

# Conning Client Case Study: Pension Strategic Asset Allocation

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RISK SOLUTIONS | CASE STUDY

## Valida Implements Cutting-Edge Model for Pension Strategic Asset Allocation

Valida Holding AG is Austria's second-largest pension institution by both AuM and number of customers. Valida Holding AG is made up of two subsidiaries, Valida Pension AG and Valida Plus AG. Valida Pension AG is a fund that manages some €7bn of assets on behalf of more than 250,000 customers and provides pension plans, mainly defined contribution, for renowned Austrian businesses, including the Raiffeisen Group, of which it is itself an entity. Valida Plus, managing some €3 bn on behalf of more than 2.4 million customers, provides *Vorsorge*, an obligatory Austrian specialty savings product with gross premium guarantee for their beneficiaries.

### The Client's Challenge and Vision

Valida's management team wanted both entities to significantly improve their understanding and management of risk within the portfolios they run in order to better serve their clients. To do this they needed to be able to answer:

- What is the optimal asset allocation on a risk/return basis, before and after taking the liability side into account?
- Which risks in the portfolios should be hedged and how can this be done efficiently?
- Which capital market scenarios cause stress situations for our business and how can we mitigate them?
- Under which situations are products unprofitable and how can they be improved?
- What circumstances might require capital injections by the shareholder, what is the extent and likelihood of such events?
- What are the probabilities of the various potential outcomes occurring?
- How are the assets under management in each portfolio going to develop in the future, and which cash flows will occur?

Valida required implementation within a challenging timeframe, needing to implement the initial model, create custom analytics, and present the initial conclusions to their board within a 12-week period. Confidence in the flexibility of the chosen tool and the implementation expertise of the supplier team were, therefore, key. Given these requirements, Valida chose Conning's FIRM® Portfolio Analyzer ("FIRM") and Investment Optimizer software for its ability to: stochastically simulate assets and liabilities; implement dynamic investment decisions; produce customized, incisive analysis; and to leverage the robust economic scenarios of the underlying GEMS® Economic Scenario Generator ("GEMS ESG").

### Conning's Solution

Conning's FIRM® Portfolio Analyzer is a robust, stochastic Asset Liability Management ("ALM") simulation tool that provides powerful investment risk modeling capabilities. FIRM® combines Conning's GEMS® ESG with a comprehensive investment

risk module, along with a sophisticated management decision rules engine. Valida separated the implementation project into three phases:

- Phase 1: Implementation of the asset model
- Phase 2: Implementation of the liability side of Valida Plus
- Phase 3: Implementation of the liability side of Valida Pension

The model was implemented in a phased approach in order to ensure the early delivery of results in Phase 1 and, at the same time, to enable an efficient transfer of knowledge from Conning to the Valida team. The liability modelling of Valida Plus was then further developed in Phase 2, with greater asset granularity introduced to align with the growing experience of the Valida team and driven by discussion of the model results with Valida management.

## Phase 1

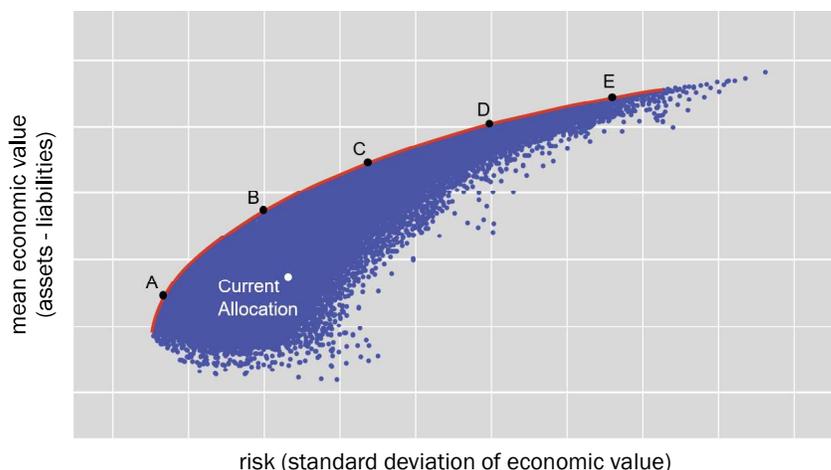
For Phase 1, support from the Conning team focused on rapid skills transfer through training sessions, a series of technical workshops, and advice and guidance in the model design phase in order to avoid possible pitfalls. Following this training, the Valida team was able to undertake most of the implementation in house to ensure their full understanding and ownership of the model.

