

BRIDGE TO REOPENING

HEALTH POLICY REMAINS THE KEY

April 24, 2020

Aggressive action by the Federal Reserve has helped restore some liquidity and animal spirits to financial markets, while fiscal policy is starting to kick in despite cumbersome transmission mechanisms in some cases. Meanwhile, high frequency economic reports highlight the tremendous damage to growth from social distancing policies globally. For the recent improvement in market conditions to continue, progress on reopening major economies will be key.

The rebound in risk markets over the last month can be attributed to several factors. First, those investors unhappy with their positioning may have finished much of their portfolio adjustments. Second, the significant divergence in stock and bond prices led to rebalancing (buying of stocks, selling of bonds) in late March and into April. Third, some new confidence developed through the combination of powerful monetary policy action, fiscal spending and a peaking of new COVID-19 cases across Western Europe and the U.S. The rebound is not a bet that all risks have been mitigated, but more likely a view that the intermediate-to-long term return outlook for risk assets is superior to fixed income. Short-term market moves (in terms of months) will likely be more driven by developments in health policy than by economic data, as containing the current outbreak and preventing a significant second wave will be critical. Economic reports for the next several months will be dismal, but investors will be focusing on when economic data starts to get “less bad” and the path of COVID-19. In this report, we present a framework for evaluating easing social distancing requirements and gradually returning the economy to growth.

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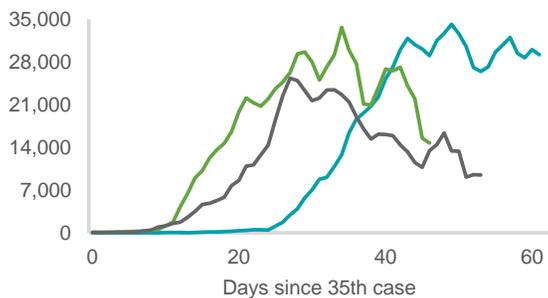
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EXHIBIT 1: PEAK IN CASES AND REOPENING ECONOMIES

Declines should continue; reopening economies must be watched.

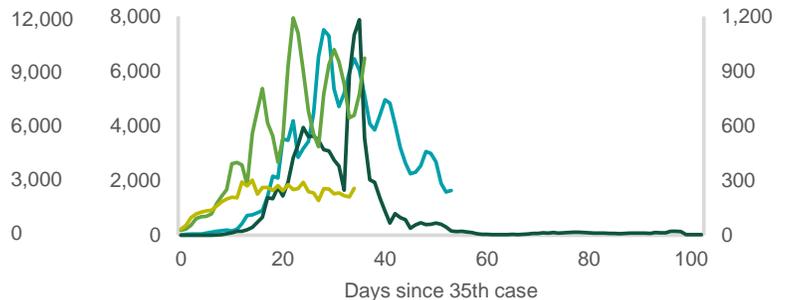
PASSING THE PEAK IN NEW CASES

— U.S. (left-hand scale)
— New York (right-hand scale)
— Spain (right-hand scale)



WATCHING NEW CASES AS ECONOMIES REOPEN

— Germany (left-hand scale) — China (left-hand scale)
— Georgia (right-hand scale) — Tennessee (right-hand scale)



Source: Northern Trust Asset Management, Bloomberg. 3-day moving average of new cases shown. Data through 4/22/2020.

PHASES TO RESTARTING THE ECONOMY

In Exhibit 2, we offer an initial framework for the 2020 U.S. recovery period, including timelines and estimates of potential economic activity. Our outline has similarities to the Trump Administration’s plan, but we use slightly different gating factors (conditions that need to be met to help stop virus spread) and permitted activities for progression through the three-phase recovery. It is not yet clear what criteria state governors will use to determine their recovery steps or what types of activities they will permit during each phase. Local politics will clearly play a role. On a national basis, governors who have favored social distancing and conservative health policies are being rewarded with higher approval ratings and positive media coverage. Our outline is dependent on many unpredictable variables, including state-by-state differences in political leadership, the rate of diagnostic tests performed nationally and locally, and the potential for a second wave of COVID-19 in the winter season.

