2012 CFA level 2 LOS

Reading 1: Code of Ethics and Standards of Professional Conduct

a. describe the six components of the Code of Ethics and the seven Standards of Professional Conduct;
b. explain the ethical responsibilities required by the Code and Standards, 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 applying the Code and Standards to specific situations;
b. recommend practices and procedures designed to prevent violations of the Code of Ethics and Standards of Professional Conduct.

Reading 3: CFA Institute Soft Dollar Standards

a. define soft-dollar arrangements, and state the general principles of the Soft Dollar Standards;
b. evaluate company soft-dollar practices and policies;
c. determine whether a product or service qualifies as permissible research that can be purchased with client brokerage.

Reading 4: CFA Institute Research Objectivity Standards

a. explain the objectives of the Research Objectivity Standards;
b. evaluate company policies and practices related to research objectivity, and distinguish between changes required and changes recommended for compliance with the Research Objectivity Standards.

Reading 5: The Glenarm Company

a. evaluate the practices and policies presented;
b. explain the appropriate action to take in response to conduct that violates the CFA Institute Code of Ethics and Standards of Professional Conduct.

Reading 6: Preston Partners

a. evaluate the practices and policies presented;
b. explain the appropriate action to take in response to conduct that violates the CFA Institute Code of Ethics and Standards of Professional Conduct.

Reading 7: Super Selection

a. evaluate the practices and policies presented;
b. explain the appropriate action to take in response to conduct that violates the CFA Institute Code of Ethics and Standards of Professional Conduct.

Reading 8: Trade Allocation: Fair Dealing and Disclosure

a. evaluate trade allocation practices, and determine whether compliance exists

with the CFA Institute Standards of Professional Conduct addressing fair dealing and client loyalty;
b. describe appropriate actions to take in response to trade allocation practices that do not adequately respect client interests.

Reading 9: Changing Investment Objectives

a. evaluate the disclosure of investment objectives and basic policies and determine whether they comply with the CFA Institute Standards of Professional Conduct;
b. describe appropriate actions needed to ensure adequate disclosure of the investment process.

Reading 10: Prudence in Perspective

a. explain the basic principles of the new Prudent Investor Rule;
b. explain the general fiduciary standards to which a trustee must adhere;
c. distinguish between the old Prudent Man Rule and the new Prudent Investor Rule;
d. explain key factors that a trustee should consider when investing and managing trust assets.

Reading 11: Correlation and Regression

a. calculate and interpret a sample covariance and a sample correlation coefficient, and interpret a scatter plot;
b. explain limitations to correlation analysis, including outliers and spurious correlation;
c. formulate a test of the hypothesis that the population correlation coefficient equals zero, and determine whether the hypothesis is rejected at a given level of significance;
d. distinguish between the dependent and independent variables in a linear regression;
e. explain the assumptions underlying linear regression, and interpret the regression coefficients;
f. calculate and interpret the standard error of estimate, the coefficient of determination, and a confidence interval for a regression coefficient;
g. formulate a null and alternative hypothesis about a population value of a regression coefficient, and determine the appropriate test statistic and whether the null hypothesis is rejected at a given level of significance;
h. calculate a predicted value for the dependent variable, given an estimated regression model and a value for the independent variable, and calculate and interpret a confidence interval for the predicted value of a dependent variable;
i. describe the use of analysis of variance (ANOVA) in regression analysis, interpret ANOVA results, and calculate and interpret an F-statistic;
j. explain limitations of regression analysis.

Reading 12: Multiple Regression and Issues in Regression Analysis

a. formulate a multiple regression equation to describe the relation between a dependent variable and several independent variables, determine the statistical significance of each independent variable, and interpret the estimated coefficients and their p-values;

b. formulate a null and an alternative hypothesis about the population value of a regression coefficient, calculate the value of the test statistic, determine whether to reject the null hypothesis at a given level of significance by using a one-tailed or two-tailed test, and interpret the results of the test;
c. calculate and interpret 1) a confidence interval for the population value of a regression coefficient and 2) a predicted value for the dependent variable, given an estimated regression model and assumed values for the independent variables;
d. explain the assumptions of a multiple regression model;
e. calculate and interpret the F-statistic, and describe how it is used in regression analysis;
f. distinguish between and interpret the R2 and adjusted R2 in multiple regression;
g. evaluate how well a regression model explains the dependent variable by analyzing the output of the regression equation and an ANOVA table;
h. formulate a multiple regression equation by using dummy variables to represent qualitative factors, and interpret the coefficients and regression results;
i. explain the types of heteroskedasticity and the effects of heteroskedasticity and serial correlation on statistical inference;
j. describe multicollinearity, and explain its causes and effects in regression analysis;
k. describe the effects of model misspecification on the results of a regression analysis, and explain how to avoid the common forms of misspecification;
l. describe models with qualitative dependent variables;
m. interpret the economic meaning of the results of multiple regression analysis, and evaluate a regression model and its results.

Reading 13: Time-Series Analysis

a. calculate and evaluate the predicted trend value for a time series, modeled as either a linear trend or a log-linear trend, given the estimated trend coefficients;
b. describe factors that determine whether a linear or a log-linear trend should be used with a particular time series, and evaluate the limitations of trend models;
c. explain the requirement for a time series to be covariance stationary, and describe the significance of a series that is not stationary;
d. describe the structure of an autoregressive (AR) model of order p, and calculate one- and two-period-ahead forecasts given the estimated coefficients;
e. explain how autocorrelations of the residuals can be used to test whether the autoregressive model fits the time series;
f. explain mean reversion, and calculate a mean-reverting level;
g. contrast in-sample and out-of-sample forecasts, and compare the forecasting accuracy of different time-series models based on the root mean squared error criterion;
h. explain instability of coefficients of time-series models;
i. describe characteristics of random walk processes, and contrast them to covariance stationary processes;
j. describe implications of unit roots for time-series analysis, explain when unit roots are likely to occur and how to test for them, and demonstrate how a time series with a unit root can be transformed so it can be analyzed with an AR model;
k. describe the steps of the unit root test for nonstationarity, and explain the relation of the test to autoregressive time-series models;
l. explain how to test and correct for seasonality in a time-series model, and calculate and interpret a forecasted value using an AR model with a seasonal lag;

m. explain autoregressive conditional heteroskedasticity (ARCH), and describe how ARCH models can be applied to predict the variance of a time series;
n. explain how time-series variables should be analyzed for nonstationarity and/or cointegration before use in a linear regression;
o. determine the appropriate time-series model to analyze a given investment problem, and justify that choice.

