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The Coronavirus and Portfolio Management Recommendations

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Summary and Conclusions

By the end of March, it became clear that beating back the coronavirus in the absence of a vaccine would probably take a lot longer than anyone anticipated. The United States is still in the relatively early stage of the coronavirus pandemic. Currently the number of infected and deaths are reported at 273,808 and 7,020 respectively.[1] The final numbers will be substantially higher. The economy is already being materially impacted as workers and consumers practice social distancing and self-quarantine.

From an investment standpoint, we need to formulate some idea about the prospects for containing the virus, how deep the economic contraction will be as well as the likely shape of a recovery, the impact on corporate profits, and finally a reasonable framework around which to understand the attractiveness of the U.S. stock market.

Here is a summary of our findings and thinking based on more detailed discussion in this memorandum:

- The experience of China, Korea, Taiwan, and other countries strongly suggests that the coronavirus can be contained and brought under control in about three to four months mainly through social distancing and self-quarantining. Assuming a starting month of March in the United States, this means that during the coming summer months, we should see new infection rates abate, mortality rates decline, and the relaxation of social distancing, quarantining, and other measures taken to lessen the spread of the pandemic.

- The pharmaceutical companies are working furiously to develop a vaccine. We are confident that success will be achieved although probably not in time to address the pandemic this year. However, there are drugs and therapies that will likely become available near-term to alleviate the severest symptoms and to reduce mortality rates.

- The recently enacted Coronavirus Aid, Relief, and Economic Security Act (CARES) is a massive $2.3 trillion effort to support states and municipalities, industry and businesses, and individuals and families. Notwithstanding the challenges of dispensing this aid efficiently, the targeted support should reduce the magnitude of the economic downturn and boost the recovery as the coronavirus abates. We believe the CARES legislation will be far more impactful than the American Recovery and Reinvestment Act of 2009, an $800 billion stimulus package that was less targeted and largely wasted.

- The comprehensive financial package being implemented by the Federal Reserve to provide liquidity to capital markets, financial institutions, and the business community is impressive and draws on the experience of the 2008–2009 financial crisis.

- Economic forecasts for the United States vary widely as one would expect at this early stage. Most models anticipate a real decline in GDP in Q2 of more than 10% with April and May being the worst months. Most economists expect positive real growth in GDP in the second half of the year as the impact of the coronavirus dissipates. The definition of a recession is two consecutive quarters of negative GDP growth. The foregoing suggests that a recession will be avoided, but if not, the recession will be of relatively short duration and shallow, which was the case in the 2008–2009 financial crisis in which the recession lasted only two quarters. The margin of error associated with these estimates is very large.

[1] WHO, Coronavirus Disease 2019 Situation Report-76, April 5, 2020. https://www.who.int/emergencies/diseases/novel-coronavirus-2019/situation-reports

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- The strength of the U.S. recovery depends on how quickly the economy resumes functioning more or less normally. Preliminary data from China seem to indicate that starting up the economy after a few months is feasible, but achieving pre-virus levels could be a long process. One major risk is that coronavirus infections could surge again. For the full year 2020, the real growth in GDP in the United States will probably be negative. Most forecasts that I have reviewed show growth in 2021 and 2022 in the mid-single-digit range, but it is possible that they may be too optimistic.

- S&P 500 operating earnings in 2019 were around $165 per share. We believe estimates for 2020 will fall in the $110 and $125 range, reflecting a drop by 25% to 33%. More important than the actual level of earnings in 2020 is how many years it will take to regain 2019 levels. Three years seems a reasonable working hypothesis. Nobody fully understands how much structural damage will be done to the economy.

- Investors ask how much further the market will fall. From the beginning of the year through April 3, 2020, the S&P 500 Index declined 23%. The recent low was on March 23, representing a year-to-date decline of 29%. It is impossible to know where the market will bottom out. Given that coronavirus infection and mortality rates in the United States are still increasing, and the economy and employment are falling rapidly, the mood of investors seems negative. Until the data make clear that infection and mortality curves are flattening, and there is anecdotal evidence indicating that fiscal and monetary policies are having a positive impact, a sustained recovery in the U.S stock market from current levels seems challenging.

- Since World War II, there have been 10 bear markets in which stocks fell by more than 20%. Markets have always recovered, although the length of time has varied significantly. The average recovery has been a little over two years from trough to former peak. A reasonable working hypothesis in this instance is that a recovery in the market will take three years in line with our forecast for corporate earnings recovery. However, past bear market data show that some recoveries took more than five years.

- In our view, holding equities for the long term is the most attractive alternative, provided that investors have allowed adequately for their liquidity requirements over the next couple of years and possess the emotional stamina to withstand further declines in the market. Let's assume that the S&P 500 Index drops another 10% back to its low on March 23 of 2237.

