Rabobank

EMIR 3 & Pension reforms

Dutch Pension Perspectives

RaboResearch
Global Economics & Markets
knowledge.rabobank.com

Bas van Zanden
Senior Analyst
+31 (30) 7121869

Lyn Graham-Taylor
Senior Rates strategist
+44 (20) 76649732

Yuri Swolfs
EUR Interest Rate Derivatives Trader
+31 (30) 2169071

Summary

- EMIR 3 introduces two key requirements: the Active Account Requirement (AAR) and the Representativeness Obligation (RO)
- The majority of the assets and DV01 in the Dutch pension sector is impacted by both requirements
- Pension funds will likely consider moving (part of) the swap portfolio over to EUREX, particularly as they already have to restructure the portfolio because of the reforms that the sector is undergoing. However, they are arguably just as likely to comply with the RO via adopting a "box ticking" strategy
- The Rabo Rates team continues to be biased towards an invaren driven steepening of the 10s30s and 30s50s EUREX-LCH box

How does EMIR 3 impact the Dutch pension sector?

The European Markets Infrastructure Regulation (EMIR) has been revised and came into effect as of 24 December 2024 (EMIR 3). EMIR is a European Regulation on reporting over-the-counter (OTC) derivative contracts to trade repositories and clearing standardised OTC derivative contracts through central counterparties (CCPs).

Two of the key requirements under EMIR 3 are the Active Account Requirement (AAR) and the Representativeness Obligation (RO). The AAR requires market participants to hold an active account at an EU CCP and the RO requires them to clear a minimum number of trades through an EU CCP. The majority of EUR (interest) rate derivatives are still cleared at a non-EU CCP (LCH) and this regulation tries to move part of this clearing business to EU CCPs like EUREX. The RO will also require additional reporting and stress testing, all of which will come into effect as of 24 June 2025. The European Securities and Market Authority (ESMA) is currently in the process of finalising its draft Regulatory Technical Standards (RTS) on the conditions expected in June 2025. Based on the draft RTS:

- The AAR is linked to the clearing obligation of holding more than €3bn in gross notional of OTC interest rate derivatives.[1]
- The RO applies if the cleared outstanding notional exceeds €6bn.[1] Many Dutch pension funds (PFs) still hold a significant closed OTC derivatives portfolio because they were exempt from clearing until June 2023.

Under the RO, at least five trades need to be made in each of the relevant subcategories which is essentially a combination of a maturity bucket and the trade size they trade the most often. The frequency of this requirement is increased if the notional outstanding is above €100bn. There is, however, some relief for low(er) frequency traders like PFs. If the five required trades exceed 50% of total trades over 12 months in that subcategory, then just one trade is also sufficient. Table 1 shows that the number of subcategories differs per type of derivative.

[1] These are measured based on a 12-month average of the aggregate month-end position.

Most Dutch PFs predominantly use EUR Interest rate swaps (IRS). As shown in Table 1, for that class of derivative there are 12 subcategories (4 maturities * 3 sizes). So basically, PFs that are subject to the RO will have to do at least 5 EUR IRS trades at an EU CCP in each of the 5 subcategories they are most active in. **In our view, the most active subcategories for the Dutch pension sector are the longer dated IRS buckets (10-15y & 15Y+) and mid (25-50mn) to large (50mn) size notional trades.** The definition of relevant subcategories only applies to non-EU CCPs. This means for example if a pension fund only trades on EUREX in the 15Y+ bucket, it is no longer considered as a relevant subcategory which effectively means the fund will have to do 5 more required trades in another bucket. This results in an incentive not to switch over completely in a certain subcategory because that could potentially result in challenges in another subcategory.

Table 1: Active account requirement per derivative type

Derivative class	*Maturity bucket*	*Size (€ mn)*	*Subcategories required to trade in*	*Reference period <€100bn*	*Reference period >€100bn*
EUR Euribor swap (IRS)	0-5; 5-10; 10-15; 15y+	0-25; 25-50; 50+	5	6 months	1 months
EUR Overnight index swap (OIS)	0-1; 1-2; 2-5; 5y+	0-25; 25-100; 100+	5	6 months	1 months
EUR Forward rate agreement (FRA)	0-6; 6-12; 12-18; 18m+	0-7; 75-200; 200+	5	6 months	1 months
EUR Short Term Interest Rate (STIR) Euribor	0-6; 6-12; 12-18; 18m+	Any	4	6 months	1 months
EUR STIR ESTR	0-6; 6-12; 12-18; 18m+	Any	4	12 months	6 months

Source: ESMA

If we look at the implications of this regulation for PFs, the requirements basically divide the sector up in 4 categories as shown in Table 2. A lot of PFs still have a closed OTC derivative portfolio. According to the DNB, in 2023, 39% of the sector's aggregate portfolio consisted of cleared derivatives and they expected this to increase to 55% by 2028. Since then, interest rate hedging has continued to increase, which leads us to believe the actual cleared percentage is likely higher now.

