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COVID-19, macro policy, and recovery

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Since our last note from early March, global risk assets have strongly sold off, as well as have staged a rather sharp snap-back rally since last week. As we said in our last note, we expected the market's trajectory to be a "referendum on how on top of the threat the US public policy apparatus is," and indeed it appears that the severity of the selloff was related to the belated, inconsistent, and relatively weak US policy response, particularly initially, in both public health and economic policy.

We had a downside target zone of 2300-2400 in the S&P 500, and two weeks ago, as we entered this zone, we began to monetize our bearish positions and began to rebuild long risk exposure for the first time since the market peaked. Our view was that we would see the Federal Reserve and Congress both step in, and that the cocktail of macro policy stimulus would be sufficient for a "policy relief rally" that took us to somewhere between 2600-2800 in the S&P 500. Last week, we began to see initial signs of this scenario beginning to materialize, as the market sharply snapped back higher off of its lows.

As we move past the focus on this round of economic policy response, we believe market narratives will shift to assessing the two questions below. At present, we remain pessimistic in our judgments about these two questions, although we will continue to monitor key incoming data that will provide important context, both from US policy as well as international comparisons of post-reopening experiences. **The two questions framing our view of the "next chapter of the narrative" are:**

1. **What will be the duration of the economic shutdown and social lockdowns?**
2. **What will be the shape of the post-reopening recovery?**

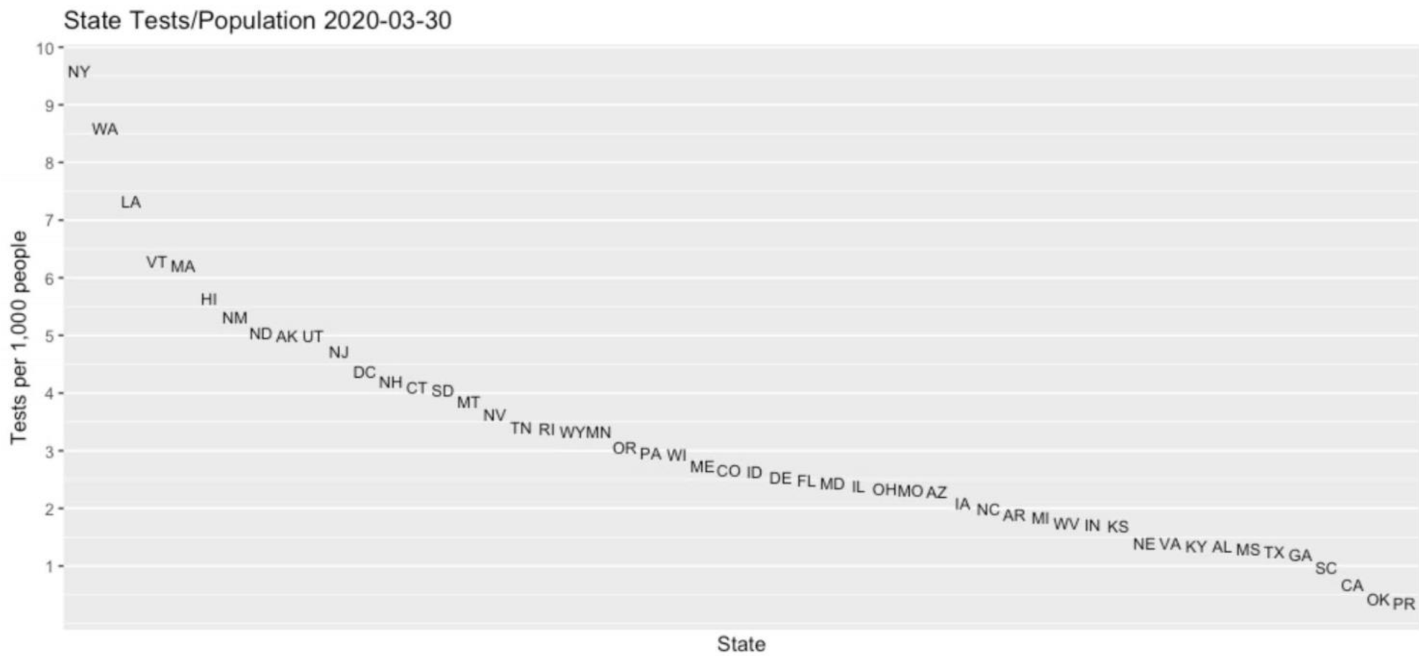
Below we investigate both questions, explain our reasoning for our current assessments, and highlight the key incoming data and newsflow that will help provide real-time context for analyzing these questions and updating our assessments of them over time. At present, we believe that the "policy relief rally" will ultimately peter out, and that we are likely to retest this month's lows, if not make new lows, in order to pressure Washington into a sufficient public health and economic policy response to match the scale and scope of the crisis at hand.

Public health policy

The fundamental issue with the COVID-19 outbreak is the burden it places on healthcare capacity. **Heart disease and cancer are likely to kill more people than COVID-19, but they don't tend to swamp resources so swiftly and forcefully to the extent they create shortages in hospital beds, ventilators, personal protective equipment (PPE), and other key healthcare supplies.** Although New York has been the worst-hit US city in the COVID-19 outbreak, social distancing and new field hospitals are providing reasons for optimism in the coming weeks.

However, much of the rest of the United States is not socially distancing to this extent, and this creates a dangerous situation in which we are likely to see large state-by-state divergences in both outcomes and timelines. **We believe it is likely we see "rolling" lockdowns, which extend the duration of the economic shutdown quite a bit.** This is especially concerning in the Deep South, where healthcare capacity is rather low and demographic risk factors are high.

Many Governors are not getting ahead of the threat, with Alabama's Governor refusing to issue a shelter-in-place order because "we are not California" and Mississippi's doing the same because "we are never going to be China". Both states have some of the country's highest rates of obesity, diabetes, hypertension, and smoking, all of which appear to be risk factors, thus burdening the supply of hospital beds, ventilators, and PPE. **In fact, Alabama and Mississippi have two of the top six highest obesity rates nationally, two of the top four highest diabetes rates nationally, two of the top four highest hypertension rates, and two of the top ten highest smoking rates nationally. They are both also two of the bottom eight states in testing per capita.**



There are positive factors as well in the rest of the country, like the lower population densities, and higher beds and ventilators per capita. However, similar to the effect of temperature and humidity on the virus's spread, these factors are likely to only delay the spread, rather than eliminate it. **And the advantage of more beds and ventilators dramatically diminishes when social distancing policies are not only avoided by authorities, but dismissed.** Ultimately, before getting too optimistic about the public health policy response (and thus the normalization of the US economy), we would want to see more consistency in public health policies across the different states, and more coordination with the federal government, which at present has been sending conflicting messages and deferring to Governors in many policy areas.

This is made all the more troublesome because, as a recent Harvard study states, "seasonal variation in transmission will facilitate epidemic control during the summer months, but could lead to an intense resurgence in the autumn."[1] Not only does the United States need to have a broader and more consistent implementation of social distancing, but it needs to dramatically expand healthcare capacity during the lockdowns, otherwise future infection waves will once again severely burden healthcare systems.

In our prior note, we discussed the poor state of testing capacity in the United States, with per-capita testing being among the lowest in the developed world. Testing capacity has dramatically expanded in New York and Louisiana in particular, and there are signs of a rapid and robust test being developed for mass production by Abbott Pharmaceuticals. These are very encouraging signs, but they are rather belated. Testing and contact tracing are very important, especially early on in outbreaks, but as the virus spreads, social distancing and healthcare capacity expansion become vital in order to try getting ahead of the threat.

