Covid-19 Update

Chief Investment Office PWM | 20 April, 2020
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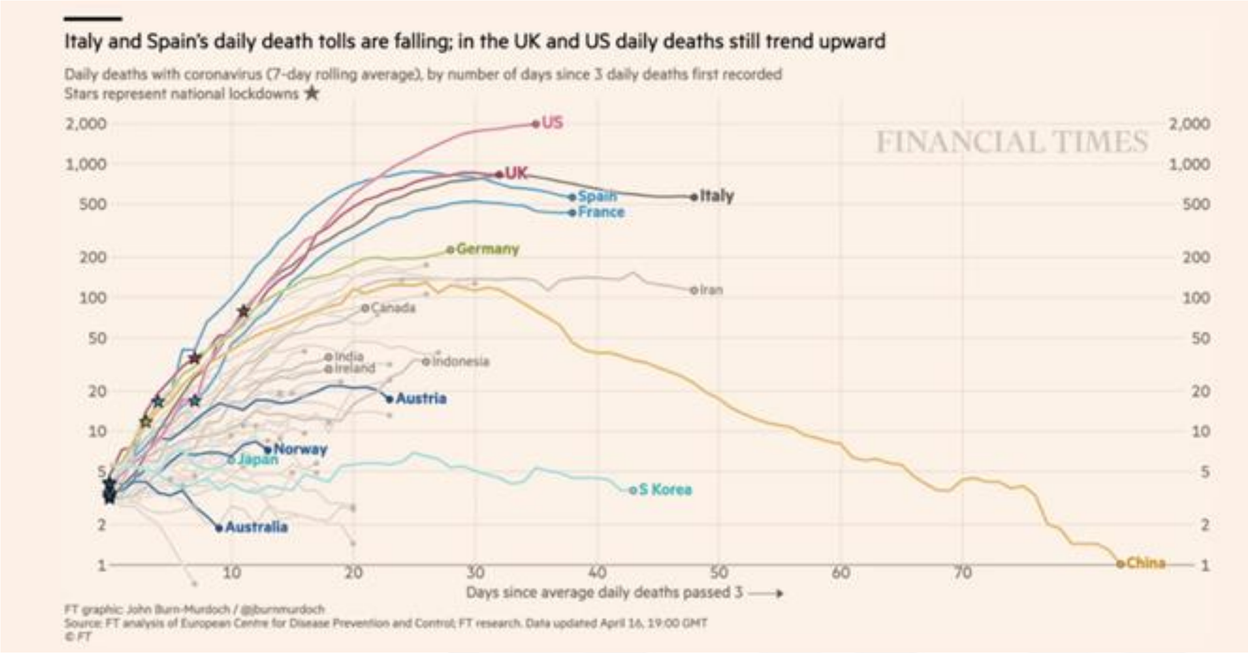
Last week the news was bad and the market was up. This week the news got better and the market was up again! There are two things that really stand out to us. The first is the global progression of the disease, which is depicted graphically below. We note that this graph is measuring COVID deaths, which is a lagging indicator. The implication of this chart is that the number of infections is leveling off in many places and in some cases declining. This isn't over, but we are progressing in the right direction.



The other bit of good news was some positive results from a small study of the Gilead drug remdesivir for treating COVID. The study is somewhat lacking in scientific rigor, as evidenced by a Gilead statement that said:

> **"Anecdotal reports, while encouraging, do not provide the statistical power necessary to determine the safety and efficacy profile of remdesivir as a treatment for Covid-19.** We expect the data from our Phase 3 study in patients with severe Covid-19 infection **to be available at the end of this month**, and additional data from other studies to become available in May."

Despite the caveat from Gilead, the market grabbed onto the data and at least for now, is choosing to believe.

COVID in the News

The COVID situation in New York is calming down just a bit. The good news is that the worst-case scenarios outlined weeks ago failed to materialize. Our collective action to flatten the curve has clearly helped, but the characteristics of this virus, which we are defining better every day, could also be playing a role. Nonetheless, good news is good news and we learn more every day.

