Innovative Thinking + Smart Strategies

2021: The Year Ahead

Annual Market Outlook

MV Financial Research & Strategy Group

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The Year Ahead: 2021 Annual Outlook

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Note to our readers: On page 14 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. Forecasting: A Flawed and Necessary Exercise of Diligence

The Flaws of Forecasting Laid Bare

In January 2020 our Annual Outlook was one of hundreds of prognostications coming out then that – by the strict measure of forecasting what would happen in the next twelve months – turned out to have a useful shelf life of about four weeks. That was the time it took for the initial report of a strange new pneumonia that was showing up in hospitals in Wuhan, China to metastasize into a global pandemic of a scale not seen since the virulent influenza that appeared near the end of the First World War. Suffice it to say that neither the stock market decline that took place in the first three weeks of March, nor the job loss numbers that showed up in full force in April, nor the second quarter GDP decline printed in July, nor any of the other eye-popping deviations from trendlines that characterized much of the year – none of these realities showed up in the forecasts of mainstream journals of research at the beginning of the year. Including ours.

The pandemic was a threat that existed mainly on the extreme outcome columns of hypothetical "what-if" analyses. When it actually happened in real life we all hastened to adapt, to recalibrate our sights, to absorb whatever information we could about this new disease where leading experts in the field of immunology themselves were only a half-step or so ahead of us in grasping the magnitude of what was at hand. By the end of the year there was just about nobody who could credibly look back to where they were twelve months earlier and say "yeah, I saw that one coming."

And what if someone did? What if someone out there, pondering the world as it looked in January 2020, hit upon the idea that a global pandemic was likely to happen that very year? Maybe this someone was so gifted with foresight as to drill down to a street-level view of the impending pandemic. It will happen in some provincial city in China. A local shopper will go to one of those open-air food markets and interact with a virus transmitted by a bat to one of the animals hanging up at a meat stall. The shopper will become infected by a highly contagious virus with a fatality rate somewhere higher than one percent, maybe less than two percent. The virus will quickly spread out of that provincial city to all corners of our interconnected world. Governments will be forced to shut down their economies for at least a couple months, while people will sit at home binge-watching Netflix, buying random stuff on Amazon (or trying to figure out how to pay for food after losing their jobs) and scheming for ways to get a twelve-pack of bath tissue. In the United States the response to the pandemic will be fractured and ham-handed: the country with five percent of the world's population will have by far its highest number of Covid cases, hospitalizations and fatalities.

Knowing all that, would our crystal ball-gazing seer be likely to predict that the year would end with the S&P 500 index up by 18.4 percent, the Nasdaq Composite up more than 40 percent and the Shanghai Composite – heck, in the country where the virus started – soaring more than 30 percent? The trick to forecasting is not just making the right guess as to what events will happen; it's also about how whatever it is that you're measuring – stocks, bonds, gold, bitcoin or whatever – reacts to the events. A simple "either-or" decision tree doesn't cut it – the calculus is nonlinear, emergent and buffeted by multitudes of hidden variables. Some years this matters more, some years less. But the vulnerability is always there, no matter how sophisticated or quantitatively dense the methodology.

So why do it at all?

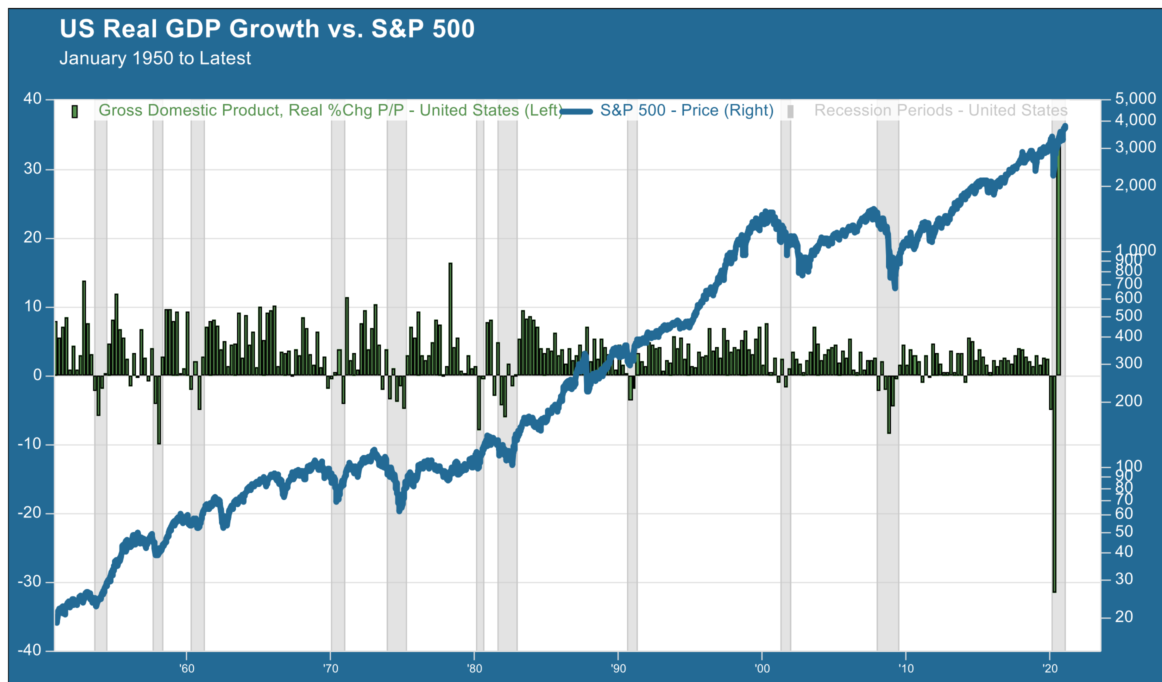
The Importance of the Bigger Picture

Over the years since we first started publishing these annual reports (14 years now and counting), we have settled on a format that we think is at least in part an antidote to the glaring vulnerabilities of year-ahead forecasts that 2020 laid bare. Our actual investment thesis for the coming year typically doesn't appear until midway or so through the report (this year it happens to start on page 14). Before we get to our specific thoughts for the year ahead, we devote an entire section to bigger-picture ruminations about the times in which we live, often invoking historical reference points for comparison and contrast. The point of this exercise is to remind ourselves and our readers that there are many forces at play in the world that may

well not merit anything worthy of note for the coming calendar year, but are important nonetheless and likely to make themselves felt sooner or later.

After all, we are responsible for the management of assets over a much longer time period than one year. Our clients have financial goals that extend to the end of – and in many cases well beyond – their own natural lives. The risks and the opportunities we typically discuss in the opening section of our Annual Outlook are ones that may evolve over a period of many years or even many decades (or, to be honest, may never come to pass at all). We believe that to be proper stewards of our clients' hard-earned assets requires doing the hard work of drilling beyond whatever happens to be making news on any given day or in any given year and put it into a context that helps us be better prepared for threats when they actually transpire. It's easier to put the relative economic and market movements of one particular cycle in perspective when we contemplate the movements of the multiple cycles we have witnessed over the entirely of the second half of the previous century and the first fifth of this one – as we show in the chart below.

Chart 1: Real GDP Growth vs. S&P 500, 1950 - Present



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

A chart like this helps us think about questions beyond what is immediately before our eyes. For example – why is it that over a very long time of moderating GDP growth (the columns in this chart show that on average the quarterly increases in output have diminished with each successive growth cycle) the stock market has moved resiliently upwards? There are answers to this question (one being that stock prices and GDP growth are actually very poorly correlated). But they are not obvious, and we might not even ask them if we don't do the work of these bigger-picture analyses.

So yes, the art and science of forecasting is flawed. But it is a necessary exercise, which we believe justifies the work put into the twenty-eight pages we present to you here. We start, in Section II below, with what we believe is a useful framework for understanding the critical forces at play in the modern world. How these forces will interact in 2021 or any other calendar year remains to be seen. But interact they will.

II. Nations and Oligarchs

A. Follow the Laws, Follow the Money

At the outset of 2021 we contemplate a world driven by two major sets of institutional players whose interests are sometimes aligned and often are not. The constitutional nation-state that we think of today as the normal mechanism for the organization of human societies is a relatively recent construct in history, coming of age in fits and starts as the tribal principalities of medieval Europe gave way to the modern era and culminating in the triumph of representative democracy over hereditary monarchy in much of Europe in the eighteenth and nineteenth centuries. What began in the West spread and engendered a reflexive deference in other parts of the world to the West reinforced by the economic and cultural superpower status of its leading representatives; first Great Britain, then the United States. That set of circumstances is changing. In the wake of the pandemic, it is changing at quite a brisk pace. Nations, and their positions in the global order, are very much at play.

The second set of actors transcends the artifices of national borders. The emergence of globalization as the organizing principle of economic activity, in its current incarnation, dates back to the 1970s and the end of the postwar Bretton Woods framework. It accelerated during the Reagan-Thatcher years of the 1980s and got a hyperspeed boost with the arrival of the Internet in the 1990s and beyond. The business enterprises that learned to make the most of the opportunities presented by borderless commerce saw their fortunes compound year after year like accrued interest.

At the apex of this food chain are mega-enterprises whose worth, influence and reach extend far past the ability of national governments to rein them in (not for lack of trying). Call them corporate oligarchs. The world "oligarchy" means "rule by the few." With practically limitless amounts of money to plow into the research and commercial development of new technologies these oligarchs reach into nearly every micro-level community around the globe. To say that they are independent of the nations under whose jurisdictions they operate is going too far. But conversely neither can those nations act independently of the corporate oligarchs and their insatiable demand for ever more influence and profit.

While the political and business leaders whose decisions set the agenda for these institutional forces alternatively compete and cooperate, they will be facing a world in the coming decade which offers the possibility of both life-changing inventions and life-threatening catastrophes. How we either take advantage of the opportunities afforded by the innovations that have been bubbling up to the surface in recent years or continue to ignore the growing immanence of both natural and human-originated existential threats will in many ways shape what will eventually be the narrative of the 2020s.

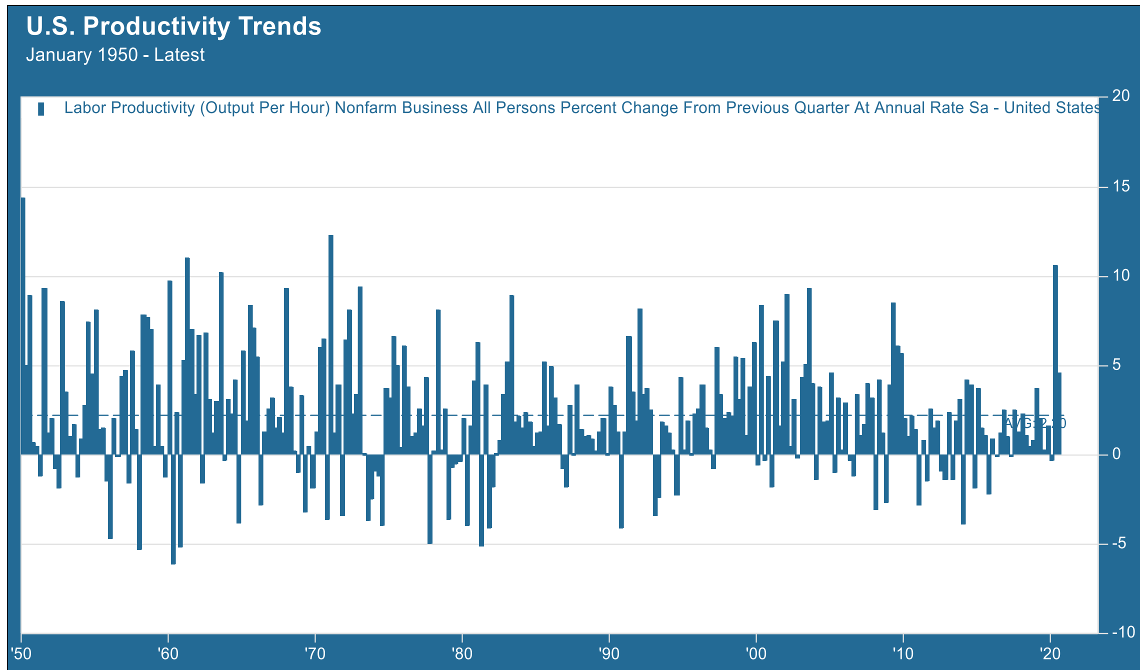
The major roadblock holding back global growth over the past decade or more has been the anemic level of productivity. In a world of flatlining population growth and aging demographics, the only plausible way to achieve economic growth is by improvements in productivity – essentially, the ability to leverage innovation to the service of producing more output without a commensurate increase in the inputs required to achieve that output. Getting more for less, in other words.

