

Factsheet - Fusion Sophis

Equity and equity derivatives

Modern derivatives trading desks need a single solution that delivers an integrated approach to the complex challenges they face regarding trading, risk management and trade processing

Fusion Sophis provides industry-leading portfolio management and risk management for equity and equity derivatives trading.

With a strong focus on complex derivatives and structured products, Fusion Sophis offers cutting-edge solutions to investment banks and other corporate organizations.

The last decade has seen sell-side equities suffer due to post-financial crisis declines in volatility and ongoing implementation of US and European regulatory regimes. This has led to the delicate balancing act of the need for systems flexibility and transparency and the requirements for operational stability, meeting regulatory requirements and integrated risk management. To help firms satisfy this requirement, Fusion Sophis provides a single solution that delivers functional security inventory management, collateral management, secured funding, basket lending, taxation management and term security finance. In addition, the P&L and risk management features are fully integrated with Sophis derivatives modules and, in particular, Delta One products.

Key benefits

- The most comprehensive coverage of equity derivative products.
- A full set of pricing models developed and maintained by Sophis dedicated quantitative team.
- Cross-asset capability to build the most complex structured and hybrid products.
- Fully integrated front-to-back-office application (OTC and listed securities) for seamless trade processing.
- Flexible and customizable module: rapid time to market using the C++/C# API-Toolkit, which enables the creation and integration of new instruments, risk scenarios and proprietary pricing.
- More than 20 years' experience working with industry leaders who trade equity and equity derivatives.

Coverage

Investment banking



Structuring

Market making

Arbitrage

Proprietary trading



Equity finance



Synthetic Prime Brokerage

Product coverage

Covering a broad range of products and markets, our solution delivers a comprehensive view of your trading books



Functionality for traders / quants risks / operations

- Real-time and custom market data.
- User-friendly and flexible trade entry.
- Real-time position keeping, P&L and risk indicators monitoring.
- Model calibration and pricing blotters.
- Exposure monitoring: break down by equity, index, and sector.
- Hedging tool: (D, G) Greeks, equity, IR, Forex and CD.
- Risk management: Risk limits, risk matrix, bucketing and stress tests, VaR.
- P&L monitoring: variation and attribution by effect.
- Entire front-to-back trade processing.
- Customizable workflow for all securities, listed, OTC products.
- Corporate actions processing: dividend split, merger, demerger, etc.
- Automatic tickets: cash flow, expiry, fixing, etc.
- Data consistency: real-time monitoring, alerts.

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Pricing models

- Deterministic for futures and swaps.
- Black & Scholes, Cox.
- Explicit PDE with Black & Scholes / local volatility model.
- Monte Carlo with Black & Scholes / local volatility / Heston for multi underlying & path dependent structures.
- Carr & Madan, Friz-Gatheral, Heston volatility with Gauss-Lobatto scheme.
- Regime switching jump-diffusion, Tsiveriotis & Fernandes.



Market data management

The forward price of a share is calculated based on the share's current spot price, interest rate, dividend rate and repo rate

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Interest rate curve

 OIS discounting and joint calibration from money-market, IRS, OIS, FRA/Future, basis swap and more.

• Real-time and EOD calibration of interest rate curves from data provider feeds (e.g. Reuters, Bloomberg).

- Minimum maintenance of curves with automatic futures roll.
- Multi curve framework, automatic or user defined market data assignment rules on the discount curve or forward curve by product type or specific criteria.
- Support of negative rates.

Dividend

- Dividend types: cash (ordinary), tax credit, optional, special dividend (which are not used to forecast future dividends), cyclical dividend.
- Dividend value can be expressed by absolute value, continuous dividend in %, progression rate over the absolute cash dividend.
- The dividend models used for the pricing of equity forward can be assigned to a product type or on a specific criterion of instrument, three models are proposed:
- Roll: Last dividends over a period of one year are repeated with an annual frequency.
- Proportional: Future dividends are calculated based on a proportion of the forward price.
- Mixed: mix of the "roll" and "proportional", the ratio of proportional dividends increases linearly with time from zero to one between"start date" and "end date".



Repo curve

- Linear interpolation of repo curve.
- User defined time basis (e.g. ACT/365)
 and computation mode (e.g. linear) for re-
- and computation mode (e.g. linear) for repo factor computation.

Volatility

- Intra day implied parametric volatilities calibrated from real-time data feeds: Hyperbolic, parabolic, Gatheral stochastic volatility implied, along with toolkit customization.
- Consistent volatility management across indices and underlying components.
- Volatility interpolation and extrapolation models (bi-linear, cubic spline) as well as market conventions (moneyness - spot/forward, day count conventions) can be defined globally or on each equity level.
- The cash dividend is considered in the time interpolation of the volatility surface.
- Ability to use different volatility sets for different users.

Correlation



 Cross-asset hybrid time-dependent correlations (Equity, FX, IR, etc.).

Risk management

- Breakdown and aggregation of classical risk analytics: delta, gamma, vega, weighted vega, DV01, epsilon or repo sensitivity by currency, by strike bucket, by maturity buckets.
- Other risk indicators available: theta, vanna, volga, dVegadTime, speed, zomma.
- Split of index risk into component risk.
- · Stress test with volatility transformations.
- Parametric, historical and Monte Carlo VaR with shocks on historical or implied volatilities.
- Grid computing capability.
- Calculation Server:
- Distribution capabilities.
- Openness to external grid solutions.

Front to back position keeping

- Real-time portfolio aggregating all positions: position keeping, hedging and PnL calculation with marked-to-market and theoretical prices.
- Distributed computations of the portfolio with risk analysis and real-time P&L breakdown: unrealized, realized, accrued, cash income.
- P&L attribution: Real-time & End-of-Day, spot effect, dividend effect,
 FX effect, volatility effect (with ATM and smile decomposition).
- Backdating capabilities for time-series analysis and reporting purposes.
- Easy drill-down of the portfolio with on-the-fly aggregated reports by equity, FX, maturity, counterparty, underlying.
- Back office.
- Confirmation and payment messages.
- Settlement instructions.
- Accounting, nostro management.

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Basket Telecom	Instrument type	Number of securities	Last	Theoretical	Result	Delta curr. global	Gamma curr. g
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P BRITISH TELECOM	Shares	-1,576	2.30000	-	211	-514	
Call BktTelecom 6	Stock Derivatives	1,000		0.87145	421	6,736	
BRITISH TELEC	Shares	-1,576	2.30000		0	-7,250	
→ DEUTSCHE TELEK	Shares	-315	11.20000		281	-372	
Call BktTelecom 6	Stock Derivatives	1,000		0.87145	421	4,920	
DEUTSCHE TEL	Shares	-315	11.20000			-5,292	
TRANCE TELECOM	Shares	-315	22.05000		281	-732	
Call BktTelecom 6	Stock Derivatives	1,000		0.87145	421	9,687	
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Graphical user interface

About Finastra

Finastra is building an open platform that accelerates collaboration and innovation in financial services, creating better experiences for people, businesses and communities. Supported by the broadest and deepest portfolio of financial services software, Finastra delivers this vitally important technology to financial institutions of all sizes across the globe, including 90 of the world's top 100 banks. Our open architecture approach brings together a number of partners and innovators. Together we are leading the way in which applications are written, deployed and consumed in financial services to evolve with the changing needs of customers. Learn more at **finastra.com**

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Corporate Headquarters

4 Kingdom Street Paddington London W2 6BD United Kingdom T: +44 20 3320 5000



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