

Eurex Credit Index Futures

Innovators in listed credit markets

December 2024

Agenda

- 1** Introduction to Eurex Credit Index Futures
 - 2** Eurex Credit Index Futures at a glance
 - 3** Understanding the risk and return characteristics of Credit index futures
 - 4** Integrating Credit Index Futures in the credit ecosystem
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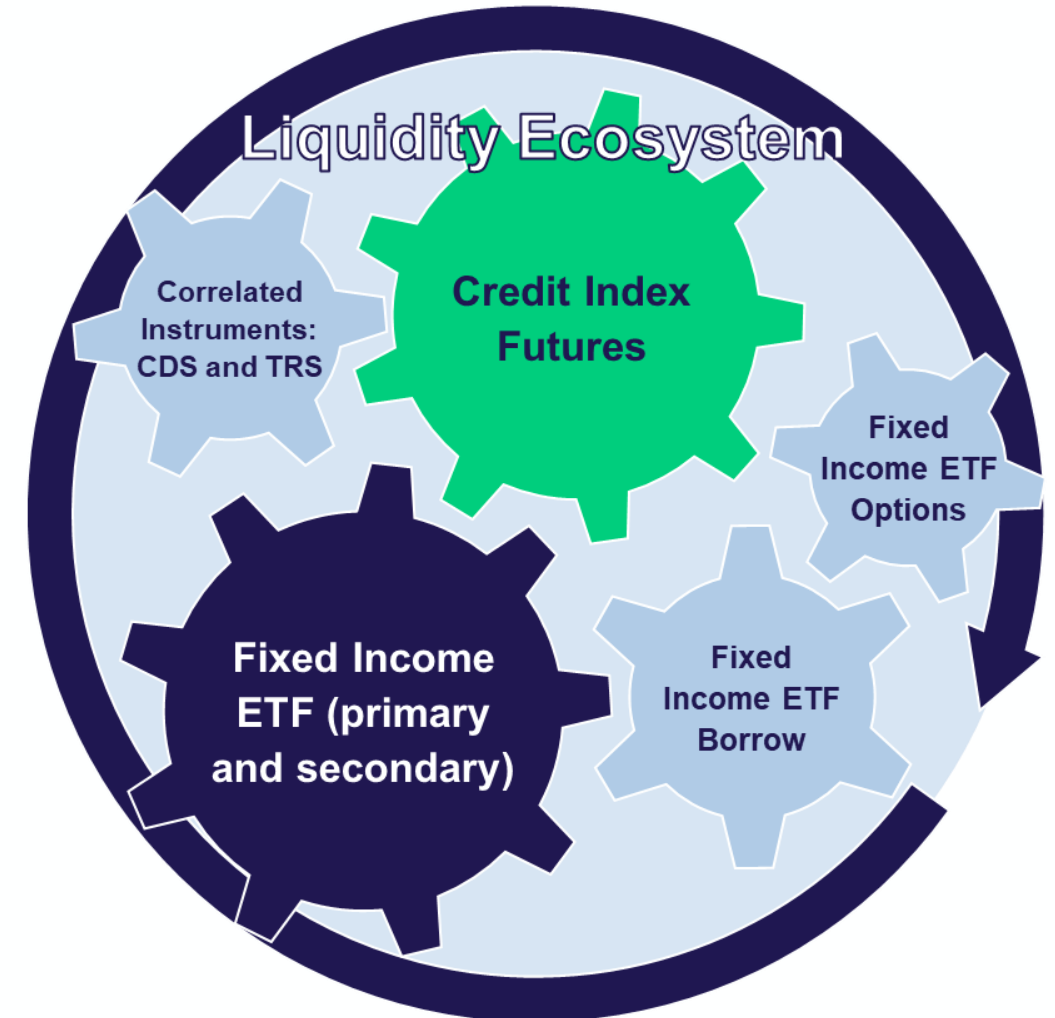
1 Introduction to Eurex Credit Index Futures

Introduction to Eurex Credit Index Futures

Timing is right for innovation in the global credit ecosystem

- The global corporate bond market has **grown three-fold** since 2008 with USD 34 trillion outstanding as of the end of 2023*
- Changes in market structure, electronification and trading behavior have created an opportunity to introduce a **new tool** that is additive to existing products and liquidity – **Eurex Credit Index Futures**
- The **benefits** of exchange-traded and CCP-cleared futures add value throughout the entire credit ecosystem for all client types:
 - Increased transparency
 - Standardized products
 - High levels of liquidity
 - Margin efficiency
 - Low tracking error

Source: OECD (2024), *Global Debt Report 2024: Bond Markets in a High-Debt Environment*, OECD Publishing, Paris, <https://doi.org/10.1787/91844ea2-en>