In recent years some prominent economists and historians have argued that the age of innovation is forever behind us; that the seminal inventions of the late 19th century like electricity and the internal combustion engine cannot ever be repeated. Even the information technology revolution that came about during the sequence of innovations from the personal computer to mobile communications and the Internet showed up as only a pale imitation of those earlier productivity gains.

But we may be on the cusp of a remarkable convergence of several inventions that transform the economy and society in ways not seen for nearly a century. The quarterly change in productivity from 2019's fourth

quarter to 2020's first quarter was slightly negative; the change from the first quarter to the second quarter 2020 was the highest quarterly change since 1971. This is shown in Chart 2 below.

Chart 2: US Change in Labor Productivity (QoQ), 1950 - Present



Source: US Bureau of Labor Statistics, MVF Research, FactSet

Now, any data release during this period has to come with the caveat that the Covid-19 pandemic has distorted longer-term trends. There is a higher likelihood that in the coming year we will see productivity revert to the comparatively low levels of the 2009-20 economic growth cycle. Nevertheless, there is a meaningful possibility that some of the commercial fruits of recent inventions will converge and usher in a new era of productivity-led growth. Whether they change things for better or for worse remains to be seen.

Catastrophes come in many guises. Some of the key ones that we face today are: extreme climate-related events; health-related pandemics; cyberterrorism; and systemic financial collapse. Just within the past twelve years we have experienced catastrophes from two out of these four categories: the financial crash of 2008 and the coronavirus pandemic of 2020. It would be facile to think that we are immune from a repeat of either; the next financial crisis will plausibly come from somewhere other than the leveraged mortgage derivatives that brought the houses of Lehman, AIG and all down; and Covid-19 hardly has a monopoly on pandemic potential. As for the other two: we are currently living with repeated red flags in both climate and cyber. It's only a matter of magnitude from manageable problem to catastrophe.

B. Nations: The Art of Modern War

A Sixty Year Saga of Three Kingdoms

"The Romance of the Three Kingdoms" is a foundational classic of Chinese literature. It was written sometime in the fourteenth century CE, but the actions it describes happened some 1,400 years before that, in the declining days of the great Han empire. The more than twelve hundred pages of this narrative describe the ancient art of political contest through strategic alliances, wily deception and, above all, patient long-term thinking. Anyone who has read another, even earlier Chinese classic – The Art of War by Sun Tzu, written sometime during the Spring and Autumn Zhou dynasty between 770 – 250 BCE – will recognize the way of thinking about political gain that has survived to present-day China: "wait and see, and act when circumstances are most propitious." Since the late 1960s China's leaders have to one extent or another

practiced the art of wait and see. There is good reason to believe that the country's leadership under Xi Jinping sees the circumstances of today as being propitious, or very near to there.

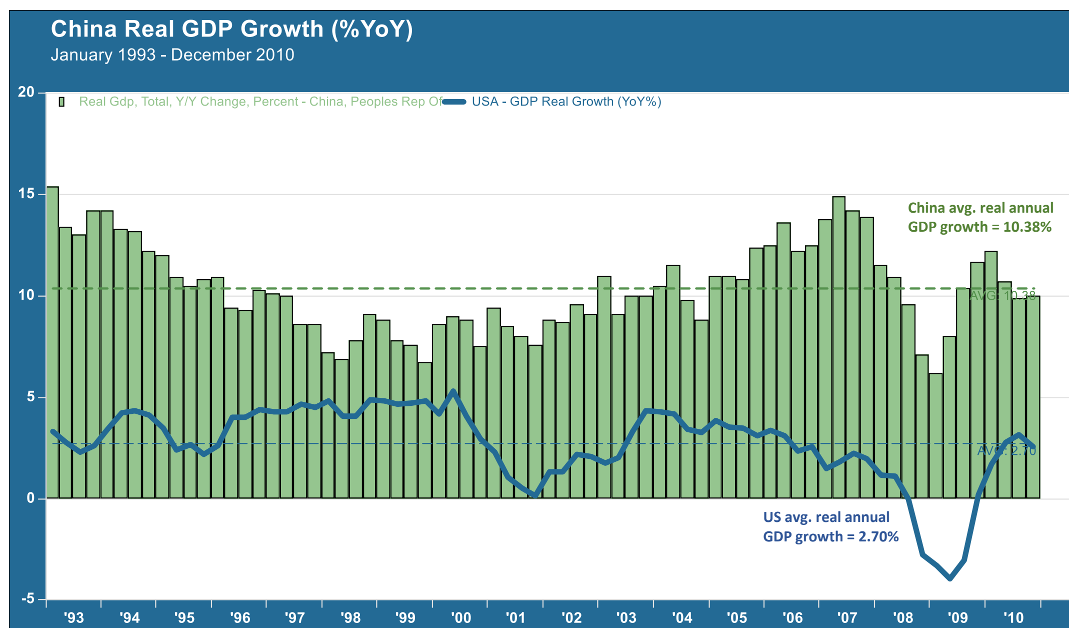
What China feared most as the 1960s proceeded was the power of the other Communist behemoth, the Soviet Union. In the aftermath of the Korean War Chinese leader Mao Zedong had blundered into revealing China's ambitions somewhat too overtly (a mistake made by many of the colorful leaders who rise and fall throughout the Three Kingdoms saga). Hostilities grew between the two powers, and the Chinese understood that they had no chance of prevailing against the Soviets. Circumstances were not propitious.

Instead, Mao sought out an alliance with the other major power of the day, the United States. Again the ancient wisdom can be heard. "Ally with Wu in the east to oppose Wei in the north" was the advice given to the leader of the southern Shu kingdom in the Three Kingdoms story. The US, at the height of the Cold War, was receptive, with then-President Nixon going to China in 1972 and beginning a period of détente. At the time, China's GDP was little more than a rounding error compared to that of the US superpower.

Mao's successor at the apex of the Chinese Communist Party was Deng Xiaoping, and he was determined not to make his predecessor's mistake of overtly signaling his country's ulterior motives. Content to let the US and the USSR stare each other down across the nuclear battle lines of the Cold War, Deng fortuitously realized that future success would be won not on the military battlefield, but on the economic one. Out went the tired old Marxist slogans of the Mao era, in came "to get rich is glorious." By the early 1990s China had grown to the point where its leading enterprises were listing their equity shares on the New York Stock Exchange. Beijing recruited a legion of Western champions who believed that by starting down the capitalist road as they were, the Chinese would inevitably leave behind their repressive political system and join the club of free market-loving liberal democracies. This was the era of the "End of History" (as scholar Francis Fukuyama put it), the globe-straddling Washington Consensus and, most notably, the crack-up of the Soviet Union. "Wei in the north" was no more. But the time was still not yet propitious.

2008 was the next big milestone. By the time the global financial system came within a hair's breadth of collapse, China was well into its supercycle growth spurt. The country was already the world's largest consumer of just about every traded industrial commodity, an export powerhouse, the hub of a large number of intricate global supply chains and – by no means least – home to a massive domestic consumer market of increasingly sophisticated tastes and the means to afford them. The country's growth rate was far outpacing that of the US, as shown in the comparison of real GDP growth in Chart 3 below.

Chart 3: US vs. China Comparative Real GDP Growth, 1993 - 2010



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

The Washington Consensus was losing its luster in the wake of the glaring failures of the Western financial institutions that dominated the world economy as self-styled "Masters of the Universe." In the US a decade began that would see a steady, if gradual, erosion of faith in and credibility of its leading institutions. The European Union faced its own existential moment in 2011-12 with the near-collapse of its single-currency region, the Eurozone. British citizens seized onto a gauzy nostalgia for John Bull and ruling the waves, voting themselves out of the EU in June of 2016. Less than half a year later Americans gave a loud, nihilistic raspberry to their own political establishment and elected Donald Trump as president.

The circumstances were becoming more propitious. Wei in the north (Russia) was a shell of its former self, while Wu in the east (the West, i.e. Europe and the US) was committing one hapless own goal after another. Xi Jinping's rhetoric grew subtly more strident from the seemingly benign face of his first years in office. The South China Sea became a sprawling real estate project for Chinese military fortifications in previously unclaimed (or even nonexistent) atolls. Domestic dissent was put down in ever harsher terms, eventually leading to what is increasingly seen by outside observers as crimes against humanity in the form of the brutal persecution of the Uighur minority in the far western province of Xinjiang. Hong Kong, promised a long interregnum after the British handover in 1997 of "one country, two systems," came to the realization that its comparatively open society was in Beijing's crosshairs. Meanwhile the country was also quietly becoming a world-beating powerhouse in some of the most innovative corners of the economy, from clean energy to financial technology.

And then came Covid-19.

Here's something to think about. China's GDP in 2021 is projected to be roughly what economists expected it to be back in 2019. In other words: the total value of the country's economic output will be roughly on par with what the experts thought it would be before Covid-19 even existed. It's as if the pandemic had never happened. Alone among the world's major economies, China's will actually register growth, however small, for the full year 2020. The death toll from the coronavirus in the US tops 400,000; in China it is less than 5,000. On January 8 alone more than 4,000 Americans died of Covid-19.

Near the end of 2020 China concluded a bilateral trade deal with the European Union, which followed closely on the heels of a regional economic partnership with other members of the Asia Pacific region. Neither deal includes the United States. The EU, anxious to give its export-dependent manufacturing industries improved access to the domestic Chinese market, asked very little in return from Beijing on human rights issues, save for some bland diplomatic paeans to not being mean bullies or something. In the US the incoming Biden administration may seek to bring rule-of-law and human rights issues back into the mix of international diplomacy, but it has a steep hill to climb from the abject debasement of the US example of the past four years.

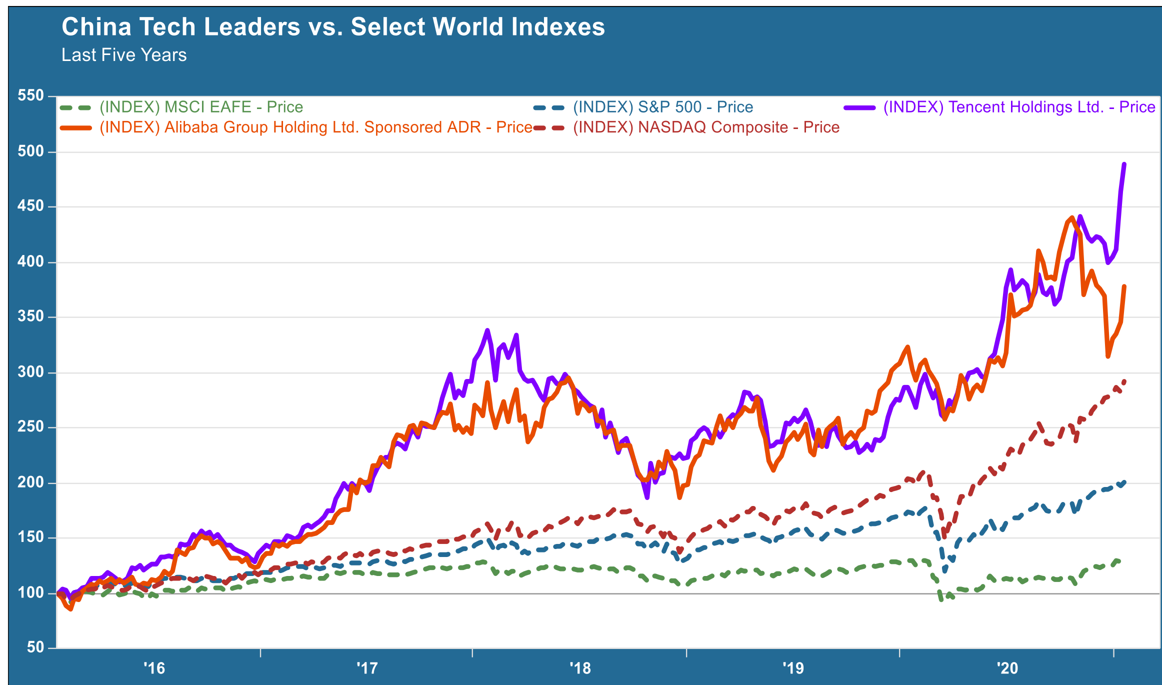
This story suggests why many of the world's institutional and individual investors are increasingly hungry for Chinese assets. They seem to agree with Beijing's political leaders that the circumstances are – or are close to being – suitably propitious. China's stock markets have been on a tear – the major Shanghai and Shenzhen exchanges both posted gains of more than 30 percent in 2020. Its credit and currency markets are opening up – cautiously but steadily – to foreign participation and are poised to become more directly integrated into the major aortas of the global financial bloodstream. China is already the most influential foreign creditor in Africa, a major player in Latin America and (thanks in part to that new EU trade deal) increasingly a necessary part of the European financial conversation.

