Credit Analytics Release Notes

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v1.6 19 July 2012

19 July 2012 (v1.6)

- <u>Separation between CreditProduct and CreditAnalytics</u>: Separation of the functional and behavioral interface provided by CreditProduct, and the actual implementation provided by CreditAnalytics – currently merged onto a single jar.

- <u>Curve Re-factoring</u>: Re-factoring and re-creation of the rates curve, the credit curve, the zero curve, and the FX basis/forward curves, along with their serialization, interface stub exposure, the creation factories, and the regression suite.

- <u>Parameter Re-factoring</u>: Re-factoring and re-creation of the component and the multi-sided quotes, the component and the basket market parameters, the credit/rates/FX scenario curve containers, and the environmental market parameters container, along with their serialization, interface stub exposure, the creation factories, and the regression suite.

- <u>Product re-factoring</u>: Re-factoring and re-creation of the bond, CDS, basket CDS, basket bond, Cash/EDF/IRS products, and the FX Spot/forward contracts, along with their serialization, interface stub exposure, the creation factories, and the regression suite.

- <u>BBG CDS Samples:</u> Replication of the Bloomberg CDSW sample pricing in a specimen – incorporation of the credit/rates curve, as well the CDS product contract details, and emitting of the calculation results.

22 May 2012 (v1.5)

- <u>Regressor Framework</u>: Implementation of the regressor set, tolerance check, curve scenario regressors, regression framework suite, and the eventual regression output.

- <u>Discount Curve Regression</u>: Regressing Base Curve Creation, scenario Curve creation, and calculation of spot/effective implied rates and discount factors.

- Credit Curve Regression: Regressing Base Curve Creation, scenario Curve creation, and calculation of spot/effective implied hazard rates, recoveries, and survival.
- FX Curve Regression: Creation of the basis and forward curves, conversion from one to another, and implying of the basis nodes and the enhanced discount curve on the domestic/foreign discount curves.
- Zero Curve Regression: Creation of the zero curve from the product cash flow nodes, implying of the zero rates and zero discount factors at the relevant nodes.

1 May 2012 (v1.4)

- Supplemental Bond Measures: Implementation of the Yield Spread, the Zero Discount Margin, and the PECS calibration
- Bond Analytics API Update: Documentation/Calculation Update for Yield Spread, Zero Spread, and PECS
- Curve Enhancement and Samples: Enhanced Credit Curve calibration and full suite samples for discount and credit curve creation
- Construction of CDX from Reference Data: Creation of CDX Reference Data series of objects from static reference data
- CDX basket default Swap Analytics API: Suite of API for construction basket default swap objects off of the standard CDX reference data, as well as categorizing them.

23 March 2012 (v1.3)

- Full implementation of the standard CDX contracts – all index varieties, series, tenors, and versions for CDX and iTRAXX
- Comprehensive set of live and EOD detailed valuation and risk calculation samples for the rates, bond, CDS, CDX, and CDO products

- Detailed CDS valuation and calibration measures – segmented into Fair and Market measures.
- Implementation of discount margin and OAS for bonds
- Specifications for the Bond Measure calculation and calibration from different kinds of inputs

22 February 2012 (v1.2)

- Comprehensive coverage for the bond's fair, market, and work-out measures from the set of relevant market parameters
- "Value" calibration: Calibration of any market input parameter via solving for any of the "valued" measure – with specific optimizations added for the calibration process.
- Node Tweaking: CreditAnalytics can now adjust input curves to create an arbitrary set of market scenario curves to build custom scenario valuers.
- Simple APIs now to generate bond market measures for a given EOD.
- Z Spread: Introduced multiple ways of implying – as a yield basis (also now called bond basis), as a discount curve parallel shift, and as a zero rates curve parallel bump.

23 January 2012 (v1.1)

- Introduced support for Bond Basket and Bond ETFs.
- Full support for amortization schedules (including principal pay down schedules).
- FI API enhancement: Yield based analytics calls and simplification of the API calls
- Additional bond fields (next exercise information, previous/current/next coupons/dates)
- Remove dependency on odbc.jar

4 January 2012 (v1.0)

- Added a base serializer class, and incorporated object level serialization for objects transmittable between AnalyticsClient and AnalyticsServer
- Introduced a full-featured serialization test suite.

11 December 2011 - v0.11

- Credit Curve enhanced to calculate time-weighted survival/bumped/recovery factors and hazard rates
- Jzy3D surfaces moved onto a separate package
- Complete set of named scenario credit curves moved into their own container.
- Valuation parameters and work out information moved into their own separate classes
- Separate test Suites for the bond and the credit functionality now available in Bond Test Suite and Functional Test Suite

24 November 2011 - v0.10

- Discount Curve re-factored and enhanced to calculate time-weighted discount factors and rates
- Weekend holidays array gets their own class
- Complete set of named scenario IR curves moved into their own container.
- Treasury benchmark set contains the primary treasury and an array of secondary treasuries.
- Abstractable base component functionality now pushed into the component Class
- Created the FI Sample to provide full interface sample for CreditAnalytics
- Utilities internal to FI packaged into FI General

7 November 2011 - v0.09

- FX Basis class provides the abstractable basis functionality
- 3D contour plots to make a surface "shadow"
- Full set of credit feeds are now set in the Credit Feed class.
- Credit Product Valuation Parameters now moved to a separate class.
- Component specific calibration functionality now moved over to the Calibratable Component Abstract Class
- Analytics Server acts as the CreditAnalytics server to the API Analytics Client.
- Validatable class abstracts out the validation functionality

