

## Session 7: Payout Annuities

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## Various Examples

- Mixed examples
- Examples with DBs
- Variable payout



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## Agenda

- Product Classification
- Accounting Guidance
- Example
- Earnings Patterns
- Practical Issues



## Product Classification



## Product Classification Choices

- Investment Contract (FASB 97)
- Limited Payment Life Insurance Contract (FASB 60, modified by FASB 97)



## Accounting Guidance



## Accounting Guidance if Investment Contract

- FASB 97 type income statement presentation (e.g., premiums not separately identifiable)
- Practice Bulletin 8 states that constant yield method should be used with best estimate cash flow assumptions
- Loss recognition is limited on investment contracts



## Constant Yield Method

- Reserve interest rate determined at issue so that  $PV$  of payments and maintenance expenses = Gross premium less deferrable expenses
- Reserve (net of DAC) =  $PV$  of future payments and expenses, using this interest rate



## Accounting Guidance if Limited Pay Contract

- FASB 60 type income statement presentation (e.g., premiums are separately identifiable)
- Benefit reserve determined under FASB 60 (realistic assumptions for benefits and maintenance expenses at issue with PAD)
- No DAC for single premium contract



## Accounting Guidance if Limited Pay Contract (cont'd)

- Set up Unearned Revenue Liability (gross premium - deferrable expense - initial reserve)
- Amortize URL in relation to reserves



# Payout Annuity Example



## Product Structure and Best Estimate Assumptions

- Earned Rate = 7.00%
- \$15,000 annual payment at end of each year for 15 years
- \$45 maintenance expense at end of each year for 15 years
- Deferrable Acquisition Expense = 5.5% of premium
- Non-deferrable Acquisition Expense = 0.75% of premium



## Gross Premium Structure and Derivation

- Gross Premium Structure
  - “Credited Rate” = Earned Rate - 1.00% = 6%
  - 6% Premium Load
  - No maintenance expenses
- Gross Premium Derivation
  - PV of annual payments at 6% = \$145,684
  - Gross Premium =  $\$145,684 / (1 - .06) = \$154,983$



## Constant Yield Method Derivation of Valuation Interest Rate

- Initial reserve derivation
  - Gross Premium = \$154,983
  - Deferrable Expense = 5.5% (Gross Premium) = \$8,524
  - Net Premium =  $\$154,983 - \$8,524 = \$146,459$
- Valuation interest rate derivation
  - PV of future benefits and expenses, discounted at 5.96%, = \$146,459 at issue
  - Therefore, valuation interest rate = 5.96%



## Constant Yield Method Reserves

	<u>Year 1</u>	<u>Year 5</u>
Reserve B.O.Y.	0	118,873
+ Gross Premium	154,983	0
- Deferrable Expense	(8,524)	0
+ Interest (5.96%)	8,735	7,090
- Benefits & Expenses	(15,045)	(15,045)
= Reserve E.O.Y.	140,149	110,918



## Limited Pay Method

- For simplicity, assume no PADs; therefore, reserve assumptions equal pricing best estimates
- Reserve at issue = PV of future benefits and expenses, discounted at 7.00% = \$137,029 at issue



## Limited Pay Method Reserves

	<u>Year 1</u>	<u>Year 5</u>
Reserve B.O.Y.	0	112,818
+ Net Premium	137,029	0
+ Interest (7.00%)	9,592	7,897
- Benefits & Expenses	(15,045)	(15,045)
= Reserve E.O.Y.	131,576	105,670



## Limited Pay Method Unearned Revenue Liability(URL)

- Initial URL = Gross Premium - Deferrable Expense - Initial Reserve = \$154,983 - \$8,524 - \$137,029 = \$9,430
- URL Amortization Ratio
  - PV of future beginning of year reserve balances = \$926,145
  - Amortization ratio = \$9,430 / \$926,145 = 1.018%



## Limited Pay Method URL Calculation

	<u>Year 1</u>	<u>Year 5</u>
URL B.O.Y.	0	6,123
+ Deferred Revenue	9,430	0
- Amortization (1.018%)	(1,395)	(1,148)
+ Interest (7.00%)	562	348
= URL E.O.Y.	8,597	5,323



## Comparison of Reserves

Year	Constant Yield Method*	Limited Pay Method**
1	140,149	140,173
2	133,464	133,506
5	110,918	110,992
10	63,436	63,488

\* reserve, net of DAC

\*\* reserve + URL



# Earnings Patterns



# Earnings Patterns

- Pre-tax income emerges as:
  - Approximately a level % of reserves (in both accounting models)
  - + “Release from risk” (if classified as life insurance contract)
  - Non-deferrable acquisition and overhead expenses
  - + Investment income on assets backing GAAP equity



## Earnings Patterns Constant Yield Method

	<u>Year 1</u>	<u>Year 5</u>
GAAP Book Profit	273	1,231
+ Nondefble expense	1,162	0
+ Inv inc on above item	81	0
= Adjusted Book Profit	1,516	1,231
BOY Reserve	146,459	118,873
Adj Bk Profit / BOY Res	1.04%	1.04%



## Earnings Patterns Constant Yield Method (cont'd)

	<u>Rate</u>
Earned Rate	7.00%
- Constant Yield	(5.96)
= Profit Margin	1.04%



# Practical Issues



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- Effect of realized capital gains
- Impact of mortality improvement
- Flat versus declining interest rate assumptions



**Risk is Opportunity.™**

# Payout Annuities

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