

Actuaries Club of the Southwest

Securitization of Life Insurance

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Agenda

**Overview of Life
Insurance
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**Securitization
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Actuaries Role

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Actuaries Role

What is life insurance securitization?

- A form of financing and/or capital management available to life insurance companies
- Involves the issuance of bonds whose principal and interest payments and value are based on the future profits that emerge from part of the life company's business
- Less developed than the property/casualty market
- Only a limited number of life insurance securitizations have occurred to date

However, the level of interest in securitization is increasing

Reinsurance has traditionally been preferred for managing reserve and capital strain

- Insurers have historically relied on offshore reinsurance to manage reserve and capital strain on selected insurance products; for example:
 - Term insurance subject to Regulation XXX
 - Universal life insurance subject to Guideline AXXX
- Generally requires LOC or other collateral
- Two main risks exist with regard to reinsurance LOCs:
 - Lack of reinsurance LOC capacity, particularly in future years
 - Uncertainty regarding LOC costs

Securitization is gaining momentum as an alternative to reinsurance

- Insurance companies are no strangers to the capital markets; property/casualty firms have used cat bonds for years to mitigate natural and catastrophic risks
- Securitization provides almost unlimited capacity
 - However, capital markets have a learning curve in order to become familiar with underwriting risk
 - Transactions to date have been private placements with significant life industry participation
- For now, high transaction costs make securitization most viable for large blocks of business
 - Fixed nature of many costs leads to greater economies as deal size increases

When is securitization most viable?

- Securitization is best suited to well-defined blocks of business with a significant level of redundant statutory reserves and/or capital
- Some examples include:
 - Closed blocks formed by recently demutualized companies
 - Term business with XXX reserve strain
 - UL business with AXXX reserve strain

Bonds are issued with principal and interest payments secured against the future profits that emerge from a specific segment of a life insurer's business

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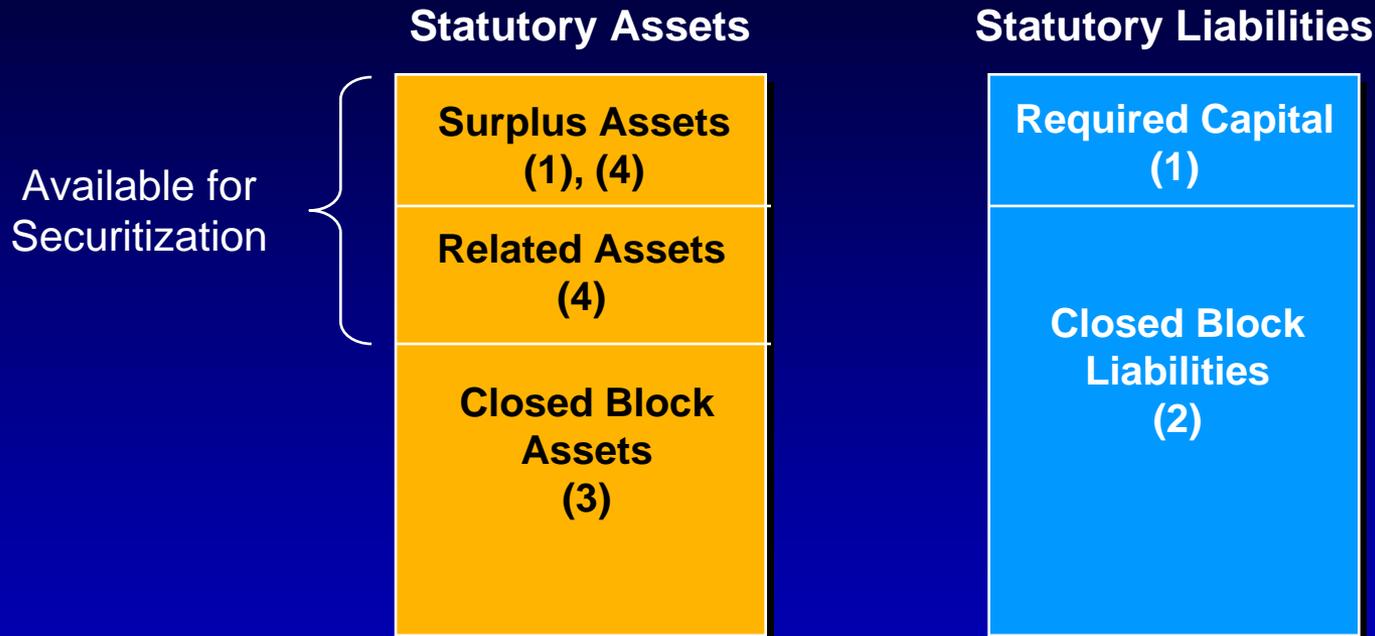
Actuaries Role

