# THE FUNCTIONING OF THE FUTURES MARKETS: CHALLENGE & OPPORTUNITIES

Brussels, 18 December 2012
Lionel Porte



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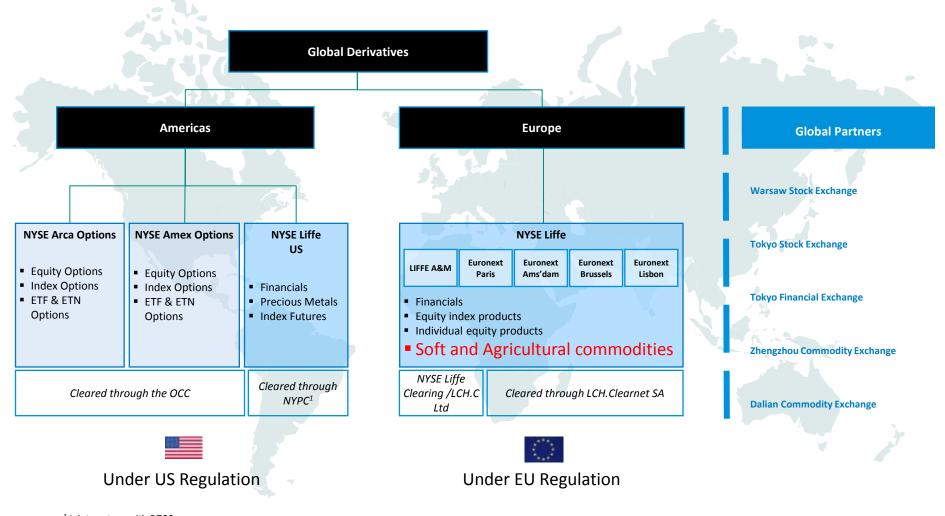
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#### **CONTENTS**

- NYSE Liffe Commodity Derivatives
- NYSE Liffe Metrics
- Hedging Price Risk
- Users of Commodity Derivatives
- The Mechanics of futures trading
- Basis and correlations



#### **NYSE EURONEXT GLOBAL DERIVATIVES**



<sup>&</sup>lt;sup>1</sup> Joint venture with DTCC.



# NYSE LIFFE COMMODITY DERIVATIVES – PRODUCT RANGE

Milling Wheat



Rapeseed



Corn



Malting Barley



Feed Wheat



Skimmed Milk Powder



Cocoa



Robusta Coffee



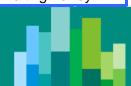
White Sugar





### **Commodity Markets volumes at NYL in 2012**

30 novembre 2012		2 Ave	rage Daily Volu	ıme	Cumulative Volume	Open Interest		
		YTD Nov 12	YTD Nov 11	vs 11		Previous Day Current Yr	vs 11	
Commodity Pr	roducts	88 625	81 810	8%		1 564 453	18%	
Futures		74 260	67 946	9%	17 673 834	834 129	25%	
Softs		35 138	35 398	-1%	8 362 799	385 491	18%	
Coffee 10	Tonne	12 038	13 914	-13%	2 864 949	95 343	23%	
Cocoa		15 713	15 497	1%	3 739 738	217 570	6%	
White Suga	ar	7 387	5 987	23%	1 758 112	72 578	61%	
Agricultural		39 122	32 548	20%	9 311 035	448 638	31%	
Milling Wheat		28 519	22 779	25%	6 787 467	336 348	73%	
Feed Wheat		533	651	-18%	126 948	11 763	-31%	
Rapeseed		7 797	7 443	5%	1 855 662	67 998	-35%	
Corn		2 180	1 574	39%	518 907	31 128	32%	
Malting Barley		93	102	-9%	22 051	1 401	-8%	
Options		14 366	13 864	4%	3 418 998	730 324	10%	
Softs		6 196	6 650	-7%	1 474 562	238 118	-12%	
Coffee 10	Tonne	3 040	3 646	-17%	723 420	76 012	-2%	
Cocoa		3 106	2 932	6%	739 318	160 075	-16%	
White Sugar		50	72	-31%	11 824	2 031	-40%	
Agricultural		8 170	7 214	13%	1 944 436	492 206	26%	
Milling Wheat		6 256	5 326	17%	1 488 950	379 857	33%	
Feed Wheat		4	6	-27%	989	158	33%	
Rapeseed		1 766	1 688	5%	420 271	95 461	12%	
Corn		141	183	-23%	33 526	16 630	-8%	
Malting Barley		3	11	-73%	700	100	-93%	



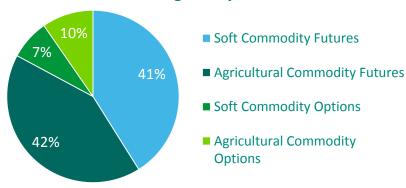
### **Commodity Markets volumes at NYL in 2011**

Contract Name	YTD Volume	YTD Volume	Y on Y	YTD ADV	YTD ADV	Y on Y	Open Interest	Open Interest	Y on Y
	2011	2010	% Change	2011	2010	% Change	30-déc-11	31-déc-10	% Change
Total commodity	20 729 525	16 679 006	24%	80 660	64 647	25%	1 187 276	1 218 690	-3%
Commodity Futures	17 265 995	14 133 913	22%	67 183	54 783	23%	642 029	662 954	-3%
COCOA	4 079 975	3 519 409	16%	15 875	13 641	16%	181 742	169 457	7%
CORN / MAIS	402 397	240 028	68%	1 566	930	68%	20 850	20 293	3%
MALTING BARLEY / ORGE DE BRASSERIE	25 009	6 200	303%	97	36	167%	1 611	1 522	6%
RAPESEED / COLZA	1 908 310	1 202 153	59%	7 425	4 660		103 000		17%
ROBUSTA COFFEE 10 TONNE	3 502 508	2 789 953	26%	13 628	10 814		77 978		-21%
SKIMMED MILK POWDER	9	7	29%	0			0		
WHEAT FEED	162 683	147 684	10%	633	572				17%
WHEAT MILLING / BLE DE MEUNERIE	5 687 888	4 374 323	30%	22 132	16 955		185 226		-16%
WHITE SUGAR	1 497 216	1 854 156	-19%	5 826	7 187	-19%	54 422	49 018	11%
Commodity Options	3 463 530	2 545 093	36%	13 477	9 865	37%	545 247	555 736	-2%
COCOA	792 238	730 027	9%	3 083	2 830	9%	170 238	115 869	47%
CORN / MAIS	43 794	20 245	116%	170	78	117%	12 072	9 401	28%
MALTING BARLEY / ORGE DE BRASSERIE	3 100	390	>500%	12	2	426%	1 800	390	362%
RAPESEED / COLZA	408 554	271 993	50%	1 590	1 054	51%	90 838	105 471	-14%
ROBUSTA COFFEE 10 TONNE	898 109	482 483	86%	3 495	1 870	87%	42 409	55 631	-24%
WHEAT FEED	1 363	873	56%	5	3	57%	116	332	-65%
WHEAT MILLING / BLE DE MEUNERIE	1 298 748	1 016 600	28%	5 053	3 940	28%	223 822	267 652	-16%
WHITE SUGAR	17 624	22 482	-22%	69	87	-21%	3 952	990	299%

