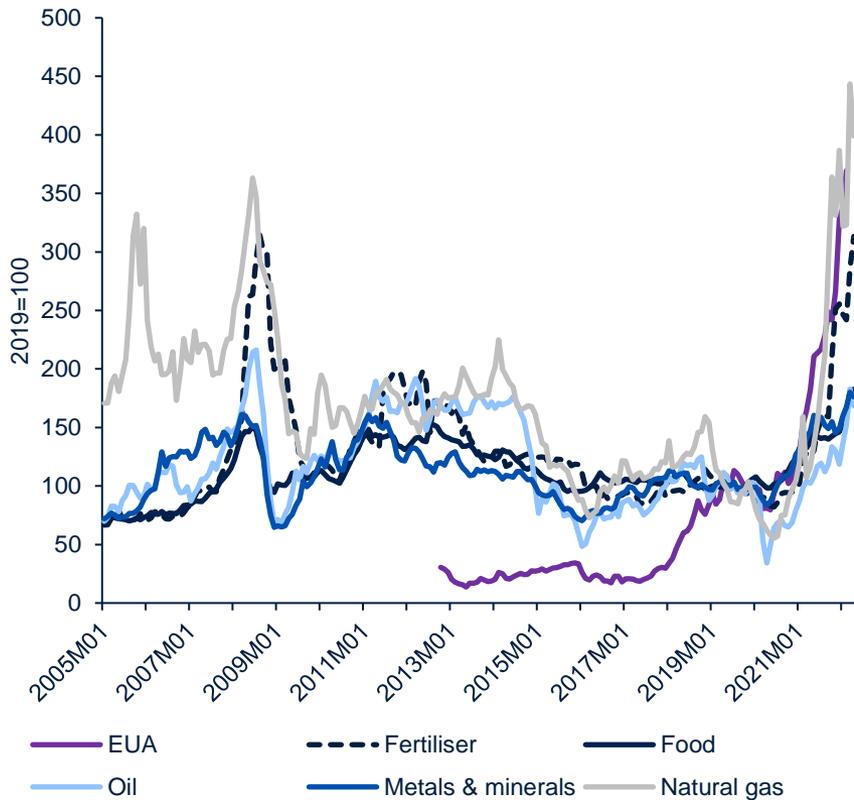

Emissions trading in the context of high energy prices

Introductory presentation: Surging CO2 and commodity prices, impacts on carbon trading, and potential policy responses

31 May 2022

Recent price surges have increased concerns over the functioning of commodity markets

1 Rising commodity and carbon prices...



Sources: Bloomberg, EEX, World Bank.

2 ...raising concerns over speculation...

EUobserver

EU calls for end to gas price speculation

The EU has called for an end to gas and energy price speculation, amid market fears. "We must end speculation on the energy markets, that is why we are we..."

21 Oct 2021



The Conversation

There's a massive bubble in the price of carbon – and yet it won't bring down emissions any faster

Carbon trading was supposed to encourage companies to reduce their emissions ... high energy prices and a flood of speculation from traders.

2 weeks ago



3 ...and leading to significant increases in consumer prices

Oil Price

Europe's Economic Outlook Is Looking Bleaker By The Day

Supply chain concerns and a surge in energy prices have led to rampant inflation across the continent. Despite historic high price rises, the European...



