EHSAN KHOMAN
Head of Emerging Markets Research – EMEA

DIFC Branch – Dubai
T: +971 (0)4 387 5033
E: ehsan.khoman@ae.mufg.jp

MUFG Bank, Ltd.
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Parameterising the commodity consumer shock

Global commodities: Notwithstanding louder recessionary calls, the breadth and velocity of the moves in commodity prices continues to stoke a torrent of inflationary pressures as the building blocks of the global economy gets ever more costly. We parameterise through a bottom-up approach the historical value of commodities consumed, and estimate the “tax” paid by consumers based on our price forecasts. Our findings signal that global consumers of commodities are set to pay 13.2% of GDP in 2022 – on track to be the largest quantum since the first oil shock in 1973.

Energy: Oil has buckled as hard landing recessionary angst rattles markets, while the US administration has stepped up its fight against elevated energy inflation by calling for a 3 month tax holiday on gasoline. Beyond the recessionary fears however, soaring refining margins continue to underscore tight oil products markets – which matters for central banks given it’s what the real economy consumes (see here). Meanwhile, European natural gas (TTF) prices have rallied to EUR126/MWh (+52%) over the last week, as Russia’s Gazprom cut NordStream 1 flows by 60%, citing issues with turbines undergoing maintenance by Siemens in Canada.

Base metals: Base metals have given up their year of gains as Chinese demand and higher Russian supply is leading to more stocks deposited onto EU exchanges.

Precious metals: Gold and silver have remained under selling pressure on a mild USD recovery and rising yields. Platinum and palladium still look undervalued.

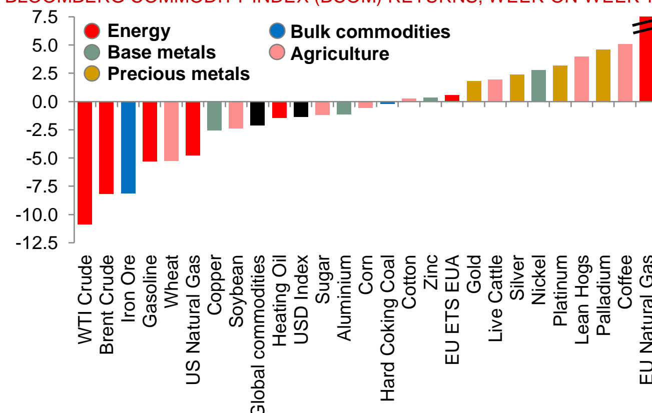
Bulk commodities: Coal prices continue to break new highs on energy security considerations, whilst iron ore’s rout has deepened on a weak Chinese steel outlook.

Agriculture: Global food inflation is enjoying some reprieve with the grains complex – notably, wheat, corn and soybean – easing with recessionary angst outweighs the broader price bullish trends pertaining to the war in Ukraine and inclement weather.

Core indicators: Price performance and forecasts, flows, market positioning, timespreads, futures, inventories, storage and products performance covered below.

MARKET’S DEMAND DESTRUCTION VS GOVERNMENT’S DEMAND CREATION

BLOOMBERG COMMODITY INDEX (BCOM) RETURNS, WEEK-ON-WEEK TO 22 JUNE 2022 (%)



Current policies are worsening – not resolving – elevated commodity inflationary pressures, in our view. Both US and EU policymakers have now cut gasoline taxes in an attempt to soften the price impact on consumers, yet such policies only delays the necessary demand destruction required to balance markets to ultimately allow price pressures to soften near-term. Also, windfall taxes – whilst politically appeasing in a period of falling real incomes – will only disincentivise the capacity expansion required to resolve the supply tightness.

Source: Bloomberg, MUFG Research; EU natural gas +33.1% w/w

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GLOBAL COMMODITIES (-2.1% W/W; 23.0% YTD)

Though there will be both winners and losers from the commodity outperformance, on net, the longer the commodity shock persists, the larger the negative impact on commodity consumers and on net, global growth

Notwithstanding louder recessionary calls, the moves in commodities continues to stoke a torrent of inflationary pressures as the building blocks of the global economy gets ever more costly. Though there will be both winners and losers from the outperformance, on net, the longer the commodity shock persists, the larger the negative impact on commodity consumers and on net, global growth. The degree of bearishness will be dependent on the pass through to wages and the resulting policy response, and will be partly offset by a revenue "recycling" by commodity producers.

Global consumers of commodities are set to pay 13.2% of GDP in 2022 (from 6.2% of GDP pre-COVID in 2019) – on track to be the largest quantum since the first oil shock in 1973, wherein the burden was 14.6% of GDP

We parameterise through a bottom-up approach the historical value of commodities consumed, and estimate the "tax" paid by consumers based on our price forecasts. Our findings signal that global consumers of commodities are set to pay 13.2% of GDP in 2022 (from 6.2% of GDP pre-COVID in 2019) – on track to be the largest quantum since the first oil shock in 1973, wherein the burden was 14.6% of GDP. Within the sub-commodity complex, oil (4.8% of GDP) and metals (3.3% of GDP) are the largest contributors, followed by gas (1.8% of GDP), coal (1.7% of GDP), refined crude products (0.8% of GDP), agriculture (0.4% of GDP) and carbon (0.2% of GDP).

We are in a molecules crisis that involves every commodity with longer lags between commodity price increase and inflation

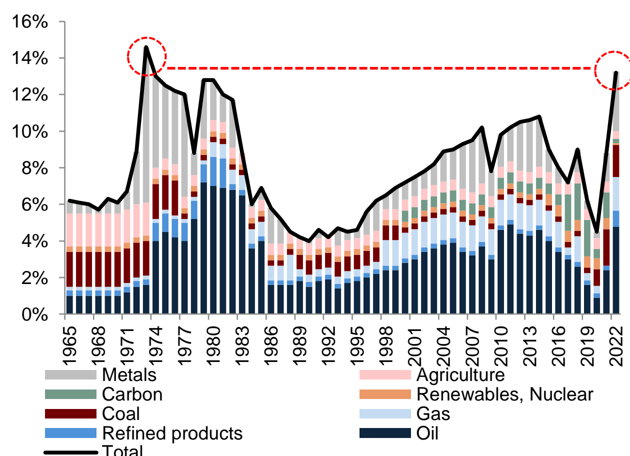
A commonality between the 1970s period and now is geopolitical upheaval – the Arab oil embargo which resulted in the Yom Kippur War then and the war in Ukraine now. Yet, unlike the 1970s, which was restricted to oil and was a sellers-boycott, the current episode involves every commodity and is a buyers-boycott – and by delineation more permanent (see here). We are in an extreme molecules crisis with shortages across energy, metals and agriculture, owing to a dearth of structural underinvestments in carbon-intensive commodities, that is being turbo-charged, not caused by, the war in Ukraine. The broad-based nature of the increase in the value of commodities consumed, as compared to the rise during the 1970s, signals that the global economy will witness longer lags between commodity price increases and inflation – i.e. commodities are typically remembered for their peaks but the other half of the story is their duration, and we convicted that this is a decade-long supercycle.

Shutting down the old economy too fast threatens to push the price of building a cleaner one out of reach – the supercycle in commodities is only in the first innings

For investors considering commodities on a multi-year horizon, it is vital to remember that to end the supercycle, there must be a supply response – yet the magnitude of the carbon supply redux, which powers the real economy from hydrocarbons to carbohydrates, is absent due to the forces of ESG and deglobalisation. Greening the global economy and the pursuit of economic autarky raises the scarcity premium for commodities at large, proving to be a recipe for persistent inflation this decade.

RISE IN THE VALUE OF COMMODITIES CONSUMED IN 2022 WILL BE THE LARGEST SINCE THE 1973 OIL SHOCK

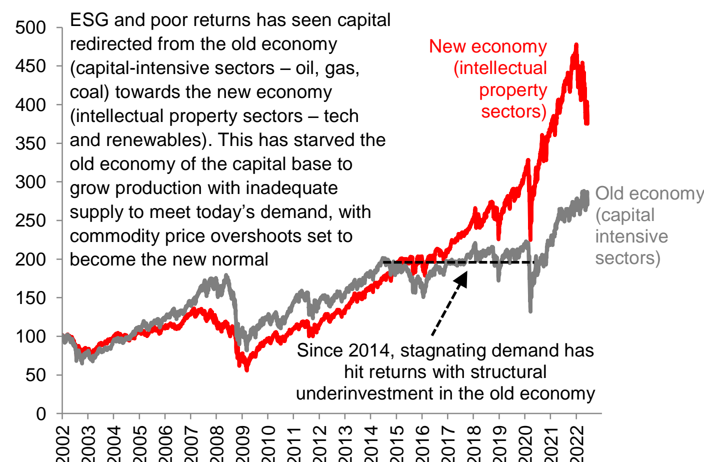
GLOBAL COMMODITY CONSUMPTION (% OF GDP)



Source: Bloomberg, BP, EIA, IEA, MITE, MUFG Research

ESG AND POOR RETURNS HAS SEEN CAPITAL PIVOT FROM THE OLD TO THE NEW ECONOMY SINCE 2014

GLOBAL EQUITY RETURN INDICES, REBASED JANAURY 2002 = 100



Source: Bloomberg, MUFG Research

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ENERGY (-4.4% W/W; 63.5% YTD)

Crude oil

Oil has fallen sharply as recession stressors rattle markets

Oil has buckled as hard landing recessionary angst rattles markets. We view recession risks as now higher and more front-loaded. Markets appear increasingly concerned that the Fed will feel compelled to respond forcefully to high headline inflation and consumer inflation expectations if energy prices rise further, even if activity slows sharply. Though, whilst the war in Ukraine and further commodity price shocks have made the echoes of the 1970s ring louder, we are sceptical that hot wage inflation and high inflation expectations are as entrenched today as back then. Absent any unforeseen event risks, with no major imbalances to unwind, a recession caused by moderate overtightening would most likely be shallow but prolonged.

The US administration has called for a 3 month gasoline tax pause to stymie prices and put a lid on energy inflation

Adding further bearish forces to front-end prices, the US administration has stepped up its fight against elevated energy inflation by calling for a 3 month tax holiday on gasoline after average US retail price topped USD5/gallon this month (+51% year-to-date). President Biden has downplayed concerns often cited in opposing the 18.4 cents-per-gallon gas tax holiday – that it would curb revenues needed to maintain roadways, or that savings wouldn't be passed onto consumers. This comes ahead of the all-important US summer driving season that is about to commence which witnesses a seasonal surge in gasoline demand.

Much needed demand destruction is being held back by policy support for households

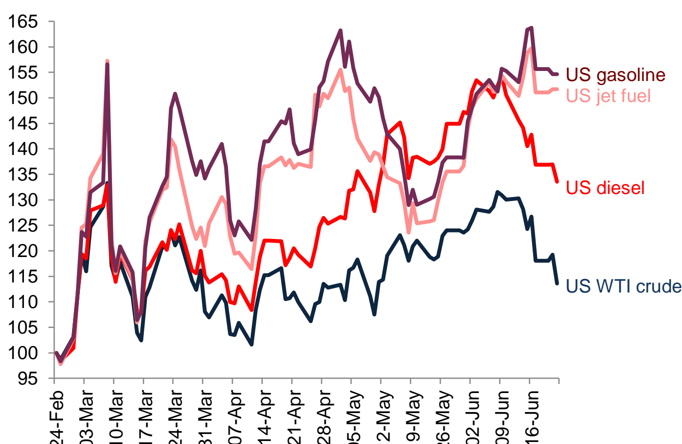
While we are convicted that demand destruction – the only solver in oil markets devoid of inventory buffers and supply elasticity – is being held back by policy support for households, supply constraints in oil are equally politically mandated (see here). With the world's laser focus on the risks for high and rising energy inflation, the likelihood of policy correction is increasing. First, a lack of an unassailable consensus in Europe for continued pressure on Russia raises the risk for the country's production to surprise to the upside, relative to our expectations. Second, there is a risk for Saudi Arabia (and broader OPEC+) to increase oil output after President Biden's visit next month. While both of these factors present downside to our USD141/b Q3 2022 Brent crude forecast, they will unlikely offer consumers marked respite. As we have documented, the real bottleneck today remains in global refining capacity, stymied by years of structural underinvestment, and facing growing demand from both resurgent travel post COVID and Chinese reopenings (see here).

