

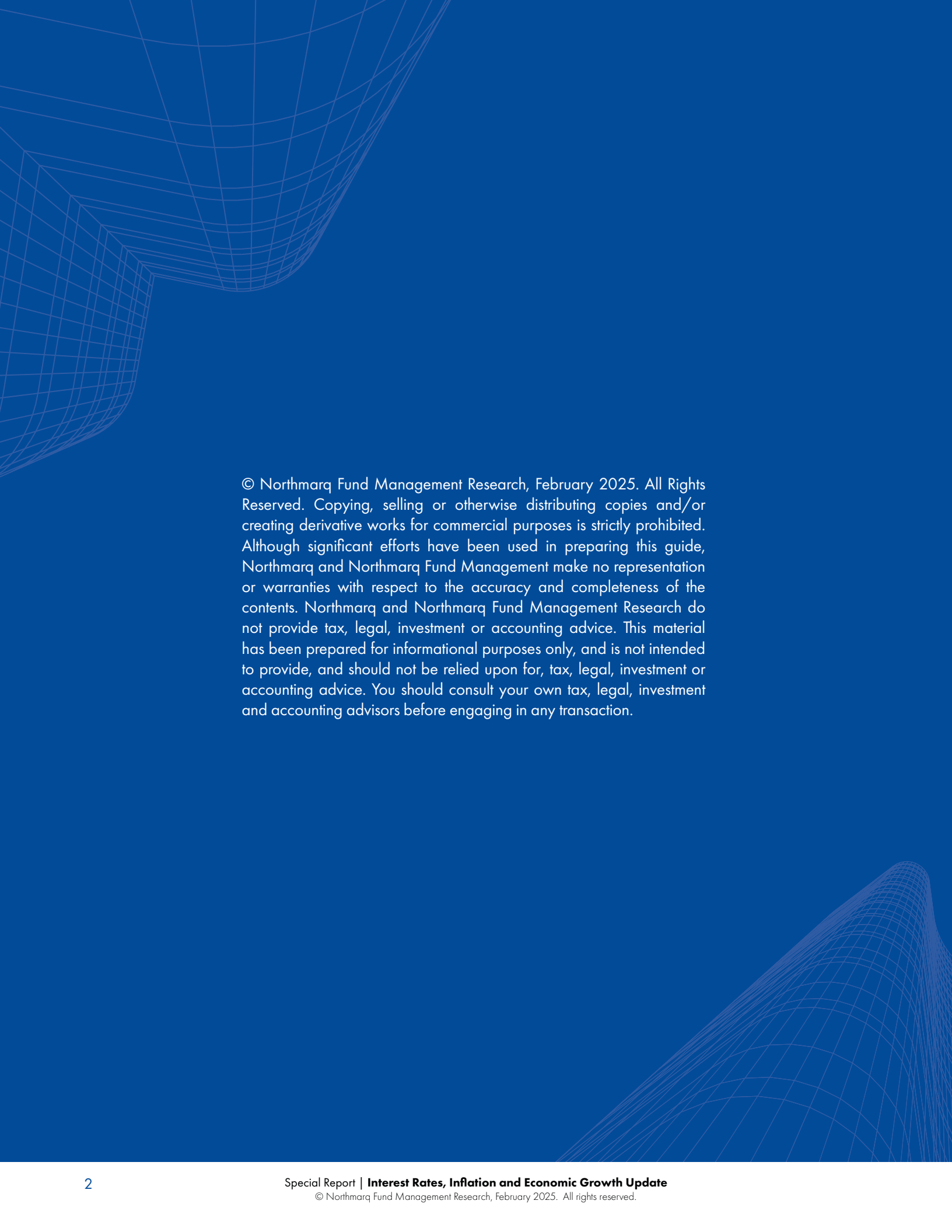


SPECIAL REPORT

Interest Rates, Inflation and Economic Growth

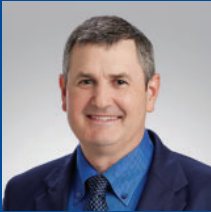
UPDATED

February 2025



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Letter from the Editor



Rance Gregory
President & CEO

This third annual update to our analysis of interest rates, inflation, and economic growth finds itself in an entirely new context. Our traditional method and model have been challenged by a historic increase in Federal debt from \$23.2 trillion at the beginning of 2020 to over \$36.2 trillion today. The nearly 56% increase in the national debt coincided with at least \$10 trillion of combined fiscal and monetary stimulus, fanning the fires of inflation and causing a historically swift set of interest rate increases in 2022 and 2023. Although the Fed shifted to a more accommodative stance in 2024, the bond markets had other ideas, matching 100 basis points of cuts in the Fed Funds Rate with 100 basis points of increases in Treasury yields. Does this mean the market expects more inflation ahead, or is it simply telling policymakers that enough is enough--the U.S. has too much

debt relative to GDP and its expected growth potential? Please read on as we debate these questions and their implications for commercial real estate.

As always, please let us know if you have any questions or feedback.

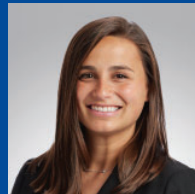
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ABOUT US:

Northmarq Fund Management is a division of Northmarq, one of the largest privately held commercial real estate firms in the nation. Northmarq provides debt origination, loan servicing, investment sales and investment management services nationwide and spanning all product categories.

