

## 4<sup>th</sup> Quarter Commentary

January 2022

## Introduction

Well, it's started. People who, six months ago, a year and two years ago, didn't think it was in the cards, financial news programs that wouldn't give it the time of day, suddenly can't stop talking about it. Inflation. The idea of it – even if not the important essentials– has graduated to the mainstream.

Which is why I said “it's started”, not “it's arrived”, because whatever you hear in the 5 minutes devoted to it on radio or television, even if repeated twice every hour, those are *not* the reasons for it, which means it's *not* the inflation we are likely to have. What's changed is that rising price level figures have finally surfaced into official statistics like the CPI, legitimizing the topic. The news media then report it, which is where the public, the majority of investors, learn about important events. But a reporter's job is to report what is happening *now*, after whatever is happening is already happening.

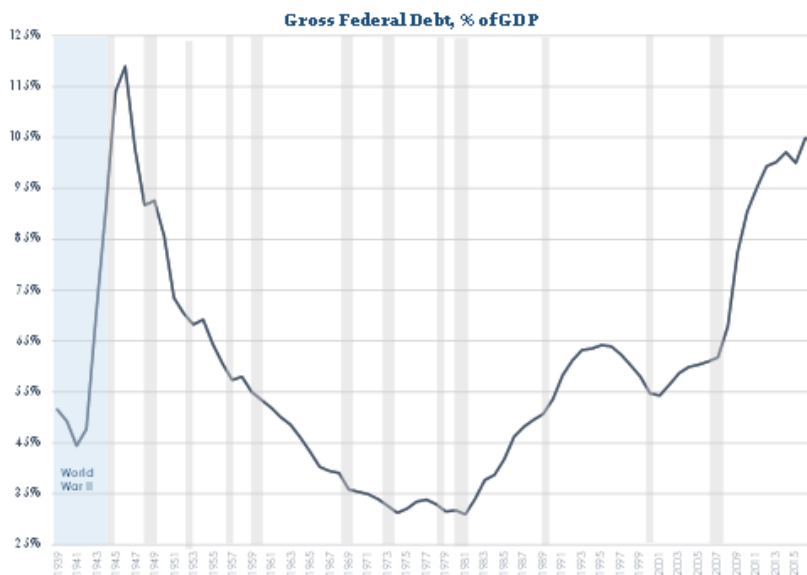
That's a bad place for an investor to be, because any systemic problem has been developing long before it 'comes public'. So, the inflation we see today is only the very beginning of the process. Inflationary events will continue to develop, and the news and the public discussion will continue to lag behind. It will always manage to sound 'fresh', yet remain out of date. Believe it or not, for all the pile-on discussion now, nowhere does the news or Federal Reserve discuss what is really, structurally, creating inflationary conditions.

That's not to say that the edifying data isn't freely available well in advance. It is. There is usually plenty of warning, because economy-wide and market-wide excesses take time to build, to then become unsustainable, to then reach a tipping point. But a few years of waiting for those endpoints to manifest is plenty long enough to become bored or

### From 2018:

Here's another way to think about systemic risk. This is the 10<sup>th</sup> year of a global economic expansion, about as good as it gets, historically. Yet every nation in the world but a relative handful is still running a fiscal deficit. The U.S. debt-to-GDP ratio, at 104% was only higher in 1945 and 1946, following the funding for the nation's all-out World War II effort, a situation so extreme that every American citizen was issued ration books, which were required for buying necessities ranging from gasoline to butter. Infractions were punishable by fines up to \$10,000 – in 1940 dollars! Ordinarily, years of economic expansion have afforded the government a chance to effect some balance sheet and income statement repair.

Yet, after a 9-year economic recovery, one of longest since World War II, the state of the balance sheet and budget are at historic extremes in the wrong direction. If that's where we are now, then what happens during the next downturn? This seems like a historically risky place to be in an investment context. Let's hope that ration books are not in our future again. Yet, the risk-free interest rate is still zero in real, after-inflation terms. The majority don't seem to be concerned, at least not to the degree that they require higher yields from bonds or lower prices from stocks.



distracted. This exhibit from a *Quarterly Commentary* a few years ago, for example, one of a number of almost unassailable historic indicators of future inflation, might look familiar. Ever since, we've periodically updated and discussed this and other precursor data.

One of the messages for today is that the type of inflationary environment we are very likely to have is of the change-of-era type. It might one day be looked back upon as the shift from a multi-decade disinflationary period to a massive inflationary and purchasing-power-debasement period.

### *The topics for today:*

- A mountain-peak view of the past 20 and 40 years, for a clear, visual picture (there will be pictures) of where we've come from. So that you can see both: a) how the markets you know came to be that way and to feel normal, and b) that the conditions that led to this place have ended or are ending even as we speak.
- A review – because some important things can't be repeated too often – of the structural pressures that now presage the end to this 40-year cycle.
- A look back: what a high, extended level of inflation really means for the citizenry.
- What they say about inflation (and what they don't). The difference between what policy makers and investment news media talk about, and the real underlying issues.
- How the financial markets might distract, or harm (or help).
- Some ways to prepare, to benefit, rather than fall victim.

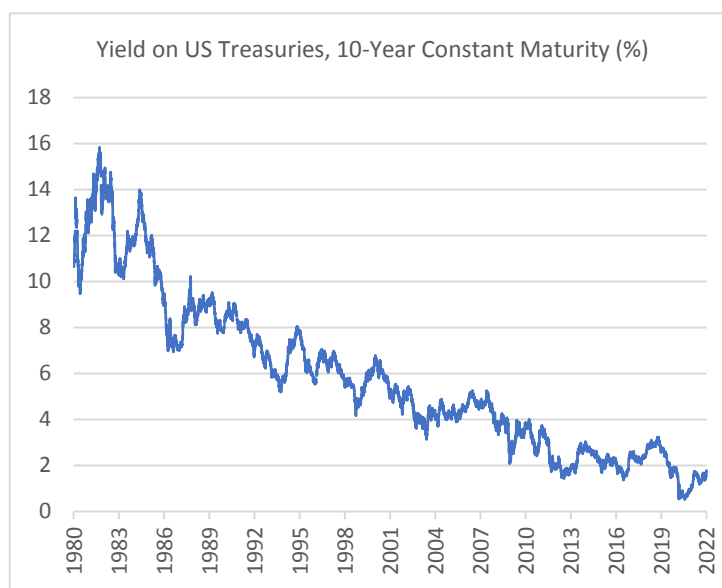
### **Know a Change of Era When You See One**

You might not know it, but the U.S. economy and financial markets have been in a distinct cycle for the past 20 to 40 years. That's long enough for everyone to get the hang of the rules and accept them as what normal looks like. But it's not normal in any absolute sense. There are conditions that led to this cycle, and those conditions have changed and will end it. Then there will be other 'normals.'

Here is a list of some systemic conditions that have occurred in the past 40 years. Consider, for any individual factor – or for all of them in concert – the massive benefit they've been for financial assets, especially stocks and bonds.

### ***The near continuous, 40-year decline in interest rates, from 14% in Jan 1981 to 1.7% now.***

That contributed to expanding net profit margins, since companies could continually refinance their higher cost debt at lower and lower rates.



Source: Federal Reserve Bank of St. Louis

Declining interest rates were also a force supporting higher valuations for financial assets...

***The 40-year increase in stock valuations, from 0.5x GNP in 1981 to 2.7x now.***

Declining interest rates supported an increasingly higher valuation for every dollar of corporate earnings, *particularly* for fast-growing companies.

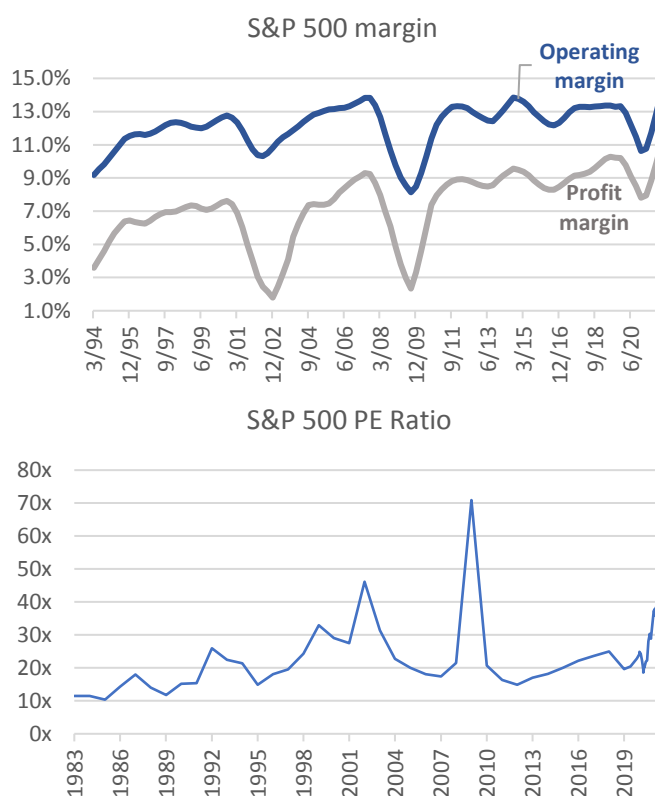
Why does that happen?

Compare a low-growth company that has a 10% dividend yield (like a timberland REIT that pays out all the harvesting fees it receives) with a high-growth company with no or low profit margins, like a Netflix.

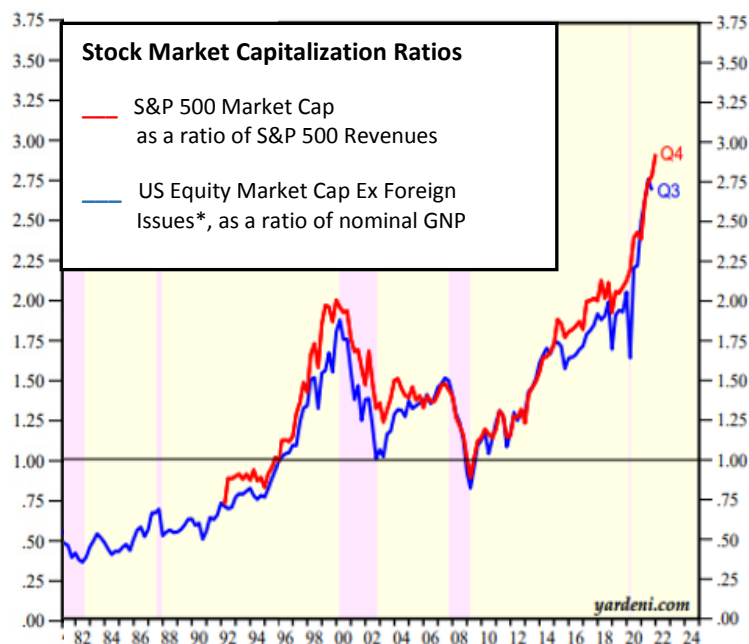
If you buy the REIT, the dividends will repay all of your purchase price in 10 years. At a 3% growth rate, within 9 years. A choice to buy Netflix instead of the REIT would be to give up a relatively assured 50% return within 5 years, and a 100% return within 9, in exchange for the possibility that the Netflix earnings will eventually greatly exceed what could be collected from the REIT. Not an obvious decision; seems like it could be too risky.

Now let's change the starting point for this choice to when interest rates – and the yield on the REIT – have dropped from 10% to only 5%. Netflix still doesn't have much of a profit margin, and it's still growing rapidly.

At this point, it would take 20 years' worth of dividends to recoup the investment in the REIT, 16 years if it grows at a 3% rate. By comparison, the Netflix earnings possibility of the next 5 or 10 years now weigh much more attractively versus what will be collected from the REIT. Basically, low interest rates reduce the proportion of total value that you receive in the near term, so riches farther away have greater relative appeal. People become willing to pay more for long-term possibilities over certain-but-diminished short-term reward.



Source: Bloomberg. Margins are average for trailing 4 quarters.



