

Reading 1: Code of Ethics and Standards of Professional Conduct

- a. Describe the structure of the CFA Institute Professional Conduct Program and the disciplinary review process for the enforcement of the Code of Ethics and Standards of Professional Conduct;
- b. Explain the ethical responsibilities required by the Code of Ethics and the Standards of Professional Conduct, including the multiple sub-sections of each standard.

Reading 2: Guidance for Standards I-VII

- a. Demonstrate a thorough knowledge of the Code of Ethics and Standards of Professional Conduct by Interpreting the Code and Standards in various situations involving issues of professional integrity;
- b. Recommend practices and procedures designed to prevent violations of the Code of Ethics and Standards of Professional Conduct.

Reading 3: Ethics in Practice

- a. Explain the ethical responsibilities required by each of the six provisions of the Code of Ethics and the seven Standards of Professional Conduct;
- b. Interpret the Code of Ethics and Standards of Professional Conduct in situations involving issues of professional integrity and formulate corrective actions where appropriate.

Reading 4: The Consultant

- a. Evaluate professional conduct and formulate an appropriate response to actions that violate the Code of Ethics and Standards of Professional Conduct;
- b. Prepare appropriate policy and procedural changes needed to assure compliance with the Code of Ethics and Standards of Professional Conduct.

Reading 5: Pearl Investment Management (A), (B), and (C)

- a. Evaluate professional conduct and formulate an appropriate response to actions that violate the Code of Ethics and Standards of Professional Conduct;
- b. Prepare appropriate policy and procedural changes needed to assure compliance with the Code of Ethics and Standards of Professional Conduct.

Reading 6: Asset Manager Code of Professional Conduct

- a. Explain the ethical responsibilities required by the six components of the Asset Manager Code;
- b. Interpret the Asset Manager Code in situations that present issues of compliance, disclosure, or professional conduct;

- c. Recommend practices and procedures designed to prevent violations of the Asset Manager Code.

Reading 7: The Behavioral Finance Perspective

- a. Contrast traditional and behavioral finance perspectives on investor decision making;
- b. Contrast expected utility and prospect theories of investment decision making;
- c. Discuss the effects of cognitive and knowledge capacity limitations on investment decision making;
- d. Contrast traditional and behavioral finance perspectives on capital markets and portfolio construction.

Reading 8: The Behavioral Biases of Individuals

- a. Distinguish between cognitive errors and emotional biases;
- b. Discuss commonly recognized behavioral biases and their implications for financial decision making;
- c. analyze an individual's behavior for behavioral biases;
- d. Evaluate the impact of biases on investment policy and asset allocation and Discuss approaches to mitigate their effect.

Reading 9: Behavioral Finance and Investment Processes

- a. Explain the uses and limitations of classifying investors into various types;
- b. Discuss how behavioral factors affect adviser-client interactions;
- c. Discuss how behavioral finance has been applied to portfolio construction;
- d. Discuss how behavioral factors affect analyst forecasts and remedial actions for analyst biases;
- e. Discuss how behavioral factors affect investment committee decision making and techniques of structuring operating committees to address the behavioral factors;
- f. Describe how the behavior of investors can lead to market anomalies and observed market characteristics.

Reading 10: Managing Individual Investor Portfolios

- a. Discuss how source of wealth, measure of wealth, and stage of life affect an individual investors' risk tolerance;
- b. Explain the role of situational and psychological profiling in understanding an individual investor;
- c. Compare the traditional finance and behavioral finance models of investor decision making;
- d. Explain the influence of investor psychology on risk tolerance and investment choices;
- e. Explain the use of a personality typing questionnaire for Identifying an investor's personality type;

- f. Compare risk attitudes and decision-making styles among distinct investor personality types, including cautious, methodical, spontaneous, and individualistic investors;
- g. Explain the potential benefits, for both clients and investment advisers, of having a formal investment policy statement;
- h. Explain the process involved in creating an investment policy statement;
- i. Distinguish between required return and desired return and Explain the impact these have on the individual investor's investment policy;
- j. Explain how to set risk and return objectives for individual investor portfolios and Discuss the impact that ability and willingness to take risk have on risk tolerance;
- k. Discuss each of the major constraint categories included in an individual investor's investment policy statement;
- l. formulate and justify an investment policy statement for an individual investor;
- m. Determine the strategic asset allocation that is most appropriate for an individual investor's specific investment objectives and constraints;
- n. Compare Monte Carlo and traditional deterministic approaches to retirement planning and Explain the advantages of a Monte Carlo approach.

Reading 11: Taxes and Private Wealth Management in a Global Context

- a. Compare basic global taxation regimes as they relate to the taxation of dividend income, interest income, realized capital gains, and unrealized capital gains;
- b. Determine the impact of different types of taxes and tax regimes on future wealth accumulation;
- c. calculate accrual equivalent tax rates and after-tax returns;
- d. Explain how investment return and investment horizon affect the tax impact associated with an investment;
- e. Discuss the tax profiles of different types of investment accounts and Explain their impact on after-tax returns and future accumulations;
- f. Explain how taxes affect investment risk;
- g. Discuss the relation between after-tax returns and different types of investor trading behavior;
- h. Explain the benefits of tax loss harvesting and highest-in/first-out (HIFO) tax lot accounting;
- i. Demonstrate how taxes and asset location relate to mean-variance optimization.

