Split Rock Capital Management

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March 31st, 2022

To: All Investors
Re: Annual Letter 2021, Letter to Investors

Dear Investors:

In 2021 Split Rock Capital Management returned 34.37% net of fees.[1] Our annualized return since inception is 14.07% vs 17.44% for the S&P 500 (dividends included). $100,000 invested at inception has grown to approximately $221,790 vs. $264,390 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%
2021	28.71%	35.37%	34.37%
Cumulative Return Since Inception	**164.39%**	**127.84%**	**121.79%**
Annualized Return Since Inception	**17.44%**	**14.58%**	**14.07%**

Please refer to the disclosures (1 to 5) at the end of this letter as well as the disclaimer on the page 13
All results have not been audited

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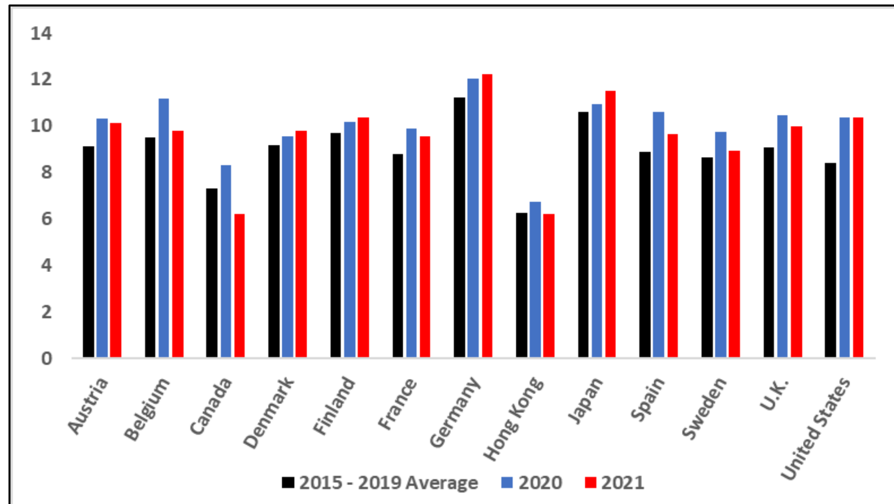
Chapter 1: COVID-19

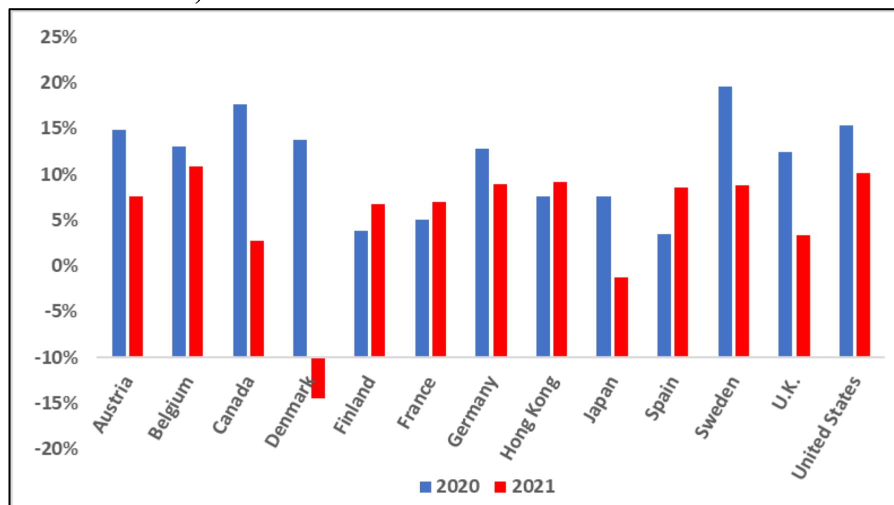
In this first section of our letter, we'll update a few of the graphs we started with in last year's letter. Covid continued to dominate the world stage. In our updated graph below, we can see continued elevated excess deaths around the globe in 2021 relative to the 2015 to 2019 timeframe. In some countries, deaths were slightly elevated from the already high 2020 levels, and in others there was a noticeable drop in death rates.[6]

Figure 1: Total Deaths per Million (2015-2019 Average vs. 2020 and 2021)[7]