*It is no accident that over these past 40 years, the price one pays for every dollar of sales in the S&P 500 has quintupled, or that the price for every dollar of earnings has quadrupled. More or less, as the mirror image of declining interest rates.*

## ***40 years of exporting inflation***

Beginning in the 1980s, U.S. corporate profit margins have benefited from decades of disproportionately favorable global expansion conditions. This began with the 1979 resumption of U.S.-China diplomatic relations and a joint Most-Favored-Nation status for trade. U.S. large-cap multinational companies – essentially those at the top of the S&P 500 – began to exploit a global labor-cost arbitrage by shifting production and employment to China, then to other lower-wage nations around the world, selling that lower-cost production into more affluent markets. Prior to then, labor was not globally transferrable.

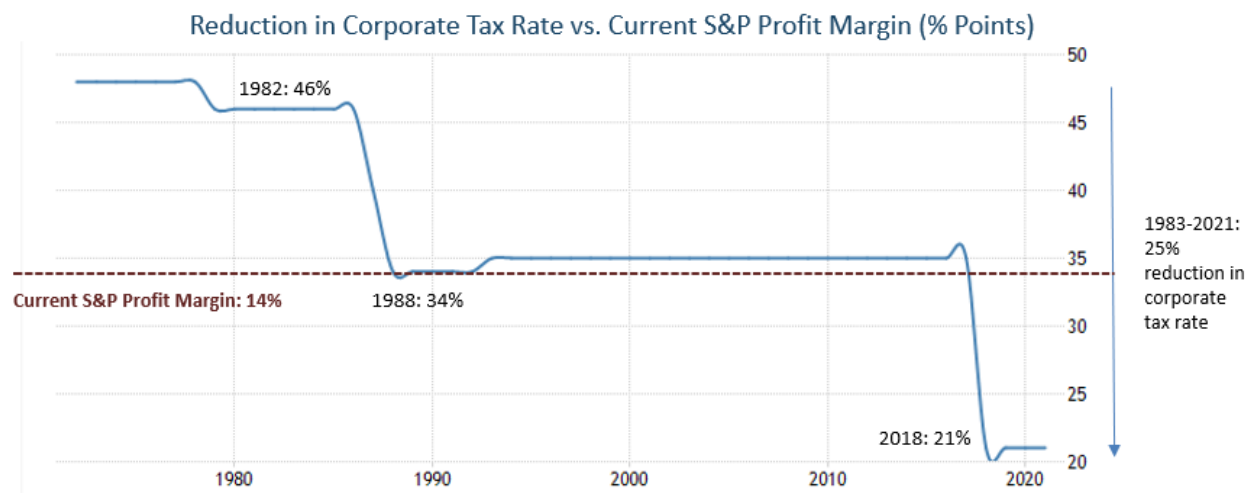
Also, by the 1980s to 1990s, most global economies had eliminated the capital controls that had until then been the norm. Anyone old enough to be a tourist in the 1970s, would remember just how little cash or purchased-gift value could be brought back on international flights. Some would launder newly purchased clothing before the return trip, to avoid having it counted.

Ergo, Apple's renowned global supply chain management network. While this production/labor arbitrage devastated much of the U.S. manufacturing base, it reduced domestic price pressure, counteracting the Fed's already inflationary monetary policy.

## ***Not to give short shrift to 40 years of reduced corporate tax rates...***

Imagine running a business with a pre-tax margin of 15%, while your tax rate declines by 25% points. The marginal corporate tax rate in 1982 was 46%. It was reduced to 40% in 1987, then to 34% in 1988, and ultimately down to 21% in 2018.<sup>1</sup> From start to finish, a 25%-point reduction in the tax rate.

Exactly what does a 25%-point tax cut do for the S&P 500 earnings over 40 years? I don't know, frankly, since there are always workarounds and tax reduction or avoidance tricks up a Fortune 1000 corporate tax



<sup>1</sup> <https://taxfoundation.org/historical-corporate-tax-rates-brackets/>

accountant's sleeve. But just take that number and set it next to the S&P 500's pre-tax operating profit margin in 2019, which was all of 15%.<sup>2</sup>

## ***And 40 years of falling commodity costs***

Starting with oil, it's been 40 years of lower prices, including a more recent 15 years of lower prices (*the 2<sup>nd</sup> of these two charts*).

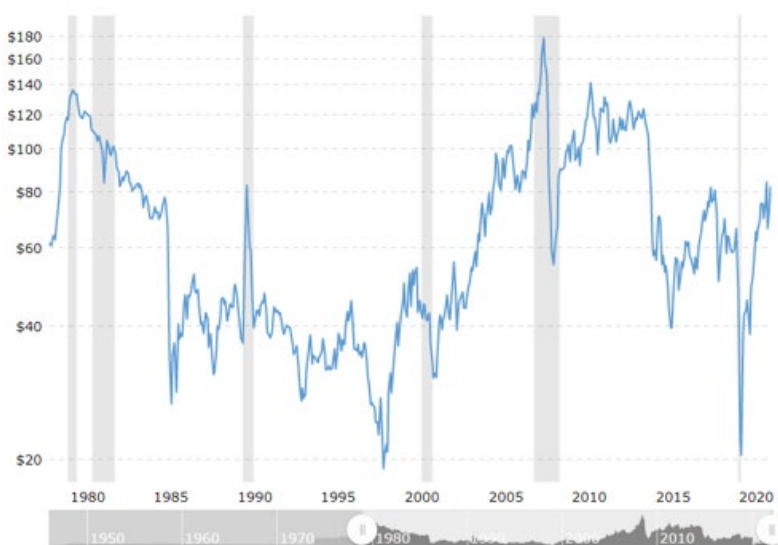
On a purchasing power basis, oil is extraordinarily cheaper than 40 years ago. Since general price level – going by the CPI – has risen 3.0x since 1981, 1981's oil price of \$120+ per barrel should now cost \$360. At today's \$80, oil, that most critical of all commodities, which is imbedded in almost every product and service, has been markedly disinflationary.

In the same way that the 1980s opened the Chinese labor market to the U.S., the 1991 dissolution of the Soviet Union opened a hard-commodity supply market to the world. Russian oil exports more or less doubled from the mid-1990s through most of the 2000s.<sup>3</sup> Its aluminum exports rose 50%.

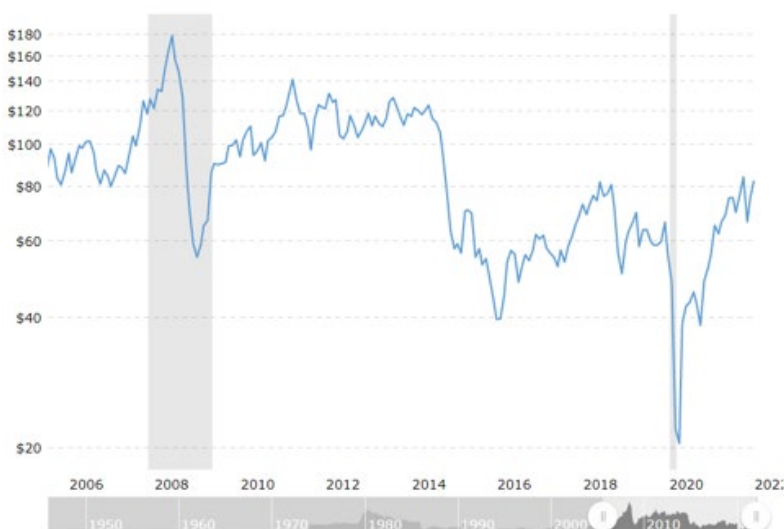
In 2015, China's economic policy shifted from a primary emphasis on manufacturing toward support for the services sector; it wanted to build a developed-nation service economy. Until that point, global raw materials production capacity had expanded mightily in order to serve demand from China and other so-called BRIC nations

## **40 Years of Oil Prices: Down**

<https://www.macrotrends.net/1369/crude-oil-price-history-chart>



## **15 Years of Oil Prices: Down**

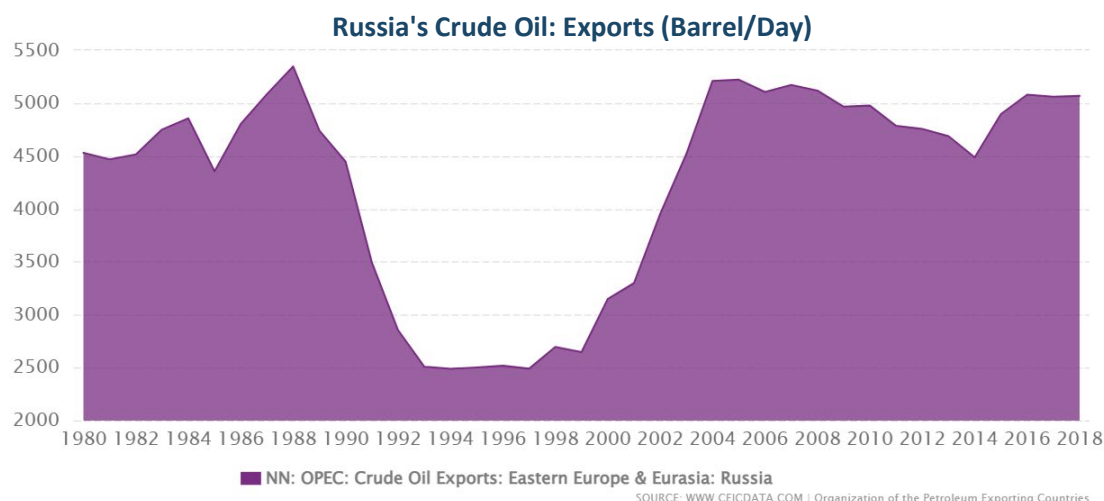


Source: [www.macrotrends.net](http://www.macrotrends.net)

<sup>2</sup> [https://csimarket.com/Industry/industry\\_Profitability\\_Ratios.php?&hist=8](https://csimarket.com/Industry/industry_Profitability_Ratios.php?&hist=8)

<sup>3</sup> <https://www.ceicdata.com/en/indicator/russia/crude-oil-exports>

(Brazil, Russia, India), and prices had risen dramatically. That policy change exposed an oversupply condition that was already in place. Dramatic price declines ensued. In the short term, beginning in 2014, through early 2016, the iron ore price declined over 70%, thermal coal by 33%, and copper by over 40%.



Source: [www.ceicdata.com](http://www.ceicdata.com)

*Plus, the more recent decade-long decline in other commodity prices.*

Since the peak in hard commodity prices around 2011/2012, this is what an index of eight basic industrial metals has done. Down 37% through mid-2020, even as the CPI measure of the general price level has risen. That's copper, iron ore, aluminum, nickel, tin, zinc, lead and uranium.

**Commodity Metals Price Index Monthly Price**



Description: Commodity Metals Prices Index, 2005=100, includes Copper, Aluminum, Iron Ore, Tin, Nickel, Zinc, Lead and Uranium Price Indices Sources: <https://www.indexmundi.com/>, International Monetary Fund

Commodity *food* prices (cereal, meat, seafood, sugar, etc.) look much the same. They're down

35% from 2012 to mid-2020. Think of the decade of profit margin benefit to the dominant U.S. manufacturers and consumer products companies of declining raw materials costs. Think of Coca-Cola: how



much did it benefit from lower sugar prices for its sodas, lower aluminum costs for its cans, and lower diesel costs for its vast fleet of delivery trucks?

Even the delivery trucks cost less: for the 20 years between 2000 and 2020, the average new car and truck price rose by an annualized 0.2%/year, vs. a CPI rate above 2%.<sup>4</sup> Coca-Cola's net profit margin in 2019 was 24.1%; 10 years earlier, it was 22.3%; 10 years before that it was 12.3%.

