INTRODUCTION TO REINSURANCE

Presentation for *Actuary Day*

University of California Santa Barbara

April 25, 2014

Overview of presentation

- Axioms and Definitions
- Purpose for reinsurance
- History
- Types of reinsurance
- Risk transfer
- Reserves
- Reserve credit
- Financial example
- Reinsurance treaty

Axiom

- **A rule or principle that many people accept as true**
  - maxim widely accepted on its intrinsic merit
  - a statement accepted as true as the basis for argument or inference
  - an established rule or principle or a self-evident truth

Actuarial Axiom #1

- **Actuaries are the true protectors of the bottom line**
- **Accountants know how to account for business/operations**
  - CFO’s
  - Auditors
- **Actuaries by training are knowledgeable on all facets of the insurance company’s operations**
- **Actuaries are the architects/engineers of the products sold by insurance companies**
- **Actuaries attest to the adequacy of assets and liabilities**
- **Actuaries can explain the variances of inforce and new business**

Actuaries are the true protectors of the bottom line

Actuarial Axiom #2

- **Reinsurance is a vehicle to financially protect a company's surplus**
- **Reinsurance is a vehicle to allow companies to write business in excess of their retention limits**
- **Reinsurance is a vehicle to diversify risk**
  - Transfers risk to one company or more (a pool) than one company

Reinsurance – a few definitions

- **Reinsurance refers to insurance purchased by an insurance company to cover all or part of certain risks on insurance policies issued by that company**
- **In a reinsurance transaction, one insurance company, *reinsurer*, for a consideration agrees to indemnify another insurance company*, ceding company or reinsured*, against all or a part of a loss which the *ceding company* may incur under certain policies of insurance which it has issued**
- **A reinsurer may be another insurance company, a "professional" reinsurer, or some other financial services organization**
- **The fundamental principle of reinsurance is when a *transfer of risk occurs* on the underlying policies**
  - Single risk
  - Any combination of risks

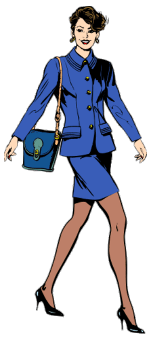
continued

Reinsurance – a few definitions

- ***Reinsurance intermediary*** **is an individual or entity acting as an agent/broker on behalf of the ceding company to facilitate placing (and binding) reinsurance with a reinsurer**
- **A *retrocessionnaire* is a reinsurer to a reinsurer – when a reinsurer reinsures its business to another reinsurer it is called a *retrocession***
- **Reinsurance has applications in risk management, financial planning, capital management and meeting strategic objectives**

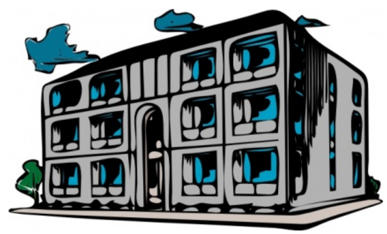
Typical reinsurance transaction

- **The ceding company sells a policy ($1 mil face amount) to an individual, retains a portion ($200,000) and transfers the balance ($800,000) to a reinsurer**



Premium →

← Policy Benefits



Premium →

← Policy Benefits

Individual
(purchases $1 mil insurance policy)

Ceding Company
(sells $1 mil policy to individual and cedes $800k of risk to Reinsurer)

Reinsurer
(accepts $800k risk from Ceding Company)

Purpose for reinsurance

- **Mortality/Morbidity Risk Transfer – most common reason; Ceding Company only retains risk up to a certain limit (called retention limit) or as a percentage (called quota share)**
- **Lapse or Surrender Risk Transfer – mainly used for policies with large first year commissions**
- **Investment Risk Transfer - utilize benefits of reinsurer's investment facilities or to shift part of risk to reinsurer**
- **New Business Financing - shift costs of acquiring business to reinsurer**
- **Mergers and Acquisitions - increase capital through transferring risk of an inforce block**
- **Entering New Markets - utilize reinsurer's expertise**
- **Divesting a Product Line - reinsure inforce business to exit certain businesses**

continued

Purpose for reinsurance

- **Increase Profitability of Product** - differences in cost structures between cedant and reinsurer could cause the product to be more profitable when reinsured
- **Financial Planning/Capital Management** - may need to increase statutory surplus through reinsure or sale of block of business
- **Reduce Volatility of Returns** - reinsurance can reduce the Ceding Company's exposure to large claims
- **Tax Planning** - done to maintain Life/non-Life status or utilize an expiring tax loss carry-forward
- **Enterprise Risk Management** - reduce concentration of risk or utilize a reinsurer's lower cost of capital

