

Economic & Market Outlook

Executive Summary

- ~ During the first quarter, US and global stocks appreciated 6.2% and 4.7%, respectively. The market rally was led by companies more likely to benefit from the reopening of our economy, while so-called “work from home” stocks lagged.
- ~ The fixed income markets (measured by the Aggregate Bond Index) fell 3.4% during the quarter. The primary driver of bond losses was an increase in nominal interest rates.
- ~ Many believe we have entered a new interest rate regime. In this letter, we discuss the drivers of interest rates and the implications of higher interest rates.

Why Rates Matter

Interest rates are, perhaps, the single most important variable in finance. As Warren Buffett once noted, they act like gravity on the valuation of every asset class. Exceedingly high rates necessitate lower valuations. Exceedingly low rates make almost any valuation justifiable. Today, there is a strong consensus that interest rates are heading higher. The purpose of this letter is to address that view.

By our calculations, a 1.0% increase in nominal interest rates would set the investment-grade bond market back 6.4%. The implications for longer-dated bonds, like a 30-year Treasury, are worse. In their case, a 1.0% rate move would lead to a 19.8% price decline. Now imagine the impact of a 2.0% move. The associated losses would be massive. Investors’ concerns about rising rates are understandable. Fixed income markets are more sensitive to changes in interest rates than at any other time in our history.

The potential fallout from higher rates is not just limited to the fixed income markets. The level of nominal rates has implications for every single asset class. It all comes back to how we value cash flows. In theory, every investment should be worth the present value of its future cash flows. It does not matter if we are talking about a listed stock, a private loan, or an equity interest in real estate.

The keyword or phrase here is present value. It is the idea that a dollar today is worth more than a dollar in the future. This makes intuitive sense because \$10,000 today can grow over time. For example, suppose a friend asked for an interest-free loan of \$10,000 that he would pay back in one year. How much did that loan cost you? The answer depends on the level of risk-free rates. If the 1-year Treasury (our risk-free proxy) yielded 0.2%, as it did at quarter-end, the opportunity cost to you was only \$20. You did not lose out much by providing an interest-free loan. Now imagine the 1-year Treasury yielded 10.0%. In this case, the opportunity cost to you was \$1,000. The time value of that money was very costly. You would have been far better off holding on to that money and investing it in the Treasury.

Here is a quick rubric. When rates are zero, a dollar today is worth the same as a dollar in the future. When rates are low, a dollar today is slightly more valuable than a dollar in the future. When rates are high, a dollar today is worth a lot more than a dollar in the future. Right now, rates are very low, which means distant cash flows are similarly valued to immediate cash flows. This makes longer-duration investments far more appealing, like venture and/or early-stage investing. Individuals can afford to invest in high-growth, money-losing enterprises whose cash flows may take years or even decades to materialize. If rates climb, particularly as a result of inflation, the fear is that all assets will be worth less, particularly the longer-duration assets that have been in favor these past few years.

The Drivers of Nominal Rates

Nominal interest rates, the ones your read about in the paper, are equal to the real interest rate plus the inflation rate.

$$\textit{The Fisher Equation:} \quad \begin{matrix} \textit{nominal} \\ \textit{rates} \end{matrix} = \begin{matrix} \textit{real} \\ \textit{rate} \end{matrix} + \begin{matrix} \textit{expected} \\ \textit{inflation} \end{matrix}$$

