相信他们能够控制结果，但实际上并不能。
  - ◆ 修正：Seek contrary viewpoints and keep record.
- **Hindsight bias**: Refers to believing past events as having been predictable and reasonable to expect. 人们看过去的事情，好像自己曾经预测过。
  - ◆ 修正：Carefully record and examine their investment decisions.

➢ **Information-processing biases** describe how information may be processed and used illogically or irrationally in financial decision making.

- **Anchoring & adjustment**: refers to relying on an initial piece of information to make subsequent estimates, judgments, and decisions. 依靠初始信息进行后续估计、判断和决策。
  - ◆ 修正：提问自己一系列的问题（Am I holding onto this stock based on rational analysis, or am I trying to attain a price that I am anchored to, such as the purchase price or a high water mark?）。
- **Mental accounting bias**: refers to mentally dividing money into "accounts" that influence decisions, even though money is fungible. 同样的钱，不同的对待（分层构建投资组合）
  - ◆ 修正：Focus on total return.
- **Framing bias**: Occurs when person answers a question differently based on the way in which it is asked or framed. 不同的表述方法，带来的感受和决策结果也不同。、
  - ◆ 修正：Ask yourself a series of questions（例如，是否只关注 gain 或 loss？应该关注投资产品未来的前景）。

- **Availability bias**: occurs when people estimate the probability of an outcome or the importance of a phenomenon based on how easily information is recalled. 根据回忆信息的容易程度，估计某事件发生的概率。
  - 修正：Carefully research and analyze investment decisions before making them, and focus on long-term results.

99.10.1.2. **Emotional Biases** arise from impulse or intuition and affect how processing information and decision making. It is harder to correct.

- **Loss aversion bias**: refers to the tendency to strongly prefer avoiding losses to achieving gains. 相对于获得收益来说，人更倾向避免损失。
  - 修正：A disciplined approach to investment based on fundamental analysis.
- **Overconfidence bias**: refers to people demonstrate unwarranted faith in their own abilities. 人们对自己的直觉推理表现出毫无根据的信心。
  - 修正：Should review their trading records，检查自己的交易记录，如果发现历史业绩不佳，就不会这么自信了。
- **Self-control bias**: occurs when people fail to act in pursuit of their long-term, overarching goals in favor of short-term satisfaction. 由于缺乏纪律性，无法追求长期目标。
  - 修正：Should ensure that a proper investment plan is in place and should have a personal budget.
- **Status quo bias**: occurs when people choose to do nothing (i.e., maintain the "status quo") instead of making a change, even when change is warranted. 即使改变是必要的，人们选择什么都不做（即维持"现状"）而不是做出改变。
  - 修正：Should quantify the risk-reducing and return enhancing advantages of diversification and proper asset allocation.
- **Endowment bias**: refers to people value an asset more when they own it than when they do not or people attributing additional, unwarranted value to things they possess versus things they do not. 人们一旦拥有一项资产时，就会觉得其价值更高。
  - 修正：问自己这个标的资产现在让我买，我还愿意买吗？
- **Regret-aversion bias**: refers to people tend to avoid making decisions out of fear that the decision will turn out poorly. 指人们倾向避免做出决策，因为害怕决策结果会很糟糕，未来会后悔。
  - 修正：Should quantify the risk-reducing and return-enhancing advantages of diversification and proper asset allocation.

99.10.1.3. **Anomalies**

- Market anomalies are apparent deviations from the efficient market hypothesis,

identified by persistent abnormal returns that differ from zero and are predictable in direction.

- Favor of
  - Momentum (Availability bias; Regret)
  - Bubbles and crashes (Symptoms)
  - Value and growth
    - Favor of: halo effect; home bias
    - Object to: Fama & French three-factor model
- **Object to**
  - Asset pricing model
  - Statistical issues
  - Temporary disequilibria behavior

99.10.2.基础题

Q-51. An investor is focused solely on a company's fundamental performance and ignores the broader industry trends despite the company's declining performance. What cognitive error is this investor exhibiting?

A. Conservatism bias

B. Narrow framing

C. Availability bias

Q-52. Abby Lane has investments scattered across many different accounts from bank savings to before-and after-tax retirement accounts to taxable nonretirement accounts. She has multiple investing goals ranging from important short-term goals to longer-term" wish list" goals. She looks at her financial assets and views each holding as designed to meet specific goals. Lane has been very successful in her investment decisions for several decades and believes she can continue to achieve reasonable results. Lane most likely exhibits:

A. framing bias.

B. mental accounting.

C. overconfidence bias.

Q-53. Twenty years ago, Jane set up her initial asset allocation in her defined contribution plan by placing an equal amount in each asset class and never changed it. Over time, she increased her contribution by 1% per year until she reached the maximum amount allowed by law. Due to her steadfastness and good fortune, coupled with matching funds from her employer, she now finds herself in her early 40s with a million-dollar

retirement account. Which of the following biases does Jane most likely exhibit?

A. Representativeness.

B. Status quo bias.

C. Availability bias.

Q-54. The halo effect suggests that investors tend to overvalue stocks:

A. from their own country or region.

B. with which the investors are most familiar.

C. that have experienced rapid growth and price appreciation.

Q-55. Which of the following would most likely be classified as a regret-aversion bias? The investor:

A. values the same assets he owns higher than the ones he does not own.

B. holds onto investment positions too long.

C. underreacts to new information maintaining prior beliefs.

Q-56. An effective way to overcome endowment bias is:

A. quantifying the risk-reducing return-enhancing advantages of diversification.

B. reviewing past performance and risk of unfamiliar securities and contemplating the reasoning for recommendation.

C. ensuring a proper investment plan and maintaining a personal budget.

Q-57. A consequence of the availability bias is:

A. Choose an investment, based on advertising rather than on a thorough analysis of the options.

B. Focus on short-term price fluctuations, which may result in excessive trading.

C. To become more risk-averse when presented with a gain frame of reference and more risk-seeking when presented with a loss frame of reference.