Reading 12: Estate Planning in a Global Context

- a. Discuss the purpose of estate planning and Explain the basic concepts of domestic estate planning, including estates, wills, and probate;
- b. Explain the two principal forms of wealth transfer taxes and Discuss the impact of important non-tax issues, such as legal system, forced heirship, and marital property regime;
- c. Determine a family's core capital and excess capital, based on mortality probabilities and Monte Carlo analysis;
- d. Evaluate the relative after-tax value of lifetime gifts and testamentary bequests;

- e. Explain the estate planning benefit of making lifetime gifts when gift taxes are paid by the donor, rather than the recipient;
- f. Evaluate the after-tax benefits of basic estate planning strategies, including generation skipping, spousal exemptions, valuation discounts, and charitable gifts;
- g. Explain the basic structure of a trust and Discuss the differences between revocable and irrevocable trusts;
- h. Explain how life insurance can be a tax-efficient means of wealth transfer;
- i. Discuss the two principal systems (source jurisdiction and residence jurisdiction) for establishing a country's tax jurisdiction;
- j. Discuss the possible income and estate tax consequences of foreign situated assets and foreign-sourced income;
- k. Evaluate a client's tax liability under each of three basic methods (credit, exemption, and deduction) that a country may use to provide relief from double taxation;
- l. Discuss the impact of increasing international transparency and information exchange among tax authorities on international estate planning.

Reading 13: Low-Basis Stock

- a. Explain the psychological considerations, investment risk, and tax issues related to concentrated holdings of low-basis stock;
- b. Discuss how exposure to stock-specific risk is expected to change over the entrepreneurial, executive, and investor stages of an individual's equity holding life;"
- c. Explain individual investors' attitudes toward holding their own company stock during the entrepreneurial, executive, and investor stages;
- d. Critique the effectiveness of outright sales, exchange funds, completion portfolios, and hedging strategies as techniques for reducing concentrated equity risk.

Reading 14: Lifetime Financial Advice: Human Capital, Asset Allocation, and Insurance

- a. Explain the concept and Discuss the characteristics of human capital" as a component of an investor's total wealth;
- b. Discuss the earnings risk, mortality risk, and longevity risk associated with human capital and Explain how these risks can be reduced by appropriate portfolio diversification, life insurance, and annuity products;
- c. Explain how asset allocation policy is influenced by the risk characteristics of human capital and the relative relationships of human capital, financial capital, and total wealth;
- d. Discuss how asset allocation and the appropriate level of life insurance are influenced by the joint consideration of human capital, financial capital, bequest preferences, risk tolerance, and financial wealth;

- e. Discuss the financial market risk, longevity risk, and savings risk faced by investors in retirement and Explain how these risks can be reduced by appropriate portfolio diversification, insurance products, and savings discipline;
- f. Discuss the relative advantages of fixed and variable annuities as hedges against longevity risk;
- g. Recommend basic strategies for asset allocation and risk reduction when given an investor profile of key inputs, including human capital, financial capital, stage of life cycle, bequest preferences, risk tolerance, and financial wealth.

Reading 15: Managing Institutional Investor Portfolios

- a. Contrast a defined-benefit plan to a defined-contribution plan, from the perspective of the employee and employer and Discuss the advantages and disadvantages of each;
- b. Discuss investment objectives and constraints for defined-benefit plans;
- c. Evaluate pension fund risk tolerance when risk is considered from the perspective of the 1) plan surplus, 2) sponsor financial status and profitability, 3) sponsor and pension fund common risk exposures, 4) plan features, and 5) workforce characteristics;
- d. prepare an investment policy statement for a defined-benefit plan;
- e. Evaluate the risk management considerations in investing pension plan assets;
- f. prepare an investment policy statement for a defined-contribution plan;
- g. Discuss hybrid pension plans (e.g., cash balance plans) and employee stock ownership plans;
- h. Distinguish among various types of foundations, with respect to their description, purpose, source of funds, and annual spending requirements;
- i. Compare the investment objectives and constraints of foundations, endowments, insurance companies, and banks;
- j. prepare an investment policy statement for a foundation, an endowment, an insurance company, and a bank;
- k. Contrast investment companies, commodity pools, and hedge funds to other types of institutional investors;
- l. Discuss the factors that Determine investment policy for pension funds, foundations, endowments, life and non life insurance companies, and banks;
- m. Compare the asset/liability management needs of pension funds, foundations, endowments, insurance companies, and banks;
- n. Compare the investment objectives and constraints of institutional investors given relevant data, such as descriptions of their financial circumstances and attitudes toward risk.

Reading 16: Linking Pension Liabilities to Assets

- a. Contrast the assumptions concerning pension liability risk in asset-only and liability- relative approaches to asset allocation;
- b. Discuss the fundamental and economic exposures of pension liabilities and Identify asset types that mimic these liability exposures;

- c. Compare pension portfolios built from a traditional asset-only perspective to portfolios designed relative to liabilities and Discuss why corporations may choose not to implement fully the liability mimicking portfolio.

