

Split Rock Capital Management

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March 31st, 2021

To: All Investors

Re: Annual Letter 2020, Letter to Investors

Dear Investors:

In 2020 Split Rock Capital Management returned 11.07% net of fees.¹ Our annualized return since inception is 10.19% vs 15.32% for the S&P 500 (dividends included). \$100,000 invested at inception has grown to approximately \$163,260 vs. \$205,420 if invested in the S&P 500 (dividends included).

Year	S&P 500 ²	Split Rock (Gross) ³	Split Rock (Net) ⁴
2015 ⁵	1.18%	(0.42%)	(0.47%)
2016	11.96%	13.19%	12.19%
2017	21.87%	19.47%	18.47%
2018	(4.41%)	(1.68%)	(2.68%)
2019	31.49%	13.43%	12.44%
2020	18.40%	12.07%	11.07%
Cumulative Return Since Inception	105.42%	68.31%	63.26%
Annualized Return Since Inception	15.32%	10.86%	10.19%

**Please refer to the disclosures (1 to 5) at the end of this letter as well as the disclaimer on the page 15*

**All results have not been audited*

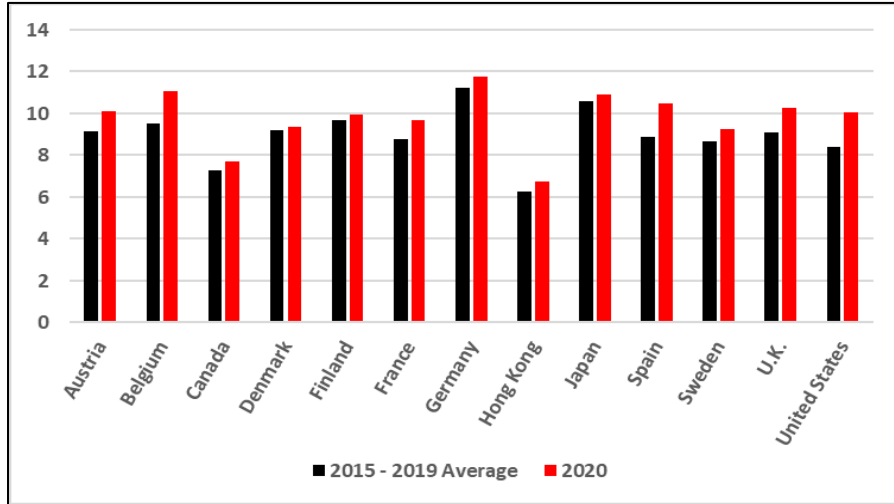
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Chapter 1: COVID-19

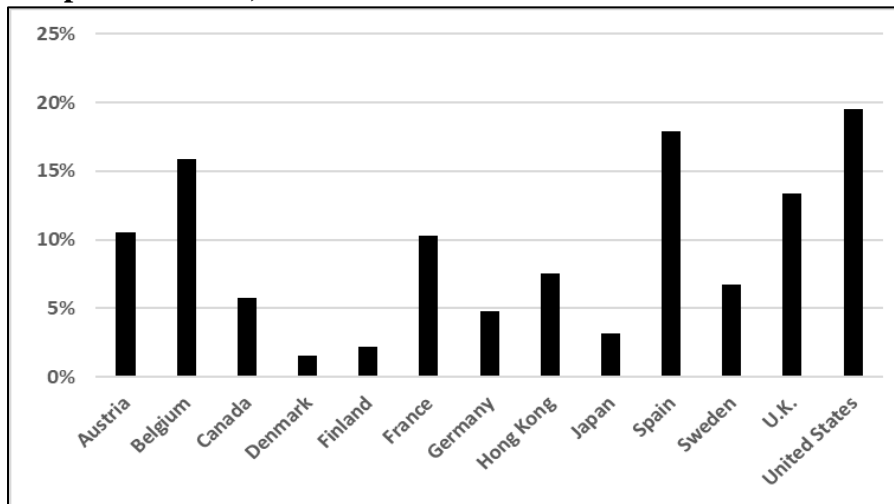
2020 was a tragic year for the entire globe and our primary thoughts are with all who experienced any loss as a result of COVID-19. It was truly an unprecedented year. We point out below, the excess deaths for various countries in order to illustrate the horrific toll of the virus around the globe.

