

## Valuation Actuary Symposium

### **Session 5 - GAAP Refresher**

Presentation  
DateSeptember 19,  
2002

### Outline of Material - FAS 60

- FAS 60: “Statement of FAS No. 60 - Accounting and Reporting by Insurance Enterprises”
  - Scope
  - General Principles
  - Liability for future Benefits
  - DAC Asset
  - Recoverability
  - Income Statement Presentation
  - Numeric example
  - Key differences with FAS 97

## Outline of Material - FAS 133

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- FAS 133: "Statement of FAS No. 133: Accounting for Derivative Instruments and Hedging Activities"
  - Scope
  - What was the problem?
  - General Principles
  - Definition of Derivative
  - Embedded Derivative
  - Derivatives Implementation Group
  - Presentation issues
  - Numeric Example

3

## FAS 60 - Scope

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- Applies to:
  - Stock Life companies
  - Property & Casualty companies
  - Title Insurance companies
  - Mortgage Guaranty Insurance companies
  
- Does not apply to mutual life or fraternal companies

4

## FAS 60 - General Principles

### ■ Short vs. Long Duration Contracts

- Short-duration contracts generally:
  - are for a short period of coverage
  - allow insurer to cancel contract
  - allow insurer to modify terms or premiums at end of coverage period.
  - includes most P&C contracts and credit life
- Long-duration contracts generally:
  - do not allow insurer to unilaterally change terms of coverage
  - do not allow cancellation
  - includes whole life, guaranteed renewable and non-can A&H, endowments and annuities

5

## FAS 60 - General Principles

### ■ Premium Recognition

- Short-duration: premium recognized in proportion to insurance coverage
- Long-duration: premiums recognized when due

### ■ Deferred Acquisition Costs

- Commissions, policy issue, underwriting, medical fees
- Capitalized and charged as an expense in proportion to premiums
- Amortization uses same assumptions (i.e., lapses, mortality, etc.) as the liability calculation
- Provisions are fairly unique to insurance industry
  - E.g., mortgage origination provisions are much stricter (FAS 91)

6

## FAS 60 - Liability for Future Benefits

- Typical Actuarial calculations:
  - Net level premium for benefits and expenses
  
- Need to include material assumptions, e.g.,
  - Lapses
  - Mortality and/or morbidity
  - Interest yields and inflation
  - Premium pattern
  - Same assumptions for DAC
  
- Incorporate an explicit element of conservatism
  - Provision for Adverse Deviation (PAD)
  - Must increase net liability

7

## FAS 60 - DAC Asset

- “Costs that vary with and are primarily related to the acquisition of new and renewal insurance contracts ... shall be capitalized and charged to expense in proportion to premium revenue recognized” What does this mean?
- Can you defer:
  - Internal marketing costs? Salaries of underwriters? Overhead? Product development? Agent licensing? Systems costs related to the above? IMSA costs?
- “Inclusion of any indirect expenses requires judgement on part of company and its auditors” (Audit Guide)
- Consistency from period to period is important
- Ernst & Whinney’s text “GAAP: Stock Life Companies”

8

## FAS 60 - Recoverability

- As estimates change in the future, may need to demonstrate recoverability
- First, write-off the DAC
- Then, reduce/eliminate the PADs
- Then, increase the liability
- Testing done at aggregate level, not at issue year level
- No loss today if expect future profits
- If gains today, but future losses, adjust reserves to eliminate losses in later years

9

## FAS 60 - Presentation

- **Income Statement**
  - Premiums are revenue
  - Amortization of DAC is an expense
  - Deferral of acquisition costs are a negative expense
- **Balance Sheet**
  - Reserves for future benefits and expenses
  - Asset for deferred acquisition costs
  - Premiums due

