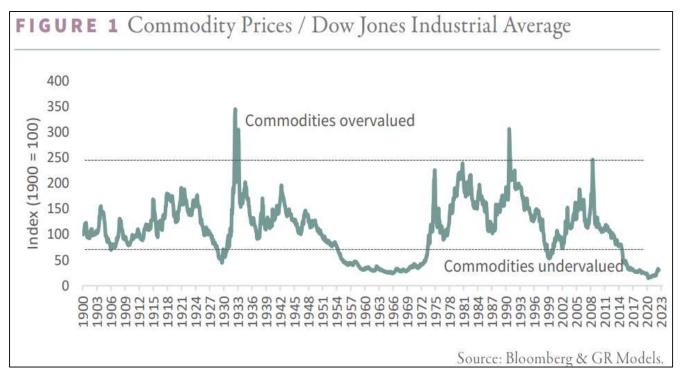


#### Energy

Energy had a bullish view going into 2023 due to lack of supply because of insufficient investment, increasing demand post reopening, etc. But despite this there has been no major change in prices. Has the hypothesis changed or is it just a matter of waiting for the market to stay irrational before it finally turns on direction?

5-6 years from now we will view this decade as decade of shortages. Reason for that is because we just have not spent enough money in the sector. Capital spending is down 60-70% from 2014 levels. So until that problem is fixed, there is not going to be a change in the bigger theme.

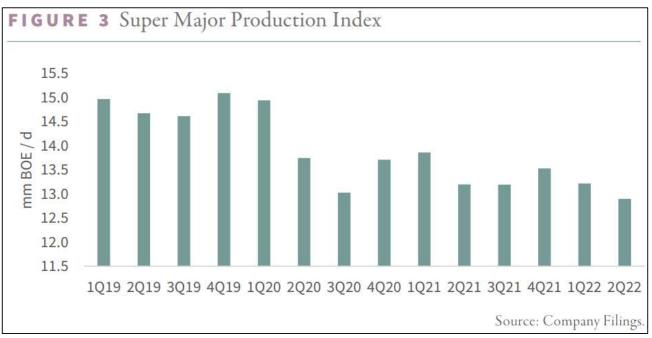
So what went wrong? Fourth quarter normally is a period of strong demand for both natural gas and oil; as weather turns cold. But, past winter, we just had incredibly mild weather in both the US and Europe. They had the warmest winter in Europe in 40 years. It got them out from a very tough spot with Russian gas volumes curtailed and then the Nord Stream pipeline issues. To add to that, one of the biggest US export terminals, Freeport LNG natural gas export terminal caught fire in April last year and was offline for over 200 days which led to rise in US inventories.



With China making a fair amount of progress in terms of industrial demand coming back online; where do we see the oil prices?

# Where is the commodity sector heading to?





Drop in the oil prices last year was not in response to demand destruction, besides minor movement in 4th quarter. Instead we have just seen a huge amount of liquidation, a huge amount of paper oil being sold on recession fears, and on general deleveraging.

Another measure is, if future prices > spot price = bullish and vice versa. In a tight oil market, near end of curve gets bid up, as people are willing to pay a premium. So, instead of far end being pushed down, near end gets pulled up. In a tight market, typical crude curve is backwarded. That was the case last summer, we had near record backwardation & then oil prices sold off nearly 45%.

Does that mean that the balances had loosened and the market was getting amply supplied and the backwardation has gone into contango? No. The entire curve has moved down. So in essence this market was not over supplied but it was just the people selling oil at any duration all along the curve, which resembles more of speculative unwinding. As the market gets tighter and tighter and tighter, which it is right now, it becomes much more prone to black swan events.

#### Gold

Every major commodity bull market had a huge gold component to it. 1929-1940 the 1<sup>st</sup> strong commodity bull market had huge gold element to it. Gold stocks rallied 10x over that period. 1970s & 1999-2010 gold was best performing sector. Positive signs for Gold were amount of money printed after 08-09, during Cares Act & during COVID. There was reemergence of central banks as huge Gold Buyers- from China to Russia which could be a powerful force to take Gold higher.