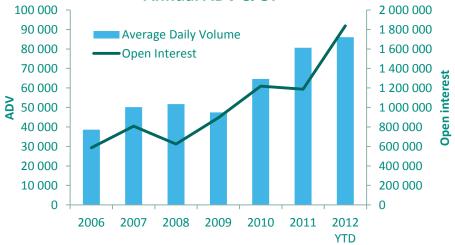


# NYSE LIFFE COMMODITY DERIVATIVES – PRODUCT RANGE

#### **2012 YTD Average Daily Volume**



#### **Annual ADV & OI**



#### Softs

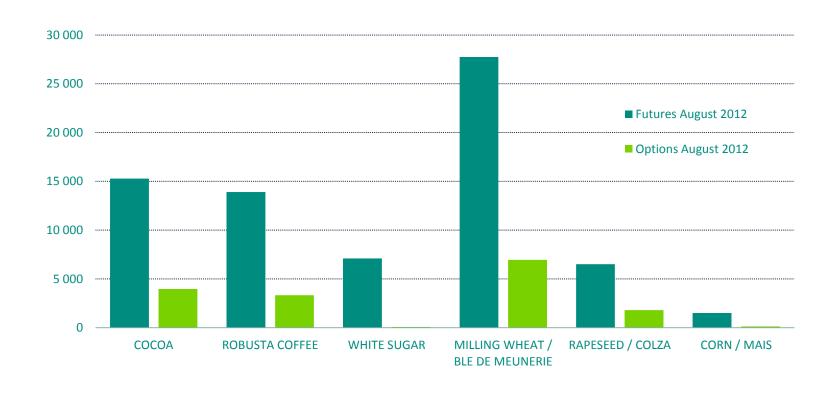
- Cocoa futures and options
- Robusta Coffee futures and options
- White Sugar futures and options

#### Agriculturals

- Milling Wheat futures and options
- Rapeseed futures and options
- Corn futures and options
- Feed Wheat futures and options
- Malting Barley futures and options
- Skimmed Milk Powder futures
- 2012 ADV to date ~ 88,000 lots



# AVERAGE DAILY VOLUME (IN NUMBER OF LOTS)





# NYSE LIFFE COMMODITY DERIVATIVES: KEY FEATURES

- Our soft and agricultural commodity derivatives are the global price benchmarks for the underlying physical markets
- Provide opportunities to hedge price exposure to a wide range of internationally-relevant products
- Liquid and fast-growing contracts allow effective asset diversification: record-breaking volume and open interest growth of over 100% in past two years
- Diverse customer base led by commercial hedgers as well as funds, proprietary traders and investment banks
- Key contracts included in major commodity indices Rogers International Commodity Index® and S&P World Commodity Index<sup>TM</sup>
- Opportunities for cross-market arbitrage (relative value) trading















# **Hedging price risk**



### The importance of managing price risk (1)

The price volatility of a physical underlying creates a risk for buyers and sellers. Had a producer known the selling price of a given product in advance, he would have taken a different decision in terms of quantity and quality of his produce

If prices fall his margin can shrink and even turn negative and jeopardise his company.

An intermediary, had he known the buying price of a given product in advance, would have taken a different decision in terms of quantity (decision not to buy or buy more).

If prices rise his margin can shrink and even turn negative and jeopardise his company.

Volatility creates the need for tolls for users of commodities in order to protect themselves from price movements.

Volatility is a measure of price instability, either higher or lower, and quantifies a price risk



### The importance of managing price risk (2)

In order to hedge price risk in the increasingly volatile agricultural commodity markets NYSE Liffe enables all market users to protect themselves with the use of futures markets.

Price volatility is currently high: in 2004 prices would vary 20 Euros over an entire crop while today this can be the case on a single day.

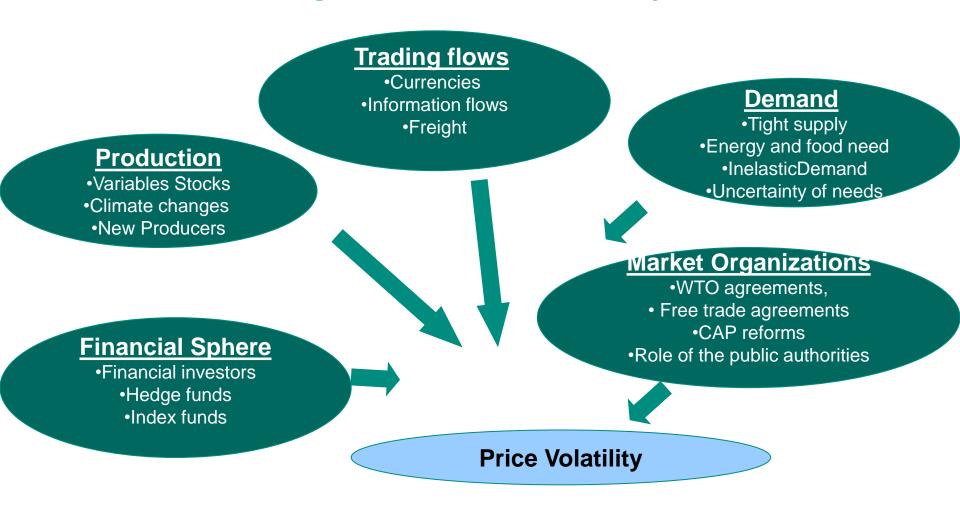
The futures market protects users' margins and avoids uncertainty.

The number of contracts traded on the MW contract has been multiplied by 25 in the last 7 years from 211000 contracts in 2005 to over 5 600 000 contracts in 2011 and already overpassed at the end of November 12 with more than 6.7 m contracts traded. This represents 28 000 contracts changing hands each day, which represents more than 1.4 million tonnes.

Over 2.4 times the equivalent of the European wheat production changed hands on the NYSE Liffe trading platform in 2012.



