Individual Life and Annuity Life Pricing
Fall 2015 & Spring 2016

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	There is no case study for this examination.
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.

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1.

Learning Objectives

The candidate will understand the feasibility step of new product development and how it drives design.

Learning Outcomes

The Candidate will be able to:

a) Explain considerations for successful product development

b) Describe tax regulation and perform calculations to evaluate compliance

c) Identify gaps between product design and the operations of the company, its procedures and systems

d) Describe U.S. non-forfeiture regulation and perform calculations to evaluate compliance

e) Recommend ways to close the gaps between design and the internal/external constraints

Resources

- *Life Insurance Products and Finance*, Atkinson & Dallas, Ch. 2
- *Life Insurance and Modified Endowments Under Internal Revenue Code Sections 7702 and 7702A*, DesRochers, Ch. 2-4, 6
- *2008 Supplement to Life Insurance and Modified Endowments Under Internal Revenue Code Sections 7702 and 7702A*, DesRochers, pp. 3-33, 40-56, 71-81, Appendices A-C
- *Canadian Taxation of Life Insurance*, Marino, 7th Edition, Ch. 3, 14, 15 (Ch. 1 Background Reading only), Candidates can also use the 6th Edition. The same chapter references apply.

- LP-121-13: Life Insurance and Annuity Non-forfeiture Practices
- LP-122-13: NAIC Standard Non-forfeiture Law for Life Insurances: Sections 1-4, 5c, 6-9
- LP-123-13: NAIC Standard Non-forfeiture Law for Individual Deferred Annuities

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2.

Learning Objectives

The candidate will understand the design and purpose of various product types, benefits and features.

Learning Outcomes

The Candidate will be able to:

a) Describe in detail product types, benefits and features

b) Construct and recommend a design that is consistent with the market needs

c) Evaluate the feasibility of the recommended design

Resources

- *Investment Guarantees*, Hardy, Ch. 1
- LP-102-07: Equity Indexed Annuities: Product Design and Pricing Consideration
- LP-105-07: Life and Annuity Products and Features
- LP-116-10: Variable Annuities, Kalberer and Ravindran , Ch. 5, 9-11
- LP-126-13: Pricing Critical Illness Insurance in Canada, Mooney
- LP-127-13: Product Design of Critical Illness Insurance in Canada
- LP-131-15: Deconstructing Long-Term Care Insurance, Insights, Towers Watson, Nov 2012

- What's Backing Your Life Insurance Guarantee?, The Actuary Magazine, Feb 2005
- Term Mortality and Lapses, Product Matters, Aug 2005,
- ASOP #2 Non-guaranteed Charges or Benefits for Life Insurance Policies and Annuity Contracts, May 2011 (excl. Transmittal Memo and Appendices),
- Quantification of the Natural Hedge Characteristics of Combination Life or Annuity Products Linked to Long-Term Care Insurance, Mar 2012
- Is This Correction Good For Life Insurance, Product Development News, pp. 18-20, Feb 2011
- Life Insurance Acceleration Riders, SOA - Society of Actuaries - Reinsurance Section, pp. 35-38, July 2013
- Interesting Challenges for Insurers, Product Matters, June 2012, pp. 10 – 16

3.

Learning Objectives

The candidate will understand the relationship between the product features, their inherent risks, and the selection of appropriate pricing assumptions, profit measures and modeling approaches.

Learning Outcomes

The Candidate will be able to:

a) Identify and explain the setting of an appropriate assumption for product characteristics such as the following:
   - i) Riders
   - ii) Policyholder dividends
   - iii) Equity linked
   - iv) Embedded options
   - v) Return of premium
   - vi) Secondary guarantees
   - vii) Payout annuity benefits
   - viii) Crediting methodology
   - ix) Other non-guaranteed elements

b) Identify and explain the setting of an appropriate assumption for risk and other factors such as:
   - i) Available experience data
   - ii) The marketplace
   - iii) Underwriting
   - iv) Distribution channel characteristics
   - v) Reinsurance
   - vi) Expenses (fixed, variable, marginal)
   - vii) Taxes (income and premium)
   - viii) Investment strategy

c) Analyze results and recommend appropriate action from an array of risk and profit measures such as: Statutory, GAAP, Return on Equity, Market Consistent Pricing, Embedded Value

d) Analyze the capital requirements for a product and describe solutions to optimize capital usage

e) Describe when a stochastic model should be used, its advantages and disadvantages, how to build it and how to analyze its results

Resources

- *The Art and Science of Life Insurance Distribution*, Bennett and Zultowski, 2014, Ch. 3 – 7

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- *Life Insurance Products and Finance*, Atkinson & Dallas, Ch. 10, 11, 13
- *Investment Guarantees*, Hardy, Ch. 1, 2, 6, 7, 8, 12, 13
- *Stochastic Modeling: Theory and Reality from an Actuarial Perspective*, IAA, Intro, I – I.B.2, I.E, II.A.1 – II.A.3, III, IV.A – IV.A.9

