

COMMODITY

Options

- Asian
- Average strike
- Double average
- Deferred strike (forward start)
- Barriers (knock in/out):
 - Single & double
- Binary
 - Single barrier
 - Digital
- Multi-asset
 - Baskets
 - Cliquets
- Chooser
- Compound
- Lookback
- Power & quotient
- Spread
- Vanilla
- Swaps, swaptions
- Variance Swaps
 - Conditional
 - Corridor
 - Capped/floored
- Volatility swaps
- Variance Options
- Forwards/futures

EQUITY

Options

- Asian
- Average strike
- Double average
- Deferred strike (forward start)
- Barriers (knock in/out):
 - Single & double
 - Binary spread
- Binary
 - Single barrier
 - Digital
 - Napoleon
- Multi-asset
 - Baskets
 - Cliquets
- Chooser
- Compound
- Lookback
- Power & quotient
- Spread
- Employee stock options
- Vanilla
- Index
- Portfolio
- Total return swaps
- Forwards/futures
- Variance/volatility swaps
- Warrants

CREDIT

- Asset swaps
- Collateralized Debt Obligation (CDO) & indices
 - CDO Tranches (synthetic & standard)
 - CDO Tranche cash flows
 - CDO Tranche Linked Notes
 - CDS index options
 - CDS on indices
 - First loss CDS and CDO tranches
 - Base correlation mapping
 - Bespoke tranche pricing & risk
 - Calibration of base correlation
- Credit Default Swaps (CDS)
 - Options
 - ISDA CDS
 - Cash flows
 - ABS CDS
- Loan Credit Default Swaps
- Constant Maturity Default Swaps (CMDS)
- Credit Index Basis Adjustments
- Basket CDS
 - Cash flows and options
 - 1st-to-default, nth-to-default, n-out-of-m to default, all-to-default
 - Supports binary payoffs
- Cash flow CDOs
 - Simulate waterfall
 - Notes can have the same or different payment frequencies
- Credit linked notes
 - Fixed or floating
 - Par rates and spreads
- Rating sensitive notes
- Recovery rate swap
- Default probability estimation from
 - Bond yield spreads
 - Swap spreads
 - Equities (using Merton's model)
 - Transition matrices default
- Hazard rate curve
- Credit spread options & forwards
- Total return swaps-user-defined payment schedules on underlying

CONVERTIBLE BONDS

- Functions output fair value, probability of conversion, and full risk statistics
- Coupon step-up/down/rollercoaster
- Amortizing/accreting/odd coupon
- Adjustments for the dilution effect of conversion
- Cash flow tables
- Cash payments on conversion
- Conversion caps
- Convertibles with callable/puttable features
- Fixed or varying exchange ratios
- Implied spread calculations
- Implied volatility calculations
- Repo spread (borrowing cost)
- Soft calls

FIXED INCOME

- Money market instruments
 - Discount securities
 - Interest at maturity
 - Forward rate agreements
- Non-callable bond coverage (fixed rate)
 - Coupon step-up/down/rollercoaster
 - Amortizing/accreting
 - Zero coupon
- Non-callable bond coverage (floating rate)
 - Vanilla & user-defined
 - Amortizing/accreting
 - Compounding or averaging
 - In-arrears
- Callable/Putable bonds
 - Yield to worst
 - Calculate call or put option price
 - Option Adjusted Spread analysis (OAS)
- Bond forwards, futures, & options
- Bond portfolios
 - Credit exposure
 - Credit Value Adjustment
- CMS structures
 - Vanilla & user-defined swaps & bonds
 - Amortizing/accreting
- Jurisdictional specific bonds
 - Fixed or floating structures
 - 35 countries
- Government and corporate bonds
- Term structure models
- Credit spread analysis
- Repos
- Brazilian coverage—including amortizing FRNs
- Credit contingent interest rate swap
- Cheapest-To-Deliver bond futures analysis
- Flexible FRNs
- Treasury lock
- Trigger swap - Permanent & Periodic

VALUE-AT-RISK

- Calculate component VaR
- Calculate linear VaR from mapped cash flows
- Calculate volatility and correlation matrices
- Map cash flows to pre-defined risk points
- Rebase volatility and correlation data to a different currency

FOREIGN EXCHANGE

Options

Asian
Average strike
Double average
Deferred strike (forward start)
Barriers (knock in/out):

- Single & double

Binary

- Binary spread
- Digital
- Single barrier

Multi-asset

- Baskets
- Cliquets
- Napoleon

Vanilla
Lookback
Spread
Variance Swaps

- Conditional
- Corridor
- Capped/floored

Volatility swaps
Variance Options

INFLATION

Cash flow generation
Generic inflation bond functions
Inflation curves
Inflation swaps: year-on-year, zero coupon
Inflation indexed bonds: Australia, Brazil, Canada, France, Germany, Italy, Japan, South Africa, Sweden, UK, USA
Par rates

CURVE BUILDING METHODS

Swap curves
Bond
SIFMA
OIS

MORTGAGE-BACKED SECURITIES

Accrual bonds
CMOs
Fixed-rate passthroughs or pools
Implied prepayment speed given price and yield/
z-spread
IO/PO bonds

MORTGAGE-BACKED SECURITIES *Cont.*

PAC bonds & companion PACs
Prepayment analysis
Prepayment utilities
Price given yield/z-spread and prepayment vector
Pro-rata bonds
Sequential bonds
Spread analysis
TAC bonds & companion TACs
Utilities for creating prepayment vectors (PSA, ABS, CPR <-> SMM)
Yield analysis
Yield/z-spread given price and prepayment vector

INTEREST RATE

Accrual swaps
Asset swaps—vanilla & cross-currency
Caps/Floors

- Vanilla
- Digital
- CMS spread
- Averaging
- User-defined

Swaps

- Vanilla/amortizing swaps, swaptions
- Percentage of LIBOR swaps, swaptions
- In-arrears swaps
- OIS/EONIA swaps
- Basis swaps, swaptions
- Zero coupon swaps
- Credit Contingent Interest Rate Swaps
- Credit Exposure
- Credit Value Adjustment (CVA)

Swaption styles

- European

Brazilian swaps
Forward Rate Notes (FRNs)
Capped floater swaps (call/put)
CMS/CMT swaps, swaptions
Term structure models
Inverse floater swaps (call/put)
Compounding swaps
Par swap analysis
Term structure calibration
Variance and volatility swaps
Volatility bootstrapping (caps and floors)

UTILITIES

Date generation/adjustment/flexible weekend DEF
IMM date compliance/upfront payments for CDS

- Greeks & risk sensitivities
- Implied volatility
- Credit loss distribution calculations
- DV01

Interpolation
Implied calculations

- Volatility, strike, rates, etc.
- Goal seek on any parameter

Risk measures: Greeks
Cash flow functions & calculations
Ability to:

- implement single rates or curves
- take in discreet dividends or yield

Graph the volatility surface (smile, skew)
Dividend to yield conversion
Conversion factors
Yield to maturity
Discount margin
Volatility bootstrapping (caps/floors)
Base correlation mapping
Command Line Licensing
TableMergeSortDelete
_ix functions
Holiday List data
Nested error validation

MUNICIPAL

Basis swaps (eg. SIFMA vs. LIBOR)
SIFMA swap curves (using swap rates or basis factors)
Caps/floors with averaging features (SIFMA Caps)
Cash flow calculations
Fixed vs. floating swaps (eg. SIFMA vs. Fixed)
Percentage of LIBOR swaps
Serial bond pools
Serial callable bond pools
Swaptions
Variable rate debt
Amortizing Municipal Swaps