



ICE Coffee Markets

Price discovery using global
futures markets

David Farrell

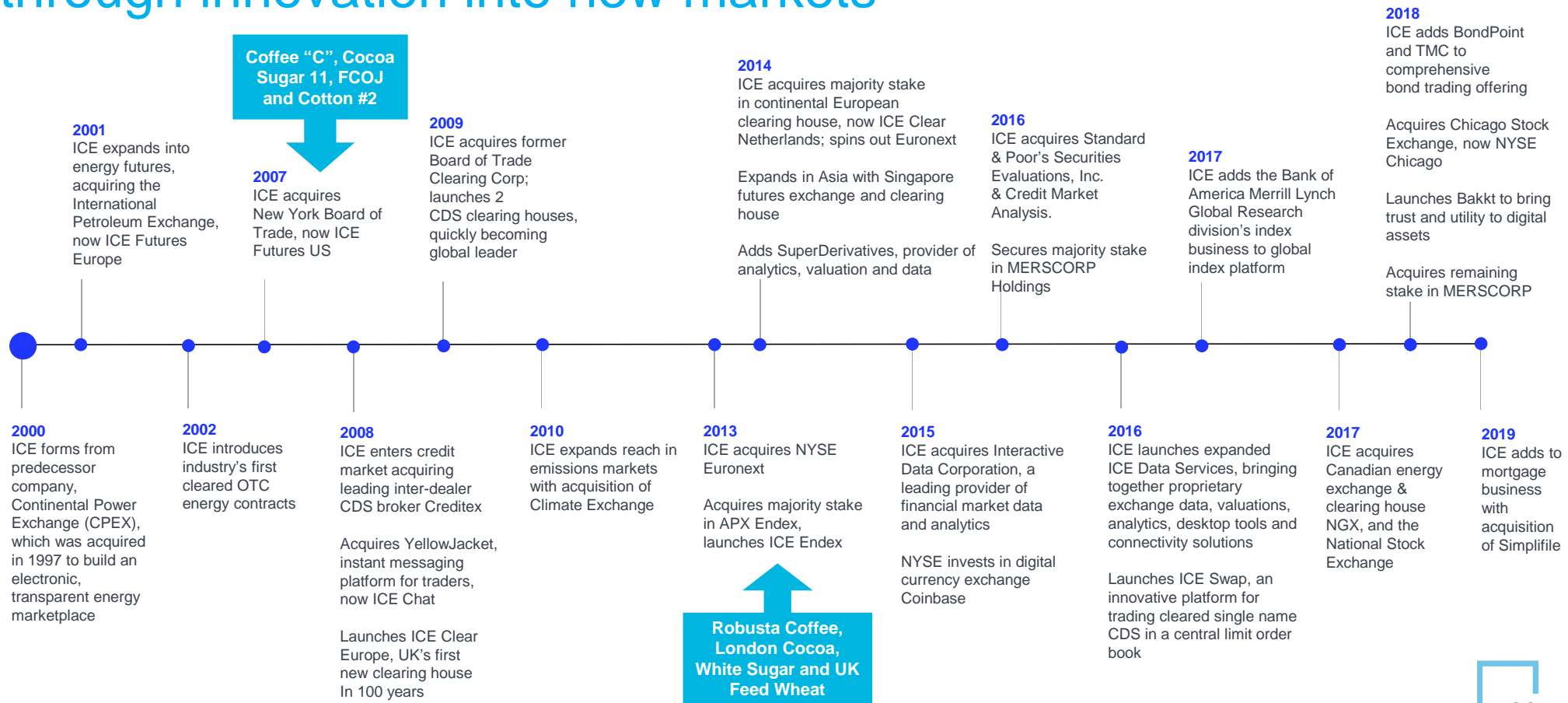
Chief Operating Officer, ICE Futures U.S.