Q-58. What is the most likely outcome of overconfidence bias among investors?

A. Holding excessively concentrated portfolios with limited diversification.

B. Continue to hold classes of assets with which they are familiar.

C. Maintaining underperforming investments longer than necessary, hoping for a recovery.

Q-59. Which of the following emotional biases is characterized by sacrificing long-term benefits for immediate gratification?

A. Loss-aversion bias

B. Endowment bias

C. Self-control bias

99.11. Risk Management

99.11.1.重要知识点

99.11.1.1. Risk terminologies

- **Risk:** Exposure to uncertainty
- **Risk exposure:** The extent to which an entity's value may be affected through sensitivity to underlying risks.
- **Risk management**
  - Risk management is the process by which an organization or individual **defines** the level of risk to be taken, **measures** the level of risk being taken, and **adjusts** the latter toward the former: with the goal of **maximizing** the company's or portfolio's value or the individual's overall satisfaction, or utility.
  - It comprises all the decisions and actions needed to best achieve organizational or personal objectives while **bearing a tolerable level of risk**.
  - **Not** about **minimizing risk.**

99.11.1.2. Risk management framework

- It is the infrastructure, process, and analytics needed to support effective risk management in an organization.
- Integrate the risk and return aspects of the enterprise into decisions.
- Not a "one size fits all" solution: it is best achieved through a **custom** solution.
- **Key factors:**
  - Risk governance
  - Risk identification and measurement
  - Risk infrastructure
  - Defined policies and processes
  - Risk monitoring, mitigation, and management
  - Communications
  - Strategic analysis or integration

99.11.1.3. Key factors of risk management framework

- Risk governance
  - The **top-down process** foundation for risk management activities, including risk oversight and setting risk tolerance for the organization.
- Risk identification and measurement
  - The quantitative and qualitative assessment of all potential sources of risk

and the organization's risk exposures.

- Risk infrastructure
  - Comprises the resources and systems required to track and assess the organization's risk profile.
- Defined policies and processes
  - Management's complement to risk governance at the operating level
- Risk monitoring, mitigation, and management
- Communications
  - Includes risk reporting and active feedback loops so that the process improves decision making.
- Strategic analysis or integration
  - Using these risk tools to rigorously sort out the factors that are and are not adding value as well as incorporating this analysis into the management decision process with the intent of improving outcomes.

99.11.1.4. Risk governance

- The **top-down process** and guidance that direct risk management activities to align with and support the overall enterprise.
- **Risk governance** refers to senior management's determination of the **risk tolerance** of the organization, the elements of its optimal **risk exposure strategy**, and the framework for **oversight** of the risk management function.
- Elements of effective risk governance
  - It determines the organization's goals, direction and priorities
  - Spells out risk appetite or tolerance
  - Provide a sense of the worst losses that could be tolerated in various scenarios
  - Decisions about risk budgeting

99.11.1.5. Risk tolerance

- A key element of good risk governance, delineates which risks are acceptable, which are unacceptable, and how much risk the overall organization can be exposed to.
- Identifies the extent to which the entity is willing to experience losses or opportunity costs and to fail in meeting its objectives.
- Should be chosen and communicated **before** a crisis.
- The ability of a company to respond **dynamically to adverse events** may allow for a higher risk tolerance

99.11.1.6. Risk budgeting

- **Risk budgeting** is any means of allocating investments or assets by their risk characteristics.

99.11.1.7. Financial risks and non-financial risks

- Financial risks refer to the risks that arise from events occurring in the financial markets. 3 main types:
  - Market risk
    - Arises from movements in stock prices, interest rates, exchange rates and commodity prices
  - Credit risk
    - The risk that a counterparty will not pay any amount owed
  - Liquidity risk
    - The risk that, as a result of degradation in market conditions or the lack of market participants, one will be unable to sell an asset without lowering the price less than the fundamental value
    - Liquidity risk could also be called transaction cost risk and is most associated with **a widening bid-ask spread.**
- Non-financial risks consist of a variety of risks, including settlement risk, operational risk, legal risk, regulatory risk, accounting risk, tax risk, model risk, tail risk, and sovereign or political risk.
  - Operational risk is the risk that arises from the operations of an organization and includes both human and system or process errors.
  - Solvency risk is that an entity does not survive or succeed because it runs out of cash to meet its financial obligations.

99.11.1.8. Other risk issues

- Interaction between risks:
  - Risks are not necessarily independent because many risks arise as a result of other risks: risk interactions can be extremely non-linear and harmful.
- Risk drivers are the fundamental global and domestic, **macroeconomic and industry factors** that create risk.
- Common measures of risk include:
  - Standard deviation or volatility:
  - Asset-specific measures, such as beta or duration:
  - Derivative measures, such as delta, gamma, vega, and rho:
  - And tail measures such as value at risk, cvar and expected loss given default.
- Methods of risk modification:
  - Risk prevention and avoidance

- Risk acceptance: self-insurance and diversification
- Risk transfer (insurance)
- Risk shifting (derivatives)

➢ The determinants of which method is best for modifying risk are the benefits weighed against the costs, with consideration for his overall final risk profile and adherence to risk governance objectives.

99.11.2.基础题

Q-60. Risk management in the case of individuals is best described as concerned with:

A. hedging risk exposures.

B. maximizing utility while bearing a tolerable level of risk.

C. maximizing utility while avoiding exposure to undesirable risks.

Q-61. A major benefit of employing a risk budgeting process is that it most likely:

A. allows the organization to determine its enterprise risk tolerance.

B. forces risk tradeoffs across the organization.

C. eliminates the need for hedging within the organization.

Q-62. An example of a non-financial risk is:

A. market risk.

B. liquidity risk.

C. settlement risk.

Q-63. Which of the following statements about risk assessment is incorrect?

A. Normally, the VaR loss exceeds conditional VaR.

B. The VaR measure indicates the probability of a loss of at least a certain level in a time period.

C. Both the Sortino ratio and the value-at-risk can measure downside risks.

Q-64. Which of the following best describes the concept of risk transfer as a method of risk modification?