Figure 1: Total Deaths per Million (2015-2019 Average vs. 2020)²



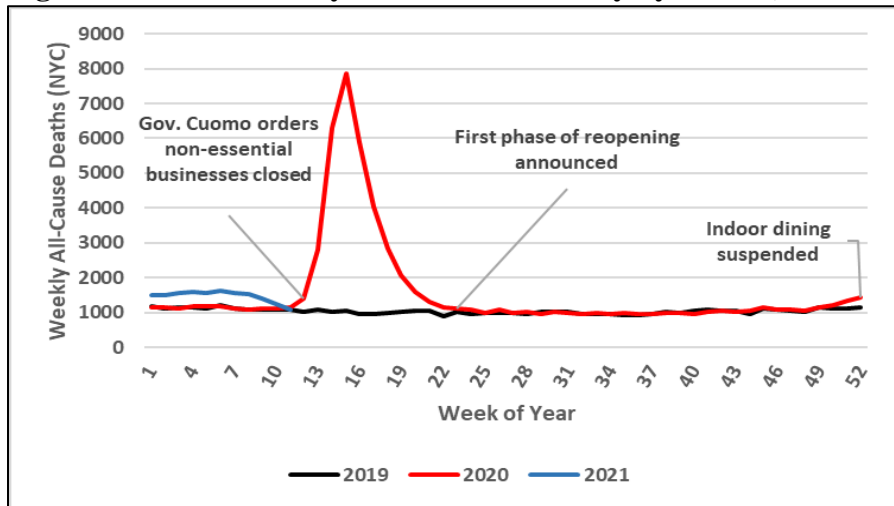
While these numbers are not controlled for age or other factors (such as comorbidity rate, [closure stringency](#), etc.), it gives a decent high-level overview.³ For further context we next look below at the percentage increase in the 2015-2019 average all-cause mortality compared to the 2020 average for these same countries. In the case of the United States, this 20% increase in deaths equated to an additional approximately 550,000 deaths in 2020 compared to the 2015-2019 all-cause mortality figures.

Figure 2: Increase in All-Cause Mortality (2015-2019 Average compared to 2020)⁴



Diving into further detail, we will next examine the course of the virus in a specific locale: New York City. From the below graph we can see the horrifying nature and speed of the virus as it moved through New York City and enacted a horrible toll on its residents.

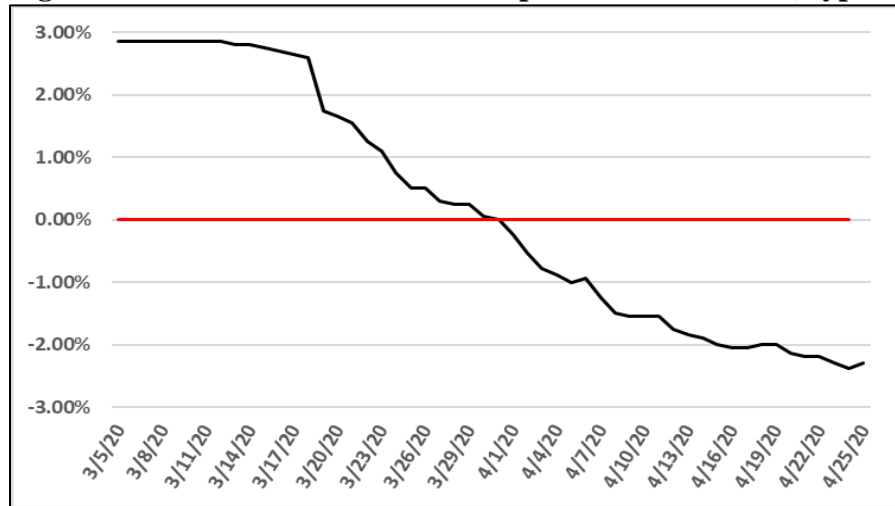
Figure 3: New York City All-Cause Mortality by Week (2019 - 2020)⁵



Chapter 2: General Economic and Market Conditions

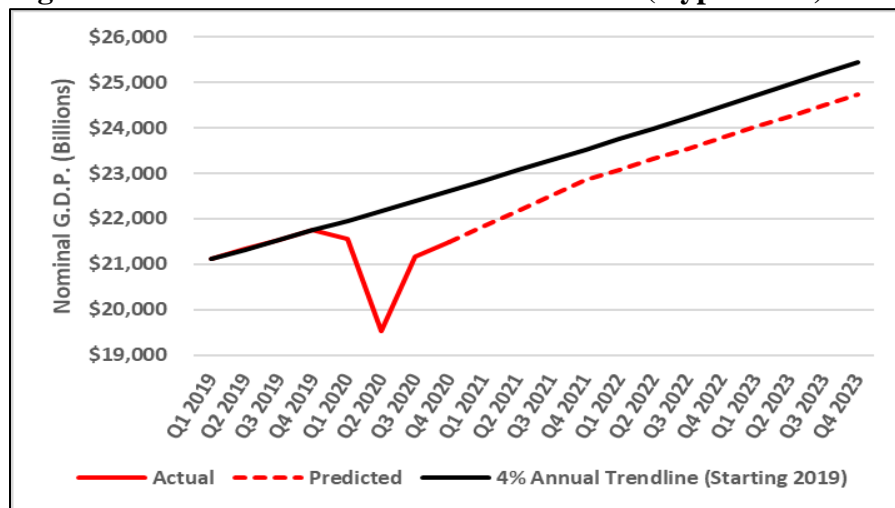
While the COVID -19 virus continues to be our main concerns, we will now take a look at various market conditions as well and how the economy has been impacted by the virus. We continue to believe that nominal G.D.P. is a critical metric in judging the health of an economy. From the below graph we see a live look from the Hypermind NGDP predictions, and note just how rapidly *expectations* for growth dropped as the virus moved around the globe. Actual nominal G.D.P growth ended up at a bit below -1% in 2020.