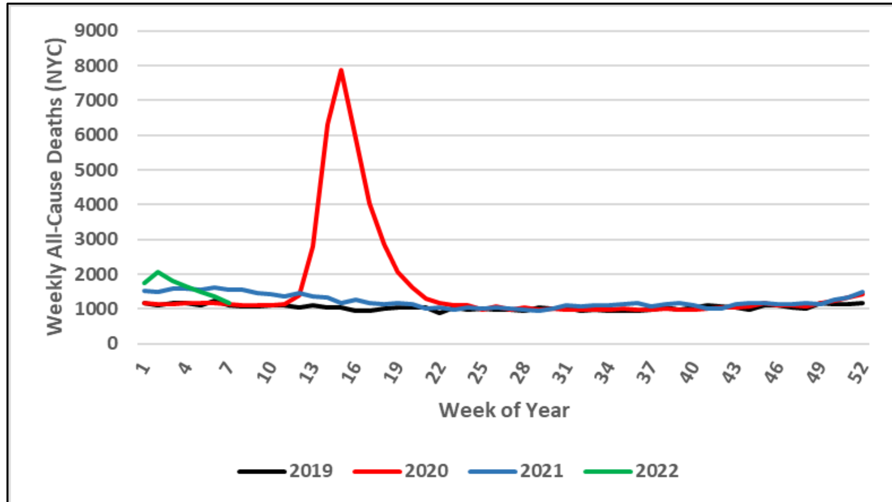
As in last year's letter, we look at these numbers as a percentage over baseline in the below graph. We again see a varied (though in aggregate approximately equal) death rate in 2021 as we saw in 2020.

Figure 2: Increase in All-Cause Mortality (2020 and 2021 compared to 2015-2019 Baseline)[8]



And finally, we look at how the virus moved its way through New York City. The positive news is that we've seen nothing close to the initial 2020 spike in deaths. The Jan – March period of 2021 saw some excess deaths, but quickly returned to 2019 levels by the middle of 2021. Early 2022 has seen some higher-than-normal death rates, but nothing close to the rate seen in early 2020.

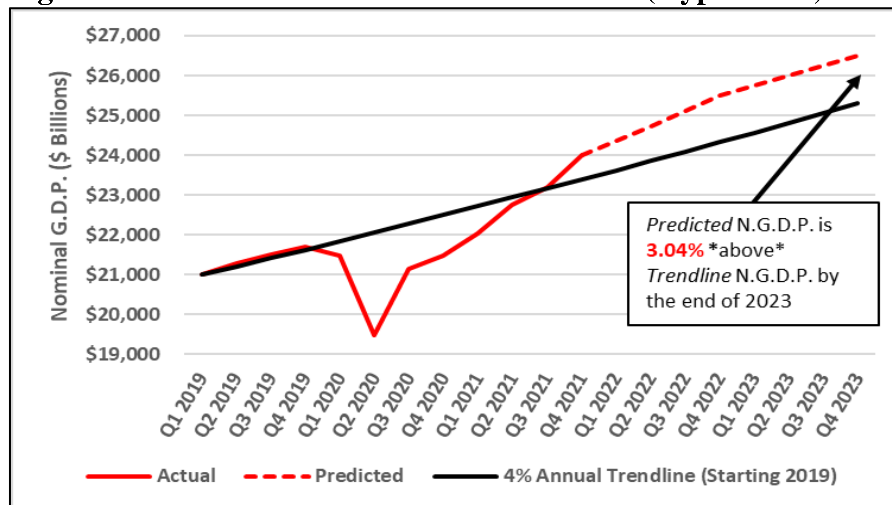
Figure 3: New York City All-Cause Mortality by Week (2019 - 2022)[9]



Chapter 2: General Economic and Market Conditions

In last year's letter we noted the forecasted growth of nominal G.D.P. vs. its pre-covid trendline. Last year we noted that various futures markets were implying *low, below trend* nominal G.D.P. growth over the next few years. Since the publication of last year's letter there have been significant changes to these forecasts. In the graph below, we note that the futures markets have flipped and now imply significant *above trend* nominal G.D.P. growth for the next few years.[10]

Figure 4: Nominal G.D.P. Growth 2019 - 2023 (Hypermind)[11]