[1] **Social distancing strategies for curbing the COVID-19 epidemic.** Stephen Kissler, Christine Tedijanto, Marc Lipsitch, Yonatan Grad. Department of Immunology and Infectious Disease and Department of Epidemiology.

https://dash.harvard.edu/bitstream/handle/1/42638988/Social%20distancing%20strategies%20for%20curbing%20the%20COVID-19%20epidemic.pdf?sequence=1&isAllowed=y

Because there are not very encouraging signs of either of the above in most of the country, we are concerned that the ultimate lockdown durations will be longer than expected, especially if they evolve in a "rolling" fashion, in which there's a combination of "stop-and-go" and "whack-a-mole" dynamics on a state-by state basis.

Along the same lines, according to FlightRadar24, a flight tracking website, about two-thirds of the flights tracked worldwide are in the image below, primarily representing the contiguous United States. We are modeling each state as its own "country" for the above reasons, and we don't think it makes sense to take Chinese, Korean, and Italian data and extrapolate them to the United States in aggregate. To the extent we use earlier international data to help model United States outcomes, we are adjusting for the more-belated public health policy response in the United States and the in-country transmission across states.

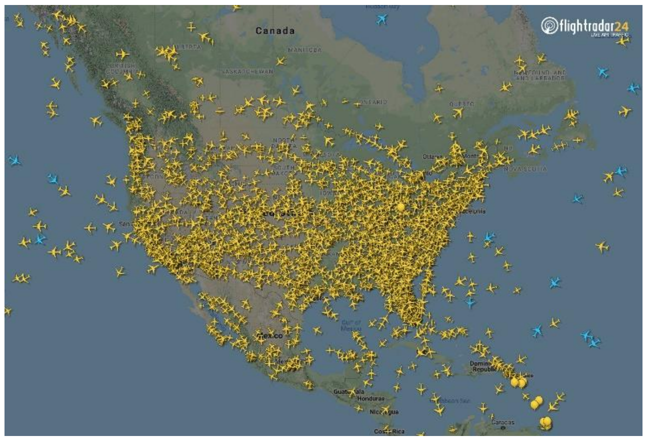


Figure 1. *Image representing about two-thirds of worldwide flights tracked by FlightRadar24. Source: FlightRadar24.*

To give a sense of the importance of the differential in state-by-state policies, below we present an annotated chart of COVID-19 spread in two bordering states: Kentucky and Tennessee, generated by Stephanie Jolly, at University of Kentucky. As is visible, despite consistently testing more people throughout the month of March, Kentucky's positive test count (confirmed cases) did not grow nearly as rapidly or accumulate to the extent that Tennessee's did. Kentucky's Governor declared a State of Emergency on March 6 and strongly encouraged social distancing the following day, while closing schools and advising the cancellation of community gatherings on March 11. Tennessee's Governor stated there was no need for school or workplace closures day earlier on March 10, but finally changed his tune a week later. By then, the divergence in outcomes had become clear.

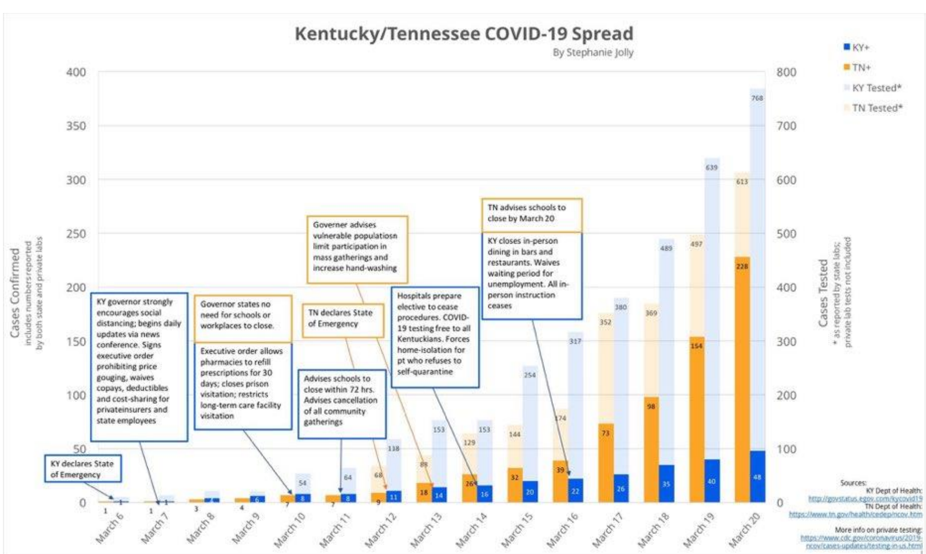


Figure 2. *Annotated depiction of Kentucky vs Tennessee COVID-19 spread. Source: Stephanie Jolly (University of Kentucky).*

As has become increasingly clear to the broader public, younger people tend to be the riskiest transmitters of the virus, because they often have little or no symptoms, and the virus is most contagious in the pre-symptomatic and asymptomatic phases of infection. Along these lines, it is striking to see the prevalence of spring break activity among young Americans. As the map below shows (using anonymized smartphone data), a single spring break weekend at a single Fort Lauderdale beach led to the beachgoers spreading all over the country. **The combination of these behaviors and the policy responses and timelines to date, we are concerned that the next few weeks will see increasing healthcare capacity burdens outside of the major American hotspots at present (which we are becoming more optimistic about).**

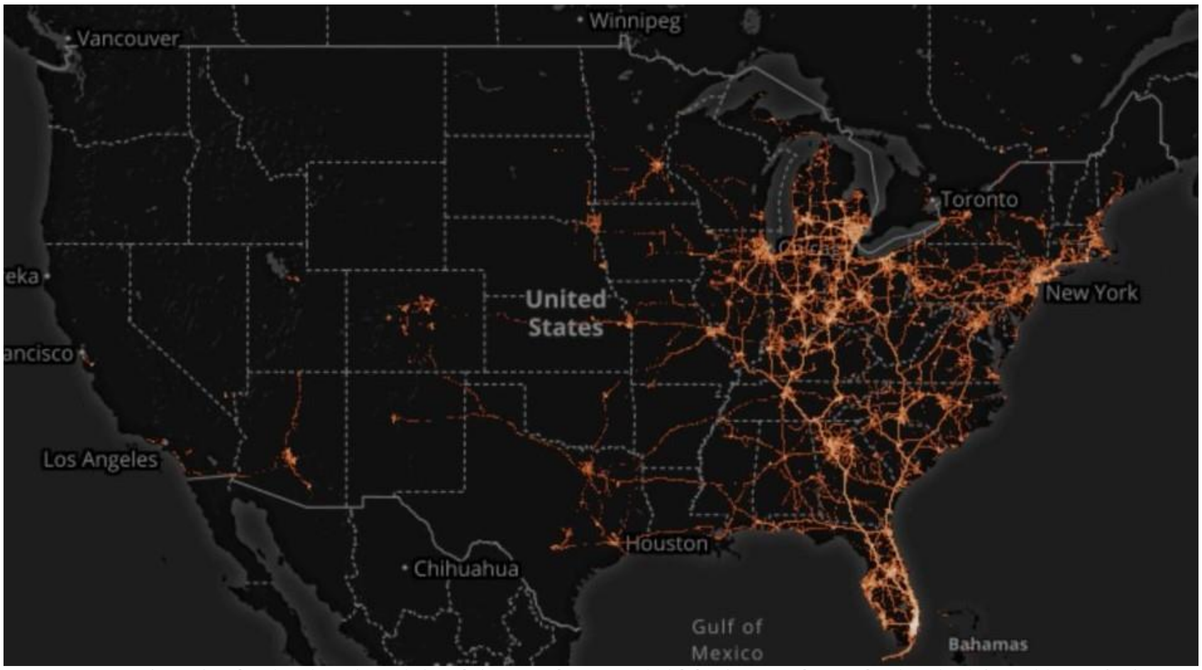


Figure 3. *Smartphone-based tracking of spread of people from a single Fort Lauderdale beach on a single spring break weekend. Source: TectonixGEO.*

The framing of shelter-in-place policies being a tradeoff between economic growth and public health is also incomplete, in our view. As many have observed, periods of acute economic weakness tend to have severe implications on public health, so ultimately it may be self-defeating to only focus on COVID-19's impact on public health. However, research suggests that populations that tend to socially distance swiftly and forcefully during outbreaks tend to have the best economic outcomes coming out of the crises, with durable outperformance.

