

LIFE, HEALTH & ANNUITY
REINSURANCE

THIRD EDITION

JOHN E. TILLER, JR., FSA
DENISE FAGERBERG TILLER, FSA

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CONTENTS

Introduction	iii
Preface	v
Acknowledgments	xi

Part One Basic Terminology of Life, Health, and Annuity Reinsurance

1 Introduction	3
Uses of Reinsurance	4
Classifications of Reinsurance	13
Classifications of Reinsurers	17
Effects of Reinsurance on Company Operations	22
2 Automatic Reinsurance	25
Requirements for Automatic Reinsurance	26
Determining the Amount of Automatic Reinsurance	37
Using Multiple Automatic Treaties	39
Effecting Automatic Reinsurance	43
Automatic Reinsurance Considerations	44
3 Underwriting and Facultative Reinsurance	47
Ceding Company Uses of Facultative Reinsurance	49
Facultative Reinsurance Considerations: The Ceding Company	53

Reinsurer Uses of Facultative Reinsurance	56
Reinsurer Considerations	59
Facultative Reinsurance Variations	61
4 Basic Methods of Reinsurance	65
Comparative Model	66
Plans of Traditional Reinsurance	68
5 Advanced Methods of Reinsurance	115
Reinsurance and Financial Planning	116
Terminology	121
Comparative Model	123
Advanced Methods of Reinsurance	125
Regulation and Taxation	180
Security Considerations	182
Part Two	
Administrative and Functional	
Considerations	
6 The Reinsurance Treaty	189
Definition of the Agreement	191
Definition of Risks Reinsured	191
Terms and Specifications	196
Administration	198
Special Provisions	210
Preparing the Treaty	220
7 Reinsurance Administration	225
Basic Administrative Procedures	225
Ceding Company Administration	228
Reinsurer Administration – Indemnity Reinsurance	237
Reinsurer Administration – Assumption	247
Reinsurer Administration – Fronting	248
8 Managing Ceded Reinsurance	249
Retention Limits	249
New Business	264
Inforce Reinsurance	271
Facultative Reinsurance	273

9	Managing Assumed Reinsurance	275
	Pricing	275
	Retention Limits	288
	Retrocession Agreements	288
	Inforce	289

PART THREE
REGULATORY, ACCOUNTING, AND TAX
CONSIDERATIONS

10	Reinsurance Regulations	301
	Reserve Credit	302
	Mirror Image Reserves	315
	Unauthorized Reinsurers	319
	Other Areas of Regulation	323
	Other Issues	330
11	Insolvency and Reinsurance	333
	Model Act	334
	The Insolvency Clause	336
	Reinsurer Insolvency	341
	Policyholder Rights	342
	Managing the Insolvency Risk	342
12	Statutory Accounting for Reinsurance	347
	Regulations and Accounting Standards	348
	Balance Sheet	353
	Summary of Operations	356
	Analysis of Operations by Lines of Business	357
	Exhibits	359
	Other Annual Statement Items	365
13	GAAP Accounting for Reinsurance	367
	Background	368
	GAAP and Reinsurance	369
	GAAP for Ceded Reinsurance	380
	GAAP for Assumed Reinsurance	387

14 Tax Effects of Reinsurance	397
State Taxes	398
United States Federal Income Tax	400
Tax Planning	418
Other Tax Related Issues	420
 PART FOUR SPECIAL TOPICS AND APPLICATIONS 	
15 Nonproportional Reinsurance	427
Stop Loss	428
Catastrophe Coverage	431
Spread Loss	432
Reserve Considerations	433
16 Assumption	437
The Assumption Process	438
Financial Effects	445
Strategic Considerations	448
17 Special Purpose Reinsurance Companies	453
Producer Owned Reinsurers	455
Agent Owned Reinsurance Companies	460
Captives and Other Special Purpose Reinsurers	466
“True” Captives and Joint Ventures	470
Special Purpose Vehicles and Capital	471
18 International Reinsurance	475
Motivations for International Reinsurance	476
Considerations	478
Selected International Reinsurance Markets	483
Special Cases Regarding Reserve Requirements	492
19 Health Reinsurance	495
Disability Income	496
Plans of Accident and Health Insurance	502
Major Medical and Comprehensive	509
Other Considerations	518

20 Annuity Reinsurance	523
Annuity Products	524
Special Considerations	538
Structuring Reinsurance	543
21 Additional Reinsurance Topics	545
Group Life and AD&D Insurance	545
Accelerated or Living Benefit Riders	547
Reinsurance with Affiliates	548
Reinsurance Intermediaries	551
Appendix	555
Glossary	613
Bibliography	633
Index	637
About the Authors	647

15 | NONPROPORTIONAL REINSURANCE

In a life insurance company, proportional reinsurance is used to prevent any one claim from having a significant negative effect on earnings and surplus; nonproportional reinsurance is used primarily to reduce fluctuations in total claims. Proportional reinsurance applies on an individual, risk by risk basis, regardless of overall claims results. Nonproportional reinsurance may be applied on an individual risk basis, used to limit claims on a block of business, or used to reduce the ceding company's exposure to a particular hazard. The reinsurer's participation in the risk depends upon the amount of the claim or claims, the number of claims, or some combination thereof.

