

# Session 6: Participating Policies

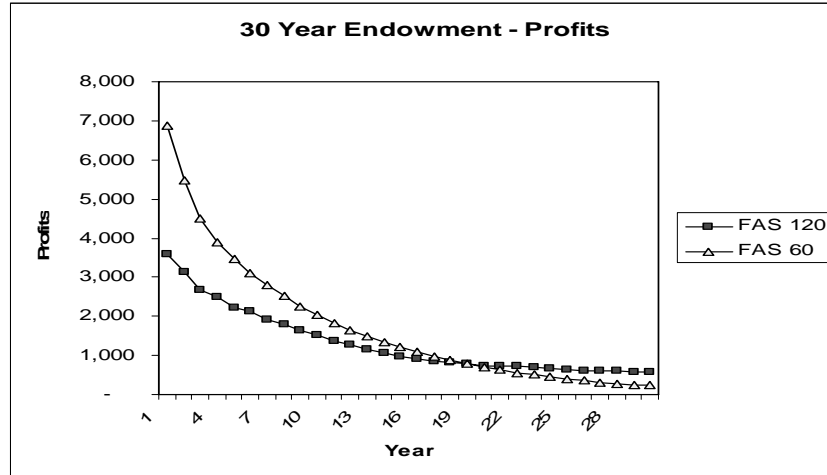
Bill Horbatt



## FAS 120 and SOP 95-1

- Required for Mutual Insurance Companies
- Alternative to FAS 60 for Participating Contracts issued by Stock Companies





## FAS 120 and SOP 95-1 The Best of All Worlds!

- Traditional Income Statement Presentation
  - Premiums as Income (like FAS 60)
- Net Level Premium (NLP) Benefit Reserve
  - Interest and Mortality Assumptions only
- DAC amortized like under FAS 97
- Ended uncertainty of GAAP for Mutuals



## FAS 120 / SOP 95-1 Policy Requirements

- Long-duration par contract expected to pay dividends based on actual experience
- Use contribution principle to determine dividends



## FAS 120 Benefit Reserves

- NLP reserve for death and endowment benefits = proxy account value
- Liability for terminal dividends (accrued like DAC)



## FAS 120 NLP Reserve

- Net Level Premium (without Zilmer)
- Statutory Mortality
- Interest Rate - hierarchy
  - Guaranteed
  - Statutory
  - US



## FAS 120 DAC

- Retrospective Deposit Method
  - Same as FAS 97
- Amortized using Expected Gross Margins
  - EGM similar to FAS 97 EGP
  - EGM is a Residual amount after bonuses, but before Acquisition Cost accrual



## Gross Margins

- + Premiums
- + Investment Income (including realized gains)
- Benefits (death, surrender, endowment)
- Reserve Increase
- Expenses
- Policyholder Dividends Paid/Credited



## FAS 120 Example: EGM

Year	Premium	Interest	Benefits	Reserve	Expenses	Bonus	EGM
1	1,190,072	(2,330)	(169,746)	(638,230)	(41,448)	-	338,319
2	944,864	47,587	(261,270)	(406,186)	(20,532)	(13,227)	291,237
3	776,337	65,875	(240,462)	(317,141)	(16,874)	(22,378)	245,356
4	670,030	80,641	(222,908)	(271,669)	(14,581)	(29,603)	211,910
5	592,215	92,953	(229,858)	(224,722)	(12,915)	(35,741)	181,932
6	529,320	104,014	(228,251)	(194,126)	(11,569)	(40,778)	158,610
7	475,854	112,418	(245,176)	(151,900)	(10,429)	(45,097)	135,670
8	427,732	118,859	(258,020)	(115,125)	(9,401)	(48,464)	115,581
9	384,417	123,574	(267,335)	(83,313)	(8,473)	(51,009)	97,860
10	363,897	134,267	(2,736,068)	2,402,410	(8,005)	(52,848)	103,654



## FAS 120 DAC

- $DAC_{t+1} = (DAC_t + C_t) * (1+i) - k * EGM_t$
- GM = Gross Margin
- C = Deferrable Cost
- i = Discount Rate: either
  - Set at issue
  - Dynamic
- $k = \text{pv(Aquisition Cost)} / \text{pv(EGM)}$  at issue
  - k varies as actual experience emerges



## FAS 120 Example: DAC

Year	Prior DAC	Commission	Interest	k	EGM	End DAC
1	0	1,071,065	55,695	93%	338,187	812,843
2	812,843	94,486	47,181	93%	291,594	683,841
3	683,841	77,634	39,597	93%	245,476	573,211
4	573,211	67,003	33,291	93%	211,952	476,763
5	476,763	59,221	27,871	93%	181,946	394,967
6	394,967	26,466	21,915	93%	158,616	296,114
7	296,114	23,793	16,635	93%	135,671	210,607
8	210,607	21,387	12,064	93%	115,582	136,770
9	136,770	19,221	8,112	93%	97,860	73,265
10	73,265	18,195	4,756	93%	103,654	0



## Contribution Principle

- Annual policyholder dividends are paid in a manner that identifies divisible surplus and distributes that surplus in approximately the same proportion as the contracts are considered to have contributed to divisible surplus



## A Little Mathematics

Fackler Accumulation

$$({}_tV_x + P)(1+i) = (1 - q_{x+t})({}_{t+1}V_x) + q_{x+t}$$



## More Realistic Roll Forward

$$({}_tV_x + GP) (1+i') =$$

$$(1 - q'_{x+t}) ({}_{t+1}V_x) + q'_{x+t} + e_t + \text{bonus}_t + \text{EGM}_t$$

where ' denotes actual experience and  $e_t / b_t$  represent expense / bonus



## Contribution Principle

$$\text{bonus}_t + \text{EGM}_t =$$

$$[(GP-P) (1+i') - e_t] \quad \text{expense}$$

$$+ ({}_tV_x + P) (i'-i) + \quad \text{interest}$$

$$+ (q_{x+t} - q'_{x+t}) (1 - {}_{t+1}V_x) \quad \text{mortality}$$

