

Taming Surplus Volatility

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STRATEGIC ASSET ALLIANCE
THE INSURANCE INVESTMENT SPECIALIST

Taming Surplus Volatility

- **How are Insurers Positioned for Surplus Volatility**
 - How does your company compare to your overall industry?
- **How do Insurers set Risk Asset Allocations?**
- **Where to Start Taming Surplus Volatility?**
 - Two Major Approaches
- **What About Your Company?**

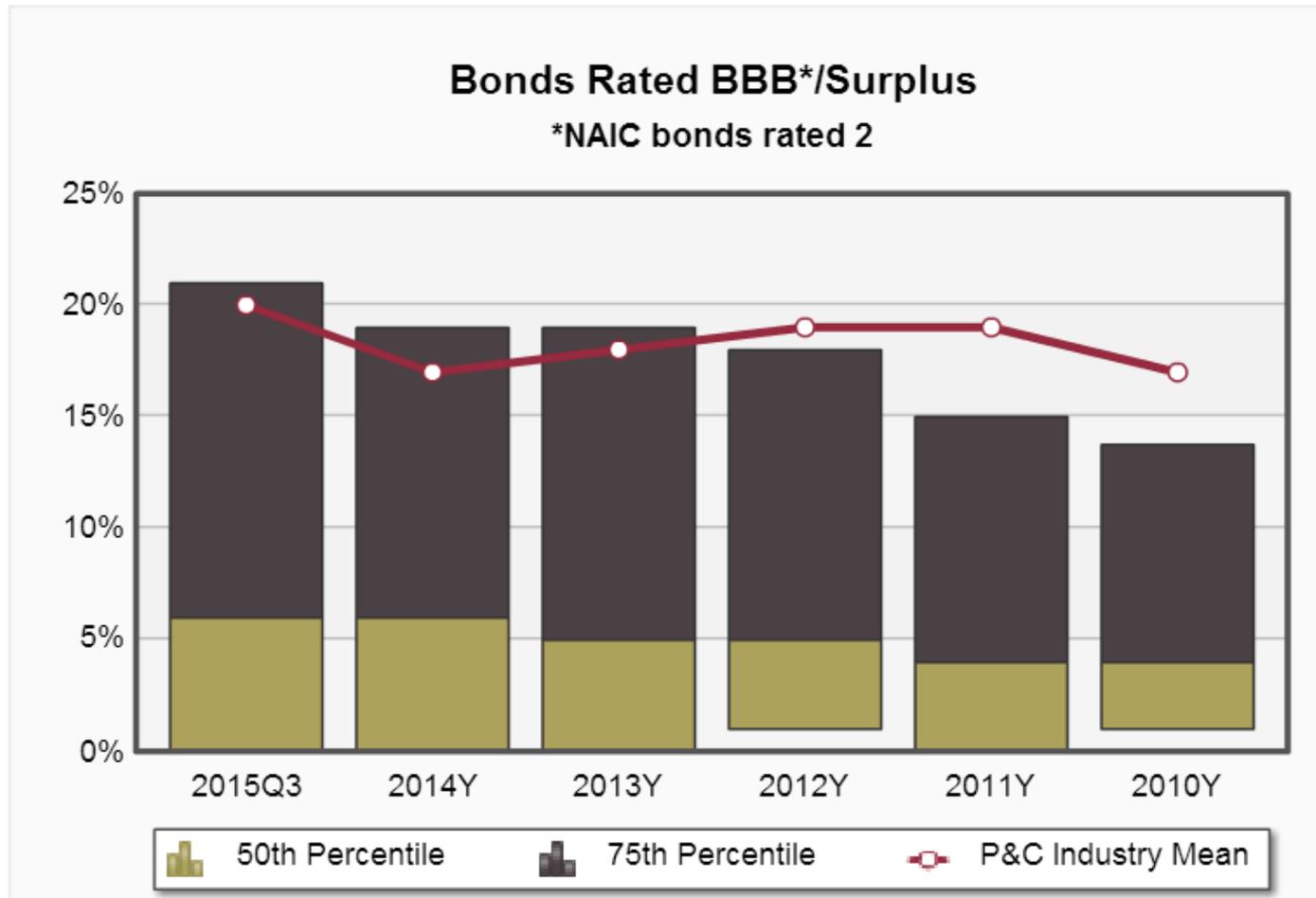




**HOW ARE INSURERS POSITIONED FOR SURPLUS
VOLATILITY?**



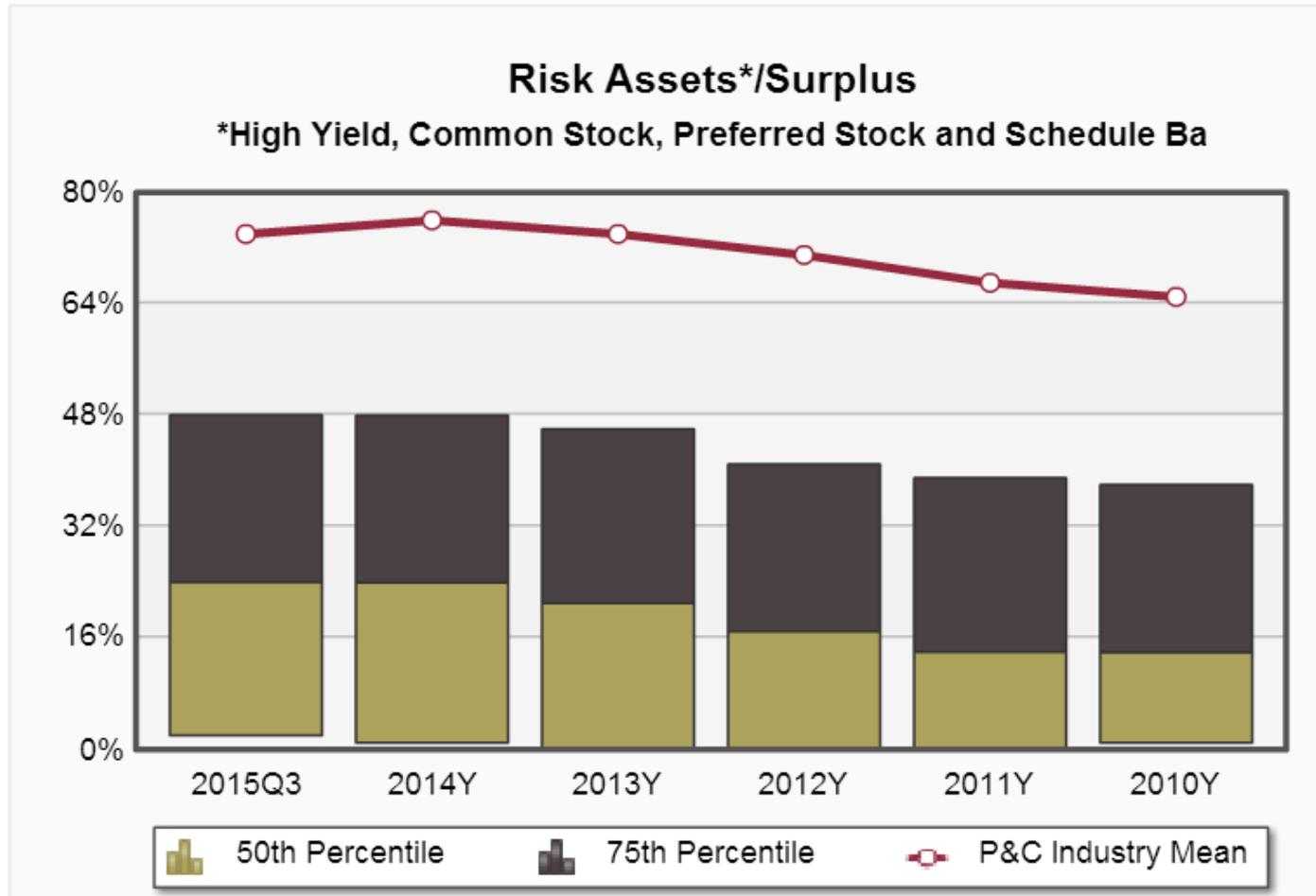
How have P/C insurers reacted thus far?