November 2019

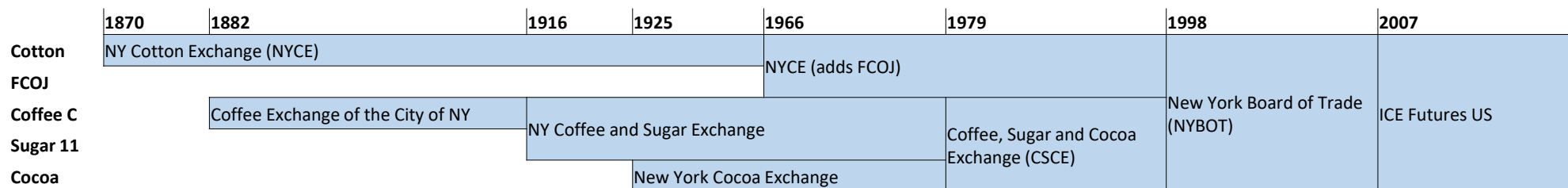


Transforming global markets

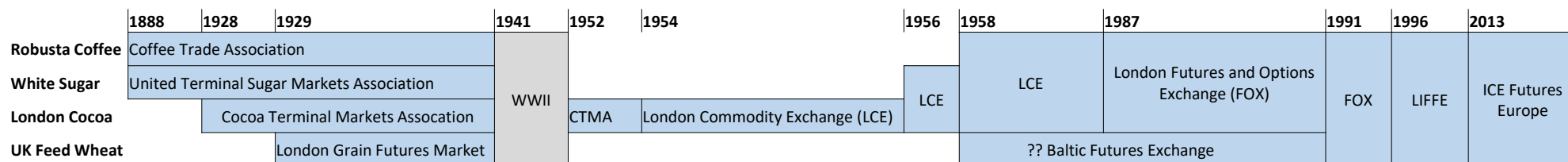
We began by transforming energy markets and expanded through innovation into new markets



Futures Market Timeline



* Source: ICE Futures US



* Source: Duncan, Richard, editor. "Soft commodities and the London Fox." *Agricultural Futures and Options: A guide to using North American and European Markets*. Woodhead Publishing Ltd, 1992, pp. 85-92.

Soft Commodities Futures Market Origins

Current Market	Current Exchange	First Iteration	Year
Cotton No. 2 Futures	ICE Futures US	New York Cotton Exchange	1870
Coffee 'C' Futures	ICE Futures US	Coffee Exchange of the City of New York	1882
White Sugar Futures	ICE Futures Europe	United Terminal Sugar Market Association*	1888
Sugar No. 11 Futures	ICE Futures US	Coffee Exchange of New York (Later renamed New York Coffee and Sugar Exchange in 1916)	1914
Cocoa Futures	ICE Futures US	New York Cocoa Exchange	1925
London Cocoa Futures	ICE Futures Europe	Cocoa Terminal Markets Association*	1928
UK Feed Wheat Futures	ICE Futures Europe	London Grain Futures Market*	1929
Robusta Futures	ICE Futures Europe	Coffee Terminal Markets Association* **	1958
FCOJ Futures	ICE Futures US	New York Cotton Exchange	1966

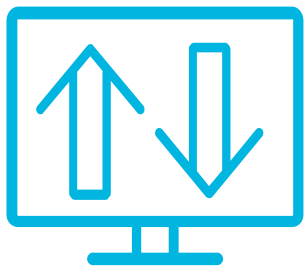
* Source: Evans, Giles, editor. "Exchange Directory." *ICCH Commodities Yearbook 1990*. Macmillan Publishers Ltd, 1990, pp. 307-309.