It is not the intent of this book to discuss all of the applications and ramifications of nonproportional reinsurance. This chapter provides a brief introduction to the more common forms of nonproportional reinsurance used in life insurance: stop loss, catastrophe, and spread loss coverages. Under each of these forms, the reinsurance risk and coverage applies to a block of risks, not to individual risks.

Nonproportional forms of coverage are frequently used for accident and health as well as property and liability coverages for both blocks of business and individual risks¹.

¹ For accident and health and other open-ended benefit coverages, stop loss may apply either in "aggregate" to collective risks or in "specific" form to a single risk. See Chapter 19, Health Reinsurance.

STOP LOSS

Stop loss coverage provides protection against an excessive number or amount of claims in a specified contract period. While stop loss coverage may be used alone, it is used more commonly in conjunction with proportional reinsurance.

Stop loss coverage may be useful if the ceding company wishes to increase its retention limit for new business. Stop loss can provide a cushion from unfavorable overall claims experience following a retention increase. However, combining a higher retention and stop loss with recapture of inforce reinsurance is prohibited under most treaties. Reinsurers usually take the position that recapture and subsequent coverage under a stop loss agreement is an act of recapturing to cede the block to another reinsurer.

For life insurance, stop loss applies to a block of policies, not just to one life. In a stop loss arrangement, the reinsurer pays only covered claims in excess of an attachment point. This point usually is expressed in terms of a percentage of expected claims, subject to some minimum level of claims. The attachment point typically is set as an amount equal to at least one maximum claim above the expected amount of claims. A typical attachment point might be 110% of expected claims after deduction for reimbursements from any proportional reinsurance.

Certain types of claims may be excluded from the coverage, such as group coverages or certain blocks of small amounts at risk. When total covered claims have exceeded the attachment point, the stop loss reinsurer will pay a specified percentage of all additional net claims up to a predetermined maximum.

Terms of a typical stop loss agreement for life insurance might be as follows:

Maximum Retention:	\$100,000 per life.
Expected Claims:	\$5,250,000 (defined by formula as, say, 105% of a specified experience table, where “true” expected claims would be \$5,000,000).
Attachment Point:	110% of expected claims, subject to a minimum of \$5,775,000. ²
Limits:	90% of all covered claims in excess of the attachment point amount, up to a total maximum of \$1,000,000, with a maximum on any single life of \$100,000.

In this example, if actual claims were under \$5,775,000, the stop loss coverage would pay nothing. If actual claims were, for example, \$6,500,000, the reinsurer would pay 90% of the excess claims, which is 90% of \$6,500,000 less \$5,775,000, or \$652,500. If actual covered claims equaled or exceeded \$6,886,111, the reinsurer would pay \$1,000,000. This assumes that the limit of \$100,000 on each life has been applied in calculating covered claims, and that all excluded risks have been taken into account properly.

The premium charged for stop loss coverage is often expressed as a percentage of expected claims plus a fixed fee. In theory, stop loss net premiums are easy to calculate using risk theory methods. However, parameters such as epidemics, catastrophes, and other non-independent events, as well as the high probability of fluctuation, must be considered and create significant complications. The calculations of claims, both expected and actual, and premiums may be difficult because of problems in assembling the appropriate data.

The method used to determine expected claims is obviously critical and must be carefully defined in the reinsurance treaty. Coverage is restricted to net retained claims in order to avoid duplication of reinsurance. Both expected and actual claims are determined on the net amount at risk, not the gross death benefit. The net premiums are then

² The \$5,775,000 is calculated as $1.05 \times 1.10 \times \$5,000,000$. In this case the 10% margin exceeded the \$100,000 minimum of one retention, so no additional amount was added.

loaded to cover expenses and the risk of deviation. Sometimes, this loading is several times the net premium.

Stop loss coverage is relatively inexpensive and useful for protecting surplus. Proper use of stop loss could lead to lower long term reinsurance costs by allowing companies to establish higher individual risk retentions. The coverage is also closely aligned with most management needs, protecting overall surplus and earnings from all claim fluctuations, even those in the normally retained portion of the business.

Few United States or Canadian insurers purchase stop loss.³ The maximum coverage amounts available, both overall and per life, are relatively small. As a practical matter, stop loss provides little protection against claim fluctuations for most insurers. Stop loss cannot replace individual risk coverages, but can supplement those traditional coverages.