Up until now there was limited incentive for PFs to use netting or novation to reduce the gross outstanding notional once they exceeded the clearing threshold. In practice, PFs therefore often have bigger notional outstanding amounts than you would expect based on their size.

Given the RO only applies to the cleared notional and there is no public data available on the split between cleared/ non-cleared, we have made two estimates to get a sense of the volume of assets and DV01 in swaps is in each category:

- Pension funds hold approximately 50% in cleared derivatives and 50% in bilateral derivatives.
- Pension funds hold approximately 75% in cleared derivatives and 25% in bilateral derivatives

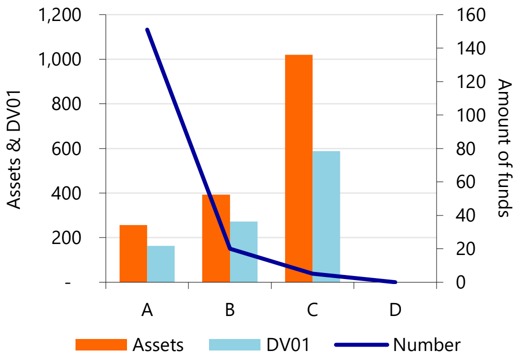
In reality we are likely somewhere between both of these estimates and will move to the latter estimate in due time. **Figure 1 and 2 show that even though only the largest pension funds are impacted by the RO, it still concerns the majority of assets and DV01.** These funds will have to send a notification on their active account to the regulator before 24 June 2025 and will be required to clear at least 5 trades in their 5 most active subcategories at an EU CCP. In practice most, if not all, large PFs have already secured access to EUREX but they are now forced to do more transactions there. This is in our view already impactful, not least because **it is not unlikely that these requirements will be increased in the future, therefore slowly forcing more trading activity to EU CCPs**.

Table 2: Different requirements depending on outstanding OTC and cleared notional

Category	*Description*	*AAR*	*RO*
A	<€3bn OTC	No	No
B	>€3bn OTC <€6bn cleared notional	Yes	No
C	>€6bn cleared <€100bn cleared	Yes	Yes (per six months)
D	>€100bn cleared	Yes	Yes (every month)

Source: DNB, Rabobank

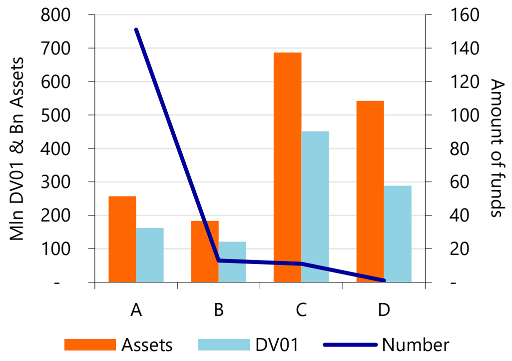
Figure 1: Amount of assets in €bn, DV01 in €mn and number of funds assuming a 50% cleared derivative portfolio in each category



Source: DNB, Rabobank

Note: In this calculation we assume 60% of DV01 is hedged using swaps and the interest rate hedge is as at 4Q24

Figure 2: Amount of assets in €bn, DV01 in €mn and number of funds assuming a 75% cleared derivative portfolio in each category



Source: DNB, Rabobank

Note: In this calculation we assume 60% of DV01 is hedged using swaps and the interest rate hedge is as at 4Q24

The legislation also includes an 85%-threshold. This basically means that if you exceed the clearing threshold of €3bn and you clear at least 85% at an EU CCP, you will get an exemption on the RO and some of the reporting requirements. One could argue this is an incentive to move to EU CCPs altogether. However, in our view pension funds (especially larger ones) at this stage will likely prefer to keep trading both from a best execution and risk management perspective.

Given the ESMA RTS are not finalised yet, the DNB announced that they will not prioritise supervisory or enforcement action until they are in force.

How are pension funds responding to this new legislation?

Post Brexit most Dutch pension funds ensured access to EUREX. They were afraid they could potentially lose access to LCH. In our view they were one the early adopters. Only after a while the other side of the trade followed (banks/treasuries) interested in picking up the spread. This resulted in more mean reversion of the LCH/EUREX spread which we discuss in more detail later.

Implementing this new legislation is not a big theme for Dutch PFs. They are still predominantly occupied with implementing the pension reforms and, as to be expected, some elements of the legislation are not clear yet. For example, it is still unclear what the reference period for measuring the outstanding notional amount is.

