Innovative Thinking + Smart Strategies

2022: The Year Ahead

Annual Market Outlook

MV Financial Research & Strategy Group

January 25, 2022

MVCM 2022 0006
DOFU: January 2022

The Year Ahead: 2022 Annual Outlook

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Note to our readers: On page 13 you can find an executive summary presenting the key themes of our outlook for 2021. Of course, we invite you to read the full document for an understanding of the economic, capital market and other forces shaping our thought process.

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I. Reason, Unreason and Technology

A. The Age of Reason and Its Limits

The Thirty Years War lasted from 1618 to 1648. It was the culmination of the bitter confessional warfare that convulsed Europe, starting from that All Hallows Eve day in 1517 when Martin Luther affixed his ninety-five theses to the door of the cathedral in Wittenberg, Germany and ushered in the Reformation. More than a century and a quarter of bloodshed followed between those who insisted on the absolute infallibility of the Church and its vicars on the one side and, on the other, those who insisted on the absolute infallibility of revealed Scripture without the need for the intermediation of popes, cardinals and bishops. With the Peace of Westphalia in 1648 a weary continent laid down its arms and agreed to disagree from within their respective boundaries on either side of the confessional divide between Protestants and Roman Catholics.

A Dutch Bombshell

Not too long thereafter, the first stirrings of an entirely new way of looking at the world began to be felt in certain of Western Europe's cosmopolitan centers, perhaps nowhere more so than Amsterdam in the United Provinces of the Dutch Republic. At the core of this new thinking was the idea of individual freedom: freedom to think and express opinions regardless of their relationship to established religious dogma or the divine right of monarchs; freedom to worship as one pleases or to not worship at all. One of the most controversial thinkers of the time, a Dutch lensmaker of Portuguese-Jewish descent named Baruch Spinoza, wrote this sometime before his death in 1677:

> The main thing I aim to show in this treatise [referring to Spinoza's "Tractatus Theologico-Politicus"] is that freedom of opinion and worship is not harmful to the piety and peace of the state but essential for them.

That may seem like a perfectly harmless sentiment for us today, some 350 years later, but it was nothing short of a bombshell in the Europe of the late seventeenth century. Spinoza's works were banned and he himself was considered a heretic for most of his life, though by living in the relatively tolerant Dutch Republic he avoid the fate of burning at the stake that would likely have awaited him in one of the lands under the sway of Catholicism's Inquisition.

Despite the odiousness still attached to the label "heretic" and the dangerousness of trafficking in banned literature, other leading thinkers of the day grabbed hold of the notion of individual freedom and refused to let go. Clandestinely at first and then more openly, ideas circulated through small circles of acquaintances and eventually broke through centuries of harsh repression to bring about the Age of Enlightenment in the eighteenth century. Freedom, liberty and the right to pursue individual happiness meant casting off irrational superstitions and replacing them with educated reasoning. It meant replacing the absolute law of the monarch with the "volonté generale" – the common good. Education, rather than birthright, was the path to enlightened rule by law. By the end of the eighteenth century there were two practical instances of these ideas moving out of the realm of coffeehouse chatter and into consequential actions: the American Revolution and the French Revolution. Europe, and the world, would never be the same.

Radicals and Moderates

The Enlightenment was anything but unified, though, in terms of how its leading proponents viewed the world and, more importantly, in how they proposed their ideas be converted into action. A number of recent historians have divided the Enlightenment thinkers of the day into two main camps: the Radical Enlightenment and the Moderate Enlightenment[1]. Radicals were in many ways the true successors of Spinoza, insisting that freeing oneself from oppression meant not only casting aside the heavy hand (or

[1] See for example "The Enlightenment That Failed" by Jonathan I. Israel, Oxford University Press 2019; "Radical Enlightenment" by Margaret Jacobs, Cornerstone Press 1981

better yet iron fist) of institutional religion and its cosseted priesthood but, in addition, defying the monarchy and aristocratic classes to establish true democratic-republican governance. In this camp were included the French *philosophes* Denis Diderot and Baron Paul-Henri Thiry d'Holbach, as well as prominent figures well-known to students of the American Revolution such as Thomas Paine and Thomas Jefferson.

Moderate Enlightenment figures differed from their Radical counterparts mainly in their desire to work within existing institutional structures of aristocracies and monarchs, rather than tearing them down, to achieve their goals of a more enlightened society able to enjoy the benefits of the common good. François-Marie Arouet de Voltaire, perhaps the most famous of the French *philosophe*s, falls into this camp. So too do some of our own Founding Fathers, notably including John Adams and Alexander Hamilton (we apologize if "My Shot" will now be stuck in your head for the rest of the day). If you want to think in terms of modern-day political terminology, the radicals would perhaps be akin to "progressives" and the moderates would be what we today call "centrists."

One major question which vexed Enlightenment scholars from both the radical and moderate camps was how much of society could actually be enlightened. Remember, these were the days when the percentage of any given population in Europe possessing the right to vote or otherwise actively participate in government was tiny. Education was selective and mostly limited to the upper classes. Most thinkers, even those with the most radical ideas, feared the consequences of throwing open too much freedom, and with it the voting franchise, to everyone. Needless to say, a great deal of this widespread reluctance proceeded directly from the deeply entrenched sexism and racism that existed everywhere on both sides of the Atlantic Ocean at the time.

Questions about access to the vote and other privileges of belonging to a society would not be answered convincingly for another hundred and fifty-plus years after the pair of revolutions in America and France in the late eighteenth century. Nor would the question about how much enlightenment is too much enlightenment. In his book "The Enlightenment That Failed" Jonathan Israel, a historian with deep expertise particularly in the different strands of the Radical Enlightenment has a theory about why (in his view) the radical secularizing tendency that reached its peak of influence between 1775 and 1799 (using as bookends here the uprising in Lexington and Concord on one side, and on the other the 18 Brumaire coup that brought Napoleon Bonaparte into power) lost steam after that. His argument is that a populist backlash sharply out of line with rational enlightened ideals, seen first in France's Reign of Terror during 1793-94, gained an ideological foothold and went on to influence major nineteenth century political movements both in Europe (such as the widespread uprisings in France, Italy and Germany in 1848) and the United States (Jacksonian democracy and the late-century Populist Party of William Jennings Bryan). The turn away from rational, enlightened civic discourse continued to even more extreme ends in the twentieth century with the ideologies of communism and fascism that tore Europe apart in the first half of the century.

It's Hard to be Rational

If you are wondering what any of this discussion so far has to do with securities markets in the third decade of the twenty-first century, fear not; we are not providing an idle lesson in Western history for its own sake. When we talk about the Age of Enlightenment, we are talking about the aspirations of some forward-thinking men – and some women as well, among them the English champion of women's rights Mary Wollstonecraft – for a society governed by reason and rationality. Their aspirations stood in stark contrast to the way European society up to that point had been governed, which was by institutional religious dogma and unthinking acceptance of the divine right of monarchs. It was the bloody wars of the Reformation era these thinkers pointed to in order to say that there must be a better way.

Reason and rationality: it's easy to aspire to this ideal, but it's hard to actually put aspiration into actuality. Rationality is hard; it's not the way the human mind naturally works. The political disappointments that followed the Age of Enlightenment, alluded to if not expressed outright by Jonathan Israel in his theory of the "enlightenment that failed," came about because no matter how much of a priority widespread education ever became, it (so far anyway) never succeeded in vanquishing the human predisposition to be led astray by demagoguery and magical thinking.

Steven Pinker, a well-known and extensively published cognitive psychologist, recently wrote a whole book on the subject[2]. Right up front he hits us over the head with how hard it is for most humans to be rational by presenting a math problem. Here it is: A smartphone and a case cost $110 in total. The phone costs $100 more than the case. How much does the case cost?

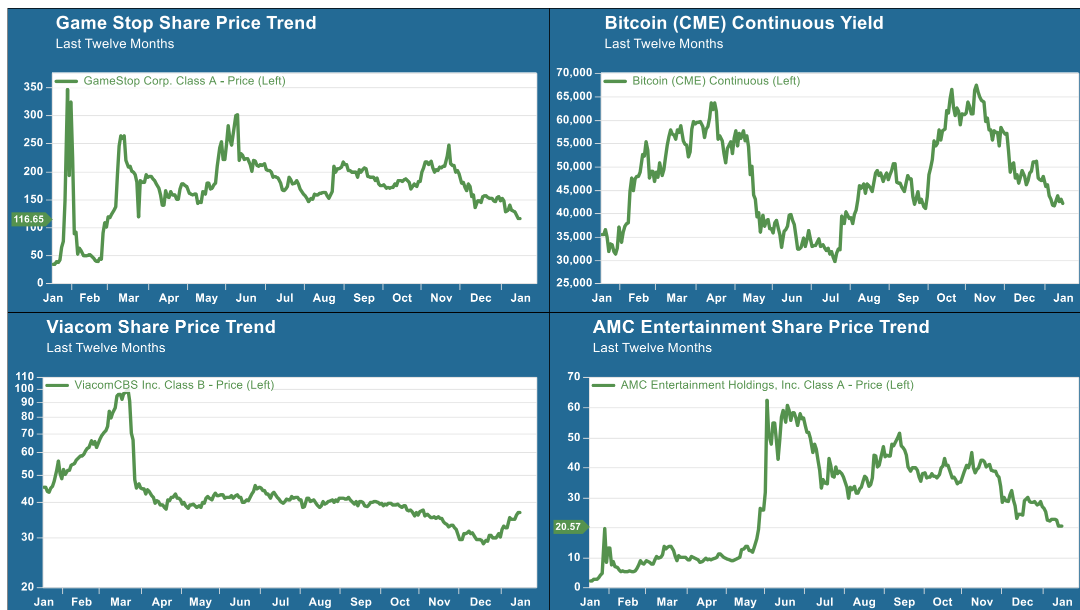
If you're like most people, the correct answer didn't just trip off the tongue as soon as you read the question (congratulations if it did!). You either instinctively gave the wrong answer or you went through a few mental iterations before finally figuring out that the case costs $5 (meaning that the phone costs $105 so together they cost $110). The way the question is phrased trips certain neurological connections that will lead you astray unless you pause and think it through.

Rationality Meets the Meme

Rationality, critical thinking, logic – mastering this way of thinking takes an investment of time and a level of effort that most people will never undertake (and in his book Pinker shows time and again that simple questions of logical thinking like the one we showed above confound even the most erudite among us with Ph.D. degrees in statistics and probability). It is strange, therefore, that our entire global economy has for the last century or so rested on a model of human behavior that assumes every individual to be a perfectly rational creature capable of precisely optimizing every decision we make in accordance with our individual preferences. That economic model spills over into financial markets, where the price of any asset at any given time is expected to be an infallibly accurate reflection of every single factor that could affect its value.

So how does the rational model explain this?

Chart 1: Meme Stocks and Bitcoin



Source: MVF Research, FactSet

Analyze That! as Robert De Niro might say. What was it about the shares in struggling, old-economy companies with dowdy business models that suddenly made them many magnitudes more valuable than they had been the day before? In the case of bitcoin, what was it about something that has existed for thirteen years and still can't convincingly prove that it solves any problem (perhaps apart from trafficking in illegal goods and services) that isn't solved more easily by existing national currencies? Finally, what was

[2] "Rationality: What It Is, Why It Seems Scarce, Why It Matters" by Steven Pinker, Penguin Random House LLC, 2021

it about 2021 that produced what seemed to be a never-ending stream of these irrational spasms of exuberance, making the crazy years of the Internet boom at the end of the 1990s look positively quaint by comparison? Was it the pandemic's effect on our collective brains, or the pernicious effects of social media, or some collective nihilistic outburst of "LOL, nothing matters anyway!" or some other explanation?

