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Commodities and Wartime Economics | May 2022

How back-to-back crises have altered the long-term dynamics of the commodity markets

Opening Comments

A lot has been said about the immediate repercussions of both the COVID-19 pandemic and the Russia-Ukraine War. The former causing the sharpest economic contraction since the Great Depression. The latter marking the largest military operation on the European continent since World War II. Given the size and scope of each event, we would like to reframe the discussion to concentrate on the long-term impact as it relates to the commodity markets. How have back-to-back, global crises altered the forward outlook for the next several years? After all, financial success has been achieved by those with the vision to see past modest gyrations to the structural tides of the market. Here we discuss a number of those tidal shifts, in particular their influence on the way raw materials are sourced, exchanged and ultimately priced.

The Path to Higher Prices



To begin, we review the recent past. Figure A lists an abbreviated sequence of events that have led to the current environment of higher commodity prices. Recall how the general commodity markets were undergoing a significant, albeit more gradual, transformation prior to the spring of 2020. Investment in long-cycle supply was rapidly disappearing, the quality of ore deposits and arable lands were degrading, labor was stretched thin amidst a historic wage gap and global infrastructure from previous generations was in disrepair. Aside from introducing new problems for the market to digest, the pandemic accelerated certain “legacy issues” already in place well before news of the coronavirus outbreak. These legacy issues, left untreated, have managed to compound over time and contribute to the current era of higher prices.

After incorporating the effects of both COVID-19 and the Russia-Ukraine War, cyclical trends are now becoming structural themes. High inflation, once labeled as “transitory”, is still accelerating more than 24 months after the CPI trough. The ratio of job openings to unemployed people in the US continues to rise, now 2-to-1¹. Global freight costs are more than 4x the average rate of the previous decade². The world population is expected to grow an additional 25% from 8 billion to nearly 10 billion by 2050³. The Earth’s arable land is vanishing at faster rates, down over 30% in the last 40 years due to soil erosion and contamination⁴. Roughly 76% of global emissions are now covered under net-zero emission targets⁵. On top of it all, financial markets are awash with cash. The M2 Index for the United States has expanded by nearly \$12 trillion in the last decade and over \$17 trillion since the turn of the century. Each example has ties to a specific set of structural themes - themes that have grown more complex (and more robust) as recent events have added fuel to commodity prices. The amalgamation of such events, any one of which may have created disarray in isolation, has lifted the equilibrium price for most natural resources and introduced a new period of transition (a regime shift). Here, we discuss certain elements of the transition that demand attention and promote the longevity of the commodity bull market.

¹ “Job Openings and Labor Turnover Survey”, U.S. Bureau of Labor Statistics, 3/2022