This week there has been more and more chatter about the need for testing and vaccines in the fight against COVID-19. (Here is a list of drugs and vaccines in development for COVID.) We've heard arguments that testing is most important and others that argue a vaccine is most important. Who is right? The simple answer is both are right. When analyzing infectious diseases, there is one thing that is highly protective of the population – herd immunity. This occurs when a large enough portion of a population has become immune to an infection thereby providing some protection for the remaining population who are not immune.

In the old days, there was only one way to reach herd immunity – a significant portion of the population had to actually get the disease. Now we have another way - vaccines. The point is that when we hear talk of testing vs. vaccines, we are really talking about the same thing. How do we reach herd immunity? Broad testing tells us how many are actually immune because they have contracted the disease and therefore have antibodies to protect them, and vaccinations add to that total. The faster we get to the herd immunity level, the faster we can recover and get back to some semblance of normalcy.

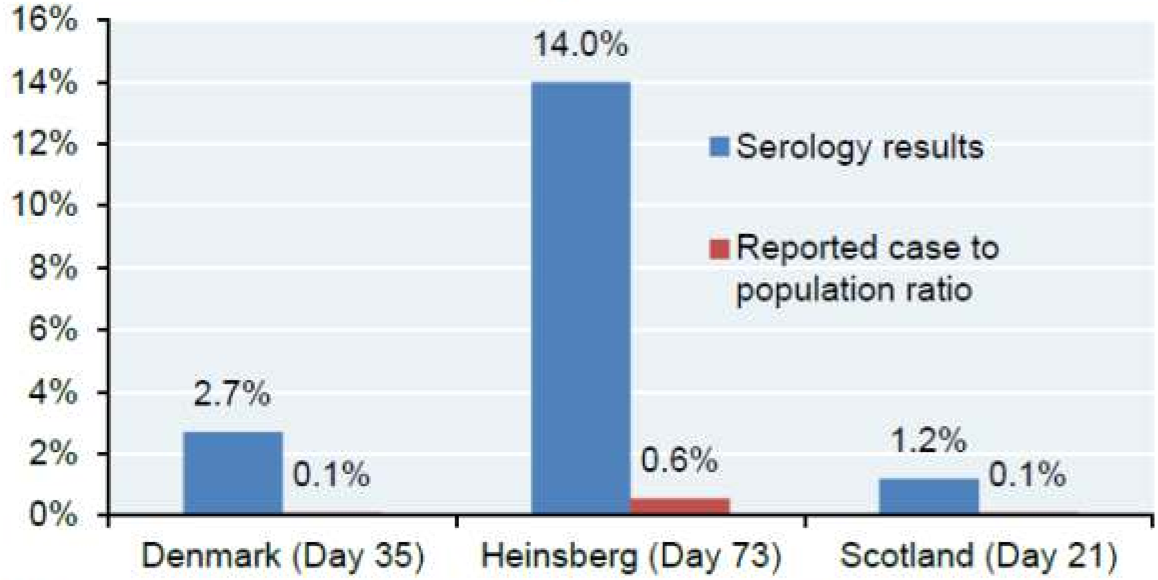
The question is, what percentage is large enough? That depends on how contagious the disease is. This is measured by the reproductive number or R_0 (R naught). An article in Scientific American discusses R_0 as "the average number of people that an infected individual will infect while he or she is contagious, assuming that everyone in the population is susceptible to the disease. It's a quick way to describe how likely it is for a disease to spread through a population. The basic use is as a threshold: if the R_0 of a disease is greater than 1, then the disease is likely to become an epidemic. If it's less than 1, the disease will die out. For measles, the number is much larger: between 12 and 18."

We are still learning about COVID-19, but a recent JPMorgan report estimates that the R_0 of COVID at 2.5, which would imply that a herd immunity level of 60% could be sufficient to control the outbreak. By comparison, measles has an R_0 of between 12 and 18, and therefore the level needed for herd immunity to measles is something like 95%. This is important because one of the important things we have learned about COVID-19 is the fact that there are a large number of unreported infections due to people who couldn't get tested, only had mild symptoms, or were asymptomatic, which simply means they had no symptoms at all.