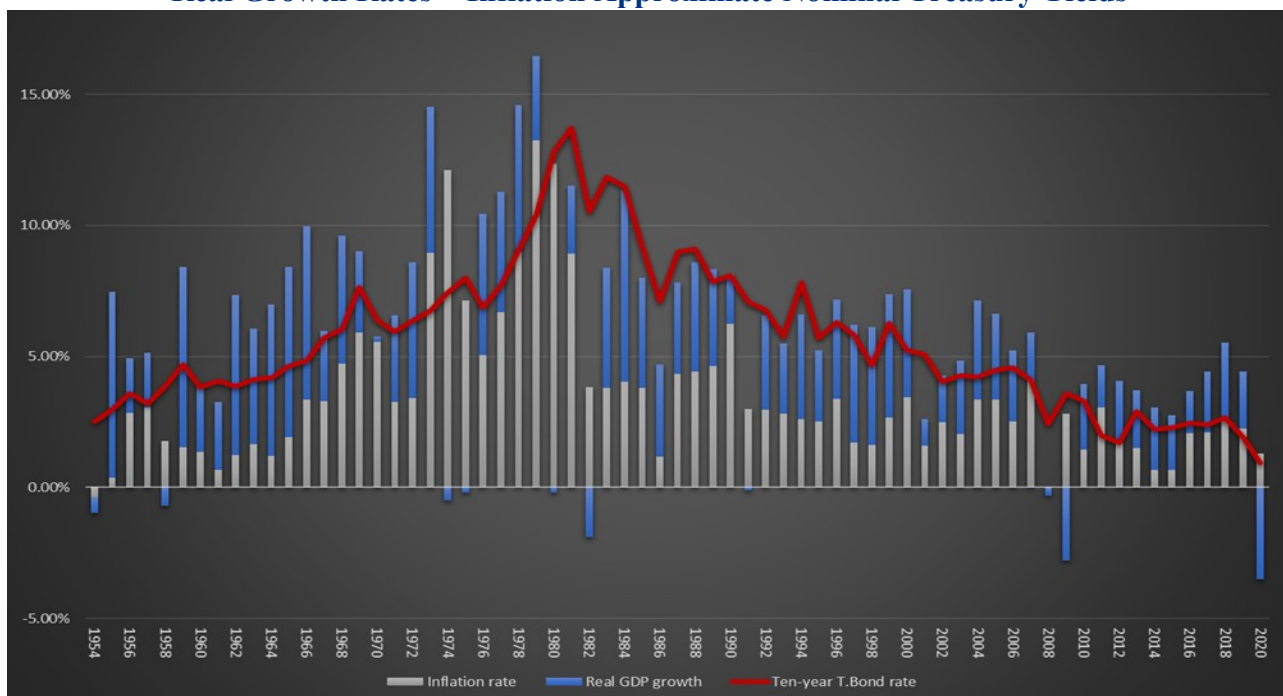
Any argument that interest rates will rise is either an argument for higher future real rates, higher future inflation, or some combination of the two. Unfortunately, neither real rates nor expected inflation is predictable.

The Real Rate of Interest

Economists have theories as to what drives the real rate of interest but they lack a definitive answer, which is typical for the profession. Classical economists, like Alfred Marshall and Irving Fisher, argued real rates were determined by the supply and demand for savings. Savings result when individuals in our economy consume less than they earn. A party's willingness to save is directly influenced by the rate of interest they can earn on those savings. Higher interest rates entice more savings and lower interest rates, less. The demand for savings comes from investment activities, like a company's need to build a new manufacturing plant. The higher the return a person would get from a particular investment, the more they will demand another party's savings to invest. In essence, interest rates are the market-clearing rate where the demand for savings (for investment purposes) intersects with the supply of savings.

Under this theory, the real rate of interest is related positively to the potential growth rate of our economy. If participants in our economy anticipate strong future growth prospects, the demand for savings (for investment purposes) will increase. Additionally, individuals anticipating future growth might be incited to pull forward consumption, which will constrict the supply of savings. Both aforementioned factors would result in a higher level of interest rates. Conversely, if individuals anticipated poor economic prospects, they would likely forego some level of investment, and individuals/corporations might choose to save more in preparation for the hard times ahead. Thus, poor economic growth prospects would result in lower interest rates.