** Coffee Terminal Markets Association was also preceded by a Coffee Trade Association which was established in 1888.

ICE Futures Exchanges and ICE Clearing Houses

Primary Functions

ICE Futures



- Risk management
 - Offset commercial risk
- Price discovery
 - Primary pricing market for standard specification product
 - Benchmark for physical transactions
- Buyer and seller of last resort
 - Physical delivery mechanism for exchange of goods

ICE Clear



- Disintermediation of counterparty risk
 - Financially robust central counterparty
 - Vetted roster of clearing members (Exchange access)
- Risk valuation and collateralization
 - Positions collateralized to industry accepted best standards
- Consolidated accounts
 - Positions fully netted by account

Risk Management Instruments

- **Future** – Contract to buy (sell) a specific quantity of goods at a specific price for a fixed period in the future
 - Standardized terms including:
 - Quantity
 - Par Quality
 - Delivery Period
- **Option** – Contract for the right, but not the obligation, to buy (sell) a futures contract at a pre-determined price
 - Terms include:
 - Whether the right is to buy (“Call” option) or sell (“Put”) Option
 - The price at which the purchase (sale) would occur
- Other markets include **calendar spreads, calendar spread options (CSOs), inter-market spreads, and trade-at-settlement.**

Futures Contract



Risk Management Examples

Coffee Futures



Coffee Producer

- Farming Co-operative
- Secures lending for fertilizer and operations to cover next crop year
- Lending secured against future sales and requires price protection
- Sells futures to ensure profitability if price declines

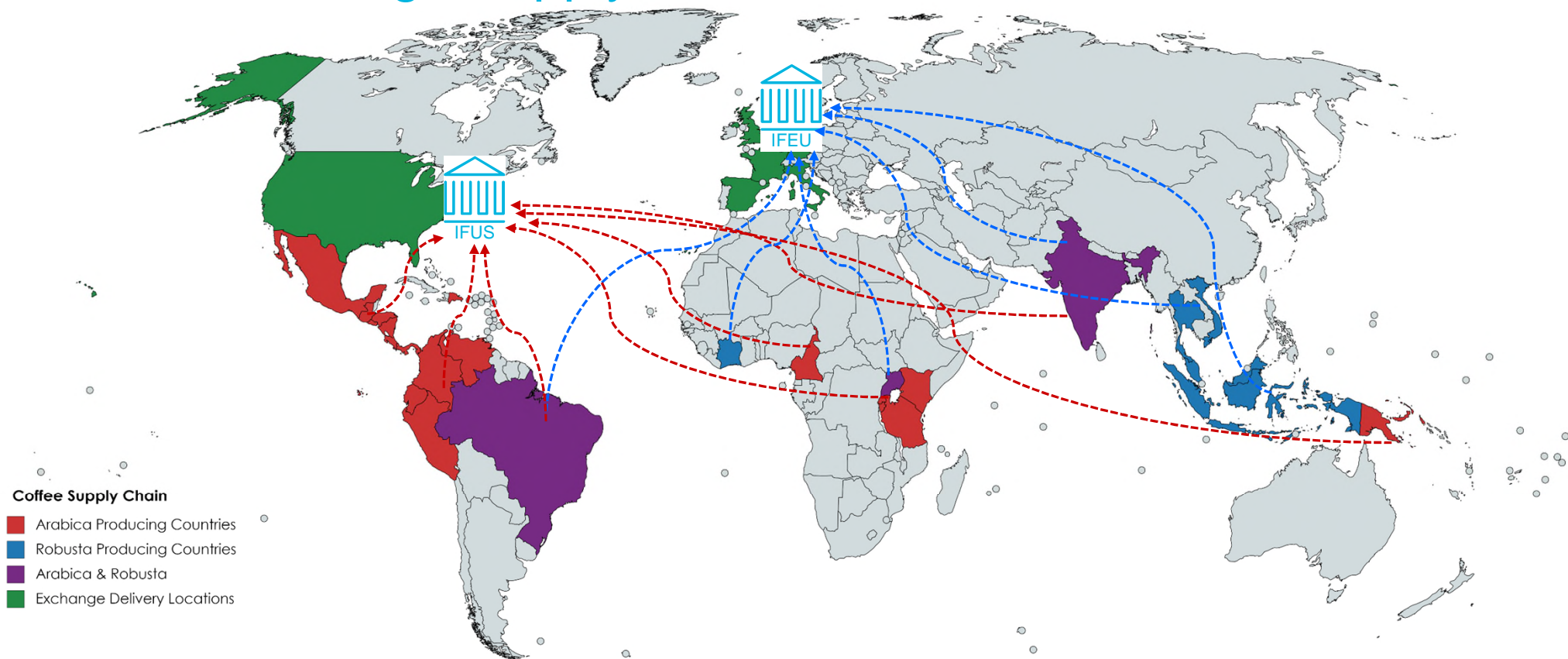
Merchant

- Trade House which purchases from producers and sells to it's network of roaster customers
- Carries inventory to meet customer demand
- Sells futures spreads to ensure profits including carrying costs