Vision: Utilizing a simple index derivatives structure, Eurex makes it as easy to trade credit derivatives as equity derivatives

Introduction to Eurex Credit Index Futures

Building a global suite of products with a broad range of applications and client appeal

- Eurex is the only exchange with a global Credit Index Futures offering

EUR IG	USD EM	USD IG
EUR HY	GBP CORP	USH HY

- Credit Index Futures have proven to be useful to a broad range of market participants

Asset Managers	Insurance companies
Pensions and endowments	Hedge Funds
Managed Futures / CTA's	PTG's

- There is a vast range of potential applications for Credit Index Futures with new innovations developing at a rapid pace

Liquidity management	Portfolio hedging
Cash management	Portfolio overlays
Relative value trading	Tactical positioning

- Eurex Credit Index Futures utilize the familiar Bloomberg family of fixed income indices that is well-established within the marketplace

Product Roadmap

Q3 2021

- Launch of EUR IG Index Futures as the initial entry point for Eurex in Credit Index Futures

Q4 2022

- Launch of EUR HY index futures to complete the Euro-denominated offering in Credit Index futures

Q1 2024

- Launch of USD EM Index and GBP Corporate Index Futures in the first expansion outside the EU

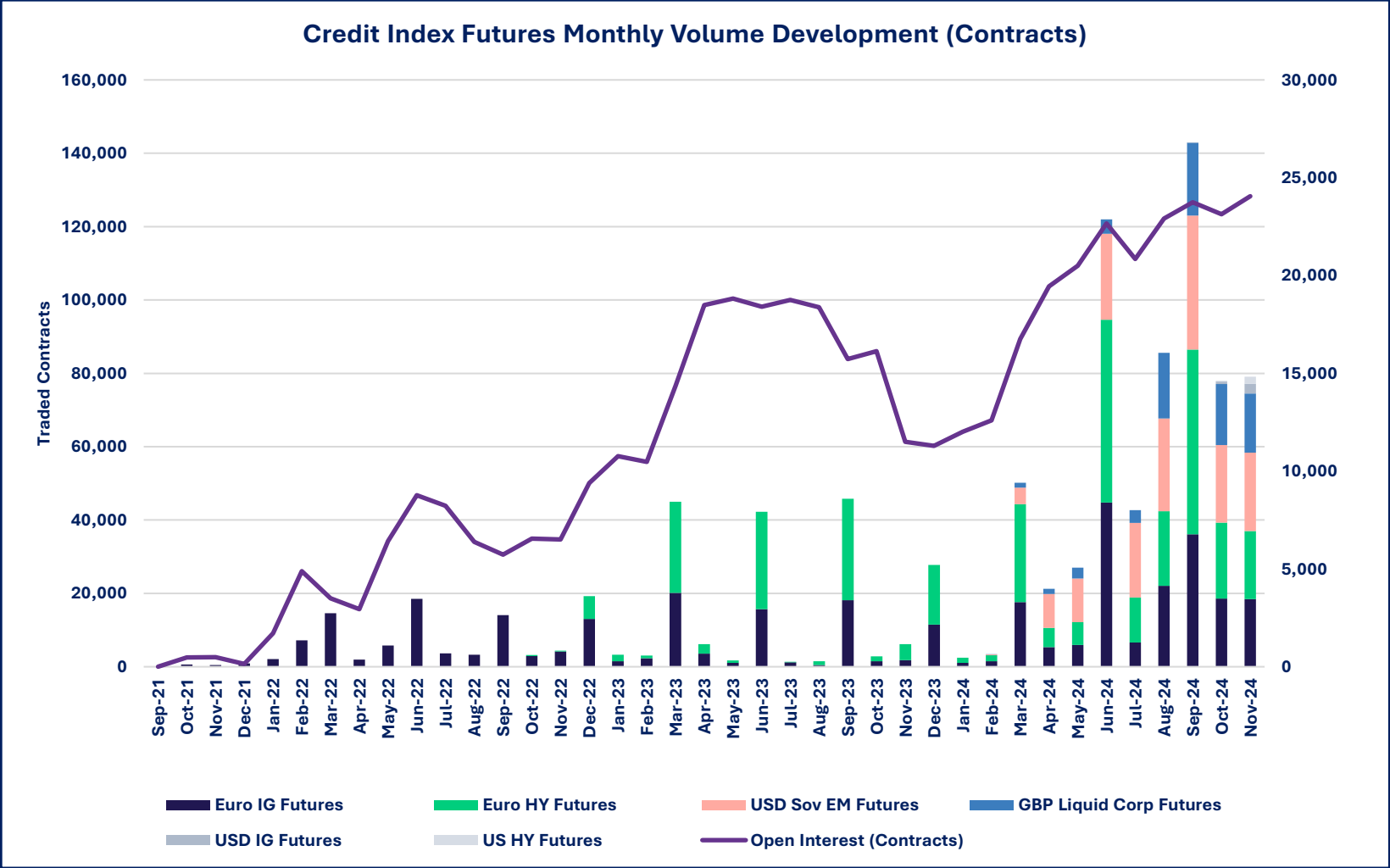
Q3 2024

- Launch of USD IG Index and USD HY Index Futures to complete the global offering