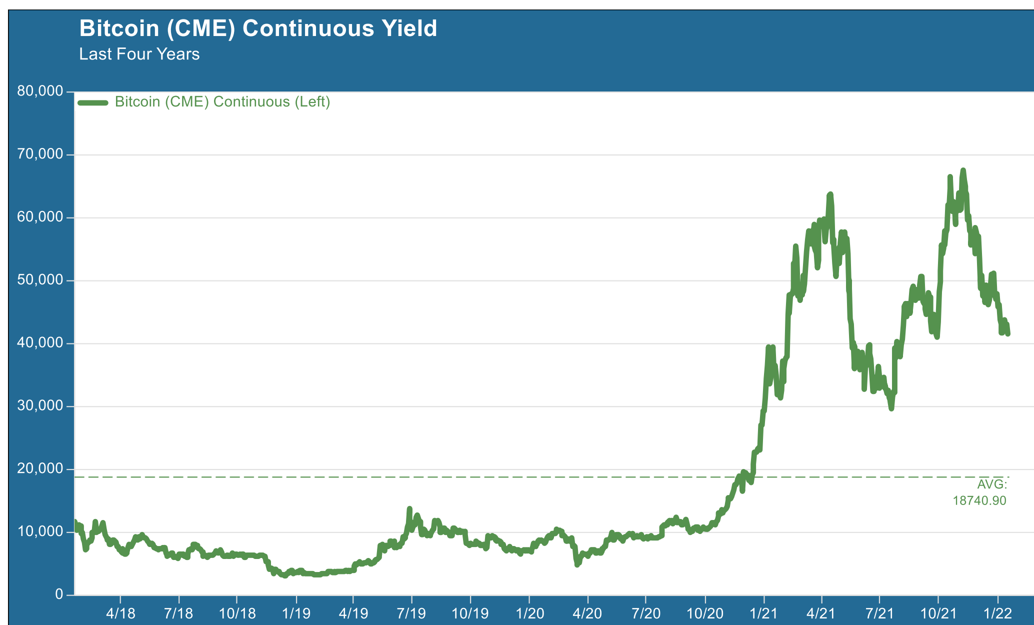
B. When Money Goes Viral

Let's focus on bitcoin for a moment, and cryptocurrencies more generally, because they seem to be a textbook case of how absent rationality and critical thinking seem to be from the world we live in today. This is not to say that there is not an intellectual case to be made for the existence of a digital currency. There is – and we will presently get to the different types of digital currencies that exist and which, if any, may actually prove to have a valid use case someday soon. What we will focus on here is just how bitcoin and its ilk migrated from the margins of libertarian tech culture to the mainstream of the financial services industry. It doesn't seem rational, in a logical sense, why something still lacking a compelling reason to exist blooms from almost nothing to hundreds of billions of dollars seemingly overnight. But at the same time it is sort of easy to see, in hindsight, how it happened and why, in fact, it happened when it did.

The original idea behind bitcoin was to decouple financial transactions from any intermediation, including intermediation by financial institutions up to and including central banks. Bitcoin would be valuable because (a) it ensures absolute privacy and cryptographic security for buyers and sellers in their transactions, (b) there would be an absolute limit on the number of bitcoins ever minted, thus endowing it with scarcity value, and (c) it would be immune from the (in the minds of the original developers) inevitable failures of the world's fiat currencies, including the US dollar, as the institutions propping up nation states degraded beyond the point of restoring their credibility.

That value proposition, however loopy some of it might seem, does have a certain coherency. From a technical standpoint, the blockchain technology underpinning bitcoin also has some features that could make it potentially useful in certain decentralized use cases in a way that other existing technologies cannot replicate. Moreover, there is at least a non-zero probability, if still a small one, that the major fiat currencies of the world – the dollar, euro, yen, pound sterling and renminbi – are not up to the task of facilitating seamless commerce in a world increasingly dominated by the virtual over the physical. None of this, however, explains why the price of bitcoin, which traded in a plodding range between $5,000 and $10,000 for most of the past four years, suddenly rocketed into the stratosphere in 2020 and 2021.

Chart 2: Bitcoin in US Dollars, 2018 – 2022



Source: MVF Research, FactSet

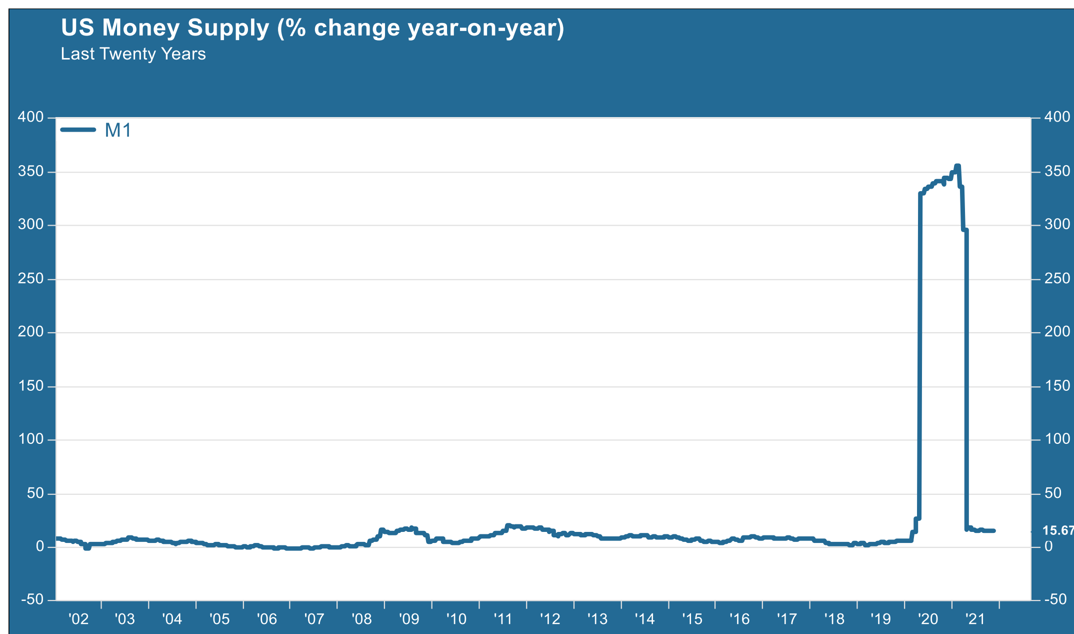
When you look at that chart the first thing you would think – if you are following the rational model of asset prices – is that something fundamental happened with bitcoin in the second half of 2020 that changed its value proposition. Something unknown prior to, say, July 2020 came to light and immediately figured into the asset's price. But no such thing happened. Bitcoin at $60,000, or $30,000 or anywhere in between that rough approximation of its trading range in the time since mid-2020, is basically the same thing as it was when it traded under $10,000 or even under $1,000 as it did just a few years earlier. It is a configuration of digital code. It purports to be a currency, but it lacks the fundamental properties of a viable currency. Anything as volatile in trading as this cannot be seen as a reliable means of exchange. It is not a measure of accounting. Nobody thinks in terms of how many bitcoins something costs – they think in terms of how much that thing costs in US dollars (or euros, or whatever their home currency is).

Nor is it useful as a store of value. The scarcity value argument for bitcoin may have been valid when it first debuted in 2009. But today it's not even possible to count how many different cryptocurrencies are out there, from legitimate contenders to bitcoin like ethereum, to ironic "we all know this is a joke, but let's make some money anyway" offerings like dogecoin, to flakier-than-thou effervesca minted by C-list celebrities to make hay while the madness reigns. Taken as an asset class, cryptocurrencies lack the scarcity value that applies to physical commodities. There are only so many bars of gold that will ever be produced, because gold does not replicate. Cryptocurrencies, on the other hand, replicate like rabbits gone wild.

When the Inmates Run the Asylum

So if nothing fundamental changed in bitcoin's value proposition, what accounts for that bizarre price graph in 2020-21? Here below is a chart that shows part of the answer.

Chart 3: US Money Supply (M1), 2002 - 2022



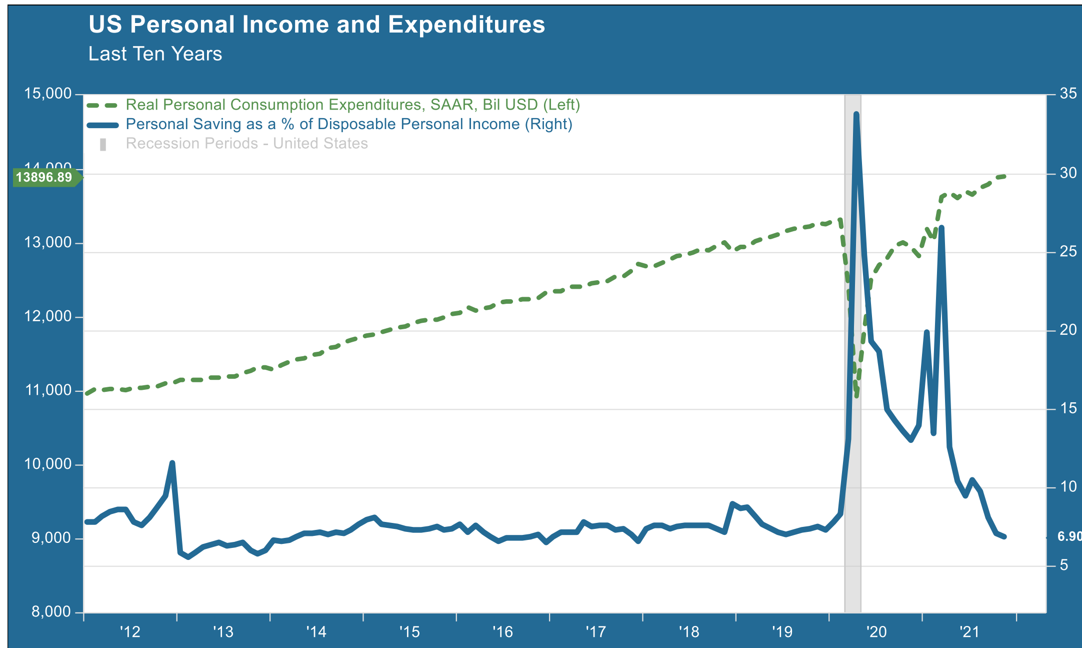
Source: Federal Reserve, MVF Research, FactSet

That's a pretty unusual-looking graph. The rate of growth in the US money supply is normally not a particularly exciting thing to monitor. But in 2020 the government unleashed a torrent of new money through the efforts of both the Federal Reserve, in its widespread intervention into the credit markets to restore liquidity during the initial coronavirus panic, and the Treasury Department in funding trillions of dollars in relief payments to American households and businesses. All that money had to come from somewhere, and that somewhere was (metaphorically) the printing press. Hence a never before seen increase in the nation's money supply.

So that's part of the explanation. A tsunami of money flooded into American bank accounts when the government printed all that money. But we still don't have a direct connection between that event and the crazy prices of bitcoin, meme stocks and other questionable assets during this period. For that we need one more picture of economic activity. That will get us two-thirds of the way there, and then we have one final observation that will tie it all together.

The economic data point is in the chart below. Two points, actually: the rate of household savings as a percentage of disposable income, and real-dollar outlays for personal consumption.

Chart 4: US Household Savings Rate and Personal Consumption Expenditures



Source: US Bureau of Economic Analysis, MVF Research, FactSet

As with the money supply in Chart 3, the household savings rate in Chart 4 above shows an unprecedented jump during the pandemic, and for the same reason. Here we see the direct link between the growth in the amount of money circulating and its effect on household economics. But look at the other line, the green dotted line showing personal consumption. Not surprisingly, that rate fell suddenly when the lockdown happened in March 2020, then picked up again when the relief payments started coming in. But all the personal consumption pattern did was more or less go back to its pre-pandemic trend. In other words, when the savings rate went up, some of that money went back into normal consumption, but a big chunk also went somewhere else. Where? Into personal investment accounts. Into Robinhood, or E-trade, or some other way to trade assets. In fact, retail trading rapidly grew over this period to levels never seen before. Charles Schwab added more retail accounts in the first quarter of 2021 than it did in full year 2020 – and in 2020 it added more accounts than in any year before that.

