Nasdaq Calypso

Pricing Analysis

Version 18

Revision 1.0

February 2024

Approved

Document History

Revision	Published	Summary of Changes
1.0	February 2024	First revision for version 18.

Calypso pricing and risk calculations are implemented as *pricer measures*. The Pricing report calculates the values of any set of user selected pricer measures for a given set of trades and positions, as defined by the trade filter selected when the report is run.

The Pricing report is configured in the Analysis Designer, and can be viewed in the Calypso Workstation.
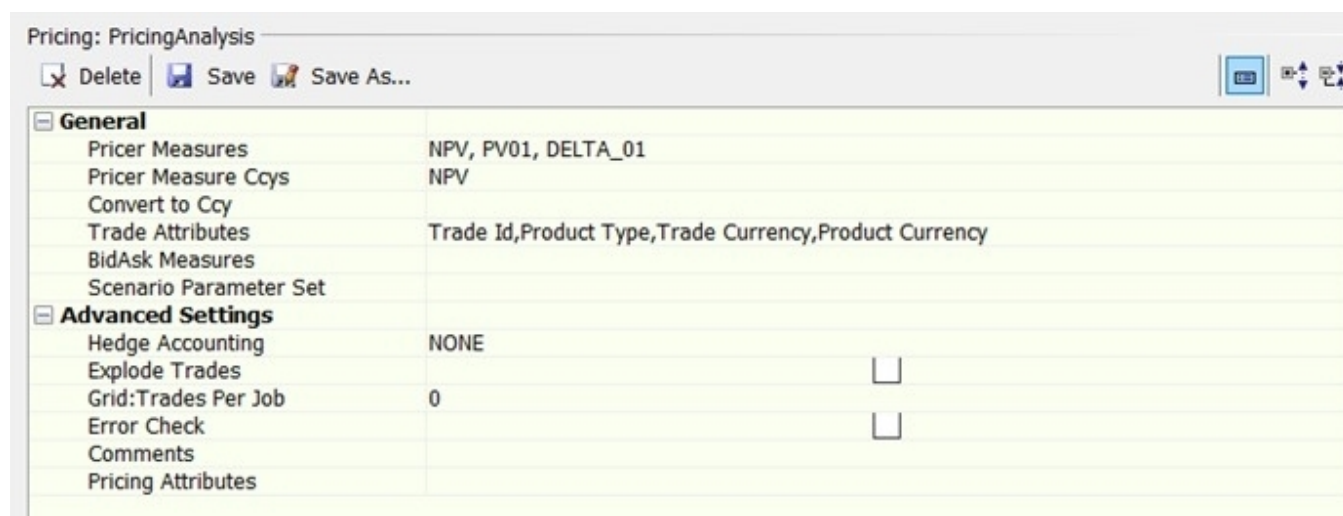
1. Pricing

Supported Products

The Pricing report is completely cross asset and can be run on a portfolio containing any mix of product types.

Please refer to individual product documentation for details on applicable pricer measures and trade attributes.

1.1 Pricing Parameters

To run a Pricing report, you first need to define the Pricing parameters.

You can define a set of parameters from one of the following windows:

- From the Calypso Navigator, navigate to **Configuration > Reporting & Risk > Analysis Designer**. Right-click a Pricing folder in Analysis Designer, and choose "New Analysis" to add a parameter configuration. You will be prompted to enter a configuration name.

- From the Calypso Navigator, navigate to **Configuration > Reporting & Risk > Calculation Server**. Select the type Pricing then click ... next to the field "Params". It brings up the Analysis Designer previously described.

» Enter the fields described below as applicable.

» Click **Save** to save your changes. You will be prompted to enter an Analysis name.

Fields	Description
Pricer Measures	Select which pricer measures to calculate.
Pricer Measure Ccys	Select which Pricer Measures should also display a column with the associated currency. If a PricerMeasure does not display a currency, its implementation should be reviewed.
Convert to Ccy	Select additional currencies in which to display the results, in addition to the trade currency.