Introduction to Eurex Credit Index Futures

Volume and liquidity growth in 2024 from client adoption and liquidity provider support



November 2024 Volume
 79,075 Contracts Traded
 €5.5bn Notional Traded

November 2024 Open Interest
 24,054 Contracts Open Interest
 €1.88bn Notional Open Interest

Unparalleled Liquidity
 12 Order Book LP's
 9 Off-screen LP's

Buy Side Participation
 ~40 End-users active since launch

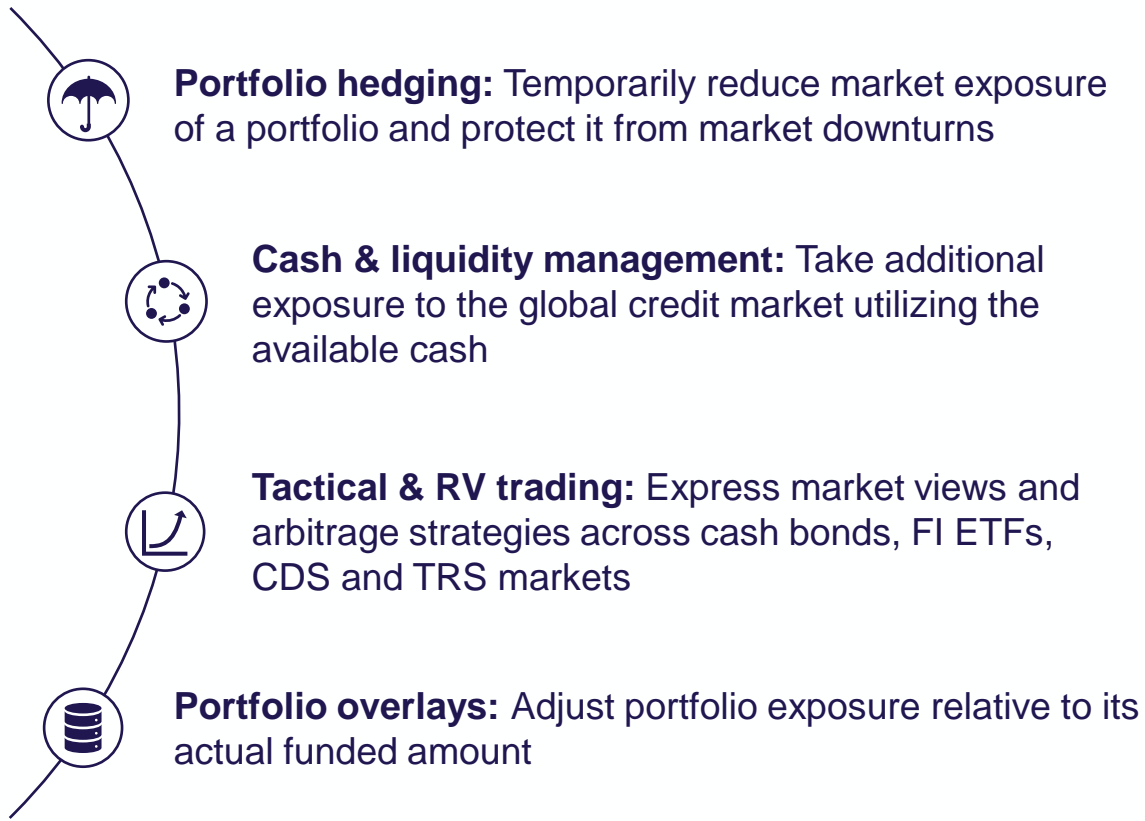
U.S. Credit Index Futures
 launched on 23 Sept 2024
 USD IG | USD HY

2 Eurex Credit Index Futures at a glance

Eurex Credit Index Futures at a glance

Product use cases and credit product comparisons

Eurex Credit Index Futures give market participants standardized, liquid access to the global credit derivatives markets with considerable advantages and low tracking error compared to traditional credit products



	Eurex Futures	ETFs	TRS	iTraxx / CDX	
Credit Product Comparison	Exchanged Traded	✓	✓	✗	✗
	Unfunded	✓	✗	✓	✓
	Interest Rate Risk	✓	✓	✓	✗
	Shorting Capability	✓	With Borrowing	✓	✓
	Tracking Error	Low	Low	Low	High (cash-CDS basis)
	Index Composition	Broad Market Indices	Broad Market Indices	Broad Market Indices	Narrow (20-150 Issuers)