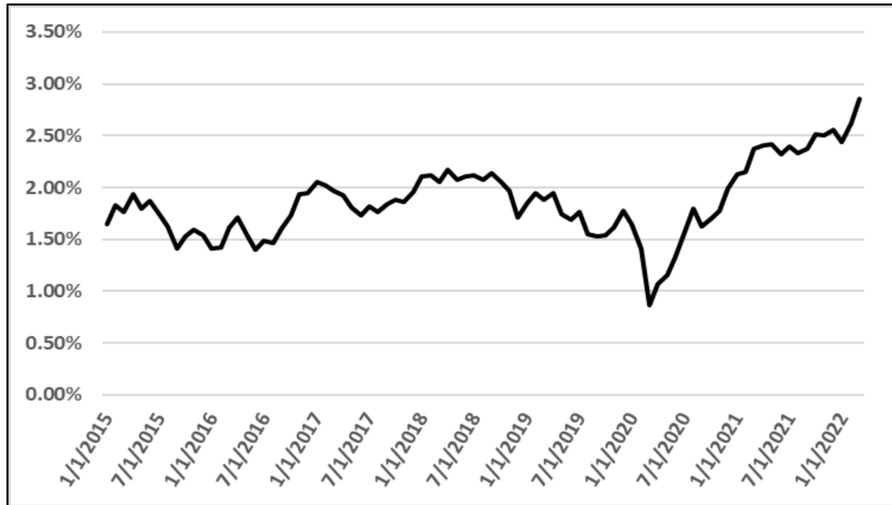


Others have noted the above trend inflation forecasts as well. We initially were slightly less concerned about the above-trend inflation growth because, as we've mentioned in prior year's letters, when real GDP is below trend, it is desirable to let inflation run *above* trend in order to keep nominal G.D.P. *on trend*. However, the concern was that the Fed's stated goal was an inflation target (not N.G.D.P.) target and that it was undermining its credibility by missing its target, regardless of the economic merits of that specific target. Those worries appear to have been well founded: while the inflation picture has continued to deteriorate, we now have the added problem of N.G.D.P. growth being too high.[12] We hope the Federal Reserve takes its mandate seriously and begins to steadily reduce N.G.D.P. growth expectations so that N.G.D.P. returns to the 4% pre-covid trendline over the next few years. That said, we don't want a *sudden* return to trend which risks a recession. And finally, as we've mentioned many times, the task of tightening monetary policy remains muddied because of the current floor system – in which the size of the Fed's balance sheet has a much less clear effect now vs. before the advent of interest on excess reserves (IOER) in 2008. Post-2008, tightening monetary policy may not be as easy as simply shrinking the Fed's balance sheet, especially if interest on excess reserves remains high relative to the yield on short-term treasuries.

Another story of late has been the rise in yields across the yield curve. The three-month treasury has risen from 0% to approximately 0.5%. In addition, we've seen the 10-year yield rise from its 2020 low of about 0.5% to approximately 2.3%. One of our concerns is the risk of the Fed flattening the yield curve by continuing to raise short term rates in the face of flat or even declining 10-year yields.[13] On the flip side, many market pundits have become concerned about the rise in yields as well as the rise in inflation. We'd note a few things: as mentioned in prior letters we note a very rough long-term pattern of the 10-year treasury yield averaging 0% to 2% below NGDP growth over the very long term. If NGDP growth is expected to average 4% over the next decade, it would not be surprising to see 10-year yields range from 2% to 4%.[14] We saw the 10-year yield rise over 3% in 2018. While we are concerned with the easy monetary policy at present, long-term bond yields and inflation expectations remain only slightly elevated and hardly at hyperinflation/high inflation levels seen in the 1970s and early 1980s. Below are the current 10-year forward inflation expectations. While the rise of late is concerning, this is a forward-looking market and should be relatively efficient at any point in time: it's far from a guarantee that these inflation expectations will continue to rise. We are not particularly worried that the year over year inflation print of almost

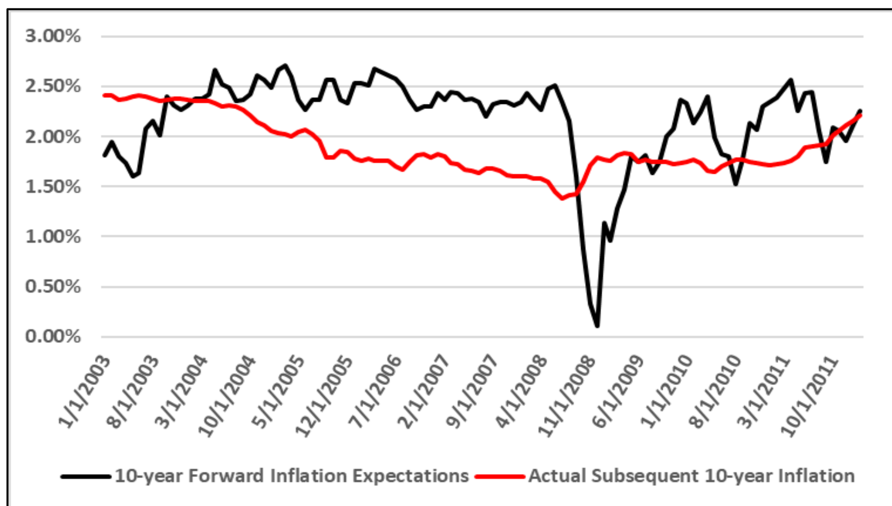
8% will continue for the next decade and instead expect YOY inflation numbers to come down from current levels. That said, monetary policy should certainly be tightened from its current levels.

Figure 5: 10-year Breakeven Inflation Rate[15]