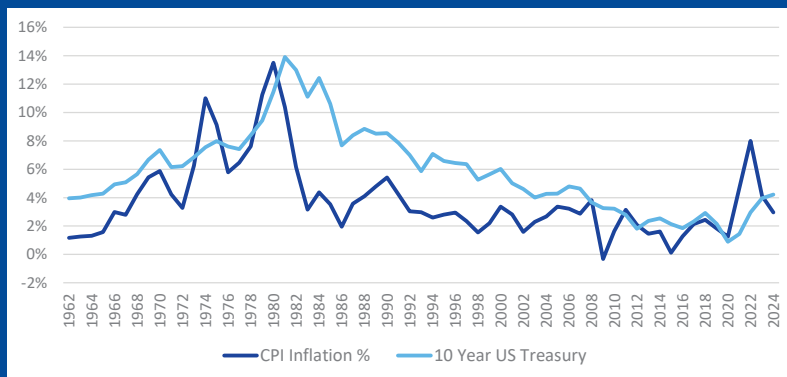


Rapid expansions of the money supply most often result in inflationary conditions, and the post-Covid cycle of fiscal and monetary stimulus were no exception. The Fed's rapid 500+ basis point increases in the Fed Funds Rate were the inevitable policy response to an overabundance of liquidity and an overheating of the cost of basic goods and services. As the Fed began to sense a slowing in the pace of late-2024 inflation, the FOMC attempted a series of gradual rate decreases in Q4 totaling 100 basis points, which would typically serve to reduce benchmark yields. Instead, in unprecedented fashion, the shape of the yield curve normalized and average yields increased 100 basis points. Is it that the Fed is cutting too early or too much, risking a return to inflation in the face of continued economic growth? Is 2% inflation an unrealistic target and the Fed should settle upon the market's implication that 3% inflation is more reasonable? Or has the bond market decided that the U.S. has exceeded an appropriate debt level and now wants to be compensated for the added risk?

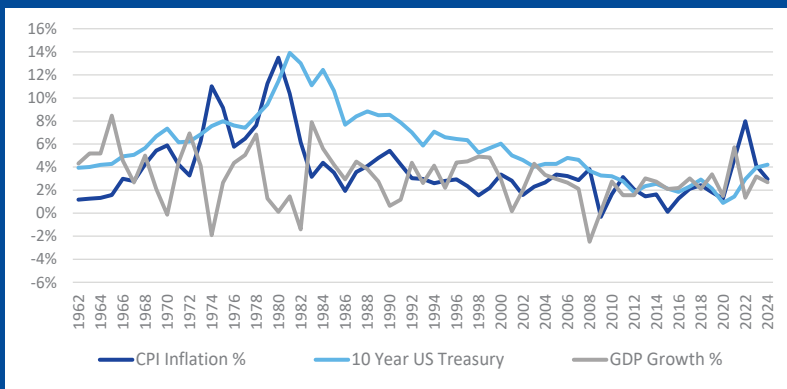
In late 2021, when we first placed inflation and interest rates on the same graph, they looked somewhat correlated other than timing and magnitude differences. Directionally, much was the same. This may not have corresponded to the gut feeling of many that low interest rates beget high inflation and high interest rates lead to low inflation. Until inflation shifted dramatically upward in 2021-2022, the broad trend since 1980's peaks had simply been absolute percentages trending lower for longer for both interest rates and inflation.

The recent rise in 10-year yields currently places interest rates above the rate of inflation.

CPI Inflation and Interest Rates



Inflation, Interest Rates and GDP Growth



Adding GDP growth to the same graph visually indicates periods in which rising GDP precedes inflation, but also a few periods in which GDP rose during the cooling phase following an outbreak of inflation. What seems to apply most often is that periods of rising interest rates precede slowdowns in economic growth. We note that the 10-year Treasury yield currently exceeds both inflation and GDP growth percentages. Therefore we observe a simultaneous growth signal and a recessionary signal.

Tracking the progress of key economic indicators since 2020, we can see that Congressional and Fed stimulus policies produced rebound gains in employment and GDP growth, at the cost of inflation and higher interest rates.

	Average Quarterly Unemployment Rate	Quarterly Change in Real GDP	10 Yr UST Quarterly Average	Average Quarterly Headline PCE Inflation (annualized)
Q1 2020	3.8%	-5.5%	1.4%	1.2%
Q2 2020	13.0%	-28.1%	0.7%	-1.6%
Q3 2020	8.8%	35.2%	0.7%	3.2%
Q4 2020	6.7%	4.4%	0.9%	1.9%
Q1 2021	6.2%	5.6%	1.3%	4.5%
Q2 2021	5.9%	6.4%	1.6%	6.2%
Q3 2021	5.1%	3.5%	1.3%	5.5%
Q4 2021	4.2%	7.4%	1.5%	6.6%
Q1 2022	3.8%	-1.0%	1.9%	7.5%
Q2 2022	3.6%	0.3%	2.9%	7.4%
Q3 2022	3.5%	2.7%	3.1%	4.6%
Q4 2022	3.6%	3.4%	3.8%	4.0%
Q1 2023	3.5%	2.8%	3.6%	3.9%
Q2 2023	3.6%	2.4%	3.6%	2.9%
Q3 2023	3.7%	4.4%	4.1%	2.7%
Q4 2023	3.7%	3.2%	4.4%	1.6%
Q1 2024	3.8%	1.6%	4.2%	3.4%
Q2 2024	4.0%	3.0%	4.4%	2.5%
Q3 2024	4.2%	2.8%	3.9%	1.5%