Reading 17: Allocating Shareholder Capital to Pension Plans

- a. Compare funding shortfall and asset/liability mismatch as sources of risk faced by pension plan sponsors;
- b. Explain how the weighted average cost of capital for a corporation can be adjusted to incorporate pension risk and Discuss the potential consequences of not making this adjustment;
- c. Explain, in an expanded balance sheet framework, the effects of different pension asset allocations on total asset betas, the equity capital needed to maintain equity beta at a desired level, and the debt-to-equity ratio.

Reading 18: Capital Market Expectations

- a. Discuss the role of, and a framework for, capital market expectations in the portfolio management process;
- b. Discuss, in relation to capital market expectations, the limitations of economic data, data measurement errors and biases, the limitations of historical estimates, ex post risk as a biased measure of ex ante risk, biases in analysts' methods, the failure to account for conditioning information, the misinterpretation of correlations, psychological traps, and model uncertainty;
- c. Demonstrate the application of formal tools for setting capital market expectations, including statistical tools, discounted cash flow models, the risk premium approach, and financial equilibrium models;
- d. Explain the use of survey and panel methods and judgment in setting capital market expectations;
- e. Discuss the inventory and business cycles, the impact of consumer and business spending, and monetary and fiscal policy on the business cycle;
- f. Discuss the impact that the phases of the business cycle have on short-term/long-term capital market returns;
- g. Explain the relationship of inflation to the business cycle and the implications of inflation for cash, bonds, equity, and real estate returns;
- h. Demonstrate the use of the Taylor rule to predict central bank behavior;
- i. Evaluate 1) the shape of the yield curve as an economic predictor and 2) the relationship between the yield curve and fiscal and monetary policy;
- j. Identify and Interpret the components of economic growth trends and Demonstrate the application of economic growth trend analysis to the formulation of capital market expectations;
- k. Explain how exogenous shocks may affect economic growth trends;
- l. Identify and Interpret macroeconomic, interest rate, and exchange rate linkages between economies;
- m. Discuss the risks faced by investors in emerging-market securities and the country risk analysis techniques used to Evaluate emerging market economies;

- n. Compare the major approaches to economic forecasting;
- o. Demonstrate the use of economic information in forecasting asset class returns;
- p. Evaluate how economic and competitive factors affect investment markets, sectors, and specific securities;
- q. Discuss the relative advantages and limitations of the major approaches to forecasting exchange rates;
- r. Recommend and justify changes in the component weights of a global investment portfolio based on trends and expected changes in macroeconomic factors.

Reading 19: Equity Market Valuation

- a. Explain the terms of the Cobb-Douglas production function and Demonstrate how the function can be used to model growth in real output under the assumption of constant returns to scale;
- b. Evaluate the relative importance of growth in total factor productivity, in capital stock, and in labor input given relevant historical data;
- c. Demonstrate the use of the Cobb-Douglas production function in obtaining a discounted dividend model estimate of the intrinsic value of an equity market;
- d. critique the use of discounted dividend models and macroeconomic forecasts to estimate the intrinsic value of an equity market;
- e. Contrast top-down and bottom-up approaches to forecasting the earnings per share of an equity market index;
- f. Discuss the strengths and limitations of relative valuation models;
- g. Judge whether an equity market is under-, fairly, or over-valued using a relative equity valuation model.

Reading 20: Dreaming with BRICs: The Path to 2050

- a. Compare the economic potential of emerging markets such as Brazil, Russia, India, and China (BRICs) to that of developed markets, in terms of economic size and growth, demographics and per capita income, growth in global spending, and trends in real exchange rates;
- b. Explain why certain developing economies may have high returns on capital, rising productivity, and appreciating currencies;
- c. Explain the importance of technological progress, employment growth, and growth in capital stock in estimating the economic potential of an emerging market;
- d. Discuss the conditions necessary for sustained economic growth, including the core factors of macroeconomic stability, institutional efficiency, open trade, and worker education;
- e. Evaluate the investment rationale for allocating part of a well-diversified portfolio to emerging markets in countries with above average economic potential.

Reading 21: Asset Allocation

- a. Explain the function of strategic asset allocation in portfolio management and Discuss its role in relation to specifying and controlling the investor's exposures to systematic risk;
- b. Compare strategic and tactical asset allocation;
- c. Discuss the importance of asset allocation for portfolio performance;
- d. Contrast the asset-only and asset/liability management (ALM) approaches to asset allocation and Discuss the investor circumstances in which they are commonly used;
- e. Explain the advantage of dynamic over static asset allocation and Discuss the trade-offs of complexity and cost;
- f. Explain how loss aversion, mental accounting, and fear of regret may influence asset allocation policy;
- g. Evaluate return and risk objectives in relation to strategic asset allocation;
- h. Evaluate whether an asset class or set of asset classes has been appropriately specified;
- i. select and justify an appropriate set of asset classes for an investor;
- j. Evaluate the theoretical and practical effects of including additional asset classes in an asset allocation;
- k. Explain the major steps involved in establishing an appropriate asset allocation;
- l. Discuss the strengths and limitations of the following approaches to asset allocation: mean-variance, resampled efficient frontier, Black-Litterman, Monte Carlo simulation, ALM, and experience based;
- m. Discuss the structure of the minimum-variance frontier with a constraint against short sales;
- n. formulate and justify a strategic asset allocation, given an investment policy statement and capital market expectations;
- o. Compare the considerations that affect asset allocation for individual investors versus institutional investors and critique a proposed asset allocation in light of those considerations;
- p. Formulate and justify tactical asset allocation (TAA) adjustments to strategic asset class weights, given a TAA strategy and expectational data.