PFs are likely contemplating how to deal with this new legislation. For example, they could:

- If the gross notional size of their portfolio is not far above the RO threshold (€6bn cleared notional), they could act to lower its size (via novation) below the threshold.
- Move (part of) their portfolio over to EUREX, particularly as they already have to restructure the portfolio because of the sector reforms.
- If already executing trades on EUREX, split the notional being traded into smaller clip sizes to hit the minimum trade number threshold. A variation of this would be to only execute trades with a very small notional on EUREX to shift minimal economic risk to the CCP but hit the trade number threshold.
- For every trade conducted on EUREX to hit the trade number threshold, conduct an equal and opposite trade at the CCP to avoid shifting any economic risk to the venue.

In our view it is very unlikely that the sector will completely move over to EUREX now, given most of the liquidity is still at LCH and that PFs could choose to adopt a "box ticking" strategy to comply with EMIR 3 (i.e. carry out the required minimum number of trades while moving no economic risk to EUREX). However, this could change going forward, especially if the required minimum number of transactions is increased or it is legislated that a certain volume of economic risk must be moved to EUREX.

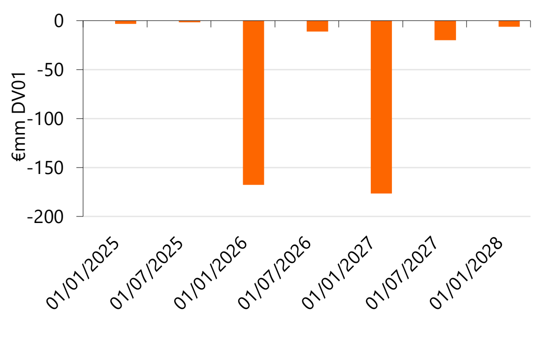
What is the impact of the reforms?

Due to the reforms that the sector is undergoing, PFs will be adjusting their matching portfolio (which consists of both bonds and swaps). We estimate that the whole sector has a DV01 of roughly €1,600mln. **Due to the reforms, we expect that this will be reduced by roughly 25% (i.e. €400mln in DV01)**. Note that as well as a reduction in DV01 there will be a shift in exposure on the curve so the total size in traded DV01 will likely be higher.

We expect that the majority of the reduction in DV01 will come via the swap portfolio. Figure 3 shows the expected timing of these adjustments, with the majority occurring in January 2026 and January 2027.

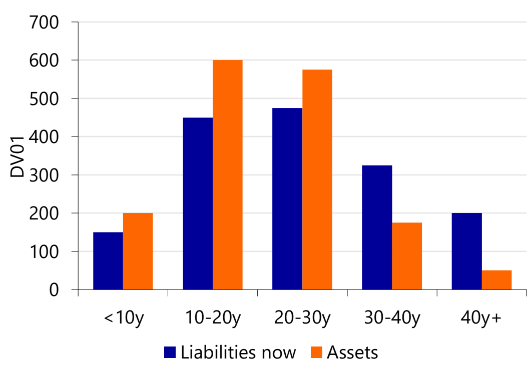
N.b. In our view **it is likely that we will see further delays in the reform timetable and therefore changes in the timing of these adjustments**.

Figure 3: Expected transition dates of pension funds by DV01 adjustments



Source: DNB, Pensioen Pro, Rabobank

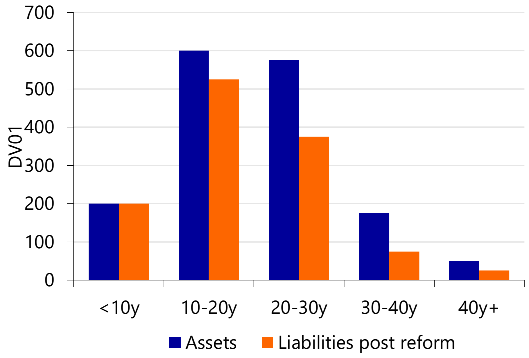
Figure 4: Interest rate sensitivity of current Dutch pension fund liabilities compared to interest rate sensitivity of current assets



Source: Rabobank

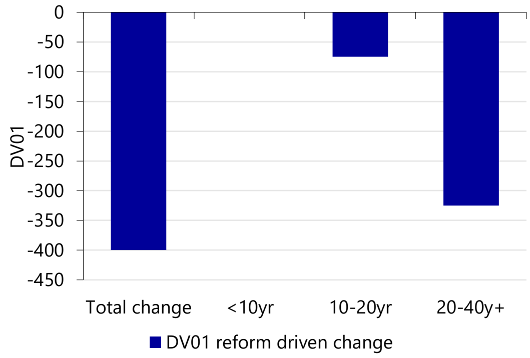
Unfortunately, there is no public data available on the actual curve exposure of PFs. Nonetheless, based on our client interactions, we have made some estimates on where we think the adjustments in DV01 will be the most prominent. Figure 4 shows our estimation of the interest rate sensitivity of the assets and liabilities of Dutch PFs. This shows that PFs already have a curve position in place where they have more short and less long-end exposure compared to their actual liabilities.