	Not Good	Concerning	Average	Good	Great
Key					

Fiscal Stimulus

When considering causes of the rapid increases in Federal debt, consider that between January 2020 and October 2022 Congress passed bills and spending resolutions total nearly \$6.9 trillion. We measured Federal fiscal stimulus as a percentage of the average annual GDP during the period of primary impact, from January 2020 to October 2022. We found that \$6.9 trillion equated to an astounding cumulative total of 29.7% of average GDP (a nominal annual addition of 7.4%) during the period. Even at today's increased level of \$29.4 trillion of GDP, post-Covid fiscal stimulus alone represented 23.5% of annual U.S. economic output.

Monetary Stimulus

The Fed's balance sheet ballooned from \$4.16 trillion to \$8.95 trillion by April 2022. The balance sheet has since run off 23.7% to \$6.83 trillion.

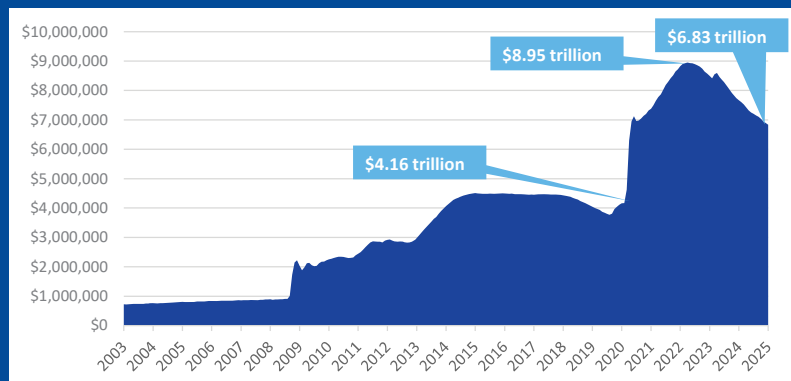
This revised balance sheet is still nearly \$2.7 trillion above its pre-Covid level. When combined with fiscal stimulus, Federal interventions into the economy (post-runoff) total nearly \$10 trillion, or more than 34% of 2024 GDP.

As we observe each year, one of the conundrums for governments and central bankers of later-stage developed countries is that each time they step in to mitigate or prevent recession, fiscal/monetary policy interventions can increase the debt burden of the country. The higher the debt-to-GDP ratio, the more difficult it becomes for all but the fastest growing economies to weather higher interest rates. The higher the debt levels in the system, the higher the interest payments. When interest rates and debt service payments get too high, growth slows, recessions follow, and central banks intervene to keep rates lower for longer.

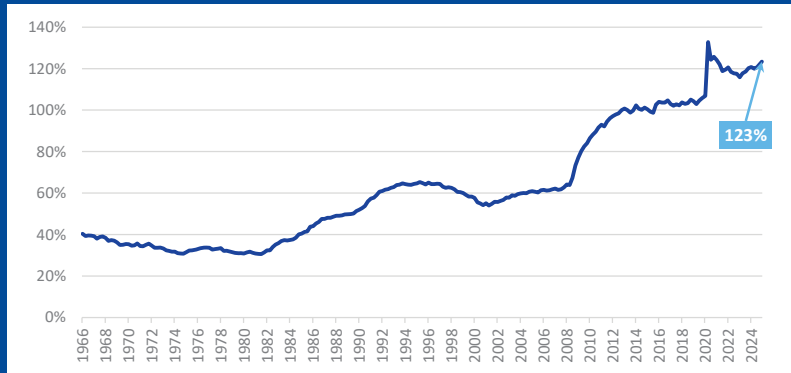
Another way of looking at the cost of the fiscal and monetary stimulus used to restart the post-Covid economy is that the debt to GDP ratio has increased from 106% to 123% since January 2020. The higher the debt level, the lower the potential growth of a developed, mature economy. Federal, state and local governments respond to economic downturns by adding spending on top of already high debt burdens.

This cycle plays out in almost all advanced economies unable to maintain high enough rates of fertility or in-migration to offset the growth drag caused by excess debt. Eventually, the need to deleverage to regain growth potential can only result in

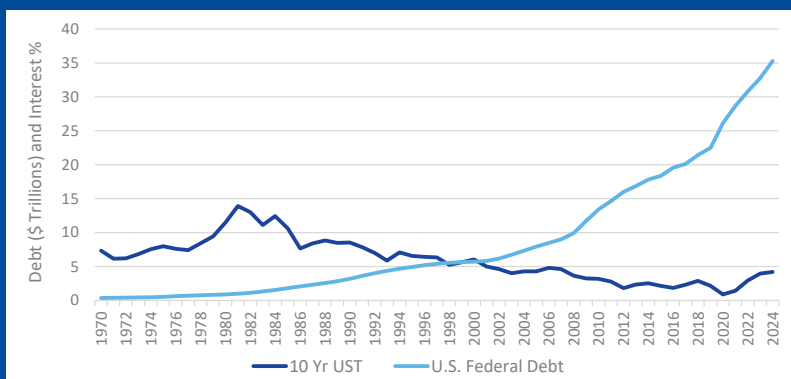
Assets



U.S. Public Debt (as % of GDP)