20 September 2011 - v0.08

- Created a Day Count Basis class to now create the full set of day count measures, accrual fraction, date rolls/adjusts, and holiday checks.
- Abstracted out the holiday base interface from which all the holidays are derived.
- Full set of bond feeds are now set in the Bond Feed class.
- Factor schedule class now holds the factor/notional dates and amounts
- Implementation of the new bond builder class that holds stubs to create custom bonds of various types.
- Introduction of the new API Analytics Client.
- Implementation of CreditAnalytics's DateTime class

28 August 2011 - v0.07

- Created a Component Output class that contains all the component scenario output measures.
- The Component Calibrator calibrates the component's discount/hazard rate from the component's measure, market quote, and the calibration type.
- XML configuration Reader now parses the XML configuration to load the configuration settings.
- Detailed American/European schedules are now held in the Embedded Option Schedule class
- Bond Builder factory class from the full set of bond parameters now occurs in the Bond Product Builder
- Implementation of the Static BA Curves class that provides the container for creating the custom EOD IR and EOD credit curves of all types.
- Internal implementation of the Julian Date class now contains the comprehensive static and instance Julian Date creation and functional methods.

17 August 2011 - v0.06

- Created an FX Curve that holds the FX nodes, points, their types, and the corresponding FX Spot.
- New 3D chart plotter - histogram
- Capturing the basket market parameters onto a separate class
- Currency Pair now captures the FX currency information
- The complete set of bond reference data is now put into its own class, away from the Bond Valuation/Product parameters
- Implementation of the Rates Manager class that provides the container for creating the EOD IR curves of all types.
- All the internal and external utility functions are packed into a new FI Utility class.

30 July 2011 - v0.05

- Added comprehensive date adjustment and roll functionality
- Introduced a separate bootstrapper interface
- Scenario market parameters needed to value baskets are now in a separate class
- Created bond treasury parameters to hold all the treasury benchmarks corresponding to the bond
- Implemented the basket default swap product
- Implementation of the EOD Curves class that provides the container for creating the EOD IR and credit curves.
- Logger class for level based and location specific logging.

13 July 2011 - v0.04

- Another chart plotter class – Multi Color Scatter
- Market Parameters needed to value the component
- Encapsulation of the loss period dates
- Bond periods can be generated now from an elaborate set of generation parameters
- Creation of a new basket product class from which all the basket products can be derived
- Implementation of the Environment Manager class that provides the container for the EOD IR and credit curves.

26 June 2011 - v0.03

- Act/Act Parameters spun off to a separate class
- Market Parameters needed to value the component
- 4D scatter plot includes the ability to plot a 3D surface with the color depth plane

- Notional, notional schedule, and redemption value at maturity get their own class
- Creation of the Bond foundation class from which all other variants are derived
- Implementation of the CDS Manager class that provides the container for the EOD credit curves.

9 June 2011 - v0.03

- Floating holiday parameters onto a new Floating Holiday class
- Introduction of the new Period class from which period of all types are derived
- The Basket Output class now contains all the base and scenario measures for full complete product valuation
- Currency, IR/treasury/EDSF curve names for the bond now in Bond IR Valuation Parameters
- Creation of the Credit Component class from which the Bond, CDS, and the basket default swap classes are derived
- Implementation of the Bond Manager class that provides the container for the bond instances.

22 May 2011 - v0.02b

- Day count string and adjustment rules are now in the Day Count class
- Enhancement of the period class for the floating periods
- All the EOD scenario Credit curves for the specified set of instruments and quotes in Credit Curve Scenario Container
- CUSIP, ISIN, ID, name, and ticker are in Bond Floater Parameters
- Creation of the FI main analytics API class
- Implementation of the Credit Default Swap product

5 May 2011 - v0.02a

- Full date holidays now are in Static Holidays
- Delaunay surface plots now display wire frame charts
- All the EOD scenario IR curves for the specified set of instruments and quotes in IR Curve Scenario Container
- Bond's Rate Index, reset rule, floater spread, and floating day count convention are packed into Bond Floater Parameters
- Creation of the FX Forward class
- Implementation of the Interest Rate Swap product

18 April 2011 - v0.02

- Merged all the coupon period parameters
- Contour 3D surface now displays contour plots
- Created an EOD specific Market Parameters Container to hold all the EOD specific market parameters
- Bond Fixed Period Generation Parameters contain all the bond's period generation parameters.
- Spot rate and date together now form FX Spot
- Implementation of the Euro-dollar product

1 April 2011 - v0.01b

- Fixed Holiday class containing the holiday month/year information
- Bond Output class contains all the bond price/treasury spread measures

- Credit pricing parameters collected into Pricer Parameters
- Trade/Redemption/Quote currencies can now be different from each other for the bond
- Sided, multi-measure component quote
- Implementation of the Cash/money market product

25 March 2011 - v0.01

- First cut of CreditAnalytics fixed income analytics
- Created the location holidays
- Implemented the First Coupon Period
- Separated a new Bond Cash flow termination event class
- Aggregated the Bond Coupon Parameters
- Base Quote Class
- Live Quote to capture ticking quotes