EM Energy Monitor

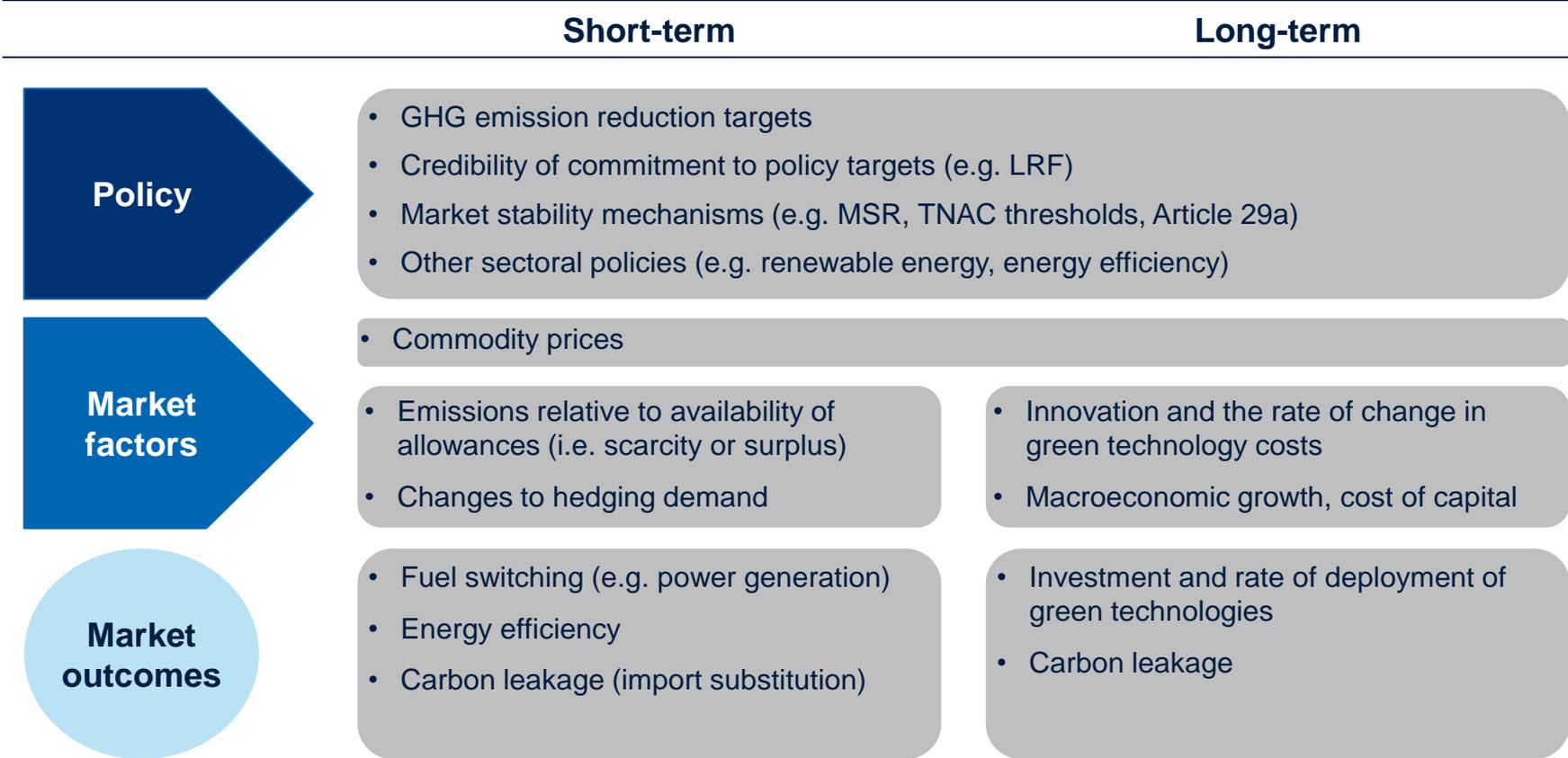
Spain's rising energy poverty: A cautionary tale for Europe

Spain saw the largest increase in citizens at risk of energy poverty in the EU in 2020. Now, with soaring gas and electricity prices, Madrid is increasingly...