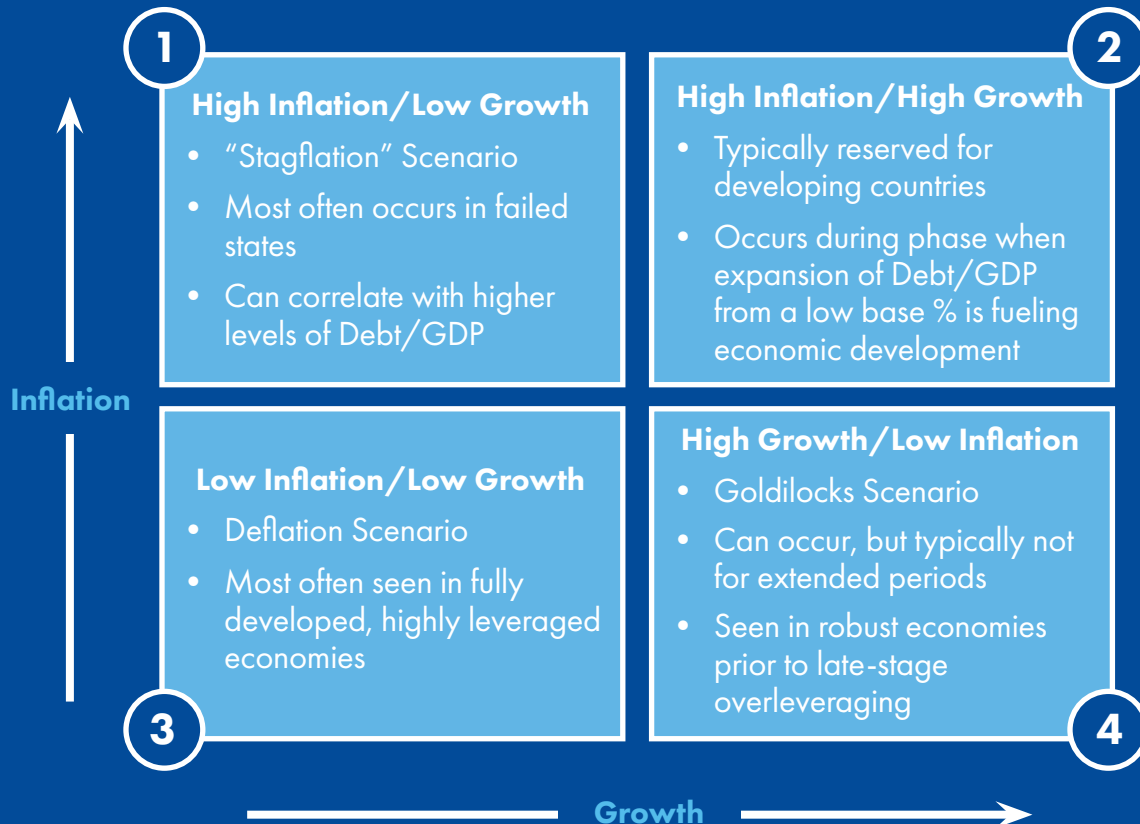
U.S. Interest Rates and U.S. Total Debt



Note: Left axis numbers represent both interest rates in percent terms and dollars of debt in trillions (i.e. 10-Year UST rates are currently 4.63% and Federal debt is \$36.22 trillion).

one of two paths: a quick and painful credit crash, or a slow-motion resizing of the debt-to-GDP equation. In the latter scenario, very low inflation or even deflationary conditions can persist for extended periods.

We designed the following matrix to think through the potential combinations of inflation and growth, and to assess where the U.S. should be more likely to reside at its stage of economic development.



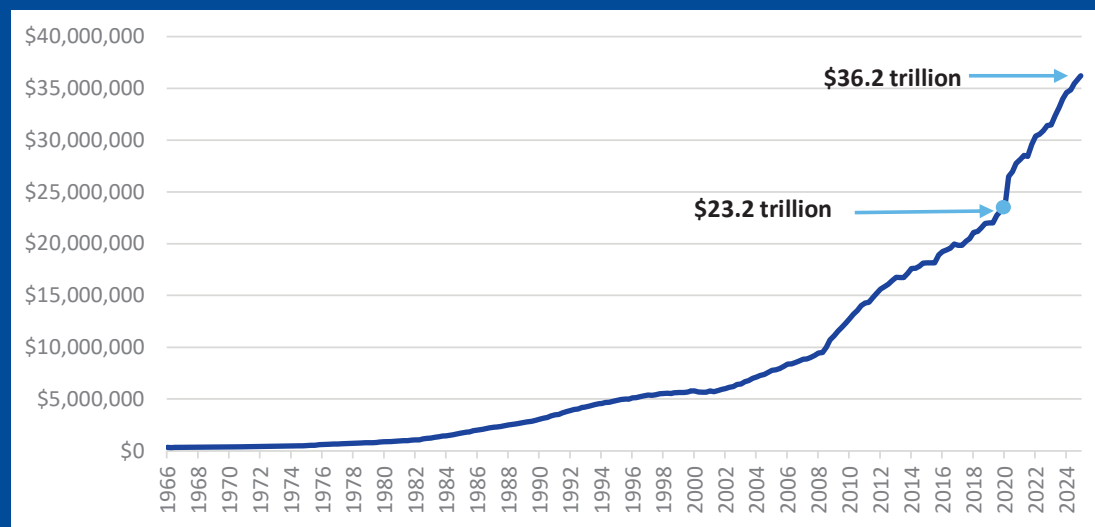
As an advanced, developed economy, it becomes less likely the U.S. will spend extensive periods in the high growth boxes labeled 2 or 4. The U.S. has been enduring an inflationary phase following Covid-19 shutdowns and excess post-Covid fiscal and monetary stimulus. Initially we thought this phase would resolve itself following a slowdown or recession, and we didn’t fully account for the absolute increase in Federal debt and how it might precipitate an increased baseline of interest rates and inflation. We made this prior assumption based largely on most historical precedents under which developed economies accumulate an excess of debt and deficits, leading to an inevitable price to be paid via a hard, stagflationary financial crash (e.g. Italy, Greece) or an extending deleveraging phase of low inflation and low growth (Japan). We were previously modeling a modest version of the Japan scenario and now we may need to also weight some possibility of a more European or Latin American style leverage effect.

