OptionX
Currency hedging app
for the Bloomberg App Portal

User Guide

Version 1.3.0.55

OptionX

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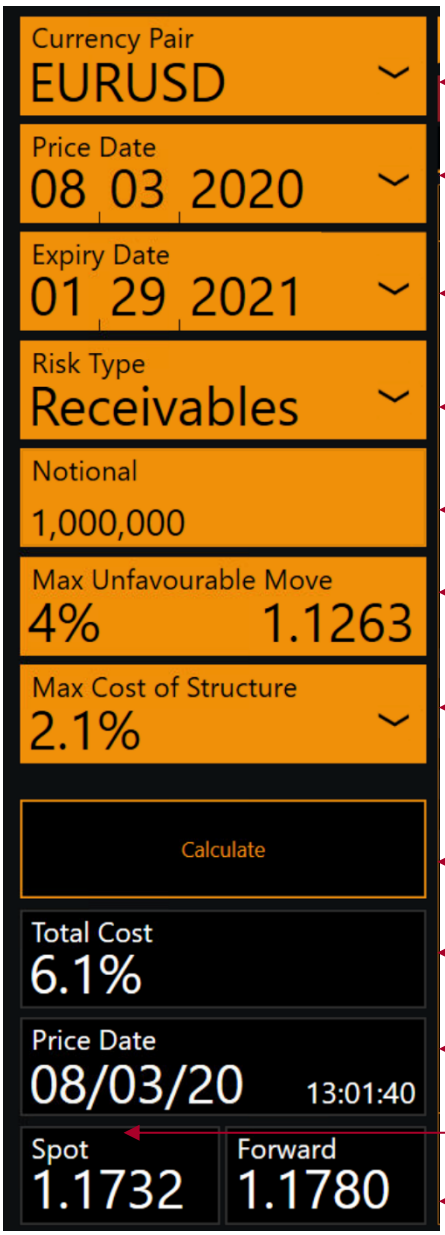
User Guide

Get started with the OptionX Search

Get started by the yellow search fields to create and compare different strategies based on user parameters.



1. Type in or choose from the list a currency pair to be analyzed.
2. By default, **Price Date** is set to be the current date. For a past date, select from the calendar or enter directly a historical date.*
3. Select from the calendar or enter directly an **Expiry Date**. The maximum length is 18 months and minimum 1 week from the Price Date.*
4. Choose between **Receivables** or **Payables** (this refers to the fixed, left-hand side of the currency pair)
5. Enter the **Notional Amount** in your base currency.
6. Type percentage or choose from the list the **Maximum unfavorable move** that you are willing to accept. This field is pre-populated by a suggested rate and can be overridden by entering directly a new rate or choosing from the list.
7. Type percentage in or choose from the list **Maximum Cost of Structure** that you are willing to incur for the hedging structure. Leaving this field blank will run the query with no Maximum Cost limitations.
8. Press **Calculate** to run the query.
10. Shows the **Total Cost** of the hedging structure (**Max Adverse Currency Move** + **Max Cost of Structure**)
11. Displays the **Date** and **Time** at the time of the query.
12. Displays the current **Spot Rate.** For historical queries, the end-of-day rate is shown.
13. Displays the current **Forward Rate.** For historical queries, end-of-day rate is calculated.

***Notes on date selection**

The Price Date is required by the app to run a query. If the user skips the Price Date by tabbing or by clicking elsewhere, the app automatically populates it with todays date for user convenience. The Expiry Date, on the other hand, is not pre-populated by any date range is remains blank for the user to select.

The app populates the current date as a pricing date by default, unless the user overrides it with a past, historical date. This particular Pricing Date functionality has been designed to largely mimic Bloombger's OVML Pricing Date function, which also takes the current date as a default date. Once the user enters a past Pricing Date, this is not automatically flipped back to current date unless the date is again deleted.

The Price Date excludes weekends as pricing or expiry dates and by default the calendar is configured to select the first available trading day.

Ranking

Under the Ranking tab, all strategies that are generated in the Strategies section are rank ordered according to the chosen AI. All in all, there are 5 AI algorithms.

1 **Query:** The main query board that will be used in generating the strategies that will be rank ordered.