Chart 3 and Chart 4 above explain where the money came from that found its way into all those new accounts. That still leaves one question unanswered: how did it lead to such profound leaps of price performance for cryptocurrencies and all those meme stocks? The answer to that question is the same as it is to many other aspects of our world today: social media. Well, that's almost the answer. There is a relatively small number of social media sites where aspiring day traders gather to latch onto the next flavor of the day; the WallStreetBets site on Reddit is the most well-known of these and was the source for much of this speculative activity as it took place. GameStop, one of the meme stocks we presented in Chart 2 above, was the first direct kill for the Reddit crowd; their massive coordinated buying effort caught some short-selling hedge fund managers like deer in the headlights. Margin calls and all the other bad things that can happen to short sellers on the wrong side of a trade happened to firms like Melvin Capital. This New

York-based hedge fund lost about $4.5 billion in a few short weeks from the $12.5 billion it had at the start of the year, got bailed out by another hedge fund and staggered through the first half of the year with a 46 percent loss. WallStreetBets 1, Smart Money 0.

But it's not called smart money for nothing. The brilliant minds running the hedge funds were clever enough to realize that the world had changed around them. Don't fight the social media crowd, they reasoned. Follow them! Toss out those esoteric Gaussian distributions and multivariable calculus models, and just troll the Reddit and Twitter mobs instead. That's where the alpha is. If they're buying lousy also-ran stocks, buy more of those. If they're buying bitcoin, buy lots of bitcoin!

Fake It Till You Make It

For bitcoin, and cryptocurrencies, in general, there was one final assist from outside – this time, from Silicon Valley. Watching the growing mob interest in financial markets for bitcoin, the Valley realized that this should be their home turf – after all, bitcoin and its ilk are just bits and bytes residing on a sexy-sounding thing called blockchain. And the fact that cryptocurrencies haven't yet demonstrated a compelling use case fits right into what Silicon Valley does best: fake it till you make it. Pour billions of dollars into something, even if that something doesn't work, because the billions of dollars will force people to pay attention, to write about it, to evangelize about it, and eventually it will all come together. The Valley's most powerful denizens – the likes of Marc Andreesson who started this whole crazy thing back in the early 1990s when he backed VC money into Netscape before anyone even knew there was an Internet – are into crypto-focused VC funds in a major way (Andreesson's fund is currently raising $4.5 billion for a new crypto venture). Young starry-eyed entrepreneurs looking to cash in on the digital rush are going to want to have "crypto" somewhere in their corporate name just as much as an earlier generation latched onto "dot.com" to describe whatever it was that their business was (or was not) doing.

And somewhere Satoshi Nakamoto, the mysterious and possibly mythical inventor of bitcoin, is either weeping silently or turning over in his grave. His vision was to free finance from the clutches of the powerful intermediary institutions that control it – not to see the independent blockchain gobbled up by even more powerful, monopolistically-inclined intermediaries on the other side of the country from Wall Street. As it happened with Internet 1.0 (Amazon and Google), as it happened with Internet 2.0 (Facebook), so it seems it might happen with Internet 3.0.

Ah, But What Kind of Crypto?

For the rest of us, does that mean we are all fated to live in a world where the clunky, eco-unfriendly, hyper-volatile template of bitcoin transactions are how we go about buying groceries and saving up for Sally's college tuition? Not necessarily. Remember that at the very beginning of this section of the report we said that there is in fact an intellectual case to make for a digital currency. We will pick up that theme now as our final topic in this section.

A digital currency does not have to be modeled on the bitcoin-blockchain methodology of complete disintermediation from financial institutions. We believe, in fact, that the way digital currencies will be used within the next several years will in fact be very much intermediated – by central banks. The first out the door is likely to be a digital renminbi operated by the People's Bank of China, that country's central bank. The European Central Bank, the US Fed and others are also studying this development, but China already has a pilot project in operation.

The idea here is fairly simple, even if the technology in deploying it probably is not. Money exists in different forms, from hard cash to money held in checking accounts, savings accounts and other forms of cash equivalents. Much of this money is already digital, in the sense that you have apps like Apple Pay and Venmo that virtually move money from one place to another. But all that money still traces back to bank accounts or similar variations of liquid funds. This is M1, what we showed in that crazy graph on Chart 3 above.

Central bank digital money would be different. It would essentially be the same thing as hard cash, but you would carry it in an electronic wallet rather than in a physical one. In the Chinese test case users will have

an app which is essentially a direct, secure link between the individual holding digital renminbi and the central bank, the PBOC.

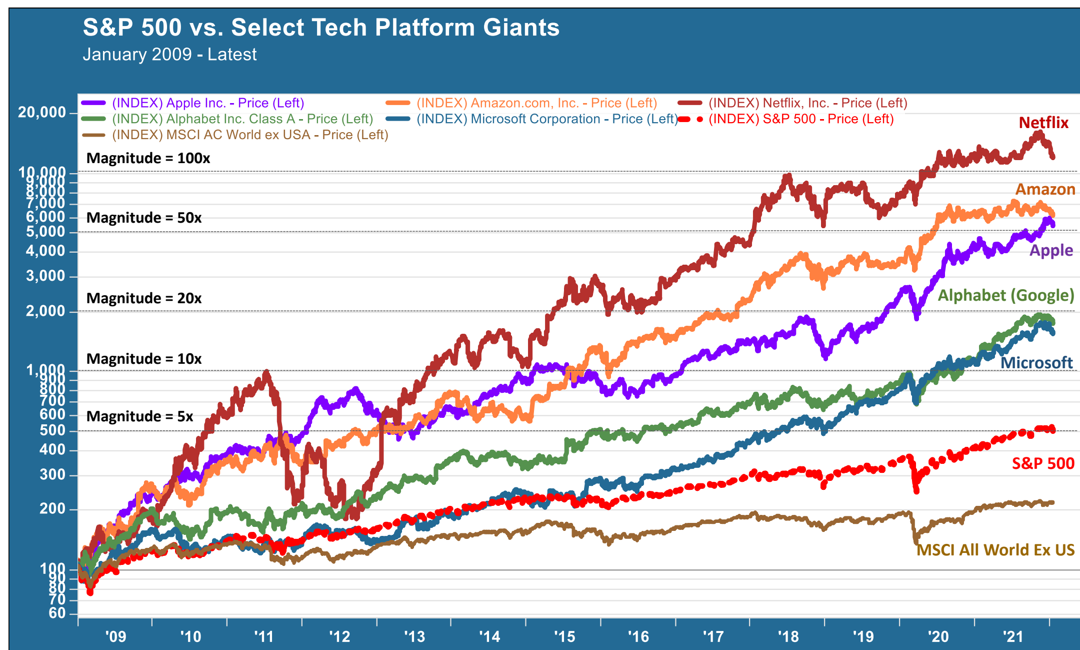
To sum up: we do think that cryptocurrencies – if one means by that a form of digital cash secured by robust cryptographic encoding and existing outside the framework of traditional intermediation through deposit or savings accounts or other liquid instruments issued by banks or other financial firms – are likely to become a big part of the landscape in the years to come. It makes sense, given how much of the economy is now part of the virtual world more than the physical. But with any of these major shifts in an economic paradigm, there are always far more players than there are eventual winners. Think about the internal combustion engine – which in all fairness to the wonders of the Information Age was in our opinion a far more impactful invention in terms of its effect on society. There were thousands of early adopters of the technology who tried to manufacture cars – but in the end there was only General Motors and Ford (and later Chrysler), along with a similar concentration in other countries. In the age of Internet 1.0 many more start-ups got swept away by the dot-com bust, while only a tiny number became the mighty Amazons of the next generation.

It may well be that bitcoin, or Ethereum, or some start-up we haven't heard about yet backed by billions of VC dollars, becomes the next genuine colossus. It is also possible that the most compelling use case for digital cash will come from the central banks. This might well be an instance where the age-old mantra "don't fight the Fed" – or the ECB, or the PBOC for that matter – takes on an entire new meaning.

C. The Algorithms Won

As we noted above cryptocurrencies, in whatever form they eventually prove to actually be useful in solving problems (our best estimate being central bank-issued digital cash), are in one sense already at home in our world, in which the economy and civil society itself are increasingly dominated by the algorithms powering a small number of colossal technology platforms with a reach across the globe and into every community where they are legally permitted to be. If you are a frequent reader of our commentaries you will recognize the chart below, which we re-introduce for this discussion.

Chart 5: Tech Platform Giants, S&P 500 and MSCI All World Ex US, 2009 - Latest



Source: MVF Research, FactSet

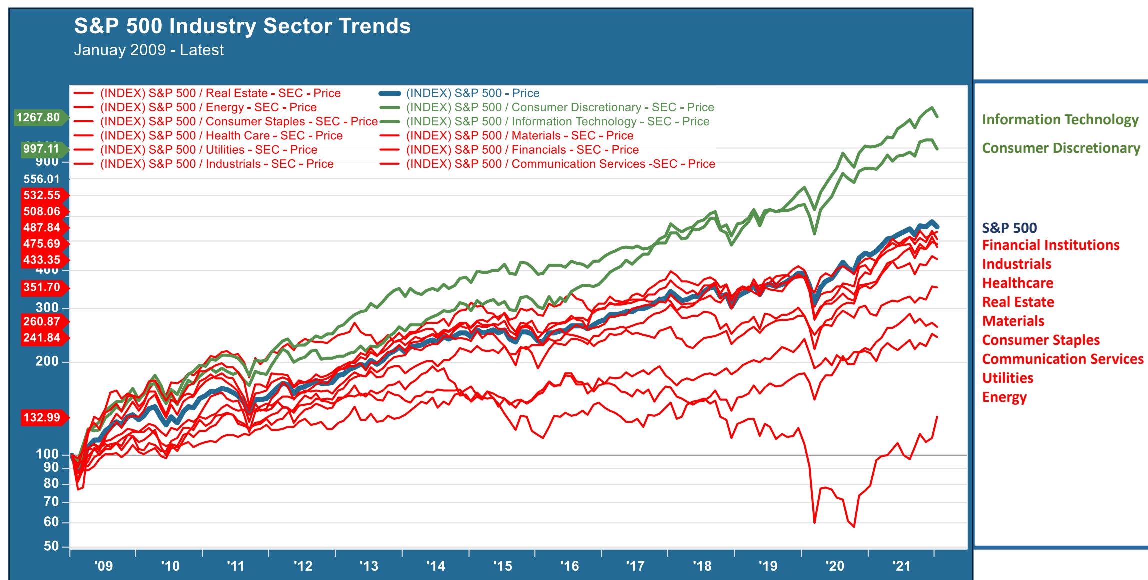
Chart 5 above tells you just about everything you need to know about what has driven the outperformance of the S&P 500 against the rest of the world since the end of the 2008 financial crisis. The way to read

this chart is straightforward: since January 2009 the MSCI All World Ex US index has grown by a cumulative magnitude of two times, while the S&P 500 has grown by a magnitude of five times. In that same period Microsoft and Alphabet grew by a magnitude of just under 20 times, Amazon and Apple by more than 50 times and Netflix by more than 100 times. We do not show Facebook or Tesla here because they lack sufficient price data going back to 2009 (though the story is roughly the same, with Tesla having increased by a factor of more than 200 from its debut in the middle of 2010, and Facebook around nine times from its IPO in 2012, also, Tesla is not exactly a "platform" in the way that the others are).

This chart tells us about more than just the basic math of the market cap-weighted S&P 500, though. It tells us how we as a society occupy our time. Stock prices reflect the value of companies that compete in our economy, and the economy itself is a reflection of what the people who live in that world do with the hours in their days. We stream things, we buy things, we play games, and we also search for things and do most of our work online. All these companies exist at the valuation multiples they do because they developed the best (or at least the most readily replicable) models for supplying us with the things that we do more than we do anything else.