Real Growth Rates + Inflation Approximate Nominal Treasury Yields



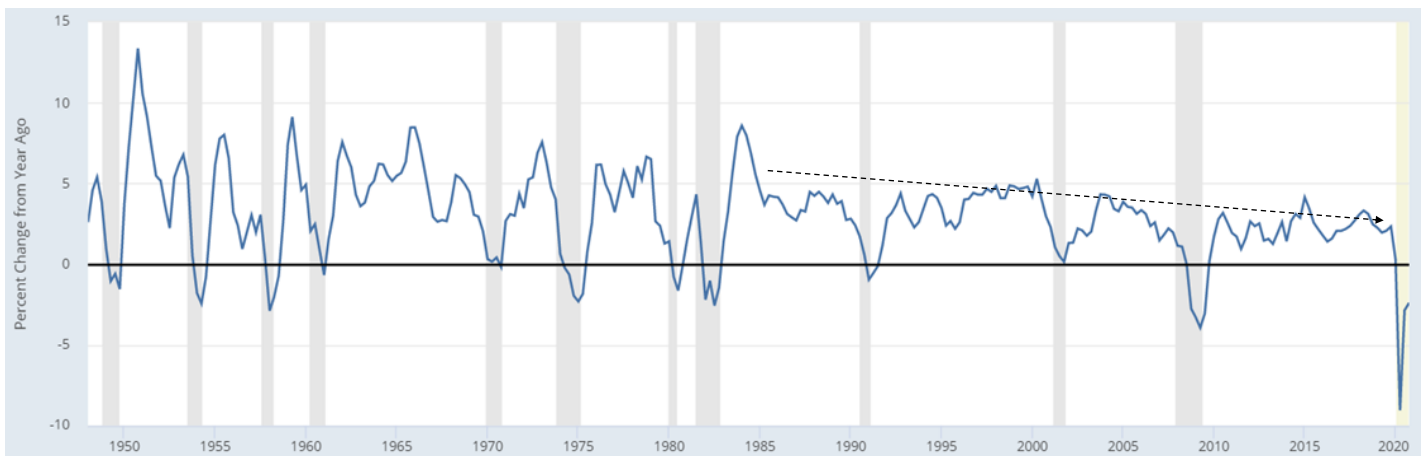
Source: Aswath Damodaran, PhD

Many arguing for higher rates believe real economic growth is set to accelerate, which will push real interest rates higher. This is a perfectly valid argument. Consensus GDP forecasts call for 6.2% real growth in 2021, which would mark the fastest rate of growth in almost 40 years. And the forecast for 2022 is also robust at 4.0%. That said, if you are making this argument, it is necessary to distinguish between cyclical and secular growth.

Most would suggest that our currently elevated growth prospects are cyclical. Last year, real per capita GDP fell 9.5% year over year at its nadir during the COVID shutdown. The base effects of this decline alone are powerful. Said differently, current GDP estimates look stronger than usual because the denominator in our calculations is smaller than usual. More importantly, the pandemic caused many corporations and individuals to forgo certain expenditures. Pre-pandemic, the US had \$13.4 trillion in personal consumption expenditures, but only \$10.9 trillion at the peak of the lockdown. For perspective, that decline in personal consumption expenditures was equal to 13.3% of real economic output in the prior year. The drop in consumption was not permanent. In most cases, individuals did not spend money because they could not. Businesses were closed. As the virus recedes and our economy reopens, a large portion of the foregone spending (and capital investment) will return.

The addition of massive government stimulus makes this recovery even more interesting. During the heart of the pandemic, the CARES Act was passed, which called for \$2 trillion in funding (roughly 10% of US output in 2019). A quarter of that bill was designated for direct, one-time cash payments and enhanced unemployment benefits. Another large swath was designated for the Paycheck Protection Program, which provided forgivable loans to small businesses. In December, another \$900 billion in stimulus was passed with programs similar to the CARES Act. More recently, the Biden administration signed yet another coronavirus relief package for \$1.9 trillion, which contained funding for additional direct payments and enhanced unemployment benefits. Think about this for a second. Total fiscal stimulus since the onset of the Pandemic is in the ballpark of \$4.8 trillion. Government transfer payments were so large during the pandemic that, on average, individuals have more net savings today than they did when the pandemic started. The market, justifiably, is anticipating a strong cyclical recovery thanks to ample pent-up demand, which should be turbocharged by unprecedented levels of fiscal stimulus.

