



ERIS CREDIT FUTURES ON ICE

2019



OVERVIEW

- Simple, efficient, cash-settled futures
- Listed on ICE Futures U.S. and cleared at ICE Clear U.S.
- Credit Index Future contracts will reference the most widely traded underlying OTC Markit indices:
 - CDX.NA.IG 5Y
 - CDX.NA.HY 5Y
- Replicates the economics of underlying CDS indices using the Eris Methodology™
- Operational Efficiency: Leverage existing futures infrastructure for execution, clearing and trade processing
- Margin Efficiency: Futures margin with offsets against other ICE Clear U.S. futures contracts where appropriate using current SPAN methodology
- IG and HY began trading April 27, 2015

BENEFITS

New Market Participants

- Participants who cannot trade swaps (e.g. due to mandate restrictions or operational constraints)
- ETFs and futures-only funds (e.g. CTAs)

New Trading Strategies

- For both traditional futures market participants and CDS participants
 - Vehicle to express macro credit views
 - Cross asset relative value (e.g. equity vs. credit)

Margin Efficiency

- Lower margin requirements than the swap (1 day vs. 5 day)

Operational Efficiency

- Fully supported by existing futures infrastructure for execution and operations
- Flexible block trading

Regulation

- Operates in a structured, well known, CFTC futures regulatory environment

HIGHLIGHTED CONTRACT SPECIFICATIONS

Contract, Tick & Block Size

- \$100,000
- Tick size of 0.01 equivalent to \$10
- Minimum block size - 2 contracts

Quoting Convention

- Index points - same as quotation convention for OTC HY index, or cash bonds
- E.g. 106.75

Trading Convention

- Buy futures = Receive premium = Long Credit Risk (seller of protection)
- Sell futures = Pay premium = Short Credit Risk (buyer of protection)

First Listing / Trading Date

- Same as underlying OTC contracts

Last Trading / Maturity Date

- Same as underlying OTC contracts (approximately 5.25 years after first trading date)

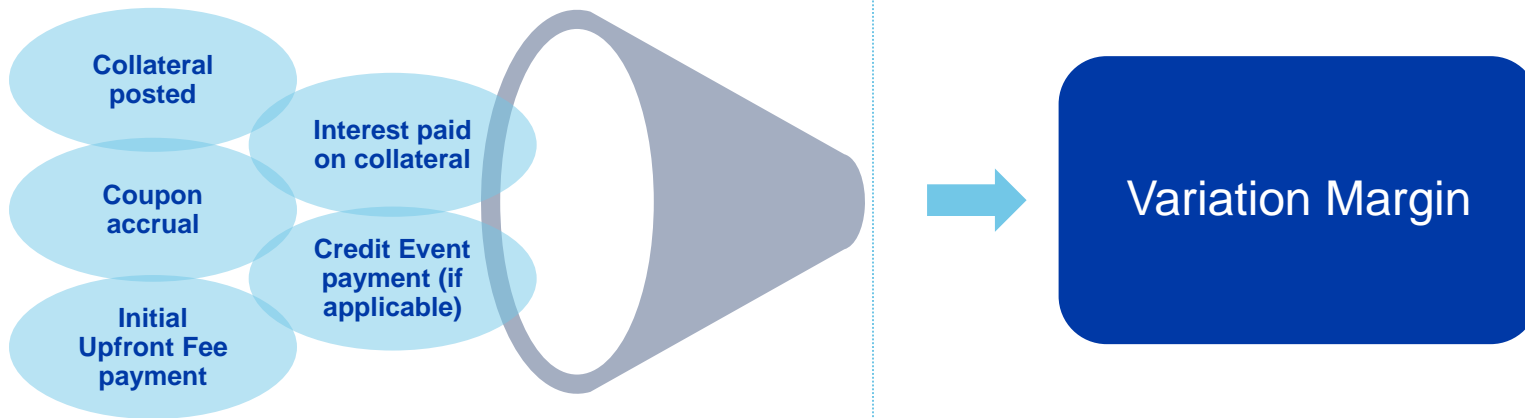
Coupons & Coupon Payment Dates

- Replicate the underlying swap (e.g. 100 basis points annually for CDX IG, 500 basis points annually for CDX HY)
- Quarterly payment dates of March 20, June 20, September 20 and December 20

