

Algorithmica Research AB

FX instruments in Database Tool

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1. Introduction

This document describes the setup of FX Spot, FX Swaps and FX Forwards. To minimize duplication of information and minimize the possibility of inconsistent configuration, most of the settings are contained in the instrument classes. There should be one class for each currency pair, one spot instrument, and as many forward and swap instruments as there are distinct maturities.

All FX instruments for a given currency pair should inherit from the same class. This class should have the same name as the FX Spot instrument.

Instrument class

Instrument type: All types

Issuer: All issuers

Index: Search Advanced

Type keywords:
USDSEK

UK INFLATION-LINKED BOND
UK INFLATION-LINKED BOND 3M
US AGENCY BOND
US CORPORATE BOND
US INFLATION-LINKED BOND
US TREASURY BILL
US TREASURY BOND
US TREASURY BOND [TRS METHOD]
US TREASURY INDEX
USD 3M FRA
USD 3M FUT
USD 6M FRA
USD DEPO
USD OIS
USD/EUR BASIS SWAP
USD 3M SWAP
USD/RW FIDFLT CCS
USDSEK
XPUCZK
XFUSEK
YEN USD BASIS SWAP 3M
ZEROBONDTST

New class

Delete

Current instrument class: *

USDSEK

ID #390

General

Extended

Special

FRN

Rating Adj.

Deliverables

Tag

Long name:

Class:
Type: * FX SPOT

Issue date:
First coupon date:

Maturity *
Settle *

☐ Date
☐ Code Edit...

Coupon: %
Coupon freq:

Ex-coupon code: Edit...
Accrued day-count method:

Face amount:
Issued amount:

Currency: USD
Issuer: Generic

Calendars: USA

Calc type:
Quote style:

* required field for Instrument

Undo

Save

Figure 1. FX Spot class settings [General]

The Type must be set to FX Spot.

The settlement code must be set. Note that the settlement code defines the spot days for the currency. For most currencies it is BD2 (=2 business days but for some it is BD1 (1 day)). The compounded code "BD0;BD2" means that the codes "BD0" and "BD2" are applied in sequence meaning that in the case the trade date is a non-business day the first move is to the next business day.

The Currency must be set to the base currency.

At least one Calendar must be set. This is the base currency calendar.

The screenshot shows the 'Instrument class' dialog box with the 'Special' tab selected. The 'Current instrument class' is 'FX'. The 'Price currency' is set to 'SEK' and the 'Price ccy calendar' is set to 'SWEDEN'. The 'USD Calendar' is set to 'USA'. The 'Pip value decimals' is 4 and the 'Scale' is 1. The 'Reverse quote' checkbox is unchecked. The 'Quote decimals' are set to 5 for Spot, 2 for Swap, and 6 for Forward. The 'FX' section is highlighted with a red dashed box.

Figure 2. FX Spot class special settings [Special]

The price currency and price currency calendar must be set.

The allowed calendar rules are STD, STD_NY_ADJ and SPEC_LATIN. For STD_NY_ADJ and SPEC_LATIN, the field USD Calendar is required.

calendar rule	description
STD	The settlement date as well as any interim dates cannot be a holiday in either of the currency pairs.
STD_NY_ADJ	The settlement date cannot be on a USD holiday. For currency pairs with T+2 settlement, the interim date can be a USD holiday as long as it is not a holiday in any non-USD currencies in the currency pair.
SPEC_LATIN	For 'special' Latin American currencies such as MXN, ARS and CLP, the interim dates cannot be a USD holiday as well as the settlement date itself.

Pip values decimals: The number of decimals in the quote that defines one fx pip. Allowed values are 1-6.

Scale: The number of units in the base currency the quote represents. Allowed values are 1, 100, 1000. 10000.

Reverse quote: Normally unchecked. If checked, the quote received from the ric is inverted i.e. the quote received from the ric have the base and price currencies reversed compared to how they are defined in Database Tool. Note that if this is checked the bid and ask fields of the ric also needs to be reversed, in order for the bid ask quotes to be calculated correctly.

Quote decimals: The number of decimals that defines how many decimals are in the quote. This setting affects rounding (if enabled). There are three separate settings, Spot, Swap and Forward, that affects instruments of those types derived from this class. Allowed values are 1-6, for fx swaps 0-6.

3. FX Spot instrument

The screenshot shows the 'Instrument' dialog box with the 'General' tab selected. The 'Current instrument' is 'USDSEK'. The 'Class' dropdown is set to 'USDSEK' and the 'Type' dropdown is set to 'FX SPOT'. The 'Long name' is 'USDSEK FX Spot'. Other fields like 'Issue date', 'Maturity', 'Coupon', 'Face amount', 'Currency', and 'Calendars' are visible. The 'Quote style' is set to 'Clean price (%)'. The 'Quote decimals' are set to 5 for Spot, 2 for Swap, and 6 for Forward.

Figure 3. USDSEK settings [General]

The instrument name for the FX spot instrument should be that same as the class name.

Everything else should be inherited from the class.

The screenshot shows the 'Instrument' dialog box with the 'Tag' tab selected. The 'Current instrument' is 'USDSEK'. The 'CPI index linked' section is expanded, showing 'CPI name', 'CPI base date', 'CPI lag 1', 'CPI lag 2', 'Quote style', 'Additional settings for AUD linkers (LAUDGOVT)', 'CPI before rebase', 'Rebase date', 'Bond futures', 'Price factor', 'FX', 'Price currency', 'Price ccy calendar', 'Calendar rule', 'USD Calendar', 'Spot', 'Swap', and 'Forward'. The 'Quote decimals' are set to 5 for Spot, 2 for Swap, and 6 for Forward.