2 AI Ranking

Strategies are ranked in accordance to the chosen AIs. Ranking is shown as such that the left-most strategy is the highest ranked under the respective AIs.

3 Recommended Strategy

The type of an option structure being displayed. This is marked as Forward outright in the case the strategy is a Forward.

4 Levels

Long leg of the option structure is marked in green flag and short leg in red flag and plotted along the bar of strike levels. Spot and forward rates are also marked with lines.

5 Options Board

See Page 6 for details. The relevant information for each structure from the Options Board is displayed here.

6 Data Table

Premium cost:	Aggregate option premium cost for the structure
Total Cost:	Total costs, including distance to protection rate
Structure:	Strategy Type
Currency Pair:	Risk Asset
Hedge Score:	Overall hedging score value
Metrics:	Internal analytics
Spot @ Expiry:	For historical queries, spot prevailing at expiry
Profit and Loss:	For historical queries, resulting P&L amount.

7 Order modules

Both the strike levels, as well as the variable currency pip prices of the pertinent option structures are shown here.

8 RFQ

Currently Request-for-Quote functionality is under development and no quotes can yet directly be requested.

Strategies

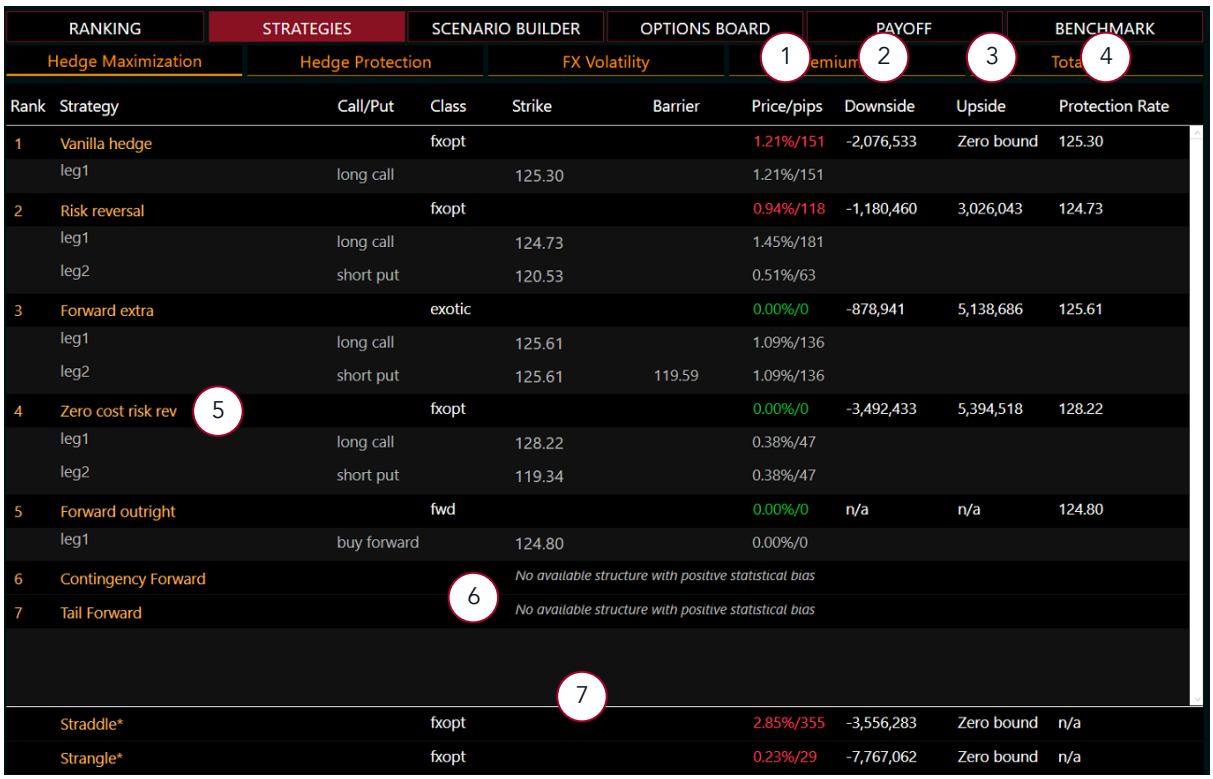
The OptionX calculates up to 8 different strategies based on the user's chosen risk parameters. For each structure, the app displays - in white text - the aggregated Downside, Upside and Payoff amounts, as well the expected protection rates for the overall structure. Downside and Upside are expressed in variable currency units and calculated from the **Notional Amount**.