History of reinsurance – fun facts

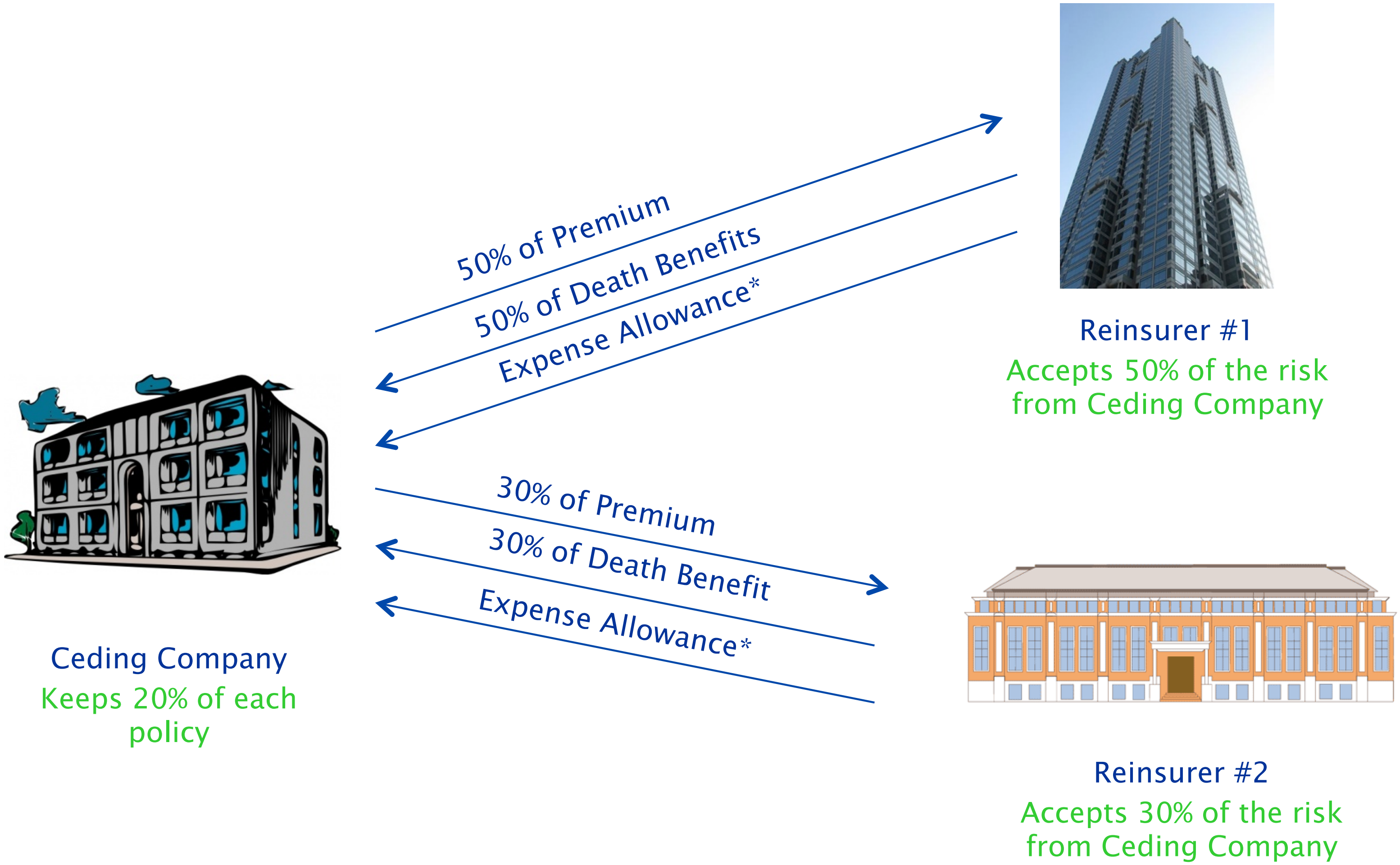
- **1370 - First recorded reinsurance contract covered Marine Voyage from Genoa to Harbor of Bruges**
- **1688 - Edward Lloyd Coffee House Established**
- **1820 - First Automatic Reinsurance Treaties covering fire risks in Germany, primarily written by direct writing companies**
- **1844 - The first life reinsurance coverage offered in England**
- **1846 - Cologne Reinsurance was the first independent reinsurance company**
- **In 1919 - Metropolitan Life Insurance Company (MET) organized a separate Reinsurance Division.**
- **1940-80's - Large increase in new capacity**
- **1990-Today - Mergers & Acquisitions**