Figure 4: Nominal G.D.P. Growth Expectations for 2020 (Hypermind)⁶



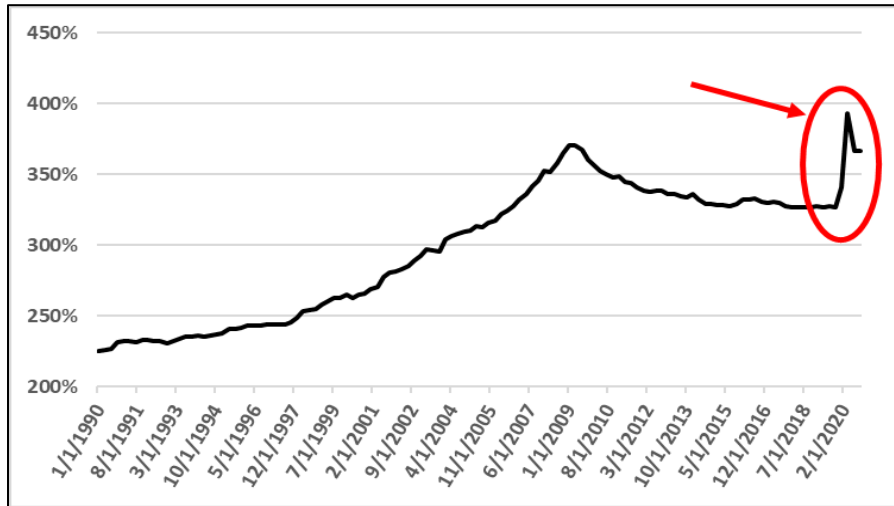
Of course, the stock market quickly reflected this by dropping approximately 34% in less than 33 days, bottoming out on March 23, 2020. The Federal Reserve as well as congress both eventually acted as well. The Federal Reserve in particular took its balance sheet from approximately \$4.1 Trillion in February 2020 to over \$7.7 Trillion presently. Despite these actions, we continue to view keeping nominal G.D.P. on a 4-5% growth path, as the primary purpose of the Fed, something that clearly they did not succeed at in looking at the above graph. There are various reason for this, which we'll [explore later](#). For now, we note that, in looking ahead to 2022 and 2023, we continue to see Hypermind predicting below trend Nominal G.D.P. growth based on a 4% trendline starting in 2019 (black line in below graph).

Figure 5: Nominal G.D.P. Growth 2019 - 2023 (Hypermind)⁷



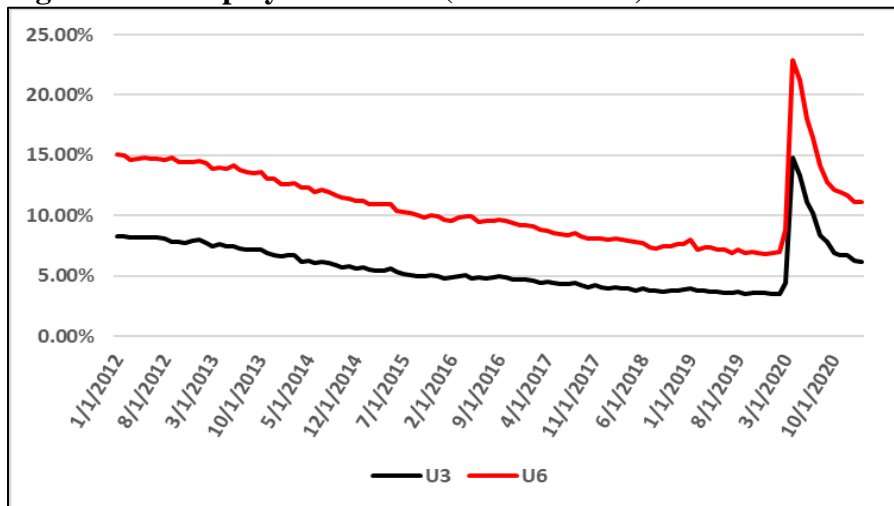
Next we look at the total debt to G.D.P. ratio that we first examined back in our [2017 Annual Letter](#). Understandably, the debt situation across the economy was thrown into flux because of COVID-19 and the subsequent actions taken to deal with the crisis. This ratio has come down a bit of late, but we wouldn't be surprised to see it remain elevated for a considerable time to come. The Federal government in particular is likely to continue to increase its debt outstanding.