That is a little bit scary as these asymptomatic people are the 'silent spreaders' of the disease, but the silver lining is that they have acquired immunity, i.e. COVID antibodies. As a result, we may be closer to herd immunity than we realize. The same JPMorgan report provided the following data on tests being conducted in Europe. What the chart below shows is the percentage of population that has been reported as a COVID case and the percentage that was later tested as positive. In the case of Heinsberg (a town in Germany), the number of reported cases is 0.6% of the population, but 14% of the population has tested positive! That implies that large numbers were asymptomatic.

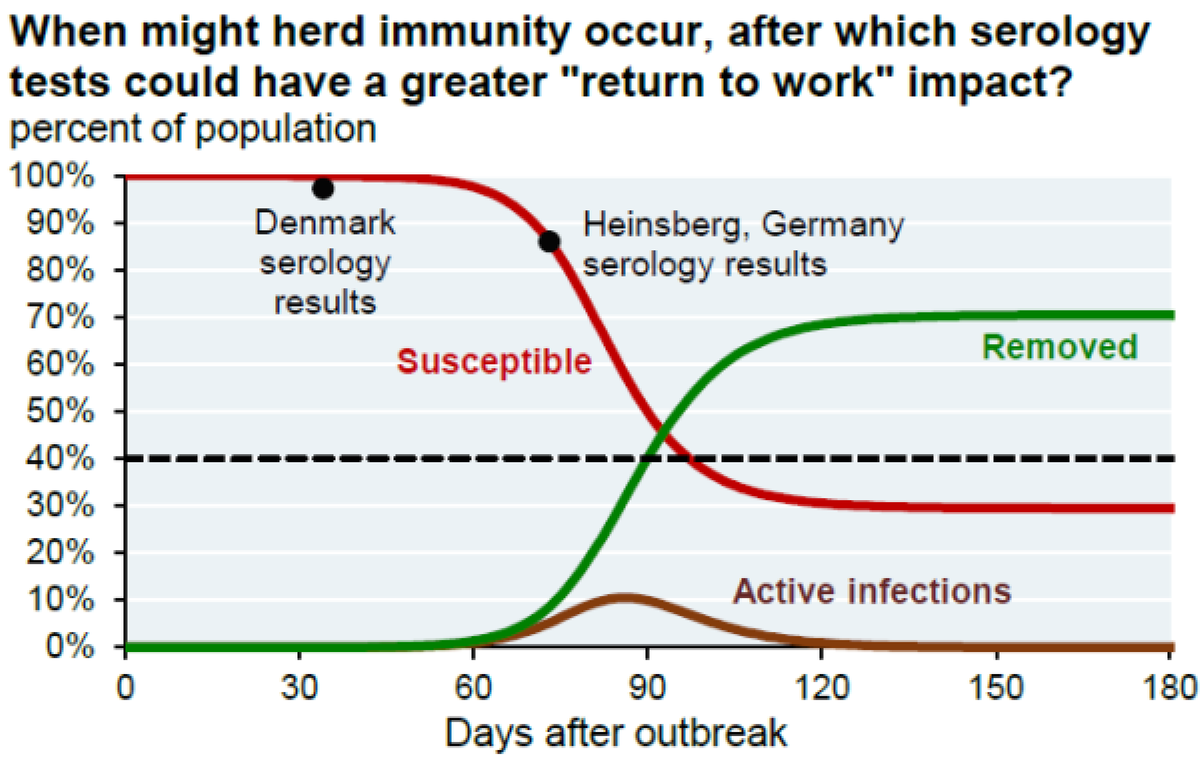
Denmark is earlier on the curve than Heinsberg, but they are already showing similar results. The implication is that we could be reaching herd immunity much faster than we ever expected because there are so many that have been infected, but are asymptomatic.

How widespread is COVID-19? Serology test results vs reported cases as a % of population



Source:Bonn University Medical Center, Rigshospitalet (Copenhagen), Evolutionary Ecology of Infectious Disease (UK), JHU. April 2020.

If 60% is required for herd immunity, that seems very far away, but don't forget the progression of the disease is exponential, not linear. In other words, as it spreads faster and faster, we reach herd immunity faster. The next chart is again taken from the JPMorgan report and I will allow the author to explain.



Source:Bonn University Medical Center, Rigshospitalet (Copenhagen). 2020.