Reading 14: Economic Growth

a. describe sources of and preconditions for economic growth;
b. describe how the one-third rule can be used to explain the contributions of labor and technological change to growth in labor productivity;
c. explain how faster economic growth can be achieved by increasing the growth of physical capital, technological advances, and investment in human capital;
d. compare classical growth theory, neoclassical growth theory, and new growth theory.

Reading 15: Regulation and Antitrust Policy in a Globalized Economy

a. explain the rationale for government regulation in the form of 1) economic regulation of natural monopolies and 2) social regulation of nonmonopolistic industries;
b. explain potential benefits and possible negative side effects of social regulation;
c. distinguish between the capture hypothesis and the share-the-gains, share-thepains theory of regulator behavior.

Reading 16: Trading with the World

a. explain comparative advantage and how countries can gain from international trade;
b. compare tariffs, nontariff barriers, quotas, and voluntary export restraints;
c. evaluate arguments for trade restrictions.

Reading 17: Currency Exchange Rates

a. define direct and indirect methods of foreign exchange quotations, and convert direct (indirect) foreign exchange quotations into indirect (direct) foreign exchange quotations;
b. calculate and interpret the spread on a foreign currency quotation, and explain how spreads on foreign currency quotations can differ as a result of market conditions, bank/dealer positions, and trading volume;
c. calculate and interpret currency cross rates, given two spot exchange quotations involving three currencies;
d. calculate the profit on a triangular arbitrage opportunity, given the bid-ask quotations for the currencies of three countries involved in the arbitrage;
e. distinguish between the spot and forward markets for foreign exchange;
f. calculate and interpret the spread on a forward foreign currency quotation, and explain how spreads on forward foreign currency quotations can differ as a result of market conditions, bank/dealer positions, trading volume, and maturity/length of contract;
g. calculate and interpret a forward discount or premium and express it as an annualized rate;

h. explain interest rate parity and covered interest arbitrage;
i. distinguish between spot and forward transactions, calculate the annualized forward premium/discount for a given currency, and determine whether the currency is strong or weak.

Reading 18: Foreign Exchange Parity Relations

a. explain how exchange rates are determined in a flexible (or floating) exchange rate system;
b. explain the role of each component of the balance of payments accounts;
c. explain how current account deficits or surpluses and financial account deficits or surpluses affect an economy;
d. describe factors that cause a nation's currency to appreciate or depreciate;
e. explain how monetary and fiscal policies affect the exchange rate and balance of payments components;
f. describe a fixed exchange rate and a pegged exchange rate system;
g. explain absolute purchasing power parity and relative purchasing power parity;
h. calculate the end-of-period exchange rate implied by purchasing power parity, given the beginning-of-period exchange rate and the inflation rates;
i. explain the international Fisher relation;
j. calculate the real interest rate, given nominal interest rates and expected inflation rates, using the international Fisher relation and its linear approximation;
k. explain the theory of uncovered interest rate parity and the theory's relation to other exchange rate parity theories;
l. calculate the expected change in an exchange rate, given interest rates and the assumption that uncovered interest rate parity holds;
m. explain the foreign exchange expectation relation between the forward exchange rate and the expected exchange rate.

Reading 19: Measuring Economic Activity

a. distinguish between the measures of economic activity (i.e., gross domestic product (GDP), gross national income, and net national income), including their components;
b. distinguish between GDP at market prices and GDP at factor cost;
c. distinguish between current and constant prices, and describe the GDP deflator.

Reading 20: Inventories: Implications for Financial Statements and Ratios

a. calculate and explain the effect of inflation and deflation of inventory costs on the financial statements and ratios of companies that use different inventory valuation methods (cost formulas or cost flow assumptions);
b. explain LIFO reserve and LIFO liquidation and their effects on financial statements and ratios;
c. convert a company's reported financial statements from LIFO to FIFO for purposes of comparison;
d. describe implications of valuing inventory at net realisable value for financial statements and ratios;
e. analyze and compare financial statements and ratios of companies, including those that use different inventory valuation methods;
f. explain issues that analysts should consider when examining a company's inventory disclosures and other sources of information.

Reading 21: Long-lived Assets: Implications for Financial Statements and Ratios

a. explain and evaluate the effects on financial statements and ratios of capitalising versus expensing costs in the period in which they are incurred;
b. explain and evaluate the effects on financial statements and ratios of the different depreciation methods for property, plant, and equipment;
c. explain and evaluate the effects on financial statements and ratios of impairmentand revaluation of property, plant, and equipment, and intangible assets;
d. analyze and interpret the financial statement disclosures regarding long-lived assets;
e. explain and evaluate the effects on financial statements and ratios of leasing assets instead of purchasing assets;
f. explain and evaluate the effects on financial statements and ratios of finance leases and operating leases from the perspective of both the lessor and the lessee.