Figure 6: Total Debt-to-G.D.P. (1990 – 2021)⁸



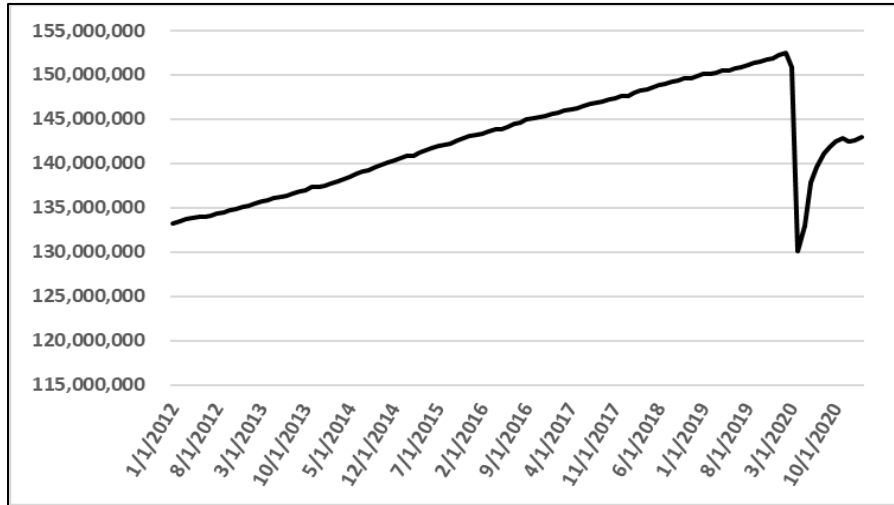
Finally, we look at some unemployment figures which further reflect the low growth (and tight money) policies that we are currently experiencing. At first glance, the improvement in the standard unemployment rate (U3 - red line at 6.2% in below graph) would warrant some optimism. However, when looking at a broader form of unemployment (U6 – black line at 11.1% in below graph) we see the devastating effects of COVID.

Figure 7: Unemployment Rates (United States)⁹



These unemployment rates are further illustrated when looking at the massive drop in total workers in the United States. There is a long way to go in this recovery. According to the below measure, to date the United States has lost approximately 9.5 million jobs!

Figure 8: All Employees, Total Nonfarm (United States)¹⁰

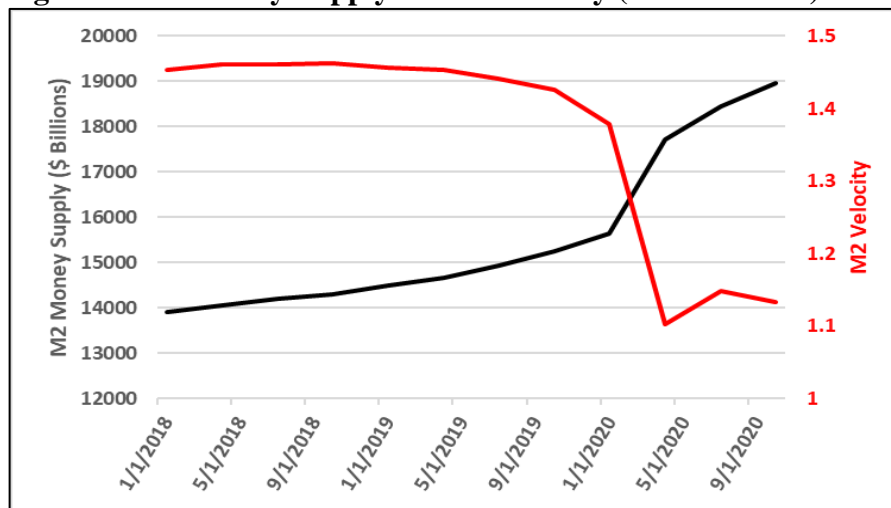


Chapter 3: Federal Reserve Policy, Interest on Reserves and Other Economic Issues

Earlier in this letter we examined how predicted NGDP growth is below trend going out to early 2024. Yet to many pundits it appears that The Federal Reserve has done all it can. After all, *isn't taking the Fed's balance sheet from \$4.1 Trillion to over \$7.7 Trillion (in about a year) all that we can expect from the Fed?* Our answer is a definitive “no, they can do more”. [Recently we've seen the Fed Funds Futures market tick up a bit](#), implying the Fed will be raising rates a bit sooner than expected (though ultimately still in 2022 or so).¹¹ In theory if the Fed waited a bit longer to raise rates (waiting until NGDP futures got back to trend) then the United States would have better economic growth.^{12 13}

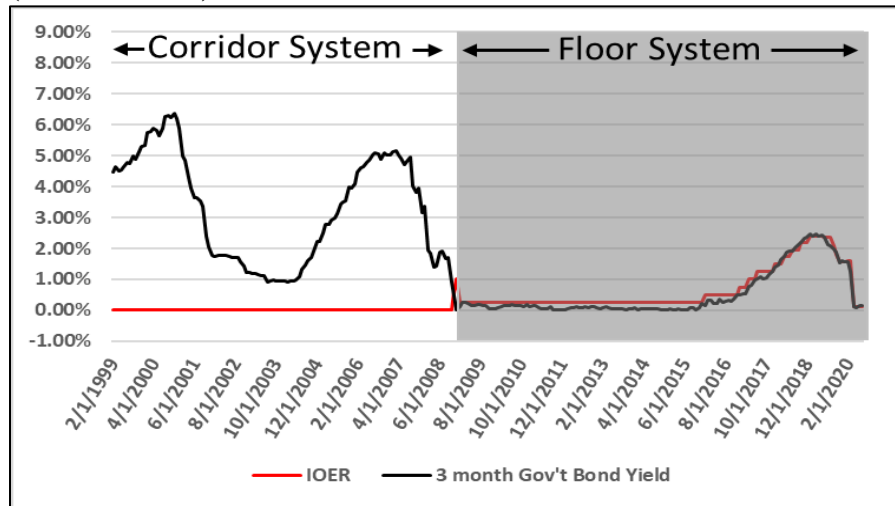
In addition, In [past letters](#) we've examined the role of interest on reserves (IOR) and how keeping the IOR rate too high relative to short term treasuries can result in low expectations, and neutralizing any stimulatory effects of an increase in the monetary base (MB). When commercial banks have their short term treasuries replaced with similar yielding reserves, these commercial banks have very little incentive to increase lending (which increases NGDP). There is no “hot potato”. When the IOR rate is similar to the short term treasury yield, the potato is cold, and NGDP growth will usually remain tepid. In the below graph, we can see the M2 money supply (black line, left axis) has increased rapidly. Unfortunately, the M2 money *velocity* had decreased by a corresponding amount. From the equation $MV=PQ$, we know that the Money supply (M) * Velocity (V) equates to NGDP. We can see that the reason NGDP has stayed below trend is that, despite an increase in the money supply, the drop in velocity has largely offset this increase in “M”.