That's "us" as in people, as in individuals, families, households. But these companies are also great at supplying their services to another "us" – to other businesses. It doesn't matter what industry sector you are looking at – whether industrial companies that manufacture intermediate products, or chemical concerns, or auto manufacturers. Tune into one of their quarterly management calls and you will hear a familiar refrain: how quickly they are "digitizing," meaning how much their own core business strategies rely completely on the cloud services (such as data warehousing and predictive analytics) the security and protection services and all the related software, hardware and connectivity that the tech platforms offer. How is that working out for everyone? Here is another view of the S&P 500's fortunes since the end of the Great Recession, this time at the level of industry sector.

Chart 6: S&P 500 Industry Sector Performance, 2009 - Latest



Source: MVF Research, FactSet

In case you are wondering what the consumer discretionary sector is doing up there with information technology there's an easy answer: half of the total market capitalization of the sector consists of just two companies, Amazon and Tesla.

So there it is. Since January 2009 every industry sector apart from technology and consumer discretionary has underperformed the index as a whole. Moreover, the ones that have done the best over that time are those arguably closer to the wholesale incorporation of technology into their core businesses: financial institutions (through "fintech" offerings and, yes, probably more forays into cryptocurrencies), industrials

(robotics and AI/digital manufacturing) and healthcare (biotechnology). At this point it is not really an exaggeration to say that technology is the economy, and the economy is technology. Yes, we still buy all sorts of old-fashioned things that have a use in the physical world like food, beauty products and ways to get from one (real world) place to another. But there isn't a business out there that is somehow immune from the platforms and their all-pervasive algorithms. The algorithms won.

This brings us towards the end of this first section of this year's annual outlook. If you have been a reader of our past years' outlooks then you know how this goes. We start off with some bigger-picture issues that may or may not have much to do with the twelve specific months of the year ahead but are nonetheless important enough to merit some deep thinking. We then go on in the next section to outline our thesis for the year ahead and elaborate on what our thesis might mean (or might not mean) for the economy and financial markets. As always, we present this with the caveat that forecasting is a flawed science, and there are plenty of ways our predictions may wind up being way off the mark.

Here is the final thought linking this first section of the report with everything that is to come. As we write this, in the middle of January, world equity markets have gotten off to a sluggish start. Hardest hit so far this year are many companies in that very space of technology we have been talking about for the last half dozen or so pages. This isn't unusual: things go up and they go down. Cyclical swings are a fact of life in risk asset markets. Sometimes the intensity of a cycle may make it seem like a call for action, to quickly bail out of whatever isn't working at the moment and dive into something that is working. Growth stocks have been wildly outperforming for so long that it must be time to get into value, right?

That's why we go to the trouble of putting this bigger-picture part of the report together. It reminds us that whatever happens to be up or down at the moment, there are some fundamental things going on in our economy that are not going to change just because, say, the share price of Apple or Alphabet falls by some large amount. Could these tech giants meet their nemesis one day? Sure – there's regulatory risk in the amount of concentrated economic power they have, there's obsolescence risk in the products and services they offer today, there's start-up risk in the next Apple or Microsoft suddenly appearing on the scene. Nothing lasts forever, as the graveyard of once-dominant enterprises, nations and ideologies will bear witness. But those changes also probably aren't happening tomorrow, or next month. Patient investing takes time to earn its rewards.

II. 2022 Investment Thesis: Groping Towards a Post-Pandemic World

A. Executive Summary

The dominant economic story in 2021 was the return of inflation to levels not seen in a generation, along with the Fed's inability to acknowledge the more durable nature of this inflation, and its likely impact on interest rate policy, until nearly the end of the year. It's easy to forget, though, that the Fed's repeated argument for "transitory" inflation looked much more compelling than alternative scenarios throughout the first half of the year. This argument may very well have proven true but for one thing: Covid, or specifically, the delta variant of the virus that appeared on the scene in late June and upset the expected glide toward normalcy that had begun when the vaccines became available.

With delta came back many of the restrictions we thought were in the rear-view mirror: social distancing, mask mandates and changes in consumer preferences away from recreational services like travel and dining out, and towards manufactured goods. This behavioral change, along with ongoing problems along many points of the supply chains for these manufactured goods, created a stickier inflationary environment than what the Fed, as well as most economists had expected. With the arrival of the super-transmissible omicron variant as the year-end holiday season got underway, the Fed finally had to acknowledge the reality that the persistence of inflation and continued uncertainty around the pandemic would necessitate more accelerated actions to end its quantitative easing program and begin to raise interest rates.

This is the world we contemplate for our 2022 investment thesis which we present here below.

In 2022 the Fed's stewardship of monetary policy will be tested more strenuously than at any time since the financial crisis of 2008. Against a background of the highest levels of inflation in forty years and the ever-changing trajectory of Covid-19, the central bank will need to balance the economic case for ending its quantitative easing program and raising interest rates with the reality of volatile and potentially fragile risk asset markets long dependent on support from the central bank. Economic growth is likely to continue and should provide the Fed with room to maneuver in carrying out its policy changes. Corporate earnings should grow at a quicker rate than GDP, but this by itself may provide little upside room for equities given already-high valuation levels in most areas of the market. However, even with nominal interest rates rising, most fixed income asset classes are likely to remain substantially negative in terms of real yields as long as the current inflation cycle persists. That, along with the economy remaining in a growth cycle with no signs of recession on the horizon, suggests that modest growth in equities, particularly among high-quality names, is a likelier outcome than a protracted stock market downturn.

- While Covid's trajectory remains uncertain and subject to new mutations, we believe the most likely path for the virus this year is from pandemic to seasonal endemic. Pre-pandemic life habits will gradually start to look more like 2019 and less like 2020-21. All else being equal, this should start to relieve pressure on manufacturing supply chains as consumer demand shifts at least in part back to the recreational services that suffered during pandemic restrictions. That in turn should at least slow down the pace of inflation, with measures like the CPI and PCE peaking sometime in the year's second quarter. **Key risks:** New mutations of the virus are an ever-present threat, the worst of which would be a highly transmissible variant with higher incidence of severe illness than omicron. An additional risk is that we cannot predict longer-term, structural changes in consumer behavior.

- One of the formative causes of the inflationary surge in 2021 was the succession of relief and stimulus measures from the federal government. Much of this money (at least that which didn't go into Robinhood trading accounts and crypto wallets) went directly into the economy as consumers spent their stimulus checks with gusto. At present it does not look like much, if any, additional stimulus will be coming out of Washington in 2022. The Biden Administration's so-called "human infrastructure" program Build Back Better has stalled on the objections of a small number of centrist Democrats

(with no Republican support, it goes without saying) and at least as of now appears dead on arrival. A number of economists have opined that the absence of additional fiscal stimulus will lower 2022 GDP growth by as much as half a percent. Whatever the social consequences, from an economic perspective less fiscal spending directly into consumer wallets should also have a taming effect on inflation. **Key risks:** The fiscal largesse throughout the pandemic was a key factor in the relative outperformance of the US economy during this period compared to other countries. If the pandemic takes another unexpected turn for the worse, the inability of the government to respond (particularly as the midterm elections approach) could have near-term negative consequences.

- Interest rates are likely to rise. The Fed may have been late to the inflation party, but the messaging around tighter monetary policy has become clearer since the Federal Open Market Committee, which oversees the central bank's execution of its policy objectives, met in December. Market observers expect the first rise may take place as early as March, with either two or three additional hikes before the end of the year. While this will have a direct effect on short-term interest rates, it is less clear how Fed actions will affect longer-term rates, which are subject to a variety of economic drivers. Much will have to do with the confidence level the market has in the Fed's ability to stave off a more structural bout of inflation that persists beyond the current supply-demand imbalance. **Key risks:** Higher yields (especially higher real yields) can have a negative impact on riskier asset classes. Small, loss-making companies (e.g. recent IPOs) and popular speculative bets like cryptocurrencies are particularly at risk.

- Expensive market valuations were not a matter of much importance for the market throughout most of 2021 (contrary to our expectation a year ago that they would start to matter). But the pattern started to change in late summer, with economic fundamentals becoming more important while some of the riskier segments of the market started to lose ground. In the communications services sector of the S&P 500 the average company was more than 22 percent below its 52-week high at the end of the year; for the healthcare sector the average off-peak decline was nine percent. The index's strong performance through year-end was thanks to the usual six or seven mega-cap tech platforms that make up an outsize percentage of its total market cap. **Key risks:** Even high-quality companies with good earnings prospects will have to exceed analysts' growth expectations to deliver returns, as high valuation multiples will limit the potential for more price expansion above sales and earnings growth.

- The global recovery from the pandemic will continue to be uneven. The World Bank predicts that global growth will fall from 5.5 percent in 2021 to 4.1 percent this year, and 3.2 percent in 2023, with emerging economies potentially faring worst in an environment of rising interest rates, growing income inequality, increasingly frequent climate-related disruptions, and a persistent vaccination gap between rich and poor nations. As we have all seen in the past two years, the economy truly is global – we know much more today about the circuitous path the products we buy take around the world in their journey to our doorsteps than we did before "supply chain disruption" became a staple of our everyday conversations. The good news is that growth overall remains positive: we are not on the cusp of a recession according to any data points we have at hand today. The bad news is that the unevenness of the recovery threatens to prolong some of those very same supply chain problems that are adding to today's inflationary pressures. **Key risks:** We are not at the point where a period of 1970s-style "stagflation" is likely; however, a combination of bad policy decisions and unexpected external events (e.g. climate, cyber, contagion) could create the conditions for it to become a reality.

- China is potentially disruptive on both an economic and a geopolitical front. In 2021 Beijing initiated a major crackdown on some of the more dynamic sectors of its economy, including some of the biggest and most globally well-known tech platforms. The country's property sector, one of the largest contributors to GDP, has gone into a tailspin with the collapse of Evergrande and other large developers. Beijing's crackdown is not just economic but social as well. Hong Kong is losing all vestiges of the relatively independent democracy it once was, and Taiwan is vulnerable to a military invasion by the mainland. Meanwhile relations between China and the US, the world's largest two economies, are at a low point with little in the way of expectations for a thaw any time soon. **Key risks:** What happens in China affects US companies, US consumers and US foreign policymakers. A further unwinding of the tense interrelationship between the two countries is probably not good for any of those constituents.