Reading 22: Intercorporate Investments

a. describe the classification, measurement, and disclosure under International Financial Reporting Standards (IFRS) for 1) investments in financial assets, 2) investments in associates, 3) joint ventures, 4) business combinations, and 5) special purpose and variable interest entities;
b. distinguish between IFRS and U.S. GAAP in the classification, measurement, and disclosure of investments in financial assets, investments in associates, joint ventures, business combinations, and special purpose and variable interest entities;
c. analyze effects on financial statements and ratios of different methods used to account for intercorporate investments.

Reading 23: Employee Compensation: Post-Employment and Share-Based

a. describe the types of post-employment benefit plans and the implications for financial reports;
b. explain and calculate measures of a defined benefit pension obligation (i.e., present value of the defined benefit obligation and projected benefit obligation) and net pension liability (or asset);
c. describe the components of a company's defined benefit pension expense;
d. explain and calculate the impact of a defined benefit plan's assumptions on the defined benefit obligation and periodic expense;
e. explain the impact on financial statements of adjustments for items of pension and other post-employment benefits that are reported in the notes to the financial statements rather than in the financial statements;
f. interpret pension plan note disclosures including cash flow related information;
g. evaluate the underlying economic liability (or asset) of a company's pension and other post-employment benefits;
h. calculate the underlying economic pension expense (income) and other postemployment expense (income) based on disclosures;
i. explain issues involved in accounting for share-based compensation;

j. explain the impact on financial statements of accounting for stock grants and stock options, and the importance of companies' assumptions in valuing these grants and options.

Reading 24: Multinational Operations

a. distinguish among presentation currency, functional currency, and local currency;
b. analyze the impact of changes in exchange rates on the translated sales of the subsidiary and parent company;
c. compare and contrast the current rate method and the temporal method, evaluate the effects of each on the parent company's balance sheet and income statement, and determine which method is appropriate in various scenarios;
d. calculate the translation effects, evaluate the translation of a subsidiary's balance sheet and income statement into the parent company's currency, and analyze the different effects of the current rate method and the temporal method on the subsidiary's financial ratios;
e. analyze the effect on a parent company's financial ratios of the currency translation method used;
f. analyze the effect of alternative translation methods for subsidiaries operating in hyperinflationary economies.

Reading 25: The Lessons We Learn

a. distinguish among the various definitions of earnings (e.g., EBITDA, operating earnings, net income, etc.);
b. explain how trends in cash flow from operations can be more reliable than trends in earnings;
c. describe the accounting treatment for derivatives being used to hedge:
- exposure to changes in the value of assets and liabilities,
- exposure to variable cash flows, and
- foreign currency exposure of investments in foreign corporations.

Reading 26: Evaluating Financial Reporting Quality

a. contrast cash-basis and accrual-basis accounting, and explain why accounting discretion exists in an accrual accounting system;
b. describe the relation between the level of accruals and the persistence of earnings and the relative multiples that the cash and accrual components of earnings should rationally receive in valuation;
c. explain opportunities and motivations for management to intervene in the external financial reporting process and mechanisms that discipline such intervention;
d. describe earnings quality and measures of earnings quality, and compare the earnings quality of peer companies;
e. explain mean reversion in earnings and how the accruals component of earnings affects the speed of mean reversion;
f. explain potential problems that affect the quality of financial reporting, including revenue recognition, expense recognition, balance sheet issues, and cash flow statement issues, and interpret warning signs of these potential problems.

Reading 27: Integration of Financial Statement Analysis Techniques

a. demonstrate the use of a framework for the analysis of financial statements, given a particular problem, question, or purpose (e.g., valuing equity based on comparables, critiquing a credit rating, obtaining a comprehensive picture of financial leverage, evaluating the perspectives given in management's discussion of financial results);

b. identify financial reporting choices and biases that affect the quality and comparability of companies' financial statements and explain how such biases affect financial decisions;

c. evaluate the quality of a company's financial data and recommend appropriate adjustments to improve quality and comparability with similar companies, including adjustments for differences in accounting rules, methods, and assumptions;

d. evaluate the effect on financial statements and ratios of a given change in accounting rules, methods, or assumptions;

e. analyze and interpret the effects of balance sheet modifications, earnings normalization, and cash-flow-statement-related modifications on a company's financial statements, financial ratios, and overall financial condition.

Reading 28: Capital Budgeting

a. calculate the yearly cash flows of an expansion capital project and a replacement capital project, and evaluate how the choice of depreciation method affects those cash flows;

b. explain the effects of inflation on capital budgeting analysis;

c. evaluate and select the optimal capital project in situations of 1) mutually exclusive projects with unequal lives, using either the least common multiple of lives approach or the equivalent annual annuity approach, and 2) capital rationing;

d. explain how sensitivity analysis, scenario analysis, and Monte Carlo simulation can be used to assess the stand-alone risk of a capital project;

e. explain the procedure for determining the discount rate to be used in valuing a capital project, and calculate a project's required rate of return using the capital asset pricing model (CAPM);

f. describe the types of real options and evaluate a capital project using real options;

g. explain common capital budgeting pitfalls;

h. calculate and interpret accounting income and economic income in the context of capital budgeting;

i. distinguish among, and evaluate a capital project using, the economic profit, residual income, and claims valuation models.

Reading 29: Capital Structure

a. explain the Modigliani-Miller propositions concerning capital structure, including the impact of leverage, taxes, financial distress, agency costs, and asymmetric information on a company's cost of equity, cost of capital, and optimal capital structure;

b. explain the target capital structure and why actual capital structure may fluctuate around the target;

c. describe the role of debt ratings in capital structure policy;

d. explain factors an analyst should consider in evaluating the impact of capital structure policy on valuation;

e. describe international differences in financial leverage and their implications for investment analysis.