DESIGN

Eris Methodology™: Proprietary design replicates OTC Swap economics

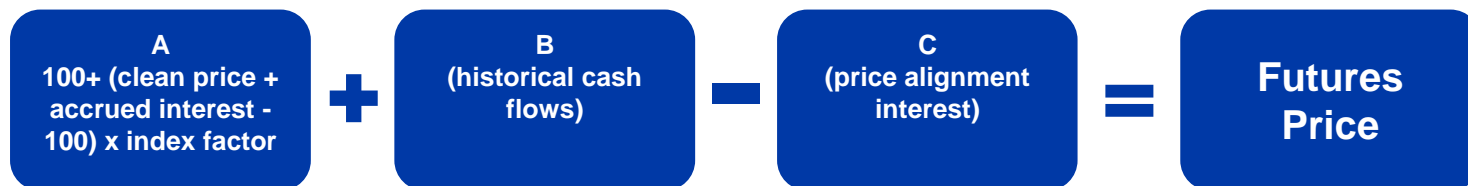
COLLATERALIZED CDS OTC CASH FLOWS



- Contracts are held until maturity as futures contracts (no physical delivery)
- Contracts are designed to replicate net cash flows associated with OTC CDS swaps including Price Alignment Interest (Eris PAI™) to account for interest paid on margin between OTC counterparties
- All cash flows are incorporated in the daily variation margin and accounted for in the daily settlement price
- OTC Swap curves and models can be used to value the Eris Credit Futures

ECONOMICS

- Only the clean price is quoted on ICE Futures U.S.
- The accrued interest, index factor, B, and C components are calculated by ICE Futures U.S. and published daily¹



- Clean price agreed upon by counterparties, plus accrued interest from most recent coupon date
- Clean price is only element that changes continuously throughout trading day
- Index factor is the sum of the weights of the non-defaulted² index constituents, and is used to convert the values into a mark-to-market value for the contract

- Cumulative value of all historical cash flows to trade date

- Synthetic interest on variation margin
- Accrues at overnight Fed Funds
- Utilizes Eris Methodology^{TM 3}

EXAMPLE:
HY Series 24 5Y
14 April 2015

A clean price = 107.50
A accrued interest = 25 days at 5% or 0.3472
Index factor = 1.00
B = 0 (no historical cash flows)
C = 0.0004

Futures Price = 107.8468

¹ The B & C values will be posted in a report at the ICE Report Center: www.theice.com/marketdata/reports