"Antibody presence of 2.7% (Denmark) and 14% (Heinsberg) might seem small, and it would be if viruses evolved linearly. But viruses only attack susceptible hosts, and as they progress, the susceptible population shrinks. An epidemiologist contact at the University of Toronto was pleased to see the Denmark and Heinsberg results, and suggested we look at them through the lens of our "SIR"[1] model to see why, using serology results as a better measure of "true" infection rates. Here's what we found: herd immunity, estimated as 60% population exposure[2], might be closer than you think. Following each serological observation along the red curve to the dotted line in the 2nd chart, much greater levels of immunity could be one month away in Heinsberg, and two months away in Denmark."

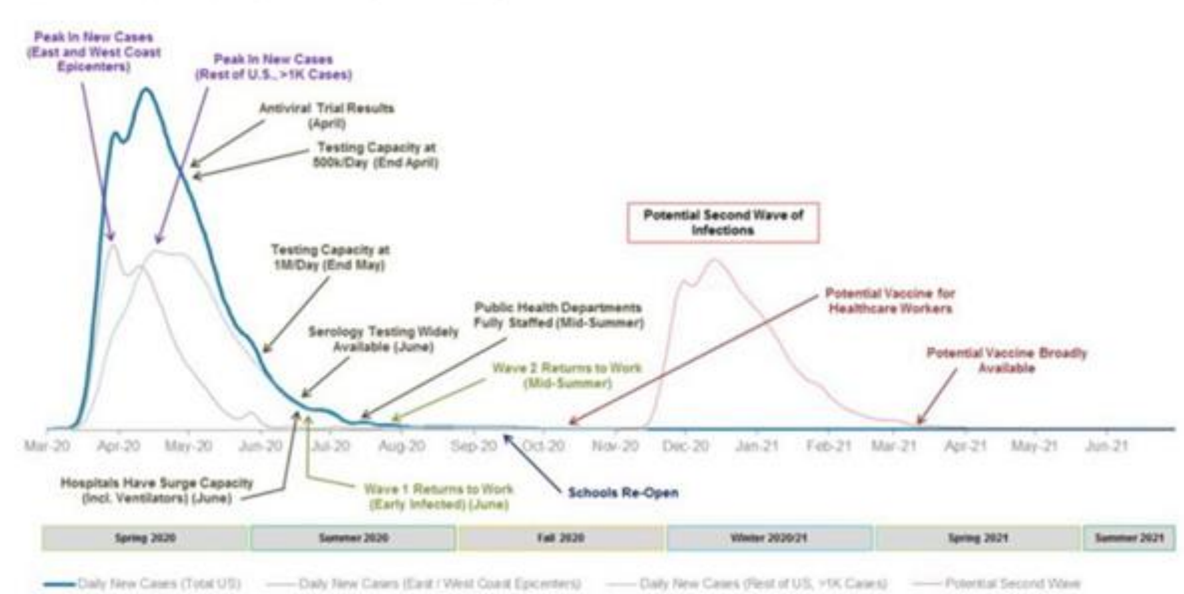
[1] **"SIR" models** are used to track the distribution of a population exposed to a virus over time into three categories: "susceptible", "infected" and "removed" (recovered or deceased). The susceptible population declines rapidly once the pool of potential hosts migrates into the removed category. However, the susceptible population does not decline to zero since immune individuals act as "fire-breaks" who buffer susceptible individuals from infection.

[2] **Herd immunity requires at least 60% exposure since** the effective reproductive number must fall below 1.0x. Assuming an initial reproductive number of 2.5, that would require a 60% decline in the susceptible population.

To us, that is very encouraging. We don't have enough data to draw firm conclusions yet, but the initial data looks very promising. On the vaccine front, if you have been listening to the news, we could be a year or more away from a vaccine. Although that is a common theme, our research implies that we could have a vaccine much sooner. What prompted our conclusion was a chart in a Morgan Stanley report, which is shown below. We found this chart to be very helpful in visualizing how we can get back to normal as well as what can possibly go wrong, specifically the possible second wave of infections this winter.

Exhibit 1: Projected timeline and milestones for a return to work in the US

Actual/Estimated New Case Count (United States, Non-Cumulative)



Source: Morgan Stanley Research

What we noted was that Morgan Stanley viewed the possibility of a vaccine in limited availability (probably for healthcare workers only) by the Fall of this year. That is much faster than mainstream discussions of vaccines. We used some of our sources to test the Morgan Stanley theory and again came away very encouraged that vaccines could be available sooner than currently projected.