LLOYD'S

Types of reinsurance - coinsurance

- Reinsurance coverage ceded to the Reinsurer on an individual policy is in the same form as that of the policy issued to the policyholder
- "Same form" means the Ceding Company and Reinsurer are exposed to the same risks, they are essentially sharing the responsibility of insuring the policy, hence the name co-insurance
- Since the Ceding Company generally continues to maintain the policy administration, the Reinsurer will allocate a portion of the premium to return to the Ceding Company to cover a portion of these administration expenses
- In addition to covering the administration expenses, the Reinsurer will also return a portion of the premium to the Ceding Company to cover agent commissions and underwriting expenses
- The total returned premium is called an expense allowance

Typical coinsurance structure – reinsurance pool

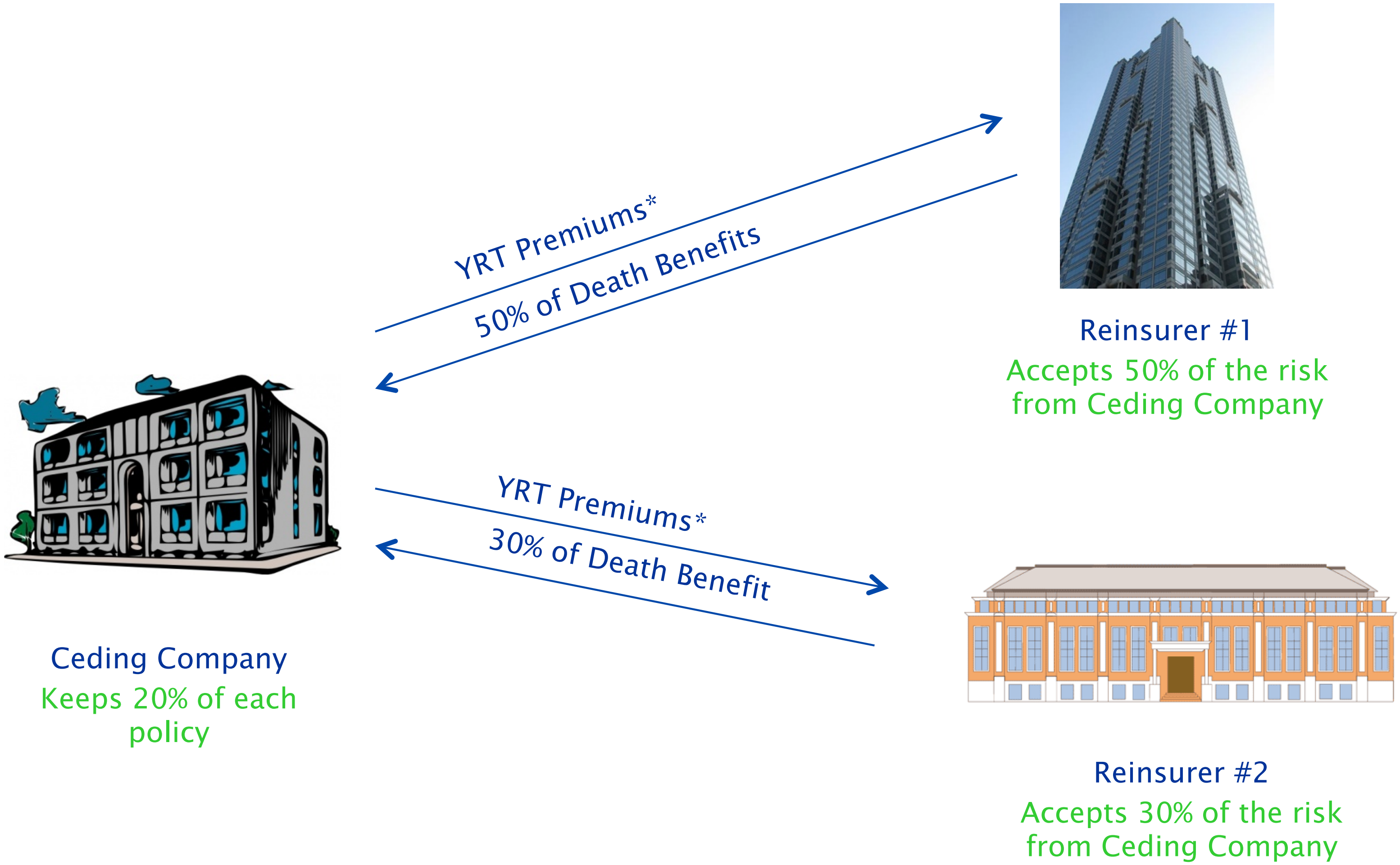


*The expense allowance will often vary by Reinsurer

Types of reinsurance – YRT (Yearly Renewable Term)

- **Reinsurance coverage for which the premium rates are not directly related to the premium rates of the original plan of insurance**
- **The premium rates are typically based on an industry mortality table; multiplied by the Net Amount at Risk (NAR) – (Death Benefit – Reserve)**
- **Mortality rates generally increase each year; the premium rates per $1,000 will be increasing**
- **There is generally not an expense allowance**
- **The reinsurer's reserves under a YRT arrangement are typically much smaller than those produced under a coinsurance arrangement**
- **YRT is generally thought of as "mortality only" reinsurance and is one of the "lowest cost" forms of mortality risk transfer**

Typical YRT structure – reinsurance pool



*The YRT premiums may vary by Reinsurer

Reinsurance – risk transfer

- *Risk Transfer* is the equitable transfer of all significant risks and responsibility for payment of future benefits, from the Ceding Company in exchange for reserve credit, to the Reinsurer in exchange for compensation
- The importance of risk transfer is the allowance of reserve credit for the Ceding Company
- Eleven statutory rules must be met in order to validate risk transfer

Reserves 101

- ***Reserve*** **– to keep back or save for future use**
- ***Reserve*** **- to help the insurance company honor its commitments to policyholders**
- **Necessary when premiums are designed and expected to be more than sufficient to pay benefits in the early policy years and less than sufficient in the later policy years**
- **When this occurs, the insurer needs to set aside money today to be able to pay claims in the future**

