



MARATHON

RESOURCE ADVISORS

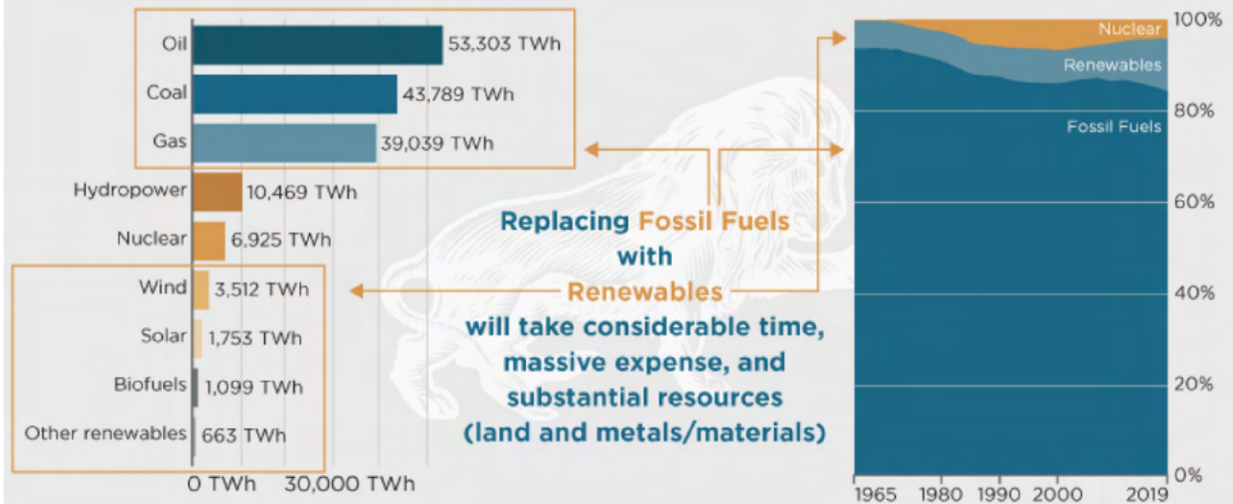
November 2021

Welcome to the Self-Inflicted Energy Crisis

The last several months have given consumers and investors what we believe will prove to be merely an "amuse bouche" regarding the challenges and costs associated with transitioning away from the hydrocarbon economy. We have espoused at length over the last several years on the limitations of interruptible wind and solar power when forced into a grid without sufficient storage capacity. In a similar vein, we have illustrated the impossibility of achieving politically popular mandates such as 100% EV sales and/or renewable targets by 2030/35/40, total coal phase-outs, etc. due to both the gargantuan price tag as well as the physical limitations of land and critical materials. Finally, our belief that the constriction of capital in the natural resource space, via ESG mandates and broader demonization of fossil fuels, would have catastrophic effects on the sources providing 85% of the world's energy supply was, at the time, profoundly non-consensus. How quickly things can change.

The Challenge of Replacing Hydrocarbons

Primary Energy Consumption by Source



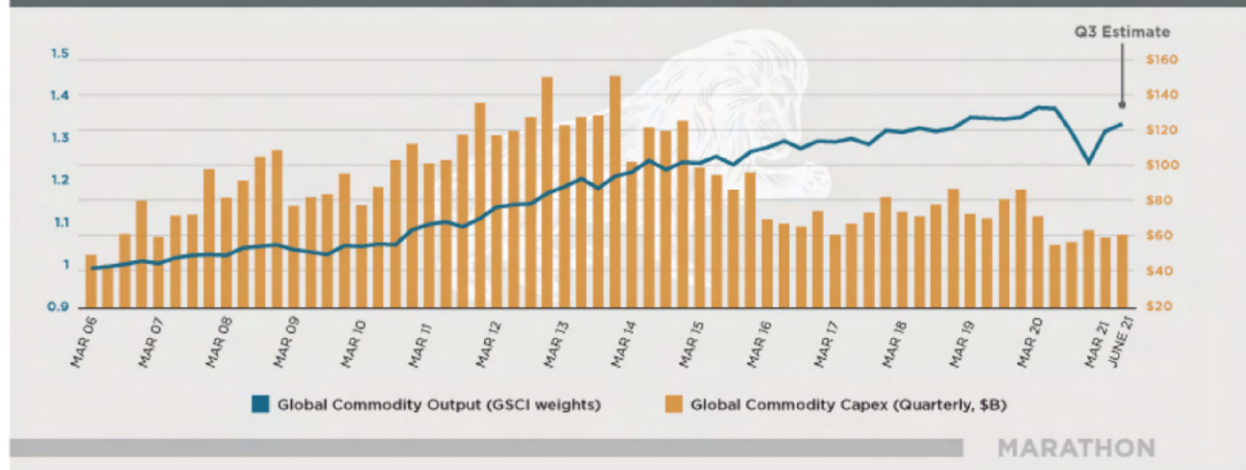
Source: Our World in Data based on BP Statistical Review of World Energy
Primary energy is shown based on the 'substitution' method which takes account of inefficiencies in energy production from fossil fuels.

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Despite a strong rebound in commodity consumption, capital spending to replenish reserves remains deeply depressed across the entire resource spectrum. While the focus on debt reduction and capital return is great for shareholders, it augers poorly for future supply. The broader markets have finally started to acknowledge that de-funding the hydrocarbon economy before the green economy has been sufficiently built-up may well lead to painful and expensive consequences.

Total Capex by Current S&P Global Natural Resource Index Constituents

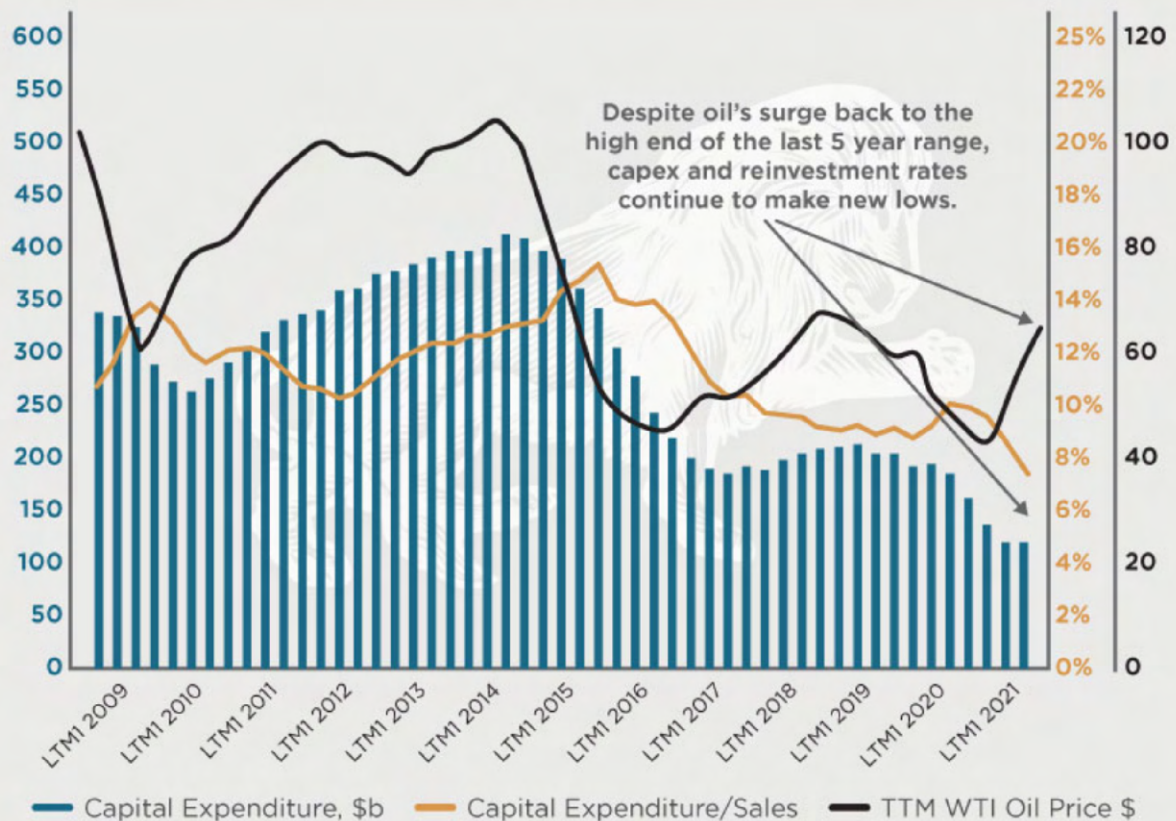
Source: Bloomberg, Our World in Data, International Copper Study Group



The energy sector in particular has kept their collective wallets firmly shut, which is understandable in light of the constant pressure from the full spectrum of major shareholders, activists and politicians. At any other point in the history of the hydrocarbon era, the response to surging oil and gas revenues would be an enthusiastic rush to spend, but thus far this cycle we have seen no evidence of the ability for high prices to cure themselves.

