Inside the commodity markets in 2020-23 – what happened and how they work

By Javier Blas[1]

Abstract

Global commodity markets have experienced extreme price volatility over the last three years due to several large supply and demand shocks. At times, that price volatility was amplified by disorderly trading in poorly regulated derivatives market. This short commentary examines two main areas: 1) how commodity markets work, and what happened in both physical and financial markets over the past three years, 2) the important, but unappreciated, role of the commodity traders. It finally argues that a key lesson of the market volatility of the last three years is the opacity of the commodity trading sector and more broadly of the commodity market, and the risk for policymakers of known unknows and unknown unknowns.

1 Introduction

Good afternoon and thank to Isabel Schnabel for her kind introduction, and to the European Central Bank for its invitation to participate in this forum. Special thanks to the Banco de Portugal for its hospitality here in Sintra.

Global commodity markets have experienced extreme price volatility over the last three years due to several large, consecutive, and at times overlapping supply and demand shocks. The crisis remains ongoing. In particular, the cost of energy commodities, including crude oil, natural gas, coal, and propane, surged to a nominal high in 2022, well above the previous peak observed in 2007-08, just before the onset of the global financial crisis, and 2011-12 during the civil war in Libya.

Among the most extreme cases of volatility, the price of West Texas Intermediate, an oil benchmark, hit a low of more than -$40 a barrel in 2020, and a high of more than $120 a barrel in 2022; at one point, the price of nickel rose nearly 250% over just 36 hours. Although the price of most commodities ultimately returned to what can be described as normal levels, the cost of certain raw materials remains well above pre-crisis levels, having a significant impact on economic activity and inflation.

The price volatility was amplified by disorderly trading in poorly regulated financial and physical commodity markets, both in Europe and elsewhere. The lack of effective circuit-brakers meant that some markets suffered at times significant intra-day price swings, particularly in electricity and natural gas. Short squeezes triggered

[1] Bloomberg Opinion. The views expressed are purely those of the writer.

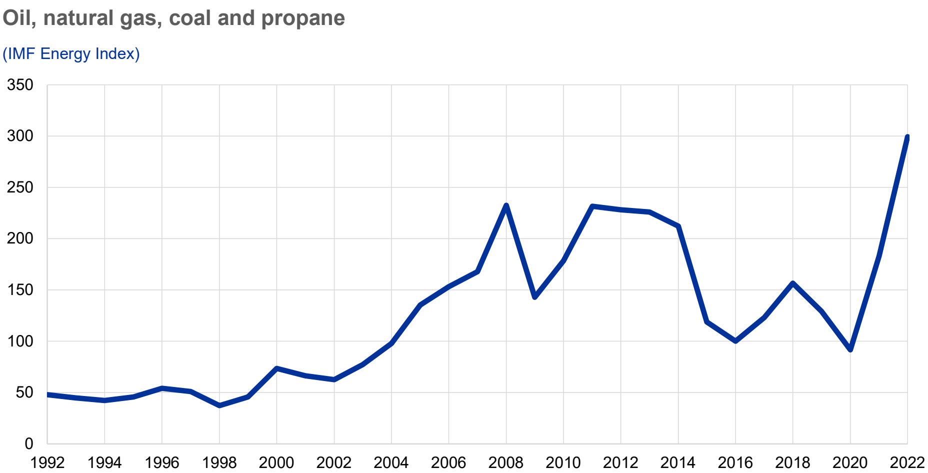
by record large margin calls also added significantly to the price volatility, and at times created what looked like an artificial price level, detached from the reality of supply and demand fundamentals. In the most extreme case, the London Metal Exchange was forced in 2022 to shut down nickel trading, and retroactively cancel billions of dollars in trades. LME executives argued that between five and nine commodity brokers may have defaulted if they have not taken the extraordinary measures – a sign of the stress in the industry.

I would focus in two areas: 1) what happened in physical and financial commodity markets; 2) the important, but unappreciated, role of the commodity traders.

2 Inside the commodity markets

Let me begin with an observation about how we track and measure commodity prices. Take, for example, the publicly available data from the International Monetary Fund. The IMF tracks the cost of 68 commodities, from oil to wheat, and from shrimp to cocoa. But it doesn't track the price of electricity, either in wholesale or retail markets. Crucially, the IMF energy commodity index measures the price changes for oil, natural gas, propane and coal. But again, it excludes electricity. It's a measure that would have been helpful in the 1970s, when the global economy was battling two oil price shocks. But we're 50 years later, and electricity is today equally important – and for some segments of our economies, it is even more important than oil. Think about the service sector, where we are witnessing sticky inflation. For many small and medium enterprises there – from hairdressers to supermarkets – electricity is the key energy input, not crude oil.