EXHIBIT 2: RESTARTING PHASES FOR THE U.S. ECONOMY

A controlled restart is key to sustainability.

Phase	Time Period (2020)	Active U.S. Cases	Potential Economic Activity*	Public Health Measures	Activities Allowed	Example Activities**
0) Mitigation	Through early-May	>2M at peak	35%	Home isolation, 6 feet distancing, >150K tests/day	Essential-only	Groceries, pharmacy, deliveries
1) Heavy containment	May-Jun	<50K, pockets of community spread	50%	Face masks, adequate PPE, contact-tracing apps, >250K tests/day, state contact-tracing teams	Necessary	Doctors, dentists, barbers, elective surgery, business activities with employee staggering, social groups <10
2) Active surveillance	Jul-Aug	<10K, containable community spread	65%	Face masks, adequate PPE, contact tracing-apps, >500K tests/day, state contact-tracing teams	Non-essential with distancing	Schools, camps, churches, restaurants, social groups <50
3) Alert	Sep-Dec	<1K, no community spread	90%	Adequate PPE, contact tracing apps, >500K tests/day, state contact-tracing teams	Large venues with distancing	Sports activities, conferences, events, bars, international travel opened up with quarantine, elderly and vulnerable allowed normal activity

Minimum requirements for resuming >50% of normal activity
 1) diagnostics >250K/d, half are rapid diagnostics
 2) All HC facilities have sufficient quantity of high quality PPE
 3) Mobile apps used for contact tracing

Additional items that could accelerate recovery but are not required
 1) Antibody blood test that determines exposure; assumes antibodies confer immunity
 2) Vaccine and/or drug treatment that has some effect
 3) Genetic susceptibility profiles that can determine which individuals should be sheltered

Source: Northern Trust Asset Management forecast. *Percent of pre-virus activity based only on public health restrictions; **Subject to local government and employer decisions and limitations.

In our view, the key reason to progress in a methodical and phased manner is to avoid overwhelming the health care system, putting health care workers at risk and increasing mortality rates. Therefore, there are gating requirements at each phase in order to achieve containment without delaying the economic recovery. The U.S. has been in the mitigation phase since most states began stay-at-home orders in March. We believe many U.S. states could move to Phase 1 (heavy containment) of the recovery timeline in May. The key gating factor is a reduction in active cases to less than 50,000 nationally (on average, 1,000 cases per state, or <0.02% of the U.S. population). At this initial level, we estimate that the public health infrastructure could prevent a worsening pandemic, assuming multiple public health measures are put in place. Although only ~150,000 daily diagnostic tests are currently being performed in the U.S., we estimate testing would need to increase toward 250,000 per day to have a more accurate picture of the true number of active cases. Additional gating requirements would improve the country’s readiness to detect and respond to localized spread. These would include but are not limited to: the use of contact tracing mobile apps, an adequate national stock of personal protective equipment (PPE) and the

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formation of contact-tracing teams in every state. Apple and Google are currently cooperating on a contact tracing app, which could become initially available in the second quarter. On the implementation side, New York, New Jersey and Connecticut have agreed to coordinate their contract tracing efforts. This is a good demonstration of the regional cooperation that will be required for success.

In Phase 1, we believe certain activities deemed “necessary” could resume, which may include small social gatherings and visits to doctors, dentists and barbers. Several states have already announced the resumption of elective surgeries in the near term. We estimate general economic activity could increase from 35% of normalized levels to 50% of potential normalized levels during Phase 1. In Exhibit 2, we also outline Phases 2 and 3 with their respective gating requirements and potential economic activity levels. We note that these economic activity levels are based on the potential economic capacity that is solely dependent on public health requirements. Actual economic activity will be based on many other factors, including employment and personal savings, which will have an independent and overlapping relationship with pandemic-related factors. As an example, air travel may be fully accessible from a public health standpoint (so would be 100% in the above chart) but utilization will be well below that as consumers regain confidence in their safety.