### **Ingredients of Volatility**



A fragile balance, fierce competition, phasing out of safety nets



#### **NYSE LIFFE COMMODITIES - USERS**

The two most common reasons for using the NYSE Liffe Commodity futures markets are hedging and investment:

- Hedgers aim to protect themselves from adverse price movements and typically include:
  - Producer co-operatives
  - Trade houses
  - Commodity processors
  - Animal feed manufacturers
- Investors aim to make a profit from favourable price movements and include:
  - Institutional investors, banks
  - Index traders
  - Hedge funds, (money managers)
  - Independent proprietary traders
  - HFT, algos



#### PRINCIPLES OF HEDGING USING DERIVATIVES

- Hedgers aim to protect themselves from adverse price movements
- This is usually achieved by taking an opposite position in the futures market to their position in the physical market
- Hence, any loss in the physical market will be offset by a profit in the futures market and vice versa
- Hedging enables market users to "lock" in a price many months in advance of making or taking delivery of the physical commodity
- Futures are primarily used as a financial instrument i.e. futures positions will be "closed out" prior to the point of expiry
  - Physical delivery will take place through normal physical market channels the futures market is the "delivery market of last resort"



# PRINCIPLES OF INVESTMENT USING DERIVATIVES

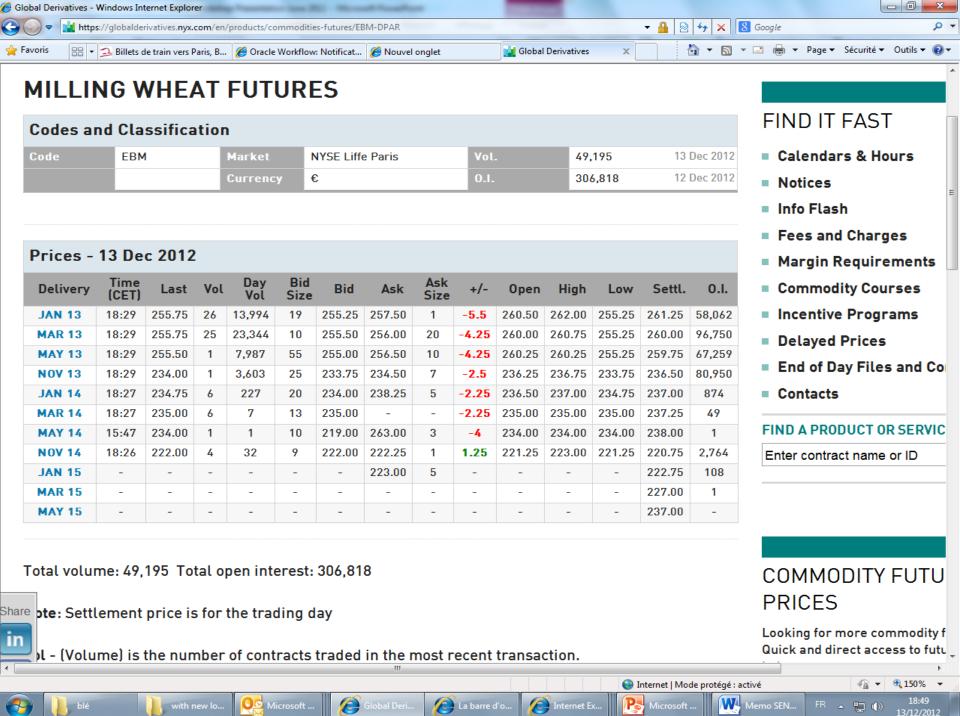
- Investors aim to gain exposure to the price movements in a particular commodity
  - but without the need to hold stocks of the physical product
- Investors play a valuable role in the futures market by taking on the price risk that hedgers are trying to offset



#### OTHER ROLES OF THE DERIVATIVES MARKET

- As a neutral and central marketplace, derivatives markets play a valuable role in creating price transparency for the underlying asset or financial instrument
- The futures price is often the only visible price benchmark for participants in the underlying physical market
- Hence many physical contracts are concluded at a premium, discount or ratio to the prevailing futures price
- Even if you are not using the market directly it is important to be aware of what is happening in the futures markets





#### **HEDGING EXAMPLE**

#### In April:

- A processor is seeking to purchase 100 tonnes of Milling Wheat in September for his plant
- At this moment the price for November Milling Wheat is €230/T
- The price level is acceptable for the buyer who would ideally like to lock in a price for part of his purchase now as he is worried of possible price increase between now and crop-
- What can he do on the futures market to hedge his risk?



#### **HEDGING EXAMPLE- IN CASE OF INCREASING PRICE + €30**

Date	Physical Market	Futures Market		
April	Target Price €220/T	Buy 2 contracts Nov futures €230/T		
September	Buy 100 tonnes immediate delivery €250/T	Sell back 2 contracts November futures €260/T		
End Result	-€30	+€30		
Final Price €220/T				



#### **HEDGING EXAMPLE- IN CASE OF DECREASING PRICE - €20**

Date	Physical Market	Futures Market		
April	Target Price €220/T  Buy 100 tonnes	Buy 2 contracts Nov futures €230/T  Sell 2 contracts November futures €210/T		
September	immediate delivery €200/T			
End Result Final Price €220/T	+€20	-€20		



#### SOME POINTS TO NOTE ON HEDGING

In the example given, instead of "closing out" the futures position, the Buyer could have left the Contract until expiry and taken delivery through the futures market

However, please note that only around 1 percent of futures contracts go to physical delivery

The other 99 percent are "closed out" as per the example on the previous slide

The delivery mechanism exists to ensure convergence between physical and futures prices

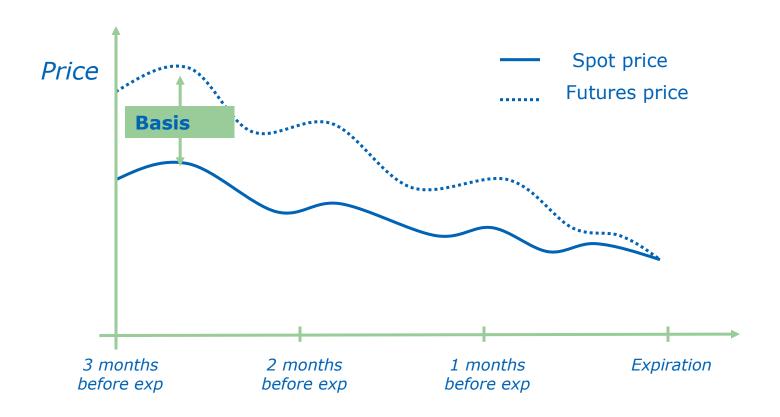


# Basis of a futures market



#### **FUTURES MARKETS VERSUS SPOT MARKETS**

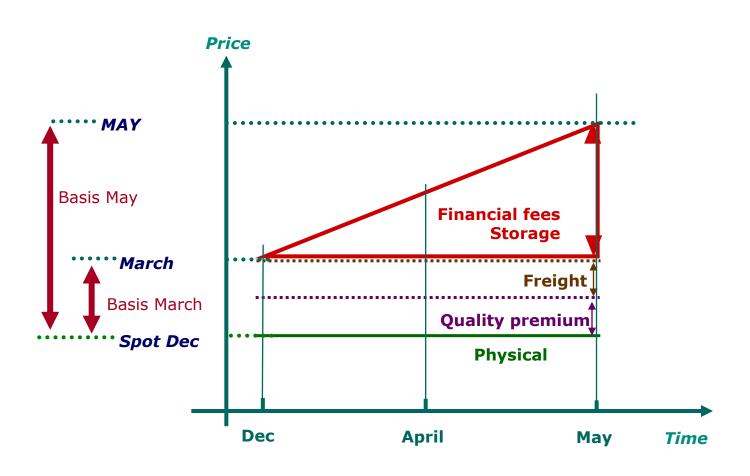
The future price is a function of the underlying and the basis (hence the notion of derivatives). The relationship between the spot and future price can widen or narrow – but (everything else being equal) the gap (known as 'basis') should narrow towards expiry of the future (cost of carry diminishes over time). At moment of expiry the gap is zero



