ALGO RISK FOR INSURANCE

Integrated risk management and portfolio modeling for the enterprise

Algo Risk is designed to provide a consistent, enterprise-wide view of risk, an essential outlook for firms seeking to manage capital and maximize investment performance through intelligent risk taking. Supporting underwriting, market risk, credit risk, and portfolio management activities across both assets and liabilities, Algo Risk helps firms to manage economic capital, enhance productivity, and ultimately generate greater shareholder value.

Algorithmics

Leveraging nearly 20 years of experience working with the full spectrum of financial firms, Algorithmics has designed Algo Risk to address the specific requirements of insurance companies and pension funds. The solution's enterprise architecture facilitates greater automation, scalability, and reliability, leading to greater efficiencies and reduced reporting timescales.

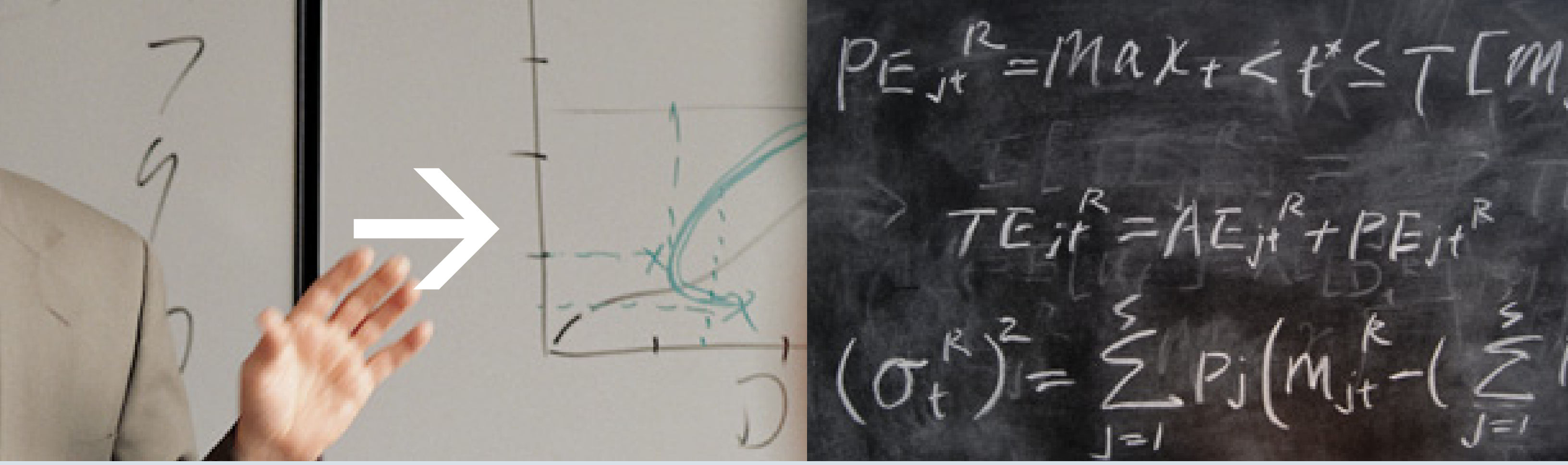
Underwriting, market and credit risk, and portfolio management

Algo Risk is a comprehensive risk management solution that brings together asset and liability projections within a consistent, market-based framework. Through an asset simulation engine, clients have access to Algorithmics' full and comprehensive asset coverage including fixed income, equity, and derivative valuation models. Liability projections can be calculated directly within Algo Risk or imported from third-party projection systems. An optimization module provides the ability to create replicated portfolios, generate efficient frontiers, and solve other linear optimization problems.

Algo Risk offers an extensive array of simulation-based absolute and relative risk analytics, ranging from probabilistic measures (such as VaR, conditional tail expectation, and tracking error) to stress testing measures (such as user-defined risk factor shocks and historical replays). It also offers a variety of analytical sensitivity measures (such as durations/convexities, option Greeks, key rate durations, and PV01s). All risk measures can be applied to any portfolio, aggregated group, or individual positions and to both assets and liabilities.

Algo Risk's ERM framework, analytics, and risk reporting dashboard provide a comprehensive infrastructure and tool set to implement economic or regulatory capital models covering underwriting, market risk, and credit risk. Leveraging the company's compliance experience with some of the world's largest banks, Algorithmics can assist insurers to help them meet their own regulatory requirements with a cost effective implementation.