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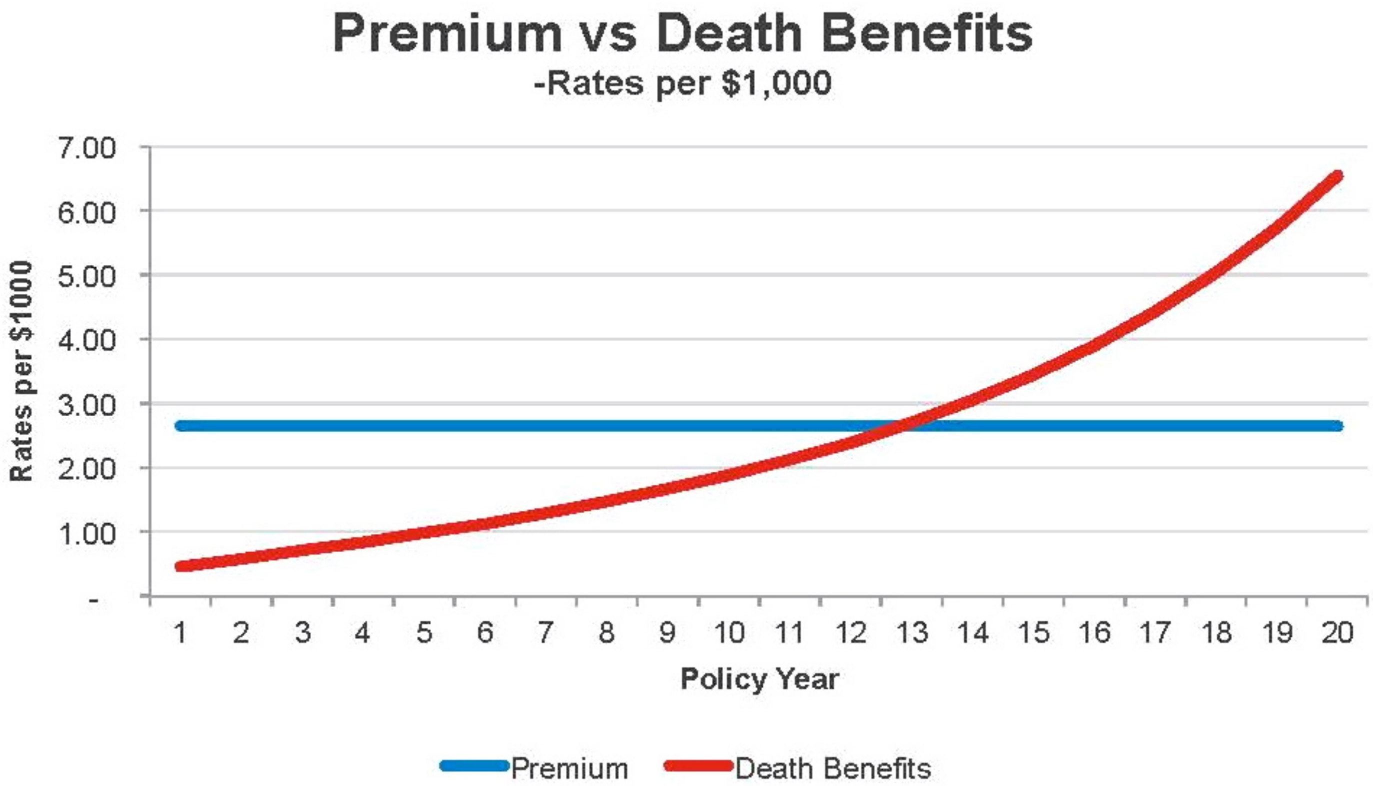
Reserves 101

With common life insurance products such as level premium term or whole life, cash needs to be set aside in the early years of a policy in order to pay claims in the later years.



