

Agenda

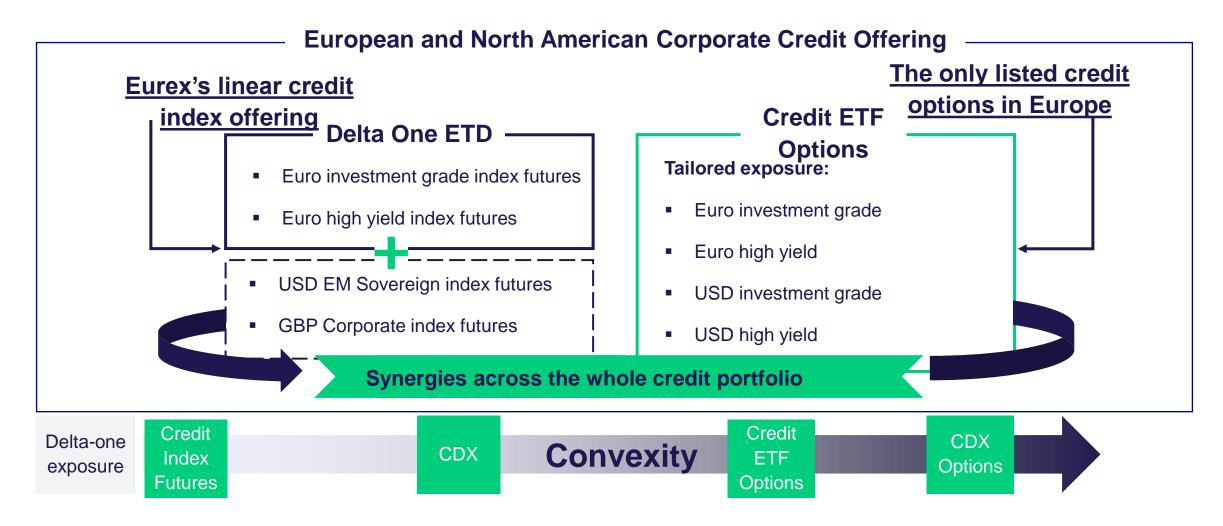
Eurex Credit Derivatives at a glance 2 Understanding the risk and return characteristics of Credit index futures 3 Integrating Credit Index Futures in the credit ecosystem Understanding Liquidity in Credit Index futures Appendix: Bloomberg Indices comparison with other Fixed Income Index Benchmarks



Eurex Credit Index derivatives



Eurex does not aim to have single product launches, but targets the whole credit ecosystem via a portfolio of products and underlyings



Eurex Credit Index Futures: Contract Specification at a glance

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Parameters	Euro Investment Grade	Euro High Yield	USD EM Sovereign	GBP Corporate IG
Eurex Product code	FECX	FEHY	FUEM	FGBC
Currency	EUR	EUR	USD	GBP
Contract Multiplier	EUR 1,000	EUR 200	USD 200	GBP 200
Contract size (est.)	~ EUR 150,000	~ EUR 55,000	~ USD 20,000	~ GBP 25,000
Tick Size / Tick Value	0.01 / EUR 10	0.02 / EUR 4	0.01 / USD 2	0.01 / GBP 2
Minimum Block Trade size (MBTS)	30 Contracts	100 Contracts	100 Contracts	100 Contracts
MBTS in Notional	~ EUR 5,000,000	~ EUR 5,000,000	~ USD 2,000,000	~ GBP 2,500,000
Trading hours	8:00 to 19:00 CET	8:00 to 19:00 CET	8:00 to 22:00 CET	8:00 to 19:00 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	Cash settlement, payable on the first exchange day after following the expiration day			
Bloomberg codes	LXYA Index AHW	A Index XZ	ZSA Index	ZRA Index
Refinitiv codes	0#FECX: 0#FE	HY: 0#	FUEM: 0	#FGBC:

Bloomberg Indices provides a reliable benchmark for tracking global fixed income markets

Index Methodology

EURO IG Index



At least **1 year** until final maturity



Investment Grade (rating BBB or higher)



EURO denominated



Minimum amount outstanding of EUR 300MM

EURO HY Index



Between 1 year and 15 years until final maturity



Below Investment grade (rating between BB+ and CCC-)



EURO denominated



Minimum amount outstanding of **EUR 250MM**

USD EM Sovereign



At least 1 year until final maturity



Both Investment Grade and High Yield



USD denominated



Minimum amount outstanding of **USD 1 BN**



Country cap fixed at 5%.