#### **HOW IT WORKS: FUTURES PRICING**

What is the notion of fair value of prices in the market
Factors impacting the future price is the cost of carry
What's in it ? The financing → Interest rates and storage costs
Futures prices= Spot Price + basis ( cost of carry +quality)
Contango & Backwardation

#### **FUTURES VERSUS SPOT MARKET**



## **Correlations**

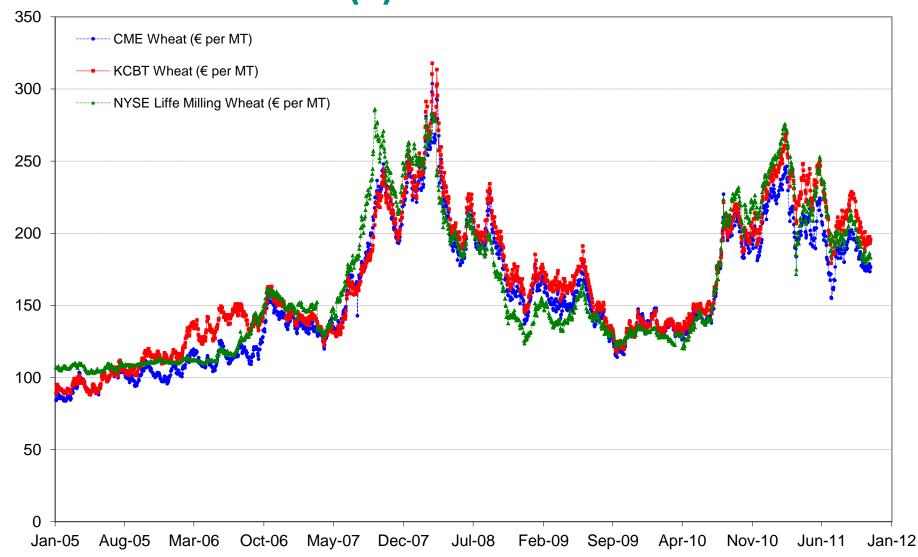


#### PHYSICAL MARKETS CORRELATION VS FUTURES

- Pricing a similar product to keep the correlation →Quality
- Currency hedging → Euro/Dollar/ Currency
- Grain Export area → North Africa, Middle East
- Competitors
- Liquidity of the futures market benchmark
- Importance of keeping a stable basis in the time