Refining capacity is the real bottleneck

Global oil refining margins have risen significantly to unprecedented levels in recent

REFINED OIL PRODUCTS HAVE SURGED PAST CRUDE OIL SINCE THE START OF THE WAR IN UKRAINE

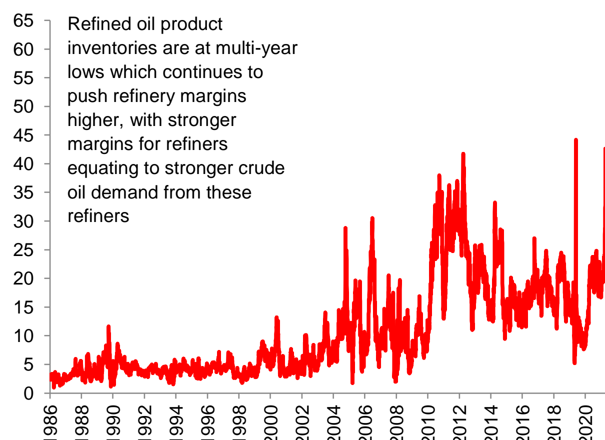
WTI CRUDE (USD/B) VS GASOLINE, DIESEL AND JET FUEL (USD/GALLON)



Source: Bloomberg, MUFG Research

SOARING REFINING MARGINS ARE UNDERSCORING EXTREMELY TIGHT OIL PRODUCTS MARKETS

WTI CRUDE 3-2-1 CRACK SPREAD (USD/B)



Source: Bloomberg, MUFG Research

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weeks across all regions and almost all products owing to multi-year lows in refined product inventories. Severe tightness in the global refining system means that refined oil products such as diesel and gasoline – i.e. what the economy and end-consumers are exposed to – are far more expensive than merely looking at crude prices would suggest. In effect, the real economy is suffering a much stronger energy inflation shock, which matters profoundly for global central banks in their bid to rein in elevated price rises.

The blowout in the indicative 3-2-1 crack spread accentuates that energy inflation is far stronger than it appears

The blowout in the indicative 3-2-1 crack spread (the assumption that for every three barrels of WTI crude a refinery processes, it makes two barrels of gasoline and one barrel of diesel – representative for an average refinery and is a gross figure out of which refiners pay for labour and the cost of capital) accentuates that energy inflation is far stronger than it appears. Over the last decade the crack spread has averaged ~USD20/b. Currently the margin has catapulted north of USD50/b, with crack margins for diesel and other petroleum products surging much higher.

Several key reasons behind the surge in refining margins

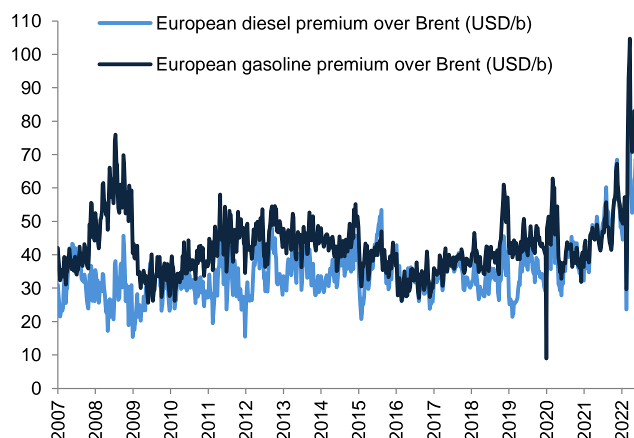
There are several reasons for the flare-up in refining margins. First, demand (especially for diesel) has rebound robustly, depleting global inventories. For instance, in the US East Coast, diesel stocks have fallen to the lowest on record. Second, strategic petroleum reserve (SPR) releases has helped to put a cap on WTI prices, but it has not addressed the tightness in refined products. Third, refining capacity has declined where it matters for the market now, and the plants that are operating are grappling to process enough crude to meet the demand for fuel. Fourth, sanctions and self-sanctioning of Russia oil is exacerbating the pressure on margins. Russia is a titan exporter not sure of crude, but also of diesel and semi-processed oil that European (and US pre-sanctions) refiners turned into fuel. This flow has now dried. Moreover, Europe in particular not only needs to find extra crude to produce the diesel and other fuels it's not importing from Russia, but critically, it also needs the refining capacity to do so.

Q2 2022 should be the peak for margins

Looking ahead, this quarter should be the peak for margins as refineries return from spring maintenance, but the dislocations caused by the war in Ukraine are unlikely to ebb entirely in the near term. On a six month view, the real downside risk to refining margins is lower oil demand, caused by price-induced demand destruction – the ultimately solver in a market devoid of inventory buffers and supply elasticity (see here). From 2023 we expect refining capacity additions in Asia and the Middle East to ease the tightness in the refined products, helping to normalise refining margins. However, for now, this is a products-led market with acutely depleted inventories.

GASOLINE AND DIESEL PRICES – WHICH MATTER MOST FO RTHE REAL EONOMY – ARE FAR ABOVE CRUDE OIL

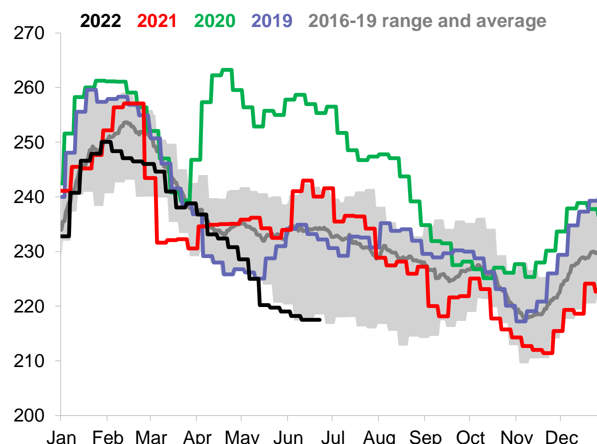
EUROPEAN GASOLINE AND DIESEL PREMIUM OVER BRENT (USD/B)



Source: Bloomberg, MUFG Research

US GASOLINE INVENTORIES ARE HOVERING AT THE EDGE OF THEIR FIVE YEAR AVERAGE

US GASOLINE INVENTORIES (M BARRELS)



Source: Bloomberg, MUFG Research

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Natural gas

Europe's gas crisis is moving towards its endgame with the winter ahead in focus

Over the last week, European natural gas has rallied to EUR126/MWh (+52%) as Russia cut NordStream 1 flows by 60% (from 155mcm/d prior to the disruption to 62mcm/d currently), citing issues with turbines undergoing maintenance by Siemens in Canada (sanctions have made it difficult to return it). Germany's economy minister, Robert Habeck, said that the move was aimed at sowing uncertainty and pushing up fuel prices. The cut has resulted in reduced gas deliveries to several energy firms, including in Germany, the Netherlands and Italy. Disrupted flows will be a concern, given that Europe is in injection season, and pressing hard to hit its target of having storage 80% full by 1 November ahead of the heating season – currently 55% full and back to normal levels ahead of summer. If these reduced flows persist through the summer, then we do not believe Europe can supply itself with gas throughout winter, requiring persistent gas prices north of EUR200/MWh to balance the market. With what little gas left going to Germany being re-exported to Czech Republic, these cuts effectively cease all flows of Russian gas to northwest Europe, putting European policymakers on alert and pushing Europe's gas crisis toward its endgame. While Germany is responding with a raft of measures including restarting gas capacity and setting industrial gas auctions to reduce demand, we see growing upside to TTF prices and tightening constraints on German gas demand, should the situation deteriorate further. Furthermore, NordStream 1 is set to undergo its scheduled annual maintenance between 11-21 July, which will see gas flows coming to a full stop over the period.

We maintain our Q4 2022 TTF levels of EUR145/MWh (2022 average of EUR105/MWh) due to our expectation of winter volatility amid shortage challenges, with clear upside risks

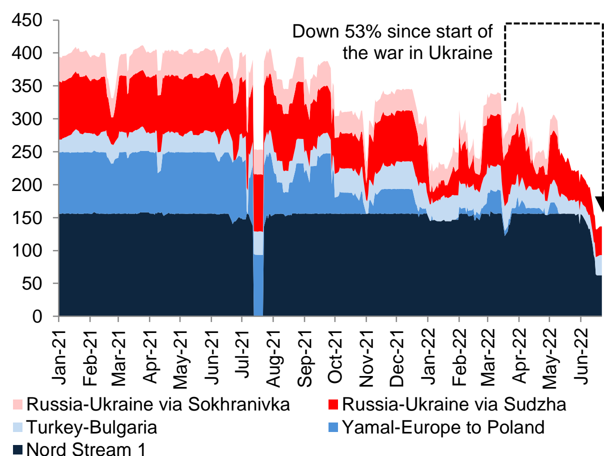
Upstream reports (that flows to Germany are reduced to 62mcm/d and that the three remaining turbines (out of eight) at the Nordstream 1 Portovaya compressor station enduring the technical difficulties are capable of maintaining a 10mcm/d shipping capacity (vs 167mcm/d nameplate). We estimate that at this rate, this would mean as much as ~3Bcm of missing monthly Russian gas imports until the situation is resolved. This could mean that European gas storages would drop towards the low end of their five year range before the next winter season. For now, we maintain our Q4 2022 TTF levels of EUR145/MWh (2022 average of EUR105/MWh) due to our expectation of winter volatility amid shortage challenges, with clear upside risks.

LNG market globally are feeling the pressure

Reduced Russian gas flows via the Nord Stream pipeline is being felt in other markets and regions. Spot Asian LNG has rallied by around 60% over the last week on the back of lower pipeline flows to Europe. Moreover, outage at the US Freeport – the plant represents 3-4% of global LNG capacity – will only tighten what is already a

RUSSIAN GAS SHIPMENTS TO EUROPE THROUGH KEY ROUTES ARE DOWN 53% SINCE INVASION AND AT RISK

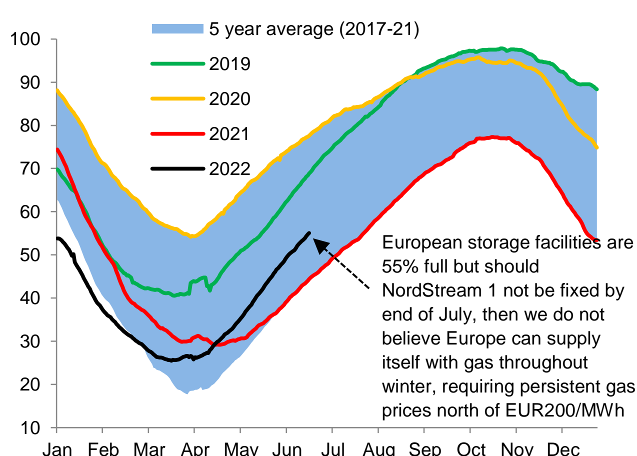
RUSSIAN PIPED NATURAL GAS SUPPLY TO EUROPE (MCM/D)



Source: Bloomberg, MUFG Research

EU GAS INVENTORIES ARE BEING REBUILT AND FIRMLY WITHIN THE LAST 5 YEAR AVERAGE INVENTORY BAND

NATURAL GAS INVENTORIES IN EUROPE (% OF TOTAL)



Source: Bloomberg, MUFG Research

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tight LNG market. Whilst, COVID-induced lockdowns in China has offered some relief, the signs of reopenings suggests H2 2022 will witness a revival in demand.

Carbon markets

The European Parliament has rejected the full amended EU ETS reform file earlier this week

After approving a set of individual amendments to the EU ETS regulation, including a proposal to restrict access to non-compliance entities, the European Parliament rejected the full amended EU ETS reform file earlier this week, sending it back to the European Parliament's Committee on Environment, Public Health and Food Safety to work on a new common position. The rationale for rejecting the whole EU ETS reform file was a single amendment on the timing of the adoption of the carbon border adjustment mechanism (CBAM). To put this into context, the CBAM is still a major source of dispute at European level, with supporters favouring a quick implementation and critics favouring a more conservative approach, retaining existing carbon leakage measures such as the free allowances for industrial players.

Setback hampers climate aspirations

Failing to agree on the EU Commission's flagship reform is a considerable setback and, even if this does not have any fundamental impact on market balances, it undermines the credibility of its climate aspirations. The European People's Party's (EPP) reservations over putting an additional burden on European companies with an overheated carbon emissions market in the midst of an energy crunch are legitimate from one lens, given the projected USD70bn bill for OECD Europe from the EU ETS and other national carbon pricing initiatives. Yet, the credibility of the EU Commission and the other EU institutions would be at stake as they put decarbonisation at the top of the political agenda.