² Shanghai Containerized Freight Index, Bloomberg, 4/2022

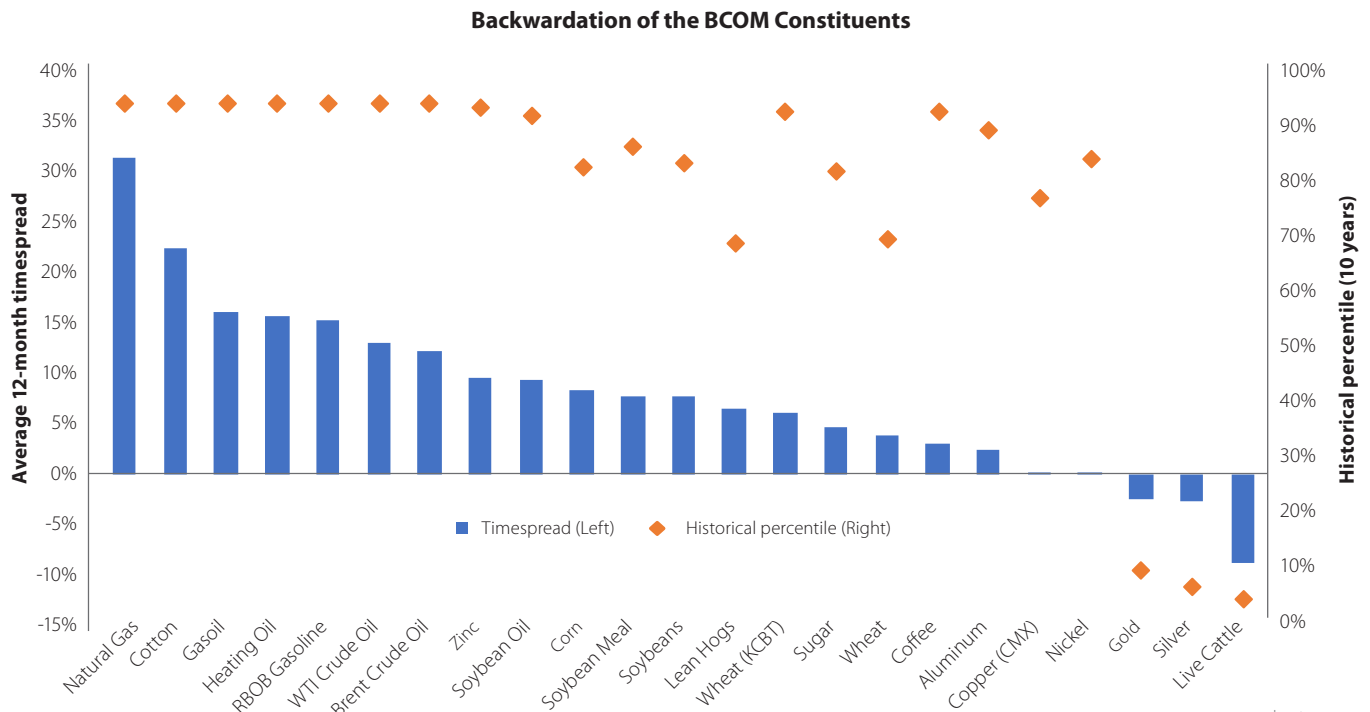
³ United Nations, 2019

⁴ “A sustainable model for intensive agriculture”, The University of Sheffield, 12/2015

⁵ “Addendum to the Emissions Gap Report 2021”, United Nations, 11/2021

From Recovery to Scarcity

An immediate consequence of the past two years has been a rapid depletion of the global commodity stockpile. Inventories for nearly all major raw materials are substantially lower than pre-pandemic levels and, in many cases, nearing historic lows. In futures parlance, scarcity in the physical market is often measured by the shape of the forward curve. Normally, most commodity futures markets are in a state of upward-sloping prices due to storage, financing and insurance costs (“contango”), whereas today most forward curves are inverted (“backwardation”). Not only has backwardation persisted, but it has stretched to the most extreme levels in recent history (Figure B). Higher spot prices (relative to forward prices) suggest the market is in severe deficit. We believe the premium on immediate delivery will continue to encourage inventory withdrawals until prices rise sufficiently to incur demand destruction or the supply deficit abates.



| Figure B ⁶

As we have written about in past publications⁷, the effort to cure ongoing deficits has been impeded by both sides of the supply/demand equation. Demand from new political initiatives - including the Bipartisan Infrastructure Law, NextGenerationEU and China’s 14th Five-Year Plan – provide trillions of dollars in commodity-intensive spending. Individual consumption is also robust, supercharged by a spike in household wealth and savings. Recent spending data by Bank of America Institute (spanning nearly 70 million retail and small business clients) indicates the US consumer is thriving. Total payments growth - including credit/debit card spending, bill pay, wire transfers, etc. – rose 25% year-over-year in April⁸. Furthermore, spending at airlines and travel agencies increased by 60% and event ticket agencies by 140% in the same timeframe, suggesting powerful demand impulses from the world’s largest economy⁹.

Supply, on the other hand, has been anemic and almost entirely unphased by higher prices. In 2020, the loss of suppliers after months of economic lockdowns tilted many commodities into deficit; and now, the rapid descent of exports out of the Black Sea region only worsens that trend. Among other natural resources, Ukraine is a leading exporter of corn (14% of global exports), wheat (8%) and sunflower oil (46%)⁹. Likewise, Figure C illustrates how difficult it is to find a commodity market in which Russia is not a substantial benefactor. Now that Russia is widely considered a pariah state after having lost preferential trade status with the US (a rarefied club including Cuba and North Korea), world trade relations have fractured and importers are scouring the globe to find alternative suppliers. This game of musical chairs not only adds logistical complexity but also cost. New trade partners often translate to longer shipping routes, less established infrastructure, costlier labor and suboptimal quality of material.