Chart 1
Record energy costs



Sources: Bloomberg Finance LP and International Monetary Fund
Notes: (2016=100, in terms of US dollars).

The ongoing price shock has put the spotlight on the web of interlinked physical and derivatives markets that constitutes the commodity market complex.

Broadly speaking, commodities markets start with a physical spot market, where actual goods – say, a barrel of oil, a ton of aluminium, or a bushel of wheat – are interchanged for immediately delivery. Beyond, there's a forward market, where physical raw materials are also interchanged, but for delivery at a later date.

Over them, there's a complex layer of derivatives markets, including swaps, futures, and options, both traded bilaterally over-the-counter, and on exchange. The derivatives markets allow participants to hedge their price risk and to speculate. Very often, derivatives markets allow, at the expiry of the contracts, for the physical delivery of commodities. The credit arrangements on those markets – and their clearing – varies significantly from one to another.

In general terms, commodity markets are far less regulated than, say, equity or bond markets. Ironically, the less important markets – the derivatives ones – are far more regulated than the most important ones – the physical ones. The same applies to the different actors in the market. As we will discuss later, some of the most important participants – the independent commodity trading houses – are barely regulated.

Commodity markets are also less transparent. That, in turn, not only difficult the job of policymakers, but also makes impossible any regulation. When the Bank of England tried to assess the impact of rising energy prices in 2022, it found that "the assessment of risk was made more difficult by the relative opacity of commodity derivatives markets" and the fact that some "material physically settled transactions are not reportable to trade repositories."[2]

Before any regulation is considered, there needs to be greater transparency.[3] As a first step, policymakers should consider greater transparency in the over-the-counter commodity derivatives markets, mandating disclosures like the ones already in place for most commodity futures and options markets. The chaos in the nickel market in 2022 was exacerbated because neither the London Metal Exchange nor its London-based regulators realized the size of over-the-counter positions, which were about five times in size to those they could see on exchange. Physical commodity markets need disclosure too. In 1979, the Group of Seven agreed at its summit in Tokyo to take "steps to bring into the open the working of oil markets by setting up a register of international oil transactions"[4]. More than 40 years later, the G7 has not implemented its agreement, and the physical oil market remains a black hole.

2.1 Why commodity prices surged

Above all, there's a culprit for the increase in commodity prices from late 2021: the Russian invasion of Ukraine. Moscow started restricting supplies of natural gas to Europe over the summer of 2021, triggering a chain of price increases as a result.

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2 Bank of England (2023), "Financial Policy Summary and Record of the Financial Policy Committee meetings on 9 and 18 March 2022"

3 The Financial Stability Board promised in 2022 an in-depth analysis and assessment of commodity markets. See: Knot, Klass, "To G20 Finance Ministers and Central Bank Governors", Financial Stability Board, April 2022

4 G7 Tokyo Summit Declaration, June 29, 1979, available online at

From natural gas, the crisis quickly spread into power markets, as gas is one of the main fuels used to generate electricity. That, in turn, prompted increases in the coal and CO2 markets. While Moscow used first commodities as a weapon it is campaign against Ukraine, Western countries did the same later, weaponizing Russia's oil exports via multiple restrictions. Western countries also applied restrictions, in part via the banking sector, on other Russian commodity exports.

But there's significantly more than that the war in Ukraine, particularly for oil and gas markets. In energy, the global market first faced an unprecedented demand contraction in 2020 during covid; followed by massive production cuts by the OPEC+ cartel. Almost simultaneously, the energy market felt the impact of a rapid contraction in investing due to low prices. The number of rigs drilling for oil in the US shale patch, for example, more than halved in just a few weeks. Then, as economies quickly reopened, demand initially overwhelmed supply, particularly as OPEC decided to keep the oil market very tight to lift prices and recover terms of trade.

More broadly, the energy industry has also underinvested for several years, in part due to lower prices from 2015 to 2019 than during the 2010 to 2014 period and as a response to shareholder criticism about poor returns on capital employed. Besides, over the last few years, the global fossil fuel industry has invested as if the world was heading to meet its net-zero by 2050 targets. But while investment in production is headed to a level consistent with the Paris Agreement, demand for oil, gas and coal isn't heading into that direction, with consumption for the three fossil fuels expected to hit an all-time in 2023. That's creating supply bottlenecks. Meanwhile, investment in green energy isn't anywhere near enough to lift supply to a point where the global economy can meet its climate change commitments.