China is also a country whose business leaders are not quite as free to do whatever the hell they want as they are in the comfy corporate suites of New York, London and Paris. Consider the recent fate of Jack Ma, the founder and head of China's most valuable private company, Alibaba. Alibaba's financial subsidiary, Ant Group, was on track for a $37 billion IPO last November. It would have been the largest IPO on record anywhere in the world. The investment bankers were going to be so stuffed on their fat fees that there would be no room left over for Thanksgiving turkey. But it didn't happen. The IPO was derailed by a sudden edict from Beijing's financial authorities that effectively would require Ant Group to rebuild from scratch its

entire business model. All of which came about for the simple reason that Jack Ma, the group's head, had made recent comments seen as mildly critical of the Party.

Investment in China may be something that global asset managers cannot, from the purely narrow vantage point of fiduciary responsibility, ignore. If indeed the "circumstances are now propitious," the country is likely to continue looming ever larger as a force on the world stage. But where there is opportunity there is risk. Markets customarily ignore geopolitical risk in the day to day minutiae of asset pricing decisions. But when the geopolitical movements are more seismic shifts than random tremors, that logic may not apply. In any event, the recent travails of Alibaba in the wake of Beijing's iron-fisted moves may not be enough to detract investors from the bigger picture of recent history, as underscored by Chart 4 below.

Chart 4: China Tech Leaders Alibaba and Tencent vs. Select Global Indexes



Source: MVF Research, FactSet

C. Corporate Oligarchs: The Large Get Larger

The history of capitalism is a history in which nations and the major commercial enterprises domiciled therein alternatively coexist with and push back against each other. In the period following the Second World War the nation-state unequivocally ruled this equation. Most industries were regulated in a way that would seem unimaginable today. Trade between nations certainly existed but was largely an unequal exchange between the US, the lone economic superpower whose economy had not been destroyed by the war, and the rest of the world in desperate need of the US dollars that would come with exports to the North American giant.

Ready, Set, Grow!

Pushback from private enterprise gained speed in the 1970s as the postwar managed trade era reached its limits. The economic problems of inflation, unemployment and slowing growth plagued the wallets of the decade's citizens much as "Disco Duck" and its ilk plagued their ear canals. Deregulation, privatization and a green light for large-scale mergers took off in the Reagan-Thatcher years of the early 1980s. In the forty years since then, regardless of the usual waxing and waning of economic ideologies as governments from center-left to center-right come and go, the companies with the wherewithal to profit from global growth – whether by organic means or by acquiring their competitors – have experienced almost no roadblocks to

their growth. In industry after industry the competitive power of the top 2-3 players is much stronger than it was in previous economic periods.

Much of this has come about from a marked shift, back in the 1970s, in the legal basis for antitrust regulation. Combinations that would have been prohibited in prior decades were allowed to proceed. M&A, as it is called, became one of the most lucrative businesses in the increasingly profitable financial services industry. In the decades that followed the anti-antitrust legal revolution, the best and brightest graduates pursued the riches that a successful career in M&A at a bulge bracket investment bank promised.

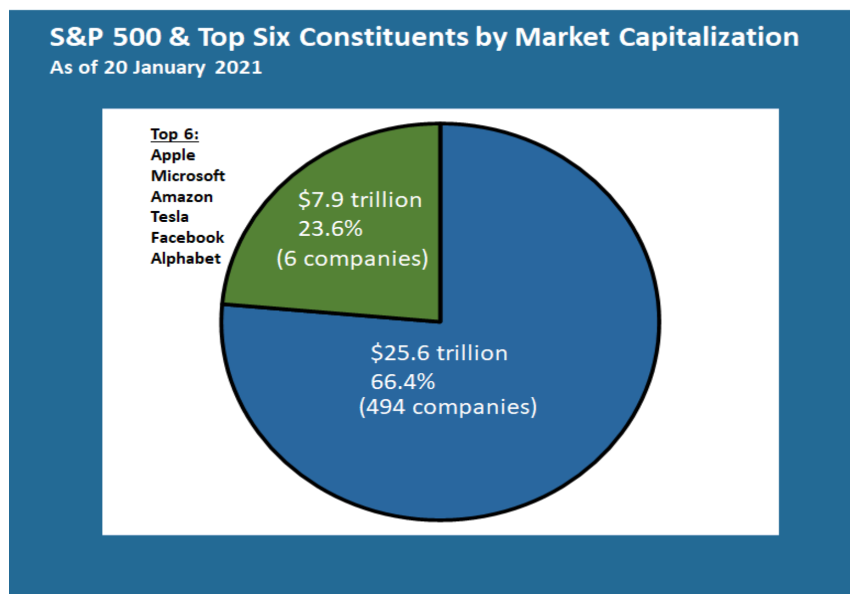
None of this would constitute a problem according to the ideology of free market trade and economics. The market has a self-corrective mechanism that is supposed to prevent an industry-beating competitive advantage from becoming a permanent monopoly. Who needs robust antitrust when the collective actions of all the buyers, sellers, investors and borrowers in the market act as a decentralized judge and jury? Self-regulation – markets police themselves – justified the policy of letting businesses (and their increasingly well-paid executives) do whatever they needed to do in pursuit of sales, profits and market share.

2008 and the Reckoning that Never Came

The delusion that markets are inherently self-correcting crashed into the 2008 financial crisis. The near-collapse of the global financial system happened because the feedback loop turned out to be positive – i.e. self-reinforcing – rather than negative (self-correcting). Risky bets on dicey leveraged mortgage obligations begat more of the same. All the players in the system – from the banks like Countrywide that furiously spat out as many subprime loans as their systems could print to the investment banks that bundled those loans into highly leveraged collateralized products to the rating agencies that slapped triple-A status on anything that came their way to German insurance companies chasing yield-bearing investments to US politicians who looked the other way while financial industry donors stuffed their campaign funds with cash – everyone was on the same page to keep the music going…until the music came to a dead stop. Even former Fed chair Alan Greenspan, the philosopher-king of the ideology of self-regulation, finally had to admit that the devout faith in this belief system that had guided him for half a century was erroneous.

But while the Great Recession of 2008 was a seminally cataclysmic event for so many households and small businesses, it did almost nothing to arrest the still-growing power of the largest globe-straddling enterprises. All it did was to shift the primary power center of the oligarchy from the US East Coast to its West Coast: from Wall Street to Silicon Valley. It has grown to ever-greater heights since then.

Chart 5: Top Six S&P 500 Constituents by Market Value



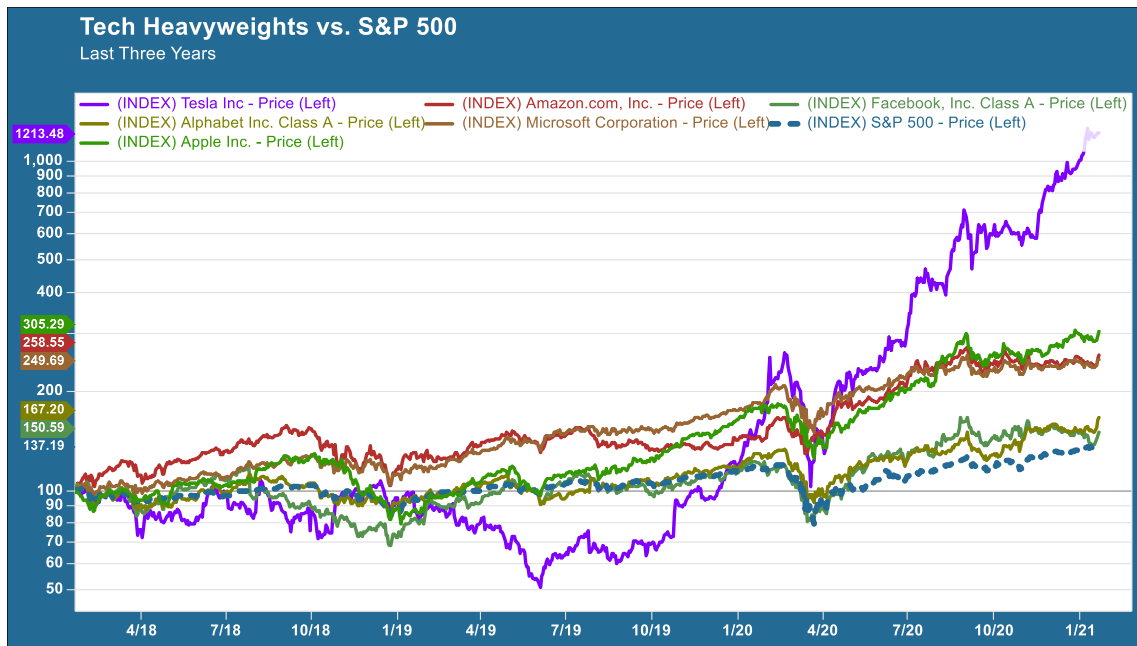
Source: MVF Research, FactSet

There was no lesson learned from the failure of self-regulation in the financial industry; that same mentality constantly reassured us that the forces of creative self-destruction were alive and well in the tech industry. Every generation of tech has its winners who seem colossal until someone new comes along and knocks them off their perch, thus the rise and fall of Hewlett-Packard, IBM and…um…who else? Anyone? Arguably the two most prominent firms to eclipse the old PC kingdom of IBM were Apple and Microsoft, back in the 1990s and early 2000s. Those two companies also happen to be the most valuable in the world by market capitalization today (see Chart 5 above). Sure, new technologies come along. But these technologies seem less likely to topple today's giants than to simply be co-opted by them. Again – to continue with an important thread of this conversation – very often via massive vertical integrations…i.e., through M&A.

Tech Now, Tech Everywhere, Tech Forever?

You may be thinking to yourself – fine, okay, so the oligarchy means we have much more concentration in many of our industries than we used to – so what? What does it mean for my portfolio? Actually, it means quite a lot, because fundamental choices about asset selection pivot on the question of how durable this existing arrangement will prove to be. Think about that pie diagram we showed in Chart 5 above. Six companies comprise just under a full quarter of the total value of the S&P 500. Another way to view this, of course, is to see how that market cap share looks when translated into multi-year returns. We do that in Chart 6 below.

Chart 6: Cumulative Top Six Returns Relative to S&P 500, Last Three Years



Source: MVF Research, FactSet

Ignore (if you can) the eye-popping ride of the Tesla bubble. In a period during which the cumulative price appreciation of the S&P 500 itself was 37.2 percent (no small feat), the gains by Apple, Amazon and Microsoft all exceeded that benchmark by more than 100 percent. The "worst" showing of any of these tech giants was Alphabet, Google's parent company, with a cumulative gain of "just" 50.6 percent.