A study of the 1918 Spanish Flu pandemic published last week by economists from the Federal Reserve and MIT highlighted this dynamic[2]. As the authors state in the abstract, "Using geographic variation in mortality during the 1918 Flu Pandemic in the U.S., we find that more exposed areas experience a sharp and persistent decline in economic activity. The estimates imply that the pandemic reduced manufacturing output by 18%. The downturn is driven by both supply and demand-side channels." Crucially, they find that "cities that intervened earlier and more aggressively do not perform worse and, if anything, grow faster after the pandemic is over. **Our findings thus indicate that NPIs not only lower mortality; they also mitigate the adverse economic consequences of a pandemic.**"

Their finds are summarized in Figure 4 below, which shows how cities with higher-than-median non-pharmaceutical intervention (NPIs, a proxy for social distancing policies) days (green circles) tended to outperform the cities with lower-than-median NPI days (red circles) on employment growth from 1914-1919 (y-axis). As one would expect, the higher-than-median NPI day cities also outperform their counterparts on mortality rates in 1918 (x-axis).

[2] **Pandemics depress the economy, public health interventions do not: Evidence from the 1918 flu.** Sergio Correia (Federal Reserve Board), Stephan Luck (New York Fed), Emil Verner (MIT).

https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3561560

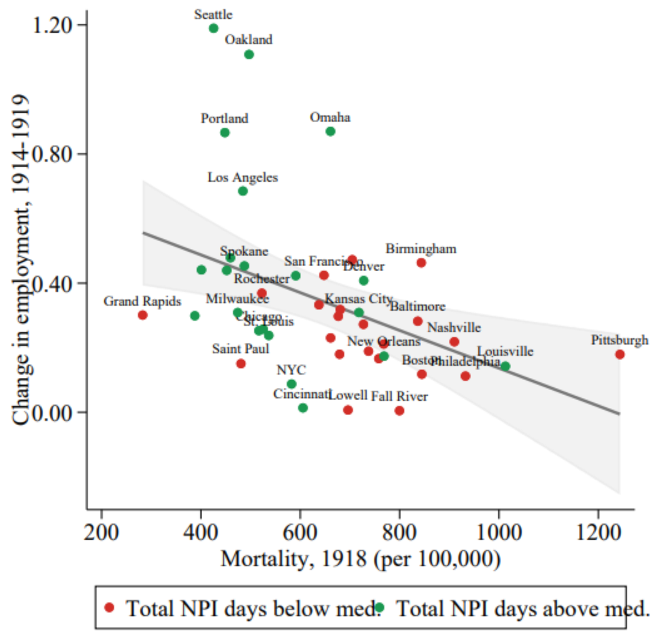


Figure 4. Change in employment in 1914-1919 (y-axis) vs 19180 mortality rate per 100,000 population (x-axis) for cities with above-median NPI days (green circles) and below-median NPI days (red circles). Source: "Pandemics depress the economy, public health interventions do not: Evidence from the 1918 flu"/ Sergio Correia, Stephan Luck, Emil Verner.

Economic policy

As social distancing has been implemented in the United States (though in inconsistent and varying ways, state-by-state), the economy has ground to a halt, as we anticipated in our last note. Initial claims for unemployment in the week ending March 21 hit a record 3.28 million filings, and the day-by-day and state-by-state statistics suggest that the following week may show an even larger amount of unemployment claims. For example, Pennsylvania provides publicly available day-by-day unemployment claims statistics, and its total for the week ending March 28 was 405,879 fillings, which is a seven percent increase over the record 378,900 claims in the week ending March 21.

The depth and breadth of this economic crisis is unprecedented, and financial markets responded accordingly. As the selloff worsened, various dislocations began to appear as a result of illiquidity and forced deleveraging. For example, US Treasuries, one of the safest and most liquid assets in the world, began to selloff with stocks, rather than hedging downside in risk assets. Several closed-end funds (CEFs) that invest in credit products were showing massive discounts to their net asset values (NAV). And LIBOR/OIS spreads blew out, representing a sharp squeeze in funding markets.

These types of dynamics have the potential to turn from liquidity crises to credit and solvency crises, with severe impacts on the real economy. After cutting rates back to zero, the Federal Reserve acted forcefully and swiftly with balance sheet policy, as well. It increased its quantitative easing purchase of Treasuries and Mortgage-Backed-Securities (MBS), as well as expanded the scope of its repurchase agreement (repo) operations, which helped to absorb the dislocations likely driven by the forced deleveraging foreign official sector balance sheets and volatility-targeting strategy balance sheets, and helped money markets and Treasury markets functioning more normally.

It also revived the Primary Dealer Credit Facility (PDCF), which provides near-zero interest rate loans to primary dealers, collateralized against a variety of assets including equities, commercial paper, municipal bonds, and other financial assets**. This helped to backstop and—on the margin—normalize credit markets, which had become very dislocated and increasingly reminiscent of Great Financial Crisis dynamics.** Furthermore, it lowered the discount rate to near-zero, extended the terms from overnight to 90 days, and pushed for eight big banks to agree to borrow from the discount window, which alleviated the stigma surrounding the discount window that was a real issue back in the 2008 crisis.

Perhaps most importantly, the Federal Reserve began expanding the scope of its policy toolkits to more directly assist employers, households, and state & local governments. It established the Primary Market Corporate Credit Facility (PMCCF), which allows the Fed to lend directly to corporations, including being able to purchase primary issuance, with principal and interest deferrals permitted for the first six months to keep money flowing to suppliers and employees. It also established the Secondary Market Corporate Credit Facility (SMCCF), which allows the Fed to purchase corporate bonds and investment-grade corporate bond ETFs in the secondary markets.

Along the same lines, it revived the Commercial Paper Funding Facility (CPFF), which allows the Fed to purchase commercial paper, effectively lending directly to corporations for a small spread over overnight lending rates. It also expanded the eligible collateral of the CPFF to include commercial paper backed by municipal securities, which helps to backstop state and local government budgets. **Given the scale of the COVID-19 crisis, the suspension of travel and logistical capacity between states, and the large policy differentials between states, backstopping state and local government budgets is likely among the most important policies that policymakers can focus on at present.**

The Phase III of Congress's COVID-19 stimulus provided sufficient legislative support for the Fed to now be able to purchase new issuance of state & local debt. The sizes remain moderate so far, and will likely need to increase, but here at EIA, we consider these developments to be vital and reminiscent of Alexander Hamilton's federalization of state debts, without which the United States would have never been able to have as powerful of a federal economy, particularly coming out of crises. **Without some level of federal backstop of state and local government budgets, the United States post-COVID recovery could resemble the post-GFC Eurozone recovery, with a "core" and "periphery", both having divergent economic headwinds, borrowing costs, and financial constraints.**

Finally, the Federal Reserve has begun to extend US Dollar liquidity swap lines to foreign central banks, as the US Dollar has started to surge again, reigniting fears of feedback loops developing between foreign exchange markets, global trade, and socioeconomic outcomes, as emerged in the 2008 financial crisis. However, during the GFC, the FX mismatches were primarily at European banks, who were funding US Agency MBS on their balance sheets. Traditional FX swap lines were quite potent in alleviating those stresses, and the mechanics were comparatively simple, all things considered.

