numerix

PolyPaths

FIXED INCOME SYSTEMS

Numerix PolyPaths Suite stands at the forefront of **fixed income portfolio management**, delivering advanced analytical capabilities tailored for the evolving needs of financial professionals. This suite caters to the intricate requirements of various financial professionals within the front and middle office, including traders, hedge fund managers, portfolio managers, risk managers, research analysts, and asset liability managers.

The suite encompasses a robust array of tools for:

- Pre-trade analysis
- Portfolio risk measurement
- Asset liability management (both accounting and non-accounting)
- Hedge analysis
- Value at Risk (VaR)

It provides extensive coverage of all fixed-income instruments, such as bonds, structured notes, mortgages, Mortgage Servicing Rights (MSRs), loans, asset-backed structured products, deposits, and derivatives.

The Numerix PolyPaths Suite is versatile in deployment, offering both on-premise and client-managed cloud instance options. It seamlessly integrates into your existing infrastructure, functioning efficiently as either a file-based system or in conjunction with a relational database.

Product Support

Users can analyze the following financial instruments through PolyPaths:

- Fixed rate pass-through mortgage securities (TBAs, specified pools, and hypothetical instruments with user-specified characteristics)
- Adjustable rate mortgage (ARM) and Hybrid mortgage securities (including Interest Only and Negative Amortization)
- Fixed and floating rate Agency and whole loan collateralized mortgage obligations (CMOs)
- Asset-backed Securities (ABS) such as home equity, credit cards and auto loans
- Student Loan ABS
- Commercial Mortgage Backed Securities (CMBS)
- Mortgage loan portfolios
- Mortgage Interest Rate Lock Commitments (IRLC)
- Treasury, Agency and Corporate bonds, including fixed-rate, floating-rate, or step up coupons, embedded call or put options, and/or sinking funds
- Municipal bonds, trust preferreds, TIPS, CPI-linked notes, and bank loans
- Structured Notes such as callable flips, range notes, prepay-linked notes, Index Amortizing notes, callable capped floaters, and SOFR floating rate notes
- Swaps including interest rate swaps, asset swaps and total return swaps
- Swaptions and cancelable swaps
- Caps and floors
- Eurodollar, Fed Fund, Treasury, Eris, Swap, and SOFR futures
- Options on futures, bonds, mortgages, rate locks and TBAs
- Equity options, Equity ETF Options, and Equity Index Future options
- Credit Default Swaps and Credit Default Swaptions
- Mortgage Servicing Rights (MSR)
- FRAs
- Deposits
- Bloomberg Barclays Aggregate Indices
- non-USD denominated bonds, swaps, caps, floors, futures, options, forwards, CDS, etc.;
- Cross-currency swaps and currency options

Risk measures

Available risk measures within PolyPaths include:

- Static risk measures such as Price, Yield, various cash flow and yield spreads to the Govt, SOFR, and custom funding curves,, as well as modified duration (CF Dur)
- YTC, YTM, YTW and model-projected redemption for callable and putable bonds
- Option-adjusted measures such as OAS, OA duration, and OA convexity
- CDS Credit OAS
- Partial Durations to user-selected key rate buckets along with component durations to measure partial spread, index, and mortgage rate sensitivity
- Inflation and Exchange Rate durations
- Discount margin, Index exposure, and embedded cap and floor values floating-rate securities
- Component durations and key rate durations decompose exposure into impacts due to floating interest, discount rates, and prepayment
- Projected and historical prepayment speed and loss equivalents
- Stress testing and scenario analysis
- Full-valuation or sensitivity-based Value at Risk based on historical market changes and user-selected confidence intervals and time periods
- Performance Attribution to explain P&L movements day over day, month over month
- User-defined duration measures which capture price sensitivity with respect to a customized curve shock
- Forward market values and balance sheet forecasts

Speed & scalability

PolyPaths' Distributed Processing system is designed to handle large scale calculation jobs. The robust parallel processing architecture can support grids with thousands of processors and comes with a web based management console that continuously monitors the status of the entire grid, greatly reducing administrative overhead.

Comprehensive risk and return analytics

The solution employs leading-edge interest rate models for pricing and risk analytics. The wide array of risk and return measures are used daily by active market participants for trading and hedging decisions. The solution can also perform credit analysis with user assumptions or third party credit models. In addition, PolyPaths offers historical return and return attribution analytics for buy-side applications.

Ease of use

PolyPaths offers an intuitive and flexible interactive user interface. Portfolios can be easily constructed, pricing assumptions can be easily entered and reports easily viewed. A batch utility also automates routine risk reporting jobs and simplifies maintenance.

Broad user applications

Whether actively trading or analyzing pre- or post-trade data, the system boosts efficiency, performance and investment results for multiple users across the financial institution including traders, hedge fund managers, portfolio managers, risk managers and research analysts.

Ease of integration

PolyPaths easily integrates the many user supplied models and data found in most trading environments. In addition, outputs from the system can be easily exported and fed into other systems. There are also programming interfaces available to tightly integrate PolyPaths analytics into customers' in house systems.

For more information, contact:
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When numbers matter