# Why financial participants matter to the commodity markets

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## Executive Summary

Futures markets, and the global derivatives markets more generally, have a long history around the world with origins in the U.S. agricultural markets in the mid-19th century. The futures markets in particular have since evolved and matured gaining further momentum with the electrification of these markets during the 1990s - and serve two primary purposes. The first being efficient and transparent price discovery as a broad spectrum of buyers and sellers interact to express their opinions. The second purpose, and perhaps more important, is the efficient transfer of price risk with minimal costs from participants that wish to lay off risk to ones that are willing to assume this risk.

Despite the vital economic function that exchange traded derivatives play in permitting hedging and price discovery in a range of markets for energy and raw materials, there have been time and again voices that blame "speculators" for high prices and volatility. These voices tend to grow louder when prices are high and claims are often made without evidence that speculative activity has moved markets away from their fundamentals by distorting prices and exacerbating volatility. In this paper, we shed light on the critical role that speculators, in the form of financial participants and liquidity providers, play in the proper functioning of futures markets as enablers of price discovery and risk transfer, and how this benefits all participants by boosting liquidity and reducing transaction costs. And, furthermore, we use a number of practical examples from the global futures markets that ICE operates to make our case.

We also touch upon the topic of market manipulation with its detrimental effects on the markets - and how manipulation is not the same as speculation, but often mixed up with speculation. The paper provides insights into the robust controls that ICE has implemented in the form of market supervision, price movement controls and position limits to detect and deter market manipulation.

## How derivatives markets work

Derivatives markets serve an essential function in the growth of economies and the efficient operation of industries and companies.

Derivatives are contracts based on the value now, for the delivery or settlement in the future, of an underlying physical or financial asset, for example crude oil, natural gas, electricity, emissions, cotton, currencies or interest rates. They enable price discovery, which is vital for informing current decisions about future consumption, investments, and resource allocation. In doing so, derivatives provide a critical risk management function by allowing anyone with exposure to an asset to hedge that exposure across a range of time maturities.

There are two types of derivatives markets:

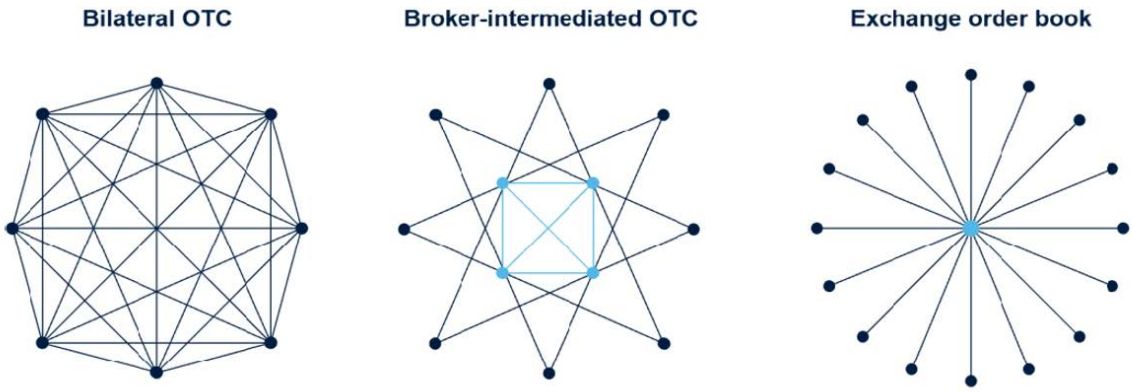
- Exchange-traded derivatives markets, and
- Over-the-counter (OTC) markets.

OTC is a broad term, referring to trading amongst decentralized networks of buyers and sellers, usually intermediated by a small number of highly interconnected financial institutions such as brokers. OTC trading can also take place on a bilateral basis, whereby the counterparties have direct relationships with each other.

In contrast, exchange trading takes place in a centralized order book and on a multilateral basis, i.e., all buyers and sellers interact with each other at the same time akin to a many-to-many model as seen in Exhibit 1.

**Exhibit 1:**

Different models of trading in derivatives markets.
*Source: Oxera*




Exchange-traded derivatives markets such as futures markets offer highly liquid and standardized contracts, and trading activity in these contracts is predominantly institutional -- with the majority of transactions taking place between commercial firms primarily seeking to hedge their exposure to an underlying asset and financial institutions and other liquidity providers.
All exchange-traded derivatives transactions and many OTC transactions are cleared by a central counterparty known as a Clearing House, which serves as the buyer to every seller and the seller to every buyer. ICE's Clearing Houses, for example, deliver stability and risk management across global derivatives markets operated by ICE. With six clearing houses serving key derivatives asset classes across the U.S., U.K., Europe, Canada and Singapore, the ICE clearing platform drives operational and capital efficiency regardless of where market participants transact.

## Participation in the derivatives markets

At a high level, there are typically three broad categories of traders in derivatives markets and, as markets have matured, many institutions can undertake a mixture of these activities:

- **Hedgers** use derivatives to reduce the risk they face from potential future price movements in a market and usually take opposite positions in derivatives in relation to their underlying physical position (e.g., a merchant with underlying long physical position due to commodity assets in storage would go short in the futures market to offset the price risk on the stored commodity);
- **Speculators** are market participants who use derivatives to take a position based on their views regarding the future direction of a market; and
- **Arbitrageurs** take offsetting positions across financial instruments to create a profit from price differences and movements in such price differences. This group is often referred to as Liquidity Providers.

With the types of market participants in the derivatives markets explained, it is important to draw a distinction between speculation and market manipulation. Market manipulation is illegal and impairs market functioning - and ICE has robust safeguards in place to prevent market manipulation as we will see later in this paper. Speculation, on the other hand, is an important and arguably an integral part of a well-functioning derivatives market.

Markets are shaped by a multitude of factors which influence price discovery in derivatives. They include geopolitics; conflict; the supply and demand of underlying commodities; international economic policy and growth; inflation expectations and currency valuations; energy policy; trade barriers; storage and transportation availability; and production capacity (such as OPEC and non-OPEC crude oil production, or refinery capacity). The prices of energy, commodities, and financial assets such as currencies across the world reflect the market's collective view of all these dynamic factors that can influence a market and more - with fluctuations in prices arising as market and global economic conditions change.