Source: Strategic Asset Alliance, SNL Securities



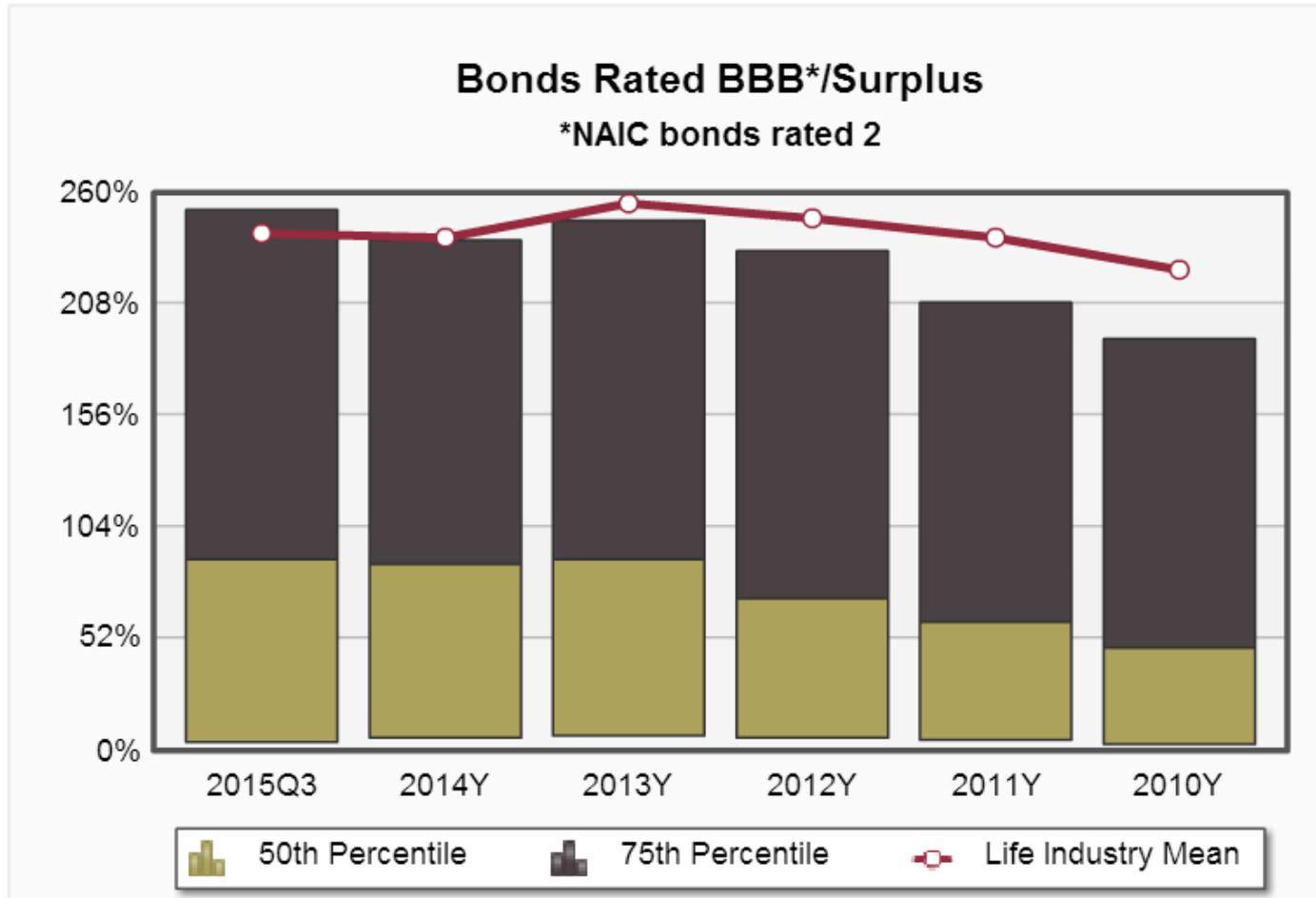