GBP Corp IG Index



At least 1 year until final maturity



Investment grade (rating Baa3/BBB-/BBB- or higher)



GBP denominated



Minimum amount outstanding of **GBP 350MM**



Issuer cap fixed at 4%.

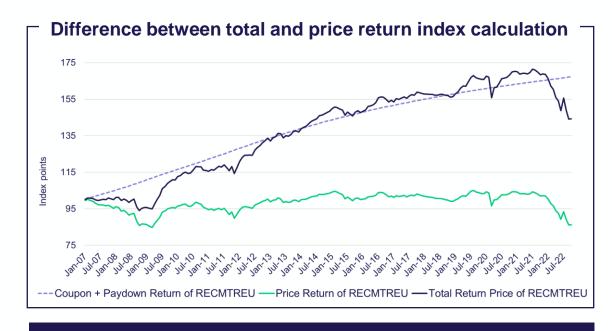
BBG Ticker	RECMTREU	BBG Ticker	BEHLTREU	BBG Ticker	<u>I38156US</u>	BBG Ticker	<u>I35357GB</u>
Components	3,153	Components	458	Components	611	Components	593
Issuers	734	Issuers	286	Issuers	108	Issuers	269
Market Value	EUR 2.2 tn	Market Value	EUR 230 bn	Market Value	USD 988 bn	Market Value	GBP 293 bn
Average YTW	3.88%	Average YTW	6.63%	Average YTW	7.98%	Average YTW	5.73%
Average OAS	1.45%	Average OAS	3.80%	Average OAS	3.14%	Average OAS	1.18%
Average Duration	4.28	Average Duration	2.90	Average Duration	6.79	Average Duration	5.78



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

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.

The formula for pricing the index future 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

Borrow cash

Cash is borrowed to buy the underlying bond basket.

Lend the bond basket

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

Receive back the bond basket

The bonds basket is given back with a lending commission.

Return cash

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

Building position

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.



Integrating Credit Index Futures in the credit ecosystem

- 1. What are the most common use cases for Eurex Credit Index Futures?
- 2. How can I trade Eurex Credit Index Futures?



Eurex credit Index product suite gives market participants standardised, liquid and transparent access to the Euro credit derivatives market

Key Contract Specifications

LXYA Index		
AHWA Index		
EUR 5mn in notional		
Quarterly		
Cash Settled		

	Casii Cettled			
NEW Products Specifications				
£ IG Futures	XZRA Index			
\$ EM Sovereign	XZSA Index			
Minimum block trade size	£ 2.5mn / \$ 2mn in notional			
Expiry cycle	Quarterly			
Settlement type	Cash Settled			

Competitive advantages vs. traditional credit



Liquidity: ample pool of liquidity on- and off-book, with wide range of supporting market makers.



Close replication of returns of the Euro corporate bond index benchmarks market.



Additional Alpha: Ability to implement portfolio overlay as well as systematic trading strategies.

Product use cases



Hedging purposes: get short exposure to Euro corporate bond market.

Manage your beta vs. Euro corporate bonds.



Cash & Liquidity management: Deploy available un-invested cash to get unfunded exposure to market returns.



Portfolio overlay: synthetic replication of corporate bond benchmarks to get additional market exposure.

How does it compare to ...

iTraxx Europe & Crossover

- 125 issuers for IG and 75 issuer for HY.
- The issuers are equally weighted.
- iTraxx Indices have only
 iTraxx indices rebalance every 6 months – Eurex Index futures monthly.
 - iTraxx indices have higher initial margin charges.

Total Return Swaps

- Total Return Swaps (TRS) have high margin charges. •
- TRS are bilaterally cleared.
- LXYA, AHWA, XZSA, XZRA have an open and

transparent order-book Thanks to variation. margins, **Eurex index** futures are marked-tomarket daily.