- LP-102-07: Equity Indexed Annuities: Product Design and Pricing Consideration
- LP-107-07: Experience Assumptions for Individual Life Insurance and Annuities
- LP-110-07: Policyholder Dividends
- LP-113-09: Swiss Re, Economics of Insurance: How Insurers Create Value for Shareholders
- LP-114-09: CIA Research Paper, Life Insurance Costing and Risk Analysis, June 2008
- LP-129-14: Swiss Re Sigma Study on Securitization in Insurance: New Opportunities for Insurers and investors, Dec 2006, pp. 1-16, 24-26, 29 – 36
- LP-130-14: Life Insurance Underwriting in the United States, Ch. 1, 2, 4, 5, 6, Klein
- LP-132-15: Lapsed-Based Insurance, Gottlieb and Smetters, April 2014, pp.1-24 plus Appendix A (pp. 29-30)
- ~~LP-133-15:Empirical Investigation of Life Settlements: The Secondary Market for Life Insurance Policies, Januario & Naik, June 2013, pp. 1 – 20~~ (This study note has been dropped from the syllabus)
- LP-134-15: Digital Distribution in Insurance: A Quiet Revolution, Swiss Re, 2014
- LP-136-15: *Marketing for Actuaries: Individual Life and Health Insurance*, Laporte, 2000 Edition, Ch. 4 pp. 12 – 31

- Report on the Lapse and Mortality Experience of Post-Level Premium Period Term Plans. May 2014, pp.3-98
- ASOP #2 Non-guaranteed Charges or Benefits for Life Insurance Policies and Annuity Contracts, May 2011 (excl. Transmittal Memo and Appendices),
- Ending the Mortality Table, Living to 100 Symposium
- The Response of Life Insurance Pricing to Life Settlements, Product Matters, Sep 2006
- Mortality Table Slope – the Discussion Goes On, Product Matters Jul 2004
- Pricing in a Return-on-Equity Environment, TSA XXXIX, 1987
- Risk Based Pricing – Risk Management at Point of Sale, Product Matters, June 2009
- Predictive Modeling for Life Insurance, Deloitte
- Level Term Lapse Rates – Lessons Learned Here and in Canada, The Canadian Experience, Product Matters, pp.13-14, Oct 2011
- SOA - Society of Actuaries - Product Development Section Newsletter (Product Matters!), Term Conversions – A Reinsurer's Perspective, June 2012, pp. 1, 5 – 6
- CIA Educational Note: Best Estimates Assumptions for Expenses – November 2006, pp. 19 - 39
- CIA Report: Lapse Experience Study for 10-Year Term Insurance, Jan 2014, pp. 6 – 32

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- CIA Report: Lapse Experience Under Universal Life Level Cost of Insurance Policies, Oct 2007, p. 4 – 8
- SOA – Society of Actuaries, Report on Premium Persistency Assumptions Study of Flexible Premium Universal Life Products, Milliman, May 2012, pp. 9 – 15
- SOA – Society of Actuaries, Modelling of Policyholder Behavior for Life and Annuity Products, 2014, pp. 9 – 16, 23- 33, 45 – 67
- SOA – Society of Actuaries, Understanding the Volatility of Experience and Pricing Assumptions in Long-Term Care Insurance, 2014, pp. 4 – 46
- SOA – Society of Actuaries, Automated Life Underwriting: Phase 2, Deloitte, Aug 2010
- Relationship of IRR to ROI on a Level Term Life Insurance Policy, Product Matters, June 2013, pp. 18 - 21

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4.

Learning Objectives

The candidate will understand actuarial requirements of product implementation and the monitoring of experience versus product assumptions.

Learning Outcomes

The Candidate will be able to:

a) Describe and evaluate compliance with illustration regulation

b) Evaluate, through the use of Experience Studies, how actual experience varies from expected relative but not limited to: mortality, investment returns, expenses and policyholder behavior such as policy and premium persistency

c) Describe how to ensure the quality of data

d) Recommend changes to non-guaranteed elements including policyholder dividends for deviations from expected

Resources

- LP-107-07: Experience Assumptions for Individual Life Insurance and Annuities
- LP-110-07: Policyholder Dividends
- LP-124-13: Role of the Actuary in Product Roll-out
- LP-125-13: NAIC Life Insurance Illustrations Model Regulation
- LP-128-13: CLHIA - Guideline Illustrations
- LP-135-15: Update on the Interstate Insurance Compact, IIPRC, 2014

- Lapse Experience Under Lapse Supported Policies: Updated Studies from the Canadian Institute of Actuaries, Issue 71, pp.10-11, June 2008
- Expected Mortality: Fully Underwritten Canadian Individual Life Insurance Policies, CIA Education Note, July 2002 (excl. Appendices)
- Experience Data Quality: How to Clean and Validate Your Data (Exclude Appendices) SOA/LIMRA Research Report
- ASOP # 2 Non-guaranteed Charges or Benefits for Life Insurance Policies and Annuity Contracts, May 2011 (excl. Transmittal Memo and Appendices),
- ASOP #23 Data Quality (excl. Transmittal Memo and Appendices), May 2011
- SOA - Society of Actuaries - Product Development Section, The Interstate Compact, Product Matters, Feb 2013, pp. 8 – 11