BASE METALS (-0.8% W/W; -1.0% YTD)

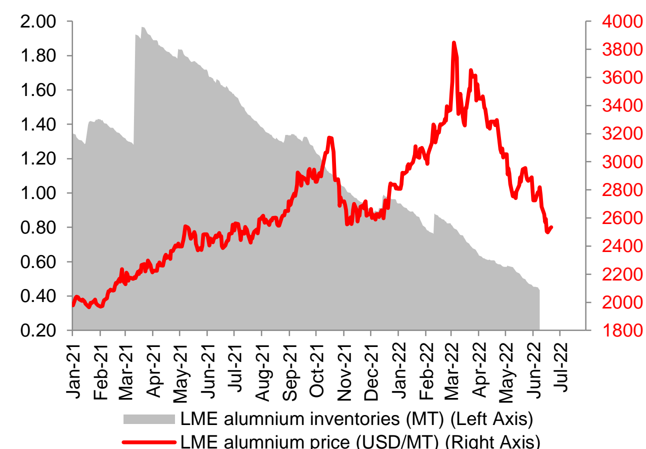
Aluminium

Aluminium continues to edge lower on a bearish global macro outlook

High relative US rates and the war in Ukraine that has seen the USD strengthen, has pressurised aluminium prices, with the front-end touching year-lows this year. The latest data from the National Bureau of Statistics (NBS) indicated that primary aluminium production in China rose for a second consecutive month, reaching an all-time high in May. Aluminium production jumped 3.1% y/y to 3.4/MT in May, as power

ALUMINIUM PRICES HAVE EASED BACK BUT THE DRAIN ON INVENTORIES IS SEVERE – PATH TO SCARCITY

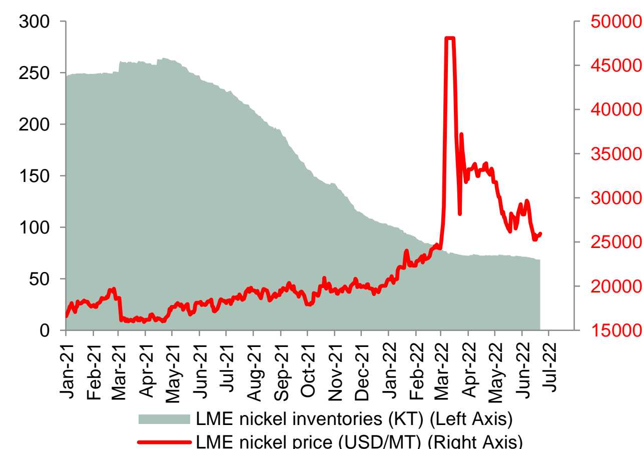
ALUMINIUM PRICE (USD/MT) AND INVENTORIES (MT, THOUSANDS)



Source: Bloomberg, LME, MUFG Research

NICKEL INVENTORIES HAVE SHARPLY FALLEN WITH PRICES FINDING A NEW NORMAL PATH POST-SQUEEZE

NICKEL PRICE (USD/MT) AND INVENTORIES (MT, THOUSANDS)



Source: Bloomberg, LME, MUFG Research

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constraints eased and aluminium smelters restarted operations along with the addition of new production capacity.

Global aluminium output in the second half of this year may rise as certain smelters restart suspended capacity and commission new projects, alleviating tight supply

Looking ahead, global aluminium output in the second half of this year may rise as certain smelters restart suspended capacity and commission new projects, alleviating tight supply. Higher European energy costs and the war in Ukraine are likely to add uncertainty. Our models still project a supply deficit for the remainder of 2022, albeit narrower than the first few months of the year, which combined with rising raw-material costs, will offer support aluminium prices. We anticipate demand to pick-up, led by China, driven by the growing electric vehicle and photovoltaic sectors. For now, we maintain our forecasts for aluminium prices averaging USD3,633/MT this year. Beyond this year, the structural fundamentals remain intact – the underlying playbook for ongoing outperformance in aluminium is clear as their role in the decarbonisation process is central (and unprepared). Greening the economy will support a surge in aluminium (and broader base metals) demand but sticky inadequate supply widens deficits, inducing a multi-year supercycle (see here).

Nickel

Thinning liquidity and China uncertainty continue to mire nickel with the rollercoaster ride which witnessed an epic surge back in March appearing to be behind us for now

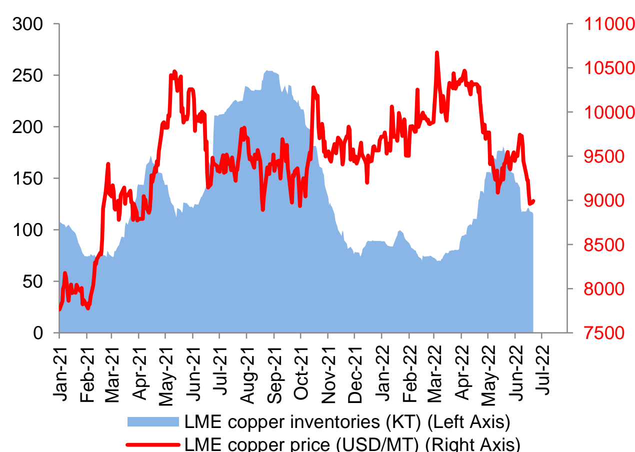
Nickel has been the best performing base metal this week (+2.8% w/w), though down significantly on the month (-17.8% m/m). Thinning liquidity and China uncertainty continue to mire the metal with the rollercoaster ride which witnessed an epic surge back in March appearing to be behind us for now. China's nickel sulphate output may rise 1% sequentially in June to 23,600/MT, as producers resume production on improving profit. Output in April fell 5% y/y to 21,600/MT in metal content, as producers cut output on high costs and weak demand. The country's output of nickel sulphate is likely to fall 10% in Q2 2022 from Q1 2022, as producers cut operating rates on rising costs and COVID outbreaks have disrupted transportation of raw materials as well as hurting downstream demand. Though output could pick up in H2 2022 as demand recovers and new capacity ramps with growing demand for power batteries used in electric vehicles as well as increasing use of nickel-rich cathodes.

Nickel's bull market is already here

At the beginning of the year, nickel's place within green metals was as a key competitor in the race for mineral dominance of energy storage. Now, it sits at the intersection of Europe's push for decarbonisation and energy independence. At the heart of Europe's strategy lies its desire to rapidly electrify its transportation sector – a source of ~20% of its emissions and ~2m b/d of Russian oil imports. With Europe's

COPPER INVENTORIES ARE IN A STATE OF ACUTE DEPLETION WITH UPSIDE PRICE RISKS IMMENSE

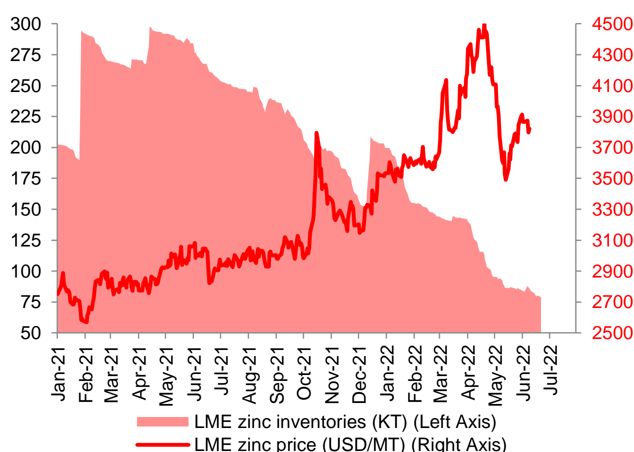
COPPER PRICE (USD/MT) AND INVENTORIES (MT, MILLIONS)



Source: Bloomberg, LME, MUFG Research

ZINC INVENTORIES HAVE BEEN LOW THROUGHOUT THE PANDEMIC WITH PRICES SIGNIFICANTLY RISING

ZINC PRICE (USD/MT) AND INVENTORIES (MT, MILLIONS)



Source: Bloomberg, LME, MUFG Research

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domestic EV sector already favouring nickel-based batteries, nickel is set to benefit the most from politically motivated demand accelerating already rapid growth in nickel battery use. Unlike copper and aluminium – both of which face green demand driven supercycles in coming years – extreme tightness and rapidly rising prices in the nickel market are already here. Even with the most pragmatic short cycle supply solution, the battery grade nickel market will continue to face extreme tightness this year. Turbo-charged by Russian physical decoupling supply risks and some positioning extremes, prices moved rapidly higher early in the year. However, with inventories already at low levels, the time frame for resolution signals that a near depletion in class 1 stock is likely to occur over the coming quarters.

Copper

Copper supply risks are outweighed by macro recessionary concerns

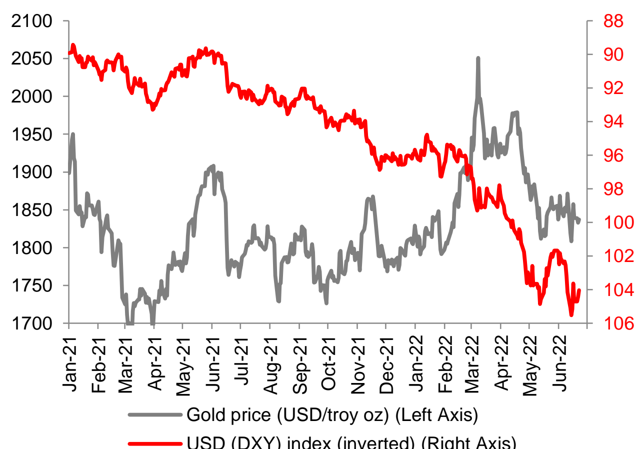
Copper prices have fallen to 14 month lows this week on mounting concerns over a hard landing for the global economy. From an inventories perspective, the Shanghai Metals Market (SMM) estimates that a recovery in the run rates of Chinese copper fabricators following lockdowns is slowing in the current month. SMM estimates that run rates may reach 68.2% in June, a marginal rise of 0.3% from May, but still down 5.1% from levels seen last year. Meanwhile, workers at Codelco are set to go on a nationwide strike in Chile starting today. This is in protest to the management's decision to close the Ventanas copper smelter. However, copper price action in early morning trading appears to be largely ignoring this development, despite the potential for a large supply impact. Whilst this development is on net bullish for prices – given it strikes at the heart of our decarbonisation paradox for copper (and broader base metals – see here) – the fall in the front-end this week suggests that the market is more focused on macro concerns at the current juncture.

Supply scarcity continues to mire the complex

More broadly, while copper demand concerns remain overly tied to global growth reservations, copper supply concerns have waned with reports of the continued flow of Russian metal alongside a broader expectation for stronger global mine output over the next couple of years. We view this supply narrative is misguided. On Russia, we believe such a short-term continuation of flows – unlike those seen in grains or energy – hides a deeper contraction in potential Russian mine supply. With equipment and key personnel barred from the region, alongside more restrained capital, we believe that there will be considerable disruptions to Russia's mine supply from 2023 onwards. Such supply disruptions is the premise of our bullish conviction (MUFG average Q4 2022 forecast USD11,900/MT).

GOLD HAS FALLEN ON A MODERATELY HIGHER USD AND RISING YIELDS AMID THE FED'S HAWKISH STANCE

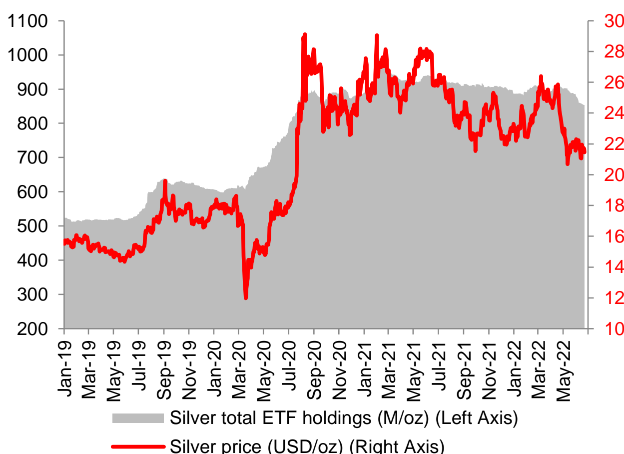
GOLD PRICE (USD/OZ) VS US USD BROAD (DXY) INDEX



Source: Bloomberg, MUFG Research

DESPITE STEADY INDUSTRIAL DEMAND, SILVER REMAINS DRIVEN BROADLY BY GEOPOLITICS

SILVER PRICE (USD/OZ) VS SILVER TOTAL ETF HOLDINGS (M/OZ)



Source: Bloomberg, MUFG Research

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Zinc

Zinc prices remain flat but we maintain our bullish forecasts for the second half of the year

Zinc prices remain flat and close to year-to-date lows with the broader bearish macro backdrop driving sentiment. There has been a boost from production cuts this month in southern China with flooding affecting power supplies to smelters in Guangxi province, home to ~8% of the country's total zinc capacity. Turning to Europe, high power prices have hurt smelter margins, driving curtailments, while LME inventories have been rapidly eroding too, leaving limited buffer in the market. Europe has 2150/KT of smelting capacity (~16% of global) and we estimate ~500/KT (~25%) has been curtailed thus far. A key driver has been the increase in power prices – using average front month power prices for Germany, Spain and France, a smelter would be paying between 3-4x more for electricity versus a year ago which raises questions about the impact on zinc smelting margins. On net, we maintain our bullish forecasts though expect a slight pullback given prices appear to have overshot fundamentals (MUFG average 2022 forecast USD3,853/MT).

PRECIOUS METALS (2.0% W/W; -1.1% YTD)

Gold

A stronger USD, lower yields and rising yields is keeping a lid on gold prices

Gold has remained under moderate selling pressure on a mild USD recovery and steadily rising yields stemming from a hawkish Fed but buffeted geopolitical risks still persist. The threat of a downturn is providing a floor to gold prices as some investors seek haven assets and shun riskier ones. Mined gold output is on track for 1.5-2.0% growth this year, extending 2021's 3% production boost, which signalled a rebound from virus disruptions. Outside the continued recovery from the COVID in China, Peru, and artisanal mining, the ramp-up of Freeport's Grasberg and AngloGold's Obuasi mines, grade increases at Newmont's Ahafo mine, as well as the restart of the Porgera mine in Papua New Guinea may all contribute to gold's mined supply growth. Russia may stand alone posting a significant decline in gold output due to sanction-induced constraints in financing and sourcing equipment.

