

Global commodity prices: The bull-run to remain intact in 2022 but could weaken in 2023

Trading environment:

- For the remainder of 2022, we see more upside potential in global commodity prices across the board with the Russia-Ukraine conflict working as an important catalyst
- We are in particular very constructive on the outlook for global crude oil prices for both 2022 and 2023. We see the fall in supply from Russia as structural in nature that will only be partially compensated by increased production from Iran and the US as OPEC has limited spare capacity
- We see Brent Crude prices averaging USD 120/bbl in H22022 and USD 100/bbl in 2023 with upside risks if a US-Iran nuclear deal is not reached or if Europe is more aggressive in reducing its energy dependence on Russia over 2022 than we assume
- We are constructive on the outlook for base-metal prices in 2022 supported by supply disruptions from Russia as well as the prospect of another infrastructure led fiscal stimulus from China. However, we expect base-metal prices to correct in 2023 reflecting a much softer global growth outlook

Shivom Chakravarti

shivom.chakravarti@icicibank.com

Tel no: +91-22-4008-6273

Aniket Gaikwad

Aniket.gaikwad@icicibank.com

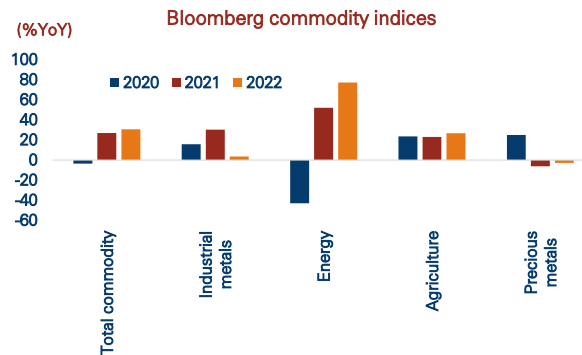
Tel no: +91-22-4008-7309

Global commodity markets: Will the super bull-run continue?: Even as the pandemic de-stabilized economic activity, global commodity prices have been on a structural uptrend. Base-metal prices rallied sharply starting from H22020 on the back of China’s fiscal stimulus, supply-side disruptions and a sharp rise in global goods consumption during the lockdown periods. However, global crude oil prices lagged the initial phase of the rally in H22020 as mobility remained depressed. That changed in 2021 as global crude prices entered an uptrend in 2021 as mobility improved and as OPEC kept supply well below the demand levels. In 2022, base-metal prices have been trading lower because of concerns about Chinese growth prospects while energy prices and agricultural commodity prices have been trending higher because of the Russia-Ukraine conflict.

25 May 2022

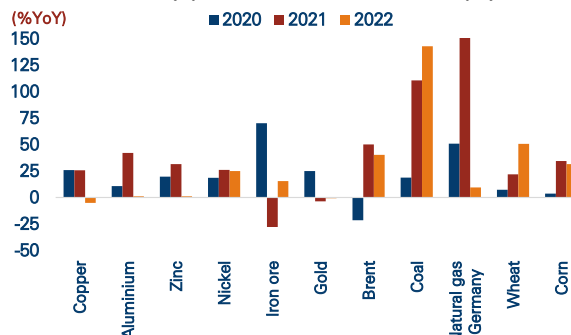
Please see important disclaimer at the end of this report

Chart 1: Energy prices have rallied sharply while base metals have lagged in 2022



Source: Bloomberg & ICICI Bank Research

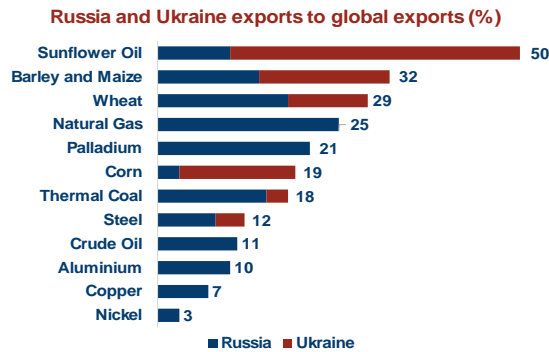
Chart 2: Global commodity prices have rallied sharply over the pandemic



Source: Bloomberg & ICICI Bank Research

We think that the global commodity prices bull-run could still have some legs in 2022 before they start moderating in 2023. We reiterate that the Russia-Ukraine conflict will likely work as another explicit support for global commodity prices going in to 2022 given that both countries are major commodity exporters ranging from base metals, palladium, gold and agricultural commodities. **A key feature of the 2022 rally will likely be the broad-based nature of the rally as prices of agricultural commodities are likely to accelerate alongside energy and base-metal prices.** We see another leg higher in base metal prices in H22022 as China could deliver another fiscal stimulus but see a correction going into 2023 reflecting a sharp slowdown in global growth momentum. However, we remain concerned about the structural hit to supply in energy markets and would not rule out energy prices remaining elevated over both 2022 and 2023. We explain in detail our rationale underpinning our crude oil price forecasts (part 1) and base metal price forecasts (part 2).

Chart 3: Russia-Ukraine play a substantial role as suppliers of global commodities to the rest of the world

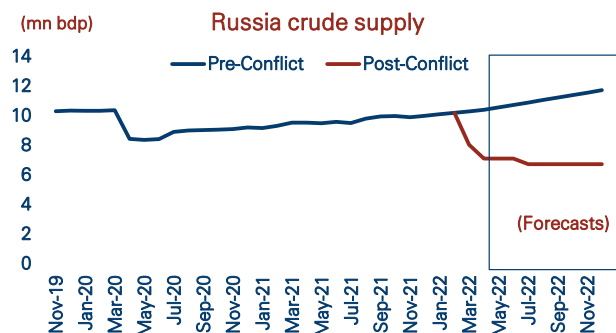


Source: CEIC, Bloomberg & ICICI Bank Research

Part 1.) Global crude oil prices: Tackling the hit from Russian supply: Given that Russia produces ~11% of total global crude production, the sharp rise witnessed in global crude oil prices as the conflict initially unfolded was not surprising. However, after the initial uptrend witnessed over February-March, global crude oil prices appear to have flattened out responding more to the lockdowns that were imposed in China that depressed demand for crude as well as the US government’s decision to unleash oil from its strategic reserves. **Going forward, we remain constructive on the outlook for global crude oil prices reflecting expectations of a fairly tight market with demand expected to outstrip supply.**