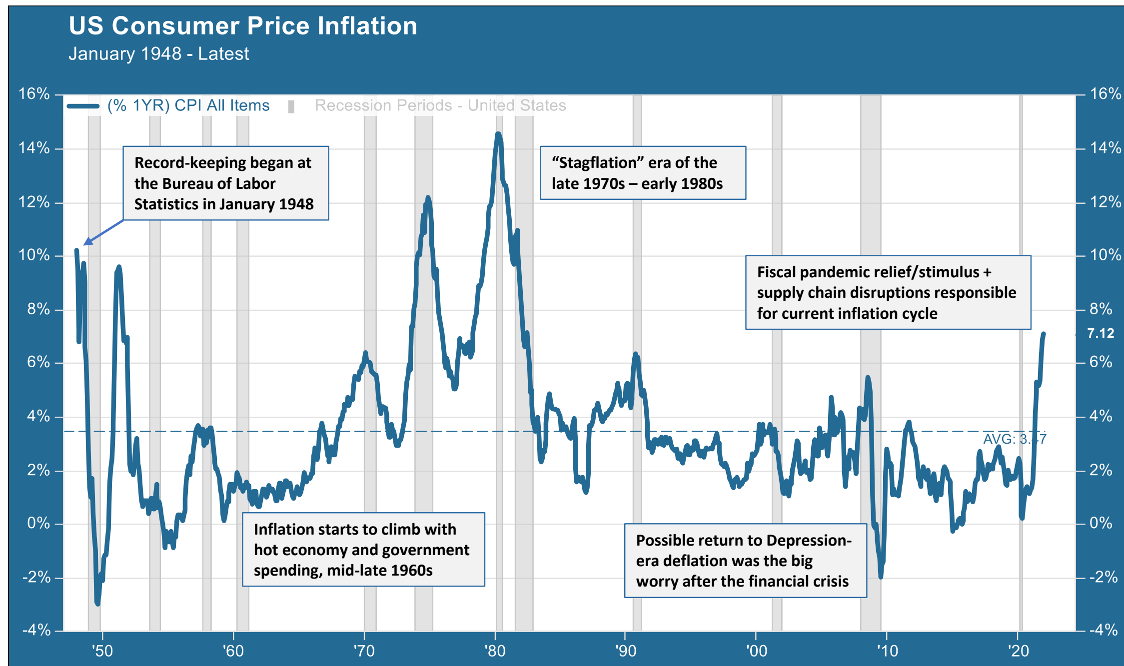
B. State of the Global Economy

i. The Inflation Question

Sometimes it actually helps to be old enough to remember the 1970s and early 1980s, which was the last time anyone had to spend a lot of time analyzing inflation. It's the number one topic of economic concern today, and for good reason. Our economy has not experienced much in the way of productivity for many years. Low productivity is bearable, if not optimal, while consumer prices stay relatively low. But the combination of low productivity and high inflation could bring back those very conditions that plagued the economy of the late '70s and into the first couple years of the 1980s. It is not surprising that the administration of President Joe Biden wants to figure out how to break inflation's back sooner rather than later – that late-70s "stagflation was a big reason why Jimmy Carter became a one-term president.

To understand what we may be facing in the months ahead it is helpful to think through what is happening today and what the similarities and differences are with previous inflationary periods. The chart below shows the history of the Consumer Price Index since the Bureau of Labor Statistics started keeping records in 1948.

Chart 7: Inflation (US Consumer Price Index), 1948 - Latest



Source: Bureau of Labor Statistics, MVF Research, FactSet

The first major inflationary period, as the chart shows, was in the immediate postwar period (the BLS data only go back to 1948, but earlier measures show that postwar inflation peaked in mid-1947 at close to 20 percent and was on its way down when it recorded 10.2 percent in January 1948). This was a relatively short and highly volatile period of inflation, reflecting (a) the fact of production hiccups as factories switched from the manufacture of goods for military use to those for consumer markets, and (b) a high degree of pent-up spending by households as soldiers came home, wartime restrictions ended and the fabled baby boom began. In the middle of this was the recession of 1948-50, adding to the volatility.

The inflation from the mid-1960s to the early 1980s is more complicated. Its origins were a red-hot economy following the recession of 1960-62. The postwar US economy was unique in our country's history for the low level of income inequality, which in turn came about from the great loss of wealth in the form of assets throughout the Great Depression and then the war. Middle class America was dynamic. Wages rose along

with growth, and consumer prices followed. Government spending was also high. The US started spending on the Vietnam War during the Kennedy administration and ratcheted up quickly during the one and a half terms of President Johnson. The Johnson administration also spent heavily at home on programs related to the Great Society initiative. As Chart 7 shows, inflation had already surpassed its peak levels during the 1950s by the time Johnson left office. Richard Nixon managed to bring inflation back down below four percent as his first term drew to a close at the end of 1972. Soon afterwards, though, the oil cartel OPEC dramatically cut the production of crude oil, sending gasoline prices skyrocketing.

At this point a couple of Nixon's earlier policy decisions came back to haunt him: the decision to take the US dollar off the gold exchange standard, and a policy of wage indexation linked to inflation. In particular it was the wage-price spiral that set in motion inflationary expectations that never went away. After the recession of 1973-75 the economy grew only moderately, while inflation kept rising until it peaked in the mid-teens at the end of the decade. It was at this point that Paul Volcker, the Federal Reserve chair at the time, hiked interest rates to punitively high levels in order to break the back of inflation.

Here is where the history ends and the present day begins. When we think about inflation today, it seems more reasonable to compare it to the postwar inflation of the late 1940s than to the long 1970s. As with the postwar period, what happened in 2021 was a perfect storm of supply and demand factors: the breakdown of the intricate web of global supply chains that reduced the production of goods and increased the cost of transporting them from afar to our homes, and on the demand side the massive supply of fiscal and monetary stimulus (you will recall that Charts 3 and 4 in the previous section illustrated this tsunami of money). In 2022 it is likelier than not that both these phenomena will abate. Not much, if any, new fiscal stimulus is coming out of a Washington, DC going into pre-midterms gridlock. The Fed is starting to tighten the monetary spigots. If history is any guide at all, we expect this inflation should be relatively short-lived and should not approach the peak levels seen in the earlier era.

But it all depends on expectations. The Fed needs to establish complete credibility in its ability to head off a more intractable run of inflation. It needs to do this while at the same time keeping the economy from reversing course on growth. Last but not least, it also needs to wean asset markets off the addiction to easy money that has kept this market growth cycle in hay for so long. It is not an easy job that Jay Powell and his team have in front of them. But there is no issue more consequential to the economy and to financial markets than this.

ii. From Pandemic to Endemic

Covid-19 has proven itself to be a formidable virus, squelching our hoped-for return to normalcy last summer and then mutating into an even more transmissible variant, omicron, in late November. As we write this in the middle of January the omicron variant is still racking up staggering daily new case numbers, but in some of the major urban centers it appears to be peaking. It's likely that omicron will not be the last word when it comes to mutations. Given the uneven distribution of vaccinated versus unvaccinated populations both here in the US and around the world, Covid will continue to be a health concern as far ahead as we can see. However, we also have an expanded arsenal of preventative tools, from vaccines to other drugs that reduce the likelihood of a serious illness or death.

We expect that over the course of 2022 the prevailing approach to Covid will be to treat it as an endemic seasonal malady, rather than a continuing high-emergency pandemic. Practically speaking, this will mean the (more or less) resumption of pre-pandemic activities including in-person schooling, returns to offices and indoor entertainment events and the like. Of course, none of this is a certainty – there is always the chance that another variant will combine the more deadly characteristics of earlier strains with the transmissibility of omicron. But accepting the existence of the virus and moving on with our lives is, in our opinion, the most likely path forward.

We have less control over how other parts of the world treat Covid in the year ahead. In particular, China stands out for its policy of zero-case toleration. Even today, several major Chinese cities are in full lockdown due to the emergence of new cases, probably related to omicron. China's zealous approach to banishing the virus is out of step with the approach of most countries in Europe and North America. It is important

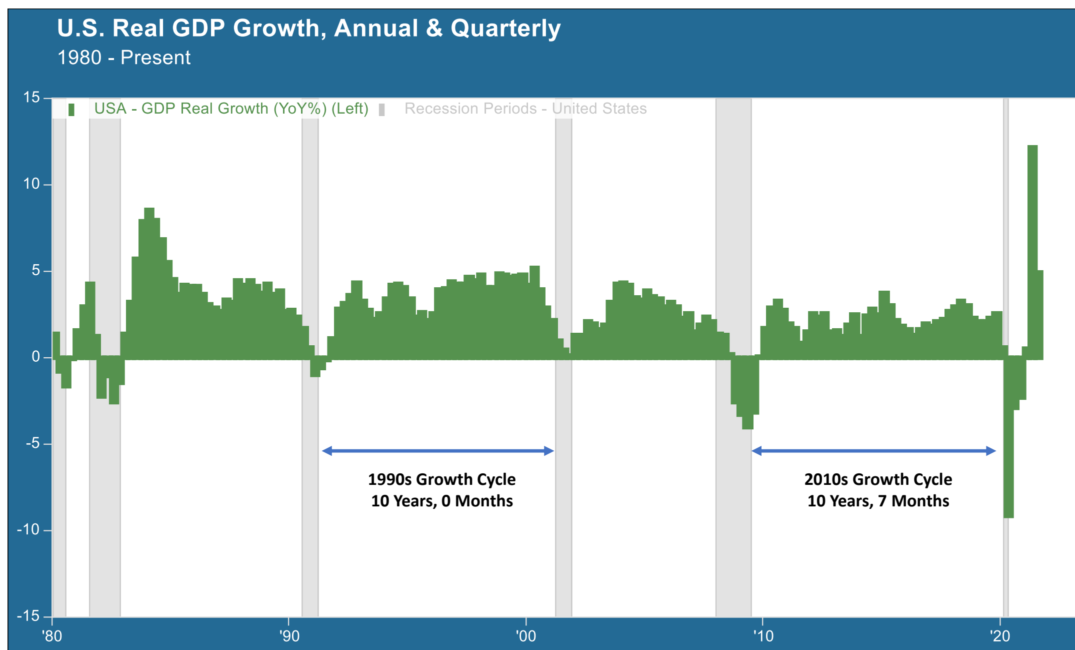
because China is also an important part of the web of global supply chains. Prolonging the time before supply disruptions are worked out could have a negative impact on inflation and overall growth.

iii. Defining the Growth Cycle

One of the good pieces of economic news in 2022 is that a recession does not seem to be in the cards. By the time this report is published the growth rate for the fourth quarter of 2021 will have published, and it is expected to be in the mid-single digits, close to the rate for the third quarter. Of course, this follows the very strange gyrations of the sudden pandemic lockdown, when the economy fell more sharply than at any time since the Great Depression, and then rose just as sharply when things switched back on.

The pandemic brought a sudden end to what was by then the longest uninterrupted growth cycle on record. Chart 8 below illustrates this strange chapter of our GDP growth history.

Chart 8: US GDP Growth (Year-on-Year), 1980 – Q3 2021



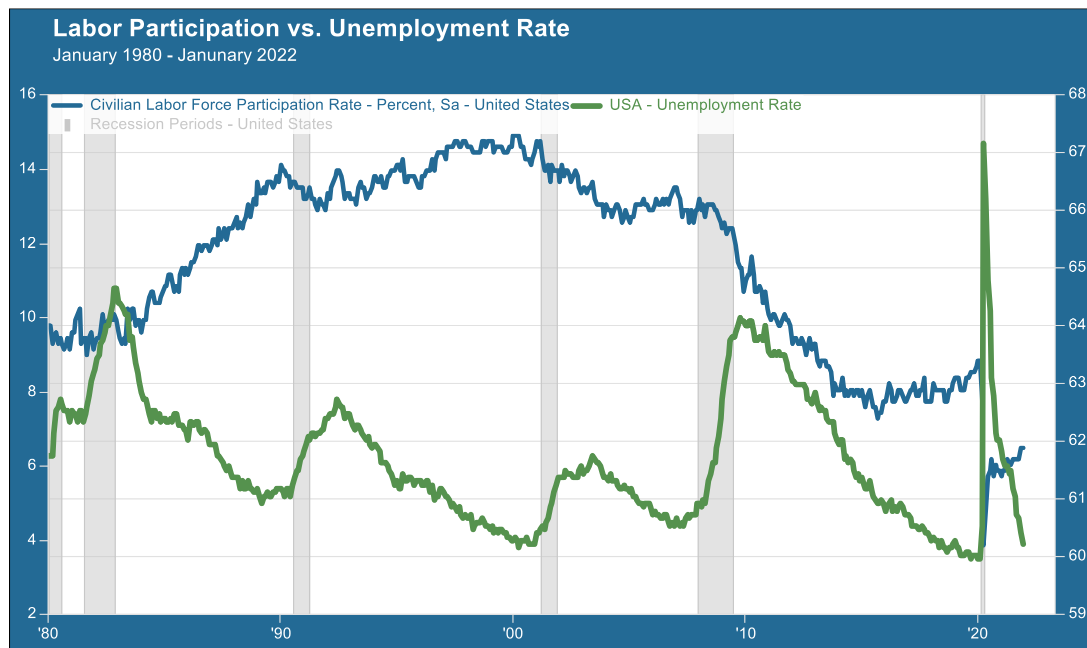
Source: Bureau of Economic Analysis, MVF Research, FactSet

So where are we now in the economic cycle? It's very hard to say. On the one hand, nothing in February 2020 suggested that the economy was about to turn negative; most indicators at the time, including the labor market, consumer spending and corporate earnings all looked pretty robust. Then, despite the sharpness of the downturn in March and April, the recession was officially over in May. At two months, it became the shortest recession on record. We have been back in a growth cycle now for more than a full year and a half post-recession. So do we think of it as a continuation of the old growth cycle, or a new one?