Traditional Energy Reinvestment Plummeting

Trailing 12-month Capex, Capex/sales and Crude Oil Price



Source: Capital IQ, S&P Global 1200 Energy Index

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The broad reaching implications of this dynamic are just beginning to be felt, since the impact of increasing primary energy costs, while substantial, are magnified many times over as they work their way through the economy. In just the last several weeks, the daisy chain below was unleashed:

- Low inventories of natural gas in Europe, coupled with unseasonably windless & cloudy weather and excessive reliance on Russian imports, has led to the highest electricity prices (equivalent to \$250/bbl oil) in history throughout the Continent. The fact that this spike has come well before the peak demand of winter could be an ominous sign.

- That same rise in gas prices has forced European fertilizer manufacturers to shut down production, spiking nitrogen and ammonia prices as farmers attempt to secure supplies for next Spring's planting. This will likely contribute to rising food prices, which were already advancing faster than at any time in the last 40 years.
- The reduction in European fertilizer production comes with a second order consequence of diminishing the amount of byproduct CO₂ produced which, in a cruel stroke of irony, is essential for the refrigeration of foodstuffs and threatens to collapse the entire grocery supply chain.

Thus, in one fell swoop we can see the impact of policies discouraging fossil fuels and encouraging the growth of green energy, regardless of the resulting degradation of incumbent energy systems: significantly higher power prices, electricity rationing, distribution company failure and bailout, geopolitical disadvantage, food inflation and infrastructure paralyzation. What is happening in Europe is not an isolated incident, as acute shortages are now appearing in China, Lebanon, India and Australia.

And it's only October.

The cure for this predicament, while painful, is fairly straightforward. Prices for traditional hydrocarbons will need to rise high enough to overcome the current significant political and structural impediments constraining investment in new capacity. Those prices will need to stay elevated for long enough to encourage the browbeaten and chastised resource C-suites to green light decade-plus investments to fill their diminished project pipelines. We view this outcome as both structurally inevitable and wildly inconsistent with current resource company valuations.

Inflation Prognosis: More Pain Ahead

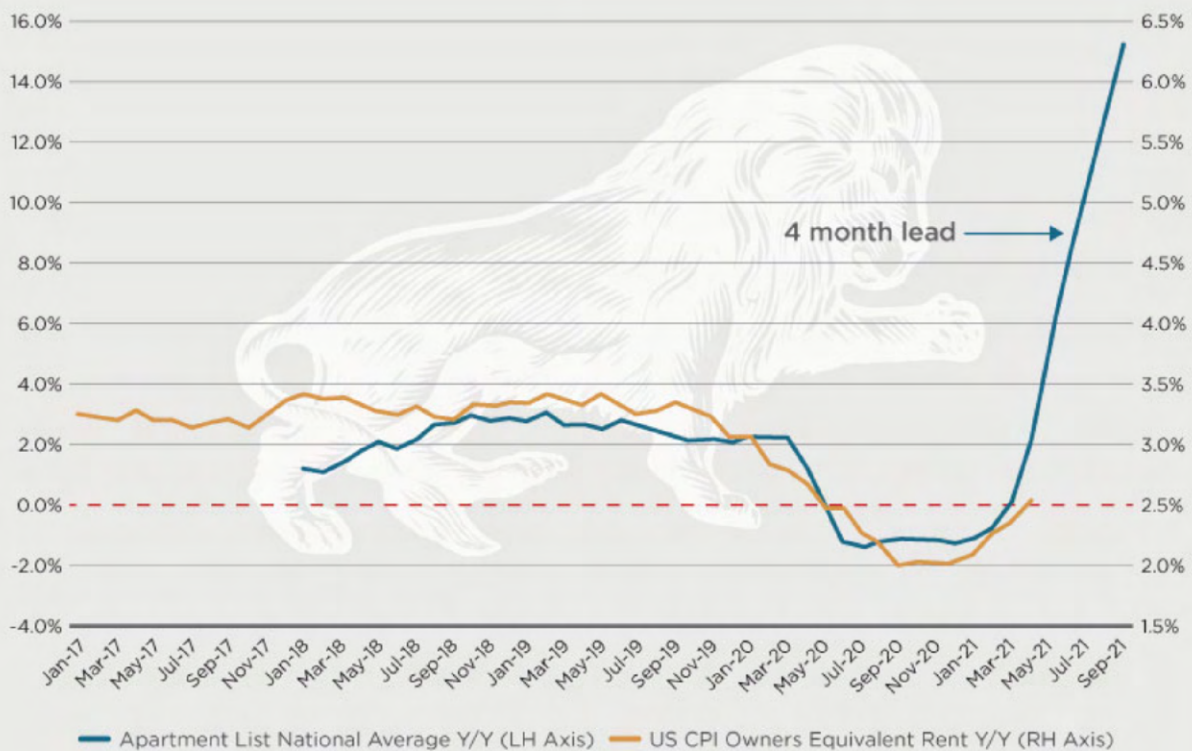
The sustained rise in energy input prices outlined above has not yet exerted itself across a vast array of goods and services. This will soon change, and the impact will be significant. Despite this accelerating upward pressure, the "omnipotent" US Federal Reserve remains confident that headline inflation will return to sub 2.5% for 2022. At the same time its use of the term "transitory" in the FOMC monthly statements fell from a high of nine in April 2021 to ZERO in its September communication (h/t @JA). We sense a lack of conviction, and rightly so. It is our belief that inflationary pressures are continuing to build across many of the largest components of the CPI. This is not a call for hyper-, or even 1970s style inflation. It is, however, a strong case for the current 4%+ levels to persist much longer than equity and credit markets are currently discounting.

The largest component of the CPI is shelter, represented by a statistical construct dubbed Owners Equivalent Rent (OER) which is intended to represent "the amount of rent that would need to be paid to substitute a currently owned house as a rental property." Effectively, it doesn't reflect the actual increase in rents but approximates it by asking homeowners for how much they **think** they could rent out their dwelling. Weighing in at 25% of the CPI and 12% of Core PCE, it is fair to say that this number matters. It is also fair to say that while OER has tended to move directionally and with a lag relative to housing prices, over the years it has vastly understated both the cost of renting and owning a home. As such, we choose to focus on the direction and likely magnitude of its impact going forward, and it is here that we are confident the trajectory is "higher" and "by a lot."

Although national rents have been accelerating with double digit gains over the course of 2021, the impact on CPI has been muted thus far. Should historical statistical relationships hold, we think the 15% rise in true rents this year will push OER from the currently laughable 2.5% to something at least in the 4.5% range. Even this small and, in our opinion, vastly understated number would push CPI higher by almost half a percent, suggesting a stable to upward bias despite the inevitable Federal Reserve and Central Bank jawboning.