19 Jan 2022



Key ETS price drivers include policies, abatement costs, and commodity prices



The role of carbon prices in the power sector

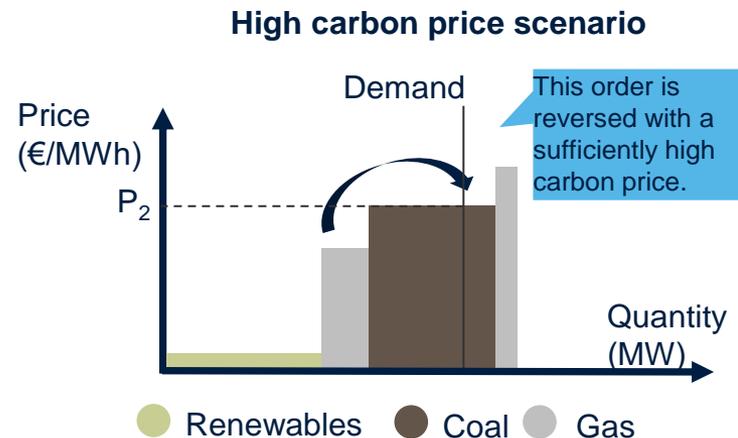
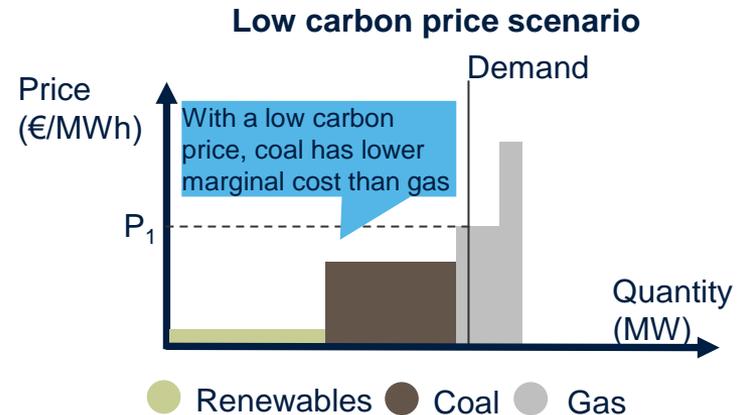
Fuel switching dynamics

- Merit order shows marginal cost of different electricity production technologies
- Coal is generally cheaper than gas (top window)
- Assuming that the relative price of coal and gas does not change, a sufficiently high carbon price can lead to fuel switching between gas and coal (bottom window)
- Carbon price promotes less emission-intensive power generation in the merit order and provides a price signal to incentivise investment in lower-carbon technologies

REALITY CHECK

The energy mix is not only driven by the carbon price, but also depends on fuel prices themselves:

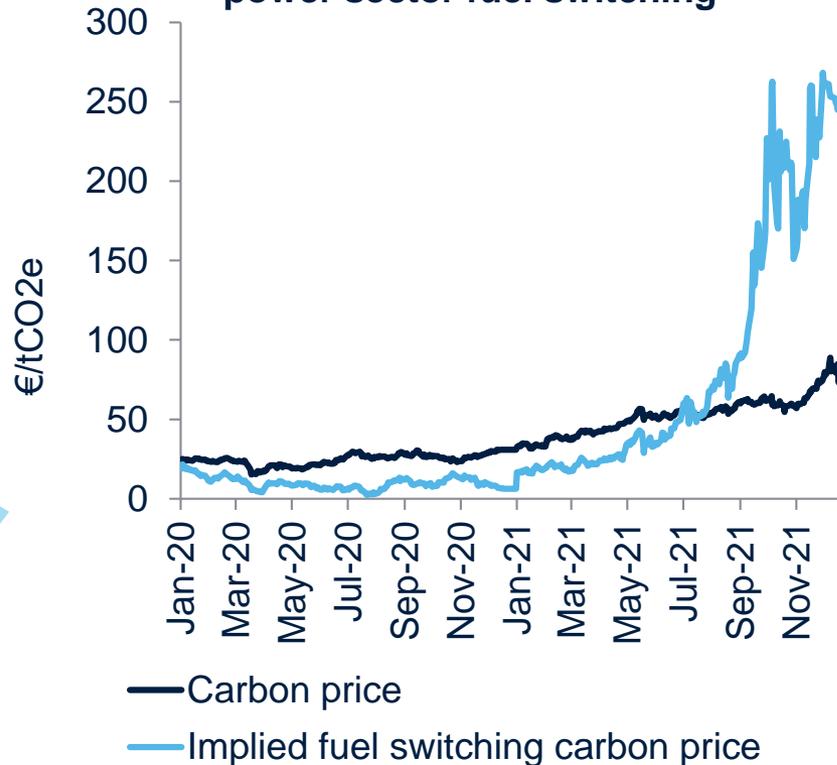
- In 2021, gas price has increased by several times more than the prices for carbon and coal
- Increase in cost of gas-fired generation has more than offset impact of increased carbon prices on coal-fired generation costs
- GHG emissions have increased slightly in 2021 despite high carbon cost