The Valida team undertook a recalibration of the GEMS<sup>®</sup> ESG, taking advantage of the flexibility of the software's economic models and its integrated Recalibration Tools. This enabled them to easily achieve targets for risk-free yields, credit, equities, etc., that reflected the economic views held within the firm.

Valida employed the software's extensive asset classes and the flexible Market Index functionality of FIRM<sup>®</sup> to model the range of assets required. The custom assets included alternatives such as private equity, infrastructure, real estate and CLOs. Valida was able to model its asset classes with both price and income components, allowing for a robust cash flow analysis. Due to the time restrictions and data availability, liabilities were initially modeled as deterministic cash flow vectors.

At the end of Phase 1, Valida was able to accurately model its assets and asset cashflows and integrate these with a simple liability cashflow model. This allowed initial portfolio optimization to be carried out using Conning's Investment Optimizer software, and the ALM results to be analyzed.

### ALM-based Efficient Frontier



**“Our vision was to own a tool that produces a holistic view on Valida’s asset-liability dynamics and enables us to put liability-driven investment strategies efficiently into practice.”**

*—Arnd Muenker, CIO of Valida*

Fig. 1: The Investment Optimizer analyzed thousands of potential portfolios against defined risk and return metrics, enabling the construction of an efficient frontier and the selection of efficient candidate investment portfolios. Prepared by Conning. For illustrative purposes only.

## Return Distribution for Each Allocation

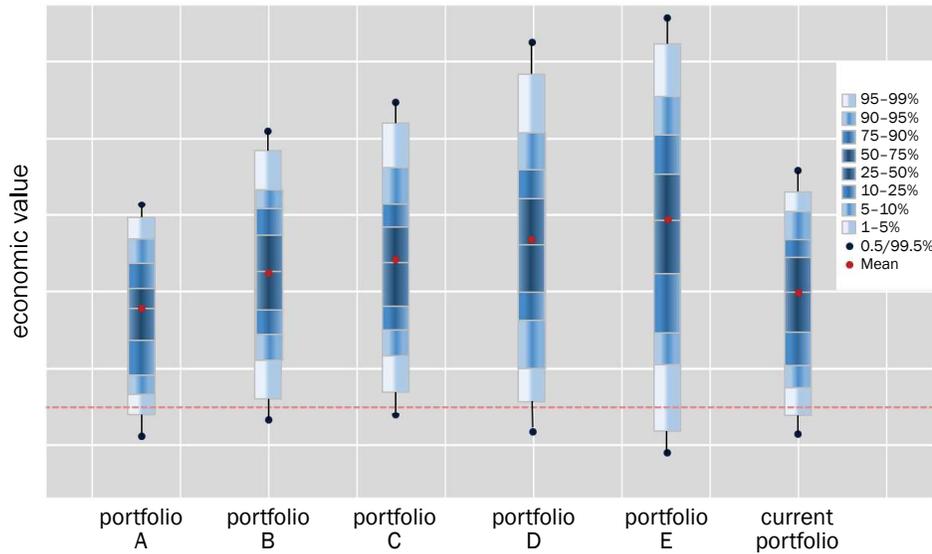


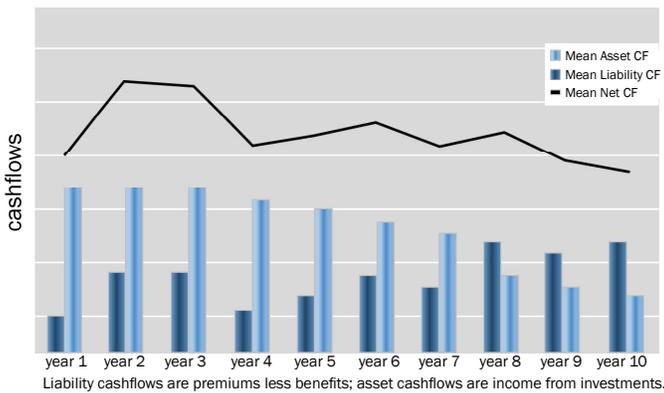
Fig. 2: The Investment Optimizer makes use of the full stochastic output from FIRM®, meaning that analysis is not limited to just mean and variance (as it would be in a non-stochastic optimization), but can also focus on tail risk outcomes. Prepared by Conning. For illustrative purposes only.

## Phase 2

The aim of Phase 2 was to create a more realistic model of the stochastic behavior of the liabilities of Valida Plus, to better capture the risks within new and existing business, and to capture the attribution between funds. Therefore, Valida chose to increase the complexity of the liability model by modelling premiums, losses, reserves and expenses, all separated by business segment.