Reading 22: The Case for International Diversification

- a. Discuss the implications of international diversification for domestic equity and fixed-income portfolios, based on the traditional assumptions of low correlations across international markets;
- b. Distinguish between the asset return and currency return for an international security;
- c. Evaluate the contribution of currency risk to the volatility of an international security position;
- d. Discuss the impact of international diversification on the efficient frontier;

- e. Evaluate the potential performance and risk-reduction benefits of adding bonds to a globally diversified stock portfolio;
- f. Explain why currency risk should not be a significant barrier to international investment;
- g. critique the traditional case against international diversification;
- h. Discuss the barriers to international investments and their impact on international investors;
- i. Distinguish between global investing and international diversification and Discuss the growing importance of global industry factors as a determinant of risk and performance;
- j. Discuss the basic case for investing in emerging markets, as well as the risks and restrictions often associated with such investments.

Reading 23: Fixed-Income Portfolio Management—Part I

- a. Compare, with respect to investment objectives, the use of liabilities as a benchmark and the use of a bond index as a benchmark;
- b. Compare pure bond indexing, enhanced indexing, and active investing with respect to the objectives, techniques, advantages, and disadvantages of each;
- c. Discuss the criteria for selecting a benchmark bond index and justify the selection of a specific index when given a description of an investor's risk aversion, income needs, and liabilities;
- d. describe and Evaluate techniques, such as duration matching and the use of key rate durations, by which an enhanced indexer may seek to align the risk exposures of the portfolio with those of the benchmark bond index;
- e. Contrast and Demonstrate the use of total return analysis and scenario analysis to assess the risk and return characteristics of a proposed trade;
- f. formulate a bond immunization strategy to ensure funding of a predetermined liability and Evaluate the strategy under various interest rate scenarios;
- g. Demonstrate the process of rebalancing a portfolio to reestablish a desired dollar duration;
- h. Explain the importance of spread duration;
- i. Discuss the extensions that have been made to classical immunization theory, including the introduction of contingent immunization;
- j. Explain the risks associated with managing a portfolio against a liability structure, including interest rate risk, contingent claim risk, and cap risk;
- k. Compare immunization strategies for a single liability, multiple liabilities, and general cash flows;
- l. Compare risk minimization with return maximization in immunized portfolios;
- m. Demonstrate the use of cash flow matching to fund a fixed set of future liabilities and Compare the advantages and disadvantages of cash flow matching to those of immunization strategies.

Reading 24: Relative-Value Methodologies for Global Credit Bond Portfolio Management

- a. Explain classic relative-value analysis, based on top-down and bottom-up approaches to credit bond portfolio management;
- b. Discuss the implications of cyclical supply and demand changes in the primary corporate bond market and the impact of secular changes in the market's dominant product structures;
- c. Explain the influence of investors' short- and long-term liquidity needs on portfolio management decisions;
- d. Discuss common rationales for secondary market trading;
- e. Discuss corporate bond portfolio strategies that are based on relative value.

Reading 25: Fixed-Income Portfolio Management—Part II

- a. Evaluate the effect of leverage on portfolio duration and investment returns;
- b. Discuss the use of repurchase agreements (repos) to finance bond purchases and the factors that affect the repo rate;
- c. critique the use of standard deviation, target semi variance, shortfall risk, and value at risk as measures of fixed-income portfolio risk;
- d. Demonstrate the advantages of using futures instead of cash market instruments to alter portfolio risk;
- e. formulate and Evaluate an immunization strategy based on interest rate futures;
- f. Explain the use of interest rate swaps and options to alter portfolio cash flows and exposure to interest rate risk;
- g. Compare default risk, credit spread risk, and downgrade risk and Demonstrate the use of credit derivative instruments to address each risk in the context of a fixed-income portfolio;
- h. Explain the potential sources of excess return for an international bond portfolio;
- i. Evaluate 1) the change in value for a foreign bond when domestic interest rates change and 2) the bond's contribution to duration in a domestic portfolio, given the duration of the foreign bond and the country beta;
- j. Recommend and justify whether to hedge or not hedge currency risk in an international bond investment;
- k. describe how breakeven spread analysis can be used to Evaluate the risk in seeking yield advantages across international bond markets;
- l. Discuss the advantages and risks of investing in emerging market debt;
- m. Discuss the criteria for selecting a fixed-income manager.

Reading 26: Hedging Mortgage Securities to Capture Relative Value

- a. Demonstrate how a mortgage security's negative convexity will affect the performance of a hedge;
- b. Explain the risks associated with investing in mortgage securities and Discuss whether these risks can be effectively hedged;

- c. Contrast an individual mortgage security to a Treasury security with respect to the importance of yield-curve risk;
- d. Compare duration-based and interest rate sensitivity approaches to hedging mortgage securities.