Sharp fluctuations in prices of commodities and financial assets can create significant business challenges with adverse impact on production costs, operating margins, product pricing, earnings, and the availability of credit. As a result, there is value in

the use of risk management and hedging instruments amongst commercial firms exposed to volatility in commodity prices, currencies, and interest rates.

The global futures markets such as those operated by ICE provide liquid, transparent platforms for businesses looking to hedge their price exposures across their value chains and across asset classes. It helps airlines make their fuel costs more predictable and helps oil refiners decide which fuels to buy and sell. Hedging helps businesses manage their cash flows more effectively allowing them to allocate investment for greener technologies, and secure financing for new investments. The banks and other financial institutions that provide the financing for these investments and the companies themselves require liquid futures markets to lay off the variety of price risks involved.

**Exhibit 2:**

Case Study - Power Utility hedging using EU Emissions Allowance (EUA) futures
*Source: Oxera, based on interviews with carbon traders*

Consider a large power utility, which endeavours to meet the energy needs of its customers. This utility has many plants, with different energy types, and will use whichever plants it expects will be most efficient to meet demand. The utility anticipates needing to generate 10GWh of electricity in the near future to meet expected demand. It intends to generate 5GWh of this from gas plants, knowing that EUAs are required to cover the resulting emissions.

The utility then works out how many EUAs are required to meet that 5GWh gas volume. Once the utility has estimated how many EUAs it will need in the following year to cover its production, it has a choice: to wait until the permits are needed and buy the EUAs in the primary auction at that time, or to secure the required number of permits now on the futures market for its production in the following year.

Even if the utility has no knowledge about whether future EUA prices are going to increase or decrease, it might still choose to purchase the EUAs at the known futures cost in order to 'lock in' a price, thereby minimizing risk exposure and helping it to get greater certainty over its future margins.

The recent global energy price increases witnessed in 2021 and 2022 have highlighted the benefits of hedging and risk management for commercial entities. Firms that are well hedged have continued to operate, stay competitive and serve their customers. Ultimately futures markets contribute to protecting the end consumers from the adverse impact of higher prices.

Whilst commercial entities participate in the futures markets primarily with the objective to lay off their price risk, financial institutions, and other market participants willing to take the other side of their trades, bear the risk of price fluctuations and play a critical role in the provision of liquidity and price formation. Without the presence of market participants willing to take on the risk that commercial firms wish to lay off, businesses could be forced to raise prices to compensate for price risk they are unable to manage effectively.

Markets therefore require robust participation to enable the efficient transfer of risk and rely on a mix of commercial participants (looking to hedge their underlying price risk) and liquidity providers (usually financial participants or market makers). The proper functioning of markets, and indeed the enablement of hedging and risk management, can get severely impaired without the active participation of both groups. Put another way, financial participants perform an important economic function by providing liquidity and acting as additional buyers and sellers in the futures markets -- thus boosting market efficiency for the transfer of risk to take place.

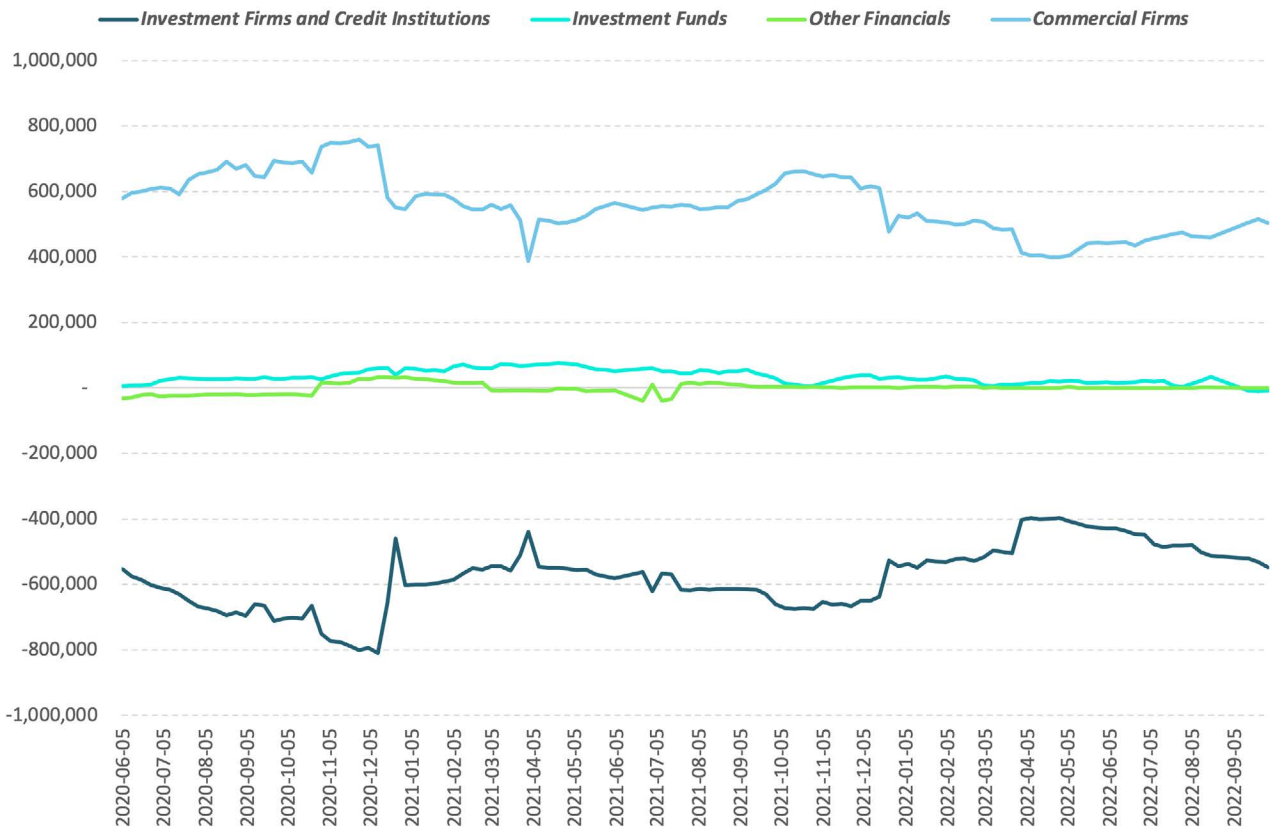
The diversity of participation is better appreciated when considering the kinds of mismatches that can occur in a futures market between hedgers going long and hedgers going short. These can emanate in the form of a mismatch in quantity (e.g., more hedgers looking to go short than long), or a mismatch in timing (e.g., a hedger who wants to go long is unable to find a counterparty willing to go short at the same time), or a mismatch in contract maturities (e.g., a long hedger looking to buy six-month contracts is in a market where short hedgers are looking to sell one-month contracts). Under these circumstances, financial market participants come in to fill the void and fix such mismatches by acting as counterparties to hedgers looking to buy or sell futures in the desired quantities and tenors.