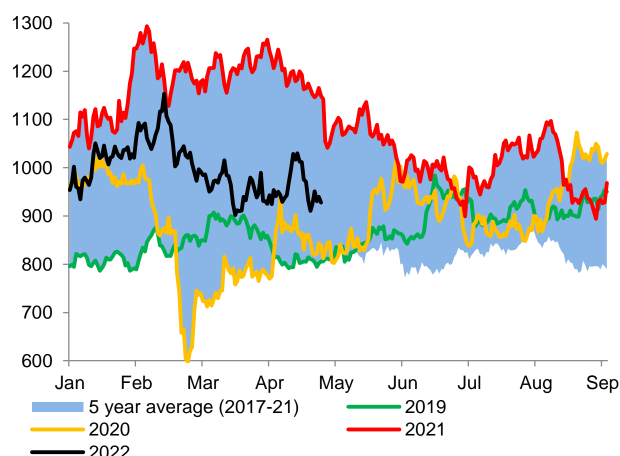
Silver

Silver has followed gold lower

As with gold, silver has remained subdued for much the same macro themes of a

PLATINUM'S OUTLOOK REMAINS CONSTRUCTIVE ON A STEADY BALANCING PATH WITH UPSIDE SUPPLY RISKS

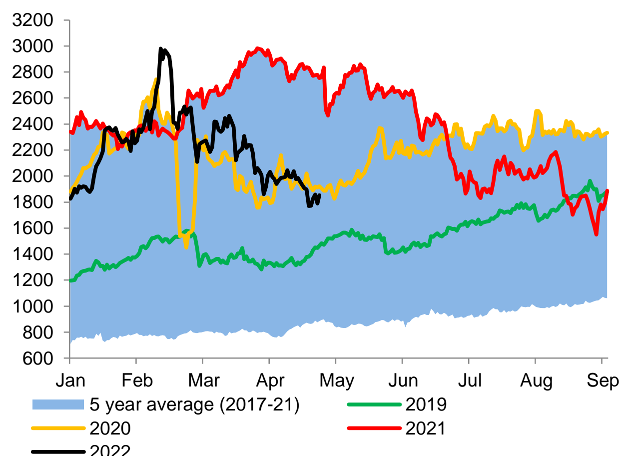
PLATINUM SPOT PRICE (USD/MT)



Source: Bloomberg, MUFG Research

PALLADIUM HAS LARGE UPSIDE RISKS – ULTIMATE GEOPOLITICAL HEDGE – RUSSIA IS THE TOP PRODUCER

PALLADIUM SPOT PRICE (USD/MT)



Source: Bloomberg, MUFG Research

MUFG

moderate USD strength and rising yields. Silver should benefit on a medium term view from energy transition related demand, particularly for its use in solar. However, given the broader risks to global growth with a backdrop of rising rates, the near term outlook may be more challenged. Going forward, we believe silver is set to slightly outperform gold on stronger industrial demand and will gain more broadly on the rotation towards precious metals as a defensive asset during a stagflationary environment (MUFG average Q4 2022 forecast USD30/oz).

Platinum and palladium

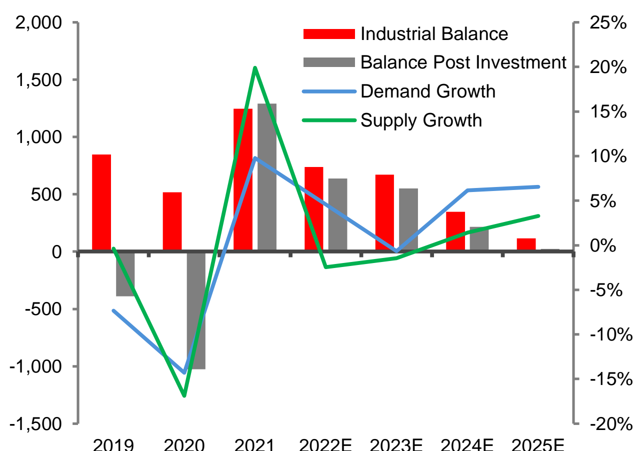
Palladium and platinum still look undervalued and boxed in by demand concerns

Both core PGMs – platinum and palladium – still look undervalued and boxed in by demand concerns but rallies do not appear imminent. The oversupplied platinum market's outlook prospects are improving, possibly returning to a smaller deficit by mid-decade. By contrast, palladium and rhodium, which have seen record prices, are on their way down as they move toward a balance and end-of-decade surplus. The net outcome may be a declining, yet still healthy basket price.

1. Platinum. Though the extent of platinum's surplus may diminish on an annual basis, we see the metal's industrial oversupply remaining until the middle of the decade. Tightening emission standards in heavy-duty diesel vehicles, especially in India and China, combined with platinum substitution of palladium in gasoline autocatalysis may offset the declining market share of platinum-rich diesel vehicles in Europe, such that demand grows at mid-single digits for 2023 and 2024. A key downside risk is a sharp economic slowdown disrupting the pent-up demand of passenger vehicles as chip shortages ease. On the upside is better-than-expected investment demand in anticipation of improving fundamentals, though history points to this being strong in periods of price weakness such as 2019 and 2020.
2. Palladium. Though the extent of palladium's deficit may diminish on an annual basis, we believe the metal's industrial undersupply may remain until mid-decade. Tightening emission standards in internal combustion engines (ICEs), especially in India and China, may offset platinum substitution of palladium in gasoline autocatalysis and the declining market share of ICE vehicles, such that demand rises in the low-single digits for 2022-24. Key downside risks include a quicker than forecast uptake of battery-electric vehicles vs. BNEF's base case, a steady recovery in Russian supply after flooding disruptions in 2020, despite sanctions on equipment supply, and a

PLATINUM'S SURPLUS WILL LIKELY LAST UNTIL 2025 ON TIGHTENING EMISSIONS AND PALLADIUM SUBSTITUTION

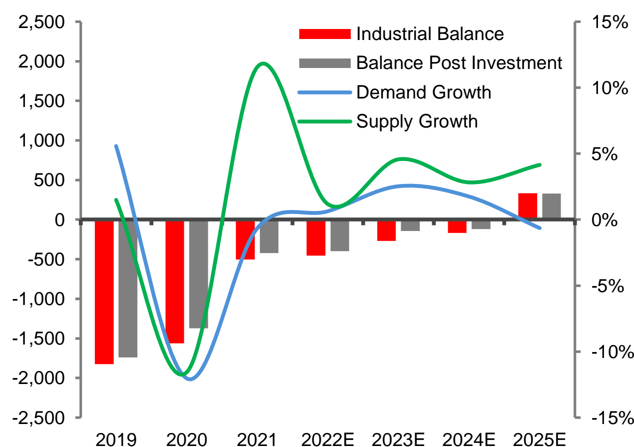
PLATINUM SUPPLY-DEMAND BALANCE (THOUSAND OUNCES, % Y/Y)



Source: Bloomberg, MUFG Research

PALLADIUM'S DEFICIT IS SET TO NARROW BEFORE PIVOTING INTO SURPLUS BY 2025 STRONG SUPPLY

PALLADIUM SUPPLY-DEMAND BALANCE (THOUSAND OUNCES, % Y/Y)



Source: Bloomberg, MUFG Research

MUFG

strong boost to recycled autocat supply as high prices encourage better collections. Our modelling analysis sees a surplus by 2024.

BULK COMMODITIES (-4.2% W/W; 12.8% YTD)

Iron ore

Iron ore prices continue to fall on a weak China and a glut of steel

Iron ore has extended its rout, with China's pro-growth policies failing to assuage a market more fearful of a glut of steel amid signs that global demand is slackening. Weak demand is affecting China's steel producers. At least 18 blast furnaces now have gone into planned maintenance, according to Mysteel Global, tripling from just six days ago, with molten iron output falling by 54,300/MT. China's Finance Minister, Liu Kan, recently confirmed that the government will accelerate fiscal spending and the sale of special local government bonds, primarily used to support infrastructure. Other signs of demand slackness are becoming prominent. Ore shipments from Brazil fell in the first two weeks of June and Australian shipments plunged 20% w/w in the first week of June, signalling a slowdown in trade flows amid heightened uncertainty.

Coal

Coal prices continue to break new highs on the pivot back to energy security

Coal prices continue to break new highs as governments around the world accelerate a push to embrace the highest carbon-intensive commodity to stave off potential shortages of Russian natural gas as well as the outright ban on Russian coal due to commence in August. The Netherlands joined other European countries in turning to coal, by removing the 35% maximum capacity for coal-fired power stations to now permitting a full operation until 2024, to help ensure energy security. A decade of underinvestment in coal mines has meant that suppliers are struggling to meet the surge in consumption with Europe and Asia forced to compete for shipments.

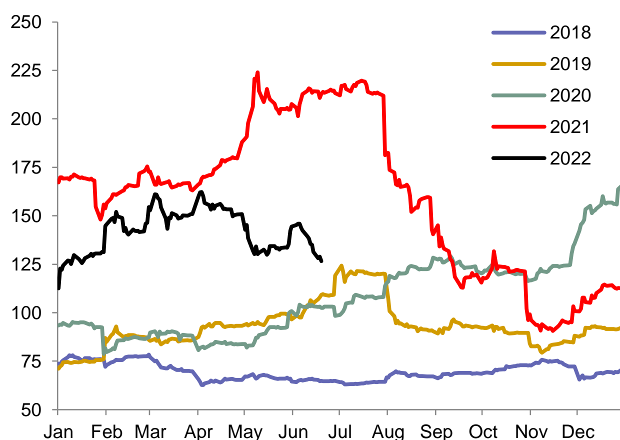
AGRICULTURE (-3.3% W/W;19.6% YTD)

Food inflation gets some reprieve

Global food inflation is enjoying some reprieve with the grains complex – notably,

IRON ORE PRICES HAVE STARED ROBUSTLY IN 2022 BUT NOW SUFFERING FROM IRRATIONAL EXUBERANCE

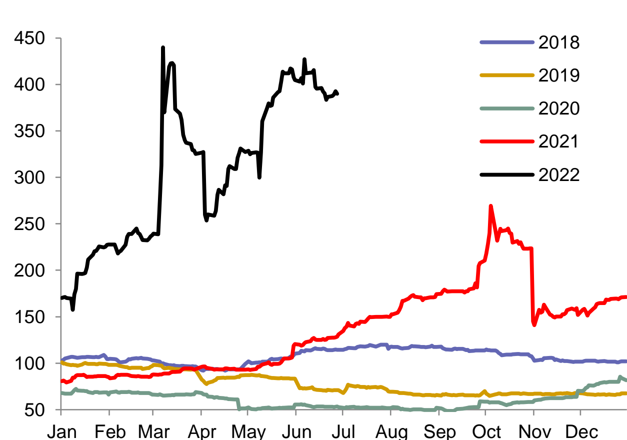
IRON ORE SPOT PRICE (USD/MT)



Source: Bloomberg, MUFG Research

COAL PRICES HAVE EXTENDED THEIR SURGE AS THE WORLD DOUBLES DOWN ON ENERGY SECURITY

NEWCASTLE COKING COAL SPOT PRICE (USD/MT)



Source: Bloomberg, MUFG Research

MUFG

wheat, corn and soybean – easing with recessionary angst outweighs the broader price bullish trends pertaining to the war in Ukraine and inclement weather. The UN's food price index has eased from a record high in March after the war in Ukraine commenced, with tentative signs that the global food crisis may be nearing its peak.

Weather remains key for determining near-term prices

While the last few weeks saw the worst of weather-related tail risks receding across corn and wheat, we expected continued volatility in grains markets as hot and dry weather re-emerges for the corn belt as we head into the third quarter. However despite this, seasonal analysis suggests that there exists more downside than upside across the grains complex. Moreover, counteracting these continued US-focussed weather risks is higher-than-anticipated corn acreage in the USDA's end of June crop update and continued decline in the weather risk premium as Brazil's safhrina harvest and Russia wheat crop continue to outperform expectations.

Trade restrictions have seen a growing risk surrounding food security

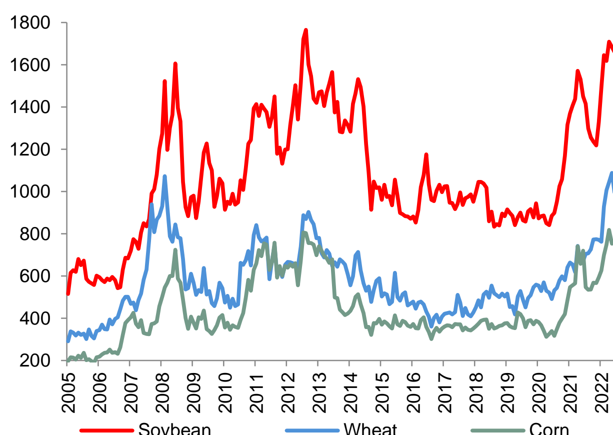
Food security continues to remain pressing issue, reflecting the persistent supply challenges. Some countries, particularly higher yielding emerging markets and food importers, are at more risk than others. A range of policy interventions, impacting the trade of agricultural commodities, have been introduced, now covering more calories (as a percentage of global trade) than in the 2008 crisis. These policies could exacerbate the high prices, as work from the World Bank has shown is the case in previous crisis.