Through its flexible, interactive interface, the solution can be easily customized to meet the unique needs of individuals and teams, and is based on a highly scalable and open architecture that is ready to accommodate new methodologies and investment innovations as a firm's risk strategies evolve. Algo Risk is available as an in-house implementation or as a web-based, outsourced offering.



KEY BENEFITS AND FEATURES

Increases investment returns

Algo Risk is designed to help risk managers to deliver more informed, proactive business decisions that mitigate unexpected losses and maximize returns. By using scenarios as the basis for risk analysis, Algo Risk helps insurance companies obtain an integrated, consistent, forward-looking picture of all sources of risk in order to develop more rewarding investment strategies.

Enables access to a fast and accurate picture of risk

Algo Risk delivers real-time portfolio and risk analytics to the front office via a user-friendly, web-enabled interface. Risk profiles can be updated throughout the day to ensure portfolio managers, risk officers, and decision makers at all levels have access to an identical and consistent picture of risk.

Provides ability to interactively test what-if trades

Algo Risk's what-if capabilities allow portfolio managers to interactively see the impact of hypothetical trades. The new portfolios can be saved, tested, and analyzed under a wide range of economic scenarios. The quick response times allow users to easily test many alternatives prior to executing a new trade.

Supports easy testing of alternative hedging strategies

Algo Risk's what-if capabilities allow risk managers to view the impact of hypothetical hedging strategies. The hedging strategies can be applied at the portfolio level or at an aggregated level and analyzed under a wide range of economic scenarios allowing the user to evaluate the effectiveness of alternative strategies.

Reduces total cost of ownership

Algo Risk leverages a common software architecture across both the front and the middle office. This integrated platform uses proven data integration and instrument modeling techniques, which can reduce data acquisition costs, implementation time, and overall system support costs.

Comprehensive asset coverage

Algo Risk supports over 400 financial products across more than 20 geographic markets spanning fixed income, foreign exchange, equity, credit, energy, commodity, and derivatives markets. With an asset coverage library that is constantly being expanded, Algo Risk provides firms with the means to understand the source of risk in a portfolio, including breakdowns by risk factor, virtual group, and asset type.

Delivery options

Algo Risk is available as an in-house implementation or as an online, subscription-based service, in both a standard ASP and a managed service model. These flexible deployment options are designed to meet a firm's unique business requirements.

ALGO RISK: KEY FUNCTIONALITIES…

Algo Risk is designed to meet the needs of different user groups across the organization, including:

Portfolio managers:

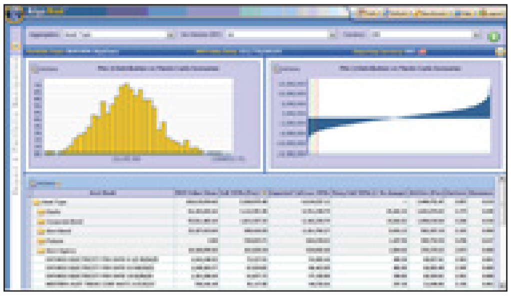
implement and monitor investment strategies

Actuaries:

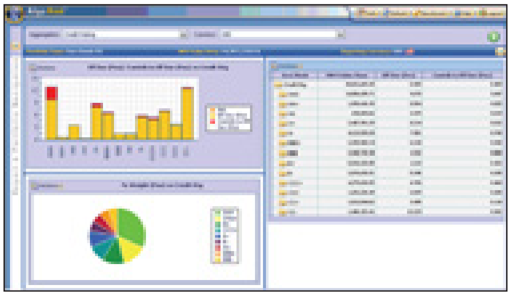
determine market-consistent valuation of liabilities, design products, develop liability benchmarks, and create replicated portfolios

Risk officers:

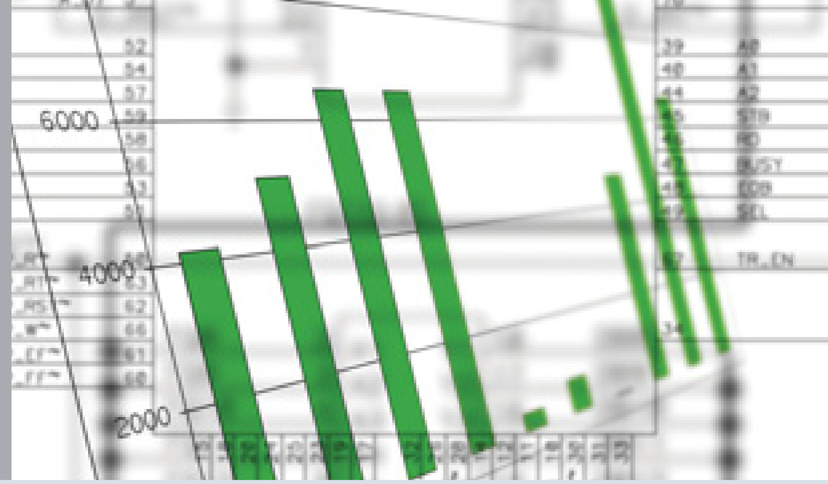
determine economic and regulatory capital and allocate capital to business units



A report showing VaR, expected shortfall, and marginal VaR aggregated by asset type.



A report showing effective duration and contribution to effective duration aggregated by credit rating.



…FOR INTEGRATING ASSETS AND LIABILITIES

Replicated portfolios

Leveraging the solution's full asset coverage and a proven, scenario-based portfolio optimization module, Algo Risk can be used to help determine an optimal proxy portfolio of asset instruments that replicate the characteristics of a given set of scenario-dependent liability cash flows. This replicated portfolio can then be further simulated and stress tested to determine liability capital requirements. Liability cash flows can be imported from any existing actuarial projection system providing consistency and integrated reporting across business lines and geographic borders. In particular, the replicated portfolio technique can be adopted as a computationally efficient method for modeling liabilities in a hedging analysis or economic capital calculation.

Open architecture

In addition to the replicated portfolio approach, there are several other methods for integrating liabilities and assets within Algo Risk. The Risk++ API allows third-party liability models to be linked into the system, and the Open Mark-to-Future API allows third-party liability projection systems to read economic scenarios from the Algo Scenario Engine. Simulation results can then be written out and aggregated with asset simulation results in the risk dashboard.

Economic and regulatory capital

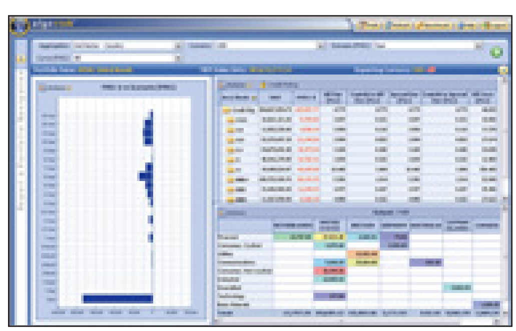
Algo Risk provides access to an integrated view of assets and liabilities, giving a consistent basis for capital calculations. Algo Risk's ERM framework, analytics, and risk reporting dashboard provide a comprehensive infrastructure and tool set to implement economic or regulatory capital models covering underwriting, market risk, and credit risk. In conjunction with risk management strategies, insurance companies can use Algo Risk to develop hedging strategies that can reduce the company's risk profile and lead to lower capital requirements.

Liability-driven investing

Liability cash flows can be imported into Algo Risk and used as a benchmark for evaluating liability-driven investment strategies. Portfolio managers can enter and analyze potential trades against projected liability cash flows, using a host of relative risk measures to help maximize risk-adjusted performance. Alternatively, the Algo Risk optimizer can be used to generate an optimal portfolio that matches the liabilities or minimizes the required capital. Through its support for liability-driven investing, Algo Risk enables decision makers at all levels to share a common view on the effectiveness of investment strategies.

Variable annuities

Algo Risk provides stochastic valuation models for variable annuities with both living and death benefits. The models include dynamic policy lapses and partial withdrawals. In conjunction with economic scenarios from the Algo Scenario Engine, Algo Risk provides stochastic-on-stochastic capabilities for hedging and economic capital calculations. Algo Risk also enables clients to develop a flexible and proprietary risk management framework in accordance with an organization's own methodology for product development, pricing of new product features, hedging and projection, valuation, and attribution reporting.



A report showing key rate durations and PV01 aggregated by country and sector.

About Algorithmics

Algorithmics is the world's leading provider of enterprise risk solutions. Financial organizations from around the world use Algorithmics' software, analytics, and advisory services to help them make risk-aware business decisions, maximize shareholder value, and meet regulatory requirements. Supported by a global team of risk experts based in all major financial centers, Algorithmics offers proven, award-winning solutions for market, credit, and operational risk, as well as collateral and capital management. Algorithmics is a member of the Fitch Group.

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