A. It generally involves derivatives as the risk modification vehicle.

B. It refers to actions that change the distribution of risk outcomes.

C. It is the process of passing on a risk to another party.

Q-65. An investment policy statement's risk objective states that over a 10-month period, with a probability of 96%, the client's portfolio must not lose more than 4% of its value.

This statement is most likely a(n):

A. relative risk objective.

B. total risk objective.

C. absolute risk objective.

Q-66. Risk budgeting:

A. is to establish the organization's risk appetite.

B. aligns risk management activities with the goals of the overall enterprise and allocates investments or assets by their risk characteristics.

C. identifies the extent to which the entity is willing to experience losses or opportunity costs and to fail in meeting its objectives.

Q-67. Risk budgeting most likely:

A. limits the cost of hedging a portfolio.

B. can be defined by a measure such as beta or scenario loss.

C. focuses on the appetite for risk and what exposures are acceptable.

Q-68. The German firm IHK AG has entered into a three-month forward currency contract to purchase USD35 million versus euros from US firm GED Corp. to hedge a future payment obligation. The US dollar appreciates 5% in the coming three months. IHK should most likely focus on:

A. market risk.

B. liquidity risk.

C. counterparty risk.

Q-69. Which of the following pairs of risks are most closely related?

A. Model risk and tail risk

B. Liquidity risk and operational risk

C. Credit risk and solvency risk

Q-70. Among other things, an organization's risk tolerance should most likely reflect its:

A. perception of market stability.

B. size.

C. competitive position.

Q-71. What is the best way to describe the process of risk management?

A. A set of decisions that minimizes the risk taken.

B. A set of decisions that bears a tolerable level of risk.

C. A set of decisions that predicts the potential risk correctly.

Q-72. Which of the following statements is least aligned with effective risk governance practices?

A. Developing a comprehensive understanding of the enterprise's overall risk profile

B. Clearly articulating the enterprise's risk appetite and thresholds

C. Implementing a bottom-up approach to guide risk management efforts throughout the organization

Solutions

9. Portfolio Management

Q-1. Solution: A.

$$U = E(r) - \frac{1}{2} A\sigma^2$$

where, U is the utility of an investment, E(r) is the expected return, and σ^2 is the variance of the investment.

The coefficient A measures how much compensation an investor requires to take on additional risk. A higher value of A indicates a more risk-averse investor, meaning they need greater compensation for taking on additional risk.

Risk-seeking investor's indifference curve has a negative slope, but the question refers to a risk-averse investor with a high-risk aversion coefficient A. For a risk-averse investor, the indifference curve has a positive slope.

Risk-neutral investor has A=0 and maximizes returns without considering risk. However, the question specifies a large A, indicating a risk-averse investor, not a risk-neutral one.

Q-2. Solution: C.

The increase in return with every unit increase in risk keeps decreasing as one moves from left to right because the slope of the efficient frontier continues to decrease. Thus, investors obtain decreasing increases in returns as they assume more risk.

Q-3. Solution: B.

Utility has two terms: the expected return and a negative term based on the portfolio risk weighted by risk aversion. For an identical portfolio, the investor with a higher risk aversion (A) would calculate a lower utility (U).

Q-4. Solution: A.

The Markowitz efficient frontier represents the set of optimal portfolios with the highest return for each level of risk, or equivalently, the lowest risk for each level of expected return. It includes all portfolios of risky assets chosen by rational, risk-averse investors because it provides the best trade-off between risk and return for their individual risk tolerance levels. Therefore, option A provides the most accurate description of the Markowitz efficient frontier.

Option B describes the minimum-variance frontier rather than the efficient frontier. The efficient frontier consists of portfolios that maximize expected return for a given level of risk, whereas the minimum-variance frontier represents portfolios that minimize risk for a given level of expected return.

Option C is incorrect because while the efficient frontier does lie above the minimum-variance frontier (which represents portfolios with the lowest possible variance), not all points on the efficient frontier lie to its left.

Q-5. Solution: B.

The CAPM assumes homogeneous expectations, meaning that all investors analyze securities similarly, using the same probability distributions and arriving at identical valuations for assets. Because of this, investors all generate the same optimal risky portfolio (the market portfolio). Heterogeneous expectations are not an assumption of CAPM.

Additionally, CAPM assumes that all investors plan for the same holding period, and that there are no restrictions on short selling, supporting the idea of frictionless markets.

Q-6. Solution: B.

The CAL dominates the efficient frontier at all points except for the optimal risky portfolio. The ability of the investor to purchase additional amounts of the optimal risky portfolio by borrowing (i.e., buying on margin) at the risk-free rate makes higher rates of return for levels of risk greater than the optimal risky asset possible.

Q-7. Solution: B.

Although the capital allocation line includes all possible combinations of the risk-free asset and any risky portfolio, the capital market line is a special case of the capital allocation line, which uses the market portfolio as the optimal risky portfolio.

Q-8. Solution: A.

Portfolios located on the CML may be constructed by: 1) investing a portion of an investor's capital in the risk-free asset and the balance in the market portfolio which consists of all risky assets, or 2) borrowing capital at the risk-free rate and investing all of an investor's capital plus all borrowed capital in the market portfolio.

Q-9. Solution: A.

If investors borrow at a rate that exceeds the lending rate, the resulting borrowing portfolios will not be as profitable as the case where borrowing and lending is carried out at the same risk-free rate. The result is that borrowing portfolios will plot on a line with a flatter slope compared to borrowing portfolios constructed from borrowing at the risk-free lending rate.

Q-10. Solution: B.

A less risk-averse investor's highest utility, given the low slope of his indifference curve, is likely to touch the capital allocation line at a point which would represent a portfolio with higher risk and more expected return.

Q-11. Solution: C.