Hoarding reinforces our long commodities conviction given the rise in de-globalisation, de-carbonisation and a reduction in capital availability owing to structural underinvestments

With the sharp rise in de-globalisation, de-carbonisation and a reduction in capital availability given structural underinvestments over the years, hoarding reinforces the long commodities conviction. At the heart of this supposition is the need for countries to establish resiliency in their supply chains – whether in response to trade wars, climate change, geopolitical risks and/or sanctions. These pressures all lead to the same trade off, namely, inflationary pressures against the security of supply. If history is any guide, the costs of such policies will be inflationary as the pursuit of economic autarky for strategic purposes favours maintaining higher cost but more secure supply chains, over the lower cost comparative advantage model of globalisation. These shifts, and their inflationary ramifications, are just starting out, in our view.

RUSSIAN PHYSCIAL DECOUPLING, MOUNTING INPUT COSTS AND HOARDING IS SEEING GRAIN PRICES SOAR

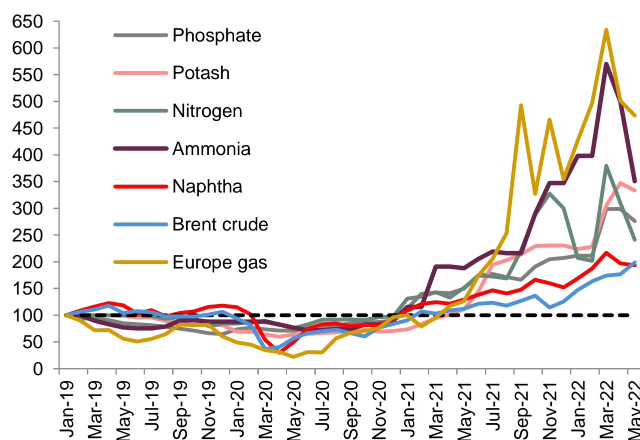
SOYBEAN, WHEAT AND CORN PRICES (USD/BUSHELS)



Source: Bloomberg, MUFG Research

FERTILISER SHORTAGES ON THE HORIZON DUE TO THE WAR, STOKING FURTHER INFLATIONARY PRESSURES

FERTILISER PRICES, OIL AND EUROPE GAS (REBASED 100 = JAN 2020)



Source: Bloomberg, MUFG Research

Commodity prices – performance

	Commodity	Ticker	Unit	2021	2022				Change %						
	Commodity	Ticker	Unit	31-Dec	01-Jun	08-Jun	15-Jun	22-Jun	Week	1 MTD	3 MTD	YTD	1 Year	3 Years	5 years
1	Bloomberg BCOM Total Returns	BCOMTR Index	Index	281.15	281.15	292.05	276.40	267.24	-3.31	-4.95	-0.40	26.17	36.75	60.97	65.97
2	Bloomberg BCOM Spot Index	BCOMSP Index	Index	657.06	657.06	682.41	631.26	617.88	-2.12	-5.96	-2.08	23.02	32.91	82.14	96.20
3	Energy	BCOMENSP Index	Index	653.18	653.18	708.40	631.00	603.11	-4.42	-7.67	11.18	63.51	73.16	124.03	165.19
4	US Natural Gas	NG1 Comdty	USD/MMBtu	8.15	8.15	9.29	7.19	6.85	-4.76	-15.94	32.00	83.57	110.16	213.22	136.59
5	EU Natural Gas	TZT1 Comdty	EUR/MMBtu	94.00	94.00	79.61	97.04	127.17	31.05	35.28	28.78	80.79	313.74	1128.11	769.90
6	WTI Crude	CL1 Comdty	USD/b	114.67	114.67	119.41	118.93	105.98	-10.89	-7.55	-5.14	40.95	45.10	84.59	148.03
7	Brent Crude	CO1 Comdty	USD/b	122.84	122.84	120.57	121.17	111.26	-8.18	-9.38	-3.60	43.12	48.80	70.74	146.17
8	Gasoline	HO1 Comdty	USD/lb	222.85	408.04	415.77	399.38	378.27	-5.29	-7.30	13.57	69.74	70.06	103.80	163.69
9	EU ETS EUA	MO1 Comdty	USD/gal	80.22	83.66	80.98	83.78	84.27	0.58	-2.68	1.41	1.50	52.73	222.58	1575.31
10	Metals	BCOMIN Index	Index	172.89	185.55	187.68	172.25	166.46	-3.36	-10.29	-17.90	-3.72	9.89	49.90	50.11
11	Industrial Metals Index	BCOMINSP Index	Index	303.57	325.47	329.20	302.92	300.54	-0.79	-7.66	-15.39	-1.00	12.83	60.63	65.06
12	Copper	HG1 Comdty	USD/lb	9,721	9,448	9,699	9,231	8,995	-2.55	-4.79	-12.63	-7.46	-2.02	50.64	56.65
13	Aluminium	LA1 Comdty	USD/MT	2,803	2,764	2,749	2,554	2,524	-1.16	-8.67	-28.34	-9.94	5.58	44.22	35.84
14	Zinc	ZNC1 Comdty	USD/MT	3,580	3,929	3,801	3,605	3,618	0.37	-7.92	-8.35	1.06	28.07	45.33	37.20
15	Nickel	LN1 Comdty	USD/MT	20,874	28,348	29,413	25,197	25,901	2.79	-8.63	-17.84	24.09	48.62	115.24	188.88
16	Precious Metals Index	BCOMPRSP Index	Index	530.97	526.55	530.10	515.29	525.36	1.95	-0.23	-6.47	-1.06	-1.14	34.05	43.75
17	Gold	GC1 Comdty	USD/t oz	1,829	1,842.70	1,847.50	1,809.50	1,841.80	1.79	-0.05	-4.15	0.72	3.69	31.92	47.63
18	Silver	SI1 Comdty	USD/t oz	23.35	21.69	22.18	20.95	21.45	2.37	-1.10	-13.80	-8.14	-17.04	40.29	29.93
19	Platinum	PL1 Comdty	USD/t oz	964.40	968.30	1,012.90	910.70	939.50	3.16	-4.15	-9.46	-3.76	-13.28	14.44	0.27
20	Palladium	PA1 Comdty	USD/t oz	1,912	1,995	1,956	1,772	1,854	4.60	-7.07	-26.83	-3.05	-27.39	24.31	107.26
21	Bulk Commodities	---	---	---	---	---	---	---	---	---	---	---	---	---	---
22	Hard Coking Coal	XW1 Comdty	USD/MT	341.76	501.82	418.00	386.33	385.50	-0.21	-23.28	-37.33	12.65	124.33	96.43	163.70
23	Iron Ore	SCO1 Comdty	USD/MT	112.50	133.51	145.81	138.26	127.02	-8.13	-4.86	-14.45	12.91	-40.35	16.00	132.21
24	Agriculture	BCOMAG Index	Index	60.79	75.39	75.93	75.16	72.42	-3.65	-3.94	-3.78	19.13	33.26	73.21	46.85
25	Agriculture Index	BCOMAGSP Index	Index	406.67	499.63	503.17	475.06	462.25	-2.70	-7.48	-7.95	13.67	29.34	77.99	83.55
26	Grain Index	BCOMGRSP Index	Index	293.87	385.04	387.37	366.39	352.13	-3.89	-8.55	-8.82	19.83	31.88	71.44	88.24
27	Soybean	S 1 Comdty	USD/bu	1,328.75	1,683	1,728	1,699	1,658	-2.40	-1.50	-2.27	24.78	18.90	83.66	83.41
28	Wheat	W 1 Comdty	USD/bu	770.75	1,087.50	1,071.75	1,050.25	995.00	-5.26	-8.51	-11.02	29.10	52.84	89.16	115.72
29	Corn	C 1 Comdty	USD/bu	593.25	753.50	757.00	768.25	764.00	-0.55	1.39	1.46	28.78	15.80	72.75	110.61
30	Soft Index	BCOMOSSP Index	Index	394.34	423.64	419.02	402.05	400.48	-0.39	-5.47	-2.50	1.56	33.42	87.20	73.94
31	Cotton	CT1 Comdty	USD/lb	112.60	138.98	136.95	143.48	143.85	0.26	3.50	10.62	27.75	70.80	135.09	102.21
32	Coffee	KC1 Comdty	USD/lb	226.10	231.25	232.15	226.95	238.50	5.09	3.14	5.98	5.48	57.69	138.98	110.22
33	Sugar	SB1 Comdty	USD/lb	18.88	19.40	18.97	18.70	18.48	-1.18	-4.74	-3.50	-2.12	12.48	51.23	43.93
34	Livestock Index	BCOMLISP Index	Index	196.83	208.36	212.94	208.45	215.38	3.32	3.36	-3.34	9.42	9.39	35.13	25.41
35	Live Cattle	LC1 Comdty	USD/lb	138.90	130.53	133.73	135.20	137.83	1.94	4.94	-1.76	-1.39	11.27	28.55	15.47
36	Lean Hogs	LH1 Comdty	USD/lb	81.48	107.98	108.43	108.45	112.73	3.94	3.77	11.77	37.53	4.21	46.95	31.78
37	USD Index	DXY Index	Index	95.67	101.75	102.32	105.52	104.06	-1.38	2.27	5.66	8.77	13.41	8.15	6.63

Source: Bloomberg, MUFG Research

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Commodity prices – quarterly and annual forecasts

				22-Jun	Quarter Averages							Annuals			
	Commodity	Ticker	Unit	Spot	Q1-22	Q2-22	Q3-22	Q4-22	Q1-23	Q2-23	Q3-23	2021	2022	2023	2024
1	Energy														
2	US Natural Gas	NGA Comdty	USD/MMBtu	6.85	4.58	7.10	4.50	5.10	5.30	4.00	4.10	3.72	5.32	4.62	3.96
3	EU Natural Gas	TZTA Comdty	EUR/MWh	127.17	96.50	96.00	104.00	88.00	117.00	76.00	72.00	29.13	119.74	71.80	60.00
4	EU ETS EUA	MOA Comdty	EUR/MT	84.27	95.93	135.91	102.50	144.60	138.00	95.00	89.00	53.46	80.97	91.00	98.00
5	WTI Crude	CLA Comdty	USD/b	105.98	94.77	119.60	136.00	108.00	106.00	95.00	98.00	68.00	114.59	102.25	95.20
6	Brent Crude	COA Comdty	USD/b	111.26	97.90	124.60	141.00	112.00	110.00	98.50	102.00	70.85	118.88	106.13	98.40
7															
8	Copper	LMCADS03 Comdty	USD/lb	8,995	9,974	10,780	11,360	11,900	12,150	12,250	12,400	9,292	11,003	12,310	11,500
9	Aluminium	LMAHDS03 Comdty	USD/MT	2,524	3,254	3,700	3,780	3,800	3,910	4,000	3,950	2,477	3,633	3,980	3,700
10	Zinc	LMZSDS03 Comdty	USD/MT	3,618	3,727	4,100	3,950	3,650	3,700	3,750	3,780	3,016	3,857	3,760	3,900
11	Nickel	LMNIDS03 Comdty	USD/MT	25,901	28,302	29,500	28,000	26,000	27,500	27,000	29,000	18,457	27,951	27,900	26,500
12	Precious Metals														
13	Gold	XAU Comdty	USD/t oz	1,842	1,879	2,030	2,115	2,250	2,280	2,060	2,030	1,799	2,068	2,090	1,900
14	Silver	XAG Comdty	USD/t oz	21.45	24.11	26.60	27.50	29.00	30.00	28.00	27.60	25.16	26.80	28.20	26.95
15	Platinum	XPT Comdty	USD/t oz	939.50	1,030.00	1,140	1,180	1,215	1,250	1,190	1,120	1,089	1,141	1,175	1,210
16	Palladium	XPD Comdty	USD/t oz	1,854	2,315	2,900	3,150	3,360	3,250	3,200	3,290	2,391	2,931	3,255	3,100
17															
18	Hard Coking Coal	IACA Comdty	USD/MT	385.50	433.98	506.00	470.00	410.00	405.00	380.00	390.00	188.50	455.00	380.00	350.00
19	Iron Ore	SCOA Comdty	USD/MT	127.02	141.15	158.00	140.00	115.00	95.00	90.00	80.00	159.83	138.54	86.50	97.00
20															
21	Soybean	BOA Comdty	USD/bu	1,658	1,559	1,740	1,590	1,550	1,520	1,500	1,475	1,375	1,610	1,505	1,460
22	Wheat	W A Comdty	USD/bu	995.00	913.80	1,240	1,215	1,195	980.00	920.00	850.00	683.47	1,141	910.00	880.00
23	Corn	C A Comdty	USD/bu	764.00	671.65	850.00	820.00	780.00	730.00	680.00	670.00	581.69	780.41	695.00	650.00
24	Cotton	CTA Comdty	USD/lb	143.85	123.43	129.00	124.00	118.00	102.00	98.00	104.00	93.43	123.61	104.00	98.00
25	Coffee	DFA Comdty	USD/lb	233.10	234.84	232.00	215.00	225.00	230.00	220.00	200.00	168.75	226.71	215.00	210.00
26	Sugar	SBA Comdty	USD/lb	18.66	18.61	19.20	18.60	18.50	18.30	19.00	18.40	17.86	18.73	18.50	17.80