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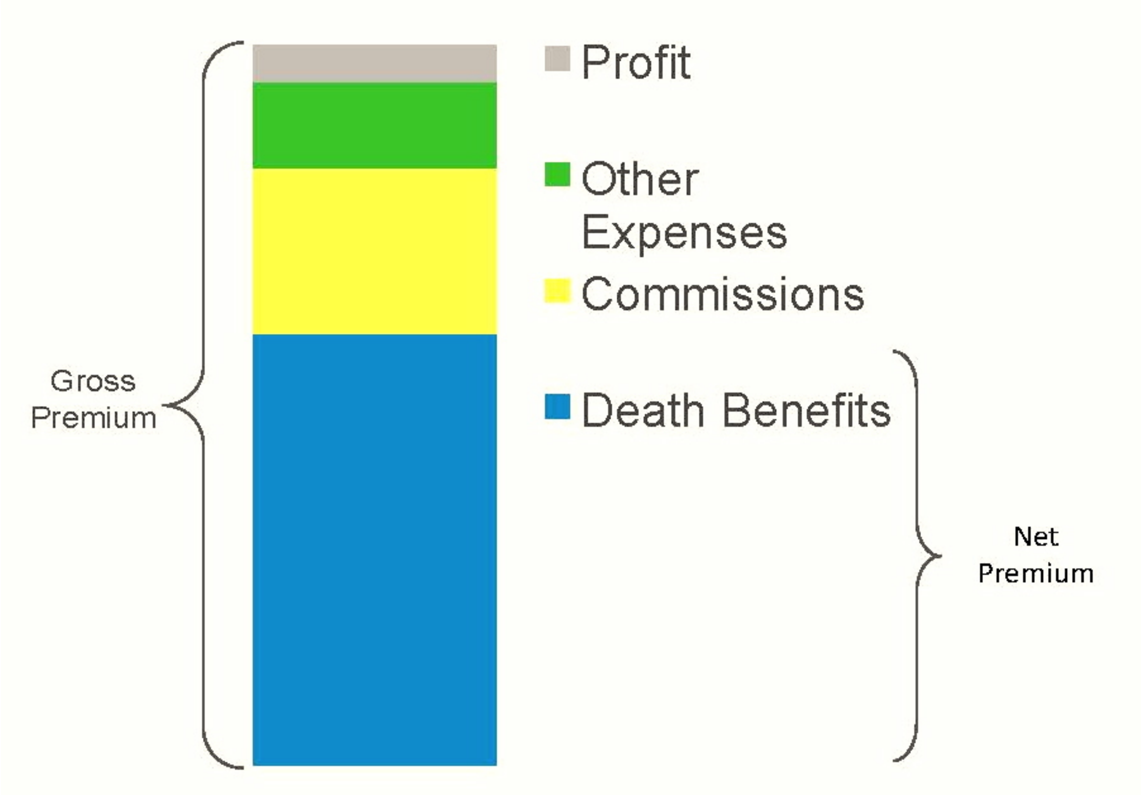
Reserves 101

Gross premiums are expected to cover death benefits, commissions, other expenses, and profits. When calculating the policy reserve only the portion of the premium needed to pay death benefits is typically used.



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Reserves 101 – actuarial definition

- **Prospective method**
- **Reserve = (Present value of future death benefits) – (Net premium ratio) * (Present value of future premiums)**
- **Reserve = PVFDB – NPR*PVFP**
- **Where NPR = (PVFDB at issue)/(PVFP at issue)**

The risk reinsurance introduces

- **Recall the purpose of reserves is to help the insurance company honor its commitments to the policyholder**
- **When a reinsurance arrangement is entered, the Ceding Company transfers a portion of the risk to the Reinsurer**
- **Even though a portion of the risk is transferred, the Ceding Company is still liable to the policyholder for the full amount of benefits**
- **This is especially true even in the event of a Reinsurer insolvency**
- **Because the reserve provides additional protection to the policyholder, the Ceding Company needs to have certainty it can access the assets backing the reserve in the event of a Reinsurer insolvency**

Reinsurance and reserve credit security

- When an insurance company sells a policy to a policyholder, it will need to hold a reserve to ensure payment of death benefits
- When the insurance company cedes a portion of the risk through reinsurance, the Ceding Company will be able to reduce the amount of reserves it needs to hold, given certain conditions are met by the Reinsurer
- For example, if the Ceding Company retains 20% of the risk, and the current year reserve is $1,000, it will account for a net of $200 in reserves and the Reinsurer(s) will account for $800 in reserves
- Just as there are rules governing risk transfer, there are rules governing collateral requirements for reserve credit

Financial example – Balance Sheet for Promise to Pay Life Insurance Company (PPLIC)

ANNUAL STATEMENT FOR THE YEAR 2013 OF
THE PROMISE TO PAY LIFE INSURANCE COMPANY

ASSETS (000,000)

Invested Assets	7,068
Non-Invested Assets	393
Total Assets excluding SA	7,461
Separate Account Assets	5,207
Total Assets	12,668

LIABILITIES (000,000)