The role of carbon prices in the power sector

Fuel switching incentives since the pandemic

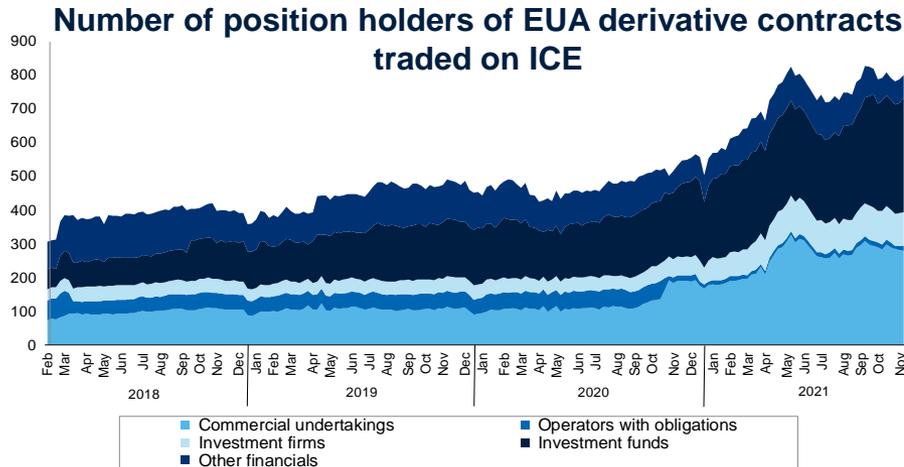
Implied breakeven EUA price for power sector fuel switching



Shows the EUA price that would be needed to incentivise a switch away from coal-fired to gas-fired generation, given the cost of coal and gas during 2020 and 2021

Implies that in late 2021 EUA prices would have had to reach more than €200/tCO₂e to reduce coal-fired generation (and therefore to achieve lower power sector emissions)

The number and diversity of traders have increased, thereby improving carbon market liquidity

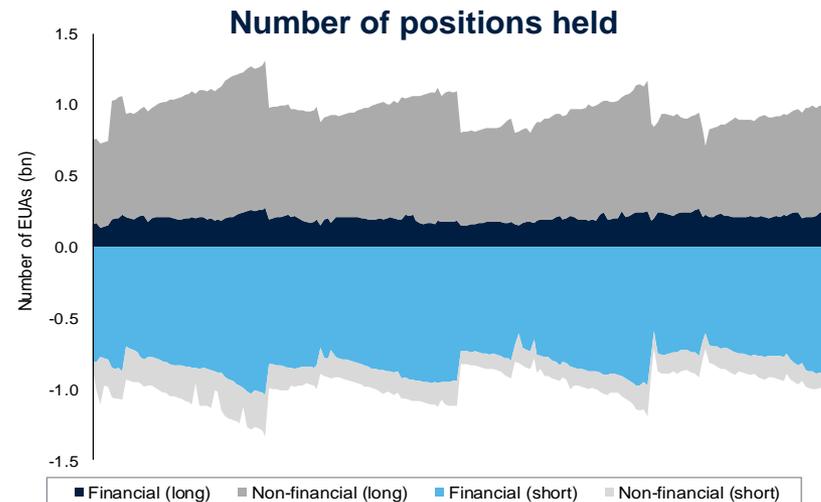


Note: The y-axis unit is the number of legal entities with positions in EUA futures. Changes in position allocations between groups might be due to misreporting, and might not reflect actual changes in the composition of position holders.

