



# PROPHET ASSET LIABILITY STRATEGY LIBRARY – SOPHISTICATED ALM FOR INSURERS

INSURANCE | Risk Management

## A more complete understanding of your business

With ever-changing markets and more regulatory demands on life insurance companies around the world, there is an increasing need for insurers to carry out stochastic asset-liability modeling (ALM) to understand and manage the relationships between their assets and their liabilities. Emerging regulatory requirements such as Solvency II, Principle-Based Reserving and IFRS Insurance Contracts Phase II are some of the drivers for this. Others are the desire on the part of many companies to carry out economic capital calculations to develop a risk management framework, and to gain a much better insight into their business.

The Prophet Asset Liability Strategy (ALS) library enables firms to meet their stochastic ALM requirements and helps them achieve a more complete understanding of their business. It is ideal for current and emerging risk-based regulatory environments such as those in Europe, North and South America, South Africa and China.

The ALS library provides a range of features for sophisticated modeling of the assets, liabilities and the related capital position of an insurance company, including management decisions and policyholder reactions. ALS provides insurers with a framework for performing stress testing and scenario analysis on their business, and lets companies create comprehensive models for regulatory and other reporting requirements. ALS is a flexible library with a wide functional and geographic scope, reflected in its extensive use worldwide.

The Prophet Proxy Fitting library (both the Replicating

Portfolio and the Risk Factor Polynomial constituents) works in conjunction with the ALS library to provide even faster production of management information. Licensed by over 270 customer sites around the world, the ALS library is the comprehensive risk management library at the heart of the Prophet solution for insurance Enterprise risk management.

## ALS library supports a wide range of modeling purposes

- Economic capital
- Regulatory solvency
- Market-consistent embedded values
- Business planning
- Strategic analyses including bonus policy, investment strategy and risk appetite studies
- Stochastic pricing of options and guarantees

## ALS library features

- Dynamic links between assets and liabilities, which can be used to evaluate path-dependent policyholder benefits that in turn depend on management actions
- Projected income and prices for a wide range of assets, from sovereign bond redemptions to swaption valuations
- Built-in models for life, annuity and group pension liabilities, and links to external models for any others
- Multiple policyholder and shareholder funds, including interactions between funds within complex fund hierarchies

- Choice of calculation intervals: monthly, quarterly, semi-annual, annual, or different intervals over different periods of the projection
- Compatible with most leading economic scenario generators (ESGs). Easy to extend to other ESG formats
- Data and assumptions read from Intex and Andrew Davidson prepayment models
- Comprehensive range of financial reporting methods to meet specific regional needs, including US GAAP income statements and balance sheets

## Asset-liability interactions

The ALS library incorporates management actions and policyholder reactions. Many actions and reactions are included as standard, but users can easily introduce their own to allow for their particular business features and operating models.

### Investment strategy

- Constant asset mix, dynamic equity backing ratio, drift tolerances from target asset allocation, proportions for investment/disinvestment of new money
- Segregate assets by pools to back specific blocks of liabilities, with separate strategies for each pool
- Set sale prioritization and order of gains realization
- Dynamic turnover of assets to realize gains/losses to manage the crediting rate

### Bonus rates

- Crediting, profit sharing, reversionary, dividend and terminal bonus rates derived from information that would be available to management at that point in time, e.g. yields, solvency levels, asset shares and market values, free assets in the fund, unrealized gains in the fund, total return on the fund, and desired new business levels
- Derive self-supporting bonus rates based on bonus reserve valuation (BRV)
- Smooth maturity payments

## Liability features

The ALS library allows users to choose between several approaches of differing accuracy and complexity to model the liabilities. Any combination of the approaches may be used in a single ALS model. In ascending order of speed and descending order of detail:

### Externally modelled – Dynamic link to Prophet liability products

This approach allows the ALS library to interact dynamically with liability products created using the following libraries:

- Conventional library
- Deutsche library
- Group Pensions library
- International library
- Kranken (German health) library
- Unit Linked library
- US library
- US Health library

Other libraries are supported through links to the Summary library.

### Externally modelled – Link to pre-calculated liability projections

This approach involves reading deterministic or stochastic cash flows from existing liability models (created using Prophet or an external system) and adjusting these, within ALS, to reflect management decisions and policyholder reactions.

This can be used to bring in non-profit liabilities from other models, and also to build 'flexing' models.

### Internally modelled – Individual liabilities and group pensions

This approach for modeling liabilities gives fast per policy runtimes. It allows users to model the liabilities within the ALS product and supports stochastic-on-stochastic modeling. The library is ready to model the following types of business in this way:

- Traditional insurance business including endowments, annuities and term assurances
- Unit-linked contracts
- Guaranteed annuity options
- Occupational and insured pension schemes
- Profit-sharing mechanisms including revalorization, reversionary and terminal bonuses
- Regional variants including German RfB, French Fund PB, and Dutch U-rate business

Individual liabilities and group pensions cover a range of wide regions and their associated products.

### Internally modelled – Risk factor polynomial

ALS can use polynomial proxies to represent

blocks of insurance business, with the proxy values forming part of the liability results.

### **Internally modelled – Replicating portfolio**

ALS can use replicating portfolios of assets to represent blocks of insurance business, with the asset values forming part of the liability results.

## **Asset features**

### **Asset modeling**

Projections of income, realised gains and asset valuations

Valuation methods

- Market values including (stochastic) present values of projected cashflows, interest on previous values and closed-form solutions
- Book values including amortized cost, historical cost, lower values and lowest values
- Fixed interest additions
- Corporate bond defaults using explicit default probabilities or a transition matrix
- Intex and Andrew Davidson prepayment models for Mortgage-Backed Securities and Collateralized
- Mortgage Obligations
- Effective duration and effective convexity

### **Assets modelled**

- Sovereign and corporate bonds including floating rate, index-linked, callable, partially redeeming and sinking funds
- Equities
- Derivatives including swaps, swaptions, caps and floors, equity options, equity futures, currency futures
- Property
- Mortgages
- Mortgage-Backed Securities
- Collateralized Mortgage Obligations
- Externally modelled assets (link to previously calculated asset cash flows and values)
- Cash

The library can be used in both Prophet Professional and Prophet Enterprise, version 8.2.3 or later.

## **About FIS's Prophet**

FIS's Prophet is a leading actuarial modeling system that helps insurance and financial services firms develop more profitable products faster, improve risk management decisions, and meet their reporting responsibilities efficiently. Prophet provides comprehensive coverage across life, general insurance, health and pensions for all major insurance markets on a single platform, providing common models, code, assumptions and reporting capabilities, plus end-to-end data management and business intelligence. It offers actuaries an easy-to-use, flexible product design environment combined with a controlled, enterprise-level production environment, enabling the fast delivery of accurate, auditable and clearly presented information to risk managers, senior management and regulators. Prophet can be deployed on-premise, hosted or on the cloud, and is relied on by more than 10,000 users at over 850 customer sites in more than 65 countries.

## **Enabling the adaptive enterprise**

Sitting at the intersection of technology and finance, FIS is focused on delivering fresh ideas and inventive solutions to help our customers adapt and thrive in an ever changing environment. With a blend of software solutions, cloud infrastructure, global service capabilities and deep domain expertise, FIS is capable of supporting virtually every type of financial organization, including the largest and most complex institutions in the world. For more information, please visit [www.fisglobal.com](http://www.fisglobal.com)