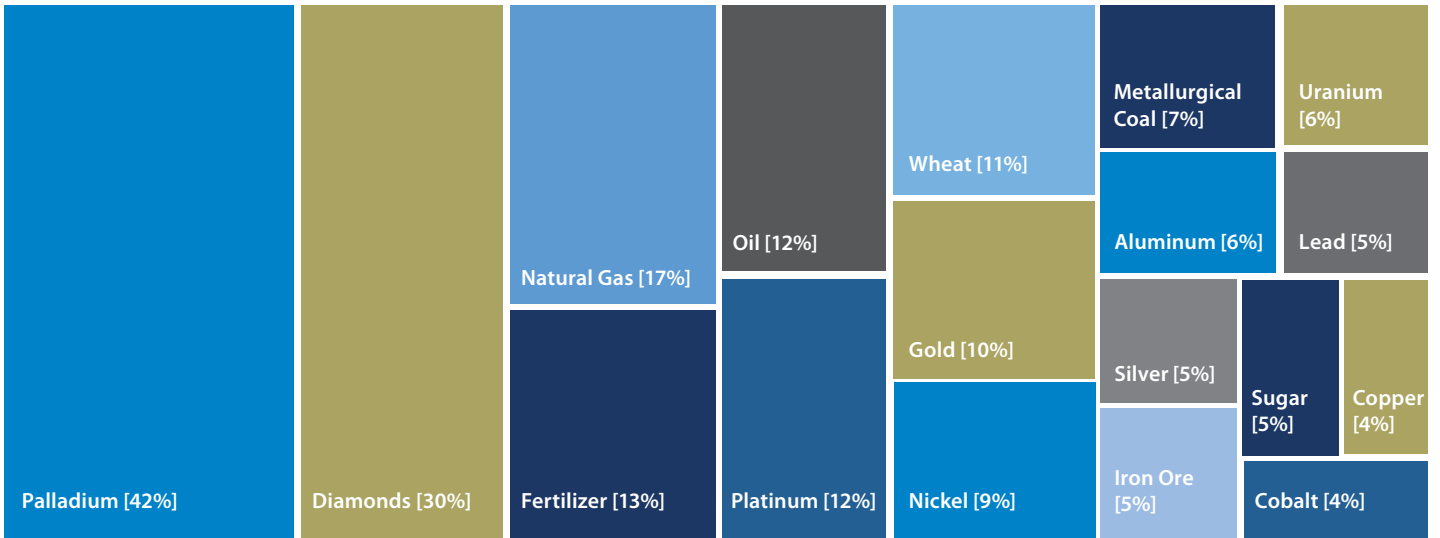
⁶ Bloomberg LP, CoreCommodity Management, 4/2012 – 4/2022

