CRYSTAL WATERS PARTNERS

Market Outlook

January 2021

Going Deeper on Deep Learning

The market is at an all-time high, and growth will be harder and harder to find from the broader market. In an environment where many companies' share prices have risen on the collective back of the market and may begin to plateau, picking individual equities with their own unique catalysts for growth and relying less on market momentum has never been more critical.

Market Moves

We continue to see the best investment opportunities in Healthcare, Biotech, and Technology companies during the current global pandemic. Technology has grown within the portfolio and is now equally weighted with our healthcare positions. This rebalancing was both opportunistic and a function of risk management. Careful selection of long-term winners will prove critical in the healthcare/biotech sector, as will cautiously weighting, as these are highly volatile stocks.

Despite many of the uncertainties in the economy right now, the market's general direction is favorable. However, our cash position remains strong as we anticipate lots of volatility in the first half of 2021, and we will continue to add positions where we see the most long-term value.

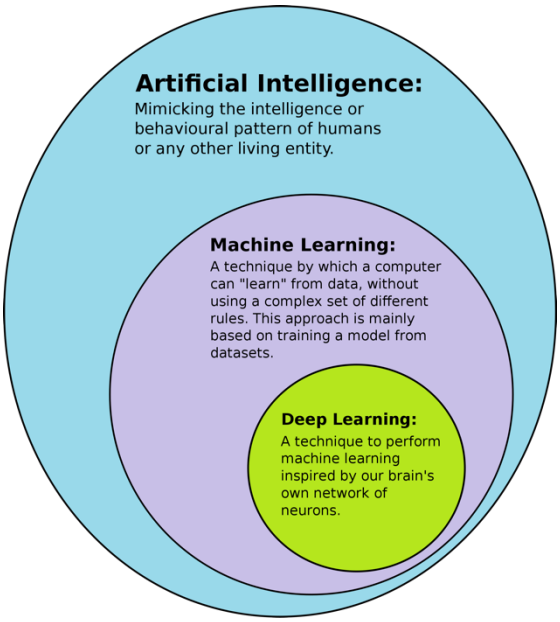
Deep Learning

- **What is Deep Learning?**
- **Where is Deep Learning Used?**
- **How we're investing in Deep Learning?**

What Is Deep Learning?

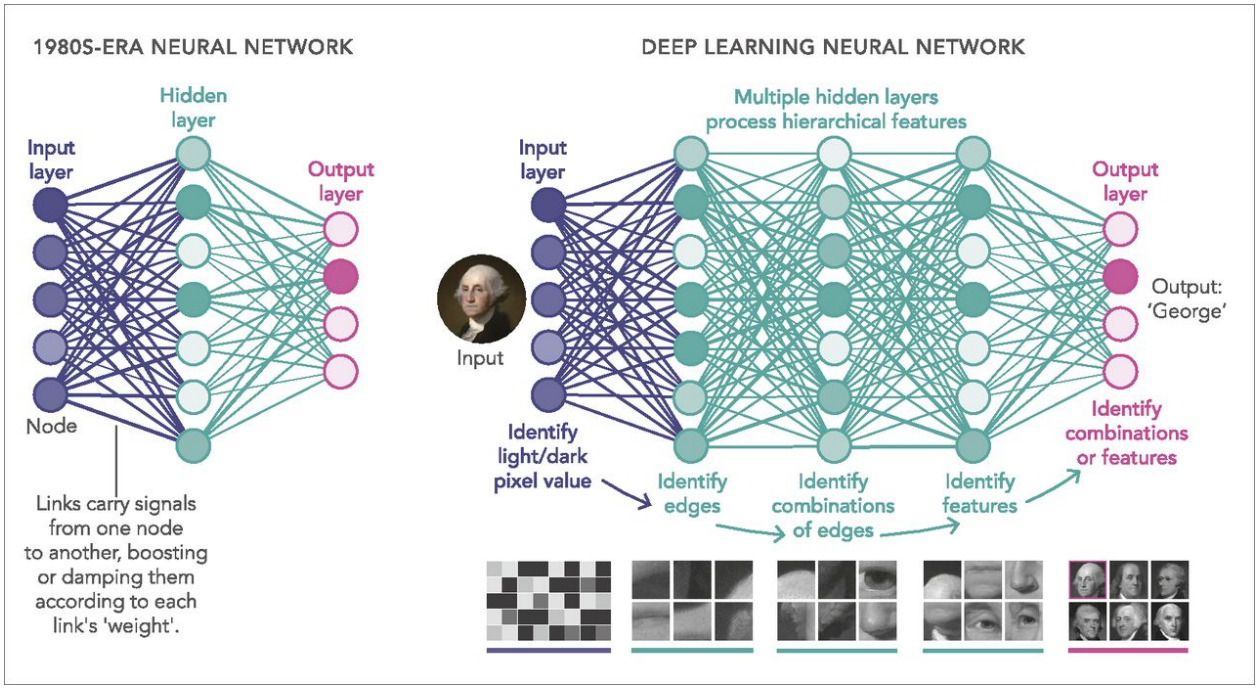
As companies increasingly automate and move their businesses online, deep Learning becomes critical to scale and grow.

