Thinking Long-Term

Over the next few days and weeks, the U.S. presidential election is sure to dominate the news cycle as well as investors' attention. This is one of the most polarizing environments in recent political history and the election outcome matters intensely to most voters. In the short to intermediate term, the outcome will also matter for investors and many different industries, as we highlighted in our previous correspondence. The policy differences between a second Trump administration or would-be Biden administration are considerable. But does the upcoming election matter to investors over the long-term? We think the answer is yes, but with a caveat: that while the election's outcome will have lasting consequences, they are unlikely to be as significant for investors as most media stories and market analyses suggest. Other factors are likely to be more important drivers of long-term returns than any particular administration's policies.

Before delving into specific impactful factors, it's useful to set a few definitional stakes in the ground. By short to intermediate term, we mean an investing time horizon of up to 3 years. By long-term, we mean anything beyond that, but ideally much longer. We all would probably like to consider ourselves long-term focused when it comes to investing, but the reality is that not everyone is. For investors who have upcoming cash needs, live off their portfolio's income or whose temperament correlates with the market's gyrations, having a shorter timeframe for evaluating performance is probably appropriate. To be clear, there is nothing wrong with this. Knowing oneself is key to structuring a portfolio that properly suits one's needs.

For those who don't plan to touch their invested capital for many years and who don't mind potential periods of heightened volatility or underperformance relative to the broader market, we think investing with a long-term horizon makes sense. Lengthier holding periods allow for developing companies or investment themes to come into fruition and for returns of mature companies to compound. In reality, many investors don't fall 100% into either category and may benefit from having a portion of their portfolio managed to capitalize on long-term trends, with the remainder tactically positioned to deliver suitable results over a shorter period. Again, either approach – or a combination – is entirely appropriate so long as it fits one's specific needs.

With that said, what factors do we think are key for long-term outperformance? Macroeconomic trends, such as GDP growth rates, demographics and monetary policy, surely matter. As do permanent changes wrought by unexpected global events, like the Covid-19 pandemic or the 2008 financial crisis. We will assume, however, that long-term investors will own stocks throughout various economic environments and can't reliably predict systemic shocks. So how can long-term investors achieve an enduring edge? We think it boils down to one or more of the following three things (unfortunately, none of which are easy):

1) Identifying and allocating to an investment theme before it becomes a popular consensus view.

2) Correctly positioning for a paradigm shift in valuations.

3) At an individual stock or industry level, accurately forecasting the evolution of business fundamentals.

1. <u>Identifying and allocating to an investment theme before it becomes a popular consensus view</u>

This will be our longest discussion of the three factors above. In Bill Gates' 1996 book, *The Road Ahead* – in which he shared his vision on the future of technology – he wrote, "We always overestimate the change that will occur in the next two years and underestimate the change that will occur in the next ten."[1] In fields ranging from computing to renewable energy to biology, this observation has been remarkably prescient. A new discovery, product or emerging trend conjures significant public and investor enthusiasm, typically for that initial excitement

