

Currency Forwards - Booking

Strictly speaking, currency forwards are not assets, but rather commitments. However, they have to appear in the securities' accounting since they normally have a value in the balance sheet, which can be either positive or negative. Moreover, currency forwards result in gains or losses which should appear as such in profit and loss.

What is a currency forward?

A currency forward is a commitment to purchase a given amount of a currency against the sale of a given amount of another currency on an agreed date in the future. For example on the 05.03.2007 a currency forward contract is opened for the sale of USD 5'800'000 against the amount of CHF 6'907'780 on the 05.03.2008. Generally, one of those two currencies represents the base currency of the investor, in this case is the CHF. Currency forwards are not standardized financial products and are normally dealt with the deposit bank *over the counter* (OTC). The currency forward has an implicit exchange rate, which in our example is of USD/CHF 1.1910 (= 6'907'780 / 5'800'000). This exchange rate is different from the spot exchange rate at the moment of the opening of the contract, reflecting the difference between the interest rates of both currencies and the implicit fees cashed by the bank. The internal exchange rate is determined so that the market value of the currency forward is of zero on its opening, except for the previously mentioned fees. However the market value of the currency forward will not remain zero, it will vary according to the evolution of the exchange and interest rates of the two currencies involved. The market value of a currency forward has a special interpretation. Since it is an OTC instrument, it cannot be sold on the market. It can only be "cancelled" by opening another currency forward on the same maturity date which will neutralize the transaction on the foreign currency against a certain amount in the base currency. The difference between the amounts in CHF of the two currency forwards, discounted on the day of the valuation is equal to the market value of the currency forward, except for the bank fees.

Booking

Every currency forward transaction has to appear in the portfolio statement, in order to be evaluated correctly. It is therefore essential to book a currency forward contract from its opening, even though it does not result in any booking on either a cash or a holding account. As already seen previously, the book value of a currency forward is zero on its opening, but this will not remain so during the life period of the currency forward, i.e. between its opening and its maturity date. The value of the currency forward depends on the evolution of the exchange and interest rates of the two currencies. This value can either be positive or negative. It is normally given in the portfolio statement of the deposit bank. During an evaluation or a closing, all currency forwards should be evaluated correctly, so that they appear in the portfolio statement with a correct value. Note that an evaluation left to zero of a currency forward contract with a negative value will result in an overvaluation of the assets or and undervaluation of the liabilities, a serious violation of basic accounting principles.

The challenging part of the booking a currency forward occurs at delivery. The transaction on currencies resulting from the currency forward should be booked with the spot exchange rate (on the maturity date), and not with the implicit exchange rate of the contract itself. Booking the delivery of the currency forward with the spot exchange rate will result in a difference between the debit and credit, which is actually the realized gain or loss on the currency forward contract.

Example

On the 05.03.2007 a currency forward contract is opened for the sale of USD 5'800'000 against CHF 6'907'780 on the 05.03.2008, meaning an implicit exchange rate of USD/CHF 1.1910. At delivery (maturity day), the spot exchange rate USD/CHF is of 1.0412. This forward results in the purchase of CHF 6'907'780 and a sale of USD 5'800'000 with a value of CHF 6'038'960. The result is therefore a gain of CHF 6'907'780 - 6'038'960 = 868'820, which should be booked as a "realized gain on currency forwards". All this gives us the following booking set:

Cash account CHF		Cash account USD		Realized gains on forwards	
CHF			USD		CHF
6'907'780			5'800'000		868'820
			CHF		
			6'038'960		

Performance

For the calculation of the performance in general, it is imperative that all transactions are booked to market value. This basic principle is also valid for transactions on currencies resulting from a forward contract. If the delivery of the currency forward is booked with the implicit exchange rate, the data will be useless for the performance calculation. However, if the delivery of the currency forward is booked with the spot exchange rate, the data will be usable for the performance calculation as they are.

Mistakes to avoid

The transaction on currencies should never be booked with the implicit exchange rate. Such a mistake would have two extremely negative consequences on evaluating the merits of the currency forwards.

First no realized gain or loss on currency forwards would ever appear in the accounting, it would be lost in the gains/losses accounts of cash accounts (or liquidities), without the possibility to attribute them more precisely. Secondly, the global performance of all currency forwards would be zero, independently of the evolution of the exchange and interest rates. A complete evaluation of the merits of the currency forward would therefore be impossible, at the accounting level as well as at the level of the investment reporting.

ePOCA : optimal assistance of the user

Our software for securities accounting and reporting optimally assists the user with the booking of currency forwards.

- An asset is automatically generated for every currency forward simply by booking its opening transaction.
- The value adjustment process handles currency forwards just like other assets, which means automatically. The value of the currency forward can be entered, directly imported or calculated from the exchange rates of the forward.
- At delivery of the currency forward, the currency transaction is first booked (with the spot rate of the date), resulting in a realized gain or loss. Then, the closing of the currency forward is booked, and the previously calculated gain or loss on currency forwards is attributed to the currency forward itself.

- Since the performance calculation is based on the accounting data, no supplementary operation is required.

Spot and forward price

The following examples show in the simplest way the relation between the spot price, the forward price and the interest rates of the currencies.

Let's look at the calculation of the forward price according to the spot price and the interest rate of the currencies. Suppose that on a given date, the spot price USD/CHF is of 1.20 and that the interest rate for one year are respectively 4% for the USD and of 1% for the CHF.

The forward price USD/CHF for one year is therefore:

$$\text{Forward price for 1 year} = 1.2 \cdot \frac{1+0.01}{1+0.04} = 1.165385$$

Why should it be this way, at least in a world without fees and where the debit and credit interest rates are the same? Because otherwise there would be the possibility of arbitrage, which means, the possibility to win money every time, without initial investments.

Let's see how such an arbitrage would be done, if the real forward price were lower or higher than the theoretical forward price calculated above.

Scenario 1 : Forward price of 1.15

The investor has two different cash accounts with a fix interest rate (debit and credit). One account in USD with a yearly interest rate of 4% and one account in CHF with a yearly interest rate of 1%. Both accounts have a balance of zero.

On the given date the investor sells USD 1'000 against CHF 1'200, which is the spot price of 1.20. The investor makes a currency forward contract of one year for the purchase of USD 1'040 against the sale of CHF 1'196, which results in a forward price of USD/CHF 1.15.

After a year the balance of the account in CHF is 1'212, with the 1% of interests and the balance of the account in USD is of -1'040, after a deduction of the interests of 4%. After the delivery of the currency forward the balance of the USD account is zero and that of the CHF account is of CHF 16.

The investor realized a gain of CHF 16 without any initial investment. He therefore could multiply this gain as much as he wants, which does not correspond to the reality.

Scenario 2 : Forward price of 1.18

The investor has two different cash accounts with a fix interest rate (debit and credit). One account in USD with a yearly interest rate of 4% and one account in CHF with a yearly interest rate of 1%. Both accounts have a balance of zero.

On the given date the investor buys USD 1'000 against CHF 1'200, which is the spot price of 1.20. The investor makes a currency forward contract of one year for the sale of USD 1'040 against the purchase of CHF 1'227.20, which results in a forward price of USD/CHF 1.18.

After a year the balance of the account in CHF is of -1'212, after the deduction of the interests of 1% and the balance of the account in USD is of 1'040, with its 4% of interests. After the delivery of the currency forward the balance of the USD account is zero and that of the CHF account is of CHF 15.20.

The investor realized a gain of CHF 15.20 without any initial investment. He therefore could multiply this gain as much as he wants, which does not correspond to the reality.