Several countries in Europe that have seen consistent improvement in metrics such as the daily increase of new cases and daily deaths have started to ease lockdown restrictions. Most notable among these have been Germany, Austria and Denmark. In moving from a lockdown phase to Phase 1, these countries have started with allowing small shops to reopen, as well as service providers like hairdressers and dentists. Additionally, they have reopened schools for small children. If the virus does not surge, there are plans in place to further loosen restrictions in early-to mid-May and gradually move into Phase 2. However, in cancelling all large-scale events until September 1 it is also clear that even these countries won’t move into Phase 3 until then. And it is important to note that these countries have been the standout countries in Europe when it comes to containing the spread, testing and keeping their health care systems functioning smoothly. Other European countries like Spain and the Netherlands that haven’t done as well are unsurprisingly waiting a bit longer to loosen restrictions. But even there the focus has shifted to which steps to take in order to move to Phase 1 by the end of April or early May and how to follow the leading countries in a step-wise progression to Phase 3 in the September-October timeframe.

In Asia, we have seen countries like China and South Korea reopen their economies slowly and carefully, with an aim to get back to 90% of activity in roughly three months. But the risk of the virus coming back is taken very seriously and the recent uptick in cases in countries like Singapore and Japan is acting as a cautionary tale. As a result, these countries have stayed unrelentingly focused on surveillance and testing.

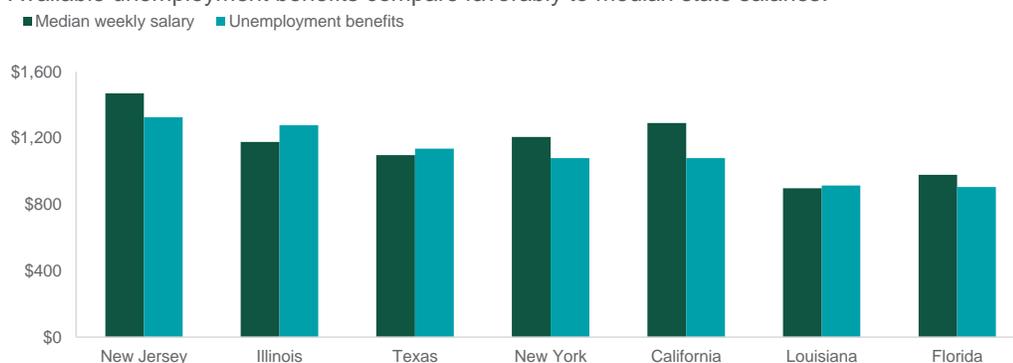
BRIDGING THE GAP FOR THE CONSUMER

Even with the Payroll Protection Program (discussed later) — and the associated incentive to keep workers on the payroll — unemployment is estimated to rise to around 15% in the U.S. This would represent the highest unemployment rate since the Great Depression (which peaked at 25%). While the next unemployment report is not out until May 8, the nearly 24 million jobless claims over the past four weeks suggest we will reach that 15% level in relatively short order. Given consumer spending represents approximately 70% of the U.S. economy, the government was quick to realize that some level of income replacement for those who lost their jobs was needed. The following programs have helped to tackle the issue:

- **Stimulus Checks:** A blunt instrument. \$1,200 provided to anyone (not just the unemployed) making under \$75k (phased out by \$99k) or \$2,400 to couples earning under \$150k (phased out by \$198k) — and an additional \$500 for each child under 17. These checks will be sent out over the next few months (many have already received the money via direct deposit).
- **Unemployment Benefits:** Because unemployment insurance is a federal-state program and can be based on previous income, the weekly payment can vary. The median maximum payment across all states comes to \$450. The length of time unemployment claims are dispersed can also vary, but most states provide for 26 weeks.
- **Federal Sweetener:** The federal government has stepped in to provide additional income to the unemployed in two ways. First, an additional \$600 per week is being provided on top of state-level unemployment checks — though, currently only until July 31. Second, extended benefits are being provided, adding an additional 13 weeks to the state-level provision.

EXHIBIT 3: U.S. INCOME REPLACEMENT

Available unemployment benefits compare favorably to median state salaries.