Eurex Credit Index Futures at a glance

Contract specifications – New trading hours as of 21 October 2024

	EUR IG	EUR HY	USD EM	GBP CORP	USD IG	USD HY
Eurex Product Code	FECX	FEHY	FUEM	FGBC	FUIG	FUHY
Currency	EUR	EUR	USD	GBP	USD	USD
Contract Multiplier	EUR 1,000	EUR 200	USD 200	GBP 200	USD 25	USD 100
Contract Size (est.)	~ EUR 150,000	~ EUR 55,000	~ USD 20,000	~ GBP 25,000	~ USD 75,000	~ USD 50,000
Tick Size / Tick Value	0.01 / EUR 10	0.02 / EUR 4	0.01 / USD 2	0.01 / GBP 2	0.1 / USD 2.5	0.01 / USD 1
Minimum Block Trade Size	30 Contracts	100 Contracts	100 Contracts	100 Contracts	60 Contracts	80 Contracts
MBTS in Notional	~ EUR 5 MM	~ EUR 5 MM	~ USD 2 MM	~ GBP 2.5 MM	~ USD 5 MM	~ USD 5 MM
Trading Hours	07:50 to 22:00 CET	07:50 to 22:00 CET	07:50 to 22:00 CET	07:50 to 22:00 CET	07:50 to 22:00 CET	07:50 to 22:00 CET
Expiry Cycle	Quarterly - The three nearest quarterly months of the March, June, September and December cycle					
Last Trading Day / Final Settlement Day	Third Friday of each maturity month if this is an exchange day; otherwise, the exchange day immediately preceding that day Final settlement day is the exchange day immediately following the last trading day					
Final Settlement Price	The final settlement price is established by Eurex on the final settlement day of the contract and is based on the closing price of the index on the last trading day					
Daily Settlement Price	Determined from the volume weighted average of all transactions during the minute before 17:15 CET (reference point), provided that more than 5 trades transacted within this period					
Settlement Type	Cash settlement, payable on the first exchange day after following the expiration day					
Bloomberg Code	LXYA Index	AHWA Index	XZSA Index	XZRA Index	BBEA Index	BBLA Index
Refinitiv Code	0#FECX:	0#FEHY:	0#FUEM:	0#FGBC:	0#FUIG:	0#FUHY:

Eurex Credit Index Futures at a glance

Eurex Credit Index futures offers savings on initial margins compared to CDS Indices

- **Bloomberg MSCI Euro Corporate SRI Index Futures (EURO IG)** has the **lowest initial margin** as a % of 100mn notional exposure at **1.63%** for protection on a long position compared to 2.63% for ITRAXX MAIN (EUR IG)
- **Bloomberg Liquidity Screened Euro High Yield Bond Index Futures (EURO HY)** offers **savings in both long and short initial margins** compared to ITRAXX CROSSOVER (EUR HY). Sell and Buy Protection for EURO HY index futures are as low as 3.67% and 2.34% compared to 8.27% and 4.56% for ITRAXX CROSSOVER
- **Bloomberg Emerging Market USD Sovereign & Sovereign Owned Index Futures (USD EM)** and **Sterling Liquid Corporate Bond Index Futures (GBP CORP)** comparatively offer **lower initial margins** to ITRAXX CROSSOVER (EUR HY)

Initial margin levels as % of 100 million notional exposure

Eurex Credit Index Futures	Long (Sell Protection)	Short (Buy Protection)
	EUR IG Futures	1.63%
EUR HY Futures	3.67%	2.34%
USD IG Futures	2.01%	2.02%
USD HY Futures	3.04%	2.77%
USD EM Futures	4.07%	3.08%
GBP Corp Futures	2.79%	2.65%

EUREX

CDS	Long (Sell Protection)	Short (Buy Protection)
	ITRAXX MAIN (EUR IG) Series 38	2.63%
ITRAXX CROSSOVER (EUR HY) Series 38	8.27%	4.56%
CDX North America Investment Grade Series 38	2.35%	1.20%
CDX North America High Yield Series 38	8.12%	5.34%

Eurex Credit Index Futures at a glance

Bloomberg indices provide a reliable benchmark for tracking global fixed income markets

