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General Account Segmentation

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Why Should a Life Insurer Segment Assets?

Notional asset segmentation is not legally enforceable; it is not a separate account. So why should an insurer go to the trouble logistically to separate the assets on paper? Note: some states (New York) require permission to segment, so some companies segment internally but report to their domiciliary state using a method that spreads investment income equally by line of business using reserves.

Assets that are held in a general account without segmentation tend to subsidize blocks of business based on the date the assets were purchased. If rates are high then new business, receiving a portfolio rate, has subsidized existing policies. If rates are low then new policies are subsidized (this has been the result for many years, and the NAIC has ignored the discrepancy allowing portfolio companies to enjoy a competitive advantage). If you consider only a single company it evens out over time, but policies are often shopped today.

Risk management is strengthened when cash flows are matched between liabilities and premiums/assets, and segmentation makes that easier. The most important reason is to align the assets purchased with the liabilities sold. My April 2017 newsletter included an approach to calculate duration that separates premium cash flows from liability cash flows rather than netting them, and I refer to it here rather than review. Suffice it to say that this method is cleaner when setting asset duration targets and encourages longer assets. Effective duration is the metric that should be used. Most assets and some liabilities have cash flows that are interest rate sensitive, and this should be taken into account.

If an insurer writes a variety of business lines it makes sense to consider at least three asset portfolios for each legal entity that correspond to short, intermediate, and long liabilities. The portfolios should develop benchmarks based on the liabilities they back but duration targets of 3, 5, and 7 might be a place to start. It's hard to find enough assets (with enough return) that have an effective duration greater than 7. For each portfolio a series of deterministic scenarios can test the interest rate sensitivity of both assets and liabilities.[1] These can be built off required scenarios built for asset adequacy purposes. Companies with more resources available can perform stochastic scenario testing as well. By graphing the results it will help determine if convexity and other higher order measures are within reasonable constraints.

[1] http://www.rudolph-financial.com/Rudolph%20Contingencies%20Interest%20Rates%20Dec%202016.pdf this article in Contingencies magazine summarizes two interest rate research projects I completed.

Reasons for More Portfolios

Some product lines are big enough and have specific requirements that encourage a distinct portfolio. One example might be a GIC or SPDA portfolio, or a line of business may be large enough to support their own portfolios (individual assets can still be split between lines of business). Lines of business that include general account hedging should also be segmented into a separate portfolio to reduce the likelihood of basis risk.

What should be discouraged is a barbell investment strategy, where liability portfolios with various duration targets are combined and the overall target is managed rather than the bimodal duration that underlies the liabilities. Insurers openly followed this strategy in the past and paid the price when the shape of the yield curve shifted.

Managing the Surplus Portfolio

There are many alternatives for funding investment portfolios. I will share a few here.

- Statutory reserves – each asset portfolio holds book value approximately equal to the liability statutory reserves. All other assets are placed in the surplus portfolio.
  - Pro – aligns generally with actuarial pricing models (assumes the same investment yield for reserve and target surplus) and projection scenarios used for incentive compensation
  - Con – rules allow first year life contracts to hold no reserves, often requires cash investment from surplus, account value products credit interest based on account value (not reserves)
- Required assets (statutory reserves plus target surplus)
  - Pro – exactly aligns with pricing and projection models
  - Con – since assets backing target surplus are not expected to be needed for every line at the same time, keeping them separate from liabilities allows some of them to be invested more flexibly with a longer time horizon and lower liquidity threshold in mind
  - May have a constraint as there may not be enough interest bearing investments to do this (e.g., large real estate or equity portfolio that is not appropriate to back a line of business)
- GAAP – GAAP reserves net of deferred acquisition cost (DAC)
  - Pro – public company investors may want to look at lines of business in this way
  - Con – may be confusing, inconsistent with common pricing techniques, may not be allowed for statutory reporting

The assets remaining after the portfolios are funded, surplus, can be managed as a block. They include alternative investments designed for return, like private equity or hedge funds, or assets that do not fit in a liability driven portfolio due to excessive convexity. Perhaps senior management wants to use an investment portfolio to be a profit center. You might see a professional sports team, hedge funds, or fully owned manufacturing firms in a general account.

Alternate Metrics

Other metrics are also important and help a risk manager understand the nuances of the business. Key rate durations show sensitivities to movements of specific parts of the yield curve, but also point out modeling flaws that do not reflect the underlying business. Convexity and other higher order metrics can be managed but senior management will find it easier to look at a picture showing that duration is not level across interest rate scenarios.

Investment Income

When allocating income, methods can be driven by net yields or by net investment income. Portfolios are rarely funded to the exact amount, so it is easier to multiply the net yield by the required assets. This is consistent with pricing and projections. The alternative is to allocate net investment income to the reserve level and then use the surplus asset income to top them off. Alternatively a corporate line can be created to hold overhead expenses and residual investment income. This makes it easier to highlight these hard to manage assets by making someone accountable for overhead and surplus assets.[2]

Dollars Available for Acquisition

Another reason to think about surplus strategies is when looking at opportunities. Starting with the actual statutory surplus at a point in time, there are several ways to determine the maximum size acquisition. Acquisition costs should include not only the purchase price, but also marginal risk based capital (RBC). RBC can be defined based on product lines only or slightly higher factors assuming no RBC is held on free surplus assets.

There are various options. Here are a few that can help get the discussion started.

- illiquid assets and other assets run as a profit center, in addition to the higher level of RBC, are not available
- illiquid assets, in addition to RBC, are not available
- only highly illiquid assets are not available
- all assets are available

Conclusion

Notional asset segmentation is an important consideration for a life insurance company. Each firm must determine how much consistency is desired between pricing, projections, and financial reporting. There are more options available than one might think before

[2] http://www.soa.org/library/proceedings/record-of-the-society-of-actuaries/1980-89/1982/january/rsa82v8n316.aspx this SOA talk from 1982 shares some of these techniques

starting the discussion. This is especially true of dollars available for acquisition, where insurers are generally taking more risk than they realize even before they try to expand.

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