



De-risking Variable Annuities (VA)

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Factors leading to re-pricing of VA products

- 2008-2009 crisis: Economic, GAAP and Statutory losses
 - Reduced base fees
 - Guarantee impact: increased value of benefits, total asset requirement/reserve/capital
- Hedging programs only partially successful
 - Residual exposure to Vega, Delta and Rho
 - Basis risk
- Industry response
 - Short term: preserve and enhance solvency
 - Replace capital base lost due to liabilities and assets
 - Raise capital, cut dividends, sell operations
 - Short and medium term: risk management on in-force
 - Change hedging/investments/reinsurance
 - GAAP/Stat/Economic/Tax and liquidity implications
 - Medium and long term: re-pricing products and product strategy
- De-risking variable annuities focuses on product strategies

De-risking variable annuities – Structure

- Part 1: Product changes for de-risking
- Part 2: Illustrative case studies
- Part 3: Qualitative and competitive outlook

Potential product changes – GMWB focus

- Guarantee rider fee increases
 - A possibility is to reserve option to increase fees
 - Option to vary fee by investment allocation limits
- Lower guarantee roll-up/less generous resets
- Income percentages
 - Reduce percentages
 - Increase frequency of age bands
- Investment allocations
 - Force more conservative allocations
 - Automatic rebalancing and self-insured funds
 - Passive funds and “more hedgeable” asset classes
- Changes in marketing/advisor role/sale method
 - Focus on lifetime income protection, tax advantages, investment management skills and flexibility
 - Move away from “guarantee performance” sale
 - Promote balanced and diversified asset allocations

Examples of product changes in 2008-2009

- We saw some re-pricing and de-risking during 2008
 - Higher charges/more restrictive features to make up for higher option costs
 - Several companies introduced new features and raised charges
- In 2009, several companies have withdrawn their most aggressive living benefits, and raised prices on more restrictive options
 - Examples: Pacific Life, John Hancock, MassMutual, Met Life, Allianz
 - To avoid big price increases, product features are becoming more restrictive
 - Other options include the use of index funds and “No-Frills” products
 - In addition, prices on new filings are increasing by 20-50 bps
 - MetLife was at the high end of the price increases, with higher fees (up to 145 bps) for more aggressive portfolio allocations
 - Allianz Life withdrew their entire living benefits April 1, 2009

Case studies – Product and pricing methodology

- “Generic” GMWB product sold in late 2008 and early 2009
 - 60 year old male
 - 5.0% lifetime income
 - 5.0% annual compound roll-up, annual reset
 - 75 bps rider fee
 - Investment mix: 70% equities/30% intermediate high quality bonds
- Pricing methodology
 - Market-consistent profit margin as % of premium (3/31/2009)
 - “Comprehensive investment bank type hedging”
 - Price of the liability if fully hedged and collateralized (price of risk free replicating portfolio)
 - Replicating portfolio is expensive since “risk free”
 - In practice, insurance companies are not risk free and the shareholder owns a default option
 - We ignore taxes (very limiting)
 - We ignore cost of capital, but we present a behavior risk sensitivity

Base pricing results

March 31, 2009 income statement (% of initial premium)

	Base	Adverse behavior	Behavior risk
Base fees and charges	14.30%	14.28%	-0.03%
Rider fees	9.06%	9.20%	0.14%
Total revenue	23.36%	23.48%	0.12%
Commissions and expenses	11.61%	11.71%	0.11%
Guarantee claims	18.11%	22.26%	4.16%
Total expenses and claims	29.71%	33.98%	4.27%
Margin before tax	-6.35%	-10.50%	-4.15%
Behavior risk	4.15%		

■ Notes:

- Adverse behavior: higher utilization and more efficient lapse behavior
- “Behavior risk” will be shown in aggregate for each case study

Impact of a rider fee increase of 50 bps

March 31, 2009 income statement (% of initial premium)

	Increased fees	Base	Change
Base fees and charges	13.67%	14.30%	-0.63%
Rider fees	14.80%	9.06%	5.74%
Total revenue	28.47%	23.36%	5.11%
Commissions and expenses	11.46%	11.61%	-0.14%
Guarantee claims	20.62%	18.11%	2.51%
Total expenses and claims	32.08%	29.71%	2.37%
Margin before tax	-3.61%	-6.35%	2.75%
Margin before tax adverse	-8.05%	-10.50%	
Behavior risk	4.45%	4.15%	0.30%

■ Observations:

- Higher claims offset ~ 50% of the fee increase
- Increase in risk

Impact of a stricter investment allocation

March 31, 2009 income statement (% of initial premium)

	Allocation	Base	Change
Base fees and charges	14.09%	14.30%	-0.21%
Rider fees	8.88%	9.06%	-0.17%
Total revenue	22.97%	23.36%	-0.39%
Commissions and expenses	11.64%	11.61%	0.04%
Guarantee claims	14.19%	18.11%	-3.92%
Total expenses and claims	25.84%	29.71%	-3.88%
Margin before tax	-2.86%	-6.35%	3.49%
Margin before tax adverse	-6.61%	-10.50%	
Behavior risk	3.75%	4.15%	-0.40%

- Allocation changed to 55% equities, 40% bonds and 5% money market
 - Significant profitability increase
 - Decrease in risk

Impact of a 1.0% decrease in roll-up rate

March 31, 2009 income statement (% of initial premium)