10

## FAS 60 - Balance Sheet

Illustrative GAAP Calculations without Provisions for Adverse Deviation										
		Premium/Policy:				3,400				
		Face Amount:				250,000				
		Issue Costs per policy				500				
		Maintenance costs per policy				45				
		Discount Rate:				7.00%				
t	Comm Rate	Premiums	BOY Costs		Maint Costs	Death Benefits	EOY Reserves	EOY DAC	BOY* Reserves	BOY* DAC
0							-	0.00		
1	70%	3,400.00	2380.00	400.00	45.00	1,750.00	852.25	2,185.68	2,474.07	2,042.70
2	10%	3,308.20	330.82	0.00	43.79	1,946.00	1,497.90	1,925.04	3,259.52	1,799.11
3	10%	3,182.49	318.25	0.00	42.12	2,106.06	1,932.48	1,661.88	3,813.70	1,553.16
4	10%	3,026.55	302.65	0.00	40.06	2,225.40	2,158.77	1,399.79	4,134.80	1,308.21
5	10%	2,844.95	284.50	0.00	37.65	2,301.07	2,186.26	1,142.06	4,228.95	1,067.34
6	10%	2,642.96	264.30	0.00	34.98	2,332.03	2,030.11	891.54	4,109.46	833.21
7	10%	2,426.24	242.62	0.00	32.11	2,319.20	1,709.99	650.58	3,795.61	608.02
8	10%	2,200.60	220.06	0.00	29.13	2,265.32	1,248.64	420.98	3,311.29	393.43
9	10%	1,971.74	197.17	0.00	26.10	2,174.71	670.44	203.91	2,683.40	190.57
10	10%	1,744.99	174.50	0.00	23.10	2,052.93	-	-	1,940.21	-
		% of Premium:	19.77%	1.92%	1.24%	71.53%				
		Total Net Premiums =	94.45%							
		==> Pre Tax Profits =	5.55%							

11

## FAS 60 - Income Statement

Illustrative GAAP Income Statement without Provisions for Adverse Deviation									
t	Premiums	Investment Income	Commission	Cash Expenses	Amortization of DAC	Benefits	Change in Reserves	Pre-Tax Income	% of Premium
1	3,400.00	30.20	2,380.00	445.00	(2,185.68)	1,750.00	852.25	188.63	5.55%
2	3,308.20	102.23	330.82	43.79	260.64	1,946.00	645.65	183.53	5.55%
3	3,182.49	158.24	318.25	42.12	263.17	2,106.06	434.57	176.56	5.55%
4	3,026.55	197.86	302.65	40.06	262.09	2,225.40	226.30	167.91	5.55%
5	2,844.95	221.31	284.50	37.65	257.73	2,301.07	27.49	157.83	5.55%
6	2,642.96	229.34	264.30	34.98	250.52	2,332.03	(156.15)	146.63	5.55%
7	2,426.24	223.13	242.62	32.11	240.95	2,319.20	(320.12)	134.60	5.55%
8	2,200.60	204.25	220.06	29.13	229.61	2,265.32	(461.35)	122.09	5.55%
9	1,971.74	174.50	197.17	26.10	217.07	2,174.71	(578.20)	109.39	5.55%
10	1,744.99	135.81	174.50	23.10	203.91	2,052.93	(670.44)	96.81	5.55%

12

## FAS 60 - Key Differences with FAS 97

- DAC amortization revenue stream:
  - Premiums for FAS 60
  - Expected gross profits for FAS 97 Investment Contracts
- Recoverability - some subtle differences
- Locked-in assumptions vs. periodic unlocking
- PAD vs. best estimates
- Mechanics:
  - Typically, FAS 60 uses a “factor method”
  - FAS 97 needs historical data and future projections

13

## FAS 133 - Scope

- Applies to “all entities”
- Standardizes accounting for derivative and embedded derivative instruments
- Eliminates problems with prior practices

14

## FAS 133 - Problems with Prior Practices

- Lack of guidance
- Inconsistent treatment of derivatives
- Similar economics, yet different treatment of instruments
- Deferral of gains and/or losses
- Many instruments not “fair-valued”
- Disclosure was poor
- Lack of “transparency”

15

## FAS 133 - General Principles

- Derivatives are an asset or a liability => in financials
- Fair value is most relevant measure of derivatives
- Only assets or liabilities should be in financials
- Special accounting in limited situations
  - Fair value hedge
  - Cash flow hedge
  - Foreign currency hedge

16

## FAS 133 - Definition of Derivative

- One or more “underlyings” and one or more “notional amounts”
- Requires no initial net investment
- Net settlement:
  - requires/permits NS
  - can easily be net settled outside the contract
  - provides for equivalent of net settlement

17

## FAS 133 - Embedded Derivative

- Embedded Derivative (ED) must be separated from “Host” contract if:
  - ED’s economics are not “clearly and closely related” to host’s economics
  - Hybrid contract is not already remeasured at fair value
  - Another contract with ED’s terms would be subject to FAS 133

18

## FAS 133 - Derivative Implementation Group

- Formed by FASB to develop answers to specific questions
- Wrote Issue Papers - See [www.fasb.org](http://www.fasb.org) for complete listing
- Section B of these papers are related to ED
- Relevant papers for Equity Indexed Annuities include:
  - Issue Papers B6, B15, B29, B30
  - Discusses "bi-furcation", multiple derivatives, FAS 97 floor
- Relevant papers for Variable Annuities include:
  - Issue Papers B7, B8, B25
  - Discusses mortality and annuitization features

19

## Option Budget Approach

- This approach is very useful for annual ratchet products, and significantly simplifies the initial bifurcation, and the on-going ED valuation.
- You can use this general idea to progress forward the account values of an EIA, per IP B29

20

### Option Budget Approach - Annual Ratchet

- Assume you have an “option budget” of, for example, 4.5% of the account value.
- Isn't the 4.5% of the AV the expected index credits, discounted to today?
- If so, accumulate the 4.5% to the end of the year at the risk-free rate, and that is the expected amount to be credited to the account value.
- You have the projected AV one year from now, so project it forward another year, and so on.

