

Advanced Risk Management Technology for Today



OVERVIEW

Beyondbond created the i-Platform as a comprehensive, unified risk management and trading system. The product was developed over years of refinement, and fully takes advantage of the relational aspects of today's databases. Our goal is to aid financial institutions to improve their profitability through the use of superior financial analytics and advanced network/Internet-based technologies.

FOR TODAY'S RISK MANAGEMENT NEEDS

Today, risk management requires more immediate response, as near to real-time as possible, in order to continuously monitor risk exposures. A state-of-the-art risk management system for fixed income securities that allows for real-time oversight and is accessible from anywhere requires a complete re-engineering of the business practices and its supporting technology architecture. In addition, a consistent method to measure individual desk risk and integrate them across desks becomes more important not only for the control department, but also for the front office, senior managers, and their investors and clients.

Historically, risk management monitored risks fragmented across market, credit, liquidity and operational areas. A traditional risk management system primarily collated and centralized data into a data warehouse. A risk engine then produced a summary of risk statistics with a series of batch-run processes. This kind of system typically produced end-of-day or less frequent basis reports of market Value-at-Risk (VAR), separate credit measures and other industrial relevant risk factors. In addition, the risk management system collected data from separate proprietary trading systems for each trading desk and applies the VAR method of assessing risk across the board to the non-uniform data, producing a less than optimal, end-of-day risk report.

XRA: ADVANCED TECHNOLOGY FOR RISK MANAGEMENT AND ANALYTICS

Our i-platform Extensive Risk Analysis (XRA) module incorporates our proprietary analytic library, which offers a wide range of financial analytical tools for pricing, hedging, and risk management. Because risk management is very data-driven, Beyondbond stores and tracks market and inventory data of individual financial instruments and trade record levels. During the collection process, XRA calculates risk factors, translates the information into the risk management model with statistical analysis, and then publishes a variety of risk reports. This provides an efficient solution at the individual financial instrument, portfolio and enterprise levels.

The screenshot shows the 'Extensive Risk Analysis' window with a menu bar (Action, Portfolio, Edit, View, Tools) and a toolbar. Below the toolbar are tabs for 'AgencyCMO' and 'WholeLoanCMO'. The main area contains a table with columns: On, CUSIP, bondDescription, Face, Coupon, Settle, Prepayment, Targeting, Price, Yield, DM, WAL, modD. The table lists several bonds with their respective details. At the bottom, there are checkboxes for 'Stochastic Analysis' and 'Sensitivity Analysis', a 'Market Emv' dropdown set to 'CURVE3PM', and a 'Market Shift' field. The status bar at the bottom shows 'Trade Date Jun 13, 2003', 'fistarq1:8777 Server Status Ready...', 'Tue, Jul 8, 2003 03:01:12 EDT', and 'Login ted User RR#: 958 Last Login 20030708 02:55:33 EDT'. A 'Powered by Beyondbond' logo is in the bottom right corner.

On	CUSIP	bondDescription	Face	Coupon	Settle	Prepayment	Targeting	Price	Yield	DM	WAL	modD
1	31392PL78	FHL2457 PM	30,125,412	5.400	Jun 17, 2003	1130 PSA	Price	100-12+	3.079	0	0.3	0.25
2	31392UJZ6	FHL2479 PE	95,820,000	6.000	Jun 17, 2003	995 PSA	Price	105-10	3.384	0	2.2	2.02
3	31393HXR8	FHL2552 MD	16,981,895	6.000	Jun 17, 2003	995 PSA	Price	105-15+	3.917	0	2.9	2.59
4	31393MBK2	FHL2580 JK	10,000,000	5.000	Jun 17, 2003	550 PSA	Price	102-13+	4.594	0	6.9	5.65
5	912828AX8	tssy 1.625 20050430 20030430	(7,000,000)	1.625	Jun 13, 2003		Price	100-20	1.287	0	1.9	1.84
6	912828AZ3	tssy 2.625 20080515 20030515	(5,000,000)	2.625	Jun 13, 2003		Price	100-10	2.557	0	4.9	4.58
7	912828BA7	tssy 3.625 20130515 20030515	10,000,000	3.625	Jun 13, 2003		Price	99-10	3.708	0	9.9	8.24
			150,927,306									