Rent Inflation Should Now Start Showing up in CPI

US National Rent Y/Y% vs CPI OER Y/Y%



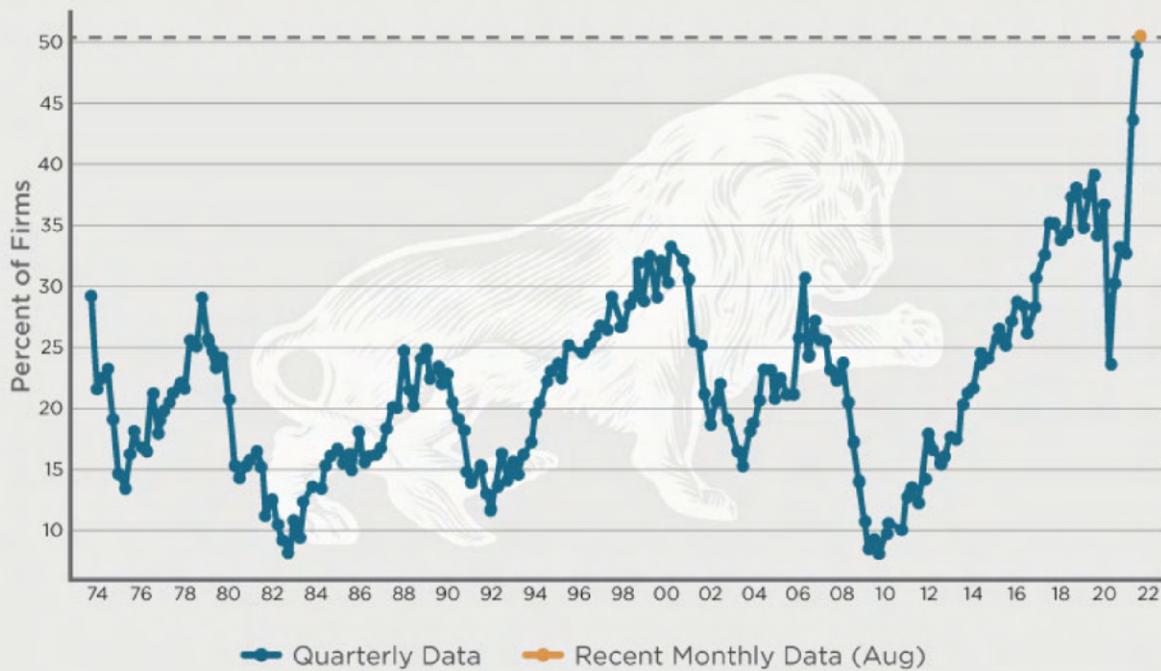
Source: Zero Hedge, Apartment List, BLS

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The impact of wages on inflation measures is even more convoluted than rents, but it is clear to us that the cost of labor is going up. Many had hoped that the reduction or elimination of government support for workers displaced by the pandemic would alleviate some of the labor shortages appearing across the country but these pressures, if anything, are intensifying. The inability to fill job openings is currently as acute as at any time in the last 50 years.

Unfilled Job Openings

Percent with at Least One Unfilled Opening



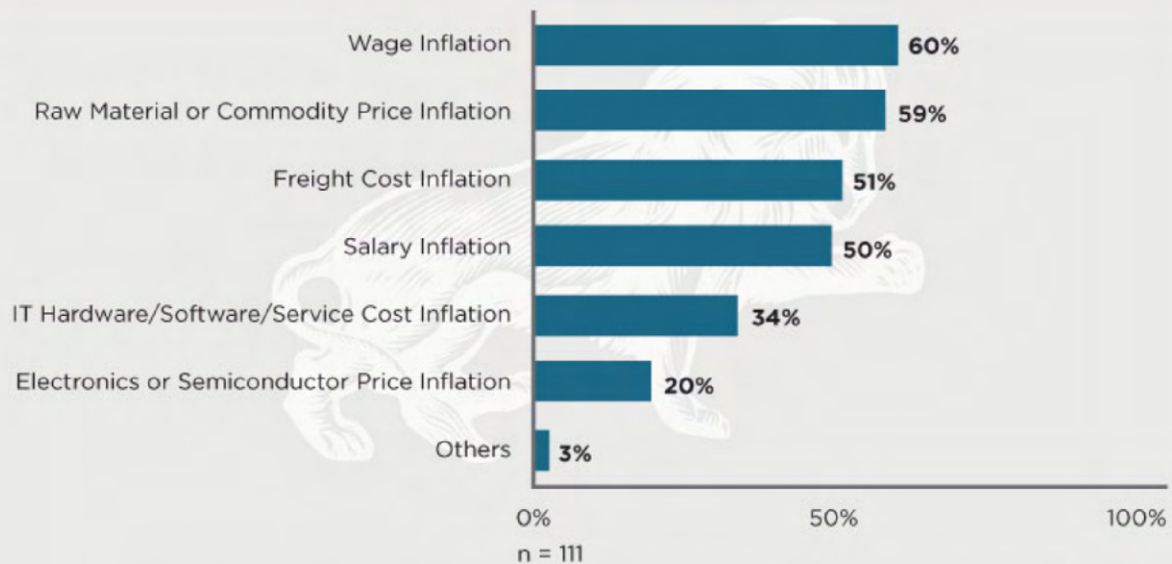
Source: NFIB

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The increased level of unfilled job openings may well be a byproduct of many factors, not the least of which is the rapid rise in financial assets, which has likely enabled millions of workers to retire early (h/t@VincentDeluard). Whatever the cause may be, with almost 60% of CFOs reporting wage inflation, the cost of hiring and retaining workers looks to be headed higher as well. We would also note that pricing power for commodities and transportation seem to be outpacing pricing power for technology by a factor of almost 2 to 1, notable given the bloated multiples on the latter versus the meager ones allotted to the former.

Inflation Signals Accelerating Across the Board

Percentage of CFOs Reporting Each



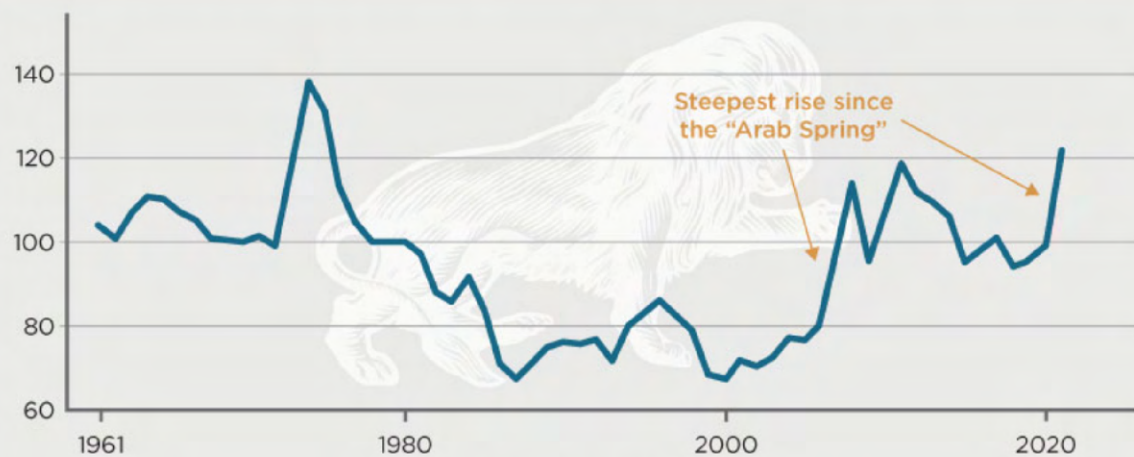
Source: Gartner (October 2021), July 2021 Gartner CFO Input Price Inflation Rapid Poll

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Food prices will inevitably be caught in the collateral damage from rising energy input costs as every step of their path from soil to table will be impacted. Rising fertilizer costs, increased electricity rates for processing as well as more expensive transportation will all result in severe inflation on Consumers' plates. It is here where the secondary and tertiary impacts are particularly concerning as previous episodes of rapidly rising food prices have corresponded with considerable social and political upheaval. A recent Bloomberg article noted that wholesale vegetable prices in China surged 28% in the last four weeks alone (through 10/22, well after the measurement of the chart below) with many pantry staples rising 50% or more. Also worth noting is that the chart is denominated in US\$, suggesting non-US consumers are, on average, seeing prices well above those of the 1970s. It is one thing to slowly watch one's purchasing power decline over time, but something else entirely to rapidly lose the ability to put enough food on the table to feed one's family.

