Adenza

Cost To Close

Version 17.0

February 2022 - First Edition

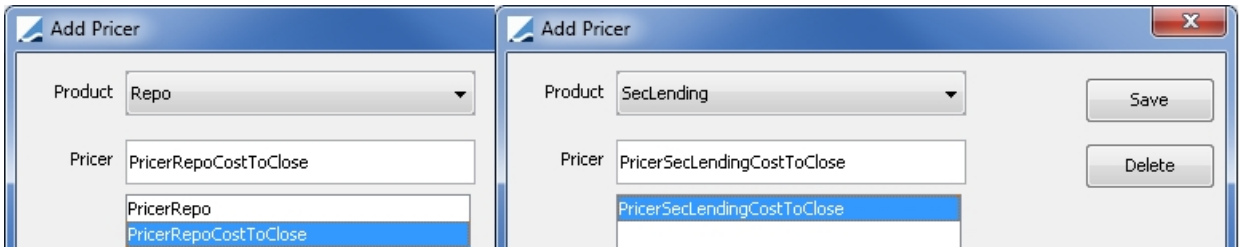
1. Cost to Close

The Cost To Close methodology can be used to price Repo and SecLending trades. It simulates at valuation date "closing" trades, taking into account the market rate conditions and repricing the collateral. Both the original and closing trade cashflows are then discounted. The NPV calculation is the aggregation of the original and closing trades.

Revision Date	Comment
February 2022	First edition for version 17.0.

1.1 Pricer Configuration Setup

Add the Cost to Close pricers to the Repo and SecLending products from **Calypso Navigator > Configuration > System > Add Pricer**.



» Select the product, then enter the pricer name and click **Save**.

Set the Cost to Close pricers as the default pricers for the following Repo and SecLending sub-types from **Calypso Navigator > Market Data > Pricing Environment > Pricer Configuration**. The other sub-types cannot be priced using the Cost to Closer pricers.

Repo:

- Standard
- BSB

SecLending:

- Sec Vs Cash
- Fee Cash Trade
- Rebate

» Click **Load** and select a pricing environment.

» On the Pricers panel, select the product and the pricer, then click **Add**.

» Click **Save** to save the pricer configuration.

▶ Please refer to Calypso Pricing Environment documentation for complete details on using the Pricer Configuration window.

1.2 Repo Curves Setup

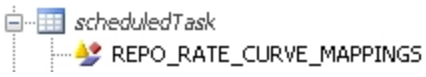
A repo shell curve is required for each underlying security. The shell curve itself will not change in the Pricer Configuration, however it will point to different closing curves each day according to the allocation. The allocated curve is used to determine the repo rate of the simulated closing trade - It is not used to discount the cashflows of the original trade.

Repo curve mapping can be done using the scheduled task REPO_RATE_CURVE_MAPPINGS, or it can be done manually through the Pricer Configuration.

▶ Please refer to Calypso Interest Rate Curves documentation for complete details on using repo curves.

1.2.1 REPO_RATE_CURVE_MAPPINGS Scheduled Task

Add "REPO_RATE_CURVE_MAPPINGS" to the domain *scheduledTask*.



This scheduled task is a "helper" utility to update in bulk the mappings for the CLOSING_TRADE usage, which creates a repo shell curve per security used as repo collateral. Each shell curve is then linked to the last instance of the relevant curve listed in the csv file.

Task Attributes	
CSV File Name	CTC_CurveMapping.csv
Input Directory	C:\calypso
Column Names	Security Code Type, Security Code Value, Rate Curve Id

Common Attributes

- Select a pricing environment.

Task Attributes

- CSV File Name - The name of the csv mapping file to be used.

