



exchange data international

Options Analytics Service

V. 2.0



Helping the global financial community make informed decisions through the provision of fast, accurate, timely and affordable reference data services

With more than 20 years of experience, we offer comprehensive and complete securities reference data for equities and fixed income instruments around the globe.

Our customers can rely on our successful track record to efficiently deliver high quality data sets including:

- Worldwide Corporate Actions
- Worldwide Fixed Income
- Security Reference File
- Worldwide End-of-Day Prices

Exchange Data International has recently expanded its data coverage to include economic data. Currently it has three products:

- African Economic Data www.africadata.com
- Economic Indicator Service (EIS)
- Global Economic Data

Our professional sales, support and data/research teams deliver the lowest cost of ownership whilst at the same time being the most responsive to client requests.

As a result of our on-going commitment to providing cost effective and innovative data solutions, whilst at the same time ensuring the highest standards, we have been awarded the internationally recognized symbol of quality ISO 9001.

Headquartered in United Kingdom, we have staff in Canada, India, Morocco, South Africa and United States.



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Introduction to Options Analytics Service

The Options Analytics Service uses daily updates and historical data to provide end-of-day analytics and reference data for U.S and international exchange-listed options on equities, exchanged traded funds (ETFs), equity indexes, and futures. The service can be used to run back tests simulation of trading strategies, generate risk and regulatory reports on portfolios of options and underlying securities, perform in depth analysis of options positions. Accounting firms can also use the service to calculate the amount of dividend equivalent payment and delta test for the IRS Section 871(m).

Coverage and End-of-Day Pricing

- Coverage: Over 10 million options and futures contracts and 10,000 issuers
- Options: Pricing for U.S and international exchange-listed equity, ETFs, index, and futures options.
- End-of-day composite pricing includes open, high, low, close, volume and open interest. NBBO bid/ask quotes are snapped at the close of the market.
- Underlying: Pricing for equities, ETFs, indexes, and futures with exchange- listed options. End-of-day composite pricing includes open, high, low, close, and volume. Composite bid/ask quotes are snapped at the close of the market.

Options Analytics

End-of-day Options Sensitivities (Greeks)

- Delta: Sensitivity of options price with respect to underlying price.
- Gamma: Sensitivity of options Delta with respect to underlying price.
- Vega: Sensitivity of options price with respect to implied volatility.
- Theta: Sensitivity of options price with respect to time (per day).
- Rho: Sensitivity of options price with respect to interest rate.
- Vanna: Sensitivity of options Delta with respect to implied volatility.
- Volga: Sensitivity of options Vega with respect to implied volatility.
- Speed (gamma of gamma): Sensitivity of options Gamma with respect to underlying price.
- Lambda: Relative change in options price over relative change in underlying price.

End-of-day Implied Volatilities and Interpolated Volatility Surfaces

- Listed surfaces by contract: expiry, strike, and put/call
- Closing mid implied volatilities
- Price-Relative (moneyness) Surfaces: Strike relative to underlying price (100 = at the money)
- Delta-Relative Surfaces: Call-equivalent delta (50 = at the money)
- Expiries and Constant Maturity Surfaces from 1 week up to 2 year

Historical Volatilities

- Time series periods from 10 days up to 180 days
- Close to Close historical volatilities time series
- Open-High-Low-Close historical volatilities time series, which take into account the underlying opening price jumps and drift.

Options Pricing Model

- Industry Standard Partial Differential Equations (PDE) Model for European and American Options.
- Term structure of interest rates calculated from US Treasury bond prices.
- Future dividends and stock-borrow rates (together known as “cost of carry”) are implied from put and call options prices.

Reference Data

- Options contract reference data including contract identifier, options type (put or call), expiration date, strike price, exercise style (American or European), and contract size.
- Underlying security reference data including security identifier, ticker, issuer name, security type (equity, ETF, Index, Futures)
- Historical discrete dividends including ex dates and dividend amounts
- Corporate actions for options and underlying equities
- Options contract history (including underlying security, deliverable units, strike multipliers) are retained when a corporate action results in an options contract adjustment
- A unique identifier is assigned to each security and remains unchanged through contract adjustments and corporate actions such as stock splits and ticker/name changes.

The Options Analytics Service's Implied Dividend Yield and Implied Borrow Rate

In addition to implied volatilities and Greeks, the Options Analytics Service also provides implied dividend yields and implied borrow rates derived from US and International exchange-listed options on stocks, ETFs, and equity indexes.

Key Features

- For each options expiry, the implied dividend yields and implied borrow rates are derived so as to satisfy put-call parity for European-Style options or maintain consistent implied volatility surfaces for American-Style options.
- Time-series of constant maturity implied dividend and borrow curves are available for maturities spanning 30, 90, 180, 360 days or longer into the future.
- Term structure of implied forward prices calculated using the implied dividend yields and borrow rates are available.

Key Benefits

- Based on extensive coverage of US and International markets of exchange-listed options on stocks, ETFs, and equity indexes.
- End-of-day and historical time-series available.
- Security master that includes discrete dividend data and updates for corporate actions are used to support the calculations.

Applications

- Custodian banks and asset managers can use the implied borrow curves to manage risk, make informed decisions on how to manage their equity financing costs.
- Long term traders and securities financing desks can use the implied borrow curves to determine what financing rates look like 30, 90, 180, 360 days or longer into the future.
- Hedge funds can use the implied dividend and borrow curves create and backtest alpha generating trading strategies.