EVIDENCE

- The number of traders holding positions has increased by >100% in past three years
- The diversity of trader types has also increased, with new trading strategies entering the market.
- Different types of traders also contribute in different ways. Non-financials generally long and financials typically short.

- Metric(s): number of traders; positions held; diversity of trader type
- The larger the number and diversity of traders, the easier, cheaper and more likely (in time of stress) it is to find counterparties to a trade.



Note: The y-axis unit is billions of EUAs. Financial firms consist of investment firms, investment funds and other financial firms. Non-financial firms consist of commercial undertakings and operators with obligations. Source for both charts: Oxera analysis based on COT data from ICE.

Lower concentration in the carbon market compared to other asset classes has increased its resilience

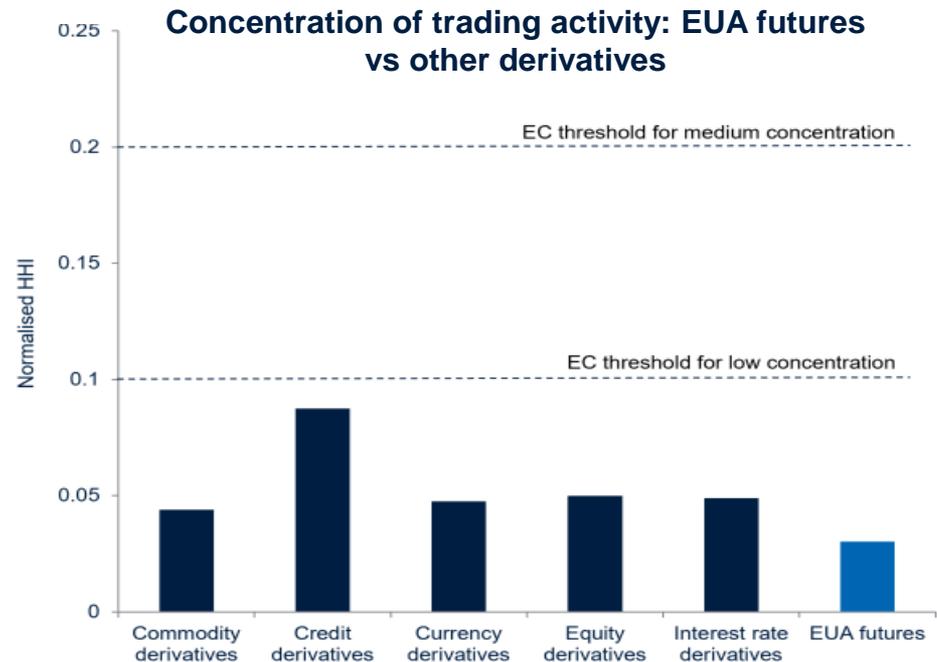
- Resilience refers the ability of the market to absorb, rather than amplify, shocks and remain free from manipulation and abusive practices.
- Metric: market concentration.*
- The larger the concentration the easier it is to exert control over quantities and prices.

EVIDENCE

There is no sign of excessive market concentration in EUA futures. In October 2021, for example:

- the normalised HHI of net positions in EUA futures was 0.03 and decreasing since 2018. This is below the Commission's threshold for low market concentration in competition investigations and lower than other derivatives asset classes (see chart on right hand side).
- the participant with the largest long or short position held only ~ 15–20% of open interest. This corresponds to ~5% of all EUAs in circulation—highly unlikely to be sufficient to exert control.