"What goes up must come down" is thought to be as absolute as the Newtonian law of gravity when it comes to asset price trends. No trend lasts forever, and eventually everything reverts to the mean. The tech sector may be on a roll today, but eventually the music will stop. That's how the money managers of value funds, small cap funds and others comfort themselves while trying to keep their investors from walking out the door and glomming onto Tesla.

Will it come down, though? What exactly is the "tech sector" anyway? Think about it this way: there are eleven major industry sectors that make up the S&P 500. "Information technology" is one of them; there are ten others. But consider that in the consumer discretionary sector, currently worth about $4.6 trillion in total, 52 percent of that value is held by two companies – Amazon and Tesla. Neither of those are thought of as "consumer discretionary" as much as they are thought of as "tech."

Same goes for the media and communications services sector, worth about $3.5 trillion. Again just two companies – Facebook and Alphabet – make up 49 percent of that. Or consider that if Ant Group – the Chinese financial technology company we mentioned in Section II.A above – had been able to proceed with its IPO then its market cap would have exceeded that of every existing company in the S&P 500 financial sector. And so it goes on.

The common message is simple: in whatever industry sector you happen to be situated, your market value in today's world seems to depend mostly on the extent to which investors see your business model more as "tech" and less as selling cars, or clothes, or loans, or industrial widgets. Tech isn't a sector. Tech exists everywhere in the market, and plenty of people are prepared to invest their money as if it is the entire market. If they were to be right then it would plausibly be the end of good old-fashioned diversification, of allocating assets across different classes with different properties. Maybe – if left to their own devices and with a never-ending flow of central bank money always on hand to backstop the potential for large losses – this could come to pass. But there is a good reason why it might not, and that brings us back to our story of nations and oligarchs.

Friday Night Smackdown: Nations Versus Oligarchs

As we bring this section of the report to a close we come full circle to the contest between nations and the corporate oligarchs. The oligarchs may have the money, the market share and the global presence, but the nations still get to write the laws. Where does the real power lie? Left to their own devices, one could argue, the positive-feedback loops of their business models give the oligarchs an excellent chance to grow ever bigger and entrench themselves ever further into our lives. By this argument, the power lies with them.

For example Apple, by the accounts of many observers who closely follow the leading edge of Silicon Valley trends, is pursuing a new generation of connectivity products that give a whole new definition to "wearable," moving the physical location from the wrist to, literally, the eyeballs (or more specifically the retina). A world in which advanced artificial intelligence leaps from the oligarchs' R&D labs into – not "on" but "into" – the human body is conceivably the world of the mid-late 2020s. Left to their own devices, the leading tech firms would like nothing better than for whatever hours of a person's day are still not occupied by interacting with their software to be integrated ever more deeply into their platforms.

The most plausible way in which this does not happen – or at the very least gets forestalled – is through the work of nations via regulation. For a sense of how effective the resistance might be, look to the regulatory bodies of the European Union. For a sense of how national policies could actually speed up the migration to human AI, look to China, where it is already well underway.

The regulatory bodies of the European Commission that oversee industry competition have long been a thorn in the side of American tech giants. They have also mostly been fairly unsuccessful at stopping the firms' reach throughout the region or at successfully prosecuting the massive fines they have from time to time levied at the likes of Apple, Alphabet and Microsoft. But they will keep trying. And they might provide a template for Justice Department attorneys here in the US if more cases like the recent one initiated against Facebook gain currency.

Last year the Justice Department filed suit against Facebook for unfair competitive practices involving, among other things, its habit of acquiring competitors before they get too big to become a competitive threat. The news was greeted by investors with a collective yawn, but it is worth taking it a bit more seriously. Remember that this entire decades-long cycle of the big getting bigger got its start from a sea change in philosophy about antitrust legislation back in the 1970s. Now the laissez-faire approach to letting big combinations happen is getting some long-overdue pushback. The pushback could grow into

something with more teeth in it. There are natural pockets of resistance to Big Tech from both the progressive left and the populist right (even if individual humans on both sides find it hard to wean themselves off their tech addictions). Who knows – European Commission trustbusters may have an ally in their hitherto quixotic campaign against the oligarchs.

The British sci-fi series “Black Mirror” served up a number of scenarios for its viewers to imagine a near-future dystopia during its television run in the middle of the last decade. One of those episodes was called “Nosedive.” It depicted a world where a society of people with AI-augmented retinas earn or lose “social credit” points for each and every interaction they have with another human, and those points (ranked on a scale of one to five) literally determine how they live and what goods and services they are permitted access to. A world of timid humans with perpetual forced smiles and unfortunate pastel wardrobe choices walk around giving each other five stars and living in dread that they won’t get a response in kind.

Too creepy to imagine? Actually, a social credit system not unlike that described in “Nosedive” already exists…in China, without (yet) the retinal attachments. Social media has a different meaning in a country where a highly authoritarian political model places a high premium on mass social conformity and obedience. Enforced social harmony is valued well above individual liberty. All the better when it is the citizens themselves who, in their FOMO-induced quest for likes and followers and consumer influence, willingly give themselves over to the platforms. Surely that depressing model will not find a receptive audience in the liberty-loving West, right? Proceed with caution, and hope that the regulatory work of nations still has some bite.

III. 2021 Investment Thesis: Priced for Perfection

A. Executive Summary

In 2020 assets of just about every shape and stripe had a banner year. Equities, fixed income, commodities of both the risk-hedging and risk-taking variety – all had their day in the sun while the world struggled with a rampant health pandemic. Now in 2021 the end is, seemingly, at least in sight for the Covid-19 pandemic to exit off the stage with the arrival and mass scaling of multiple vaccines. The conventional wisdom – and scarcely has there been in recent years a more unified consensus across the entire spectrum of economists, analysts, traders, bankers media pundits and assorted hangers-on than there is this year – is that just as everything investable flourished in the bad times, they will flourish ever more in the coming good times.

The case for continued growth in asset markets is a strong one. But these markets are priced for perfection: for vaccines arriving on time, for virus mutations not running out of control, for enough of a fiscal and monetary bridge to get households and businesses over the pandemic's final chaotic months, and for a pre-2020 mentality of giddy consumerism to return and propel corporate sales and earnings back to health. Thus our thesis, while on balance positive-leaning, is not without caveats, risks and what-ifs. Here it is.

Low short-term interest rates and supportive monetary policy should continue to be a tailwind for risk assets as the global economy finally transitions from the pandemic to a resumption of consumer spending on the things we all missed for the last twelve-months plus (assuming mass scaling of vaccinations is achieved at least by sometime in late summer). The low rates plus upbeat prospects for corporate earnings should keep valuation concerns more or less in check, though there may be more upside room for less stretched corners of the market like value, small cap and non-US than for the growth darlings of the past five years. But intermediate and long-term interest rates have the potential to steepen (and are less influenced by central bank actions in the absence of an explicit change in standing policy). One potential near-term risk to market upside could be an unexpected surge in inflation. The entrenched groupthink of the bullish consensus itself could also be a risk if it leads to unwarranted overconfidence. Watch out for imprudent enthusiasm by those who fail to distinguish innovation from hype. Longer-term structural risks are less likely to have a direct material impact in 2021, but they are nonetheless present (let 2020 be a warning for the tyranny of the unexpected).

- The Fed is committed to using its full complement of monetary tools to stimulate the economy back to full recovery. The central bank may get some previously unexpected help from fiscal policy following the surprise win by Democrats in the Senate runoffs in Georgia and thus – albeit barely – a unified government with the potential to bring up and pass critical relief and stimulus legislation. Expansive monetary and fiscal policy could justify a continuation of the "buy the dip" approach that has worked for the past decade whenever markets hit a rough patch. **Key risks**: The Fed has less influence over intermediate and long-term rates. These are subject to a variety of influences from diminished demand for Treasuries from foreign investors to a rise in inflationary expectations as the economy grows. An unexpected inflationary surge is a particularly noteworthy risk because very few experts have expected it. The members of the Fed's Open Market Committee on average believe that inflation won't breach even the central bank's target 2 percent level any time before the end of 2022. It would be hard for the Fed to withstand upward pressure on longer term rates in the face of a jump in inflationary expectations. A more pronounced steepening of the yield curve will, all else being equal, have a negative impact on equity valuations as well as on activity and behavior in the real economy.

- China is in a stronger position at the beginning of 2021 than it was a year ago. The world's second-largest market has recently broadened and deepened its strategic impact on the global economy with trade deals in the Asia-Pacific region and the EU (both of which conspicuously exclude the US). It, along with other regional Asian economies, is farther along on the return to growth than the mature markets of North America and Europe. Demand for Chinese assets by foreign investors is high and growing.

Key risks: Recent actions by Beijing to bring leaders of China's burgeoning fintech industry to heel (in particular Jack Ma, the founder of Alibaba and Ant Group, its fintech subsidiary) offer a clear reminder that the Chinese Communist Party is very much in control and plays by a different set of rules, which can at different times work to the benefit or to the detriment of holders of Chinese assets.

- The European Union and the United Kingdom start the year afresh following the conclusion of their terms of divorce at the very last hour in December. The EU would seem to have the better end of the deal, including a new lease on life for its financial services industry as volumes flow out of the City of London to regional bourses. Separately, a deal with China gives a new leg up to the EU's export-dependent manufacturing businesses (not to mention another strategic coup for China as noted above). The euro is poised for more upside against the dollar. **Key risks**: None of the Eurozone's structural weaknesses that brought the single-currency region to the brink of disaster in 2011-12 have been reformed; the issues have simply been kicked down the road time and again. The region's tremulous financial system is never more than a systemic bank failure away from coming unraveled. Political ruptures between the autocratic drift of eastern Europe and the rule-of-law ethos of Brussels took deeper root in 2020 and continue to threaten the region's stated goal of ever-closer union.

- US corporate earnings are expected to rise by a bit more than 22 percent in 2021, after falling by some 13 percent in 2020 (based on the current outlook for as-yet unreported Q4 numbers). This anticipated upturn is heavily weighted to earnings in sectors like industrials and consumer discretionary, which are expected to boom at mid-double digit rates in a post-vaccine world of Disney World holidays, packed sports stadiums and surging global sales of industrial goods. That would be good news for investors concerned about starting off another leg of the bull market with valuations as high as they already are. **Key risks**: Analysts are perennially upbeat about future earnings and regularly overshoot reality. Meanwhile stocks are priced about as closely to perfection as imaginable. Any number of setbacks – from vaccine hiccups to consumer demand that doesn't materialize to another out-of-the-blue factor that renders all predictions useless in the manner of the pandemic in 2020 – will challenge the market's hitherto blasé attitude towards valuation levels. Last year the earnings bar was low; this year it is high.

- In 2020 governments raised record amounts of debt to cushion the blow of the pandemic to businesses and households. Meanwhile, businesses took advantage of low interest rates to flood the market with corporate bonds of both the investment grade and speculative (junk) variety. More debt is on the way in 2021. The Fed will offset some of the new volume with its monthly bond-buying program; however, a larger portion than usual of Treasury debt planned for this year will fall into longer-dated maturities that are outside the Fed's QE sweet spot. Demand from foreign investors has fallen in recent years; in 2021 foreign central banks will also have an expanded opportunity to add euro-denominated sovereign debt to their foreign exchange reserves via the EU's new €750 billion bond issuance program. **Key risks**: Interest rates represent the price of money. Lower demand for dollar-denominated debt obligations will put upward pressure on interest rates, while the supply of new issues by the Treasury Department and state & local municipalities continues at record-setting pace. This in turn could have a domino effect both on valuations of a broader range of assets and on business conditions in the real economy.