As an example, analysis of the Commitment of Traders (COT) reports for the EUA futures market at ICE, as seen in Exhibit 3, demonstrates that the largest trading positions are between financial institutions selling EUA futures against commercial

entities that buy EUA futures with a view to hedge EU Allowance price and volume risk. This broadly aligns with the expected functioning of this market as commercial participants in the EUA futures market generally have emissions compliance needs under the EU Emissions Trading Scheme (EU ETS) and are therefore normally short in underlying EU Allowances. These participants predominantly take long positions in EUA futures that offsets their price exposure to EUAs while also helping many commercial participants secure EU Allowances to meet their compliance obligations (since EUA futures result in physical deliveries of EU Allowances upon expiration).

**Exhibit 3:**

Net positions in EUA Futures by market participant type
*Source: ICE Report Center, MiFID II Commitment of Traders Report*

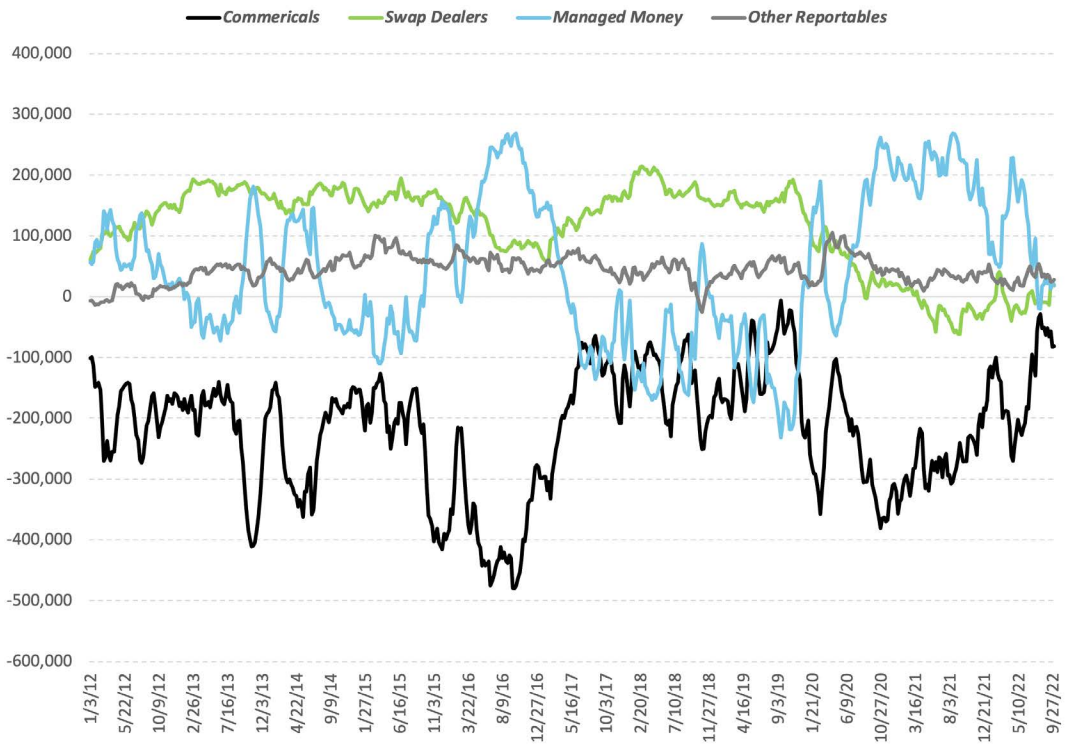



We can see a similar balance in the U.S. softs futures markets such as the sugar, cocoa, and cotton futures markets. Analysis of COT reports published by the CFTC over the last decade (as seen in Exhibit 4) shows that commercial participants tend to hold the bulk of net short positions with financials being the net longs. This reflects the dynamic of commercial firms in these markets -- which include producers and merchants -- relying on financial participants to assume the risk they need to offload in the futures market and therefore hedge their underlying long positions in the physical commodity. The presence of both groups in these markets allows commercials to reduce their risk exposure, and for the financials to assume that risk, enabling efficient and cost-effective transfer of risk to occur between counterparties.