Real GDP Growth Rates Have Been in Secular Decline

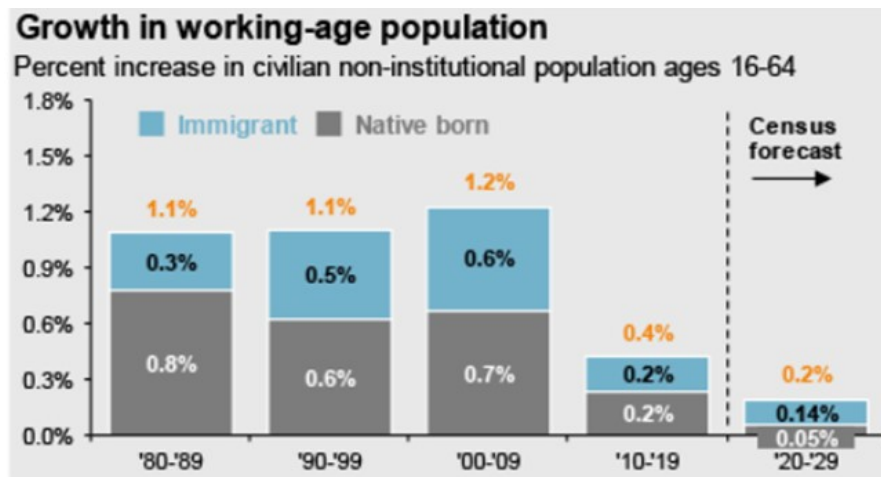


Source: Federal Reserve of St. Louis

But what does real economic growth look like once the cyclical recovery has passed? Is there any reason to believe that the secular growth outlook for our economy has changed? The output of an economy can be boiled down into two components, the supply of its labor capital and the productivity of that labor. I.e the output in widgets (GDP) would equal the number of widget makers (labor stock) multiplied by the widgets

each laborer can produce (labor productivity). The United States and every other major economy around the world face structural headwinds in the form of slowing population growth. Said differently, the growth in the supply of laborers has fallen steadily over the past decade. Given these circumstances, increased labor productivity is needed just to keep economic output constant. This has not happened, and as a result, real economic growth has slowed (see the previous chart). More importantly, as we look into the future, population growth (which has some predictability) is set to slow even further. So, barring some new technology and/or investments that make laborers more productive, there is little reason to believe the real rate of economic growth has experienced a structural/lasting change.

Growth in US Labor Forces is Set to Slow



Source: JP Morgan

The Expected Rate of Inflation

The second avenue by which nominal interest rates can climb is via increases in expected inflation. Recall the Fisher equation, which states that nominal interest rates are the summation of real rates (previously discussed) and expected inflation. This second component, expected inflation, exists because those lending their money must protect themselves against potential losses in purchasing power.

Unfortunately, our understanding of what drives inflation is poor. In academic settings, four types of inflation are presented: (1) cost-push, (2) demand-pull, (3) structural, and (4) hyper-inflation. Cost-push inflation occurs when prices rise due to increases in that good or service's input costs, like raw materials and wages. Cost-push inflation tends to impact goods and services that do not scale easily. For example, the cost of childcare has increased at a healthy clip for the past several decades. There are many reasons for this, but one driver is employee wages are the primary cost for daycares. The daycare facility has strict limitations on student-to-teacher ratios. As a result, daycares cannot offset wage increases by increasing enrollment, leaving them only one outlet, higher prices.