Commodity Food Price Index Monthly Price



Description: Commodity Food Prices Index, 2005=100, includes Cereal, Vegetable Oils, Meat, Seafood, Sugar, Bananas, and Oranges Price Indices. Sources: <https://www.indexmundi.com/>, International Monetary Fund

## And 40 years of technology-driven corporate efficiencies

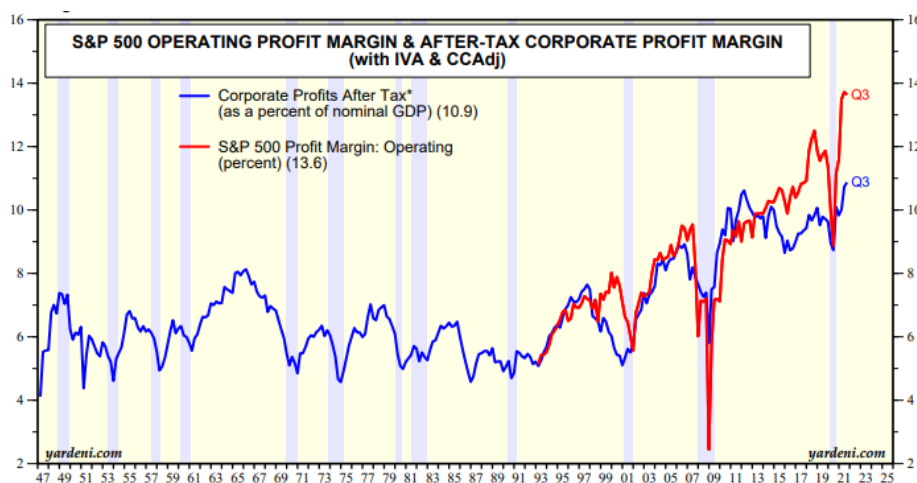
Was it not also in 1981, that the Microsoft-enabled IBM PC was introduced to the world? For a starting price of about \$1,600? And the World Wide Web, the internet, opened to the public in 1983. We need only think about a few of the efficiencies that have impacted our daily lives since then – at least efficient from a corporate-profits, if not worker's, point of view. Fewer secretarial pools (if you know what that is) in exchange for more executives typing their own memos; fewer bank tellers, more ATMs; fewer travel agents gobbling up commissions, more web-based airline/car/hotel reservation shopping; fewer help center staffers, more voice AI chat bots (*"Let me see if I've got this straight, you say you have a fire in your attic? I'm sorry, I can't help you with that. Try saying, 'Help me with something else.'"*). Or renting time on a supercomputer in the cloud, for your start-up web-based business, without having to own a supercomputer 100% of the time.

<sup>4</sup> <https://data.bls.gov/pdq/SurveyOutputServlet>



*Leading, ipso facto, to 30 years of rising corporate profit margins.*

Not just rising; previously unknown. Until about 1992, profitability waxed and waned within some 'normal' range of roughly 4% to 8%. For the past 30 years, margins expanded persistently and are now 50% or more above the 1960's-era all-time peak.



That picture of what seems to be the intrinsic character of

the U.S. economy and markets – moderate to low inflation, moderate to low interest rates, and rapidly rising earnings, albeit temporarily punctuated by the odd tech or real estate bubble – is pretty much all that a 45-year-old has ever personally known. Experientially, it is entirely normal and ordinary. But only within that time frame. A time frame demarcated by a unique confluence of discrete, powerful systemic trends that have run their course, not to be repeated:

- A 40-year, 90% decline in interest rates. They can only go from 14% to 1%, once.
- 40 years of exporting of inflation – labor and manufacturing costs – through the opening of previously closed developing-nation markets. Not only can't that be repeated, many of those nations have evolved technologically and are now competitors.
- A 40-year, 25%-point decline in the corporate tax rate. With today's 21%, that certainly can't be repeated, unless the tax rate becomes a negative figure.
- A 40-year trend of declining commodity costs, including:
  - A 45% decline in the price of oil
  - The opening of the Russian/formerly Soviet hard commodity supply market
  - A decade-long decline in a broad swath of essential other commodities.
- The 40-year incalculable corporate cost/benefit impact of the appearance and ascendance of both the personal computer operating system and the internet.
- A 30-year trend of rising corporate margins, to levels never before seen.
- An *all-time* historic high stock market valuation, via the simplest, most direct calculation: the total value of the stock market as a % of GDP. Here's a longer, final look at that<sup>5</sup>:

<sup>5</sup> <https://globalfinancialdata.com/the-growth-of-the-american-stock-market>



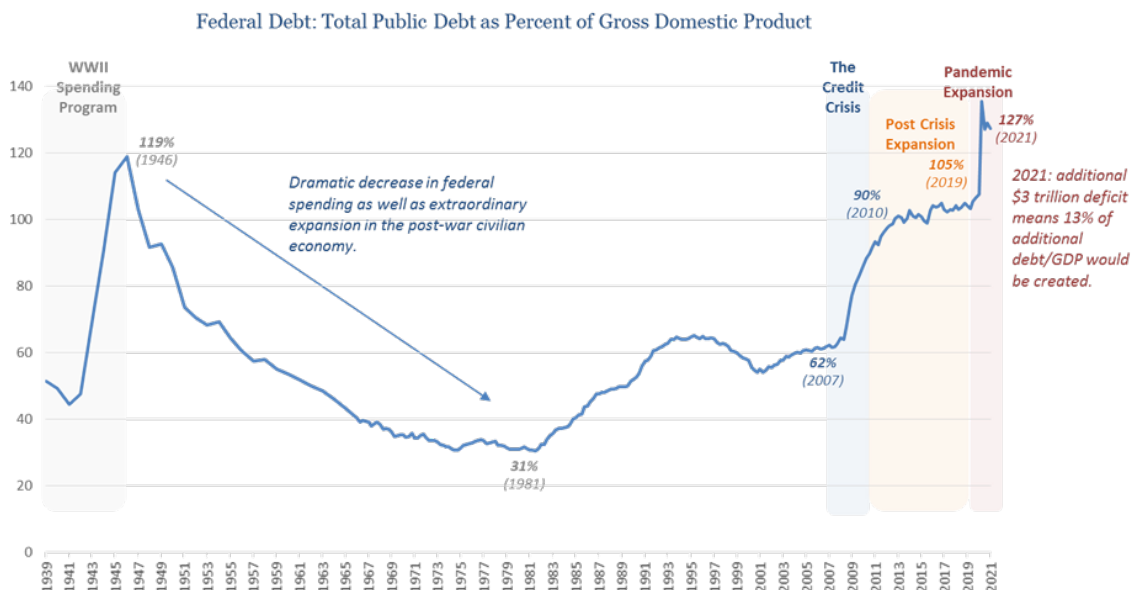
## A New Era

If all those factors simply stop becoming *more* extreme – no negative interest rates or negative tax rates, etc. – if they were just to stay where they are, then their beneficent disinflationary and profit and valuation influences would cease. The future would be a lot less wonderful than the past. That’s all that’s necessary.

But they’re not staying still. The two most important inflation variables, **monetary policy** and **commodities prices**, are heading in the wrong direction. They are already beyond certain limits and are becoming actively inflationary.

**Monetary debasement:** This is the most basic of economics: supply vs. demand. In our nation's history, there has never been this scale of excess money creation (supply) relative to GDP (demand).

In place of a money-supply chart, here's a different one that looks just like it: an updated version of the Debt-to-GDP ratio chart we started with. Their recent history looks pretty much the same because they really are directly tied to



Source: St. Louis Federal Reserve, <https://www.whitehouse.gov/omb/historical-tables>

each other. In order for the Federal Reserve to maintain its bond-buying program (whereby it bids prices up to keeps yields down), it has to actually have the money to buy the bonds. Which it creates, because it's the central bank. Therefore, the debt is as inflationary as the money supply.

There's now so much debt, that we're probably past the tipping point for the Federal Reserve to permit interest rate to rise. Why can't they? Because they would unleash a financial crisis. How?

Total debt in the U.S. is now \$85 trillion. That's everything from Federal and local debt to auto loans, credit cards and mortgages. The average interest cost is 4.1%. What if the Fed were to let rates rise by 2% points. Doesn't seem like a lot. It would just bring the 10-year yield to 3.7%. My goodness, it was 6% just ten years ago. So what would happen? Here are two ways to see what the impact might be like. This is exceedingly simplistic and certainly wouldn't pass muster in any econometrics class.

Just for simplifying purposes, though, let's say that the 2% immediately filtered through all the different types and maturities of debt. That means that the entire country experiences an increased interest expense burden of 2% x \$85 trillion of debt, which equals \$1.70 trillion. What does that even mean?

- \$1.7 trillion of additional interest expense would reduce our \$23 trillion of GDP by 7.4%. A significant recession is a -3% GDP contraction. The Great Recession of 2008/2009, following the subprime mortgage crisis, which was a true financial crisis, was a -5.1% contraction.
- To make it even more relatable, let's say the additional \$1.7 trillion of interest expense were somehow all allocated only to oil, like a special excise tax. The U.S. consumes roughly 20 million barrels of oil per day. That's 7.3 billion barrels a year. If we pay an additional \$1.7 trillion per year

for that oil, that would be an additional \$232 per barrel. Since oil is about \$85 now, that would be \$317/barrel oil.

The economy couldn't handle it, at least not at an acceptable political cost to those who would be identified with that policy decision. So, some believe that the Federal Reserve won't raise interest rates, irrespective of what they say about it (*more about that later*). But, in order to not raise rates, the central bank needs to continue to purchase bonds, to thereby suppress yields. And to do so, it must continue to print more money to buy the bonds.

Which is why the central bank's (any central bank's) standard recourse is to play out this self-reinforcing monetary debasement game for as long as it takes to 'grow' out of the problem. And it *can* grow out of the problem. It's just that it comes at a cost, a long-term economic and social cost as opposed to a short-term political and social cost.

That cost is monetary-based inflation, or currency debasement, and its consequences. If you own \$1 million of cash today, and if the money supply increases by 10% more than the economy grows, then there will be 10% more dollars each year for every unit of goods and services you might have to buy. You'll need more dollars to purchase the same items. In 10 years, you'll need \$2.6 million to purchase the same items; or, in the inverse, your \$1 million will be worth only \$389,000 of the future dollars.

You can see how, if the central bank keeps this up long enough, the current amount of debt will shrink relative to GDP, because wages get paid, and profits get earned, in inflated dollars. Just as taxes will be levied on those inflated incomes, increasing the government's tax revenue.

That's a tried-and-true back-door method for governments around the world and throughout time to reduce their debt burden.

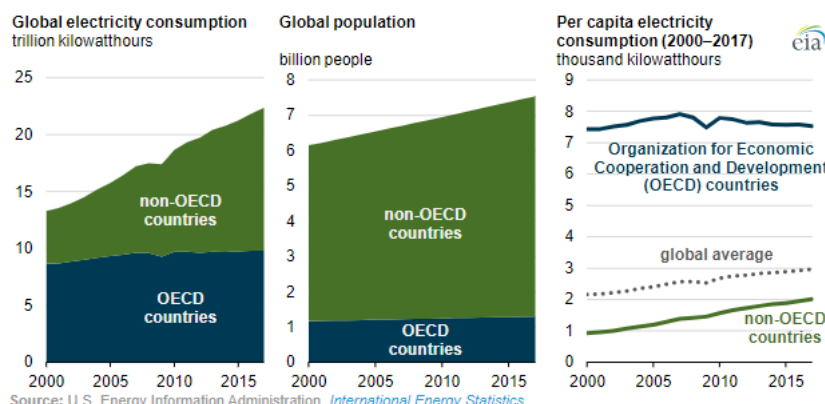
**Unfortunately, we've also begun to experience commodity-shortage based inflation.** And that is just as serious and just as intractable. We've had this discussion so repeatedly, that I'm wary of overdoing it. So perhaps just one fresh example, different than previous ones, will serve as a proxy for the challenge of rising global resource scarcity.

## ***Copper***

### *The Demand Picture*

Unlike many strategic metals, copper is *not* geologically or geopolitically rare. It might be interesting to examine inflationary supply/demand constraints for an ordinary base metal, not an already-constrained rare earth metal that is used in small amounts in special applications. As the second most conductive metal after silver, copper is in just about everything electric. Most of it is used for electricity. Therefore, as a general case, increases in power usage entail more copper.

Global electricity consumption is rising faster than population growth, most of the increase coming from non-OECD countries as standards of living improve. The accompanying three-chart set from the U.S. Energy Information Administration sums it up succinctly. Global electric power consumption in the three years through 2019, the most recent figure, grew at a 2.92% annual rate.



Added to that existing demand growth will be the massive global efforts to transition from fossil fuels to renewable energy and also to electrify transportation. Those policy makers and businesses engaged in this area anticipate 30 years of continually increased scaling.

