

PROPHET GI CAPITAL MODELING

Flexible and transparent, simple or complex capital modeling

Summary

Effective capital modeling and cashflow projections help insurers achieve regulatory compliance and meet accounting standards (including IFRS17), whilst protecting them from shock losses and insolvency. But on a more positive note, capital modeling is also critical to sustaining profitability and success, enabling you to strike a balance between holding enough capital to fuel growth – and making capital work efficiently for shareholders.

Out of the box but not a black box

FIS' Prophet GI financial modeling solution can help insurers achieve all these objectives through its Capital Modeling library, which contains the actuarial code you need to create general/property and casualty (P&C) insurance projection models. The code is not only easy to understand but also, more importantly, to modify – allowing actuaries to meet the exact requirements of the business, including any bespoke products or local regulatory variations. And supporting the library is an intuitive and user-friendly interface with full data management functionality.

Using Prophet's simple code, actuaries can quickly build, adapt and extend their models, without the need for additional coding languages or skills. Because of the solution's transparency, managers can also readily understand which factors drive certain model results.

Model types range from simple deterministic projection models to full stochastic capital models so, you can precisely meet your current and coming needs, with the curve-fitting part of the solution providing a simple path between present and future.

Capital Modeling library key features:

Easy to configure – develop models rapidly thanks to the transparency of the code.

Flexibility – support different accounting, claims modeling and asset valuation approaches.

Comprehensive use of external data – apply a wide range of asset types, standard economic scenarios and catastrophe vendor model data.

Compliance – manage global capital, accounting and reporting regimes (e.g., Solvency II, IFRS, US GAAP and SAP, US RBC, UK ECR, UK GAAP and equivalent regimes).

Consistency – for insurers using Prophet for life insurance modeling, model assets and economic conditions across both areas.

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Analysis outputs

The Prophet GI Capital Modeling library can create key reports, including:

- Financial statements, including cash flow statements, revenue accounts and balance sheet
- Capital allocation
- Capital and surplus
- Profit distributions
- Analysis of claims
- Business plans
- Premium and claims reserves
- Business unit performance
- Risk performance (e.g., combined ratio and loss ratio)
- Capital and surplus, standard formula or internal, economic models

Core functionality

The Prophet GI Capital Modeling library performs the following core projection functions, using either Monte Carlo or Latin Hypercube simulation techniques:

Premium reserve:

- Written and earned premiums/underwriting risk
- New business modeling including volume fluctuations
- Attritional and large claims – Frequency and severity, including individual large claim modeling
- Aggregate burn cost
- Loss ratio, including ultimate or per accident period
- Catastrophe claims (see below)
- Different claim payment patterns by claim type (e.g., attritional, large and catastrophe)

Claims reserve/reserve risk:

- Using reserve library data and modeling
- Modeling of ultimate claims and payment patterns

Accounting variables:

- Premiums written and earned
- Claims incurred and paid
- Expenses
- Investment income and gains

- Foreign exchange revaluation
- Tax
- Balance sheet assets and reserves
- Annual, semi-annual, quarterly or monthly calculation time steps possible
- Multiple-basis discounted balance sheet and income statements

Catastrophe model data

Import catastrophe model output from:

- Internal models
- Major vendor models

Reinsurance

Handle all major types of reinsurance:

- Proportional/quota share
 - Non-proportional – Per risk
 - Per event (e.g., CAT)
 - Aggregate
 - Stop loss

Gain important reinsurance modeling functionality for:

- Reinsurer default risk
 - Probability of default and loss given default
 - Bad debt amounts
- Reinstatement premiums
- Adjustment premiums
- Stochastic payment lag
- Multiple contract layers and contract parties

Aggregation

The library uses a range of mathematical functions contained in a specialized math plugin to support various forms of aggregation, including:

- Elliptical copulas/correlation matrices
 - Gaussian normal
 - Student T
- Archimedean copulas
 - Gumbel
 - Clayton
 - Frank
- Independence
- Dependence

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Capital and economic scenario functionality

Capital modeling and economic scenario data modeling comprises:

- Capital – One-year projected balance sheet approach (Solvency II)
- Recognition pattern/risk emergence
- “Actuary in a box” re-reserving methods • Basic chain ladder
 - Bornhuetter Ferguson
 - Benktander
- Ultimate projected balance sheet
- Risk margin calculations
- Time-zero balance sheet scaling
- Provision for events not in data (ENID)
- Standard formula capital calculations; Solvency II SCR, South African SAM SCR, Solvency II USPs
- Economic scenario data
 - External economic scenarios using ESG providers, including:
 - FIS’ APT
 - Moody’s
 - Conning
 - In-house providers

Assets

Using the Prophet Asset-Liability Strategy (ALS) library, model a comprehensive range of assets:

- Standard Assets
 - Cash
 - Bonds (fixed rate, index-linked, FRNs)
 - Equities
 - Selling and reinvestment
 - Proportional
 - New investment profile
 - Flexible valuation and reporting methods (e.g., amortized book value, purchase cost, market value and lowest values)
- Enhanced assets (ALS library asset functionality) – Standard assets
 - CMO/MBS
 - Sinking funds
 - Wide range of derivatives
 - Other types of bond (e.g., callable)

Curve Fitting

Univariate and multivariate, copula, curve fitting:

- Supply full sets of experience data
- Fit a number of different distributions, continuous or discrete
- Select the parts of the data to include or exclude; ignore outlier values, fit to just a specific section of the data, e.g. just the tail, over the 75th percentile
- Provide a number of goodness of fit statistics to assess appropriateness
- Show graphical fits, including P-P and Q-Q plots, CDF plots
- Supply a set of moments to fit to as opposed to a full dataset
- Integrated directly with the capital modeling solution

Prophet GI Capital Modeling components

The Prophet GI Capital Modeling library is integrated with other core Prophet components:

- Prophet Forms – providing an intuitive user interface
- Glean for experience and rate analysis, supporting users in the selection of relevant variables, and in pricing
- Prophet’s data management functionality, including the Prophet Data Conversion System (DCS)
- Prophet IFRS Group Calculations Library for full end to end IFRS17 reporting

Prophet Forms is a Windows-style user interface that allows you to import initial model assumption sets and set up sensitivity variants and scenarios.

Users can then define the settings and run the model. Submit queries for quick feedback and access spreadsheet templates for reporting within Prophet Forms. Define, tailor and develop your own interface forms as required, using the Prophet Forms Designer tool and standard Prophet spreadsheet reporting templates.

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About FIS' Prophet

FIS' Prophet is a leading enterprise-wide actuarial modeling system that helps insurance and financial services companies meet reporting responsibilities, improve risk management, and develop more profitable products faster. Prophet uses customizable actuarial libraries for all major product types, including regional variations. It provides the transparency, performance and control required by today's actuaries and risk managers through integrated financial modeling and data management capabilities. Prophet is used by more than 10,000 users at nearly 1000 customer sites in over 70 countries.

About FIS

FIS is a global leader in financial services technology, with a focus on retail and institutional banking, payments, asset and wealth management, risk and compliance, consulting and outsourcing solutions. Through the depth and breadth of our solutions portfolio, global capabilities and domain expertise, FIS serves more than 20,000 clients in over 130 countries. Headquartered in Jacksonville, Florida, FIS employs more than 53,000 people worldwide and holds leadership positions in payment processing, financial software and banking solutions. Providing software, services and outsourcing of the technology that empowers the financial world, FIS is a Fortune 500 company and is a member of Standard & Poor's 500® Index. For more information about FIS, visit www.fisglobal.com