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Reinsurance Under GAAP

David Rogers

Reinsurance Accounting

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Session 3b

David Y. Rogers, PwC LLP

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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 cedant holds assets and reserves
- **YRT** – reinsurer assumes mortality or morbidity risk only; premiums usually annually based on amount at risk
- **Financial Re** – reinsurer provides tax, RBC, surplus relief; usually with no risk transfer
- **Assumption Re** – Reinsurer legally assumes the cedant's obligations to the policyholders

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Accounting Authority

FAS 113 - *"Accounting and Reporting for Reinsurance of Short and Long Duration Contracts"*

- Issued December 1992
- FAS 113 covers accounting for contracts that transfer insurance risk.
- Applies to reinsurance ceded only
- Contracts that do not transfer insurance risk are subject to deposit accounting (the subject of SOP 98-7 for short duration contracts)

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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"
- EITF 93-6: "Accounting for Multiple-Year Retrospectively Rated Contracts by Ceding and Assuming Enterprises" (applies to short-duration contracts)

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FAS 113 Overview

Areas of Focus

- Definition of reinsurance: risk transfer
- Ceding company balance sheet – gross presentation of liabilities
- Ceding company income statement – recognition of earnings
- Disclosures

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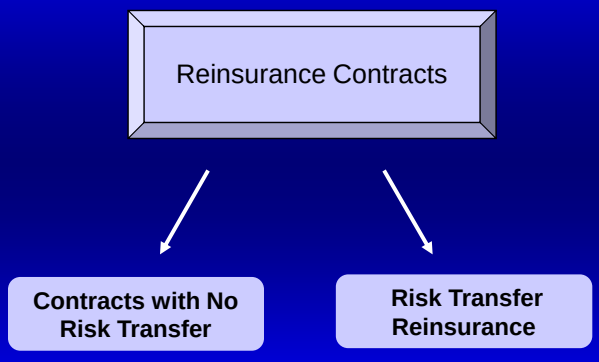
Classification of Contracts



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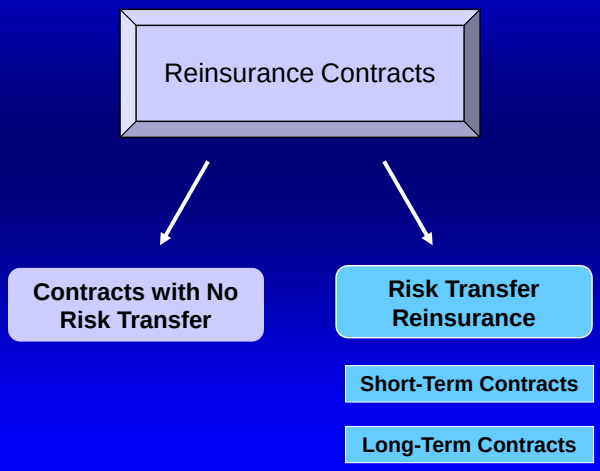
Classification of Contracts



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Transfer of Insurance Risk

For short-duration contracts

There must be a *more than remote probability* that there is *significant variation* in either

- The *amount* of payments by the reinsurer
- The *timing* of payments by the reinsurer

For long-duration contracts

There must be a *reasonable possibility* that the reinsurer may realize *significant loss* from assuming *insurance risk*.

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Recovery of Acquisition Costs

General Requirement in FAS 60, incorporated into FAS 113:

"Proceeds from reinsurance transactions that represent recovery of acquisition costs shall reduce applicable unamortized acquisition costs in such a manner that net acquisition costs are capitalized and charged to expense in proportion to net revenue recognized."

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Balance Sheet Reporting

- Ceding companies report reinsurance receivables separately as assets
- Payables and receivables with the reinsurer may be offset only if a right of offset exists (Interpretation 39)
- Assumption reinsurance-all assets and liabilities are removed from the B/S

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Balance Sheet Reporting

- Unearned premiums and policy reserves recoverable reported separately as assets
- Estimated recoveries for claims 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

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Recognition of Revenues

Short Duration Contracts

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

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Recognition of Revenues
Long Duration Contracts

FAS 113 tells us:

The cost of reinsurance shall be amortized

- Over the life of the reinsurance contract if the reinsurance contract is short duration
- Over the life of the underlying contracts if the reinsurance contract is long duration

FAS 113 does not tell us:

– What is the “Cost of Reinsurance”?
– What method should be used to amortize the cost?

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Recognition of Revenues
Long Duration Contracts

FAS 113 does tell us:

- The cost of reinsurance includes the difference between amounts paid for a reinsurance contract and the amount of liabilities for the policy benefits relating to the underlying reinsured contracts.

- Reinsurance does not result in immediate recognition of gains (except for assumption re)

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Example

- Coinsurance of a block of whole life
- Initial 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

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What is the Cost of Reinsurance?

- Reinsurance premiums?
- Reinsurance cash flows (reinsurance premiums less allowances less recoveries)?
- Something else?

