Financial Economic Theory Exam
Fall 2007
FINAL

Financial Economic Theory Exam	Finance, ERM and Investment

Instructional Objectives

1. Advanced Derivatives

Learning Outcomes

The candidate will be able to:

a) Define the cash flow characteristics of complex derivatives including exotic options, credit derivatives, interest rate derivatives, swaps, and other non traditional derivatives
b) Evaluate the risk/return characteristics of complex derivatives
c) Identify embedded options in assets and liabilities
d) Define option adjusted spread analysis and its limitations
e) Evaluate the impact of embedded options on risk/return characteristics of assets and liabilities.

Syllabus Resources

Investment Management for Insurers, Babbel, D. & Fabozzi, F.J., Ch., 11

Options Futures & Other Derivatives, Hull, J.C., (6th Edition) Ch. 2(2.7-2.10 only), 5, 7, 8(8.3-8.13 only), 12, 14(14.1-14.3 and 14.7-14.9 only),15, 21, 22, 31,

FET-100-07: "The JP Morgan Guide to Credit Derivatives", JP Morgan
FET-101-07 (Formerly 8V-301-00): Equity-Indexed Life Products
FET-102-07 (Formerly 8V-313-01): Variable Annuities: "No Loss" Propositions" (Sections 1 through 3.6 only)
FET-103-07 (Formerly 8E-712-05, 8V-324-05): Hedging with Derivatives in Traditional Insurance Products
FET-104-07: Chapters 6 and 12 of *Investment Guarantees*
FET-105-07: Chapter 23 of *The Handbook of Mortgage Backed Securities*
FET-106-07 (Formerly 8E-713-05): Chapters. 5 & 6 of *The Oxford Guide to Financial Modeling*
FET-107-07: Variable Product Hedging Practical Considerations

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Instructional Objectives
2. Capital Structure and Allocation of Capital
Learning Outcomes
The candidate will be able to: a) Evaluate alternative options for utilizing capital and recommend the most appropriate use in a given situation. b) Describe the steps necessary to obtain funds for a given project or firm from any specified source, and be able to recommend a specific approach to raising capital in a given situation. c) Explain the different definitions of capital and the context where they are appropriate, including regulatory, rating agency and other risk based capital requirements and how they affect decisions. d) Apply the concept of economic capital and describe methodologies for allocating capital within a financial organization. e) Recommend an optimal capital structure and how to implement it for a given business or strategy and to justify the recommendation.
Syllabus Resources
The New Corporate Finance: Where Theory Meets Practice, (3rd Edition), Chew, D.H., Ch. 8, 12, 14, 17,18, 31 *Corporate Finance Theory*, Megginson, W. L., Ch. 7, 8, 9, FET-108-07: Chapter 13 of *Integrated Risk Management*, Doherty FET-109-07 (Formerly 8FE-314-01): One Step in the Right Direction: The New C-3a Risk-Based Capital Component FET-110-07 (Formerly 8FE-320-01): Chapter 4 of *The Fair Value of Insurance Business*, Fair-Value Accounting for Financial Liabilities FET-111-07 (Formerly 8FE-405-02): Revisions to Standard and Poor's Life Insurance Capital Adequacy Model for 2001 FET-112-07: Chapter 14 of *Risk Management*, Crouhy FET-113-07 (Formerly 8FE-208-01): Allocation of Risk Capital in Financial Institutions FET-114-07 (Formerly 8FE-325-06): Capital Allocation in Financial Firms FET-115-07 (Formerly 8E-706-04): Specialty Guide on Economic Capital FET-116-07 (Formerly 8V-314-01): Performance Measurement Using Transfer Pricing "Fair Valuation of Insurance Liabilities: Principles and Methods," AAA Monograph, September 2002 http://www.actuary.org/pdf/finreport/fairval_sept02.pdf "Recommended Approach for Setting Regulatory Risk-Based Capital Requirements for Variable Annuities and Similar Products," AAA, June 2005, pp. 1 – 18 only. http://www.actuary.org/pdf/life/c3_june05.pdf

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Instructional Objectives
3. ALM/Investment Risk Management
Learning Outcomes
The candidate will be able to: a) Demonstrate how to apply ALM principles to the establishment of investment policy and strategy including asset allocation. b) Show the impact of risk analysis, including interest rate and equity risk, on portfolio construction. c) Demonstrate how to apply funding and portfolio management strategies to control equity and interest rate risk, including key rate risks. Explain the concepts of immunization including modern refinements and practical limitations. d) Describe how derivatives, synthetic securities, and financial contracting may be used to manage risk.
Syllabus Resources
Investment Management for Insurers, Babbel, D. and Fabozzi, F. J., Ch. 1, 17, 22 FET-102-07 (Formerly 8V-313-01): Variable Annuity – "No Loss" Propositions FET-103-07 (Formerly 8V-324-05, 8E-712-05): Hedging with Derivatives in Traditional Insurance Products FET-117-07 (Formerly 8V-316-02, 8FE-319-02): Asset-Liability Management for Insurers FET-118-07 (Formerly 8V-303-00): Asset-Liability Management for a Going Concern FET-119-07 (Formerly 8V-115-00): Key Rate Durations: Measures of Interest Rate Risks FET-120-07 (Formerly 8V-304-00): Portfolio Selection Based on Return, Risk and Relative Performance FET-121-07 (Formerly 8V-322-05):Long-Term Economic and Market Trends and Their Implications for Asset-Liability Management of Insurance Companies