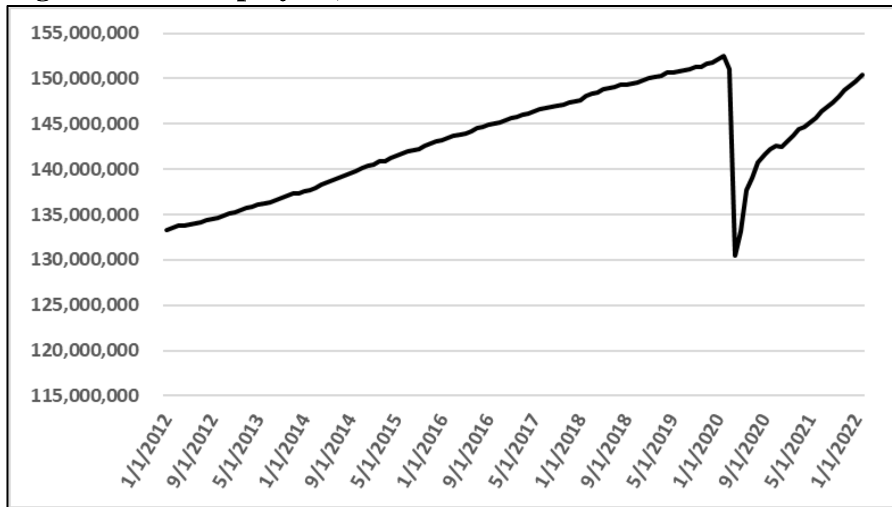
While there is no guarantee that these inflation expectations pan out, when we look at the historical record of these expectations, we can derive some comfort that they are likely to be fairly accurate. By looking at the most recent readings in which *actual* inflation data is available, we notice that, if anything, inflation expectations have tended to *understate* the subsequent actual inflation. If this pattern were to continue, then the already muted current inflation expectations of 2.86% may turn out to be an *over*estimate. *Inflation expectations are higher now that they've been in multiple decades and should be taken seriously*. That said, fears of hyperinflation seem overblown.

Figure 6: 10-year Breakeven Inflation Rate vs. *Actual* Subsequent 10-year Inflation[16]



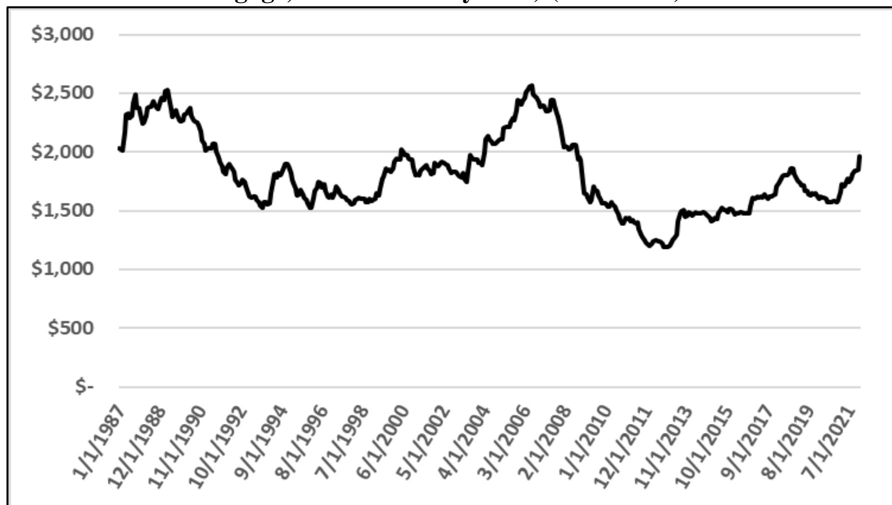
Next, we note the healthy and continued improvement in the total employment figures that we mentioned in last year's letter. A clear pre-covid trendline is evident and we can see the growth rate in 2021 was at a higher rate compared to the pre-Covid trend. We are almost back to the 2019 total employment figures and the shortfall from the trendline continues to be reduced and this gap should disappear if current trends continue.

Figure 7: All Employees, Total Nonfarm (United States)[17]



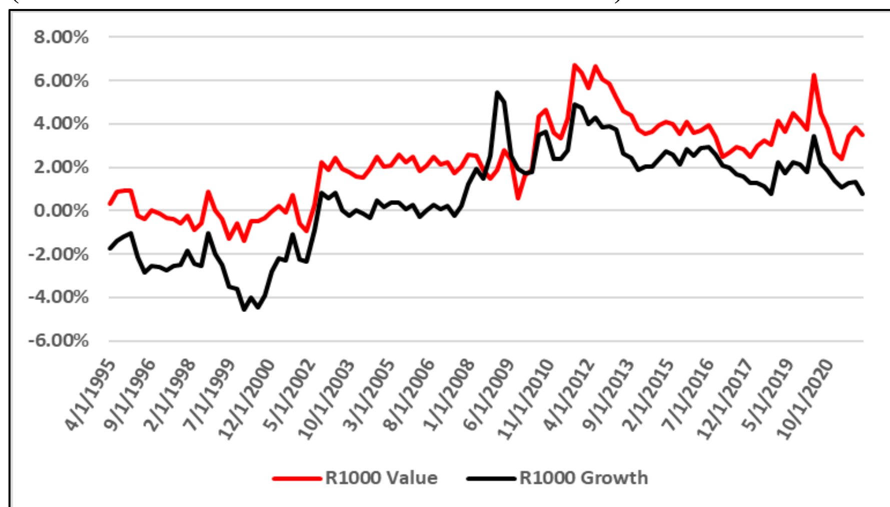
There has been much talk lately of the rise in home prices and the subsequent fears of an overheating housing market. It's worth mentioning that the shifts in working patterns brought on by remote work will almost certainly affect housing demand in individual markets for the foreseeable future. However, when we look at house prices in aggregate, our opinion is that current housing affordability remains reasonable compared to historical figures (the higher house prices of late are largely being offset by lower mortgage rates). Of course, an N.G.D.P. shock could tank housing prices tomorrow and an unforeseen *rise* in inflation would also drastically alter the housing affordability picture almost immediately.