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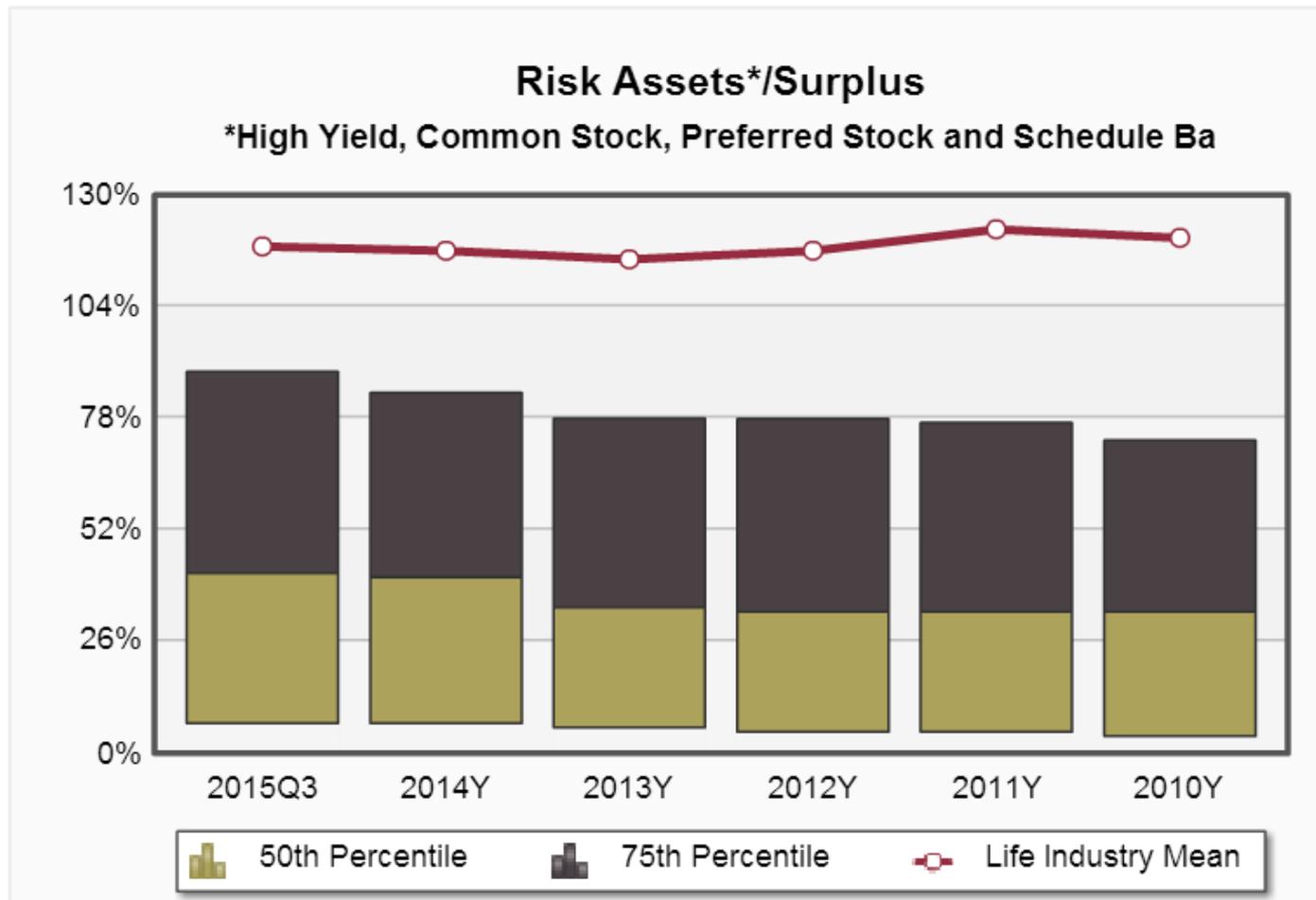
How have Life insurers reacted thus far?