### **World Wheat Prices (II)**

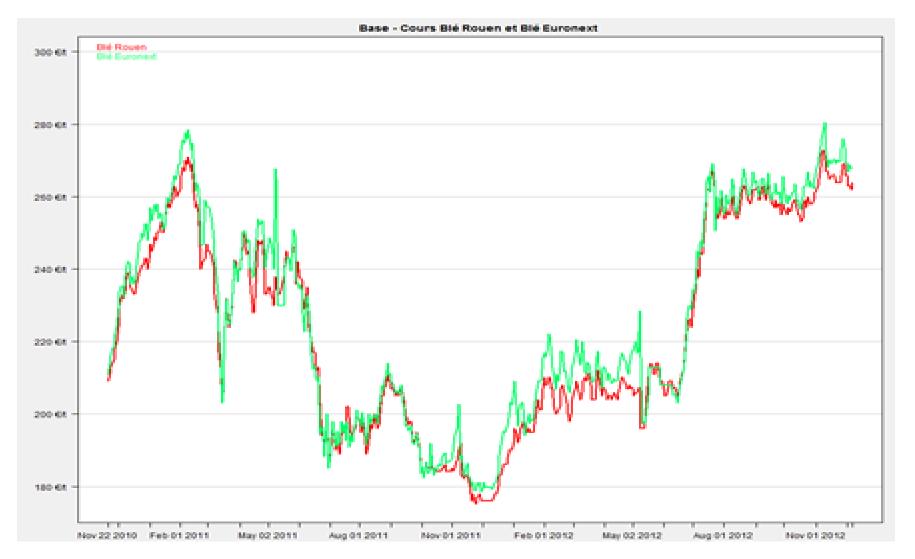




€ per MT

Daily settlement data 2nd position

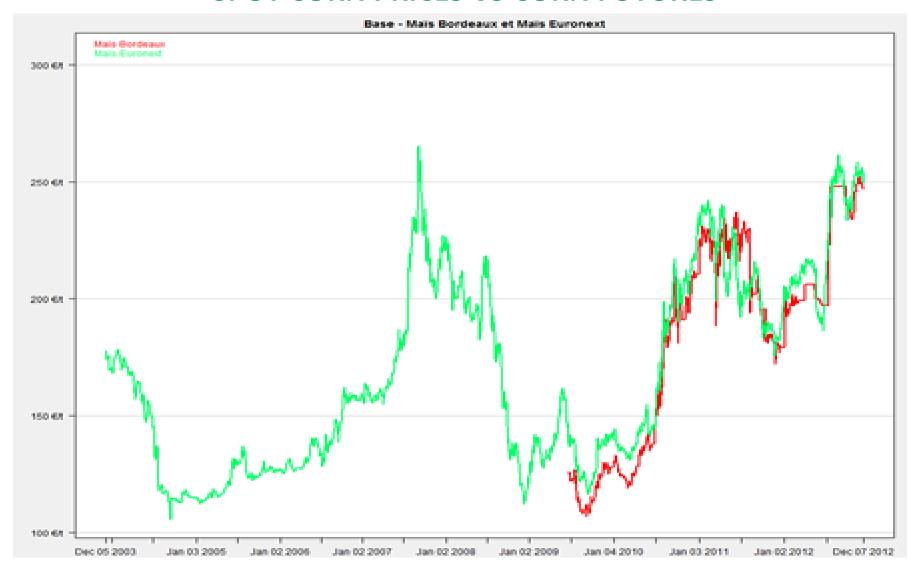
#### SPOT WHEAT PRICES CORRELATION VS MW WHEAT FUTURES





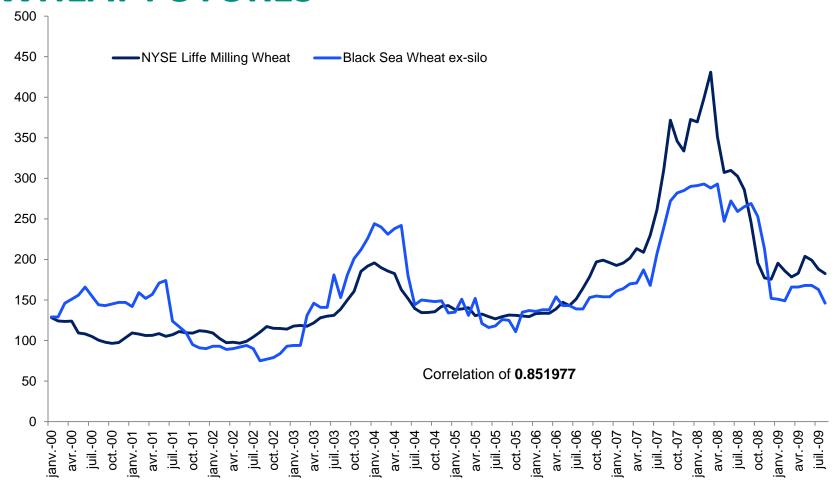


#### **SPOT CORN PRICES VS CORN FUTURES**



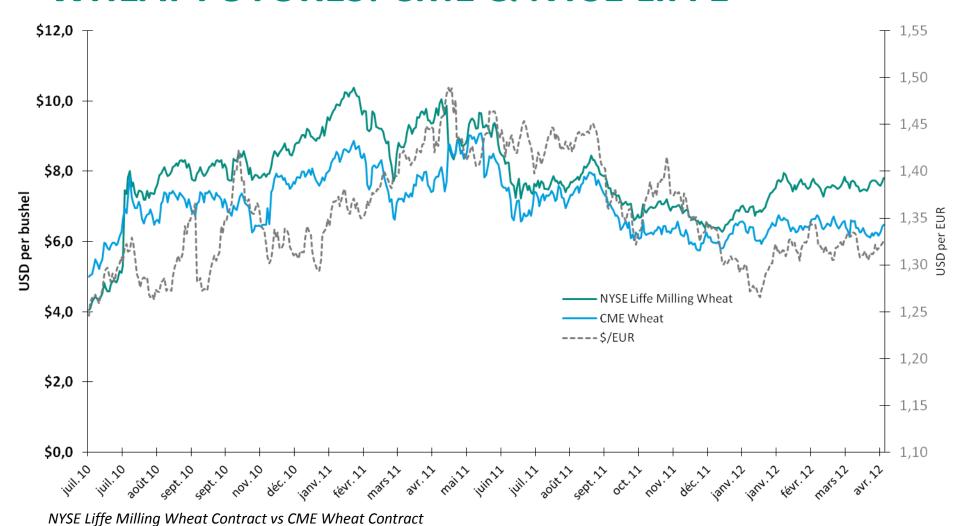


# UKRAINIAN MARKETS CORRELATION VS WHEAT FUTURES





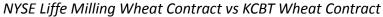
### WHEAT FUTURES: CME & NYSE LIFFE





#### WHEAT FUTURES: KCBOT & NYSE LIFFE







#### **MILLING WHEAT FUTURES**

#### Supply and demand:

- Seasonal: European harvest in July, producers: France, Germany, UK. Europe is an exporter.
   New operators on the market coming from Eastern European countries
- EU-27 production around 136 MT in 2010 i.e. 20% of world production (648 MT in 2011). EU price mechanism: intervention price (floor) managed by EU= 101 Euro/tonne
- Main uses: milling, starch, animal feed, food industry

#### **Futures market:**

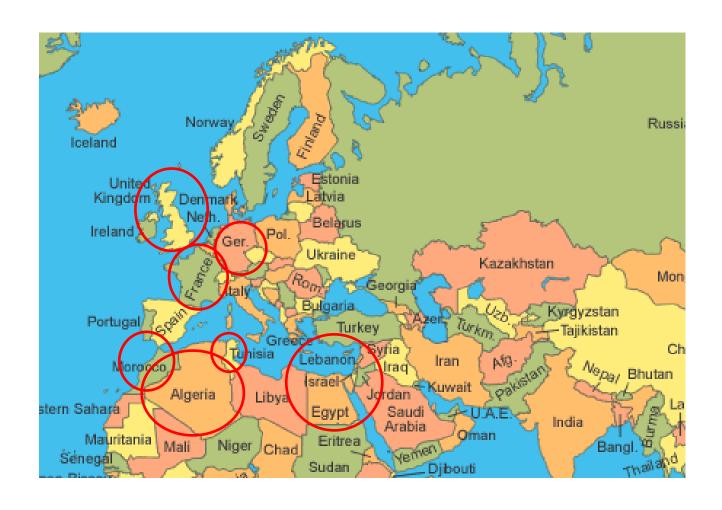
- The curve: 6 out of 12 delivery months are traded with 1 to 3 ticks spread
- Trading outrights, calendar spreads, delta neutral, basis swaps. Roll starts before the options expiry (15th of preceding month). Active arbitrage versus USA (CME) Strong volatility (35%) during the last 3 years
- ADV in 2012 is 28,000 lots; contract value as of today ~ 13,100 €

#### Useful reports:

- Reports: Weekly USDA (supply/demand and stocks), IGC, COCERAL
- Arb: CME ((NYSE Liffe \* \$/EUR)/0.3674)



