

Financial Stability (EX) Task Force

April 3, 2016

Monitoring Interest Rate Risk Low Interest Rate Study Update

Larry Bruning FSA, MAAA
Life Actuary NAIC

Low Interest Rate Study U.S.

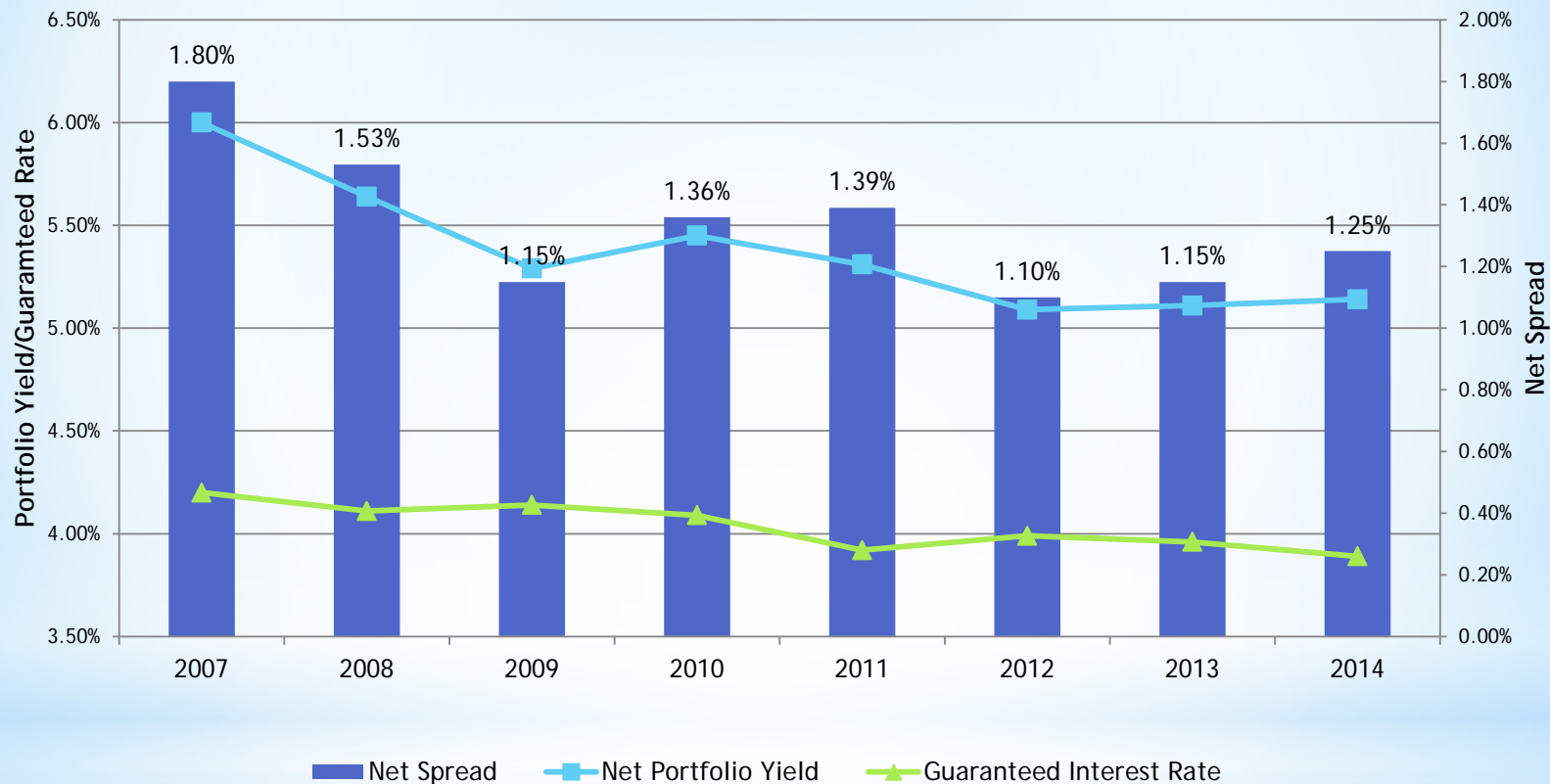
- 713 Life Insurance Legal Entities
- Study Period: 2007 - 2014
- Data Source: NAIC Annual Statement Blank
- Calculate Net Asset Portfolio Yield
- Calculate Valuation Interest Rate Guarantee
- Calculate Interest Rate Spread
- Calculate Impact on Earnings/Solvency

NAIC - Annual Statement Data (713 Life Companies)