If all investors share homogeneous expectations regarding future returns and volatilities, then the CML depicts total risk versus expected return for portfolios consisting of the risk-free asset and optimal risky portfolio. The CML connects combinations of the risk-free security and the market portfolio with higher expected returns than the risk-free security, showing the efficient portfolios for individual risk preferences given identical beliefs about future returns.

Q-12. Solution: C.

Systematic risk is risk that cannot be avoided and is inherent in the overall market. It is non-diversifiable because it includes risk factors that are innate within the market and affect the market as a whole. According to capital market theory, in an efficient market no incremental reward is earned for taking on diversifiable risk.

Systematic risk, also known as non-diversifiable or market risk, is the risk that affects the entire market or economy. In contrast, nonsystematic risk is the risk that pertains to a single company or industry and is also known as company-specific, industry-specific, diversifiable, or idiosyncratic risk.

Q-13. Solution: B.

$\beta_i = \rho_{i,m}\frac{\sigma_i}{\sigma_m}$

Security 2 has the lowest beta value: $1.05 = \frac{\rho_{2,m} \times \sigma_2}{\sigma_m} = \frac{0.8 \times 21\%}{16\%}$

Compared to security 1 and 3 with beta values of 1.1375 and 1.3125, respectively.

Q-14. Solution: A.

One important conclusion of capital market theory is that equilibrium security returns depend on a stock's or a portfolio's systematic risk, not its total risk as measured by standard deviation. Changes that occur within a country's policies is a type of systematic risks which will ultimately lead to higher expected returns.

A new drug and CEO's retirement are types of non-systematic risks.

Q-15. Solution: A.

First: Calculate the beta of UG's stock

$\beta = \frac{Cov(UG, M)}{\sigma_M^2} = \frac{0.03}{0.12^2} \approx 2.08$

Then: Calculate the required rate of return of UG's stock

$E(R) = R_f + \beta(R_m - R_f)$ = 4%+2.08×(10%-4%) = 16.48%

The expected return of UG is 15%, which is less than the required return of 16.48%, so the UG's stock is overvalued.

Q-16. Solution: C.

The security market line (SML) is a graphical representation of the capital asset pricing model with beta, reflecting systematic risk, on the x-axis and expected return on the y-axis.

Q-17. Solution: B.

We first compute the asset's beta: $\beta = \frac{\rho_{im}\sigma_i\sigma_m}{\sigma_m^2} = \frac{0.65*0.35}{0.15} = 1.52$

The expected return is computed using: $\mathrm{E}(R_i) = R_f + \beta\left[E\left(R_m - R_f\right)\right] = 3.5\% + 1.52 \times (10\% - 3.5\%) = 13.4\%$

Q-18. Solution: B.

The weight in the market portfolio is 30,000/20,000 = 1.5 and the weight in the risk-free asset is –10,000/20,000 = –0.5. Because the beta of the risk-free asset is 0 and the market portfolio's beta is 1, the portfolio's beta is: $\beta_p = 0\times(-0.5) + 1\times(1.5) = 1.5$.

Q-19. Solution: B.

In the market model, $R_i = \alpha_i + \beta_i R_m + e_i$, the intercept, α_i, and slope coefficient, β_i, are estimated using historical security and market returns.

Q-20. Solution: B.

The answer is B. The Security Market Line (SML) plots expected returns against systematic risk, measured by beta. Beta measures the sensitivity of a security's returns to changes in the overall stock market returns. By connecting the risk-free asset and the tangency portfolio, the SML illustrates the equilibrium relationship between the expected return and the systematic risk of a portfolio, where additional risk leads to additional return in a well-diversified market portfolio.

Q-21. Solution: A.

M-squared alpha adjusts for risk using standard deviation (i.e., total risk).

Q-22. Solution: A.

Using the Jensen's alpha formula,

Jensen's α=Rp-[Rf+Beta(Rm-Rf)]=15%-[3%+1.5×(8%-3%)]=4.5%

Q-23. Solution: A.

The difference between the actual portfolio return and the calculated risk-adjusted return is a measure of the portfolio's performance relative to the market portfolio and is called Jensen's alpha.

Q-24. Solution: C.

Sharpe ratio, which is defined as the portfolio's risk premium divided by its risk.

Sharpe ratio = [E(Rp)−Rf)]/σp. The ratio uses the total risk of the portfolio, not its systematic risk.

M^2 provides a measure of portfolio return that is adjusted for the total risk of the portfolio relative to that of some benchmark. It is related to the Sharpe ratio and ranks portfolios identically, but it has the useful advantage of being denominated in familiar terms of percentage return advantage assuming the same level of total risk as the market.

The equations below provide the ex-ante and ex post formulas for M^2, where σm is the standard deviation of the market portfolio and σm/σp is the portfolio-specific leverage ratio. M^2 can be thought of as a rescaling of the Sharpe ratio that allows for easier comparisons among different portfolios. M^2 =[E(Rp)−Rf]σm/σp−(Rm−Rf).

Q-25. Solution: B.

The answer is B. The Treynor ratio measures excess returns per unit of systematic risk (market beta), calculated as excess return divided by beta.

Beta (β_p) = Correlation Coefficient * (Portfolio Volatility / Market Volatility) = 0.85 * (15% / 8%) = 1.5938

Excess Return (R_p - R_f) = Sharpe Ratio * Portfolio Volatility = 0.9 * 15% = 13.5%

Treynor Ratio = Excess Returns / Beta = 13.5% / 1.5938 ≈ 8.47%

Q-26. Solution: A.

Higher correlations will weaken diversification effects if other components of the portfolio standard deviation do not change (i.e., the weights and variance of the individual assets). This means that the risk of the whole portfolio will increase.

Q-27. Solution: C.

$$\sigma_p = \sqrt{w_1^2\sigma_1^2 + w_2^2\sigma_2^2 + 2w_1w_2\sigma_1\sigma_2\rho_{1,2}}$$

When the correlation = 1,

$$\sigma_p = \sqrt{w_1^2\sigma_1^2 + w_2^2\sigma_2^2 + 2w_1w_2\sigma_1\sigma_2} = \sqrt{(w_1\sigma_1 + w_2\sigma_2)^2} = w_1\sigma_1 + w_2\sigma_2$$

Q-28. Solution: A.