² Reference entity must have been subject to auction by prior COB

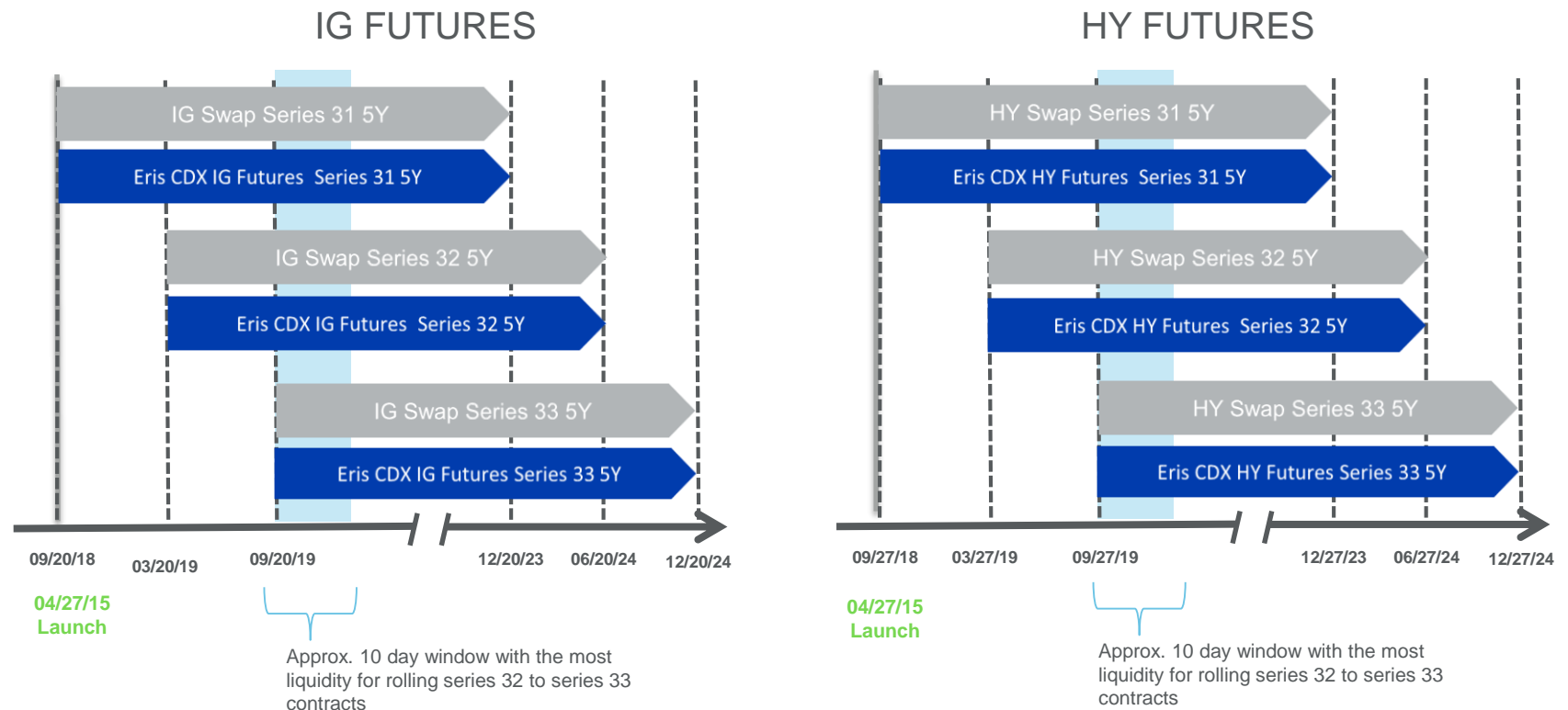
³ See FAQ document on cash flow equivalence for more information and examples of price alignment interest calculations: www.theice.com/publicdocs/FAQCash_Flow_Equivalence.pdf

ROLL MECHANICS

ICE will list new contracts on the First Trading Day a new underlying OTC index series becomes the 'on the run' series¹

- CDX IG: March 20 and September 20
- CDX HY: March 27 and September 27

There is no set roll period for the OTC indices. Typically, the majority of OTC indices will roll to the new series within 10 days of the First Trading Day. The expectation is the futures contracts will mimic the roll activity of the OTC indices



¹ Or next business day

INITIAL MARGIN ESTIMATES¹

Outright Margins Per Contract²

Eris CDX IG	\$335
Eris CDX HY	\$1,343

Margin offsets with other ICE Clear U.S. futures contracts offered where appropriate using the current SPAN methodology

Initial outright margin estimates are significantly lower on the futures contracts vs. the OTC underlying swap

¹ Outright and Spread margins are as of August 16th, 2019

² Hedge rates are shown. Initial Speculative margin rates are 110% higher

EXECUTION

LISTED ON ICE FUTURES U.S. TRADING 16 HOURS A DAY: 2AM – 6PM ET

Electronic Execution¹ Multiple Connectivity Options

1. 30 + Independent Software Vendors / Creditex RealTime / Clearing Member platforms

2. Exchange GUI

WebICE



3. FIX Connectivity to Open API



On-board to Trade Electronically

- Client executes ICE Futures U.S. documentation
- Client contacts ICE User Administration (iceuseradministration@theice.com) for trading credentials
- Clearing firm sets account credit limits

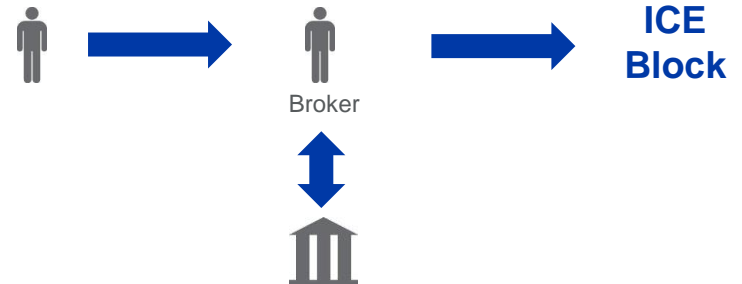
¹ ICE fees are inclusive of execution and clearing: \$0.50 per contract for screen trades per side and \$1.00 per contract per side for block trades.