Two closed block securitizations have occurred to date

- Prudential in 2001, raising \$1.75 billion in capital
- MONY in 2002, raising \$300 million
- Nature of the closed blocks
 - Formed to protect dividend interests of par policyholders
 - Funded with assets equal to 80% to 90% of statutory liabilities
 - Assets supporting remaining liabilities plus target surplus inure to shareholders over time
- Bonds were secured by the earnings on and release of the “additional” assets
 - Issued by newly formed intermediate holding companies
 - Bond repayments are limited by the ability of the life company to pay dividends to the holding company

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Two closed block securitizations have occurred to date



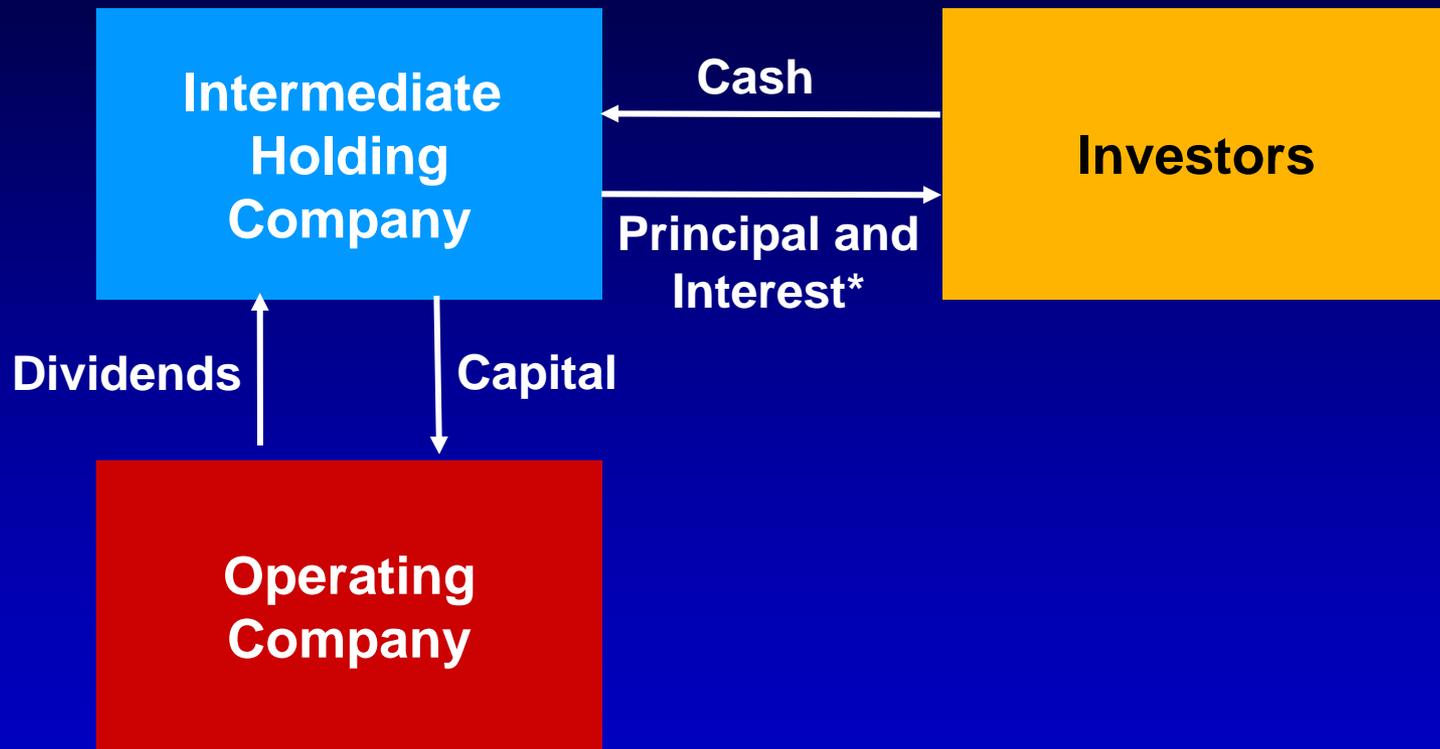
- (1) Surplus assets/required capital are based on RBC calculations and target RBC ratio
- (2) Closed block liabilities are based on statutory reserving rules
- (3) Closed block assets were calculated at the time of demutualization as the amount needed to mature liabilities and maintain the current dividend scales, assuming a continuation of experience underlying the scale
- (4) Surplus and related assets provide for adverse deviation over and above that absorbed by policyholder dividends