Stop loss coverages are not guaranteed to be renewable at a given rate, or even to be renewed at all. Rather they must be renegotiated and repriced each year. This uncertainty may cause ceding company management to be reluctant to place long term reliance on a stop loss agreement as a tool for surplus protection.

Furthermore, such coverages are not widely available. Few North American reinsurers offer stop loss coverage on life insurance because it combines a very low premium, a risk of significant impairment to earnings, and little market demand. While the probability of a claim is low, the cost, when one occurs, is high. It is difficult to write enough stop loss coverage in any year to provide an adequate spread of risk and to attain a balance of premiums and claims. Accounting models require all premiums and claims to be fully recognized in the period of coverage, normally one year, so losses cannot be spread over a number of years of coverage.

Those reinsurers that write stop loss coverage sometimes do so only as an accommodation to existing clients and with some reliance on the trend of improving mortality experience. The reinsurer has a very low probability of recouping any losses incurred on a case because the

³ Nonproportional coverages, both stop loss and catastrophic, are much more common in other parts of the world, such as Asia, Latin America and parts of Europe including Spain, Scandinavia, and France.

ceding company can terminate a contract rather than pay the increased premium which would likely result from a year of bad claims.

Administration of stop loss and accumulation of the necessary data, for both premium and claim computations, is difficult. With proper use of information technology and systems, such problems are reduced, but not eliminated. Systems resources are still necessary, as well as very accurate coding of records.

CATASTROPHE COVERAGE

Catastrophe coverage, or *cat cover*, is more commonly used than stop loss for life insurance. Catastrophe coverage protects the ceding company against multiple single claims from a single event such as a plane crash, a fire, an earthquake, or some other accident or natural disaster. The covered events must be carefully defined and may exclude epidemics, wars, riots, terrorism, nuclear hazards, or certain specified events. Certain types of risks may also be excluded, such as sports teams, airline personnel, credit card and travel accident coverage, long term disability, assumed reinsurance, or even group life insurance.

Catastrophe coverage protects the ceding company from unplanned, presumably random concentrations of risks or claims. One of the major concerns in writing cat covers is the possibility of risk concentrations. This refers to a group of lives working or living in a single geographic location. As a result of this concern, known concentrations usually are excluded from the catastrophe coverage, or a higher premium is charged.

This concern came to the forefront with the events of September 11, 2001, as large numbers of individuals from the same employer as well as employees from several employers in a common location were exposed to or perished from terrorist activity. Several catastrophic and accidental death coverages were triggered that day. One reaction was increased industry focus on concentration risks. Exclusion of known concentrations is a more common term since 2001, and efforts to identify concentrations are more extensive.

Other immediate market reactions to 9/11 included reduced availability of cat covers, higher prices, and more restrictive terms and conditions of coverage. Since then, the costs have been somewhat lower and coverage is more available, but the market has not returned to its previous condition.

Each agreement is individually negotiated and unique. The premium for the coverage is usually expressed in terms of either a rate per million of mean inforce business or a percentage of the maximum benefit.⁴ The contract will specify a minimum required number of individual claims and overall deductible per event as well as the maximum amount of claims covered. A per life limit is used to limit claims. Only the net amounts at risk will be used in determining premiums and claims.

Catastrophe covers are very useful and were relatively common before 2001 as both large and small companies are exposed to multiple deaths from a single event. In fact, larger companies may have a higher probability of loss from any one accident because of a larger exposure. Usually, the coverage pays only after the occurrence of three, four, five, or more deaths from a single event. Large deductibles are common. Some companies desiring a large amount of catastrophe coverage purchase two or more contracts in layers. Each layer would have a deductible which would include all layers below it.

Because the probability of a catastrophic event is relatively small, cat covers are unlikely to replace traditional proportional reinsurance or be used to justify an increase in retention limits.

SPREAD LOSS

A *spread loss* agreement provides coverage if a company's losses in a given year exceeded a specified attachment point. The attachment point and reinsurer's participation can be defined in a manner similar to that used for stop loss. If a claim occurs, the reinsurer would pay the ceding

⁴ This percentage of maximum benefit is commonly referred to as the *rate on line*.

company. The ceding company would then repay the amount of the claim with interest over a period of years, thus spreading the loss. The repayment is frequently accomplished by an increase in the premium following incurral of a claim. Premiums are somewhat arbitrary and are subject to negotiation.

In its traditional form, spread loss reinsurance is not really a form of reinsurance, but is more a means of changing the timing of cash flows. It is, in effect, a loan or financing and is treated as such in both statutory and GAAP accounting.