Fixed Income ETFs

- ETFs are fully funded.
- futures allows to get leveraged exposure to the total return of the index
- ETFs charge a annual management fee.
- Most liquid ETFs pay dividends.
- Credit Index futures on a total return index that reinvests the bonds' coupons.

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11

Wholesale Offering

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

Block Trading

- Members are able to 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** (the exchange defines a minimum number of contracts for a Block Trade see below).

Basis Trading

- Basis trading can also 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 and correlation.
- Furthermore, Eurex Credit index Futures can themselves be used as a "Reference Instrument" for an EFP-Fin trade 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; specific minimum size requirements apply to book such trades, which is equal to 1/10 (one tenth) of the minimum block trade size.

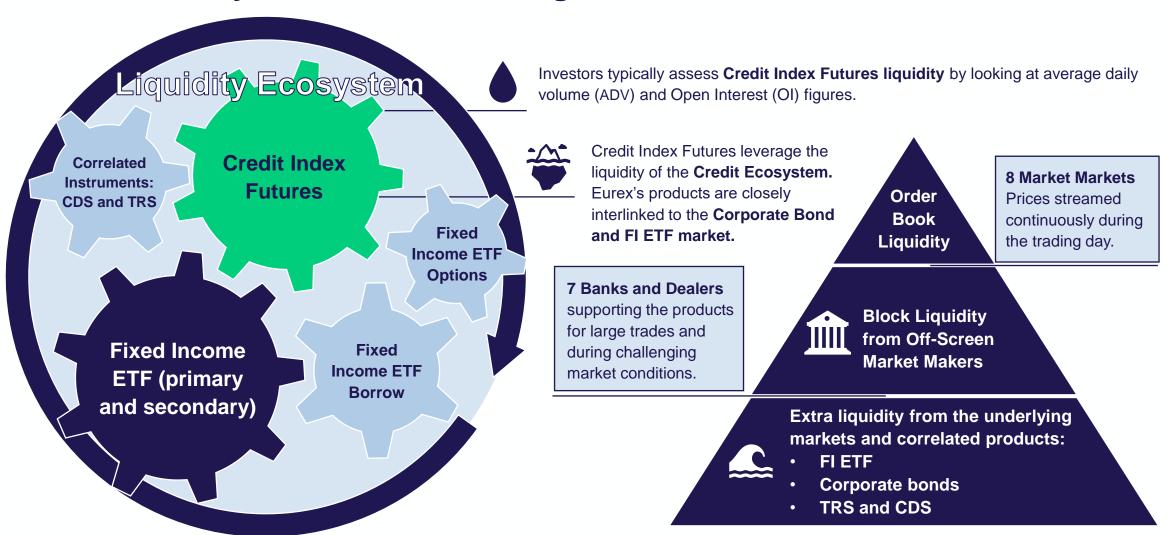
Minimum Entry Size for Block Trades

Minimum block entry size: 30 contracts for LXYA Index / Euro Investment Grade Index Futures and 100 contracts for AHWA Index / Euro High Yield Index Futures (ca. 5,000,000 EUR in traded notional), XZSA Index / USD EM Sovereign index futures and XZRA Index / GBP Corporate Index Futures



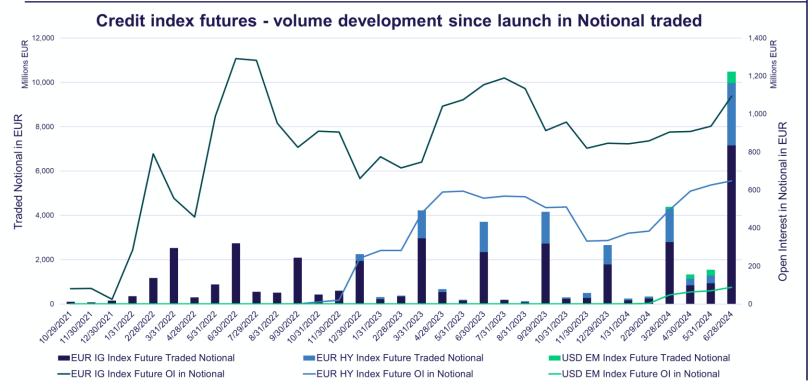
Understanding Liquidity in Credit Index futures

Dealers and market makers in Credit Index futures leverage liquidity across the Credit ecosystem to facilitate large transactions



Liquidity in Credit Index Futures continue to grow as the product suite sees growth both in both client adoption and sell-side support

- Our end-customer consultations revealed the necessity to **use a portfolio of products** to express view on credit: ETF and index derivatives, Cash bonds (portfolio trades) and OTC (primarily TRSs).
- Ultimately, the choice of the preferred instrument will be driven by costs. ETDs are the prime candidate to succeed in the derivatives space, as they are the most cost-effective solution.