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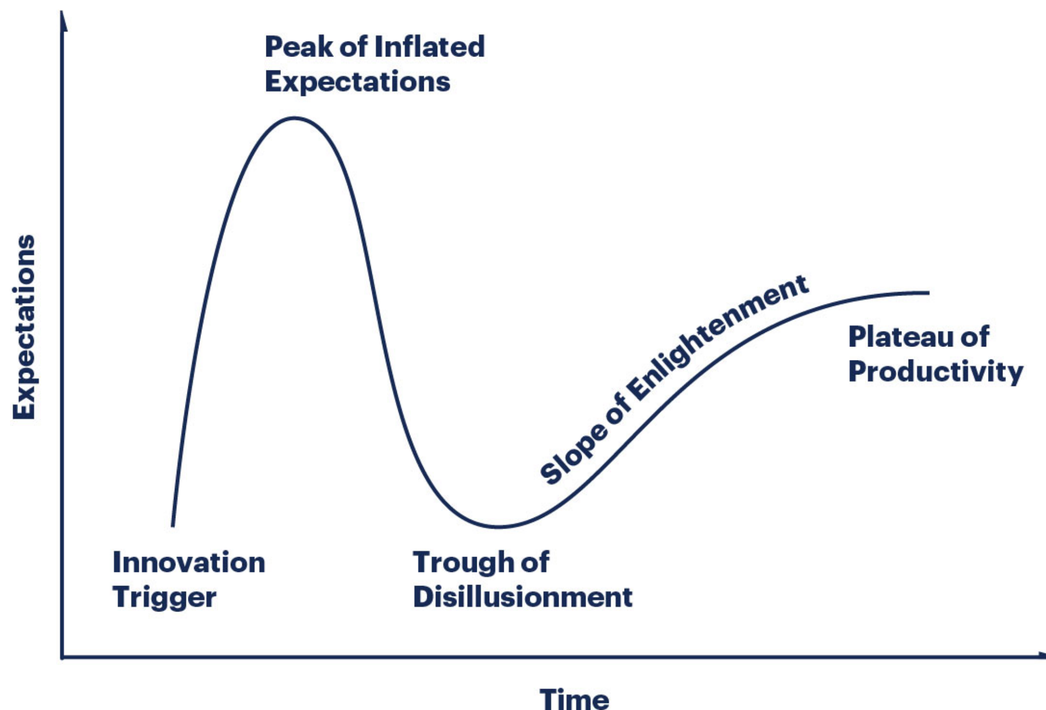
only to wane in the face of slower than anticipated progress before ultimately achieving mainstream status (or failing to live up to the original hype). For long-term investors seeking to capitalize on a thematic wave, the challenge is not just identifying an emerging theme but allocating to it at a valuation that leaves room for substantial gains.

The research and advisory firm Gartner has a helpful graphical representation called the "Hype Cycle" that further elucidates Mr. Gates' views on technological change and provides long-term investors a useful framework for thinking about thematic-based investing (whether investing in a technological theme or one of another sort). Below, we have reproduced the Hype Cycle chart and included Gartner's brief description of each stage.[2]

The Gartner Hype Cycle



Innovation Trigger: A potential technology breakthrough kicks things off. Early proof-of-concept stories and media interest trigger significant publicity. Often no usable products exist and commercial viability is unproven.

Peak of Inflated Expectations: Early publicity produces a number of success stories — often accompanied by scores of failures. Some companies take action; many do not.

Trough of Disillusionment: Interest wanes as experiments and implementations fail to deliver. Producers of the technology shake out or fail. Investments continue only if the surviving providers improve their products to the satisfaction of early adopters.

Slope of Enlightenment: More instances of how the technology can benefit the enterprise start to crystallize and become more widely understood. Second- and third-generation products appear from technology providers. More enterprises fund pilots; conservative companies remain cautious.

Plateau of Productivity: Mainstream adoption starts to take off. Criteria for assessing provider viability are more clearly defined. The technology's broad market applicability and relevance are clearly paying off.