Figure 8: Estimated Monthly Mortgage Payments
(Indexed to $500,000 Purchase Price in 2021 dollars,
30-Year Fixed Mortgage, 20% Down Payment) (1987-2022)[18]



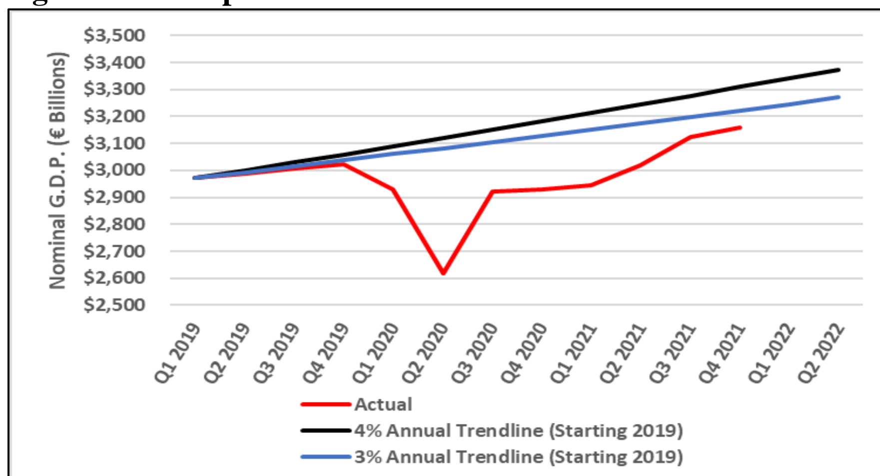
Moving our focus to equities: back in our 2016 Annual Letter we noted that we thought stocks were, in aggregate, fairly valued when compared to long term bond yields (known as the equity risk premium). Here we look at the equity risk premium broken out by "Value" and "Growth" stocks. While these are far from perfect definitions and classifications, it is worth noting that value stocks, based on the equity risk premium, are trading at relative valuations (vs. Growth) that have not been seen since the dot com bubble in the early 2000s. The current spread between the equity risk premium for Value and the Equity risk premium for growth stands at 2.72% as of January 1st, 2022. Except for a brief spike in April of 2020, *the January 2022 spread of 2.72% is the largest seen since July 1st, 2000 when this spread reached an all-time high of 3.99%* (based on quarter end figures). Value stocks significantly outperformed growth stocks in the years following the 2000 dot com bubble.[19]

Figure 9: Relative Valuations based on Equity Risk Premium (Russell 1000 Value vs. Russell 1000 Growth)[20]



Finally, we will look at NGDP vs. trendline for the European Union. Readers will recall that E.U. nominal G.D.P. growth was much more tepid than in the U.S., post-2008. In the graph below we note a similar pattern: E.U. nominal G.D.P. growth is slower compared to the United States. As we noted in a prior letter, some of this can be explained by slightly lower working age population growth in the E.U. (relative to the U.S.). That said, the divergence between U.S. and EU working age population growth rates is fairly small at the moment and this gap is only expected to expand to slightly over 0.5% per year over the next decade or two. In an effort to remain conservative, we've decided to add an extra 3% NGDP growth trendline for the E.U. below. The E.U. remains significantly *below* both the 3% and 4% trendlines. Unfortunately, there is no N.G.D.P. futures market for the E.U. over at Hypermind.

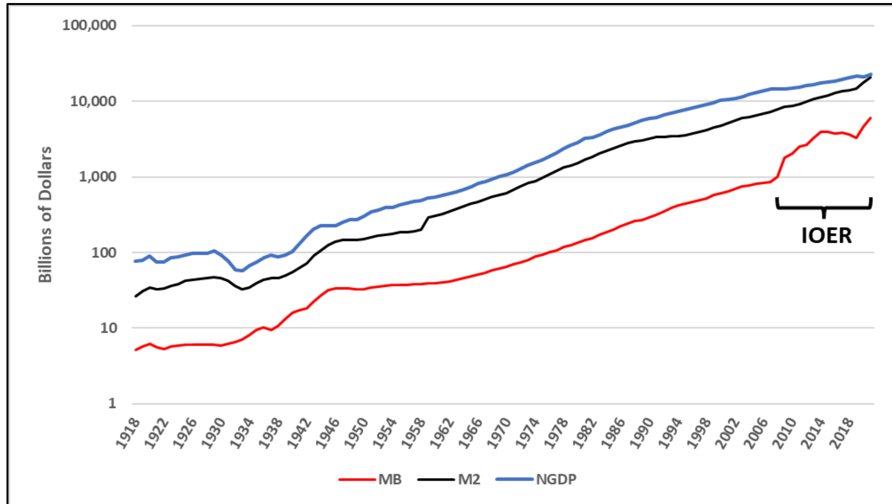
Figure 10: European Union Nominal G.D.P. Growth 2019 - 2021[21]