Fields	Description
	Selecting BASE will display the results in the base currency of the Pricing Environment."Convert to Ccy" is completely independent from "Pricer Measure Ccys" and does not produce additional columns from "Pricer Measure Ccys" selections.
Trade Attributes	Select which trade attributes to display in the results.
Bid/Ask Measures	Select Pricer Measures for which bid and ask values will be computed.
Scenario Parameter Set	Select Discrete Scenario Parameter Sets to be included. Please note: • This field only supports Scenario Editor Rules for Curve, Quotes, and Volatility. • The "Explode Trades" and "Trades per job" settings on the underlying Scenario Parameter definition will be overridden by Pricing Analysis Advanced Settings. • We recommend using less than a total of 30 Risk Measures per Pricing Analysis. Even within this recommendation, performance should be assessed on a case-by-case basis as every Risk Measure has unique processing requirements.
Hedge Accounting	Select a Participation Classification as needed. It allows grouping of hedging trades and hedged trades in the output. Participation Classifications are set in Hedge Definitions. ▶ Please refer to Calypso Hedge Accounting documentation for details.
Explode Trades	Check this box to break down structured trades into their individual components. This feature is also customizable. Refer to the *Calypso Developer's Guide* for details.
Grid: Trades Per Job	Parameter used for dispatching this report for distributed computation. ▶ Refer to the *Calypso Installation Guide* for information on running risk reports in distributed mode.
Error Check	Check this box to enable the Error Description field in the report output. Two fields in the report are associated with the Error Check feature: the Error Count field and the Error Description field. The Error Description field is used in combination with the Error Count field. • The Error Count field is included in the report by default. The Error Count field is populated with either a 1 or 0. If there are one or more errors while pricing a given trade, the value is 1. If there are no errors, the value is 0. This allows for summing up the errors that occurred during pricing and arriving at a total count of all trades that failed to price. This is not, however, a total count of all errors. • The Error Description field supplements the error count and provides error messages related to the failed pricing of each trade.
Comments	Enter a comment if desired.
Pricing Attributes	Select which pricing attributes to display in the results for FX trades. Please refer to *Calypso FX Deal Station* documentation for details.

1.2 Pricing Results

Risk reports can be run using the following methods:

- Using the scheduled task RISK_ANALYSIS to save results to the database and/or to a file - Saved results can be viewed in the Calypso Workstation using the risk servers.

- In real-time using the risk servers - The results are displayed in the Calypso Workstation.

▶ Refer to Calypso Workstation documentation for details.

Utilities	View									

Name	PricingAnalysis	Val Date	3/3/22 5:18:17 AM	Params	IRD Pricing
PEnv	OFFICIAL	Base Ccy	USD	Trade Filter	Test1
Aggreg.				...	Expand/Collapse

Trade Id	NPV	Error Count	NPV_CCY	ACCRUAL	ACCRUAL [BASE]	ACCRUAL_CCY	NPV [BASE]	Product Description	Trade Currency	TradeStatus
2200006003	651,642.38	0.0	USD	-16,368.69	-16,368.69	USD	651,642.38	SwapCrossCurrency/03/04/2030/P:EUR 1.00000 /R:USD/LIBOR/3M-EUR/USD	USD	VERIFIED
2200006002	118,514.44	0.0	EUR	-15,055.55	-18,066.82	EUR	142,218.62	Swap/03/04/2030/P:EUR 1.00000 /R:EUR/EURIBOR/3M	EUR	VERIFIED
2200006001	53,823.42	0.0	USD	-7,416.66	-7,416.66	USD	53,823.42	Swap/03/04/2030/P:USD 2.00000 /R:USD/LIBOR/3M	USD	VERIFIED
2200006004	651,642.38	0.0	USD	-16,368.69	-16,368.69	USD	651,642.38	SwapCrossCurrency/03/04/2030/P:EUR 1.00000 /R:USD/LIBOR/3M-EUR/USD	USD	VERIFIED
2200006005	40,668.65	0.0	USD	483.33	483.33	USD	40,668.65	Cap/USD/LIBOR/3M/0.80000%QTR/03/04/2025	USD	VERIFIED

Sample Pricing results

Displaying Errors

If you have checked the "Error Check" box in the parameters, the following columns will be displayed:

Fields	Description
Error Description	Displays error messages pertaining to the failed pricing of each associated trade.
Error Count	Appears as a 1 or 0. 1= one or more errors. 0= no errors.

Pricer Measures in Base Currency

All conversions happen in a cross-asset fashion, regardless of the pricer or product which produced the measures that are being converted. The pricing parameters and triangulation rules used for the conversion are taken for product type "ANY": ADJUST_FX_RATE, INSTANCE_TYPE, CURVE_USAGE, QuoteUsage. If not specified for product type "ANY", the default values are: ADJUST_FX_RATE = false, INSTANCE_TYPE = Last, CURVE_USAGE = MID, QuoteUsage = MID.

The pricing parameter FX_POINTS is always considered false.

Custom Pricer Measures

NOTE: Custom Pricer Measures which require market data in addition to what is already managed by the Pricer are not supported (e.g. ACCRUAL_BO_BASE, VEGA_BASE). Any "Base" conversions can be configured to occur at report level.

PricerFromDB and PricerMeasureFromDB

Any measure of type PricerMeasureFromDB, by default, is considered convertible to Base Ccy. Any measures that are not eligible to convert (e.g. Quantity, FX_RATE, PRICE) must be declared as a domain value in the PricerMeasureFomDB_NOCONVERT domain.

When using PricerFromDB or PricerMeasureFromDB, all measures must be returned in the same currency as the trade, else conversion to base currency may fail. It is also acceptable for PricerMeasureFromDB to return measures in the same currency as another standard Pricer Measure defined in the analysis, to ensure proper Market Data is prepared for conversion. Any exception will require custom code.