Vaccines are difficult to develop and even more difficult to manufacture at scale. Without detailing the entire process, suffice it to say that vaccines are a long, tedious process that is made longer by regulatory red tape. Over the last several years, companies have been working on alternative manufacturing techniques that are much faster and they have ramped up those efforts to address COVD in a race to be first to market. Combine that with a minimization of red tape due to the extraordinary circumstances and you have the potential for a much quicker time line to a vaccine.

There are still plenty of things that can go wrong and there are no guarantees, but we are encouraged by the progression of the science around COVID-19 and we believe that is supportive of the equity rally we have seen of late, although maybe not the cause.

Don't Fight the Fed

Don't Fight the Fed is an old Wall Street adage and it has become an adage because the Fed can make things happen whether you think they should happen or not, so it is useless to fight them. That adage was around back in the days when the Fed led markets, not the other way around. Today, when markets act up, it is the Fed that reacts, just as they have done in the last few weeks. For someone in the business for a long time, that reversal is still something a bit difficult to comprehend, yet the condition is undeniable and over the years we have given it names that have changed from time to time. Today it is more generic – The Fed Put.

As this is getting more attention in business media (and we believe the main reason for the stock market rally) we thought it would be helpful to provide some perspective about what the Fed Put is and what it means.

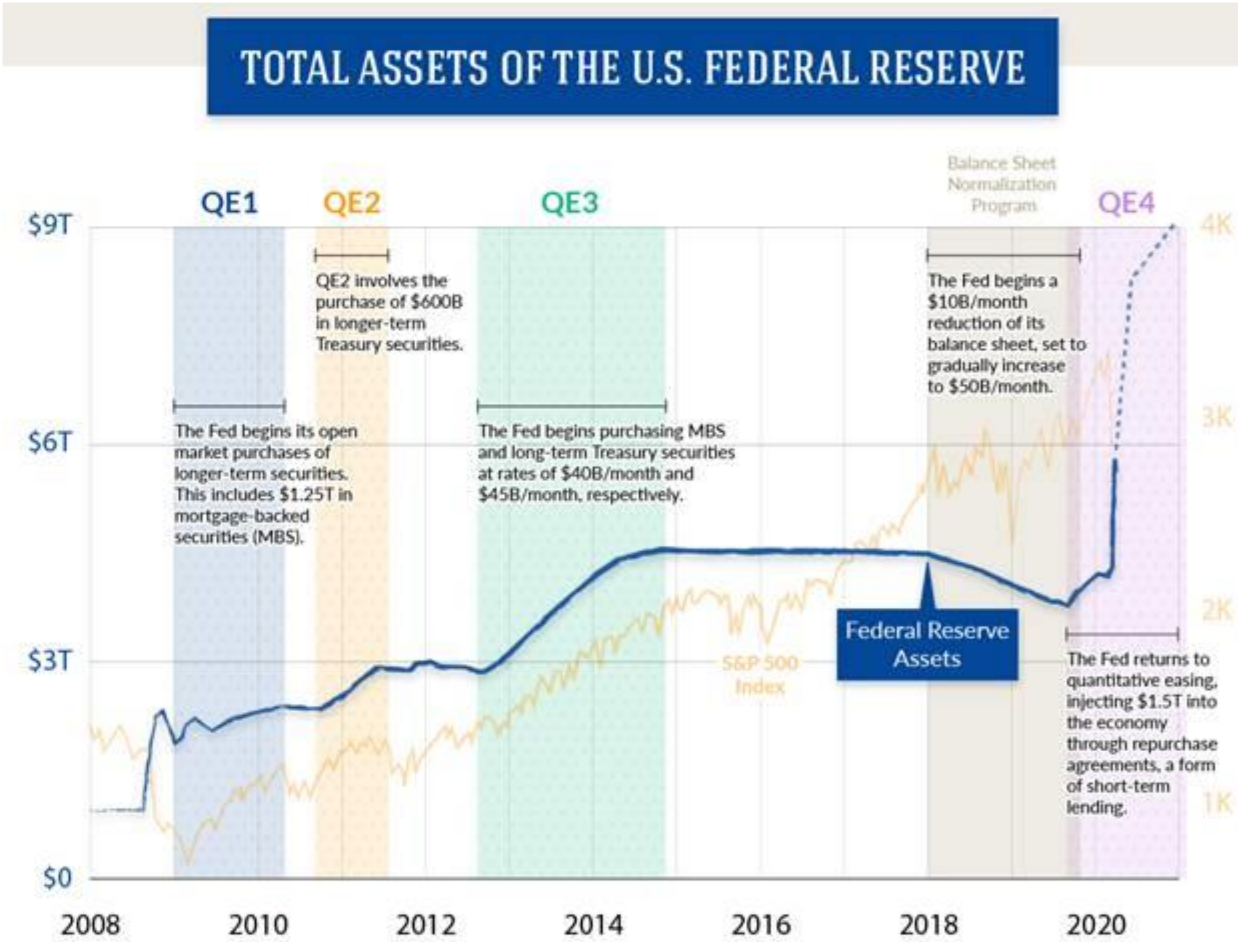
Without giving a full lesson in put options, suffice it to say that a put option is something that gains in value as the price of the asset declines. In other words, it protects you from bad things happening in the market. The Fed Put simply implies that if the market(s) go down, we can count on the Fed to bail the market out, just as a put option would bail me out. By implication, as long as the Fed Put is in place, markets have little real risk and if that is the case, it obviously encourages more risk taking because the risk is judged to be very low. Over the last 40+ years, there have ben a series of crises and each time the Fed has stepped in and 'saved the day'. The problem is that each time the Fed has been forced to act, it has had to act in a more extreme way. The recent COVID bailout bill alone is larger than the entire US budget for the year!