Deep Learning is a machine learning technique that teaches computers to do what comes naturally to humans: learn by example. In Deep Learning, a computer model learns to perform classification tasks directly from images, text, or sound. Deep Learning models can achieve state-of-the-art accuracy, sometimes exceeding human-level performance. These models are trained by using a large set of labeled data and neural network architectures that contain many layers.



Deep Learning is a specialized form of machine learning. A machine learning workflow starts with relevant features manually extracted from images. The features create a model that categorizes the objects in the image. With a deep learning workflow, relevant features are automatically extracted from images. Deep Learning performs "end-to-end learning" – where a network receives raw data and a task to perform, such as classification, and it learns how to do this automatically.

A key advantage of deep learning networks is that they often continue to improve as the data set size increases. This ability to scale is critical to almost every emerging technology. The ability to scale exponentially is because a human being is not required to perform manual classifications of data. Consider the following example where a picture of George Washington is the data input. A Deep Learning model will break the image into individual pixels and then classify each pixel (edge, combinations of edges, other features). Then every data point is cross-referenced with every other data point to get a result. To obtain greater accuracy, the model employs more hidden layers to process features. If the model is an autonomous car analyzing trees, pedestrians, road signs, and other vehicles, the speed and ability to scale data sets is critical.

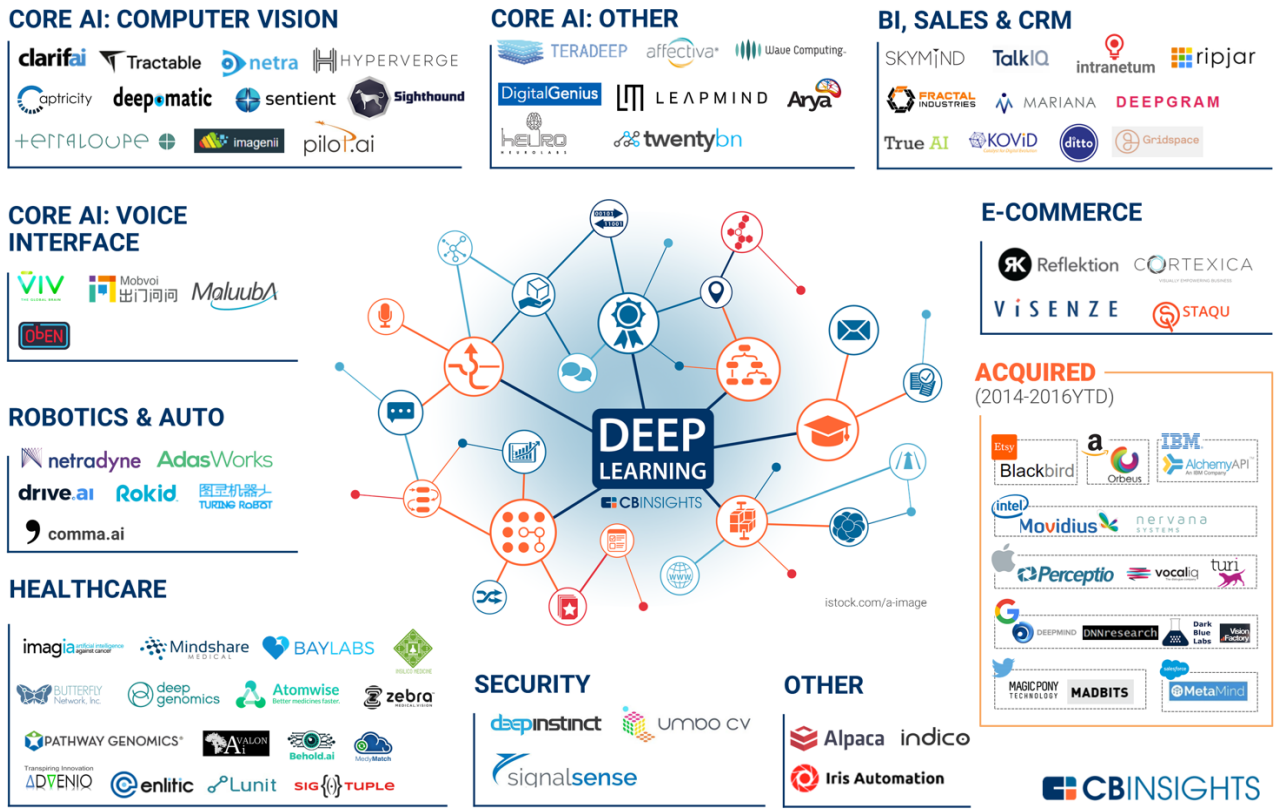


Where Is Deep Learning Used?

Deep Learning has found applications in many industries. The way to think about possible applications is to look anywhere that a high degree of accuracy and classifying large amounts of data are required. In our everyday lives, deep Learning is appearing in applications on Netflix and Google Translate. Many companies are investing in Deep Learning, Machine Learning, and Artificial Intelligence, below is a partial list.