Figure 5: Interest rate sensitivity of future Dutch pension fund liabilities compared to interest rate sensitivity of current assets



Source: Rabobank

Figure 6: Expected changes in portfolio in DV01 in different buckets



Source: Rabobank

Figure 5 shows how the interest rate sensitivity of PF assets compares to our expectation of the interest rate sensitivity of their liabilities in the post reform era. **This shows that we expect more adjustments at the longer end of the curve (20y+)**. Figure 6 simply presents the same data in a different way.

As we discussed in a previous publication, these adjustments by Dutch PFs will likely result in an impact on the EUR swap curve(s). While carrying out these adjustments PFs will have to bear in mind the new EMIR requirements.

What does this mean for EUREX-LCH basis spreads?

Background

As outlined previously, the two major CCPs for EUR denominated interest rate swaps (IRS) are EUREX and LCH. As at Q4 2023 the market share of LCH stood at c. 81% and that of EUREX at c. 18% (i.e. the share of LCH is significantly higher). The share of EUREX has increased from 8% in 2019 but has actually remained stable since 2021[2].

The EUREX-LCH basis is the price difference observed in the fixed rate for otherwise identical IRS contracts cleared at each CCP. A positive basis means that the fixed rate on the EUREX cleared IRS is above that of an LCH cleared one (and vice versa). In terms of why the basis exists, let's assume the situation of a dealer (i.e. a market-maker) that has access to both CCPs and wants to run a flat position with regards to its market risk:

- If the dealer executes an IRS with a client, it will look to carry out an equal and opposite transaction either with another client or another dealer in order to maintain a neutral market risk.
- If both the original and offsetting transactions are cleared at the same CCP, the collateral requirements (in the form of initial margin) of both trades will net out to zero[3].
- If the original trade is cleared at EUREX but the offsetting trade is cleared at LCH, initial margin will be required for the trade at each CCP. Dealers will look to recoup the cost of this

[2]"The derivatives clearing landscape in the euro area three years after Brexit", ECB (https://www.ecb.europa.eu/press/fie/box/html/ecb.fiebox202406_02.en.html).

[3] "Back to the basi(c)s – what is the CCP basis, why does it matter and is it here to stay?*, SUERF July 2024 (https://www.suerf.org/wp-content/uploads/2024/07/SUERF-Policy-Brief-940_Boudiaf-Scheicher.pdf).

margin requirement via the fixed rate quoted on the swap to the original client - known as a "margin value adjustment (MVA)"[4].

Within each CCP, cross currency netting of initial margin is possible. However, for institutions with multi-currency portfolios, this can limit the appeal of EUREX as clearing activity there is mainly denominated in EUR. In contrast, LCH can be used for a very diverse set of hedging needs and therefore has a heterogeneous client base. It is our understanding that:

- The EUR IRS interdealer market is still trading almost entirely at LCH. This means that if a dealer trades on EUREX with a client and hedges via the inter-dealer market then all quoted prices are LCH unless specified otherwise. The dealer will then separately hedge its EUREX/ LCH basis risk via a EUREX/ LCH swap.
- Almost all large banks use a LCH curve as their internal swap curve benchmark.

<u>How has the basis traded?</u>

One simple way of viewing the EUREX-LCH basis is that it reflects, at each tenor bucket, whether the balance of payers and receivers at EUREX matches that of LCH:

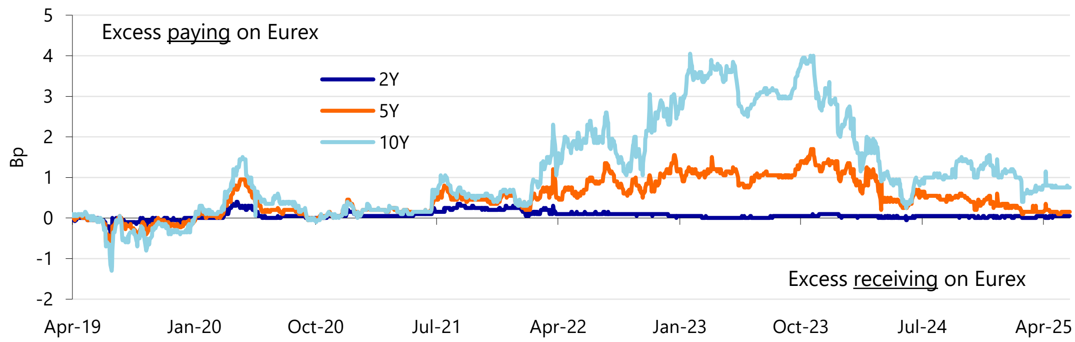
- A positive basis means that, relative to LCH, there is an oversupply of (fixed rate) payers at EUREX (i.e. dealers are unable to offset all client paying flow on EUREX with receivers on EUREX and instead have to do so on LCH).
- A negative basis means that, relative to LCH, there is an oversupply of (fixed rate) receivers at EUREX (i.e. dealers are unable to offset all client receiving flow on EUREX with receivers on EUREX and instead have to do so on LCH).

