SIMM ™,[1] Cross-Currency Swap Treatment

This document summarises industry best-practice recommendations for the treatment of cross-currency swaps in the ISDA Standard Initial Margin Model (SIMM).

This document does not constitute legal, accounting or financial advice. ISDA assumes no responsibility for any use to which the guidance provided in these best practice recommendations may be put. Each party following a recommendation in this best practices document must satisfy itself that the recommendation is appropriate for the transaction and has been properly applied in the context of the transaction to reflect the commercial intention of the participants.

1. Regulatory Background

Bilateral Initial Margin regulations provide an exemption for the principal exchange on cross-currency swaps. In particular, the US PR final rules say:

"In the case of a non-cleared cross-currency swap, the covered swap entity's initial margin model need not recognize any risks or risk factors associated with the fixed, physically-settled foreign exchange transaction associated with the exchange of principal embedded in the non-cleared cross-currency swap. The initial margin model must recognize all material risks and risk factors associated with all other payments and cash flows that occur during the life of the non-cleared cross-currency swap."

2. Scope

With the aims of complying with the regulations and easing implementations, whilst still covering the majority of trades, the cross-currency swap exemption is restricted to "simple" physically-settled cross-currency swaps, defined as follows.

- The principal amounts must be either fixed at trade inception or FX-resetting. Note that fixed principal amounts need not be constant through the life of the trade, e.g. amortising or step-up principals.
- The coupons must be either fixed or vanilla floating interest rates, e.g. Libor or OIS.

The following trade types are specifically excluded:

- Anything with possible early termination, e.g. options, callables, knockouts, target redemption
- Non-deliverable trades
- Exotic coupons, e.g. CMS or inflation

---

[1] Patent pending. This document is published by the International Swaps and Derivatives Association, Inc. (ISDA) and is protected by copyright and other proprietary intellectual property rights. It cannot be used, revised or distributed except solely for the purpose of a market participant's own commercial transactions or as otherwise provided for by ISDA in a written licensing agreement. If you are a service provider wishing to license ISDA SIMM™ or other ISDA intellectual property, please contact isdalegal@isda.org. This notice may not be removed.

3. Fixed Principal

For trades where the principal amounts are all known at trade inception (including known changes to principal such as amortisations or accretions), we remove all the risks of all the principal exchange cashflows. This just leaves the coupon cashflows.

4. FX-Resetting Principal

A popular type of vanilla cross-currency swap is one where the principal on one side is fixed, but the principal on the other side resets with the FX rate at the beginning of each coupon period. This type of trade is also known as a "Mark-to-Market" cross-currency swap. To describe the cashflows of such a trade, we use the following notation for the ith period:

T_{i-1}	Start date
T_i	End date
t_i	FX reset date (shortly before T_{i-1})
N_i^f	Principal on fixed (non-resetting) side
C_i	FX spot rate observed at t_i between fixed and resetting currencies
$N_i^r = N_i^f C_i$	Principal on resetting side

For such trades we proceed as follows. We regard the cross-currency swap as a series of single-period swaps, and we remove the principal exchange cashflows of all the single-period swaps whose FX rate C_i has already fixed. Equivalently: once the trade is on-the-run (i.e. once the first FX reset date t_0 is reached), we split the trade into an on-the-run non-resetting trade (consisting of all the periods whose FX rate has fixed), and a forward-starting resetting trade. We remove all the principal exchange flows of the on-the-run non-resetting trade (as in section 3 above), and we leave the forward-starting resetting trade unchanged[2].

More formally, suppose we are receiving the coupons on the non-resetting side and paying the coupons on the resetting side. If today is on or after the ith FX reset date t_i, we remove the following cashflows:

- N_i^f at T_{i-1}
- $-N_i^r$ at T_{i-1}
- $-N_i^f$ at T_i
- N_i^r at T_i

---

[2]Note that this decomposition can (and should) also be applied to swaps where the fixed and floating legs have different frequencies. For example, suppose the market convention for a currency is to swap fixed annual currency coupons against quarterly USD Libor payments (with quarterly USD notional resets). Here we deem there to be quarterly exchanges of notional on both legs in each direction, which net to zero. Such trades have the equivalent risks and credit exposure of the standard equal-frequency case, so this treatment is economically correct.

Note that after doing this we are left with no principal cashflows at the period start date T_{i-1}, but there are still principal cashflows at the period end date T_i, coming from the start of period *i*+1 (unless period *i* was the last one). Note also that the fixed-principal leg is subject to flow removal on the same dates as the resettable-principal leg – we do not remove all the principal flows on the fixed-principal leg, even though they are all known, until we have removed the corresponding principal flows on the resetting side. This is for two reasons: firstly the rule requires "exchange of principal" rather than a single principal payment; secondly, the removal of the FX delta is more efficient and complete than if the final principal of the fixed-principal leg is removed.

There are two main motivations for this approach:

i. It avoids the need to price a derivative with significant convexity. If, at the beginning of the trade , we remove the final principal exchange, then we are left with a payment of Libor x FX at maturity. The value of this payment depends on Libor and FX vols and correlation.

ii. It satisfies the requirement in the US final rules that "an initial margin model need not recognize any risks or risk factors associated with the foreign exchange transactions associated with the fixed exchange of principal embedded in a cross-currency swap". Here the word "fixed" implies that principal exchange payments can only be excluded if they are known.