Reading 30: Dividends and Share Repurchases: Analysis

a. compare theories of dividend policy, and explain implications of each for share value given a description of a corporate dividend action;
b. describe types of information (signals) that dividend initiations, increases, decreases, and omissions may convey;
c. explain how clientele effects and agency issues may affect a company's payout policy;
d. explain factors that affect dividend policy;
e. calculate and interpret the effective tax rate on a given currency unit of corporate earnings under double-taxation, split rate, and tax imputation dividend tax regimes;
f. compare stable dividend, target payout, and residual dividend payout policies, and calculate the dividend under each policy;
g. explain the choice between paying cash dividends and repurchasing shares;
h. describe global trends in corporate dividend policies;
i. calculate and interpret dividend coverage ratios based on 1) net income and 2) free cash flow;
j. identify characteristics of companies that may not be able to sustain their cash dividend.

Reading 31: Corporate Governance

a. explain corporate governance, describe the objectives and core attributes of an effective corporate governance system, and evaluate whether a company's corporate governance has those attributes;
b. compare major business forms, and describe the conflicts of interest associated with each;
c. explain conflicts that arise in agency relationships, including manager-shareholder conflicts and director-shareholder conflicts;
d. describe responsibilities of the board of directors, and explain qualifications and core competencies that an investment analyst should look for in the board of directors;
e. explain effective corporate governance practice as it relates to the board of directors, and evaluate strengths and weaknesses of a company's corporate governance practice;
f. describe elements of a company's statement of corporate governance policies that investment analysts should assess;
g. explain the valuation implications of corporate governance.

Reading 32: Mergers and Acquisitions

a. classify merger and acquisition (M&A) activities based on forms of integration and types of mergers;
b. explain common motivations behind M&A activity;
c. explain how earnings per share (EPS) bootstrapping works, and calculate a company's postmerger EPS;
d. explain the relation between merger motivations and types of mergers based on industry life cycles;

e. contrast merger transaction characteristics by form of acquisition, method of payment, and attitude of target management;
f. distinguish among pre-offer and post-offer takeover defense mechanisms;
g. calculate the Herfindahl-Hirschman Index, and evaluate the likelihood of an antitrust challenge for a given business combination;
h. compare the discounted cash flow, comparable company, and comparable transaction analyses for valuing a target company, including the advantages and disadvantages of each;
i. calculate free cash flows for a target company, and estimate the company's intrinsic value based on discounted cash flow analysis;
j. estimate the value of a target company using comparable company and comparable transaction analyses;
k. evaluate a merger bid, calculate the estimated post-merger value of an acquirer, and calculate the gains accrued to the target shareholders versus the acquirer shareholders;
l. explain the effects of price and payment method on the distribution of risks and benefits in a merger transaction;
m. describe empirical evidence related to the distribution of benefits in a merger;
n. distinguish among divestitures, equity carve-outs, spin-offs, split-offs, and liquidation;
o. explain major reasons for divestitures.

Reading 33: A Note on Asset Valuation

The candidate should be able to explain how the classic works on asset valuation by Graham and Dodd and John Burr Williams are reflected in modern techniques of equity valuation.

Reading 34: Equity Valuation: Applications and Processes

a. define valuation and intrinsic value, and explain possible sources of perceived mispricing;
b. explain the going concern assumption, contrast a going concern value to a liquidation value, and identify the definition of value most relevant to public company valuation;
c. describe applications of equity valuation;
d. explain the elements of industry and competitive analysis and the importance of evaluating the quality of financial statement information;
e. contrast absolute and relative valuation models, and describe examples of each type of model;
f. explain broad criteria for choosing an appropriate approach for valuing a given company.

Reading 35: Return Concepts

a. distinguish among expected holding period return, realized holding period return, required return, return from convergence of price to intrinsic value, discount rate, and internal rate of return;
b. calculate and interpret an equity risk premium using historical and forwardlooking estimation approaches;
c. estimate the required return on an equity investment using the capital asset pricing model (CAPM), the Fama-French model (FFM), the Pastor-Stambaugh model (PSM), macroeconomic multifactor models, and the build-up method

(e.g., bond yield plus risk premium);
d. explain beta estimation for public companies, thinly traded public companies, and nonpublic companies;
e. describe strengths and weaknesses of methods used to estimate the required return on an equity investment;
f. explain international considerations in required return estimation;
g. explain and calculate the weighted average cost of capital for a company;
h. evaluate the appropriateness of using a particular rate of return as a discount rate, given a description of the cash flow to be discounted and other relevant facts.

Reading 36: The Five Competitive Forces That Shape Strategy

a. distinguish among the five competitive forces that drive industry profitability in the medium and long run;
b. explain how competitive forces drive industry profitability;
c. describe why industry growth rate, technology and innovation, government, and complementary products and services are fleeting factors rather than forces shaping industry structure;
d. identify changes in industry structure, and forecast their effects on the industry's profit potential;
e. explain how positioning a company, exploiting industry change, and shaping industry structure may be used to achieve a competitive advantage.

Reading 37: Industry Analysis

a. explain key components that should be included in an industry analysis model;
b. describe the life cycle of a typical industry;
c. analyze the effects of business cycles on industry classification (i.e., growth, defensive, cyclical);
d. analyze the impact of external factors (e.g., technology, government, foreign influences, demography, and social changes) on industries;
e. describe inputs and methods used in preparing industry demand and supply analyses;
f. explain factors that affect industry pricing practices.

Reading 38: Valuation in Emerging Markets

a. describe how inflation affects the estimation of cash flows for a company domiciled in an emerging market;
b. evaluate an emerging market company using a discounted cash flow model based on nominal and real financial projections;
c. explain arguments for adjusting cash flows, rather than adjusting the discount rate, to account for emerging market risks (e.g., inflation, macroeconomic volatility, capital control, and political risk) in a scenario analysis;
d. estimate the cost of capital for emerging market companies, and calculate and interpret a country risk premium.