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One School of Thought

- The cost of reinsurance in any year is the net reinsurance cash flow: CR=RP–RA-RR
- The cost should be recognized in proportion to appropriate revenue base (gross premiums for FAS 60, EGP's for FAS 97)
- An asset or liability is established depending on the incidence of net reinsurance cash flow

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Example #1

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

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Example #1

- Direct Insurance Cash Flows

Year	Premium	- Expenses	- 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**

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Example #1

- 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**

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Example #1

- 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)

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Example #1

- DAC Asset

Year	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

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Example #1

- 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%**

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Example #1

- Pre-Tax GAAP Earnings

Year	Insurance Cash Flow	+ Reins Cash Flow	+ Incr in DAC Asset	- Incr in Benefit Reserve	+ Incr in Cost of Reins Asset	Pre-Tax GAAP Earnings
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	**(340)**				**150**

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FAS 97 Product Issue

On FAS 97 products should the cost of reinsurance be

- Recognized in proportion to EGP's
  or
- Run through EGP's?

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Example #2

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

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Example #2

- 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**	**2,025**	**690**	**5,812**

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Example #2

- 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	933	129
5	0.7130	1,231	878	130
		5,812	**4,741**	

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

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Example #2

- 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		23	125	234
4	234		16	129	121
5	121		8	130	0

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Example #2

- Pre-Tax GAAP Profits before Reinsurance

Year	Gross Profits	- Acquisition Costs	+ Change in DAC*	= Pre-Tax GAAP Earnings	Earnings as % of Gross Profits
1	1,056	500	389	945	89.5%
2	1,119		(118)	1,001	89.5%
3	1,183		(124)	1,059	89.5%
4	1,224		(129)	1,095	89.5%
5	1,231		(129)	1,102	89.5%
	5,812	**500**	**(111)**	**5,202**	**89.5%**

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Example #2

- The Cost of Reinsurance

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

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Example #2

- Cost of Reinsurance Amortization Factor

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

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

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Example #2

- Reinsurance Asset

Year	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

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Example #2

- Pre-Tax GAAP Profits after Reinsurance

Year	Pre-Tax GAAP Earnings Before Reins Asset	+ Net Insurance Cash Flow	- Incr in Reins Asset*	Pre-Tax GAAP Earnings After Reins Asset	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%**

* Includes interest on asset

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Example #2A

- Cost of Reinsurance included in Gross Profits

Year	Mortality Margin	Interest Margin	Expense Margin	Incurred Surrender Charges	Cost of Reins	Gross Profit
1	289	121	510	136	(25)	1,081
2	188	336	458	137	(14)	1,133
3	124	516	405	138	0	1,183
4	75	657	353	139	8	1,216
5	38	753	300	140	4	1,227
	714	**2,383**	**2,025**	**690**	**(27)**	**5,840**

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Example #2A

Pre-Tax GAAP Profits with Reinsurance Included in Estimated Gross Profits

Year	Gross Profits	Acquisition Costs	Change in DAC*	Pre-Tax GAAP Earnings	Earnings as % of gross Profits
1	1,081	500	387	968	89.5%
2	1,133		(119)	1,014	89.5%
3	1,183		(124)	1,059	89.5%
4	1,216		(128)	1,088	89.5%
5	1,227		(129)	1,198	89.5%
	5,840	**500**	**(112)**	**5,228**	**89.5%**

* Includes interest on DAC

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Variable Annuity GMDB Issue

Should the cost of reinsurance be

- Spread over Assessments or EGP's and excluded from the SOP reserve, or
- Included in EGP's and included in the SOP reserve numerator, or
- Included in the EGP's but have reinsurance costs reflected differently in SOP reserve?

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Example #3

- 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

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Example #3

- Assumptions

	Lapse Rate	Mortality Rate	Net Growth Rate	Growth Net of GMDB Chg	M&E Charges	GMDB 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	-50.00%	-50.10%	1.50%	0.10%	10%
5	10%	0.00300	0.00%	-0.10%	1.50%	0.10%	10%
6	10%	0.00350	10.00%	9.90%	1.50%	0.10%	10%
7	10%	0.00400	10.00%	9.90%	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%

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Example #3

- 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	1,122,460	112,213	2,491	74,591	1,168,590
4	1,168,590	(585,464)	1,458	46,534	535,135
5	535,135	(535)	1,604	53,300	479.697
6	479,697	47,490	1,845	52,534	472,807
7	472,807	46,808	2,078	51,754	465,783
8	465,783	46,113	2,559	50,934	456,403
9	458,403	45,382	3,023	50,076	450,686
10	450,686	44,618	3,467	49,184	442,653