Off Exchange Execution Common Voice Scenarios

1. Execute with Bank Dealer Desk



2. Execute with Futures Broker



On-board to Trade Blocks

(min. size of 2 contracts for all Eris credit futures contracts)

- Clearing Firm creates clearing Accounts for brokered / block transactions
- Clearing firm sets account credit limits for ICE Block

NEXT STEPS FOR CLIENTS

CLIENT READINESS CHECKLIST

✓	Contact your vendor, liquidity providers and ICE Clear U.S. clearing members expressing your interest in trading the Eris Credit Futures: www.theice.com/clear-us/membership
✓	Ensure you have market access to trade the Eris Credit Futures: <ul style="list-style-type: none">- ISV such as Trading Technologies or Creditex RealTime- WebICE- Clearing Member execution platform
✓	Contact ICE sales team to: <ul style="list-style-type: none">- Review onboarding process- Obtain contacts for vendors, liquidity providers and clearing members- Ask any outstanding questions

CONTACT FOR MORE INFORMATION

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ICE Help Desk

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Web

www.theice.com/eris-futures

- Detailed product specifications
- White papers on cash equivalence and other topics
- B & C values

MARKET DATA

- ICE Futures U.S. customers, currently receiving real-time data, will be able to add access to view Eris Credit Futures for no additional cost. This market is included in the monthly market data exchange fee for ICE Futures US markets.
- New customers, or ICE Futures U.S. customers that do not currently receive real-time data, will be able to access the real-time Eris Credit Futures price data for free until the end of 2019, without a subscription to ICE Futures U.S. data. After that time, all ICE Futures U.S. customers should contact their market data provider for more information.

VENDOR CODES				
	ICE	BBG	Trading Technologies (TT)	CQG
Eris CDX.NA. IG 5 year	IG5	CWIA Index	5YR NA IG	F.US.I5 F.US.I5S (Settlement price)
Eris CDX.NA. HY 5 year	HY5	CWYA Index	5YR NA HY	F.US.I5 F.US.I5S (Settlement price)

A comprehensive list of codes can be found at: www.theice.com/products/All-Product-Codes

When searching for the contracts on TT, select the 'Contains' or 'Starts with' option from the drop down and then enter “5Y” in the adjacent search box for both IG and HY contracts.

INDEPENDENT SOFTWARE VENDORS

PROVIDING MULTIPLE CONNECTIVITY POINTS TO ICE FUTURES U.S

Independent Service Vendors (ISVs) offer participants numerous front-end choices in connecting to ICE Futures markets

ICE encourages clients to reach out to their vendors to confirm their support of Eris Credit Futures

Contact information for each vendor can be found at:
www.theice.com/connectivity/isv

INDEPENDENT SOFTWARE CODES				
Actant	Bloomberg Tradebook	CommunnyTek	CQG	Creditex RealTime
CTS	FFastFill	Fidessa	ICE Chat	Interactive Brokers
ION Trading	Object Trading	OptionsCity Software	ORC Software	PatSystems
ProOpticus	Rithmic	RTS Realtime Systems	Stellar	SunGard
TBricks	Thinkorswim	TradeStation	TransAct	Trading Technologies (TT)

