EURONEXT CLEARING

EQUITIES AND EQUITY DERIVATIVES RISK ENGINE

Total Margins

Methodological notes

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1 What's new

REVISION NO./ VERSION NO.	DATE	CHANGE DESCRIPTION
1.0	31/03/2023	Document submitted for approval to Regulatory Authorities
2.0	26/05/2025	• Fine tuning of the document • Inclusion of Fixed Income Derivatives

2 Introduction

The aim of this module is to illustrate the computation of the *Total Margins* requirement for the Clearing Member's portfolio (i.e. margin account), 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) *Liquidity risk add-on – LIQ*;
5) *Concentration risk add-on – CONC*;
6) *Wrong-way risk add-on – WWR*;
7) *Settlement risk add-on – SETTL;*
8) *Monthly Stress add-on – MSA*;
9) *Daily Stress add-on – DSA.*

Monthly and *Daily Stress add-on*s are margin components linked to stress testing.

3 Total Margins

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

$$TM = TM_E + SETTL_E + TM_B + SETTL_B + TM_Z + SETTL_Z + MSA + DSA,$$

or, put differently:

$$TM = max\{TM_{E,t}; TM_{E,t+1}\} + max\{TM_{B,t}; TM_{B,t+1}\} + max\{TM_{Z,t}; TM_{Z,t+1}\} + MSA + DSA,$$

with:

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

$i \in [E, B, Z]$: sub-portfolio composed of equities and equity derivatives (*E*), bonds cleared under the Equities and Equity derivatives asset class (*B*) or futures on baskets of government bonds cleared under the Equities and Equity derivatives asset class, i.e. Fixed Income Derivatives (*Z*),

$[t, t+1]$: *Settlement risk add-on* portfolio configurations (i.e. *t*: current, 'unaltered' and *t+1*: future, 'altered').

$CONC_{i|i\in[B,Z]}$ is computed at underlying level only.

ordinary_weight and *stressed_weight* are model parameters (please refer to the relevant document).

Always employing the convention of subtracting long positions from short positions (S - L) to obtain net positions to express margin debts as positive quantities and margin credits as negative quantities, 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 (+).