3 The role of the commodity trading houses

As commodity prices soared in 2021 and 2022, the global economy witnessed a large transfer of wealth from consumers (and, in many cases in Europe, from governments which subsidize consumption) to producers. What's largely missed is that a significant proportion of the rent transfer went into the pockets of the intermediaries: the commodity traders. Commodities such as oil, wheat, natural gas and copper rarely flow directly from producers to consumers. In between, there's a nexus: the commodity traders. Little noticed and little scrutinized, the commodity traders have become essential cogs in the modern economy. Without them, petrol stations would run out of fuel, factories would grind to a halt, and bakeries would run out of flour. They are, in the words of Ludwig Jesselson, one of the industry's pioneers, an "international clearinghouse" for essential goods.[5]

The commodity traders consist of a relatively small group of companies, most of them privately owned, that buy and sell physical raw materials on the spot and forward markets, and they hedge and speculate in derivatives markets. Those

[5] For a detailed discussion on the history of the commodity trading industry and its role in the global economy, see Blas J., and Farchy, J., "(2021), "The World for Sale: Money, Power and the Traders Who Barter the Earth's Resources", Random House Business

companies are, by and large, headquartered in Europe, little regulated, and largely financed by European commercial banks via short-term debt. The sector is typically highly leveraged, although there are significant variations from company to company.

Commodity traders make the global economy tick. But they are more significant than that: Their dominance of the world's natural resources has made them kingmakers in countries like Congo where oil or metals are the main source of wealth. They bankroll entire nations that are otherwise shut out of the financial markets, lending to them against future commodity production. The commodity traders are a throwback to a bygone era, using ruthless daring and charm to land deals in places where the competition dares not tread. Their appetite to go where other investors won't has sometimes given them a postimperial air: They are overwhelmingly white men, flying from Western capitals into countries in Africa, the Middle East or Latin America to cut deals for natural resources. For the most buccaneering commodity traders, the zeal for business opportunities extends to war zones.[6]

The basic business of the commodity traders is disarmingly simple: buy natural resources in one place and time, and sell them at another – hopefully making a buck by exploiting the difference. Follow that recipe successfully many, many times, and the profits can be enormous, especially for the biggest players. Their role exits because supply and demand of commodities rarely matches.

The commodity traders are arbitragers para excellence, trying to exploit a series of differences in prices. Because they're doing deals to buy and to sell all the time, they are often indifferent to whether commodity prices overall go up or down. What matters to them is the price disparity – between different locations, different qualities or forms of a product, and different delivery dates. By exploiting these price differences, they help to make market more efficient, directing resources to their highest value uses in response to price signals.

3.1 A risky profit boom

During episodes of market stress, as it was the case from early 2021 onward, those price little differences could be substantial, allowing well-positioned traders to extract significant rents from their role as intermediaries. How profitable was 2022 for them? Well, very! Last year, the world's leading commodity traders – Glencore, Vitol, Cargill and Trafigura – reported combined net income of $47.6 billion, earning in one single year nearly as much as they did in the five years between 2014 and 2019. Before 2019, the highest ever annual combined profit stood at $10.8 billion. While the recipe for hauling in that kind of money is relatively simple, it also takes nerve.[7] Thanks to the use of low-tax jurisdictions, commodity traders pay relatively little in taxes when compared with other businesses. Typically, the industry faces a marginal tax of between 10% and 15%, significantly below the 20%-to-25% that many banks pay,