Valida set out the specification of its desired liability model, and this was implemented using FIRM® Portfolio Analyzer's optional Liability Module. The existing liabilities were split into subgroups, divided by age and the existence of ongoing premiums, and the overall fund was split into two parts, allowing for the parent company and the severance funds to be modeled separately and in detail. New models were created for key liability inputs, including benefits, premiums, guarantees, capital, and guarantee capital. Rules for the conditional payment of asset management fees based on investment results, as well as rules for successive increases of the Guarantee Reserve, were outlined by Valida, and these rules were then fully modeled by Conning using the Management Decision Module of the software, which simulates management's responses to emerging conditions within the model.

## Cashflow Projection



## Distribution of Net Cashflows

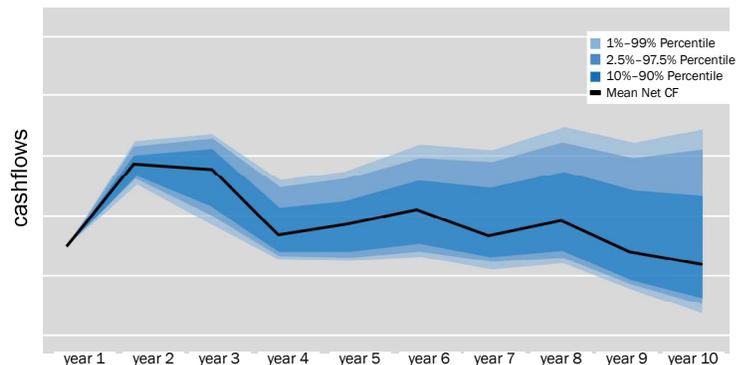


Fig. 3: Full stochastic output allows the projection of not only average cashflows (left-hand chart), but also an analysis of the full range of potential net asset and liability cashflows (right-hand chart). Prepared by Conning. For illustrative purposes only.

## Phase 3

Equipped with the experience of Phase 2, Valida and Conning have begun working together to implement the business model for Valida Pension within Conning's ADVISE® Enterprise Risk Modeler, which combines all the functionality of FIRM® Portfolio Analyzer with robust liability modeling. The successful rollout of the model is expected in mid-2020.

## Summary & Benefits

All of Valida's desired objectives were achieved within the tight deadlines set by management to meet their reporting schedules. Using FIRM® Portfolio Analyzer and Conning's expert support, Valida has been able to stochastically model both its asset portfolios and liabilities, resulting in significant improvements to its risk management program. For example:

- The analysis of potential cash flow shortfalls provides a better understanding of portfolio behavior and the impact of alternative strategies.
- Management understanding of the specific trade-offs between investment risk and return has been significantly improved.
- The ability to illustrate these risk/return decisions in a quantifiable way is now used to support investment decision-making.

Assets and liabilities are modeled concurrently, with existing dependencies influencing simulation results instantaneously. There is a stochastic evolution of the liabilities based on the achieved investment performance, and there is now a transparent and well-ordered representation of over sixty model points for the existing business over ten projected years of new business. One of the key outputs of the model will be a holistic view of the future liquidity of the Vorsorge Fund. With that output, Valida will not only be able to provide valuable insights to senior management, but it will also be able to provide a crucial obligatory document to the Austrian Financial Market Authority (FMA) in an automated and highly advanced process. Last but not least, the model provides new methods for asset managers to calculate strategic asset allocation and think about efficient portfolios.

From an operational perspective, this model can be updated and re-run each period in an efficient, automated manner. This streamlined setup may provide a competitive advantage for Valida in the Pension and Vorsorge space, due to the speed of decision-making that it enables.

**“For us, the conjunction of a stochastically modelled liability and asset side means a major leap forward, both in introducing LDI to our asset management practices and in delivering innovative services to our clients and high-class analysis to our board.”**

*—Arnd Muenker, CIO of Valida*

## About Conning

Conning ([www.conning.com](http://www.conning.com)) is a leading global investment management firm with a long history of serving the insurance industry. Conning supports institutional investors, including pension plans, with investment solutions and asset management offerings, award-winning risk modeling software, and industry research. Founded in 1912, Conning has investment centers in Asia, Europe and North America. Conning's software and advisory services support insurance and pension risk modeling needs, providing insights for decision making, regulatory and rating agency compliance, strategic asset allocation and capital management. Conning's risk management software platform includes the award-winning GEMS® Economic Scenario Generator, FIRM® Portfolio Analyzer and ADVISE® Enterprise Risk Modeler.

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