There certainly are enough things about the economy today to suggest that it doesn't make sense to think we are in any way part of the same growth cycle as before the pandemic. For one thing, nobody was talking about inflation at any time during that cycle. In fact, one of the oddities of the growth period of the 2010s was how the labor market improved to, ultimately, the lowest rate of unemployment since the 1960s without triggering inflation. Normally, inflation starts to pick up as the cycle moves along (which certainly happened during that 1960s cycle), and that's when the Fed steps in to put the brakes on an economy running hot. Recall that in late 2018 the Fed started to raise rates, and that caused a significant pullback in the stock market. The Fed got jumpy and pivoted away from its tightening policy at the beginning of 2019 – which it was able to do because there was no clear and present threat of inflation.

In fact, the current rate of inflation looks like something you would see closer to the end of a growth cycle rather than at the beginning. But so does the labor market. Consider the chart below, which shows the unemployment rate and the labor force participation rate, also going back to 1980 just like the GDP chart above. Look how quickly unemployment (the green trend line) fell from its pandemic peak to today, where it is only slightly higher than that near-record low level set in February 2020.

Chart 9: US Unemployment Rate and Labor Force Participation Rate, 1980 – 2022



Source: Bureau of Labor Statistics, MVF Research, FactSet

In the previous four growth cycles shown here (the white areas between the gray bars that signify recessions) the unemployment rate falls slowly from its recession peak, over a period of multiple years, and by the time it bottoms out conditions are already forming for the next recession. But in the current cycle (if we are calling the post-pandemic growth period a new cycle) we are already close to, if not in fact at, what the Fed would consider to be full employment. What should we expect from the labor market in the coming months? Is there room for even more jobs creation (and if so, what are the implications for inflation)?

Where Have All the Workers Gone?

These questions are confounded further by the other variable shown in Chart 9: the labor force participation rate. One of the mysteries about today's economy is why there seem to be so many more jobs on offer than there are people willing to take the jobs. The labor participation rate (the blue line in the above chart) has come up a bit from the low point that coincided with the pandemic lockdown. But it hasn't risen that much, and remains well below its pre-pandemic level. The shortage of workers is driving average wage higher and is one of the input factors into the higher levels of inflation we have today.

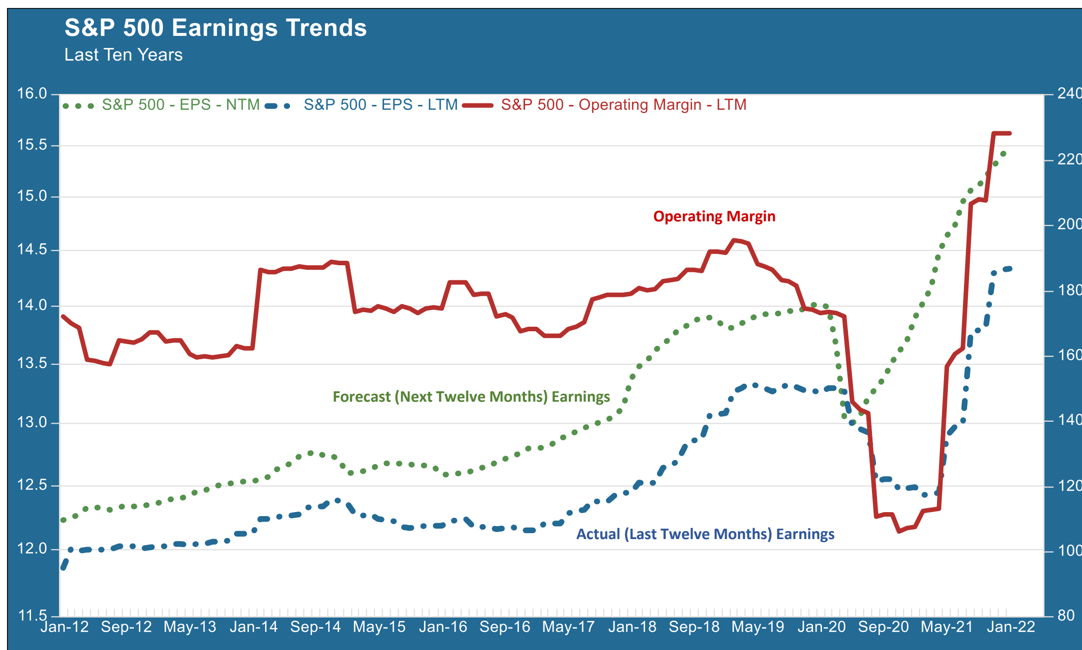
Much of the evidence gathered by labor economists suggests that the two main drivers of this reduced labor force participation are (a) the continued faster pace of retirement by baby boomers, the last of whom will reach age 65 in eight years from now, and (b) the exodus of employees from lower-wage jobs in search of something better. The pandemic has taken a serious toll on the emotional and mental health of workers in areas like health care – from nurses in chaotic hospitals to caregivers in retirement homes – and retail. It remains to be seen whether the likely end of stimulus payments from the government will eventually bring some of these people back, but it seems unlikely that we will see a surge in the labor participation rate any time soon.

This is not just a problem in the US. Demographics are working against labor force participation in China and other countries in Asia as well. In the 1990s and early 2000s there was a massive migration of workers in China from the countryside to manufacturing-intensive cities. That trend has slowed, the population is ageing rapidly and overall population growth is close to being in decline. The cost of labor in China, Vietnam and other important nodes in the global supply chain is likely to keep rising steadily, and this will be more of a structural than a cyclical trend that could have a longer-term impact on global inflation.

iv. Corporate Earnings Face a High Bar

It's been nothing but good news for corporate earnings in the past year. For the full year 2021 earnings for S&P 500 companies are expected to grow by about 45 percent. That means that the S&P 500's total return of 26.7 percent in 2021 involved no valuation multiple expansion. Of course, that massive mid-double digit growth was achieved largely due to comparison with the depressed earnings of a year earlier, during the lockdown. Chart 10 below shows the 10-year performance trend for actual and forecast earnings, and for operating profit margins.

Chart 10: S&P 500 Actual and Forecast Earnings and Operating Margins, 2012 – 2022



Source: MVF Research, FactSet

Not only has the recovery in earnings been robust and better than expected, but profit margins are higher today than at any time in the last ten years. This is rather remarkable when considering the higher input costs companies have faced – employee compensation, raw material inputs, freight and transportation expenses have all been growing. It appears that many companies have been successful in raising prices to their customers by more than enough to offset the higher input costs.

In 2022 these companies won't have the same easy comparisons they did last year, but nonetheless earnings are projected to grow by around nine percent this year, itself a faster rate of growth than the average trend between the beginning of the recovery in 2009 and the pandemic. That should be good news for stock prices, yet there will be a different dynamic at play. The expectations bar is higher this year. The analysts who cover these companies will be paying less attention to what management teams report for the past quarter, and more on what guidance they will be giving for the quarter ahead. The combination of inflation and the persistence of the virus is scrambling prior assumptions, particularly as they pertain to profit margins. Moreover, the likelihood of higher interest rates as the Fed moves ahead with tightening will make conditions more difficult than they have been for raising corporate debt. In short, the Street seems to have a glass half empty view when it comes to earnings this year.

C. State of the Markets

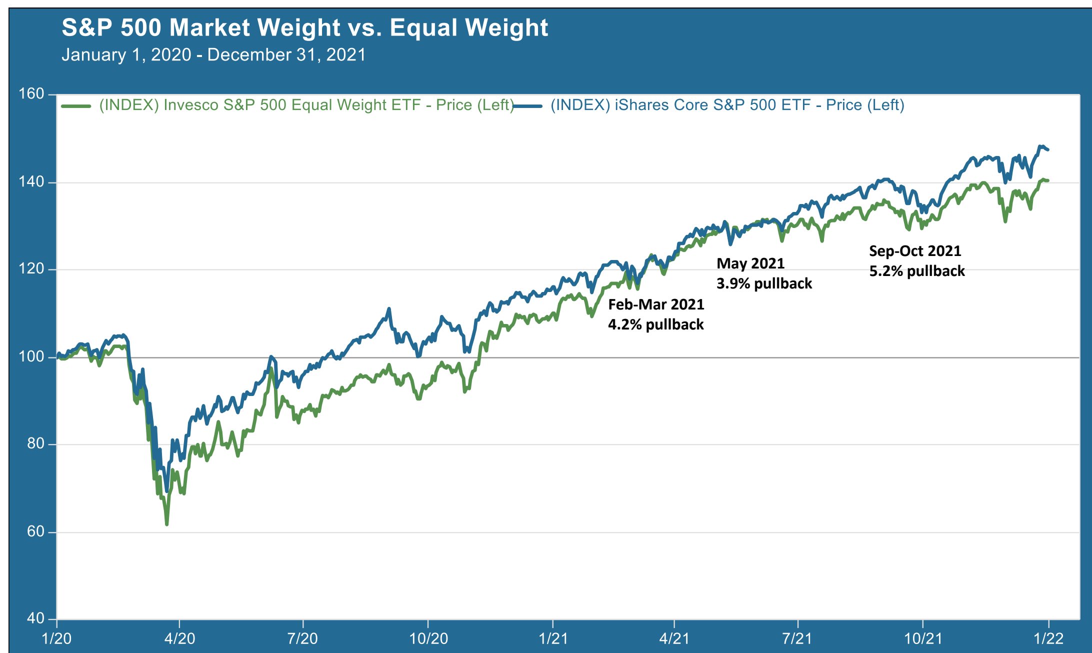
i. A Narrow Rally Is In Trouble

The S&P 500 enjoyed what investors like to call a "Santa Claus rally" in the second half of December. For the briefest of times it looked like the fun might continue into the new year, with the index closing at a record high of 4,796 on January 3. But that was the end of it. On January 4 the Fed released the minutes from its December FOMC meeting. The minutes didn't really say anything that hadn't already been said by Jay Powell during the post-meeting press conference in December. Nonetheless, it seemed to be the "memo" that everyone now had in hand, precipitating a wave of selling that is continuing into its fourth week as we prepare to publish this report.

The impressive headline of the Santa Claus rally, though, glossed over the fact that the rally was on increasingly tenuous footing. On the S&P 500, 166 companies were in correction territory – down ten percent or more from their 52-week highs – at the end of the year. On the broader Nasdaq exchange consisting of around 3,000 companies, a full 40 percent were down by 50 percent or more from their 52-week highs. Many of these companies are small (this is different from the Nasdaq Composite, the index you normally see reported on the nightly news, which consists of 100 larger and more well-established companies from that wider universe of 3,000 names on the exchange).

As we observed in Section I of this report, the market-cap weighting of indexes like the S&P 500 or Nasdaq Composite skews performance so that as the big get bigger, they have an ever-greater impact on outcomes. Chart 11 below shows the relative performance of the market-weighted S&P 500 against a simple, equal-weighted index of the same companies.