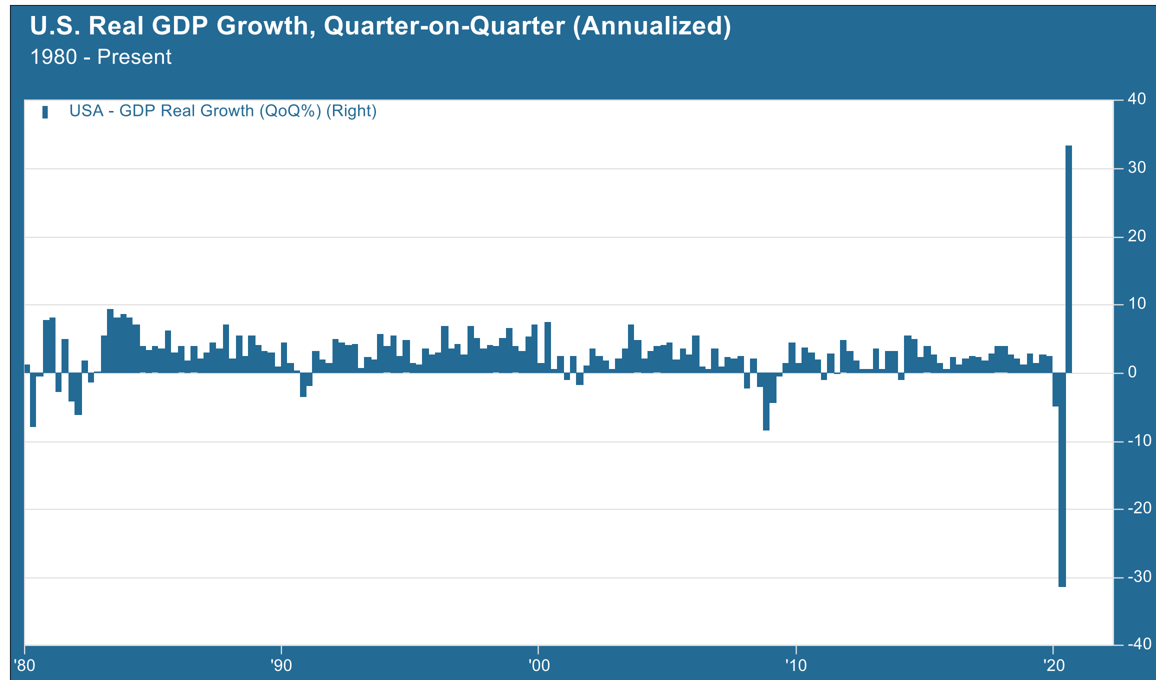
- A year of both innovation and hype lies ahead, and one of the big challenges for investors will be separating the two. For an illustrative case in point look no further than Tesla. The newest addition to the S&P 500 boasts a market cap either side of $700 billion on any given day, which is more than the combined value of the nine largest car manufacturers by volume – including GM, Ford, Fiat-Chrysler, Toyota, Daimler, Volkswagen and Peugeot. Pretty impressive for a company that sells less than one percent of all automotive vehicles sold worldwide in 2020. Tesla is not alone. 2020 was a year when investors grabbed onto seemingly anything associated with one of the major innovations percolating up from the labs over the past decade – from clean energy to blockchain technology and next-generation artificial intelligence. **Key risks**: Recall that in 1999 any company that slapped a "dot.com" next to its name seemed able to increase its value by magnitudes of many overnight. A few durable winners for the ages came out of that frenzy. The underlying promise of the revolutionary technology represented by the Internet was not off the mark. But for every Amazon there were hundreds of Pets.com – sock puppets tossed onto the flotsam of history' speculative frenzies.

B. State of the Global Economy

i. Meaningless Numbers: US Quarter-to-Quarter GDP

Here's a bold prediction we are making for 2021: whatever the actual result turns out to be for real GDP growth in any of the year's four quarters, it will have practically no effect on how asset prices perform. Could we be wrong about that? Sure. But here's why we think we are right.

Chart 7: US Real GDP Growth (QoQ), 1980 - Present



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

The chart above shows the change in GDP from quarter to quarter, going back forty-one years to 1980. Quarter-to-quarter movements tend to be more volatile than year-over-year changes. Nevertheless, simply put, there has never been the kind of seismic lurch from positive to negative growth and then back again as we saw in the second and third quarter of 2020. Unless and until we decide again sometime to perform a cold shutdown of the economy followed by a hot reboot, we are unlikely to see quarterly output changes in the realm of thirty percent, as they were in both Q2 and Q3.

What will we see this year? Probably a higher than average series of quarterly gains as output cranks up to meet a perceived high level of demand as the vaccine gets distributed and people tiptoe their way at first and then plunge headfirst into the things they have been yearning to do since March 2020. As we write this, the 2020 Q4 GDP number has not been released (it is due to come out on January 28). Analysts are projecting a quarter-to-quarter gain of 4.3 percent. It could be 10 percent, or it could be minus 5 percent, just as easily. There's always a statistical margin of error, which tends to be wider the noisier the data.

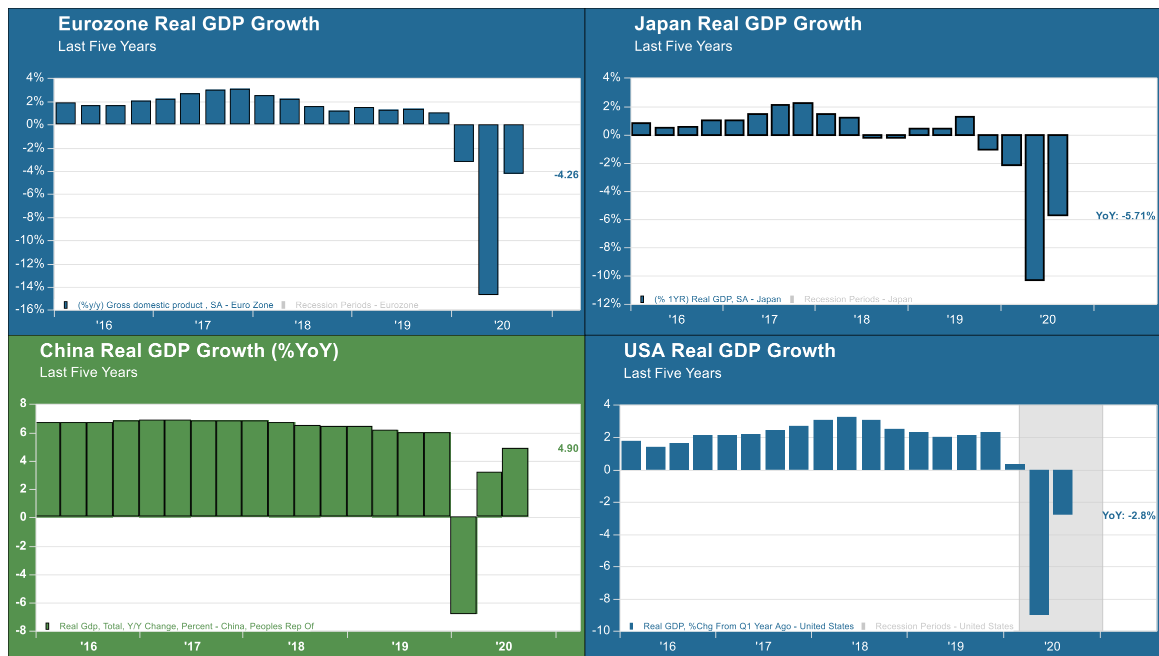
Again, it is not likely to matter for asset performance. There is simply too much noise. If 2020 Q4 or 2021 Q1 GDP actually turns out to be negative then media reports will be talking about a "double-dip recession," something that last happened in 1980-81 (you can see the quarterly fluctuations for that period at the far left end of the chart above). As long as the expectation still holds that a large enough cohort of the country will be vaccinated by mid to late summer, what happens in the quarters before that will likely not matter.

Investors may also be of a similar mind regarding the first couple of quarters after the vaccine scales out. Whether Q3 GDP growth turns out to be four, five or six percent probably won't matter much to investors' collective psyche. It will take some time for the quarterly numbers to settle down and resume a pattern more similar to the long-term trend.

ii. Meaningful Numbers: China GDP (Year-over-Year) versus Everyone Else

We would not often see fit to cite the published GDP results for China as "meaningful" just after spending a few paragraphs arguing why the US numbers for the same statistic are "meaningless." China has a long history of producing questionable macroeconomic reports making apples-to-apples comparisons difficult. But in one sense a comparison between China's performance and that of other major economies is meaningful, because it underscores the point we were making back in Section II of this report about the shifting balance of power in the global economy. Consider the four graphs in the chart below. This time we present GDP growth on a year-over-year rather than on a quarter-by-quarter basis. Year-over-year trends tend to be smoother than the rate of change between successive quarters.

Chart 8: Real GDP Growth in the Eurozone, Japan, China and the US (Year over Year)



Source: FactSet, MVF Research

All the major economies experienced a similar outcome from the coronavirus lockdown last year: one period of extremely sharp contraction followed by a rebound. When we showed you the quarter-on-quarter US GDP trend in the chart in Section III(B)(i) above, you saw that the rebound in Q3 was roughly the same size as the decline in Q2. In Chart 8 above, though, you see that when Q3 2021 GDP is compared to Q3 2020 GDP, the growth is still negative; in other words, the sharp quarterly snapback wasn't enough to erase the decline when comparing the current quarter to the quarter twelve months earlier. The same is true for the other two major developed economies – the Eurozone and Japan.

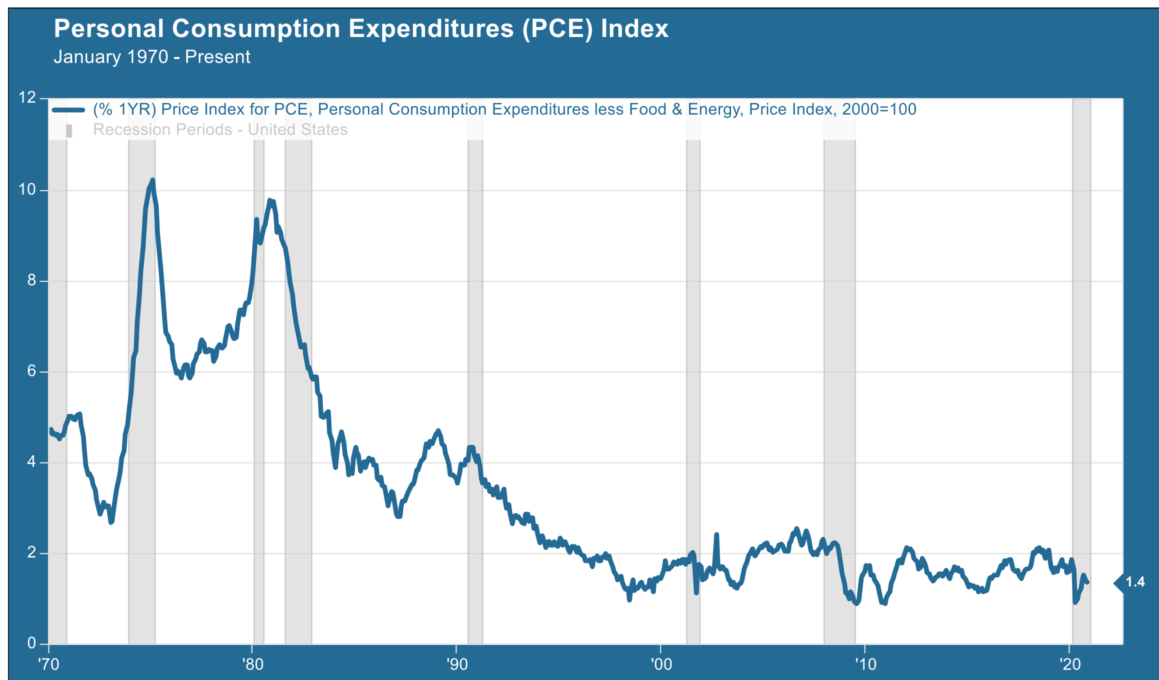
Not so for China, which is why we highlight that graph in a different color than the other three. You can see the timing difference associated with the fact that the virus had its biggest impact on China in Q1 – when the originating city of Wuhan was put into lockdown – while that impact came in Q2 for the other economies since that was when the full brunt of the economic shutdown was felt. The initial drop in China was smaller than that of the other three, and it by the next quarter the year-over-year trend was already back in positive territory. By the time the Q3 number was printed, China's economy was just under five percent larger than it was in Q3 2019. That is actually in line with economists' growth forecasts back in 2019. China's economic growth trend looked like Covid-19 had never happened.