Year	Total Reserve (\$ Trillions)	Net Asset Portfolio Yield	Guaranteed Valuation Interest Rate	Spread	Spread Revenue (\$ Billions)	Cumulative Spread Lost Revenue/Profit Since 2007 (\$Billions)
2007	2.10	6.00%	4.20%	1.80%	37.8	-
2008	2.30	5.64%	4.11%	1.53%	35.2	(6.2)
2009	2.46	5.29%	4.14%	1.15%	28.3	(22.2)
2010	2.57	5.45%	4.09%	1.36%	35.0	(33.5)
2011	2.74	5.31%	3.92%	1.39%	38.1	(44.7)
2012	2.78	5.09%	3.99%	1.10%	30.6	(64.2)
2013	2.88	5.11%	3.96%	1.15%	33.1	(82.9)
2014	2.99	5.14%	3.89%	1.25%	37.4	(99.4)
2014 - 2007 Ave	2.60	-.86%	-.31%	-.55%		(14.2)

NAIC - Life Insurance Annual Statement Data (713 Companies)

Net Spread Over Guaranteed Interest Rate



2007 Through 2014 Summary

- Net Portfolio Yield declined 86 basis points, while guaranteed reserve rate declined 31 basis points.
- Resulting in a Spread decline of 55 basis points (86 - 31).
- A 55 basis point decline in spread on an average reserve of \$2.60 Trillion
- Results in \$14.2 Billion Loss in Revenue per year for the last 7 years

Major Factors Effecting Portfolio Yield

- Slope of Reinvestment Yield Curve
- Credit Quality of Invested Assets
- Amount of Net Insurance Cash Flows
 - New/Renewal Insurance Premiums plus
 - Current Income on Assets (Coupons) plus
 - Asset Maturities minus
 - Benefits and Expenses
- Life Insurance Industry is in a Positive Cash Flow Environment (Income exceeds Benefits)
- Current Reinvestment Yields (Below Portfolio)

Life Industry: Maturity Distribution Of Bonds & Coupon Yields As of 12/31/2014

Duration to Maturity	Book Value	Weighted Annual Coupon	Percentage
0-5 Years	622.3 Billion	4.44%	22.57%
6-10 Years	728.8 Billion	4.53%	26.43%
11-20 Years	489.0 Billion	5.10%	17.73%
21 + Years	917.4 Billion	4.80%	33.27%
Totals	2,757.5 Billion	4.70%	100.0%

Life Industry: Credit Quality of Bonds

	2011	2012	2013	2014
AAA to A-	65.0%	62.9%	61.7%	62.5%
BBB+ to BBB-	28.4%	30.8%	32.4%	31.4%
Below IG	6.6%	6.3%	6.0%	6.0%

Yield Rate Comparison U.S.

