WHITE PAPER

"Inflation is the one form of taxation that can be imposed without legislation"

— MILTON FRIEDMAN

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A Deep Dive on Inflation

On March 24, 2020, we published a short paper that raised the question of whether the massive steps undertaken to counteract the economic damage inflicted by the Covid-19 virus might ultimately result in renewed inflation. Of course, no one really knows the answer, but the potential for longer-term inflation should at least be on every investor's radar screen. On further reflection, we think inflation is a topic that merits a more in-depth discussion. Inflation is one of the most important and closely watched economic indicators as demonstrated by the stated purpose of the Federal Reserve's monetary policy which is "to promote maximum employment, stable prices, and moderate long-term interest rates." Yet, despite its importance, inflation is somewhat mysterious in that there is some disagreement as to its causes, there are periodic questions regarding its measurement, the tools available to the FED to manage it are not always effective, and the inflation hedges that one can employ in investment portfolios are imperfect.

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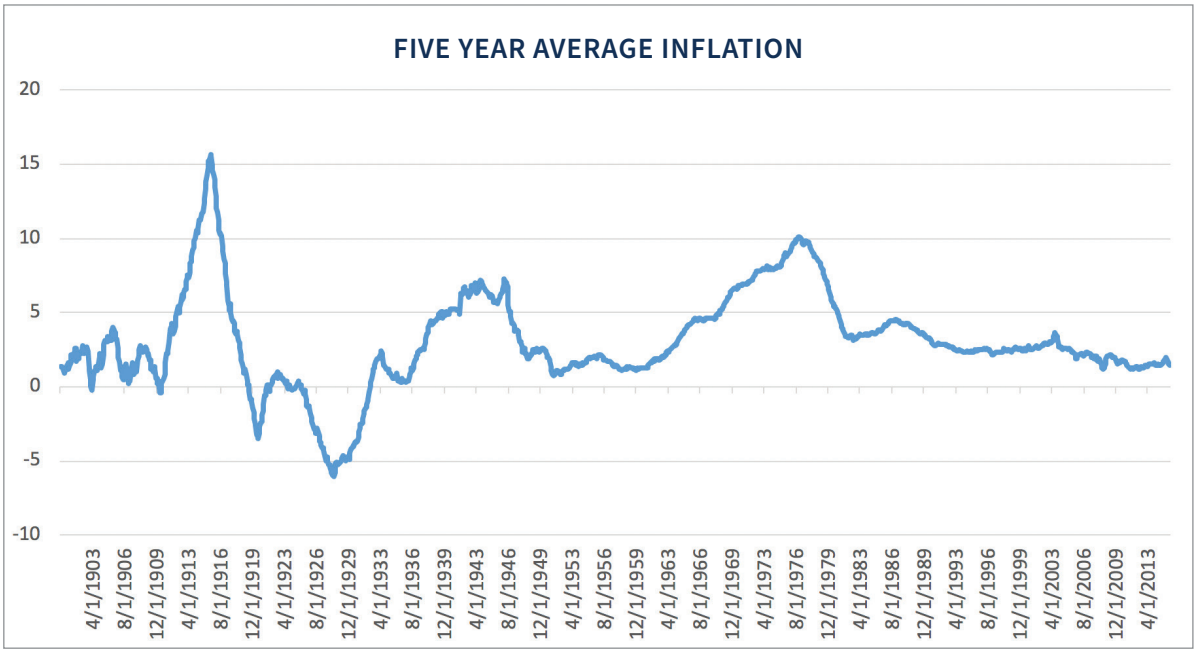
To provide a sense of the somewhat capricious nature of inflation, note that it averaged 8.2% per annum in the U.S. from 1973 to 1983. As someone who was engaged in the financial world during that period, I can attest that it was quite frightening in that there seemed to be no solution to the rapid erosion in purchasing power. Well, fast-forward to today, recent inflation has averaged 1.6% suggesting that the FED has been unable to nudge it up to its stated goal of 2%. Over the past twelve years, inflation in Japan has averaged exactly 0% while it hit an annualized rate of 35,000% in Venezuela in mid-2019. And, hyperinflation in the Weimar Republic from 1921-1923 is thought to have been one factor in the rise of the Nazi Party. So, inflation has a long and complex history with significant political, social, and economic overtones.

In this paper, we provide background information on the history of inflation, its possible causes, and various techniques designed to insulate an investment portfolio from its corrosive effects.