Chart 11: S&P 500 Market-Weighted vs. Equal-Weighted Performance, January 2020 – December 2021



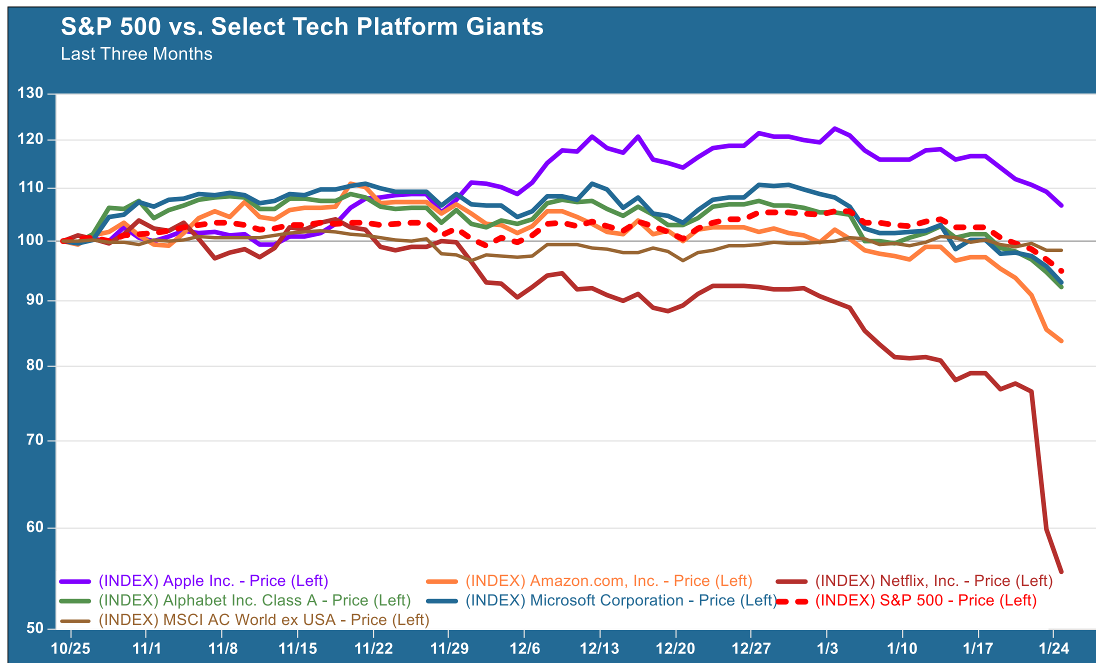
Source: MVF Research, FactSet

Chart 11 shows that the market weighting effect cuts both ways – when prices broadly retreat, the outsize effect of the mega-caps tends to pull the standard index down relative to an equal-weighted alternative. We note in this chart three occasions in 2021 when the S&P 500 pulled back by anywhere from roughly four to five percent (which was as bad as it ever got during this mostly favorable year for equities. As you can see, the relative advantage of the market-weight index (the blue line) fades during these periods and then expands again when the rally continues. The most recent such pullback (before this year) was in the

period right after Labor Day, when the market had its biggest drawdown for the year (that was followed, of course, by an outsize rally led by the mega-caps.

We can illustrate this even more clearly by providing a different view of one of the charts we presented much earlier in this report. In Chart 5 back on page 10 we showed the strong outperformance of the tech platform giants relative to the index since the beginning of the economic recovery in 2009. That chart showed the many magnitudes by which those companies had outperformed. In the more recent period – this is the last three months to January 24 – the picture looks quite different.

Chart 12: S&P 500 vs. Tech Giants, Last Three Months to January 24, 2022



Source: MVF Research, FactSet

As of January 24 (a day that began with a major selloff) the only mega-cap in this group outperforming the broader index for the past three months was Apple. Two others, Alphabet and Microsoft, have fallen roughly in line with the index while pronounced selling in Amazon and especially Netflix (on the basis of a disappointing earnings release the prior Friday) has been a more impactful drag on market sentiment.

ii. Valuations and Interest Rates

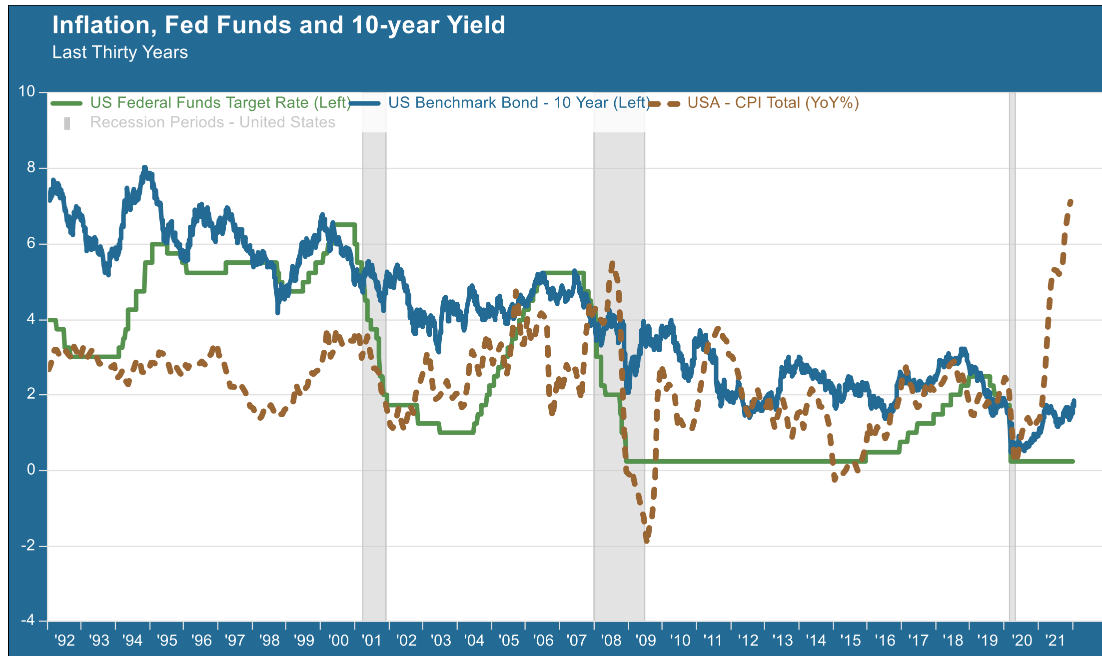
There are many hot takes on the current turmoil in the markets, and it's important to separate the ones that really matter from the ones that get the heart rate up to its anaerobic threshold on CNBC. One of the "themes" of the moment is the falling out of favor for the companies that did best at the height of the pandemic. That theme perhaps explains some of the extreme reaction to the Netflix earnings report that generated so much angst when it came out. Other "lockdown darlings" like Peloton, the fancy exercise equipment manufacturer that spent much of 2020 trying to refashion its brand as a social media play, have been faring even worse than Netflix.

And there is something to that theme. As we noted a few pages back in this report, the most likely (though by no means certain) course of things as related to the coronavirus is that it will become an endemic seasonal malady and treated as such in most parts of the country. So yes, people will probably spend less time streaming movies or exercising at home than they did at the peak of the lockdown in 2020. Restaurants and beauty salons and the other hard-hit retail venues will probably see a pick-up in activity (which would be doubly nice as it will shift spending from goods to services and thus hopefully ease those problematic supply chain problems.

But that cyclical shift doesn't really explain what's going on in the market now (as an aside, we should note that we are writing this part of the report on a day when prices are bouncing around in all manner of risk assets everywhere, making it a little harder than usual to separate the things that matter from the things that don't matter). What really matters is interest rates.

Chart 13 below shows the relationship between three variables: the yield on the 10-year Treasury security, the target Fed funds rate and the rate of inflation as measured by the headline Consumer Price Index.

Chart 13: Inflation, Intermediate Treasury Yield and Fed Funds Target Rate, 1992 – 2022



Source: Bureau of Labor Statistics, MVF Research, FactSet

We show a full thirty years' worth of data here because it underscores how unusual – and how unsustainable – the present conditions are. During the growth cycle of the 1990s inflation was reliably lower than both the Fed funds rate (which the Fed sets via monetary policy) and the 10-year yield. That was also true, if to a lesser extent, in the recovery cycle of 2002 – 2007 (the Fed funds rate was kept lower for longer in the early stages of this cycle following the September 11, 2001 terrorist attacks).

The relationship changed in the growth cycle that began in 2009. The Fed's mission in this cycle was to stimulate demand following the devastating effect of the 2008 financial crisis and recession on households and businesses. Throughout most of this period the Fed funds rate stayed at zero, while headline inflation averaged around two percent. Inflation wasn't a concern. In fact, when the Fed moved to tighten monetary policy later in the decade it sparked a major selloff in stocks starting in the fall of 2018. Because inflation still wasn't moving much above the two percent rate that the Fed targets as a stable long-term rate for consumer prices to increase, the Fed was able to pivot back to an easier policy.

What inflation looks like today is nothing like any of those earlier periods. The Fed has stated its intention to raise interest rates, consistent with its firm mandate to maintain an environment of stable prices. Economists and others who read the tea leaves believe that at least three, and may as many as six, interest rate increases are in store for 2022. How many times the Fed actually winds up raising rates will depend on how quickly the factors causing higher inflation work themselves out, as we noted in detail earlier in this section of the report.

The first thought that probably occurs to anyone looking at Chart 13 is that rates are going to go up. A negative gap of more than five percent between nominal intermediate Treasury yields and inflation is simply not sustainable. Investors in fixed income securities expect to earn positive purchasing power on

their fixed coupons over time. That's true even for the highly conservative investors who hold large amounts of Treasuries in their portfolios. But it's not just Treasuries that are under water. The average yield on high yield bonds, otherwise known as "junk" bonds with credit ratings below the investment grade standards of the ratings agencies, is currently only 4.8 percent according to the ICE Bank of America high yield index. That means that even investors willing to wade into the riskier parts of the bond market aren't getting any compensation above inflation for the risk they are taking.

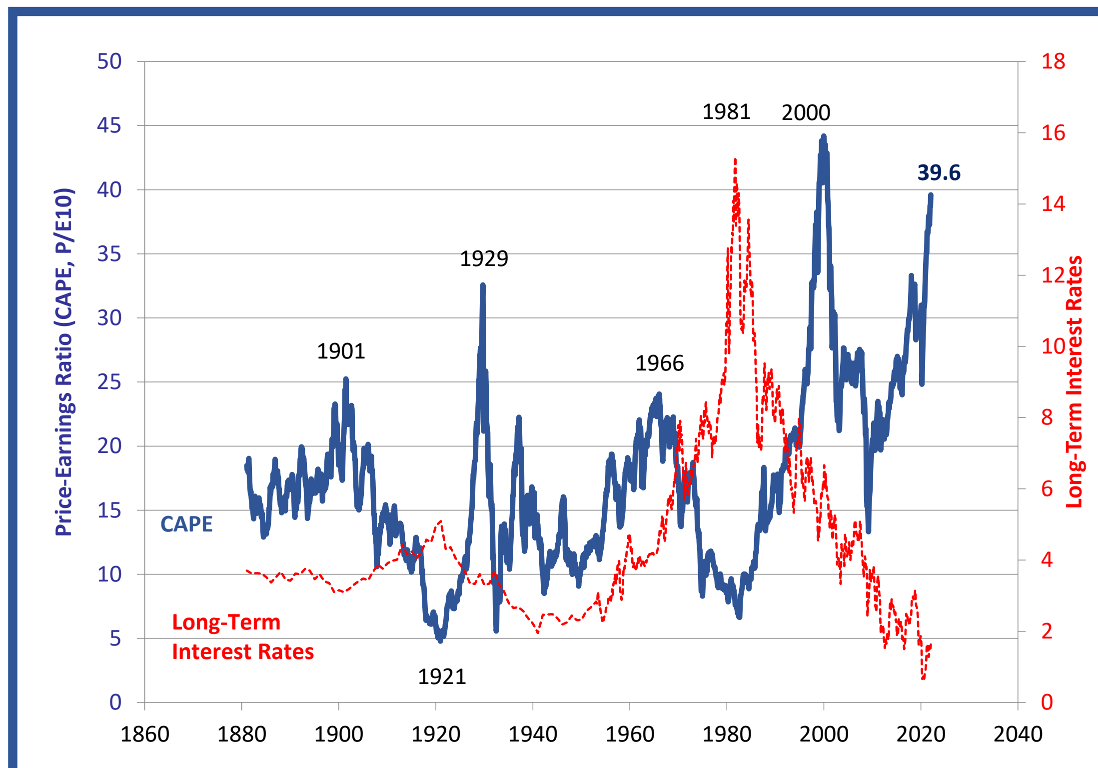
So rates – real, i.e. inflation-adjusted rates – are very likely to go up as investors demand more compensation for their holdings. Here is where the story comes back to what is really going on in the stock market today.