1. **Price/pips** column indicates the aggregated cost of the strategy, displayed in both currency percentage and variable pip units. Numbers in red signify net premium costs, while numbers in green imply a zero or a net positive premium.

2. **Downside** is calculated as the distance between the spot rate at the time of calculation and the protection rate, multiplied by the notional value +/- the net cost of the hedging structure. If the downside is marked as "Zero-bound" this indicates the theoretical risk being limited to the currency pair falling to zero. "Unlimited downside", in turn, pertains to a theoretical scope of unlimited losses.

3. **Upside** is calculated as the distance between the current spot rate and short option leg strike level, if one is used in the hedging structure* "Unlimited upside" indicates a theoretically infinite scope of appreciation and hence gains for the hedger.

4. **Protection Rate** represents the protection rate of the entire hedging structure. If there is no relevant protection rate, such as under the non-hedging structures of Strangle and Straddle, n/a will be displayed instead.



5. Expand a strategy to view the relevant option in a leg-by-leg breakdown, detailing the direction of each option contract, strike level, per-contract costs as well barrier levels, if any apply.

6. A strategy displaying "No available structures with positive statistical bias" indicates there being no matching optimal hedging structures that fit the chosen risk parameters.

7. Non-hedging structures can be viewed by clicking the bottom pane.

*Under the Forward Extra structure, the Upside calculation is done using the barrier level of the short option leg.

Scenario Builder

Scenario Builder allows a simulation of alternate spot-at-expiry scenario. In addition to the spot-at-expiry equaling the forward rate from the time of the query, 2 additional scenario outcomes – one with a higher closing rate and the other with a lower rate- are pre-populated once the query has been run. These pre-populated rates can be changed directly

1 **Query:** The query parameters to be processed by the Scenario Builder are entered here.

2 Distance to Spot-at-Expiry

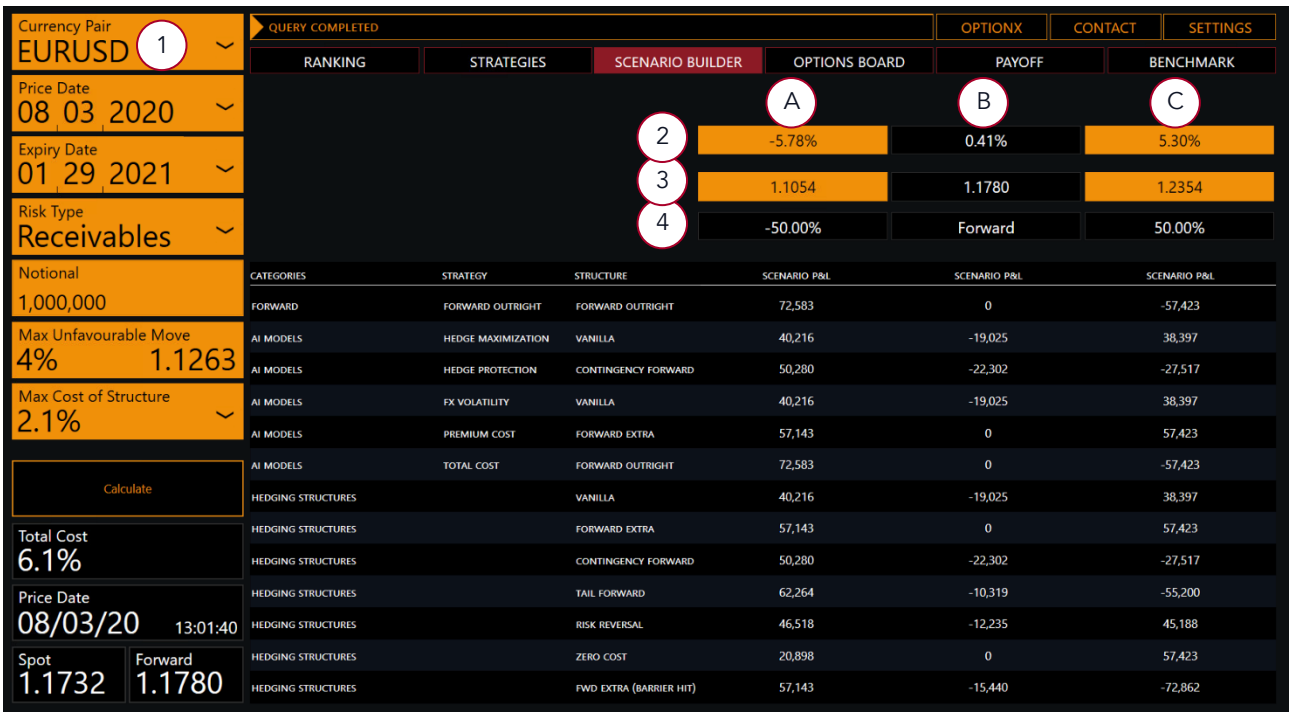
Distances to the spot-at-expiry levels, as calculated from the current spot rates. By default, the Scenario A will be pre-populated with a negative distance (lower than spot-at-expiry) and vice versa in Scenario C. The user can override these values in either direction.