  Table 1 on the next page shows the internal rates of return (IRR, excluding dividends) on the S&P 500 index assuming full recovery in two, three, four and five years. The point is that there is no other asset class that offers such potential investment returns. Moreover, the S&P 500 Index current dividend yield is around 2.3%, which compares favorably to the 10-year and 30-year Treasury bond of 0.5745% and 1.2054% respectively. Of course, the Index dividends will likely be reduced as the economy contracts. However, the current gap between the Index yield and Treasury rates is extraordinary.

Table 1	
Returns on the S&P 500 Index	
S&P 500 Index	
High on February 19	3386
Low on March 23	2237
% Decline	-33.9%
Number of years fromTrough to Peak	IRR Per Annum
2 Years	23.0%
3 Years	14.8%
4 Years	10.9%
5 Years	8.6%

This analysis is not intended to downplay the severity and tragedy of the coronavirus crisis. For most of us, we are in the midst of an historic event, extraordinary for its widespread adverse social and economic consequences. Investors regard the coronavirus as a "black swan" because it was largely unpredicted and had a disproportionate negative impact on capital markets.[2] One reason that it will take longer for the market to recover is that stock valuations in the future may be discounted by a black-swan risk factor. There are many possible events that could produce a black swan: a war with an adversary such as North Korea or Iran; a terrorist event such as the 9/11 attacks, or even another pandemic. The black-swan event that we worry most about is the economic consequences of the dramatic increase in federal debt. The Treasury will have to undertake massive deficit financing to fund CARES and possible future legislation. Moreover, the federal budget will be pressured in coming years by rapidly growing expenditures in Social Security, Medicaid, and Medicare. It is highly unlikely that the federal budget will be brought into balance again in our lifetime. The consequence will be to test investors' faith in U.S. creditworthiness and the dollar. While understandably this is not an issue currently on the mind of investors, no one knows for sure where the tipping point lies.

Discussion

Data on the Virus

As bad as the coronavirus is, there is evidence that it can be contained in about three or four months provided there is enforced social distancing and self-quarantining. In China there has been a marked decline in the number of new deaths after about a four-month period. South Korea seems to have brought the coronavirus under control in a little over one month. There are reports that Italy is beginning to flatten the curve of new infections and mortality rates. Governor Cuomo has stated that he expects New York to peak in the next couple of weeks.

To eliminate the coronavirus threat will require a vaccine, which may be more than a year away. The one positive is that many companies and research organizations are working on the problem and there are already some promising possibilities such as Gilead's Remdesivir. Johnson & Johnson announced on March 30 that it has a lead candidate that could be available for emergency use in early 2021. At the

[2] The term "black swan" comes from Nassim Taleb's book The Black Swan: The Impact of the Highly Improbable, 2008.

same time, it is expanding its vaccine manufacturing capacity. Other companies that have announced work on a vaccine include Moderna and BioNTech, which is partnering with Pfizer and Shanghai Fosun Pharmaceutical Group.

A number of stopgap solutions may be more promising in the short term. For example, injection of antibodies contained in the plasma of individuals who survived the coronavirus may reduce the severity of illness of at-risk infected patients.[3] There already exist certain drugs such as Hydroxychloroquine and Chloroquine that may alleviate certain symptoms of the coronavirus without curing the patient.[4] Another drug that China has reported as effective is Favipiravir, which is approved in China and on the NIH radar. Leronlimab, an experimental HIV drug made by the biotech company CytoDyn, has been used to treat a handful of severely ill patients in New York City hospitals; a couple were able to be removed from their ventilators.[5]

The point is that a massive effort is developing globally to find pharmaceutical solutions to the crisis. It is not clear how well this effort is being coordinated and whether there is adequate communication among competing groups, but it seems likely that effective drugs will be found; we are just not sure of the timing.

In the testing arena, it is noteworthy that Abbott Labs announced that the FDA authorized a coronavirus test that takes five minutes.[6]

After months of maddening delays, some progress is being made to produce ventilators, face masks, hospital gowns, and related equipment and accessories to extend life for the most seriously afflicted and to protect healthcare workers.

Fiscal Policy

Three pieces of legislation have been promulgated by Congress and signed into law. The first two, enacted on March 6 and March 18, provided $113 billion to the Department of Health and Human Services, as well as paid sick leave to infected persons, additional unemployment insurance and free virus testing. A third piece of legislation, called the Coronavirus Aid, Relief, and Economic Security Act (CARES), became law on March 27 and provides an estimated $2.3 trillion. The principal programs are listed in Table 2 on the next page.