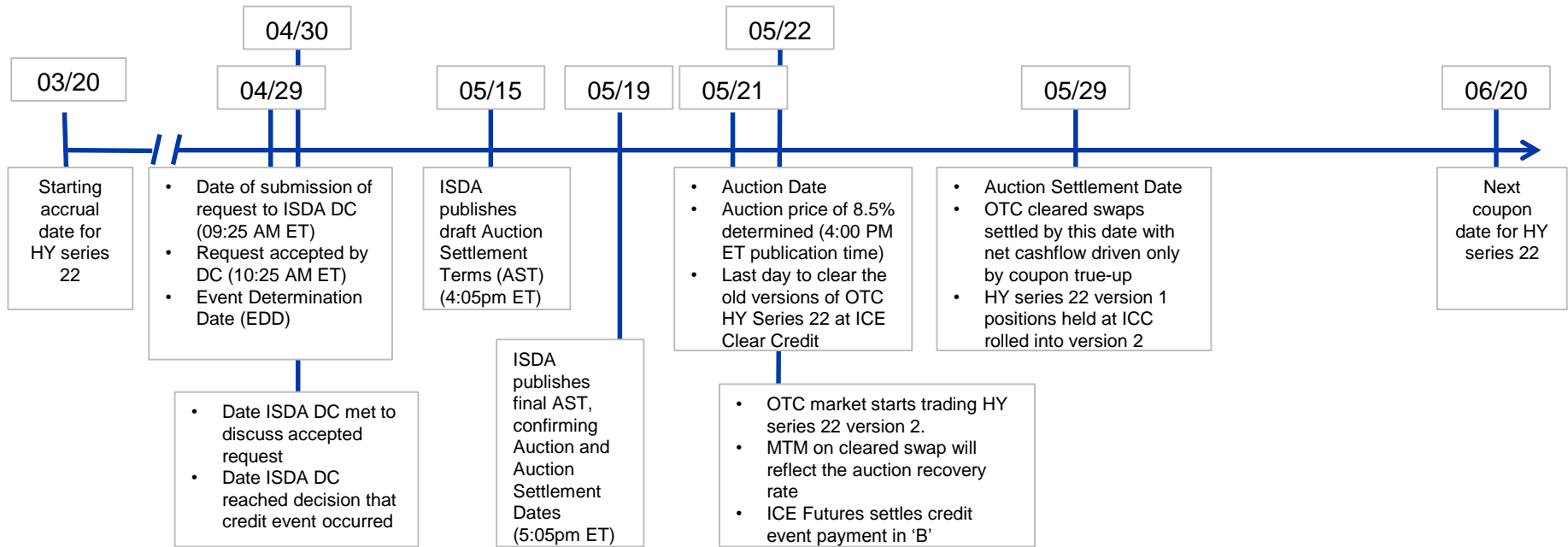
CREDIT EVENT PROCESSING

ICE Futures U.S. will follow the market standard practices for OTC swap settlement of credit events

- Credit event determinations for futures contracts will be based upon the same ISDA Determinations Committee decisions as for OTC swaps.
- Futures contracts will settle credit events at the same recovery rate as OTC swaps, and with the same accrued interest rate refunds.
- Futures credit event auction settlement date will be T+1 from credit event auction date
 - This matches the daily Mark-to-Market Margin cash flow of the cleared swap (which has no cash flow on auction settlement date¹).
 - This allows the Futures contract to start following version 2 of the swap, which starts trading on T+1 (version 1 is not tradable after auction date)
- Credit events that settle after the expiry of the futures contract will be managed similar to OTC contracts.
- Futures contracts will be kept open until the ISDA Determinations committee result has been reached.
 - If no credit event occurred, then contracts will expire on the same day as the determination is made (subject to determination being made prior to 5pm ET).
 - If a credit event has occurred, then contracts will expire the day after the credit event auction has taken place.

¹ Except for coupon true-up at event settlement which will be incorporated in the future's price on T+1 at present value

CREDIT EVENT SETTLEMENT: CDX.NA.HY S22 EXAMPLE¹



TIME PERIOD	ERIS CDX HY FUTURES PRICING METHODOLOGY
03/20 to 04/29	Price as 100 name index
04/30 to 05/21	Price as 100 name index constituted of a 99 name index plus, for the name that is defaulting, the present value of expected default payment, minus accrued interest from accrual start date to EDD
05/22 onwards	Index Factor drops to 0.99 from 1.00. Price as 99 name index

¹ Simulation based on publically available information related to an actual credit event auction.