Food Prices Don't Appear to be "Transitory"

Highest Inflation Adjusted Prices Since the 1970s

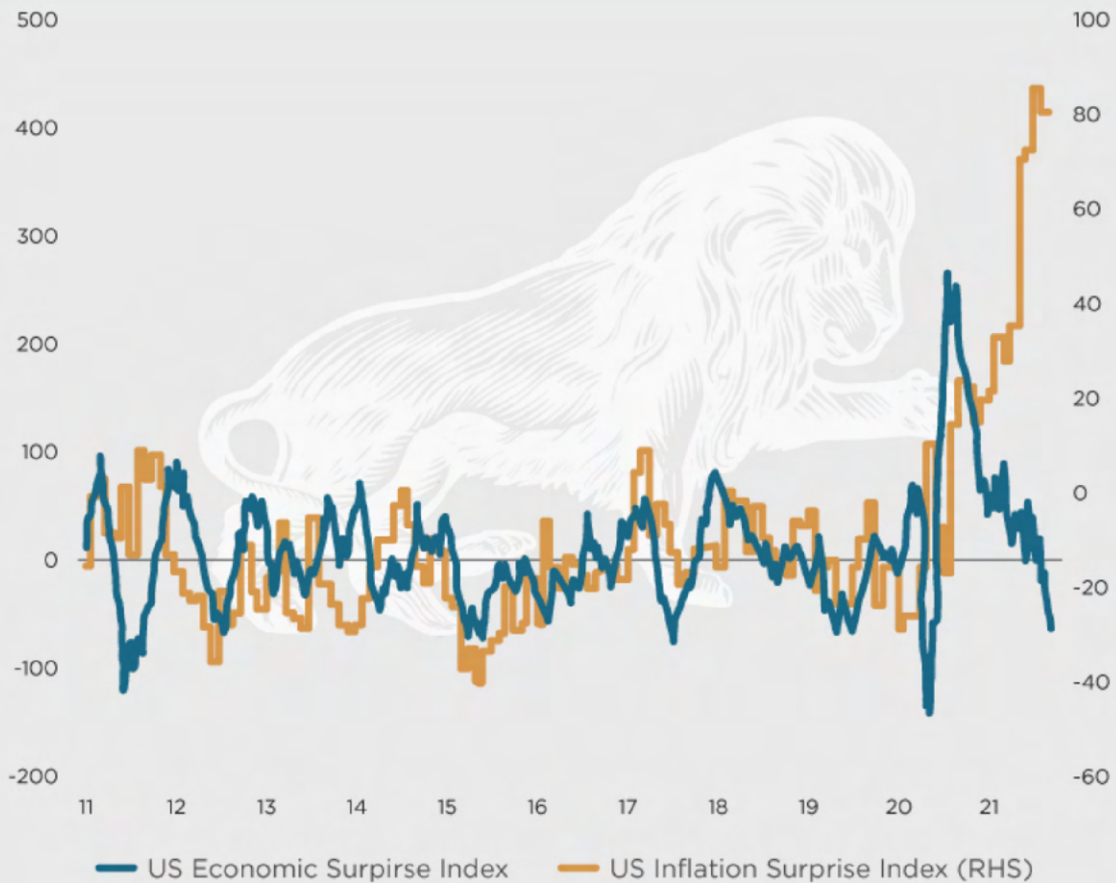


Source: UN's FAO

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A major point of pushback against the inflation thesis is the belief that a slowing economy will inevitably cool it down. That may well be the case if the inflation is of the "demand pull" variety as opposed to the "supply push" kind. The accelerating energy, rent, wage, food, and other prices mentioned above are doing so despite what we see as clear indications of an economic deceleration. We do not intend to minimize the importance of demand growth but feel increasingly confident this inflationary cycle hinges much more on constrained supply. Whether it be the Chinese purposefully tapping the brakes to reduce rising energy cost pressures or here in the US as the impact of historic consumer focused stimulus fades, there is building evidence that price levels across large and essential segments of the economy are accelerating concurrently with, and despite lackluster growth.

Inflation Decoupling from Economic Trend



Source: Topdown Charts, Datastream, Citi

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The Inconvenient Truth for the Future of Renewables Pricing

When one discusses a topic as complicated and vast as the global energy system, it is understandably hard to boil down economic realities to absolute truths. When the popular press quotes the seemingly ubiquitous "Levelized Cost of Energy" or LCOE statistics, it is very easy to come away with the

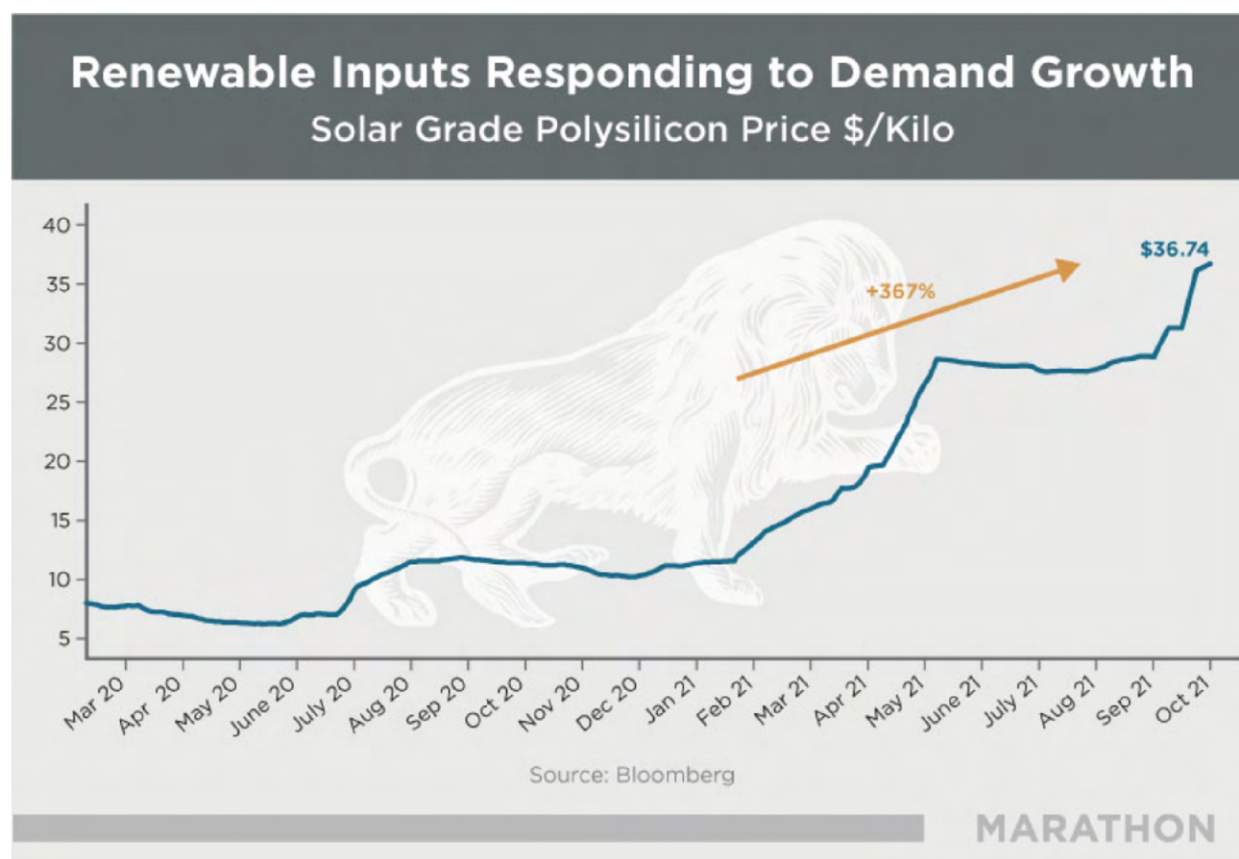
impression that wind and solar power are, or will soon be, cheaper to deliver to the consumer than the entrenched fossil fuel and nuclear system. While the intent of the LCOE measurement is to make an apples-to-apples comparison amongst the alternatives, when one peels back the onion on the assumptions behind the numbers, it is increasingly clear there is a meaningful disconnect between the simplified statistics and real-world experience. It actually requires further adjustments for capacity factors (baseload v intermittent), transmission and infrastructure upgrade costs, storage efficiency and several other variables to reach an accurate measure of true cost to the end consumer.