China is the world's second-largest national economy. It is possible that by the end of 2022 it will be larger than the entire combined economic value of the Eurozone, and it is also possible that its GDP will be greater than that of the US by the second half of this decade (according to one recent study that may happen as early as 2028). Of course, GDP is not the only way to measure a country's economic strength. For many years China has relied on massive amounts of fixed asset investment into public infrastructure projects as a way to meet its quantitative GDP targets. That has sometimes been to the disadvantage of its consumer sector. Moreover the country still has a large contingent of relatively unproductive and bureaucratic state-owned enterprises, particularly in the financial and industrial sectors. But China's potential economic difficulties have been overstated by Western economic analysts time and again over the past twenty-odd years. It would be smarter to accept the reality of the increasing centrality of China as a global economic power and develop strategic responses accordingly.

iii. The Inflationary Threat: Is It Real?

It's not exactly the dog that didn't bark – plenty of economists, traders, politicians and others who follow economic trends have barked loudly about inflation at one time or another over the course of the past forty years. It's more like the dog that didn't bite. Inflation has not been a problem in the US or for that matter any major developed economy since the 1970s. The chart below shows the path of the US Personal Consumption Expenditure index (ex-food and energy) – the index used by the Fed as a proxy for inflation – over this period. In the aftermath of the 2008-09 recession the core PCE index has only briefly risen above two percent.

Chart 9: Long-term US Inflation Trends (Core PCE)



Source: US Bureau of Labor Statistics, MVF Research, FactSet

But that sound you hear – still rather faint but audible nonetheless – is the barking of yet another inflationary warning. Those who are forecasting a return of that scourge of the 1970s may have a better case to make this year than they did the last time the barking was a fixture of financial media reports, which was during the efforts to restimulate the economy after the recession of 2008 (the above chart clearly illustrates how off the mark those predictions were).

Given the extent to which capital markets today rely on the low interest rate policy of the Fed, an unexpected burst of inflation would potentially be a seismic event for asset price trends. It is important,

though, to separate two different phenomena: a temporary uptick in consumer prices following the resumption of social life and all its bells and whistles following the mass scaling of the coronavirus vaccine; and a more structural degree of inflation that changes consumer expectations and purchasing habits over a longer period of time. There is good reason to think that the former will happen some time later this year. The big question is whether that will turn out to be a one-off event or something more.

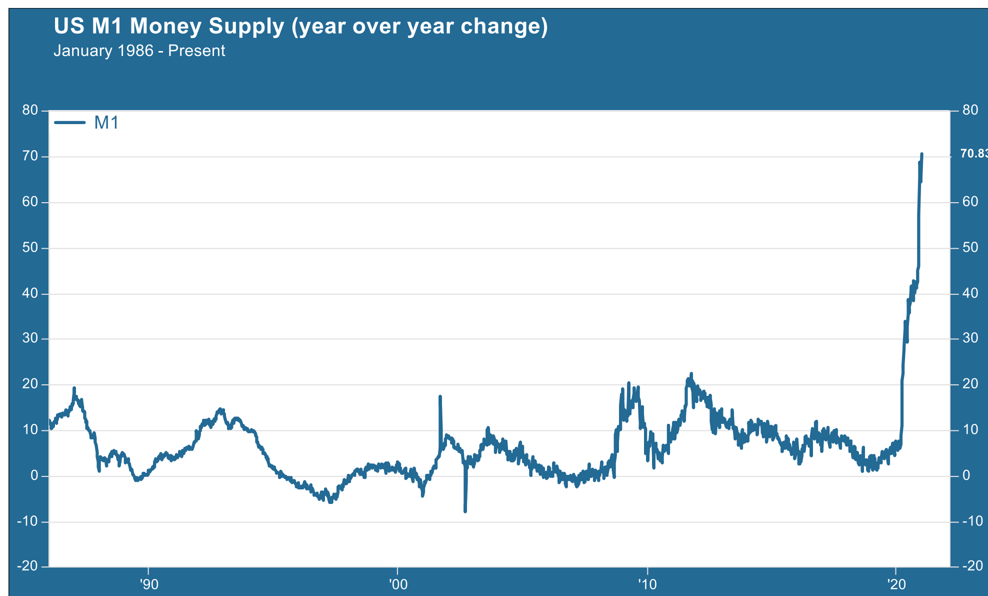
Inflation happens when there is a scarcity of goods relative to the amount of money chasing those goods; in economic terms, when demand outstrips available supply. Sellers charge more for things that are relatively scarce. During the pandemic three things happened, all of which could point to a spike in inflation later this year. First, household savings went up because consumers stayed at home and only partly offset their lack of in-person consumer activity with online purchases (and they also got stimulus checks from the government). Second, companies reduced output in anticipation of an extended period of low demand. Third, many companies (including a disproportionate number of small businesses in personal services sectors) went out of business entirely, so their supply went off the market completely.

If we assume that enough Americans have been vaccinated by, say, late July to permit something close to a full-scale return to all the things that by then will have been shut down for a full year and a half, then it is not outlandish to imagine a consumer frenzy taking place in the remaining part of the year – most of the fiscal third quarter and all of the fourth quarter. Sporting and concert arenas full of adoring fans, amusement parks overflowing, vacationers rushing off to party like there's no tomorrow all around the world. All this could trigger a jump in inflation that starts to show up in earnest as we go through the fourth quarter and perhaps spills into 2022 following a holiday spending spree for the ages.

But twelve months or so from now that activity spike will likely be subsiding. Demand and supply will settle into more of a normal equilibrium. At that point it would be reasonable to imagine that inflation will subside as well. As recently as last month the members of the Federal Reserve's Open Market Committee, the ones who make the decisions about interest rate policy, were projecting that inflation won't even surpass the central bank's long-standing target rate of two percent, let alone surpass it dramatically, at least until the end of 2022 (notwithstanding a temporary one-off spike like that described above). It would take something more than that one short-term deviation to alter inflationary expectations in a more structural way.

Those who believe we are in for a more durable bout of inflation believe they know what that "something" is: a dramatic increase in the money supply. Chart 10 below shows the growth of the M1 money supply (a measure that includes cash and checking deposits) over the past 35 years.

Chart 10: Growth in US M1 Money Supply



Source: US Federal Reserve, MVF Research, FactSet

How worried should you be about that chart? Well, if you subscribe to the quantity theory of money popularized by Milton Friedman and his band of monetarists back in the 1970s, the answer would be very worried. Prices according to this theory are determined by the supply of and demand for money, with excess rates of growth in money (over rates of real income growth) translating into inflation.

In the decades following the 1970s, though, the tenets of quantity theory increasingly diverged from real-life experience, and the cult of monetarism faded from mainstream economics to the fringes. The supply of money jumped as it did last year because of the multi-trillion dollar relief programs cobbled together between the Fed and the Treasury Department. It's worth noting, however, that M1 also jumped in 2008 and again in 2010 as a result of the Fed's moves to stimulate the economy after the financial crisis. Yet inflation did not rise accordingly, even with the then-unprecedented levels of quantitative easing. It is far from clear that the creation of new money this time around will spark a structural bout of inflation.

Prior to Covid, the economy was growing at a rate well below its longer-term historical average. We don't really have a preponderance of hard data to suggest a change in this trend once the initial post-pandemic activity spike has subsided. That is not to say that there is no chance for structural inflation to take root. The most likely catalyst for this would be a prolonged reluctance by the Fed to revert to a tighter monetary policy as economic growth kicks in. The main point of a low interest rate policy, after all, is to make it easier to borrow (for business investment and consumer spending). The Fed does not want to choke off an incipient growth cycle by moving too quickly to tighten. It could easily misread market signals, though, and wait too long.

So that M1 chart by itself is not necessarily cause for concern – if you assume that growth trends will return to their pre-Covid norms and that the Fed's wise humans are right when they assume inflation will key kept at bay for several years ahead. If you are a monetarist or if you cynically think the Fed is deluding itself in thinking it can fearlessly tighten money (and annoy markets) before inflation jumps – then you may be in the market for TIPS, hard real assets like commodities and other inflation hedges.

iv. Debt and the Central Banks

One of the main reasons why some observers are so fretful about a possible resurgence in inflation is because there is a great amount of debt out there in the world. Globally there is more than $270 trillion of outstanding debt, which is several magnitudes more than the dollar value of global GDP. For comparison's sake the total dollar value of US GDP, the world's largest economy, is about $21 trillion and the total market capitalization of the S&P 500 stock index is roughly $33 trillion. While debt has been rising steadily for many years, it accelerated in 2020 at all levels. Governments issued record amounts of sovereign debt to provide relief to municipalities, businesses and households trying to avert collapse during the pandemic. Businesses issued record amounts of corporate debt to shore up their balance sheets and have enough cash on hand to meet their obligations during the downturn. And while household debt is not at the same high level it was in 2007, prior to the financial crisis, it still grew steadily over the course of the year.

Now, if a scenario of higher than expected inflation does play out, it will put upward pressure on nominal interest rates. A world of, say 3.5 percent inflation (which is not unduly high by historical standards) is not a world in which nominal 10-year Treasury rates are likely to remain around one percent. Higher interest rates would make servicing the cost of all that outstanding debt – public and private – much more onerous. For companies with lots of corporate debt, their coverage ratios would decrease and their risk profile would increase. That would probably increase credit risk spreads, with lower-investment grade and especially junk grade companies being hit hardest.

At the peak of the market's panic over the coronavirus back in March the Fed stepped in with a pledge to purchase corporate bonds – investment grade and junk alike – in an effort to stabilize what seemed to be an out of control credit market. It worked – rates came back down and credit spreads did not widen appreciably through the remainder of 2020. Now, the Fed's bond-buying commitment has expired; the termination of all the central bank's pandemic-related liquidity facilities came to an end on December 31

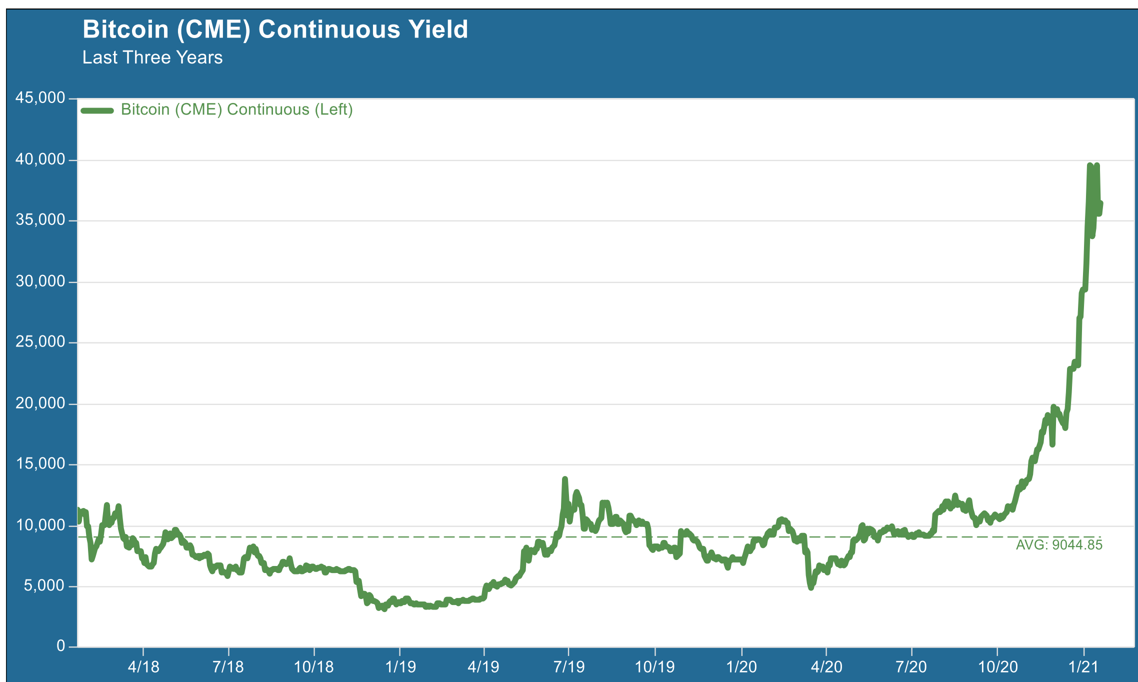
as part of the deal reached for passage of the $900 billion relief program at the same time. The consensus sentiment in the market is that this doesn't matter; in the event of another market panic the Fed would come up with another way to bail out bond market investors. This consensus amounts to little more than an article of faith. If private sector demand for new debt falls – based on inflationary expectations or any other reason – the ability of the Fed to step in as buyer of last resort is not a law written in stone. The bond market lives by the Fed. Its ability to flourish without that life support system is very much in question.