  The file should contain comma-separated rows of "<Security Code Type>,<Security Code Value>,<Rate Curve Id **or** Rate Curve Name>" - For example:

```
Security Code Type,Security Code Value,Rate Curve Id
ISIN,IT0003745541,12632
ISIN,DE0001135408,12632
ISIN,JP1201271B58,12635
```

  OR

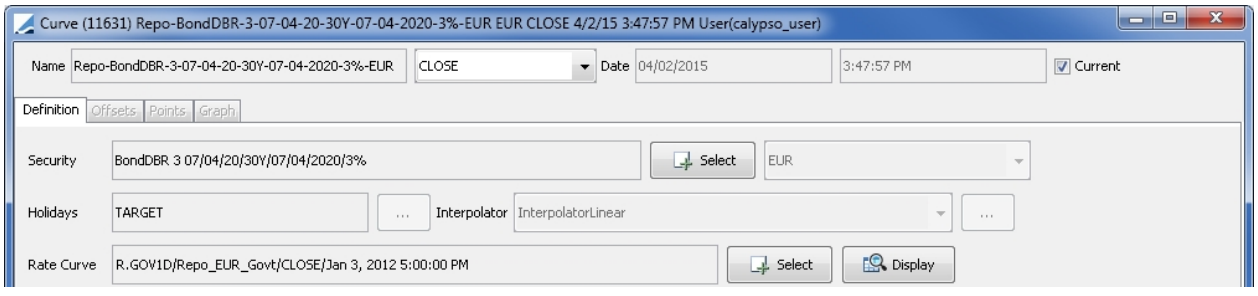
```
Security Code Type,Security Code Value,Rate Curve Name
CUSIP,912810EX2,Simple_ZC-USD
CUSIP,ED8608124,Simple_ZC-GBP
CUSIP,EH6142705,Simple_ZC-EUR
```

- Input Directory - The directory of the csv mapping file to be used.
- Column Names - Select the items, in the same order, defined in the csv mapping file.

▶ Please refer to Calypso Scheduled Tasks documentation for complete details on using scheduled tasks.

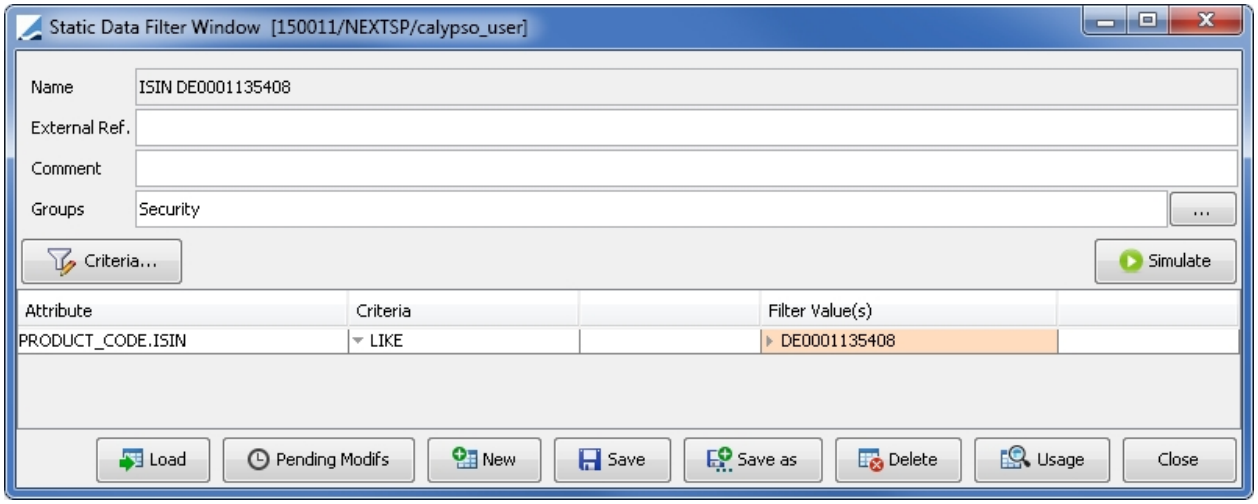
1.2.2 Manual Mapping Process

Create a repo shell curve per underlying security from **Calypso Navigator > Market Data > Interest Rate Curves > Repo Curve**.



» Select a security and a curve, then click **Save As** and name the curve.

Create a static data filter per underlying security from **Calypso Navigator > Filters > Static Data Filter**.

