

Session 9: Investment Contracts

Michael Lockerman



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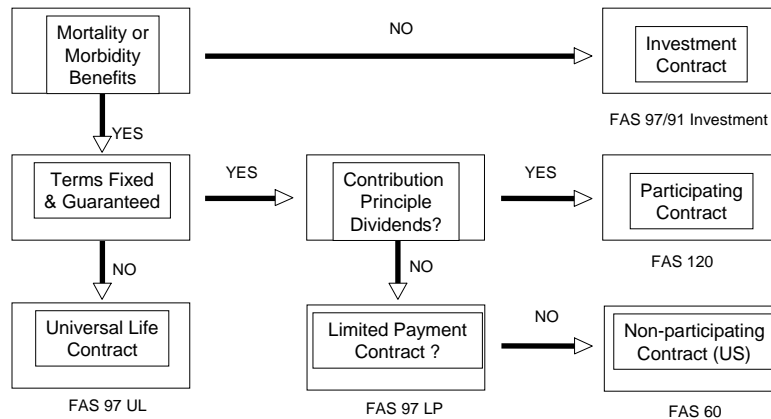
Introduction

- We have already discussed traditional products, universal life products, participating products and payout annuities
- In each of these cases there was generally a protection component
- However, insurers have also offered savings products for some time
- This section covers how to identify these as well as how to account for them



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So What's Left?



Agenda

- Types of Products
- Accounting Guidance
- Product Classification
- Annuitization Options
- DAC and Sales Inducements
- Loss Recognition Tests
- Practical Issues



Types of Products



Types of products

- SPDA (single premium deferred annuities)
- Endowments
- Fixed annuities
- Variable Annuities
- Juvenile savings products
- Tax preferred savings products



Accounting Guidance



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Accounting Guidance

- SFAS 97
- AICPA Practice Bulletin 8
- SFAS 91
- AICPA SOP 03-1



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Risk is Opportunity.™

Product Classification



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Actuaries
Risk is Opportunity.™

Determining Mortality Risk

1987



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Determining Mortality Risk

- SFAS 97 paragraph 39
 - “The Board concluded that contracts issued by insurance enterprises that do not incorporate significant risk from the death or disability of policyholders (mortality or morbidity risk) are more comparable to financial or investment instruments issued by other financial institutions than to the insurance contracts contemplated by Statement 60...”
- SFAS 97 paragraph 40
 - “...A nominal mortality risk-a risk of insignificant amount or of remote probability-is not sufficient to permit that a contract be accounted for as an insurance contract.”



Determining Mortality Risk

- Historical Method
 - Although no other guidance was available, the practice of comparing the insurance and non-insurance cash flows emerged
 - Using the single best-estimate assumptions, actuaries projected the cash flows to the policyholder
 - These would include insurance cash flows such as death benefits, morbidity benefits and life-contingent annuity benefits and well as non-insurance cash flows such as surrender benefits and maturity benefits



Determining Mortality Risk

- Historical Method
 - The following formula developed:

$$\frac{\text{PV of insurance cash flows}}{\text{PV of total cash flows}}$$

- Significance factors were generally set between 5% and 10%
- If this ratio was less than the company's determined "significance factor" then the contract was classified as an investment contract.



Determining Mortality Risk

Simplified Example of 7 year endowment product. Death benefit equals the endowment benefit.

<u>Year</u>	<u>Account Value</u>	<u>Mortality Rate</u>	<u>Surrender Rate</u>	<u>Surrender Charge</u>	<u>Mort cash flows</u>	<u>Surr Cash flows</u>
1	100,000	0.5%	5%	7%	670	4,627
2	105,000	0.7%	5%	6%	887	4,632
3	110,250	0.9%	5%	5%	1,075	4,628
4	115,763	1.1%	5%	4%	1,238	4,613
5	121,551	1.3%	5%	3%	1,374	4,589
6	127,628	1.5%	5%	2%	1,487	4,556
7	134,010	1.7%	100%	0%	<u>1,577</u>	<u>91,165</u>
	Ratio = 7.6%		Present	Values =	6,696	88,185



Determining Mortality Risk

2003



Determining Mortality Risk

- SOP 03-1 paragraph 25
 - “The determination of significance of mortality or morbidity risk should be based on a comparison of the present value of expected excess payments to be made under insurance benefit features (that is, insurance benefit amounts and related incremental claim adjustment expenses in excess of the account balance, herein referred to as the “excess payments”) with the present value of all amounts expected to be assessed against the contract holder (revenue)...”
 - “...In performing the analysis, an insurance enterprise should consider both frequency and severity under a full range of scenarios that considers the volatility inherent in the assumptions, rather than making a best estimate using one set of assumptions...”