I would place the start of the Fed Put back in 1987. After the crash of 1987, Alan Greenspan, the Fed Chair, was especially aggressive in reducing interest rates in response to the crash and markets recovered fairly quickly. There were several more notable crises in the Greenspan regime, including the Asian Debt crisis in 1997, the Russian debt crisis in 1998, which caused Long Term Capital Management to fold after billions of investor losses and the Fed forced major banks to buy the remainder of the

LTCM portfolio. (There is a terrific book about this titled "When Genius Failed.") That was followed by the Y2K scare at the turn of the century and quickly followed by the bursting of the tech bubble. Each time Greenspan came to the rescue and this action became known as the Greenspan Put. That was followed by the Bernanke Put, the Yellen Put and finally, after tiring of changing the name, the generic Fed Put.

Mr. Bernanke was perceived to have really pulled out all the stops in response to the Great Financial Crisis as the Fed instituted QE (Quantitative Easing), which simply means that the Fed was purchasing longer term Treasury Bonds to drive down interest rates. QE was something that at the time was considered extreme and only been discussed in theory, never used in practice. From a beginning balance sheet of about $900 billion, by the end of QE3, the Fed had expanded it to about $4.5 trillion. That is more than $3.5 Trillion of new money pumped into the economy, which largely went into asset prices. In the chart below, note the obvious correlation between an expanding Fed balance sheet and the S&P 500.

The FED started QE4 in response to the COVID crisis and projections are that the Fed balance sheet will reach $9 trillion. It is no wonder that asset prices have reacted positively. The Fed Put is still in place and larger than ever. We'll enjoy it while we can, but we also understand that it can't last forever. That's why it's best to stay very diversified, very balanced, which is just what we intend to do.



Last week's market news and activity

My team and I compiled a summary of insights below to help you better understand key aspects of last week's market news and activity. We hope you find this quick-read format helpful for putting recent news and developments that affect your finances into its proper context. In addition, every Monday we will be updating our charts on our WEBSITE for you to review. Please feel free to e-mail or call with any questions that you may have.