Although supply from Russia is expected to drop dramatically, production from other major regions excluding Russia such as the OPEC block—Saudi Arabia and UAE—and the US is expected to rise sharply moving towards the pre-pandemic levels. Supply had been artificially depressed by producing nations over 2020-21 because of a much weaker demand profile. **However, most of the major producers are expected to bring supply back to the pre-pandemic levels by December 2022 in sync with demand projections moving back to the pre-pandemic levels. In short, it is not that the global supply will drop dramatically in aggregate but that as the normalization process takes hold Russian supply will lag the rest of the world by a significant degree. The net result will be a much lower than expected increase in supply for 2023 than what we assumed prior to the Russia-Ukraine conflict.** The degree of demand-supply imbalances will remain contingent on the degree of loss in supply from Russia and on the manner in which loss of output from Russia is compensated.

Chart 4: Russia crude supply is expected to fall dramatically over 2022



Source: EIA & ICICI Bank Research

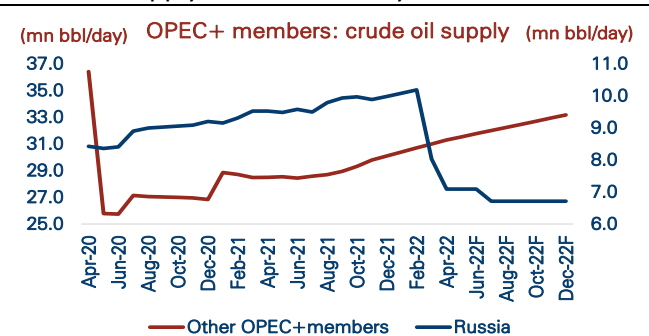
Crude: The supply-side: Prior to the conflict, Russian supply of global crude oil amounted to 10.2 mn barrels per day of the 98.62mn barrels per day of total global crude oil production. Around 80% of the amount of Russian production was going to Europe and China. **We find that overall reduction since the conflict broke out has been to the tune of ~1.5-2 mn barrels per day.** Most of the reduction in supply has come from reduced supply to the US and in to other parts of North America. Other Asian countries such as India have doubled their supply from Russia at a discounted price. At the same time, the US has committed to releasing crude oil via its strategic reserves close to 1.3mn barrels per day over May-October.

However, the release from the strategic reserves will provide only temporary compensation for the loss in output from Russia. Moreover, the EU block has indicated that it will phase out its supply from Russia by December 2022. If the EU sticks to its plan, there will be close to 4.5mn barrels per day of reduction that will need to be substituted via other sources. In theory, there could be close 6-6.5mn barrels per day reduction in global supply going in to Q42022 from reduced supply from Russia. However, there still remains considerable uncertainty about the quantum of possible loss from Russia over the medium-term. It remains unclear whether the EU will be willing to allow for a sharp reduction in energy supply given the possible hit that it faces or it might choose to phase the reduction out over a longer duration. In our base-case scenario, we assume that there is a gradual phasing out of supply to the tune of 3mn barrels per day from the pre-conflict levels over the remainder of 2022 and 2023, although we acknowledge that there is a risk of an even further sharper reduction in store. **The upshot is that the key question from a supply perspective is whether the loss in output from Russia can be compensated via other sources especially after the flow from the US government’s strategic reserves wears out.**

How can the loss in Russia output be substituted?: The key to assessing the supply of crude will stem from the sources of substitution:

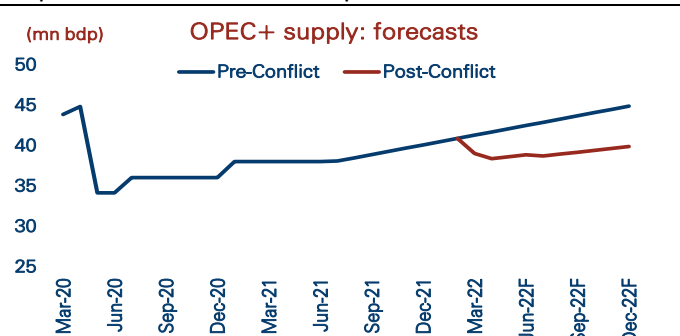
- **Asia buyers to the rescue?:** One area through which there can be a substitution can be via increased purchases of Russian crude from China and India on the back of discounted Ural prices. However, it remains unclear as to the degree to which both countries will be able to further increase the imports of crude oil from Russia. One obstacle is that Russian ports cannot transport crude via Very Large Crude Carriers only smaller tankers that in turn will limit the ability to supply larger quantum to Asia. The EU might also put several restrictions in place to limit the ability of tankers to transport crude oil out of Russia that might work as a hindrance. However, this is one area that we need to watch carefully.
- **OPEC: Limited spare capacity:** Back in April 2020, OPEC+ members cut production by ~10% of supply of the pre-pandemic level sharply in response to the fall in demand as lockdowns were imposed. However, as demand started to improve, OPEC+ members provided a tentative guideline of increasing production back to the pre-pandemic levels by September 2022. OPEC+ members indicated that they would increase production in aggregate by ~440K barrels per day on an incremental basis per month from August 2021 to September 2022. **We expect the major OPEC+ members such as Saudi Arabia and UAE to stick to the guidelines that they have provided for production by 2022.** Russia was also part of the OPEC+ plan of 2021 to gradually increase supply on an incremental monthly basis. However, Russia’s ability to meet targets will remain severely compromised going forward. **We think that it would be difficult for OPEC to be able to completely substitute for the loss in output from Russia.** We find that realistically OPEC members that would be inclined to increase output—Saudi Arabia, UAE and Kuwait-- could have an additional spare capacity of 2.3mn to 2.6mn barrels per day that it could deploy if required. Although Libya and Nigeria have spare capacity of about 1.08mn barrels per day, we remain doubtful on the willingness of the two countries to deploy the excess capacity. **Nevertheless, other OPEC+ members excluding Russia are expected to move forward with its planned increase in output up to September 2022.**