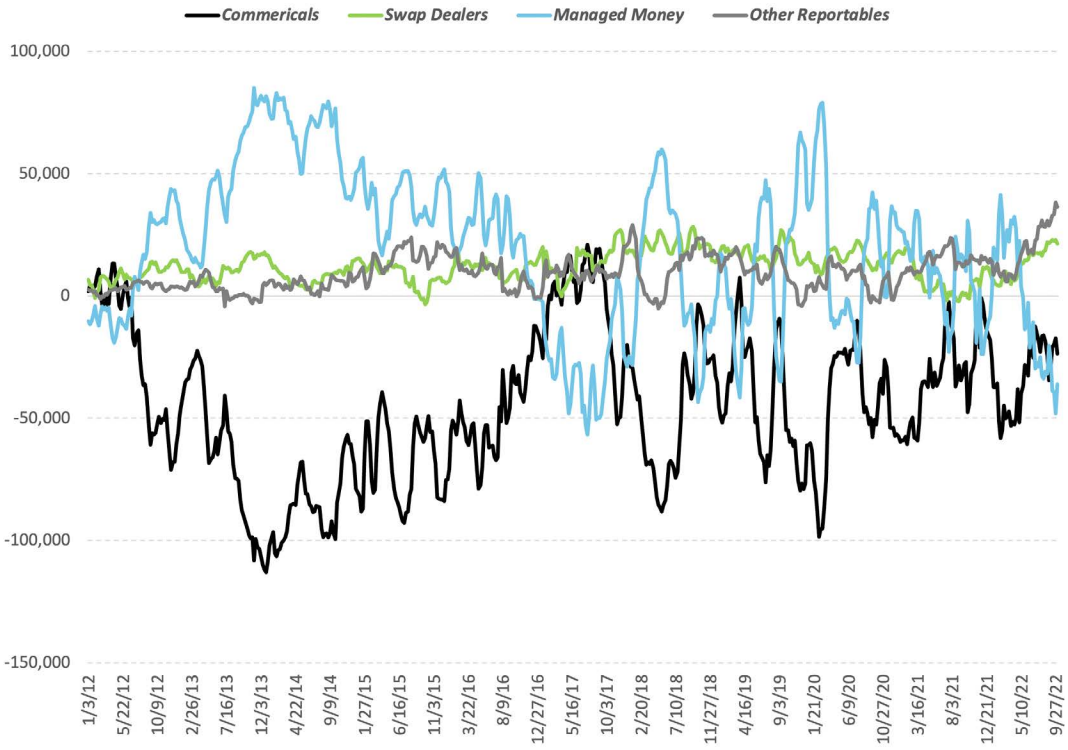
**Exhibit 4:**

Net positions in the U.S. Softs Futures markets by participant type
*Source: Commodity Futures Trading Commission*

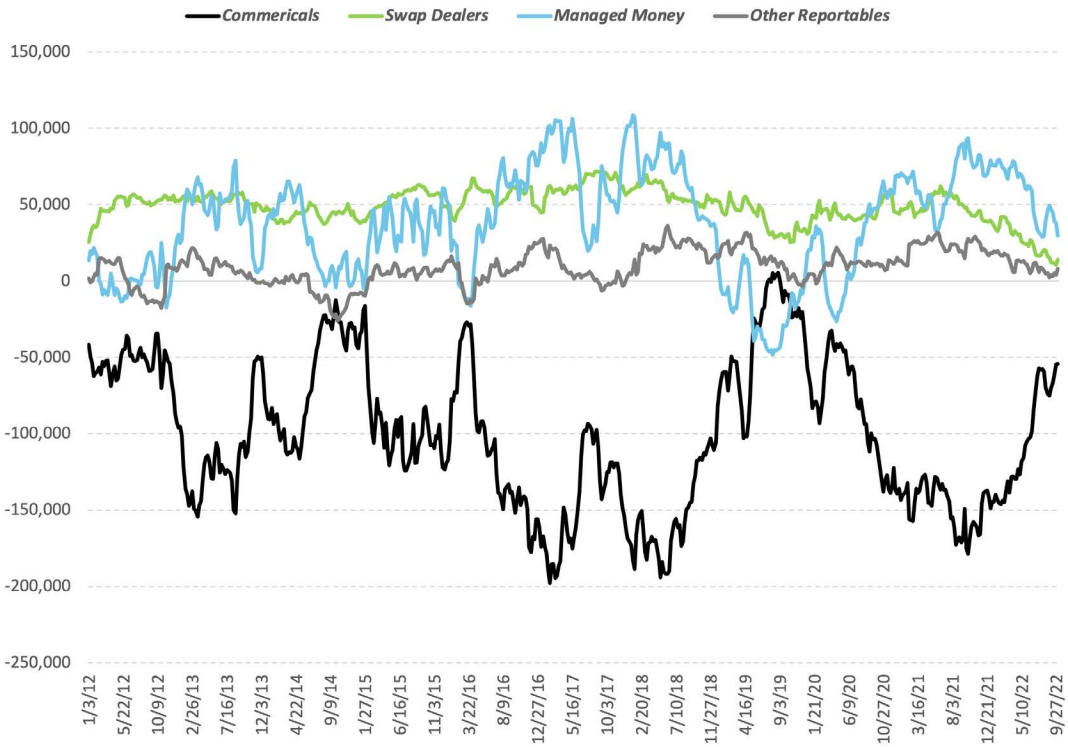
(a) No. 11 Sugar Futures




b) Cocoa Futures



(c) No. 2 Cotton Futures




## Measures of market liquidity

Liquidity refers to the degree of ease with which an asset such as a futures contract can be bought or sold in a timely manner, and the costs associated with that transaction. Liquidity tends to manifest itself in the form of high trading volumes - making it easy for market participants to get in or out of positions -- and with the lowest cost of trading. As such, market liquidity can be a critical consideration for commercial participants so they can readily find willing buyers and sellers for their hedging while executing their trades with minimal cost. Increased participation in a market in the form of number and diversity of firms - including financial firms and market makers - creates greater opportunities to express price opinions and transact, thereby boosting liquidity that benefits all market players.

Two commonly used metrics to describe market activity and liquidity in the context of futures trading are the average daily volume (ADV) and open interest. Open interest refers to the number of open contracts in a market (with each contract representing a long and short position) and therefore indicates the commitment firms have expressed in that market. Increased levels of participation from a diversity of firms improves liquidity with corresponding increases in ADV and open interest. This is seen in the example provided in Exhibit 5 for the Dutch TTF natural gas futures market at ICE. The Dutch TTF Natural Gas futures market has seen a significant surge in both daily volumes and open interest as trading firm participation grew more than fourfold from 2014 to the present day. As a consequence the price on the TTF market is seen as a true reflection of the price of European gas and can be used as a comparison to then judge the price of gas supplied in other areas of Europe.

