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**US GAAP for International Life Insurers – Hong Kong  
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**Session 14: Reinsurance Accounting – SFAS 113**

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# Reinsurance Accounting

US GAAP for International Life Insurers

Hong Kong – June 2008

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## Reinsurance Accounting

- Common Types of Reinsurance
- Accounting Guidance
- Short Duration Contracts
- Long Duration Contracts
- Ceded Reinsurance Examples
- Reinsurance Assumed



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## Common Types of Reinsurance

- **Coinsurance** – reinsurer shares in a percentage of the business, including cash flows and reserves
- **Modified Coinsurance** – same as coinsurance except ceding company holds assets and reserves
- **YRT** – reinsurer assumes mortality or morbidity risk only; premium rates normally increase with age and premiums are based on amount at risk
- **Financial Reinsurance** – reinsurer provides tax, RBC, surplus relief; usually with limited risk transfer
- **Assumption Reinsurance with novation** – Reinsurer legally assumes the cedant's obligations to the policyholders



## Accounting Authority

- FAS 113 - *“Accounting and Reporting for Reinsurance of Short-Duration and Long-Duration Contracts”*
- Issued December 1992



## Additional Guidance

- SOP 98-7: “Deposit Accounting: Accounting for Insurance and Reinsurance Contracts that Do Not Transfer Insurance Risk” (applies to short-duration contracts)
- FASB Interpretation 39: “Offsetting of Amounts Related to Certain Contracts”



## Additional Guidance

- EITF 93-6: “Accounting for Multiple-Year Retrospectively Rated Contracts by Ceding and Assuming Enterprises” (applies to short-duration contracts)
- AICPA TPA Section 6300 (SOP 03-1 Questions and Answers)



## SFAS 113 – Basic Provisions

- Primarily deals with reporting by ceding company
- Requires “gross” reporting of reinsurance balances
- Requires classification between short and long duration reinsurance contracts and for short duration between prospective and retroactive
- Establishes risk transfer rules
- Specifies how revenues and costs of reinsurance are to be recorded
- Specifies required disclosures



## Balance Sheet Reporting by Ceding Companies

- Unearned premiums and policy reserves recoverable reported separately as assets
- Payables and receivables with the reinsurer may be offset only if a right of offset exists (Interpretation 39)
- Assumption reinsurance (with novation) - all assets and liabilities are removed from the balance sheet



## Balance Sheet Reporting by Ceding Companies

- Estimated recoveries for IBNR and future policy benefits are recognized in a manner consistent with direct liabilities
- Assumptions used in estimating recoveries shall be consistent with direct assumptions



## Definition of Short Duration Insurance Contract

- Contract provides insurance protection for a fixed period of short duration
- The insurer may cancel the contract at the end of any contract period
- Typical examples: most forms of property and casualty insurance, group life and health and credit life and disability



## Prospective vs. Retroactive Contracts

- **Prospective** reinsurance is reinsurance in which the assuming enterprise agrees to reimburse a ceding enterprise for losses that may be incurred as a result of future insurable events
- Most reinsurance on life and health coverages is **prospective**
- **Retroactive** reinsurance is reinsurance in which an assuming enterprise agrees to reimburse a ceding enterprise for liabilities incurred as a result of past insurable events
- An example of **retroactive** reinsurance is coinsurance of long-term disability claims



## Risk Transfer Rules for Short Duration Contracts

- Reinsurance contract must transfer significant insurance risk
- and
- It is reasonably possible for reinsurer to realize significant loss



## Exception to the Risk Transfer Rule

- If the reinsurance contract fails the primary test, then  
the contract will be accounted for as reinsurance only if all of the insurance risk in the reinsured portions of the underlying contracts has been assumed by the reinsurer



## Is it reasonably possible that the reinsurer may realize a significant loss?

- Numerical test specified by SFAS 113
- To be based on the present value of all cash flows under reasonably possible outcomes
- Significance to be evaluated by comparing present value of all cash flows with the present value of the amounts to be paid to reinsurer
- As an example, a 10 % probability of reinsurer suffering a loss at least equal to 10% of the present value of amounts paid to reinsurer



## Recognition of Revenues Short Duration Contracts

- Different rules for prospective and retroactive reinsurance
- Prospective – amounts paid are recognized over the contract period in proportion to amount of insurance
- Retroactive – Gains at inception are deferred over the settlement period; losses at inception are charged to earnings