#### MILLING WHEAT CROPS AND USES





#### **NYSE LIFFE MILLING WHEAT: SNAPSHOT**

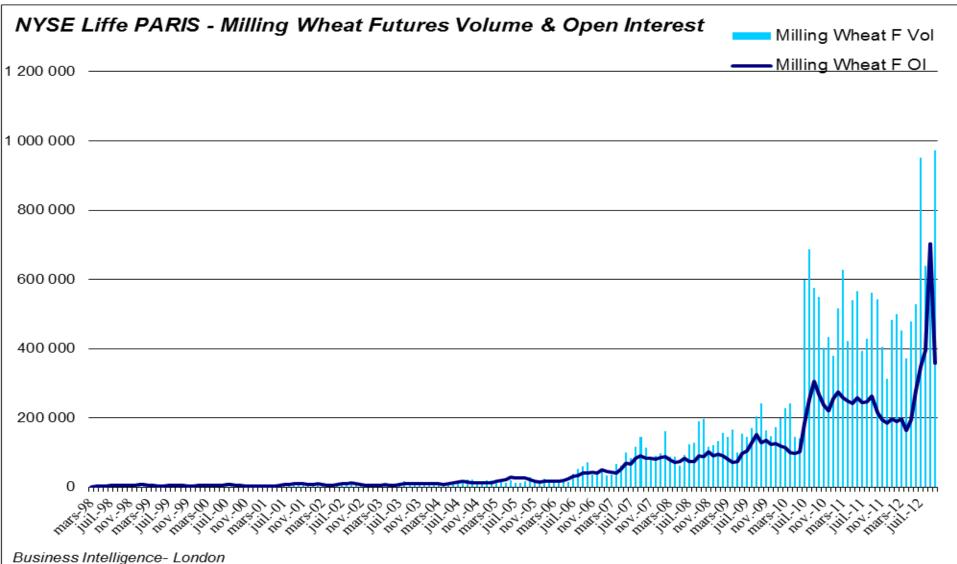
Currency	Producers	Harvest / Shipment	Active Spreads	Arbitrage			Arbitrage Calculation	Essential stats and reports	
€	France, Germany, USA, Canada, Russia, Ukraine	Jul-Sep	• May - Nov	CME Wheat (\$/bushel)	KCBOT Wheat (\$/bushel)	Minneapolis Wheat (\$/bushel)	CME / KCBOT /MGEX - (NYSE Liffe * \$/€)/0.36744	USDA WASDE Report release (usually second Wed of each month):  www.usda.gov/oce/commodity/wasde  EU Interventions: http://ec.europa.eu  Coceral:  www.coceral.com/cms/beitrag/100101 69/227870  FranceAgriMer: www.franceagrimer.fr/  IGC grains: www.igc.int/fr/default.aspx	



#### MILLING WHEAT: VOLUME AND OI 450 000 1 000 000 Milling Wheat Futures Volume — Milling Wheat Futures Open Interest 900 000 400 000 800 000 350 000 700 000 300 000 600 000 250 000 **Open Interest** 500 000 Volume 200 000 400 000 150 000 300 000 100 000 200 000 50 000 100 000 . Jan. 108 mars 108 sept.08 404.08 . janu. 109 mats 109 mai.09 juil.09 sept.09 204.08 Jan. 10 mars:10 mai.10 juil:10 sept.70 201.70 'anv.11 mars:11 juil.22 sept.? 201.77 janu. 12 mats:12 mai.12 mailo juil.08 mai.11 400 000 600 000 Milling Wheat Options Volume Milling Wheat Options Open Interest 350 000 500 000 300 000 400 000 Open Interest 250 000 Volume 200 000 300 000 150 000 200 000 100 000 100 000 50 000 mats 09 mars:10 mai.10 juil.20 sept.10 mai.08 .juil.08 404.08 . janu. 109 mai.09 juil.09 sept.09 404.08 isun'io 201.70 janu.11 mars:11 mai.11 juil. 22 sept.77 'sun'. 12 mars 12 mai.12 ,814.08 marside sept.08 404:77



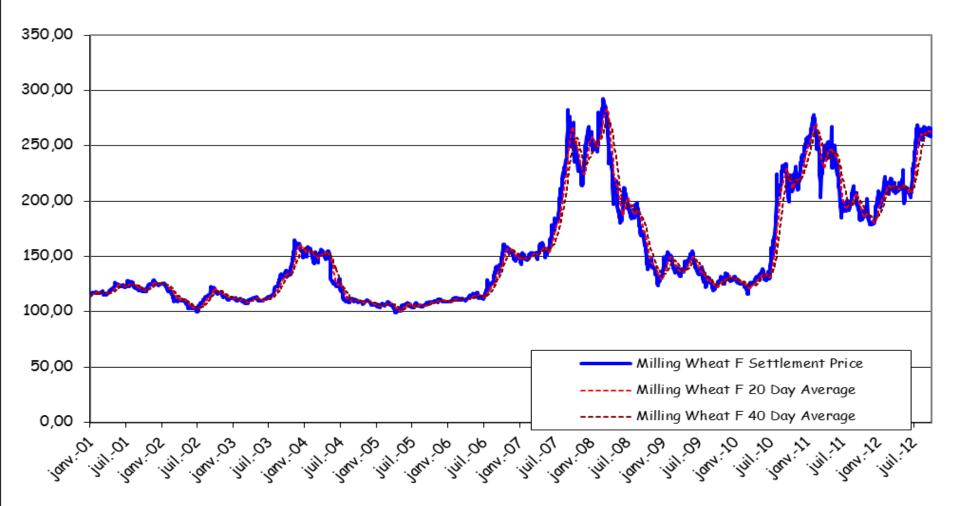
#### MILLING WHEAT FUTURES VOLUMES AND OI





#### MILLING WHEAT FUTURES PRICE

NYSE Liffe PARIS - MILLING WHEAT: SETTLEMENT PRICE € - 1st Position

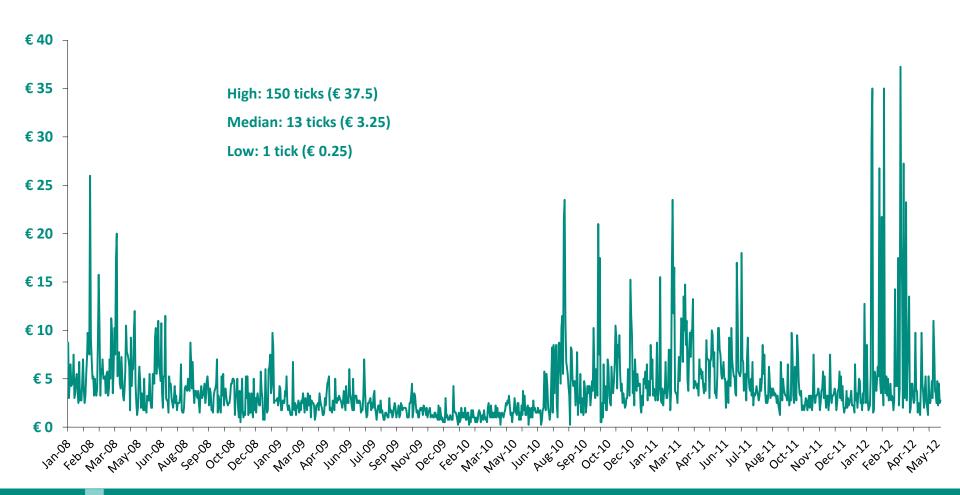






#### MILLING WHEAT FUTURES INTRADAY RANGE

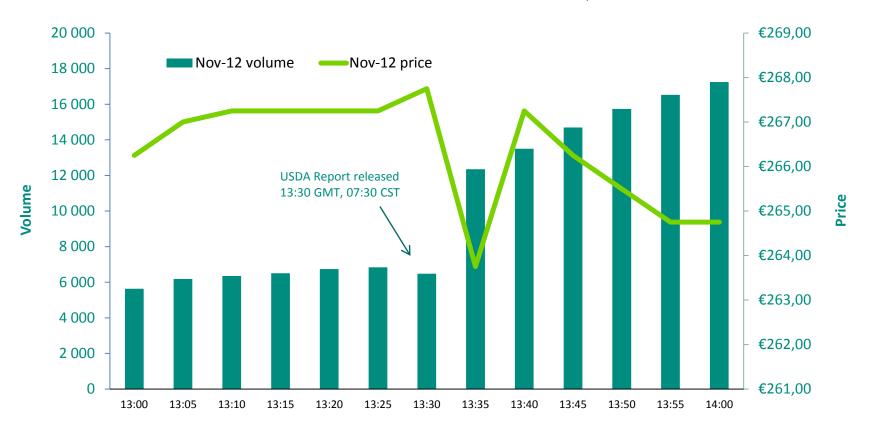
#### Front month continuation chart: Jan 08 - present