Source: Bloomberg, MUFG Research

Commodity prices – 6-12 month forward outlook, vs. spot/nearby forwards

		Bullish	Neutral-to-bullish	Neutral	Neutral-to-bearish	Bearish
1	Energy	EU natural gas, Brent, WTI	US natural gas	---	---	
2	Base Metals	Aluminium, Copper, Nickel	Zinc	---	---	---
3	Precious Metals	Platinum, Palladium	Gold, Silver	---	---	---
4	Bulk Commodities	Hard Coking Coal	---	Iron ore		---
5	Agriculture	Soybean, Wheat, Corn	---	---	Cotton	Coffee, Sugar

Source: Bloomberg, MUFG Research

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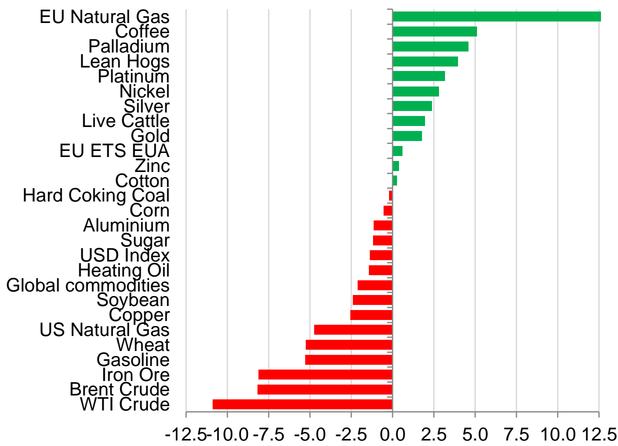
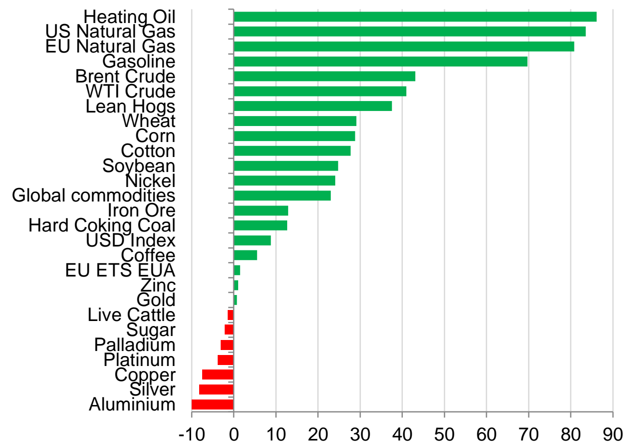
Core indicators – commodities flows and returns

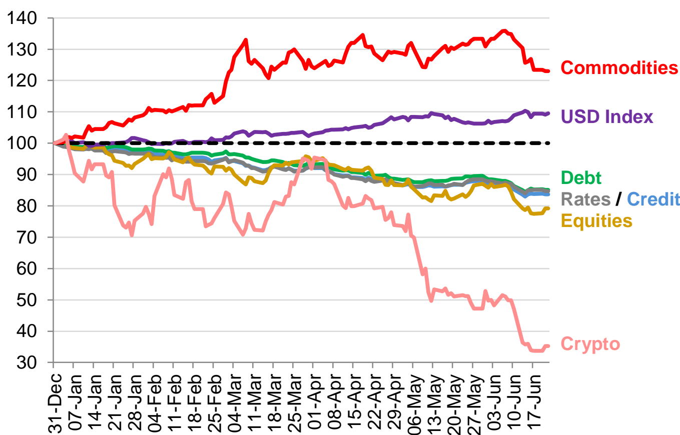
COMMODITIES MARKET PRICE RETURNS
WEEK ENDING 22 JUNE 2022* (% W/W)



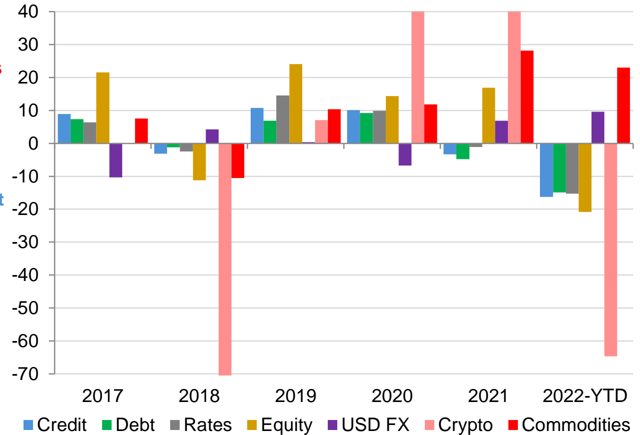
COMMODITIES MARKET PRICE RETURNS
YEAR-TO-DATE 2022 (%)



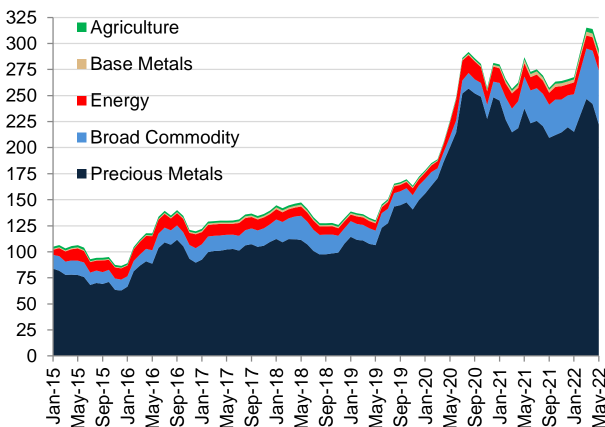
USD-DENOMINATED GLOBAL ASSET MARKET RETURNS
REBASED 1 JANUARY 2022 = 100



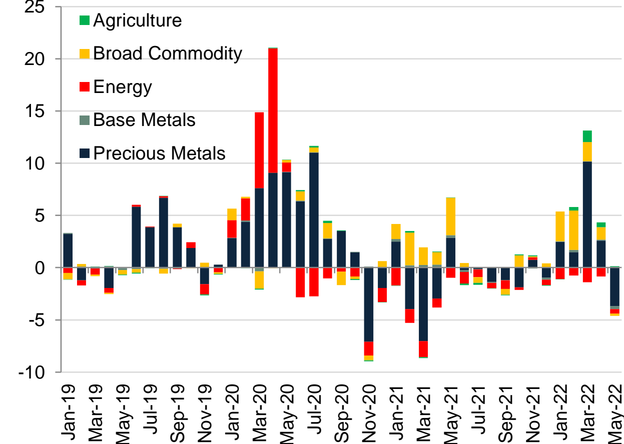
USD-DENOMINATED GLOBALL ASSET MARKET RETURNS
ANNUALISED PERFORMANCE (%)



COMMODITIES ETF COMBINED CUMULATIVE AUM
USD (BN)



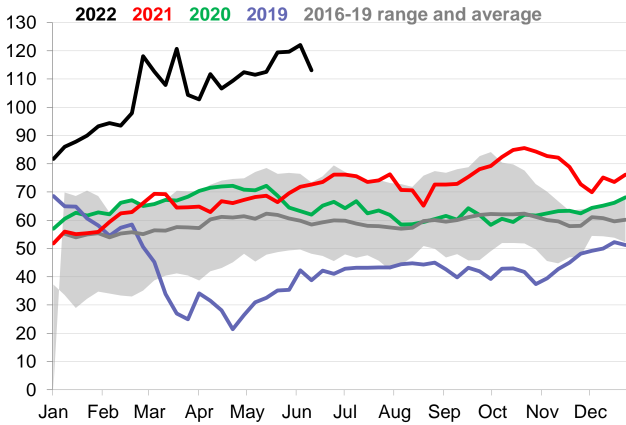
COMMODITIES ETF COMBINED CUMULATIVE FUND FLOWS
USD (BN)



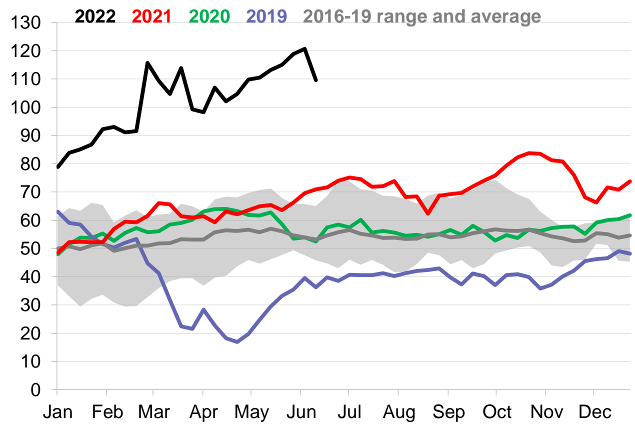
Source: Bloomberg, MUFG Research; EU natural gas +33.1% w/w

Core indicators – prices

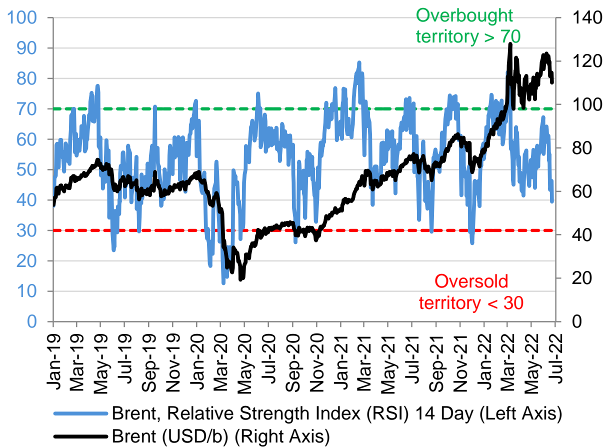
BRENT SPOT
USD/B



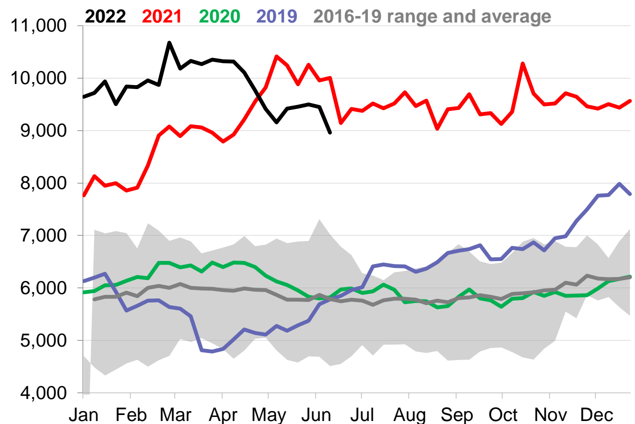
NYMEX WTI SPOT
USD/B



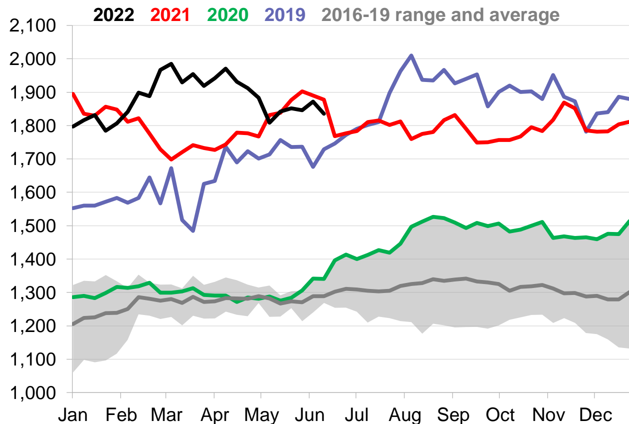
14 DAY RELATIVE STRENGTH INDEX (RSI) AND WTI
USD/B AND 0-100 INDEX (<30 = OVERSOLD; >70 = OVERBOUGHT)



