EQUITIES & EQUITY DERIVATIVES RISK ENGINE

Total Margins

Methodological notes

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1 Introduction

The aim of this module is to illustrate the computation of the *Total Margins* requirement to the Clearing Member, once all the various margin components described in the other modules have been computed.

In particular, the following margin components are required in order to compute the *Total Margins*:

1) *Mark-to-market Margins – MtmM;*
2) *Initial Margins, Ordinary* (scaled) and *Stressed* (unscaled) – $IM_{ordinary}$ and $IM_{stressed}$;
3) *Decorrelation risk add-on, Ordinary* and *Stressed* – $DECO_{ordinary}$ and $DECO_{stressed}$;
4) *Concentration risk add-on – CONC;*
5) *Liquidity risk add-on – LIQ;*
6) *Wrong-way risk add-on – WWR.*

2   *Total Margins* requirement computation

The *Total Margins* (*TM*) requirement for a given portfolio (Clearing Member's account) is given by:

$$TM = max\{TM_t, TM_{t+1}\} + max\{TM_{BOND,t}, TM_{BOND,t+1}\},$$

with:

$$TM_i = max\{max\{[ordinary\_weight * (IM_{ordinary,i} + DECO_{ordinary,i}) + stressed\_weight * (IM_{stressed,i} + DECO_{stressed,i})]; (IM_{ordinary,i} + DECO_{ordinary,i})\} + CONC_i + LIQ_i + WWR_i + MtmM_i; 0\},$$

$$TM_{BOND,i} = max\{max\{[ordinary\_weight * (IM_{BOND,ordinary,i} + DECO_{BOND,ordinary,i}) + stressed\_weight * (IM_{BOND,stressed,i} + DECO_{BOND,stressed,i})]; (IM_{ordinary,i} + DECO_{ordinary,i})\} + CONC_{BOND,i}{}^1 + WWR_{BOND,i} + MtmM_{BOND,i}; 0\},$$

BOND: sub-portfolio of bonds cleared under Equities/Equity derivatives asset class,

$i \in [t, t+1]$ *settlement risk add-on* portfolio configuration.

All margin components in the above formulas represent a debt (+) for the Clearing Member except for *MtmM*, which can represent a credit (-) or a debt (+).

2.1   Separate cash-derivative margining

In case the Clearing Member chooses to separately compute margins for its account's cash and derivative positions, the above formulas must be adjusted this way:

$$TM = max\{TM_{cash,t} + TM_{derivatives,t}; TM_{cash,t+1} + TM_{derivatives,t+1}\} + max\{TM_{BOND,t}; TM_{BOND,t+1}\},$$

with:

$$TM_{i,j} = max\{max\{[ordinary\_weight * (IM_{ordinary,i,j} + DECO_{ordinary,i,j}) + stressed\_weight * (IM_{stressed,i,j} + DECO_{stressed,i,j})]; (IM_{ordinary,i,j} + DECO_{ordinary,i,j})\} + CONC_{i,j} + LIQ_{i,j} + WWR_{i,j} + MtmM_{i,j}; 0\},$$

$i \in [t, t+1]$,

$j \in [cash, derivatives]$.

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[1] At instrument level only.