The lynchpin in the assertion that renewables "will soon be" cheaper than fossil fuels is the extrapolation of rising efficiency and falling costs that have been experienced in wind and solar since wide scale production began over two decades ago. In other words, conventional wisdom suggests that simply because the cost of a solar panel has fallen by x% annually since the early 2000s, we should assume this trend will continue indefinitely.

We find two significant flaws with this premise. The first relates to incremental efficiency. Power does not obey the often-invoked Moore's Law, which is not really a physical law but an observation that transistor density on microchips would double every year and result in logarithmic increases in processing power over time i.e., rooms of supercomputers reduced to a handheld device. Brilliant and world altering stuff for sure but not applicable to the generation and storage of power. For that you need actual physical laws, like the Shockley-Queisser and Betz Limits that apply to solar and wind efficiency gains, respectively. These two laws teach us that as you approach the maximum limits of turning wind and photons into electricity, incremental improvements diminish over time as opposed to accelerate.

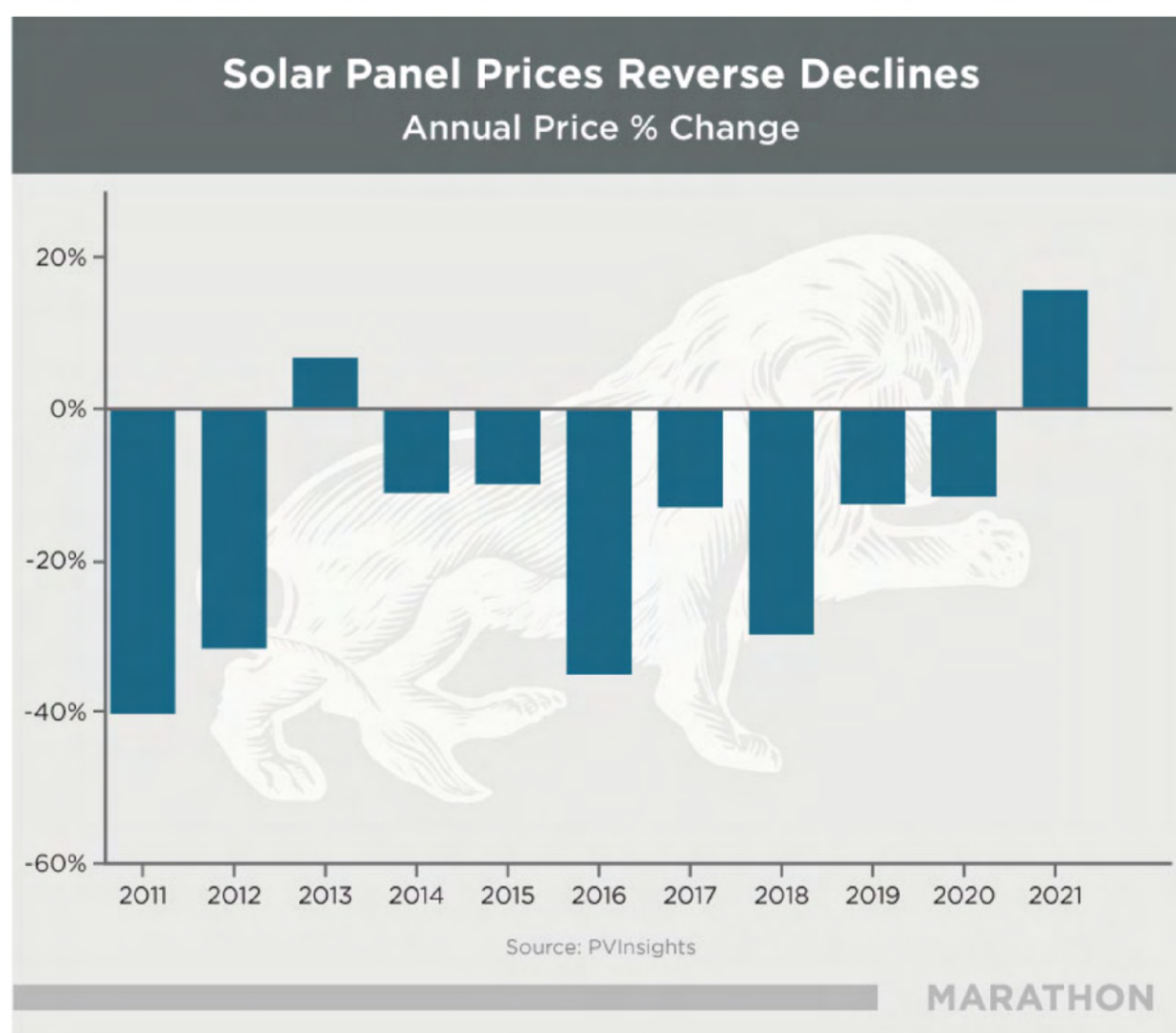
The second flaw relates to input costs which, over the last decade, have remained relatively flat despite solar and wind installations surging 20-fold and 5-fold, respectively. However, this has begun to change drastically as untethered government expenditures and a flood of private sector capital have driven demand for lithium, cobalt, manganese, graphite and other critical materials well in excess of current mine capacity. It has been our assertion that if the investment in renewables were to grow at even a fraction of the rate that

political promises were implying, the cost of critical materials would have to rise significantly. We can now state with conviction that our contention has materialized and the implications for the price of a Green future are not pretty.



There is no doubt that technological advancements have contributed to the falling cost of renewables such as solar power, but the real driver has been manufacturing efficiency. As global utility-scale solar ramped from less than 50GW to more than 450GW over the last 8 years, major economies of scale provided the lever for falling prices. Helping this along was the concentration of manufacturing in China with its widely available inexpensive labor force and electricity supply. Also contributing was the willingness of Chinese solar companies to sell panels at a loss in order to consolidate their stranglehold on the sector. As both technological and manufacturing improvements have become increasingly marginal, it will be energy and raw materials prices that will have the largest impact going forward. Energy prices not only influence the cost of extracting and refining critical inputs but are also essential to many

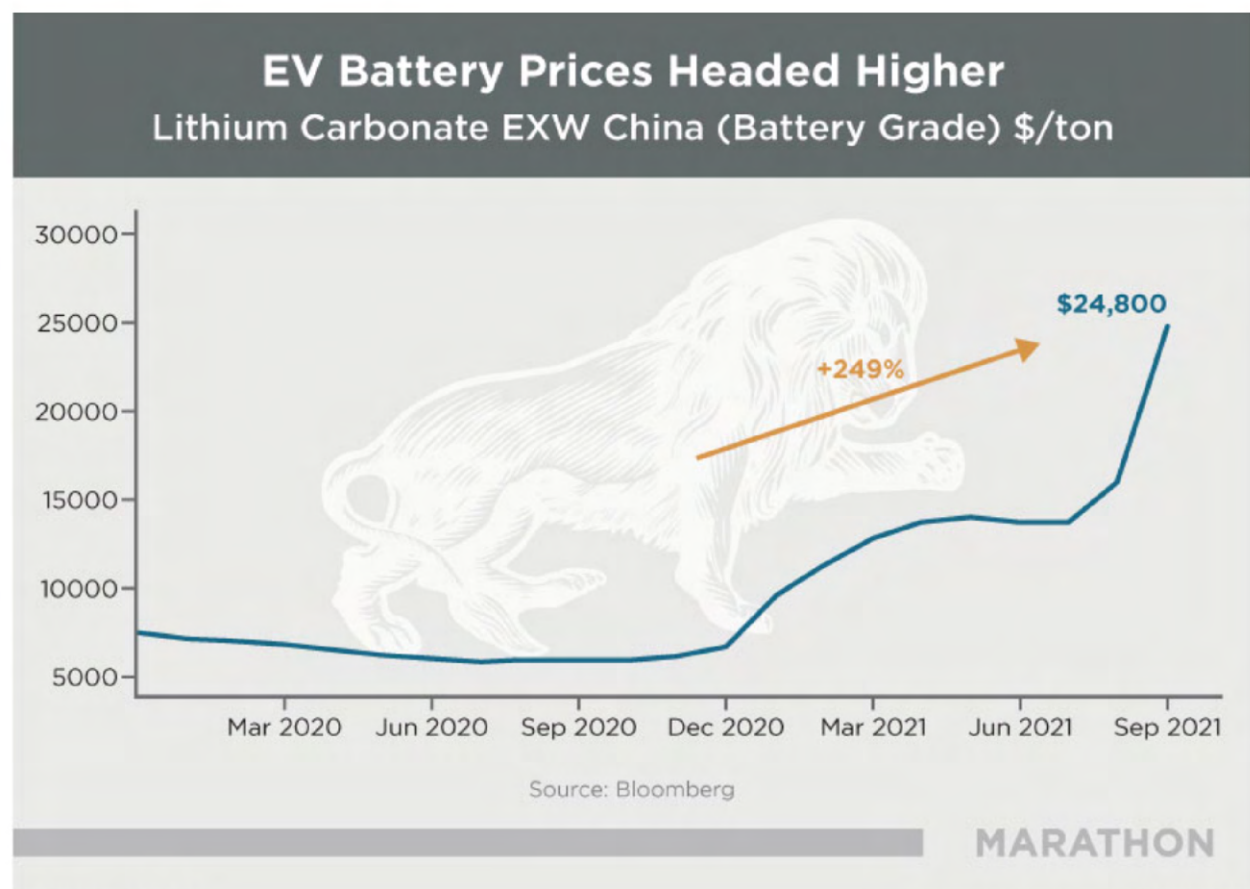
of the composites and alloys that are key to renewables functionality. For example, as one can see in the charts above and below, the skyrocketing price of polysilicon is not just offsetting but abruptly reversing the assumed path of perpetual cost declines for solar panels.