3 Spot-at-Expiry

Rate that is being simulated to prevail as the spot-at-expiry at the time of

4 Closing Above/Below Probabilities

Closing Below/Above probabilities from the Options Board that correspond to the distance and spot-at-expiry levels shown above



CATEGORIES	STRATEGY	STRUCTURE	SCENARIO P&L	SCENARIO P&L	SCENARIO P&L
FORWARD	FORWARD OUTRIGHT	FORWARD OUTRIGHT	72,583	0	-57,423
AI MODELS	HEDGE MAXIMIZATION	VANILLA	40,216	-19,025	38,397
AI MODELS	HEDGE PROTECTION	CONTINGENCY FORWARD	50,280	-22,302	-27,517
AI MODELS	FX VOLATILITY	VANILLA	40,216	-19,025	38,397
AI MODELS	PREMIUM COST	FORWARD EXTRA	57,143	0	57,423
AI MODELS	TOTAL COST	FORWARD OUTRIGHT	72,583	0	-57,423
HEDGING STRUCTURES		VANILLA	40,216	-19,025	38,397
HEDGING STRUCTURES		FORWARD EXTRA	57,143	0	57,423
HEDGING STRUCTURES		CONTINGENCY FORWARD	50,280	-22,302	-27,517
HEDGING STRUCTURES		TAIL FORWARD	62,264	-10,319	-55,200
HEDGING STRUCTURES		RISK REVERSAL	46,518	-12,235	45,188
HEDGING STRUCTURES		ZERO COST	20,898	0	57,423
HEDGING STRUCTURES		FWD EXTRA (BARRIER HIT)	57,143	-15,440	-72,862

A Scenario A

By default, Scenario A will be pre-populated with a lower-than-current spot-at-expiry rate that corresponds to 50% Closing Below probability from the Options Board. The user can override this pre-populated scenario rate by either changing the distance % or by directly entering a new spot-at-expiry rate in either direction of the current spot rate.

B Scenario Forward

As the name implies, Scenario B plots the spot rate at expiry to be the equal to the forward rate at the time of the query. Scenario B values are fixed to the forward rate and cannot be altered.

C Scenario C

By default, Scenario C will be pre-populated with a higher-than-current spot-at-expiry rate that corresponds to 50% Closing Above probability from the Options Board. The user can override this pre-populated scenario rate by either changing the distance % or by directly entering a new spot-at-expiry rate in either direction of the current spot rate.

Options Board

Options Board gives the user the ability to gain a more in-depth analytical understanding of risk and return paths for the chosen risk parameters.

1 **Strategy dropdown:** Select from available strategies to display dashboard and charts

2 Closing above/below strike

Closing above/below strike columns display the OptionX's mathematical *bias-estimates* of the spot rates closing above/below the corresponding strikes at the end of the expiry period of the strategy. This provides valuable information to comparatively analyze alternative hedging methods, given an underlying receivable/payable risk exposure.