Full Options Analytics File Specification

Field	Data Type	Description
Market Close Date	DATE	Market Close Date (YYYYMMDD)
Contract Name	VARCHAR[32]	OCC Options Contract Symbol
Contract Code	VARCHAR[32]	Internal Contract Symbol
Root Symbol	VARCHAR[16]	Options Root Symbol
Ticker Symbol	VARCHAR[16]	Underlying Ticker Symbol
Issuer Name	TEXT	Underlying Issuer Name
Underlying ISIN	VARCHAR[12]	ISIN of underlying security
Security Type	VARCHAR[32]	Underlying Security Type (e.g. Equity, Index, ETF, Futures)
Currency	VARCHAR[3]	Currency
Country	VARCHAR[2]	Country of Registration
Exchange Name	TEXT	Name of the Exchange where options trade
Exchange Code	VARCHAR[16]	Code of the Exchange where options trade
PutCall Indicator	VARCHAR[1]	"C" for call and "P" for put
Exercise Style	VARCHAR[1]	"A" for American and "E" for European
Contract Size	INTEGER	Contract size
Expiration Date	DATE	Options Expiration Date (YYYYMMDD)
Days To Expiration	INTEGER	Number of days from market close date to option expiration
Underlying Price	FLOAT	Underlying Price
Forward Price	FLOAT	Forward Price
Strike	FLOAT	Options Strike Price
Moneyness	FLOAT	Options Moneyness defined as the Strike divided by the Forward Price
Bid	FLOAT	Option Bid Price
Ask	FLOAT	Option Ask Price
Mid	FLOAT	Option Mid Price
Mark	FLOAT	Option Mark Price: EOD mark to market calculated to generate consistent implied volatility and greeks
Implied Vol	FLOAT	Implied volatility in percent
Spot Rate	FLOAT	Interest rate in percent use in the calculations
Carry Rate	FLOAT	Annualized Cost of Carry in percent for the a given expiration date: For an equity index it represents the index implied dividend. For a single name equity or ETF it represents the borrow rate
Delta	FLOAT	Delta measures the rate of change of the theoretical option value with respect to changes in the underlying asset's price.
Gamma	FLOAT	Gamma measures the rate of change in the delta with respect to changes in the underlying price.

Vega	FLOAT	Vega measures sensitivity to volatility. Vega is the derivative of the option value with respect to the volatility of the underlying asset.
Theta	FLOAT	Theta measures the sensitivity of the value of the derivative to the passage of time. It is the amount of money per share of the underlying that the option loses in one day.
Rho	FLOAT	Rho measures sensitivity to the interest rate: it is the derivative of the option value with respect to the risk free interest rate.
Lambda	FLOAT	Lambda (or elasticity) is the percentage change in option value per percentage change in the underlying price, a measure of leverage, sometimes called gearing.
Vanna	FLOAT	Vanna is a second order derivative of the option value, once to the underlying spot price and once to volatility.
Volga	FLOAT	Volga (vomma) is the second derivative of the option value with respect to the volatility or the rate of change to vega as volatility changes.
Speed	FLOAT	Speed measures the rate of change in gamma with respect to changes in the underlying price. This is also sometimes referred to as the gamma of the gamma.
Charm	FLOAT	Charm (delta decay) measures the rate of change of delta over the passage of time. It is the delta decay per day.
Color	FLOAT	Color (gamma decay) measures the rate of change of gamma over the passage of time. It is the change in gamma per day.
Zomma	FLOAT	Zomma measures the rate of change of gamma with respect to changes in volatility.
Veta	FLOAT	Veta measures the rate of change in the vega with respect to the passage of time. It is the change in vega per day.
Ultima	FLOAT	Ultima measures the sensitivity of the option volga with respect to change in volatility.

Delta File Specification

Field	Description
Underlying ISIN	ISIN of underlying security
Underlying Security Type	Equity, Index, ETF, Futures
Underlying Ticker Symbol	e.g. AAPL (stock), SPX (index), ZG(futures), SPY (ETF)
Issuer Name	Underlying issuer name
EDI Series Code	e.g. XCBOA10C2017012027.5
Exchange Contract Code	e.g. A17AKC027500
Exchange Name	ICE Futures U.S.
Currency	Listed currency (e.g. USD)
Call Put Indicator	"C" for call and "P" for put
Expiration Date	contract expiration date
Strike	contract exercise price
Exercise Style	"A" for American and "E" for European
Contract Size	Contract size
Date	Pricing date
Option Price	Options mark price
Underlying Price	Underlying close price
Delta	Option delta

Customisation

EDI is proud to offer the most effective and efficient solutions tailored to meet each individual customer's needs.

We offer a range of customisation options including:

- Delivery-based solutions to complement existing client infrastructure.
- Content provided at the geographical or portfolio holding level.
- Feeds containing particular formats, field content and integrated client level data items.

EDI uses its extensive data research expertise to source, scrub and integrate new client specified data items with existing products and services. For instance, a request from a multinational investment bank to source the DR universe and map it against its underlying share portfolio ultimately led to the development of EDI's successful Depository Receipt Database.

In addition, EDI was the first vendor to successfully launch an ISO 15022 Corporate Action Messaging feed. This enables customers to reduce costs and increase efficiency by removing the need for multiple feed handlers.

Support

Customer Support

Monday – Friday

Open 24 hours

Saturday

12AM - 8AM (GMT)

Sunday

11PM-12AM(GMT)

Call +44 207 324 0020

Email: support@exchange-data.com

Customer support is closed Christmas and New Year's Day.

We aim to acknowledge all queries within an hour of receipt and answer queries within 24 hours where possible.

We will send a progress report if a query is not resolved within that time-frame. We resolve around 95% of customer queries within 24 hours.

All queries sent to our Support department are filtered and dispatched to the relevant department. An IT staff member is engaged in the communication process to resolve complicated technical issues.

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