Source: Strategic Asset Alliance, SNL Securities



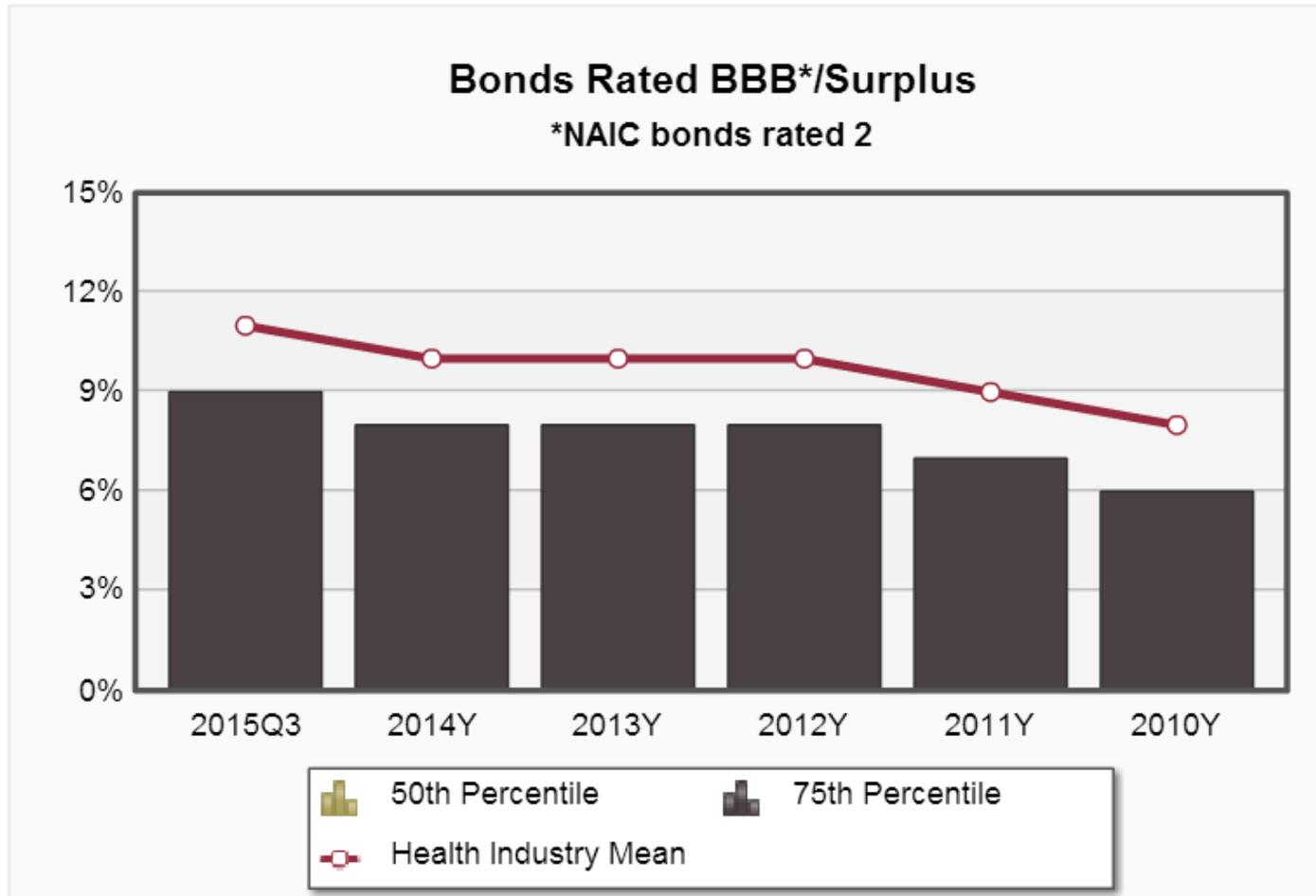
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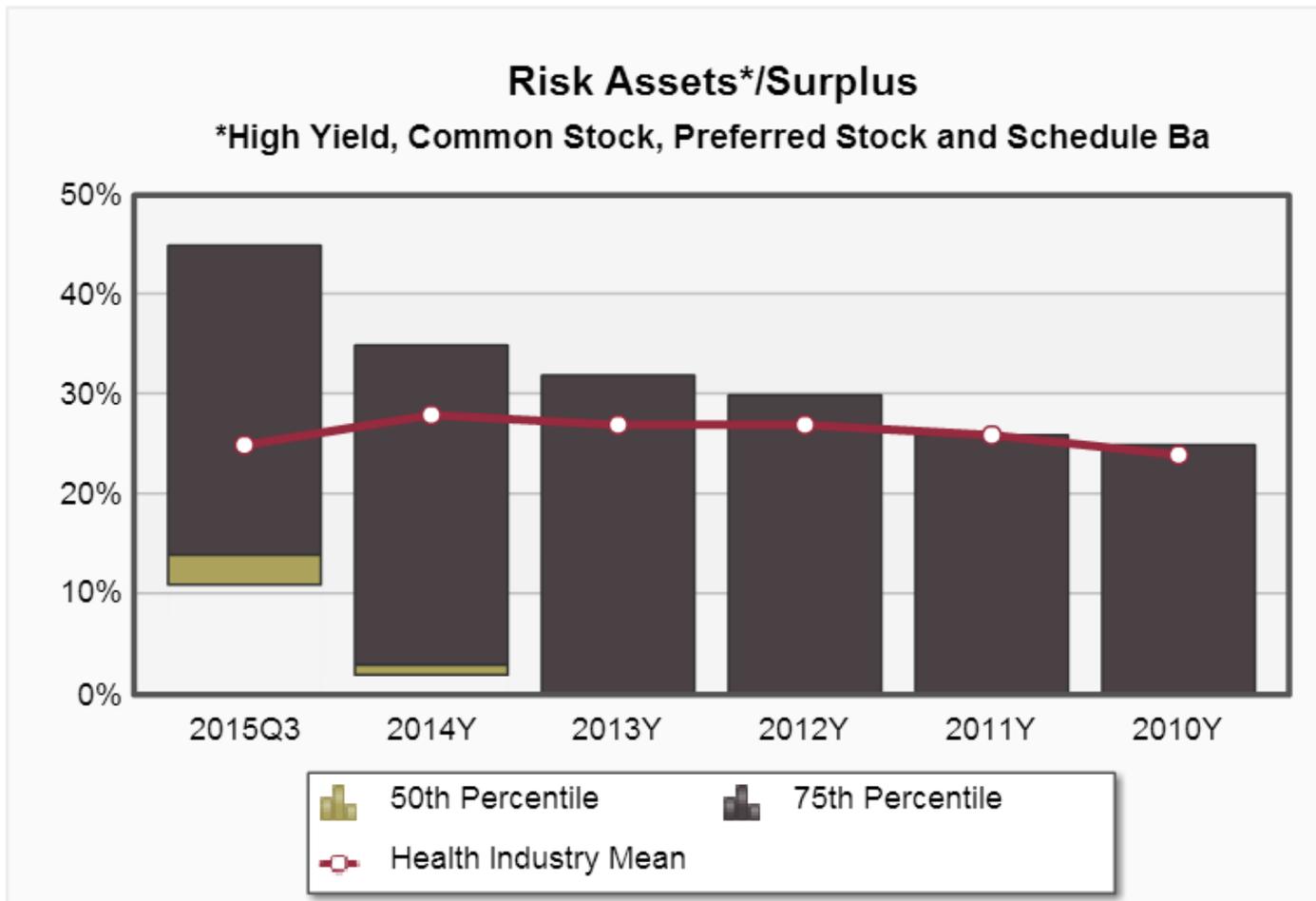
How have Health insurers reacted thus far?