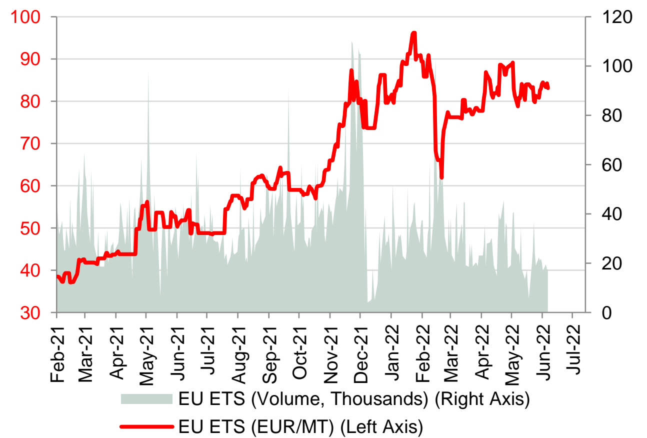
COPPER SPOT
USD/LB



GOLD SPOT
USD/T OZ



EU CARBON PRICE AND VOLUME
EUR/T AND EUA'S (THOUSAND VOLUME)



Source: Bloomberg, EIA, IEA, OPEC, MUFG Research

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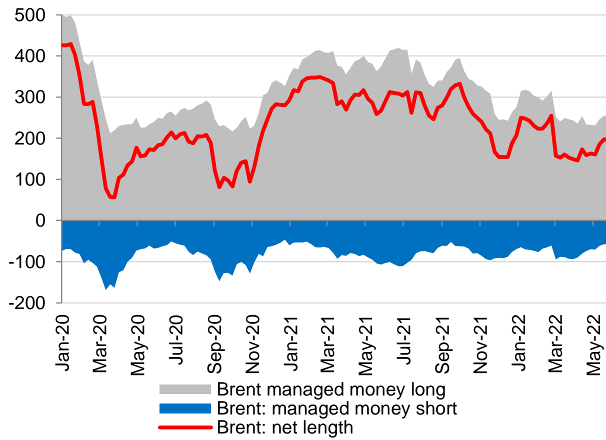
Core indicators – market positioning

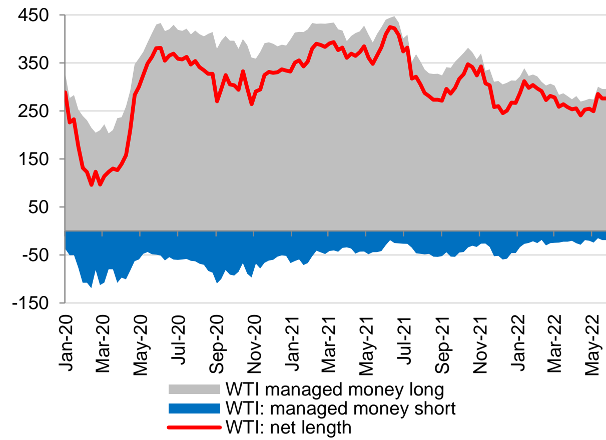
BRENT CRUDE MANAGED MONEY

CONTRACTS (THOUSANDS)



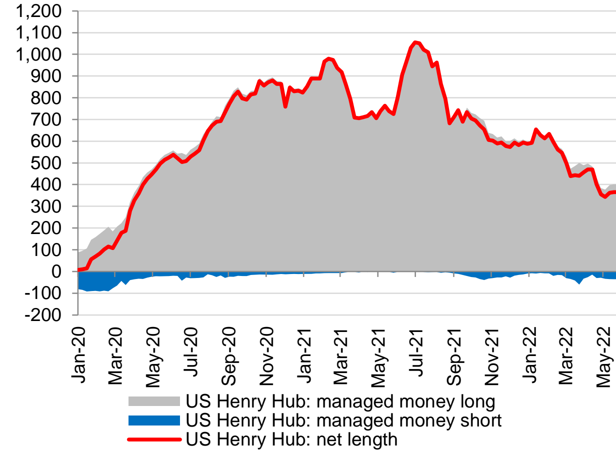
WTI CRUDE MANAGED MONEY

CONTRACTS (THOUSANDS)



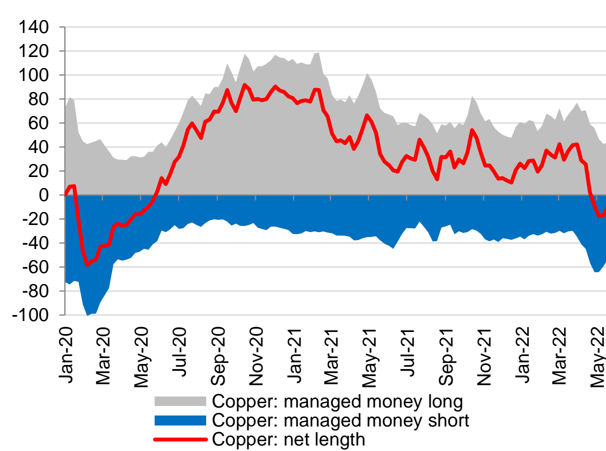
HENRY HUB NATURAL GAS MANAGED MONEY

CONTRACTS (THOUSANDS)



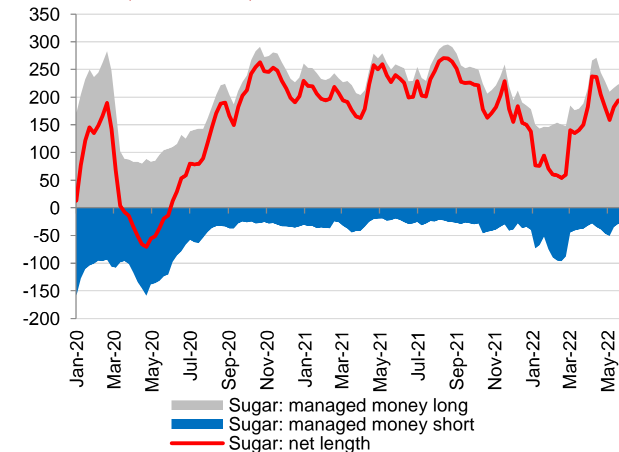
COPPER MANAGED MONEY

CONTRACTS (THOUSANDS)



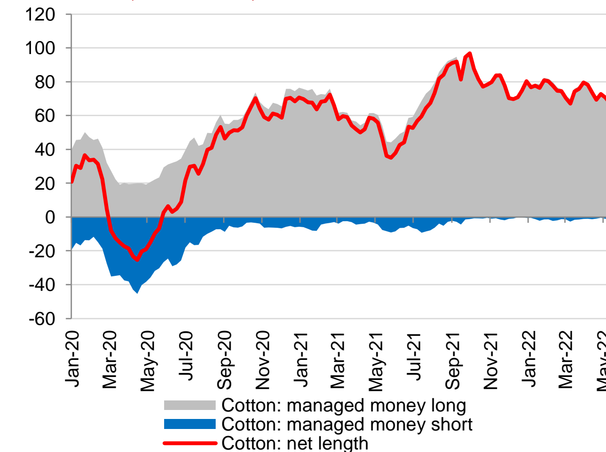
SUGAR MANAGED MONEY

CONTRACTS (THOUSANDS)



COTTON MANAGED MONEY

CONTRACTS (THOUSANDS)



Source: Bloomberg, EIA, IEA, OPEC, MUFG Research

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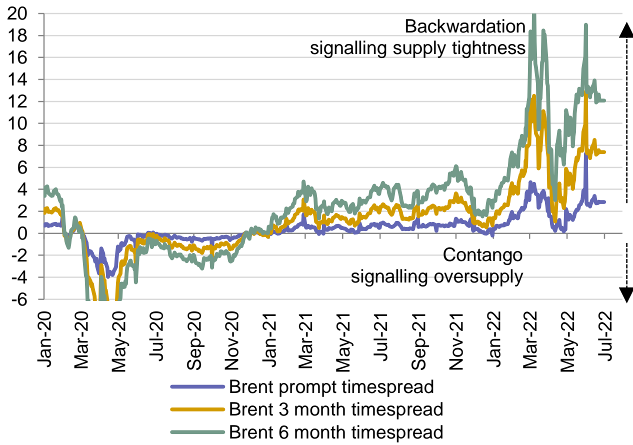
Core indicators – timespreads and futures

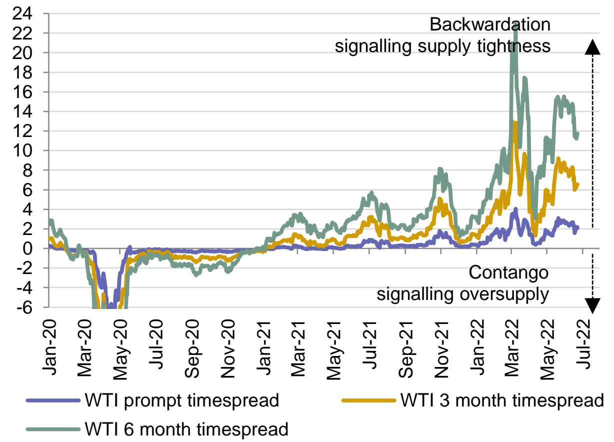
BRENT TIMESPREADS – FRONT, 3 AND 6 MONTHS

USD/B



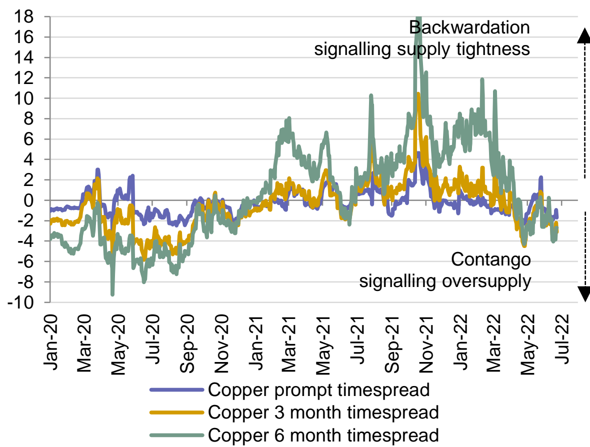
WTI TIMESPREADS – FRONT, 3 AND 6 MONTHS

USD/B



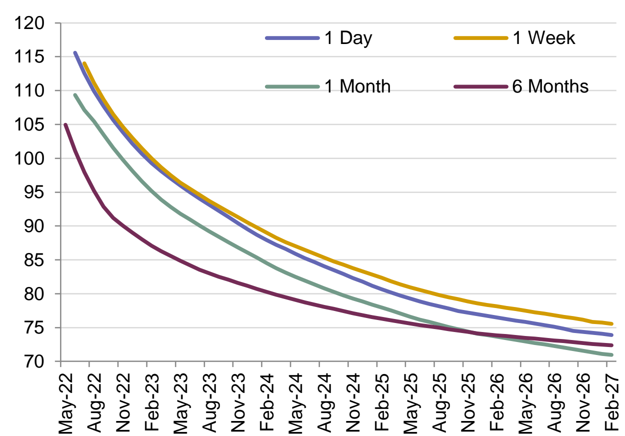
COPPER TIMESPREADS – FRONT, 3 AND 6 MONTHS

USD/B



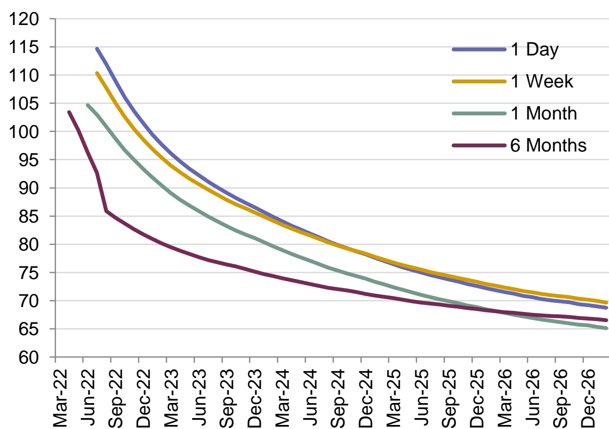
BRENT FUTURES CURVE

USD/B



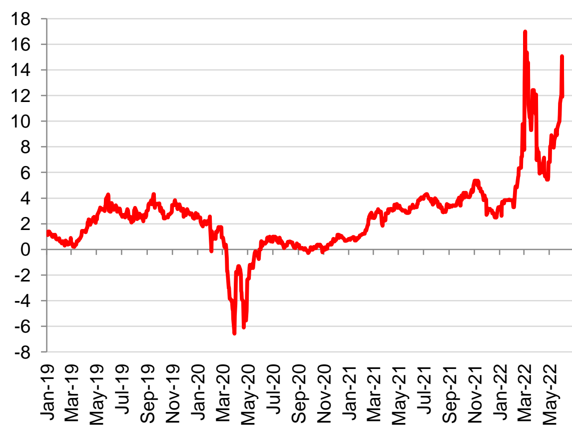
WTI FUTURES CURVE

USD/B



BRENT-DUBAI SPREAD

USD/B



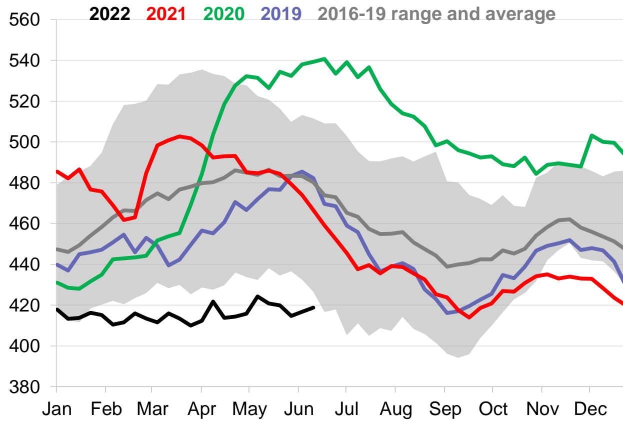
Source: Bloomberg, EIA, IEA, OPEC, MUFG Research