Measurements of Total U.S. Debt

Public debt was \$435 billion in 1922 (using 2025 inflation-adjusted dollars). As of January 2025, federal debt totals almost \$36.2 trillion. Astoundingly, public debt has increased 56% over the past 5 years, and \$2.6 trillion or 5% in the past year alone. The U.S. economy is now in uncharted territory.

U.S. Public Debt - \$ Millions

(top of chart is \$40 trillion)

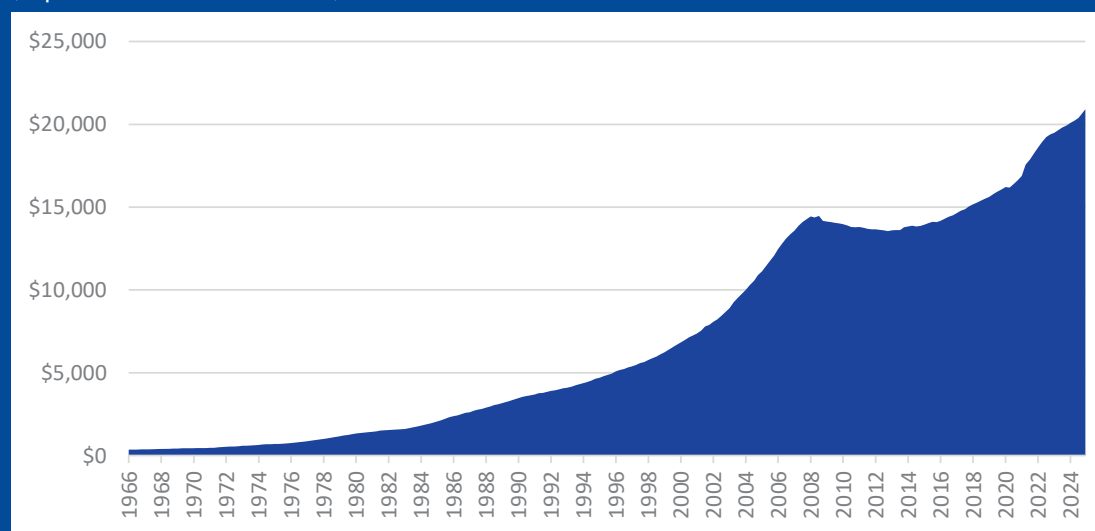


Household Debt

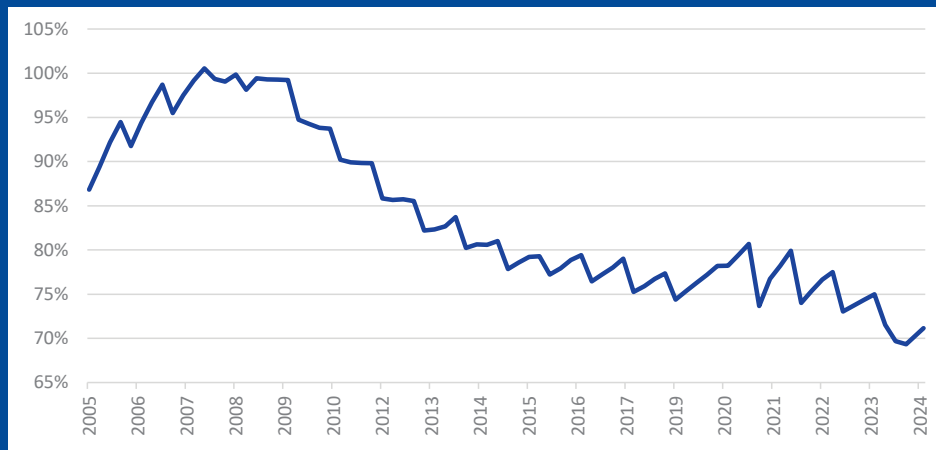
In an economic bright spot, although the chart for total household debt is alarming, it has been declining as a percentage of GDP. Of course, this was largely via fiscal and monetary stimulus transfer of private debt to public debt.