Chapter 3: The Great Depression

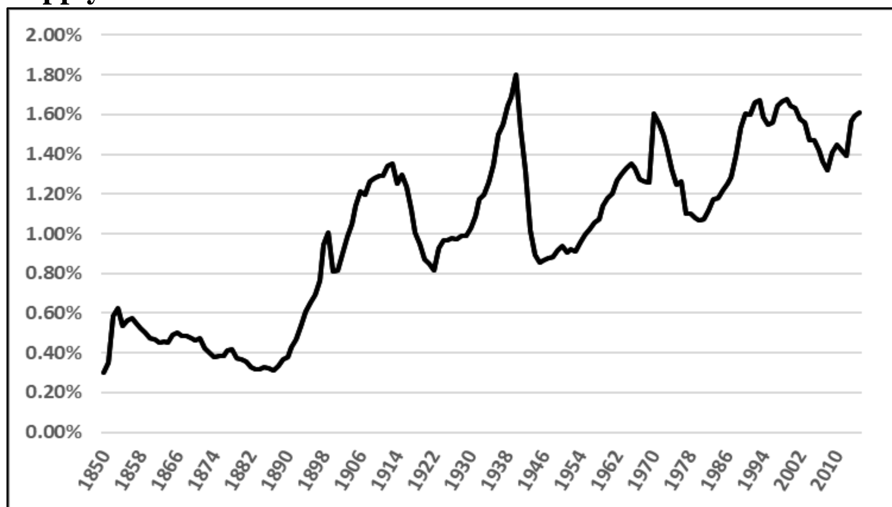
In past letters we've look at the Great Depression and will expand on that analysis here. Continuing a theme of this letter, we will look at the NGDP trendline that existed around the time of the Great Depression. There are a few things to note. As we've noted before (and in the graph below), nominal G.D.P. will tend to trend with the growth of the monetary base over the long run.[22] *From 1918 through 2007, MB increased at an annualized rate of 5.9%, M2 increased at an annualized rate of 6.5% and N.G.D.P. increased at an annualized rate of 6.1%; not a coincidence!* However, since 2008, when the Fed moved from a corridor system to a floor system (and began paying interest on excess reserves (IOER)) this relationship between the money supply and N.G.D.P. became less clear.

Figure 11: Correlation between MB, M2 and Nominal G.D.P. (1918-2021)[23]



Looking at the monetary base during the gold standard (or at least a portion there of), we see that in the years leading up to the Great Depression, gold discoveries were averaging approximately 0.5% to 1.5% a year, with some variability as seen in the chart below.[24]

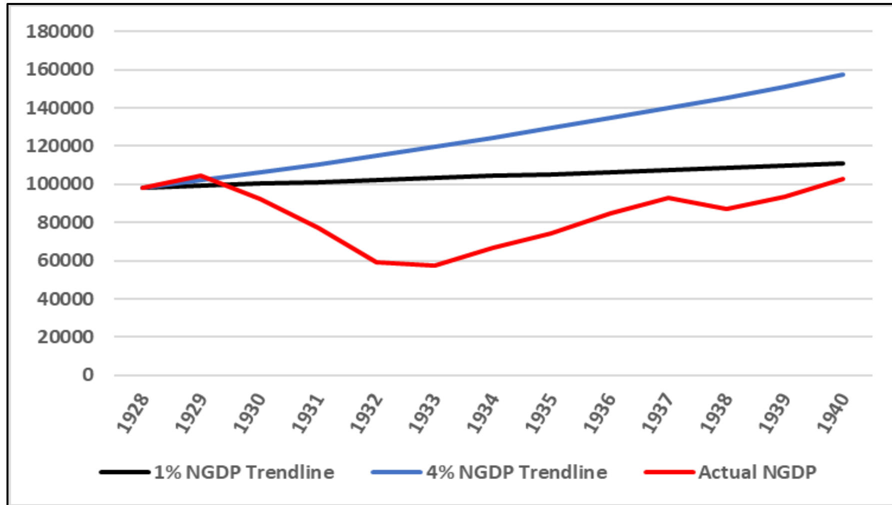
Figure 12: Annual World Gold Production as Percentage of World Gold Supply[25]



With this knowledge of the relationship between MB and nominal G.D.P. we can create an N.G.D.P. trendline chart as seen earlier in this letter. The conservative 1% trendline would approximate gold discoveries. The more