This time around, a lot of these mismatches are on Asian insurance company balance sheets. Japanese, Taiwanese, and Korean life insurers have enormous exposure to US corporate bonds and leveraged loans, and the mechanics for distributing USD liquidity to them is more complicated than the 2008 analogue with European banks. **We anticipate more will have to be done along these lines to prevent adverse feedback loops emerging from a sharp and unmitigated US Dollar rally.**

Based on conversations with analysts, we expect progress along these lines in the next couple months, perhaps kicking off with the Spring IMF meetings next month. But as the chart below from macroeconomic analyst Jon Turek shows, the Asian savings pool is simply too big relative to the size of domestic corporate bond markets, and as Asian savings have flooded into US bond markets, Asian life insurers' funding and hedging needs for US Dollars have also surged. **This will need to be addressed, particularly with respect to the distributional issues of funneling USD liquidity optimally to the needed destinations.**

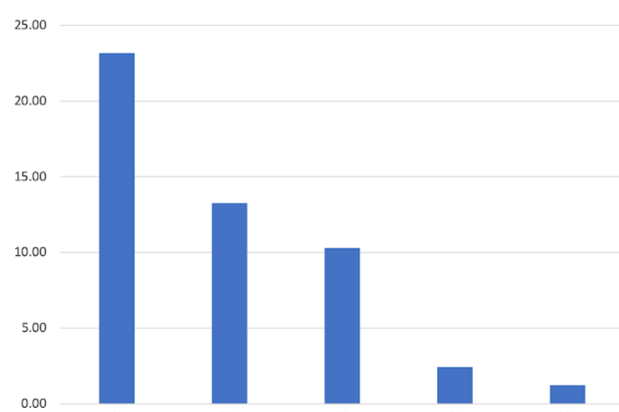


Figure 5. *Ratio of life insurance assets vs size of domestic corporate bond market, for Japan, Taiwan, South Korea, Europe, and United States.. Source: Jon Turek (jonturek.blogspot.com), IMF.*

The anonymous blogger at Concentrated Ambiguity provides an excellent framework for, as his post's title reads, "addressing overseas USD funding conditions, and the Fed as the global collateralized lender-of-last-resort". The challenge of insufficient intermediation, with nonbank institutions in Asia being key players in the USD funding markets, can be partially alleviated by central banks being willing to "allow 'delivery' of local currency as collateral" instead of "only accepting securities as collateral".

If the Fed and relevant central banks and official sector authorities can engineer a sufficiently large and well-distributed response to USD funding mismatches, they can prevent the adverse feedback loops that often emerge from unmitigated USD rallies, and help to "chop off" a large chunk of the left tails in the distribution of potential macroeconomic outcomes globally.

Taken together, the Federal Reserve's actions helped normalize the dislocated credit markets and alleviate technical pressures. However, the fundamental macro backdrop continues to deteriorate, and only fiscal policy (or, even better, fiscal-monetary coordination) can move the needle on addressing this. Unlike the Fed's swift and forceful response, Congress has been quite slow and weak in its legislation to date. Until the CARES Act was passed last week, only about $112 billion of spending had been legislated, which is a tiny amount relative to the scale and scope of economic destruction.

The CARES Act (often referred to by lawmakers as "Phase III" of Congress's coronavirus fiscal response) amounted to over $2 trillion of fiscal stimulus, about 10% of US GDP, and provides enough funds to keep the macroeconomy generally afloat. However, we do not estimate this to be sufficient to prevent mass layoffs, nor to engineer a robust post-crisis recovery. **Indeed, absent stronger fiscal packages, we continue to expect post-crisis household behavioral shifts, primarily in the form of higher precautionary savings rates.**

The size of the CARES Act is a big step-up from Phases I and II of the coronavirus fiscal response, but the composition left a lot of room for improvement. In a sudden-stop economy like the one the US is currently mired in, direct payments to households are vital, in order to keep expenses covered, and the CARES Act provisions for $1,200 per individual, with phase-downs after $75,000 of income and phase-outs after $99,000 of income. Couples filing jointly receive $2,400 per couple, with $150,000 of joint income being the phase-down trigger and $198,000 being the phase-out threshold.

These amounts are unlikely to be sufficient, especially for households in large urban areas with higher costs of living. Many middle-class families will struggle to even cover their COBRA premium if an income-generator is laid off, as New River Investments' Guillermo Roditi Dominguez expressed. This is particularly the case for couples without children, since the direct payment provisions also provide $500 per child.

But perhaps the biggest issue with the CARES Act direct payments provisions is that it is a one-time payment. Given the scope of the broader public health crisis, it is likely that different parts of the country will have minimal economic activity for multiple months. **A recurring direct payment, especially if the amounts are increased to account for the risk of lost benefits, would be far more stimulative, as well as go a long way toward preempting a post-crisis behavioral response from consumers to increase precautionary savings rates (which would likely lead to a more L-shaped recovery).**

Perhaps the most stimulative aspects of the bill are the unemployment insurance expansion provisions and the funds earmarked for state and local government assistance. The unemployment insurance provisions expand benefits to individuals who are not typically eligible for such assistance, including independent contractors, self-employed workers, individuals who have been diagnosed with COVID-19 or experiencing symptoms and seeking a diagnosis, individuals with a family member with COVID-19 or a child who is unable to attend to school because of COVID-19, and a variety of other groups of people.

Both the size and distribution of this stimulus is impressive. George Pearkes, macro strategist at Bespoke Investment Group, generated the following table to show rough estimates for the share of normal income that would be received by unemployment insurance filers based on circumstance during the COVID-19 pandemic. **For those who were making under $60,000, unemployment insurance filers would be effectively be made whole, or more than whole.** For example, an individual filing for benefits after losing a $30,000 income would earn more than 50% more than he or she was making before. For those who were making $100,000 or more, only about half of the lost income is replaced.