Chart 5: Non-Russia OPEC+ supply likely to rise, even as Russia supply falls dramatically



Source: EIA & ICICI Bank Research

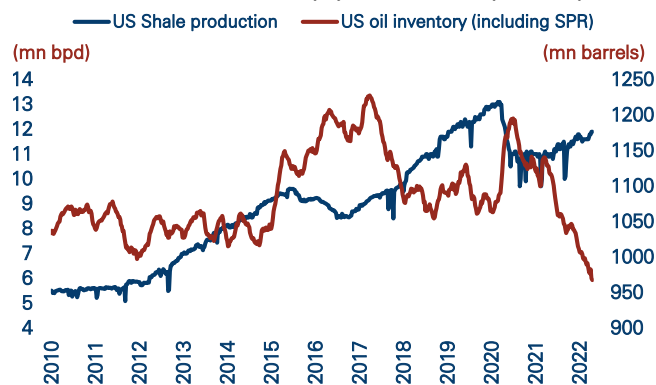
Chart 6: Total supply from OPEC+ members is expected to be much lower post the conflict



Source: EIA & ICICI Bank Research

- Iran and Venezuela are options:** Another area where there could be a possible increase in supply could be allowing Iran and Venezuela to increase output. We are unsure of whether the US will be willing to strike a deal with Venezuela to raise production but we see a possibility of a resurrection of the US-Iran nuclear deal. Iran has a spare capacity of 1.2mn barrels per day but we see a gradual pick-up in production in a phased manner in case a deal is reached. We see a possible 0.25mn barrels per day initial increase in H22022 followed by a possible 0.65mn barrels per day in 2023. Venezuela has a spare capacity of 1.28mn barrels per day. However, as US-Iran still appear to be far apart in negotiations a deal in the immediate future seems unlikely. Nevertheless, this could be one area that could be explored by the US and allies to increase supply in the global markets. Even if there is a possible US-Iran deal, we do not expect a sharp increase in production from Iran but see a phased increase.
- The role of the US:** For its part, the US administration has already supplied an additional 1.33mn barrels per day from its strategic reserves over April-October. We also assume that Shale output will increase considerably given that US inventories remain at a record low level. Production fell sharply in 2020 and was slow to recover in 2021 given the depressed price levels. Global crude prices are also well above breakeven levels of USD 65/bbl for most shale producers that could stimulate further investment. We expect shale output to go at least to the pre-pandemic levels by Q12023 with possible upside in terms of production.

Chart 7: US inventories levels have fallen sharply that will require replenishment going forward



Source: EIA, Bloomberg & ICICI Bank Research

Summing up our supply assumptions: We reiterate that there is likely to be considerable loss from Russian supply that is estimated at 1.5mn barrels per day in H12022 that will increase possibly to 3mn barrels per day in Q42022 and going in to 2023 that quantum of loss could be much higher depending on the manner in which EU phases out its energy supply from Russia. Most of the reduction in supply up to April-October has been compensated by a degree by the release from the US reserves. **We think that the US-Iran nuclear deal will be critical to ensure a sustainable increase in the supply of crude over the medium-term.** We assume a gradual increase in production from Iran that could potentially reach 1.2mn barrels per day possibly sometime in 2023. We also think that shale output could increase considerably that might help in bridging some of the gap going in to H22022 and 2023. OPEC that is due to continue increasing output from the base-line provided and could provide further relief by dipping further in to its spare capacity if required.

Chart 8: How to substitute Russian output loss?

Russia output loss & sources of substitution (figs in mn barrels per day)

Russia output loss	
Base-line: partial EU embargo	3.3
Total EU embargo	6.0
Sources of substitution:	
Iran: Total spare capacity	1.3
Venezuela	1.3
OPEC spare capacity	2.6
OPEC spare capacity: including Libya & Nigeria	3.7

Source: EIA & ICICI Bank Research

We estimate that supply of crude will increase by 3.87mn barrels per day to 99.42mn barrels per day in 2022 over 2021 but still remain below the pre-pandemic levels of 100.24mn barrels per day recorded in 2019 because of the loss in output from Russia. Most of the increase in supply will come from OPEC and by a much more limited degree from the US. For 2023, we assume an increase in supply to the tune of 1.63mn barrels per day with 0.94mn barrels per day increase coming from the US. We assume that shale output reaches its pre-pandemic levels in 2023. OPEC supply increase over 2023 will remain modest given that most of the increase would have already taken place over 2021 and 2022 and the fairly limited spare capacity in place. **The ability of OPEC members to add to capacity from current levels might happen over a two to three year period not in the immediate future. The net result is that supply-side disruptions could have a more asymmetric impact on prices than otherwise would have been the case.**

Demand for crude: Subject to recession risks: The demand for crude collapsed at the peak of the pandemic in 2020 reflecting the hit to mobility and lockdowns that were in place. Since the peak of the pandemic, there has been a steady increase in demand as restrictions have eased and mobility has picked up.

Demand for crude fell on a YoY basis by ~9mn barrels in 2020. The pick-up in 2021 was modest as several EM economies and European region maintained restrictions in response to respective second and third waves. However, mobility did improve considerably in 2021 as compared to 2020. The net result was that demand increased by 5.5mn barrels per day in 2021 but did not recoup the total loss from the pre-pandemic level. In 2022, there has been another hit from the lockdowns that have been imposed in China. However, in other parts of the world, a recovery in demand and subsequently in mobility is taking place. Taking in to account the lockdowns from China that we estimate to have been to the tune of 0.8mn barrels per day, we expect a net demand increase of 2.23mn barrels per day in 2022 as Chinese lockdowns ease off in H22022 driving global mobility further higher. We also expect a sharp surge in jet fuel demand as high contact services and the transportation sector witnesses a sharp growth from a complete re-opening of the global economy. For 2023, we assume that the demand for crude grows around the trend pace witnessed over the last decade of 1.3mn barrels per day. It is only in Q12023 that the demand for crude is projected to go back to the pre-pandemic levels.