The key ingredient for effectively integrating intermittent renewables into the existing grid is the buildout of energy storage capacity. According to J.P. Morgan, current storage capacity in the US is capable of backing up only ~2% of domestic electricity generation, with the vast majority of that being pumped water storage. Battery backup is expected to carry the majority of the incremental storage load going forward even though it is still less than 10% of that total, or 0.2% of national capacity. The outlook for battery demand for

electricity storage coupled with the massive anticipated need for millions of batteries for purported EV adoption suggests to us that the path to 'Green' is lined with...batteries.

Advancements in battery composition may well enhance performance going forward, and battery technology has certainly come a long way since the first lithium-ion battery was introduced by Exxon in the mid-1970s; however, improvements have been more evolutionary than revolutionary. As mentioned above, were Moore's law applicable here, a transcontinental jet could now be powered by a battery the size of a lunch box as opposed to one similar in size to the jet itself, which it would now require. In order to plug in our cars and effectively feed the grid with wind and solar power, it is hard to ignore the demand for the raw material inputs that are paramount for developing the overall infrastructure and ecosystem will far outstrip supply. We simply cannot grow at the pace of politicians promises without triggering a massive rise in the prices of critical materials.



In sum, it is our belief that we are on the cusp of the renewables industry being forced to "come clean" about the rising costs of the power they can provide going forward. This will result in a massive upward revision in the projected outlays government and industry will have to make to reach their well-intentioned but poorly understood promises for decarbonization. To be clear, we believe renewables can and will play an important part in moving towards a cleaner and lower-carbon future; we would just prefer that path be driven by rigorous data rather than political rhetoric. It is our hope that this will spark a more constructive conversation about the ability to bridge the energy transition with increased use of natural gas and nuclear power, as well as a realization that impulsively cancelling and de-funding the broader fossil fuel industry comes with serious affordability and reliability risks.

LITHIUM ION BATTERY PRICES RISE FOR FIRST TIME IN GIGAFACTORY ERA; AUTOMAKERS IN NEGOTIATIONS

27th October 2021 [Batteries](#)

Battery cell producers have begun to increase lithium ion battery cell prices following a period of consistent raw material price rises throughout 2021, particularly for lithium.

Several of China's major lithium ion battery makers have written to customers setting out intentions of new pricing structures, citing the rise in cathode and anode raw material prices as well as higher costs more generally, including for non-active materials such as PVDF binder, foils, and energy.

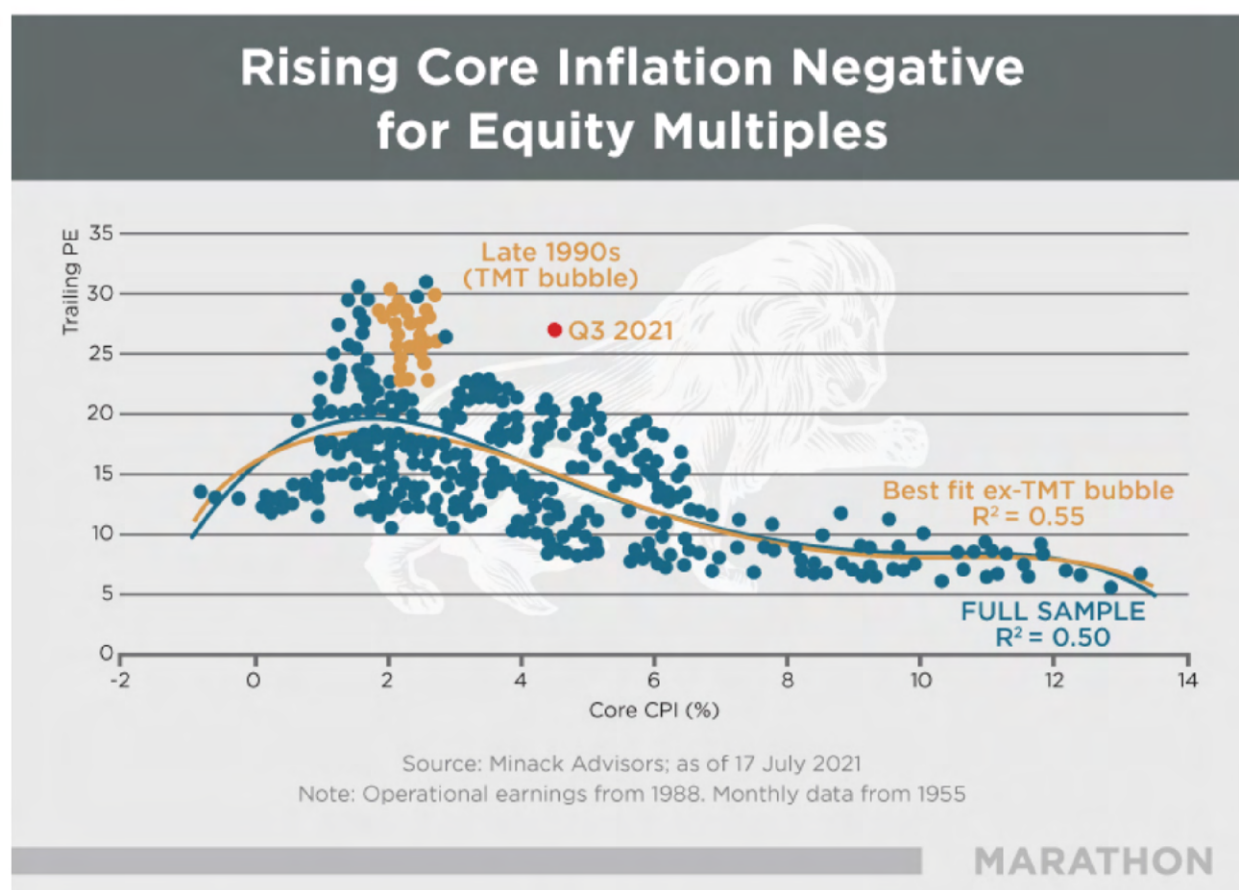
Lithium carbonate has been singled out as a major driver behind the battery cell price increases.

Benchmark's Lithium Carbonate Price EXW China (battery) has increased 313.33% since this time last year, reaching RMB 185,000/tonne (\$28,675) in mid-October. Lithium carbonate prices are presently at all-time highs and set to continue on their upward trajectory as demand continues to outstrip supply.

The Role of Resource Equities in Inflationary Times

We have highlighted in a number of previous notes that the role of fixed income as a portfolio risk mitigator sours considerably as inflation rises above 3.5%. The removal of a large positive-carry hedge would normally require a reduction of leverage and risk, but with nearly everyone making loads of money in Stocks, Private Equity, Venture Capital, Collectibles, Crypto - pretty much everything really - that seems like a terribly old-fashioned thing to do. With inflation accelerating, most investors seem content to "ride the wave," seemingly secure while grasping to the perception that equities are usually "OK" in an inflationary environment. It is here where our opinion differs from the crowd.