Planned Product Roadmap



Q3 2024

Launch of USD IG and HY index futures to complete Global Offering.



Q4 2024

- Consultation on Options on Credit Index futures.
- Consultation on further expanding the futures product suite with spread / excess return products.



H₁ 2025

- Launch Options on Credit Index futures.
- Consultation on further expanding the futures product suite local currencies indices



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Appendix

Total return comparison with the Euro Corporate Aggregate Index (LECPTREU) – all relevant index key statistics closely match the benchmark



The ESG Exclusion index closely tracks the Euro Corporate IG benchmark.



- The fixed income ESG space lacks an official index benchmark.
- The exclusion index plays as de-facto benchmark and was very well received by the buy-side community since its launch.



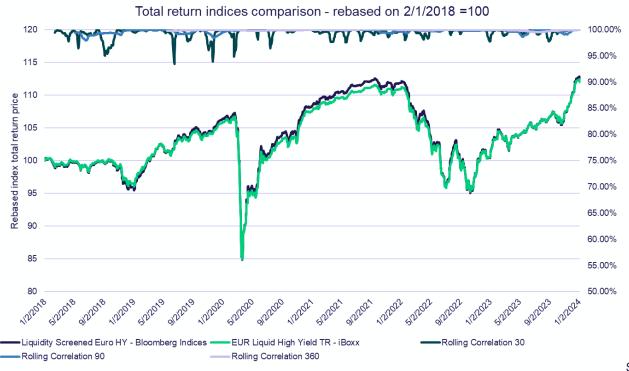
Statistics of Total Returns – 2018/01 to 2023/12

Statistics	SRI Exclusion	Euro Corporate (benchmark)
Annual Average Returns	-0.15%	-0.11%
Annual Average STD	4.37%	4.40%
Average Sharpe Ratio Overall	-0.17	-0.16
Min Daily Return	-2.20%	-2.22%
Max	1.43%	1.42%

Source: Bloomberg terminal

Total return comparison between the Bloomberg and iBoxx indices shows that they share very similar risk-return characteristics

- The daily returns since 2015 show that the two indices are very well correlated even when looking at the short term correlation rates (90-day window).
- The differences between the two index methodologies / inclusion criteria saw the Bloomberg index <u>outperforming the Markit iBoxx</u> <u>index at an annualized rate of 4bps since 2018</u>. The annualized **tracking error** between the 2 indices amounts at **ca. 92bps.**



Statistics of Total Returns – 2018/01 to 2023/12

Statistics	Bloomberg HY Index	iBoxx HY Index
Annualized Average Returns (%)	2.87%	2.80%
Annualized Average STD (%)	5.94%	5.54%
Average Sharpe Ratio Overall	0.39	0.40
Min Daily Return	-3.93%	-3.86%
Max Daily Return	2.13%	1.96%

Source: Bloomberg terminal

Bloomberg USD EM Sovereign debt index and JP Morgan EMBIG Core Index correlates strongly, including in market distressed scenarios

• The daily returns since 2020 show that the two indices have a **correlation rate close to 100% throughout the major distress times** experienced over the past 3 years. **The Annual Average Return difference between the two indices is of -5bps.**



Statistics of Total Returns – 2020/01 to 2024/02

Statistics	Bloomberg \$EM Index	JP Morgan JPEICORE
Annualized Average Returns (%)	-1.71%	-1.76%
Annualized Average STD (%)	10.02%	10.80%
Average Sharpe Ratio Overall	-0.29	-0.26
Min Daily Return	-4.79%	-5.45%
Max Daily Return	3.19%	4.05%

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



- 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>



- 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



- 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





Thank you!

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