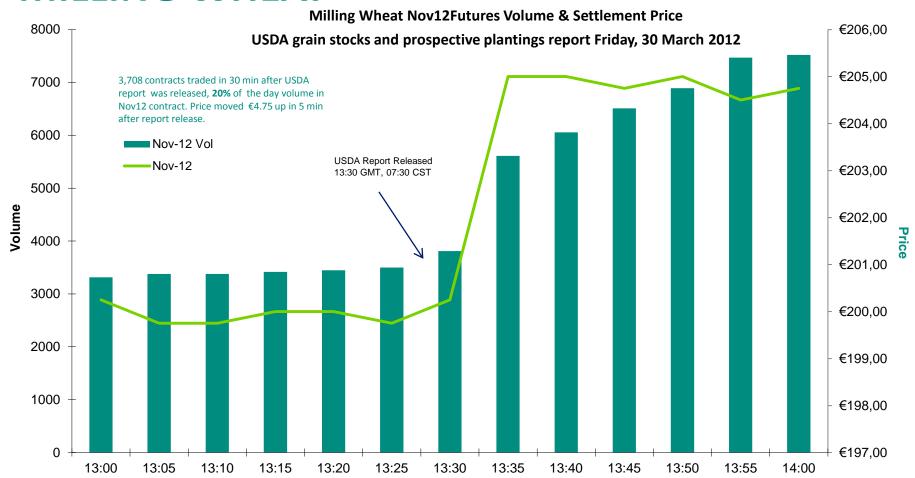
## USDA WASDE REPORT IMPACT ON NYSE LIFFE MILLING WHEAT

**10,775** contracts traded in 30 min after USDA report was released, **37%** of the day's volume in Nov12 contract. Price moved **€4.00 down** in 5 min after report release.





# USDA GRAIN STOCKS AND PROSPECTIVE PLANTINGS REPORT IMPACT ON NYSE LIFFE MILLING WHEAT





#### RAPESEED FUTURES

- Seasonality: European rapeseed winter crop is harvested in July / August, spring crop is harvested in Aug / Sep
  (with much smaller yields than winter crop).
- Worldwide production of rapeseed (including canola) rose to 59.98 million metric tons in 2010 2011 marketing year.
- Main European producers are Germany, France, Poland and UK. Europe is an exporter area. Worldwide the biggest exporters are Canada, France and Ukraine.
- Japan, Germany and Mexico are among the biggest importers
- Rapeseed oil is the preferred oil stock for biodiesel production in most of Europe, partly because rapeseed
  produces more oil per unit of land area compared to other oil sources.
- Main uses: Edible oils and industrial oils (biodiesel), animal feed, food industry
- The curve: 3 out of 6 delivery months are traded with 1 to 3 ticks spread on BBO
- Trading outrights, calendar spreads, delta neutral, basis swaps. Roll starts before the options expiry (15th of preceding month).
- ADV in 2012 is 8,000 lots
- Reports: Weekly USDA (supply/demand and stocks), FAO stats
- Arbitrage: ICE canola (Can\$/ tonne) NYSE Liffe (€/tonne) \* €/Can\$



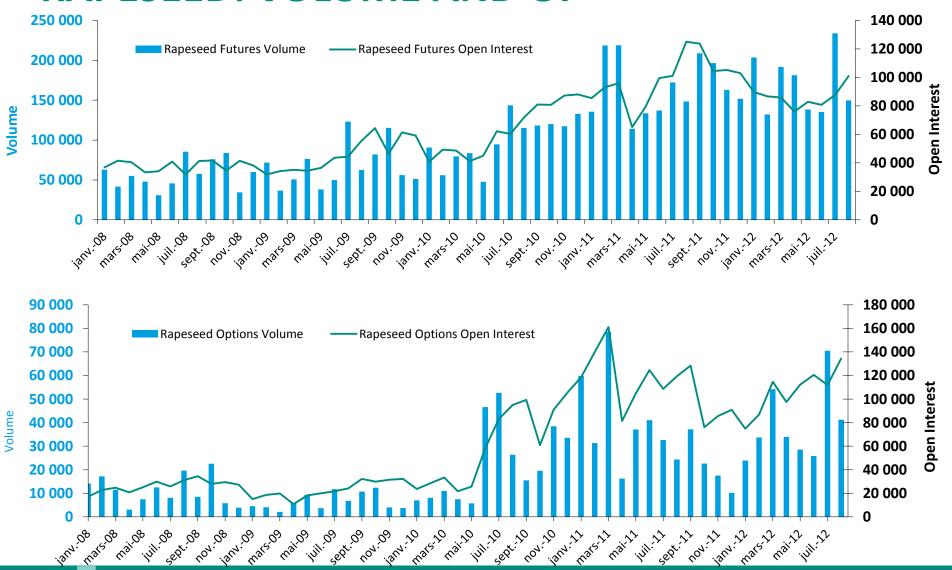


#### **NYSE LIFFE RAPESEED: SNAPSHOT**

Currency	Producers	Harvest / Shipment	Active Spreads		Arbitrage			Arbitrage Calculation	Essential stats and reports		
€	Germany, France, Poland, UK, Canada	Jul-Aug	• May -Aug	• Aug - Nov	ICE Canola (Can\$/tonne)	CME Soybean (\$/ tonne)	Palm Oil (\$/tonne)		USDA WASDE Report release (usually second Wed of each month): www.usda.gov/oce/commodity/wa sde  Coceral: www.coceral.com/cms/beitrag/100 10169/227870  FranceAgriMer: www.franceagrimer.fr/  IGC grains: www.igc.int/fr/default.aspx  FEDIOL oilseeds: www.fediol.eu/		