Total Household Debt

(top of chart is \$20 trillion)



Household Debt to GDP%

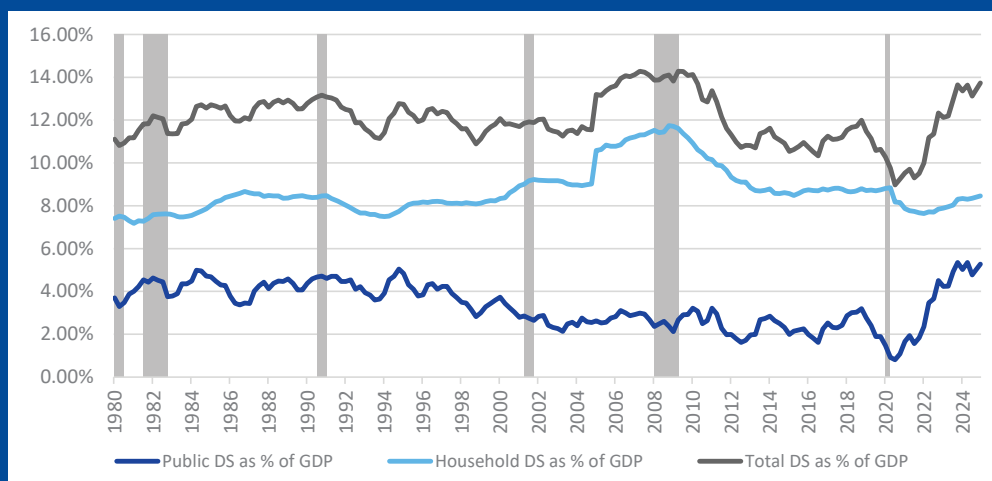


Impact of Debt on the Economy

The following analysis shows measurements of debt, GDP and interest rates comparing 1980 and 2024. The idea here was to establish a rough proxy for the national debt burden using the 10-year UST against total federal debt. In 1980, when the debt-to-GDP ratio was only 31.8% but 10-year interest rates averaged 11.40%, the effective federal debt service burden was 3.6% of GDP. In 2024, total federal debt is 123% of annual GDP. At a recent 10-year UST yield of 4.5%, the equivalent debt service burden is now 5.5% of GDP. That's only Federal debt, excluding business and household debt which push the total debt service burden to 13.7% of GDP compared to 12.3% in 1980. Due to the increase in total debt since 1980, the economy is no longer able to tolerate more elevated levels of interest rates without risking recession. Recall that when Paul Volcker went full throttle in order to cause a recession, 10-year Treasury rates averaged nearly 14% in 1981 and 13% in 1982, and then began a declining trendline that broadly persisted until 2021.

In addition to summarizing the impact of public debt, we have also included a parallel analysis of household debt based on Federal Reserve data. Household interest rates are significantly higher rates than Treasuries given the mix of borrowings for consumer credit. The household debt service burden averaged 7.4% in 1980 which compares to today's average of 8.5% (derived from historic household debt, averages of debt service as a % of disposable income and GDP). The total result is that despite lower interest rates, today's elevated debt levels are causing a combined Federal and Household debt service burden of 13.7% of GDP today is now markedly higher than the 10.8% of GDP debt service burden of 1980.

Debt Service (as % of GDP)



Shaded bars represent recessions.

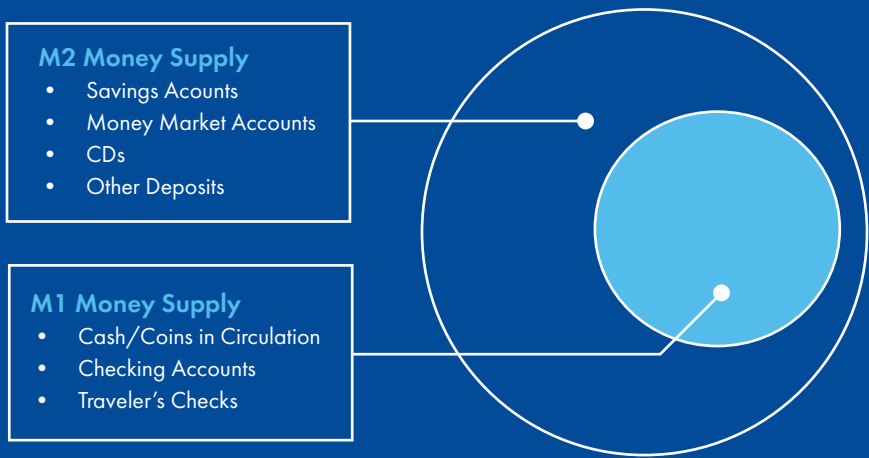
To show the magnitude of additional interest rate increases on the economy, the following is based on a range of 10-year US Treasury yields from 5.0% to 10.0%. As you can see, by comparing the debt service graph above to the chart below, even at a 5.0% 10-year UST yield, the hypothetical debt service burden of 14.9% would exceed all years, including the previous 14.3% record in 2007.