21

### Option Budget Approach - Annual Ratchet

- What is the theoretically correct rate to use? -the one year spot rate, one year forward, two years forward, etc.
  - Simplification: after the current period, assume the economic environment is “normalized” at a specified volatility and risk-free rate.
- This ignores effect of lapses and deaths, but standard actuarial methods can be used to reflect those factors.

22



## Valuation Actuary Symposium

### **Session 5 - GAAP Refresher**

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September 19, 2002

### Outline of Material - FAS 97

- FAS 97: "Statement of FAS No. 97: Accounting and Reporting by Insurance Enterprises for Certain Long-Duration Contracts and for Realized Gains and Losses from the Sale of Investments"
  - Scope of FAS 97
  - Reserves
  - Income Statement Presentation
  - DAC
  - URR

## FAS 97 - Scope

- Basically applies to interest sensitive fund driven products
  - Universal Life
  - Variable Universal Life
  - Fixed Deferred Annuities
  - Variable Deferred Annuities
  - Immediate Annuities
  - Limited Pay Contracts

27

## FAS 97 - Reserves

- For fund driven products, UL, VUL, and deferred annuities, the reserve is the account value
- For immediate annuities, the initial reserve = premium
- Some reserve items subject to task force
  - GMDB
  - GMIB
  - PEDB

28

## FAS 97 - Income Statement Presentation

- Premium does not count as revenue
- Product charges are revenue
- Surrenders and reserve change are not benefits
- Interest credited is a benefit
- Death benefits recorded net of reserves released on death
- Commission and Expense deferrals
- DAC amortization

29

## FAS 97 - Example of Income Statement Presentation

### Accounting for UL Product

	Statutory	GAAP Adjustments	GAAP
Premium	6,750,000	(6,750,000)	-
Product Charges		6,500,000	6,500,000
Investment Income	7,125,000	-	7,125,000
<b>Total Income</b>	<b>13,875,000</b>	<b>(250,000)</b>	<b>13,625,000</b>
Death Benefits	5,800,000	(1,600,000)	4,200,000
Interest Credited	-	5,400,000	5,400,000
Surrenders	3,000,000	(3,000,000)	-
Reserve Increase	1,600,000	(1,600,000)	-
Amortization of DAC	-	735,000	735,000
<b>Total Benefits</b>	<b>10,400,000</b>	<b>(65,000)</b>	<b>10,335,000</b>
Commissions	700,000	(340,000)	360,000
Expenses	550,000	(150,000)	400,000
<b>Total Expenses</b>	<b>1,250,000</b>	<b>(490,000)</b>	<b>760,000</b>
<b>Book Profit B4 FIT</b>	<b>2,225,000</b>	<b>305,000</b>	<b>2,530,000</b>

30

### FAS 97 - DAC

- Deferrals same as under FAS 60
- DAC amortized against gross profits
- Profit stream trued-up for actual results
- Amortization unlocked, i.e. profits reprojected