Method one:

When the portfolio's standard deviation equals to the weighted average mean of the two assets' standard deviation, the correlation of these two assets is closest to one:

$\rho_{1,2}=1$

$\sigma_p=w_1\sigma_1+w_2\sigma_2$

$\sigma_p^2=(w_1\sigma_1+w_2\sigma_2)^2=w_1^2\sigma_1^2+w_2^2\sigma_2^2+2w_1w_2\sigma_1\sigma_2\rho_{1,2}=w_1^2\sigma_1^2+w_2^2\sigma_2^2+2w_1w_2\sigma_1\sigma_2$

When portfolio's correlation coefficient between two securities equals to zero:

$\rho'_{1,2}=0$

$\sigma'^2_p=w_1^2\sigma_1^2+w_2^2\sigma_2^2+2w_1w_2\sigma_1\sigma_2\rho'_{1,2}=w_1^2\sigma_1^2+w_2^2\sigma_2^2$

Then, we have:

$\sigma_p^2=\underline{w_1^2\sigma_1^2+w_2^2\sigma_2^2}+2w_1w_2\sigma_1\sigma_2>\sigma'^2_p=\underline{w_1^2\sigma_1^2+w_2^2\sigma_2^2}$

$\sigma_p>\sigma'_p$

Method two:

$\sigma_p^2=(w_1\sigma_1+w_2\sigma_2)^2=w_1^2\sigma_1^2+w_2^2\sigma_2^2+2w_1w_2\sigma_1\sigma_2\rho_{1,2}$

$\rho_{1,2}\downarrow$(from 1 to 0) $\rightarrow \sigma_p\downarrow$

Q-29. Solution: C.

The negative correlation of –0.3 between investment securities B and C is the lowest and thus is the most effective for portfolio diversification.

Q-30. Solution: C.

C is Correct because –1 is the smallest of the three correlations, the greater the reduction in portfolio risk. The correlation coefficient between two assets determines the effect on portfolio risk when the two assets are combined. You will find that portfolio risk is unaffected when the two assets are perfectly correlated (ρ_{12} = +1). In other words, the portfolio's standard deviation is simply a weighted average of the standard deviations of the two assets and as such a portfolio's risk is unchanged with the addition of assets with the same risk parameters. Portfolio risk falls, however, when the two assets are not perfectly correlated (ρ_{12} < +1). Sufficiently low values of the correlation coefficient can make the portfolio riskless under certain conditions. For an extreme case in which ρ_{12} = –1 (that is, the two asset returns move in opposite directions), the portfolio can be made risk free. Analytically, the standard deviation risk of a two asset portfolio is given by the square root of the portfolio's variance: $\sigma_P = (w_1^2\sigma_1^2 + w_2^2\sigma_2^2 + 2w_1w_2\rho_{12}\sigma_1\sigma_2)^{1/2}$, which is a strictly increasing function of ρ_{12}. Hence, –1, the smallest of the three correlations, has the lowest risk.

Q-31. Solution: A.

A is Correct because for a two asset portfolio, the expression for portfolio variance simplifies to the following using correlation:

$\sigma^2_p = w_1^2\sigma_1^2 + w_2^2\sigma_2^2 + 2w_1w_2\rho_{12}\sigma_1\sigma_2$, where w_i is the weight of asset i in the portfolio, σ_i^2 is the variance of asset i, and ρ_{ij} is the correlation between the returns of assets i and j. Here,

$\sigma^2_p = (0.5)^2(0.03) + (0.5)^2(0.07) + 2(0.5)(0.5)(-0.6)(0.03)^{0.5}(0.07)^{0.5} = 0.0075 + 0.0175 - 0.0137477 = 0.01125 \approx 0.011$.

Q-32. Solution: B.

Endowments and foundations generally have the highest risk tolerance among the given institutions. They often operate with a very long-term investment horizon and have a strong ability to absorb market fluctuations. Their main objective is to meet spending commitments, which allows them to invest in riskier assets to achieve higher returns over time. Additionally, their liquidity needs are usually low, further supporting their ability to take on higher risk.

Defined benefit pension plans also have a long-term horizon and relatively high-risk tolerance but are more constrained by the need to manage future liabilities and payout obligations, which tempers the amount of risk they can take on.

Life insurance companies typically have a lower risk tolerance, as they require high liquidity to meet potential claims.

Q-33. Solution: A.

Closed-end mutual funds can trade at a discount or premium to their NAV because their shares are traded on the open market, and prices are determined by supply and demand. It is not uncommon for closed-end funds to trade at a significant discount to their NAV.

Open-end mutual funds do not typically trade at a discount or premium to their NAV because their shares are redeemed at the NAV price at the end of each trading day.

Exchange-traded funds (ETFs) usually trade very close to their NAV because of the arbitrage mechanism that keeps the market price in line with the underlying NAV. Significant deviations are rare.

Q-34. Solution: A.

The excess reserves invested by banks need to be relatively liquid.

Although investment companies and non-life insurance companies have high liquidity needs, the liquidity need for banks is on average the greatest.

Q-35. Solution: C.

Unlike open-end funds in which new shares are created and sold at the current net asset value per share, closed-end funds can sell for a premium or discount to net asset value depending on

the demand for the shares.

Q-36. Solution: A.

Banks prioritize the liquidity of their investments above all else.

Banks require highly liquid assets because they must maintain cash reserves for daily transactions and withdrawals from customers. This means they often prefer securities that can easily be converted into cash without significantly affecting prices, such as Treasury bills and high-quality corporate bonds. Thus, liquidity is indeed paramount for banks.

As for Option B, endowments usually focus on long-term growth rather than short-term spending needs, so they often invest in equities, real estate, and alternative assets with longer time horizons. Their investment horizon can span decades, allowing them to ride out market fluctuations and pursue potentially higher returns.

