BEACON POINTE

A PEER COMPANY RISK MODELING APPROACH TO ASSET ALLOCATION

HOW MUCH DOWNSIDE CAN YOUR BUSINESS TOLERATE?

Asset allocation, the most important decision any investor makes, explaining more than 90% of performance, is particularly complex for P&C and health insurers who much balance asset risk against underwriting risk, asset premium leverage, and dividend policy.

Yet the most important decision rarely receives the attention it deserves.

Beacon Pointe Advisors
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BACKGROUND

For endowments, foundations, and individual investors, quantifying the trade-off between short-term investment risk and long-term gain is relatively straightforward. The question is more involved for pension funds and insurance companies that aren't concerned with asset volatility but rather with volatility of assets less liabilities (surplus) and the short-term volatility of net income (insurers) or normal cost (pensions).

Property & casualty and health insurers, in particular, must consider the trade-off among asset risk, liability risk, pricing, and dividend policy decisions in the context of existing asset and liability leverage, ratings, and capital adequacy.

To quantify these trade-offs, most insurers use a Monte Carlo Simulation approach to model and consider all potential future financial statement results. This approach provides decision-makers a distribution of potential outcomes for any financial metric of interest (e.g., surplus, net income, RBC ratio, policyholder dividends, etc.) and evaluates trade-offs between expected and worst-case results.

While this DFA (also called ALM or ERM) modeling approach to determining asset-mix is a powerful tool, it has limitations, including capital market assumptions, potential model or user error, and lack of insight into short-term risk tolerance.

POTENTIAL DFA MODELING LIMITATIONS

1. **Capital Market Assumptions**

All models are constrained by the validity of underlying assumptions, both explicit and implicit. The impact of explicit capital market and liability assumptions should be evaluated by varying assumptions to test the sensitivity of results. Models should be sufficiently transparent to allow users to identify any implicit assumptions. We believe that it is critical for users to evaluate the sensitivity of model results to changes in assumptions.

2. Model error

Too many model providers seem to have gotten hung up creating overly complex models in an attempt to achieve results that are as close to perfection as possible. Perfection, unfortunately, is never possible with stochastic modeling. The validity of underlying assumptions constrains robust results for any model — and both capital market and liability assumptions are imperfect.

No investment professional would make the significant-figure mistake of carrying calculations to greater accuracy than the original data. *Yet today's DFA models too often try to deliver results* with *four or more significant figures based on underlying capital market and liability assumptions with only on*e!

The more serious concern is that this pursuit of model perfection comes at a substantial cost in terms of complexity, significantly increasing the opportunity for error: both model misspecification and user error. There are multiple models currently available to insurers. Most suffer from the same limitations: They are complex for the sake of complexity, opaque, unnecessarily time-consuming to use, and invariably expensive. Perhaps the overly complicated models can command higher prices, but they don't better serve the client.

A better approach offers the advantages of transparency and ease-of-use without any real sacrifice in the robustness of results.

3. User error

We've seen multiple examples of user error over the years, but one of the worst is using geometric return assumptions when the model requires the arithmetic mean.

Since volatility drag is already part of a Monte Carlo analysis, the return assumption plugged into a Monte Carlo projection should actually be the higher arithmetic return and not the investment's long-term compound average growth rate. Otherwise, the impact of volatility drag is effectively counted twice, which significantly understates long-term returns and overstates risk.

4. Lack of insight into short-term risk tolerance

Finally, while DFA models are effective at quantifying the trade-off between expected and worst-case results, they do not address the critical question of how much short-term downside can be tolerated in pursuit of long-term growth.

For example, a given increase in the equity allocation results in an expected incremental gain in surplus of $20 million, but also a five-percent probability of a surplus loss of $15 million. Whether this is a good exchange depends on the impact of a $15 million loss in surplus.

To add context, we suggest a DFA Peer Company Risk Analysis (incorporating the same stochastic modeling analysis of individual peer companies) to describe the client's asset, liability, surplus, net income, and capital adequacy risk positions in context with those same risk positions of individual peer companies.

This perspective adds insight into how much short-term surplus loss clients can comfortably withstand while pursuing maximum surplus growth (or policyholder dividends) over time.

We believe:

- DFA/ERM models should be user-friendly, transparent, easily vetted, available to clients with all assumptions challenged, tested, and fully disclosed.
- All model assumptions should be explicit.
- Models should be transparent and readily tested.
- Clients should have access to all models that inform reports, analysis, and recommendations so that they may vet models for themselves, either with transparent models that can be readily understood, and sensitivity of assumptions tested as with DFA/ERM models or by testing ex-ante predictions against ex-post results as with factor risk models.
- Surplus, net income, and capital adequacy risk postures should be considered relative to peers' and competitors' risk postures to provide insight into risk tolerance.

Please contact Garth Flint or visit the Beacon Pointe website for more information.