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OUR FEATURES OF THE XRA INCLUDE:

- Position tracking ability — **Position Tracker**
 - Daily individual/summary tracking.
 - On-the-fly individual/summary tracking.
- Computation ability — **Analytic Server.**
 - Basic bond calculation based on static analysis.
 - Advanced bond calculation and stochastic analysis.
 - Hedging ratio calculation.
- Analytic and research power — **Scenario Analyzer.**
 - Scenario analysis in individual position level.
 - Scenario analysis in portfolio level.
 - Marginal portfolio analysis to an existing portfolio.
 - Portfolio allocation optimizer.
- Report generating ability — **Report Publisher.**
 - To produce rules that automatically generates custom report from any given data set.
 - To customize data projection based on the combination of filtering, and grouping criteria.
 - To generate graphics and time series plotting.
 - To view general and custom reports through internet.
 - To publish document in format.
 - To exchange data with external clients in XML format.

RANGE OF FINANCIAL INSTRUMENTS

XRA covers an extensive range of fixed income securities and financial instruments. Beyondbond has comprehensive knowledge and access to data for a wide range of debt securities and bonds. To the extent that we do not have expertise or data in certain securities, the Beyondbond team and its partners are capable of customizing the system or providing the Application Protocol Interface (API) to external vendors such as INTEX, Bloomberg, etc to enable risk management oversight of those instruments in a seamless integration method. The range of financial securities includes the following:

- US Treasury Securities
- Corporate Securities
- US Agency Debt Securities
- US Agency Residential Mortgage-Backed Securities
- Residential Whole Loans
- Commercial Mortgage-Backed Securities
- Asset-Backed Securities
- Whole Loans
- Interest Rate Swaps and Derivatives
- Repurchase Agreements

RISK MEASURES

Beyondbond has incorporated a number of analyses and risk measures in its analytics models to be as comprehensive and accurate as possible. The fundamental analysis provides a general market view from the macro-economic aspect. The risk measurement on the other hand provides more precise valuation for specific portfolios or securities and is powerful because XRA allows for real-time access to data and leverages the horizontal (across the product lines) and vertical (from financing, trading, bookkeeping, to risk analysis) integration of various business units.

- **Fundamental Analysis:**
 - Real Estate Study
 - Demographic
 - Geographic
 - Property Type

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- Default Study
- Prepayment Study
- **Technical Analysis**
 - Static Measurements:
 - Price, yield, static spread, total rate of return.
 - Duration, convexity, dollar value of a basis point, yield value of a point.
 - Forward spread for treasury and swap curves.
 - Partial duration for treasury and swap curves
 - Stochastic Measurements:
 - Option adjusted spread (OAS).
 - Implied interest rate volatility.
 - Implied prepayment value.
 - OAS duration, OAS convexity.
 - Volatility duration.
 - OAS re-pricing across scenarios.
 - OAS re-pricing over time.
 - Scenario Analysis
 - Curves level shift
 - Parallel
 - Non-parallel
 - Shocks on specific interest rates
 - Shocks on specific rates with curve interpolation
 - Curve volatility shift
 - Parallel
 - Non-parallel
 - Time shift
 - Assumption shift
 - Prepayment assumption
 - Default assumption
 - Combined scenario
- **Hedging Strategy**
 - Hedge ratio calculation.
 - Historic time series regression study.
 - Value at risk analysis.

CUSTOMIZE TO CLIENT NEEDS

Since risk management information, analytical tools, and investment processes for specific financial services industries vary, we work with our clients to tailor our services to best meet their unique needs.

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