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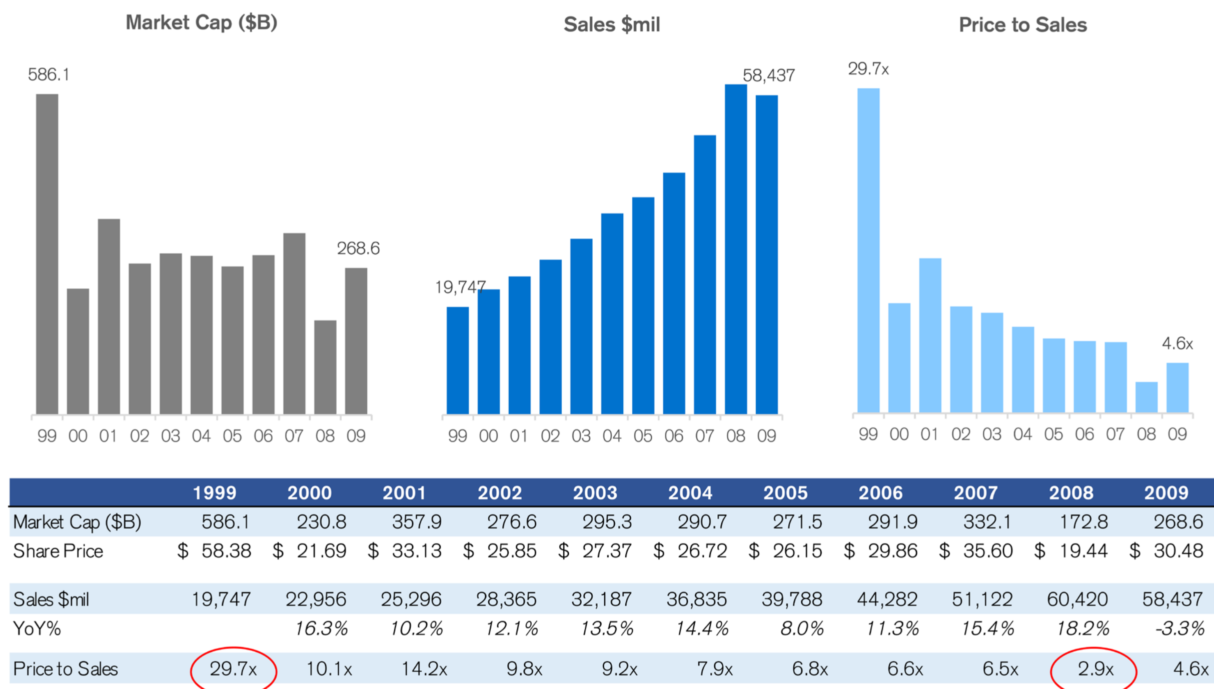
In the above Gartner illustration, we think the slope of the curve is a good proxy for how valuations change over time as new investment themes evolve. By valuations, we mean metrics like price to earnings or price to sales ratios and not market cap. Investors can earn the greatest returns (and face heightened risks) when allocating to a promising theme or technology at the time of its initial development (the "innovation trigger") or when it becomes widely disparaged (near the "trough of disillusionment"). Note that investors can still earn reasonable returns as themes mature and companies grow their sales and earnings, but changes in valuations won't be as extreme.

In fields utilizing a new technology, it has become harder for public market investors to capture returns associated with the innovation trigger, as the majority of those usually accrue to early venture financiers. This is especially true today as most firms (other than in the biotechnology field) stay private for much longer prior to going public than in the past. When investing in a new technological theme, many public investors risk buying into the "peak of inflated expectations" when valuations are at their most extreme. Consequently, such investors often are faced with substantial losses as short-term expectations around the new technology confront the harsh reality that it can take years – or even decades – for a new technology to reach scale and achieve widespread adoption.

The 1990s tech stock bubble exemplifies Bill Gates' views on the pace of change and the Hype Cycle, as well as the risk of buying into inflated expectations. Investors **rightly** believed that the growth in internet usage and proliferation of computers would give rise to new business models and create immense demand for IT and telecommunications equipment. Despite being correct on the long-term outlook, most investors still ended up losing money. The only investors who made substantial profits were those who bought early and sold their holdings as the technology sector approached peak expectations in the late 1990s, or who had the foresight and nerve to purchase promising firms after the market crash in the early 2000s, and then had the patience to wait for upwards of a decade or longer as companies like Amazon, Microsoft and Apple matured.

To show how risky it can be to allocate capital thematically at the height of investor euphoria, take a look at the below graphic from Credit Suisse on Microsoft's market cap, sales and valuation between 1999-2009.[3]



	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Market Cap ($B)	586.1	230.8	357.9	276.6	295.3	290.7	271.5	291.9	332.1	172.8	268.6
Share Price	$ 58.38	$ 21.69	$ 33.13	$ 25.85	$ 27.37	$ 26.72	$ 26.15	$ 29.86	$ 35.60	$ 19.44	$ 30.48
Sales $mil	19,747	22,956	25,296	28,365	32,187	36,835	39,788	44,282	51,122	60,420	58,437
YoY%		*16.3%*	*10.2%*	*12.1%*	*13.5%*	*14.4%*	*8.0%*	*11.3%*	*15.4%*	*18.2%*	*-3.3%*
Price to Sales	29.7x	10.1x	14.2x	9.8x	9.2x	7.9x	6.8x	6.6x	6.5x	2.9x	4.6x

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As the graphic shows, investors who purchased Microsoft at its peak valuation in 1999 (when it traded at close to 30x its annual sales) and still held onto the stock 10 years later would have suffered a stock price loss of over 50% despite the company growing its sales at a compound annual rate of over 11% during the period, from $19 to $58 billion. In fact, Microsoft didn't eclipse its 1999 stock price until 2016.[4] Today, despite having reached close to $150 billion in annual sales and a $1.5 trillion market cap, Microsoft trades at a third of the valuation it did in 1999 (at 10x trailing annual sales). Clearly, timing matters just as much as having the right idea.