Index Methodology	EUR IG	EUR HY	USD EM	GBP CORP	USD IG	USD HY	
	Maturity Threshold	At least 1 year until final maturity	Between 1 year and 15 years until final maturity	At least 1 year until final maturity	At least 1 year until final maturity	At least 1 year until final maturity	Between 1 year and 15 years until final maturity
	Rating	Investment Grade	Below Investment Grade	Investment Grade and High Yield	Investment Grade	Investment Grade	High Yield
	Currency	EUR	EUR	USD	GBP	USD	USD
	Minimum Amount Outstanding	EUR 300 MM	EUR 250 MM	USD 1 BN	GBP 350 MM	USD 300 MM	USD 500 MM
	Caps			Country cap fixed at 5%	Issuer cap fixed at 4%		Issuer cap fixed at 2%

Key Index Stats	EUR IG	EUR HY	USD EM	GBP CORP	USD IG	USD HY	
	BBG Ticker	<u>RECMTREU</u>	<u>BEHLTREU</u>	<u>I38156US</u>	<u>I35357GB</u>	<u>LUACTRUU</u>	<u>LHVLTRUU</u>
	Components	3,153	458	611	593	7,938	1,091
	Issuers	734	286	108	269	871	585
	Market Value	EUR 2.2 tn	EUR 230 bn	USD 988 bn	GBP 293 bn	USD 6.6 tn	USD 894 bn
	Average YTW	3.88%	6.63%	7.98%	5.73%	5.14%	7.49%
	Average OAS	1.45%	3.80%	3.14%	1.18%	0.97%	3.11%
	Average Duration	4.28	2.90	6.79	5.78	6.94	3.24

Eurex Credit Index Futures at a glance

Futures and Indices on Bloomberg – availability, analytics and index composition

LXZY2 147.92 +.25 ✓ 147.45 / 148.03 25x25 Prev 147.67
 At 10:19d Vol 278 Op 147.90 Hi 148.00 Lo 147.88 OpenInt 6169
 LXZY2 Index

1) Contract Information 2) Linked Instruments
 LXZY2 Index BB Euro Corp SRI Dec22 EUX-Eurex
 3) Notes
 Futures on Bloomberg MSCI Euro Corporate SRI Total Return Index Value Unhedged EUR
 Launch Date: 2021/09/27

- The index futures can be found on the terminal by **LXYA Index (AHWA Index for Euro High Yield)**
- **Price, volume and open interest** charts available via **<GP>**
- **Trade and quote recap** on the products available via **<QR>**
- See the **contract expiries** available via **<CT>**
- Access the **contract specs** of the product via **<DES>**

RECMTREU Index Display Alert Export
 Bloomberg MSCI Euro Corporate SRI Total Return Index Value Unhedged EUR
 Members Index Turnover
 Group by None Returns Projected As of 11/21/2022
 Add Column

ISIN	Description	Ccy	Price	YTW	OAD	Par Val	MV (USD)	Weight
1) XS0525602339	RAB0BK 4 1/8 07/14/25	EUR	103.247	2.807	2.490	2,750,000	2,949,269	0.14377
12) XS1586555945	VW 1 7/8 03/30/27	EUR	92.165	3.827	4.080	2,500,000	2,390,707	0.11654
13) XS2461234622	JPM 1.963 03/23/30	EUR	88.402	4.036	5.816	2,500,000	2,296,796	0.11197

- Index Underlying can be found on the Terminal by **RECMTREU Index (BEHLTREU Index for Euro High Yield)**
- **Full range of analytics** at glance available on **<DES>**, including **Total Return breakdown** available on the tab “Returns”
- **Full list of index components** available via **<MEMB>**
- **Comparative total return analysis** vs. futures and ETFs via **<COMP>**
- **Index analytics** (OAS, OAD, Duration, etc.) available via **<FLDS>** and accessible on **historical and real-time basis** via excel API

PORT

1) View 2) Actions 3) Settings 4) Trade Simulation Portfolio

Characteristics Holdings Tracking Error/Volatility VaR Scenarios Performance Attribution Intraday
 Main View Summary Cash Flows Liquidity Risk Key Rates
 (RECMTREU) Bloomberg vs Default (None) by POINT:ISIN in EUR As of 11/21/22
 Date Trend

Name	Wgt	Mkt Val	Px Close	Pos	Yield to Mat	Yield to Worst	OAD	OAD [Ctr]	OAC	OAS
(RECMTREU) Bloomberg MSCI E...	100.00	2,001,297,781			3.96	3.96	4.58	4.5801	0.32	192.34
• AT0000A1D5E1	0.02	388,646			5.57	5.57	2.97	0.0006	0.11	363.81
• AT0000A2GH08	0.03	667,468			3.67	3.67	4.30	0.0014	0.21	172.07
• AT0000A2J645	0.02	431,350			6.07	6.07	3.65	0.0008	0.14	326.7