Copper demand will increase disproportionately more. That is because solar and wind power are far more copper-intensive than fossil fuel plants. Solar projects require wiring between all the panels and arrays of panels; step-up transformers to convert DC power to AC; and are often located long distances from existing electric grid infrastructure. Wind turbines, apart from the copper for the dynamos and power handling equipment, might require 20 miles or more of underwater cabling to reach the shore. Electric vehicles require a great deal of copper for the power inverters, separate from all the other onboard electronic devices. In turn, an electric vehicle fleet requires a national-scale charging station network.

And none of that electrification is feasible without a massively upgraded and expanded power grid. The power grid infrastructure is not just high-voltage transmission lines and the lower-voltage local power lines, but also the substations, as well as the local transformers such as are seen atop telephone poles. Each of those contain large quantities of copper coil.

Several years ago, Scientific American referenced a study published in the Proceedings of the National Academy of Sciences of the U.S., authored by researchers at the Norwegian University of Science and Technology<sup>6</sup>. It was the first analysis of whether decarbonizing electricity via a global rollout of wind, hydro and solar facilities, along with carbon dioxide capture and storage at conventional power plants, would increase or decrease pollution relative to coal and natural gas power generation. It was done on a life-cycle basis that included the raw materials impact of building such facilities. It was based upon a presumption of renewable

**Electric utility substation transformers: outside look, and inside**



<sup>6</sup> Proceedings of the National Academy of Sciences May 2015, 112 (20) 6277-6282; DOI: 10.1073/pnas.1312753111 <https://www.pnas.org/content/112/20/6277>;

energy's share of total electricity generation rising from 16.5% in 2010 to 39% in 2050, which is one of the more positive scenarios proposed by the International Energy Agency.

The study did find an overall reduction in pollution-related environmental impacts. Interestingly, this particular study also determined – and this was in the final sentence of the study's conclusion – that copper is the only material covered in their study that might be supply constrained.

Among the copper-related findings of the study: depending on their design, solar power systems were presumed to require 11 to 40 times more copper than fossil fuel based electric power. If that seems bizarre, think about Solar Star. What is Solar Star? It's the largest solar farm in the U.S., rated at 579 MW of power. In total, it occupies more than 5 square miles, which would be 2 ¼ miles on each side. It contains 1.7 million solar panels. One can now more easily imagine how much copper wiring there must be for and between that many panels. As well, depending on the design, each panel might have its own central inverter.

The Norwegian University of Science study also concluded that “only two years of current global copper production” would suffice to reach the 2050 goal. “Only” is an interesting choice. It probably wouldn't be used by someone with an orientation around the economics of producing and selling commodities:

Two years of global copper production is the same as saying another 200% of current annual production is required, even if spread out over 30 years. That would be an another 6.7% per year.

- It does not take account of the already existing 2.9% annual demand growth. Together, at least for one year, that's a required increase in global production of nearly 10%.
- Missing from this, because that was not in the study, is the demand from electrifying a 1.4 billion global vehicle fleet, or the copper needs for an electric-vehicle charging network.
- Likewise, almost certainly beyond the scope of the study would be additional demand for grid transmission capacity.

#### Conclusions

Our analysis indicates that the large-scale implementation of wind, PV, and CSP has the potential to reduce pollution-related environmental impacts of electricity production, such as GHG emissions, freshwater ecotoxicity, eutrophication, and particulate-matter exposure. The pollution caused by higher material requirements of these technologies is small compared with the direct emissions of fossil fuel-fired power plants. Bulk material requirements appear manageable but not negligible compared with the current production rates for these materials. Copper is the only material covered in our analysis for which supply may be a concern.

A study like that provides overall findings, but not all of the assumptions that go into those results. One can approach the question of copper demand from a more granular, bottom-up angle, using readily available figures. A study commissioned by the International Copper Association – their bias is plainly in their name – estimates the copper requirements for wind turbines: 21,000 lbs. per megawatt for offshore installations; 5,600 to 14,900 lbs./MW for land-based wind, and between 5,400 and 15,400 lbs. per megawatt for solar installations (the wide ranges depend on whether the step-up transformers use copper or aluminum). With that information and a perhaps dubiously simplistic exercise (for instance, we're mixing different studies and study dates), an estimate can be made of the copper required to power all U.S. households. We'll assume, for simplicity, that it's done exclusively via wind power. Obviously, this is not realistic, if only because it ignores solar power, but solar seems to share roughly comparable copper requirements with wind. But the exercise does provide a basis for estimating the scale of the coming demand.



The question to answer is how many MW of rated wind power capacity are needed, and what is the associated copper requirement?

- Let's say that the power will be provided by a 50:50 mix between offshore and onshore wind turbines, with an average copper requirement of 13,000 lbs./MW of capacity, based on the previous figures.
- Wind turbines installed in 2020 had an average power capacity (if 50:50, between on- and off-shore) of 5 MW.<sup>7</sup> Each turbine, then might require 65,000 lbs. of copper.
- But the 5 MW figure is the maximum output, as if the wind blows 24 hours/day within an optimal wind-speed range. The actual average capacity factor of wind turbines is 35%<sup>8</sup>, since wind is sometimes nonexistent and sometimes too low or too high. So, the effective output of each windmill would be 1.75 MW (5MW x 35%).
- An estimate of household consumption is needed. A common benchmark in the U.S. is about 1,000 kWh per household per month<sup>9</sup>.
- With that information, each turbine could support 1,278 homes. There are 123 million households in the U.S., so about 96,200 wind turbines would be needed.<sup>10</sup>

At 65,000 lbs. of copper for each of 96,200 windmills, that would be 6.2 billion lbs. of copper. That would be about 13.7% of global copper production.<sup>11</sup> *If solar and wind power were to be only 40% of household electricity supply, we're talking about 5.5% of global copper production. That doesn't include:*

- industrial or commercial electric power needs (separate from households);
- electric vehicle power demand; or
- the rest of the world's renewable power and electric vehicle needs;
- the existing global annual power consumption growth of 2.9%.

*A world that is shifting to wind and solar power and to electric vehicles is a world that will need a great deal more copper.*

<sup>7</sup> <https://www.energy.gov/eere/wind/wind-market-reports-2021-edition>

<sup>8</sup> [https://www.eia.gov/electricity/monthly/epm\\_table\\_grapher.php?t=epmt\\_6\\_07\\_b](https://www.eia.gov/electricity/monthly/epm_table_grapher.php?t=epmt_6_07_b)

<sup>9</sup> <https://www.nrc.gov/docs/ML1209/ML120960701.pdf>

<sup>10</sup> Monthly household consumption in kWh/month has to be converted to a common measurement scale with power plant capacity ratings, which are in MW, which really mean megawatts *per hour*. Putting both on an annual basis:

- the 1,000-kWh monthly household consumption amounts (x 12 mos) to 12,000 kWh per year = 12 MWh/year.
- A wind turbine with a capacity factor of 1.75 MWh would produce 15,330 MWh per year (1.75 MW/hr x 24 hrs/day x 365 days/yr)
- Therefore, each turbine could support 1,278 homes (23,650 MWh/yr ÷ 12 MWh/hhld/yr)

<sup>11</sup> Global copper production was 20.4 million metric tons in 2019, 20.0 million in the pandemic impacted year 2020.



## Supply Picture

Those were some ideas about copper demand. Here are some specifics about supply.

Global copper mine production in the 10 years from 2005 to 2015 rose 2.45% annually. In the next 5 years, to 2020, it increased by only 0.9% annually. Even ignoring the 2020 pandemic year, for the 4 years from to 2019, the expansion rate was 1.66%. We already have the historical context for this: the commodity price collapse prior to 2015, from a position of excess capacity.

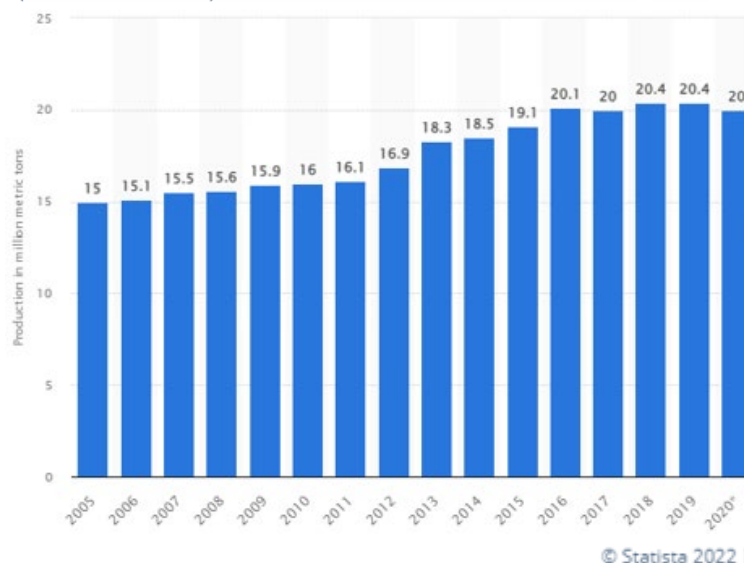
What producers must do in that situation, because they have high fixed costs and debt expense, is curtail their exploration and development expenditures and reduce operating costs. They rely on existing mines, instead, and on their highest-grade ores and lowest-cost production. They might not actually reduce current production, but they aren't replacing the reserves that are being slowly drawn down. You can see this at work at the individual company level.

Freeport-McMoRan will illustrate. It is the world's third largest copper producer, closely following Chile's Codelco and Australia's BHP Group. In 2014, even though Freeport sold more copper than the prior year, its revenues dropped by over 25%, and it went from \$4.8 billion of operating earnings (a 22% margin) to a \$(0.2) billion loss.

The company's capital expenditures peaked in 2014 at \$3.86 billion and will be about \$1.72 billion in 2021, meaning the company is spending 55% less now than it was seven years ago. In inflation-adjusted terms, it's spending 61% less today than seven years ago.

Interestingly, its production is more or less flat with 2014, and even with 2008, which was 13 years ago. However, one will notice in the accompanying table that its reserves declined every single

**Total copper mine production worldwide from 2005 to 2020**  
(in million metric tons)



Source: Statista, US Geological Survey

Freeport-McMoRan Inc.						
	Reserves (bill lbs.)	Production (bill. lbs.)	Net Cash Costs (per lb.)	Realized Price (per lb.)	Capital Expenditures (mill.)	CPI-Adjusted Expenditures (mill.)
Est. 2021 <sup>1</sup>	n/a	(3.8)	\$ 1.30	\$ 4.22	\$ 1,717	\$ 1,362
Dec-20	113.2	(3.2)	1.48	2.95	1,877	1,562
Dec-19	116.0	(3.2)	1.74	2.78	2,502	2,107
Dec-18 <sup>2</sup>	119.6	(3.8)	1.07	2.91	1,839	1,577
Dec-17	86.7	(3.8)	1.19	2.93	1,157	1,016
Dec-16 <sup>3</sup>	86.8	(4.2)	1.26	2.28	1,509	1,354
Dec-15	99.5	(4.0)	1.53	2.42	3,219	2,924
Dec-14	103.5	(4.0)	1.51	3.09	3,861	3,512
Dec-13	111.2	(3.9)	1.41	3.30	3,446	3,184
Dec-12	116.5	(3.7)	1.48	2.00	3,140	2,944
Dec-11	119.7	(3.7)	1.01	1.72	1,939	1,856
Dec-10	120.5	(3.9)	0.79	1.40	1,239	1,223
Dec-09	104.2	(4.1)	0.55	1.12	1,434	1,439
Dec-08	102.0	(4.0)	1.16	1.51	2,434	2,434

<sup>1</sup> Production: based on 9-mo. % change; Net Cash Costs: based on 9-mo. % change; Cap Ex: 9-mo. run-rate

<sup>2</sup> Reserve increase due to \$3.5 billion acquisition of Indonesia reserves; purchase price ~ 10% of Freeport's market cap at the time.