Reading 39: Discounted Dividend Valuation

a. compare dividends, free cash flow, and residual income as measures in discounted cash flow models, and identify investment situations for which each

measure is suitable;
b. calculate and interpret the value of a common stock using the dividend discount model (DDM) for one-, two-, and multiple-period holding periods;
c. calculate the value of a common stock using the Gordon growth model, and explain the model's underlying assumptions;
d. calculate the implied growth rate of dividends using the Gordon growth model and current stock price;
e. calculate and interpret the present value of growth opportunities (PVGO) and the component of the leading price-to-earnings ratio (P/E) related to PVGO;
f. calculate the justified leading and trailing P/Es using the Gordon growth model;
g. calculate the value of noncallable fixed-rate perpetual preferred stock;
h. describe strengths and limitations of the Gordon growth model, and justify its selection to value a company's common shares;
i. explain the assumptions and justify the selection of the two-stage DDM, the H-model, the three-stage DDM, or spreadsheet modeling to value a company's common shares;
j. explain the growth phase, transitional phase, and maturity phase of a business;
k. describe terminal value, and explain alternative approaches to determining the terminal value in a DDM;
l. calculate and interpret the value of common shares using the two-stage DDM, the H-model, and the three-stage DDM;
m. estimate a required return based on any DDM, including the Gordon growth model and the H-model;
n. calculate and interpret the sustainable growth rate of a company, and demonstrate the use of DuPont analysis to estimate a company's sustainable growth rate;
o. demonstrate the use of spreadsheet modeling to forecast dividends and value common shares;
p. evaluate whether a stock is overvalued, fairly valued, or undervalued by the market based on a DDM estimate of value.

Reading 40: Free Cash Flow Valuation

a. compare the free cash flow to the firm (FCFF) and free cash flow to equity (FCFE) approaches to valuation;
b. contrast the ownership perspective implicit in the FCFE approach to the ownership perspective implicit in the dividend discount approach;
c. explain the appropriate adjustments to net income, earnings before interest and taxes (EBIT), earnings before interest, taxes, depreciation, and amortization (EBITDA), and cash flow from operations (CFO) to calculate FCFF and FCFE;
d. calculate FCFF and FCFE;
e. describe approaches for forecasting FCFF and FCFE;
f. contrast the recognition of value in the FCFE model with recognition of value in dividend discount models;
g. explain how dividends, share repurchases, share issues, and changes in leverage may affect future FCFF and FCFE;
h. evaluate the use of net income and EBITDA as proxies for cash flow in valuation;
i. explain the single-stage (stable-growth), two-stage, and three-stage FCFF and FCFE models, and select and justify the appropriate model given a company's characteristics;
j. estimate a company's value using the appropriate free cash flow model(s);
k. explain the use of sensitivity analysis in FCFF and FCFE valuations;

l. describe approaches for calculating the terminal value in a multistage valuation model.

Reading 41: Market-Based Valuation: Price and Enterprise Value Multiples

a. distinguish between the method of comparables and the method based on forecasted fundamentals as approaches to using price multiples in valuation, and explain economic rationales for each approach;
b. interpret a justified price multiple;
c. describe rationales for and possible drawbacks to using price multiples (including P/E, P/B, P/S, P/CF) and dividend yield in valuation;
d. calculate and interpret alternative price multiples and dividend yield;
e. calculate and interpret underlying earnings, explain methods of normalizing EPS, and calculate normalized EPS;
f. explain and justify the use of earnings yield (E/P);
g. describe fundamental factors that influence alternative price multiples and dividend yield;
h. calculate and interpret the justified price-to-earnings ratio (P/E), price-to-book ratio (P/B), and price-to-sales ratio (P/S) for a stock, based on forecasted fundamentals;
i. calculate and interpret a predicted P/E, given a cross-sectional regression on fundamentals, and explain limitations to the cross-sectional regression methodology;
j. evaluate a stock by the method of comparables, and explain the importance of fundamentals in using the method of comparables;
k. calculate and interpret the P/E-to-growth ratio (PEG), and explain its use in relative valuation;
l. calculate and explain the use of price multiples in determining terminal value in a multistage discounted cash flow (DCF) model;
m. explain alternative definitions of cash flow used in price and enterprise value multiples, and describe limitations of each definition;
n. calculate and interpret enterprise value multiples, and evaluate the use of EV/EBITDA;
o. explain sources of differences in cross-border valuation comparisons;
p. describe momentum indicators and their use in valuation;
q. evaluate whether a stock is overvalued, fairly valued, or undervalued based on comparisons of multiples;
r. explain the use of the arithmetic mean, the harmonic mean, the weighted harmonic mean, and the median to describe the central tendency of a group of multiples.

Reading 42: Residual Income Valuation

a. calculate and interpret residual income, economic value added, and market value added;
b. describe the uses of residual income models;
c. calculate the intrinsic value of a common stock using the residual income model, and contrast the recognition of value in the residual income model to value recognition in other present value models;
d. explain fundamental determinants of residual income;
e. explain the relation between residual income valuation and the justified price-tobook

ratio based on forecasted fundamentals;
f. calculate and interpret the intrinsic value of a common stock using single-stage (constant-growth) and multistage residual income models;
g. calculate the implied growth rate in residual income, given the market price-to-book ratio and an estimate of the required rate of return on equity;
h. explain continuing residual income, and justify an estimate of continuing residual income at the forecast horizon, given company and industry prospects;
i. compare residual income models to dividend discount and free cash flow models;
j. explain strengths and weaknesses of residual income models;
k. justify the selection of a residual income model to value a company's common stock;
l. describe accounting issues in applying residual income models;
m. evaluate whether a stock is overvalued, fairly valued, or undervalued based on a residual income model.