6 Blas J., and Farchy J., "Drag Commodity Traders Out of the Shadows", The New York Times, May 2021

7 The calculation is based on information that's not in every case publicly available.

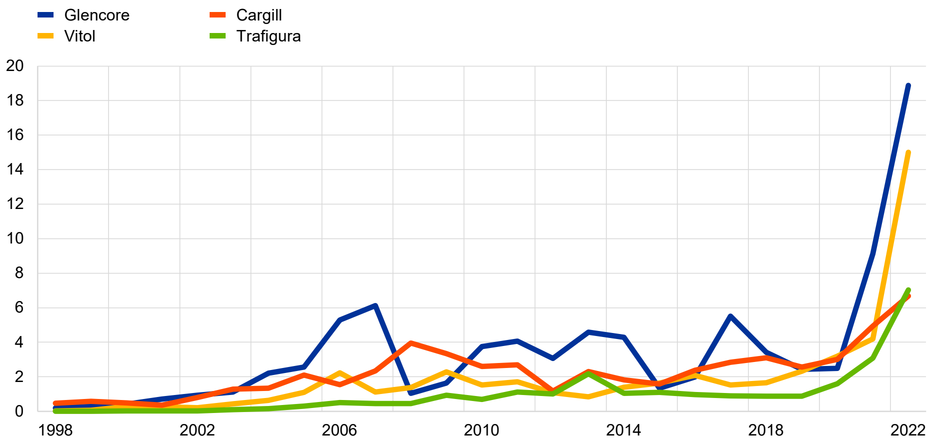
and well below what oil and gas companies face. The commodity traders also avoided windfall taxes in 2022, which energy producers in Europe faced.

Chart 2

Commodity trading boom

Net income of the world's top trading houses

(US$ billion)



Sources: Author's calculations and 'The World for Sale'
Notes: From 2021 onward, Glencore is net income pre-significant items

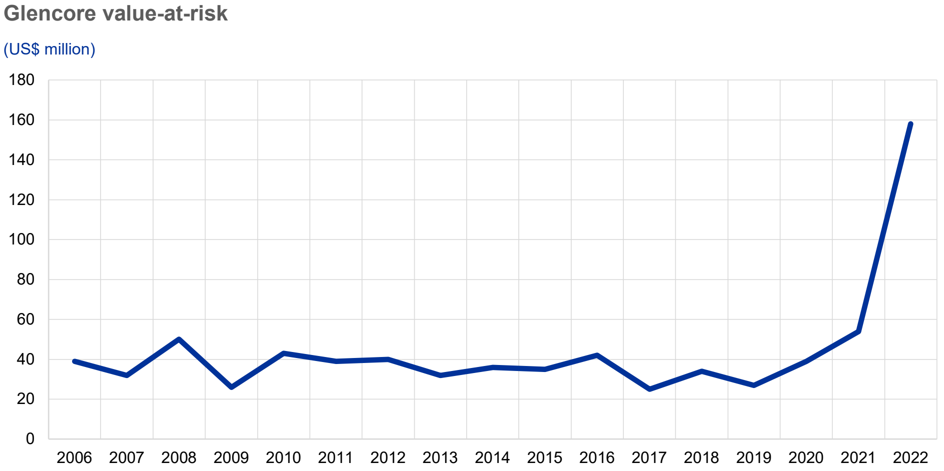
As discussed previously, commodities markets have been wildly volatile over the last three years, and particularly in 2022. To manage their price risk, commodity traders pay attention to multiple statistical measures, including so-called value-at-risk (VaR). As the industry is largely privately-owned, there is little information about the amount of risk taking. But Glencore, the world's largest and most diversified commodity trader, provides an insight as the company has reported its VaR publicly for most tha a decade. The data revealed by Glencore shows not only the spike in VaR, but also the lengths the commodity traders were willing to travel to cash in volatile markets.

Since Glencore started to publicly release its VaR data in 2006 and up to the most recent period of market volatility, the company fixed its one-day risk ceiling at $100 million. Over the 2006-2020 period, Glencore's annual VaR averaged $35.9 million, well below the maximum daily cap. As far as it is known, its risk measure never surpassed the maximum limit at any point. All started to change in 2020. The threshold was briefly lifted to $120 million as the covid-19 pandemic hit commodity markets, allowing commodity traders to hoard supplies in contango arbitrages. But soon after that period, Glencore returned to its VaR limit to its original level of $100 million.

As natural gas markets started to price the likelihood of Russia invading Ukraine, Glencore lifted its VaR limit first to $150 million in January 2022, and then suspended the limit altogether at around the same time of the invasion in March 2022. In 2022, Glencore reported annual average VaR of $158 million, with an observable daily high of $451 million, according to its annual report. The company singled out its portfolio of liquefied natural gas (LNG) contracts as a key reason why its VaR jumped last year.

Chart 3

Big profits alongside big wagers



Source: Glencore annual reports and author's calculations
Note: VaR one-day, 95% confidence. 2006 and 2007 is VaR at year-end; since then, annual average

3.2 Commodity traders and the banking sector

Beyond a stomach for risk, commodity traders need plentiful credit to cash in volatile markets. The industry relies heavily on commercial European banks for its financing, via bilateral loans, syndicated credit facilities, repurchase agreements, and others. Moreover, the same banks typically handle a large proportion of the derivative trades from the commodity traders – and provide also the credit, particularly for margining, underpinning those trades. As such, the interconnectedness of banks and commodity trading firms through financing deals and derivatives contracts may make banks vulnerable to strains in the commodity dealer sector. The situation can be exacerbated by the fact that many commodity traders are highly leveraged.

