



# How Do Insurers Set Risk Asset Allocations?

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### About SAA

Founded in 1994, Strategic Asset Alliance is the oldest investment consulting firm that exclusively serves the insurance industry.

All of our consultants are former senior investment executives at insurers and bring broad, deep expertise across the various lines of business.

We are headquartered in Washington with three other offices in Maine, Massachusetts and Ohio.

### EXECUTIVE SUMMARY

A while ago, one of our clients asked me a good question about Risk Assets: “Just about every P/C insurer must consider their Combined Ratio and relative Surplus Levels before deciding on their allocation to Risk Assets, right?” I told him that seemed very reasonable to me, but that I wanted to look at the numbers to be sure.

That straightforward question apparently has a surprising answer: Insurers (as a whole) apparently do not mainly use risk measures like Combined Ratio, Financial Leverage or Operating Leverage in setting their allocation to Risk Assets (any investment that is not an Investment Grade Fixed Income instrument).

How do we know this? The details follow, but we used a basic regression analysis applied to year end statutory filings. There are, of course, exceptions to this. So, read on and discover what we found, as well as our initial thoughts on why this might be the case (for both ‘good’ and ‘bad’ reasons).

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## How Do Insurers Set Risk Asset Allocations?

All insurers face problems, some similar to other insurers and some unique to a given insurer. However, it is the problem of low rates for longer that is truly driving CEOs, CFOs and CIOs up the proverbial wall. With that in mind, we've seen an increasing number of articles, presentations and various forms of hand wringing attempts to guide insurers through a difficult environment.

And, of course, this is a concern of AM Best. They recently posted a video that, at first, seems obvious, but on further review seems to be a harbinger of what you might expect on your next foray to Oldwick. [Click Here to Watch](#)

Specifically, Best understands and recognizes the need for investments outside of plain vanilla, relatively liquid, investment grade bonds. However, with that, they fully expect insurers to take a careful, measured approach coupled with a robust investment risk management process.

Inside of core fixed income, we've seen insurers come to the realization that their portfolios can be an excellent source of liquidity in an increasingly illiquid bond market. In other words, by looking at investment grade securities that are less liquid, insurers may be able to safely add yield. Thus, insurers who have generally stayed within the relatively liquid investment grade arena of Treasury/Agency/Mortgage Backed/Corporate bonds are looking at less liquid securities within those classes, such as Private Placements, Commercial Mortgage Backed Securities and Asset Backed Securities.

However, investment portfolios can be improved by looking in more than one place. And that has caused most insurers to refocus on investments that are not investment grade fixed income. We like to call these Risk Assets, since they are investments that are much more subject to loss, and gain, than investment grade fixed income. And, of course, this must be accomplished while still taming surplus volatility that comes with Risk Assets.

Of course it is outside of core fixed income where the waters become much more treacherous. It is there where insurers have to answer two basic questions:

1. What should be my allocation to Risk Assets (everything that is not core fixed income)?
2. What should the asset mix within Risk Assets be?

“What should be my allocation to Risk Assets (everything that is not core fixed income)?

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## How Do Insurers Set Risk Asset Allocations?

Different insurers tackle the question of what specific kinds of Risk Assets should be in the portfolio in different ways.

At Strategic Asset Alliance, we use both an efficient frontier and a stress testing approach to better understand our clients' risk appetite, which then informs our recommendations with regards to Risk Assets. ( We discussed this briefly in our 4Q 2015 Webinar: Three Perspectives on Surplus Volatility | [View Here](#) ).

However, the process our clients successfully use as they battle low rates for longer might be different than exactly what your insurer uses.

So, to answer the question of how insurers determine their Risk Asset allocation, we could have attempted a survey of insurers, stratified the results by insurer size, line of business, etc. and tabulated what we were told. However, we all know that actions speak louder than words. So, we embarked on using the facts on hand (data from statutory filings).

At its core, an insurer is a risk bearing entity, focused on proper risk management. Thus, it makes good sense to assume that insurers attempt to balance various risks in an effort to maximize risk adjusted reward. That can mean different things to different insurers and insurers do not publicly provide details of their risk management process. However, statutory filings do give us a clue as to how to estimate some of the most important risks.

Specifically, we decided to compare the Risk Asset allocation (as a % of Surplus) to Underwriting Risk (for P/C and Health insurers, we used the Combined Ratio), Operating Leverage (Net Premiums to Surplus) and Financial Leverage (Total Liabilities to Surplus). This was segregated by very broad types of business: Life, Health and Property/Casualty.