Source: Northern Trust Asset Management, Bureau of Labor Statistics. Unemployment benefits include state-level unemployment insurance and federal government income replacement measures (including \$30 benefit from prorated stimulus checks). Median weekly salary data as of 2018.

What does all this mean in terms of the amount of income replacement the typical unemployed person will receive? On average, for the next 39 weeks (three-quarters of a year), the new “paycheck” comes to \$1,050 per week — or \$1,080 if you spread the \$1,200 stimulus check over that timeframe. The median worker in the U.S. makes approximately \$63,000 annually (or \$1,200 per week). So the income replacement — at least temporarily — is fairly adequate, especially when you consider that a significant number of those who are laid off work in the service industry and may be making less than \$63,000 per year. We wanted to run this study specifically for some of the states hardest hit by COVID-19, using the actual state-level unemployment benefits and comparing the weekly paycheck to that of the median worker in that state. As seen in Exhibit 3, many state unemployment benefits compare favorably to the median income levels of those states. And, again, it is likely that a meaningful number of those unemployed make less than the median. As such, income replacement looks to be fairly substantial. However, we see one issue that has been highlighted by some commentators — those workers who are actually making more with unemployment benefits could be incentivized to stay home. This could prove problematic for some businesses opening back up prior to the July 31 expiration of the additional \$600 in unemployment benefits from the federal government.

BRIDGING THE GAP FOR SMALL EMPLOYERS (AND HOSPITALS AND TESTING)

As part of the \$2 trillion-plus CARES Act, the Paycheck Protection Program (PPP) provides forgivable loans intended to cover eight weeks of essential costs (e.g. payroll, rent and utilities) to

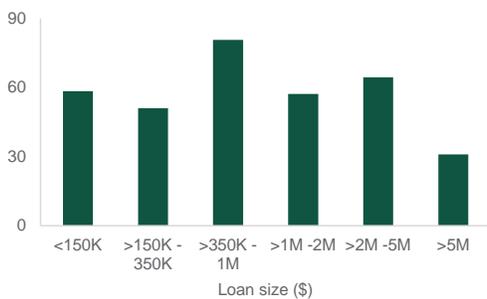
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small businesses. In general, it is aimed at businesses and nonprofit organizations with fewer than 500 employees. The loan program has been met with tremendous demand, resulting in an exhaustion of the \$349 billion in funding in less than two weeks. Congress has responded, and the Senate has passed a \$484 billion bill to replenish the program and provide funding to hospitals and the development and expansion of testing. As shown in Exhibit 4, the program has been taken up by small businesses (with over 70% of the loans less than \$150,000 in size), but the total lending in larger loans (left chart) shows participation by larger employers also. Exhibit 5 shows the breadth of industries seeking aid — from construction to agriculture. The restaurant sector, included in the accommodation and food services grouping, appears to have received under 10% of the total value of loans granted so far. While it's unclear if they face unique challenges in applying as compared with the other companies, it does highlight the economy-wide hit to growth from COVID-19.

EXHIBIT 4: PAYCHECK PROTECTION LOANS BY SIZE

Many small loans, but plenty of money in larger loans.

APPROVED LOANS (VALUE, \$BN)



APPROVED LOANS (COUNT, % OF TOTAL)

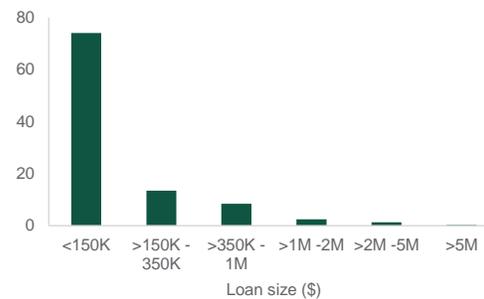
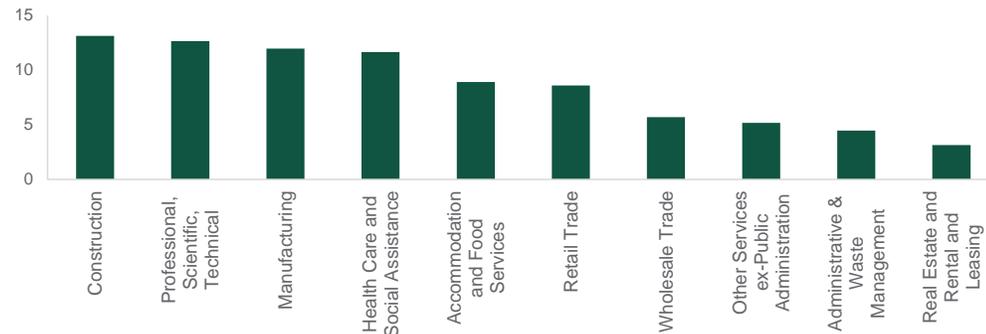


