15

Portfolio Management (1)

This study session begins by examining exchange-traded funds (ETFs), including the creation and trading of ETFs, costs and risks of using ETFs, and how ETFs are used in strategic, tactical, and portfolio efficiency applications. Multifactor models including the arbitrage pricing theory (APT) and Carhart (4 factor) model are introduced as alternatives to the capital asset pricing model (CAPM). Considerations and applications of the three multifactor model types (macroeconomic, fundamental, statistical) are presented. Value at risk (VaR) and its use in measuring and managing market risk is discussed next. The three VaR approaches (parametric, historical simulation, Monte Carlo) along with the advantages and limitations of each are examined. The session ends with an introduction to backtesting and simulation.

READING ASSIGNMENTS

Reading 38	Exchange-Traded Funds: Mechanics and Applications by Joanne M. Hill, PhD, and Dave Nadig
Reading 39	Using Multifactor Models by Jerald E. Pinto, PhD, CFA, and Eugene L. Podkaminer, CFA
Reading 40	Measuring and Managing Market Risk by Don M. Chance, PhD, CFA, and Michelle McCarthy Beck
Reading 41	Backtesting and Simulation by Yin Luo, CPA, PStat, CFA and Sheng Wang

LEARNING OUTCOMES

READING 38. EXCHANGE-TRADED FUNDS: MECHANICS AND APPLICATIONS

The candidate should be able to:

a explain the creation/redemption process of ETFs and the function of authorized participants;

b describe how ETFs are traded in secondary markets;

c describe sources of tracking error for ETFs;

d describe factors affecting ETF bid–ask spreads;

e describe sources of ETF premiums and discounts to NAV;

f describe costs of owning an ETF;

g describe types of ETF risk;

h identify and describe portfolio uses of ETFs.

READING 39. USING MULTIFACTOR MODELS

The candidate should be able to:

a describe arbitrage pricing theory (APT), including its underlying assumptions and its relation to multifactor models;

b define arbitrage opportunity and determine whether an arbitrage opportunity exists;

c calculate the expected return on an asset given an asset's factor sensitivities and the factor risk premiums;

d describe and compare macroeconomic factor models, fundamental factor models, and statistical factor models;

e explain sources of active risk and interpret tracking risk and the information ratio;

f describe uses of multifactor models and interpret the output of analyses based on multifactor models;

g describe the potential benefits for investors in considering multiple risk dimensions when modeling asset returns.

READING 40. MEASURING AND MANAGING MARKET RISK

The candidate should be able to:

a explain the use of value at risk (VaR) in measuring portfolio risk;

b compare the parametric (variance–covariance), historical simulation, and Monte Carlo simulation methods for estimating VaR;

c estimate and interpret VaR under the parametric, historical simulation, and Monte Carlo simulation methods;

d describe advantages and limitations of VaR;

e describe extensions of VaR;

f describe sensitivity risk measures and scenario risk measures and compare these measures to VaR;

g demonstrate how equity, fixed-income, and options exposure measures may be used in measuring and managing market risk and volatility risk;

h describe the use of sensitivity risk measures and scenario risk measures;

i describe advantages and limitations of sensitivity risk measures and scenario risk measures;

j explain constraints used in managing market risks, including risk budgeting, position limits, scenario limits, and stop-loss limits;

k explain how risk measures may be used in capital allocation decisions;

l describe risk measures used by banks, asset managers, pension funds, and insurers.

READING 41. BACKTESTING AND SIMULATION

The candidate should be able to:

a describe objectives in backtesting an investment strategy;

b describe and contrast steps and procedures in backtesting an investment strategy;

c interpret metrics and visuals reported in a backtest of an investment strategy;

d identify problems in a backtest of an investment strategy;

e evaluate and interpret a historical scenario analysis;

f contrast Monte Carlo and historical simulation approaches;

g explain inputs and decisions in simulation and interpret a simulation; and

h demonstrate the use of sensitivity analysis.