We should expect there to be a relatively high correlation between these measures of risk and an insurer's investment in Risk Assets. Thus, we performed a regression using these risk factors and the Risk Asset allocation as a percentage of surplus, based upon 2014 data provided by SNL Securities' database of statutory filings.

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Life Industry - Top 20		Life Industry - 279 entities	
	R Square		R Square
Operating Leverage	0.0626	Operating Leverage	0.0003
Financial Leverage	0.3472	Financial Leverage	0.0048
Financial & Operating Leverage	0.6861	Financial & Operating Leverage	0.0168

\* Dependent Variable is Risk Assets/Surplus

For the largest twenty Life Insurers in assets, there is a 69% correlation between Financial and Operating Leverage and the Risk Asset allocation (which we defined as Risk Assets to Surplus). Yet, for the entire Life Insurance Industry, there is virtually no correlation.

But, what are these relationships? We would expect that as these measures of risk increase that the Risk Asset allocation would decrease. That was not always the case. For example, for the overall life industry, the regression line is defined as:

$$\text{Risk Assets/Surplus} = 48.67\% + (.19 * \text{Financial Leverage})$$

...Where Risk Assets/Surplus and Financial Leverage are expressed as percentages. Thus, if a life company was levered 10:1, the formula would produce a result for Risk Assets/Surplus of approximately 51%. So, in other words, the more Financial Leverage the more Risk Assets/Surplus. Huh? Of course, this relationship is nonsensical, but it does come with a correlation coefficient (R-squared) of close to zero.

For the top 20 life insurers, the regression with the highest, most significant R-squared used both Operating Leverage and Financial Leverage as follows:

$$\text{Risk Assets/Surplus} = 98\% + (5 * \text{Financial Leverage}) - (46 * \text{Operating Leverage})$$

This equation results in a relationship between Operating Leverage and Risk Asset allocation that makes good sense. Higher Operating Leverage should make the insurer's investment approach more conservative. However, Financial Leverage appears to have just the opposite effect.

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## How Do Insurers Set Risk Asset Allocations?

Thus, although the 20 largest life insurers seem to consider Operating and Financial Leverage in the Risk Asset allocation decision, the relationships are not always what one would expect.

It gets more interesting when running the analysis for Health Insurers.

“Similar to the Life Industry, look at the overall Health Insurance Industry and there is virtually no correlation.

Health Industry - Top 20		Health Industry - 323 entities	
	R Square		R Square
Combined Ratio	0.0792	Combined Ratio	0.0132
Operating Leverage	0.3085	Operating Leverage	0.0009
Financial Leverage	0.1610	Financial Leverage	0.0014
Financial & Operating Leverage	0.3499	Financial & Operating Leverage	0.0037
Financial Lev & Combined Ratio	0.2617	Financial Lev & Combined Ratio	0.0146
Operating Lev & Combined Ratio	0.3190	Operating Lev & Combined Ratio	0.0143
Fin & Oper Lev & Comb Ratio	0.3747	Fin & Oper Lev & Comb Ratio	0.0151

\* Dependent Variable is Risk Assets/Surplus

Although the largest Health Insurers seem to have some correlation between these risk measures and their Risk Assets allocation, it is much lower than that found with Life Insurers. However, similar to the Life Industry, look at the overall Health Insurance Industry and there is virtually no correlation.

The most statistically significant relationship can be found in this relationship for the top 20 Health Insurers:

$$\text{Risk Assets/Surplus} = 85\% - (14 * \text{Financial Leverage}) - (6 * \text{Operating Leverage})$$

It gets even more interesting for the Property/Casualty Industry:

P&C Industry - Top 20		P&C Industry - 1005 entities	
	R Square		R Square
Combined Ratio	0.0532	Combined Ratio	0.0015
Operating Leverage	0.0230	Operating Leverage	0.0017
Financial Leverage	0.2613	Financial Leverage	0.0109
Financial & Operating Leverage	0.2771	Financial & Operating Leverage	0.0111
Financial Lev & Combined Ratio	0.2931	Financial Lev & Combined Ratio	0.0109
Operating Lev & Combined Ratio	0.0903	Operating Lev & Combined Ratio	0.0033
Fin & Oper Lev & Comb Ratio	0.2965	Fin & Oper Lev & Comb Ratio	0.0111

\* Dependent Variable is Risk Assets/Surplus





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The relationship between the Financial Leverage, Operating Leverage and Combined Ratio for the top twenty P/C companies provided the highest correlation, so we looked at that relationship:

$$\text{Risk Assets/Surplus} = 141\% - (36 * \text{Combined Ratio}) - (21 * \text{Financial Leverage}) + (3 * \text{Operating Leverage})$$

(Combined Ratio expressed as a fraction. Thus a 101 Combined Ratio would equal 1.01 in this equation.)