However, we need to emphasize that there are downside risks to these demand projections from: (a) more persistent lockdowns than we assume in China, (b) possibility of other mini Covid-19 waves that could restrain mobility from trend levels and (c) a sharp slowing in economic activity going forward that could become more acute in 2023 that might curtail demand for crude. Hence, we will continue to adjust our demand projections based on evolving developments.

Chart 9: Demand is expected to rise over 2022 to 2023 as mobility recovers to pre-pandemic levels

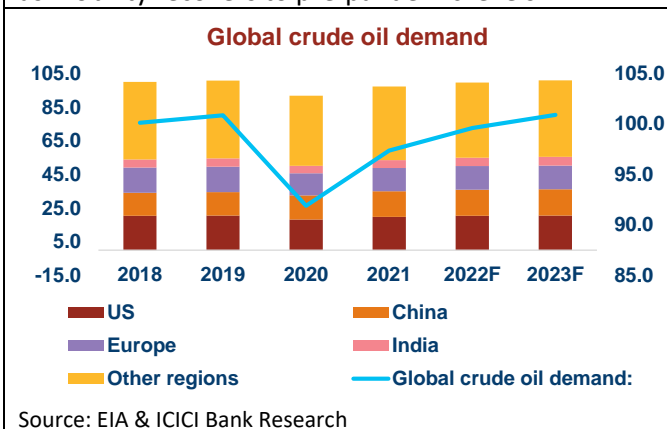
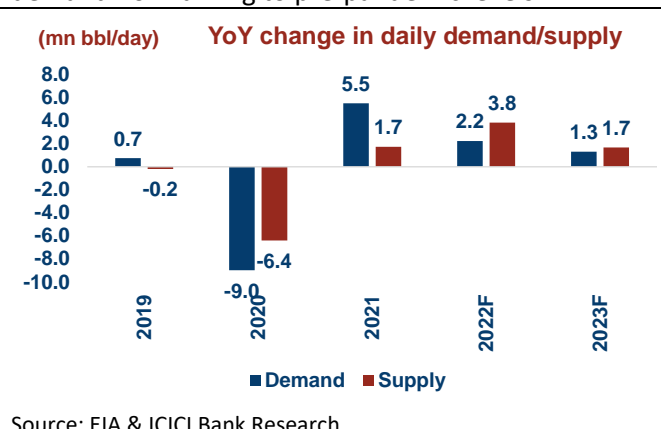


Chart 10: Supply is expected to slowly catch up to demand normalizing to pre-pandemic levels



To sum-up: We see more upside in global crude oil prices: Prior to the conflict, our base-case was that supply would adjust to demand by December 2022 that would work to dampen sharp upside in global crude oil prices. However, the trend has reversed quite dramatically since the onset of the conflict as Russia supply will be hit acutely.

The initial periods of the conflict resulted in Brent Crude prices surging to USD 130/bbl on the back of concerns of a sharp reduction in Russian supply. However, the trend reversed a bit over April-May. We reiterate that we estimate Russian crude supply to have fallen by ~1.5mn barrels per day. However, most of the shortfall has been made up by the 1.33mn release from the US strategic reserves while demand compression in China has been to the tune of 0.8mn barrels per day. Hence, Brent Crude prices corrected lower and is holding ~USD 110/bbl to USD 115/bbl range.

Going forward, we highlight two scenarios:

- **In our base-case scenario, we assume that US-Iran nuclear deal is reached probably in Q42022.** A deal would imply that Iran gradually increases production that to a degree compensates for the US ending its release from the strategic reserves and a further phasing off Russian supply takes place. OPEC could also increase output if required. Shale output from the US is expected to pick-up sharply. However, demand for crude is expected to rise sharply in H22022 as Chinese lockdowns ease and mobility slowly reverts back to the pre-pandemic levels.

The sharp uptick in demand and fall in output from Russia that will only be partially compensated by Iran output will likely imply a net deficit of crude of 0.78mn barrels in Q42022 from a broadly balanced market over Q22022 and Q32022. **Hence, we see Brent Prices rising to an average of USD 120/bbl in H22022.**

In 2023, we expect supply to slowly catch up with demand from higher output from the US and Iran that will bridge the gap between total demand and supply. **We forecast a net surplus to the tune of 0.83mn barrels by Q42023 that will in turn result in Brent Crude prices falling to USD 95/bbl to USD 100/bbl range by December 2023.**

Chart 11: Global crude oil markets likely to balance out slowly in 2023 with an Iran deal

Global crude oil markets: Demand-supply projections: Base-case

In mn barrels per day	2019	2020	2021	1Q2022	2Q2022	3Q2022	4Q2022	2022	1Q2023	2Q2023	3Q2023	4Q2023	2023
A.) Global crude oil demand:	100.9	91.9	97.4	98.7	98.4	100.4	101.0	99.6	100.9	100.4	101.3	101.0	100.9
--US	20.5	18.2	19.8	20.0	20.3	20.7	20.9	20.5	20.3	20.7	20.7	20.6	20.6
--China	14.0	14.4	15.3	15.2	15.0	15.7	16.0	15.5	15.9	15.5	15.5	15.5	15.6
--Europe	15.1	13.1	13.8	13.8	14.0	14.3	14.0	14.0	13.9	13.9	14.4	14.1	14.1
--India	4.9	4.4	4.6	5.1	5.1	4.8	5.1	5.0	5.3	5.4	5.0	5.3	5.2
B.) Global crude oil supply:	100.3	93.9	95.6	98.6	98.4	100.3	100.2	99.4	100.0	100.9	101.4	101.9	101.1
--Saudi Arabia	9.8	9.2	9.1	10.1	10.5	10.9	10.9	10.6	11.0	11.0	11.0	11.0	11.0
--US	12.3	11.3	11.2	11.4	11.8	12.1	12.4	11.9	12.6	12.7	12.9	13.2	12.8
--Russia	10.3	9.3	9.6	9.4	7.1	6.7	6.7	7.5	6.7	6.7	6.8	7.1	6.8
--UAE	3.1	2.8	2.7	2.9	3.1	3.3	3.4	3.2	3.5	3.5	3.5	3.5	3.5
--Iran	2.3	2.0	2.4	2.5	2.6	2.8	2.9	2.7	3.0	3.2	3.2	3.2	3.2
Balance (A-B)	-0.6	2.0	-1.8	-0.1	0.1	0.0	-0.8	-0.2	-0.9	0.5	0.2	0.8	0.2