Reading 43: Private Company Valuation

a. compare public and private company valuation;
b. describe uses of private business valuation, and explain applications of greatest concern to financial analysts;
c. explain alternative definitions of value, and demonstrate how different definitions can lead to different estimates of value;
d. explain the income, market, and asset-based approaches to private company valuation and factors relevant to the selection of each approach;
e. explain cash flow estimation issues related to private companies and adjustments required to estimate normalized earnings;
f. demonstrate the free cash flow, capitalized cash flow, and excess earnings methods of private company valuation;
g. explain factors that require adjustment when estimating the discount rate for private companies;
h. compare models used to estimate the required rate of return to private company equity (for example, the CAPM, the expanded CAPM, and the build-up approach);
i. demonstrate the market approaches to private company valuation (for example, guideline public company method, guideline transaction method, and prior transaction method), and describe advantages and disadvantages of each;
j. demonstrate the asset-based approach to private company valuation;
k. explain and evaluate the effects on private company valuations of discounts and premiums based on control and marketability;
l. describe the role of valuation standards in valuing private companies.

Reading 44: Investment Analysis

a. explain, for each type of real property investment, the main value determinants, investment characteristics, principal risks, and most likely investors;
b. evaluate a real estate investment using net present value (NPV) and internal rate of return (IRR) from the perspective of an equity investor;
c. calculate the after-tax cash flow and the after-tax equity reversion from real estate properties;
d. explain potential problems associated with using IRR as a measurement tool in real estate investments.

Reading 45: Income Property Analysis and Appraisal

a. explain the relation between a real estate capitalization rate and a discount rate;
b. estimate the capitalization rate by the market-extraction method, band-ofinvestment method, and built-up method, and justify each method's use in capitalization rate determination;
c. estimate the market value of a real estate investment using the direct income capitalization approach and the gross income multiplier technique;
d. contrast limitations of the direct capitalization approach to those of the gross income multiplier technique.

Reading 46: Private Equity Valuation

a. explain sources of value creation in private equity;
b. explain how private equity firms align their interests with those of the managers of portfolio companies;
c. distinguish between the characteristics of buyout and venture capital investments;
d. describe valuation issues in buyout and venture capital transactions;
e. explain alternative exit routes in private equity and their impact on value;
f. explain private equity fund structures, terms, valuation, and due diligence in the context of an analysis of private equity fund returns;
g. explain risks and costs of investing in private equity;
h. interpret and compare financial performance of private equity funds from the perspective of an investor;
i. calculate management fees, carried interest, net asset value, distributed to paid in (DPI), residual value to paid in (RVPI), and total value to paid in (TVPI) of a private equity fund;
A Note on Valuation of Venture Capital Deals: (Appendix 46)
j. calculate pre-money valuation, post-money valuation, ownership fraction, and price per share applying the venture capital method 1) with single and multiple financing rounds and 2) in terms of IRR;
k. demonstrate alternative methods to account for risk in venture capital.

Reading 47: Investing in Hedge Funds: A Survey

a. distinguish between hedge funds and mutual funds in terms of leverage, use of derivatives, disclosure requirements and practices, lockup periods, and fee structures;
b. describe hedge fund strategies;
c. explain possible biases in reported hedge fund performance;
d. describe factor models for hedge fund returns;
e. describe sources of non-normality in hedge fund returns and implications for performance appraisal;
f. describe motivations for hedge fund replication strategies;
g. explain difficulties in applying traditional portfolio analysis to hedge funds;
h. compare funds of funds to single manager hedge funds.

Reading 48: General Principles of Credit Analysis

a. distinguish among default risk, credit spread risk, and downgrade risk;
b. explain and analyze capacity, collateral, covenants, and character as components

of credit analysis;
c. calculate and interpret key financial ratios used by credit analysts;
d. evaluate the credit quality of an issuer of a corporate bond, given such data as key financial ratios for the issuer and the industry;
e. analyze why and how cash flow from operations is used to assess the ability of an issuer to service its debt obligations and to assess the financial flexibility of a company;
f. explain and interpret typical elements of the corporate structure and debt structure of a high-yield issuer and the effect of these elements on the risk position of the lender;
g. describe factors considered by rating agencies in rating asset-backed securities;
h. explain how the credit worthiness of municipal bonds is assessed, and contrast the analysis of tax-backed debt with the analysis of revenue obligations;
i. describe considerations used by Standard & Poor's in assigning sovereign ratings, and explain why two ratings are assigned to each national government;
j. contrast the credit analysis required for corporate bonds to that required for 1) asset-backed securities, 2) municipal securities, and 3) sovereign debt.

Reading 49: Term Structure and Volatility of Interest Rates

a. explain parallel and nonparallel shifts in the yield curve, a yield curve twist, and a change in the curvature of the yield curve (i.e., a butterfly shift);
b. describe factors that drive U.S. Treasury security returns, and evaluate the importance of each factor;
c. explain various universes of Treasury securities that are used to construct the theoretical spot rate curve, and evaluate their advantages and disadvantages;
d. explain the swap rate curve (LIBOR curve) and why market participants have used the swap rate curve rather than a government bond yield curve as a benchmark;
e. explain the pure expectations, liquidity, and preferred habitat theories of the term structure of interest rates and the implications of each for the shape of the yield curve;
f. calculate and interpret the yield curve risk of a security or a portfolio by using key rate duration;
g. calculate and interpret yield volatility, distinguish between historical yield volatility and implied yield volatility, and explain how yield volatility is forecasted.

Reading 50: Valuing Bonds with Embedded Options

a. evaluate, using relative value analysis, whether a security is undervalued or overvalued;
b. evaluate the importance of benchmark interest rates in interpreting spread measures;
c. describe the backward induction valuation methodology within the binomial interest rate tree framework;
d. calculate the value of a callable bond from an interest rate tree;
e. explain the relations among the values of a callable (putable) bond, the corresponding option-free bond, and the embedded option;
f. explain the effect of volatility on the arbitrage-free value of an option;
g. interpret an option-adjusted spread with respect to a nominal spread and to benchmark interest rates;
h. explain how effective duration and effective convexity are calculated using the binomial model;

i. calculate the value of a putable bond, using an interest rate tree;
j. describe and evaluate a convertible bond and its various component values;
k. compare the risk-return characteristics of a convertible bond with the risk-return characteristics of ownership of the underlying common stock.