Beyond the daily volume and open interest metrics, an important indicator for well-functioning futures markets is the breadth of contracts available along the pricing curve. The further out liquid contracts are available, the more informed the price discovery process - in other words, the longer the maturity on the longest-dated contract, and the more liquidity these contracts attract, the greater the risk management opportunities and information available to market participants. Again, financial players and market makers play a key role as enablers of liquidity further out on the futures curve that creates benefits for all players in a market. As an example, open interest in the Dutch TTF natural gas futures market at ICE is up to and including December 2028 as seen in Exhibit 6.

**Exhibit 5:**

Monthly Average Daily Volume, Open Interest and Participation trend in Dutch TTF Gas Futures since Jan-2014 (Jan'14 values = 100)
*Source: ICE Data*

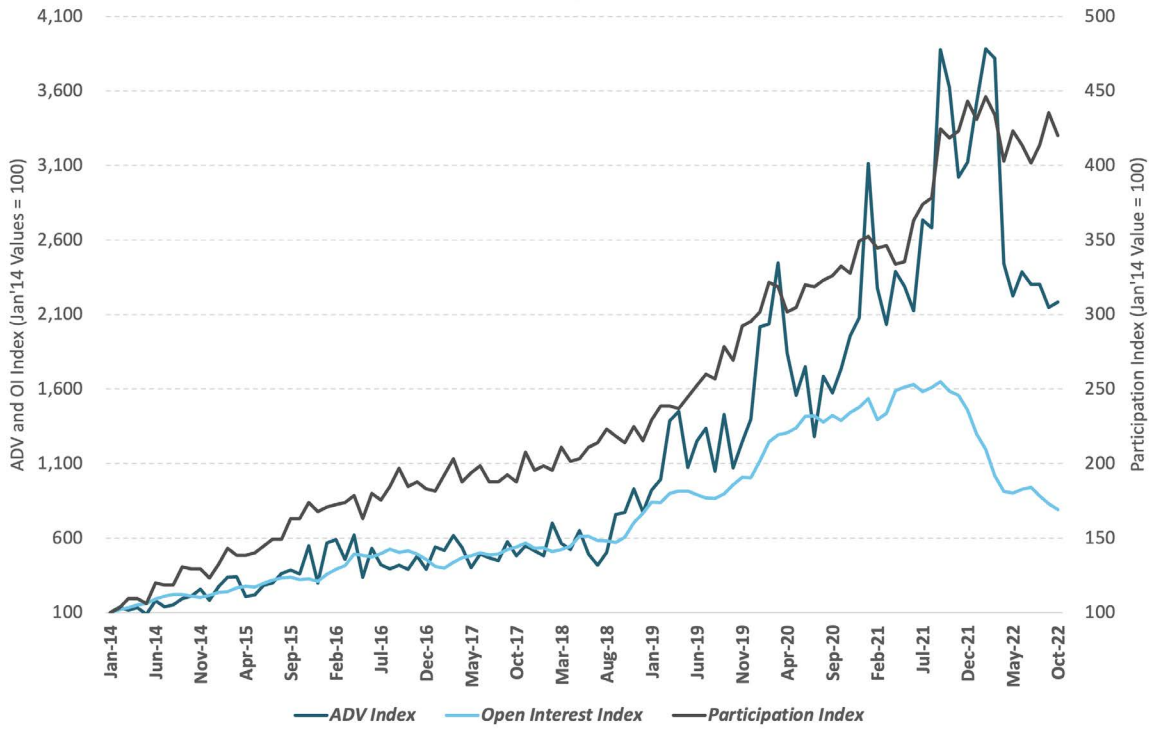
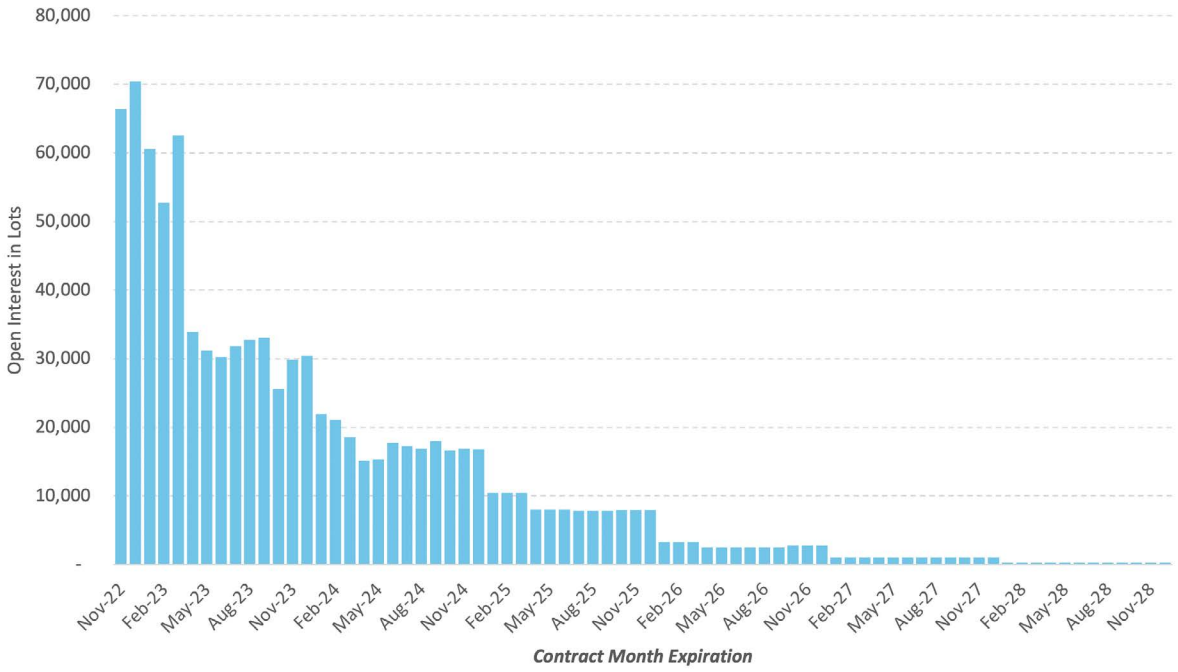