EXHIBIT 5: PAYCHECK PROTECTION LOANS BY INDUSTRY

The breadth of borrowers reflects the economy-wide hit to growth.

APPROVED LOANS BY INDUSTRY (VALUE, % OF TOTAL)



Source (Exhibits 4 & 5): Northern Trust Asset Management, U.S. Small Business Administration, Deutsche Bank Research. Top 10 industries shown in Exhibit 5. Data as of 4/16/2020.

The Paycheck Protection Program is being administered by the banks, where they are effectively operating as middlemen between the federal government and businesses. Based on commentary in bank quarterly conference calls over the past two weeks, banks appreciated the opportunity to support struggling businesses and/or their clients, but highlighted the need for expanded funding given the unprecedented demand. Bank of America alone has received more than 300,000 applications seeking more than \$45 billion in loans. In contrast to the financial crisis, banks are pleased to be in a position of financial strength and with a capacity to lend — not only through government programs, but through line drawdowns and additional extensions of credit. In addition to the Paycheck Protection Program, we have seen commercial and industrial loans grow by

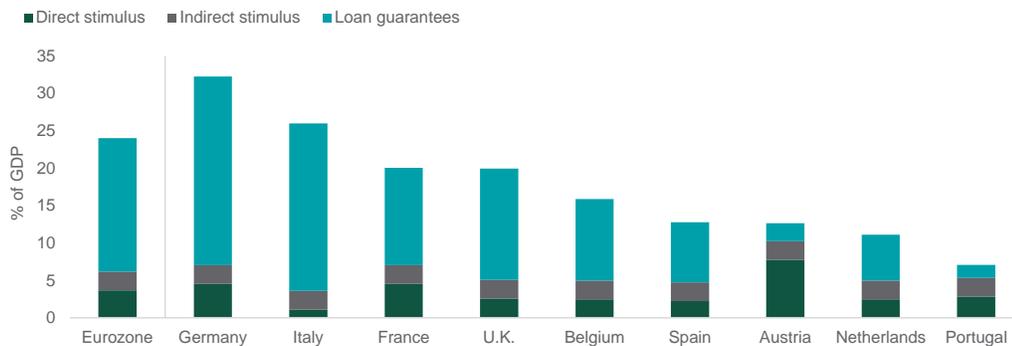
roughly \$500 billion at the banks in just the past few weeks (over 20% un-annualized growth). This largely reflects drawdowns of existing lines by corporate clients as they have sought liquidity amidst the economic shutdown. To date, much of this money has stayed with the banks as deposits. Deposits have actually grown by \$900 billion over this time as businesses and individuals have sought the security of bank balance sheets.