Household Income % of Normal Based On Circumstance During COVID-19 Pandemic

	Unemployment Insurance Filers						*Non-Filers*					
	Single Filer			*Combined Filer*			*Single Filer*			*Combined Filer*		
Income Per Adult	**No Children**	**1 Child**	**2 Children**	**No Children**	**2 Children**	**3 Children**	**No Children**	**1 Child**	**2 Children**	**No Children**	**2 Children**	**3 Children**
$10,400	259.54	273.96	288.38	259.54	273.96	281.17	34.62	49.04	63.46	34.62	49.04	56.25
$15,000	162.08	172.08	182.08	162.08	172.08	177.08	24.00	34.00	44.00	24.00	34.00	39.00
$20,000	108.08	115.58	123.08	108.08	115.58	119.33	18.00	25.50	33.00	18.00	25.50	29.25
$25,000	75.68	81.68	87.68	75.68	81.68	84.68	14.40	20.40	26.40	14.40	20.40	23.40
$30,000	54.08	59.08	64.08	54.08	59.08	61.58	12.00	17.00	22.00	12.00	17.00	19.50
$35,000	38.65	42.94	47.22	38.65	42.94	45.08	10.29	14.57	18.86	10.29	14.57	16.71
$40,000	27.08	30.83	34.58	27.08	30.83	32.71	9.00	12.75	16.50	9.00	12.75	14.63
$45,000	18.08	21.41	24.75	18.08	21.41	23.08	8.00	11.33	14.67	8.00	11.33	13.00
$50,000	10.88	13.88	16.88	10.88	13.88	15.38	7.20	10.20	13.20	7.20	10.20	11.70
$55,000	2.89	5.62	8.35	2.89	5.62	6.99	6.55	9.27	12.00	6.55	9.27	10.64
$60,000	-5.68	-3.18	-0.68	-5.68	-3.18	-1.93	6.00	8.50	11.00	6.00	8.50	9.75
$65,000	-12.94	-10.63	-8.32	-12.94	-10.63	-9.47	5.54	7.85	10.15	5.54	7.85	9.00
$70,000	-19.15	-17.01	-14.87	-19.15	-17.01	-15.94	5.14	7.29	9.43	5.14	7.29	8.36
$75,000	-24.54	-22.54	-20.54	-24.54	-22.54	-21.54	4.80	6.80	8.80	4.80	6.80	7.80
$80,000	-30.20	-28.32	-26.45	-29.73	-27.85	-26.92	3.56	5.44	7.31	4.03	5.91	6.84
$85,000	-35.19	-33.42	-31.66	-34.30	-32.54	-31.66	2.47	4.24	6.00	3.35	5.12	6.00
$90,000	-39.62	-37.95	-36.29	-38.37	-36.70	-35.87	1.50	3.17	4.83	2.75	4.42	5.25
$95,000	-43.59	-42.01	-40.43	-42.01	-40.43	-39.64	0.63	2.21	3.79	2.21	3.79	4.58
$100,000	-47.16	-45.66	-44.16	-45.28	-43.78	-43.03	0.00	1.35	2.85	1.73	3.23	3.98
$105,000	-50.39	-48.96	-47.53	-48.25	-46.82	-46.10	0.00	0.57	2.00	1.29	2.71	3.43
$110,000	-53.33	-51.96	-50.60	-50.94	-49.58	-48.89	0.00	0.00	1.23	0.89	2.25	2.93
$115,000	-56.01	-54.70	-53.40	-53.40	-52.09	-51.44	0.00	0.00	0.52	0.52	1.83	2.48

Figure 6. *Household income % of normal provided by CARES Act unemployment insurance expansion during the COVID-19 pandemic. Source: George Pearkes/Bespoke Investment Group.*

The state and local government assistance adds up to about $340 billion in loans and grants, and although this is a good first step, it appears insufficient to prevent budget cutbacks on the state and local level. In fact, Ohio Governor Mike DeWine announced an immediate hiring freeze for state government positions and is aiming for a 20% reduction to Ohio's budget. **This is reminiscent of the experience of some European countries during and after the 2008 financial crisis, in which, due to a lack of monetary sovereignty (unlike the Eurozone or the United States), countries were forced to cut budgets precisely when their households and businesses needed strong fiscal impulses the most.**

However, another provision in the fiscal bill allows the Federal Reserve to buy municipal bonds in the primary market, allowing for the central bank to monetize new issuance. This is likely to be more stimulative than the direct cash assistance and loans, which are likely too small at present.

The municipal bond market was effectively frozen as recently as last week, and is still far from normalized, so the Fed backstopping state and local government debt is a very potent response. **The Fed is likely to release more details about the technical details of the program in the coming days, and based on recent rhetoric from both House Speaker Nancy Pelosi and President Donald Trump, the discussions in Phase IV negotiations are likely to emphasize more state and local government assistance.**

The fiscal package also included $500 billion for large corporations and about $377 of small business assistance. The former is unlikely to have very high multipliers, although the provisions do incentivize maintaining employees on payroll or on paid furlough. The significance of the corporate stimulus is primarily in its size, as $500 billion is a substantial impulse.

Small businesses, like state and local governments and lower-income households, are among the most important groups to target with fiscal policy during the COVID-19 pandemic, especially because they employ about half of American private sector workers and because they tend to have much lower profit margins and cash buffers than large corporations. As the chart below from JP Morgan shows, small businesses have a median cash buffer of about 27 days, with restaurants and retail businesses having a median cash buffer of under 20 days, and a full quarter of all small businesses holding fewer than 13 cash buffer days in reserve.

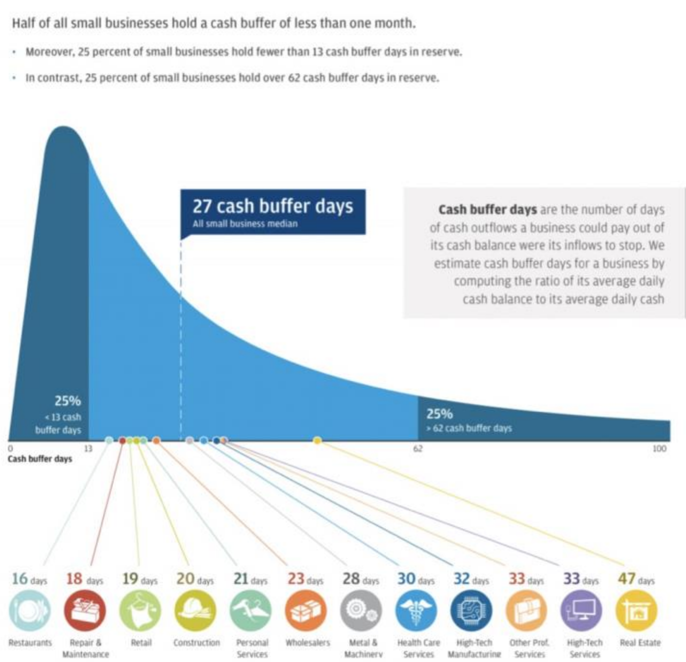


Figure 7. *Distribution of cash buffer days held on reserve for small businesses in the US. Source: JP Morgan.*

The $350 billion of Small Business Administration loans, in particular, seem very useful, and the provisions incentivize maintenance of payroll, rent payment, and even potential mortgage forgiveness, provided workers stay employed through the end of June. These are key foci in cash flow transmission chains (one person's spending is another person's income, and so on), so targeting them for maintenance is vital for preventing adverse feedback loops from emerging, like mass default chains and other depression-like dynamics. However, the amounts overall remain too small for a potent impulse.

The next chapter of the narrative

Thus far, we have been framing the broader market narrative as follows:

1. Recognition that COVID-19 is not contained to China;
2. Referendum on how far behind the curve US and other countries' policymakers are, with respect to the COVID-19 threat;
3. Strong fiscal and monetary responses from the Federal Reserve, Congress, and other central banks and governments.

Now that monetary and fiscal assistance have helped the market find a floor, and alleviate technical pressures in credit and money markets, risk assets have been rallying. As mentioned earlier, once the S&P 500 reached our downside target zone of 2300-2400, we began rotating out of short positions and into long positions in risk assets, to play for a policy-driven rally targeting 2700-2800. The Fed's and Congress's actions are enough to keep that scenario in play, in our view, although the relative lack of strength in the Congressional bill may force us to revise down our upside target zone if skepticism about its potency begins to set in quickly.

Looking ahead, we expect the next chapter of the narrative to revolve around assessing the duration of economic shutdowns and the shapes of post-reopening recoveries. Market participants are likely to go from focusing on risk controls and cross-asset correlation breakdowns, to beginning to model out future macroeconomic trajectories. The two key questions framing this chapter of the COVID-19 narrative are:

1. **What will be the duration of the economic shutdown and social lockdowns?**
2. **What will be the shape of the post-reopening recovery?**

Our general assessments in answering these questions are framed by the following simple heuristics:

1. **The more belated the public health policy response to a growing outbreak is, the longer social distancing and economic shutdowns will have to persist, before healthcare capacity constraints start to become alleviated.**
2. **The less consistent the public health policy response to a growing outbreak is between states, the more likely "stop-and-go" and "whack-a-mole" dynamics emerge, creating "rolling shutdowns" and extending the aggregate national economic shutdown.**
3. **The longer economic shutdowns persist, the likelier that hysteresis effects emerge, and the likelier that post-crisis recoveries tend to be L-shaped rather than V-shaped.**
4. **The more federal governments spend to protect household, small business, and state and local government cash flows (and backstop their balance sheets), the more likely the post-crisis recoveries can be closer to V-shaped rather than L-shaped.**

Thus far, the United States does not score well on the above rubric. Our public health policy response to the COVID-19 outbreak has been quite belated, from testing shortages to delayed social distancing implementation, to a rather weak healthcare system capacity expansion during lockdowns. Our policy responses have also been quite varied state-by-state, with some Governors outright rejecting calls for shelter-in-place orders, and evidence of quite high rates of state-by-state virus transmission.