⁷ “Just Getting Warmed Up”, CoreCommodity Management, 10/2021

⁸ “Consumer Checkpoint: Still Smiling”, Bank of America Institute, 5/2022

⁹ Thomson Reuters, 2020/21

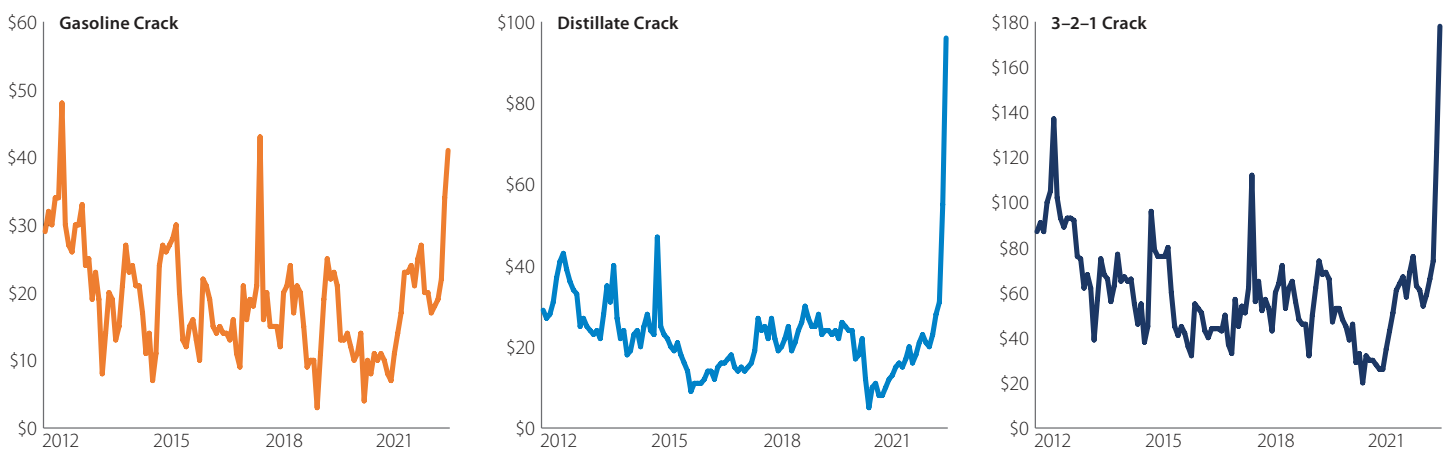
Russia % of Global Production



| Figure C ¹⁰

Contrary to popular belief, commodity supply and commodity extraction are not synonymous. Once raw materials are unearthed, many undergo a series of processing steps before anything reaches the end-consumer. Industrial metals, like aluminum and copper, are delivered to smelting facilities as unprocessed ore where they are subject to intense heat and cleansed of any impurities. Soybeans undergo a “crush process” during which they are either cracked, rolled and distilled into soybean oil or dried, toasted and ground into soybean meal. The point being, there is often a mismatch between where capacity is added and where capacity is needed. Many recent shortages are due to a lack of capacity at intermediary facilities rather than the point of extraction.

For example, the self-sanctioning and partial embargo of Russian oil has forced international buyers to scramble for new producers. However, in the long run, it is Russia’s severe lack of domestic capacity at storage facilities that may be their undoing. Prior to the