

Advanced Topics in General Insurance
FALL 2014

Important Exam Information:

Exam Date and Time	A read-through time of 15 minutes will be given prior to the start of the exam.
Exam Registration	Candidates may register online or with an application.
Order Study Notes	There is no study note package for this examination.
Introductory Study Note	The Introductory Study Note has a complete listing of all readings as well as errata and other important information.
Case Study	There is no case study for this examination.
Past Exams	The Spring 2014 exam is available at this link. Past exams from 2000-present for other SOA exams are also available at that location.
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. Topic: Basic Stochastic Reserving

Learning Objectives

The candidate will understand how to use basic loss development models to estimate the standard deviation of an estimator of unpaid claims.

Learning Outcomes

The candidate will be able to:

- a) Identify the assumptions underlying the chain ladder estimation method.
- b) Test for the validity of these assumptions.
- c) Identify alternative models that should be considered depending on the results of the tests.
- d) Estimate the standard deviation of a chain ladder estimator of unpaid claims.
- e) Apply a parametric model of loss development.
- f) Estimate the standard deviation of a parametric estimator of unpaid claims.

Resources

- Mack, T., "Measuring the Variability of Chain Ladder Reserve Estimates," Casualty Actuarial Society Forum, Spring 1994
This article may be accessed at www.casact.org through the following navigation:
 - Publications
 - E-Forum
 - 1994 Spring Forum
 - Measuring the Variability ...
- Venter, G.G., "Testing the Assumptions of Age-to-Age Factors," PCAS LXXXV, 1998
This article may be accessed at www.casact.org through the following navigation:
 - Publications
 - Yearbook/Proceedings
 - Past Issues of the Proceedings of the Casualty Actuarial Society
 - 1998 Proceedings of the Casualty Actuarial Society, Volume LXXXV
 - Testing the Assumptions ...
- Clark, D.R., "LDF Curve Fitting and Stochastic Reserving: A Maximum Likelihood Approach," Casualty Actuarial Society Forum, Fall 2003
This article may be accessed at www.casact.org through the following navigation:
 - Publications
 - E-Forum
 - 2003 Fall Forum
 - LDF Curve Fitting ...

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2. Topic: Risk Margins for Unpaid Claims
Learning Objectives
The candidate will understand the considerations in selecting a risk margin for unpaid claims.
Learning Outcomes
The candidate will be able to: a) Describe a risk margin analysis framework. b) Identify the sources of uncertainty underlying an estimate of unpaid claims. c) Describe methods to assess this uncertainty.
Resources
<ul style="list-style-type: none">• Marshall, K., Collings, S., Hodson, M., and O’Dowd, C., “A Framework for Assessing Risk Margins,” Institute of Actuaries of Australia 16th General Insurance Seminar, 9-12 November 2008, Coolumb, Australia http://www.actuaries.asn.au/Library/Framework%20for%20assessing%20risk%20margins.pdf

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3. Topic: Credibility with Shifting Risk Parameters

Learning Objectives

The candidate will understand how to use a credibility model with parameters that shift over time.

Learning Outcomes

The candidate will be able to:

- a) Identify the components of a credibility model with shifting risk parameters.
- b) Apply the model given various assumptions.
- c) Estimate the parameters of the model.
- d) Compare various models that might be used.

Resources

- [Klugman, S.A., "Credibility with Shifting Risk Parameters," SOA Study Note, 2014](#)

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4. Topic: Reinsurance Pricing
Learning Objectives
The candidate will understand how to apply the fundamental techniques of reinsurance pricing.
Learning Outcomes
The candidate will be able to: a) Calculate the price for a proportional treaty. b) Calculate the price for a property per risk excess treaty. c) Calculate the price for a casualty per occurrence excess treaty. d) Apply an aggregate distribution model to a reinsurance pricing scenario. e) Describe considerations involved in pricing property catastrophe covers.
Resources
<ul style="list-style-type: none">• Clark, D.R., "Basics of Reinsurance Pricing," CAS Study Note, 2014

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5. Topic: Underwriting Profit Margins
Learning Objectives
The candidate will understand methodologies for determining an underwriting profit margin.
Learning Outcomes
The candidate will be able to: <ul style="list-style-type: none">a) Calculate an underwriting profit margin using the target total rate of return model.b) Calculate an underwriting profit margin using the capital asset pricing model.c) Calculate an underwriting profit margin using the risk adjusted discount technique.d) Allocate an underwriting profit margin (risk load) among different accounts.
Resources
<ul style="list-style-type: none">• D'Arcy, S.P., and Dyer, M.A., "Ratemaking: A Financial Economics Approach," PCAS LXXXIV, 1997 (excluding Sections 7 and 8) This article may be accessed at www.casact.org through the following navigation:<ul style="list-style-type: none">- Publications- Yearbook/Proceedings- Past Issues of the Proceedings of the Casualty Actuarial Society- 1997 Proceedings of the Casualty Actuarial Society, Volume LXXXIV- Ratemaking: A Financial ...• Mango, D.F., "An Application of Game Theory: Property Catastrophe Risk Load," PCAS LXXXV, 1998 This article may be accessed at www.casact.org through the following navigation:<ul style="list-style-type: none">- Publications- Yearbook/Proceedings- Past Issues of the Proceedings of the Casualty Actuarial Society- 1998 Proceedings of the Casualty Actuarial Society, Volume LXXXV- An Application of Game ...