The introduction of more advanced machine learning algorithms allows Netflix to achieve new levels of prediction and personalization in rankings, layout, catalog, new member onboarding, and more. Tony Jebara, Director at Netflix and Professor of Computer Science at Columbia, explained at REWORK's Deep Learning Summit in San Francisco how Netflix not only recommends better movies but predicts better thumbnail images for each user.

In its initial form, Google Translate leveraged a statistical method called phrase-based machine translation (PBMT), which breaks sentences into words and phrases to translate separately. However, PBMT methods often produce grammatically clunky sentences, especially if the input and output languages differ dramatically in their structure, such as Chinese to English. The new GNMT (Google Neural Machine Translation) system uses RNNs (recurrent neural networks) to map entire input sentences in one language to an output sentence in another language. GNMT reduces code complexity while maintaining speed and improving performance. In some cases, such as French to English, the GNMT architecture is closing in on human translators.



Automotive researchers are using Deep Learning to detect objects such as stop signs and traffic lights automatically. Deep Learning is also used to detect pedestrians, which helps decrease accidents. Deep Learning is used to identify objects from satellites that locate areas of interest and identify safe or unsafe zones for troops. Cancer researchers are using Deep Learning to detect cancer cells automatically. At UCLA, teams built an advanced microscope that yields a high-dimensional data set used to train a deep learning application to identify cancer cells accurately. Deep Learning helps improve worker safety around heavy machinery by automatically detecting when people or objects are within an unsafe distance of machines. Deep Learning assists in automated hearing and speech translation. For example, home assistance devices that respond to your voice can be powered by deep learning applications to know your preferences. Social media sites and news agencies can use Deep Learning to identify fake news or simply allow users to filter

out the bad and ugly from the information they want to read. Speech disorders, autism, and developmental disorders can deny a good quality of life to children suffering from any of these problems. Early diagnosis and treatment can have a tremendous effect on children's physical, mental, and emotional health.