- Further analytics offering accessible when loading RECMTREU Index (BEHLTREU Index for Euro High Yield) on **<PORT>**
- Breakdown the index in its **key sector / maturities / ratings and up to single security level (ISIN)**
- **Analyse cash flows** on single index components historically from tab: **Cash Flows**
- Decompose the index in its **key rates risk** components

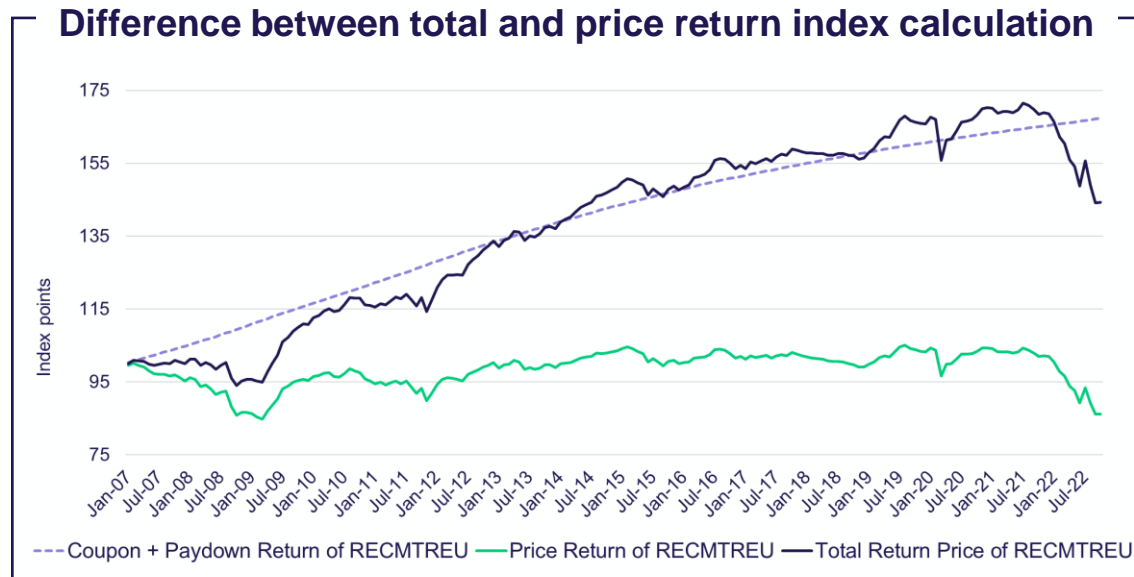
3 Understanding the risk and return characteristics of Credit Index Futures

1. Total Return Index prices – a practical example
2. Credit Index Futures price decomposition – how are these products priced

Understanding the risk and return characteristics of Credit Index Futures

Total Return Index prices – a practical example

Total return indices factor in both the “clean” performance of the bonds and the return from re-investing the coupons paid in the index composition



Key Observations

- Between 2007 and 2022, the **price return** of the index is -13.5%, whereas the **total return increase by 44%**
 - This significant difference is due to **coupon returns** being considered in **the total return calculation**
- In a total return index, **the coupons** paid by the underlying bonds are **reinvested in the index composition**, hence they generate extra return.
- The index is able to replicate the **returns of a corporate bond portfolio** that re-invests coupons in itself.

Total return index calculation

- Total return indices measure the performance of the underlying bonds basket
- It tracks security price returns as well as coupon and paydown returns

Price return index calculation

- Price return indices measure only the rate of return of the underlying bonds basket, relying only on the aspect of capital appreciation or depreciation of the index’s components
- Hence, it neglects the income generated by the assets

Understanding the risk and return characteristics of Credit Index Futures

Credit Index Futures price decomposition – how are these products priced?

The formula for pricing Credit Index Futures is broken down in its single transactions, showing the interactions between financing and lending

Pricing formula (Theoretical price)

LXYA Index Future price = RECMTREU index price
+ **Cost of financing** – **lending/borrowing income**

Keep in mind



Expected coupon payments are not explicitly included in the futures price formula. You get exposure to coupons by holding the future position, as coupon payments are reflected in the index spot price.

1 Borrow cash

Cash is borrowed to buy the underlying bond basket

3 Lend the bond basket

The U/L bond basket is **lent out** until maturity to get additional income

4 Receive back the bond basket

The bonds basket is given back with a **lending commission**

6 Return cash

The cash that was borrowed is paid back with an **interest**

Building position

2 Buy the underlying bond basket

The borrowed cash will be used to buy the bonds basket

Closing position

5 Sell the bond basket

We receive **coupon** and **price performance** of the underlying index.