Roaster

- Purchases green coffee from merchants for roasting
- Needs to ensure input costs are below break even level for forecasted sales
- Buys call options to protect against green coffee cost increases

Coffee Exchange Supply Chain



Created with mapchart.net ©

Price Discovery

- Participants across all parts of the supply chain can transfer risk in a single, centralized market
- Known par-quality standard used to establish a benchmark price for a commodity
- Prices of transactions are used to determine the appropriate present value of the underlying commodity
- Prices of transactions also used to determine the *relative* value of related commodities, including different quality specifications of the commodity, alternate locations, by-products, etc

Trading in Electronic Markets

Launcher View Admin Help Logout Trade (WebICE) (ICE) - dfarrell_prod @ View Only Test Company [LL: 11/14/19 9:50 AM]

Kill All Activate All **Live Only** Hold Bids Hold All Hold Offers Excel Search...

East Fin Power Peak Spreads (S)				Mobile Softs				US Grains				Permian				CalRock Markets				CalRock Index				BTC Monthly				BTC Daily																																			
West Fin Gas (S)				NGX AB-NIT				Other NGX Phys Gas				West Fin Power (S)				East Fin Power Peak (S)				East Fin Power Off-Peak (S)				Physical Power (S)																																							
RBOB				IPE Gas Oil				Heating Oil				GasOil Crack				Heat Rate				ECX				Henry (S)				Henry ICE lots (S)				Physical Gas (S)				East Fin Gas (S)				Gulf Fin Gas (S)				Midcont Fin Gas (S)																			
UK Feed Wheat				Containerised White Sugar				Euro Cocoa				GOLD				Metals				STIRS				Equity Indices				U S D X				Financial Index Data				Foreign Exchange				CREDIT INDICES				Brent				WTI				Brent/WTI Spread											
Orders				Deals				Options				Market Watch (30)				UPS				SUGAR				White Sugar				COFFEE				Robusta Coffee				NY COCOA				London Cocoa				Cotton No 2				Canola				FCOJ				Spot Gold				Spot Silver			

Search... Live Only Hold Orders (inactive)