Source: EIA & ICICI Bank Research

- **In our adverse case scenario, we assume that there is no US-Iran deal and the European Union moves forward with its plans to phase out supply from Russia.** In such a scenario, we expect supply to remain much below our base-line projections by 0.24mn barrels per day by Q42022 and by 1mn barrels per day by Q42023. OPEC might be forced to significantly dig in to its spare capacity by a greater degree. **In this scenario, we see Brent Crude prices averaging USD 140/bbl in H22022 and possibly going higher. We see limited respite in 2023 and expect Brent Crude prices moving to USD 120/bbl mark by December 2023. There would be upside risks to these projections.**

Chart 12: Global crude oil markets likely to remain in deficit in case iran deal is not reached

Global crude oil markets: Demand-supply projections: Adverse-case

In mn barrels per day	2019	2020	2021	1Q2022	2Q2022	3Q2022	4Q2022	2022	1Q2023	2Q2023	3Q2023	4Q2023	2023
A.) Global crude oil demand:	100.9	91.9	97.4	98.7	98.4	100.4	101.0	99.6	100.9	100.4	101.3	101.0	100.9
--US	20.5	18.2	19.8	20.0	20.3	20.7	20.9	20.5	20.3	20.7	20.7	20.6	20.6
--China	14.0	14.4	15.3	15.2	15.0	15.7	16.0	15.5	15.9	15.5	15.5	15.5	15.6
--Europe	15.1	13.1	13.8	13.8	14.0	14.3	14.0	14.0	13.9	13.9	14.4	14.1	14.1
--India	4.9	4.4	4.6	5.1	5.1	4.8	5.1	5.0	5.3	5.4	5.0	5.3	5.2
B.) Global crude oil supply:	100.3	93.9	95.6	98.6	98.5	100.1	99.9	99.3	99.6	100.3	100.7	100.9	100.4
--Saudi Arabia	9.8	9.2	9.1	10.1	10.5	10.9	10.9	10.6	11.0	11.0	11.0	11.0	11.0
--US	12.3	11.3	11.2	11.4	11.8	12.1	12.4	11.9	12.6	12.7	12.9	13.2	12.8
--Russia	10.3	9.3	9.6	9.4	7.1	6.7	6.7	7.5	6.7	6.7	6.7	6.7	6.7
--UAE	3.1	2.8	2.7	2.9	3.1	3.3	3.4	3.2	3.5	3.5	3.5	3.5	3.5
--Iran	2.3	2.0	2.4	2.5	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
Balance (A-B)	-0.6	2.0	-1.8	-0.1	0.1	-0.2	-1.1	-0.3	-1.3	-0.2	-0.6	-0.2	-0.6

Source: EIA & ICICI Bank Research

A few important caveats with regards to the direction of global crude prices need to be kept in mind: (a) even though there are downside risks to demand from a possible sharp slowing in growth, overall demand will be a function of mobility, (b) recession risks that could weigh on demand conditions cannot be ignored, (c) the biggest uncertainty stems from how much reduction in Russian supply will take place that will require substitution from other sources, (d) Iran production will remain important in case supply from Russia falls sharply as we expect, (e) most OPEC countries are operating at levels close to optimum capacity making it difficult for them to significantly ramp up production and (f) most of the heavy lifting in terms of higher supply will likely come from the US side. **Although there are downside and upside risks from both supply side and demand-side factors, we think the bias for crude prices is to the upside as supply-side concerns will likely dominate price action in the medium term.**

Part2.) Global base metal prices: Unlikely to decouple from China: Since the global financial crisis of 2008, Chinese growth momentum has played a critical role in driving the global base metal price trajectory. A key reason for this was the record fiscal stimulus that was delivered in the aftermath of the financial crisis with the bulk of the spending concentrated in the infrastructure sector. Chinese fiscal stimulus totalled 12.5% of GDP in 2008, of which 9% was to the infrastructure sector. As China's growth model transitioned from an export led growth model to an infrastructure investment led growth model, the Chinese economy become the major consumer of global base metals.

Chart 13: China is a major consumer of commodities

	2006	2010	2015	2021	2022
Copper Price (USD/ton)	6,722	7,535	5,510	9,296	9,250
China Consumption (% World)	21	38	50	52	52
Aluminium Price (USD/ton)	2,570	2,173	1,665	2,453	2,839
China Consumption (% World)	25	39	54	60	60
Zinc Price (USD/ton)	3,275	2,161	1,932	2,191	3,629
China Consumption (% World)	38	42	47	49	49
Nickel Price (USD/ton)	24,254	21,809	11,863	18,324	26,107
China Consumption (% World)	30	33	45	55	55
Tin Price (USD/ton)	8,781	20,406	16,067	31,744	33,256
China Consumption (% World)	29	42	48	56	56
Lead Price (USD/ton)	1,290	2,148	1,788	2,966	2,041
China Consumption (% World)	30	40	36	56	56

Note: 2022 prices refer to closing levels as on 24 May 2022

Source: Resources and Energy Quarterly (DIER Australia), ICICI Bank Research

For instance, China consumed 12% of global copper in 2000 and increased to 21% of global copper in 2006. By 2010 it consumed 39% of entire global production. This increased to 50% by 2015 and has been stable since then. Same is the case with aluminium. Its share in global consumption increased from 22% in 2006 to 39% in 2010 and then increased further to 54% in 2015. Right now it stands at 60%. **The upshot is that Chinese growth momentum, particularly that in the industrial sector, plays the most critical role in driving base-metal prices.** We also find a fairly strong positive relationship between Bloomberg commodity price index and credit impulse from China with a 12 month lag. In short, China's fiscal and monetary stimulus plays a fairly critical role in driving the trajectory for base-metal prices. The global base metal cycle bull-run that started in 2010 ended in 2012 once Chinese growth momentum showed signs of exhaustion and focus for Chinese policymakers shifted to deleveraging.