DIRECT STIMULUS IN EUROPE IS SUPPLEMENTED BY INDIRECT SUPPORT

In Europe, the fiscal response to the economic fallout from COVID-19 has come in three forms: direct discretionary stimulus, indirect stimulus through automatic stabilizers and loan guarantees. The direct stimulus has been swift but not overwhelming, coming in at an estimated 3.2% of the Eurozone’s economy and roughly 2.6% of the U.K.’s economy. In the Eurozone, more direct stimulus is on the way through a €100 billion unemployment benefit scheme, a €200 billion increase in European Investment Bank funding and the freeing up of €240 billion from the European Stability Mechanism. The indirect stimulus, delivered through channels like unemployment benefits, is quite sizeable in Europe. In the financial crisis, these measures totaled two-thirds of the overall fiscal stimulus. In normal times, they are estimated to cushion a fall in gross domestic product (GDP) by 35-50%. Considering today’s more proactive direct fiscal policy stance, we estimate the lower end of that range is more appropriate. Still, using the International Monetary Fund’s estimated 7.5% GDP contraction as a baseline, that means indirect fiscal stimulus is expected to total to a meaningful 2.5% of GDP. And then there are the loan guarantees, where both the Eurozone and U.K. have been aggressive, at approximately 15% of GDP. All three measures combined total to a robust fiscal response and more can be done if required.

EXHIBIT 6: STIMULATING EUROPE

European stimulus has come in several forms.



Source: Northern Trust Asset Management, International Monetary Fund. Data as of April 2020.

In the Asia-Pacific region, the direct fiscal response so far ranges from a relatively small 2.5% of GDP in China, to a very large >10% of GDP in both Australia and Japan. Of course, we know China is doing more through its local governments (estimated at 1.3% of GDP) and various other channels but it is also clear the response is much less aggressive than during the financial crisis. Loan guarantees have been put in place across the region with Australia at 1% of GDP doing relatively little while Japan (10% of GDP) and South Korea (5% of GDP) have larger and more comprehensive schemes in place.

OIL MARKETS IN UNCHARTED TERRITORY

The impact of COVID-19 on global growth has left no market untouched, and the impact in the oil markets has been extreme. The U.S. oil market went into uncharted territory this week when oil

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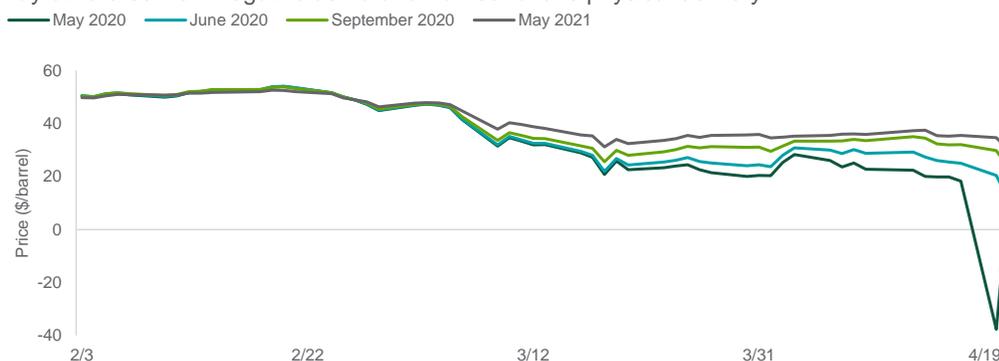
prices collapsed from \$18.00/barrel last Friday to a low of negative \$37.63/barrel on Tuesday. This was the first time in U.S. history that oil prices closed in the negative. While the move to negative prices exaggerates the situation, the overall fall in West Texas Intermediate (WTI) oil this year is over 70%. First, a review of the fundamental factors leading to this historic collapse in prices:

- U.S. unconventional oil production soared over the past 8-10 years and helped to oversupply the global market, thereby pushing oil prices down (to around \$50-55/barrel WTI). The rise in U.S. well drilling and completion activity not only increased U.S. oil output but also significantly boosted output of condensate, natural gas liquids and methane (dry natural gas).
- COVID-19 spread worldwide and government strategies to self-quarantine have been instituted in virtually all countries around the world. The result is a dramatic decline in global oil demand that has been estimated to be upwards of 25-35 million barrels per day (mmb/day) in April (off a roughly 100 mmb/day demand baseline). For the full second quarter, demand may be off nearly 20 mmb/day and for the full year, demand could average 9-10 mmb/day below 2019.
- The failed early March 2020 OPEC+ meeting put additional downward pressure on oil prices.

