Individual Life and Annuity Life Risk Management
Fall 2014 & Spring 2015

Important Exam Information:

Exam Registration	Candidates may register online or with an application.
Order Study Notes	Study notes are part of the required syllabus and are not available electronically but may be purchased through the online store.
Introductory Study Note	The Introductory Study Note has a complete listing of all study notes as well as errata and other important information.
Case Study	A copy of the case study will be provided with the examinations. Candidates will not be allowed to bring their copy of the case study into the examination room.
Past Exams	Past Exams from 2000-present are available on SOA website.
Updates	Candidates should be sure to check the Updates page on the exam home page periodically for additional corrections or notices.

Exam: ILA - LRM	TOPIC: **Understanding Risk Management**
Learning Objectives	
1. The candidate will demonstrate an understanding of the principles of Risk Management.	
Learning Outcomes	
The candidate will be able to: A. Define and evaluate risk. B. Evaluate the role of risk management within an insurance company C. Articulate the economic incentives for applying risk management D. Describe how risk management techniques may be used to manage capital deployed by insurers and how they impact strategic decision making 	
Syllabus Resources	
• *Financial Enterprise Risk Management,* Sweeting 2011 Chapter 1 - Introduction to ERM • LRM-100-14: The Theory of Risk Capital in Financial Firms • LRM-101-14: Risk Management by Insurers: An Analysis of the Process • LRM-102-14: Insurance Criteria: Refining the Focus of Insurer ERM Criteria, June 2006 (exclude pp. 20-26 (property/Casualty -Nonlife Insurance Risk) • LRM-103-14: Insurance Risk Management Response to the Financial Crisis, CRO Forum, April 2009. LRM-104-14: Rethinking Risk Management • LRM-104-14: Rethinking Risk Management • CIA: Dynamic Capital Adequacy Testing (DCAT) Education Note, November 2007 (pages 1-33) • ERM Specialty Guide, May 2006– Chapters 1-6 • Risk Appetite: Linkage with Strategic Planning 	

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Exam: ILA – LRM	TOPIC: **Understanding the Various Sources of Risks**
Learning Objectives	
2. The candidate will demonstrate an understanding of the various sources of risks faced by an insurer.	
Learning Outcomes	
The candidate will be able to: A. Identify, categorize and evaluate potential sources of risk in products including but not limited to mortality, morbidity and lapse. B. Identify, categorize and evaluate potential sources of risk in investments including but not limited to credit risk, liquidity, equity-based exposure and asset-liability matching. C. Describe and evaluate the other risks an insurance company faces including operational, marketplace and expense risks. 	
Syllabus Resources	

• *Financial Enterprise Risk Management,* Sweeting 2011
 	
   Chapter 7 - Definitions of Risk
 	
   Chapter 14: Quantifying Particular Risks; 14.6 Liquidity Risk; 14.8 Demographic Risk & 14.9 Non-Life Insurance Risk
 	
• LRM-105-14: Mapping of Life Insurance Risks, AAA Report to NAIC (same as ERM - 401 - 12)
 	
• LRM-106-14: Moody's Looks at RM & the New Life Insurance Risks – 2000
 	
• LRM-107-14: Chapter 18 of *Value at Risk: The New Benchmark for Managing Financial Risk*, Jorion
 	
• [A New Approach for Managing Operational Risk](#) - SOA Research 2008	

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Exam: ILA – LRM	TOPIC: **Measuring & Estimating Risk**
Learning Objectives	

3.   The candidate will demonstrate an understanding of important risk measurement techniques along with their uses and limitations, and be able to perform risk measurement calculations.

Learning Outcomes

The candidate will be able to:

A.   Analyze and evaluate risk measures & estimators (e.g., Value-At-Risk, Conditional Tail Expectations, etc.)
B.   Apply and analyze scenario and stress testing in managing risk including the calibration and setting of assumptions
C.   Analyze and evaluate parameter risk

Syllabus Resources

- LRM-108-14: Study Note on Parameter Risk

- LRM-109-14: Risk2: Measuring the Risk in Value at Risk

- LRM-110-14: VAR: Seductive But Dangerous

- LRM-111-14: Value-At-Risk: Evolution, Deficiencies and Alternatives

- LRM-112-14: Stress Testing OSFI E-18

- LRM-113-14: Chapter 14 of *Value at Risk: The New Benchmark for Managing Financial Risk*, Jorion

- LRM-121-14: Value at Risk - Uses and Abuses

- LRM-122-14: An Introduction to Risk Measures for Actuarial Applications, Hardy, 2006

- How Fair Value Measurement Changes Risk Management Behavior in the Insurance Industry SOA- Rosner 2013

- Economic Scenario Work Group Report

- Summary of "Variance of the CTE Estimator", *Risk Management Newsletter*, August 2008, Issue No. 13

- Getting to Know CTE , Ingram, *Risk Management Newsletter*, July 2004, Issue No. 2

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Exam: ILA - LRM	TOPIC: **Asset Liability Management**
Learning Objectives	

4. ALM: The candidate will demonstrate an understanding of the principles of modeling, cash flow testing and asset-liability matching, and perform related calculations.

Learning Outcomes

The candidate will be able to:

A. For an ALM model:
   i)   Select appropriate assumptions and scenarios
   ii) Model dynamic behavior of both assets and liabilities
   iii) Model and explain various strategies, including hedging
   iv) Analyze and evaluate results (including actual v. projected differences)
   v)   Recommend appropriate strategies
B. Define and calculate duration, convexity and key rate durations including the rationale for matching as a means to manage risk
C. Evaluate the principles of Cash Flow Testing to help in understanding the underlying risks and to assess their impact on capital and surplus

Syllabus Resources

- LRM-114-14: ALM for Insurers

- LRM-115-14: Chapter 22 of *Life Insurance Accounting, Asset/Liability Management*

- LRM-116-14: Life Insurance Forecasting and Liability Models, exclude appendices.

- LRM-117-14: Key Rate Durations: Measures of Interest Rate Risk

- LRM-118-14: Revisiting the Role of Insurance Company ALM w/in a RM Framework

- LRM-119-14: Chapter 13 of *Valuation of Life Insurance Liabilities,* Lombardi

- LRM-120-14: Chapter 14 of *Life Insurance Products and Finance,* Atkinson/Dallas Section 14.4 only on ALM Matching