Chart 14: China's industrial production plays a prominent role in driving base metal prices

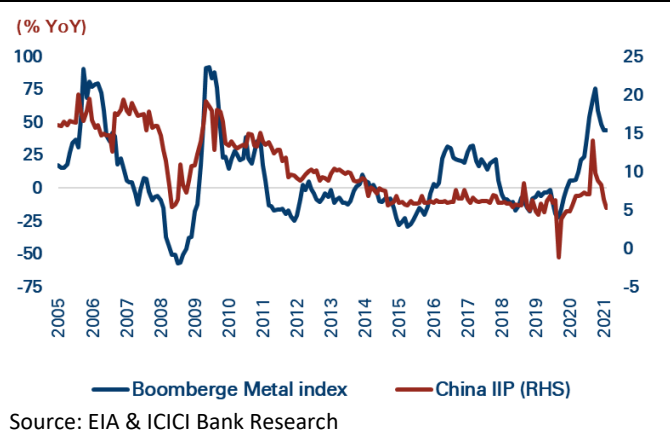


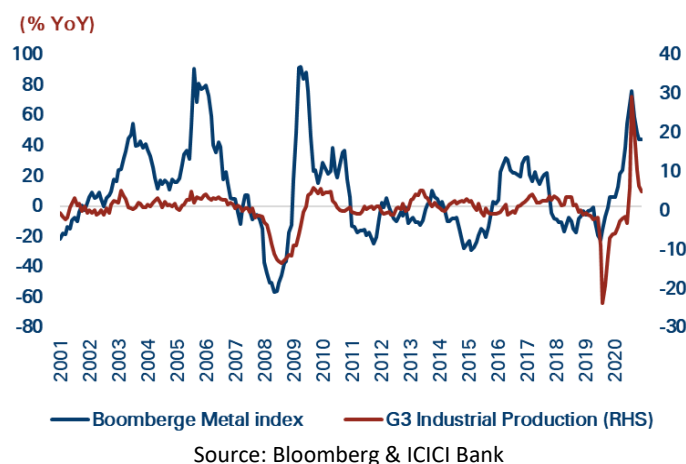
Chart 15: China's credit cycle works correlates fairly strongly with the commodity markets cycle



Given China's role as the major consumer, base metal prices entered another super-bull run in H2022 driven by another substantial fiscal stimulus that was delivered by Chinese policymakers to the tune of 4.6% of GDP. The rally extended in to 2021 reflecting less of China's growth momentum but more on supply-side disruptions that were taking place on the back of the lockdowns that were imposed across EM Asia. The supply-side disruptions also blunted the effect of slowing Chinese credit demand in 2021 but that could reverse as these disruptions are expected to moderate over 2022 and 2023. Other structural supports came from: (a) a rebound in housing sectors driven by near zero bound global policy rates, (b) demand for goods over services as mobility restriction curtail spending on leisure and hospitality and (c) higher demand for semiconductors and appliances amid recovery in power consumption. However, base-metal prices have corrected lower in 2022 reflecting Chinese growth concerns as lockdowns have been imposed to curtail the spread of Covid-19.

However, we think that there is one last hurrah left in base metal prices in H2022. Once the lockdowns ease and Chinese policymakers move forward with delivering the next round of fiscal stimulus. We would expect base-metal prices to rise sharply. While Chinese private demand is expected to remain weak in H2022, the effect on base-metal prices will likely be limited as commodity traders will focus more on the infrastructure cycle and policy induced uptick in credit demand in China. We also think that the structural hit from diminished supply from Russia will exaggerate the upward movement in select commodities such as aluminium, copper and nickel. **Going in to 2023, we see base-metal prices correcting lower reflecting: (a) reduced support from China fiscal policy, (b) sharp slowdown in global growth momentum that will pull demand for base-metals lower in the process and (c) global monetary tightening that will from time to time stoke concerns about a possible global recession driving base-metal prices lower in that process.** We also assume that there is no further pronounced supply-disruptions going in to 2022 and 2023 respectively.

Chart 16: Base-metal prices move in sync not only with China momentum but also G-3 growth momentum



Aluminium:

- After 64% YoY increase over 2021, aluminium prices have rallied to all time high over 2022. However, prices have pulled back from highs amid subdued demand from China reflecting the lockdowns that have been imposed.
- Russia produces ~6% of world production and ~10% of world exports. Australia has ban alumina exports to Russia with multiple consumer sunning imports from Russia. Alumina exports from Australia account for almost 20% of Rusal demand. While China has stepped up export of aluminium to widening supply gap due to Western sanctions, it is unlikely to fill the Russian supply gap.
- Further, aluminium remains one of the most energy-intensive metals to produce. The sky rocketing energy prices should further curtail incentive to increase production in near term.
- **In CY2022, aluminium prices are expected to remain at elevated levels led by supply concerns due to Russia-Ukraine conflict, however, may soften in 2023 led by some normalization of demand-supply and easing of cost pressures. Aluminium prices are expected to move to USD 2,800 per tonne by Q42022.**

Copper:

- Copper prices remain volatile over 2022 after recording 33% YoY increase in 2021. Russia produces ~3% of world production and contributes ~7% of world exports. Copper prices have recorded modest gain compared with other metal amid visibility of ex-Russia supply mainly in major producer Chile.
- Further, the Russia-Ukraine war has weighed on global growth outlook with fears of recession aggravated by rate hike front loading by central banks. Copper prices, are often viewed as a gauge of global economic health and should subsequently remain under pressure. However, higher energy prices and re-coupling from energy independence should provide support to faster EV transition vis-à-vis supporting Copper demand in medium term.
- **In CY2022, copper prices are expected to remain at elevated levels in H1-2022 amid uncertainty related to Russia-Ukraine conflict; however, we expect prices to soften in the medium-term led by some normalization of demand-supply and tailwind from global slowdown. Copper prices are expected to move to USD 9,500 per tonne by Q42022.**

Nickel:

- Nickel prices saw unprecedented rally in response to the Russia-Ukraine conflict after record 110% YoY gain in 2021. Nickel prices surpassed USD 100K per tonne mark in early March with LME halting trading to contain price volatility.
- Russia is world's third largest producer of Nickel and produces ~9% global nickel supply and 15% of class I nickel supply – on which Europe has a very high reliance. Hence, Russia-Ukraine war and elevated demand for EV batteries coupled with lower inventories have added to wild moves in nickel prices.
- **In CY2022, nickel prices are expected to remain volatile over H12022 amid Russia-Ukraine conflict. However, we expect prices to pullback latter with normalization of supply concerns. Nickel prices are expected to move to USD 24,000 per tonne by Q42022.**

Lead

- Lead prices continued lag the prices of other base metals over 2022 after recording 24% YoY increase in 2021. The global auto sector recovery and supply curtailment supported lead price recovery in 2021.
- In 2022, global lead supply is expected to rise, primarily due to increase in output and *boosting recycling in China*. Russia-Ukraine war and China lockdown have created supply bottlenecks but faster transition to electric cars with nickel-lithium batteries and falling demand for gas-powered vehicles would impact lead batteries demand vis-à-vis lead prices.
- **In CY2022, lead prices are expected to underperform other metals with modest increase over H12022 and eventual pull-back latter post easing of supply bottlenecks in H22022. Lead prices are expected to move to USD 2200 per tonne by Q42022.**

Tin:

- Tin prices remain fell by 14% YoY over 2022 after recording sharp surge of 110% YoY increase in 2021. In 2021, tin prices were supported by a deficit supply due to rising demand from the electronics sector and Covid-19 driven supply disruption in Peru and Indonesia.
- **In CY2022, tin prices are expected remain elevated over H12022 but expected to moderate over H22022 amid easing of supply concerns. Tin prices are expected to move to USD 39,000 per tonne by Q42022.**

Zinc:

- Zinc prices have remained volatile over 2022 after recording 67% YoY increase in 2021. The global economic revival and demand from housing sector supported rally over 2021.
- The global zinc consumption is reliant on the auto and electronics industries. The curtailment of steel supply from Russia and Ukraine have supported prices over H12022. **However, higher energy prices and subdued global outlook might weigh on demand outlook over the medium-term. Zinc prices are expected to move to USD 3,800 per tonne by Q42022.**

Steel/Iron Ore:

- Steel rebar prices surged 8% over 2022 after 22% YoY increase in 2021. While Iron ore prices rose 17% over 2022 after falling 2% YoY in 2021. Russia and Ukraine together contribute around 5% to world steel production. While both country's contribute to ~12% of world steel exports.
- **The economic sanctions and self-curtailment of Russia exports have kept steel prices supported over H12022. However, we expect demand concerns with moderation in global growth should re-surface over H22022 and support pull-back from current levels. Iron ore prices are expected to move USD 120 per tonne by Q42022 while steel rebar prices are expected to move to USD 4500 per tonne by Q42022.**

ICICI Bank: ICICI Bank Towers, Bandra Kurla Complex, Mumbai- 400 051. Phone: (+91-22) 2653-1414

Economics Research Group			
Economics Research			
Sameer Narang	Head of Economic Research	(+91-22) 4008-1414 (ext. 6220)	sameer.narang@icicibank.com
Shivom Chakravarti	Senior Economist—Global Markets	(+91-22) 4008-1414 (ext. 6273)	shivom.chakravarti@icicibank.com
Dr.Sudarshan Bhattacharjee	Senior Economist—India Markets	(+91-22) 4008-1414 (ext. 7243)	sudarshan.bhattacharjee@icicibank.com
Debomitra Sen	Research analyst	(+91-22) 4008-1414 (ext. 8161)	debomitra.sen@icicibank.com
Aniket Gaikwad	Research Analyst	(+91-22) 2653-1414 (ext. 8161)	aniket.gaikwad@icicibank.com
Kaushal Aryan	Research Analyst	(+91-22) 2653-1414 (ext. 7249)	kaushalkumar.aryan@icicibank.com
Asha Sasikumar	Research Analyst	(+91-22) 2653-1414 (ext. 8236)	asha.sasikumar@icicibank.com
Jyoti Sharma	Research Analyst	(+91-22) 2653-1414 (ext. 8038)	sharma.jyoti@icicibank.com
Tanisha Ladha	Research Analyst	(+91-22) 2653-1414 (ext. 6746)	tanisha.ladha@icicibank.com
Nihal Kumar	Research Analyst	(+91-22) 2653-1414 (ext. 7309)	nihal.kumar@icicibank.com
Aditya Sharma	Research Analyst	(+91-22) 2653-1414 (ext. 7309)	sharma.adi@icicibank.com
Dhairya Modi	Research Analyst	(+91-22) 2653-1414 (ext. 7309)	dhairya.modi@icicibank.com

Treasury Desks			
Treasury Sales	(+91-22) 6188-5000	Currency Desk	(+91-22) 2652-3228-33
Gsec Desk	(+91-22) 2653-1001-05	FX Derivatives	(+91-22) 2653-8941/43
Interest Rate Derivatives	(+91-22) 2653-1011-15	Commodities Desk	(+91-22) 2653-1037-42
Corporate Bonds	(+91-22) 2653-7242		