Finally, Option C is not entirely accurate. Insurance companies manage two separate portfolios: a general account, where funds are held for claims payments and operational expenses; and a surplus account, whose objective is growth and earning profits for shareholders. These accounts have different purposes and therefore might differ in terms of risk tolerance, with the general account tending to take less risk than the surplus account. However, it varies across insurance companies, and some may have similar levels of risk tolerance between these accounts.

Q-37. Solution: C.

In a defined benefit plan, the employer promises to pay out a predetermined benefit upon the employee's retirement, regardless of investment performance or any external factors (e.g., stock market fluctuations). Therefore, the sponsor (i.e., employer) defines the obligation owed to each participant, which usually takes into account various factors such as salary history and length of employment.

Regarding the other options:

A. Although defined benefit plans tend to have lower volatility since they are guaranteed by the employer, they are not necessarily immune to market fluctuations or economic downturns, especially if the sponsoring company experiences financial difficulties or bankruptcy.

B. On the contrary, defined contribution plans place more responsibility on the employee, giving them greater control over their investments but also exposing them to potential market risks. The risk tolerance of these plans can vary widely depending on the investment choices made by the employee.

So, option C provides the most accurate description of one characteristic of defined benefit plans.

Q-38. Solution: A.

Exchange traded funds do not have capital gain distributions. If an investor sells shares of an ETF (or open-end mutual fund or closed-end mutual fund), the investor may have a capital gain or loss on the shares sold; however, the gain (or loss) from the sale is not a distribution.

Q-39. Solution: A.

Step One: The Planning Step

The first step in the investment process is to understand the client's needs (objectives and constraints) and develop an investment policy statement (IPS). A portfolio manager is unlikely to achieve appropriate results for a client without a prior understanding of the client's needs. The IPS is a written planning document that describes the client's investment objectives and the constraints that apply to the client's portfolio.

Step Two: The Execution Step

The next step is for the portfolio manager to construct a suitable portfolio based on the IPS of the client. The portfolio execution step consists of first deciding on a target asset allocation, which determines the weighting of asset classes to be included in the portfolio. This step is followed by the analysis, selection, and purchase of individual investment securities.

Step Three: The Feedback Step

Finally, the feedback step assists the portfolio manager in rebalancing the portfolio due to a change in, for example, market conditions or the circumstances of the client.

Q-40. Solution: A.

A is Correct because the feedback step assists the portfolio monitoring and rebalancing, performance measurement and reporting.

B is Incorrect because it is part of the execution step, not the feedback step. The portfolio execution step consists of asset allocation, security analysis and portfolio construction.

C is Incorrect because it is part of the planning step, not the feedback step. The first step [the planning step] in the investment process is to understand the client's needs (objectives and constraints) and develop an investment policy statement (IPS).

Q-41. Solution: C.

Strategic Asset Allocation (also known as the policy portfolio) and Rebalancing Policy are often included as appendices to the IPS. The Statement of Duties and Responsibilities, however, is an integral part of the IPS and is unlikely to be placed in an appendix.

Q-42. Solution: B.

Strategic asset allocation is a long-term plan that defines the percentage of a portfolio allocated to different asset classes based on an investor's investment objectives, time horizon, risk tolerance, and capital market assumptions. By incorporating a client's investment objectives and constraints along with long-term capital market expectations, an appropriate mix of stocks, bonds, cash, and other assets can be determined to meet their investment goals.

An investment policy statement (option A) outlines an investor's overall investment strategy and guidelines, including the purpose of the portfolio, risk tolerance, return objectives, and asset allocation targets. However, it does not necessarily incorporate long-term capital market expectations in the same manner as strategic asset allocation.

Risk budgets (option C) refer to the total amount of risk that a portfolio should take on within its risk constraints. It is a subset of the broader asset allocation decision-making process and is influenced by strategic asset allocation.

Therefore, combining a client's investment objectives and constraints with long-term capital market expectations results in developing a strategic asset allocation.

Q-43. Solution: B.

The answer is B. The Evaluation and Review section of an IPS generally includes provisions for regularly reviewing investment results and determining whether actual performance meets or exceeds expectations.

A is Incorrect because the Statement of Duties and Responsibilities details the duties and responsibilities of the client, the custodian of the client's assets, and the investment managers.

C is Incorrect because the Appendices includes strategic asset allocation and rebalancing policy. Many investors specify a strategic asset allocation (SAA), also known as the policy portfolio, which is the baseline allocation of portfolio assets to asset classes in view of the investor's investment objectives and the investor's policy with respect to rebalancing asset class weights. This SAA may include a statement of policy concerning hedging risks such as currency risk and interest rate risk.

Q-44. Solution: C.

Risk attitude is a subjective factor and measuring risk attitude is difficult. Oftentimes, investment managers use psychometric questionnaires, such as those developed by Grable and Joo (2004), to assess a client's willingness to take risk.

Q-45. Solution: C.

A long-investment time horizon and a good financial situation lead a higher risk tolerance which also contributes to a greater willingness to take risk.

In addition, personality type is most likely to affect an individual's willingness to take risk.

Q-46. Solution: C.

When evaluating an investor's risk tolerance, the ability to bear risk (which includes factors like financial stability, time horizon, and liquidity needs) often takes precedence over their willingness to take risk (which reflects their psychological comfort with risk). If an investor has a low ability to bear risk, it generally limits the overall risk tolerance, even if they are willing to take on more risk. Therefore, in this case, the investor's overall risk tolerance would be below average due to the constraints imposed by their low ability to bear risk.

Q-47. Solution: A.

Negative screening (or exclusionary screening), which refers to the practice of excluding certain sectors or excluding companies that deviate from accepted standards or norms. Exclusion based on values, such as exclusion of gambling, alcohol and tobacco-related companies, relate to an investor's moral or ethical beliefs in a company's or sector's business.