31

### FAS 97

DAC Schedule for Capitalized Acquisition Expense										Amort Percent:	29.01%
Yr	Mth	Interest Rate	Amort Stream	Initial DAC	Interest on DAC	Captlzd Acq Exp	Interest on Exp	Amort	Ending DAC	Change in DAC	
1	3	4.50%	19,647	-	-	97,000	1,052	5,701	92,352	92,352	
1	6	4.50%	19,640	92,352	1,001	-	-	5,698	87,654	(4,697)	
1	9	4.50%	19,607	87,654	949	-	-	5,689	82,914	(4,740)	
1	12	4.50%	19,575	82,914	897	-	-	5,680	78,131	(4,783)	
2	3	4.50%	19,094	78,131	844	-	-	5,540	73,435	(4,696)	
2	6	4.50%	19,090	73,435	792	-	-	5,539	68,689	(4,747)	
2	9	4.50%	19,085	68,689	740	-	-	5,537	63,891	(4,798)	
2	12	4.50%	19,080	63,891	687	-	-	5,536	59,041	(4,849)	
3	3	4.50%	18,615	59,041	633	-	-	5,401	54,274	(4,768)	
3	6	4.50%	18,608	54,274	581	-	-	5,399	49,455	(4,818)	
3	9	4.50%	18,601	49,455	527	-	-	5,397	44,586	(4,870)	
3	12	4.50%	18,595	44,586	473	-	-	5,395	39,664	(4,922)	
4	3	4.50%	18,135	39,664	420	-	-	5,262	34,822	(4,842)	
4	6	4.50%	18,126	34,822	366	-	-	5,259	29,929	(4,893)	
4	9	4.50%	18,117	29,929	312	-	-	5,256	24,984	(4,945)	
4	12	4.50%	18,108	24,984	257	-	-	5,254	19,988	(4,997)	
5	3	4.50%	17,653	19,988	202	-	-	5,122	15,068	(4,920)	
5	6	4.50%	17,642	15,068	148	-	-	5,119	10,097	(4,971)	
5	9	4.50%	17,630	10,097	93	-	-	5,115	5,075	(5,022)	
5	12	4.50%	17,619	5,075	37	-	-	5,112	-	(5,075)	

32

### FAS 97

DAC Schedule for Capitalized First Year Commission										Amort Percent:	44.87%
Yr	Mth	Interest Rate	Amort Stream	Initial DAC	Interest on DAC	Captlzd FY Comm	Interest on Comm	Amort	Ending DAC	Change in DAC	
1	3	4.50%	19,647	-	-	150,000	1,627	8,815	142,812	142,812	
1	6	4.50%	19,640	142,812	1,548	-	-	8,812	135,548	-7,264	
1	9	4.50%	19,607	135,548	1,467	-	-	8,797	128,218	-7,330	
1	12	4.50%	19,575	128,218	1,386	-	-	8,783	120,821	-7,396	
2	3	4.50%	19,094	120,821	1,305	-	-	8,567	113,560	-7,262	
2	6	4.50%	19,090	113,560	1,225	-	-	8,565	106,220	-7,340	
2	9	4.50%	19,085	106,220	1,144	-	-	8,563	98,800	-7,419	
2	12	4.50%	19,080	98,800	1,062	-	-	8,561	91,301	-7,499	
3	3	4.50%	18,615	91,301	980	-	-	8,352	83,929	-7,373	
3	6	4.50%	18,608	83,929	898	-	-	8,349	76,478	-7,451	
3	9	4.50%	18,601	76,478	816	-	-	8,346	68,947	-7,530	
3	12	4.50%	18,595	68,947	732	-	-	8,343	61,336	-7,611	
4	3	4.50%	18,135	61,336	649	-	-	8,137	53,848	-7,488	
4	6	4.50%	18,126	53,848	566	-	-	8,133	46,282	-7,567	
4	9	4.50%	18,117	46,282	482	-	-	8,129	38,635	-7,646	
4	12	4.50%	18,108	38,635	398	-	-	8,124	30,909	-7,727	
5	3	4.50%	17,653	30,909	313	-	-	7,920	23,301	-7,608	
5	6	4.50%	17,642	23,301	229	-	-	7,915	15,614	-7,687	
5	9	4.50%	17,630	15,614	144	-	-	7,910	7,848	-7,767	
5	12	4.50%	17,619	7,848	58	-	-	7,905	0	-7,848	

33

### FAS 97

SFAS97 GAAP Amortization Stream													
Yr	Mth	Interest Earned	Interest Credited	Net Gain	COI Charges	Claims Costs	Mortality Reins Costs	Net Gain	Net Gain	Policy Loads	Policy Expenses	Net Gain	Amort Stream
1	3	50,852	33,070	17,782	-	-	-	-	2,739	-	874	(874)	19,647
1	6	50,861	33,060	17,802	-	-	-	-	2,709	-	870	(870)	19,640
1	9	50,845	33,049	17,796	-	-	-	-	2,678	-	867	(867)	19,607
1	12	50,830	33,039	17,791	-	-	-	-	2,648	-	864	(864)	19,575
2	3	50,374	32,743	17,631	-	-	-	-	2,323	-	860	(860)	19,094
2	6	50,353	32,729	17,624	-	-	-	-	2,323	-	857	(857)	19,090
2	9	50,332	32,716	17,617	-	-	-	-	2,322	-	853	(853)	19,085
2	12	50,311	32,702	17,609	-	-	-	-	2,321	-	850	(850)	19,080
3	3	49,855	32,405	17,449	-	-	-	-	2,012	-	846	(846)	18,615
3	6	49,828	32,388	17,440	-	-	-	-	2,011	-	843	(843)	18,608
3	9	49,801	32,370	17,431	-	-	-	-	2,010	-	839	(839)	18,601
3	12	49,774	32,353	17,421	-	-	-	-	2,009	-	836	(836)	18,595
4	3	49,317	32,056	17,261	-	-	-	-	1,706	-	832	(832)	18,135
4	6	49,284	32,034	17,250	-	-	-	-	1,705	-	829	(829)	18,126
4	9	49,251	32,013	17,238	-	-	-	-	1,704	-	825	(825)	18,117
4	12	49,218	31,991	17,227	-	-	-	-	1,703	-	822	(822)	18,108
5	3	48,759	31,693	17,066	-	-	-	-	1,405	-	818	(818)	17,653
5	6	48,719	31,667	17,052	-	-	-	-	1,404	-	815	(815)	17,642
5	9	48,679	31,641	17,038	-	-	-	-	1,403	-	811	(811)	17,630
5	12	48,640	31,615	17,024	-	-	-	-	1,402	-	807	(807)	17,619