Figure 9: M2 Money Supply vs. M2 Velocity (United States)¹⁴



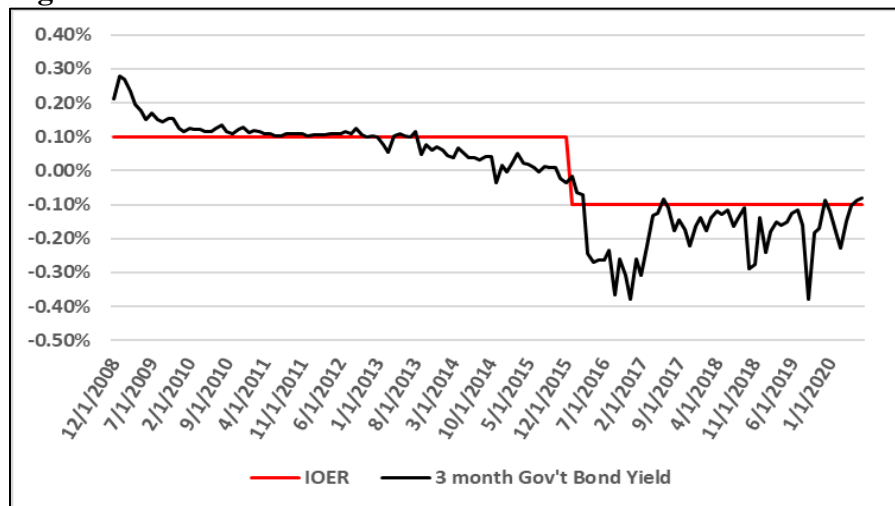
Diving further into this relationship, we note difference in the spread between short term treasuries vs. reserves in both the pre-2008 Corridor system (left half of below graph) as well as the present floor system (right half of below graph, also highlighted in grey). Again, with this lack of spread seen in the right half of the graph, banks will have less incentive to lend and the economy will generally have less NGDP growth for every marginal increase in the monetary base.

Figure 10: Monetary Policy: Corridor System vs. Floor System (United States)¹⁵



Looking next to Japan we can also see a similar pattern of reserves yielding almost equal rates as short term treasuries. Given this, it's no surprise that Japan has been stuck with low nominal G.D.P. growth over much of the last decade.

Figure 11: Interest on Reserves vs. Short-Term Gov't Bond Yields (Japan)¹⁶



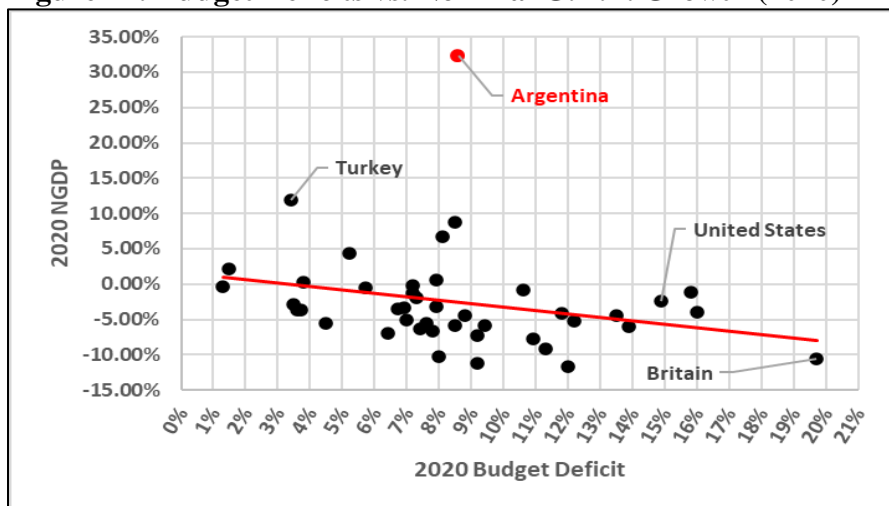
Unfortunately, the lack of understanding of interest on reserves has led some to conclude that the monetary base never matters (or very rarely matters, and only under much larger increases in the monetary base than what we've seen. They might say "an increase in MB will only work if the Fed buys up the entire world", etc.). We will continue to argue against this line of reasoning. We continue to believe that the United States and other countries would experience much faster NGDP growth with *less* amounts of monetary base, if only central banks would stop

shooting themselves in the foot and commit to reducing the spread between reserves and short-term government bond yields. George Selgin issues a related statement and thought experiment:

“IS-LM is useful enough in a recession, when prices are generally above market-clearing levels. But imagine being taught, based upon it, that expanding the money stock lowers interest rates and raises output, in 1981. That was my experience. I asked the prof. “Why not keep expanding “M” indefinitely? Won't that solve all our problems? (Remember, there was no aggregate supply-schedule to determine “P”.) He said, “Well, there's a limit.” (though the diagram suggested no such thing). My hand rose again. “If there's a limit, how do we know if it has already been reached?” At this he became noticeably irritated; and though I can't recall his exact reply its effect was to suggest that mine was a strictly hypothetical concern. This, bear in mind, happened while both the CPI inflation rate and nominal interest rates were in double-digits! THAT was my introduction to IS-LM. So pardon me, Paul Krugman, for not embracing IS-LM then, and for hoping your readers won't rush to embrace it now.”¹⁷

Many of the pundits claiming the impotency of monetary policy next (somewhat understandably) look to fiscal policy or other measures in order to stoke economic (N.G.D.P) growth. While fiscal policy can have its place, especially given the horrible economic conditions and hardships witnesses since the onset of COVID, one should be careful in what to expect from fiscal policy. All else being equal, fiscal policy *can* marginally increase growth, however its far from a guarantee. Monetary policy is the main driver and usually must accompany fiscal policy if an economy is to grow NGDP at a healthy rate. The past year (and we believe future years) are a good demonstration of this scenario: there have been massive fiscal deficits run across the globe, yet we see very little correlation to NGDP growth (again, monetary offset rules the day). Using data from The Economist, in the below graph we look at the correlations between N.G.D.P and budget deficits. Expecting fiscal policy to be the sole or even primary lever to stoke NGDP growth is misplaced.

Figure 12: Budget Deficits vs. Nominal G.D.P. Growth (2020)¹⁸



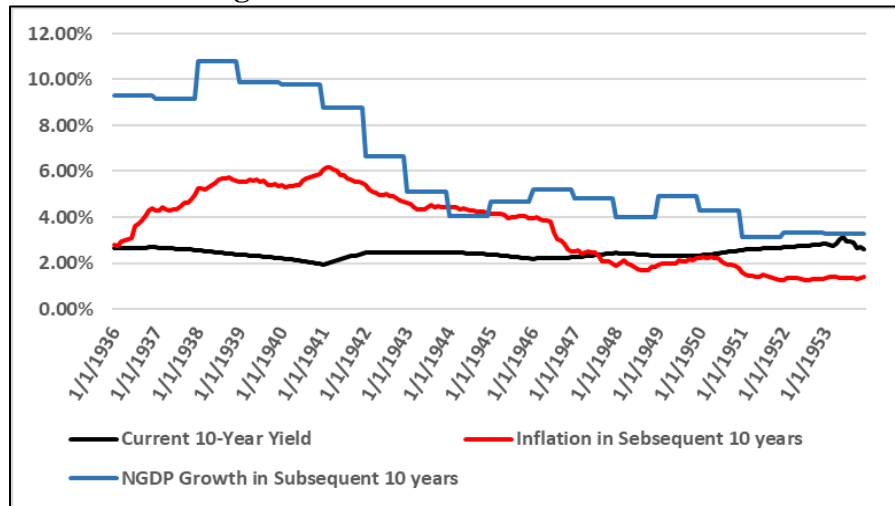
In general (given that most of the economy was shut down in early 2020) we are favor of the early fiscal measures taken during the pandemic. That said, there will eventually come a time (some would argue we’ve passed it) when fiscal policy is no longer a net benefit. Scott Sumner in particular has recently noted his thoughts on fiscal policy:

“I don’t think the fiscal stimulus is a good idea, but not because I expect much inflation. The inflation rate will be determined by the Fed. Rather it’s a reckless policy because it will lead to higher tax rates in the future and won’t do much to generate growth beyond Q3.”¹⁹

Treasury Yields (1936 to 1954)

In this section we will change course and examine why 10-year treasury bond yields were seemingly so far below inflation during and after World War II. First let's look at the 10-year treasury yield from the mid-1930s to the mid-1950s. We'll also look at the subsequent 10-year inflation rate as well as subsequent 10-year NGDP growth from the specific date. We believe smoothing out inflation over many years is important, as the one-year inflation rates were quite high and volatile (8.5% in 1946, 14.5% in 1947 and 7.75% in 1948). One of the most critical factors to note is that from 1942 to 1947: "The Reserve Banks agreed to purchase Treasury bills at an interest rate of three-eighths of a percent per year, substantially below the typical peacetime rate of 2 to 4 percent."²⁰

Figure 13: Federal Reserve Balance Sheet as Percent of Government Debt Outstanding²¹