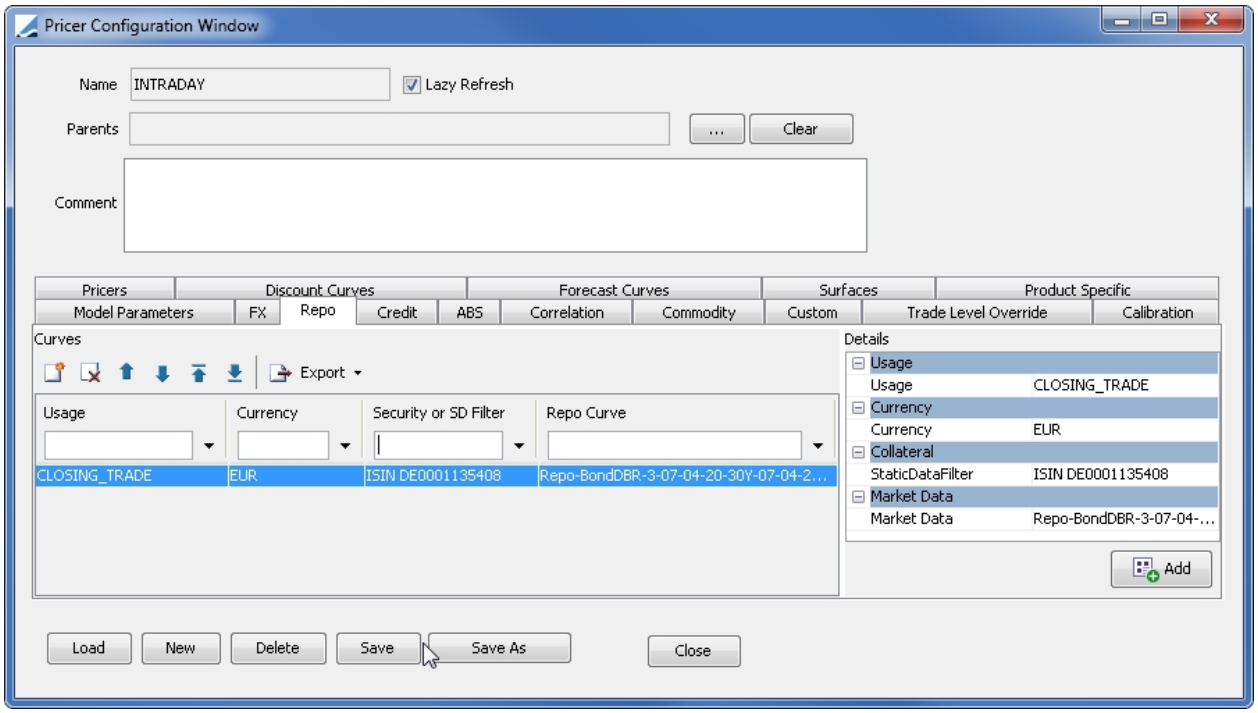


- Click **New**.
- Set the Groups to Security. You can set additional Groups as needed.
- Click **Criteria** and specify the security.
- Click **Save as** and name the static data filter.

Populate the repo shell curves in the Pricer Configuration from **Calypso Navigator > Market Data > Pricing Environment > Pricer Configuration**.

Click **Load**, select the pricer configuration name, and click **OK**.

Select the Repo panel.



» Click .
» Select values in the Details area.
  - Select the usage CLOSING_TRADE.
  - Select a currency.
  - Select the static data filter for the desired security. Only static data filters with the "Security" group are available for selection.
  - Select a repo curve.
» Click **Add** to add the curve to the list.
» Click **Save** to save the pricer configuration.

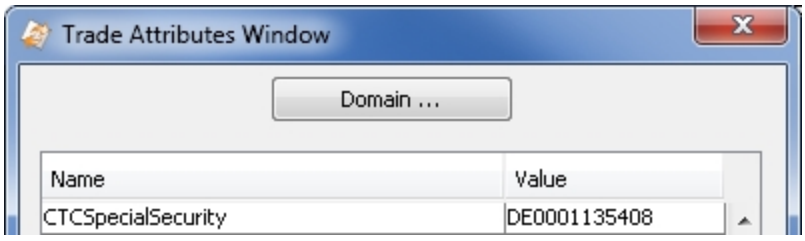
1.3 Closing Trade

Regardless of the original trade type, including Security Lending trades, the simulated closing trades are always Standard Repo trades which reverse the direction of the original trades. The closing trade starts at the val date and ends at the date of the respective security movement. The trade currency is that of the underlying security, and the principal amount is re-evaluated with the market dirty price at the val date. The repo rate of the closing trade is always a fixed rate, even if the original trade has a floating rate, and the closing trade interest is always paid at maturity, even if the original trade has a periodic interest schedule, or a periodic billing schedule for interest or fees.