4 Integrating Credit Index Futures in the credit ecosystem

1. Accessing Eurex Credit Index Futures
2. Eurex contact details

Integrating Credit Index Futures in the credit ecosystem

Accessing Eurex Credit Index Futures – trading models

Eurex Credit Index Futures can be traded via the **transparent, liquid order book** or traded **outside the order book** on a bilateral basis and subsequently booked to Eurex Clearing through the use of our Eurex T7 Entry Service

Order Book

- The core element of the Eurex market model is the **central limit order book**, into which all orders and quotes are entered during the trading day
- Orders and quotes in the central order book are **anonymous**: A trader never knows the opposite side on a trade; participants only see the specific details of their own orders

Block Trading

- Members can enter **bilaterally agreed off-book transactions** into the trading and clearing system. Registered off-book trades are then automatically cleared like regular exchange transactions.
- The Block Trade Entry facility is **fully electronic and integrated into members' processes**

Basis Trading

- **Basis trading** can be facilitated by the Exchange for Physicals – Index (“EFP-I”) functionality. An EFP-I **against an ETF or a basket of bonds** (the “Reference Instrument”) can be entered subject to certain criteria regarding notional size or correlation.
- Furthermore, Eurex Credit Index Futures can themselves be used as a “Reference Instrument” for an EFP-Fin **against a government bond futures trade**.

Trade at index Close (TAIC)

- **Trade at index Close (TAIC)** allow counterparties to **agree in advance the price** at which to trade a future by applying a basis **on the respective index close**.
- TAIC trades are entered as the EFP-Index

Integrating Credit Index Futures in the credit ecosystem

Accessing Eurex Credit Index Futures – liquidity providers

Liquidity Providers On-Screen		
Company	Contact	Phone number
Banco Santander	Juan Lorenzo Juanma.lorencio@gruposantander.com	+34 91 257 2097
FlowTraders	Jasper Jansen nlbon@nl.flowtraders.com	+3120 7998621
Jane Street	Europe Sales Team europesales@janestreet.com	+44 203 787 3333
Société Générale	Aziz Tikouirt Arnaud Muller list.par-mark-fic-trd-rat-etf@socgen.com	+33 142140365 +33 142149818
Susquehanna	Ronan Henderson SIS-Sales-ETF@sig.com	+353 1 802 8018
... +8 additional undisclosed liquidity providers in the orderbook		

Liquidity Providers Off-Screen		
Company	Contact	Phone number
Banco Santander	Juan Lorenzo Juanma.lorencio@gruposantander.com	+34 91 257 2097
Bank of America	Joel Stainton Joel.Stainton@bofa.com BofA_Futures_EMEA@bofa.com	+44 207 996 1885
DRW	Bernardus Roelofs broelofs@drwuk.com	+44 207 282 0900
FlowTraders	Jasper Jansen nlbon@nl.flowtraders.com	+3120 7998621
Goldman Sachs	Antony Harden Futures-Voice-EQ-EMEA@gs.com	+44 20-7774-2248
Jane Street	Europe Sales Team europesales@janestreet.com	+44 203 787 3333
JP Morgan	EMEA F&O Sales Execution: Alessia Frontalini Brad Voigt FO_EMEA_Conti_Desk@jpmorgan.com U.S. F&O Sales Execution: Timothy Kelly timothy.s.kelly@jpmorgan.com	+33 140 154 938
Société Générale	Aziz Tikouirt Arnaud Muller list.par-mark-fic-trd-rat-etf@socgen.com	+33 142140365 +33 142149818
Susquehanna	Ronan Henderson SIS-Sales-ETF@sig.com	+353 1 802 8018

Integrating Credit Index Futures in the credit ecosystem

Eurex contact details – Northern Europe

Isabelle Blanche

Head of Sales Northern Europe
France

Deutsche Börse AG
Representative Office Paris
17, rue de Surène
75008 Paris
France
T: +44 207 862-75 52
isabelle.blanche@eurex.com

Christopher Anderson

Sales Northern Europe
Scandinavia, UK, Ireland

Deutsche Börse AG
UK Representative Office
11 Westferry Circus, Canary Wharf
London, E14 4HE
United Kingdom
T: +44 207 862-76 68
christopher.anderson@eurex.com

Henry Weindling

Sales Northern Europe
Netherlands

Deutsche Börse AG
UK Representative Office
11 Westferry Circus, Canary Wharf
London, E14 4HE
United Kingdom
T: +44 (0)20 78 62-76 86
henry.weindling@eurex.com

Adam Husted

Sales Northern Europe
Netherlands, UK, Ireland

Deutsche Börse AG
UK Representative Office
11 Westferry Circus, Canary Wharf
London, E14 4HE
United Kingdom
T: +44 207 862-72 49
adam.husted@eurex.com

Andrew Punter

Sales Northern Europe
UK, Ireland

Deutsche Börse AG
UK Representative Office
11 Westferry Circus, Canary Wharf
London, E14 4HE
United Kingdom
T: +44 207 862-76 63
andrew.punter@eurex.com