In looking at this graph we notice that in the early 1940s the 10-year yield was about 4% below the subsequent 10-year annualized inflation rate. While this is a large discrepancy, we push back against the idea that it was solely the Fed buying that was suppressing the 10-year yield. Other factors such as a patriotic government push to buy bonds, as well as uncertainty about the outcome of the war could have played a role in bond yields during this time. Furthermore, there's also some error and uncertainty about what the future holds. After all, subsequent 10-year inflation was *below* the then current 10-year bond yield starting in the 1950s. While there may have been significant suppression of rates, it's wrong to say the Fed completely controlled bond yields. When we look at the Fed's ownership of total debt outstanding (in graph below), the obvious question arises: *why did other owners of outstanding bonds accept such seemingly low interest rates?* If these private owners of government debt thought inflation was going to average 20% a year forever, would they really have traded 10-year government bonds in the free market at 2-3% yields? Unlikely in our opinion, despite any efforts by the Fed to peg yields.

Figure 14: Federal Reserve Balance Sheet as Percent of Government Debt Outstanding²²



Instead, the bond yields of the 1940s, while a bit low given subsequent economic growth, were largely in line with what normally would be expected. The yields were not an order of magnitude off by any stretch of the imagination, and these yields largely show that the free market was determining the bond yields, not the Fed. Yes, the yields would likely have been a bit higher if the Fed had not coordinated with the Treasury, but we still argue it was largely the free market determining yields before, during and after World War II. This is relevant today because of the increased talk of “yield curve control”. Many pundits say yield curve control somehow stoke economic growth. Our views are largely in line with The Economist when they noted: “(Yield-curve control) is an excuse for the central bank to buy less (securities)”.²³ If a central bank decides to peg 10-year yields at close to 0% like in Japan or even 1-2%, then the most likely result is that actual NGDP will remain tepid as the central bank ends up injecting less and less money into the system. Yield curve control can work for short periods of time, as in World War 2, but it is hardly a long-term solution to increasing nominal G.D.P.

Footnotes and Sources

¹ Assumes a 1% annual management fee. Not included in these calculations is an approximately \$200 charge per account per year for fixed costs (minimum account fees, trading commissions, etc.). Split Rock Capital Management runs various separately managed accounts. While the strategy is the same, due to differing start dates, etc, the various accounts can have differing holdings and therefore differing performance numbers. While over the long term we expect these differences to even out, over the short run that can vary meaningfully. That said, on inception date, we started an initial portfolio (our *only* account at the time) which we have always, and will continue to use, as our tracking portfolio. To maintain consistency, and remove any selection bias, all historical performance numbers are from solely this account, regardless if the other accounts outperform or underperform this main tracking account in the past or going forward. Above performance numbers are from our original portfolio account. This was the only account setup as of our 12/15/2015 inception date, and the only account that has been continually open since inception.

² Source: <https://ourworldindata.org/grapher/excess-mortality-raw-death-count>

³ Please note: It appears that the calculation for “stringency” has changed since last fall. See data as of October 2020 [here](#) compared to data as of February 2021 [here](#).

⁴ Source: <https://ourworldindata.org/grapher/excess-mortality-raw-death-count>

⁵ Sources: <https://data.cdc.gov/NCHS/Weekly-Counts-of-Deaths-by-State-and-Select-Causes/3yf8-kanr> ; <https://data.cdc.gov/NCHS/Weekly-Counts-of-Deaths-by-State-and-Select-Causes/muzy-jte6> ; https://en.wikipedia.org/wiki/COVID-19_pandemic_in_New_York_City ; <https://archive.is/OcTwk>

⁶ Sources: <https://predict.hypermind.com/dash/dash/dash.html?list=main>

⁷ Sources: <https://predict.hypermind.com/dash/dash/dash.html?list=main>

⁸ Source: FRED series: “ Households and Nonprofit Organizations; Debt Securities and Loans; Liability, Level+Nonfinancial Business; Debt Securities and Loans; Liability, Level+State and Local Governments; Debt Securities and Loans; Liability, Level+Federal Government; Debt Securities and Loans; Liability, Level+Domestic Financial Sectors; Debt Securities and Loans; Liability, Level)/Gross Domestic Product” https://fred.stlouisfed.org/graph/?graph_id=316529

⁹ Sources: <https://fred.stlouisfed.org/series/UNRATE> ; <https://fred.stlouisfed.org/series/U6RATE>

¹⁰ Sources: <https://fred.stlouisfed.org/series/PAYEMS>

¹¹ Other Sources: <https://twitter.com/TimmerFidelity/status/1374725500338376716> ; <https://archive.is/OiSgY> ; <https://twitter.com/LizAnnSonders/status/1375061145413951490> ; <https://archive.is/t6QI6>

¹² We’d also note that under a corridor system, the real Fed Funds Rate (Fred series: “[BOGZ1FL072052006Q](#)” minus FRED series: “[CPIAUCSL](#)”) is a decent indicator in Fed Policy. When the Real Fed Funds rate is negative (it reached -5% or so a few times in the 1970s and 1980s, then it can be guessed that Fed Policy is fairly easy. Conversely, Paul Volcker brought the Real Fed Funds Rate up to 9% in the early 1980s when he was tightening monetary policy!