3 Trading above/below strike

Trading **Above/Below Strike** columns display the OptionX's mathematical *bias-estimates* of the spot rates crossing above/below the corresponding strikes during the expiry period of the query. This should be used by users who plan to actively manage their plain vanilla strategies or are looking for more complex strategies. Clients who choose a plain forward outright strategy should use this as a risk tool to gain a more transparent understanding of the market implied probabilities vs OptionX's proprietary readings. Unlike the **Closing Above/Below Readings**, the numbers here give a better overview of volatility risks within the lifespan of a chosen strategy.

4 Distance

Distance column shows, in percentage points, *strike* distances from the spot rate and covers a variable range of percentage distances, with the variation depending on the chosen expiry time horizon.

5 Implied probability

Implied probabilities indicate the prevailing market-based *range estimates*, calculated off the implied volatilities in the specific time horizon used in the query.

6 Option price

The Option price column populates various market option prices for each of the strike distances. Prices are generated using the traditional Black Scholes model that has been modified to incorporate the relevant volatility smiles.

Best Payoff

Best Payoff table represents a neural network based on option pricing, probability readings, implied volatility and a proprietary variation of the positive expectancy formula that allows the user to have a more quantified and transparent approach in tackling the currency hedging challenges.

1. **Closing/Trading Above/Below Strike** table values are percentage-based, incremental ranges that are calculated from the current spot rate. Specifically, the **Closing Above/Below** table values represent vanilla strategy payoffs based on the full expiry horizon of the hedging query entered, whereas the **Trading Above/Below** table values represent strategy payoffs of actively managed plain vanilla strategies or more complex structures.

2. **Payoff** table values have a positive correlation with positive expectancy. Thus, the higher the table value, the higher the positive expectancy; the lower the table value, the lower the positive expectancy. Negative table values, in turn, indicate a negative expected options payoff, thus encouraging a hedger to explore alternative hedging tools and approaches, such as using the forward contracts or taking a short gamma exposure.*

3. The two highest numbers will be displayed in green and concurrently, the two lowest in red.

DISTANCE	3%	5%	7%	9%	11%	13%	15%	17%	19%
17 %									0.00
15 %								0.00	0.00
13 %							0.00	0.00	0.00
11 %						-0.15	0.00	0.00	0.00
9 %					-0.26	-0.18	0.00	0.00	0.00
7 %				-0.26	-0.35	-0.26	0.00	0.00	0.00
5 %			-0.28	-0.28	-0.53	-0.44	0.00	0.00	0.00
3 %		-0.04	-0.20	-0.45	-0.8	.79	0.00	0.00	0.00
1 %	-0.39	0.44	-0.39	-0.89	-1.48	-1.39	0.00	0.00	0.00

DISTANCE	3%	5%	7%	9%	11%	13%	15%	17%	19%
17 %									0.00
15 %								0.00	0.00
13 %							-0.07	0.00	0.00
11 %						0.02	-0.06	0.00	0.00
9 %					-0.09	0.16	-0.09	0.00	0.00
7 %				0.40	-0.01	0.24	-0.18	0.00	0.00
5 %			0.56	1.06	-0.03	0.22	-0.36	0.00	0.00
3 %		0.46	1.46	1.55	-0.20	0.05	-0.70	0.00	0.00
1 %	0.02	1.44	2.11	1.77	-0.64	-0.39	-1.31	0.00	0.00

X	-3%	-5%	-7%	-9%	-11%	-13%	-15%	-17%	-19%
-1 %	-0.56	0.44	0.84	0.44	-0.06	-0.36	-0.16	-0.76	0.00
-3 %		0.07	0.67	0.57	0.27	0.07	0.27	-0.23	0.00
-5 %			0.25	0.45	0.35	0.25	0.45	0.05	0.00
-7 %				0.17	0.27	0.27	0.47	0.17	0.00
-9 %					0.11	0.21	0.41	0.21	0.00
-11 %						0.09	0.29	0.19	0.00
-13 %							0.14	0.14	0.00
-15 %								0.07	0.00
-17 %									0.00