Source: Strategic Asset Alliance, SNL Securities



How have Health insurers reacted thus far?



Source: Strategic Asset Alliance, SNL Securities





HOW DO INSURERS SET RISK ASSET ALLOCATIONS?



How Are Risk Asset Allocations Determined?

- Evidence from 2014 Annual Statement Filings
 - Why Risk Assets?
 - Long Term Risk Adjusted Growth of Surplus
 - Directly Impact Surplus Size (net of tax effect)
 - Portfolio Diversification – ‘the only free lunch...’
 - A Logical Starting Point – Balance versus Other Risk Factors
 - Underwriting Risk (PC and Health) – Combined Ratio
 - Operating Leverage – NWP to Surplus
 - Financial Leverage – Liabilities to Surplus



How Are Risk Asset Allocations Determined?

- **Perform single and multi-variate regressions**
 - **Are Combined Ratio, Operating Leverage and/or Financial Leverage correlated with Risk Assets/Surplus? To what degree?**
 - **Do the relationships hold when considering largest insurers versus all insurers?**
 - **Top 20 (asset size) insurers in Life, Health, P&C**
 - **Compare top 20 to all insurers in Life, Health, P&C**
 - **Do the relationships hold across time and/or within product line focus?**



Initial observations

- **When it comes to risk asset allocation, top 20 largest companies are managed vastly differently from the industry as a whole.**
 - **L/H: 69% correlation between leverage and risk assets/surplus**
 - **P/C and Health: 31-37% correlation**
 - **Unsurprisingly, the largest life insurers, tend to be much more highly levered institutions than P&C or health insurers.**
- **Even for the top 20 largest insurers, these three major risk factors are not as closely aligned with risk asset allocation as what might be expected.**
- **No statistically significant relationship between operating leverage, financial leverage, combined ratio (P/C) and the level of risk assets/surplus across the entire industry (equally weighted).**



Why these results?

- **'Good' Reasons – Which do you think are most likely?**
 - **We analyzed the wrong risk factors**
 - **What other publicly available statistics should be considered?**
 - **What insurers really use to determine risk asset allocations have less to do with these factors and more to do with their sophisticated ERM analyses.**
 - **Insurers consider very long term financial ratios when investing in risk assets for the long term.**



Why these results?

- **'Bad' Reasons – Which do you think are most likely?**
 - Top 20 insurers are more attuned to understanding their overall risks when setting risk asset allocations. Their ERM models are just better than that found in the overall industry.
 - Insurers are investing closer to the 'efficient frontier' which results in risk asset allocations, without consideration of company leverage, financial performance, nature of reserves, etc.
 - Insurers tend to view risk assets as % of assets, not surplus, when determining the allocation.
 - The overall industry is hamstrung by a 'silo' approach to management.
 - Insufficient investment discipline with regards to re-balancing.
 - Insufficient corporate governance.
 - Inadequate external independent advice, that does not relate investment decisions to financial management and the insurer's corporate goals and objectives.
- **'Good and Bad' Reason**
 - Highly subjective, based upon Board and senior management risk appetite.





**WHERE TO START TAMING SURPLUS
VOLATILITY?**



Where to Start Taming Surplus Volatility? – Two Major Approaches

- **Rational Expectations Hypothesis**
 - Agents inside the model, on average, assume the model's predictions are valid.
 - Normative returns, risk, standard deviation
- **NEW Rational Expectations Hypothesis**
 - There is not one true model
 - Agents don't always act in their best interests (behavioral finance, 'black swans')
 - 'Worst case' returns – scenario based
- **There is more than one appropriate model**



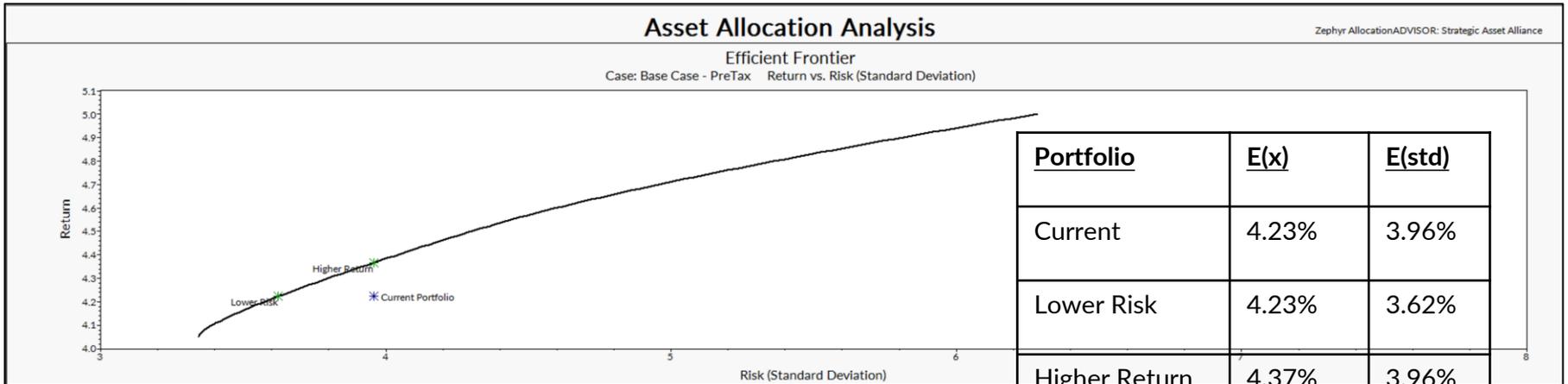
Where to Start Taming Surplus Volatility? – Two Major Approaches

- **Rational Expectations Hypothesis**
 - **Use Markowitz Efficient Frontier**
 - **Test Your Assumptions**
 - **Internally Consistent**
 - **Use Forecast, but Compare to Historical**

- **NEW Rational Expectations Hypothesis**
 - **'Worst Case' Since the Depression**
 - **Impact on Surplus**
 - **Impact on BCAR**
 - **Excellent tool for supporting Rating Agency visit**



Markowitz Efficient Frontier



The Dividend Discount Model applied to the broad U.S. equity index estimates a current implied U.S. equity risk premium of nearly 5% (slide 5). However, the current advisor lowers this estimate slightly when crafting this year's asset allocation analysis. Why?

