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RepoClear SA
Margin Model Overview

Margin Methodology on Bonds Cash and Repo Transactions cleared by LCH.SA

LSEG POST TRADE

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Introduction

This document is an overview of the margin framework in force on the overall Repoclear SA service.

With Service merger taking effect in July 2023 positions in €GC+ and Repoclear are now margined together, hence allowing netting between both the services. Two margin frameworks are now coexisting, one for the VaR eligible bonds (VEB) and the other for the Non VaR eligible Bonds (NEB).

The service is clearing cash transactions and repo transactions ("Classic", "Buy and Sell Back" and Variable Rates Repo).

The margining methodology foresees the following types of margins:

- Contingent Variation Margin, which covers the negotiation risk and is based revaluation of the portfolio to the market at each margin run. It is only applicable to the VEB positions;
- Initial Margin, which evaluates the potential loss under the hypothesis of portfolio liquidation;
- Additional Margins which are computed as part of the calculation of Margin for each margin run.

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Contingent Variation Margin

The calculation is based on the following steps and only applies to VEB positions (detailed calculation formulae are available on the LCH SA website):

1. Retrieval of the market prices

In order to reevaluate the portfolio, Trade Legs are revaluated on the basis of their current market value at Settlement Prices; such prices are representative of market conditions at the time of calculation.

2. Calculation of Variation Margin per Trade Leg

The Variation Margin of a given Trade Leg is equal to the discounted difference between the trade leg revaluated amount and the traded amount.

3. Calculation of the overall Variation Margin

The Overall Variation Margin is equal to the sum of all the Variation Margins calculated for each Trade Leg.

$$Overall\ Variation\ Margin = \sum Variation\ Margins\ per\ each\ Trade\ Leg$$

Regarding Clearing Members other than Special Clearing Members, a negative Variation Margin results in a debit for the Clearing Member towards LCH SA; a positive Variation Margin results in a theoretical credit for the Clearing Member.

The Variation Margin call at "t" is:

$$Variation\ Margin\ Call_t = Overall\ Varition\ Margin_t - Overall\ Varition\ Margin_{t-1}$$

Therefore, regarding Special Clearing Members only, a negative Variation Margin call results in a debit for the Special Clearing Member towards LCH SA; a positive Variation Margin results in a credit for the Special Clearing Member.

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Initial Margin

As previously mentioned, one can split the €GC+ positions in two categories:

-   The VaR Eligible Bonds (VEB), which are handled in the Repoclear Margin framework.
-   The Non Var Eligible bonds (NEB) which are margins with the legacy €GC+ framewok.

In the following, VEB positions designate VaR eligible positions from €GC+ of a given member and its Repoclear positions.

We have :

$$IM = IM_{VaR} - IM_{PIMM\,(NEB)}$$

1. VEB Framework

The methodology is based on the following steps:

1. Retrieval of the market prices

The following Trade Legs are considered:

1. For sell and purchase Transactions, all unsettled Trade Legs at the margin calculation date;
2. For Repos, all unsettled Trade Legs (all unsettled Initial and Return Transactions);
3. Net fails resulting from sell and purchase Transactions and Repos.

2. General Overview of the Initial Margin

The Initial Margin aims at tackling the following risks:

1. Global change in market value of the portfolio (base model)
2. Decorrelation
3. component between different risk factors (DC)
4. Anti-procyclicality Component (APC)
5. Idiosyncratic risk (the idiosyncratic risk is covered by a dedicated additional Margin)

The final generic formula of the Initial Margin is:

$$IM = Max(IM_{Core}; IM_{Floor})$$

With

$$IM_{Core} = BaseModel_{Core} + DC_{Core} + APC_{Core}$$

$$IM_{Floor} = BaseModel_{Floor} + DC_{Floor} + APC_{Floor}$$

Base model

The base model is looking at the change in value of the portfolio over the holding period, considering the entire position of the portfolio including all long and short positions; on all risk factors.

- The core base model is based on an expected shortfall model
- The floor base model is based on a value at risk (VaR) model

Decorrelation Component

The decorrelation component will ensure that the Initial Margin:

1. Does not allow more offset than authorized by EMIR article 27
2. Does consider any decorrelation event, which would leave the CCP not necessarily covered in case of new type of decorrelation event

• The core decorrelation component is based on an expected shortfall model

• The floor decorrelation component is based on a VaR model

Anti-procyclicality Component

The anti-procyclicality component guarantees compliance with Article 28 of EMIR Regulatory Technical Standards

   • The Core APC is based on an expected shortfall model

   • The Floor APC is embedded within the floor base model

Idiosyncratic Risk

This component tackles the specificity of some ISINs that could embed some risks not precisely captured by the above framework. Particularly inflation linked bond on all countries (ILB), ISINs of agencies and Italian floaters will be impacted by such add-on.

Settlement Risk

In order to cover the risk of settlement (due to current Net Fails or to anticipated overnight changes in Open Positions), LCH SA computes Margins under different settlement assumptions. The Margin effectively called is the highest amount resulting from such assumptions.

2.   NEB Framework

The Parametrical Initial Margin Methodology (PIMM) methodology is based on the following steps:

- Identification of allocated Securities which are not Fixed Income Securities
- Initial Margin calculation is processed as described below.

The PIMM Initial Margin covers the expected variation of the collateral value compared to the cash amount given or received.

The PIMM Initial Margin covers Financial Instrument price variations in the case of a sale or purchase of Securities following an Event of Default.

The PIMM Initial Margin calculation is computed per Clearing Member; it is based upon risk classes set by LCH SA with associated variation parameters.

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Additional Margin

To tackle specifics that would not be captured by the Initial Margin models, a set of Additional Margin are computed at each margin run.

Find below the list of additional margin:

1. Bond Concentration Margin tackling the risk of liquidity and concentration at Bond level
2. Repo Concentration Margin tackling the risk of liquidity and concentration at Repo level
3. Wrong Way Risk tackling the additional risk that could exist between a member, and the repoed debt
4. Sovereign Risk Framework tackling the risk of deterioration of the creditworthiness of an issuer
5. Default Fund Additional Margin tackling the extreme event
6. Legal entity margin ensuring that risk brought into the CCP by a member actives under different membership would be appropriately captured
7. Credit margin, tackling the risk of credit deterioration of the member.

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Total Margin

Total Margins for a given Margin call are equal to the sum of Variation Margins, Initial Margin and additional Margins computed during this Margin calculation session. Should the amount of Variation Margins credit be larger than the amount of Initial Margin and additional Margins debits, the difference is not paid out to the Clearing Member, being just a theoretical credit.

$TotalMargint = Max(Initial\ Margint + additional\ Margint - Variation\ Margint - Variation\ Margin\ on\ Net\ Failst\ ; 0)$

Total Margins are requested from Clearing Members.