Reading 51: Mortgage-Backed Sector of the Bond Market

a. describe a mortgage loan, and explain the cash flow characteristics of a fixedrate, level payment, and fully amortized mortgage loan;
b. explain investment characteristics, payment characteristics, and risks of mortgage passthrough securities;
c. calculate the prepayment amount for a month, given the single monthly mortality rate;
d. compare the conditional prepayment rate (CPR) with the Public Securities Association (PSA) prepayment benchmark;
e. explain why the average life of a mortgage-backed security is more relevant than the security's maturity;
f. explain factors that affect prepayments and the types of prepayment risks;
g. explain how a collateralized mortgage obligation (CMO) is created and how it provides a better matching of assets and liabilities for institutional investors;
h. distinguish among the sequential pay tranche, the accrual tranche, the planned amortization class tranche, and the support tranche in a CMO;
i. evaluate the risk characteristics and relative performance of each type of CMO tranche, given changes in the interest rate environment;
j. explain investment characteristics of stripped mortgage-backed securities;
k. compare agency and nonagency mortgage-backed securities;
l. compare credit risk analysis of commercial and residential nonagency mortgagebacked securities;
m. describe the basic structure of a commercial mortgage-backed security (CMBS), and explain the ways in which a CMBS investor may realize call protection at the loan level and by means of the CMBS structure.

Reading 52: Asset-Backed Sector of the Bond Market

a. describe the basic structural features of and parties to a securitization transaction;
b. explain and contrast prepayment tranching and credit tranching;
c. distinguish between the payment structure and collateral structure of a securitization backed by amortizing assets and non-amortizing assets;
d. distinguish among various types of external and internal credit enhancements;
e. describe cash flow and prepayment characteristics for securities backed by home equity loans, manufactured housing loans, automobile loans, student loans, SBA loans, and credit card receivables;
f. describe collateralized debt obligations (CDOs), including cash and synthetic CDOs;
g. distinguish among the primary motivations for creating a collateralized debt obligation (arbitrage and balance sheet transactions).

Reading 53: Valuing Mortgage-Backed and Asset-Backed Securities

a. explain the calculation, use, and limitations of the cash flow yield, nominal spread, and zero-volatility spread for a mortgage-backed security and an assetbacked

security;
b. describe the Monte Carlo simulation model for valuing a mortgage-backed security;
c. describe path dependency in passthrough securities and the implications for valuation models;
d. explain how the option-adjusted spread is calculated using the Monte Carlo simulation model and how this spread measure is interpreted;
e. evaluate a mortgage-backed security using option-adjusted spread analysis;
f. explain why effective durations reported by various dealers and vendors may differ;
g. analyze the interest rate risk of a security, given the security’s effective duration;
h. explain cash flow, coupon curve, and empirical measures of duration, and describe limitations of each in relation to mortgage-backed securities;
i. determine whether the nominal spread, zero-volatility spread, or option-adjusted spread should be used to evaluate a specific fixed income security.

Reading 54: Forward Markets and Contracts

a. explain how the value of a forward contract is determined at initiation, during the life of the contract, and at expiration;
b. calculate and interpret the price and value of an equity forward contract, assuming dividends are paid either discretely or continuously;
c. calculate and interpret the price and value of 1) a forward contract on a fixedincome security, 2) a forward rate agreement (FRA), and 3) a forward contract on a currency;
d. evaluate credit risk in a forward contract, and explain how market value is a measure of exposure to a party in a forward contract.

Reading 55: Futures Markets and Contracts

a. explain why the futures price must converge to the spot price at expiration;
b. determine the value of a futures contract;
c. explain why forward and futures prices differ;
d. describe monetary and nonmonetary benefits and costs associated with holding the underlying asset, and explain how they affect the futures price;
e. describe backwardation and contango;
f. explain the relation between futures prices and expected spot prices;
g. describe the difficulties in pricing Eurodollar futures;
h. calculate and interpret the prices of Treasury bond futures, stock index futures, and currency futures.

Reading 56: Option Markets and Contracts

a. calculate and interpret the prices of a synthetic call option, synthetic put option, synthetic bond, and synthetic underlying stock, and explain why an investor would want to create such instruments;
b. calculate and interpret prices of interest rate options and options on assets using one- and two-period binomial models;
c. explain and evaluate the assumptions underlying the Black-Scholes-Merton model;
d. explain how an option price, as represented by the Black-Scholes-Merton model, is affected by a change in the value of each of the inputs;

e. explain the delta of an option, and demonstrate how it is used in dynamic hedging;
f. explain the gamma effect on an option's delta and how gamma can affect a delta hedge;
g. explain the effect of the underlying asset's cash flows on the price of an option;
h. demonstrate the historical volatility and implied volatility methods for estimating the future volatility of the underlying asset;
i. demonstrate how put-call parity for options on forwards (or futures) is established;
j. compare American and European options on forwards and futures and identify the appropriate pricing model for European options.