A Brief History of Inflation

Inflation is defined as a sustained increase in the general price level of goods and services resulting in a reduction in the purchasing power per unit of currency. Most data sets estimating inflation begin in the late 1800s or early 1900s, so let's look at data beginning in 1900:



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Over the entire period, inflation has averaged just under 3% per annum, but as shown in the graph, there have been three periods of much greater price increases:

Period	Annualized Inflation
1916-1920	15.2%
1941-1943	7.3%
1973-1983	8.2%

Because these three periods are of varying length, they do not correspond exactly to the five-year periods shown on the graph. While other things were going on that influenced the inflation rate, you should note that all three were associated with major wars. To place high levels of inflation in perspective, the 8.2% annual rate over the 1973-83 period resulted in a cumulative increase in the cost of living of 138%. For retirees and others living on fixed incomes, this erosion in purchasing power was devastating, but those who were employed fared reasonably well since incomes grew at a 10% annual rate. As a result of global competition, pressure on corporations to maximize profits, modest productivity growth, and a variety of other factors, household income has only grown at a 2.3% annual rate over the past ten years, and it seems reasonable to expect these overarching trends to continue. Therefore, income growth is likely to remain moderate suggesting that a renewed bout of inflation could be highly painful.

Monthly government press releases often cite both the Consumer Price Index or CPI and "Core Inflation" which is calculated by excluding energy and food items, which are quite volatile, from the standard CPI. Over long periods, the two measures produce virtually identical inflation rates, but the standard CPI is about 40% more volatile suggesting that the Core rate may be more indicative of the underlying trend.

There has only been one significant period of declining prices, known as deflation, over the past century, and it was associated with the Great Depression. From January of 1926 to March 1933, prices fell by just under 30% representing an annualized rate of -4.7%. There have been several other periods of relatively flat prices, most recently from 2008 to 2011. While flat prices are benign and even desirable, actual deflation presents serious economic risks. If consumers and corporations expect a sustained period of declining prices, they will sensibly defer purchases leading to slower economic growth in turn further depressing prices, and the cycle continues. This is known as a deflationary spiral and there were genuine fears of such an event during the Global Financial Crisis of 2008-10. There were also early fears of a deflationary spiral due to the pandemic, but prices have actually risen about .6% due to improving demand and government policy.

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The Causes of Inflation

Economists divide potential causes of inflation into two broad categories; one that is reasonably straightforward and fairly easy to recognize, while the other is more complicated because it can be multifaceted. The two sources of inflation can also be intertwined so it isn't simply a case of either/or. Let's start with the simpler explanation.

"Cost push" inflation results from upward pressure on the cost of producing goods and services, notably raw materials, wages, energy, and so on. Producers must pass these cost increases along to purchasers in order to maintain their profits resulting in a ripple effect throughout the economy. In other words, cost-push is a mechanism whereby inflation in one sector is dispersed throughout the entire economy. The resulting bursts of inflation tend to be somewhat short lived because producers employ new technology, substitute less expensive raw materials, and generally become more efficient. The best example of one of these episodes relates to the bout of inflation from 1973-1983 that was discussed above. OPEC instituted an oil embargo in 1974 to punish those countries that supported Israel in the Yom Kippur War of 1973 resulting in an immediate increase in the price of oil from $4.31 to $10.11. The oil price then drifted up to $14.85 over the next five years followed by an increase to $39.50 in 1979 associated with the revolution in Iran and the Iran/Iraq War. As shown in the first table, this nine-fold increase in the price of one of our most critical raw materials resulted in annualized inflation of more than 8% over an eleven-year period. As one would hope, this spurred the U.S. to become more energy efficient as demonstrated by the fact that U.S GDP per unit of energy has increased by more than 60% over the last twenty-five years.

The second brand of inflation is known as "demand pull" because it occurs when the demand for goods and services exceeds the supply placing upward pressure on prices. A popular description of demand-pull inflation is "too much money chasing too few goods." This sort of inflation could occur in a given sector due to shortages, but the concept is generally applied to the overall economy. One interesting facet of demand-pull inflation is that it can occur simply because of inflation expectations. For whatever reason, suppose consumers and businesses expect higher prices, they will be motivated to purchase in advance of the price increases which serves to actually cause them. It is possible to infer inflation expectations by comparing the yields on U.S. Treasury Securities with those of Treasury Inflation Protection Securities or TIPS. Interestingly, the expected rate of inflation for the next ten years is 1.65% suggesting that the "market" is not concerned. Other factors that could lead to excess demand throughout the economy include:

- Strong economic growth that results in low unemployment and rising incomes. This happy state of affairs leads consumers to increase spending.