Shareholder engagement (sometimes call active ownership) is the practice of entering into a dialogue with companies (including with respect to ESG issues). Note that this is a different approach than best-in-class selection, where securities companies that do not meet investor standards are excluded.

Best-in-class approach, whereby investors seek to identify companies within an industry that rank (or score) most favorably based on ESG considerations.

Q-48. Solution: C.

With a 20-year horizon and average risk tolerance, Johnson can accept the additional risk of listed equities and private equity compared with US Treasury bills.

Q-49. Solution: C.

The answer is C. Return objectives refer to the targeted level of performance for an investment portfolio. They serve as a guide for asset allocation and investment selection decisions. With regards to an investment policy statement, when setting a relative return objective, the selected benchmark should reflect realistic market expectations. It should be a relevant and representative index or peer group against which the investment manager can measure performance. Furthermore, the benchmark should ideally be investable, meaning it is possible to replicate the benchmark portfolio by purchasing securities available in the market. Therefore, statement C is the most accurate statement regarding return objectives.

Statement A is not entirely accurate. Return objectives can take various forms, such as a required rate of return, a target return range, or a desired return relative to a benchmark or peer group.

Statement B is not accurate either. Return objectives should be set in conjunction with risk objectives, reflecting the trade-offs between risk and reward. A return objective without

consideration of risk objectives might result in excessive exposure to certain types of risk, ultimately affecting the probability of achieving the desired return.

Q-50. Solution: A.

A is not correct. Shareholder engagement requires good cooperation between investor (client) and investment manager. Engagement efforts are time-consuming, and the interest in such efforts is often that of the clients rather than that of the investment managers.

B and C are correct. Clients and investment managers must be clear with each other about the exercise of voting rights, filing of shareholder proposals, or entering into conversations with company management. It may be that the engagement and voting is delegated by the client to the investment manager and implemented according to the manager's stewardship policy. Alternatively, the client may instruct some proxy agent to vote on its behalf and according to its own stewardship policies, or the client may instruct voting and maintain dialogue with its investee companies through either individual engagements or collaborative engagements.

Q-51. Solution: B.

Narrow framing occurs when individuals evaluate information based on a limited scope or narrow reference point, losing sight of the broader context or bigger picture. In this case, the investor is focusing exclusively on the company's fundamentals while ignoring crucial industry trends that could provide more context to the company's declining performance.

Conservatism bias involves being slow to update prior views in light of new information, which is not the key issue here since the investor is not necessarily resisting new information but rather overlooking the broader industry context.

Availability bias refers to relying on easily recalled information to make judgments, which does not align with the investor's focus in this scenario.

Therefore, the investor is exhibiting narrow framing by focusing too narrowly on company-specific fundamentals and ignoring industry developments.

Q-52. Solution: B.

Viewing each asset in light of meeting a specific goal is mental accounting. There was no indication of framing (the way data is provided overly affects the decision process). An investor with decades-long success who expects to produce reasonable results is acting rationally and is not necessarily overconfident.

Q-53. Solution: B.

Jane is exhibiting status quo bias, where investors leave their asset allocation alone and don't change it according to changing market conditions or changes in their own circumstances. Her

actions do not suggest representativeness (placing something in a category and assuming it will have the characteristics associated with that category) or availability (putting undue emphasis on information readily available or easily recalled).

Q-54. Solution: C.

The halo effect suggests investors will view a stock that has experienced rapid growth and price appreciation as a good stock to own, which may result in these stocks being overvalued. Home bias is the tendency for investors to favor stocks from their own country or region because they are more familiar with those stocks.

Q-55. Solution: B.

Regret-aversion bias is an emotional bias in which people try to avoid making decisions that will result in action out of fear that the decision will turn out poorly. Regret aversion can cause FMPs to hold onto positions too long.

Option A relates to the endowment bias.

Option C is displayed in FMPs with conservatism bias.

Q-56. Solution: B.

An effective way to overcome a desire for familiarity in FMPs with endowment bias is to review the historical performance and risk of the unfamiliar securities and contemplate the reasoning underlying the recommendation.

Option A is overcoming the status quo bias.

Option C is overcoming the self-control bias.

Q-57. Solution: A.

FMPs' investment choices may be influenced by how easily information is recalled.

As a result of availability bias, FMPs may choose an investment, investment adviser, or mutual fund based on advertising rather than on a thorough analysis of the options. For instance, when asked to name potential mutual fund companies to invest with, many people will name only the funds that do extensive advertising. The choice of mutual fund should be based on a variety of factors that make it a good fit given the investor's objectives and risk/return profile.

Q-58. Solution: A.

The answer is A. because overconfidence bias is a bias in which people demonstrate unwarranted faith in their own abilities. As a result of overconfidence bias, FMPs [financial market participants] may hold poorly diversified portfolios, which may result in significant downside risk.

B is Incorrect because this is a potential consequence of endowment bias, not overconfidence

bias. Endowment bias is an emotional bias in which people value an asset more when they own it than when they do not. Endowment bias may lead FMPs [financial market participants] to continue to hold classes of assets with which they are familiar. FMPs may believe they understand the characteristics of the investments they already own and may be reluctant to purchase assets with which they have less experience. Familiarity adds to owners' perceived value of a security.

C is Incorrect because this is a potential consequence of loss-aversion bias, not overconfidence. As a result of loss-aversion bias, FMPs [financial market participants] may hold investments in a loss position longer than justified by fundamental analysis, in the hope that they will return to breakeven.

Q-59. Solution: C.

The answer is C. Self-control bias refers to the tendency for individuals to prioritize short-term pleasure over long-term benefits, often resulting in poor financial decisions. For example, choosing instant gratification such as spending money now instead of saving for retirement or paying off debt later can hinder one's ability to achieve long-term financial goals. This behavior is driven by a preference for immediate rewards despite awareness of potential future consequences.

Q-60. Solution: B.

For individuals, risk management concerns maximizing utility while taking risk consistent with individual's level of risk tolerance.

Q-61. Solution: B.

