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Strategic Asset Allocation in Asia: Optimizing Across Portfolios

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Note: This is an excerpt of a forthcoming whitepaper on setting a Strategic Asset Allocation framework. Reprinted with permission of Coherent Capital Advisors Limited.

Many regional insurers in Asia have been evaluating and re-positioning their asset portfolios, generating a lot of interest and activities in Strategic Asset Allocation (SAA) and the tools to help evaluate investment strategies. Implementing an SAA is one of the highest leverage activities that is easy to put off for an insurance company. We see a few key drivers behind these recent changes:

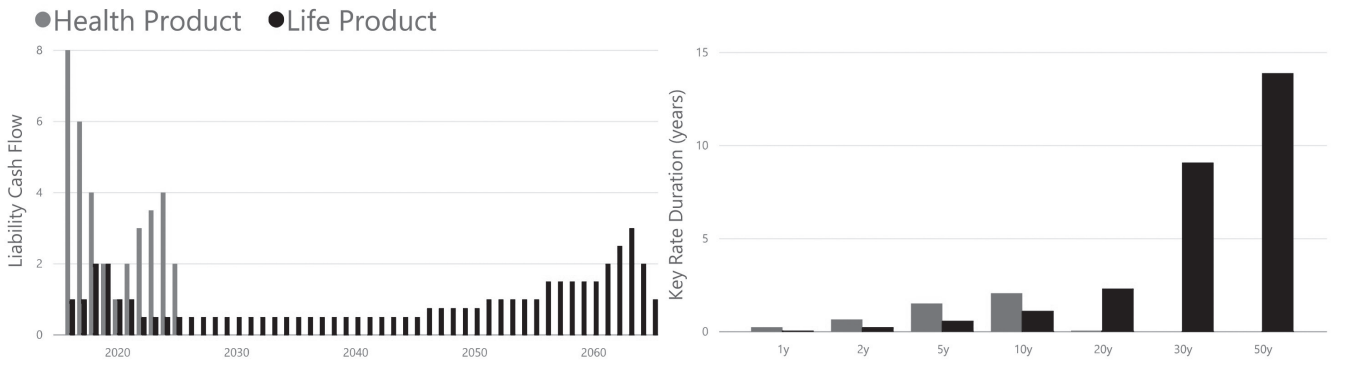
- Persistent low interest rate environment, and a lack of levers available to insurance companies to maintain their profitability. This issue is particularly acute for those markets where intense competition has left many insurers with legacy portfolios carrying high guaranteed interest rates.
- In contrast to the U.S. where statutory required capital regulations are more mature, regulations across Asia are still maturing and there is an increased focus on asset-liability management. This is part of an overall attitudinal shift towards encouraging better risk management, to be balanced against previous national priorities of increasing insurance penetration rates while requiring insurers to be prudent when setting reserves and maintaining solvency margin.
- Some regulators have loosened restrictions on insurers to invest overseas, sometimes in response to the low yields available to insurers domestically.
- Non-traditional asset classes are gaining attention due to both demand (yield) and supply factors (e.g., tightening of banking regulations opens opportunities for insurers to finance infrastructure projects).

A common challenge insurers face amidst all this change is processing all the implications of these changes across multiple portfolios. In this article, we use a simple case study to introduce a data-driven process to evaluate alternatives presented across multiple portfolios. Such a process has the advantage of increasing the transparency and confidence in the robustness of the recommendations, as trade-offs that can be readily quantified and explained.

UNDERSTANDING YOUR LIABILITY AND CAPITAL PROFILE

Insurance companies typically have multiple product lines. The cash flow and risk profiles of different products often vary significantly. For our simple case study, we have a simplified insurance company with only two product portfolios—a long-term life product and a short-term health product. Figure 1 illustrates the liability cash flow patterns and duration profiles of these two portfolios. Although the two products are set up to have similar valuations, the two product lines have quite different size and timing of cash flows, interest rate sensitivities, etc. The better the SAA team understands the product portfolios, the more likely they can arrive at an effective solution for asset-liability management. From our experience, some insurers in developing markets struggle to have a good sense of their cash flow positions due to the absence of a robust asset-liability model.

Figure 1: Best estimate liability cash flow and duration profile



DEFINING THE SAA OBJECTIVES AND CONSTRAINTS

Insurance companies have multiple stakeholders—risk, capital, investments and actuarial groups to name a few—driving different objectives and constraints on the asset allocation decision, compounded across local and regional offices for Asian insurers. It is often up to the SAA team to engage multiple parties and balance their interests, particularly when asset allocation conflicts arise.