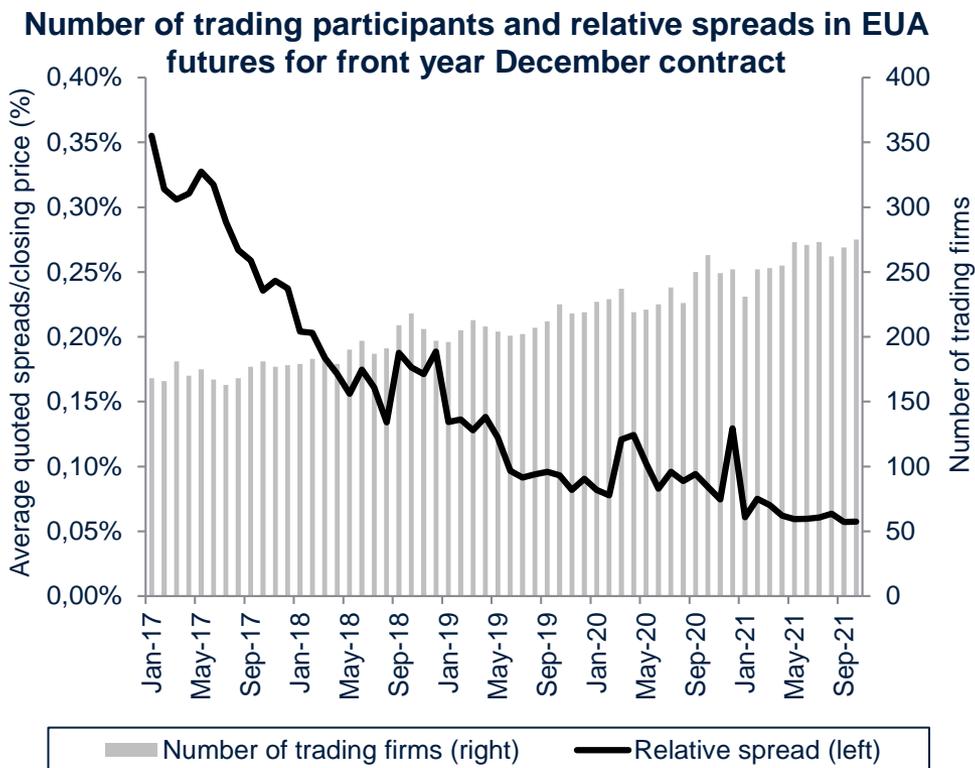
* market concentration is measured by the HHI (Herfindahl-Hirschman Index), which is calculated squaring the market share of each firm competing in a market and then summing the resulting numbers



Notes: HHI normalised between 0 and 1. HHI value for EUA futures taken from analysing ICE position data for October 2021. HHI value for other categories of derivatives taken from ESMA analysis of derivatives exposures for Q4 2020 in its 2021 Annual Statistical Report on the EU derivatives market. ESMA noted that the HHI metrics in Q4 2020 were similar to those of a year earlier across all assets. According to ESMA and the European Commission's guidelines (in the context of competition law) an HHI value of below 0.1 indicates low concentration and an HHI value of between 0.1 and 0.2 indicates medium concentration.

Sources: Oxera analysis of positions data received from ICE and ESMA (2021) 'EU Derivatives Markets: ESMA Annual Statistical Report 2021'.

As the number of active traders increased, relative spreads have fallen



- Metric: quoted bid-ask spread – i.e. difference between best quoted buy and sell price.
- More liquidity providers leads to greater competition for posting orders, and lower spread.
- At the same time, as the underlying price of the asset goes up this increases the inventory risk exposure for liquidity providers. Therefore, useful to look at relative spread to control for this price level effect in EUAs.

EVIDENCE

As the number of trading participants increased, relative spreads (calculated as the average quoted spread divided by the closing price) have reduced significantly.