Corporate Bond Yields - A

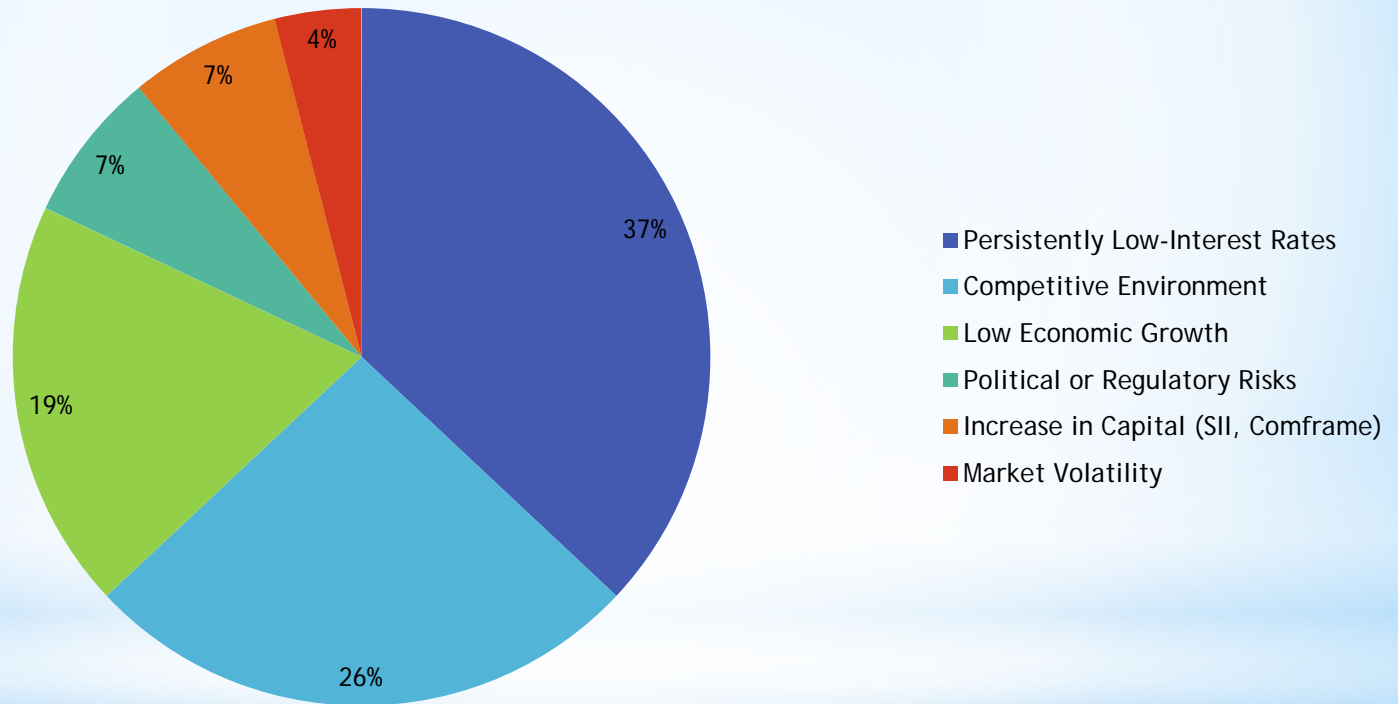


Life Insurance Industry: Risk Based Capital Summary

Life Risk Based Capital	2014	2013	2012	2011	2010	2009	2008	2007
Number of Companies	727	751	761	786	804	814	847	874
ALM Reserve (Billions)	12.1	11.1	9.7	6.8	5.8	4.7	10.3	2.9
Company Action Level Trend Test	4	3	1	3	3	2	4	2
Company Action Level	5	5	1	2	2	4	6	4
Regulatory Action Level	0	1	0	1	1	2	5	3
Authorized Control Level	1	1	1	0	1	2	3	2
Mandatory Control Level	2	4	4	6	7	8	7	2
Total	12	14	7	12	14	18	25	13
Total Adjusted Capital (Billions)	486.6	472.9	455.9	429.9	415.8	384.9	337.9	382.6
Authorized Control Level (Billions)	50.0	49.2	49.0	47.1	46.3	46.1	44.6	47.7
Aggregate RBC Ratio	974%	961%	930%	912%	898%	835%	758%	802%
Median RBC Ratio	1,066%	1,052%	1,032%	1,050%	1,047%	989%	910%	1,009%
Asset Risk	63.61%	63.16%	63.81%	64.91%	64.04%	62.75%	63.00%	65.92%
Insurance Risk	17.75%	17.98%	17.89%	17.79%	18.29%	18.55%	19.97%	17.76%
Interest Rate Risk	11.10%	10.89%	10.44%	10.08%	9.49%	9.72%	9.94%	9.37%
Market Risk	1.70%	2.09%	2.32%	1.56%	2.49%	3.03%	1.05%	1.98%
Business Risk	5.84%	5.88%	5.54%	5.66%	5.69%	5.95%	6.04%	4.97%

Moody's Investor Service: 2015 European CFO's Top Concerns

Moody's Survey of 27 European Insurers



Source: Moody's Investor Service

Interest Rate Risk to Profitability

Very High	High	Moderate	Low	Very Low
Germany	Japan	United States	China	United Kingdom
Taiwan	South Korea	France	South Africa	Australia
Netherlands	Switzerland	Italy	Spain	Ireland
Norway	Sweden	Canada		Brazil
		Hong Kong		Mexico

Insurance Company Actions

- Lower Credited Interest Rates on Inforce Policies
- Reduce Guarantees on New Business
- Use Interest Rate Derivatives
- Extend Investment Duration
- Lower Credit Quality
- Diversify into Health, Term Protection, Unit Linked, Asset Management

Regulatory Tools for Interest Rate Risk

- Annual Interest Rate Study (NAIC)
 - Industry Analysis (Portfolio Yield, Guaranteed Valuation Rate, Spread)
 - Individual Company Analysis (Flag companies with small Spread)
 - Industry Asset Analysis (% of Portfolio Rolling over every 5 years)
 - Individual company Analysis (Flag companies with large rollovers)
- Asset Adequacy Analysis (Cash Flow Testing)
 - Industry Total ALM Reserves Posted
 - Individual Company ALM Reserve Posted
 - AOMR Disclosure of Failed Scenarios, RAAIS Disclosures
- Risk Based Capital (RBC)
 - Monitor Interest Rate Risk Component of RBC (Industry and Individual Company Level)