What explains how valuations track expectations and what lessons can investors apply from the Hype Cycle framework? While we haven't conducted or read any empirical studies on this, our intuition is as follows: As an innovative technology or new investment theme emerges and ascends to peak expectations, there is usually more capital willing to invest than there are good ideas to invest in. Hence, valuations reach extreme levels and early investors can reap substantial gains if they sell. As themes decline into a trough of disillusionment, there are usually more quality ideas worthy of investment consideration than there is capital willing to invest. Hence, valuations crash and an entire industry may become fertile grounds for lucrative investments so long as one is patient and – more importantly – correct in their thematic outlook. Then as industries mature, the evolution of a theme reaches a balance with investor capital and the driver of returns shifts from ascending or descending "hype" to industry fundamentals and company operational performance (i.e., company cash flows, sales, earnings).

As we survey the investment landscape today, where can we find potential new technologies or themes that are either close to their inception and about to garner significant investor attention, or that are mostly dismissed as mediocre ideas despite holding longer-term promise? And what areas have such lofty near-term expectations that future share price returns may disappoint? While by no means exhaustive, the below chart contains some of our ideas, along with maturing themes we still like.

<table>
<tr><th>Technologies/Themes
Yet to Reach Peak Expectations
(High Risk/High Reward)</th><th>Technologies/Themes
With Inflated Expectations
(High Risk/Low Reward)</th><th>Technologies/Themes
In Trough of Disillusionment
(Moderate Risk/High Reward)</th></tr>
<tr><td>• Quantum computing
• Artificial intelligence applications
• 5G
• Genetic/precision medicine and synthetic biology (caveats noted in adjacent columns)
• Advanced materials science and manufacturing
• Hydrogen power</td><td>• Work from home and social distancing beneficiaries (e.g., remote work/networking software, at-home fitness)
• Biotechnology firms focused on Covid-19 treatments and CRISPR gene editing
• Electric vehicles and autonomous driving
• Solar and wind energy power generation firms</td><td>• Firms that would benefit from a return to pre-pandemic norms (e.g., commercial office REITs, travel/hospitality)
• Biotechnology firms focused on AAV gene therapies and non-CRISPR gene editing
• 3D printing
• Robotics
• Conventional energy production and nuclear power generation.</td></tr>
<tr><th colspan="3">Maturing Technologies/Themes We Still Like
(Balanced Risk/Reward)</th></tr>
<tr><td colspan="3">● Semiconductors and semiconductor manufacturing ● Electric utility industry growth ● e-Commerce
● Cloud computing ● Online and console-based video-gaming ● Growth of Asian and emerging markets</td></tr>
</table>

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Not all our promising ideas that are close to their infancy or trough will pan out, nor will themes with inflated near-term expectations necessarily suffer a correction. We do think, though, that categorizing ideas based on the Hype Cycle framework is useful in evaluating the potential risks and rewards for thematic-based investing. The benefit of having a long-term investment horizon is that it will often take years for an initial wave of euphoria to propel valuations upwards, or for an unloved theme to re-emerge in popularity with the investment community. Furthermore, once a theme reaches maturity, a long-term horizon allows investors to reap the benefits of compounding returns. As we have discussed, coming up with the right idea is hard enough, let alone timing the allocation right – if you do choose to invest based on themes, at least give yourself the advantage of time.

2. Correctly positioning for a paradigm shift in valuations

Investors who can identify and then allocate to industries or companies they believe are undervalued stand to earn substantial gains if they are ultimately correct that the market will reward their holdings with a higher valuation in the future. This requires a keen ability to identify mis-valued asset classes and the patience to wait for a valuation paradigm shift, which can take years. Thus, a long-term approach is often necessary.

The most frequent occurrences of valuation paradigm shifts happen when an industry or company with a history of cyclicality in its sales and earnings evolves into a more consistent performer with less volatility in industry dynamics or company operations. Take for example the semiconductor industry. For the past few decades companies often had trouble matching supply with customer demand. During periods of increasing demand, semiconductor firms enjoyed pricing power (and with that higher sales and earnings) but would be incentivized to build out additional manufacturing capacity to meet the rising demand. When demand slowed down – which it always did – the industry would be left with a glut of chip inventory and idle manufacturing capacity. This crushed pricing power and margins, and would result in lower sales and earnings. As customer demand recovered, the cycle would repeat.