Product	Strip	Options	B Qty	Bid	Theo	Offer	O Qty	Low	High	WAP	Last	Settle...	Change	Chan...	OI	Volu...	OI C...	EFS...	EFP...	Bl...	Opti...	Mk...	
+ Coffee "C" Futures	Dec19		2	105.80	105.83	105.85	7	105.60	107.90	106.89	105.85	108.05	-2.20	-2.04%	24403	6590	-7202		178			Open	
Coffee "C" Futures	Jan20	Δ 462/210										111.50										672	Open
Coffee "C" Futures	Feb20	Δ 255/390										111.50										645	Open
+ Coffee "C" Futures	Mar20	Δ 279/195	12	109.25	109.28	109.30	4	109.05	111.40	110.31	109.30	111.50	-2.20	-1.97%	130267	17771	2456	20	87		474	Open	
			16	109.20	109.28	109.35	15				109.25												
			20	109.15	109.28	109.40	12				109.30												
			28	109.10	109.28	109.45	10				109.30												
			20	109.05	109.28	109.50	9				109.30												
+ Coffee "C" Futures	May20	Δ 92/34	2	111.65	111.68	111.70	4	111.45	113.55	112.68	111.65	113.85	-2.20	-1.93%	56240	4602	980		3		126	Open	
+ Coffee "C" Futures	Jul20	Δ 8/0	2	113.80	113.83	113.85	4	113.65	115.85	114.74	113.80	116.00	-2.20	-1.90%	34877	1522	216				8	Open	
+ Coffee "C" Futures	Sep20	Δ 5/0	12	115.70	115.75	115.80	7	115.55	117.70	116.81	115.80	117.95	-2.25	-1.91%	18039	851	-442				5	Open	
+ Coffee "C" Futures	Dec20	Δ 500/1	2	118.05	118.10	118.15	7	117.90	120.05	119.01	118.05	120.30	-2.20	-1.83%	13963	771	84				501	Open	
+ Coffee "C" Futures	Mar21	Δ 500/0	2	120.25	120.33	120.40	7	120.35	121.05	120.94	120.30	122.60	-2.25	-1.84%	6238	348	208				500	Open	
+ Coffee "C" Futures	May21	Δ	1	121.80	121.88	121.95	7	122.15	122.15	122.15	122.10	124.15	-2.00	-1.61%	2265	19	9					Open	
+ Coffee "C" Futures	Jul21	Δ	1	123.35	123.43	123.50	3	123.70	123.70	123.70	123.65	125.70	-2.00	-1.59%	1374	7	27					Open	
+ Coffee "C" Futures	Sep21	Δ	1	124.90	124.98	125.05	1	125.25	125.25	125.25	125.25	127.25	-2.00	-1.57%	1882	1	23					Open	
+ Coffee "C" Futures	Dec21	Δ	1	126.90	127.08	127.25	1				129.30					2764		40				Open	
+ Coffee "C" Futures	Mar22	Δ	1	128.90	129.18	129.45	1				131.40					1100		13				Open	

Ticker Options Alarms (40) Filter...

Ex. Time	CC	Description	Price	Qty	TT	Time	CC	Description	Qty
11:40:17 EST	KC	Jan20 132.50 call	0.08	1	qc	11:39:15 EST	RC	Mar20 1375 puts vs 1422Δ36	400 qc
11:39:19 EST	KC	Jan20 112.50 call	2.13	9	qc	11:38:53 EST	C	Buy 2x Dec20 1550 puts - Sell 1x May20 1850 ...	750 qc
11:38:53 EST	KC	Jan20 125.00 call	0.25	3	qc	11:38:26 EST	CT	Mar20 65.00 puts vs 66.80Δ36	1 qc
11:38:06 EST	KC	Jan20 130.00 call	0.12	1	qc	11:37:56 EST	KC	Jan20 130.00 call	0 qc
11:37:56 EST	KC	Feb20 90.00 put	0.22	12	qc	11:37:53 EST	SB	Mar20 13.25 calls vs 12.75Δ30	0 qc
11:37:56 EST	KC	Feb20 90.00 put	0.22	21	qc	11:37:47 EST	OJ	Mar20 110.00 call	0 qc

ⓘ A request for quote has been placed in: Robusta Coffee Future ICEU Mar20 UDS Mar20 1375 puts vs 1422Δ36 Alerts (178) 11:40:19 Users: 20926



Price Discovery Through Futures

Coffee Futures



Certified Inventory

- Coffee exported from origin countries and stored in Exchange certified warehouses
- Grading results published by the Exchange, allowing market to understand deliverable supply for the futures contracts

Par Valuation

- Market Participants evaluate supply/ demand conditions for deliverable supply
- Bids, offers and transactions form pricing information across various periods
- Benchmark price established and distributed

Basis Pricing

- Benchmark price utilized across many types of contracts
- Physical contracts indexed to the futures (Futures price + differential spread)

Price Basis

Green Coffee Price (Outright Price)

Basis	Contract Requirements	\$20*
	Delivery Terms	\$50*
	Origin DIFFERENTIAL (standard terms)	\$150*

Futures	Robusta Contract Terms	\$1,350*
	<ul style="list-style-type: none"> 10 MT Free-on-Truck Licensed warehouse Any origin Warrant Weights (MT) Rent paid through end of Delivery Month +/- 2 months rent differential 	

Basis	Contract Requirements	\$0.05*
	Delivery Terms	\$0.05*
	Origin DIFFERENTIAL (standard terms)	\$0.10*

Futures	Coffee "C" Contract Terms	\$1.10*
	<ul style="list-style-type: none"> 37,500 lbs (17 MT) In-store Licensed warehouse Origin prem/disc Port prem/disc Age discount Warrant Weights (lbs) Outbound and Rent cost adjustments 	

* Figures are shown as an example and **NOT** indicative of current value.