Reading 57: Swap Markets and Contracts

a. distinguish between the pricing and valuation of swaps;
b. explain the equivalence of 1) interest rate swaps to a series of off-market forward rate agreements (FRAs) and 2) a plain vanilla swap to a combination of an interest rate call and an interest rate put;
c. calculate and interpret the fixed rate on a plain vanilla interest rate swap and the market value of the swap during its life;
d. calculate and interpret the fixed rate, if applicable, and the foreign notional principal for a given domestic notional principal on a currency swap, and estimate the market values of each of the different types of currency swaps during their lives;
e. calculate and interpret the fixed rate, if applicable, on an equity swap and the market values of the different types of equity swaps during their lives;
f. explain and interpret the characteristics and uses of swaptions, including the difference between payer and receiver swaptions;
g. calculate the payoffs and cash flows of an interest rate swaption;
h. calculate and interpret the value of an interest rate swaption at expiration;
i. evaluate swap credit risk for each party and during the life of the swap, distinguish between current credit risk and potential credit risk, and explain how swap credit risk is reduced by both netting and marking to market;
j. define swap spread and explain its relation to credit risk.

Reading 58: Interest Rate Derivative Instruments

a. demonstrate how both a cap and a floor are packages of 1) options on interest rates and 2) options on fixed-income instruments;
b. calculate the payoff for a cap and a floor, and explain how a collar is created.

Reading 59: Using Credit Derivatives to Enhance Return and Manage Risk

a. describe the characteristics of a credit default swap, and compare a credit default swap with a corporate bond;
b. explain advantages of using credit derivatives over other credit instruments;
c. explain the use of credit derivatives by the various market participants;
d. describe credit derivatives trading strategies, and explain how they are used by hedge funds and other managers.

Reading 60: Portfolio Concepts

a. explain mean-variance analysis and its assumptions, and calculate the expected return and the standard deviation of return for a portfolio of two or three assets;
b. describe the minimum-variance and efficient frontiers, and explain the steps to solve for the minimum-variance frontier;
c. explain the benefits of diversification and how the correlation in a two-asset portfolio and the number of assets in a multi-asset portfolio affect the diversification benefits;
d. calculate the variance of an equally weighted portfolio of n stocks, explain the capital allocation and capital market lines (CAL and CML) and the relation between them, and calculate the value of one of the variables given values of the remaining variables;
e. explain the capital asset pricing model (CAPM), including its underlying assumptions and the resulting conclusions;
f. explain the security market line (SML), the beta coefficient, the market risk premium, and the Sharpe ratio, and calculate the value of one of these variables given the values of the remaining variables;
g. explain the market model, and state and interpret the market model's predictions with respect to asset returns, variances, and covariances;
h. calculate an adjusted beta, and explain the use of adjusted and historical betas as predictors of future betas;
i. explain reasons for and problems related to instability in the minimum-variance frontier;
j. describe and compare macroeconomic factor models, fundamental factor models, and statistical factor models;
k. calculate the expected return on a portfolio of two stocks, given the estimated macroeconomic factor model for each stock;
l. describe the arbitrage pricing theory (APT), including its underlying assumptions and its relation to the multifactor models, calculate the expected return on an asset given an asset's factor sensitivities and the factor risk premiums, and determine whether an arbitrage opportunity exists, including how to exploit the opportunity;
m. explain sources of active risk, interpret tracking error, tracking risk, and the information ratio, and explain factor portfolio and tracking portfolio;
n. compare underlying assumptions and conclusions of the CAPM and APT model, and explain why an investor can possibly earn a substantial premium for exposure to dimensions of risk unrelated to market movements.

Reading 61: A Note on Harry M. Markowitz's Market Efficiency: A Theoretical Distinction and So What?

a. explain the efficiency of the market portfolio in the CAPM and the relation between the expected return and beta of an asset when restrictions on borrowing at the risk-free rate and on short selling exist;
b. describe practical consequences that follow when restrictions on borrowing at the risk-free rate and on short selling exist.

Reading 62: International Asset Pricing

a. explain international market integration and segmentation and the impediments to international capital mobility;
b. describe factors that favor international market integration;
c. explain the assumptions of the domestic capital asset pricing model (CAPM);

d. justify extension of the domestic CAPM to an international context (extended CAPM), and describe the assumptions needed to make the extension;
e. determine whether the real exchange rate has changed in a period;
f. calculate the expected 1) exchange rate and 2) domestic-currency holding period return on a foreign bond (security);
g. calculate the end-of-period real exchange rate and the domestic-currency ex-post return on a foreign bond (security);
h. calculate a foreign currency risk premium, and explain a foreign currency risk premium in terms of interest rate differentials and forward rates;
i. state the risk pricing relation and the formula for the international capital asset pricing model (ICAPM), and calculate the expected return on a stock using the model;
j. explain the effect of market segmentation on the ICAPM;
k. define currency exposure, and explain exposures in terms of correlations;
l. describe the likely exchange rate exposure of a company based on the company's activities, and explain the impact of both real and nominal exchange rate changes on the valuation of the company;
m. explain currency exposures of national economies, equity markets, and bond markets;
n. contrast the traditional trade approach (J-curve) and the money demand approach to modeling the relation between real exchange rate changes and domestic economic activity.

Reading 63: The Theory of Active Portfolio Management

a. justify active portfolio management when security markets are nearly efficient;
b. describe the steps and the approach of the Treynor-Black model for security selection;
c. explain how an analyst's accuracy in forecasting alphas can be measured and how estimates of forecasting can be incorporated into the Treynor-Black approach.

Reading 64: The Portfolio Management Process and the Investment Policy Statement

a. explain the importance of the portfolio perspective;
b. describe the steps of the portfolio management process and the components of those steps;
c. define investment objectives and constraints, and explain and distinguish among the types of investment objectives and constraints;
d. explain the role of the investment policy statement in the portfolio management process, and describe the elements of an investment policy statement;
e. explain how capital market expectations and the investment policy statement help influence the strategic asset allocation decision and how an investor's investment time horizon may influence the investor's strategic asset allocation;
f. contrast the types of investment time horizons, determine the time horizon for a particular investor, and evaluate the effects of this time horizon on portfolio choice;
g. justify ethical conduct as a requirement for managing investment portfolios.