## Definition of Long Duration Insurance Contract

- SFAS 60 states “The contract generally is not subject to unilateral changes in its provisions ... and requires the performance of various functions and services for an extended period”
- Includes most individual life and health contracts accounted for under SFAS 60, SFAS 97, SFAS 120 and SFAS 133



## Risk Transfer Rules for Long Duration Contracts

- Similar to rules for short duration
- There must be a reasonable probability of a significant loss
- Exception also applies (all risk transferred)
- Reinsurance of investment contracts is not accounted for as reinsurance under SFAS 113 since they are not insurance contracts under SFAS 97



## Red Flags on Risk Transfer

- Experience rating refunds
- Sliding scale commissions or expense allowances
- Deferred gains or payments
- Funds withheld
- Caps on claims paid by reinsurer in any year
- Side agreements



## Recognition of Revenues Long Duration Contracts

The cost of reinsurance shall be amortized over

the remaining life of the reinsured contracts if the  
reinsurance contract is long duration

or

over the contract period of the reinsurance if the  
reinsurance is short duration



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## Short duration vs. long duration reinsurance contract

- In most common form, YRT, coinsurance and modco would be classified as long duration reinsurance contracts
- Stop loss and catastrophe reinsurance would usually be classified as short duration reinsurance contracts



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## Recognition of Revenues Long Duration Reinsurance Contracts

- No gain or loss at inception of reinsurance (new or in force business), unless liability to policyholders is totally extinguished
- Cost of reinsurance (ceded premium less allowance received less ceded benefit) amortized over:
  - Premiums if underlying business is traditional life, subject to lock-in principle of FAS 60
  - Pre-reinsurance EGPs (or assessments) if underlying business is universal life, subject to unlocking principle of FAS 97 (affirmed by TPA)



## Reinsurance DAC Offsets

- Proceeds from reinsurance that represent the recovery of acquisition costs are accounted for separately
- For example, excess first year allowances
- These amounts may be accounted for as reductions in direct deferred acquisition costs



## GAAP Accounting Examples for Ceded Reinsurance



## Example 1

- Coinsurance of Fixed Annuity Contracts
- Not considered reinsurance under FAS 113, since only an insurance contract can be reinsured
- Theoretically correct treatment
  - Initial cash transferred to reinsurer a “receivable”
  - Use FAS 91 - Project all cash flows and solve for IRR (subject to unlocking), use this IRR to derive asset value
- Common approximation – use FAS 97 universal life method



## Example 1 continued

- Assume a block of deferred annuities with account values of 100 is reinsured for an initial consideration of 110
- Initial loss of 10 will be amortized over the life of the block

	<u>Dr</u>	<u>Cr</u>
Cash/investments		110
Receivable from reinsurer	100	
Deferred Loss	10	



## Example 2

- Coinsurance of a block of whole life policies
- Initial net GAAP reserve = \$10,000,000
- Cash paid to the reinsurer = \$9,000,000
- FAS 113 requires \$1,000,000 difference to be part of the cost of reinsurance to be spread over the life of the contract



## Example 3

- Five year level term product
- 90% coinsurance
- 20% first year reinsurance allowance
- 10% renewal reinsurance allowance
- Interest omitted for simplicity



## Example 3

- Direct Insurance Cash Flows

Year	Premium	-	Exps	-	Benefits	= Cash Flow
1	1,000		290		400	310
2	1,000		50		600	350
3	1,000		50		800	150
4	1,000		50		1,000	(50)
5	1,000		50		1,200	(250)
	5,000		490		4,000	510



## Example 3

- Net Cost of Reinsurance

Year	Premiums Ceded	Death Benefit Recoverable	Renewal Expense Allowance	Net Cost of Reinsurance
1	900	360	90	450
2	900	540	90	270
3	900	720	90	90
4	900	900	90	(90)
5	900	1,080	90	(270)
	4,500	3,600	450	450



## Example 3

- Direct Benefit Reserve

Year	Benefit Reserve (BOY)	+ Benefit/Expense Premiums	- Maint Expenses	- Death Benefits	= Benefit Reserve (EOY)	Change in Benefit Reserve
1	0	850	50	400	400	400
2	400	850	50	600	600	200
3	600	850	50	800	600	0
4	600	850	50	1,000	400	(200)
5	400	850	50	1,200	0	(400)