Market News

- These Are the Drugs and Vaccines That Might End the Coronavirus Pandemic.
- Hedge Fund Hotshots Suffer Humbling Losses in Coronavirus Chaos.
- China Suffers Historic Economic Slump With Hard Recovery Ahead.
- Fed's Kashkari Says Banks Should Raise Money, Halt Dividends.
- Execs warn Trump: More coronavirus testing needed before US can return to work.
- Trump says US has 'passed the peak' of coronavirus outbreak.
- Another 5 million unempoloyment claims could be tallied, but trend may be peaking.
- China's Data on Symptom-Free Cases Reveals Most Never Get Sick.
- What's Behind The Sharp Rise in New York City's Coronavirus Death Toll.
- Coronavirus: Study warns social distancing may need to stay until 2022.
- Will you have to pay back the coronavirus stimulus check?
- The New Normal for Business Will Be Anything But.
- States Plan Coordinated Reopenings.
- Fauci: Trump Earlier Action On Coronavirus Would Have Saved Lives.
- As The Coronavirus Pandemic Spreads, The Wealth Gap Widens In America.
- The Secret History Of The First Coronavirus.
- Pandemic Prompts Corporates to Navigate Through a New Normal.
- Oil Price War Ends With Historic OPEC Deal To Cut Production.
- The covid campaign - How do you hold a vote in the middle of a pandemic?
- Fauci Says US Reopening Could Start In Some Ways In May.

Market Reaction

**Below is a detailed analysis of the weekly and year to date returns of various markets that we follow (RED = worst performing markets/sectors| GREEN = best performing markets/sectors)*

US Equities	1 week	YTD	Fixed Income	1 week	YTD	Sector Breakdown	1 week	YTD
S&P 500 (SPY)	2.99%	-10.43%	20+ Yr. Treasuries (TLT)	1.46%	**24.43%**	Consumer Disc. (XLY)	5.86%	-9.53%
Dow (DIA)	2.24%	-14.42%	Barclays US Aggregate (AGG)	0.00%	5.00%	Info. Technology (XLK)	4.68%	-2.15%
NASDAQ (QQQ)	**7.18%**	1.48%	Intermediate Municipal (MUB)	0.34%	0.23%	Financials (XLF)	**-4.19%**	-26.56%
Russell 1000 Growth (IWF)	5.29%	-3.37%	US Corporate Bonds (LQD)	-0.96%	2.82%	Health Care (XLV)	**6.27%**	**-0.56%**
Russell 1000 Value (IWD)	0.03%	-19.53%	Barclays US High Yield (HYG)	**-1.54%**	-6.52%	Utilities (XLU)	-0.49%	-5.40%
Vanguard Mid-Cap (VO)	1.27%	-17.13%				Industrials (XLI)	-0.19%	-21.92%
Vanguard Small-Cap (VB)	-0.69%	-24.34%				Energy (XLE)	-0.03%	**-42.18%**
						Materials (XLB)	-2.26%	-17.60%
International Equities	**1 week**	**YTD**	**Commodities**	**1 week**	**YTD**	Consumer Staples (XLP)	4.09%	-3.38%
MSCI EAFE (EFA)	0.31%	-19.73%	Commodities (PDBC)	-1.07%	**-27.72%**	Communication Services (XLC)	3.95%	-9.49%
MSCI Emerging (EEM)	2.49%	-19.12%	Gold (GLD)	-0.01%	10.96%	REITS (VNQ)	-3.54%	-17.36%
						Homebuilders (XHB)	-3.14%	-27.75%

Investment Planning

Why 'fleeing to cash' in turbulent COVID-19 markets could be the worst plan, says Invesco strategist.

“What if investors, instead of fleeing to cash during the tumultuous times, instead invested more money following each of the worst days in the market?” asks Invesco global market strategist Brian Levitt. “The point is that the next weeks will likely bring more uncertainty and persistent volatility in markets. Our instincts will likely be to add to the $4.5 trillion already sitting in money markets. History reminds us that being in the markets for the best days, and even adding to portfolios following the worst days, has been the better approach,” said Levitt.

Apple and Google have an ambitious plan to help officials track coronavirus - here's what needs to happen now.

Google and Apple have teamed up to build software to trace who’s been infected by Covid-19 directly into iOS and Android, the two operating systems that power almost 100% of the world’s smartphones. The software will become available in May for public health groups to build apps with it. But its ultimate efficacy will still depend on adoption, trust, and the availability of testing.

Video: Global economy will avoid a debt-default cycle in the long term, strategist says.

Gold could reach $2,000 this year, but it's not a buy until this level, chart analyst says.