<sup>3</sup> Disposed of interest in Democratic Republic of Congo reserves (~7 mill lbs)

year from 2010 through 2017<sup>12</sup>. In 2018 reserves were brought up to the peak level again, because it purchased \$3.5 billion of reserves in Indonesia, a price equal to about 10% of Freeport's stock market capitalization at the time. Nevertheless, reserves continued to decline in the subsequent two years. The 2021 figures are not yet available.

## Supply AND Demand

So, take five years or so of flat copper production volumes while global electric power demand rises by 12 or 13% (2.5% a year), and now, no more excess supply. Indeed, with the global electrification efforts, demand is climbing. Unfortunately, in the extractive commodities industries, it takes a long time to develop sustainable new supply.

As far as existing mines go, they might be very old, with the most accessible and highest-grade ores having already been exploited. Additional production from the same mine becomes more expensive.

As to developing new mines, the pure engineering logistics can easily mean several years before ore can be produced. A more serious impediment can be the regulatory and political logistics, particularly because of the local environmental damage from smelting, and the intensive use of water, among other factors. Then there are the broader pressures to reduce greenhouse gas emissions, which is front and center in almost every company's annual report.

Copper Prices, the last 8 years:



Copper Prices, the last 63 years:



<sup>12</sup> The reserves decline in 2016 was exacerbated by the sale of some reserves, but would have occurred anyway.

Freeport-McMoRan's Chairman and CEO, Richard Adkerson, has offered repeatedly, in interviews, that it can easily take five to 10 years to bring new supply to market.

It takes only a modest supply shortfall for a thing – anything – for which there is a hard demand, to catalyze very large price increases. For copper, that's already happening. Copper ended 2013 at \$3.36/lb. Six years later, in early 2020, it was still 35% lower (\$2.17). By the end of last year, 2020, it was higher than in 2013 before the price collapse. As of last Friday, Jan 14<sup>th</sup>, it was \$4.42 – that's 25% higher than year-end 2020, and 104% higher than early 2020.

More important than that, it's actually an all-time high.

And more important than that, for today's message, is to realize that all of these new multi-decade sources of demand for copper have barely asserted themselves, and that all of the serious efforts that might be made to create new supply have not begun. In which case, a 104% 1-year price increase, and an all-time high price are just the starting point.

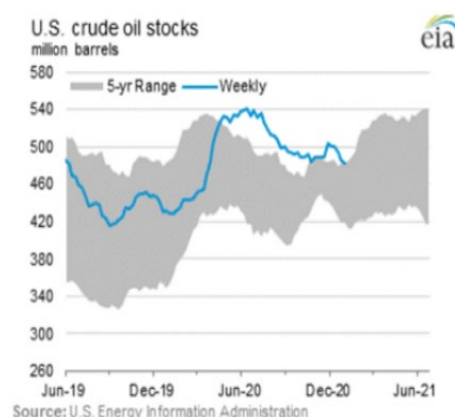
And more important than that, if I've made the case, is to take this realization and apply it to... everything else that shares pretty much the same story: iron ore, oil and natural gas, silver, lithium, and so on and so forth.

Before moving to the next topic, I'll linger to the extent of one exhibit. We've just seen the manner by which excess inventories of hard commodities get cured. Because oil and gas are the cornerstone commodities in every economy, and because Texas Pacific Land Corp figures so prominently in many of our strategies, here is an update of an oil inventory chart from prior reviews when people were concerned that demand for oil would never recover and that excess inventories would never be drawn down. The progression of these charts over the past 12 months should foreshadow the supply/demand and price development in oil.

And now let's briefly consider what extended inflation does to people – because it's been a while – and then what financial news media and the Fed say about it and what they say they'll do about it.

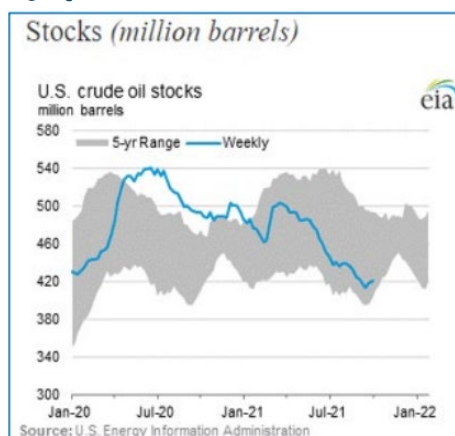
## MARKET COMMENTARY

4<sup>th</sup> Quarter 2020

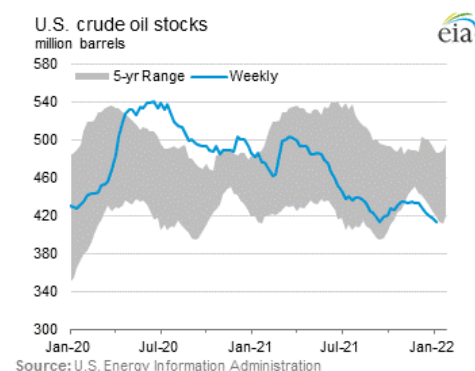


## MARKET COMMENTARY

3<sup>rd</sup> Quarter 2021

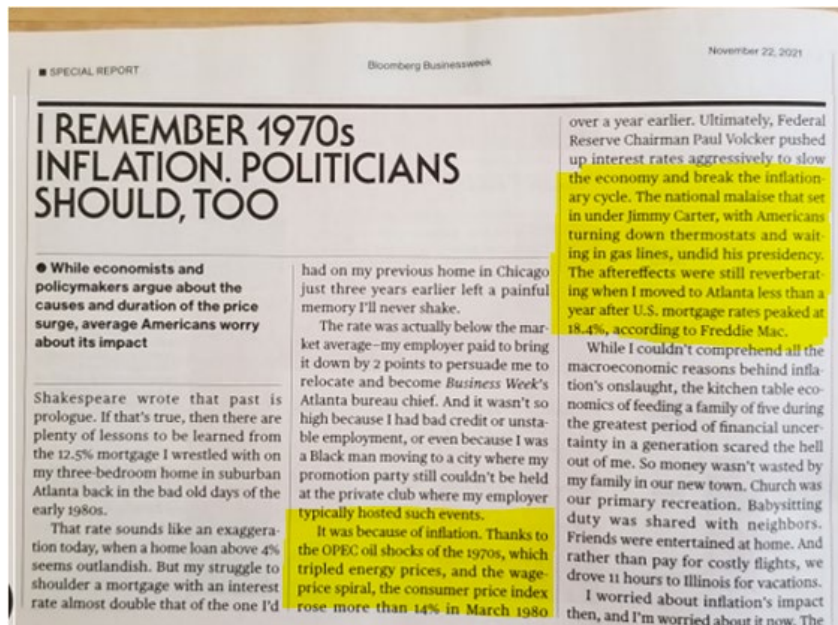
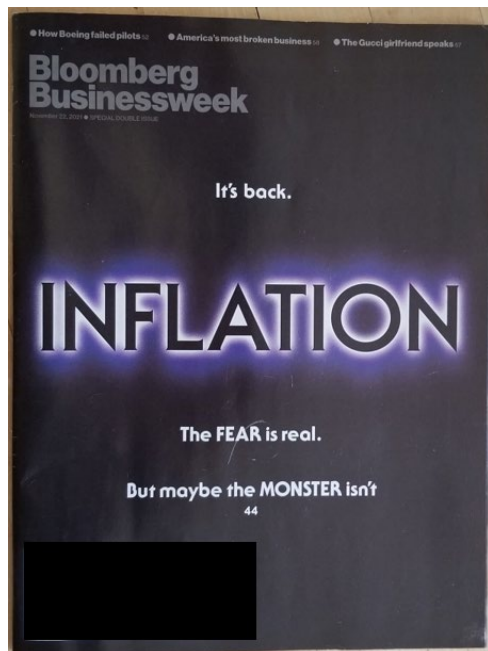


## Stocks (million barrels)

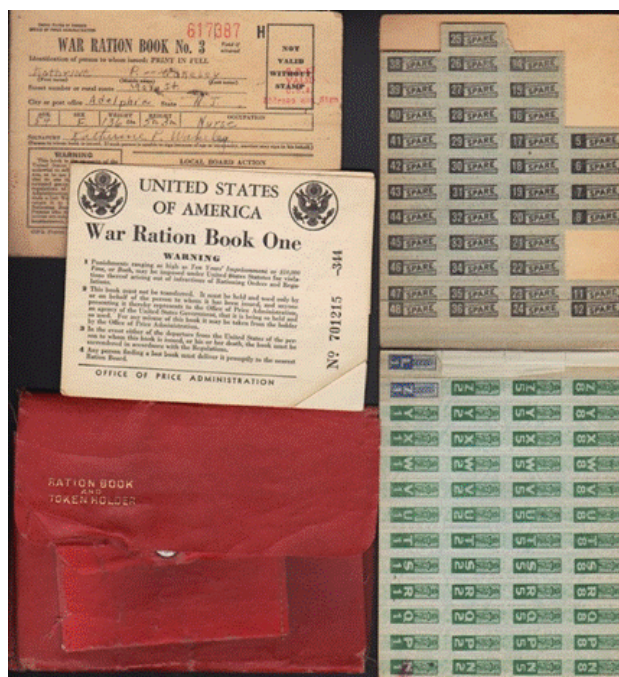


## What Inflation Does

Someone remembering the 1970s:



And the 1940s:



This set of World War II ration books, stamps, and cloth ration book and token holder, with 24 months of stamps, was issued in 1942 to a nurse living in Adelphia, NJ. A couple of years ago it could be purchased for \$35 on Biblio.com. That \$35, converted to 1942 purchasing power after 75 years of inflation, would have been equivalent to \$550 to that nurse, about a year's worth of rent.

The average median rent in New Jersey in 1940, according to the U.S. Census Bureau, was \$36 per month. The most recent figure is \$1,376. That's what 4.7% annual rent inflation looks like over 80 years. If a rich uncle left you 80 years' worth of rent money in cash, that would have been \$34,560. Doesn't seem like a lot? If an uncle were to do that for you today, at today's rents, that would be \$1.3 million in cash.

That's about 97% debasement of the U.S. dollar's purchasing power in one lifetime. In any case, at a 4.7% inflation rate, that \$34,560 of rent money would have run out in 34 years, not 80 years.

Manhattan, of course, was more expensive than N.J., although rents in the Lower East Side were less than \$30 (a "pleasant" 4-room ground-floor Greenwich Village apartment with no heat went for \$27), Washington Square Park rents were as high as \$150 or more. Isn't that always the way?



## What They Say About Inflation (and don't) [exhibits appended]

Read an article about inflation in Bloomberg Newsweek, or in the Wall Street Journal or NY Times, and you'll come across shared explanations and phraseology. The phrases change every few months, but the mutual consistency remains. The samples in the accompanying exhibit will be very familiar.

"Transitory" was used for much of last year as the CPI rose from a 1.4% annual rate to 5.4%. It presumably referred to short-term fluctuations in commodity prices or supply chain logistics.

In January, after the 7% December inflation figure was released, "transitory" was dropped in favor of supply chain "bottleneck" or "disruption", which related to worker shortages due to the pandemic; and to "excessive pandemic relief spending". That describes homebound consumers who, flush with cash from government stimulus checks, bought extra retail goods, which further stressed the supply chain.

These more recent explanations were interpreted as favorable, on the basis that while the excess cash from pandemic stimulus might take a year or two to spend down, and while the supply chain disruption might take a year or so to resolve – which is too long to call transitory – they will resolve themselves, and therefore are not of a more permanent nature.

The phraseology and explanations are not only similar across different newspapers. They're also similar to the language the Federal Reserve uses. Because it's the same, really. It's just reporting and repeating.

Plus, it's now reported that Federal Reserve is clearly indicating that it might very well raise the short-term Fed Funds rate 3 or 4 times during this year, in order to suppress inflationary expectations. The goal: as high as 1%. Yes, as high as 1%. And maybe 2% the following year. Maybe they will. How much weight do you give these pronouncements? The financial news analysts and markets hang on every word.

Have you ever skimmed five years of Fed commentary? For at least five years (see Appendix for the exhibits), in that careful, information-denatured manner, they've suggested they're just about to. If a certain statistic or two hit a certain threshold. The explanation might be as simple as they just can't afford to.