The more classic examples of cost-push inflation that we learn about in school often coincide with a supply shock. You may recall the stagflation of the 1970s, which was due in part to the 1973 oil embargo and the 1979 Iranian revolution. Today, there are some inflation alarmists raising concerns about commodity shortages. Certain commodity prices such as lumber, oil, and various grains have been on the rise, but we do not find these examples to be all that concerning. The invisible hand of the market will cure any price dislocations that exist given enough time. In other words, higher prices will beget more production of said resource, which will eventually cause prices to fall. Just remember that most warnings of inflation, caused by a supply shock, are transitory and carry less of an impact on rates than you might think.

Demand-pull inflation is a much bigger concern for us, and we honestly do not know if it will materialize. This type of inflation arises when the aggregate demand for goods and services outstrips the supply. It is often characterized as too much money chasing too few goods. There are several reasons this could happen, but our concerns relate to the current levels of government spending and the associated money supply growth.

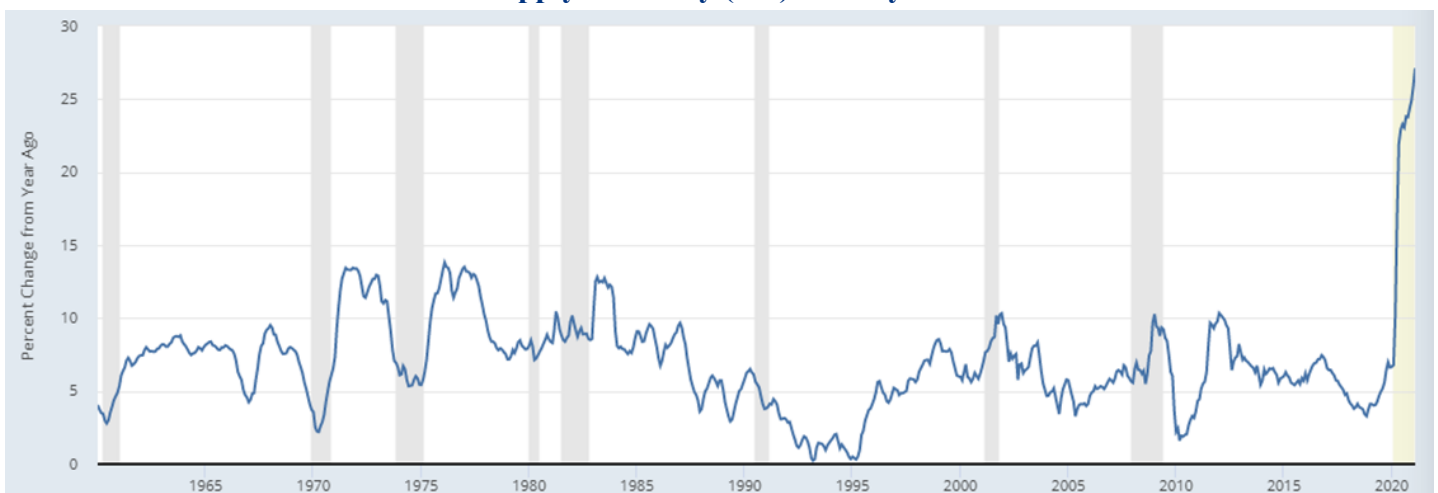
Imagine that tomorrow every member of society woke up with twice as much money as they had the day before. Given this event, what would happen? You could argue that individuals may choose to buy more with their newfound money, but would they be able to? A doubling of our consumption would require a doubling of society's production, which is not an easy task. After all, the newfound money did nothing to increase productivity. In the aggregate, you would find twice as much money chasing the same level of goods and services. The result would be the prices of goods and services in our economy would increase dramatically. The members of society would be no better off even though their monetary wealth had doubled because their purchasing power had remained the same.