To put the massive scale of CARES into perspective, $2.3 trillion represents a little over 50% of the projected federal budget for 2019 and about 11% of total GDP. The specific programs seem well targeted to relieve affected business, workers, municipal governments, and the healthcare sector, the implementation is feasible, and there is accountability. It is impossible to measure the impact that CARES will have on the economy. It seems clear that without the CARES fiscal support, the economy and employment would be significantly worse. The main purpose of CARES is to provide interim income to households for support, and to allow businesses to retain employees and to survive the downturn already underway.

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[3] https://www.nytimes.com/2020/03/26/health/plasma-coronavirus-treatment.html
[4] https://www.msn.com/en-us/health/health-news/two-generic-drugs-being-tested-in-us-in-race-to-find-coronavirus-treatments/ar-BB11peSE?li=BBnb4R7
[5] https://nypost.com/2020/04/04/hiv-drug-that-treats-coronavirus-moving-to-phase-2-trials/
[6] https://abbott.mediaroom.com/2020-03-27-Abbott-Launches-Molecular-Point-of-Care-Test-to-Detect-Novel-Coronavirus-in-as-Little-as-Five-Minutes

Table 2	
Composition of CARES Act Programs	
Billions $	
Expand Unemployment Benefits	$260
One-Time Checks to Individuals	$290
Small business Loans & Grants	$377
Loans Large Businesses, State & Local Governments	$510
Aids to States	$150
Health Related spending	$180
Industry Support (Airlines, etc.)	$72
Other Programs	$461
Estimated Total Cost	$2,300

The federal deficit will materially increase. The March forecast of the Congressional Budget Office (CBO) projected a deficit of $1.1 trillion or just under 5% of GDP.[7] 5% has generally been regarded as a prudent boundary above which the government should not venture. CARES alone will likely double the current deficit and add very substantially to the Treasury's bond financing operations.

Federal Reserve and Monetary Policy

On March 15, 2020, the Federal Open Market Committee reduced the federal funds target rate by a full percentage point to the 0 to ¼ percent range. Chairman Powell has made it clear that the Fed will take whatever action required to support the financial system. The following actions were announced on March 23[8]:

- The Federal Open Market Committee (FOMC) will purchase Treasury securities and agency mortgage-backed securities in the amounts needed to support smooth market functioning and effective implementation of monetary policy.
- The Fed will support the flow of credit to employers, consumers, and businesses by establishing new programs that, taken together, will provide up to $300 billion in new financing. The Department of the Treasury, using the Exchange Stabilization Fund (ESF), will provide $30 billion in equity to these facilities.
- The Fed established two facilities to support credit to large employers—the Primary Market Corporate Credit Facility (PMCCF) for new bond and loan issuance and the Secondary Market Corporate Credit Facility (SMCCF) to provide liquidity for outstanding corporate bonds.
- The Fed created a third facility, the Term Asset-Backed Securities Loan Facility (TALF), to support the flow of credit to consumers and businesses. The TALF will enable the issuance of asset-backed securities (ABS) backed by student loans, auto loans, credit card loans, loans guaranteed by the Small Business Administration (SBA), and certain other assets.
- The Fed is facilitating the flow of credit to municipalities by expanding the Money Market Mutual Fund Liquidity Facility (MMLF) to include a wider range of securities, including municipal

[7] https://www.cbo.gov/about/products/budget-economic-data We can expect the CBO to issue its forecast on the impact of CARES on the federal budget in the coming weeks.
[8] "Federal Reserve announces extensive new measures to support the economy," Federal Reserve Press Release, March 23, 2020.

variable rate demand notes (VRDNs) and bank certificates of deposit. In addition, it is expanding the Commercial Paper Funding Facility (CPFF) to include high-quality, tax-exempt commercial paper as eligible securities.

In the past few of weeks, there were reports of some seizing up in debt markets, which the Fed's new policies are designed to alleviate. Liquidity and properly functioning credit markets hopefully will not be an issue during the period of the coronavirus crisis.

United States Economy

As of this date, there are not many detailed forecasts for the U.S. economy that take into account the impact of the coronavirus. The two that we have reviewed, issued by Goldman, Sachs and Credit Suisse, are quite positive. Goldman, Sachs expects that GDP in April will be lower by 13% from January 2020 levels. The second quarter as a whole is projected to show a 9% decline in real GDP from the first quarter. The extent of the decline is virtually unknowable, but what is remarkable is that the GS staff looks for a double-digit rebound in the second half, though not enough to prevent GDP from declining in 2020 by around 6%. In 2021 and 2022, according to GS, the U.S. economy is expected to show real growth in the mid-single-digit rates, regaining 2019 levels in this period.[9] The economists at Credit Suisse recently revised the firm's GDP forecast along the same lines—a precipitous drop in Q2 followed by a healthy rebound in Q3 and Q4. They expect the economy to regain the 2019 GDP level in early 2022.[10]

