SimplexPRISM

Capital Market Trading System

A system solution for real time, sophisticated multi product capital market trading and risk management
An Integrated Capital Market Trading Platform
Designed to Support New Products and Advanced Risk Management Functionality

Capital market trading is undoubtedly essential for financial firms to increase their revenues in this ever-expanding global market. While those firms actively trade a high volume of standardized products, as well as to offer complex customized products, it is also imperative for them to accurately monitor and assess risks in a timely manner. Furthermore, they are required to comply with new and increasingly more stringent regulations, typified by the Basel III Accord, involving counterparty risks.

Our flagship capital market trading platform, SimplexPRISM, has been developed to handle our customers' rigorous requirements so they can remain competitive and profitable. SimplexPRISM's flexible, scalable, and expandable architecture allows our customers to adopt new requirements arising on a daily basis in today's quickly evolving capital market trading environment.

Real-time and Mass Processing

Our challenge is to quickly calculate real-time intraday position values and risks of multi product portfolios containing interest rate, FX and credit products. SimplexPRISM’s high-speed grid computing platform and real-time monitoring components are designed to provide solutions to the challenge.

Real-time Monitoring

- Recalculates positions and risks when changes in market data and changes in positions occur
- Supports intuitive monitoring of portfolio with a variety of view options
- Allows limit settings based on threshold on losses, sensitivities and credit lines in a multi-asset way and immediately sends an alert in real time when a violation occurs

Distributed Computing » GPU

- Includes grid computing components, which efficiently distribute the calculation tasks across a grid of GPUs
- Able to further accelerate the speed using GPU with over 500 cores in one board
- The calculating process is carefully optimized by simulating the calculating products which require a lot of simulations by GPU, while the proceeding plain products the bottleneck is within the I/O by CPU

Sophisticated Risk Management

Even though the requirements around counterparty risk measurement have not yet been well-established, the SimplexPRISM platform can be used starting on a small scale and expanded later, or it can be used to deploy a full-fledged integrated risk management system.

Counterparty Risk Management

Wrong Way Risk

- Includes standard models for various asset classes of interest rate, FX, equity and credit
- As for risk scenario generation, simulation method is employed to capture the correlation structure and measure wrong way risk properly

Simulation Analytics

Expected Shortfall

- Measures exposure and loss distributions under CSA contracts
- Expected shortfall is calculated from parametric distributions estimated from loss distributions from historical simulations

Scenario Analysis

- Supports market scenario simulations and What if analyses
- Provides the ability to view changes in risk profile as a function of stressed market environment
- The high-powered calculation platform helps the enormous amount of calculations

Effective Approach

Model Calibration

- Includes analytics module to calibrate model parameters to the market rates/prices
- Employs an intensity-based model for credit analytics with various input items, e.g., bond prices, CDS spreads and rating transition matrix

Building Block Approach

- Designed with a building block concept for the data model
- The concept allows the combinations of financial components and payoff profiles flexibly to define new products

American Monte-carlo (LSM method)

- The LSM method is developed by Professor Longstaff who is our advisor and Professor Schwartz at UCLA. It has become the de facto standard for CVA calculations for portfolios with complex products using multidimensional Monte-Carlo simulations
Track Records

SimplexPRISM holds a proven track record with many deployments at major financial firms. It has satisfied their rigorous user requirements and has been integrated into their existing systems environment with our advanced component-oriented architecture.

As a Mainstream System
- Deployed at a large bank, trading liquid products in FX and money market, as their main trading system for front and middle office
- The pricing library developed by the bank’s internal group has been integrated into SimplexPRISM
- Connected to more than 20 external systems at the headquarter

For Complex Products Handling
- Deployed at a large bank to trade credit derivatives, and interest rate/FX hybrid exotic derivatives
- The bank’s internal model has been integrated into SimplexPRISM
- Installations in Tokyo and in foreign locations with our support service

For Advanced Risk Management
- Deployed at a large trust bank
- Incorporated OIS curve analytics and Tenor spread basis curves
- Added GPUs on the distributed computing platform along with CPUs, and realized high-speed calculation at 30 times faster

Innovations in Financial Technology for Our Customers

Simplex is committed to our customers' success. We strive to improve their competitiveness and business efficiency with a variety of products and services ranging from initial system consultation to source code development all the way through to system maintenance.

We have it all.
- Simplex provides complete system solutions to our customers in all project phases from design, implementation, deployment, to maintenance
- Simplex has over 600 of financial developers, covering all aspects of capital market trading support, working closely with customers

Top-Class Developers
- Simplex has many trained developers with variety of professional skill sets, and is very proud to have top-class financial developers, headed by leading industry figures in financial technology world
- Professor at UCLA, Francis Longstaff, is our advisor

Adaptability
- SimplexPRISM can integrate internal analytics and other modules owned and/or developed by our customers
- Also, SimplexPRISM can be integrated into existing systems
- Furthermore, Simplex can implement customized analytics and modules derived or specified by our customers

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