In economics, this phenomenon is best explained by John Stuart Mill's equation of exchange, an accounting identity related to the circular flow of money within our economy.

$$\text{Money} \times \text{Velocity} = \text{Price} \times \text{Quantity}$$

In layman's terms, the equation says that the total amount of money spent in our economy (money x velocity) equals the total value of goods and services exchanged for money in our economy (price x quantity of goods and services). If you double the money supply (money) and assume velocity (turnover) remains constant, then either the price of goods and/or the quantity of goods and services produced must increase. But there is a limit to how many goods and services can be produced in an economy, so if an economy is operating at full capacity, price is the only variable that can change. Hence a doubling of the money supply should result in a doubling of price.

The Supply of Money (M2) has Skyrocketed



Source: Federal Reserve of St. Louis

Today, we are witnessing a massive explosion in the supply of money. As previously outlined, our government has passed three rounds of stimulus with more on the horizon. The total value of all three stimulus bills amounts to \$4.8 trillion. A large portion of these funds has been directly injected into our economy via stimulus checks, enhanced unemployment benefits, and/or forgivable loans. Keep in mind that our government runs a deficit - meaning it spends more money than it takes in. To fund this deficit, which includes the stimulus, our Treasury issues debt that is sold into the broader market via Treasury auctions. Anyone can

participate in these auctions except for our Federal Reserve, which is prohibited from doing so by the Federal Reserve Act. That said, the Federal Reserve can buy Treasury debt indirectly from banks known as primary dealers (like Goldman Sachs and JP Morgan). When the Federal Reserve buys Treasuries in the open market, it credits the primary dealer's account (held at the Federal Reserve) with bank reserves that the primary dealer can then lend against. Since the COVID crisis began, the Federal Reserve has indirectly purchased roughly \$2.5 trillion Treasury Securities, which likely amounts to over half of net new Treasury issuance.

Federal Reserve's Holdings of US Treasury Securities has Ballooned

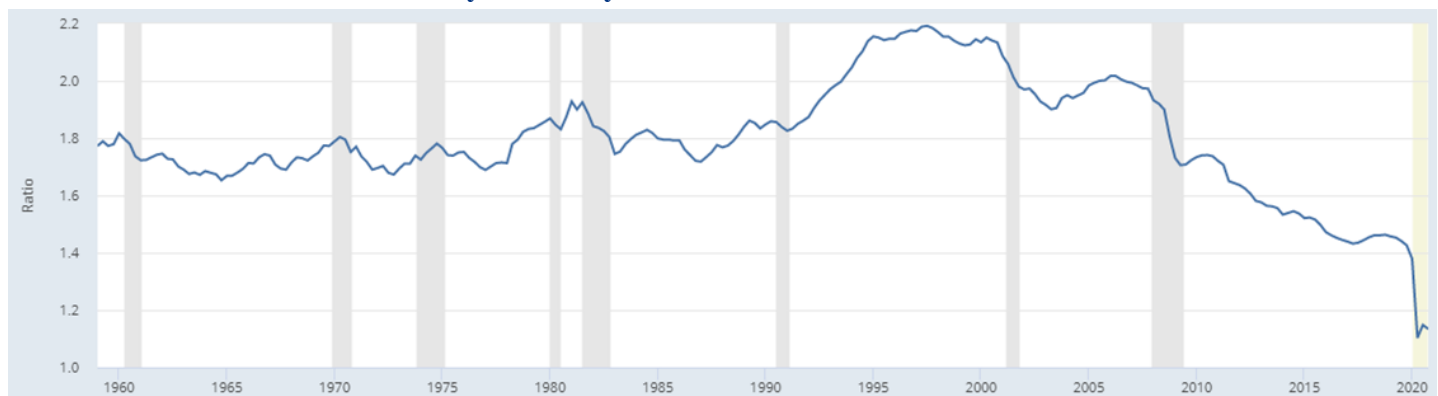


Source: Federal Reserve of St. Louis

In short, our government has used borrowed funds to finance unprecedented amounts of stimulus that went directly into the pockets of individuals and corporations. It might also be true that our Federal Reserve indirectly financed the Treasury's debt issuance by purchasing Treasuries from banks in exchange for bank reserves. The net result is the supply of money in our system has skyrocketed. Given the magnitude of the increase, it seems reasonable to expect an increase in inflation. We certainly are cautious.