X	-3%	-5%	-7%	-9%	-11%	-13%	-15%	-17%	-19%
-1 %	-0.06	0.84	1.14	1.64	1.94	0.84	0.54	0.04	-0.66
-3 %		0.27	0.87	1.47	1.87	1.07	0.87	0.47	-0.13
-5 %			0.35	1.05	1.55	1.05	0.95	0.65	0.15
-7 %				0.47	1.07	0.87	0.87	0.67	0.27
-9 %					0.51	0.61	0.71	0.61	0.31
-11 %						0.29	0.49	0.49	0.29
-13 %							0.24	0.34	0.24
-15 %								0.17	0.17
-17 %									0.09

X Payoff

Reading the table values horizontally from left to right, the upper row with positive values are paired with positive **Distance** percentages and vice versa with the lower row of negative values paired with negative **Distance** percentages.

Y Distance

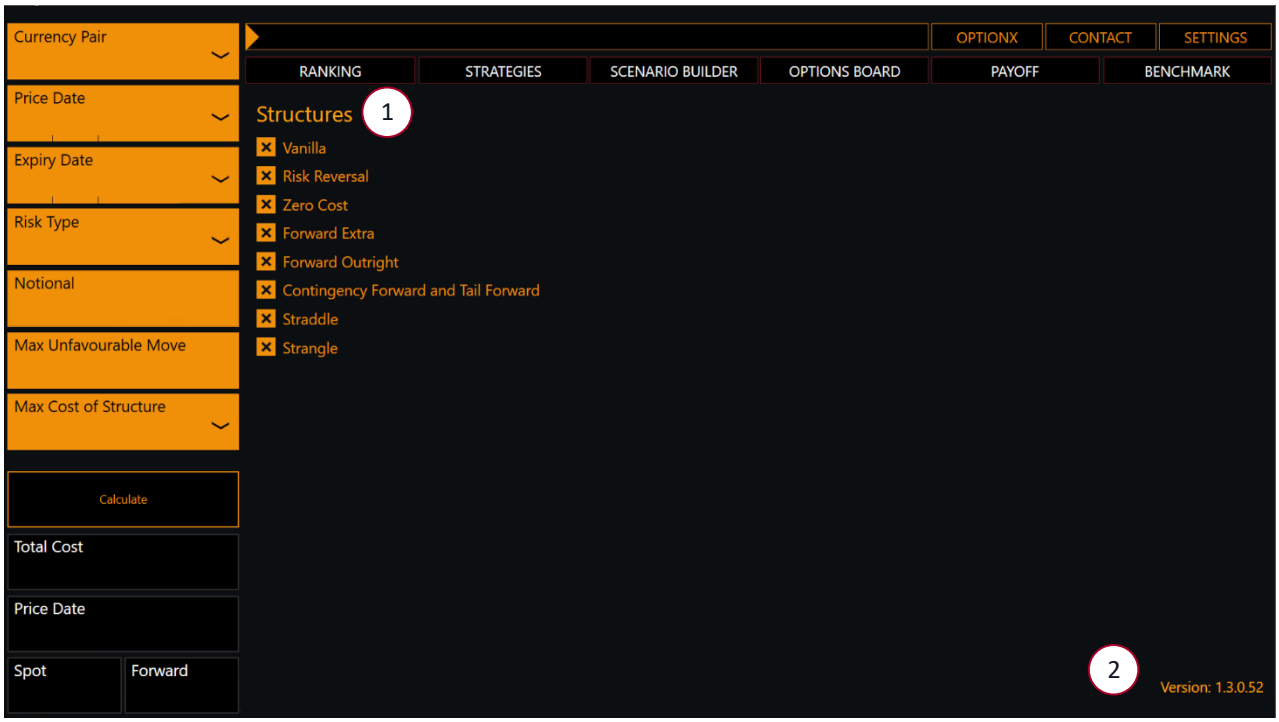
The **Distance** column shows - in percentage points - strike distances from the spot rate and covers variable percentage distances, with the variation depending on the chosen expiry time horizon.

Settings

Structures can be enabled or disabled for query results to show only selected structures.

1. All 8 structures, including the non-hedging structures of Straddle and Strangle, can be selected and in turn enabled and deselected and in turn disabled from appearing in the Ranking and Strategies as well as the Scenario Builder sections.

2. OptionX application version number.



Benchmark

Password protected area for advisory clients and project collaboration