These suggest the lockdowns may be longer than current expected, which increases the odds of the post-crisis recovery being L-shaped. This probability is further amplified by the fact that the main fiscal package is relatively small and has sub-optimal distributional characteristics. **We do expect a more robust fiscal response, perhaps in a more progressive Phase IV bill, but we also think that renewed markets pressure will be required to generate sufficient political pressure for a more sizable and progressively-composed fiscal package to get passed through both chambers.**

We are also focused on other countries' experiences and timelines for clues for the US's lockdown duration and post-reopening recovery shape. **China, South Korea, and Italy come to mind, although it is important to adjust their signals for a variety of US-specific characteristics.** China, for example, has seen signs of reopening, based on alternative data sources. WeBank's CERI (China Economic Recovery Index) is a useful proxy, using satellite imagery, geolocation, and internet-of-things (IoT) sensor data to estimate the resumption rate of economic activity.

As the chart below shows, China appears to be about 85% back to "normal", excluding Hubei (the epicenter of the COVID-19 outbreak). Furthermore, the National Development and Reform Commission (NDRC) states that about 90% of major construction projects outside of Hubei had resumed by March 20. The rebound in activity is not just strong, but disperse, with tertiary sector companies also resuming work. The Ministry of Industry and Information Technology stated that about 72% of smaller companies have restarted work by March 24, a full 42 percentage points higher than a month ago.

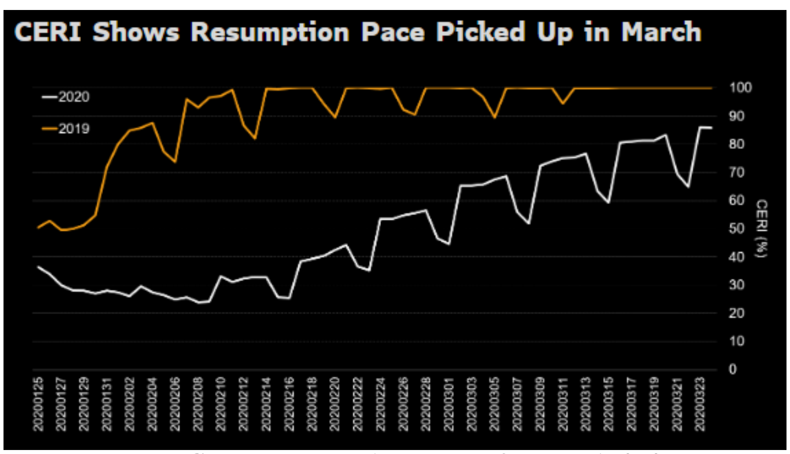


Figure 8. *China Economic Recovery Index, 2020 vs 2019. Source: WeBank, Bloomberg.*

In spite of the gradual resumption of activity, as well as authorities "distributing vouchers, asking companies to give people paid time off, and offering subsidies on larger purchases like cars", Chinese consumers remain wary of returning to pre-crisis spending paces. Unemployment has spiked, financial pressures have emerged, households are more focused on building precautionary savings and deleveraging, and people are still wary of health risks outside of the home, particularly as secondary and tertiary infection waves potentially develop. This may be part of the reason why Chinese cinemas reopened briefly, before closing back down last week.

The fear of secondary infection waves resulting not just from relaxation of social distancing procedures, but also imported cases, is likely behind China's decision to ban most foreign arrivals. Entry visas issued to foreigners are suspended as "an interim measure", and exceptions are limited to diplomats, scientists, and a few other groups. South Korea's experience highlights the risk of imported cases, as confirmed case count growth has begun to reaccelerate on the back of a "steady rise in cluster infections and imported cases", according to the Korea Centers for Disease Control and Prevention (KCDC). Even mainland China has seen a slight pickup in new cases, again driven by imported cases. The United States is likely to see imported cases become a higher share of new cases, as social distancing spreads, especially cases "imported" from different states within the US.

Even in the United States, which is far behind China and South Korea in its path to reopening, there are already signs of financial caution from consumers. Bank of America surveyed retail clients to gauge what consumers were likely to do with stimulus checks, and the lion's share of the responses were about deleveraging, maintenance of necessities purchases, and higher savings rates. **The longer this behavioral response persists, the less likely a V-shaped recovery is to materialize.**

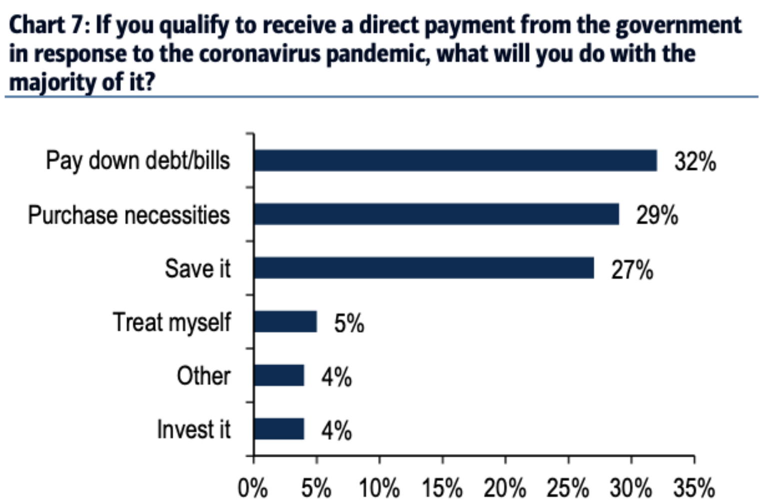


Figure 9. *Surveyed responses regarding use of stimulus check cash. Source: Bank of America.*

If Congress can cobble together a stronger fiscal package for Phase IV, we would become more constructive about the shape of the post-reopening recovery in the United States. Congresswoman Rashida Tlaib's proposal included a universally distributed debit card pre-loaded with $2000 and recharged with an additional $1000 monthly until one year after the end of the COVID-19 crisis. Seeing provisions like this in a Phase IV fiscal package would be very bullish on the margin, regarding the shape of the post-reopening macro recovery. The same applies to support for state and local governments, whose budgets need bigger federal backstops in order to avoid worsening the underlying macro weakness, similar to how austerity in peripheral Europe exacerbated the financial crisis downturn.

Unfortunately, though we do expect a stronger fiscal response, we think it will be difficult for Congress to reach agreement on a sufficiently strong Phase IV or Phase V package, without renewed markets pressure. **As such, we do expect this policy relief rally to ultimately falter, and as we move toward the "next chapters of the narrative" framed by the questions and heuristics above, we expect markets to ultimately selloff again sharply, until Washington responds with the type of force required to match the scale and scope of this evolving and growing economic crisis.**

As we mentioned, we believe that the S&P can still rally to 2700-2800 over the next couple weeks, on the back of the policy responses to-date. But if we do begin to approach that zone, and the fiscal policy backdrop hasn't significantly improved, we currently plan on rotating back to net short, looking for perhaps 1600-1800 as a rough estimate for an ex-ante target. We are focused on remaining flexible and actively fighting the temptation to be wedded to our views, narratives, and price levels/zones. But this sketch provides some basic context to our thinking at the moment.