Figure 7 below shows the development of the basis at the 2yr/ 5yr/ 10yr maturity points. The key takeaway is that at these tenors the basis is generally always in positive territory, meaning that EUREX has an excess of payers relative to LCH. In addition:

- At 2yr maturity the basis is always close to zero while it is largest at the 10yr.
- The basis is currently very small by the standards of the last three years.

One factor behind the significant positivity of the 5yr/ 10yr basis in 2022/ 2023 was that a number of German bank treasuries (who are generally net payers) were at this time being pushed by the German regulator to clear all of their swaps on EUREX (something which continues for certain accounts today). This was occurring at a time when net receivers at these tenors were not being pushed to EUREX in the same way.

Figure 7: EUREX-LCH basis 2yr/ 5yr/ 10yr – April 2019 to present



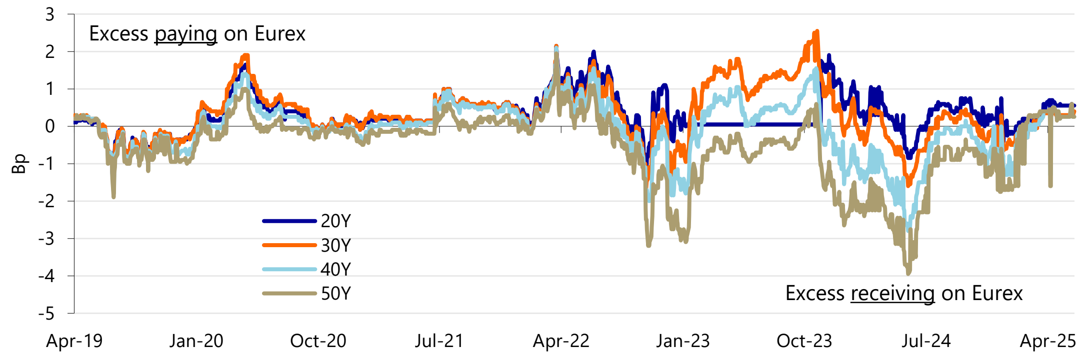
Source: Bloomberg, Rabobank

Figure 8 below shows the development of the basis at the 20yr/ 30yr/ 40/ 50yr maturities. In the chart we can see that it is common for the basis to be in negative territory (meaning that EUREX

[4] Initial margin needs to be funded by the dealer and so funding costs will have an impact on the MVA. Other variables impacting MVA include margin models, collateral practises and balance sheet capacity.

has an excess of receivers relative to LCH), with the prevalence of trading at a negative level generally increasing with maturity.

Figure 8: EUREX-LCH basis 20yr/ 30yr/ 40yr/ 50yr – April 2019 to present



Source: Bloomberg, Rabobank

In both Figures 7 and 8 we can see that the most positive/ negative the basis has been is +/-4bp. There are two arguments as to why it may be difficult, going forward, for the basis to push through that level:

- A spread of 4/5bp is around the minimum required level for an arbitrage transaction to be economical (i.e. to cover the cost of having initial margin at both CCPs) and so this acts as a soft cap/ floor on the basis.
- There is an increasing amount of non-dealer counterparties (specifically smaller banks) that both have a EUREX account and are aware of the EUREX-LCH basis. This has arguably resulted in the basis having greater "mean reversion" type characteristics. Specifically a fixed payer will trade on EUREX (rather than LCH) when the basis is negative while a fixed receiver will receive on EUREX (rather than LCH) when the basis is positive.

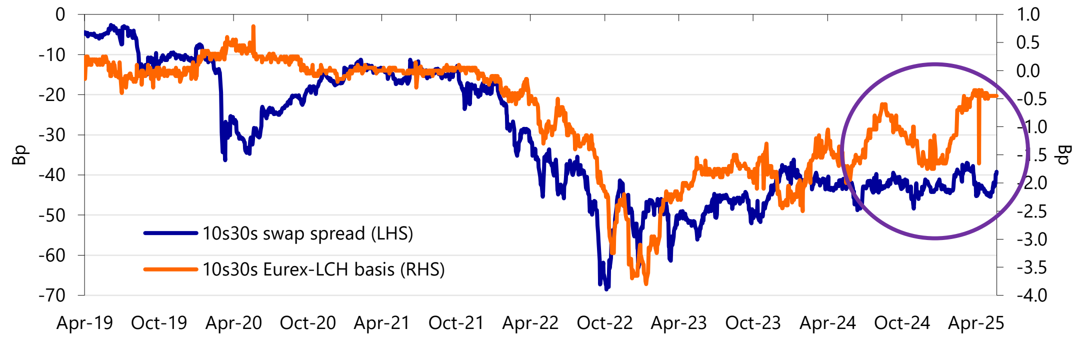
Footprint of PFs on the basis?