Continued...

Two closed block securitizations have occurred to date

- Ability to monetize the embedded value of the closed block business
 - Proceeds can be used to invest in high ROE businesses
- Principal and interest payments were guaranteed by third-party bond insurers

Closed block securitizations general structure



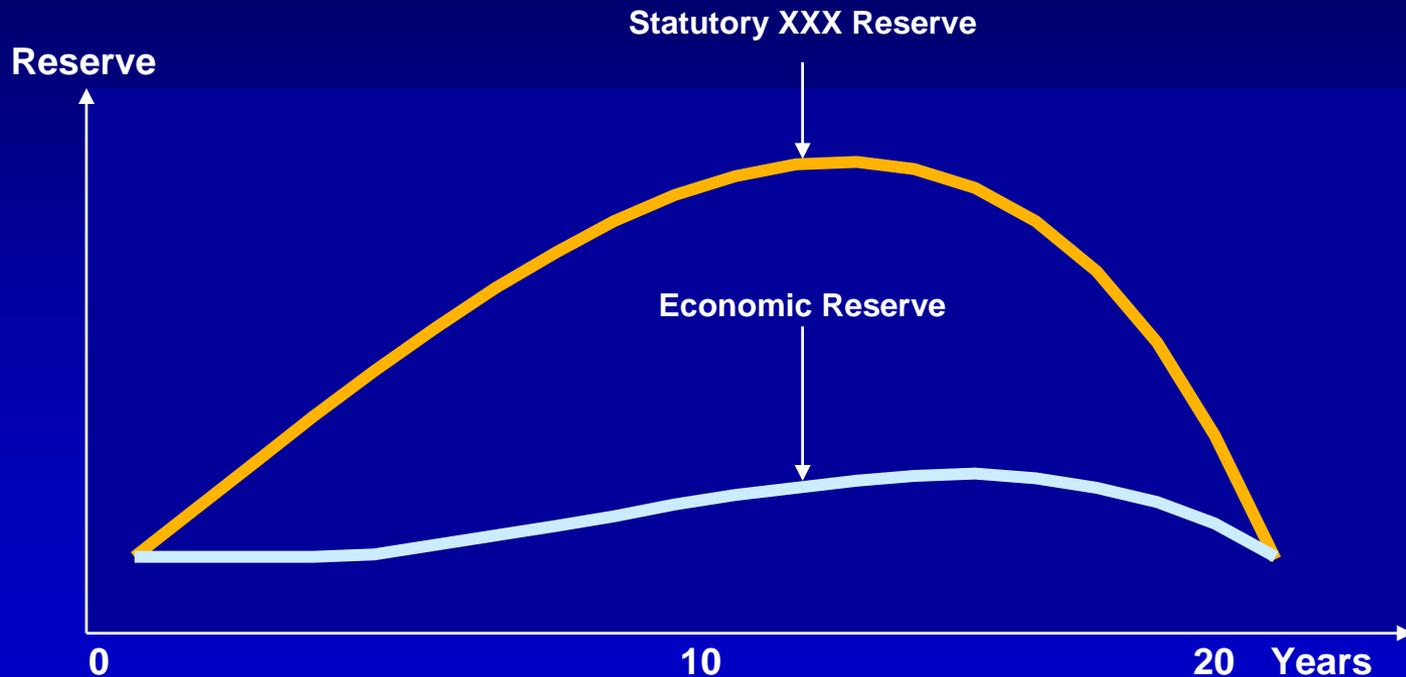
* Principal and Interest payments made on general debt obligation of the intermediate holding company. Third party bond insurer provides a “wrap” to assure payments of principal and interest.