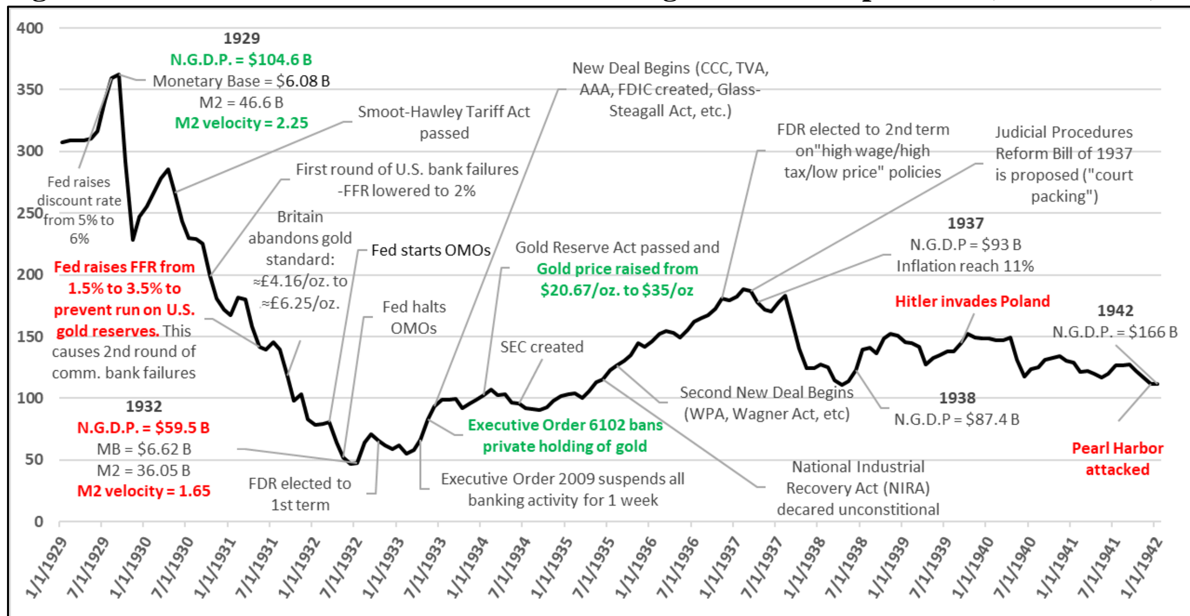
aggressive 4% trendline approximates United States N.G.D.P. growth in the years leading up the Great Depression (with US N.G.D.P. growing faster than world gold discoveries because of a combination of a weakening of the gold reserve ratio as well as the United States economic rise in power/stature relative to the rest of the world). Actual N.G.D.P. growth was well below both trendlines for the entire decade of the 1930s. Of course, we should note that *worldwide* gold discoveries in the graph above may not correlate exactly with *United States* money supply because of gold inflows, outflows, etc. That said, it gives a good approximation over time

Figure 13: United States Nominal G.D.P. Growth during the Great Depression[26]



Finally, as we did in prior letters with the 2008 Financial Crisis and the 2020 Covid Crisis, we've created a moment-by-moment timeline of significant events overlayed with the S&P 500 price index throughout the Great Depression. While there are many causes of the Great Depression, as well many factors leading to the subsequent recovery, we tried to list the highlights below.

Figure 14: S&P 500 Price vs. News Events during the Great Depression (1929 - 1942)[27]



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] Includes dividends. Please note that these "S&P 500" numbers use SP500TR. The performance numbers may very slightly from the official S&P 500 performance numbers listed elsewhere on a year to year basis. However, over time, the differences should cancel out. For example, our SP500TR numbers for 2016 was 21.87% which was slightly above the official 21.83% for the S&P 500. However, in 2018 the differences largely evened out, with our SP500TR reporting a return of -4.41% while the official S&P 500 return was -4.38%. The differences in annual returns are largely canceled out over the entire 2-year time frame, and we expect differences between the two performance metrics to be even less of longer periods of time.

Also please note: 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.

[3] Assumes a 1% annual management fee. Not included in these calculations is an approximately $200 charge per account per year for fixed costs (account fees, trading commissions, etc.). Split Rock Capital Management runs various separate 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, 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. 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.

[4] Assumes a 1% annual management fee. Not included in these calculations is an approximately $200 charge per account per year for fixed costs (account fees, trading commissions, etc.). Split Rock Capital Management runs various separate 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, 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. 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."

[5] Partial year only; from inception date of 12/15/2015 to 12/31/2015.