Regular readers of our PF focused publications will know that our favoured metric for gauging the market impact of PF hedging behaviour is the 10s30s EUR spread of swap spreads (in the rest of this piece we refer to this as the 10s30s swap spread). Essentially increased long-end receiving demand from PFs causes this spread, all other things being equal, to become more negative (and vice versa).

In Figure 9 below we can see that there has generally been a strong correlation between the 10s30s swap spread and the 10s30s EUREX-LCH basis, with this indicating to us that PF receiving demand has been a key driver of this basis. However, in the period since June 2024 (highlighted in the chart by the purple circle) the relationship between the swap spread and the basis appears to have broken down. We think that this is most likely to be a function of non-PF counterparties (specifically hedge funds and sovereign wealth funds) using the EUREX-LCH basis as a cleaner[5] way than the swap spread of positioning for the invaren driven unwind by PFs of their long-dated receivers.

[5] We say "cleaner" as while the 10s30s swap spread should become more positive in response to long-dated receiver unwinds by PFs, it could also experience a degree of negative pressure (albeit to a lesser degree and over a longer time frame) from the PF sector reducing its holdings of long-dated govvies.

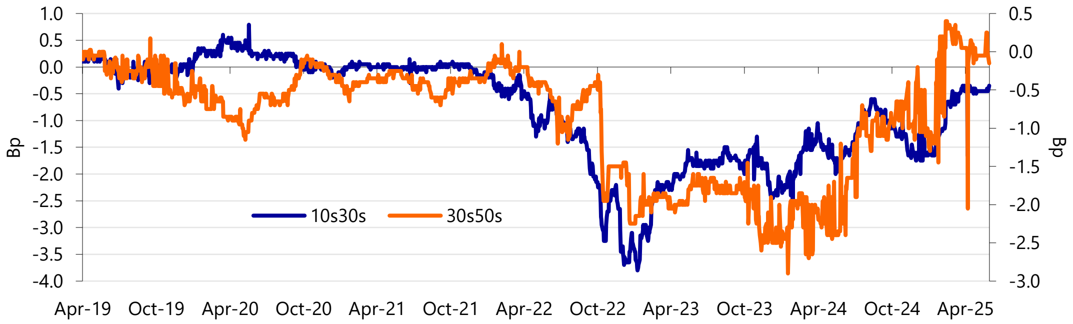
Figure 9: 10s30s swap spread and 10s30s EUREX-LCH basis – April 2019 to present



Source: Bloomberg, Rabobank

Figure 10 below shows the 10s30s and 30s50s EUREX-LCH basis and we can see that there is a strong co-movement between these two spreads. While (as outlined above) we think that the decreasing negativity of the 10s30s EUREX-LCH basis since last year has primarily been driven by non-PF counterparties speculating on the future activities of PFs, we think that the movement in the 30s50s EUREX-LCH basis has to a greater degree been driven by actual PF receiver unwinds (as they prepare for the invaren to the extent that is possible at this point in time). Note, though, that this view is based purely on our conversations with clients rather than any hard data and non-PF flow is also likely to have played a role. Unfortunately the absence of ultra-long German bond issuance also makes it impossible to compare the development of the 30s50s EUREX-LCH basis with the 30s50s swap spread.

Figure 10: EUREX-LCH basis 10s30s and 30s50s



Source: Bloomberg, Rabobank

<u>The basis going forward</u>

The impact of the implementation of EMIR 3 on the EUREX-LCH basis is likely to ultimately depend on whether, at each maturity point, it shifts the balance of payers/ receivers at EUREX relative to those on LCH. We would suggest that at this point in time this remains too unclear to trade – not least as counterparties do have the option of hitting the new (trade number based) requirements without actually shifting any economic risk to EUREX. However the process of Dutch PF reform means that, based on the current level of our favoured 10s30s swap spread metric, we are biased towards further steepening of both the 10s30s and 30s50s EUREX-LCH basis.