Due to the different regulations across Asia (with each market at different levels of maturities), conflicts can arise for regional insurers where a good asset allocation in one market can create issues for the parent operating under different regulations (e.g., different risk-reward tradeoffs under local statutory compared to those under Solvency II for European insurers). This necessitates an iterative process to setting objectives/constraints and testing results. We believe that a proper SAA model can greatly expedite the feedback cycle to make the process more efficient—and less frustrating—for the SAA team.

CONSTRUCTING THE ASSET UNIVERSE AND DERIVING ASSUMPTIONS

Developing future returns and correlations assumptions can be a challenge, especially for non-traditional asset classes in which an insurer has no prior experience. External asset managers and investment consultants may be able to provide perspectives on the appropriate return target, implementation strategies and realistic expense levels. Figure 2 demonstrates a Markowitz-style risk/return trade-off that could be adopted by an insurance company contemplating overseas and alternative investments, and is a good starting point for screening whether certain asset classes make sense at a high-level and for visually catching unrealistic assumptions prior to running any models.

Figure 2: Asset return assumptions and capital risk charge

EVALUATING RISK-RETURN TRADE-OFFS WITH AN SAA MODEL

Traditionally, financial and risk reporting models are re-purposed to perform SAA analysis by running brute-force trials across different asset allocations. While this approach appears reasonable for resource-constrained actuarial teams, attempting to determine a set of optimal allocations this way is a manual, tedious and time consuming process. It also deters companies from undertaking deeper, more insightful studies as it would require performing many different model runs using a resource- and time-intensive process. Consequently, many insurers miss the opportunity to leverage from a comprehensive SAA study.

One promising trend we have observed in Asia is a gradual shift towards building "light" SAA models that extend existing actuarial models to deliver faster analysis of different asset allocations decisions. There are significant benefits to having a model which abstracts SAA-insensitive elements (for instance, mortality risk) from calculations to improve speed across analytical iterations without sacrificing model accuracy.

With the aid of speedy, light SAA models, we could go beyond traditional analyses that were typically only feasible on a small number of asset allocations, and enter the realm of large scale analyses. We strongly believe that a quantitative change in the data and results available can lead to a qualitative change in our understanding of the issue and the solutions.

We tested the two portfolios in our case study using a light SAA model over hundreds of thousands of different asset allocations. The results are presented in Figure 3 (page 22) as "clouds" of points on the risk-return space at two levels of granularity—fund level and total company level—where risk is measured in terms of the amount of statutory capital required.

In Figure 3 (page 22), we highlight two competing portfolios with similar risk levels (at the total company level). Each cloud of points represents the risk/return results for one of the funds. Some quick observations to explain the two charts:

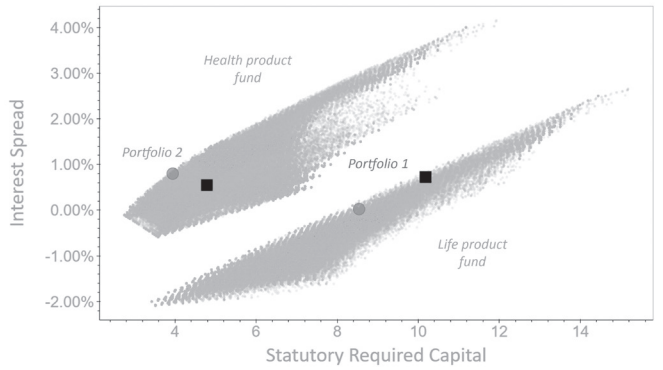
At the sub-fund level, Portfolio 2 seems to be better optimized:

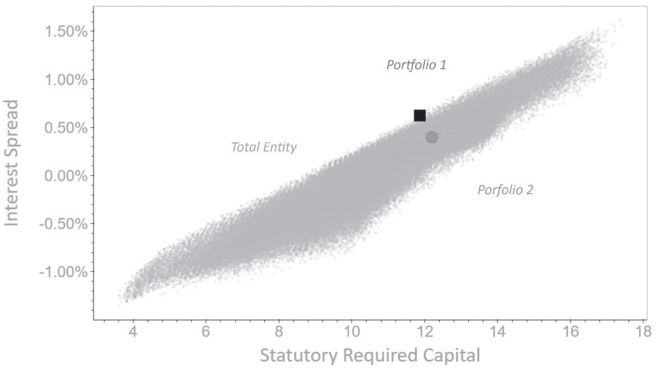
- Portfolio 2 lies on, or is close to, the efficient frontier in both the health and life product funds.
- In contrast, Portfolio 1 seems to be reasonably optimized in the life product fund, but is visibly sub-optimal in the health product fund as it lies far away from the efficient frontier.