How we're investing in Deep Learning?

Some of the most disruptive and fastest-growing companies rely heavily on Deep Learning. It gives companies the ability to automate and scale, to make more decisions faster, enabling things we previously didn't think were possible. Done correctly, Deep Learning gives companies an edge to outgrow competitors for market share, which in large markets over time result in exponentially higher growth and investment returns.

As Crystal Waters Partners evaluate disruptive companies and their ability to transform industries, Deep Learning is a crucial screening criterion that has identified several big winners.

The list is long, but examples include CrowdStrike, which uses DL to identify and isolate cybersecurity threats. Tesla uses DL for factory automation and safe autonomous driving. For Enphase Energy, optimization algorithms in Deep Learning models optimize large scale energy systems and assess energy grid disturbances. NVIDIA uses the power of Deep Learning to rapidly train Deep Neural Networks (DNNs) for image classification, segmentation, and object detection tasks, reducing tasks that take hours or days to a few seconds. And, of course, there is Amazon. Amazon is one of the most prolific users and distributors of Deep Learning technology, from the Alexa voice recognition device to its retail website's recommendations. Engineers using Amazon Web Services can also use DL in other speech applications they are building to determine what is said without having to develop that complex ability from scratch.

Other disruptive companies, such as ROKU, Regeneron, Crisper Therapeutics, Square, Invitae, Teledoc, Zillow Group, Spotify, and Docusign, were all early adopters of Deep Learning models. They all used DL to acquire and service their customers; as a result, they significantly outpaced all their competitors.

Achieving consistent growth is challenging, whether you are investing or operating a company. Crystal Waters Partners are looking for companies that are disrupting existing industries or executing better than others in their current market – or both. Deep Learning has made the gap between high-growth and average growth much more significant. We have a strong bias towards companies that leverage DL earlier and more extensively than others. As investors in CWP, over the years, you should begin to see a pattern.

Economic Outlook

Forecast

From a macro-view, not much has changed in our view; we are still in the early stages of a new bull market and period of economic expansion that will likely last for 3 to 4 years. The expansion continues to be driven by low-interest rates, low inflation, historic federal liquidity, and all-time highs in money sitting on the sidelines. In our annual letter, we discussed our view of the market in 2021 and set a $170 year-end earnings target for the S&P 500 or 4,420 by year-end, but in light of current earnings, we may have been overly conservative and may need to raise our price target.

S&P 500 fourth-quarter earnings season is underway (though data is limited as only a small fraction of companies have reported), with 83.3% of companies reporting a positive EPS surprise. For the fourth quarter, earnings are up roughly 4.9% year over year vs. expectations for an overall 1.4% decline throughout the season. Revenues for the S&P 500 are up 1.7% vs. expectations throughout the season for a 0.2% increase; 83.3% of companies beat EPS expectations, 13.2% missed the mark, and 3.5% were in line with consensus. The best performing sectors have been Information Technology, Financials, and Healthcare, while the worst performing has been Consumer Discretionary, Utilities, and Real Estate.

Markets

Our traditional metrics tell us that we are currently in an overvalued market but not necessarily at a euphoric top. That last point makes us look more in-depth at valuations. For a bull market to continue over long periods, we need to see real earnings improvement, and as noted above, we have that. The long term, interest rate adjusted S&P 500 Price/Earnings multiple is 26. The current multiple is about 35. For comparison, the P/E's all-time high was 44.19 in 2000, just before the DOT COM crash; and in 2009, at the bottom of the financial crisis, it was 15. That historical perspective is instructive, but it doesn't tell us the whole story. Adjusting the market's P/E for interest rates is just one gauge in the valuation dashboard. The next gauge to look at is cash; specifically, is there cash to invest? Yes, there is a record $5 trillion in cash accounts. The third gauge to check is the Inflows/Outflows gauge. Inflows/Outflow is merely looking at the liquidity in the market and where investors are putting their money. Since 2018 the NET liquidation of ETFs and mutual funds (that's equities) of $350 Billion, ex-share repurchases. Fixed income NET inflows since 2018 have been $900 billion, or a $1.2 Trillion gap. This third gauge is telling us that investors are underweight stocks and overweight cash and bonds. Some companies' overvaluation has inflated the bond prices for those companies, artificially bailing out those bond investors. When the third gauge, NET Inflow & Outflows, inverts, we'll know that we're in a stock market bubble. For now, we're in a bond market bubble.