Thankfully, the positive relationship between Operating Leverage and Risk Assets/Surplus was a very small number. This minimal impact for the Operating Leverage is also borne out by the similar correlation found when excluding it from consideration.

Thus, the top twenty P/C companies do indeed, to a small extent, consider Combined Ratio and Financial Leverage when determining Risk Assets/Surplus.

But, once again, as an industry whether Life, Health or Property/Casualty, we can safely say that there is no statistically significant correlation between these key risk measures and the Risk Assets/Surplus measure.

“Whether Life, Health or Property/Casualty, we can safely say that there is no statistically significant correlation between these key risk measures and the Risk Assets/Surplus measure.”

It gets even more interesting, as we went deeper by looking at correlations specific to asset size and lines of business, using SAA’s SPG (Structured Peer Groups), where insurers (with less than \$5 billion in assets) are compared to insurers in a similar size range and similar line of business focus. Within every SPG it was fairly obvious that the general lack of correlation holds.

We even tested these results by lagging these risk ratios by a year. Once again, the results were depressingly similar.





## How Do Insurers Set Risk Asset Allocations?

What could be behind these results?

We did some more thinking on these mostly counterintuitive results and came up with some possible explanatory ‘good’ reasons for what we saw and some ‘bad’ reasons.

### “Good” reasons:

What insurers really use to determine Risk Asset allocations have less to do with these factors (Financial Leverage, Operating Leverage and Combined Ratio) and more to do with their sophisticated ERM analyses. This is probably truer at the larger insurers.

Insurers view these risk factors over long periods of time and do not focus only on current year’s results. This sounds reasonable until you perform a similar analysis using five years of historical data. The results are quite similar for the overall Life, Health and Property/Casualty industries.

**This study missed key risk factors that insurers consider when making the Risk Asset allocation.** This is very possible, as we were limited by the data available in annual statement filings. And, certainly, SAA’s approach is more sophisticated than the simplistic analyses of this study.

### “Bad” reasons:

Insurers are investing based mostly upon the asset-only ‘efficient frontier,’ which results in Risk Asset allocations without consideration of other items on the balance sheet, like company leverage, financial performance, nature of reserves, etc.

The Risk Asset allocation is determined in the Investment “silo” and is not very impacted by other areas of the company, like underwriting, product design and marketing, overall financial management, etc. This is the traditional view in the insurance industry and is constantly being challenged by rating agencies like AM Best, among others. These key influencers focus on the importance of ERM and have a rather broad definition of what constitutes appropriate risk management.

Insurers don’t view the relationship of Risk Assets/Surplus when making an allocation decision. Instead, the question is “what percentage of our portfolio should be in Risk Assets?” This ignores the ratio that reconciles these two relationships,

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which is generally Surplus/Assets. In other words, if the insurer is making a decision based upon the percentage of assets invested in Risk Assets, it is ignoring a measure of financial leverage. Thus, decoupling key investment risks from a measure of overall financial risk of the insurer.

**The Risk Asset allocation is more heavily influenced by the risk appetite of the Board/Investment Committee/Senior Management.** Understanding and quantifying risk appetite is both very important and difficult. However, one wonders if the complexities of the overall enterprise are being considered when that risk appetite is being defined. However, if risk appetite is properly analyzed and understood while considering those complexities, we would put this in the “Good” reasons category above.

As noted earlier, these are our initial list of ‘Good’ and ‘Bad’ reasons for the apparent disconnect between key risk measures and the Risk Asset allocation. **We would be pleased to hear your thoughts on these reasons, as well as others we should have included.**

“Your next question may be:

**What about our company?**

**Where does our insurer fit in its Risk Asset allocation compared to our competitors?**

Your next question, may be “What about our company? Where does our insurer fit in its Risk Asset allocation compared to other insurers of similar size with a similar line of business (much more detailed than just Life, Health or Property/Casualty)?”

We have the data for such an analysis, and would be pleased to provide that comparison. That is food for thought as you think about the current process for setting your insurer’s Risk Asset allocation.

Despite the Fed’s recent marginal increase in short term interest rates, it is highly likely that we will be in the low rates for longer environment for a while. Insurers, including your competitors, continue to take a long look at how to offset the negative effects of low rates. And, that means setting your company’s Risk Asset allocation becomes increasingly important.