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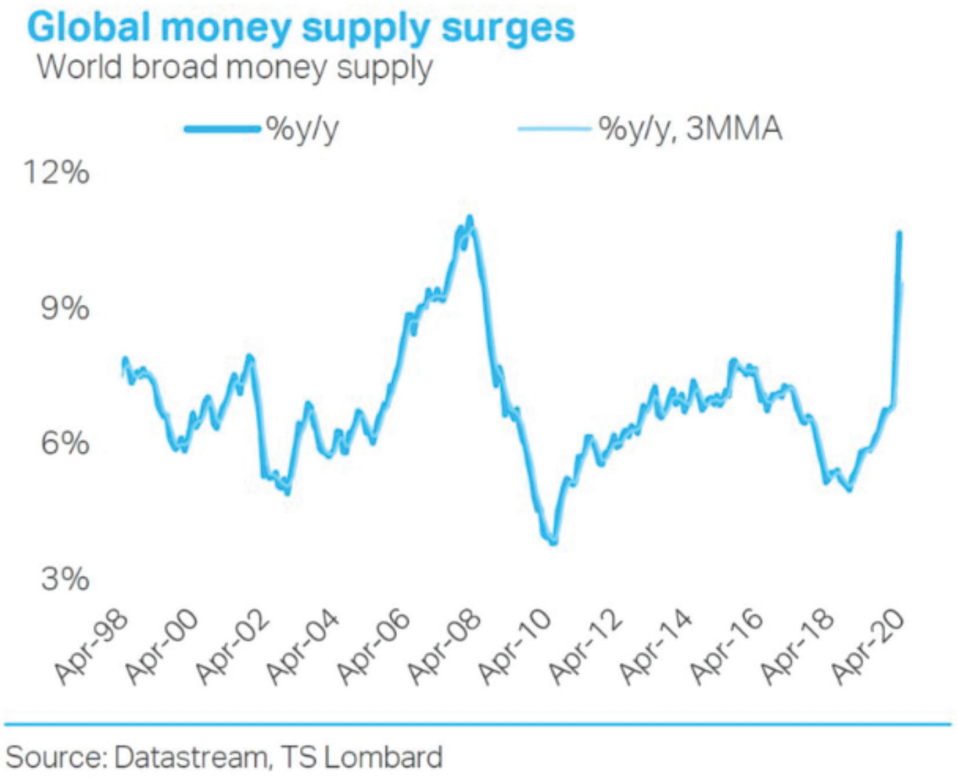
- A surge in exports due to an undervalued currency.
- Rising prices of financial assets causing a "wealth effect" in which spending increases.

The final two factors are particularly relevant to today's circumstances:

- A high level of government spending that increases both incomes and demand for a wide range of goods and services.
- Growth in the supply of money that exceeds the rate of growth in the economy-too much money chasing too few goods.

Why are Some Economists Worried About Inflation?

Their concerns can be captured in two charts. The first depicts the global supply of money:



The recent surge is a result of a variety of programs implemented by central banks around the world to replace lost incomes and support financial markets. The next chart portrays the trend in outstanding government debt prior to the crisis as well as the increment attributable to government stimulus programs. Government debt is potentially inflationary because, in the absence of tax

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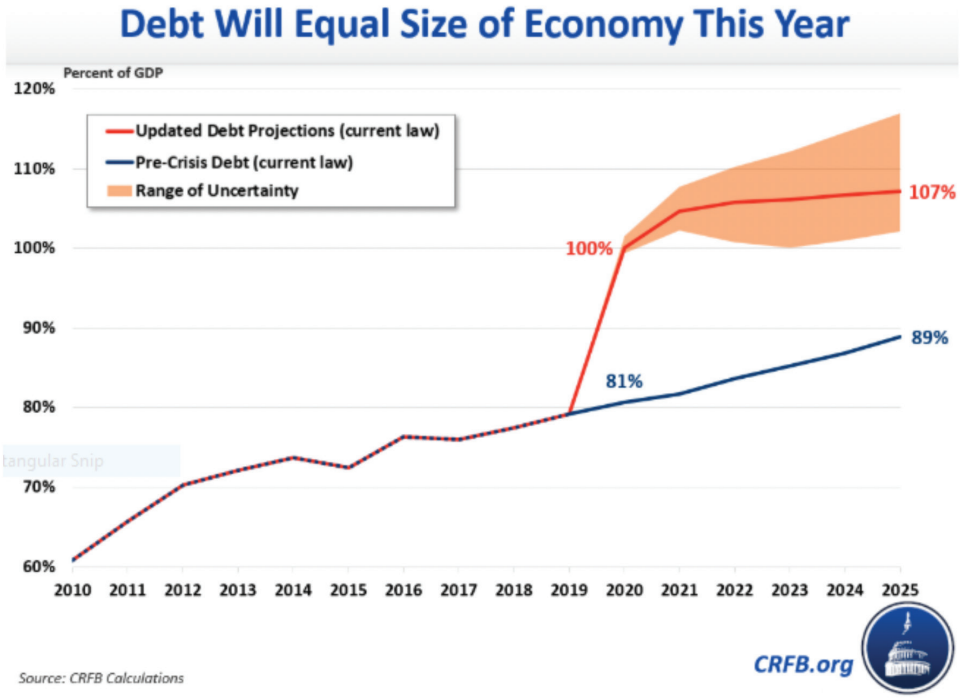
increases or draconian budget cuts, the government will be forced to print money in order to repay it, thereby monetizing it. In other words, money supply and government debt are two sides of the same coin, the quantity of money.