Reading 27: Equity Portfolio Management

- a. Discuss the role of equities in the overall portfolio;
- b. Discuss the rationales for passive, active, and semi active (enhanced index) equity investment approaches and Distinguish among those approaches with respect to expected active return and tracking risk;
- c. Recommend an equity investment approach when given an investor's investment policy statement and beliefs concerning market efficiency;
- d. Distinguish among the predominant weighting schemes used in the construction of major equity share indices and Evaluate the biases of each;
- e. Compare alternative methods for establishing passive exposure to an equity market, including indexed separate or pooled accounts, index mutual funds, exchange-traded funds, equity index futures, and equity total return swaps;
- f. Compare full replication, stratified sampling, and optimization as approaches to constructing an indexed portfolio and Recommend an approach when given a description of the investment vehicle and the index to be tracked;
- g. Explain and justify the use of equity investment-style classifications and Discuss the difficulties in applying style definitions consistently;
- h. Explain the rationales and primary concerns of value investors and growth investors and Discuss the key risks of each investment style;
- i. Compare techniques for Identifying investment styles and characterize the style of an investor when given a description of the investor's security selection method, details on the investor's security holdings, or the results of a returns-based style analysis;
- j. Compare the methodologies used to construct equity style indices;
- k. Interpret the results of an equity style box analysis and Discuss the consequences of style drift;
- l. Distinguish between positive and negative screens involving socially responsible investing criteria and Discuss their potential effects on a portfolio's style characteristics;
- m. Compare long-short and long-only investment strategies, including their risks and potential alphas, and Explain why greater pricing inefficiency may exist on the short side of the market;
- n. Explain how a market-neutral portfolio can be "equitized" to gain equity market exposure and Compare equitized market-neutral and short-extension portfolios;
- o. Compare the sell disciplines of active investors;
- p. Contrast derivatives-based and stock-based enhanced indexing strategies and justify enhanced indexing on the basis of risk control and the information ratio;
- q. Recommend and justify, in a risk-return framework, the optimal portfolio allocations to a group of investment managers;

- r. Explain the core-satellite approach to portfolio construction and Discuss the advantages and disadvantages of adding a completeness fund to control overall risk exposures;
- s. Distinguish among the components of total active return (true" active return and misfit" active return) and their associated risk measures and Explain their relevance for evaluating a portfolio of managers;
- t. Explain alpha and beta separation as an approach to active management and Demonstrate the use of portable alpha;
- u. describe the process of Identifying, selecting, and contracting with equity managers;
- v. Contrast the top-down and bottom-up approaches to equity research.

Reading 28: Corporate Governance

- a. Explain the ways in which management may act that are not in the best interest of the firm's owners (moral hazard) and describe how dysfunctional corporate governance can lead to moral hazard;
- b. Evaluate explicit and implicit incentives that can align management's interests with those of the firm's shareholders;
- c. Explain the shortcomings of boards of directors as monitors of management and Discuss approaches for improving board oversight;
- d. Discuss why active monitoring by investors requires control, the various mechanisms by which control is exercised, and the limitations of active monitoring;
- e. critique the effectiveness of debt as a corporate governance mechanism;
- f. Explain the social responsibilities of the corporation in a stakeholder society" and Evaluate the advantages and disadvantages of a corporate governance structure based on stakeholder rather than shareholder interests;
- g. Discuss the Cadbury Report Recommendations for best practice in maintaining an effective board of directors whose interests are aligned with those of shareholders.

Reading 29: International Equity Benchmarks

- a. Discuss the need for float adjustment in the construction of international equity benchmarks;
- b. Discuss the trade-offs involved in constructing international indices, including 1) breadth versus investability, 2) liquidity and crossing opportunities versus index reconstitution effects, 3) precise float adjustment versus transactions costs from rebalancing, and 4) objectivity and transparency versus judgment;
- c. Discuss the effect that a country's classification as either a developed or an emerging market can have on market indices and on investment in the country's capital markets.

Reading 30: Emerging Markets Finance

- a. Discuss the process of financial liberalization and Explain the expected impact on pricing and expected returns as a segmented market evolves into an integrated market;
- b. Explain the benefits that may accrue to an emerging market economy as a result of financial liberalization;
- c. Discuss the major issues confronting emerging market investors, including excess correlations during times of crisis (contagion), corporate governance, price discovery, and liquidity.

Reading 31: Alternative Investments Portfolio Management

- a. describe common features of alternative investments and their markets and how alternative investments may be grouped by the role they typically play in a portfolio;
- b. Explain and justify the major due diligence checkpoints involved in selecting active managers of alternative investments;
- c. Explain the special issues that alternative investments raise for investment advisers of private wealth clients;
- d. Distinguish among the principal classes of alternative investments, including real estate, private equity, commodity investments, hedge funds, managed futures, buyout funds, infrastructure funds, and distressed securities;
- e. Discuss the construction and Interpretation of benchmarks and the problem of benchmark bias in alternative investment groups;
- f. Evaluate the return enhancement and/or risk diversification effects of adding an alternative investment to a reference portfolio (for example, a portfolio invested solely in common equity and bonds);
- g. describe the advantages and disadvantages of direct equity investments in real estate;
- h. Discuss the major issuers and suppliers of venture capital, the stages through which private companies pass (seed stage through exit), the characteristic sources of financing at each stage, and the purpose of such financing;
- i. Compare venture capital funds and buyout funds;
- j. Discuss the use of convertible preferred stock in direct venture capital investment;
- k. Explain the typical structure of a private equity fund, including the compensation to the fund's sponsor (general partner) and typical timelines;
- l. Discuss the issues that must be addressed in formulating a private equity investment strategy;
- m. Compare indirect and direct commodity investment;
- n. Explain the three components of return for a commodity futures contract and the effect that an upward- or downward-sloping term structure of futures prices will have on roll yield;
- o. describe the principle roles suggested for commodities in a portfolio and Explain why some commodity classes may provide a better hedge against inflation than others;