What If Analysis (increasing 10-year UST rates)

Debt Service as a % of GDP	2024+ ?	Public Debt Burden	Household/Non- Profit Debt Burden	Total Debt Burden
	10 Year UST	% of GDP	% of GDP	% of GDP
	5.0%	6.2%	8.7%	14.9%
	6.0%	7.4%	9.7%	17.1%
	7.0%	8.6%	10.7%	19.4%
	8.0%	9.9%	11.7%	21.6%
	9.0%	11.1%	12.7%	23.8%
	10.0%	12.3%	13.7%	26.1%

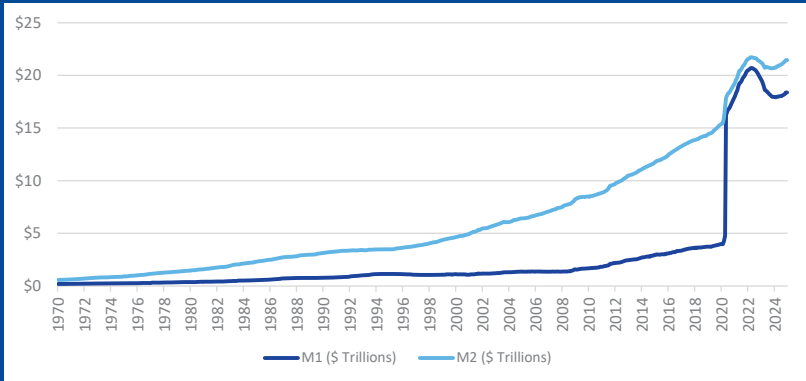
In simple terms, M1 and M2 are measurements of the supply of money in the economy, with M1 more narrowly measuring cash and cash-like instruments, while M2 (in addition to including M1) also includes relatively liquid deposits that can be converted to cash (see illustration below).

Money Supply

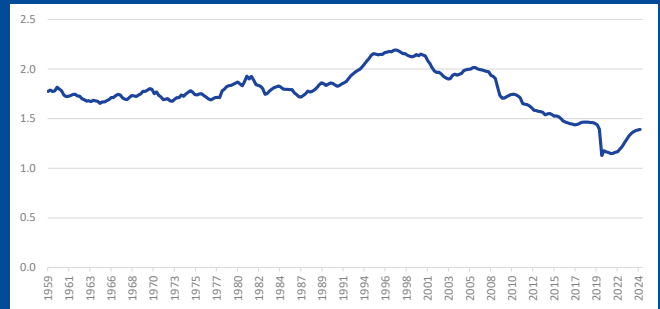
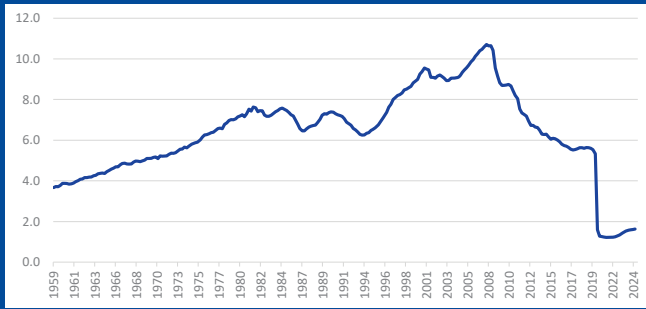


To measure the inflationary potential of an economy, it's necessary to consider both M1 and M2. After a long period of difference in these elements of money, Covid caused these measurements to converge.

Money Supply

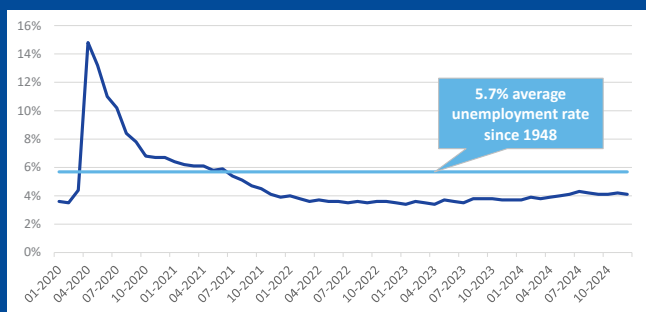


In the wake of massive increases in post-Covid money supply, the velocity of money decreased significantly. M2 velocity has recovered to its pre-Covid status, but M1 remains at 30% of its January 2020 velocity.



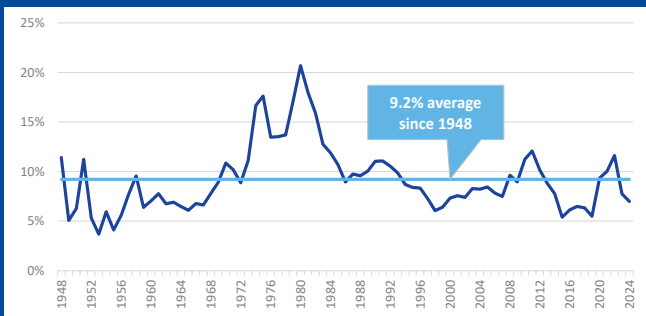
The labor market continues to be tight relative to both recent and historical levels.

U.S. Monthly Unemployment Rate



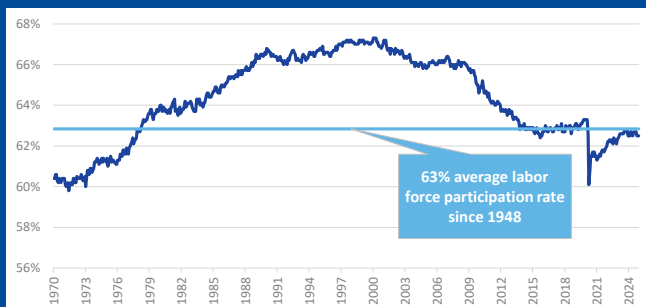
The Misery Index is the sum of CPI inflation and the unemployment rate. After spiking following Covid, recent decreases in the pace of inflation combined with a tight labor market have the Misery Index measuring well below the historic average.