invasion, Russia exported nearly 8 million barrels per day (bpd) of petroleum. Industry expert Energy Intelligence estimates that total may fall by 5 million bpd. According to the same research group, “If those kinds of volumes cannot be shipped out of the country for an extended period of time, Russia will quickly run out of storage capacity and producers will have no option but to shut in wells.”¹¹ In addition to the reputational damage being inflicted, the shutting down of infrastructure has no immediate fix and may alter the global energy dynamic for years to come. A similar narrative is unfolding in the US whereby crude oil is being released from strategic reserves, but refined product prices continue to soar (Figure D). It is the underinvestment in refining capacity, not the sourcing of unrefined crude oil, at the crux of the problem. Mismatches like this underscores the complexity, capital and time required to maintain growth in long-cycle commodity supply.



| Figure D ¹²

¹⁰ Bloomberg LP, USDA, World Mining Data, Bank of America, Thomson Reuters, GlobalData, Silver Institute, Johnson Matthey, 2020/2021

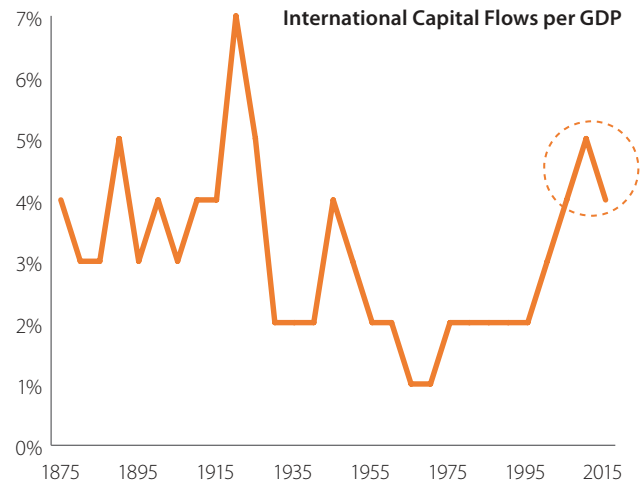
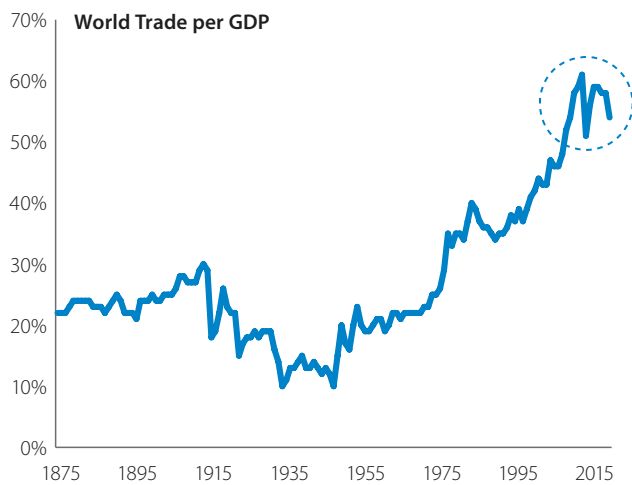
¹¹ “Lack of Oil Storage Adds to Russia’s Woes”, Energy Intelligence, 3/2022

