

SOA Course 6 – Finance and Investments

The examination for this course consists of five hours of multiple-choice and written-answer questions. A read-through time will be given prior to the start of the exam, 15 minutes in the morning session and 10 minutes in the afternoon session.

This course extends the candidate's knowledge of basic actuarial principles in the fields of investments and asset management. Candidates completing this course will have developed some expertise in the areas of capital markets, investment vehicles, applications of derivatives, principles of portfolio management and asset-liability management.

A "Course Overview" study note 6-20-02 has been prepared for this course. It is intended to give candidates additional insights into the Course of Reading as well as a possible approach to take when studying the various sections of the course.

Learning Objectives

The candidate is expected to be able to perform the following actions:

1. Identify and evaluate the risk and return characteristics of various types of investments.
 - Explain the risks to which an investor may be exposed.
 - Evaluate the relationship between risk and return in the investment markets.
 - Explain the general design features and risk characteristics of fixed income and equity investments.
 - Evaluate the risk and return characteristics of government and corporate debt securities.
 - Evaluate the risk and return characteristics of real estate securities.
 - Evaluate the risk and return characteristics of Guaranteed Investment Contracts (GICs).

2. Identify how markets operate and explain the fundamental principles of modern portfolio theory.
 - Explain how individual securities are valued and traded.
 - Evaluate the risk/return trade-off from an investor's perspective.
 - Explain the term structure of interest rates including the yield curve and pricing of fixed income securities and spot and forward rates of interest.

- Explain the Capital Asset Pricing model (CAPM) and its application to portfolio management.
 - Discuss the properties of the Markowitz Portfolio Selection model.
 - Evaluate the three versions of the efficient market hypothesis and explain their application to portfolio management.
 - Discuss the impact of investment diversification upon portfolio management.
 - Explain arbitrage pricing theory and its application to portfolio management.
 - Discuss the impact of behavioral finance on asset prices and financial markets.
3. Determine how options are priced in financial markets.
- Evaluate the features and risk/return characteristics of financial derivatives including put and call options, swaps, forwards, interest rate caps, floors and compound options.
 - Evaluate the factors that affect the value of an option.
 - Identify the principles and applications of no arbitrage pricing models.
 - Apply binomial option pricing techniques.
 - Determine how options are priced using the Black-Scholes model.
4. Determine the value of cash flow streams with embedded options.
- Calculate option-adjusted spreads including the impact of prepay on Mortgage-Backed Securities.
 - Apply option-adjusted pricing techniques to Mortgage-Backed Securities and other financial instruments.
 - Determine the cost and price-yield relationship of an embedded option in a series of cash flows.
5. Apply the concepts of interest rate risk management and effective duration.
- Explain the concepts of immunization including modern refinements and practical limitations.
 - Calculate an effective duration measure using option-adjusted spread analysis.

6. Explain how principles of asset liability management (ALM) impact portfolio construction and management for institutional investors.
 - Evaluate the impact of liquidity requirements, valuation concerns, cash flow variability, regulatory constraints and investment management mandates in developing investment policies and strategies for insurance and other financial companies and pension plans.
 - Apply ALM principles to the establishment of investment policy and strategy including asset allocation.
 - Determine the impact of interest rate risk analysis on portfolio construction.
 - Apply matched funding and dedicated portfolio management strategies to control interest rate risk.

7. Identify and apply portfolio management techniques to the ongoing investment management of financial institution and pension fund assets.
 - Explain principles of risk-based capital management and their impact upon portfolio management.
 - Apply principles of active and passive investment management techniques to equity and fixed income portfolios.
 - Evaluate key considerations in developing investment policies and strategies for financial institutions and pension plans.
 - Identify key considerations in managing surplus pension funds.
 - Identify and apply the obligations of a fiduciary in managing investment portfolios.
 - Describe liquidity requirements of an investor and their impact upon portfolio management.

Concepts, principles and techniques needed for Course 6 are covered in the references listed below. Candidates and professional educators may use other references, but candidates should be very familiar with the notation and terminology used in the listed references.

Texts

- *Bond Portfolio Management*, (Second Edition), 2001, by Fabozzi, F.J., editor, Chapters 2, 15-16.
- *Investments*, (Fifth Edition), 2002, by Bodie, Z., Kane, A., and Marcus, A., Chapters 1 (background only), 2-5, 6 (excluding appendix), 7, 8 (excluding appendix), 9-12 and 25.

- *Financial Economics*, 1998, by Panjer, H.H., editor, Chapters 2 (sections 1-6 only), 3, 5-6.
 - *Handbook of Fixed Income Securities*, (Sixth Edition), 2000, by Fabozzi, F.J., Chapters 1-2, 5-6, 8, 11, 14, 24, 25, (pp. 573-588, 594-601, and 607-618 only), 26, 28, 29 (pp. 679-695 only), 32 (pp. 739-740, 750-756 only), 34, 37 (pp. 837-846 only), 39, 44-45, 47, 50 and 58.
 - *Managing Investment Portfolios*, (Second Edition), 1990, by Maginn, J.L., and Tuttle, D.L., Chapters 7 (exclude pp. 36-69), 8.
 - *Valuation of Interest-Sensitive Financial Instruments*, (Second Printing), 1996, by Babbel, D. and Merrill, C., Chapters 1 (background only), 2-3, 5 and 8.
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