Cross Product Margining at Eurex Clearing

Generating Margin Efficiencies for the Buy Side and Sell Side across ETD and OTC IRS

12 May 2022
Methodology
Prisma Cross-Margining

- Optimal allocation of positions delivers lowest cost through cross-margining of OTC & ETD
- Portfolio simulations and what-if scenarios available

**Without cross-margining**

IRS and fixed income futures / futures-style options are margined separately:
- IRS with a 5-day liquidation horizon
- Futures and futures-style options 2-day liquidation horizon

**With cross-margining**

If IRS and futures positions are hedged:
- Futures are transferred to the IRS split such that the reduced risk is reflected in lower margins (depending on portfolio diversity)

FI listed products
- FI futures / futures-style options
  - 2-day horizon
- IR Swaps
  - 5-day horizon

OTC IRS
- Total

FI listed products
- FI futures / futures-style options
  - 2-day horizon

IRS + FI
- Allocation of FI listed products that hedge IRS exposure
  - IR Swaps
  - FI F&O

Total

**Margin reduction**

Cross-margined portfolio
- Total
Comprehensive Fixed Income Liquidation Group

- A liquidation group combines cleared products across markets cleared by Eurex Clearing that share similar risk profiles.
- They serve as a cornerstone of the Prisma portfolio-based risk management method and offer full margin offsetting capabilities per group.

Eurex Clearing’s Fixed Income liquidation group combines:

- Money Market F&O
- Fixed Income F&O
- OTC IRS

- Liquidation groups are pre-defined; they exist irrespective of a clearing member default.
- Each liquidation group has a fixed holding period that reflects the time estimated to analyse, hedge and auction the respective products.
- An expected holding period can be between two to five days, depending on the liquidation group, and is the basis for margin calculation at the same time.
- Listed Fixed Income are calculated with 2 days and OTC products, for regulatory reasons, with 5 days.
Cross Product Margining – ETD & OTC IRS

- **Reduced margining** from offsets between European Government Bond Futures and EUR OTC IRS
- Eurex Clearing is the only CCP that offers cross-margins between EUR Listed Government Bond Derivatives and EUR OTC IRS

![Diagram showing cross product margining](image)

**German government futures:**
- Buxl
- Bund
- Bobl
- Schatz

**EUR IRS interest rate risk:**
- ~30Y rate
- ~10Y rate
- ~5Y rate
- ~2Y rate

**Other EUR government futures:**
- BTP Futures
- OAT Futures
- BONO Futures

**Money market futures:**
- 1M EONIA
- 3M EURIBOR

**FRAs**

**Bond / swap correlation**

**Correlation across maturities**

**KEY**

![Eurex Logo]
2 Roadmap
Overview of PRISMA development roadmap to complete delivery of the Eurex full value proposition around margin efficiencies

Priorities for the mid-term PRISMA cross-margining roadmap

- Margin Calculator: API extension to cover for ETD portfolio margining and ETD v. OTC cross-marginning – **LIVE NOW**
- OTC IRS vs. Fixed Income ETD cross-margining algorithm enhancements – **LIVE NOW**
- Portfolio Margining enhancements on the repo risk system.
  - Margining between single ISINs and GC pooling
  - Correlation matrix optimisation
- Inclusion of Repo into the PRISMA risk management system
- Cross-margining across OTC IRS, FI ETD and repo
Examples & Analysis of Cross Product Margining
Additional EUR Asset Swap Examples

Margin savings clearing both transactions through Eurex Clearing between 53% and 72%

**Bobl Asset Swap**
- OTC IRS 1.209 bn 2026 (Pay Fixed)
- € 14.8 mn
- Buy 10k Bobl Future
- € 10.0 mn
- Total €24.8 mn
- 70% Savings
- Combined € 7.5 mn

**Schatz Asset Swap**
- OTC IRS 887 mn 2023 (Pay Fixed)
- € 4.5 mn
- Buy 10k Schatz Future
- € 2.6 mn
- Total € 7.1 mn
- 64% Savings
- Combined € 2.6 mn

**Bund Asset Swap**
- OTC IRS 1.638 bn 2030 (Pay Fixed)
- € 40.8 mn
- Buy 10k Bund Future
- € 25.6 mn
- Total €66.4 mn
- 72% Savings
- Combined € 18.8 mn

**OAT Asset Swap**
- OTC IRS 1.386 bn 2030 (Pay Fixed)
- € 33.5 mn
- Buy 10k OAT Future
- € 24.5 mn
- Total € 58.1 mn
- 53% Savings
- Combined € 27.4 mn

Calculation date used: 6th July 2021
The enhancements delivered in June allow for a more efficient cross-margining of ETD vs. OTC IRS strategies.

Simulation of margins on Ad-Hoc strategies

**Box trade between futures and IRSs**

- **OTC IRS portfolio**
  - 10Y IRS 168 mn (Pay Fixed)
  - 2Y IRS 730 mn (Rec Fixed)
- **ETD Portfolio**
  - FGBL (10Y) 1,000 lots Long
  - FGBS (2Y) 7,400 lots Short

**Futures barbell vs. IRS**

- **OTC IRS portfolio**
  - FGBX (30Y) 360 lots Long
  - 7Y IRS 1.0 bn (Pay Fixed)
- **ETD Portfolio**
  - FGBS (2Y) 27,400 lots Short

**XM environment prior to June 2021**
- Initial Margins: 4.5 mn
- Benefit* in %: 0%

**Enhanced XM environment**
- Initial Margins: 2.25mn
- Benefit* in %: 50%

**XM environment prior to June 2021**
- Initial Margins: 24.4 mn
- Benefit* in %: 17%

**Enhanced XM environment**
- Initial Margins: 11.4mn
- Benefit* in %: 61%

*The benefits of XM are checked on a simulation based on the cross-margining functionality switched off*
OTC IRS Margin Components

IRS Margin Components in Terms of Trade Notional

- This table indicates that IM increases with an increase in tenor
- Furthermore, IM notably increases with an increase in notional for 20 yr, 30 yr and 50 yr tenors

<table>
<thead>
<tr>
<th>Currency</th>
<th>Notional (in million)</th>
<th>Margin Component</th>
<th>Receive Fix</th>
<th>Pay Fix</th>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Maturity in Years</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>2</td>
<td>5</td>
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<tr>
<td></td>
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<td></td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>EUR</td>
<td>10</td>
<td>Market Risk</td>
<td>0.25%</td>
<td>0.87%</td>
</tr>
<tr>
<td>EUR</td>
<td>10</td>
<td>Liquidity Adjustment</td>
<td>0.01%</td>
<td>0.04%</td>
</tr>
<tr>
<td>EUR</td>
<td>10</td>
<td><strong>Total IM</strong></td>
<td><strong>0.26%</strong></td>
<td><strong>0.91%</strong></td>
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Thank you!
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