## Example 3

- DAC Asset

Yr.	DAC Asset (BOY)	+ Amount Deferred	- Amortization	= DAC Asset (EOY)	Change in DAC
1	0	150	30	120	120
2	120		30	90	(30)
3	90		30	60	(30)
4	60		30	30	(30)
5	30		30	30	(30)

Amount deferred = Excess direct expenses less excess reinsurance allowance  
= 240 – 90 = 150



## Example 3

- Reinsurance Asset\*

Year	Reins Asset (BOY)	+ Net Reins Cash Flow	- Amort*	= Reins Asset (EOY)
1	0	450	90	360
2	360	270	90	540
3	540	90	90	540
4	540	(90)	90	360
5	360	(270)	90	0

\*Amortization rate = PV Net Cost of Reins / PV Gross Premium = 9%



## Example 3

- Pre-Tax GAAP Earnings

Year	Ins. Cash Flow	+ Reins Cash Flow	+ Incr in DAC Asset	- Incr in Benefit Reserve	+ Incr in Cost of Reins Asset	Pre-Tax GAAP Income
1	310	(360)	120	400	360	30
2	350	(270)	(30)	200	180	30
3	150	(90)	(30)	0	-	30
4	(50)	90	(30)	(200)	(180)	30
5	(250)	270	(30)	(400)	(360)	30
	510	(360)				150



## Example 4

- Five year universal life contract
- YRT reinsurance of the full amount at risk
- YRT premiums based on reinsurer's assumptions with no allowances



## Example 4

- Gross Profits

Year	Mortality Margin	+ Interest Margin	+ Expense Margin	+ Incurred Surrender Charges	= Gross Profit
1	289	121	510	136	1,056
2	188	336	458	137	1,119
3	124	516	405	138	1,183
4	75	657	353	139	1,224
5	38	753	300	140	1,231
	714	2,383	2,026	690	5,813



## Example 4

### DAC Amortization

Year	PV Factor	Gross Profit	= PV of Gross Profit	DAC Amortization
1	0.9346	1,056	987	111
2	0.8734	1,119	977	118
3	0.8163	1,183	966	125
4	0.7629	1,224	934	129
5	0.7130	1,231	878	130
		5,813	4,741	

Acquisition Expenses: 500 (at issue)  
 Portion of Gross Profits used to amortize DAC: 10.55%  
 DAC Amortization = 10.55% X Gross Profit



## Example 4

- Development of DAC Asset

Year	DAC Asset (BOY)	+ Deferred Expenses	+ Interest	- Amort	= DAC Asset (EOY)
1	0	500	35	111	424
2	424		30	118	335
3	335		24	125	234
4	234		16	129	121
5	121		8	130	0



## Example 4

- Pre-Tax GAAP Book Profits before Reinsurance (Interest on Reserves – DAC)

Year	Gross Profits	- Amortization	= Pre-Tax GAAP Earnings	Earnings as % of Gross Profits
1	1,056	(111)	945	89.5%
2	1,119	(118)	1,001	89.5%
3	1,183	(125)	1,059	89.5%
4	1,224	(129)	1,095	89.5%
5	1,231	(130)	1,102	89.5%
	5,812	(111)	5,202	89.5%



## Example 4

- The Cost of Reinsurance

Year	Premiums Ceded	- Benefits Recoverable	- Expense Allowance	= Cost of Reinsurance
1	127	102	0	25
2	143	129	0	14
3	117	117	0	0
4	74	82	0	(8)
5	22	26	0	(4)
	483	456	0	27



## Example 4

- Cost of Reinsurance Amortization Factor

Year	PV Factor	Net Reins Cash Flows	PV of Net Reins Cash Flows	Gross Profit	PV of Gross Profit
1	0.9346	(25)	(23)	1,056	987
2	0.8734	(14)	(12)	1,119	977
3	0.8163	-	0	1,183	966
4	0.7629	8	6	1,224	933
5	0.7130	<u>4</u>	<u>3</u>	<u>1,231</u>	<u>878</u>
		(27)	(26)	5,812	4,741