At least one company (American Skandia) has securitized M&E fees and surrender charges on variable annuity business

- Securitized several tranches of variable annuities starting in 1996
- Proceeds used to finance high initial cash strain
- Each bond is secured against an earmarked tranche of variable annuities
- The dollar amount of M&E fees and surrender charges depends on account values, which have high common stock exposure
- Initial over-collateralization has been eroded by equity market downturn

Securitization of term insurance redundant reserves

Regulation XXX Results in Significant Long-term Reserve Strain for Companies in the Term Market

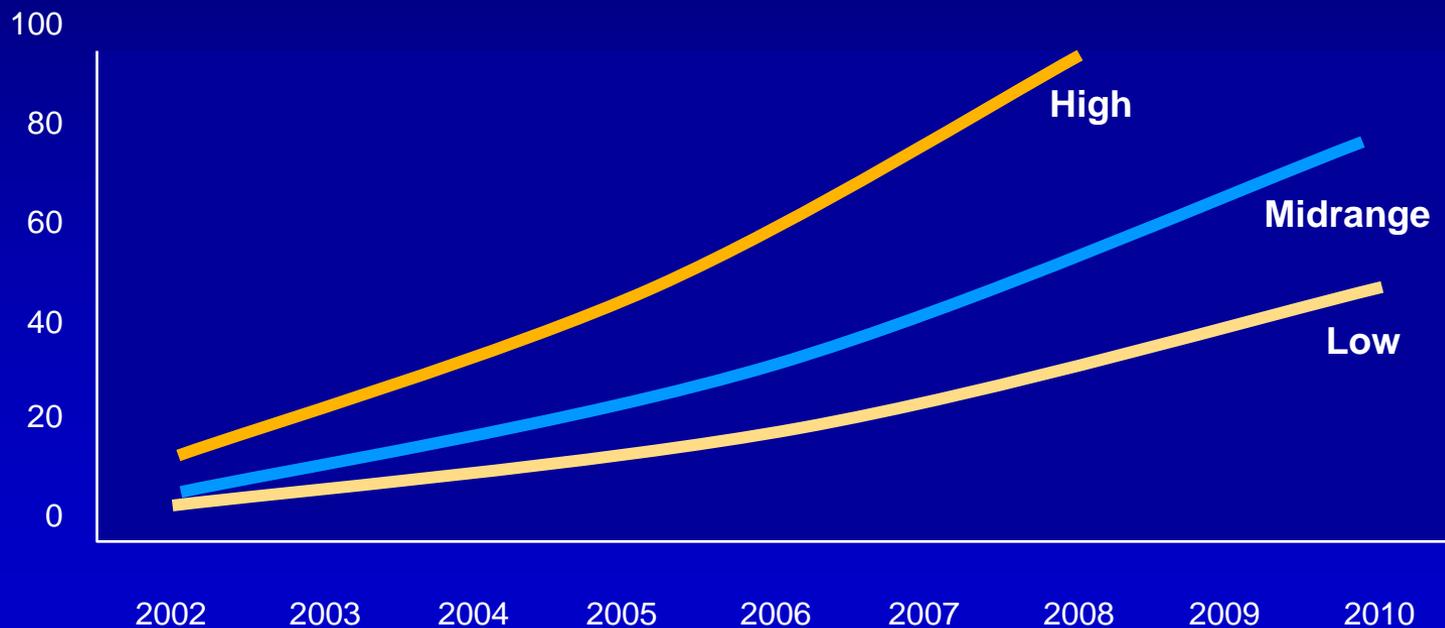


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Securitization of term insurance redundant reserves

- Moody's estimates that industry LOC demand for XXX reserve credit could increase to roughly \$45 billion by 2007

Forecasted Reinsurance LOC Market Demand XXX Reserves Only (\$B)



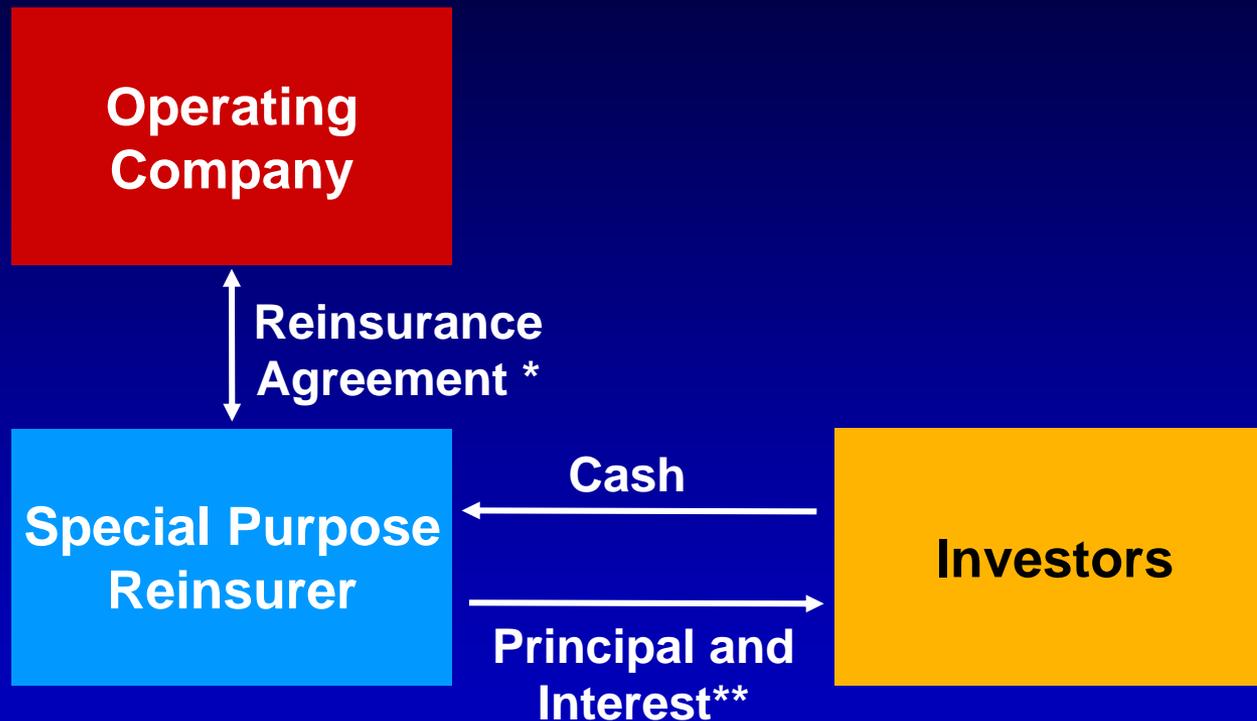
Source: Moody's Investors Service.