Disclaimer

This document is issued solely by ICICI Bank Limited ("ICICI Bank") Any information in this email should not be construed as an offer, invitation, solicitation, solution or advice of any kind to buy or sell any securities, financial products or services offered by ICICI Bank) or any other entity, unless specifically stated so. The contents of this document do not take into account your personal circumstances. Before entering into any transaction, you should take steps to ensure that you understand the transaction and have made an independent assessment of the appropriateness of the transaction in light of your own objectives and circumstances, including the possible risks and benefits of entering into such transaction and should seek your own financial, business, legal, tax and other advice regarding the appropriateness of investing in any securities. ICICI Bank (including its branches, affiliates of ICICI Bank) do not provide any financial advice, and is not your fiduciary or agent, in relation to the securities or any proposed transaction with you unless otherwise expressly agreed by us in writing.

The information, opinions and material in this document (i) are derived from sources that ICICI Bank believes to be reliable but the reliability or accuracy of which have not been independently verified (ii) are given as part of ICICI Bank's internal research activity and not as manager of or adviser in relation to any assets or investments and no consideration has been given to the particular needs of any recipient; and (iii) may contain forward looking statements, which may be materially affected by various risk, uncertainties and other factors. The opinions contained in such material constitute the judgment of ICICI Bank in relation to the matters which are the subject of such material as at the date of its publication, all of which are expressed without any responsibility on ICICI Bank's part and are subject to change without notice. ICICI Bank has no duty to update this document, the opinions, factual or analytical data contained herein. ICICI Bank and/or its affiliates make no representation as to the accuracy, completeness or reliability of any information contained herein or otherwise provided and hereby disclaim any liability with regard to the same. The recipient of the information should take necessary steps as they deem necessary prior to placing reliance upon it. Nothing contained in this publication shall constitute or be deemed to constitute an offer to sell/purchase or as an invitation or solicitation to do so for any securities or financial products/instruments of any entity.

This document is intended solely for customers of ICICI Bank and may contain proprietary, confidential or legally privileged information. No part of this report may be copied, disseminated or redistributed by any recipient for any purpose without

ICICI Bank's prior written consent. If the reader of this message is not the intended recipient and has received this transmission in error, please immediately notify ICICI Bank, Economic Research Group, E-mail: erg@icicibank.com or by telephone at +91-22-2653-7233 and delete this message from your system.

Please also note that ICICI Bank (including its branches, and affiliates) is unable to exercise control or ensure or guarantee the integrity of/over the contents of the information contained in e-mail transmissions and / or attachments and that any views expressed in this e-mail and / or attachments are not endorsed by/binding on ICICI Bank. Before opening any attachments please check them for viruses and defects and please note that ICICI Bank accepts no liability or responsibility for any damage caused by any virus that may be transmitted by this email and/or attachments thereto.

DISCLAIMER FOR DUBAI INTERNATIONAL FINANCIAL CENTRE ("DIFC") CLIENTS:

This marketing material is distributed by ICICI Bank Limited., Dubai International Financial Centre (DIFC) Branch, a category 1 Authorized Firm and regulated by the Dubai Financial Services Authority. This marketing material is intended to be issued, distributed and/or offered to a limited number of investors who qualify as 'Professional Clients' pursuant to Rule 2.3.3 of the DFSA Conduct of Business Rulebook, or where applicable a Market Counterparty only, and should not be referred to or relied upon by Retail Clients and must not be relied upon by any person other than the original recipients and/or reproduced or used for any other purpose.

DISCLOSURE FOR RESIDENTS IN THE UNITED ARAB EMIRATES ("UAE"):

Investors should note that any products mentioned in this document, any offering material related thereto and any interests therein have not been approved or licensed by the UAE Central Bank or by any other relevant licensing authority in the UAE, and they do not constitute a public offer of products in the UAE in accordance with the Commercial Companies Law, Federal Law No. 8 of 1984 (as amended) or otherwise.

DISCLOSURE FOR RESIDENTS IN HONGKONG

This document has been issued by ICICI Bank Limited in the conduct of its Hong Kong regulated business (i.e. type 1 license) for the information of its institutional and professional investor (as defined by Securities and Future Ordinance (Chapter 571 of Laws of Hong Kong) (the "SFO")) customers; it is not intended for and should not be distributed to retail or individual investors in Hong Kong. Any person who is not a relevant person should not act or rely on this document or any of its contents. This document has not been reviewed, authorized or approved by any regulatory authority.

ICICI Bank and/or its affiliates are full service financial institutions engaged in various activities which may include securities trading, commercial and investment banking, financial advice, investment management, principal investment, hedging, financing and brokerage activities. As a result, you should be aware that a conflict of interest may exist. In accordance with the regulatory requirements and its own conflicts of interest policies, ICICI Bank has in place arrangements, internal policies and procedures to manage conflicts of interest that arise between itself and its clients and between its different clients. Where it does not consider that the arrangements under its conflicts of interest policies are sufficient to manage a particular conflict, it will inform you of the nature of the conflict so that you can decide how to proceed.

DISCLOSURE FOR RESIDENTS IN SINGAPORE

ICICI Bank Limited, India ("ICICI India") is incorporated under the laws of India and is regulated by the Reserve Bank of India. ICICI Bank Limited, Singapore branch ("ICICI") is regulated by the Monetary Authority of Singapore.

As mentioned, ICICI India is regulated by the Reserve Bank of India. Hence, in relation to your dealing with ICICI India, you understand that your interest will be subject to protection of local laws and regulations in India, which may offer different or diminished protection than available under Singapore laws and regulations. You also understand that the Monetary Authority of Singapore will be unable to compel the enforcement of the rules of the local regulators.

For more detailed disclaimer, please visit <https://www.icicibank.com/disclaimer/disclaimertnc.html>