The price of a company's stock is, theoretically, a summation of the future expected cash flows the company is likely to generate, expressed in present value terms. In other words, some amount of money expected to exist sometime in the future has to be discounted back to its value today. The interest rate at which future money is discounted back to the present depends on the level of underlying interest rates. When market interest rates go up, the discount rate goes up. When the discount rate goes up, the present value of a future amount of money goes down.

Here's the kicker. The farther out in the future that sum of money, the more negatively it will be affected in present value terms by an increase in interest rates. This is why, when interest rates are expected to go up, we tend to see the stock prices of riskier companies, with less certain cash flows farther out in the future, getting hit first. It's why, to refer back to a point we made a few pages ago, so many of those smaller companies on the Nasdaq exchange fell so far below their 52-week peak values even before the end of last year. The outlook for higher interest rates was already under way then. Now it is, broadly speaking, the main theme.

Moreover, market-based measures of value are already very high. Chart 14 below shows the Cyclically Adjusted Price-Earnings (CAPE) ratio developed by Yale economist Robert Shiller.

Chart 14: Cyclically Adjusted Price-Earnings (CAPE) Ratio, 1871 – 2022



Source: Robert Shiller Online Database, MVF Research

Shiller maintains a database with market and economic information going all the way back to 1871, when industrial enterprises were first coming into existence in a meaningful way. According to this data, when considered in relation to cyclically adjusted earnings (Shiller uses a 10-year rolling average of earnings results to mimic a full economic cycle) stock prices today are higher than at any time in the history of organized US stock markets apart from the peak insanity of the 2000 tech bubble.

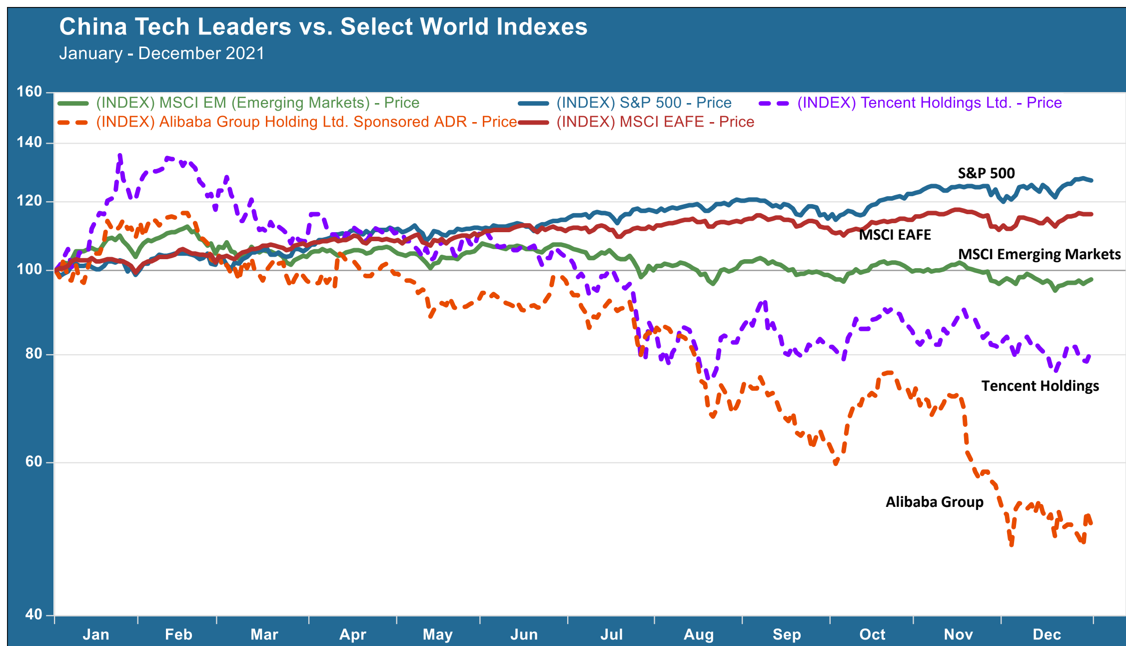
We should note that the CAPE index is not a particularly useful tool for timing market moves. But it does tell us that the stock market is very expensively valued when compared to other market cycles, and thus is likely to be vulnerable to the kind of price correction a move higher in interest rates can produce.

iii. Assessing the China Threat

Much of our focus in this report has been on the US economy and domestic securities markets, because, well that is our home market. But by one measure, our economy is already number two and has been for a few years. The CIA World Factbook uses purchasing power parity (PPP) as the basis for calculating and comparing GDP for different countries. PPP-based GDP is the sum value of all goods and services produced in a country valued at prices prevailing in the US (in other words, if a country's currency is undervalued relative to the US dollar than its value in PPP terms will be higher than when expressed in domestic currency terms. On the basis of PPP-based GDP China is the world's largest economy (though when expressed on a per capita basis, China's GDP even at PPP is far below the levels of the US and other developed economies).

China served up a fair share of surprises in 2021, the most notable of which, from an investment standpoint, was a sudden turnaround in sentiment by the Chinese Communist Party (CCP) towards some of the country's most successful entrepreneurs and their companies. The fate of two of them, giant Internet platforms Alibaba and Tencent, are shown in Chart 15 below.

Chart 15: Select China Tech Platforms vs. Select World Indexes



Source: MVF Research, FactSet

What was behind this seemingly irrational behavior by Beijing? It's actually not all that irrational in the context of a larger set of developments in China that are ultimately more geopolitical than strictly economic in nature. China has been an amazing growth story, perhaps the most amazing in world history from the standpoint of a country completely shut out from global trade and commerce as recently as 1980 suddenly becoming the economic powerhouse it is today. But the growth did not come without a cost. As millions

of Chinese citizens migrated from their home provinces to the big cities where industrialization was taking place, they experienced hardship, degradation and little in the way of government support in their new residences (for example, moving from a small province to a major city like Shenzhen, Shanghai or Beijing normally did not qualify the migrant worker for the considerable benefits that established residents of those cities enjoy). Income inequality grew. Just as in the US, an outsize proportion of the rewards accrued to the entrepreneurs in the tech sector who built globally competitive enterprises. Large Chinese cities became no less cosmopolitan and fashionable than those in other parts of the world.

This is what Xi Jinping, China's autocratic leader who looks set to remain at his post for, well, as long as he wants to, decided to crack down on. It wasn't just that the CCP wanted to make an example of billionaire founders like Jack Ma, Alibaba's boss. It was also what the businesses themselves represented. Social media, gaming, online shopping and other ways of entertaining oneself are fine in (very) limited doses, in the minds of Beijing's gerontocracy. But these aren't the economic spaces China wants to win – leave that to the decadent Western societies and their failing political systems (in Beijing's view). Instead, the country will pour its efforts into industries where its own model (what they could call enlightened autocracy, what we would probably call something a bit more negative) can provide a competitive advantage. Semiconductor manufacturing, clean energy and biotechnology are high on this list. The leading companies that emerge in these sectors can list their shares on the stock exchange in an increasingly toothless and compliant Hong Kong, not in New York or London.

That approach may work, but it is risky. China itself is probably in the early stages of a significant economic slowdown. The slowdown is led by the sinking fortunes of the property and development sector, which is responsible for more than a quarter of the country's GDP. Massive infrastructure development – housing complexes, commercial enterprise zones, high speed rail, sprawling highway networks – have been the engine behind China's ability to generate real GDP growth in the mid-high single digits for most of the 21st century to date. That window seems to be closing.

Will the Market Care About Geopolitics (For Once)?

What happens in China's economy matters, for us and for the rest of the world. The geopolitical relationship between the world's two largest economies has not been good for some time, and it is not showing any signs of improvement. Markets are famously blasé when it comes to geopolitics, assuming that whatever crises show up from time to time will not present significant barriers to the ability of companies in those markets to go about their business and work on generating future cash flows. But China appears to be going in a very distinct direction, as an economy and as a broader society, that may call into question the longstanding assumption that world politics don't matter. The country's global ambitions may be challenged by the economic realities of a protracted decline in growth and the inability to (at least in the short term) swap in the economic benefits of the new target strategic sectors, like clean energy and biotechnology, to replace the secular decline in the areas of infrastructure and property development.

D. Concluding Thoughts: Risks and Opportunities for Portfolio Positioning in 2022

Our clients have all heard us say time and again that the short term is unknowable. At the beginning of 2022, as this report is getting ready to go to publication, equity and other risk asset markets are experiencing a significant correction from their recent record highs. How this plays out in the coming weeks (e.g., between now and when you receive this report in the mail) is anybody's guess. But we strongly caution against looking at the swoon in share prices in the first four weeks of the year and assuming that is the way it is going to be for the next twelve months.

As we have maintained throughout this report, the biggest questions and the ones we have devoted most time to are inflation and interest rates. The most important thing for the Fed to do right now is to instill confidence in the market that it has the tools to fight inflation, through a careful but disciplined process of raising interest rates. Raising interest rates won't do much to affect problems in overseas supply chains. But it should, together with the likely absence of more fiscal stimulus, cool off demand. The demand side of the equation should be further helped as Covid-19 recedes as a national emergency and people return to spending more money on services, less on produced goods. This in turn should help ease conditions on the supply side, with additional help coming as other countries relax their Covid restrictions and freight & transportation costs start to come down. There are risks here, to be sure, but we believe they are manageable risks.

The most important thing here is for the Fed to deliver on its credibility. If it were to panic again and reverse course on interest rates like it did in 2018 that would be a very bad signal and could engender the kind of structural inflationary expectations of the 1970s that we want to avoid. We think there is very little chance the Fed will be spooked enough to back away from its stated "job number one" of fighting inflation.

Nonetheless, that does mean that interest rates are very likely headed higher. This does not have to be a negative for the market as a whole. But it argues for minimizing exposures to those parts of the market that enjoyed a wild ride in 2020 and especially 2021 as speculative darlings, favored by the retail crowd and their Reddit chat rooms. We think 2022 will be a year where investors pay much closer attention to fundamentals than they have in recent years. This should make it a relatively good year to be invested in high quality companies with demonstrated competitive advantages and strong cash flow generation. It may also mean that momentum swings between value and growth areas of the market, which was a theme throughout much of 2021, will be less important. An environment where momentum – a short-term sentiment – is less important is a good environment for the long-term fundamentals that matter.

Keeping away from speculative bets too far in one direction or the other is also a good idea, we believe, for fixed income. As we described above, real rates are likely to rise simply because they are unsustainable where they are today. Fixed-coupon intermediate and long term bonds of any quality grade are at risk, but we expect the junk bond market will be the first to go (we have not made active asset allocation moves into high yield bonds for a number of years now and have no intention of doing so now).

Lots of things will be going on in the world this year, like seemingly every year in recent memory. Many of these things will be significant for societies at large, but not all of them will have a measurable impact on securities markets. This is one of the convictions we have always maintained; that when it comes down to the basics of evaluating assets for portfolio inclusion, what matters are the fundamentals on a company by company, security by security basis. Like we said in the early pages of this report, rationality is hard. Thinking rationally doesn't come easy to the human mind. Reason too often can give way to unreason – and sometimes the great leaps we make in technological advancement have the unfortunate collateral effect of amplifying unreason. But we continue to do our best to practice what we preach: rational consideration of the right construction for portfolios in line with each client's long-term investment objectives. That will be no less true in 2022 than in any other year.

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