Buyer / Seller of Last Resort

Certification of Specific Grades

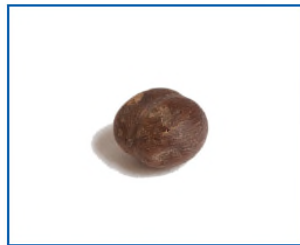
Evaluates specific lots of product to determine:

- Does the product meet the minimum specification of the futures contract?
- Are there characteristics of the product that requires a premium or discount to be attached at delivery?
- Measure the specific quantity of the product
- Allow transfer of the commodity from sellers to buyers anonymously through the Exchange

Buyer / Seller of Last Resort Example

Coffee 'C' Grade Defect Categories

- **Black Bean:** a coffee bean of which more than one-half of the external surface and interior is black (endosperm)
- **Cherry:** means the fruit of the coffee plant
- **Bean Fragment:** a fragment of a coffee bean of volume less than half a bean
- **Mouldy Beans:** a coffee bean showing mould growth over half or more of the bean visible to the naked eye



Cherry



Bean Fragments



Mouldy Beans



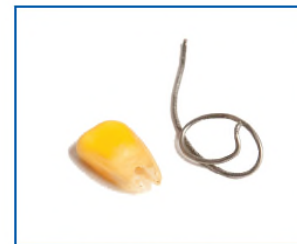
Black Beans



Small Stones



Small Sticks



Non-Coffee Item

Buyer / Seller of Last Resort Example

Coffee 'C' Futures



Surplus Inventory

- Excess crop without customer demand
- Owner can grade coffee to certify it for Exchange delivery
- Sell via futures market to offload supply

Tight Supply

- Crop Issue or lack of commercial inventory to meet a roaster's specifications
- Certified inventory evaluated as potential replacement
- Purchase futures to source Exchange quality beans

Carry Trade

- Excess inventory will not be needed for several months
- Futures market paying more for near term supply than forward
- Sell coffee to futures at near term and buy back inventory at the forward discount