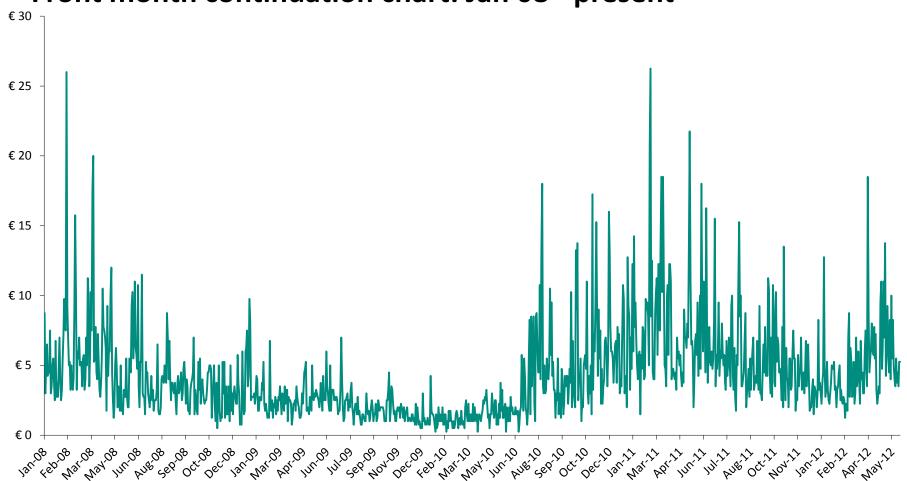


#### **RAPESEED: VOLUME AND OI**



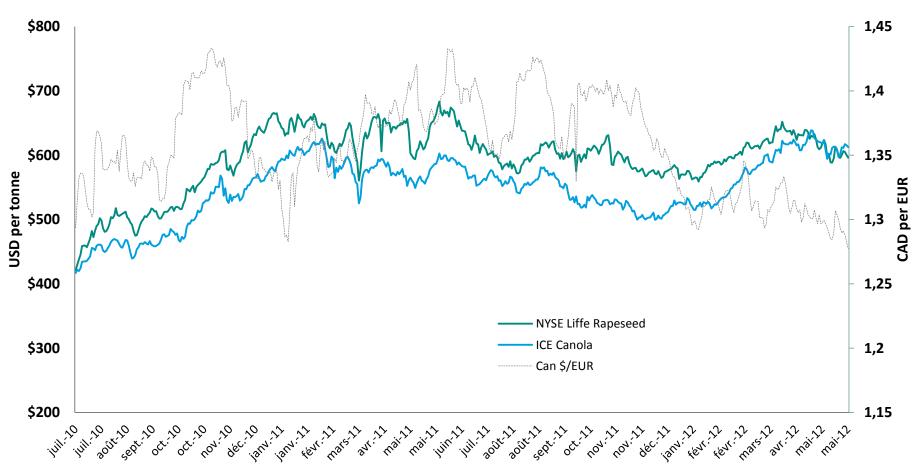
#### RAPESEED INTRADAY RANGE

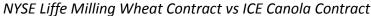
Front month continuation chart: Jan 08 - present





#### **NYSE LIFFE RAPESEED & ICE CANOLA**







### **Training & Education**

## Challenges and conclusion



#### **NYSE Liffe - Further Education & Information**

NYSE Liffe works with several partners for training and education

NYSE Liffe also operates a regular programme of training courses in London and Paris covering:

- Futures
- Options
- Technical Analysis

From time to time the Exchange also runs courses in other locations – monitor the website for further information

Further information can be found at: <a href="https://www.nyx.com/commodities">www.nyx.com/commodities</a>



#### NYSE LIFFE COMMITMENT OF TRADERS REPORT

- NYSE Liffe have recently started publishing their own COT Report
- This is a 'first' for NYSE Liffe and a major development

"The COT reports will show a breakdown of Open Interest across certain pre-defined business categories:

- Reportable Positions
- Percentage of Open Interest Represented by Each Category of Trader
- Number of Traders in Each Category

Clearing Members and Non-Clearing Members are required to submit all client positions in excess of 100 lots, for all delivery months of commodity contracts listed on NYSE Liffe's London market for Cocoa, Robusta Coffee, White Sugar and Feed Wheat.

NYSE Liffe will publish the COT reports every Monday at 12:00 (London time) in relation to positions held and reported to the Exchange at the close of business of the previous Tuesday



#### **CHALLENGES & CONCLUSION**

NYSE Liffe is a long-established and well-respected provider of Commodity futures and options Contracts.

Education – many operators know the mechanism but others are new to the futures markets

Education is key and the exchange will be working alongside its partners to develop understanding of futures as a pricing, trading and hedging mechanism

Liquidity – it takes time to build market open interest and liquidity and all players must remain committed to the market if it is to grow and succeed

A sound physical delivery basis – the Exchange and its customers must ensure that the futures markets reflect physical market practice and that there is a credible and supportive arbitration service behind the Contracts

Free market conditions – futures markets thrive in free market conditions that are absent from artificial price intervention



#### **ISV & QUOTE VENDOR CODES**

Product	Bloomberg	Reuters	cqg	Trading Technologies	EasyScreen	RTS
Cocoa Futures	QCA <cmdty> CT<go></go></cmdty>	0#LCC:	QC	С	LXF:C	LFF COA
Cocoa Options	QCA <cmdty> OMON<go></go></cmdty>	0#LCC+	QC	С	LXO:C	LFF OCOA
Robusta Coffee Futures	DFA <cmdty> CT<go></go></cmdty>	0#LRC:	LRC	RC	LXF:RC	LFF COF10
Robusta Coffee Options	DFA <cmdty> OMON<go></go></cmdty>	0#LRC+	LRC	RC	LXO:RC	LFFOCOF10
White Sugar Futures	QWA <cmdty> CT<go></go></cmdty>	0#LSU:	QW	W	LXF:W	LFF WSG
White Sugar Options	QWA <cmdty> OMON<go></go></cmdty>	0#LSU+	QW	W	LXO:W	LFFOWSG
Milling Wheat Futures	CAA <cmdty> CT<go></go></cmdty>	0#BL2:	PV	yEBM	PYF:EBM	FRF EBM
Milling Wheat Options	CAA <cmdty> OMON<go></go></cmdty>	0#BL2+	ОВМ	yOBM	PYO:OBM	FRF OEBM
Rapeseed Futures	IJA <cmdty>CT<go></go></cmdty>	0#COM:	PM	ECO	PYF:ECO	FRF ECO
Rapeseed Options	IJA <cmdty>OMON<go></go></cmdty>	0#COM+	PM	yOCO	PYO:OCO	FRFOOCO
Corn Futures	EPA <cmdty>CT<go></go></cmdty>	O#EMA:	PZ	yEMA	PYF:EMA	FRF EMA
<b>Corn Options</b>	EPA <cmdty>OMON<go></go></cmdty>	0#EMA+	PZ	yOMA	PYO:OMA	FRF OOMA



#### **CONTACT DETAILS**

#### **Paris**

Lionel Porte
Product Development, Manager
NYSE Liffe Commodity Derivatives
+33 1 49 27 19 29
Iporte@nyx.com



#### **Thank You**

For more information, visit nyx.com/commodities