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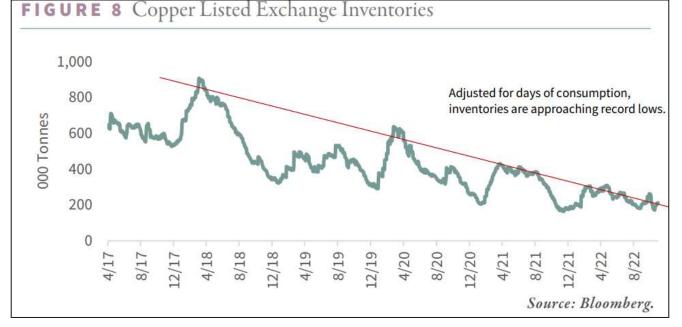
#### Copper

If we believe that climate change is a problem, and that the world is going to decarbonize by 2050 that would require more copper. So, what does this mean for copper prices between now and 2030?

With copper, it seems almost impossible to paint a bearish demand story because you have China that still is underinvested in its copper infrastructure. If you look at the total installed copper in an economy relative to its per capita GDP; China's still a little bit under invested. India, which should have about 100 pounds of copper per person is at 15 pounds of copper installed per person. So that itself is going to be a huge tailwind for global copper demand.

Any move towards wind, solar and electric vehicles is about increasing the copper loadings in those by anywhere between 10 and 20 fold relative to what they're replacing. So if you go from natural gas fired power plant to a offshore wind farm, the amount of copper that's required per megawatt hour goes up, 10 to 20 fold.

And from a supply side, it's really difficult to see where you bring on any new mines supply in the next short term. When you're looking at oil for instance, particularly during the days of shale, you could cycle some of that capacity on fairly quickly. When it comes to copper, it's going to be 10 years plus before you can bring on a major new copper mine.





#### **Energy Transition**

Is there room for this energy transition to become affordable when you consider the amount of both copper and also rare earth elements that are going to be needed for each unit of electric vehicles in order to accomplish this energy transition?

In the last 10 years from 2010 to 2020, the cost of capital effectively went negative, it became \$17 trn of negative nominal yields. We had the lowest cost of capital in human history and the price of every source of energy, be it gas or coal, nuclear, oil; fell by about 90%. And when money is cheap, you don't put it in the right areas. But when energy is cheap, you don't invest it in the right areas, either. Amount of material that goes into generating energy is so much more than just the price of oil or natural gas. For instance, a 4 megawatt wind turbine basically is comprised of steel and the basements of cement. If the price of energy collapses by 90%, it stands to reason that the cost of steel is going to come down too.

When we look back on the last decade, we had cheap capital and cheap energy. And what did we get? We got a massive investment boom into capital intensive and energy intensive things, namely wind, and solar and electric vehicles. So what happens when cheaper money and cheap power start to move higher again?

The huge boom in wind and solar in the past decade has been due to cheap capital and cheap energy. Longer term, if we want to address carbon, we need to go nuclear.

#### Nuclear

We have not invested in a new uranium mine in 30 years; there are only 2 primary uranium producers - Canada, Cameco & Kazakhstan, Kazatomprom. You actually don't need much of Western Renaissance to have bullish outlook on uranium. What really matters is new build programs going on in China. They are building 30 reactors a year. The Chinese and the Koreans are basically the only people that can bring a nuclear reactor online on time and on budget. When you look at how much energy is required to generate a unit of energy, for renewables, it's five to one, for oil and gas that's 30 to 1, but, the really interesting one is nuclear, which is one unit and 100 units.





### Mr. Ritesh Jain

Co-Founder

Master of Business Economics (MBE) Executive MBA - Haskayne School (Calgary)

He has held many senior leadership roles including CIO – BNP Paribas Mutual Fund, where he was responsible for managing US1.2 billion of AUM and also has served as the CIO of Tata Mutual Fund, where he was responsible for managing AUM of 6 billion.

In 2019, LinkedIn rated him among the top three influencers in the world of Economy and Finance. He is also a recipient of numerous national and international awards in the field of fixed income and equity investments.

**Ms. Chanchal Agarwal** *Head - Products* Chartered Accountant CFA Charterholder



She brings with her about 12 years of Industry experience spanning across verticals like Family Office Investment Advisory, Equity management, Investment banking, etc.

In 2020, AIWMI recognized her amongst the 'Top 100 women in Finance". She has featured in the Audio talk series 'Show me the Money' by Meghna Pant (available on Audible Suno). Her article reflecting on 'What stops women from investing' was published in The Hindu Newspaper.



Mr. Rohit Pandey

Global Macro Strategist

Post – Grad in Economics & Finance Bachelor of Economics - Symbiosis

During his career span, he has gained experience working as a macro consultant and in creating products for algorithmic financial planning and healthcare analytics. He is currently pursuing a Masters in Data Science from Northwestern SPS.

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