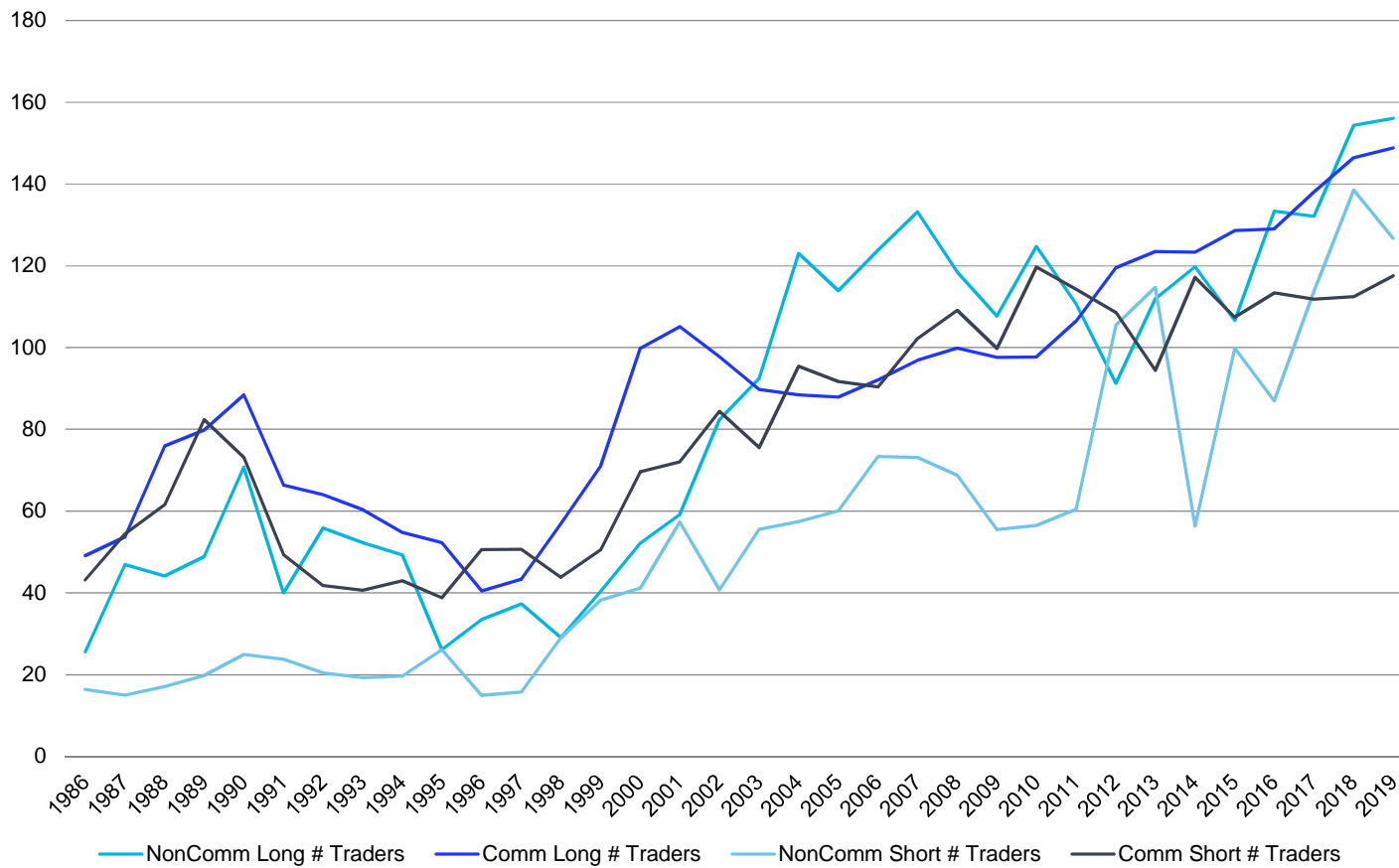
Interdependence of Three Primary Functions

- Physical deliveries through the exchange establish real transactional information about goods, *which*
- Reinforce par value needed to enhance price discovery and transparency of benchmark value, *which*
- Attract more participants to the market to manage price risk, *which*
- Increases the number of potential buyers / sellers of last resort
- The three primary functions work together to fuel liquidity development