This type of coverage may be useful for smoothing the cash flow of a company, but it does not protect balance sheet surplus. Spread loss would not qualify for statutory reserve credit or be treated as reinsurance for GAAP purposes. Any cash benefit received by the company would almost certainly result in the establishment of a liability for future repayment.

The risks to the reinsurer are not among the normal ones of mortality, morbidity, persistency, interest, or default, but rather those of cash flow timing, credit, or insolvency, the same risks as with a loan. If the ceding company becomes insolvent during the period of time it owes the reinsurer a spread loss payment, the receiver likely would terminate the reinsurance agreement and the reinsurer would not be repaid. Any claim that the reinsurer paid would be recovered only subject to the continued solvency of the ceding company.

RESERVE CONSIDERATIONS

There are no firmly established standards for reserves for nonproportional reinsurance. Judgment and familiarity with Actuarial Standard of Practice No. 11 and Financial Accounting Standards 113 and 133 are important.

CEDING COMPANY

One point common to most nonproportional reinsurance is that it seldom qualifies for any reinsurance reserve ceded credit in the convention blank

other than a reserve for claims in the course of settlement, including an incurred but not reported element. Since nonproportional reinsurance generally covers only risks beyond those covered by normal reserves, no reserve credit is taken.

However, a stop loss agreement can be constructed in such a manner that it transfers a risk which is covered by the basic reserves. For example, consider a stop loss coverage with the attachment point set at 80% of the valuation mortality table rates. In this case, some reserve credit for the remaining 20% of the valuation mortality table may be justified, but the situation is unclear. Discussion with and approval by the appropriate regulatory authorities is advised.

In general, other than for claims, reserve credits for nonproportional coverages have not been acceptable to regulators. Even an unearned premium credit is difficult to justify unless the company can demonstrate a high probability that a recovery is likely. With application of Actuarial Standard of Practice No. 11 on reinsurance, forms of nonproportional reinsurance which provide acceptable reserve or surplus (RBC) credit may be possible. The issue is not really the form of the reinsurance as much as it is the transfer of risk and the timing of cash settlements. Many regulators have historically insisted on proportionality⁵ before they would permit any reserve credits.

If, in the course of producing the statutory annual statement, it is determined that monies are owed to a ceding company as the result of a nonproportional reinsurance agreement, that company may include those amounts as a credit just as it would for any other reinsurance claim recovery. The acceptability of any credit would be subject to the normal rules regarding authorized and unauthorized reinsurers.

In reviewing reserve credits for nonproportional reinsurance, the terms of the specific agreement must be considered. In a normal stop loss or catastrophe coverage situation, any claims recoverable would be treated as any other reinsurance claims recoverable. However, in a spread loss situation, any claim due most likely would be offset by future premiums and would be an offsetting liability for the ceding company.

⁵ In this context, proportionality is intended to convey the thought of the reinsurer paying a fixed percentage of each claim as it is incurred by the ceding company, not paying amounts following the depletion of some fund held by the ceding company or paying only after overall experience has exceeded some level.

On a GAAP basis, a benefit reserve credit might be appropriate for stop loss or catastrophe if a model based on GAAP assumptions demonstrates that a recovery is expected. Premiums typically would flow through as incurred. Unearned premiums may be considered for inclusion in both GAAP and statutory balance sheets, according to the terms of the treaty.

Under United States GAAP accounting, a typical spread loss agreement would be treated as financing, or a loan, not reinsurance, and receive deposit accounting treatment. In effect, a liability would be established for future repayment. In Canada, both statutory and GAAP accounting require the recognition of all future net cash payments, leading to the conclusion that spread loss would be of no benefit in financial reporting, and, in fact, the reinsurer might be required to recognize any margin accruing to its benefit immediately.

REINSURER

For statutory purposes, some reinsurers take the gross premiums into earnings as earned during the year covered. Others reserve all or part of the net premium. If a reserve is established, a claim payment usually reduces the reserve before it affects surplus. Regardless of the practice regarding reserves, the reinsurer should maintain adequate surplus in relation to its risk for nonproportional reinsurance.

Under GAAP accounting,⁶ all premiums normally would be earned during the period of coverage and all claims fully recognized when they occur. In some instances, it may be permissible to report only the loading as earnings, establishing a benefit reserve from net premiums. If the reinsurer wishes to establish a benefit reserve, it should be able to demonstrate that a future claim is a reasonable likely event. It should also provide a computational mechanism for releasing the reserve over some period of time if a claim does not occur.

Under either statutory or GAAP, if a claim is incurred, the reinsurer should establish a reserve for the value of the amount it expects to pay, discounted consistently with other claim amounts.

⁶ As with all accounting questions, treatment of accounting for nonproportional treaties should be discussed with the reinsurer's accounting firm.