The semiconductor industry was not unique in its cyclicality. Many industries are prone to the same cyclical forces – particularly ones that produce commoditized products, where barriers to competitive entry are low provided a company has the capital to get operations up and running. What has made the semiconductor industry unique is that it has in the last decade largely escaped its cyclical past and now produces extremely specialized products with consistent demand growth, as chips today are used in vastly expanded applications and devices (not just computers). The result has been that the industry has steadily achieved an increase in valuations over the last decade. The widely-followed Philadelphia Stock Exchange Semiconductor Index – which is a capitalization-weighted index comprised of companies that are involved in the design, distribution, manufacturing, and sale of semiconductors – has seen its price to earnings ratio double from 15 to 30, and its price to sales ratio more than double from 2.5 to 5.75. Consistent performance has shed the industry reputation for mismanagement and, with it, low valuations. Long-term investors who had the foresight to envision an improved fundamental outlook for the industry, and sat tight through years of volatility, have in the past few years enjoyed considerable returns.

Switching over to a company example – and one that has benefitted many of our portfolios – Apple's evolution in investor perception from a cyclical hardware firm to one that produces reliable recurring revenue has resulted in a substantial revaluation of the company. We – and many others – have argued for years that the iPhone was more than just a commoditized device. By tightly integrating the iOS software with its hardware (including proprietary chip technology), Apple has created a lock-in effect for its close to now 1 billion users. When your entire digital life centers on Apple's iOS platform, you are unlikely to switch devices.

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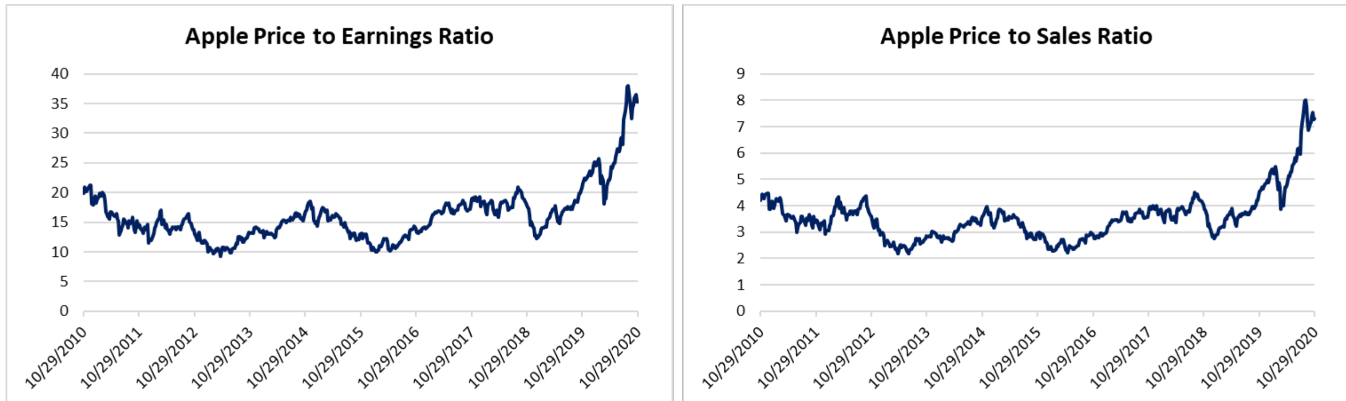
Over time, Apple has expanded its sales opportunities with the introduction of new products and – importantly for its valuation narrative change – services (such as music, storage and most notably App Store revenue). The concern that Apple users would migrate to lower cost devices has proven incorrect. Whether iPhone, iPad or Mac owners upgrade devices every 2 or 4 years, when dealing with a loyal user base approaching 1 billion, the upgrade frequency loses its importance for valuation purposes. As shown below Apple's price to earnings and price to sales ratios have broken out of their middling range over the last decade to levels that better reflect its premium business fundamentals relative to peer firms. Investors needed to hold Apple's stock for years (and through bouts of significant volatility) to benefit from the company's paradigm shift in valuation, but once perceptions began changing the rewards to long-term investors proved to be worth the wait.