34

## FAS 97 - URR (Unearned Revenue Reserve)

- URR created by revenue items that are not ongoing
- Examples:
  - First year front end loads
  - reverse COI's
- Amortized in same manner as DAC

35

## FAS 115

- Shadow DAC
  - All assets marked to market for GAAP balance sheet
  - Intent of FAS 115 is to mark DAC to market
  - Records the impact of unrealized gains and losses
  - Approaches vary

36

## FAS 120

- Applies to permanent participating business
  - Reserves are a traditional type reserve with the interest rate equal to the dividend rate or cash value rate
  - Income statement much like statutory
  - DAC amortized in same manner as FAS 97 except use gross margins

37

## FAS 120

FAS 120 Amortization Stream											
Yr	Mth	Premium	Interest Earned	Death	Maturity Surrender	Reserve Increase	Comm	Maint Expenses	Prem Tax	Div	Estimated Gross Margin
1	3	50,276	393	1,787	-	35,194	2,422	2,386	733	-	8,146
1	6	105,114	1,638	3,310	-	74,388	5,066	5,767	1,065	-	17,157
1	9	173,692	3,637	6,652	-	117,482	8,368	8,294	2,153	-	34,382
1	12	292,034	6,828	12,754	-	192,540	14,069	14,217	4,397	-	60,884
2	3	301,896	13,111	15,176	2,905	181,907	15,884	16,453	5,114	48,919	31,554
2	6	304,168	19,536	15,043	5,996	175,087	15,371	15,985	4,945	48,467	48,805
2	9	308,545	26,416	15,787	10,091	177,347	14,889	15,550	4,784	47,272	59,333
2	12	317,225	35,776	17,541	17,352	190,457	14,444	15,144	4,635	47,367	63,412
3	3	311,759	42,009	18,316	19,897	171,274	14,044	14,788	4,504	46,585	64,359
3	6	306,439	45,120	18,149	20,088	168,267	13,670	14,461	4,381	45,902	66,641
3	9	312,922	48,336	18,883	20,529	179,607	13,317	14,157	4,264	45,123	65,378
3	12	325,905	51,873	20,589	21,337	203,568	12,990	13,874	4,156	45,487	55,778
4	3	281,667	55,029	21,242	22,897	148,975	12,696	13,627	4,060	44,363	68,836
4	6	278,952	57,757	20,998	25,042	148,115	12,415	13,395	3,969	43,473	69,301
4	9	286,885	60,614	21,537	27,342	159,946	12,146	13,174	3,881	43,072	66,401
4	12	300,021	63,776	22,846	29,614	181,399	11,888	12,962	3,797	43,682	57,610
5	3	259,019	66,557	23,313	31,715	129,940	11,646	12,765	3,718	43,017	69,463
5	6	257,173	68,948	23,102	33,927	130,621	11,412	12,578	3,643	42,299	68,540
5	9	266,305	71,495	23,580	36,017	143,484	11,187	12,398	3,569	42,092	65,473
5	12	279,684	74,355	24,736	37,751	164,845	10,971	12,225	3,499	42,893	57,119

38

## Purchase GAAP

- In purchase situation, Present Value of Future Profits (PVFP or PVP or VIIF or VOBA) replaces DAC on the balance sheet.
- PVP is amortized in a similar manner as DAC would be for the underlying business.
  - Interest sensitive – gross profits
  - Participating permanent – gross margins
  - Non-par permanent and term – premiums

39

## Purchase GAAP

- Assets are marked to market at the time of purchase
- Statutory and GAAP investment income will differ going forward
- Need to use GAAP investment income in determining gross profits and margins for amortization purposes

40