C. State of the Capital Markets

i. Irrational Exuberance Rides Again

What is bitcoin? That is a question on the minds of many investors at the beginning of 2021. The technical answer to that question is: a digital currency fashioned from a decentralized technology platform called blockchain, introduced to the world in January 2009 by a mysterious character who goes by the name Satoshi Nakamoto (or went by that name, since nothing has been heard from this character for many years). For starry-eyed investors the only useful answer is "something that for some reason went up by almost 650 percent (not a typo) between the middle of March 2020 and the middle of January 2021."

Chart 11: Bitcoin Price Trend, 2018 - Present



Source: MVF Research, FactSet

Bitcoin may be the most egregious example, but it is hardly alone. Tesla, a maker of electric cars, accounted for less than one percent of all cars sold globally in 2020. Its market value is larger than that of the combined market value of the nine largest car manufacturers in the world, including GM, Ford, Toyota and Daimler (and on that basis Elon Musk, its founder, eclipsed Amazon's Jeff Bezos as the world's wealthiest man). Penny stocks have soared in value. So have bankrupt companies. Small-ticket call options – a cheap way to take a punt on the market not entirely unlike betting on the horse races – have been trading in record volume levels. Activity on retail trading platforms like Robinhood.com jumped early in the market's recovery back in April and have been going gangbusters ever since.

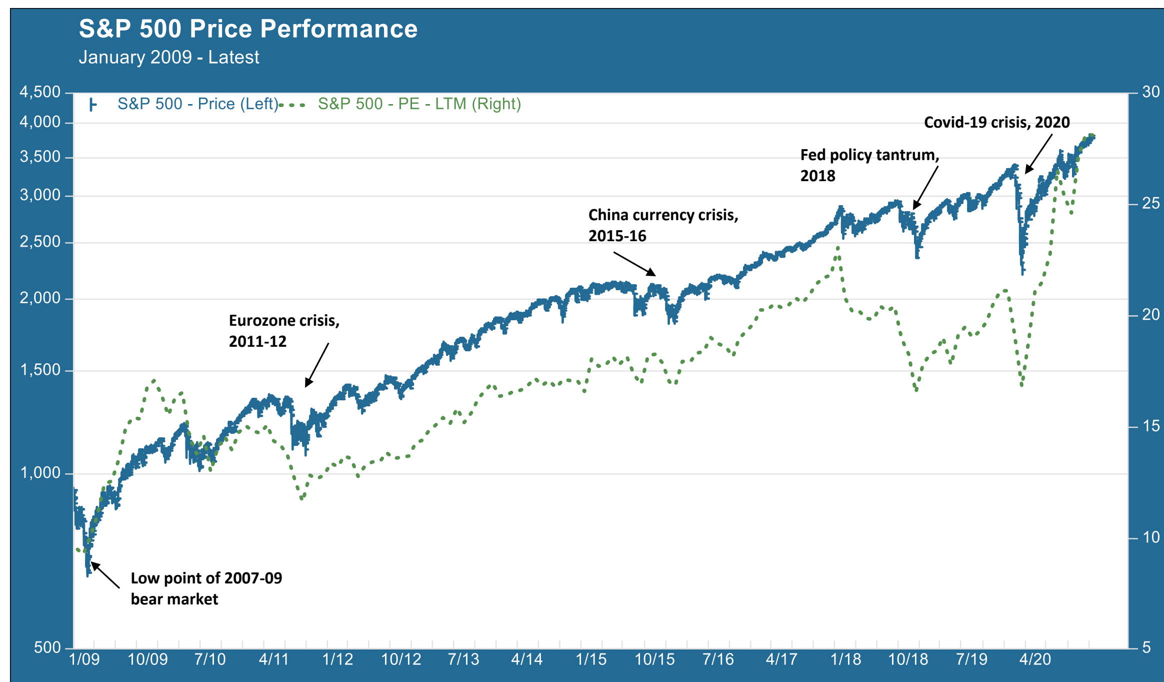
In a technical sense this is not the same bull market as the one that began in March 2009; that bull was interrupted by the 34 percent price decline from mid-February to late March 2020, which met the bear market threshold of a decline of 20 percent or greater. But in a looser sense we can look at this entire period as a single market cycle broken up by a handful of brief interruptions: the Eurozone crisis of 2011-12, the

Chinese renminbi devaluation in 2015, the freak-out over interest rates that led to a near-bear market in 2018 and, of course, the Covid-19 pandemic.

We can think of this as a single cycle because the basic conditions haven't really changed. The underlying economy grew at a moderate pace (until a proactive decision was made to shut it down), with generally benign conditions in the labor market and for consumer prices. Each time the market threatened to seize up the Fed stepped in with a remedy – the successive QE programs from 2009-15, holding off on interest rate increases at the beginning of 2016, reversing course on tightening after the 2018 correction, and then flooding the zone with liquidity and outright asset purchase commitments in 2020.

The one thing this cycle lacked until 2020 was irrational exuberance, to use the phrase made famous by Alan Greenspan in 1996 (four years prematurely, as it turned out). The 2009-20 bull market was known more often than not as the "most hated bull in history" by long-term Wall Street pros. It was anything but exuberant. But if we dispense with the technicalities and extend out the 2009 bull, then we can tack on the irrational exuberance phase to fully round out this market cycle, illustrated in the chart below.

Chart 12: S&P 500 Price and P/E Ratio Trend, 2009 - Latest



Source: MVF Research, FactSet

The clearest sign of irrational exuberance at work is in the trailing twelve months price-to-earnings (P/E) ratio, represented by the dotted green line. The P/E soared in just a few short months from where it was in mid-March at the peak of the Covid panic, to a level only experienced once before in the market's history, that being the height of the dot-com bubble in 2000. And, of course, this is only an average of 500 stocks, many of which hadn't even recovered their pre-Covid values by the end of the year. The P/E ratio for Amazon is about 95 times. That for Tesla? Don't even ask (it's over 1,600 times).

Which brings us back to the question by which we opened this section: what, exactly, is bitcoin and why did its price go from $5,000 to $40,000 in less than one year? You can call it a digital currency or a digital commodity – take your pick. The perceived "value" of this thing has always been that there is only a limited number of them in existence. The initial ideology behind bitcoin was steeped in anti-government libertarianism: to have something serve as a store of value completely independent from the regulations and political expediencies of any governing nation-state. For these ideologues bitcoin could be something like gold was in the nineteenth century; i.e. an asset to which the price of every other form of money was fixed. Countries that were part of the gold standard, which included all the world's major trading partners

of that time, were unable to make any kind of economic policy decisions that would cause their national currencies to devalue, without taking immediate remedial measures to bring it back in line with the gold-based exchange rate.

All well and good – if you lived in the nineteenth century. We don't, nor would any government today want its currency tied to the vagaries of a single commodity whether mined from the ground or mined from a computer. Bitcoin is, in many ways, still a solution looking for a problem. It is extremely clunky as a means of exchange. Bitcoin wallets aren't something you just open with a tap on your phone like Apple Pay. It's a pretty terrible unit of measure – what exactly are you measuring if its price can change by double digits overnight? And as a store of value – the third use we typically have for a currency – it doesn't accomplish anything that the dollar, the euro or for that matter gold or the New Zealand dollar don't accomplish.

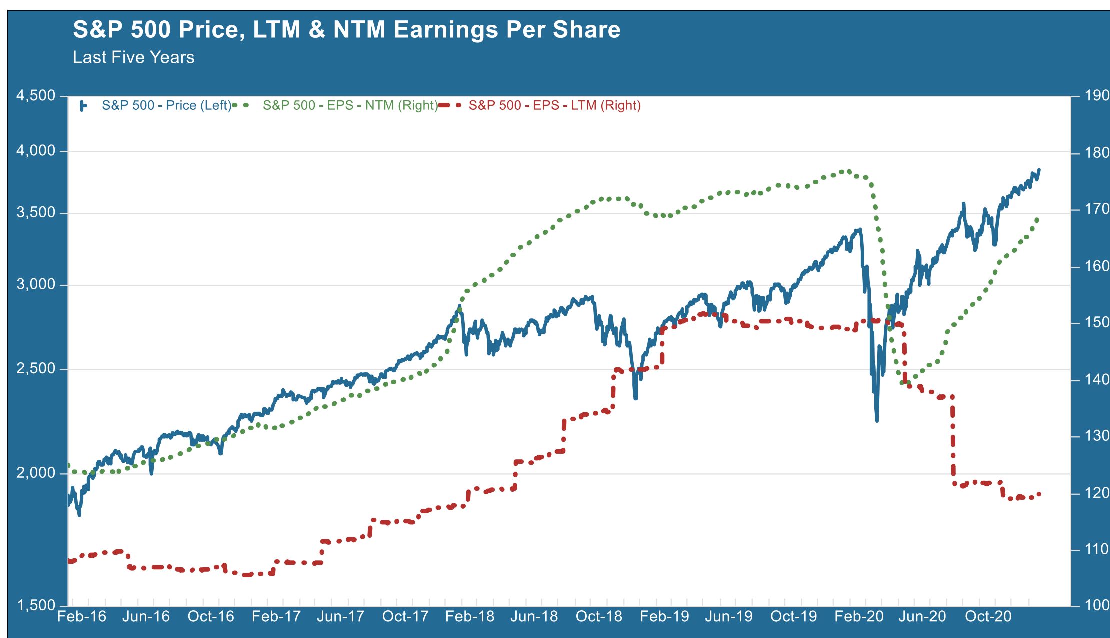
Yes, there might be a world some time in the future where for whatever reason the US dollar fails to act reliably as the global reserve currency. Maybe digital currencies derived from blockchain technology (and bear in mind that it is perfectly easy to create other such currencies that are totally fungible with bitcoin and thus deprive it of that aura of "rare") do have a role in that world, where they exist alongside dollars and euros and renminbi and Swiss francs in the foreign exchange reserve coffers of central banks. After all those central banks also still keep quantities of gold on hand – why not digital gold?

But even in this world it is hard to see where bitcoin justifies the kind of frenzy lavished on it for the past year. It is not hard to see the animating force behind it, though. It's the same animating force behind Tesla and the bankrupt shares of Hertz and all the rest: speculation. Irrational exuberance. Finally, the 2009 market cycle is complete.

ii. What's Different (Maybe) About This Time

"This time is different" are the three words most likely to trip up an aspiring forecaster of any stripe. But having just spent several pages telling you all about irrational exuberance, we think it is important now to underscore three reasons why we are not inclined to believe that animal spirits are quite at that 2000 tipping point; why we don't see covetous FOMO giving way to gleeful Schadenfreude in the hearts of those who have been sitting out the bitcoin/Tesla/penny stock craze. Those three things are: corporate earnings projections, low interest rates and the Fed put. Let's attend to them in sequence, starting with earnings.