But there is one problem with our previous argument. Money velocity (i.e., the number of times a dollar changes hands) cannot be treated as a constant. If the sudden spike in money supply is met with a decline in money velocity, then inflation will not materialize. It is not enough for too much money to be chasing too few goods. That money must be spent and circulate through our economy, and as you can see in the following graph, this is not occurring. The velocity of money has fallen steadily since the late 1990s and is near all-time lows. The current declines in money velocity are likely exaggerated since many businesses are closed, but the three-decade trend was lower even before COVID. Furthermore, few if any economists seem to understand why velocity is in secular decline. Any credible case for inflation must account for this anomaly.

The Velocity of Money was in Secular Decline Before COVID



Source: Federal Reserve of St. Louis

Admittedly, we do not know where inflation is heading, but our guard is up. Past attempts at growing the supply of money, like quantitative easing, had very limited success, but deficit-funded direct cash infusions appear to be quite effective. The only missing ingredient for inflation is increased velocity, and we do not know whether it will materialize on a sustained basis. We also find it impossible to ignore the regime change that has occurred in Washington. Someone recently noted that when the Obama administration attempted to pass a \$787 billion stimulus bill in 2009, the Tea Party was born and many Democrats lost reelection bids. Today, that bill would be a drop in the bucket, and while Republicans are pressing back against Biden's most recent stimulus package, they are far more willing to use fiscal stimulus as a policy tool than in the past. Deficit-financed stimulus has the potential to be powerful. If it proves successful at stimulating economic growth, it is hard to imagine why any politician, Democrat or Republican, would refrain from utilizing more of it. The disparity in potential outcomes seems as wide as it has ever been to us. There is a case to be made that we return to the disinflationary trends of the past decade, and there is a case to be made that we are on the verge of a secular inflation regime. Predicting the outcome, however, is a difficult task.

The Market's Inflation Expectations

We can measure the market's views on inflation by measuring breakeven inflation rates. This rate is calculated by subtracting the nominal yield on a Treasury bond from the yield on its equivalent Treasury Inflation-Protected Security (TIPS). The resulting difference represents the level of inflation necessary for the TIPS security to outperform the regular bond. In essence, it represents the rate of inflation the market perceives for a given future period. In the three years preceding COVID, US inflation, as measured by the CPI, averaged 2.1%. Current breakeven rates indicate the market is pricing in higher inflation in the immediate future, followed by a slow return to pre-COVID averages. In summary, the market sees only temporal growth in inflation.

Breakeven Rates Suggest Inflation will be Transitory

1) US Breakeven 2 Year	2.71
2) US Breakeven 3 Year	2.65
3) US Breakeven 5 Year	2.59
4) US Breakeven 4 Year	2.56
5) US Breakeven 6 Year	2.48
6) US Breakeven 7 Year	2.45
7) US Breakeven 8 Year	2.43
8) US Breakeven 9 Year	2.37
9) US Breakeven 10 Year	2.33
10) US Breakeven 20 Year	2.22
11) US Breakeven 30 Year	2.21

Source: Bloomberg

The Rate Implications for Stocks

Earlier, we discussed the time value of money in our section titled Why Rates Matter. One of our observations was that low rates are causing the market to place a premium on longer-duration assets because there is not much difference between cash flow today and cash flow years from now. We went on to suggest the market fears a hike in interest rates will severely impact the valuation of assets.

It is a fact that higher interest rates will decrease the value of longer-duration cash flows more than immediate cash flows. For example, a 30-year Treasury Bond will get hit a lot harder than a 5-year Treasury Bond if

rates climb 1.0%. It is also true that most stocks have very long durations, but that does not necessarily mean stock values will fall.