Catherine Zanatta

Sales Northern Europe
UK, Ireland, Israel

Deutsche Börse AG
UK Representative Office
11 Westferry Circus, Canary Wharf
London, E14 4HE
United Kingdom
T: +44(0) 20 78 62-72 56
catherine.zanatta@eurex.com

Khaled Aziz

Sales Northern Europe
Scandinavia

Deutsche Börse AG
UK Representative Office
11 Westferry Circus, Canary Wharf
London, E14 4HE
United Kingdom
T: +44(0) 20 78 62- 73
53 khaled.aziz@eurex.com

Integrating Credit Index Futures in the credit ecosystem

Eurex contact details – Continental Europe

Francesca Dell’Era

Head of Sales Central Europe
Switzerland, Italy, Malta, Greece,
Liechtenstein

Eurex Global Derivatives AG
Theilerstrasse 1a
6300 Zug
Switzerland
T: + 41 (0)43 430 71 23
francesca.dellera@eurex.com

David Carretero

Sales Central Europe
France, Belgium, Spain, Portugal,
Luxembourg

Eurex Frankfurt AG
Mergenthalerallee 61
65760 Eschborn
Germany
T: +49 69 2 11-1 82 33
david.carretero@eurex.com

Andreas Stadelmaier

Sales Central Europe
Germany, Austria

Eurex Frankfurt AG
Mergenthalerallee 61
65760 Eschborn
Germany
T: +49-69-211-1 38 59
andreas.stadelmaier@eurex.com

Matthias Kronenberger

Sales Central Europe
Germany, Austria

Eurex Frankfurt AG
Mergenthalerallee 61
65760 Eschborn
Germany
T: +49 (0)69211-187 19
matthias.kronenberger@eurex.com

Oliver Hauer

Sales Central Europe
Germany

Eurex Frankfurt AG
Mergenthalerallee 61
65760 Eschborn
Germany
T: +49 (0)69211-167 22
oliver.hauer@eurex.com

Samira Buzyarsest

Sales Central Europe
Eastern Europe

Eurex Frankfurt AG
Mergenthalerallee 61
65760 Eschborn
Germany
T: +49-69-211-1 27 88
samira.buzyarsest@eurex.com

Integrating Credit Index Futures in the credit ecosystem

Eurex contact details – US and APAC

Timothy Gits

Head of Sales US

Eurex, Deutsche Boerse Systems Inc.
Representative Office Chicago
233 S Wacker Dr,
Chicago,
IL 60606,
United States
T: +1 312 544-14 94
tim.gits@eurex.com

Timothy Levandoski

Sales US

Central, West Coast US

Eurex, Deutsche Börse Systems, Inc.
Representative Office Chicago
233 S Wacker Dr,
Chicago,
IL 60606,
United States
T: +1 312 544-10 56
timothy.levandoski@eurex.com

Laurent Partouche

Sales US

East Coast US, Canada

Eurex, Deutsche Börse Systems, Inc.
NY Representative Office
1155 Avenue of the Americas
Floor 19
New York, NY 10036
United States
T: +1 212 309-93 06
laurent.partouche@eurex.com

Iris Hui

Sales US

East Coast US, Canada

Eurex, Deutsche Börse Systems, Inc.
NY Representative Office
1155 Avenue of the Americas
Floor 19
New York, NY 10036
United States
T: +1 917 939-1624
iris.hui@eurex.com

Stefan Ullrich

Sales Asia

Singapore, Australia, Middle East,
India

Eurex Frankfurt AG
Singapore Representative Office
9 Raffles Place
#56-1 Republic Plaza
Singapore, 048619
Singapore
T: + 65 65 97-30 79
stefan.ullrich@eurex.com

Neil Salter

Sales Asia

Japan, China, Hong Kong, Taiwan,
South Korea

Eurex Frankfurt AG
Singapore Representative Office
9 Raffles Place
#56-1 Republic Plaza
Singapore, 048619
Singapore
neil.salter@eurex.com

Ryan Verma

Sales Asia

Japan, China, Honk Kong, Taiwan,
South Korea, ASEAN

Eurex Frankfurt AG
Singapore Representative Office
9 Raffles Place
#56-1 Republic Plaza
Singapore, 048619
Singapore
T: + 65 65 97-30 83
ryan.verma@eurex.com

Chris Dopp

Buy Side Sales US

Client Solutions – Credit Products

Eurex, Deutsche Börse Systems, Inc.
Representative Office Chicago
233 S Wacker Drive
Chicago, IL 60606
United States
T: +1 312 544-1011
chris.dopp@eurex.com

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