RaboResearch
Global Economics & Markets
mr.rabobank.com

Global Head

Jan Lambregts
+44 20 7664 9669
Jan.Lambregts@Rabobank.com

Macro Strategy

Global

Michael Every
Senior Macro Strategist
Michael.Every@Rabobank.com

Europe

Elwin de Groot
Head Macro Strategy
Eurozone, ECB
+31 30 712 1322
Elwin.de.Groot@Rabobank.com

Bas van Geffen
Senior Macro Strategist
ECB, Eurozone
+31 30 712 1046
Bas.van.Geffen@Rabobank.com

Stefan Koopman
Senior Macro Strategist
UK, Eurozone
+31 30 712 1328
Stefan.Koopman@Rabobank.com

Maartje Wijffelaars
Senior Economist
Italy, Spain, Eurozone
+31 88 721 8329
Maartje.Wijffelaars@Rabobank.nl

Americas

Philip Marey
Senior Macro Strategist
United States, Fed
+31 30 712 1437
Philip.Marey@Rabobank.com

Christian Lawrence
Head of Cross-Asset Strategy
Canada, Mexico
+1 212 808 6923
Christian.Lawrence@Rabobank.com

Mauricio Une
Senior Macro Strategist
Brazil, Chile, Peru
+55 11 5503 7347
Mauricio.Une@Rabobank.com

Renan Alves
Macro Strategist
Brazil
+55 11 5503 7288
Renan.Alves@Rabobank.com

Molly Schwartz
Cross-Asset Strategist
+1 516 640 7372
Molly.Schwartz@Rabobank.com

Asia, Australia & New Zealand

Teeuwe Mevissen
Senior Macro Strategist
China
+31 30 712 1509
Teeuwe.Mevissen@Rabobank.com

Benjamin Picton
Senior Macro Strategist
Australia, New Zealand
+61 2 8115 3123
Benjamin.Picton@Rabobank.com

FX Strategy

Jane Foley
Head FX Strategy
G10 FX
+44 20 7809 4776
Jane.Foley@Rabobank.com

Rates Strategy

Richard McGuire
Head Rates Strategy
+44 20 7664 9730
Richard.McGuire@Rabobank.com

Lyn Graham-Taylor
Senior Rates Strategist
+44 20 7664 9732
Lyn.Graham-Taylor@Rabobank.com

Credit Strategy & Regulation

Matt Cairns
Head Credit Strategy & Regulation
Covered Bonds, SSAs
+44 20 7664 9502
Matt.Cairns@Rabobank.com

Bas van Zanden
Senior Analyst
Pension funds, Regulation
+31 30 712 1869
Bas.van.Zanden@Rabobank.com

Cas Bonsema
Senior Analyst
Financials
+31 6 127 66 642
Cas.Bonsema@Rabobank.com

Maartje Schriever
Analyst
ABS
+31 6 251 43 873
Maartje.Schriever@Rabobank.com

Agri Commodity Markets

Carlos Mera
Head of ACMR
+44 20 7664 9512
Carlos.Mera@Rabobank.com

Charles Hart
Senior Commodity Analyst
+44 20 7809 4245
Charles.Hart@Rabobank.com

Oran van Dort
Commodity Analyst
+31 6 423 80 964
Oran.van.Dort@Rabobank.com

Andrick Payen
RaboResearch Analyst
+1 212 808 6808
Andrick.Payen@Rabobank.com

Energy Markets

Joe DeLaura
Senior Energy Strategist
+1 212 916 7874
Joe.DeLaura@Rabobank.com

Florence Schmit
Energy Strategist
+44 20 7809 3832
Florence.Schmit@Rabobank.com

Client coverage

Wholesale Corporate Clients

Martijn Sorber	Global Head	+31 30 712 3578	Martijn.Sorber@Rabobank.com
Hans Deusing	Europe	+31 30 216 9045	Hans.Deusing@Rabobank.com
Neil Williamson	North America	+1 212 808 6966	Neil.Williamson@Rabobank.com
Adam Vanderstelt	Australia, New Zealand	+61 2 8115 3102	Adam.Vanderstelt@rabobank.com
Ethan Sheng	Asia	+852 2103 2688	Ethan.Sheng@Rabobank.com
Ricardo Rosa	Brazil	+55 11 5503 7150	Ricardo.Rosa@Rabobank.com

Financial Institutions

Short-term Interest Rates

Marcel de Bever	Global Head	+31 30 216 9740	Marcel.de.Bever@Rabobank.com

Bonds & Interest Rate Derivatives

Henk Rozendaal	Global Head Fixed Income	+31 30 216 9423	Henk.Rozendaal@Rabobank.com

Solutions

Sjoerd van Peer	Global Head	+31 30 216 9072	Sjoerd.van.Peer@Rabobank.com

Relationship Management

Rogier Everwijn	Global Head	+31 30 712 2440	Rogier.Everwijn@Rabobank.com
Rob Eilering	Banks	+31 30 712 2162	Rob.Eilering@Rabobank.com
Petra Schuchard	Insurers		Petra.Schuchard@Rabobank.com
Frank Dekkers	Asset Managers		Frank.Dekkers@Rabobank.com
Javier Alvarez de Eerens	MDB	+31 30 712 1015	Javier.Alvarez@Rabobank.com
Christel Kleinhaarhuis	Fintech		Christel.Klein.Haarhuis@Rabobank.com