Clearly the amount of time required for a full recovery is a major question. The only evidence thus far is from China, where recovery is underway but remains challenged. Bloomberg tracks economic indicators in China of which the following are showing an upturn: road congestion; marine vessel movement; seasonal people migration; air quality deterioration; refinery runs; and coal consumption.[11] However, demand for the output of many Chinese factories (particularly those dependent on exports) has evaporated, and consumers in China are reluctant to spend.[12] The consensus of economists is still for China to show modest growth in 2020, obviating a recession. The most important takeaway is that China will probably not experience a "V-shaped" recovery, and most likely, neither will the United States.[13]

[9] Goldman, Sachs, "The US Coronavirus Aid, Relief, and Economic Security Act & the Economic and Investment Implications," March 31, 2020.
[10] Credit Suisse, "Fresh GDP Forecasts," April 6, 2020.
[11] "Covid-19 Indicators: China Focus," Bloomberg, March 23, 2020.
[12] "China Is Open for Business…," Bird, Emon and Li, New York Times, March 26, 2020.
[13] "China Is Tiptoeing, Not Roaring Back from Virus Crisis," Nathaniel Taplin, Wall Street Journal, April 3, 2020.

Corporate Earnings and Market Valuation

It is too early for a consensus to develop around the impact on corporate earnings in 2020 and the level to which they may recover in 2021. In 2019, S&P 500 Index earnings per share were around $165. The lowest current forecasts in 2020 are in the $110 to $125 range.[14] A good working hypothesis is that earnings will likely fall into this area. From a market evaluation standpoint, what matters is not 2020 earnings, but rather the level to which earnings could recover in 2021 and thereafter. If one were to assume a gradual recovery over three years, the earnings progression would look similar to the shaded forecasts in Table 3.

Table 3			
S&P 500 Index Operating Earnings and			
Projected S&P 500 Index Levels			
Year	EPS	Y-O-Y Change	
2018	$163.00		
2019	$165.00	1.2%	
2020	$117.50	-28.8%	
2021	$135.00	14.9%	Assumes 3-year
2022	$150.00	11.1%	Recovery
2023	$165.00	10.0%	
S&P Level		Price/Earnings	
Current (04/03)	2489	21.2	S&P/2020 EPS
Target Yearend			
2020	2700	20.0	S&P/2021 EPS
2021	3100	20.7	S&P/2022 EPS
2022	3230	19.6	S&P/2023 EPS
Source: Bloomberg, Stratigraphic			

Table 3 also contains an assumption about the recovery in the stock market—that the S&P 500 Index will recover to the 2019 year-end level of 3230 by the end of 2022, at which point the market will be discounting 2023 earnings of $165, the level achieved in 2019. At first blush this simple model seems conservative, because it is unlikely that the recovery from the economic impact of the coronavirus will take until 2023. However, even under these assumptions, the implied price/earnings ratios in each of the next two years is around 20x, which historically reflects a full valuation and risk.

[14] "Strategists' S&P 500 Index Estimates for Year-End 2020," Bloomberg, March 26, 2020. The survey contains forecasts for S&P 500 Index earnings for 2020, but the estimates are not dated and many do not appear to have been revised for the impact of the coronavirus.

Recovery from Bear Markets

Table 4 shows characteristics of every bear market (declines of more than 25%) since World War II. Most bear markets, which are measured from the market peak to the market trough, lasted more than a year. The current decline resembles the precipitous drop experienced in the fall of 1987 when the market fell by 33%. Imagine that in four trading days from October 13 to October 19, 1987, the market fell nearly 30%. In this case, the market recovered 20% in about three months and was back to prior peak in less than two years. In every case, the market recovered. But it is worth noting in the two most recent bear markets, two to three years elapsed before the previous peak in the market was reached. The longest recovery time was approximately six years in the case of the 1974 bear market.

Table 4

Market Declines in Bear Markets

Peak	Peak to Trough (Months)	Market Decline	Trough to Previous Peak (Months)	Days to 20% Recovery
May-46	11.8	-28.5%	40.6	364
Aug-56	14.9	-21.5%	11.2	276
Dec-61	6.5	-28.0%	15.2	163
Feb-66	8.0	-22.2%	7.1	130
Nov-68	18.1	-36.1%	24.4	121
Jan-73	21.0	-48.2%	70.0	33
Nov-80	20.7	-27.1%	3.1	33
Aug-87	3.4	-33.5%	19.3	95
Mar-00	31.0	-49.1%	33.5	43
Oct-07	17.2	-56.8%	49.1	14
Median	16.1	-31.0%	21.8	108.0
Avg	15.3	-35.1%	27.3	127.2

Source: Credit Suisse

The major conclusion that we draw is that equity investors must provide for their liquidity requirements adequately so that common stocks will not have to be sold off during a bear market when stock prices are depressed. Our model suggests that three years should probably be a good working hypothesis although there is risk that more time will be required for a full recovery.