Now that crude oil has held the $20/bbl level (in WTI), and began to bounce after a bit of a bear-trap (in which prices briefly dipped below that key $20 level, only to shoot up right back through it soon ager), we wouldn't be surprised to see a bear market squeeze to about $28/bbl or so. We think the ultimate low in crude prices is likely to be in the mid-teens, but for the time being, if this scenario materializes, it will be difficult to be tactically short equity indices. Such a scenario would likely provide the second "wave" of the policy rally, to drive markets closer to our upside target zones.

The chart below of May WTI crude oil futures (hourly candles, over the past 20 days) displays our read of the technical picture. The white circle highlights where the "bear trap" emerged, on the brief dip below $20 (the red line). The green line represents our $28 target, which corresponded with March 9 lows and the March 17 breakdown level, and March 20 highs. And the yellow trendline, if broken, could catalyze that short-term squeeze higher. We are not strongly convicted in this trade, but we were able to capture an asymmetric entry from a risk/reward perspective (though admittedly for a small-size position, especially given the volatility in this product), and are most focused on watching this chart to give signals for the broader cross-asset picture. If the $20 level breaks again in the near-term, we would expect to evolve to a much more bearish leaning, sooner than we originally anticipated.

Figure 10. *May WTI crude oil futures chart and technical analysis. Source: Thinkorswim.*

<u>Looking further ahead</u>

We plan on discussing our assessments of the longer-term impacts of the COVID-19 crisis in future notes, but we wanted to share a short summary of our thoughts along these lines, in this note as well. One of the more immediate potential impacts is the possibility of increased geopolitical risks surrounding Iran. COVID-19 has hit Iran especially hard, with a large chunk of Iran's Parliament (Majilis) testing positive for the virus. **This, combined with sanctions, the collapse in global trade, and the oil price crash triggered by Saudi Crown Prince Mohamed Bin Salman's decision to engage in a price war have led to a worst-case cocktail of impulses for Iran, and potential for escalatory behavior.**

As we've discussed in prior notes, we have long believed that this summer could be the "window" in which Iran begins to exhibit more disproportionality in its responses to the persistent proxy clashes under the surface, whether in Iraq, Syria, Lebanon, or even Gaza. We have started to see signs of escalatory behavior in Iraq during the COVID-19 crisis, and the recent cyberattack on the US's Department of Health & Human Services (HHS) may have been carried out by Iran, with or without other countries' involvement. Both American and Iranian leadership have incentives to use escalations between the two countries as a narrative to market to their respective domestic audiences, during this crisis. Indeed, according to the *New York Times*:

> *"The Pentagon has ordered military commanders to plan for an escalation of American combat in Iraq, issuing a directive last week to prepare a campaign to destroy an Iranian-backed militia group that has threatened more attacks against American troops.*
>
> *But the United States' top commander in Iraq has warned that such a campaign could be bloody and counterproductive and risks war with Iran. In a blunt memo last week, the commander, Lt. Gen. Robert P. White, wrote that a new military campaign would also require thousands more American troops be sent to Iraq and divert resources from what has been the primary American military mission there: training Iraqi troops to combat the Islamic State."*

A US F-18 jet fighter was even intercepted and warned by the Iranian Army's Defense Unit as it was approaching Iran's territory, just last week. And just yesterday, a Saudi-led coalition intercepted missiles over the capital Riyadh, with Yemeni Houthi rebels (who are allied with Iran) claiming responsibility. In Gaza, where Iran-backed Hamas has a foothold, the first case of COVID-19 was confirmed, which is likely to be disastrous if it evolves into community spread, given that Gaza is the highest population density area in the world and is mostly blockaded from trade, supply chains, and distribution networks. Indeed, Iran has been claiming that COVID-19 was "manufactured by the US Army", another sign of Iranian leadership's calculus regarding the narratives to present to domestic audiences.

There is a possibility that escalations along these lines end up with some sort of rhetorical aggression regarding bottlenecks like the Hormuz Strait, pipelines, refineries, or production facilities, which ultimately ignite a squeeze higher in crude oil prices, which would be a welcome economic respite for Iran right now (and Texas, for that matter). We believe Iranian hardliners have been increasingly gaining credibility within leadership circles, as the backdrop turns increasingly desperate, and are concerned about the possibility of summer escalation. For that reason, we are once again looking at trades that can benefit from sudden spikes in the Brent-WTI spread, in an asymmetrically low-risk way.

Looking further ahead in time and closer to home, we believe that the COVID-19 crisis might end up being a pivotal moment for rebalancing the US economic and political landscape. **Internally, we have been framing the crisis as the moment when "Baby Boomers handed the keys to the economic car to Millennials and Generation X'ers."** Indeed, proposals that involve expanding safety nets and more creative intersections of fiscal and monetary policy are gaining traction in response to the crisis. Like the old proverb states, "necessity is the mother of invention".

With the Fed back at zero rates, the correlations between risk assets and Treasuries can become less stable, and Treasuries can lose some of their portfolio diversifying power, which can lead to cross-asset portfolios becoming riskier and requiring lower gross exposures and leverage. The Fed has to be more creative in order to keep risk premia and the US Dollar for getting out of control, and that is likely to include both a more liberal interpretation of its mandate and legislative constraints, as well as increased coordination and nexus with fiscal policy bodies. **We would not be surprised to see the Fed utilizing yield curve control (YCC) type of policies to accommodate safety net expansion-driven fiscal issuance in the future. In the meantime, we are closely watching the Fed's activity in the municipal bond markets, and continue to be reminded of the macroeconomic intuition of Alexander Hamilton.**

We are also anticipating increasing federal overreach into the private sector, as the necessary federal actions in response to the crisis can prove to be difficult to rollback as swiftly post-crisis. We are keenly interested in watching the developments regarding the establishment of "digital dollar wallets" in the House Financial Service Committee's version of the Phase III bill. Although it didn't make it into the final draft of the bill, this type of proposal would be very effective in dealing with the distributional issues of universal direct payments and similar types of policies that require a swift and targeted deployment of cash to households.

We think that there are very positive potential possibilities that can emerge from developments like this, but we also believe that the "state surveillance capitalism" apparatus in the United States is likely to also grow and benefit from such programs being enacted. This is reminiscent of the post-9/11 environment, in which the PATRIOT Act only grew further from its original purpose and scope. We expect this to frame a lot of cultural and social debates in the future, coming out of the COVID-19 crisis, and are actively brainstorming about the implications of these debates and developments.

Finally, we are thinking a lot about what a robust fiscal response, and stronger fiscal-monetary nexus, would mean for cross-asset correlations, especially against the backdrop of the return to zero rates reducing some of the portfolio hedging qualities of US Treasuries. Dario Perkins at TS Lombard has explored the correlation between bond and equity returns, framing it from a generational regime perspective. In his chart below, the last "ice age" (in which bonds provide insurance for stocks, by negatively correlating) was the 1890s, the period after the Long Depression that was characterized by a variety of factors that may sound familiar today: ": (i) a slump in productivity; (ii) rapid technological shifts with slow diffusion; (iii) globalization; (iv) persistent deflation, (v) a widening gap between wages and productivity (the 'Engels pause'); and (vi) polarization in labor markets/inequality."