**Exhibit 6:**

Open Interest profile by contract maturity for Dutch TTF Gas Futures as of 10 October 2022
*Source: ICE Data*

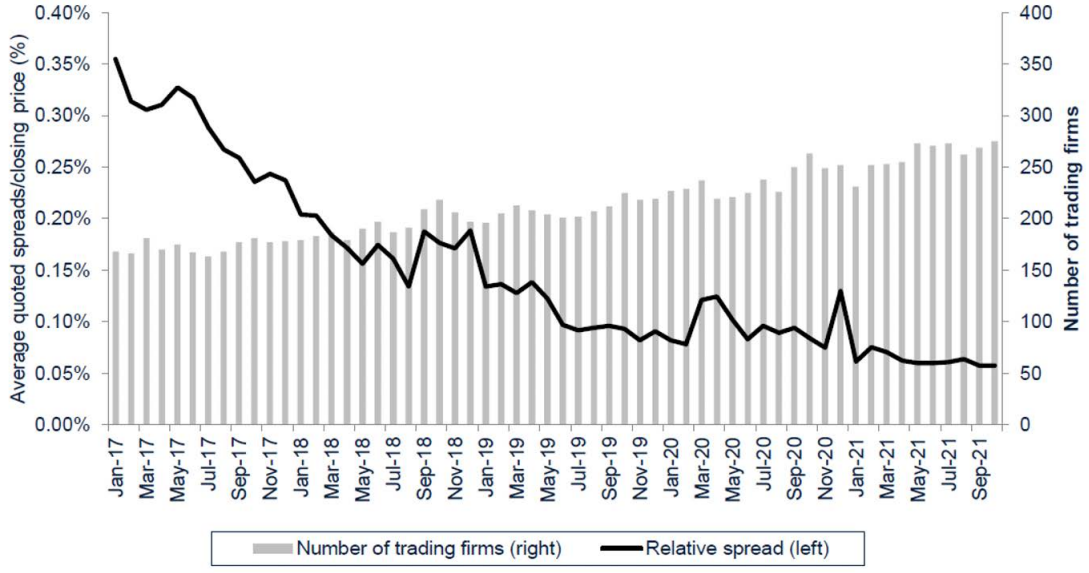


Another common metric used to assess liquidity in conjunction with traded volumes and open interest is the bid-ask spread. This measures the difference between prevailing best buy and best sell prices in the centralized order book and is indicative of the cost to trade in a market. In general, the more participants that enter the market wishing to buy or sell at or near the current price, the greater the competition for liquidity provision and the narrower the bid-ask spread. In markets with barriers to entry for trading participants, bid-ask spreads can be wider due to limited competition between liquidity providers.

Analysis of the EUA futures market at ICE (Exhibit 7) shows that as the number of trading participants trading EUA futures grew since 2017, relative bid-ask spreads (calculated as the average quoted spread divided by the closing price) in the benchmark EUA contract fell significantly, meaning that the transaction costs for trading EUAs have declined for all market participants since 2017.

**Exhibit 7:**

Average daily relative bid-ask spread for the nearby December EUA futures contract
*Source: Oxera analysis based on ICE data*




## Exposing speculation myths

One myth is that increases in commodity prices or large price movements in commodity markets are caused by "speculators" or algorithmic trading by financial participants in the futures markets. Most often people making this argument do not have evidence to support such claims. Higher commodity prices and commodity price movements are generally caused by changes in market fundamentals, economic conditions, and geopolitical drivers, that cause imbalances in the supply and demand of physical commodities in the spot markets.

The central question is -- how are futures markets tied to the spot markets? Spot prices are based on transactions that are settled with commodities physically changing hands, such as a refinery buying a cargo of crude oil or a confectionery manufacturer purchasing an inventory of sugar. In a well-functioning market, the arbitrage between transacting today and in the future links the futures markets to the spot markets.

To elaborate further, let's consider a simple example for a barrel of crude oil with prevailing spot price of S per barrel. If a trader were to sell this barrel today, they would receive an immediate payment of S. This money can be invested over a time period for interest earnings of I, whilst avoiding storage and insurance costs C that would have to be paid if the trader had decided to sell the barrel in the future. For equilibrium, the futures price F (i.e., price of the barrel in the future) must compensate the trader for their lost interest earnings and for incurring storage and insurance costs (collectively referred to as the 'cost to carry'). In other words:

| **F** | **=** | **S** | **+** | **I** | **+** | **C** |
|---|---|---|---|---|---|---|
| Futures price | | Spot price | | Interest earnings | | Storage & insurance costs |

The above equation may not hold as perfectly in the real world, but nonetheless provides a good insight into how futures prices are linked to the spot markets. Should the futures price rise to a level significantly higher than that determined by the above equation, a trader would see the premium in the futures market and choose to sell barrels in the future by purchasing some inventory in the spot market today. As more traders discover the 'arbitrage' opportunity, the ensuing selling activity in the futures market and inventory purchases in the spot market may result in futures price decreasing and spot price to increase until the prices are once again in line with the above equation. Furthermore, as a futures contract approaches expiration, the cost to carry will gradually disappear and the futures price will converge to the spot price. It is this arbitrage linkage that keeps futures prices grounded in the underlying spot market and to the corresponding market fundamentals -- with futures prices primarily determined from spot prices as the starting point. Under normal market conditions, the futures price is generally higher than the spot price at a premium determined from the market's perception of the cost of storage and lost interest earnings.

It follows from the above points that the activity of speculators (i.e. financial institutions and market makers) in the futures markets cannot be the fundamental driver of prices. To blame speculation without evidence may result in overlooking important price discovery signals the markets are trying to send. Producers and consumers of commodities and energy depend on these signals being surfaced in the market to make critical decisions on investments and managing their risk exposure and their energy consumption.

Several academic papers have empirically tested the relationship between speculative trading and price volatility in commodity markets. Overall, much of this empirical literature suggests that speculators tend to reduce, not increase, price volatility. Limiting participation in the futures markets would not make commodity prices less volatile. It would only make hedging more expensive by limiting the available pool of liquidity, which would in turn make running an oil or gas company, or an airline, or a clothing manufacturer, more expensive. In addition, financial firms entering the market increase competition within markets allowing a multitude of price opinions to be expressed and bring much-needed liquidity, allowing ease of trade executions at reduced costs for all participants and this may also lead to reduced volatility.