Closing trades are simulated as follows with respect to the following characteristics:

- Haircut – The closing trade replicates the haircut value and type, and reverses the haircut direction.
- Forward start date (Val Date < Start Date) – Two closing trades are simulated with opposite directions, depending on the direction of the original trade.
  - If the original trade is a Repo/Security Lending (from Start Date to End Date), the closing trades are a Reverse Repo (from Val Date to End Date), and a Repo (from Val Date to Start Date).
  - If the original trade is a Reverse Repo/Security Borrowing (from Start Date to End Date), the closing trades are a Repo (from Val Date to End Date), and a Reverse Repo (from Val Date to Start Date).
- Special security – The special security drives the curve allocation for the closing trade, even if this security is not an underlying of the original trade.

  A "special" security, as opposed to general collateral, is used when you want the special security to drive the repo rate of the closing trade. The "special" status is defined by the trade attribute CTCSpecialSecurity, with the ISIN of the desired security specified in the attribute value.



- Callable trade – The closing trade uses the same cashflow end date as the original cashflows, which are generated according to the notice days.
- BSB Repo with coupon payment – The closing trade passes through the coupon to the original bond holder, regardless of the coupon terms of the original trade.

- Triparty or Pool Repo – The closing trade uses the same dummy security as the original trade. The dummy security must be set with a perpetual price of 100%.
- Multi-collateral trade – One closing trade is simulated per security, using the matching repo curve for that security.
- Fee Cash Pool trade – Not currently supported.

1.4 Pricer Measures

The pricer measures MODEL and DETAILED_DATA can be added from **Repo > Configure Results**.

- MODEL – Double-clicking this measure opens a trade report which displays the original and simulated closing trades. You can double-click the closing trade to view and edit it. The closing trade is not saved as an actual trade.
- DETAILED_DATA – This measure gives a snapshot view of the main calculation details.

DETAILED_DATA

Trade	NPV	End Date	Sec. AllIn Price	Sec. FX Rate	Cash. Fixed Rate	Cash. Money Value
Original Trade (EUR)	24,598.22	02/06/2015	101.98082192	1.00000000	0.20000	101,980,821.92
Closing DE0001135408 (EUR)	-18,407.73	02/06/2015	102.05479452	1.00000000	0.24809	102,054,794.52
Net (EUR)	6,190.49					

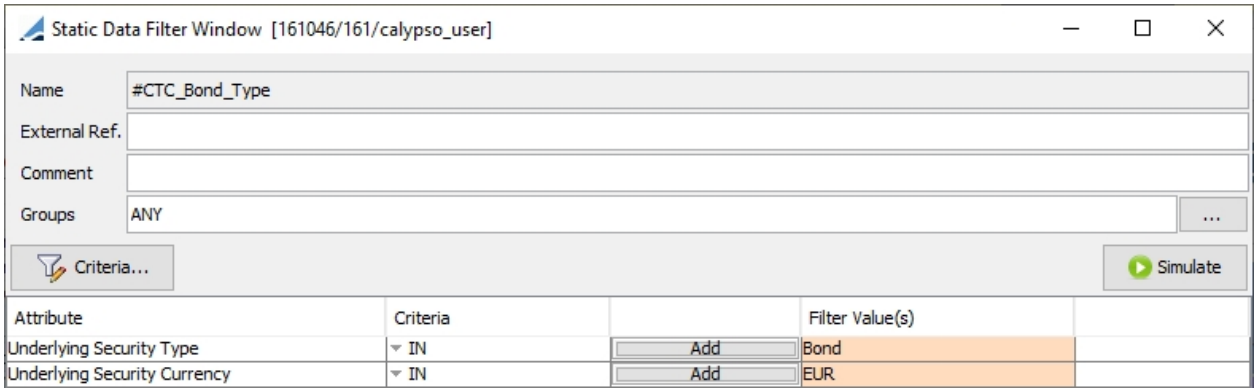
1.5 PricerRepoCostToClose Haircut Rule

While the simulated closing trades take into account the market rate conditions on the val date, the haircut amounts are still based on the original, real trade. You can, however, define a haircut rule that will allow the haircut to be based on the val date market conditions as well.