- p. Identify and Explain the style classification of a hedge fund, given a description of its investment strategy;
- q. Discuss the typical structure of a hedge fund, including the fee structure, and Explain the rationale for high-water mark provisions;
- r. describe the purpose and characteristics of fund-of-funds hedge funds;
- s. critique the conventions and Discuss the issues involved in hedge fund performance evaluation, including the use of hedge fund indices and the Sharpe ratio;
- t. describe trading strategies of managed futures programs and the role of managed futures in a portfolio;
- u. describe strategies and risks associated with investing in distressed securities;
- v. Explain event risk, market liquidity risk, market risk, and J-factor risk" in relation to investing in distressed securities. The candidate should be able to evaluate commodity hedging strategies that rely on swaps and describe their inherent risk exposures.

Reading 32: Swaps

- a. Evaluate commodity hedging strategies that rely on swaps and describe their inherent risk exposures.

Reading 33: Commodity Forwards and Futures

- a. Discuss pricing factors for commodity forwards and futures, including storability, storage costs, production and demand, and Explain their influence on lease rates and the forward curve;
- b. Identify and Explain how to exploit arbitrage situations that result from the convenience yield of a commodity and from commodity spreads across related commodities;
- c. Compare the basis risk of commodity futures with that of financial futures.

Reading 34: Risk Management

- a. Discuss the main features of the risk management process, risk governance, risk reduction, and an enterprise risk management system;
- b. Evaluate the strengths and weaknesses of a company's risk management process;
- c. describe the characteristics of an effective risk management system;
- d. Evaluate a company's or a portfolio's exposures to financial and non financial risk factors;
- e. calculate and Interpret value at risk (VAR) and Explain its role in measuring overall and individual position market risk;
- f. Compare the analytical (variance-covariance), historical, and Monte Carlo methods for estimating VAR and Discuss the advantages and disadvantages of each;
- g. Discuss the advantages and limitations of VAR and its extensions, including cash flow at risk, earnings at risk, and tail value at risk;
- h. Compare alternative types of stress testing and Discuss the advantages and disadvantages of each;

- i. Evaluate the credit risk of an investment position, including forward contract, swap, and option positions;
- j. Demonstrate the use of risk budgeting, position limits, and other methods for managing market risk;
- k. Demonstrate the use of exposure limits, marking to market, collateral, netting arrangements, credit standards, and credit derivatives to manage credit risk;
- l. Discuss the Sharpe ratio, risk-adjusted return on capital, return over maximum drawdown, and the Sortino ratio as measures of risk-adjusted performance;
- m. Demonstrate the use of VAR and stress testing in setting capital requirements.

Reading 35: Currency Risk Management

- a. Explain and Demonstrate the use of foreign exchange futures to hedge the currency exposure associated with the principal value of a foreign investment;
- b. justify the use of a minimum-variance hedge when local currency returns and exchange rate movements are correlated and Interpret the components of the minimum-variance hedge ratio in terms of translation risk and economic risk;
- c. Evaluate the effect of basis risk on the quality of a currency hedge;
- d. Discuss the choice of contract maturity in constructing a currency hedge, including the advantages and disadvantages of different maturities;
- e. Explain the issues that arise when hedging multiple currencies;
- f. Discuss the use of options rather than futures/forwards to manage currency risk;
- g. Evaluate the effectiveness of a standard dynamic delta hedge strategy when hedging a foreign currency position;
- h. Discuss and justify methods for managing currency exposure, including the indirect currency hedge created when futures or options are used as a substitute for the underlying investment;
- i. Discuss the major types of currency management strategies specified in investment policy statements.

Reading 36: Risk Management Applications of Forward and Futures Strategies

- a. Demonstrate the use of equity futures contracts to achieve a target beta for a stock portfolio and calculate and Interpret the number of futures contracts required;
- b. construct a synthetic stock index fund using cash and stock index futures (equitizing cash);
- c. Explain the use of stock index futures to convert a long stock position into synthetic cash;
- d. Demonstrate the use of equity and bond futures to adjust the allocation of a portfolio between equity and debt;
- e. Demonstrate the use of futures to adjust the allocation of a portfolio across equity sectors and to gain exposure to an asset class in advance of actually committing funds to the asset class;
- f. Explain exchange rate risk and Demonstrate the use of forward contracts to reduce the risk associated with a future receipt or payment in a foreign currency;

- g. Explain the limitations to hedging the exchange rate risk of a foreign market portfolio and discuss two feasible strategies for managing such risk.