“I do believe gold over the rest of this year will get to $2,000. I think it should be in your portfolio. The massive liquidity injected by the Federal Reserve, it’s going to support asset prices like equities, but it’s also going to support gold,” said Bill Baruch, president of Blue Line Capital. “There’s higher to go, but look to a move back to $1,700 as your buying opportunity,” said Baruch. A move to $2,000 represents 13% upside and would take gold to record highs. A decline to $1,700 implies a 3% pullback.

Goldman says downturn will be 4 times worse than housing crisis, then an 'unprecedented' recovery.

The global economic hit from the coronavirus crisis will be far worse in the near term than the financial crisis, according to Goldman Sachs. In the U.S., second-quarter activity likely dropped 35% while unemployment could hit 15%. However, the recovery in the second half of the year could be stronger than anything the U.S. has seen.

Retirement Planning

[Thanks to COVID-19, Social Security's day of reckoning may be even closer than we thought.]

I've mentioned before that Social Security is now dipping into its reserves—the so-called "trust fund"—to pay benefits. That's because the system isn't taking in enough cash from payroll taxes, which is how the gargantuan Social Security program—by far the single biggest source of federal spending—is financed. Prior to the economic downturn—or collapse—that we're now experiencing, the trust fund was projected to run out of money by 2035.

Tax Planning

[The most important coronavirus-related federal tax relief measures - including some that can result in hefty tax refunds.]

The $2.2 trillion Coronavirus Aid, Relief, and Economic Security Act (CARES Act) delivers good news to individuals and businesses, including meaningful tax relief. Tax relief from this bill has come in many different forms including the following: the postponement of federal tax payment deadlines, more flexible borrowing/repayment from your IRA, employee retention tax credits, along with many others. By understanding these rules, you can help your tax situation as we navigate the Coronavirus pandemic.

[Six Ways to Increase Your Tax-Efficiency.]

Tax planning is always a year-round process that requires thoughtful planning to identify and capitalize on opportunities for tax-efficiency. Some ways to help ensure you're not leaving any money on the table are: reviewing your withholding, maximizing contributions to your tax-deferred accounts, considering converting your traditional IRA to a Roth, gift appreciated assets to children or charity, make a qualified charitable contribution from your IRA, and bunching your charitable gifts into a single year.

Health

[Why you're more likely to see a physician assistant than a doctor.]

Not only are there predicted shortages of nurses and physicians that are expected to worsen over the next decade, industry attempts to shift from a fee-for-service reimbursement model to a value-based system have called for more efficient clinicians and better care for patients. At the same time, hospitals are increasingly turning to artificial intelligence tools like chatbots and digital scribes and machine-learning models that aim to predict readmission rates and examine mammograms for breast cancer. If the trend continues, you will be more likely to see an artificial assistant, rather than an actual doctor.

Business Planning

5 Things That Will Confirm You Were Born to Lead.

Ever wonder if you have leadership potential? A study of these five traits in a person can tell whether or not they have what it takes to be a leader. These traits are: making others around you better, developing trust with others, focusing your business on problem solving, giving all of your employees a voice, and leading in order to change lives. If you feel as though you match one or more of these traits, you may be able to successfully lead your team.

The Coronavirus Is Showing Us Which Entrepreneurs Matter.

Small businesses during the coronavirus pandemic have been the businesses that have been hit the hardest. These are the entrepreneurs that really matter in each of our lives due to the close connections they have with the local community. Big companies along with rich billionaires are not the one's hit hard but if one of these companies does not survive the crisis you will see less of an effect on our lives than the closing of a local small business. If we lose local entrepreneurs (the barber, the grocery store, the plumber, etc.) then we will lose access to loyal and trustworthy people we access every day.

Getting Smart on Cybersecurity.

Although it is vital for many business functions, the internet can also be a dangerous place. Therefore, it's critical that prevention, detection and recovery methods are weighed and taken into account. Prevention is often aligned to information security frameworks, ideally based on countering the most prevalent threats of the day. Detection, on the other hand, helps minimize the impact of an attack after a network or system has been breached. Finally, recovery deals with the aftermath of an attack, including the restoration of affected systems and getting operations back up and running quickly.