Adding a risk budgeting process causes the organization to consider how its total risk tolerance will be allocated across its subsidiaries.

Either the total current risks the subsidiaries are engaging in will exceed the risk tolerance and subsidiaries will have to compete for risk by demonstrating highest returns per unit of risk or the total current risks will be less than the risk tolerance and a search will be underway for the subsidiaries that can best utilize the remaining risk budget.

The risk tolerance is determined and then sets the risk budget, rather than being determined by it. Hedging can be a part of risk budgeting if hedging produces the superior risk adjusted returns.

Q-62. Solution: C.

Settlement risk is related to default risk, but deals with the timing of payments rather than the risk of default.

Q-63. Solution: A.

Conditional VaR (CVaR) is the weighted average of all loss outcomes in the statistical distribution that exceeds the VaR loss. CVaR can represent extreme losses in much more severe events and thus has higher value than VaR.

Q-64. Solution: C.

Risk transfer involves transferring the responsibility for a particular risk to another party, often through mechanisms like insurance contracts. In this case, the risk is passed from one party (the insured) to another (the insurer) in exchange for a premium. This is a common method of risk management used by companies and individuals to protect against significant financial losses.

Option A describes risk shifting, which generally involves the use of derivatives to change the distribution of risk outcomes.

Option B also refers to risk shifting, where the goal is to change how risk is distributed across different outcomes.

Q-65. Solution: C.

The statement is an absolute risk objective because it expresses a maximum loss in value with an associated probability of loss.

Q-66. Solution: B.

Establishing the organization's risk appetite is not risk budgeting.

Risk tolerance defines the qualitative assessment and evaluation of potential sources of risk in an organization.

Q-67. Solution: B.

B is correct. Risk budgeting quantifies and allocates the tolerable risk according to specific metrics. A risk budget can be multidimensional or a simple, one-dimensional risk measure, such as standard deviation, beta, value at risk, or scenario loss, among others.

A is incorrect. Limiting the amount invested for hedging purposes is not a result of a market-benchmarked choice of risk intensity.

C is incorrect. Risk tolerance focuses on the appetite for risk.

Q-68. Solution: C.

C is correct. IHK's potential risk is settlement risk, which is a type of counterparty risk. Settlement risk deals with the settling of payments that occur just before a default. If IHK wires the euros to GED and GED then declares bankruptcy, IHK will not be able to get the money back.

A is incorrect. IHK would not face market risk since the forward contract would have become

more valuable during the three months.

B is incorrect. Liquidity risk is the risk of a significant downward valuation adjustment when selling a financial asset and is not applicable for a contract for which the price was fixed when the contract was initiated.

Q-69. Solution: A.

A is correct. Model risk is the risk of using the wrong model to analyze an investment or the risk of using the right model for the analysis but using it incorrectly. Tail risk, although it involves unlikely but substantial losses, typically results from using inappropriate modeling assumptions such as assuming that returns are normally distributed. Credit risk involves the risk of a borrower not repaying you, whereas solvency risk is the risk of you running out of the money needed to pay your obligations. Liquidity risk is the risk that the future transaction price for an investment will be different than expected, whereas operational risk includes a wide range of potential problems occurring within an organization's personnel and systems.

B is incorrect because liquidity risk is the risk that the future transaction price for an investment will be different than expected, whereas operational risk includes a wide range of potential problems occurring within an organization's personnel and systems.

C is incorrect because credit risk involves the risk of a borrower not repaying you, whereas solvency risk is the risk of you running out of the money needed to pay your obligations.

Q-70. Solution: C.

C is correct. An organization with a strong competitive position can recover from losses more easily than one with a weaker competitive position. Therefore an organization's risk tolerance should reflect its competitive position. An organization's size does not define the risk sources it faces or the relative losses it can absorb, so it should not be reflected in its risk tolerance. Neither the risk sources affecting an organization nor the size of the losses an organization can absorb are a function of its perception of market stability.

A is incorrect because neither the risk sources affecting an organization nor the size of the losses an organization can absorb are a function of perceived market stability.

B is incorrect because an organization's size does not define the risk sources it faces or the relative losses it can absorb, so it should not be reflected in its risk tolerance.

Q-71. Solution: B.

The answer is B. Risk management is the process of identifying, assessing, prioritizing, and controlling risks in order to achieve an organization's objectives while minimizing losses. In other words, risk management aims to bear a tolerable level of risk in pursuit of maximizing a company's value. Option B accurately captures this objective.

Option A is incorrect because risk management does not aim to eliminate risk completely, but rather to manage it within acceptable limits. Eliminating all risk would be unrealistic and may even lead to missed opportunities.

Option C is also incorrect because while predicting potential risks is an important aspect of risk management, it is not the ultimate goal. Even if an organization can predict risks accurately, it still needs to make decisions about how to handle those risks in order to achieve its goals while bearing a tolerable level of risk.

Q-72. Solution: C.

The answer is C. Effective risk governance requires taking an enterprise-wide view of risks, which means developing a comprehensive understanding of the enterprise's overall risk profile. This includes identifying and evaluating both internal and external factors that could potentially impact the achievement of the enterprise's strategic objectives. Hence, statement A aligns with effective risk governance practices.

Additionally, effective risk governance involves defining the enterprise's risk appetite and thresholds, i.e., the amount and type of risk the enterprise is willing to accept in pursuit of its objectives. This helps ensure that risk-taking activities remain within acceptable bounds and supports informed decision-making across the organization. Statement B aligns with effective risk governance practices.

Statement C, however, suggests implementing a bottom-up process to direct risk management activities, where decisions regarding risk management are made at lower levels of the organization and then communicated upwards. While input from lower levels should certainly be considered, a purely bottom-up approach may result in fragmented and inconsistent risk management practices across different parts of the organization. Effective risk governance typically relies on a top-down approach, where senior management sets the tone for risk management and establishes clear policies and procedures to guide risk management efforts throughout the organization. Therefore, statement C is least aligned with effective risk governance practices.