Although the Fed and the news make regular mention of target inflation and employment rates and of a broad variety of economic indicators, you won't read about essential basics that you'd think a central bank would be concerned with. Like the size of its balance sheet, of the size of or change in Federal interest expense as a proportion of the budget, or of the total increase in money supply in proportion to economic growth, all of which is within their range of responsibility, even if commodity prices are not.

Fed Funds Rate



## How the Markets Might Distract, or Harm (or help).

This section was prompted by a professional-investor client, who suggested an update on the concentration in the S&P 500. It's an apt request, since the theme of this 4<sup>th</sup> Quarter Review is looking at where we've come from, to help us know where we're going. Focusing on the noise of the 'news' strips away all perspective.

In this chart of the S&P 500 in Dec. 2010, the top 10 companies had the same aggregate market value as the bottom 255 stocks. They were 18.7% of the index value.

Today's S&P 500: the top 10 have the same market value **as the bottom 408**. They're now **30.5%** of the market.

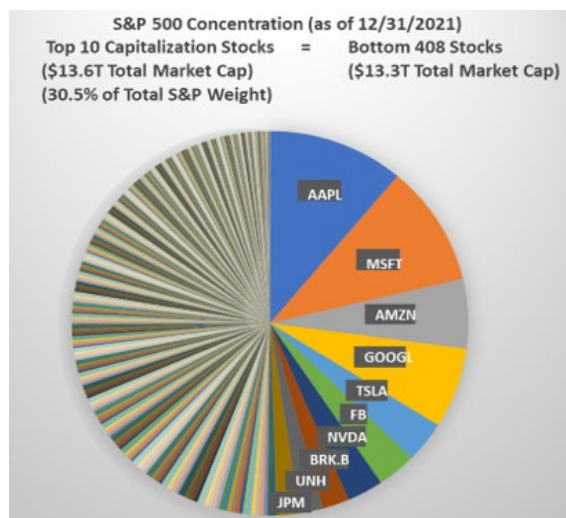
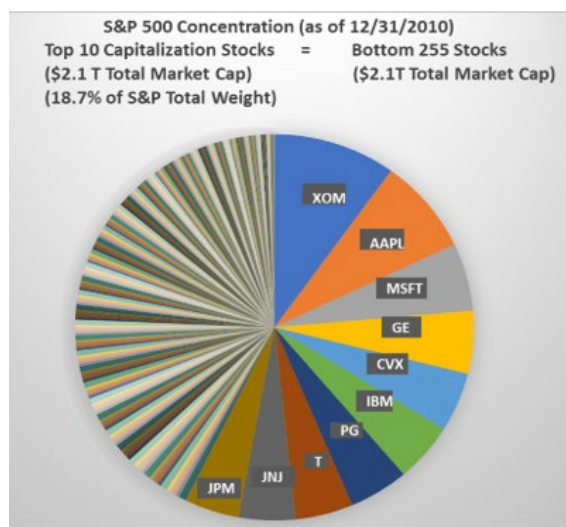
In 2010, the top 10 included two oil companies, an industrial company, a consumer products company, a drug company, telecommunications company, and a bank. Plus 3 technology companies.

Today, 7 of the top 10 are IT companies. There's still a bank, but no oil companies. Those are the concentrations.

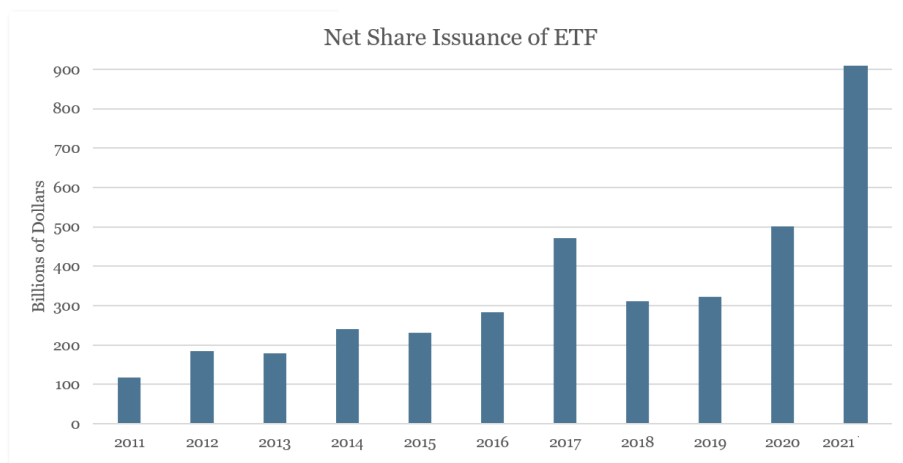
All of that happened in the last decade, the power growth phase of the ETF industry. What does 'power' mean here? It means an overwhelming weight of money, of inflows into the same index-centric stocks:

From \$100 billion of net inflows into ETFs in 2011 to a record \$500 billion in 2020, which about doubled to \$900 billion last year. Net new money just in December, at \$99 billion, was almost equal to the entire year of 2011.

The obvious implication is that one is exposed to a single-industry/systemic risk concentration. One that is overvalued. It's no mystery how every previous such concentration ended, whether Energy in 1980, Technology/Telecom in 1999, or Financials in 2006. *This holds for most large-cap indexes, even if not the S&P 500.*



Source: Factset, based on iShares S&P 500 ETF Holdings



Source: Statista, ICI, 2021 data through 12/9/2021, Net share issuance in the US

Before we get to the other two implications of today's market concentration, let's pause and think about how well the market has done since the age of ETF investing started. It's a good time to do this, because we now have 20 years of history, one more element of the one- and two-generation cycle we've been in.

Since iShares rolled out its first series of ETFs in mid-2000, there is now a 20-year track record. We'll ask the question: how well have the various major indexes done? Before we start, just for orientation, a recap of how constructive and ebullient this era has been for the stock market.

- It included a record 10-year-plus bull market, from March 2009 to Jan 2020. And if you decide it's ok not to count the 10-month pandemic drop – because the S&P was actually up 18% in 2020 – then it has been a 12  $\frac{3}{4}$  -year bull market.
- The S&P 500 set a record number of new all-time highs in 2021: 70 of them.
- The rise of the mega-cap companies.
- The rise of the Information Technology and Social Media companies, which are the most profitable, margin-wise as well as in pure dollar volume, large companies in history.
- The decline in the 10-year Treasury rate from 6% in mid-2020 to 1.5% at year-end 2021. That was beneficent not just for valuation-multiple expansion, it contributed to expanding net profit margins as companies continually re-financed their higher-cost debt.
- Think of the tremendous share repurchase activity amongst the larger companies.
- Think of the manufacturing efficiencies, vanguarded by Apple's global supply chain development, and by the work place efficiencies enabled by the information technology companies, data processing apps and cloud services.
- Think of the decade, give or take, of declining commodity costs.
- Which helps to explain the record high net profit margins among the S&P 500 companies.

So, how have the indexes done? Surprising?



The real issue is not that they've done so poorly. It's the question: if this is the result after 20 years of all that support, how will the indexes do in a harsh environment?

And, where was the diversification? A seasoned investment professional would be hard-put to select, on performance, the value index from the growth index, the international from the domestic, the emerging market from the developed market.

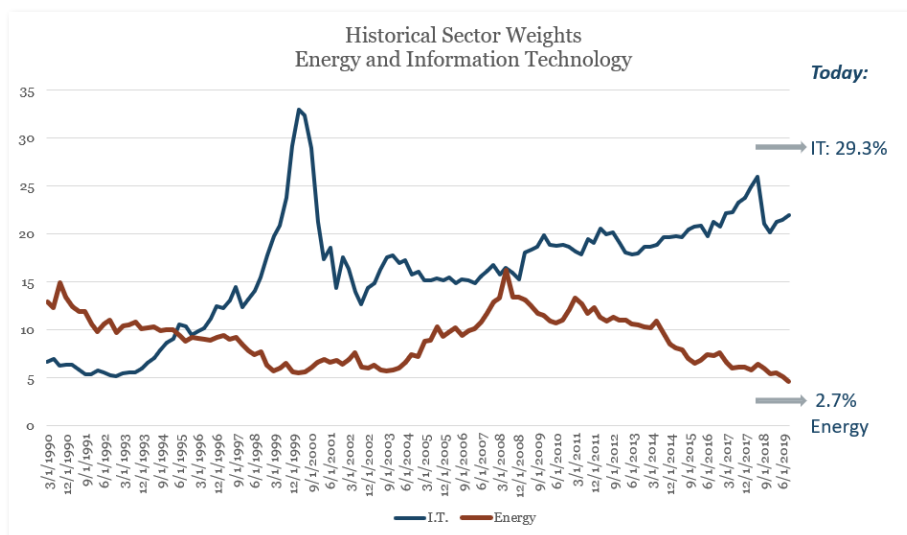
There are a couple of less obvious but at least equally important implications of today's index concentration.

*One is the crowding out effect* of the trillion-dollar and other mega-cap stocks. That strips the indexes of the diversification that was their original proposition. Diversification wasn't only to reduce the risk of excessive exposure to any single company and industry. It also provided a reasonable degree of positive exposure to the diversity of companies and industries that might provide higher (or a different pattern of) returns.

That positive exposure was also a risk reduction factor, because who knows where the next economic or market change will come from? Obviously, energy is a prime vector of possible inflationary pressures. In its historically normal weighting in the S&P 500, if it were to double or triple during a period of sharply rising energy prices – which might, at the same time, depress the earnings and valuations of other industries – the

As of 12/31/21		AUM			Annualized Return to	
Fund	Ticker	(bill)	Inception	Years	12/31/2021	
iShares Core S&P 500 ETF	IVV	\$327	5/15/2000	21.6	7.64%	
iShares Russell 1000 Growth	IWF	74	5/22/2000	21.6	7.64%	
iShares Russell 1000 Value	IWD	60	5/22/2000	21.6	7.60%	
iShares Financials ETF	IYF	3	5/22/2000	21.6	6.13%	
iShares U.S. Technology ETF	IYW	9	5/15/2000	21.6	7.21%	
iShares U.S. Utilities ETF	IDU	1	6/12/2000	21.6	7.79%	
iShares Biotechnology ETF	IBB	9	2/5/2001	20.9	7.72%	
iShares MSCI EAFE	EFA	57	8/14/2001	20.4	5.8%	
iShares MSCI China ETF	MCHI	6	5/29/2011	10.6	4.01%	
iShares MSCI India ETF	INDA	6	2/2/2012	9.9	7.57%	
iShares MSCI Brazil ETF	EWZ	5	7/10/2000	21.5	4.71%	
iShares MSCI Emerg Mkts	EEM	30	4/7/2003	18.7	10.15%	

Source: [ishares.com](https://www.ishares.com), AUM data as of 1/14/2022



Source: Bloomberg

energy sector gains could offset a great deal of losses from other sectors of the index. The same for precious metals or industrial metals exposure.

Diversification isn't a hedge, because one can hedge a known risk, as a farmer does with corn futures to insure a portion of crop, but not unknown risks. Nevertheless, the index had a certain resiliency, since it was intended to roughly mirror the economic profile of the broad economy, which itself has a certain resilience.

At year-end, the totality of traditional inflation hedges in the S&P 500, at about 3%, isn't hedging anything.

- **Energy was a 2.7% weight** in the S&P 500.
- The only **metals exposure is 0.16%** (Freeport-McMoRan, the copper miner).
- The only **precious metals exposure is 0.12%** (Newmont Mining). Even though those two companies are economically important and quite large, with market caps in the \$50 to \$60 billion range.
- Even the largest four **securities exchanges are only 0.46%**. These are companies with market caps up to \$70 billion. These are important diversifiers in that they have positive revenue and earnings exposure to every sort of economic upset vector: the full range of hard and soft commodities, interest rates, currencies, and volatility.

The exchanges are where people go who do have specific known risks to hedge; that's where the exchanges earn their fees.

*The other important implication of index concentration is the float-squeeze or illiquidity effect.*

A couple of years ago, indexed equities exceeded the 50% threshold of all equities in the U.S. The significance cannot be understated. The original and elegant conception of indexation was to participate passively in the investment returns of the entire market without impacting the prices.