Determining Mortality Risk

- Motivation for change was primarily to address equity and other guarantees that may only have value in certain scenarios
- Resultant differences between the historical method and the SOP 03-1 method
 - Greater focus on risk
 - Move from a focus on insurance cash flows as a % of total cash flows to benefits as a % of assessments
 - Move from a single scenario to a range of scenarios
- Due to difficulties in identifying “assessments” for traditional products, some companies still use the historical method



Determining Mortality Risk

- SOP 03-1 Method
 - The following formula is used:
$$\frac{\text{PV of excess benefits}}{\text{PV of total assessments}}$$
 - Assessments are generally the positive components of the EGPs
 - Assessments include interest spreads
 - Like with the historical test, the most significant factor is the “significance factor”



Determining Mortality Risk

Same 7 year endowment product example. Assume the mean interest spread on the product is 1%. This and the surrender charges make the assessments.

Year	Account Value	Net amount at risk	Interest spread	Surrender Charge	Excess Benefit	Assessment
1	100,000	36,391	1%	7%	182	1,316
2	105,000	31,510	1%	6%	208	1,258
3	110,250	26,385	1%	5%	212	1,197
4	115,763	21,003	1%	4%	194	1,136
5	121,551	15,353	1%	3%	157	1,074
6	127,628	9,420	1%	2%	105	1,012
7	134,010	3,191	1%	0%	38	905
Ratio = 14.1%			Present Values =		933	6,604



Annuitization Options

- For US products, deferred annuities always have a guaranteed annuitization option. However, these options are rarely exercised. These options were addressed in SFAS 97.
- SFAS 97 paragraph 7
 - "...A contract provision that allows the holder of a long-duration contract to purchase an annuity at a guaranteed price on settlement of the contract does not entail a mortality risk until the right to purchase is executed. If purchased, the annuity is a new contract to be evaluated on its own terms."
- Therefore, it is common to exclude any mortality risk of the annuitization option in the mortality assessment for US products
- However, in some countries, products like retirement income are purchased for this annuitization benefit and therefore the benefit should be considered in the mortality assessment as well as the reserving of the product



Product Classification Choices

- Once it is determined that mortality risk is nominal, there are two possible classifications:
 - Investment Contract (SFAS 97)
 - Investment Contract (SFAS 91)
- This classification determines the method in which DAC is amortized



Product Classification Choices

- AICPA Practice Bulletin 8
 - The amortization method described in FASB Statement No. 97 for universal life-type contracts should be used for investment contracts that include significant surrender charges or that yield significant revenues from sources other than the investment of contract holders' funds. This method matches the amortization of DPAC with the recognition of gross profits. Otherwise, DPAC on investment contracts should be amortized using an accounting method that recognizes acquisition and interest costs as expenses at a constant rate applied to net policy liabilities and that is consistent with the interest method under FASB Statement No. 91, *Accounting for Nonrefundable Fees and Costs Associated With Originating or Acquiring Loans and Initial Direct Costs of Leases* (interest method).



Constant Yield Method

- If the product does not have *significant* surrender charges or other *significant* sources of revenue, then it will be classified as SFAS 91 and the constant yield method will be used.
- 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
- This was further discussed in the payout annuity section



DAC and Sales Inducements



DAC and Sales Inducements

- For SFAS 97 products, DAC is amortized with EGPs (expected gross profits)
- These EGPs should reflect actual past experience and current best estimate assumptions about the future
- Sales inducements will be discussed in the SOP 03-1 section. However...
 - Qualifying sales inducements, such as front-end loads are also amortized with EGPs
 - Qualifying post-issue sales inducements (such as persistency bonuses) are accumulated in accordance with SOP 03-1



DAC Example

7 year SPDA example. Death benefit equals the account value. Initial DAC = 2,000. Net amortization includes interest on DAC.

Year	Interest Spread	Surrender Charges	Expense Margin	Total EGPs*	Net Amortization	DAC
1	976	340	(300)	1,016	(297)	1,703
2	969	289	(284)	974	(295)	1,408
3	960	238	(268)	930	(293)	1,116
4	949	188	(252)	884	(289)	826
5	936	139	(237)	838	(286)	541
6	921	91	(222)	790	(281)	259
7	905	-	(208)	<u>698</u>	(259)	-

* May need to be adjusted.

PV = 5,124 K factor = 39.0%



Loss Recognition Test



Loss Recognition Test

- SFAS 97 Investment products are also subject to loss recognition tests (LRT)
- However, losses are only recognized to the extent DAC is written-off.
- No additional liability should be established for anticipated investment losses. (No recognition of anticipated “negative spreads” should be made.)
- No test is performed on SFAS 91 contracts
- Both of these cases are consistent with loan accounting and these investment losses are expenses as incurred



Practical Issues



Practical Issues

- Product Classification
 - If a product is obviously an investment or insurance product a formalized test may not be necessary.
- Determining whether annuitization is an option or part of the original contract
 - This is usually based on the intent of the contract, but past experience can also be used as a reference.



Practical Issues

- Investment contracts with no defined account value
 - Determine an implied interest rates such that PV gross premiums = PV initial guaranteed sum assured
- EGP True-up
 - Often, legacy systems do not capture the actual gross profits. Since these are investment products, investment spread might be the only item that required regular true-up.



Investment Contracts

Michael Lockerman