The three factors listed above have increased output and/or reduced demand and pushed global excess crude oil supplies to levels never experienced before. As a result, storage capacity around the world (commercial and/or strategic petroleum reserves) is filling rapidly. In addition, any storage that has not yet been filled has likely already been contracted for, essentially meaning there is nowhere to store any excess oil.

EXHIBIT 7: OIL FUNDAMENTALS BAD, TECHNICALS WORSE

May oil futures went negative as no one wanted to take physical delivery.



Source: Northern Trust Asset Management, Bloomberg. Prices shown for WTI crude oil futures contracts traded on the New York Mercantile Exchange. Data from 2/3/2020 through 4/21/2020.

Against this fundamental backdrop of oversupply, we encountered a technical problem in the oil futures markets when there was a wave of selling in U.S. May crude oil contracts, which expired Tuesday and rolled to the June contract. Normally this does not cause a problem, however, in a relatively illiquid market there were reports that an attempt to unload 100,000 U.S. crude oil “May” contracts (a notional volume of 100 million barrels) caused prices to plummet deeply into negative territory. The reason for this circumstance is a feature of the U.S. New York Mercantile Exchange futures contract — long positions not covered before contract expiration have to take physical delivery of crude in Cushing, Oklahoma. These volumes will come to the contract holder near the end of the contract month (May). It appears that the need to sell out of these contracts pushed the

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holder(s) of May contracts to sell at any price just to get out of the contract. A quick check of the storage situation at Cushing highlights the reason for the dramatic action. Physical crude oil storage capacity in Cushing is estimated to be officially around 91 million barrels and could be effectively full by the time the long holders of the May contract would have to take delivery. While the “June” contract is a better barometer of the actual markets, the fact that it is not trading in the negative is of little consolation as it is trading under \$17/barrel. All of this signals the global market is fast approaching “full” storage and there is nowhere to put the excess oil. The situation will only be alleviated via a recovery from COVID-19 (and a related increase in crude oil and refined product demand) and/or the shutting-in of a significant amount of oil production.

Some people are suggesting the U.S. simply place tariffs on or shut off imports of crude oil and maximize the use of domestic production. However, this isn't practical nor would it be effective. U.S. refineries are designed, for the most part, to run on medium-to-heavy grades of crude oil while U.S. production from unconventional basins is light oil. There is little-to-no room left for the refining of additional U.S. volumes. Finally, the bulk of U.S. imports of crude come from Canada and Mexico which are covered by the United States-Mexico-Canada Agreement (USMCA). Shutting off or placing tariffs on these barrels would likely be problematic. The fall in global oil prices is likely a negative for U.S. growth due to the knock-on effects on the shale industry, but this is fully reflected in asset prices like energy high yield bonds. For the global economy, the fall in prices is probably a modest positive overall with net importers like China, India and Europe benefitting while the exporters (smaller economies in total) are clearly hurt.

CONCLUSION: HEALTH POLICY TO LEAD THE WAY

In this report, we have put forth a framework and timetable to assess reopening the U.S. economy. Some European and Asian countries will be ahead of this timetable, and they will provide important markers for progress. Our timetable supports the case for an improving growth outlook to build in the second half of the year, with critical requirements regarding testing, tracing and the availability of personal protective equipment for health care workers. Importantly, we make no assumption of a breakthrough on a treatment or vaccine over the next 12-18 months, which could be a positive surprise. Conversely, economies that are ill-prepared to reopen and handle the potential of a second wave face significant risks. Monetary policy has been very effective so far, and fiscal policy is starting to have an effect. Continued progress on the health policy front is expected, and will be necessary to maintain the improved market sentiment. This view underpins our moderate overweight to risk in our global policy model. While additional episodes of risk aversion and selling pressure could easily emerge over the next year, we think investors with a twelve-month time horizon will benefit from this positioning. We continue to monitor our two key risk cases. Our first risk case of an insufficient fiscal backstop highlights the risk investors lose hope in the effectiveness of fiscal policy support or new waves of COVID-19 overwhelm fiscal support. Our other risk case is a structural inflation shift, where unprecedented levels of fiscal stimulus eventually overwhelm structural deflationary pressures.

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