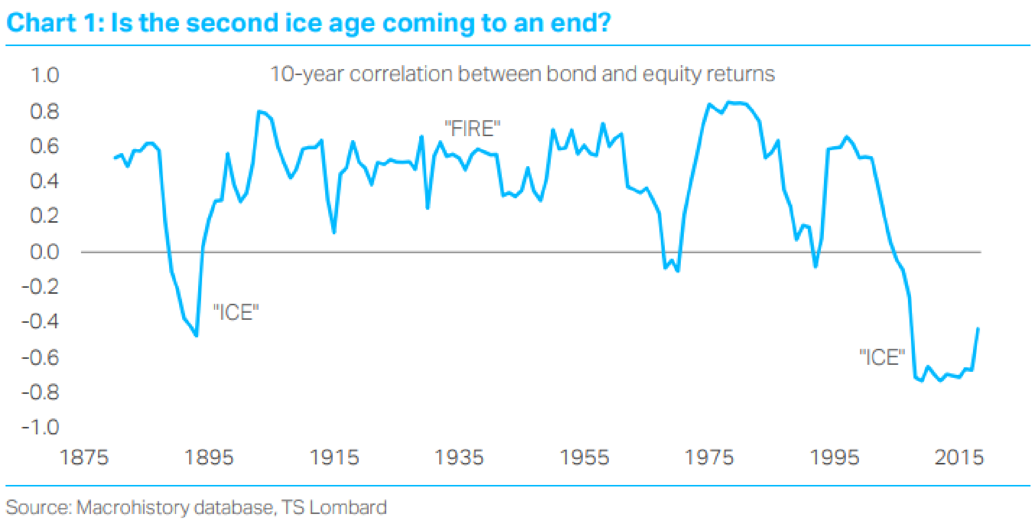


Figure 11. *10-year correlation between bond and equity returns. Source: Dario Perkins, TS Lombard, Macrohistory.*

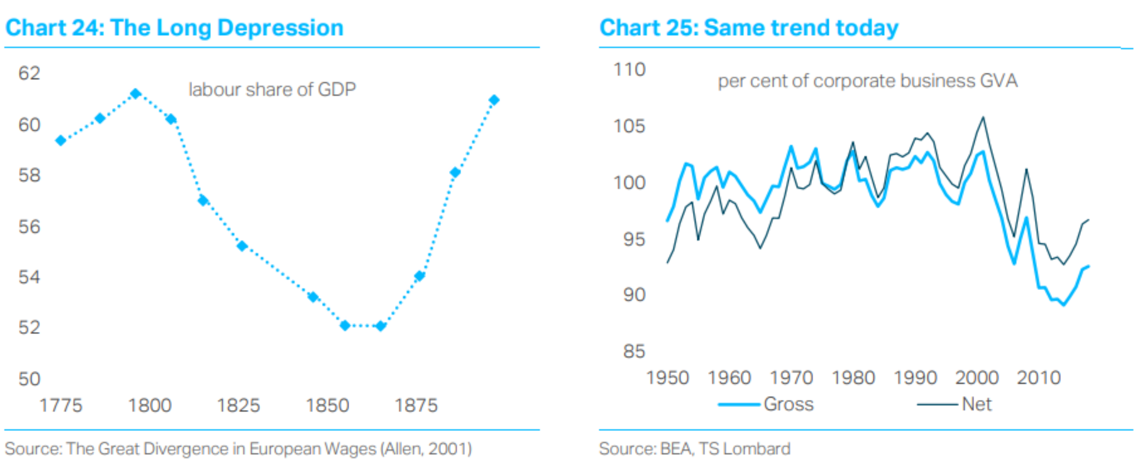
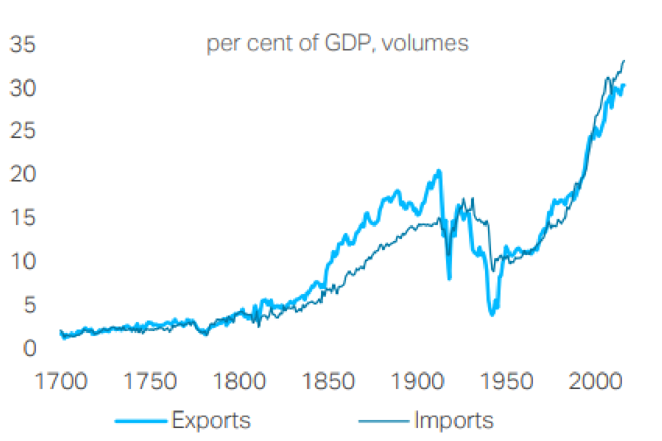


Figure 12. *Labor income share of gross domestic product and corporate business gross value added, 19th century and 21st century. Source: Dario Perkins, TS Lombard, Macrohistory.*

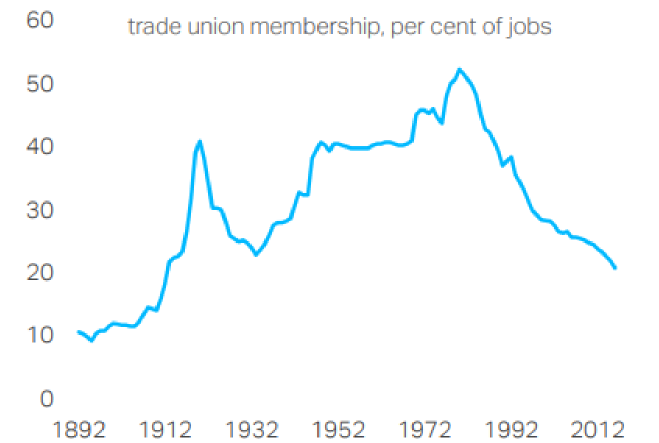
He hypothesizes that, on the back of shifting political winds and increasing monetary/fiscal policy coordination, we could enter a new "fire age" (in which bonds and stocks correlate), with de-globalization, higher unionization rates, and a rebalancing of power from capital back to labor, similar to the 1890s. The charts below highlight the trajectory of globalization and labor union membership in the periods preceding, during, and coming out of the 1890s.

Chart 26: Globalization to De-globalization



Source: Bank of England data for UK

Chart 27: Workers fought back



Source: Bank of England data for UK

Figure 13. *Export and import share of GDP, 1700-present, and trade unionization rates, 1892-present. Source: Dario Perkins, TS Lombard, Macrohistory.*

Lastly, as we have mentioned, a variety of systematic and relatively price-insensitive portfolio flows have characterized the market dynamics in recent years. The shift of assets from active to passive strategies, for example, is on-net a reduction in demand for hedges, shorts, and cash-equivalents. The buyback (and broader shareholder return) boom, in a world starved of both yield and aggregate demand necessary for capital expenditures, has offset the persistent outflows from the household sector. Volatility-targeting strategies like risk parity have become increasingly popular, focused on cross-asset correlations and historical realized volatilities across asset classes. And the lack of significant declines in actuarial return expectations among pension and retirement funds, combined with an aging Baby Boomer cohort, has effectively led to a "short squeeze" on financial assets (already in short supply, on the back of central bank balance sheet actions) as a huge generation tries to close retirement funding gaps with time increasingly running short before retirement.

As we have discussed in prior notes, the cocktail of the above factors led us to expect higher-than-normal end-cycle valuations. Thus far, passive flows have continued relatively unabated, although gross leverage and exposures have come down in volatility-targeting strategy balance sheets, and a very large amount of buybacks have been suspended or cancelled. We will be closely watching the trajectory of passive flows going forward, as well as the behavioral dynamics of Baby Boomers, who are once again weathering a major financial shock, soon before retirement age. **If we see signs of an end to this "passive boom", we will be likely materially downgrading our expected valuation ranges going forward.** This type of environment may provide for a return of value factor outperformance, while providing headwinds for growth and defensive factor relative performances.

In forthcoming notes, we plan to explore some of the topics discussed in this note in more detail, as well as the Saudi and Russian calculi regarding energy policy, the state of Middle Eastern geopolitics, the evolving relationship and balance of power between the United States and China, the potential opportunities emerging for "middle powers", and the future of globalization and global trade. As always, we will keep you abreast of our market views as they evolve over time.

We hope you and your families are all staying safe and following social distancing guidelines. As always, we thank you for your support and interest.