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Example #3

- Guaranteed Death Benefits

	Accum at 4%			GMDB Exposure	Excess Death Benefits	GMDB Charges	Gains (losses) from Mortality
	Deposits	With	Net				
1	1,040,000	-	1,040,000	-	-	1,000	1,000
2	1,081,600	23,979	1,057,621	-	-	1,076	1,076
3	1,124,864	74,941	1,049,923	-	-	1,133	1,133
4	1,169,859	155,106	1,014,752	431,626	1,079	1,169	90
5	1,216,653	205,017	1,011,636	477,036	1,431	535	(896)
6	1,265,319	262,117	1,003,202	476,016	1,666	480	(1,186)
7	1,315,932	318,671	997,261	477,645	1,911	473	(1,438)
8	1,368,569	374,657	993,913	482,017	2,410	466	(1,944)
9	1,423,312	430,289	993,022	489,238	2,935	458	(2,477)
10	1,480,244	485,512	994,732	499,429	3,496	451	(3,045)

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Example #3

- GMDB Reserve (Based on Gross Benefits)

Year	Excess Death Benefits	Total Assessments	EOY GMDB Reserve
1	-	16,000	1,489
2	-	17,215	3,239
3	-	18,135	5,251
4	1,079	18,697	6,436
5	1,431	8,562	6,445
6	1,666	7,675	6,138
7	1,911	7,565	5,545
8	2,410	7,453	4,383
9	2,935	7,334	2,568
10	3,496	7,211	(0)

PV Excess Claims = 7,264
PV Total Assessments = 78,067
Benefit Ratio = 0.09304

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Example #3

- 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	1,489	13,511	44,638
2	16,139	(975)	1,076	1,602	14,638	37,876
3	17,002	(951)	1,133	1,687	15,497	29,779
4	17,529	(927)	90	661	16,031	20,462
5	8,027	(904)	(896)	(634)	6,862	17,246
6	7,195	(881)	(1,186)	(952)	6,080	14,308
7	7,092	(859)	(1,438)	(1,207)	6,002	11,136
8	6,987	(838)	(1,944)	1,717)	5,922	7,709
9	6,876	(817)	(2,477)	(2,253)	5,835	4,004
10	6,760	(796)	(3,045)	(2,825)	5,744	0
				PV =	**65,198**	
				K-factor=	**0.7669**	

*** Includes interest in reserve**

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Example #3

- Net Cost of Reinsurance

Year	Premium	Recoveries	Net Cost	Asset (over EGPs)	Asset (over Assessments)
1	1,000	-	1,000	1,494	1,489
2	1,076	-	1,076	3,255	3,239
3	1,133	-	1,133	5,281	5,251
4	1,169	1,079	90	6,484	6,436
5	535	1,431	(896)	6,488	6,445
6	480	1,666	(1,186)	6,173	6,138
7	473	1,911	(1,438)	5,572	5,545
8	466	2,410	(1,944)	4,401	4,383
9	458	2,935	(2,477)	2,578	2,568
10	451	3,496	(3,045)	0	0
		PV Net Cost=	**(2,384)**		
		K-factor=		**-0.03657**	**- 0.03054**

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Example #3

- Pre-Tax Profits

			Over EGPs		Over Assessments	
Year	EGP	DAC Amortization	Reins Amort	GAAP Profits	Reins Amort	GAAP Profits
1	13,511	10,362	(494)	3,644	(489)	3,638
2	14,638	11,226	(535)	3,948	(526)	3,938
3	15,497	11,885	(567)	4,179	(554)	4,166
4	16,031	12,294	(586)	4,323	(571)	4,308
5	6,862	5,262	(251)	1,850	(262)	1,861
6	6,080	4,663	(222)	1,640	(234)	1,652
7	6,002	4,603	(220)	1,619	(231)	1,630
8	5,922	4,541	(217)	1,597	(228)	1,608
9	5,835	4,475	(213)	1,574	(224)	1,584
10	5,744	4,405	(210)	1,549	(220)	1,559

Amortization = Increase in balance adjusted for interest on balance

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Example #3A

Include Cost of Reinsurance in EGP and in the Numerator of SOP Benefit Ratio

	M&E	Mortality Margins	Cost of Reinsurance	Increase in SOP Reserve	EGP	DAC	Interest on DAC	Pre-Tax GAAP Profits
1	15,000	1,000	1,000	-	14,000	44,642	5,000	3,642
2	16,139	1,076	1,076	-	15,164	37,887	4,464	3,945
3	17,002	1,133	1,133	-	16,051	29,801	3,789	4,176
4	17,529	90	90	-	16,602	20,498	2,980	4,319
5	8,027	(896)	(896)	-	7,123	17,278	2,050	1,853
6	7,195	(1,186)	(1,186)	-	6,314	14,334	1,728	1,643
7	7,092	(1,438)	(1,438)	-	6,233	11,156	1,433	1,622
8	6,987	(1,944)	(1,944)	-	6,149	7,722	1,116	1,600
9	6,876	(2,477)	(2,477)	-	6,059	4,011	772	1,576
10	6,760	(3,045)	(3,045)	-	5,964	0	401	1,552
				PV EGPs =	**67,582**			
				K-factor=	**0.7398**			

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Reinsurance in SOP Reserve

- Exclude reinsurance from EGP's and SOP and spread cost of reinsurance over EGP's
- Include cost of reinsurance in EGP's and SOP
- Include cost of reinsurance in EGP's, include reinsured death benefits in SOP and spread reinsurance premium cost another way.

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