Disaster Relief

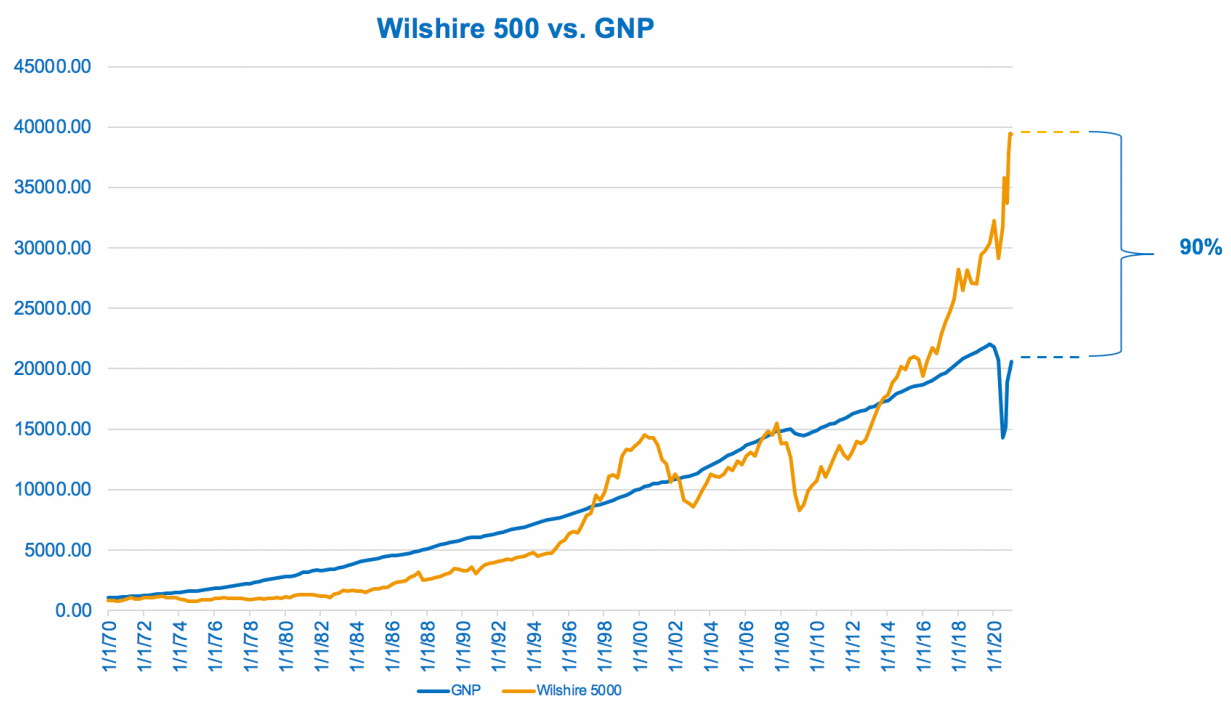
President Biden has proposed a $1.9 trillion package of pandemic relief, and The Federal government is still sitting on tens of billions of dollars from the last bill. Incoming Treasury Secretary Janet Yellen (former Federal Reserve Chair) has stated that the U.S. can return to full employment in 2022 if this relief bill is approved. With long-term unemployment near historically peak levels and 40% of unemployed out of work for at least six months, the time is critical for Congress to take action. Larry Summers, the former economic adviser to President Obama, has stated his concerns that more stimulus poses an excellent risk for runaway inflation. Nobody knows how much money it will take to fix the problem or the impacts on inflation. We know that inflation is a far smaller risk than allowing 9 million people to remain unemployed. Furthermore, the Fed and Treasury have tools to deal with inflation. Yellen's concern is that failing to act quickly with a significant relief package will allow unemployment to remain high for years. Our view is that unemployment wouldn't get back down to the 4% level until 2025.