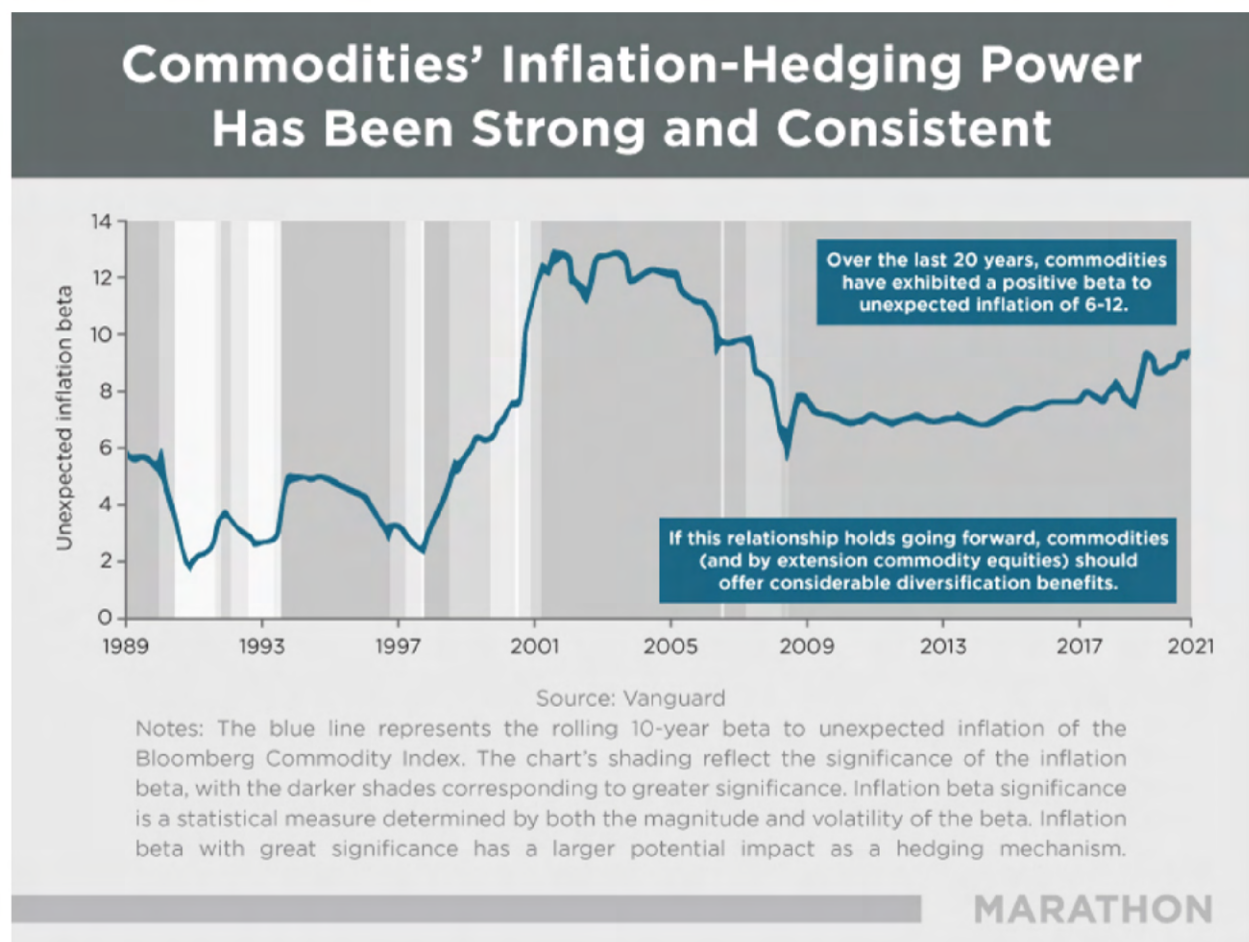
The devil, as they say, is in the details. Equities can do well in an inflationary environment if they come into it with low multiples, as they did in the post-WW2 1940s. That was not the case in the 1970s, as the collapse of the "Nifty Fifty" stocks can attest. We also believe it is unlikely to be the case today, with equity multiples almost 20%+ higher than any time in the last 70 years when Core CPI was running above 2.5%. With VC, PE and their ilk all really equity-driven, effectively short-volatility allocations, **it is our assertion at current valuations that the majority of asset allocators are effectively leveraged short inflation**. It is not hard to see that this has the potential to end rather poorly.



The real trouble comes when the "E" in P/E starts to suffer, which puts most companies in a rather sticky predicament. If management passes on surging input costs to customers, it both feeds inflation further and risks impacting end demand and losing sales. If they don't, margin compression eats away at earnings. In addition, even a modest rise in borrowing costs could siphon

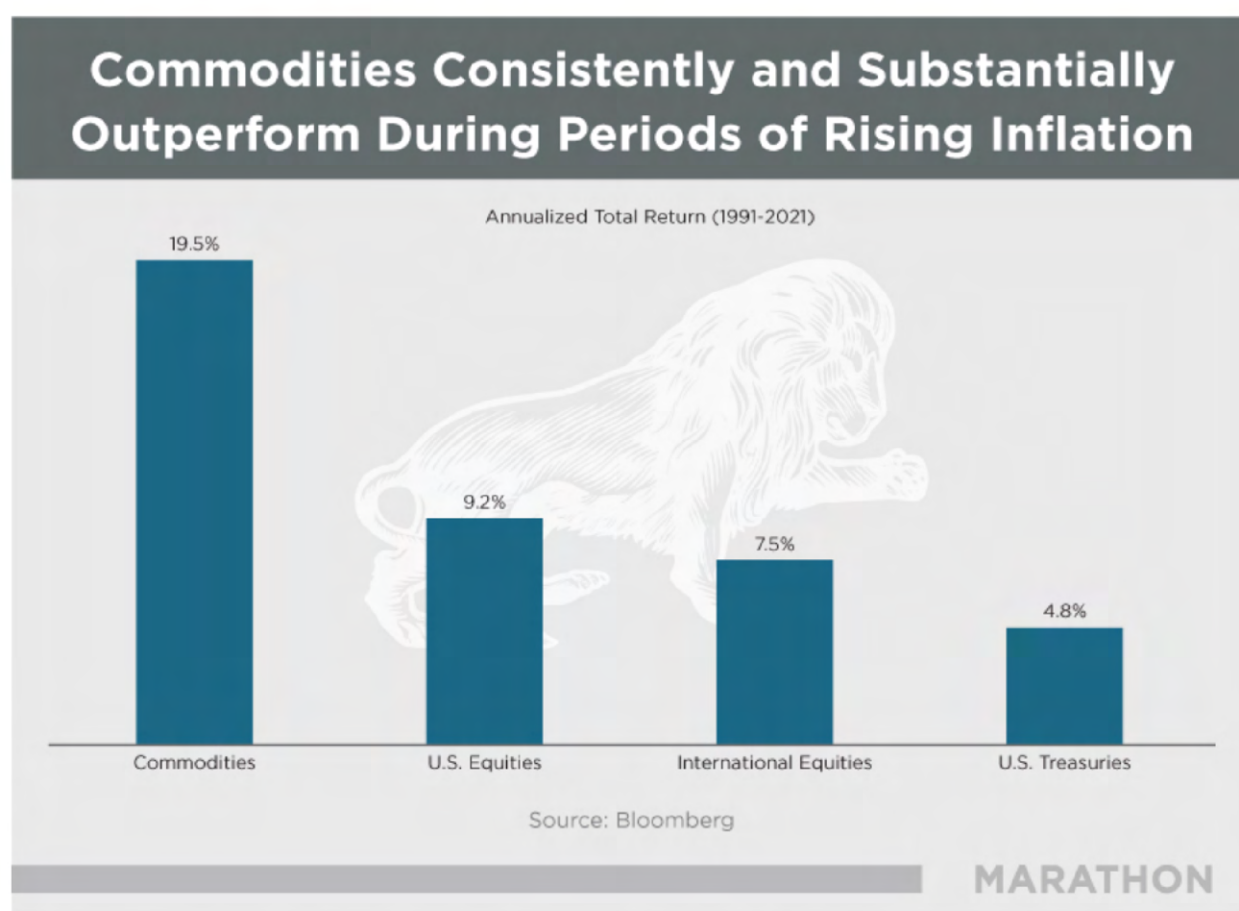
10%-15% of S&P earnings right off the top, an outcome that current heady multiples likely aren't incorporating. Perilous times indeed.