Figure 4. USDSEK special settings [Tag]

All values under FX should be inherited from the class.

4. FX Swap instrument

The screenshot shows the 'Instrument' dialog box with the 'General' tab selected. The 'Current instrument' is 'USDSEKFX1M'. The 'Class' is set to 'USDSEK' and the 'Type' is 'FX SWAP'. The 'Maturity' is set to 'Date' and the 'Code' is '1M_MF'. The 'Settle' is set to 'Date' and the 'Code' is 'BD2'. The 'Currency' is 'USD' and the 'Issuer' is 'Generic'. The 'Calc type' is 'USD' and the 'Quote style' is 'USD'. The 'Long name' is 'USDSEKFXSWAP 1M'. The 'Index' is 'Search' and the 'Advanced' tab is selected. The 'Type keywords' are 'USDSEKFX1M'. The 'Instrument type' is 'All types' and the 'Issuer' is 'All issuers'. The 'New instrument...' and 'Delete' buttons are at the bottom.

Figure 5. FX Swap instrument settings [General]

The class should be set to the class for this currency pair.

Type should be set to FX SWAP.

The maturity code should be set for each specific instrument.

For an O/N FX Swap the settle code = "BD0" and maturity code = "BD1" and for a T/N Swap the settle code = "BD1" and maturity code = "BD1".

The screenshot shows the 'Instrument' dialog box with the 'Special' tab selected. The 'Current instrument' is 'USDSEKFX1M'. The 'CPI index linked' is 'CPI name'. The 'CPI base date' is 'CPI base index'. The 'CPI lag 1' is 'Rounding code' and the 'CPI lag 2' is 'Minimum redemption at par'. The 'Quote style' is 'ex. inflation' and the 'Additional settings for AUD linkers (LLAUDGOVT)' are 'CPI before rebase' and 'Rebase date'. The 'Bond futures' are 'Price factor' and 'FX'. The 'Price currency' is 'SEK' and the 'Pip value' is '4'. The 'Scale' is '1' and the 'Price ccy calendar' is 'SWEDEN'. The 'Reverse quote' is 'Calendar rule' and the 'Quote decimals' are 'USD Calendar' and 'Spot'. The 'Swap' field is highlighted with a red dashed box.

Figure 6. FX Swap instrument special settings [Special]

To override quote decimals for this FX Swap instrument, use the Swap field under Quote Decimals.

5. FX Forward (outright) instrument

The screenshot shows the 'Instrument' dialog box with the 'General' tab selected. The 'Current instrument' is 'USDSEKFX1M_OUTR'. The 'Class' is set to 'USDSEK' and 'Type' is 'FX FORWARD'. The 'Maturity' is set to 'Date' and 'Code' is 'IM_MF'. The 'Settle' is set to 'Date' and 'Code' is 'BD2'. The 'Currency' is 'USD' and 'Issuer' is 'Generic'. The 'Long name' is 'USDSEK FX OUTRIGHT 1M'. The 'Instrument type' is 'All types' and 'Issuer' is 'All issuers'. The 'Type keywords' are 'USDSEKFX1M_OUTR'. The 'Index' is 'Search' and 'Advanced' is selected. The 'Type keywords' list includes 'USDSEKFX1M_OUTR' and 'USDSEKFX1M'. The 'New instrument...' and 'Delete' buttons are at the bottom.

Figure 7. FX Forward instrument settings [General]

The class should be set to the class for this currency pair.

Type should be set to FX FORWARD.

The maturity code should be set for each specific instrument.

For an O/N FX Outright the settle code = "BD0" and maturity code = "BD0" and for a T/N Outright the settle code = "BD0" and maturity code = "BD1". Note that before spot the maturity of the FX outright is the start date of the corresponding FX swap.

The screenshot shows the 'Instrument' dialog box with the 'Special' tab selected. The 'Current instrument' is 'USDSEKFX1M_OUTR'. The 'CPI index linked' is set to 'CPI name'. The 'CPI base date' is 'CPI base index'. The 'CPI lag 1' is 'CPI lag 2'. The 'Quote style' is 'ex. inflation'. The 'Additional settings for AUD linkers (LAUDGOVT)' are 'CPI before rebase' and 'Rebase date'. The 'Bond futures' are 'Price factor'. The 'FX' settings are 'Price currency' (SEK), 'Pip value' (4), 'Scale' (1), 'Price ccy calendar' (SWEDEN), 'Reverse quote' (checked), 'Calendar rule' (STD_USD), 'Quote decimals' (6), 'USD Calendar' (USA), 'Spot' (5), 'Swap' (2), and 'Forward' (6). The 'Instrument type' is 'All types' and 'Issuer' is 'All issuers'. The 'Type keywords' are 'USDSEKFX1M_OUTR'. The 'Index' is 'Search' and 'Advanced' is selected. The 'Type keywords' list includes 'USDSEKFX1M_OUTR' and 'USDSEKFX1M'. The 'New instrument...' and 'Delete' buttons are at the bottom.

Figure 8. FX Forward instrument special settings [Special]

To override quote decimals for this FX Forward instrument, use the Forward field under Quote Decimals.