The greater concern we have concerning the relief bill is not the amount of money, or when it will be approved, or who the money gets distributed to, but can the money be distributed efficiently and totally.

Market Valuation

January was a mixed bag for equities as a whole, as the S&P 500 and Dow Jones Industrial Average lost **-1.02% and -2.10%**, respectively, while the Russell 2000 gained **+5.01%,** and the technology-heavy NASDAQ gained **+0.87%.** The end of the month saw a sharp decline across all indexes and showed that while the broader economy continues to rebound, market valuations are very high, and some investors expect a correction. Nominal values for the market are indeed at historic highs, but making direct historical comparisons is tricky since there are key economic differences, and markets will likely go higher from here.

The case for the market getting ahead of itself is pretty straight forward. Even though the US GNP has seen an excellent recovery and will likely continue to grow as the COVID-19 vaccine becomes more widely available, market gains continue to grow faster than the economy and remain in overvalued territory. The Wilshire 5000 is now **90%** higher than the US GNP, which compares to a **97%** divergence last month, so while a slight improvement, at first glance, we are indeed in overvalued territory.

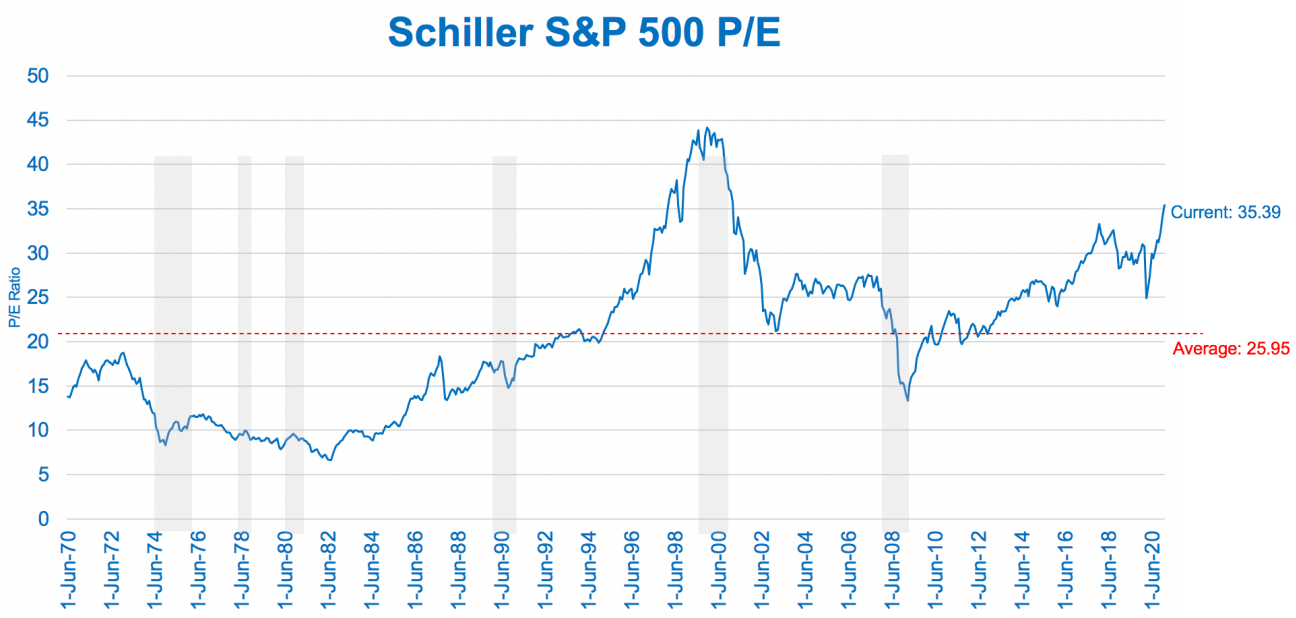


That said, we continue to believe markets will remain elevated until we see higher inflation, higher interest rates, a reduction or complete halt in Federal Government stimulus, or disappointing corporate earnings growth. The FOMC members reiterated in December they would hold rates near zero until the labor market reaches maximum employment, inflation surpasses 2%, and the economy shows it is on track to moderately exceed that goal for some time. These events are likely 3-4-years away, and the low rates will help keep markets at somewhat elevated levels. However,

with a built-in valuation buffer, any economic hiccup is likely to cause more panic than otherwise, and we expect to see several corrections.