¹² Bloomberg LP, 4/2012 – 4/2022; Crack refers to the price differential between a barrel of refined products and a barrel of WTI Crude Oil

In summary, effort is being made to resolve supply shortages, but additional supply capacity is often (i) unavailable, (ii) unprofitable, (iii) illegal, or (iv) unpopular. The first two reasons are primarily economic and speak to the themes of underinvestment, a tight labor market and rising costs of production. The last two reasons are primarily political and will be addressed in the next section.

From Globalization to Protectionism

Just as the pandemic and the invasion of Ukraine have exacerbated the global shortage of natural resources, so too have they catalyzed an incredible political response. In the past several months, food, energy and material security have risen significantly on the political priority list. Policymakers have awakened to the harsh reality that not only are resources limited and finite but that existing supply lines are highly susceptible to disruption. As we have already witnessed, threats can arise from disease or war, but they can also manifest from severe weather, a shortage of shipping containers, a spike in fuel costs, or the rise of a competing superpower. Threats abound, which is why one of the leading stories of the past several years has been the decline of globalization and the rise of protectionism. Related trends may be referred to as “de-globalization”, “onshoring”, or “integration” – regardless, they all prioritize the procurement of resources at the expense of international cooperation.

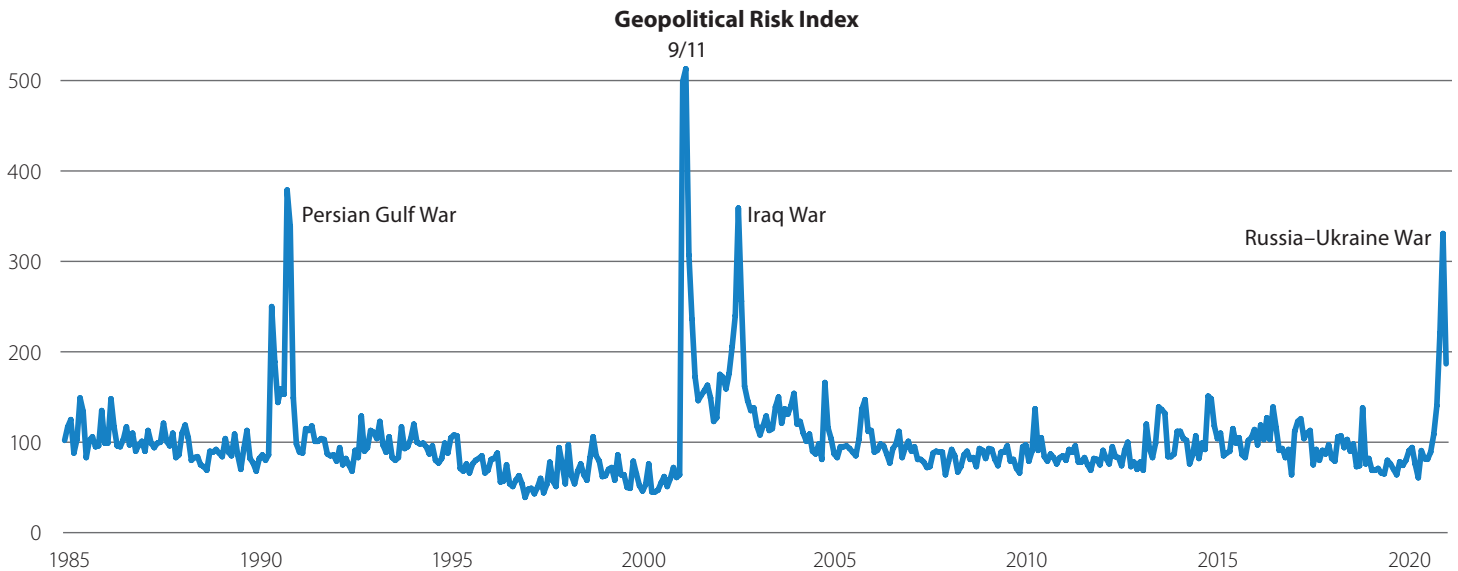


| Figure E ¹³

Figure E depicts the same story using two different measurements, world trade and cross-border capital flows (normalized by GDP). A similar chart can be crafted using migratory flows as a percentage of the world population. Each indicates a severe drop around WWI, a trough towards the end of WWII, and consolidation shortly after the Global Financial Crisis. In 1947, the General Agreement on Tariffs and Trade (GATT) was signed by 23 countries (comprising 30% of the global population) to liberalize trade and encourage international collaboration. GATT was one of the most profound catalysts for globalization in the 20th century. Since then, the agreement formally transitioned to what we now refer to as the World Trade Organization (WTO) in 1995, which has expanded to 164 member countries (comprising 90% of the global population). In the decades after WWII, trade flourished, populations grew more diverse, massive advancements were made in technology and productivity rose. The data spikes once more with the fall of communism in 1989 and then again in 2001 when China officially joined the WTO. At that moment, globalization was in full effect, but the stage had been set for a widening divergence in the Sino-US relationship.

In wartime, nations (and to a degree, individuals) fight to secure limited resources. This rings true today - after two years of recession, lockdowns and personal loss – just as it rang true in 1914, 1929 and 1939. Today, the concept of protectionism exists in many forms. During Occupy Wall Street, people fought against income inequality and the ever-expanding wealth gap. During Brexit, the United Kingdom fought to secure their borders and sovereignty beyond the limitations set by the European Union. During the US presidential election in 2016, the Trump campaign championed “America First” by promising tighter border controls, domestic manufacturing and a crackdown on inequitable foreign trade practices. What started at the polls escalated with the emergence of the US-China Trade War. Despite a questionable phase one agreement in January 2020, subsequent geopolitical events have pushed global tensions to a new pinnacle with lasting repercussions, particularly as they relate to the commodity markets.

¹³ Right: Obstfeld and Taylor (2005), IMF (2020); Left: “Quantifying the Evolution of World Trade, 1870-1949” (2014), “The Next Generation of the Penn World Table” (2015)