Speaking with Chris Rhodes, President of ICE Futures Europe, Europe's largest exchange for trading energy, interest rate and soft commodity futures markets, he says "If companies are not hedged, they're speculating. They're speculating that buying or selling on the spot market will be cheaper than the futures market. By hedging, the companies which provide the gas and electricity to your home, or the commodity producers producing the chocolate bars we eat, are allowed to reduce their exposure to what can be volatile spot markets.

"Financials firms are professional risk managers and without them, it would be harder for companies to hedge. Someone recently described traders as insurance agents, insuring against prices going up or down. I think that describes their role perfectly. They reduce risk in markets by allowing hedging to take place. And the majority of them are putting their own capital at risk in doing so."

**Exhibit 8:**

Literature review on speculators and price volatility

| Paper | Key findings |
|---|---|
| Gilbert (2010) | Gilbert uses data on index fund positions in the U.S. agricultural futures markets as a proxy for total index-related futures positions in all markets. Granger causality tests using this proxy measure suggest that index investors may amplify fundamentally driven price movements. |
| Irwin and Sanders (2011) | Irwin and Sanders test whether the growth in index funds has increased price volatility in agricultural and energy markets. To do so, they conduct a Granger causality test between measures of traders positions and speculation against volatility of returns. They find no evidence to suggest that index funds caused a price bubble in agricultural commodity markets. |
| Buyuksahin and Harris (2011) | Buyuksahin and Harris test the correlation between the Working T-index and daily price changes in the crude oil market. They report a near zero correlation between the two series. |
| Brunetti, Buyuksahin and Harris (2011) | Brunetti et al. consider specific categories of traders and test whether positions taken by each cause changes in volatility in oil prices. They conclude that the results are consistent with speculators providing liquidity and responding to market conditions, rather than the opposite. |
| Alquist and Gervais (2013) | Alquist and Gervais find that financial firms' positions did not cause oil price fluctuations during 2007/8. They use the Working T-index to examine the importance of financial firms in driving oil price volatility and find no empirical evidence to suggest a strong relationship between the position of speculators and price changes. |
| Bohl, Putz and Sulewski (2021) | Bohl et al. conduct a fixed-effects panel regression across 20 commodity markets. This model finds no evidence of a significant relationship between speculative activity and the degree of informational efficiency, after controlling for volatility and liquidity. |

## Price caps

Many markets are global. A price cap imposes a maximum price a futures contract can trade in a trading session. If the price exceeds that cap, the market is halted.

Calls to implement price caps on energy markets would not provide a solution to high prices.

Prices reflect economic fundamentals of supply and demand. Price caps prevent the market from finding a price by providing an artificial ceiling. As a result, there can be unpredictable and undesirable knock-on effects.

As an exchange, ICE's role is not to judge whether a price is too high or too low but whether it is representative. We operate and supervise the trading platforms which let buyers and sellers decide what the price of a commodity should be.

Oil and gas markets are critical because they provide the input price for most energy production and hence most economic activity. From the price of oil and gas comes the price of petrol and electricity, for instance.

Gas, power and carbon markets are intricately linked - impacting one, impacts the other. To create a spark spread for example, which is how the profitability of a natural gas fired generator can be assessed by calculating the difference between the input costs and the wholesale prices, a power producer will typically buy gas (or coal) to generate power and will buy carbon positions to hedge their resulting emission costs.

Energy and related markets are also significantly subject to substitution economics, sometimes with unexpected results. When the price of natural gas rises, for example, petrochemicals producers may switch to processing naphtha instead. This increase in marginal naphtha demand will influence in turn the prices of gasoline, of jet fuel and of naphtha-rich crude oil.

In cotton and frozen orange juice, you don't see this structure of other markets pricing off them, allowing price caps to be relatively contained to that single asset.

For governments seeking access to gas to meet the energy needs of their populations, price caps could oblige sellers of gas to direct it to other markets, exacerbating the lack of supply.

## ICE's supervision of markets and price controls

Systems and controls are important in reducing the likelihood of orders entered in error, preventing the execution of trades at unrepresentative prices, and reducing the market impact of such trades. ICE has implemented dynamic and configurable price controls which change depending on prevailing market conditions. They help ensure that markets are well functioning and limit the likelihood of erroneous trades.

If the market is moving too quickly by a certain amount in price terms within a certain duration, these controls will pause the market, allow the supply and demand dynamics to be reset, and allow the market to continue.

These controls enable ICE to manage periods of increased price volatility, and to ensure that new information and rapidly changing events can be expressed in the market in an orderly manner.

The purpose of the market is to provide an open and transparent risk transfer mechanism, allowing prices to be discovered through the free interaction of demand and supply. Our view at ICE is that the market operator should only intervene to the extent that it is necessary to address any aspect which has distorted or undermined the price discovery process.

During periods of heightened volatility, it is critical that the price controls we operate work optimally, continue to allow the free interaction of supply and demand, and maintain orderly markets. This involves proactively re-assessing - and where necessary recalibrating - our controls to reflect the change in market conditions which are feeding into the price discovery process.

Risk transfer mechanisms, such as a futures market, are most needed during periods of heightened uncertainty and volatility where risks in the underlying commodity and financial markets are most acute.

The price controls which ICE operates include:

- No Cancellation Ranges are soft limits whereby a trade executed within the specified range, in normal circumstances, will not be adjusted or cancelled by the Exchange.
- Reasonability Limits are price parameters which prevent the entry or orders (and therefore matching of trades) outside of these pre-determined limits. These are hard limits that all orders are validated against on entry with buy orders above and sell orders below rejected by the Exchange.
- Interval Price Limits act as a temporary circuit breaker feature on the electronic platform, to diminish the likelihood and extent of short-term price spikes or aberrant market moves. While it is designed to be in force throughout each trading day, it is expected that the protections will be actively triggered only in the case of extreme price moves over very short periods of time. The IPL mechanism facilitates an opportunity for additional countervailing orders to be submitted to the market which might offset some or all of the increased buying or selling pressure and allow the market to discover the price in an incremental and orderly manner. We issue automated alerts to notify traders when IPLs have been triggered.