Reading 37: Risk Management Applications of Option Strategies

- a. Compare the use of covered calls and protective puts to manage risk exposure to individual securities;
- b. calculate and Interpret the value at expiration, profit, maximum profit, maximum loss, breakeven underlying price at expiration, and general shape of the graph for the major option strategies (bull spread, bear spread, butterfly spread, collar, straddle, box spread);
- c. calculate the effective annual rate for a given interest rate outcome when a borrower (lender) manages the risk of an anticipated loan using an interest rate call (put) option;
- d. calculate the payoffs for a series of interest rate outcomes when a floating rate loan is combined with 1) an interest rate cap, 2) an interest rate floor, or 3) an interest rate collar;
- e. Explain why and how a dealer delta hedges an option position, why delta changes, and how the dealer adjusts to maintain the delta hedge;
- f. Interpret the gamma of a delta-hedged portfolio and Explain how gamma changes as in-the-money and out-of-the-money options move toward expiration.

Reading 38: Risk Management Applications of Swap Strategies

- a. Demonstrate how an interest rate swap can be used to convert a floating-rate (fixed-rate) loan to a fixed-rate (floating-rate) loan;
- b. calculate and Interpret the duration of an interest rate swap;
- c. Explain the effect of an interest rate swap on an entity's cash flow risk;
- d. Determine the notional principal value needed on an interest rate swap to achieve a desired level of duration in a fixed-income portfolio;
- e. Explain how a company can generate savings by issuing a loan or bond in its own currency and using a currency swap to convert the obligation into another currency;
- f. Demonstrate how a firm can use a currency swap to convert a series of foreign cash receipts into domestic cash receipts;
- g. Explain how equity swaps can be used to diversify a concentrated equity portfolio, provide international diversification to a domestic portfolio, and alter portfolio allocations to stocks and bonds;
- h. Demonstrate the use of an interest rate swaption 1) to change the payment pattern of an anticipated future loan and 2) to terminate a swap.

Reading 39: Execution of Portfolio Decisions

- a. Compare market orders with limit orders, including the price and execution uncertainty of each;
- b. calculate and Interpret the effective spread of a market order and Contrast it to the quoted bid-ask spread as a measure of trading cost;
- c. Compare alternative market structures and their relative advantages;
- d. Compare the roles of brokers and dealers;
- e. Explain the criteria of market quality and Evaluate the quality of a market when given a description of its characteristics;
- f. Explain the components of execution costs, including explicit and implicit costs, and Evaluate a trade in terms of these costs;
- g. calculate and Discuss implementation shortfall as a measure of transaction costs;
- h. Contrast volume weighted average price (VWAP) and implementation shortfall as measures of transaction costs;
- i. Explain the use of econometric methods in pre trade analysis to estimate implicit transaction costs;
- j. Discuss the major types of traders, based on their motivation to trade, time versus price preferences, and preferred order types;
- k. describe the suitable uses of major trading tactics, Evaluate their relative costs, advantages, and weaknesses, and Recommend a trading tactic when given a description of the investor's motivation to trade, the size of the trade, and key market characteristics;
- l. Explain the motivation for algorithmic trading and Discuss the basic classes of algorithmic trading strategies;
- m. Discuss the factors that typically Determine the selection of a specific algorithmic trading strategy, including order size, average daily trading volume, bid-ask spread, and the urgency of the order;
- n. Explain the meaning and criteria of best execution;
- o. Evaluate a firm's investment and trading procedures, including processes, disclosures, and record keeping, with respect to best execution;
- p. Discuss the role of ethics in trading.

Reading 40: Monitoring and Rebalancing

- a. Discuss a fiduciary's responsibilities in monitoring an investment portfolio;
- b. Discuss the monitoring of investor circumstances, market/economic conditions, and portfolio holdings and Explain the effects that changes in each of these areas can have on the investor's portfolio;
- c. Recommend and justify revisions to an investor's investment policy statement and strategic asset allocation, given a change in investor circumstances;
- d. Discuss the benefits and costs of rebalancing a portfolio to the investor's strategic asset allocation;
- e. Contrast calendar rebalancing to percentage-of-portfolio rebalancing;

- f. Discuss the key determinants of the optimal corridor width of an asset class in a percentage-of-portfolio rebalancing program;
- g. Compare and Contrast the benefits of rebalancing an asset class to its target portfolio weight versus rebalancing the asset class to stay within its allowed range;
- h. Explain the performance consequences in up, down, and non trending markets of 1) rebalancing to a constant mix of equities and bills, 2) buying and holding equities, and 3) constant proportion portfolio insurance (CPPI);
- i. Distinguish among linear, concave, and convex rebalancing strategies;
- j. Judge the appropriateness of constant mix, buy-and-hold, and CPPI rebalancing strategies when given an investor's risk tolerance and asset return expectations.