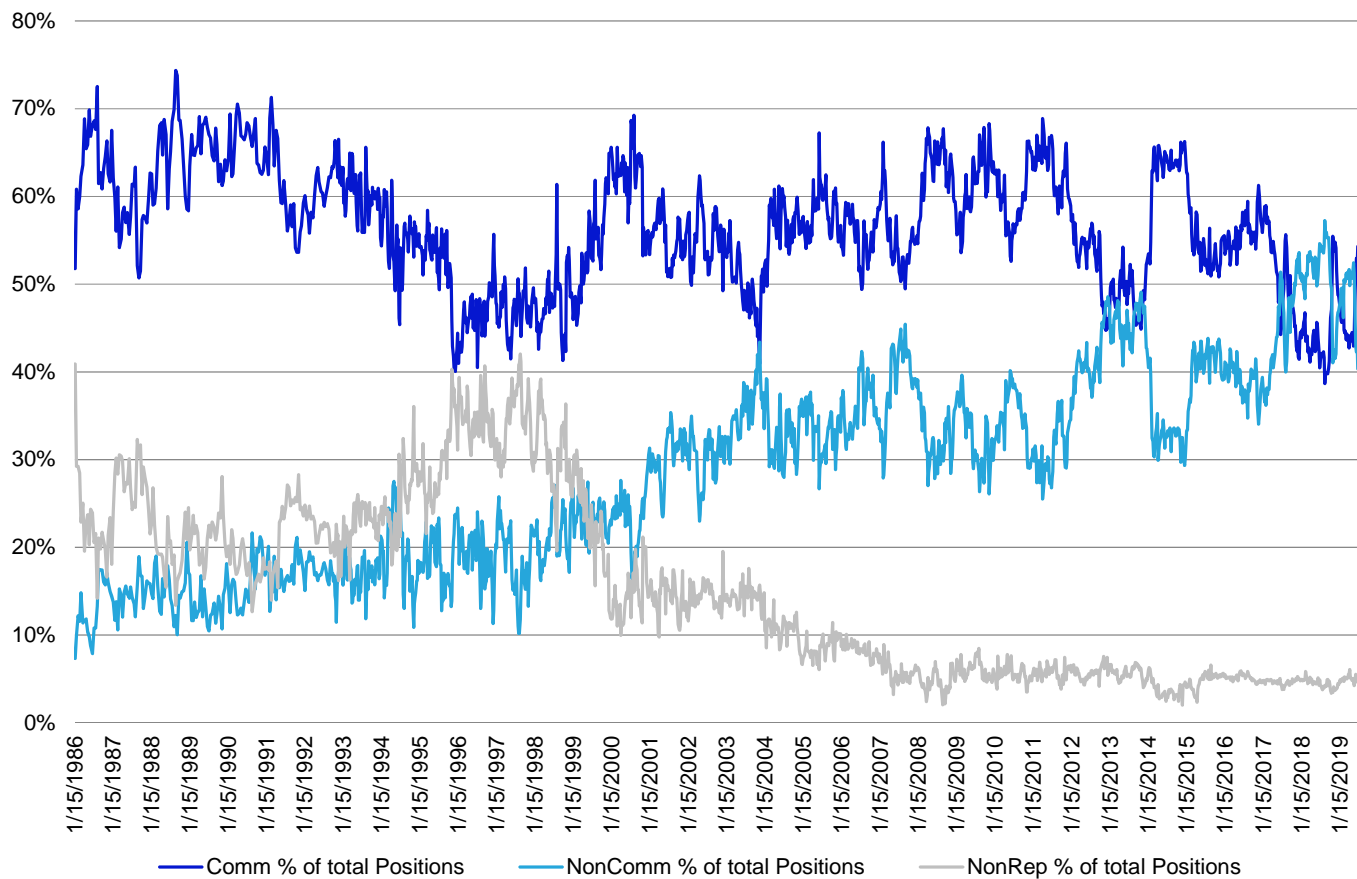
Participation Growth

Average Number of Reportable Traders



Position Composition

Commitment of Traders - Total Positions (Coffee "C")



Futures Market Summary

- **Coffee Futures Markets** provide a forum to buy (sell) a standard specification of coffee at a fixed period in the future
 - **Coffee “C” market for Arabica Coffee** traded on ICE Futures US
 - Separate **Robusta** market trades on ICE Futures Europe
- Both markets service as a single **central place where participants from all parts of the supply chain** can transfer price risk
- Tailor the contracts to be relevant and **accessible to the widest portion of the supply chain** possible to ensure **liquidity**
- Exchange is a service provider that produces and **distributes transparent information about coffee prices, inventory and grading results** for the wider market to use in their market analysis

Questions?

For Further Information:

David Farrell

Chief Operating Officer
ICE Futures US
Intercontinental Exchange
+1 212 748 4200
David.Farrell@theice.com

Tim Barry

Vice President
Product Development
Intercontinental Exchange
+1 212 748 4096
Tim.Barry@theice.com

Toby Brandon

Senior Director
Soft Commodity Operations
Intercontinental Exchange
+44 207 012 8798
Toby.Brandon@theice.com

Matt Ryan

Senior Director
Ags & Soft Commodities
Intercontinental Exchange
+1 212 748 4116
Matt.Ryan@theice.com

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Thank You For Attending!