Capital Markets

Laura Bijl	Global Head	+31 88 726 3254	Laura.Bijl@Rabobank.com
Christopher Hartofilis	Capital Markets USA	+1 212 808 6890	Christopher.Hartofilis@Rabobank.com
Ian Baggott	Capital Markets Asia	+852 2103 2629	Ian.Baggott@Rabobank.com
Adriana Gouveia	Capital Markets Brazil	+55 11 5503 7305	Adriana.Gouveia@rabobank.com
Willem Kröner	Global Head ECM	+31 30 712 4783	Willem.Kroner@Rabobank.com
Harman Dhami	DCM Syndicate	+44 20 7664 9738	Harman.Dhami@Rabobank.com
Crispijn Kooijmans	DCM FIs & SSAs	+31 30 216 9028	Crispijn.Kooijmans@Rabobank.com
Bjorn Alink	DCM Securitisation & Covered Bonds	+31 30 216 9393	Bjorn.Alink@Rabobank.com
Othmar ter Waarbeek	DCM Corporate Bonds	+31 30 216 9022	Othmar.ter.Waarbeek@Rabobank.com
Joris Reijnders	DCM Corporate Loans	+31 30 216 9510	Joris.Reijnders@Rabobank.com
Brian Percival	DCM Leveraged Finance	+44 20 7809 3156	Brian.Percival@Rabobank.com

Disclaimer

Non Independent Research

This document is issued by Coöperatieve Rabobank U.A. incorporated in the Netherlands, trading as "Rabobank" ("Rabobank") a cooperative with excluded liability. The liability of its members is limited. Authorised by De Nederlandsche Bank in the Netherlands and regulated by the Authoriteit Financiële Markten. Rabobank London Branch (RL) is authorised by De Nederlandsche Bank, the Netherlands and the Prudential Regulation Authority, and subject to regulation by the Financial Conduct Authority and limited regulation by the Prudential Regulation Authority. Further details are available on request. RL is registered in England and Wales under Company no. FC 11780 and under Branch No. BR002630. This document is directed exclusively to Eligible Counterparties and Professional Clients. It is not directed at Retail Clients.

This document does not purport to be impartial research and has not been prepared in accordance with legal requirements designed to promote the independence of Investment Research and is not subject to any prohibition on dealing ahead of the dissemination of Investment Research. This document does NOT purport to be an impartial assessment of the value or prospects of its subject matter and it must not be relied upon by any recipient as an impartial assessment of the value or prospects of its subject matter. No reliance may be placed by a recipient on any representations or statements made outside this document (oral or written) by any person which state or imply (or may be reasonably viewed as stating or implying) any such impartiality.

This document is for information purposes only and is not, and should not be construed as, an offer or a commitment by RL or any of its affiliates to enter into a transaction. This document does not constitute investment advice and nor is any information provided intended to offer sufficient information such that is should be relied upon for the purposes of making a decision in relation to whether to acquire any financial products. The information and opinions contained in this document have been compiled or arrived at from sources believed to be reliable, but no representation or warranty, express or implied, is made as to their accuracy, completeness or correctness.

The information contained in this document is not to be relied upon by the recipient as authoritative or taken in substitution for the exercise of judgement by any recipient. Any opinions, forecasts or estimates herein constitute a judgement of RL as at the date of this document, and there can be no assurance that future results or events will be consistent with any such opinions, forecasts or estimates. All opinions expressed in this document are subject to change without notice.

To the extent permitted by law, neither RL, nor other legal entities in the group to which it belongs accept any liability whatsoever for any direct or consequential loss howsoever arising from any use of this document or its contents or otherwise arising in connection therewith.

Insofar as permitted by applicable laws and regulations, RL or other legal entities in the group to which it belongs, their directors, officers and/or employees may have had or have a long or short position or act as a market maker and may have traded or acted as principal in the securities described within this document (or related investments) or may otherwise have conflicting interests. This may include hedging transactions carried out by RL or other legal entities in the group, and such hedging transactions may affect the value and/or liquidity of the securities described in this document. Further it may have or have had a relationship with or may provide or have provided corporate finance or other services to companies whose securities (or related investments) are described in this document. Further, internal and external publications may have been issued prior to this publication where strategies may conflict according to market conditions at the time of each publication.

This document may not be reproduced, distributed or published, in whole or in part, for any purpose, except with the prior written consent of RL. By accepting this document you agree to be bound by the foregoing restrictions. The distribution of this document in other jurisdictions may be restricted by law and recipients of this document should inform themselves about, and observe any such restrictions.

A summary of the methodology can be found on our website