SAS® Market Risk Management for Insurance
Supporting your evolving risk analysis needs

What does SAS® Market Risk Management for Insurance do?
SAS Market Risk Management for Insurance enables insurance companies to perform asset valuation, portfolio allocation and risk management analysis in a flexible, configurable and high-performance environment. You can integrate, manage and analyze data, run multiple models and quantify the risks underlying your market portfolio.

Why is SAS® Market Risk Management for Insurance important?
Insurance companies are subject to several regulatory requirements where compliance presents a number of challenges. This solution provides senior management with a greater understanding of market risk and the financial condition of your company. You can valuate your investment portfolio, perform scenario simulations and measure sensitivity to shocks.

For whom is SAS® Market Risk Management for Insurance designed?
The solution is designed for IT managers to govern the enterprise risk data management process; risk analysts to quantify the risk exposure and perform simulations and what-if analysis; and senior managers to monitor risk level and make risk-based strategic business decisions.

Insurance companies have to model their risks - both for regulatory compliance and for internal risk management. Inaccurate modeling of future asset values can result in unexpected losses and insufficient liquidity to match their insurance liabilities. This will ultimately lead to rating agency downgrades, lower return on equity and other investments - and even insolvency due to insufficient capital.

Accurate modeling requires precise, integrated data and sophisticated risk analysis with software that is up to the challenge. SAS Market Risk Management for Insurance supports regulations and best practices required by insurance companies to report true economic value of assets - including off-balance sheet items. Using our solution, risk analysts can configure and calculate market value of financial instruments and assets, including bonds, equity, derivatives, swaps and property.

Our insurance-specific data model serves as a single source of information for an enterprise risk data warehouse. The solution can help your insurance company:

- Calculate risk-based capital (regulatory capital, internal models and economic capital), optimize portfolios and analyze sensitivity.
- Model assets’ value and analyze the impact or contribution of a product or asset category on insurance market risk.
- Use pricing logic for a variety of financial instruments, and prebuilt components to define additional risk and pricing models.
- Perform stress testing to evaluate the variety of risks your company faces.
- Design end-to-end processes for business users – including integration with multiple systems and third-party tools.
- Allow a gradual adoption of internal models and advanced risk analysis.
- Reduce implementation time and improve transparency and auditability.
- Improve risk decision making - both granular and overall - at all levels of your organization.

Benefits
- Effectively monitor and manage market risks. Analyze your portfolio composition; perform assets and liabilities cash-flow matching, stress testing and what-if analysis.
- Flexible reporting. Use a prebuilt market risk dashboard or easily create your own custom regulatory and management reports. The solution provides comprehensive risk reporting features, including a number of predefined dashboards for analyzing portfolio performance under current and stress conditions.
- Reduce volatility. Improve risk decision strategies by gaining a greater understanding of how economic factors affect your balance sheet. Ensure solvency during sudden and dramatic changes in market conditions by stress testing assets.
- Integrate and better manage data for accurate risk analysis. With our comprehensive data management, improve data quality by eliminating or reducing data inconsistencies. Our insurance-specific data model serves as your single
source of information. Use prebuilt data management capabilities to load data from the data model to the risk solution.

**Lower your total cost of ownership.**

Our single solution provides capabilities from data integration to risk analysis and reporting. Flexible and extensible to meet your evolving risk analysis needs, it also provides integration with third-party software solutions.

**Capabilities**

SAS Market Risk Management for Insurance is an integrated, end-to-end solution providing features from data integration to risk analysis to reporting. Our modular approach allows IT to fulfill the needs of multiple business divisions while managing a single platform.

With our high-performance execution environment, all calculations are run in memory with the ability to run parallel execution of job flows. Time-consuming I/O routines are reduced to an absolute minimum to decrease waiting time and improve business efficiency. And with a scalable architecture (single to grid), you can gain efficiencies in your use of hardware resources to reduce your IT costs.

**Flexible data enrichment**

The solution contains processing logic that removes fund exposures and replaces them with the underlying positions for various financial instrument types, consistent with the look-through approach. It has a pre-configured data interface to SAS Detail Data Store for insurance for data gathering and capture (including data quality checks). And a comprehensive data dictionary is linked to product documentation.

**Pre-configured portfolio valuation flow**

Our portfolio valuation flow supports a variety of financial instruments and property investments to perform mark-to-market valuation of all asset items. This helps in rapid development of methods to value investment holdings. Included are pricing functions for numerous financial instruments (e.g., spot instruments, physical assets, deposit account, floating rate notes and cash-flow structure).

**Stress testing for risk factors**

The solution performs stress testing for risk factors such as interest rate, equity, currency rate and property rates. It provides straightforward configuration of additional scenarios and what-if analysis based on risk factor definitions. The solution also provides:

- Configured simulations (VaR, historical simulation, sensitivity analysis, etc.) and portfolio optimization flows.
- Predefined Solvency II regulatory scenarios.
Insurance market risk dashboard
SAS provides a prebuilt insurance market risk dashboard for you to monitor portfolio performance and various risks, including asset and liability cash-flow gap analysis, scenario analysis, detailed market positions and asset allocation.

Market risk assessment and monitoring
Calculate and aggregate separate risk capital charges for risk factors such as interest rate risk, equity risk, currency risk and property risk. Perform asset allocation and risk-adjusted portfolio optimization. Simulate the portfolio performance under shocked scenario conditions and measure the sensitivity to risk factors.

Manage workflow, monitoring and extension
SAS provides a modular approach that allows IT to fulfill the needs of multiple business divisions while managing a single platform.

• Design end-to-end processes for business users.
• Integrate multiple systems and third-party tools for more reliable decision making.
• Use a control panel for monitoring job execution status.
• Access historical data management and auditability.
• Navigate through the process flow and analyze input and output of each step.

Figure 3. Perform what-if scenario analysis based on risk factor definitions.

Figure 4. Visualize and navigate through job flows easily with full transparency and data traceability.

Figure 5. Test alternative scenarios, and keep track of the changes.
To learn more about SAS Market Risk Management for Insurance system requirements and see other related material, please visit: sas.com/risk.

### Key Features

#### Flexible data enrichment
- Look-through approach processing logic.
- Pre-configured data interface to SAS Detail Data Store for insurance.
- Comprehensive data dictionary linked to product documentation.

#### Pre-configured portfolio valuation flow
- Portfolio valuation flow supports a variety of financial instruments and property investments.
- Pricing functions for numerous financial instruments (e.g., spot instruments, physical assets, deposit account, floating rate notes and cash-flow structure).

#### Stress testing for risk factors
- Factors such as interest rate, equity, currency rate and property rates.
- Configuration of additional scenarios and what-if analysis based on risk factor definitions.
- Configured simulations (VaR, historical simulation, sensitivity analysis, etc.) and portfolio optimization flows.
- High-performance and flexible what-if analysis.
- Solvency II regulatory scenarios.

#### Insurance market risk dashboard
- Prebuilt dashboard to monitor portfolio performance and risk.
- Asset and liability management (ALM) cash-flow gap analysis, scenario analysis, detailed market positions and asset allocation reports.

#### Market risk assessment and monitoring
- Calculates and aggregates separate risk capital charges for factors such as:
  - Interest rate risk.
  - Equity risk.
  - Currency risk.
  - Property risk.
- Performs asset allocation and risk-adjusted portfolio optimization.
- Simulates the portfolio performance under shocked scenario conditions.
- Measures sensitivity to risk factors.