	Roll-up	Base	Change
Base fees and charges	14.25%	14.30%	-0.06%
Rider fees	8.84%	9.06%	-0.21%
Total revenue	23.09%	23.36%	-0.27%
Commissions and expenses	11.60%	11.61%	0.00%
Guarantee claims	17.24%	18.11%	-0.87%
Total expenses and claims	28.84%	29.71%	-0.87%
Profit margin before tax	-5.75%	-6.35%	0.60%
Margin before tax adverse	-9.69%	-10.50%	
Behavior risk	3.94%	4.15%	-0.21%

■ Discussion:

- Some profitability increase and some decrease in risk
- ~30% offset due to assumed change in distribution of sales

Impact of change in income percentages

March 31, 2009 income statement (% of initial premium)

	Income	Base	Change
Base fees and charges	14.64%	14.30%	0.33%
Rider fees	9.14%	9.06%	0.08%
Total revenue	23.78%	23.36%	0.41%
Commissions and expenses	11.69%	11.61%	0.08%
Guarantee claims	14.33%	18.11%	-3.78%
Total expenses and claims	26.02%	29.71%	-3.70%
Profit margin before tax	-2.24%	-6.35%	4.11%
Margin before tax adverse	-5.49%	-10.50%	
Behavior risk	3.25%	4.15%	-0.90%

- From 5.0% for all to 4.0% for 60-64, 4.5% for 65-69 and 5.0% for 70+:
 - Significant profitability increase
 - Significant decrease in risk

Bringing it all together...

March 31, 2009 income statement (% of initial premium)

	Combined	Base	Change
Base fees and charges	13.84%	14.30%	-0.47%
Rider fees	14.40%	9.06%	5.35%
Total revenue	28.24%	23.36%	4.88%
Commissions and expenses	11.59%	11.61%	-0.01%
Guarantee claims	12.06%	18.11%	-6.05%
Total expenses and claims	23.65%	29.71%	-6.06%
Profit margin before tax	4.59%	-6.35%	10.94%
Margin before tax adverse	1.73%	-10.50%	
Behavior risk	2.86%	4.15%	-1.29%

■ Observations:

- Strong increase in profitability; behavior risk reduced by ~33%
- Value changes were additive; risk reduction slightly more than additive

Illustrative case studies – Conclusion

- The **profitability levels presented were indicative**, expenses, revenue sharing, fees, commissions and policyholder behavior expectations/experience can vary significantly
- If use market-consistent metric and given assumptions made, a combination of significant changes was needed at the end of March 2009 to obtain a positive value before taxes and cost of capital, but:
 - Profitability is highly sensitive to risk free interest rates, which increased since
 - Volatility appears to have decreased
 - Market-consistent metric ignores value of default option
- The market is using a combination of changes in de-risking; this is consistent with the results of the case study
- The most significant product changes for de-risking are decreases in income percentages and more conservative investment allocations
- Extent and durability of changes will be driven by industry structure
- Need to evaluate current and future industry competitiveness

Industry competitiveness – Sales rankings

Rank 2008	Rank 2007	Company Name	Sales 2007 (M)	Sales 2008 (M)	Market Share 2007	Market Share 2008
1	3	TIAA-CREF	14,116	14,522	7.6	9.2
2	5	ING	13,095	14,163	7.0	9.0
3	1	AXA Financial/MONY	16,234	13,919	8.7	8.8
4	2	MetLife	15,833	13,850	8.5	8.8
5	6	Lincoln National	12,826	10,983	6.9	7.0
6	7	Prudential Financial	11,678	10,199	6.3	6.5
7	8	John Hancock	10,805	9,465	5.8	6.0
8	11	AIG/SunAmerica/American General	9,531	8,212	5.1	5.2
9	4	Hartford Life	13,255	7,904	7.1	5.0
10	10	Pacific Life	10,675	7,818	5.7	5.0
11	9	RiverSource Life	10,762	7,499	5.8	4.8
12	12	Jackson National	9,114	6,466	4.9	4.1
13	13	Nationwide Life	6,051	4,611	3.3	2.9
14	15	AEGON Companies	3,166	3,273	1.7	2.1
15	14	Allianz	3,316	3,091	1.8	2.0
		Total Top 15	160,457	135,975	86.3%	86.4%
		Market Total	186,000	157,500		

*Source: Towers Perrin's VALUE Survey

Competitiveness of VA market

- Top 15 share stayed roughly the same in 2008
- Herfindahl index (sum of squared market shares)
 - 0-10% competitive
 - 10-18% concentrated (example, FIA market)
 - 18%+ highly concentrated
- The index in 2007: 5.7%
- The index in 2008: 5.9%
- Increase in Herfindahl index could be a sign of decreasing competition
- Assuming one to three small and medium companies merge/exit the market brings the Herfindahl index up in the 6-9% range
- Industry will likely remain competitive and distribution/consumer will still have access to a vast number of providers
 - De-risking needs to be targeted and differentiated, cannot ignore market forces
 - After a successful recovery, renewed high competition is likely

Positive factors for the VA market

- Growing number of individuals reaching retirement
- Growing pool of retirement assets and rollover assets in the US
 - Increased savings rate
- Only life insurers are able to offer lifetime guarantees
 - Alternative lifetime products lack marketability (e.g., SPIA) and investment flexibility
- Continued shift of retirement responsibility from employer to employees
- Tax advantage
- US life insurers can leverage their expertise internationally
- Complexity of product enables differentiation strategies to be used and sophisticated risk management create some barriers to entry

VAs will continue to be a key product for providing retirement income

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