For instance, would someone's \$1,000 purchase of each of the stocks in the S&P 500 Index have any price impact on the trading prices? Obviously not, because the buyer wants only the smallest fraction of the shares available for sale that day.

What about someone who already owns over 50% of all the shares of all the S&P 500 companies, and who each day is the primary buyer of more of the very same shares? Would that impact the prices? This buyer does not care what the price is, and only insists that the purchases be made. The answer is self-evident.

What happens when that someone's buying demand encounters less and less float, meaning the supply of shares potentially available for trading (shares *not* already held by index funds or company insiders)? Each time this someone, who obviously is a stand-in for total index assets, gets more net inflows and buys more shares, the float dwindles. As the trading liquidity constantly diminishes, the price impact of the next month's or year's buying demand must increase.

Eventually there would come a point, or succession of points, when the price required to secure more shares results in an extreme or even discontinuous upward price change. Volatility would increase as the supply of available shares shrinks toward some final limit relative to the constant demand.

Amazon, for instance. If 50% of the shares are held by indexes, unavailable for sale while there are net inflows, and insiders hold 13%, then 63% of the shares are unavailable, and the float is only 37%.

One wouldn't want to confuse dramatic, even astounding price appreciation as reflecting a company's growth prospects when perhaps the shares are reflecting a developing float equivalent of a short squeeze.

That can work in the reverse, too. What if the organizers of the S&P 500 index want to reduce some of overweighted positions, to rebalance? To whom could those shares be sold? The indexes hold more of the assets than the active managers. And even if active managers had the money to buy, why would they? Or, at the least, why should they pay the going price? There could be discontinuous downside pricing as well.

### **Some Ways to Prepare or Benefit in the New Cycle**

As reviewed thus far:

- The benchmark indexes are highly vulnerable to:
  - monetary debasement-based inflation; and
  - commodity-push inflation.
- Among the index sectors most at risk (as long as interest rates don't rise; in that case, everything is much, much worse):
  - The most expensive growth companies, which have the most valuation risk.
  - Businesses with a large workforce or substantial physical assets, vulnerable to inflation of compensation costs and operating-asset prices. That includes the large IT companies.
- Yet, the indexes have un-diversified over time, and crowded out or expunged classic inflation beneficiaries, and
- The investing public, relying on public reporting, still perceives that recent inflation is only about near-term supply chain and labor shortages, with a touch of pandemic relief spending and commodity price volatility.

Until this changes, there will be no grand flow of funds chasing inflation beneficiary shares. Ergo, the irresistible law of supply and demand suggests that inflation beneficiaries would be undervalued. In fact, they are the most undervalued securities in the equity securities universe.

Some clients have asked about the reported 'run-up of inflation stocks.' They wonder if it is too late to buy, and ask how they can still trade at favorable valuations?

Short answer: for all the reasons discussed herein and summarized above.

Longer answer: news is not analysis, and share price behavior is not information, only pattern spotting. The greatest share price appreciation might be in Freeport-McMoRan, which is very inexpensive in a scenario of sustained hard-commodity inflation (*see below*). Moreover, Freeport-McMoran itself is not nearly as discounted as non-conventional hard-asset business models like royalty companies, and hasn't a fraction of their current or long-term profitability.

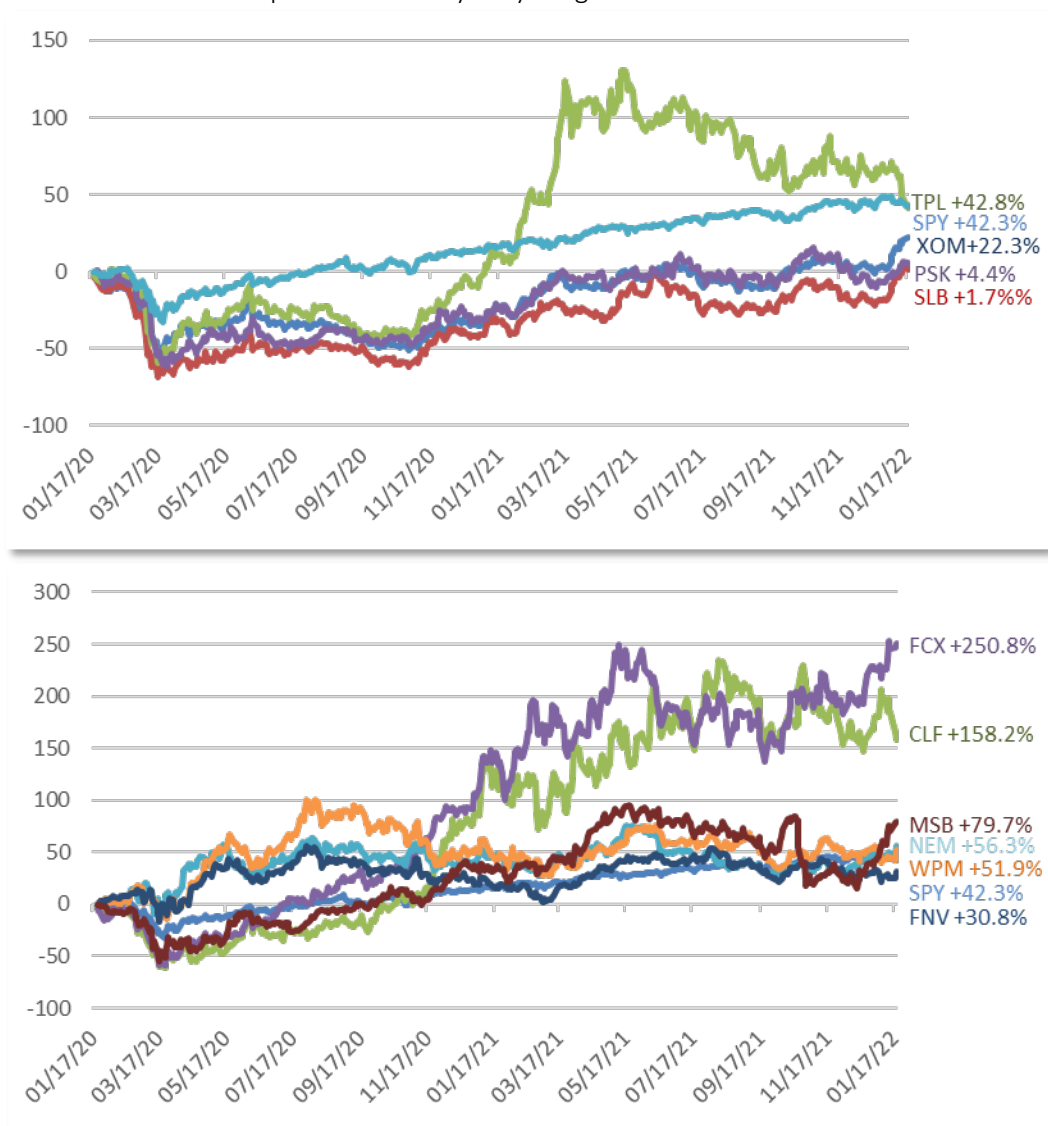
Nevertheless, here's a picture of the price behavior of a variety of hard-commodity companies in the last two years:

4<sup>th</sup> Quarter 2021

January 2022

- Two conventional inflation beneficiary stocks that are held in many indexes, and for which the associated commodity has gone up a lot, have more than doubled or tripled (Freeport-McMoRan for copper, and Cleveland-Cliffs for iron ore). But as for the rest:
- Amongst the miners, not radically different than the rest of the stock market. No stampede.
- Amongst the oil stocks, they've all underperformed the market, with the exception, thus far, of Texas Pacific Land Corp. Bear in mind that the price of oil has doubled during this period.

And none of this stock performance says anything about valuation or future returns.



Source: Factset. Companies listed are for illustrative purposes only. They may not be actual portfolio holdings.

The counter-benefit to the risk posed by the excess market value crowded into the large-cap indexed securities, is that there is too *little* aggregate market value available in inflation beneficiary companies. They can't be bought into the major indexes without extreme disruption in the *upward* direction.

How could Freeport-McMoRan, as only a 0.16% position in the S&P 500, possibly absorb the buying power of trillions of dollars of equity index money? There isn't enough of it to go around. That is why each of the several mining ETFs offered by iShares are *global*, like the iShares Global Metals & Mining Producers ETF. That ETF contains only one U.S. mining company (Freeport). Add up all the rest, including giants like BHP Group and Rio Tinto, and the aggregate market cap is about \$630 billion. That would be only a 1.5% position in the S&P 500 for essentially all of the global supply of mining company market cap. So, 'the market', as they say, can't buy in without creating overwhelming buying pressure for these securities.

That endows a first-mover advantage to the inflation beneficiaries sector, the possibility to reap the rewards of a limited inventory, like a limited-membership club, but the memberships are marketable.

Sticking with Freeport-McMoRan, for a minute longer, it has a stock market value of \$65 billion. Two years ago, it was only \$16 billion; it has quadrupled but had no meaningful statistical impact on S&P 500 results. Ten years ago, it earned \$4.5 billion in each of two years. If the company could earn that again, it trades at 14.4x those peak cyclical earnings. The copper price it realized at the time was about \$3.70/lb. Today it's already \$4.44, and as yet there is no recognized boom in copper demand and no new production visible. Freeport has very substantial appreciation possibilities in the coming years.

*But we're not interested in Freeport-McMoRan* – let the index buyers have it. Freeport-McMoRan and any other miner bear the same cost from chronic inflation as any other conventional business: they are asset-intensive and must eventually pay more for properties and leases and equipment. They have land and environmental reclamation costs to pay for. The company employs 24,500 people. And as we observed earlier, it's the type of business that, in one year, can swing from \$5 billion of operating earnings to an operating loss.

Which is why we're interested in business models, not just stocks; in exactly what a business does, not what it's labeled. The ones we describe as asset-light or hard-asset inflation beneficiaries. Rather than own a miner of a metal, which owns property, plant and equipment, we prefer a royalty company that owns contracts to collect revenue from the miner. In the realm of industrial metals, we've purchased iron ore royalty companies like Deterra Royalties and Mesabi Trust; for silver, Wheaton Precious metals.

## Short Review of Hard-Asset and Asset-Light Inflation Beneficiary Characteristics

Because we've reviewed many of our inflation beneficiary companies before, let's just make some limited observations about profitability and valuation about a couple of representatives.

### A Royalty Company

Mesabi Trust<sup>13</sup> is up 80% in the last 2 years, about double the S&P 500's 42%. Is it expensive? The dividend yield, based on the last four quarterly payments, is 12%.

Its last four dividends are 2 ½ x higher than the prior four. That's because the price of iron ore is higher. Mesabi has almost no operating expenses; it just passes out the royalties it receives. In the last nine months, it had revenues of \$53.5 million and net income of \$51.3 million – a 95% profit margin.

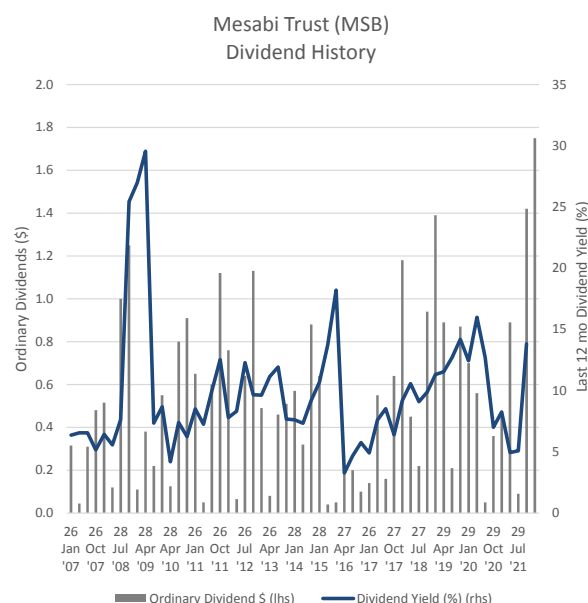
The dividends are volatile, changing with the price of iron and the volume of iron ore mined on the properties in which it has royalty interests. Based on what we've discussed so far, one can make one's own determination whether Mesabi Trust is expensive or not in a rising inflation environment.