Here are the mechanics at work. Higher interest rates lower the value of future cash flows, but there is a force fighting against the deleterious impact of higher rates. That force is the growth rate of future cash flows. You can see this in the equation below, which describes the value of a growing perpetual cash flow stream. So, it is true that higher interest rates decrease the value of an equity's cash flows, but the ultimate impact on the stock's value must also consider the growth of its cash flows.

$$\text{Present Value in Perpetuity} = \frac{\text{cash flow}}{(\text{rate} - \text{growth})}$$

Our discussion of interest rates was broken down into two components, the real rate and expected inflation, to address this nuance. If inflation is the driver of higher nominal rates, then it is likely bad for stocks. Here is why. Inflation tends to elevate revenue growth, but that tends to be more than offset by margin pressures (wage and input inflation). The net result is negative as the increase in interest rates is likely to outweigh the impact of cash flow growth. If growing real rates are the driver, then it has the potential to be good for stocks, as companies would likely benefit from greater revenue growth and expanding margins.

Aswath Damodaran, a renowned professor at NYU, recently published a blog post on this topic. In his post, he provided his valuation of the S&P 500 given different 10-year rates. He also showed how his output would change under three scenarios: (1) cash flow growth lagging the change in interest rates, (2) cash flow growth matching the change in interest rates, and (3) cash flow growth leading the change in interest rates. I would not worry too much about his exact projections, but you can see the combination of rising rates and lagging growth would not be pretty for stocks. If (and that is a big if) rates do climb, let us hope the cause is strong real growth in our economy.

Aswath Damodaran's S&P 500 Valuation

<i>T.Bond Rate</i>	<i>Growth lags by 0.5%</i>	<i>Growth matches Riskfree rate</i>	<i>Growth leads by 0.5%</i>
1.00%	3418	3644	3919
1.25%	3362	3581	3849
1.50%	3304	3518	3779
1.75%	3248	3457	3709
2.00%	3192	3394	3640
2.25%	3135	3332	3570
2.50%	3079	3271	3502
2.75%	3024	3208	3434
3.00%	2968	3149	3366
3.25%	2912	3087	3297
3.50%	2858	3026	3231
3.75%	2804	2967	3163
4.00%	2750	2905	3096

Source: Aswath Damodaran, PhD

Conclusion

In our last commentary, we wrote that our job is to carefully build a portfolio of investments given an uncertain future. This statement was a tacit acknowledgment that we cannot predict the future. We do not know where real interest rates or inflation are heading, and in turn, we cannot predict the direction of nominal interest rates. The same holds for most other macro variables, and ultimately the financial markets. John Kenneth Galbraith once said, “there are two kinds of forecasters: those who don’t know and those who don’t know they don’t know.” We can say with humility that we fall into the first group.

The question then becomes, how do you stack the odds in your favor without outguessing the market? Our answer is, we react. Our reactions to the market generally take one of two forms. The first is mechanical reactions. When investments fall in price, it is our gut reaction to look for opportunity, and when investments rise in price, we tend to shy away. These instincts play out in your portfolios in a systematic manner we call rebalancing. If the stock market sells off enough, your portfolio will naturally become underweight stock exposure. Other assets will grow overweight, typically fixed income and/or cash. When large enough deviations occur, we force ourselves to sell the overweight asset (fixed income) and buy the underweight asset (stocks). These simple behaviors have added considerable value during periods of extreme volatility.

The second form of reaction tends to be opportunity specific. We identify an asset or asset class whose prospective return is not commensurate with the risk, and as a result, we seek to add to or avoid that exposure. After surveying the investment landscape, we have concluded that the market is no longer offering adequate compensation for long-duration assets. Again, we do not have a view of where rates are going, but we do believe we are not being compensated enough to find out. If rates fall, our portfolio may lag the broader market, but we think the differential will be manageable. If rates hold flat or continue to climb, we are positioned well, which we have witnessed in the first three months of this year.

We look forward to reporting back to you next quarter. Thanks for the trust you have placed in us.

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