



Cash Balance Product Specification

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List of Tables

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Chapter 1

Cash Balance

1.1 Instrument Properties

A cash balance is cash position of **amount** in **currency**. Bought means holding the cash, while sold means a position of the cash.

1.2 Definitions

In this section, we define terms that are specific to cash balance.

currency is the currency the cash balance is in.

amount is the amount of cash in **currency**.

1.3 Representations

In the Risk Engine, products are specified by *representations*. In this section, we provide the representation of cash balance.

1.3.1 Default Representation

The *Default* representation consists of the mandatory trade fields in Table 1.1, with their restrictions in Table 1.2.

<i>Field</i>	<i>Description</i>	<i>Data Type</i>	<i>Symbol</i>
Currency	The currency	string	ccy
Amount	The amount in <i>Currency</i>	double	N
BoughtSold	Bought or sold the cash	string	BS

Table 1.1: Mandatory trade fields for the Default representation of the Cash Balance

<i>Field</i>	<i>Restriction</i>
Amount	$N > 0$
BoughtSold	Bought, Sold, B, S

Table 1.2: Trade field restrictions for the Default representation of the Cash Balance

1.3.1.1 Required Curves

The following curves are required by a cash balance:

- *Currency FX spot curve*: FX Spot Curve — (FX.PRICE.Currency.BaseCurrency).

1.4 Formula

A cash balance is a cash position of N in **currency**.

The value of a cash balance in Base Currency is

$$N \times E_{\text{ccy}} \times \mathbb{I}_{\text{bs}},$$

where

- N is the **amount** in **currency**,
- E_{ccy} is the spot exchange rate in units of Base Currency per **currency**, from the Currency FX spot curve, and
- the indicator for bought or sold position is

$$\mathbb{I}_{\text{BS}} = \begin{cases} 1, & \text{if indicator is 'B'}, \\ -1, & \text{if indicator is 'S'}. \end{cases}$$

1.5 Examples

This section provides some deal examples of cash balance.

Example 1.1. A cash balance in Default representation:

- Currency: AUD
 - Amount: 100,000,000
 - BoughtSold: Bought
- It's a cash holding of \$100,000,000 AUD.

Example 1.2. A cash balance in Default representation:

- Currency: GBP
 - Amount: 1,000,000
 - BoughtSold: Sold
- It's a short position of \$1,000,000 GBP.

Glossary

Base Currency The currency that the risk engine is configured to return values in.

Risk Engine The Vector Risk market risk and credit risk system.