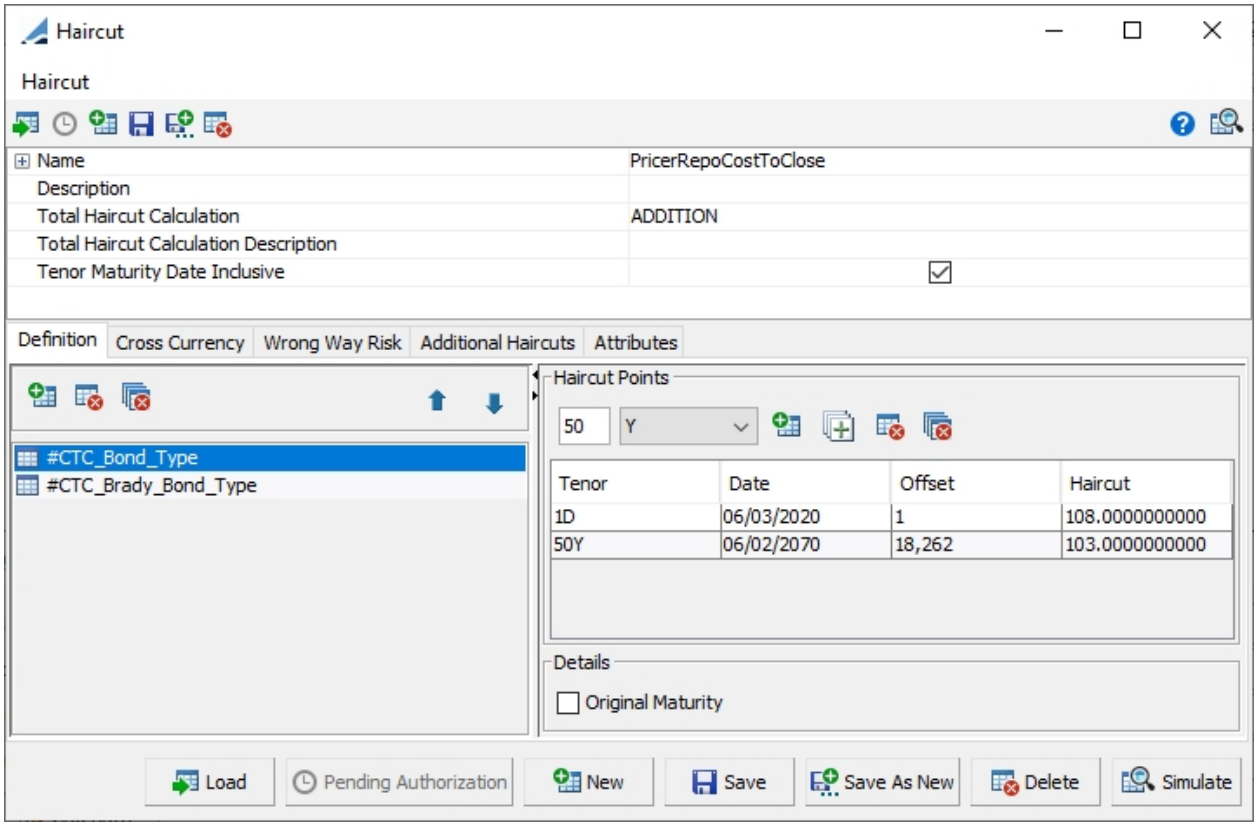
Before You Begin

» Set the pricing parameter CTC_MARKET_HAIRCUT = true to enable the Cost To Close market haircut behavior. Note that when it is set to true, the PricerRepoCostToClose haircut rule must be defined. Default is false.

» Define static data filter(s) to specify the security filtering criteria as needed.



Define the Haircut Rule



- Name the haircut rule exactly as “PricerRepoCostToClose”. This value is hard-coded and cannot be changed.
- On the Definition panel, add the static data filter(s) and define the haircut points as needed.

▶ Please refer to Calypso Haircut Rules documentation for complete details on defining haircut rules.

Note that this functionality is only applicable to the PricerRepoCostToClose pricer and will not have any effect when using other pricers.