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Securitization of term insurance redundant reserves

- A securitization solution is an alternative that avoids the need for LOCs
 - One company has completed a term XXX securitization and others are actively seeking a securitization solution
- Debt can be issued in tranches corresponding to required funding for XXX reserves
- Costs to insurer include:
 - Difference between interest rate on assets purchased with debt proceeds and debt interest rate
 - Fee paid to credit wrapper
 - Transaction costs
- This structure has advantages when compared to an LOC structure:
 - Future capacity of capital markets is less of an issue
 - Net impact of future changes in market credit spreads is small because both sides of the balance sheet are affected
- However, there are also issues to consider
 - Minimum threshold on deal size
 - Effective cost of transaction is greater than current LOC costs (but not necessarily those charged by reinsurers)

Sample structure for securitization of redundant reserves



* Reinsurance reserve credits are partially supported by assets placed in trust from the cash raised from the investors.

** Principal and interest payments made on securities issued by the special purpose reinsurer. Securities could be “wrapped” by a financial guarantor.

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Securitization of term insurance redundant reserves

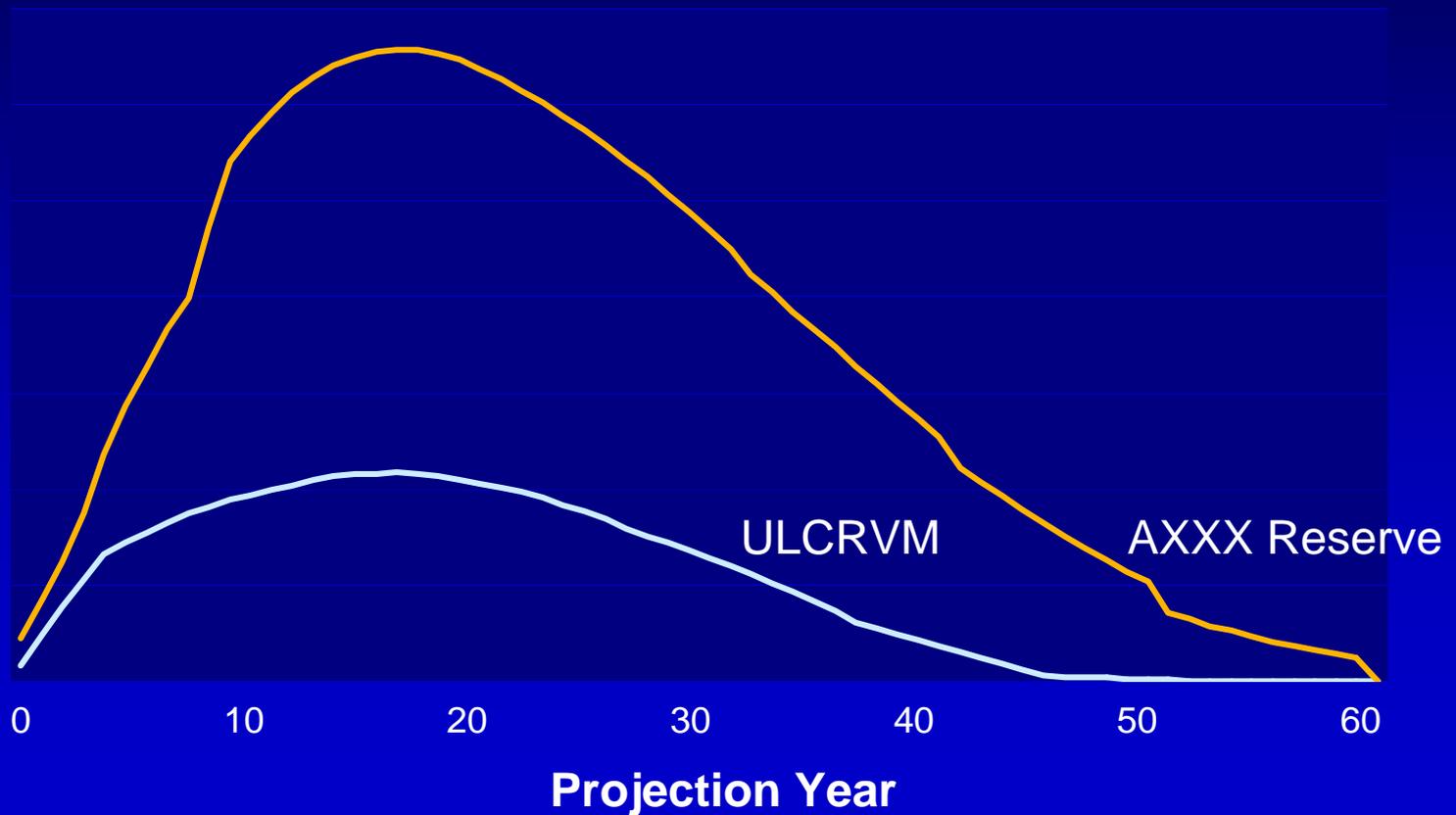
- Key risk to investors is that assets held in trust are needed to pay benefits
 - Primary risk factor is mortality
- Modeling requirements:
 - Accurate model of securitized term business
 - Ability to stress test mortality assumption in various ways
 - Varying mortality slope
 - One-time catastrophic events
 - Stochastic mortality?
- Goal is to demonstrate that securitization structure can withstand substantial adverse deviations in mortality experience