*Jeremy Siegel also recently commented on (real) interest rates during this high inflation period: “The Fed fell victim to a phenomenon I refer to as the “nominal interest rate illusion”. The Fed hiked rates to 8% (over 11% FFR in 1974, and then again in 1979) thinking they were tightening their policy, but inflation was running 10-12%, so that real interest rates were going down and the Fed was still too loose. The Fed was not focused on real interest rates back in in that period, but that changed with Paul Volcker who pushed rates up to 20% and that brought inflation down.” Source: <https://www.wisdomtree.com/-/media/us-media-files/documents/resource-library/weekly-commentary/siegel-weekly-commentary.pdf?elqTrackId=537ec4e3bd1d4ada99309ebabb44cd5f&elq=c464f9df74e04f24b29f4748a8d8b46e&elqaid=9455&elqat=1&elqCampaignId=5446>

*Of late, the Real Fed Funds Rate has been negative and yet growth and inflation have been relatively low. A main difference is the Fed’s policy of paying Interest on Reserves (which did not do the last time the real Fed Funds Rate was this far in negative territory). The Real Fed Funds Rate is not an absolute indicator of monetary policy (that indicator is N.G.D.P.), but is only a hint.

¹³ Irving Fisher also addressed the real rate of interest and its relation to an expanding or contracting money supply: “For (Irving) Fisher, the difference between the short run and the long run comes from something he called “money illusion,” meaning the inability of firms and households to distinguish between nominal and real interest rates. He

emphasized that the nominal rate of interest that equates borrowing and lending will normally adjust for any inflation that is expected to reduce the value of money, but that adjustment will usually be incomplete. An expansion of the money supply therefore tends to cause a fall in the real rate of interest (the nominal rate minus inflation) below its equilibrium level, and vice versa for a contraction of the money supply. In Fisher’s model, monetary fluctuation causes real interest rate fluctuation, and that’s what causes business cycles. He concludes that the right monetary policy can stabilize business cycles by controlling the money supply in order to stabilize the level of prices.” Source: Source: Kindle location 3732 of “Fischer Black and the Revolutionary Idea of Finance” by Perry Mehrling

¹⁴ Sources: <https://fred.stlouisfed.org/series/M2SL> ; <https://fred.stlouisfed.org/series/M2V>

¹⁵ Sources: <https://www.reuters.com/article/us-ecb-policy-rates-explainer/explainer-how-does-negative-interest-rates-policy-work-idUSKCN1VY1D2> ; <https://www.federalreserve.gov/monetarypolicy/files/FOMC20100121memo01.pdf> ; <https://www.investing.com/rates-bonds/japan-3-month-bond-yield-historical-data> ; https://en.wikipedia.org/wiki/Negative_interest_on_excess_reserves#Japan ; <https://www.forbes.com/sites/advisoruk/2020/07/02/how-would-negative-interest-rates-affect-your-finance/#7a2346f15170> ; <http://archive.is/LCAqc>

¹⁶ Sources: <https://www.reuters.com/article/us-ecb-policy-rates-explainer/explainer-how-does-negative-interest-rates-policy-work-idUSKCN1VY1D2> ; <https://www.federalreserve.gov/monetarypolicy/files/FOMC20100121memo01.pdf> ; <https://www.investing.com/rates-bonds/japan-3-month-bond-yield-historical-data> ; https://en.wikipedia.org/wiki/Negative_interest_on_excess_reserves#Japan ; <https://www.forbes.com/sites/advisoruk/2020/07/02/how-would-negative-interest-rates-affect-your-finance/#7a2346f15170> ; <http://archive.is/LCAqc>

¹⁷ Source: <https://archive.is/93L5C>

¹⁸ Source: <https://www.economist.com/economic-indicators/2021/02/11/economic-data-commodities-and-markets>

¹⁹ Source: https://www.themoneyillusion.com/mms-mmmters-larry-summers-young-tweeters-and-politicians/?utm_source=dv.it&utm_medium=twitter ; <https://archive.is/UJEKO>

²⁰ “To keep the costs of the war reasonable, the Treasury asked the Federal Reserve to peg interest rates at low levels. The Reserve Banks agreed to purchase Treasury bills at an interest rate of three-eighths of a percent per year, substantially below the typical peacetime rate of 2 to 4 percent. The interest-rate peg became effective in July 1942 and lasted through June 1947. The Reserve Banks reduced their discount rate to 1 percent and created a preferential rate of one-half percent for loans secured by short-term government obligations, substantially below the 3 to 7 percent that had been common during the 1920s. All of the Reserve Banks implemented these rates in the spring of 1942. The rates remained in effect until January 1948” Source: <https://archive.is/QkF6w>

²¹ Sources: <https://www.measuringworth.com/usgdp/> ; <http://www.econ.yale.edu/~shiller/data.htm>

²² Sources: <https://fiscaldata.treasury.gov/datasets/historical-debt-outstanding/historical-debt-outstanding> ; <https://www.stlouisfed.org/publications/regional-economist/january-2014/the-rise-and-eventual-fall-in-the-feds-balance-sheet>

²³ <https://twitter.com/SplitRockMgmt/status/1287764763863330817>

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