But at the total company level, Portfolio 1 outperforms Portfolio 2:

- Interestingly, although Portfolio 2 was "optimal" in each of the sub-funds, the aggregate result at the entity level is visibly sub-optimal.

Figure 3: Tracking portfolios that are efficient at different aggregation levels





- In contrast, while Portfolio 1 was not optimized at the sub-fund level, its performance at the entity level is optimized.

This illustrates how selecting "optimal" portfolios at the fund level does not guarantee the best results at the total company level. In effect, the company's capital could be more efficiently used by opting for a seemingly "suboptimal" allocation in Portfolio 2.

In this case, the apparent trade-off between the two portfolios stems from the choice of fixed income durations. Portfolio 1 invests heavily in high-grade long-term bonds to help with the overall long duration requirement driven from the life product fund.

Figure 4: Asset allocation of portfolios

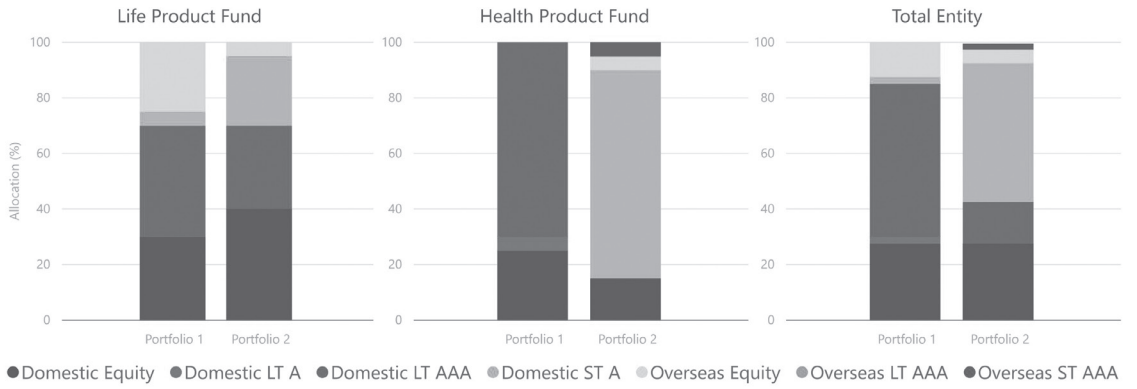


Figure 4 (previous page) shows the actual asset allocations of Portfolios 1 and 2, for the life fund, health fund and the resulting entity level allocations respectively.

In effect, the apparent "success" of Portfolio 1 at the entity level is due to its seemingly suboptimal allocation within the health product fund that had the effect of subsidizing the life fund to bolster overall performance. And this is "encouraged" because the long-term life products are more capital intensive than the shorter term health products. Even in this simple example, we generated a scenario where there is a trade-off between fund optimality and company optimality. While it may seem reasonable to prioritize company-level capital efficiency, management may question whether it's sensible or indeed equitable to allow cross subsidization. In addition, there are many implications to consider: product pricing, and management KPIs and performance compensation to name a few.

PRESENTING SAA AND ALM, AND EMBEDDING THE DECISIONS INTO OPERATIONS

An SAA analysis is only as useful as its improvement to the business, and we need to "measure what matters," is how Peter F. Drucker puts it in his book What Gets Measured Gets Improved."

Changing the SAA (for instance, adding a new asset class or changing the asset mix) can have wide-ranging ramifications to business operations from product pricing through capital management. Embedding this into the decision-making process and operations of the various functional groups within a company requires a sound governance structure, together with comprehensive monitoring, to ensure the key technical and commercial considerations are covered.

CONCLUSION

In this article, we described a process to develop a strategic asset allocation (SAA). We showed how a combination of small-scale, intuitive runs can be combined with larger-scale, computationally-intensive runs to provide more insights.

The key enabler of these new methodologies is a lighter, accurate SAA model that can be built on top of existing systems, and the advent of cheap computational power that allows our focus to shift from trying to run optimizations and instead focus on generating the full set of results from which the analyst can explore using modern analytical techniques.

Finally, through the analysis on the risk-return trade-off at both fund- and company-level optimality, we also showed how the results of these new types of analyses can be visualized to better communicate the insights to senior management and demonstrate the value of investing into the SAA models and analytics. ■

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