Portion of Gross Profits used to amortize Net Reinsurance Costs: 0.56%



## Example 4

- Reinsurance Asset

Yr.	Reins Asset (BOY)	+ Interest	+ Net Reins Cash Flows	- Amort	Reins Asset (EOY)	Incr in Reins Asset
1	0	0	25	(6)	19	19
2	19	1	14	(6)	28	9
3	28	2	0	(7)	23	(5)
4	23	2	(8)	(7)	10	(13)
5	10	1	(4)	(7)	0	(10)



## Example 4

- Pre-Tax GAAP Profits after Reinsurance

Yr.	Pre-Tax GAAP Earnings - Direct	+ Net Reins Cash Flow	+ Incr in Reins Asset*	= Pre-Tax GAAP Earnings - Net	Earnings as % of gross Profits
1	945	(25)	19	939	88.9%
2	1,001	(14)	8	995	88.9%
3	1,058	0	(7)	1,051	88.9%
4	1,095	8	(15)	1,088	88.9%
5	1,101	4	(11)	1,094	88.9%
	5,200	(27)	6	5,167	88.9%

\* Excludes interest on asset



## Reinsurance Under SOP 03-1 Affirmed by TPA

- Gross reserves – calculate reserve, assuming pre-reinsurance benefits and assessments
- Calculate EGPs w/o reinsurance, but include increase in gross SOP 03-1 reserve
- Amortize DAC over pre-reinsurance EGPs
- Reinsurance receivable asset, assuming ceded benefits and pre-reinsurance assessments
- But, cost of reinsurance still must be accrued over pre-reinsurance EGPs or pre-reinsurance assessments; this means there could be a balancing asset or liability



## Example 5

- Variable annuity
- \$1,000,000 deposit
- Commission = \$50,000
- 4% “roll-up” GMDB benefit
- 100% coinsurance of GMDB
- reinsurance premium equals GMDB cost on direct contract, no allowances



## Example 5

- Assumptions

	Lapse Rate	Mortality Rate	Net Growth Rate	Growth Net of GMD Chg	M&E Charges	GMD Charges	Discount Rate
1	2%	0.00100	10.00%	9.90%	1.50%	0.10%	10%
2	4%	0.00150	10.00%	9.90%	1.50%	0.10%	10%
3	6%	0.00200	10.00%	9.90%	1.50%	0.10%	10%
4	8%	0.00250	-60.00%	-60.10%	1.50%	0.10%	10%
5	10%	0.00300	0.00%	-0.10%	1.50%	0.10%	10%
6	10%	0.00350	20.00%	19.90%	1.50%	0.10%	10%
7	10%	0.00400	15.00%	14.90%	1.50%	0.10%	10%
8	10%	0.00500	10.00%	9.90%	1.50%	0.10%	10%
9	10%	0.00600	10.00%	9.90%	1.50%	0.10%	10%
10	10%	0.00700	10.00%	9.90%	1.50%	0.10%	10%



## Example 5

- Fund Development

Year	BOY Account	Fund Growth	Account Released on Deaths	Surrenders	EOY Account
1	1,000,000	99,000	1,099	21,958	1,075,943
2	1,075,943	106,518	1,774	47,228	1,133,460
3	1,133,460	112,213	2,491	74,591	1,168,590
4	1,168,590	(702,323)	1,166	37,208	427,894
5	427,894	(428)	1,282	42,618	383,565
6	383,565	76,329	1,610	45,828	412,456
7	412,456	61,456	1,896	47,202	424,815
8	424,815	42,057	2,334	46,454	418,084
9	418,084	41,390	2,757	45,672	411,045
10	411,045	40,694	3,162	44,858	403,719



## Example 5

- Guaranteed Death Benefits

Year	Roll-up Benefit Inforce	GMDB Exposure	Excess Death Benefits	GMDB Charges
1	1,040,000	0	0	1,000
2	1,058,908	0	0	1,076
3	1,055,628	0	0	1,133
4	1,029,918	563,650	1,409	1,169
5	982,962	555,496	1,666	428
6	917,292	457,398	1,601	384
7	855,580	381,668	1,527	412
8	797,620	330,748	1,654	425
9	742,839	283,365	1,700	418
10	691,126	239,387	1,676	411



## Example 5

- GMDB Reserve (Based on Gross Benefits)