There is considerable evidence that the most logical and efficient way to protect portfolios during rising inflation is to allocate more to the beneficiaries, namely commodities and their related equities. Over the last 30 years, the beta of commodities to unexpected (higher than expected) inflation has ranged from 6-12x, meaning that for every 1% of upside inflation corresponded with commodities rising 6-12%.



This relationship between inflation and commodities should offer tremendous convexity to insulate inflation-vulnerable portfolios from harm, particularly via commodity equities, which should enjoy multiple expansion as well. It is worth noting that the outperformance shown below was actually during a period when resource equity multiples were generally contracting while broader market

resource equity multiples were generally contracting while broader market multiples were relentlessly expanding. With commodities relative to financial assets **and** resource equities versus the broader market trading at their lowest levels in multiple generations, two things are clear. First, re-expansion of multiples has the potential to drive significantly greater outperformance than we've seen over the last 30 years. As well, the only way one could see multiples this low with inflation staring us in the face is that investors remain universally complacent that the low inflation regime remains intact.



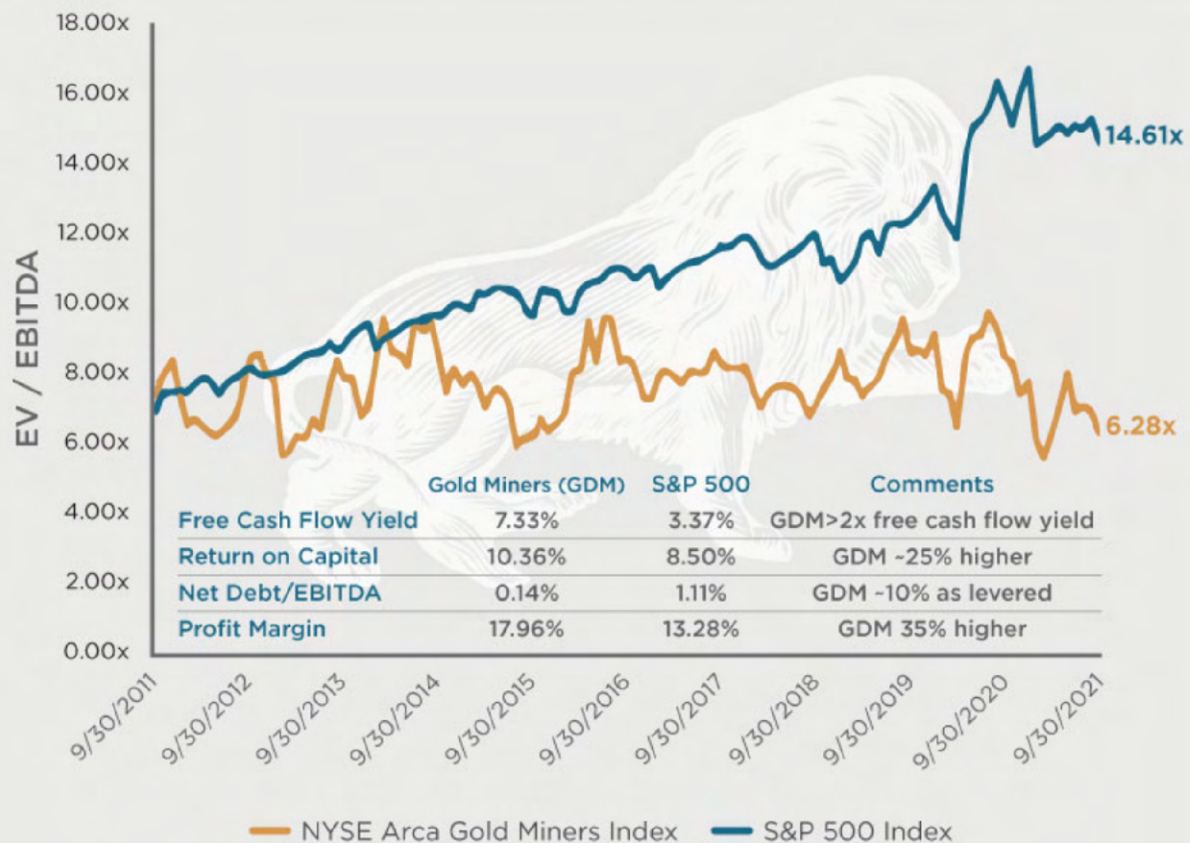
Our portfolio currently consists of a rather absurdly inexpensive collection of resource companies across the traditional and green economy. Roughly 20% of our book trades at less than 1x spot cash flow over the next 12 months, with another 50% weighing in at less than 3x that same measure. Some examples:

- A nitrogen fertilizer MLP that, due to significant geographic advantages (shorter transportation, cheaper feedstock), looks to us capable of generating a 25%+ dividend yield in the coming year.
- An oil & gas royalty company that at current prices should generate over 20% of its market capitalization in distributable income in 2022.
- A debt-free basket of global tin producers trading at less than 2x cash flow.
- A soon-to-be debt-free basket of global coal producers trading at <1x cash flow and generating a 50%+ free cash flow yield, much of which will be distributed to shareholders.
- A rapidly deleveraging dry bulk shipping company that should generate a 20%+ dividend yield in 2022.
- A debt-free basket of platinum group metals companies trading at a 35% free cash flow yield, paying double-digit dividends.

While many of the stocks above have rallied significantly this year, their earnings have expanded even faster, leading to the extreme multiple compression we find so attractive. Conversely, the precious metals sector has endured double digit declines YTD in spite its surging profitability and cash flow. The chart below shows that after frequently trading at similar multiples to the broader market from 2011-2013, gold equity valuations have suffered as the broader market multiple has expanded. Currently selling at less than half the cash flow multiple and twice the free cash yield of the broader market while exhibiting significantly better balance sheets and higher profit margins, these stocks appear to offer considerable value. This is particularly true given the proclivity of gold and its related equities to shine brightest during episodes of broader market turbulence, offering considerable diversification benefits to investors willing to tolerate their occasionally confounding behavior.

Precious Metals Equities

Business is Great, Valuation is Compelling



Source: Sprott Gold Report 10/18/21, Bloomberg as of 9/30/2021.

Gold mining equities are represented by the NYSE Arca Gold Miners Index (GDM). Reflects the Enterprise Value (Market Capitalization plus Total Debt less Cash) to estimates of forward EBITDA compiled by Bloomberg. Higher figures reflect companies are trading at a higher premium relative to their earnings. You cannot invest directly in an index. Past performance is no guarantee of future results.

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It is no surprise that over the last decade that most investors fled the resource space as outsized volatility, poor performance and ESG/political scrutiny gave market participants every possible reason to search out greener pastures. That said, we believe there is a high probability that inflationary pressures will persist, and that investors will begin to find incremental utility in owning raw

materials and companies involved with them. Avoiding the sector when doing so led to outperforming one's benchmark was a no-brainer, but continuing to eschew them when they are the top performing market segment comes with significantly more career risk.

During the third quarter, the line of sight on inflation has become clearer while the valuations of our portfolio companies have compressed even further. To reiterate our closing Q2 Investor Letter sentiments: ***We continue to believe our strategy offers a highly convex, robustly positive carry allocation for investors to gain real asset exposure and inflation protection at a time when it appears timely, prudent, and increasingly inexpensive to do so. Data suggests that allocators remain significantly overexposed to record expensive asset classes utterly dependent upon a complacent continuation of deflation and suppressed volatility that has characterized the majority of the last dozen years. The case for real asset exposure is more compelling today than at any time in our 25+ years of investing in the sector.***

Robert Mullin

General Partner/Portfolio Manager

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