ERIS CDX IG CREDIT FUTURE

CONTRACT SPECIFICATIONS

Spec.	Description	OTC
Contract structure	Cash -settled futures contract with \$100,000 notional principal whose value reflects the value of a basket of credit default protection on the entities in the index as published by Markit.	
Underlying CDS Index	5Y Markit CDX North American Investment Grade Index (CDX.NA.IG)	✓
Contract Symbol	IG5	
Contract Size	1 contract = 1 Lot = \$100,000 face	
Tick Size	0.01 index points equal to \$10 per contract	
Fixed Amount	100 basis points (bps) annually	✓
Quoting Convention	Index points - same as quotation convention for HY index, or cash bonds ¹	
Trading Conventions	Buy = Receive Premium = Long Credit Risk Sell = Pay premium = Short Credit Risk	
First Trading Dates	March and September 20; subject to Business Day conventions	✓
Fixed Payment Dates	Mar 20, June 20, Sept 20, and Dec 20 of each calendar year	✓
Last Trading / Maturity Dates	June 20 and Dec 20; subject to Business Day conventions	✓
First Accrual Dates	The first date from which the Fixed Amount accrues; March and Sept 20; subject to Business Day conventions. Quarterly Fixed Amounts accrue through the Calendar Day prior to the Fixed Payment Date.	✓

Spec.	Description	OTC
Credit Event Dates	As determined and announced by ISDA for OTC CDS.	✓
Credit Event Payments	The recovery amount for the defaulting entity is set at Auction Date.	✓
Futures Price	Futures Price = $A_t + B_t - C_t$	
Min. Price Fluctuation	0.0001 index points equal to \$0.1 per contract	
Daily Settlement	Daily Settlement Price at time $t = A_t + B_t - C_t$	
Settlement Price Quotation	0.0001 index points equal to \$0.1 per contract	
Final Settlement	Final Settlement Price = $100 + B_{final} - C_{final}$	
Index Publication Date	After 5 pm EST on the Business Day preceding the First Trading Date	✓
Block Trade Minimum	2 contracts	
Exchange of Derivatives for Related Positions (EFRPs)	Eris CDX IG futures are allowed to be traded as privately negotiated, off-exchange EFRPs and reported to ICE Futures U.S. (IFUS). EFRPs must be executed and reported pursuant to IFUS Rule 4.06 in the IFUS Exchange Rulebook.	
Position Limit	50,000 contracts in any one month, or all months combined	

¹ OTC CDX.NA.IG & iTraxx Europe Main & Crossover swaps are quoted in spread, not clean price

² For more information on A_t , B_t and C_t calculations please slide 6. Full specification documents can be found at www.theice.com/eris-futures

ERIS CDX HY CREDIT FUTURE

CONTRACT SPECIFICATIONS

Spec.	Description	OTC
Contract structure	Cash -settled futures contract with \$100,000 notional principal whose value reflects the value of a basket of credit default protection on the entities in the index as published by Markit.	
Underlying CDS Index	5Y Markit CDX North American High Yield Index (CDX.NA.HY)	✓
Contract Symbol	HY5	
Contract Size	1 contract = 1 Lot = \$100,000 face	
Tick Size	0.01 index points equal to \$10 per contract	
Fixed Amount	500 basis points (bps) annually	✓
Quoting Convention	Index points - same as quotation convention for HY index, or cash bonds ¹	
Trading Conventions	Buy = Receive Premium = Long Credit Risk Sell = Pay premium = Short Credit Risk	
First Trading Dates	March and September 27; subject to Business Day conventions	✓
Fixed Payment Dates	Mar 20, June 20, Sept 20, and Dec 20 of each calendar year	✓
Last Trading / Maturity Dates	June 20 and Dec 20; subject to Business Day conventions	✓
First Accrual Dates	The first date from which the Fixed Amount accrues; March and Sept 20; subject to Business Day conventions. Quarterly Fixed Amounts accrue through the Calendar Day prior to the Fixed Payment Date.	✓

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Settlement Price Quotation	0.0001 index points equal to \$0.1 per contract	
Final Settlement	Final Settlement Price = $100 + B_{final} - C_{final}$	
Index Publication Date	After 5 pm EST on the Business Day preceding the First Trading Date	✓
Block Trade Minimum	2 contracts	
Exchange of Derivatives for Related Positions (EFRPs)	Eris CDX HY futures are allowed to be traded as privately negotiated, off-exchange EFRPs and reported to ICE Futures U.S. (IFUS). EFRPs must be executed and reported pursuant to IFUS Rule 4.06 in the IFUS Exchange Rulebook.	
Position Limit	10,000 contracts in any one month, or all months combined	

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² For more information on At, Bt and Ct calculations please slide 6. Full specification documents can be found at www.theice.com/eris-futures

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Contracts are subject to completion of regulatory processes and the details are subject to change.