Reading 41: Evaluating Portfolio Performance

- a. Demonstrate the importance of performance evaluation from the perspective of fund sponsors and the perspective of investment managers;
- b. Explain the basic components of portfolio evaluation (performance measurement, performance attribution, and performance appraisal);
- c. calculate, Interpret, and Contrast time-weighted and money-weighted rates of return and Discuss how each is affected by cash contributions and withdrawals;
- d. Identify and Explain potential data quality issues as they relate to calculating rates of return;
- e. Demonstrate the analysis of portfolio returns into components attributable to the market, to style, and to active management;
- f. Discuss the properties of a valid benchmark and Evaluate the advantages and disadvantages of alternative types of performance benchmarks;
- g. Explain the steps involved in constructing a custom security-based benchmark;
- h. Discuss the validity of using manager universes as benchmarks;
- i. Evaluate benchmark quality by applying tests of quality to a variety of possible benchmarks;
- j. Discuss the issues that arise when assigning benchmarks to hedge funds;
- k. Distinguish between macro and micro performance attribution and Discuss the inputs typically required for each;
- l. Demonstrate, justify, and Contrast the use of macro and micro performance attribution methodologies to Evaluate the drivers of investment performance;
- m. Discuss the use of fundamental factor models in micro performance attribution;
- n. Evaluate the effect of the external interest rate environment and the effect of active management on fixed-income portfolio returns;
- o. Explain the management factors that contribute to a fixed-income portfolio's total return and Interpret the results of a fixed-income performance attribution analysis;
- p. calculate, Interpret, and Contrast alternative risk-adjusted performance measures, including (in their ex post forms) alpha, information ratio, Treynor measure, Sharpe ratio, and M2;
- q. Explain how a portfolio's alpha and beta are incorporated into the information ratio, Treynor measure, and Sharpe ratio;

- r. Demonstrate the use of performance quality control charts in performance appraisal;
- s. Discuss the issues involved in manager continuation policy decisions, including the costs of hiring and firing investment managers;
- t. Contrast Type I and Type II errors in manager continuation decisions.

Reading 42: Global Performance Evaluation

- a. Evaluate the effect of currency movements on the portfolio rate of return, calculated in the investor's base currency;
- b. Explain how portfolio return can be decomposed into yield, capital gains in local currency, and currency contribution;
- c. Explain the purpose of global performance attribution and calculate the contributions to portfolio performance from market allocation, currency allocation, and security selection;
- d. Explain active and passive currency management, relative to a global benchmark, and formulate appropriate strategies for hedging currency exposure;
- e. Explain the difficulties in calculating a multi-period performance attribution and Discuss various solutions;
- f. Compare and Interpret alternative measures of portfolio risk and risk-adjusted portfolio performance;
- g. Explain the use of risk budgeting in global performance evaluation;
- h. Discuss the characteristics of alternative global and international benchmarks used in performance evaluation.

Reading 43: Global Investment Performance Standards

- a. Discuss the reasons for the creation of the GIPS standards (the Standards), their evolution, and their benefits to prospective clients and investment managers;
- b. Discuss the objectives, key characteristics, and scope of the GIPS standards;
- c. Explain the fundamentals of compliance with the GIPS standards, including the definition of the firm and the firm's definition of discretion;
- d. Explain the requirements and Recommendations of the GIPS standards with respect to input data, including accounting policies related to valuation and performance measurement;
- e. Discuss the requirements of the GIPS standards with respect to return calculation methodologies, including the treatment of external cash flows, cash and cash equivalents, and expenses and fees;
- f. Explain the requirements and Recommendations of the GIPS standards with respect to composite return calculations, including methods for asset-weighting portfolio returns;
- g. Explain the meaning of discretionary in the context of composite construction and, given a description of the relevant facts, Determine whether a portfolio is likely to be considered discretionary;
- h. Explain the role of investment mandates, objectives, or strategies in the construction of composites;

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- i. Explain the requirements and Recommendations of the GIPS standards with respect to composite construction, including switching portfolios among composites, the timing of the inclusion of new portfolios in composites, and the timing of the exclusion of terminated portfolios from composites;
- j. Explain the requirements of the GIPS standards for asset class segments carved out of multi-class portfolios;
- k. Explain the requirements and Recommendations of the GIPS standards with respect to disclosure, including fees, the use of leverage and derivatives, conformity with laws and regulations that conflict with the GIPS standards, and noncompliant performance periods;
- l. Explain the requirements and Recommendations of the GIPS standards with respect to presentation and reporting, including the required timeframe of compliant performance periods, annual returns, composite assets, and benchmarks;
- m. Explain the conditions under which the performance of a past firm or affiliation must be linked to or used to represent the historical performance of a new or acquiring firm;
- n. Evaluate the relative merits of high/low, range, inter quartile range, and equal weighted or asset-weighted standard deviation as measures of the internal dispersion of portfolio returns within a composite for annual periods;
- o. Identify the types of investments that are subject to the GIPS standards for real estate and private equity;
- p. Explain the provisions of the GIPS standards for real estate and private equity;
- q. Explain the provisions of the GIPS standards for Wrap fee/Separately Managed Accounts;
- r. Explain the requirements and Recommended valuation hierarchy of the GIPS Valuation Principles;
- s. Explain the requirements for compliance with the GIPS Advertising Guidelines;
- t. Discuss the purpose, scope, and process of verification;
- u. Discuss challenges related to the calculation of after-tax returns;
- v. Identify and Explain errors and omissions in given performance presentations, including real estate, private equity and wrap fee/Separately Managed Account (SMA) performance presentations.