Neither trend is likely inflationary over the short term because the economy is operating far below its capacity and increased demand for goods and services is therefore welcome. Moreover, it is important to understand that while both trends are ominous, they do not guarantee inflation over the long term either. As you will note, the money supply surged during the Global Financial Crisis of 2008-2010 and government debt has been growing at a rapid clip since 2000 yet inflation has remained below the FED's target. There are a number of economists who espouse what is known as Modern Monetary Theory (MMT) which posits that printing money is not inflationary as long as it matches the potential growth of the economy. (Please see the paper on the subject by my colleague Sam Fraundorf) This theory is controversial and there are many other technical factors such as the velocity of money that can influence whether the supply of money promotes inflation. In any case, traditional economists are worried about inflation, MMT proponents are not, and not knowing what the ultimate outcome will be, it behooves us to carefully track the impact of the growth in money and be prepared to implement inflation hedges in portfolios should they be required.

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Hedges Against Inflation

In order to describe various types of inflation hedges, we should divide inflation into two categories. First, there is the long-term expected or "normal" variety as illustrated by the fact that inflation has averaged a little under 3% for the past one hundred years. As has been mentioned, the FED is currently targeting inflation of 2% so that seems to have become the "normal" rate. The second category involves unexpected inflation which typically takes the form of relatively short-term surges in prices.

The best hedge against normal or expected inflation is the ownership of equities, broadly defined to include private equity and real estate in addition to publicly traded securities. Since the 1920s, when several stock indices were created, equities have delivered a return that is 6.7% over the inflation rate, and the after-inflation return on real estate for the past twenty-five years has been 7.2%. Please note that these statistics cover different time-periods so they should not be used to make judgments on the relative appeal of one category versus the other. But, in both cases, these investments resulted in significant increases in purchasing power over time.

The most commonly employed hedges against unanticipated inflation are Treasury Inflation Protected Securities (TIPS), gold, and commodities. As is generally the case with investing, each has its plusses and minuses.

- Treasury Inflation Protected Securities represent the most direct inflation hedge since the principal amount payable at maturity is adjusted every year for changes in the CPI. However, the yield today on the 10 year TIP is -.98% suggesting that the cost of inflation protection is quite high.
- Gold has provided an attractive real return over longer time-frames but its shorter term correlation with inflation has been mixed. In addition, there are ongoing costs of holding gold and its price is very near an all-time high.
- Commodity prices tend to be correlated with inflation although the relationship has become weaker in recent decades. Whether or not commodities provide the expected protection depends on

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Important Notes And Disclosures

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many technical factors such as the vehicle used (futures, options, swaps, or the stocks of commodity producers) and the pricing of commodity markets.(Contango or backwardation) Therefore, direct investing in commodities requires substantial expertise and is very labor intensive. Commodity mutual funds or ETFs represent a viable alternative but there are a wide variety of commodity indices on which these funds are based so selection is quite important.

Because of the pros and cons of each, we generally recommend a package of all three alternatives.

Conclusion

We have been in a relatively low inflation environment for the last ten years making it easy for investors to focus on other risks. But, the significant growth in government debt and money supply suggest that we should sharpen our focus on this potential problem. It is not at all clear that we will actually experience a surge in consumer prices, but good portfolio management requires that an investor be prepared for any eventuality. To that end, we are evaluating potential inflation hedges and will be prepared to implement a protection strategy, most likely in the form of a combination of asset categories, should the need occur.

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