The reliance on the banking system creates a link between the commodities ecosystem and the core financial system which until now has received relatively little interest by both academics and policymakers. According to the Financial Stability Board, bank credit exposures to commodities traders appear manageable in aggregate. However, "there is significant variation across individual banks, some of which have materially higher exposures."[8]

Consequently, it's easy to anticipate that financial difficulties in the commodity trading sector, for example due a failed speculative strategy, violent price movements and fraud, could result in material losses for banks most exposed to this sector. While these may not be large enough to destabilise the banking system as a whole, they could still put pressure on some banks.[9] The context also matter: given the unusually

8 Financial Stability Board, "The Financial Stability Aspects of Commodities Markets", February 2023

9 European Central Bank, "Can Commodity Trading Firms Create Systemic Risk Via Derivatives Markets?", Financial Stability Review November 2017, pp. 126-129

large, long and broad surge in commodity prices, smooth market functioning and financial stability may be at higher risk than in the past.[10]

Historically, commodity trade finance was considered a safe corner of the banking industry, characterized by low risk and low reward. But in recent years, several cases of fraud and accounting scandals have eroded confidence in the sector, prompting several big European banks to leave.[11] That, in turn, has increased the concentration of risk in an even smaller group of European banks that still provide services to the industry. Although the industry has tried to diversify its funding, tapping some American, Middle Eastern and Asian banks, those efforts are in their infancy.

4 Known unknows and unknown unknowns in commodities

The global financial crisis of 2008-09 made clear that large global banks, such as Goldman Sachs, are just too big to fail. Could a future crisis in the commodity market show that some of the world's largest commodity traders pose, too, systemic risks? Global policymakers have asked themselves that question, with relative degree of urgency, since at least 2012.[12] Back then, Timothy Lane, then deputy governor of the Bank of Canada, argued that the increasingly prominent role the commodity traders play, and their interconnectedness with the financial sector, "raises the possibility that some of these institutions are becoming systemically important". In short, he asked: "Could the failure of one of the large trading houses cause serious disruption in the commodities markets?"[13].

The commodity industry has responded with a vociferous 'no', arguing in position papers and speeches it doesn't meet the characteristic of the big financial institutions typically considered "too big to fail".[14] I have sympathy for their defence, but little for the resistance to transparency. Considering their growing role in the global economy, we ought to know more, rather than less, about a sector that, quite literally, provides our daily bread.

And yet, some of the world's largest commodity traders are private companies and are subject to limited public reporting. And, in some cases, do not provide any information at all.[15] After the price shock of 2022, many policymakers discovered that their ability to understand the crisis was limited due to lack of information.

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[10] Avalos, F., Cap, A., Igan, D., Kharroubi, E. and Nodari, G., "Energy markets: shock, economic fallour and policy response", BIS Bulletin, December 2022

[11] Over the last decade, several big commodity trading houses have failed, in part due to accounting fraud. In Singapore alone, Noble, Hin Leong and Agritrade collapsed, triggering substantial losses for the banks that provided commodity trade finance to those firms. More recently, at least two metal traders have suffered fraud as the commodity used as collateral for some debt facilities proved to be non-existent, with fraudsters replacing metal with sand and rocks during transportation in containers.

[12] Blas, J. "Has Glencore become 'too big to fail'?, October 2012, Financial Times

[13] Lane, T., "Financing commodities markets", Speech to the CFA Society of Calgary, September 2012

[14] See for example a white paper published by commodity trading firm Trafigura as part of its campaign against any regulation: Pirrong, C. "Not Too Big To Fail: Systemic Risk, Regulation, and the Economics of Commodity Trading Firms", 2015

[15] International Monetary Fund, "Global Financial Stability Report: Safeguarding Financial Stability amid High Inflation and Geopolitical Risk", April 2023, pp. 71-72

The opacity and unregulated nature of the commodity trading industry is known. We know what we don't know about the industry and its markets. What worries me the most is what we don't know that we don't know about the sector. The unknowns unknowns. Considering the experience of the last three years, it would be better that we knew more. The sector perhaps is not too large to fail, but certainly is too big -- and plays a too large role in our economies -- to ignore.

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