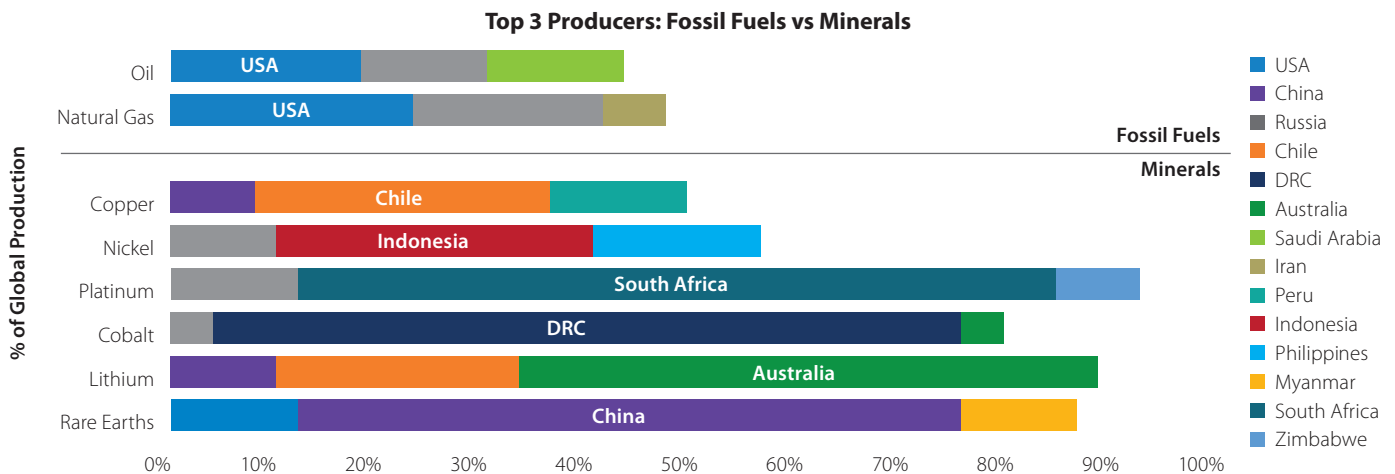


| Figure F ¹⁴

While Figure F may not be comprehensive enough to capture the gravity of current circumstances, it does help underscore the extent to which geopolitical threats have escalated over the past several months. The threat of war, the threat of food rationing and the threat of rolling blackouts all help explain today's inflationary impulses. Neutralizing those threats, whether justified or not, often comes at a cost – one most governments are willing to pay. Just as bonds demand a term premium for committing capital over longer periods of time and stocks demand an equity risk premium for inheriting the volatility of publicly traded companies, commodity futures demand a “convenience yield” for the procurement of limited resources. Together, greater scarcity and protectionist policies are lifting the convenience yield – a tailwind that may intensify over time in the form of persistently high backwardation.

As it relates to today's marketplace, there are a number of ways in which protectionism has materialized. For countries in which supplies are at risk, common security measures include stockpiling (ex. Chinese copper) and export restrictions (ex. Indonesian palm oil). For those facing the encroachment of a competing country, retaliatory actions might include tariffs (ex. 25% on US steel imports) or government subsidies (ex. 18 billion Egyptian pounds for local wheat farmers). In the case of Russia, we are now experiencing the widespread use of sanctions (ex. G7 ban of Russian oil) and outright divestment from the private sector (ex. McDonald's agreement to sell all 850 Russian locations). In addition to fast-food chains and numerous other companies that have announced their withdrawal from the country, some of the more substantial energy players include BP, Exxon and Shell, all of which will sacrifice billions of dollars in write-offs as a result ¹⁵.

Historic moves of this nature (to rid the world of Russian supplies) cannot be overstated, and neither can the growing tension between the US and China. Chinese raw supplies and processing capacity will be paramount to overcoming one of the current generation's greatest challenges, net-zero emissions. According to a recent study by McKinsey, the task will require an estimated \$9.2 trillion per year between now and 2050 ¹⁶. Unlike fossil fuel supplies which are well-established and highly diversified, key mineral supplies are confined to a small handful of nations – many of which are unstable (Figure G) ¹⁷. A lack of optionality should continue to lift the cost curve over time.



| Figure G ¹⁷

¹⁴ “Measuring Geopolitical Risk”, Dario Caldara and Matteo Iacoviello, 1/1985 – 3/2022

¹⁵ “Companies Are Getting Out of Russia, Sometimes at a Cost”, The New York Times, 5/2022

¹⁶ “The net-zero transition: What it would cost, what it could bring”, McKinsey, 1/2022

¹⁷ IEA, 2019

Today's generation has benefited from an era of globalization that has ultimately shifted production to the lowest-cost provider, regardless of location or political affiliation. There is a reason the tags on everyday purchases often read "Made in China" or "Made in Japan" or "Made in Germany". If products and materials cannot be sourced onshore at a fair price, the modern standard (up until recently) has been to import from the foreign supplier of choice. However, as countries promote self-sufficiency (ex. European nations boost renewable power to stave off Russian energy dependence) and corporations promote vertical integration (ex. Tesla seeks ownership of nickel and lithium deposits), past efficiency gains from low-cost outsourcing and shared technological advancements may erode. The loss of international cooperation, particularly via longstanding measures like sanctions and embargoes, poses substantial risk to the cost borne by consumers.

Closing Comments

There are many downstream implications of both COVID-19 and the Russian invasion of Ukraine. Some are well-documented, others have yet to be explored. Two fundamental changes we have witnessed since each event are the rapid depletion of natural resource inventories and an acceleration towards a world of division and disengagement. New threats mean new policies. New policies mean a new paradigm for sourcing, exchanging and pricing the commodities that feed the global engine. Trade and cooperation helped bring the world back from ruin after the destruction wrought by world wars and the Great Depression. This war, this economic friction, will continue to raise the equilibrium price for most products if globalization truly has met its match and inventories are unable to rebuild.

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