Aggregrate Reserves for Life Insurnace	5,496
Aggregrate Reserves for Health Insurance	223
Liability for Deposit Contracts	619
Liability for Contract Claims	95
Other Liabilities	230
Total Liabilities excluding SA	6,663
Separate Account Liabilities	5,207
Total Liabilities	11,870

SURPLUS (000,000)

Risk-Based Capital	253
Unassigned Surplus	545
Total Surplus	798
Total Liabilities, Capital and Surplus	12,668

continued

Financial example – Reserves for PPLIC

ANNUAL STATEMENT FOR THE YEAR 2013 OF
THE PROMISE TO PAY LIFE INSURANCE COMPANY

AGGREGRATE RESERVES FOR LIFE INSURANCE (000,000)

Life Insurance	4,305
Annuitites	2,684
Supp Contract w/LC	10
ADB	1
Disability - Active	5
Disability - Disabled	49
Miscellaneous	23
Total	7,077
Reinsurance Ceded	1,581
Net - Life Insurance	5,496

AGGREGRATE RESERVES FOR HEALTH INSURANCE (000,000)

Active Lives	455
Disabled Lives	491
Total	946
Reinsurance Ceded	723
Net - Health Insurance	223

continued

Financial example – Reserves for PPLIC

ANNUAL STATEMENT FOR THE YEAR 2013 OF
THE PROMISE TO PAY LIFE INSURANCE COMPANY

LIABILITY FOR DEPOSIT CONTRACTS (000,000)

Balance EOY	631
Reinsurance Ceded	12
Net - Deposit Contracts	619

LIABILITY FOR CONTRACT CLAIMS (000,000)

Due and Unpaid	10
In Course of Settlement	116
IBNR	119
Total	245
Reinsurance Ceded	150
Net Contract Claims	95

continued

Financial example – Reinsurance Reserves and Surplus for PPLIC

ANNUAL STATEMENT FOR THE YEAR 2013 OF
THE PROMISE TO PAY LIFE INSURANCE COMPANY

REINSURANCE CEDED RESERVES (000,000)

Life Insurance	1,581
Health Insurance	723
Deposit Contracts	12
Contract Claims	150
Total	2,466

SURPLUS (000,000)

Total Surplus Net of Reinsurance Ceded	798
Credit for Reinsurance Ceded	2,466
Total Surplus w/out Reinsurance	-1,668

Reinsurance treaty

- **Legal binding contract between Ceding Company and Reinsurer**
- **Forms of contract**
  - Handshake
  - Slip (Lloyds)
  - Term sheet and letter of intent
  - Formal contact from 2 or 3 pages to over 100 pages

continued

Reinsurance treaty – standard provisions

- **Business to be reinsured**
- **Underwriting**
  - Automatic or facultative
  - Normal underwriting standards
  - Age and rating ranges
  - Retention limit
  - Binding limits
  - Other – US citizens, total in force all companies, etc
- **Premiums**
  - Detailed scheduled
  - Not guaranteed beyond one year
  - Must be paid timely
  - Cancel for non-payment
  - For Coinsurance, premium can not exceed retail premium

continued

Reinsurance treaty – standard provisions

- **Claims**
  - Rules when Ceding Company must confer with Reinsurer
  - Reinsure may have right to opt out of claim contest
  - Allocation of routine claim costs
  - Sharing of extraordinary expenses
- **Administration**
  - Vast majority is self administered by Ceding Company
  - Transfer of data electronic
  - Settlement quarterly
  - Challenge for Reinsurer is lack of uniformity of Ceding Company data, although there are standard reinsurance admin software packages
- **Inspection of records**
  - Reinsurer has right to inspect Ceding Company records
  - Audits usually every three years
  - Ceding Company right to inspect Reinsurer records; less common

continued

Reinsurance treaty – standard provisions

- **Errors and omissions**
  - Intended to cover unintentional errors in administration
  - Lack of universal agreement on whether/when it covers errors in underwriting or other treaty requirements necessary for establishment of reinsurance
  - Remedy - parties restored to positions they would have occupied without the error
- **Boilerplate**
  - Insolvency
  - Arbitration/mediation
  - Entire agreement

Q and A?

Thank you for the invitation

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