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Instructional Objectives
4. Investment Management Process
Learning Outcomes
The candidate will be able to: a) Describe the issues influencing investment strategies, including liquidity requirements, valuation concerns, cash flow variability, compliance risk, regulatory constraints, taxation impacts, and investment management mandates. b) Identify the obligations of a fiduciary in managing investment portfolios and show how they apply in a given situation. c) Describe liquidity requirements of an investor and their impact upon portfolio management. d) Explain principles of risk-based capital management, regulatory, rating agency and economic capital and their impact upon portfolio management.
Syllabus Resources
The New Corporate Finance: Where Theory Meets Practice, (3rd Edition), Chew, D. H., Ch 31 FET-112-07: Chapter 14 of *Risk Management*, Crouhy FET-115-07 (Formerly 8E-706-04):SOA Specialty Guide to Economic Capital FET-122-07: Chapters 1 & 3 of *Managing Investment Portfolios*, Third Edition FET-123-07 (Formerly 8V-126-04): Modern Valuation Techniques FET-124-07 (Formerly 8V-323-05 & 8FE-323-05): Liability-Relative Strategic Asset Allocation Policies FET-125-07 (Formerly 6-28-00) Introduction to the Formation of Investment Strategy for Life Insurance Companies and Pension Plans FET-126-07 (Formerly 8V-120-03): Managing your Advisor: A Guide to Getting the Most Out of the Portfolio Management Process FET-127-07 (Formerly 8V-114-00 & V-C126-07): Derivatives: Practices and Principles FET-128-07 (Formerly 6-31-00): Fiduciary Liability Issues for Selection of Investments FET-129-07 (Formerly 8FE-406-02): Standard & Poor's Insurance Liquidity Model for 2000 "Investment Strategy Formulation and Implementation," RSA 22, No. 3 http://soa.org/library/proceedings/record-of-the-society-of-actuaries/1990-99/1996/january/rsa96v22n389pd.pdf "An Overview of an Investment Policy Statement in a Asset/Liability Management Context," CIA Guidance Note http://www.actuaries.ca/members/publications/1994/9430e.pdf "Liquidity Risk Measurement," CIA Educational Note http://www.actuaries.ca/members/publications/1996/9626e.pdf "Liquidity Modeling and Management," RSA, Volume 27, No. 2 http:// soa.org/files/pdf/RSA01V27N2101PD.PDF

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Instructional Objectives
5. Measurement and Management of Risk

Learning Outcomes
The candidate will be able to: a) Explain the rationale for managing risk and for the selection of the appropriate hedging level. b) Identify and describe financial and non-financial risks faced by an entity, including but not limited to: ▪ Currency risk, credit risk, spread risk, liquidity risk, interest rate risk, equity risk, product risk, operational risk, legal risk and political risk. c) Assess the overall corporate risk exposure arising from financial and non-financial risks. d) Describe risk management techniques that can be used to deal with financial and non-financial risks listed in b). e) Define risk metrics to quantify major types of risk exposure in the context of an integrated risk management process. f) Explain the limitations of risk metrics. g) Calculate effective duration and effective key-rate durations of a portfolio. h) Contrast modified duration and effective duration measures. i) Apply the elements of risk assessment, reduction, and transfer to new product/project proposals based on a cost/benefit analysis.

Syllabus Resources
Investment Management for Insurers, Babbel, D. & Fabozzi, F. J., Ch. 17 and 18. *Real Options*, Trigeorgis, L., Ch. 1, 2, 4 (exclude 4.8), 5 (exclude 5.6) FET-119-07 (Formerly 8V-115-00): Key Rate Durations: Measures of Interest Rate Risks FET-127-07 (Formerly 8V-114-00): Derivatives: Practices and Principles, (p 43-52 only) FET-130-07: "On the Determinants of Corporate Hedging" FET-131-07 (Formerly 8V-102-00): Currency Hedging Rules for Plan Sponsors FET-132-07 (Formerly 8V-103-00): Managing Currency Exposures in International Portfolios FET-133-07 (Formerly 8V-104-00): Liquidity and Trading Issues in Equity Markets FET-134-07 (Formerly 8V-105-00): Risks in Global Investing FET-135-07 (Formerly 8V-106-00): Political Risk in the World Economies FET-136-07 (Formerly 8E-704-04): Mapping of Life Insurance Risks, AAA Report to NAIC FET-137-07 (Formerly 8FE-203-00): Risk Management by Insurers: An Analysis of the Process FET-138-07 (Formerly 8V-116-00): $Risk^2$: Measuring the Risk in Value at Risk FET-139-07 (Formerly 8V-117-00): VAR: Seductive but Dangerous FET-140-07 (Formerly 8V-319-04): Life Insurance Pricing and the Measurement of the Duration of Liabilities "Liquidity Risk Measurement," CIA Educational Note http://www.actuaries.ca/members/publications/1996/9626e.pdf

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Instructional Objectives
6. Game Theory
Learning Outcomes
The candidate will be able to: a) Define the elements of a game, including information sets, etc., Nash equilibrium, mixed strategies. b) Explain the prisoners' dilemma and other special cases of a two-person, two-state, single period game. c) Explain the qualitative implications of repeated games.
Syllabus Resources
Games and Information: An Introduction to Game Theory, (4th Edition), Rasmussen, E., Chapters 1–6.