Source: Bloomberg

While we don't have a specific cyclical industry or company in mind that we think could benefit from a revaluation upwards, we are always on the lookout. It's possible homebuilder and home furnishing companies could be maturing into a phase of reliable operational results, but we're not sure yet whether they are enjoying a one-time benefit due to the Covid pandemic or if the trends of millennial household formation, moving to the suburbs and spending more time at home have much longer legs. Companies shifting their sales models from transaction-based to subscription-based also are worth considering (as investors typically ascribe higher valuations to companies with predictable, or recurring, revenues); however, at the moment we don't have a particular investment candidate. In any event, we think it is worthwhile to continuously scrutinize industries or companies that suffer from a perceived unsteadiness of their business but that may be evolving into steady performers. In such cases, long-term investors can usually reap meaningful returns.

3. <u>At an individual stock or industry level, accurately forecasting the evolution of business fundamentals</u>

The final factor that can help long-term investors achieve an enduring competitive edge is – in our opinion – the most difficult to master. Forecasting fundamental business operations typically requires specialized knowledge of a certain industry or company. Furthermore, markets tend to be efficient in pricing-in consensus investor expectations. Long-term investors focused on business fundamentals generate the greatest returns when they make allocation decisions based on a non-consensus view that proves right over time. Typically, this means having a

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contrarian opinion on the size of an addressable market opportunity, the significance of a developing technology or the future sales and profitability potential of a specific firm.

There are many examples you can probably think of where the consensus view on an industry or company's potential proved to be too conservative relative to the eventual market opportunity. For example, few investors probably foresaw Apple dominating the high-end smartphone market when the company first introduced the iPhone in 2007. Blackberry and then Samsung were at times considered to be formidable and unassailable competitors. As recent as five years ago, the consensus still severely underestimated the size and growth rate of the cloud computing market, as well as the opportunities that cloud computing would present for Amazon and Microsoft. Similarly, the idea that renewable energy would rapidly take market share faced considerable skepticism up until the last year or so. Now, firms in the space have surged in share price as investors begin to appreciate the scope of the global opportunity (note that while we still like these investments, we think near-term expectations for industry growth and company performance are reaching a risky level of exuberance).

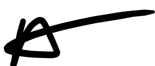
We could go on with examples at great length. The key point is that having an informed non-consensus view can be a source of investment outperformance over an extended timeframe; **provided**, however, that one is correct in their contrarian assessment. It's not hard to form a contrarian view. It's exceptionally hard, though, to be right about it. Doing so typically requires advanced knowledge about a particular industry or company. Even then, industry experts are often wrong in their prognostications. Additionally, investors who have a contrarian investment style need to be comfortable with often feeling wrong and receiving ridicule for many years before finally seeing their views evolve into the consensus (or sometimes just proving to be incorrect). We are proponents of fundamental analysis and forecasting – after all, it is our job to follow markets and the investments we recommend. Still, we want to emphasize that this investment style requires patience and a long-term investment horizon.

* * * * *

The next time in the coming weeks that someone asks you how you think the election will impact markets and your investments, feel free to answer! But please remember that as significant an event that this election may be, its long-term impact on markets and your portfolio is unlikely to be as consequential. The factors that matter for your long-term performance have little to do with politics and much to do with correctly positioning for underappreciated trends. At the end of the day, identifying emerging themes and mis-valued industries or forecasting business operations is all educated guesswork. Accordingly, we encourage you to use diversification and time to your advantage. The longer one's investment horizon, the more one should focus not on what will drive markets tomorrow, but what will be important 5-10 years from now.

As always, please reach out with any questions or concerns. We are happy to further discuss the themes in this letter, your portfolio and/or any specific investment opportunities. We hope you and your families stay safe and can remain stress free through what will likely be an eventful few days and weeks.

Sincerely,



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Citations and Disclosures

[1] Bill Gates, *The Road Ahead* (1996) (see: https://abcnews.go.com/Technology/PCWorld/story?id=5214635).
[2] Gartner Hype Cycle (see: https://www.gartner.com/en/research/methodologies/gartner-hype-cycle).
[3] Credit Suisse, *HOLT® Global Market Overview – October 2020* (Oct. 2020).
[4] Bloomberg. All financial data cited herein is sourced from Bloomberg unless otherwise stated.

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