Assets	Forecast	
	Return	Risk
U.S. Aggregate	3.75%	4.00%
U.S. High Yield	6.75%	9.30%
U.S. Leveraged Loans	5.25%	6.30%
U.S. Large Cap	7.00%	15.50%
U.S. Mid Cap	7.25%	18.50%
U.S. Small Cap	7.25%	21.30%
EAFE	7.75%	18.00%
EM Equity	10.00%	25.50%

Portfolio Statistics
Case: Base Case - PreTax Target Return: 5.00% - 10 Year Time Horizon - 95% of Projected Return Distribution

Asset Allocations	Portfolio Allocations		
	Current Portfolio	Lower Risk	Higher Return
U.S. Aggregate	85.0%	80.0%	80.0%
U.S. High Yield	5.0%	0.5%	8.0%
U.S. Leveraged Loans	0.0%	14.7%	6.9%
U.S. Large Cap	10.0%	0.9%	1.4%
U.S. Mid Cap	0.0%	0.0%	0.0%
U.S. Small Cap	0.0%	1.3%	0.1%
EAFE	0.0%	0.0%	0.0%
EM Equity	0.0%	2.6%	3.6%

General trend in return/risk assumptions is for lower expected returns with similar or higher volatility when compared to historical results.

Diversification benefits are assumed to be strong prospectively even as returns expectations fall.

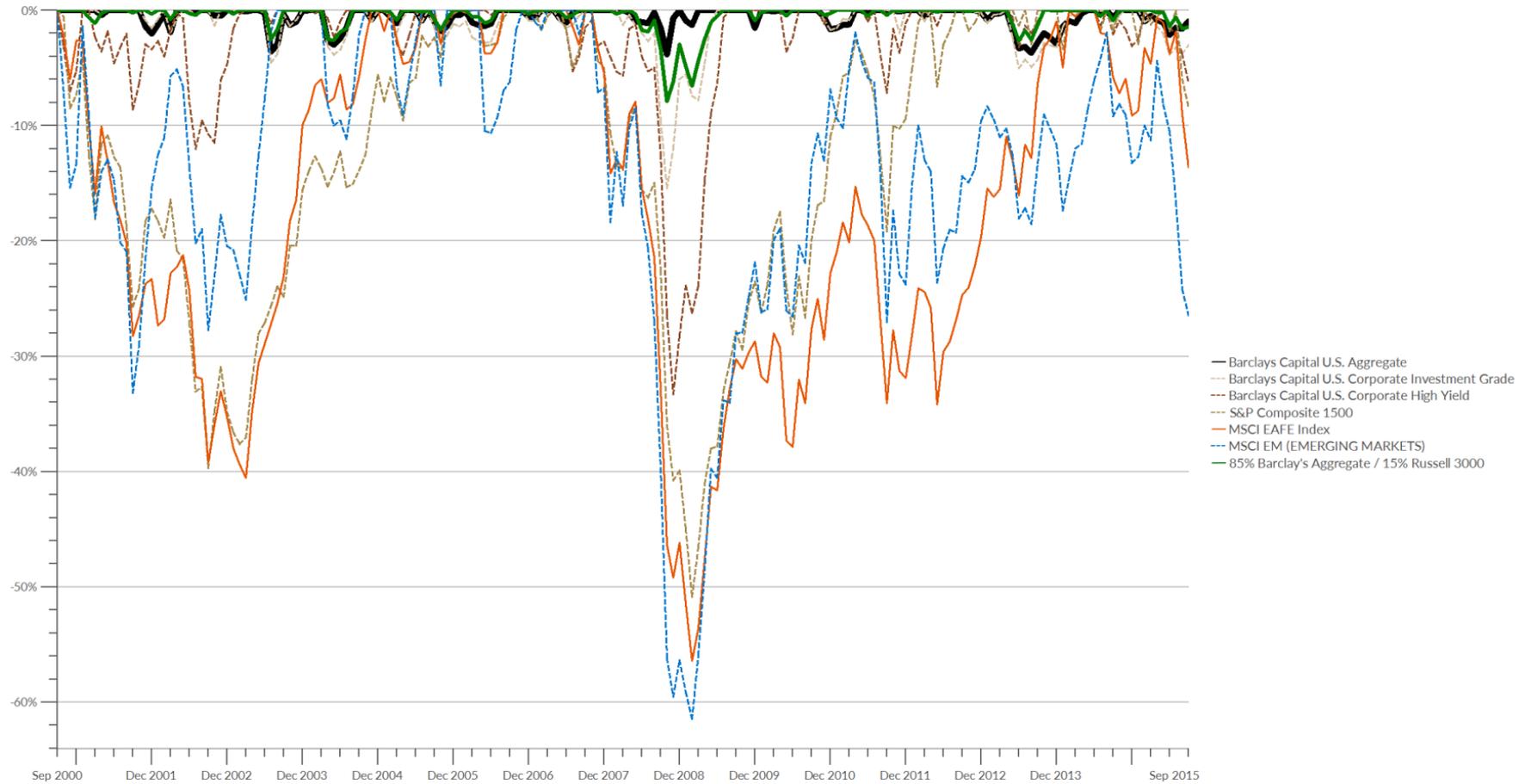
	Correlations							
	1	2	3	4	5	6	7	8
1. U.S. Aggregate	1.00							
2. U.S. High Yield	0.19	1.00						
3. U.S. Leveraged Loans	-0.08	0.80	1.00					
4. U.S. Large Cap	-0.01	0.69	0.55	1.00				
5. U.S. Mid Cap	-0.01	0.74	0.59	0.96	1.00			
6. U.S. Small Cap	-0.08	0.66	0.51	0.91	0.95	1.00		
7. EAFE	0.09	0.72	0.55	0.88	0.86	0.77	1.00	
8. EM Equity	0.10	0.69	0.51	0.76	0.77	0.70	0.88	1.00