### Securities Exchanges

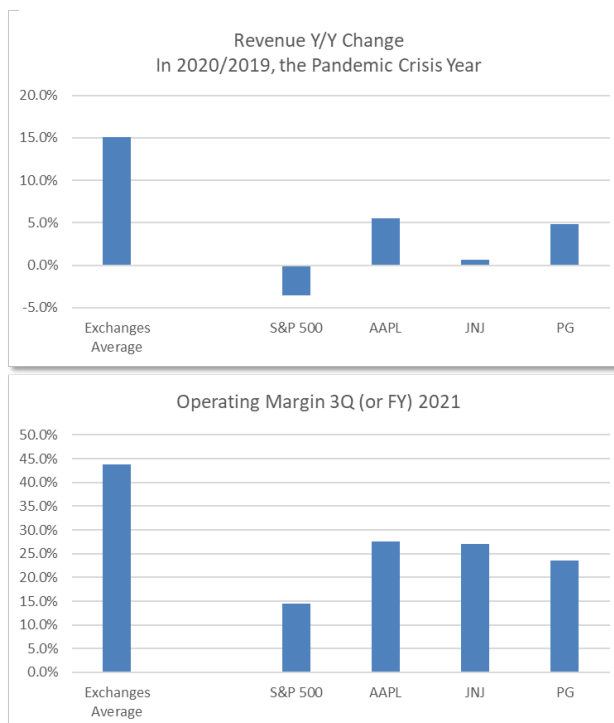
In 2020, the pandemic crisis year, the revenues of the S&P 500 fell by 3%.

The revenues of three of the highest quality blue-chip companies in the S&P 500, all among the Top 15, Apple, Johnson & Johnson, Procter & Gamble – technology, pharmaceuticals and consumer products – were up between 0.6% and 5.5%.

The revenues of the largest four North American securities exchanges rose by 15%.



Source: Factset



Source: Company Reports. Exchange companies include CME, CBOE, ICE, TMXFF.

<sup>13</sup> Mesabi Trust is a holding in several funds and strategies managed by Horizon Kinetics Asset Management LLC. As of December 31, 2021, the firm owned 16.3% of the outstanding shares of the company

The operating margins of Apple, Johnson & Johnson, Procter & Gamble are high vs. the 14% margin of the S&P 500: between 24% and 28%.

The average operating margin of the securities exchanges is over 40%.

The security exchange business model benefits from significant operating leverage to increased transaction activity: they have a large fixed cost in their technology platform, but increased trading volumes entail extremely little incremental operating expense. So, the businesses are highly scalable. Since ongoing capital expenditures are low, free cash flow often exceeds earnings. They require no debt leverage to operate.

They are important diversifiers in that they are each exposed to different inflation vectors across the range of soft and hard commodities, currencies, and interest rate, credit spread and volatility products.

Should volatility increase as inflation concerns rise, they benefit from the uncertainty that often promotes higher transaction volumes. The exchanges are where people go to hedge risk.

Generalized monetary inflation ultimately increases the total volume and velocity of trading activity.

That's the appeal.

### **Other Asset Inflation Beneficiary Classes Besides Equities**

There are emerging – or, at least, potentially emerging – asset classes. That is extremely unusual, historically. Some of these are available through ETFs, which have the ability to equitize all sorts of things, or through other publicly traded instruments, too.

The investing importance of an emerging asset class is that its ultimate value, if successful in becoming broadly accepted or utilized, can increase by orders of magnitude, meaning by multiples of 10 or 100. That can completely alter the expected return of an entire portfolio, even if purchased in such a small amount as to represent no practical risk. Call it high-impact, highly diversified investing.

As in all tradeable items, the balance of demand AND supply are key. We're familiar, now, with the example of bitcoin: that since it has a known and fixed number of units, the only market clearing factor, when demand increases, is a higher price. In simplified terms, if 0.01% of the world uses bitcoin, and eventually 10% of the world uses bitcoin, that would be a 1,000x increase in demand.

A different possible example are ETFs that hold carbon credit futures. Regulators in certain jurisdictions are experimenting with annual credit allowances for businesses so as to place a discrete cost on emitting carbon dioxide. Those credits can be bought and sold. It's a way of using universal economics and market pricing to influence corporate decision making in respect of their own carbon emissions. The approach is to decrease the number of annual credit allowances over time, meaning less supply. Yet the total market for such credits is in its early stages. One can't know if this will develop successfully as a policy tool nor, therefore, as an investment. But it is certainly has both anti-inflationary and early-stage asset class potential.



And there are other new asset classes or forms of operating business being created. Some or all of these, even if in extremely modest weightings, depending on their individual characteristics, can serve as additional avenues of possible return not subject to the primary systemic risks to which the overwhelming bulk of financial investments are exposed: interest rates, concentration in market structure, valuation, monetary debasement, commodity prices.

## What is Said in the Financial News (and what is *not*)

The November cover of a Special Inflation edition of Bloomberg Businessweek magazine read INFLATION. Also, “The Fear is real...But maybe the MONSTER isn’t.” That’s the question of the day, isn’t it? They want to know if. But to know if, one has to know why – what is causing it? So, what is being said about the why?

Bloomberg Newsweek’s summary cited the unprecedented fiscal and monetary stimulus to support the economy during the pandemic. The stimulus funds provided buying power to home-bound consumers to splurge on retail goods. That created demand that exceeded the capacity of supply chains suffering from pandemic labor shortages. Less supply of consumer goods, higher prices. And less supply of labor, higher wages. Plus, oil prices rose.

Ronald Reagan warned it was as “violent as a mugger.” Milton Friedman dubbed it a “hidden tax.” But for most of 2021, most central bankers and economists called inflation “transitory.”

Their bet was that while prices would probably jump as the economy escaped the coronavirus-enforced recession and lockdown, the pressure would soon ease.

That may still happen. But for now, inflation is accelerating. Prices paid by Americans jumped 6.2% in October from a year earlier, the most since 1990.

Behind the surge and forecasting failure is a tremendous success: the unprecedented combination of easy fiscal and monetary policies that prevented the pandemic from inducing a global depression. The tapping of pent-up

savings and government checks to splurge on goods, frayed global supply chains, labor shortages fanning wage increases, and soaring energy costs have all worked to push up price indexes.

That leaves Federal Reserve Chair Jerome Powell slowing stimulus faster than once predicted (although not as quickly as some want) and President Joe Biden making a reversal of the trend a “top priority.”

Much will depend on the behavior of consumers and companies. If they still agree inflation will slow they might not seek compensation via price hikes or higher pay. But if they decide the only way is up, they may be the ones propelling prices even higher in 2022.  
— Simon Kennedy

A Jan 5<sup>th</sup> Washington Post article reporting on the December Federal Reserve policy meeting noted that Fed officials stopped using the term “transitory” to describe inflation, because supply chain bottlenecks and worker shortages would persist well into 2022.

A Jan 12<sup>th</sup> Washington Post article cited the cause of the alarming 7% December CPI inflation figure – high pandemic relief spending that is overloading supply chains – as a silver lining. It noted that although the inflation could last for some time, because it will take more than a year or two for consumers to spend their historically outsized cash balances, those excess balances will eventually be spent.

A Jan 13<sup>th</sup> NY Times story about Federal Reserve governor Lael Brainard’s responses to a Senate Banking Committee noted her understanding that pandemic imbalances that disrupted global shipping were an element of rising inflation. She also cited that the Fed had effective policy tools to suppress inflation. This was taken to mean the

## The Washington Post

Democracy Dies in Darkness

Data released on Wednesday show that inflation for December rose 7 percent, the highest rate since 1982. The bad news is that this is likely to continue for some time. The good news is

## The New York Times

Ms. Brainard acknowledged that pandemic imbalances that have roiled global shipping and shut down factories are part of what is driving high inflation today — and that the Fed’s policies can do little to fix those supply problems. But she highlighted that Fed policies that affect borrowing costs can have a significant impact in cooling off demand.

“We have a set of tools — they are very effective — and we will use them to bring inflation back down,” Ms. Brainard said.

Fed officials have increasingly signaled that they expect to raise interest rates in 2022 to keep high inflation from becoming permanent. Markets increasingly expect four rate increases in 2022, which would put the Fed’s short-term policy [interest rate just above 1 percent](#).

Fed's suggestion of as many as 3 or 4 interest rate increases in the next year, to bring the fed funds rate from 0.08% now to as high as 1%. Imagine that, as high as 1%.

### What the Federal Reserve says about interest rate policy and inflation (and doesn't say)

Jun. 2016: "I never completely make up my mind before a meeting, **but at this point the case for raising rates looks to be pretty strong in June.** Inflation is moving decidedly toward 2 percent. Labor markets have tightened very significantly. The concerns, the downside risks that we saw at the very beginning of this year, have dissipated. And we're very far away from the benchmarks that we have to guide where rates ought to be. To me that adds up to a pretty strong case for a June move." *Jeffrey M. Lacker, President of Federal Reserve of Richmond*

Oct. 2017: My view is that the normal fed funds rate in the future is 2.5 percent, which is pretty low. That's not a lot of rate increases to get to that normal level, **but I do think we want to be moving gradually toward that over the next two years.** *John C. Williams, President of Federal Reserve Bank of NY*

Mar. 2018: The job market remains strong, the economy continues to expand, and inflation appears to be moving toward the FOMC's 2 percent longer-run goal. As you already know, we decided today to raise the target rate for the federal funds rate by  $\frac{1}{4}$  percentage point, bringing it to  $1\frac{1}{2}$  to 1 $\frac{3}{4}$  percent. **This decision marks another step in the ongoing process of gradually scaling back monetary policy accommodation**—a process that has been under way for several years now. *Jerome Powell, Chair of the Federal Reserve*

May 2018: I think we're close to neutral today... and we don't have much of an inflation problem, nor does any inflation seem to be on the horizon according to market-based expectations... My advice would be stand pat, watch the data carefully, watch for surprises and adjust accordingly. **But I don't think we have to scramble to get to some higher level of rates to contain inflation.** *James Bullard, Pres. Federal Reserve Bank of St. Louis*

Oct. 2018: In keeping with the strong economy, I expect price inflation to edge up a bit above 2 percent, but don't see any signs of greater inflationary pressures on the horizon. And, **I continue to expect that further gradual increases in interest rates will best foster a sustained economic expansion** and achievement of our dual mandate goals. *John C. Williams, Pres. of Federal Reserve Bank of San Francisco*

July 2019: **We decided today to lower the target for the federal funds rate by  $\frac{1}{4}$ % point to a range of 2 to 2 $\frac{1}{4}$ %.** The outlook for the economy remains favorable, and this action is designed to support that outlook. *Jerome Powell*

Feb 2020: **The FOMC was cognizant of the slowing economy during 2019 and began to project fewer increases in the policy rate during the first half of 2019,** Bullard noted. In June, the FOMC indicated that a lower policy rate might be warranted, he said. He added that the FOMC then made policy rate cuts at three successive meetings, ending 2019 with a net reduction of 75 basis points. *St. Louis Fed news release*

Mar. 2021: With inflation running persistently below 2 percent, we will aim to achieve inflation moderately above 2 percent for some time so that inflation averages 2 percent over time and longer-term inflation expectations remain well anchored at 2 percent. We expect to maintain an accommodative stance until these employment and inflation outcomes are achieved. **We continue to expect to maintain the current 0 to  $\frac{1}{4}$ % target range for the federal funds rate. A transitory rise in inflation above 2 percent, as seems likely to occur this year, would not meet this standard.** *FOMC statement*

Aug 2021: **Significant fiscal stimulus this year is speeding the economy's recovery so that the Federal Reserve is able to consider lifting interest rates from near zero by early 2023,** said a top central bank official in a speech Wednesday. *Wall Street Journal, 8/4/21*

Nov. 2021: Greater concerns about the virus could reduce people's willingness to work in person, which would slow progress in the labor market and intensify supply-chain disruptions *Jerome Powell*

Jan. 2022: If we see inflation persisting at high levels longer than expected, **if we have to raise interest rates more over time, we will.** *Jerome Powell*

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