## Algorithmic trading

Another myth is that only financial participants employ automated trading strategies, otherwise known as algos. Not true. As markets have developed and matured, increasing numbers of commercial participants - including producers of commodities, utility firms and energy firms - employ automated trading strategies to assist with the execution of their hedging.

There is no conclusive evidence that algorithmic trading increases volatility.

## Position limits versus position management

Significant price moves increase the importance of effective position management.

ICE monitors open interest developments in its markets on an ongoing basis and sets accountability levels when it deems it necessary to prevent and address disorderly trading, support orderly pricing and settlement conditions, and ensure the efficiency of markets.

This process considers the positions held by position holders, and any risks these may present to market order, including: pricing and price trends in the relevant markets; the nature of the position holder; the positions in related markets; concentration; position development over time; seasonality; open interest; activity in related underlying financial instruments; incentive scheme participation; and the extent and quality of engagement with the exchange and response to inquiries.

During periods of high energy prices, some politicians have called for position limits. While this may help to prevent market manipulation by curtailing the ability of market participants to build up concentrated positions, applying inflexible position limits within legislation can prove counterproductive to well-functioning markets.

Our view at ICE is that it is better to leave exchanges to monitor trading in its markets and to take appropriate measures in response to market developments in real time, under the close supervision of our regulators.

Where there is no market failure or concentration of positions, there is generally no objective justification for applying position limits, which could distort market outcomes without any beneficial purpose.

## Attacks on speculators during the financial crisis

Looking back to the financial crisis of 2008/ 2009 provides a helpful case study. During this time, “speculators” were blamed for price rises in oil, usually with no evidence to support the claims. Numerous market experts found that economic fundamentals provide a better explanation for the movements in commodity prices.

These include:

In 2008, speculation did not cause oil to hit its peak of $145-a-barrel. The CFTC's chief economist, Jeffrey Harris, told a Senate hearing in May 2008: "Simply stated, there is no evidence that position changes by speculators precede price changes for crude oil futures contracts". He said the increase in oil prices in 2007 occurred "with no significant change in net speculative positions."

Writing in August 2009, David Nicklaus for the St. Louis Post-Dispatch (McClatchy-Tribune) argued, "Oil wasn't the only commodity to go on a wild ride last year. Metals and agricultural prices were rising at the same time, although by varying amounts. Much of the so-called speculative money flowing into markets was actually in commodity index funds, a tool that conservative investors viewed as a hedge against inflation."

"The first myth is that high prices are caused by technical factors, such as speculation. While these factors may have an impact on the margins, the data clearly show that high prices are really caused by economic fundamentals." Let the markets end the energy crisis – Tony Hayward (CEO BP), Financial Times (06/11/08). Click here to view the full text of this article

Paulson conceded that record oil prices and $4-a-gallon gasoline were "a problem" for the U.S. economy but blamed it on supply and demand and declined to blame speculators for playing a role in soaring prices. "My position, and I've looked at this very carefully, is I don't believe financial investors are responsible to any significant degree for this price movement," Paulson said on CNN. Double, or quit? – Editorial, Financial Times (06/09/08). Click here to view the full text of this article.

"The Task Force has found that the activity of market participants often described as "speculators" has not resulted in systematic changes in price over the last five and a half years. On the contrary, most speculative traders typically alter their positions following price changes, suggesting that they are responding to new information – just as one would expect in an efficiently operating market." Interagency Task Force, Interim Report on Crude Oil.

"If speculation by long-only index funds did impact commodity futures prices, it is not evident in the empirical evidence available to date. Economic fundamentals, as usual, provide a better explanation for the movements in commodity prices."- Dr. Scott H. Irwin, University of Illinois (02.01.09).

"If financial speculation were pushing oil prices above the levels consistent with the fundamentals of supply and demand, we would expect inventories of crude oil and petroleum products to increase as supply rose and demand fell. But in fact, available data on oil inventories show notable declines over the past year." - Ben Bernanke (Federal Reserve Chairman), Congressional Testimony (7/15/08). Click here to view the full text of this article.

The International Energy Agency (IEA) issued its Medium-Term Oil Market Report on June 31, 2009. The report's discussion on price formation notes that, "In short, the 'speculation' argument has been just as pronounced during the down-cycle and recent uptick as it was when oil prices were breaking record highs. The IEA has continued to monitor market developments both fundamental and non-fundamental factors and reiterate our opinion that price rises or falls tend to be multifaceted, rather than driven by a single cause."1 The full EIA report is available via subscription only, but an overview presentation can be found here.

"There's nothing to it to start with...That's not what happened. You have 85 million barrels a day of oil available in the global energy market and 86.4 million barrels a day of demand. So the price of oil is going to go up until you can kill demand." - Pickens Says CFTC Probe of Oil a 'Waste of Time' – Boone Pickens (Billionaire Hedge-Fund Manager), Bloomberg (06/02/08). Click here to view the full text of this article.

"Even if we see significant short-run gains in global oil production capabilities, if demand from China and elsewhere returns to its previous rate of growth, it will not be too long before the same calculus that produced the oil price spike of 2007-08 will be back to haunt us again." - Dr. James D. Hamilton, Professor, University of California San Diego, Testimony before the U.S. Congress Joint Economic Committee (05.20.09).

Source (Page 9): Gilbert, C. (2010), 'Speculative influences on commodity futures prices, 2006-2008', UNCTAD Working Paper; Irwin, S.H. and Sanders, D.R. (2011), 'The impact of index funds in commodity futures markets: a systems approach', *Journal of Alternative Investments*, **14**, pp. 40-49; Buyuksahin, B. and Harris, J.H. (2011), 'Do speculators drive crude oil futures?', *Energy Journal*, **32** pp. 167-202; Brunetti, C., Buyuksahin, B. and Harris, J.H. (2011).