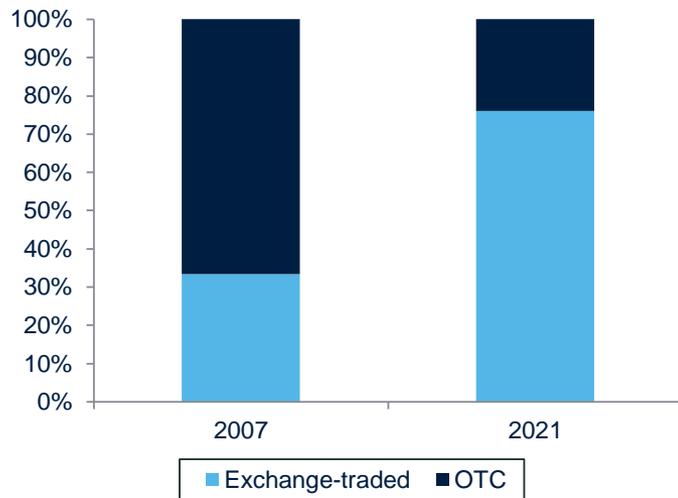
- Transaction costs for trading EUAs, as a proportion of the price, have come down over time.

Note: The average daily quoted spread is calculated based on a simple average of all new bid-ask spreads throughout the trading day. Due to data availability, relative spread is estimated by dividing the daily average quoted spread by the closing price. All bid-ask spreads relate to the front December futures contract. The number of trading firms is based on the number of firms that traded EUA futures in a given month (not necessarily the front December contract). Source: Oxera analysis of ICE data.

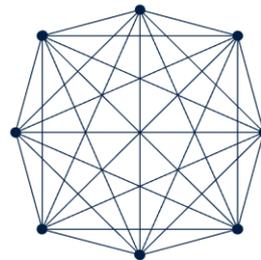
Long-term development of carbon markets

Benefits of exchange-trading

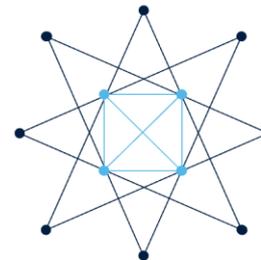
EUA futures trading volumes by trading mechanism



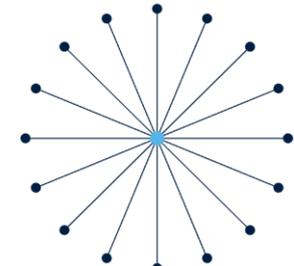
Bilateral OTC



Broker-intermediated OTC



Exchange



Benefits of transition from OTC to exchange-trading

- lower barriers to entry. An exchange facilitates access to all counterparties. No need for trader to set up bilateral trading, credit, settlement relationships with counterparties individually.
- improved transparency. On-exchange quotes and prices are visible to all traders.
- as exchange trading facilitates non-discretionary, anonymous and multilateral trading, participants must provide competitive quotes.
- by opening up opportunities to a broader, more diverse group of market participants, exchanges also facilitate the resilience of liquidity.

Source: Oxera analysis of data from ©Trayport Limited 2021 and Ellerman, A.D. and Joskow, P.L. (2008), 'The European Union's Emissions Trading System in Perspective', May.

Examples of policy responses to address high carbon prices

Short-term

Market monitoring to identify and deter market abuse

- Although the EU ETS is currently functioning well and as intended, ongoing market monitoring is required given:
 - continuing ETS reforms aimed at removing excess allowances and phasing out of free allowances
 - increased investor demand for exposure to carbon market risk
- The risk of adverse unintended consequence from poorly targeted, unjustified, or disproportionate interventions are material

Long-term

Incentivise investment

- Even with a robust carbon price, additional measures may be needed to provide long-term price signals, such as Carbon Contracts for Differences (CCfDs), emission performance standards, grants and tax credits

Negative Emission Technologies (NETs)

- GHG removals are likely to be required to meet international climate goals, and incorporating NETs within existing carbon markets can improve efficiency
- Multiple market market design options are feasible

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