'What Keeps You Up At Night' – Stress Testing Data

Drawdown

October 2000 - September 2015



Risk Asset Stress Testing

Surplus Growth Assets As % of Total Portfolio ³	Surplus Growth Assets-to-Surplus Ratio	STAT Surplus ¹	Risk Assets ²	Surplus Level (\$): 47.4% Decline Surplus Growth Assets ⁴	Downside Impact: As % of STAT Surplus
59%	100%	174.1	174.1	91.5	-47.4%
50%	84%	174.1	146.7	104.5	-40.0%
41.2%	69.4%	174.1	120.8	116.8	-32.9%
40%	67%	174.1	117.3	118.5	-32.0%
35%	59%	174.1	102.7	125.4	-28.0%
30%	51%	174.1	88.0	132.4	-24.0%
25%	42%	174.1	73.3	139.3	-20.0%
20%	34%	174.1	58.7	146.3	-16.0%
15%	25%	174.1	44.0	153.2	-12.0%
10%	17%	174.1	29.3	160.2	-8.0%

1) Using STAT surplus at 12/31/2013.

2) Surplus Growth Assets as of 12/31/2013.

3) Using total portfolio market value as of 12/31/2013 (less operating cash).

4) Lowest cumulative surplus growth asset return from peak to trough during 2008/2009 for U.S. equity markets



Corporate Bond Stress Testing – BIG Example

Moody's Rating	Annual Default Rates % (By Issuer)			Average Default Rates % Through 2014 (By Issuer)			Average Default Rate By Credit Rating	Max Calendar Year Default Rate By Credit Rating
	2014	2013	▲	10 Year Average	20 Year Average	▲	1983-2014 Average Default Rate	1983-2014 Max Issuer Default Rate
Aaa	-	-	-	-	-	-	-	-
Aa1	-	-	-	-	-	-	-	-
Aa2	-	-	-	-	-	-	-	-
Aa3	-	-	-	0.214	0.107	0.11	0.11	2.14
A1	0.495	-	0.50	0.248	0.124	0.12	0.08	1.55
A2	-	-	-	0.030	0.040	(0.01)	0.02	0.50
A3	-	-	-	0.091	0.071	0.02	0.04	0.62
Baa1	-	0.239	(0.24)	0.205	0.196	0.01	0.15	1.26
Baa2	-	-	-	0.214	0.179	0.03	0.14	0.89
Baa3	0.215	-	0.22	0.170	0.230	(0.06)	0.33	3.65
Ba1	-	-	-	0.244	0.357	(0.11)	0.62	3.79
Ba2	-	-	-	0.061	0.346	(0.29)	0.54	2.96
Ba3	0.418	1.344	(0.93)	0.979	1.164	(0.19)	1.81	9.26
B1	-	-	-	0.769	1.397	(0.63)	2.44	8.20
B2	0.830	1.255	(0.43)	1.441	2.816	(1.37)	5.23	23.16
B3	-	1.551	(1.55)	1.921	4.497	(2.58)	8.85	28.76
Caa-C	7.026	9.573	(2.55)	11.807	15.141	(3.33)	22.11	100.00
Investment-Grade	0.078	0.041	0.04	0.136	0.113	0.02	0.09	0.55
Speculative-Grade	2.044	3.010	(0.97)	3.589	4.294	(0.71)	4.57	13.32
All Corporates	1.044	1.446	(0.40)	1.639	1.802	(0.16)	1.75	6.02
				<i>Scenario #1</i>	<i>Scenario #2</i>		<i>Scenario #3</i>	<i>Scenario #4</i>

Source: Moody's Investor Services

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WHAT ABOUT YOUR COMPANY?



What about your company? Have you Tamed Surplus Volatility?

- Efficient frontier analysis to set allocation within 'rational expectations'
- Stress Testing Analyses, using 'NEW rational expectations'
- Risk Appetite Quantification
- Comparison with Structured Peer Group
- Risk Asset Allocation
 - What size?
 - What asset mix?
- Imbedded OTTI Risk
 - Investment Grade
 - Below Investment Grade





THANK YOU