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A similar structure could be employed for UL business subject to AXXX reserving requirements

ULCRVM vs. AXXX Reserves

Reserve



Developing a securitization structure for AXXX reserves entails unique considerations

- AXXX reserves are not as well defined as XXX reserves
 - Could depend on product features and fund performance
- May be difficult to define the “Economic Reserve” for the UL secondary guarantee and the amount of reserve redundancy to be securitized
- While the main risk to investors in an XXX securitization is adverse mortality experience, an AXXX securitization would be subject to additional risks:
 - Investment
 - Persistency
 - Premium patterns
 - Crediting strategy
- AXXX reserves for a block of business could run off more slowly than XXX reserves, and remain on the books for a very long time

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Developing a securitization structure for AXXX reserves entails unique considerations

- There are additional modeling challenges for AXXX deals compared to XXX deals:
 - Asset modeling is more important
 - Stochastic analysis may be needed (e.g., interest rate risk)
- The deal structure may also play a role in reducing volatility from the investors' perspective (e.g., specific covenant relating to crediting rate strategy)

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Actuaries Role

The actuary's role involves designing a sound financial model of the securitized business

- Primary modeling requirement is a good model of the securitized business, capable of projecting cash flows over a period at least equal to the term of the debt
- Securitization is non-recourse debt
 - Debt payments are contingent on sufficient cash flows emerging from the securitized business
 - Over-collateralization provides a “buffer” against adverse developments in experience
- The debt issuer uses the model to demonstrate the amount of collateral available to service the debt
 - Typically run under a baseline assumption set and a wide range of “stress” tests; can the debt be serviced even under adverse scenarios?

The financial model and its underlying assumptions must satisfy stakeholders

- The model and assumptions will undergo significant third-party scrutiny
 - Rating agencies
 - Bond insurers
 - Potential investors
- Models and baseline assumptions must be well-documented and supportable
 - Critical assumptions supported by credible experience study data
 - Sufficient “granularity” in model
 - Good model validations (static and dynamic)
 - Third-party signoff

When stress testing the model, it is critically important to cover a wide range of scenarios

- What is the basis for the stress tests selected?
- Do they represent sufficiently adverse scenarios in light of historical experience and future expectations?
- Stochastic vs. deterministic stress tests?
- Are there other plausible scenarios that should be tested?