[6] An interesting data point would be comparing say Spain's vaccination rate vs the U.S.'s vaccination rate and seeing if that can explain the difference. In Spain's case, it initially lagged the United States vaccination rate in the first half of 2021, however Spain caught up and in the second half of 2021, Spain had a *higher* vaccination rate than the United States. Source: https://ourworldindata.org/covid-vaccinations

[7] Source: https://ourworldindata.org/grapher/excess-mortality-raw-death-count

[8] Source: https://ourworldindata.org/grapher/excess-mortality-raw-death-count
[9] 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
[10] The graph below uses actual NGDP estimates from 3/20/2022 from Hypermind.com (8.17% for 2021, 6.16% for 2022 and Split Rock Capital estimates of 4% for 2023.
[11] Sources: https://predict.hypermind.com/dash/dash/dash.html?list=main
[12] Even Scott Sumner admits he was late to being worried about inflation: "It wasn't until late 2021 that it became clear to me that monetary policy was too expansionary, even though in retrospect policy had been too expansionary since mid-2021. I assumed the Fed had an effective regime in place. It didn't. [Memo to myself: Don't assume the Fed has an effective regime in place.]". | | "In retrospect, I paid too much attention to Fed promises to target the average inflation rate. This January, Powell basically admitted that he had abandoned the FAIT policy, when he denied that a period of above 2% inflation needed to be offset by below 2% inflation in future years. Smarter observers like Bob Hetzel focused on how the language used by Fed officials echoed statements made in the 1960s and 1970s, when they also tried to "run the economy hot" to create jobs. (Kudos to Larry Summers and Tim Congdon as well.) I thought that happy talk was empty rhetoric to please the administration. I thought FAIT (flexible average inflation targeting) would be maintained. I was wrong. ". Source: https://www.themoneyillusion.com/the-money-illusion-is-back/
[13] We'd also note that Fed funds futures have the FFR at close to 2.9% by the end of 2023 vs a bit over 2.5% predicted by the Dot plots. Sources: https://www.cmegroup.com/markets/interest-rates/stirs/30-day-federal-fund.quotes.html ; https://archive.ph/rHgvA ; https://twitter.com/adavis_wsfs/status/1504158746284601347 ; https://archive.ph/Zm9V8 ;https://twitter.com/SoberLook/status/1471789650306125828 ; https://archive.ph/KLTMq
[14] Nominal GDP grew at an annualized rate of approximately 6.39% from 1962 through 2021. Over that same time frame, the 10 year treasury daily average yield was approximately 5.95%. Sources: https://fred.stlouisfed.org/series/GDP ; https://fred.stlouisfed.org/series/DGS10
[15] Sources: https://fred.stlouisfed.org/series/T10YIE
[16] Sources: https://fred.stlouisfed.org/series/T10YIE ; https://fred.stlouisfed.org/series/CPIAUCSL
[17] Sources: https://fred.stlouisfed.org/series/PAYEMS
[18] Ignores property taxes, insurance, etc. and strictly uses the formula: P [i(1 + i)^n] / [(1 + i)^n – 1]
Sources: https://fred.stlouisfed.org/series/CSUSHPINSA ; https://fred.stlouisfed.org/series/CPIAUCSL ; https://fred.stlouisfed.org/series/MORTGAGE30US
[19] Both value stocks and growth stocks appear to be more attractive on an absolute basis than they were in the late 1990s (based on the equity risk premium)
[20] Source: Bloomberg data
[21] Sources: https://fred.stlouisfed.org/series/EUNNGDP
[22] Source: https://twitter.com/SplitRockMgmt/status/1229465228120928257 ; https://archive.ph/cARwc
[23] Sources: https://fred.stlouisfed.org/series/AMBNS ; https://fred.stlouisfed.org/series/BOGMBASE ; https://fred.stlouisfed.org/series/M2ns ; https://fred.stlouisfed.org/series/gdp
[24] The monetary base consisted of more than just physical gold in the years leading up to the Great Depression (physical gold was generally in the range of 30% - 80% of the monetary base during this time before the Great Depression). Sources: http://www.gold.org/download/file/2957/annual_time_series_on_world_official_gold_reserves.pdf ; http://onlygold.com/Info/Historical-Gold-Prices.asp ; http://www.econdataus.com/cpi_m2.html ; https://fred.stlouisfed.org/series/M2ns
[25] Sources: https://ourworldindata.org/grapher/gold-production ; https://archive.ph/6BJ0h ; https://www.expensivity.com/worlds-gold/ ; https://archive.ph/MlXU7 ; http://www.measuringworth.com/usgdp/
[26] Sources: https://ourworldindata.org/grapher/gold-production ; https://archive.ph/6BJ0h ; https://www.expensivity.com/worlds-gold/ ; https://archive.ph/MlXU7 ; http://www.measuringworth.com/usgdp/
[27] Source: https://fred.stlouisfed.org/series/AMBNS ; http://www.econdataus.com/cpi_m2.html ; https://www.measuringworth.com/datasets/usgdp/ ; https://www.themoneyillusion.com/another-misleading-argument-by-cole-and-ohanian/ ; Kindle location 5405 of "The Midas Paradox" by Scott Sumner ; https://en.wikipedia.org/wiki/Timeline_of_the_Great_Depression ; https://archive.ph/YFKCv ; https://newworldeconomics.com/foreign-exchange-rates-1913-1941-just-looking-at-the-data/ ; https://www.thebalance.com/great-depression-timeline-1929-1941-4048064

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