Chart 13: S&P 500 Earnings Per Share (Last and Next Twelve Months)

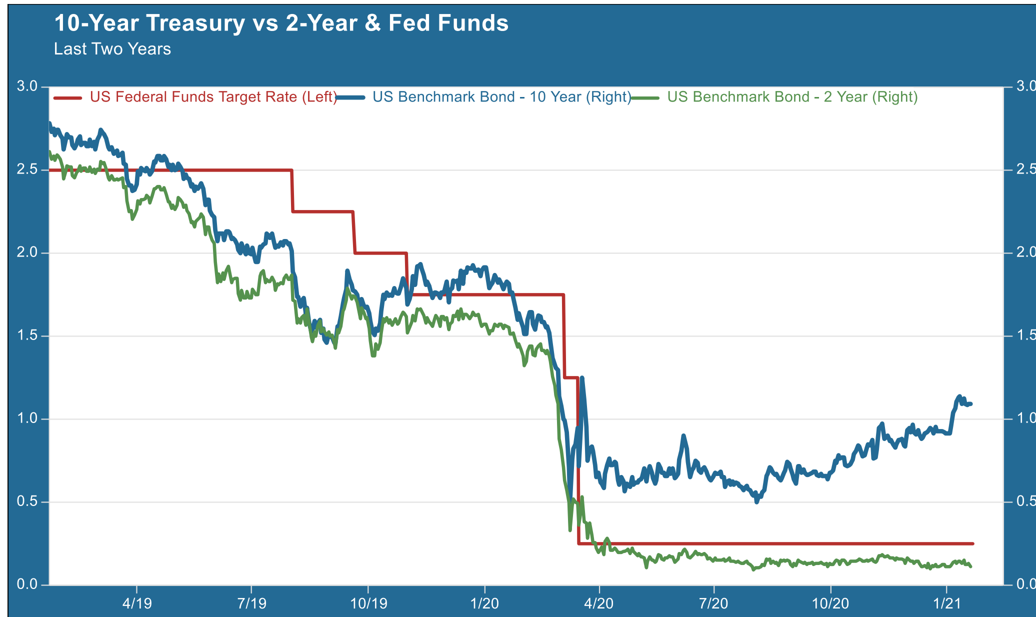


Source: MVF Research, FactSet

In Chart 13 above we see two quite different presentations of earnings. The dotted crimson line shows the twelve trailing months, which are clearly down as a result of the hit to earnings caused by the pandemic. The green dotted line, on the other hand, is rising strongly. This represents earnings forecasts for the next twelve months. It is not necessarily surprising to see stock prices rising (the blue solid line) since the market is inherently forward looking and thus inclined to ignore the grim past history in favor of the post-vaccine world believed to be in store later this year. If earnings rise by as much as analysts are forecasting – currently they are expected to grow by somewhere between 20 and 25 percent for the full year 2021 – then stock prices have more upside room. This is particularly true because many of the companies with the highest earnings outlooks are in parts of the market that were relative underperformers in recent years. This could favor an asset class rotation to areas like value and small cap, a point we made several times elsewhere in this report. It could also be a useful counterpoint that directs some investment flows – even those from the sports-bro punters and their Robinhood.com accounts – away from some of that speculative froth.

Low interest rates are the second potential factor we cited above. It would be hard to emphasize enough the role low interest rates have played in boosting risk asset valuations in recent years. The outlook for rates is something of a mixed bag for 2021, but one thing that seems as close to certain as is possible in an uncertain world is that the Fed will keep short-term rates pegged at their current near-zero levels.

Chart 14: US Interest Rate Trends, Last Two Years



Source: MVF Research, FactSet

Why do low interest rates help boost stock prices? There is a yield explanation and a valuation explanation. The yield explanation is pretty simple: low-risk interest-bearing securities like Treasury bonds and high-grade corporate debt offer very little yield. Investors are willing to put up with the added risk of common stock for the relatively attractive yields they offer.

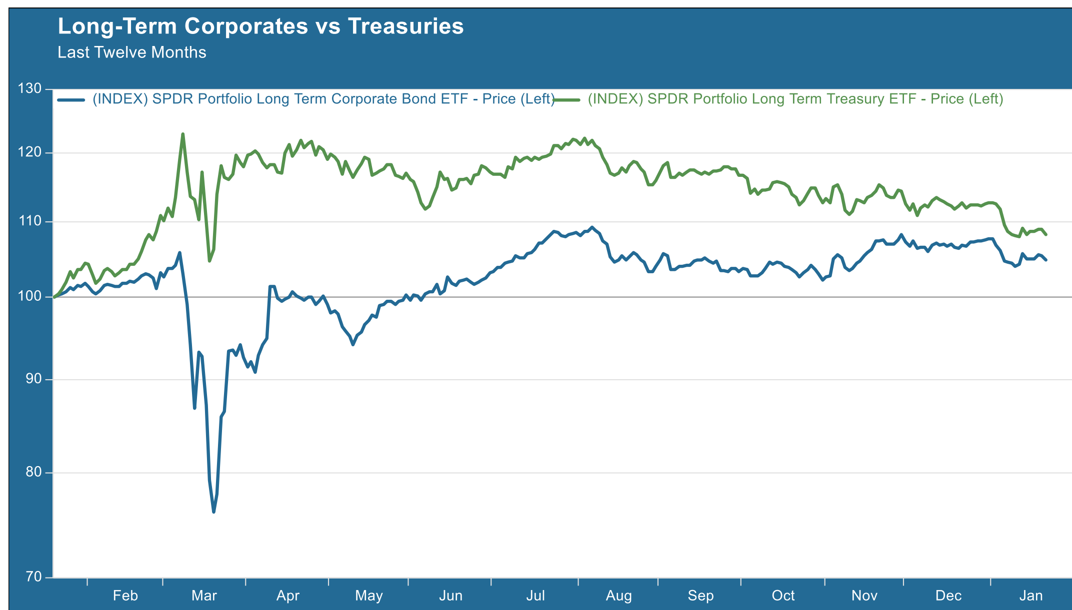
The valuation reason is a bit flakier, often cited by people who don't fully understand how valuation models work (and why there are limits to their effectiveness). Start with the reasonable assumption that a fair stock price is simply a net present value of future cash flows. There are two tricks to coming up with this number: first, estimate the likely growth of sales and earnings for a few years into the future; then, discount those earnings back to the present at a rate reflecting the estimated cost of capital. The prevailing interest rate is the foundation for that cost of capital calculation. The lower the rate, the higher the present value of those future cash flows. That's just math.

The flaw comes with something called the "terminal value," or TV. The way you calculate the TV is to take whatever the farthest-out cash flow number is in your model – let's say five years from the present day

– and then assume that earnings beyond that point grow at a steady state (the long-term growth rate) forever. The terminal value will be higher the higher the LT growth rate and (again) the lower the interest rate used to discount this growth into perpetuity. Here's the thing, though – the terminal value can actually be the single largest contributor to the net present value that is supposed to represent the fairly valued stock price. Yet the terminal value is really nothing more than a wildly speculative guess about what both the growth rate and the interest rate will be many, many years into the future. It's a dart throw – but a dart throw that has a big impact on "fair value" stock prices derived from cash flow models.

Flaky valuation math or not, low interest rates do generally help stock prices. Now, we have talked elsewhere in this report about the potential for the interest rate curve to steepen, with intermediate and long-term rates rising even while short-term rates remain low. That brings us to our third variable potentially acting to offset risks from an overbought market: the Fed put.

Chart 15: The Fed Put: Corporate Bonds & Treasuries



Source: MVF Research, FactSet

We chose to illustrate the Fed put with this chart because it truly shows the clinical effectiveness of the central bank in the role it has taken on for itself as the market maker of last resort. At the height of the coronavirus pandemic last March the bond market spun out of control. Chart 15 shows the price of two exchange-traded funds (ETFs): the green line represents long-term Treasury securities and the blue line represents long-term investment grade corporate bonds. Again – these are showing market prices, not yields (i.e. down is bad). The price of the corporate bond ETF lost more than 20 percent of its value during the panic. Even more bizarrely the Treasury ETF, which you would assume served as a safe haven during a market panic, experienced a correction of more than 10 percent.

The sharp reversal from that decline happened on March 23, the day the Fed pledged to buy corporate bonds outright to stabilize credit markets. In effect the Fed said "if no one else will buy the bonds, we will." Bond prices quickly reversed their losses, and by the end of the year the spread between corporates and Treasuries was roughly what it is in normal times.

The Fed put is a device that effectively takes price discovery out of the hands of private investors and replaces it with what amounts to a government-based commitment to socialize losses. This put did not exist when the dot-com bubble burst in 2000. It exists today and most likely will exist for as long as the Fed has the ability to enforce it. If and when the day arrives where the put is unenforceable, it will likely be a grim day for investors who have never known anything else than the Fed's benign market socialism.

D. Concluding Thoughts: Risks and Opportunities for Portfolio Positioning in 2021

We have a base case for 2021, driven by the thought process found on the earlier pages of this report. We also know (per our opening comments back in Section I) that base cases don't always come to pass. There are potential downside risks that could play out in a more dramatic fashion this year than we envision. There are also possible upside risks – remember that "risk" has the potential to work in both directions.

Our base case, then, is for gains in equities in line with what an investor might call "good but not great" returns. "Good" because the tailwinds of resumed economic growth (following the mass scaling of vaccines) should lift up many of the cyclical parts of the market that suffered most from the pandemic in 2020, while at the same time the fundamental story for the tech-driven growth stocks that have led the market in recent years is not noticeably diminished. "Not great" because the year starts from a very expensive level and could encounter stiff headwinds as valuations push ever-closer to those record levels of 1999-2000.

As we have noted throughout this report, we see an unexpected surge of inflation as the biggest potential economic threat to upside for equities. We do not think a structural increase in inflationary expectations (as opposed to a one-off period of higher prices in the immediate phase of the post-vaccine economy) is a high-likelihood event. Were it to come to pass, though, such an event would back the Fed into a corner in its ongoing efforts to stimulate the economy with loose money. We are concerned about the ability of credit markets (and by extension risk asset markets) to maintain their footing in the absence of the Fed's support.

Earlier in this report we noted that productivity gains for the second and third quarters of 2020 were well above recent trends. While those readings could be nothing more than pandemic-related noise, there is the possibility that they presage an upward trend in productivity as some of the recent inventions that have been percolating up from R&D labs – genetic sequencing, energy storage, artificial intelligence and robotics to name a few – come into their own as commercial applications. We saw one very important example of this in 2020: the biotechnology of developing a vaccine using messenger RNA, an entirely new process, gave us the ability to deliver on that "warp speed" time frame with an approved vaccine by the end of the year.

When looking back on the big tech bubble of 1999-2000 it is important to remember that some genuine innovation came out of that period. Some of the biggest names in the market today – Google and Facebook certainly come to mind – didn't even exist when the bubble collapsed. Similarly there is a lot of hype out there in the market today. But there are some genuine stories as well. If enough of the inventions powering these stories turn out to be genuine productivity enhancers, we could be in for a different near-term future than merely a resumption of the structural low growth of the pre-Covid years.

We live in a very challenging period of history that is not always reflected in how the stock market performs. In 2008 we experienced a systemic meltdown of the global financial economy – an event the enormity of which caught everyone from retail stock punters to then-Fed chairman Ben Bernanke by surprise. The S&P 500 crashed by more than 50 percent from its previous high and took more than four years to recapture that high. In 2020 the world was ensnared by the worst health pandemic in more than 100 years, again catching all manner of observers and keen-eyed analysts and policymakers flat-footed. The S&P 500 lost 34 percent but had regained its previous high within the space of half a year.

In between these seismic events we have witnessed disruptive climate-related events – floods, wildfires, hurricanes and droughts to name some – any one of which was once considered to be "once in a lifetime." These were devastating for hundreds of thousands of people caught in their path, but they barely moved markets. In this time we have also seen the increasing prevalence and sophistication of cybercrime. As we write this we ("we" being laypeople and security experts alike) have no way of knowing the extent to which some of our most important networks and systems are compromised by malicious agents. Again – to date these events have not made an impression on investment markets. The threats are out there. If, when and how any of them strike is beyond the capability of even the most powerful of forecasting engines to know. We hope that the actualized threat level of 2021 will be as close to zero as possible. Yet we must always be vigilant, clear-eyed and prepared as best as possible for alternative outcomes.

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