Low inflation and low-interest rates both warrant a premium on equity prices, and we have been maintaining that the current financial environment, as well as rising earnings, justify a lot of the rise in equities.

The Shiller P/E Ratio adjusts earnings for inflation and interest rates, which allows us to better compare earnings over periods with differing interest and inflation rates. Since March last year, the ratio has been moving above the historical average of ~26x and is now at 35, over 30% above the average.



Either earnings need to grow faster than equity markets, or we will see a correction, perhaps slightly more significant than what we had at the end of January. We would be happy with a bit of both, but investors should expect earnings to significantly increase in 2021 as more of the economy opens up. Until then, we remain cautious about the broader market and see the current environment as best suited for stock pickers. In this environment, the selection of specific equities becomes increasingly more critical for investors.

Our broader view is that corporate earnings will increase in 2021 and 2022, and at least $1 trillion of the $5 trillion currently on the sidelines in retail and commercial brokerage accounts will come back into equities. As money flows into stocks and earnings improve, we will see the market multiple compress.

What Excites Us

Economy Reopening

Many of the fund's positions stand to benefit as the economy reopens. While we are thrilled with the short-term growth, we remain focused on the tremendous growth ahead as our major themes continue to unfold. With 70% of the economy dependent on consumer spending, reopening is an essential catalyst for growth.

Growth at Reasonable Prices

Technology stocks in cloud software and semi-conductor spaces have pushed those stocks to astronomical levels. We see tremendous opportunity in several positions where our downside risk is minimal, and the upside could be tremendous. Our investment in these companies is equivalent to owning private equity traded on the public exchanges. We hope that we can deliver private-equity size returns from some of these holdings.

Amount of Money Still on the Sidelines

Many investors are still sitting out in the current market. Last month there was $4.6 to $4.8 Trillion sitting in cash accounts. In November, we see about $5 trillion. This is over 30% more than the 10-year historical average, and for many institutional investors, earning 1% or less on cash isn't a long-term option. Investors are rightfully careful, but with low-interest rates and GDP on the mend, this cash will be invested to the benefit of current investors who are already fully invested.

What Keeps Us Up at Night

Politics

Joe Biden has been quickly working on vaccine distribution, manufacturing, and getting a relief bill passed. One initiative is a national $15/hour minimum wage, or $30,000/year gross. The non-partisan Congressional Budget Office estimates that this will cause a loss of 1.4 million jobs. Unions tested the $15/min wage with grocery chains, and the response from store owners was how many stores would be closed and how shifts would be reduced overall.

Federal Stimulus

Amid a GDP contraction, U.S. disposable income has risen substantially, primarily due to Federal stimulus. The extra money has supported the continued buying of products and services from businesses but also equities. Congress has passed a second relief bill, and some portion found its way into the stock market. With a third relief bill in the works and an additional $1 trillion to $1.9 trillion on the way, U.S. markets will experience unprecedented inflows to stocks, bonds, retail purchases, and travel. The big question is, can the government distribute that much money?

COVID-19 Vaccines Hype

With two vaccines approved and distribution underway, our concern has migrated from worrying about getting a vaccine developed to worrying about how many people will take the vaccine. The Federal Government, individual states, and the pharmaceutical industry have done, in our opinion, a poor job of communicating why we were able to develop a vaccine as quickly as we did, which breeds skepticism. Outwardly it looks like we cut corners when in reality, it's due to new technology. Will the skepticism translate into people being unwilling to take the vaccine?