

F3

FINCAD

Advanced Analytics

F3 supports the full range of risk metrics in common use today for comprehensive coverage of risk calculations, with no constraint on portfolio constituents. These metrics include, but are not limited to, the items listed below.

Since F3 gives you the ability to represent the terms of any deal, instrument coverage is virtually unlimited.

F3 Advanced Analytics

Price any Trade

- Vanilla or exotic
- Handle new trade types on-the-fly (no need to recompile)
- Re-usable market data and model calibrations, automatically invoked

Automatic First-Order Risk

- Sensitivity of price to all market data guaranteed (built into architecture)
- Sensitivities to market data available even if model calibration is required
- Uses Universal Algorithmic Differentiation™ (fast, robust) not bumping
- Hedge factors
- DV01

Generic CVA

- CVA/DVA for all trade types
- Calculated at trade or level
- IAS 39, FAS 157, and ASC 820 analytics
- Unilateral and bilateral CVA
- Marginal CVA; incremental CVA
- Collateral agreements

Generic VaR

- Historical or MC VaR for all trade types
- UCITs IV compliant calculation
- Intuitive and robust MC VaR calculation
- Unlimited VaR paths and distributions

Scenario Analysis

- Historical, Monte Carlo, and user-created scenarios
- Analysis of resulting distribution (percentiles, mean, etc.)

P&L and Performance Attribution

- For vanilla and exotic portfolios
- Transaction-level analysis

Pricing Models and Algorithms

For Assets

- Black-Scholes (Lognormal) Model
- CEV Model
- Shifted Lognormal Model
- Normal Model (Bachelier)
- Heston Model
- SABR Model

- Vol surface construction (FX, EQ)
- Local Stochastic Volatility Model
- Dupire Local Volatility Model
- Merton Jump Diffusion Model
- Bates Model
- Variance-gamma Model
- Double Exponential Jump Diffusion Model
- Diffusion-extended CGMY Model

For Rates

- Black Model (rates)
- Single and Multifactor Hull-White (HW)
- Libor Market Model (LMM/BGM)
- SABR Model (rates)
- LMM Calibration - cascade; parametric
- Swaption volatility cube construction

Technologies

- Multiple calculation methods (independent of Model)
 - Closed Form
 - Monte Carlo
 - Backwards evolution (induction) for price processes
 - Characteristic function/FFT
- Meta-model design; asset-specific models applied automatically
- Generic calibration engine
- Generic payoff replication technology

- Generic early exercise
- Multi-rate curve building
- Ubiquitous time-dependency
- Hybrid modeling: price and/or rate processes
- Automatic Numeraire Corrections

Sample Instruments

Fixed Income

- Fixed rate (Coupon step-up/step-down, compounding, averaging, in-arrears)
- Floating rate notes (FRNs)
- Discount bonds
- Sovereign and sovereign guarantee
- Repos
- Money markets (FRAs, discount securities, interest at maturity)
- Domestic (government, agency)
- Sovereign owned/support
- State and municipal
- Local (government, authority)
- Supranational
- Insured
- Major G8 fixed coupon bonds
- Eurobonds
- Convertible bonds

Rates

- Vanilla interest rate swap
- Basis swap
- OIS instruments
- Constant maturity swaps
- Caps and Floors
- Inflation Bonds and Derivatives
- Swaptions (Bermudan, European)
- Index Swap
- Range Accrual Swap
- CMS Instruments
- Amortizing/accreting swaps
- Cross-Currency Interest Rate Swap
- Asset Swap

FX/Equities/Commodities

- Forwards and futures
- Equity linked swap
- FX swap
- Commodity swap
- Variance and volatility swap
- European option
- American option
- Bermudan option
- Averaging (arithmetic, geometric)
- Asian (underlying, strike)
- Barriers (knock-in/out, single, double, partial windows, soft, etc)

- Digitals (single and double barrier, no touch)
- Best of and Worst of
- Choosers (vanilla and exotic)
- Lookbacks (strike, fixed strike, or range)
- Cliquets (global and local)
- Quantos
- Compound
- Forward starting
- Multi-currency basket
- Commodity futures basket
- Accumulators

Credit

- Credit default swap (CDS)
- Constant maturity CDS
- Credit linked notes
- Options on CDS indices
- Credit default swaption
- Total return swap
- CDS indices
- Asset swap

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