



# US-FISA

## Fixed Income Security Analytics

The calculation accuracy and performance of your software systems are critical to both you and your clients, but designing, building, and maintaining components to perform these calculations is costly and complex. The experts at Financial Technology Laboratories created a bond calculation library to address these difficult challenges and bring a tool to market that delivers speed and accuracy as well as superior productivity and ease of use at a reasonable cost.

US Fixed Income Security Analytics (US-FISA) from FTLabs is a software development component for calculating yields, price, duration, convexity, and a broad range of other analytical values for securities that trade in the United States bond markets.

### Features:

- US-FISA supports all US market conventions and complies with Securities and Financial Markets Association (SIFMA) calculation standards.
- New securities and calculation conventions are made available to you as they are introduced in the fixed income market; we keep up with market changes, so you don't have to.
- To use, simply choose your market and security type from the available options and the correct preset conventions and calculation defaults are loaded. Developers need not be bond market experts to produce accurate results.
- Optimized to be thread-safe and have minimal memory overhead for high performance and scalability in a highly concurrent environments.
- An extensive test data suite and test harness allows automated comparison of calculated values with expected benchmark values.
- Use our utility classes to download our market-holiday calendar or use your own custom calendar; download and use public CPI history for calculating inflation-indexed adjustment ratios, or supply your own ratios.
- Test and validate calculation results using our interactive online Bond Calculator, Powered by FISA, for no additional cost. The Bond Calculator allows users to calculate a wide array of results such as price, yield, duration, convexity, yield to maturity, yield to call, yield to worst, cash flows and more for a broad range of US fixed income products.

### Key Benefits:



#### Flexible

US-FISA can eliminate client-server round trips and latency by distributing calculations to the client-side. Or, implement on the server-side for centralized auditing and control.



#### Technology

US-FISA is available in several different code bases including Microsoft .NET – For use with VB, C#, and other .NET compliant programming languages, Java, C++, and API – Amazon AWS Lambda-hosted.

US-FISA was created with logical class structure and design that hides much of the complexity of the bond market from the developers using our components. High-level interfaces can handle most of the commonly required capabilities and results, however access to low-level methods is also available.

Integrate and combine our various language libraries and APIs to calculate matching results across different systems in your enterprise to build your ideal solution.



#### Full Service

At FTLabs, we partner with our clients to provide high-performance workflow automation tools that increase productivity, reliability, and profitability of traders and firms active in the fixed income markets.

Our consultants are seasoned experts in their disciplines with years of knowledge in the fixed technology industry and available to assist with your integration.



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## Fixed Income Security Analytics

US-FISA from FTLabs includes support for the US domestic security classes shown below. Programming language specific versions of US-FISA are available for development in Java, Microsoft .NET, c++, and web API.

The instruments, calculated results, and market conventions supported include:

### Financial Instruments Supported

#### US Treasury Securities

- Treasury Bills
- Treasury Notes
- Treasury Bonds
- Treasury STRIPs
- Treasury Inflation-indexed Securities

#### US Agency Securities

- Agency Bonds
- Agency Fixed Rate Notes
- Agency Discount Notes
- Agency Floating Rate Notes

#### US Corporate Securities

- Corporate Bonds
- Callable Bonds
- Zero Coupon Bonds
- Stepped Coupon Bonds
- Medium-term Notes
- Retail Structured Notes
- Preferred Securities
- Hybrid Preferred Securities
- Perpetual Securities
- Commercial Paper
- Certificates of Deposit (Fixed, Floating, & Term)

#### US Municipal Securities

- Municipal Bonds
- Callable Bonds
- Zero Coupon Bonds
- Stepped Coupon Bonds
- Municipal Notes

#### US Certificates of Deposit

- Fixed Rate
- Floating Rate
- Term

### Calculations & Analytics Supported

#### Pricing Calculations

- Price given yield
- Yield given price
- Price given discount
- Accrued interest

#### Equivalent Yields

- Current yield
- Money-market yield (360 day year)
- Simple yield (365 day year)
- Bond equivalent yield
- Discount rate
- Inflation-adjusted yield

#### Volatility Analytics

- Estimated modified duration
- Estimated Macaulay duration
- Actual modified duration
- Actual Macaulay duration
- Estimated convexity
- Actual convexity
- Price value of 1bp
- Yield value of 1/32nd

### Market Conventions Supported

#### Coupon Periods

- Normal coupon periods
- Short or long first coupon period
- Short or long last coupon period
- Short or long first and last coupon periods
- End-of-month adjustment

#### Interest Frequency

- Monthly
- Quarterly
- Semi-annually
- Annually
- At maturity

#### Daycount Conventions

- 30/360
- ACT/360
- ACT/ACT
- ACT/365

## About Financial Technology Laboratories

Our mission is to provide our clients with high-performance workflow automation tools that increase productivity, reliability, and profitability of traders and firms active in the fixed income markets. Established in 2005, Financial Technology Laboratories, Inc. (FTLabs), has become a leader in financial software development and technology consulting specializing in delivering innovative technology solutions for the fixed income securities market.

FTLabs provides fixed income calculation and analytics software components, system integration software using the Financial Information eXchange (FIX) protocol, fixed income and electronic trading solutions, custom software development, and consulting services to broker-dealers and software vendors in the bond market. We are more than developers and consultants. Our people have been at the forefront of fixed income technology business for more than 20 years. We are the technology experts that understand the bond markets and will take your business to the next level.