MUFG

Core indicators – inventories, storage and products

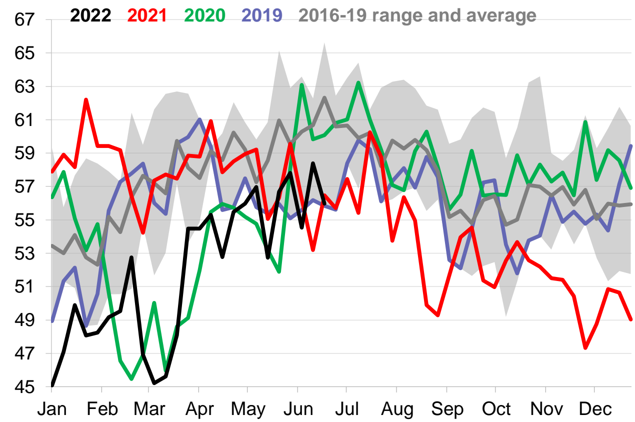
US CRUDE INVENTORIES

MILLION BARRELS



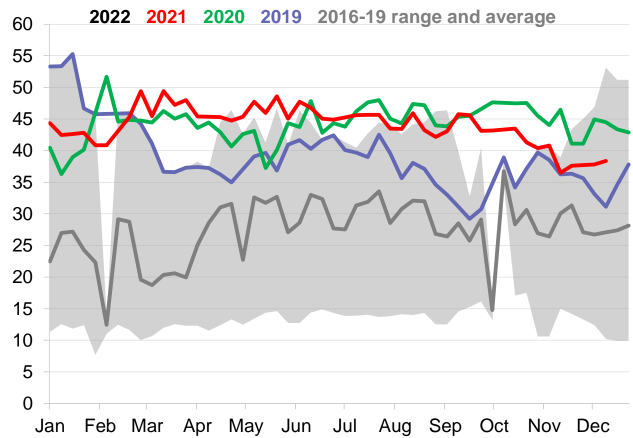
ARA CRUDE INVENTORIES

MILLION BARRELS



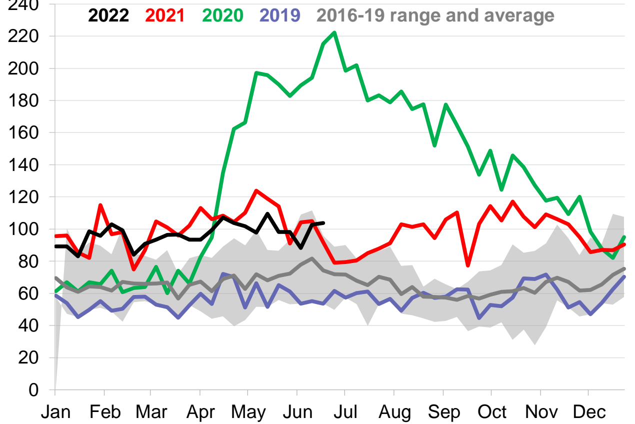
CHINA SHANDONG CRUDE INVENTORIES

MILLION BARRELS



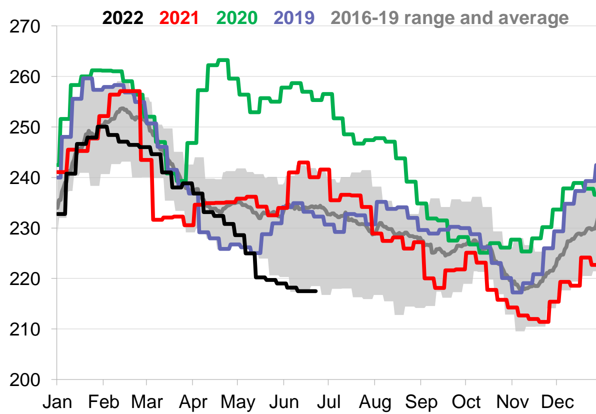
GLOBAL CRUDE FLOATING STORAGE

MILLION BARRELS



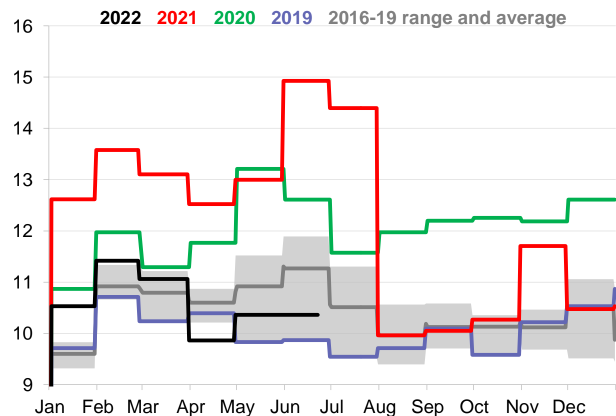
US GASOLINE INVENTORIES

MILLION BARRELS



JAPAN GASOLINE INVENTORIES

MILLION BARRELS



Source: Bloomberg, EIA, IEA, OPEC, MUFG Research

Global oil supply/demand balance (thousands b/d and y/y change)

As of June 2022	2019 (tho. b/d)	2020 (tho. b/d)	2021 (tho. b/d)	2022 (tho. b/d)	2023 (tho. b/d)	2020 (%)	2021 (%)	2022 (%)	2023 (%)
Demand									
North America	*25,245*	*22,124*	*23,777*	*24,703*	*24,955*	*-3,122*	*1,654*	*926*	*252*
LatAm	*6,654*	*6,275*	*6,578*	*6,732*	*6,855*	*-379*	*304*	*154*	*123*
Europe	*15,093*	*13,147*	*13,772*	*14,591*	*14,707*	*-1,945*	*625*	*819*	*116*
CIS	*4,722*	*4,417*	*4,724*	*4,948*	*5,007*	*-305*	*306*	*224*	*59*
Asia	*27,931*	*27,382*	*28,708*	*29,627*	*30,751*	*-549*	*1,326*	*919*	*1,124*
Middle East	*8,241*	*7,745*	*7,922*	*8,176*	*8,223*	*-496*	*177*	*254*	*47*
Africa	*4,251*	*4,129*	*4,324*	*4,429*	*4,623*	*-122*	*195*	*105*	*194*
Total OECD Demand	47,854	42,029	44,559	46,415	46,910	-5,825	2,530	1,856	494
Total Non-OECD Demand	52,218	50,332	52,647	54,343	55,900	-1,887	2,315	1,697	1,557
Total Global Demand	100,072	92,361	97,206	100,759	102,810	-7,711	4,845	3,553	2,051
Supply									
North America	*25,767*	*24,752*	*25,205*	*26,666*	*27,744*	*-1,014*	*453*	*1,461*	*1,078*
US shale	*9,923*	*9,194*	*9,009*	*9,748*	*10,550*	*-729*	*-187*	*741*	*801*
Other US	*8,306*	*8,276*	*8,619*	*9,153*	*9,344*	*-30*	*343*	*534*	*191*
Total US	*18,229*	*17,470*	*17,627*	*18,902*	*19,894*	*-759*	*157*	*1,275*	*992*
LatAm	*4,794*	*4,841*	*4,831*	*5,116*	*5,279*	*47*	*-10*	*285*	*163*
Europe	*3,477*	*3,685*	*3,527*	*3,632*	*3,757*	*208*	*-158*	*105*	*125*
CIS	*14,643*	*13,504*	*13,763*	*14,481*	*14,778*	*-1,139*	*259*	*718*	*296*
Asia	*7,694*	*7,510*	*7,437*	*7,391*	*7,234*	*-184*	*-74*	*-45*	*-157*
Middle East	*3,012*	*3,013*	*3,089*	*3,187*	*3,202*	*1*	*75*	*99*	*15*
Africa	*1,487*	*1,390*	*1,309*	*1,293*	*1,257*	*-97*	*-81*	*-16*	*-37*
Total Non-OPEC	65,004	62,530	63,128	66,043	67,655	-2,474	598	2,915	1,612
Total OPEC Crude	30,166	26,340	27,089	29,697	30,452	-3,826	748	2,609	755
Total OPEC NGL	5,234	4,978	5,126	5,353	5,431	-256	148	228	78
Total OPEC Supply	35,400	31,318	32,214	35,050	35,883	-4,081	896	2,836	832
Total OPEC+ Supply	46,105	41,049	42,039	45,415	46,435	-5,056	990	3,376	1,020
Ecuador	*531*	*479*	*494*	*459*	*437*	*-52*	*14*	*-34*	*-22*
Venezuela	*875*	*508*	*555*	*803*	*830*	*-367*	*47*	*248*	*28*
Algeria	*1,023*	*898*	*908*	*939*	*935*	*-125*	*10*	*31*	*-5*
Congo	*333*	*288*	*265*	*253*	*232*	*-44*	*-23*	*-12*	*-21*
Gabon	*213*	*189*	*184*	*184*	*180*	*-24*	*-5*	*0*	*-3*
Angola	*1,389*	*1,262*	*1,116*	*1,014*	*959*	*-127*	*-146*	*-102*	*-55*
Nigeria	*1,731*	*1,577*	*1,391*	*1,502*	*1,552*	*-154*	*-185*	*111*	*50*
Eq. Guinea	*110*	*113*	*101*	*100*	*94*	*3*	*-12*	*-1*	*-6*
Libya	*1,086*	*366*	*1,151*	*1,154*	*1,266*	*-720*	*785*	*4*	*112*
Iran	*2,362*	*2,157*	*2,683*	*2,700*	*2,883*	*-205*	*527*	*17*	*183*
Iraq	*4,712*	*4,044*	*4,026*	*4,427*	*4,514*	*-668*	*-17*	*401*	*87*
Kuwait	*2,682*	*2,437*	*2,414*	*,669*	*2,713*	*-245*	*-23*	*255*	*44*
Saudi Arabia	*9,944*	*9,184*	*9,083*	*10,420*	*10,596*	*-760*	*-101*	*1,336*	*176*
UAE	*3,177*	*2,840*	*2,717*	*3,073*	*3,260*	*-336*	*-124*	*356*	*187*
Total Global Supply	100,404	93,848	95,342	101,093	103,538	-6,555	1,494	5,751	2,445
Imbalance (Supply – Demand)	332	1,488	-1,863	335	729	---	---	---	---
OECD Commercial Stocks	65	377	-1,084	47	389	---	---	---	---
5yr Avg OECD Days of Demand	61.5	62.3	63.0	63.0	63.0	---	---	---	---

Source: Bloomberg, BP, EIA, IEA, GS, JODI, NBS, OPEC, Various Government Sources, MUFG Research

MUFG

Research

London:

MR DEREK HALPENNY
Head of Research, Global Markets EMEA
& International Securities
T: +44 (0)20 7577 1887

MR LEE HARDMAN
Currency Analyst
T: l+44 (0)20 7577 1968

MS MOMOKO MIYACHI
Research Assistant
T: +44 (0)20 7577 1886

Shanghai:

MR MARCO SUN
Chief Financial Markets Analyst
T: +86 21 2063 5485

Hong Kong:

MS LIN LI
Head of Global Markets Research Asia
T: +852 2862 7005

New York:

MR GEORGE GONCALVES
Head of US Macro Strategy
T: +1-212- 405-6687

Dubai:

MR EHSAN KHOMAN
Head of Emerging Markets Research – EMEA
T: +971 (0)4 387 5033

Tokyo

MR TEPPEI INO
Tokyo Head of Global Markets Research
T: +81 (0) 3 6214 4185

MS SUMINO KAMEI
Senior Analyst
T: +81 (0) 3 6214 4179

MR TOMOKI HIRAMATASU
Analyst
T: +81 (0) 3 6214 4152

MR TAKAHIRO SEKIDO
Chief Japan Strategist
T: +81 (0) 3 6214 4150

MR KENTO SAITO
Research Assistant
T: +81 (0) 3 6214 4149

MR TOSHIYUKI SUZUKI
Global Market Economist
T: +81 (0) 3 6214 4148

Singapore:

MR JEFF NG
Senior Currency Analyst
T: +65 6918 5536

MS SOPHIA NG
Currency Analyst
T: +65 6918 5537

Sao Paulo:

MR CARLOS PEDROSO
Chief Economist
T: +55-11-3268-0245

MR MAURICIO NAKAHODO
Senior Economist
T: +55-11-3268-0420

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