Year	Excess Death Benefits	Total Assessments	EOY GMDB Reserve
1	-	16,000	1,245
2	-	17,215	2,710
3	-	18,135	4,392
4	1,409	18,697	4,878
5	1,666	6,846	4,232
6	1,601	6,137	3,532
7	1,527	6,599	2,872
8	1,654	6,797	2,034
9	1,700	6,689	1,058
10	1,676	6,577	0

PV Excess Claims = 5,822  
 PV Total Assessments = 74,814  
 Benefit Ratio = 0.07783



## Example 5

- DAC Without Reinsurance in the EGPs

Year	M&E	Expense Margins	Mortality Margins	Increase in SOP Reserve*	EGP	DAC
1	15,000	(1,000)	1,000	1,245	13,755	44,150
2	16,139	(975)	1,076	1,340	14,900	36,811
3	17,002	(951)	1,133	1,412	15,773	28,050
4	17,529	(927)	(241)	46	16,315	17,985
5	6,418	(904)	(1,239)	(1,134)	5,409	15,516
6	5,753	(881)	(1,217)	(1,123)	4,778	13,299
7	6,187	(859)	(1,114)	(1,013)	5,227	10,506
8	6,372	(838)	(1,229)	(1,125)	5,430	7,273
9	6,271	(817)	(1,282)	(1,180)	5,352	3,778
10	6,166	(796)	(1,265)	(1,164)	5,269	0

PV of EGPs = 63,385  
K-factor = 0.7888

\* Includes interest in reserve



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## Example 5

- Net Cost of Reinsurance

Year	Premium	Recoveries	Net Cost	Asset (over EGPs)	Asset (over Assessments)
1	1,000	-	1,000	1,249	1,245
2	1,076	-	1,076	2,719	2,710
3	1,133	-	1,133	4,410	4,392
4	1,169	1,409	(241)	4,906	4,878
5	428	1,666	(1,239)	4,256	4,232
6	384	1,601	(1,217)	3,551	3,532
7	412	1,527	(1,114)	2,886	2,872
8	425	1,654	(1,229)	2,044	2,034
9	418	1,700	(1,282)	1,063	1,058
10	411	1,676	(1,265)	0	0

PV Net Cost = (1,147)

K-factor = -0.01810

-0.01532



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## Example 5

- Pre-Tax Profits

Year	EGP	DAC Amortization	Over EGPs		Over Assessments	
			Reins Amort	GAAP Profits	Reins Amort	GAAP Profits
1	13,755	10,850	(249)	3,153	(245)	3,150
2	14,900	11,754	(270)	3,416	(264)	3,410
3	15,773	12,442	(285)	3,616	(278)	3,609
4	16,315	12,870	(295)	3,740	(287)	3,732
5	5,409	4,267	(98)	1,240	(105)	1,247
6	4,778	3,769	(86)	1,096	(94)	1,103
7	5,227	4,123	(95)	1,198	(101)	1,205
8	5,430	4,283	(98)	1,245	(104)	1,251
9	5,352	4,222	(97)	1,227	(103)	1,233
10	5,269	4,156	(95)	1,208	(101)	1,213

Amortization = Increase in balance adjusted for interest on balance



Reinsurance Assumed



## What About Reinsurance Assumed?

- Ceded reinsurance is the focus of SFAS 113
- SFAS 113 does not address reinsurance assumed except through risk-transfer rules
- In general an insurer accounts for reinsurance assumed in the same fashion as directly written business



## Reinsurance Assumed

- What Not to Do
  - Ask ceding company what they're doing and hold mirror reserve / DAC
  - Use accounting model of reinsured base policy
- What To Do
  - Look for substance of treaty, which might be different than that of reinsured base policy
  - Use accounting model that is applicable for underlying substance of treaty
  - Set your own assumptions



## Reinsurance Assumed

Treaty Type	Accounting Model	Be Careful About
Coinsurance and Assumption Reinsurance (with novation)	Same as model for reinsured contract	Reserve assumptions for an inforce block, embedded derivative (DIG Issue B36) for funds withheld
Modified Coinsurance	Same as model for reinsured contract	Embedded derivative (DIG Issue B36)
YRT	FAS 60	Zero premium in first year



## Reinsurance Accounting