Misery Index (1948 to 2024)



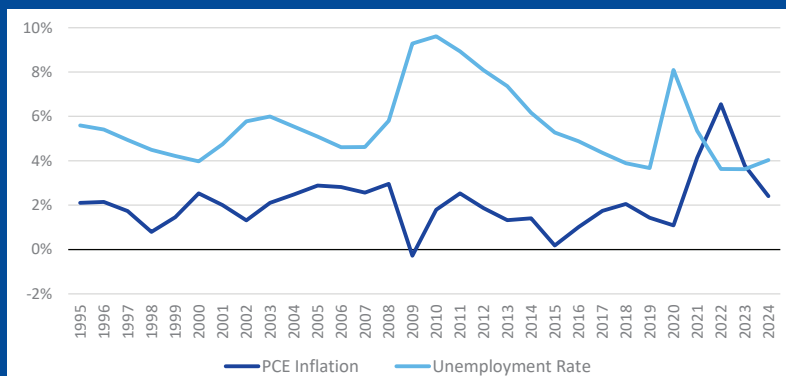
Labor force participation has recovered to 62.5% compared to 63.3% in January 2020 and a post-1970 average of 64.4%.

Labor Force Participation Rate



The relationship between unemployment and the broad PCE inflation measurement is shown here. In theory, as unemployment goes down, inflation should go up--and vice versa when inflation goes down after unemployment increases (time lags).

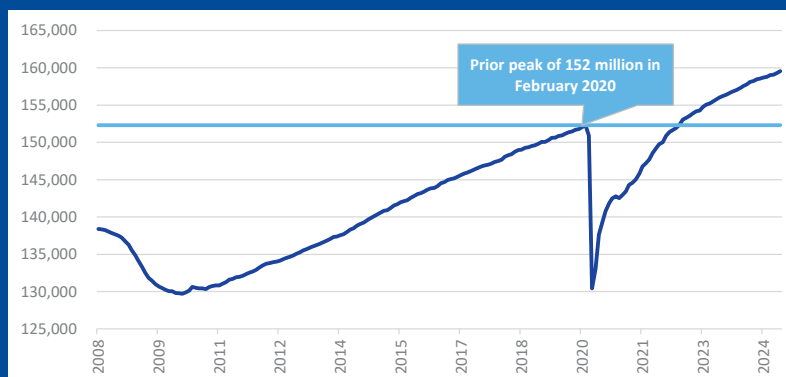
PCE Inflation and Unemployment



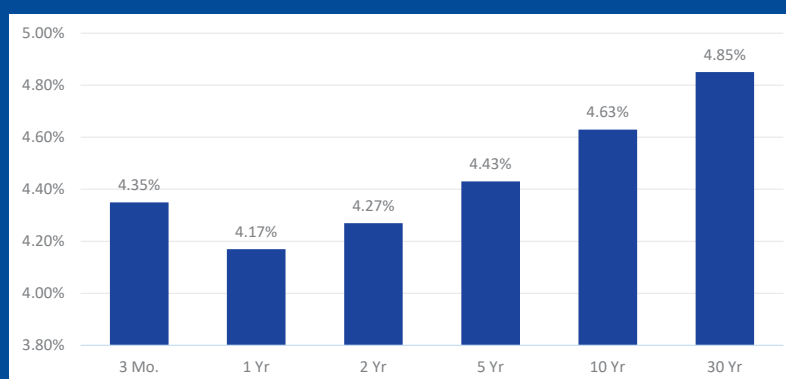
Total employment of 159 million now exceeds the previous peak was February 2020 of 152.3 million (4.7% increase).

We note that official measurements of job gains continue to be revised downward in almost every period, such that the latest update shows the economy actually lost jobs in Q2 2024 despite the Labor Department originally reporting a gain of 653,000 jobs.

Total Employment (Thousands)



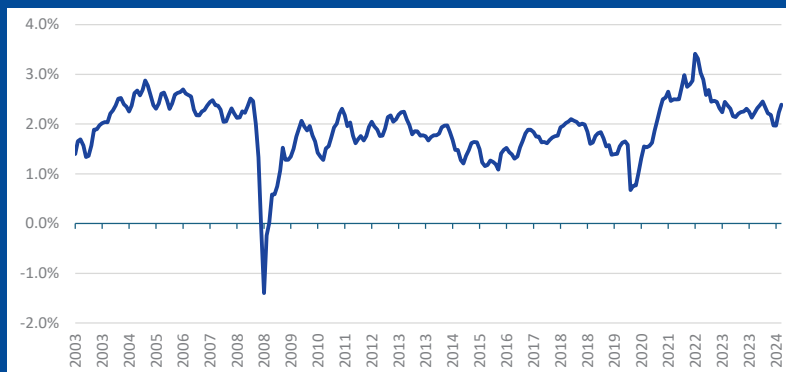
U.S. Treasury Yields (as of 1/24/2025)



December 2024 marked the end of the longest 10-year Treasury to 3-month T-bill yield curve inversion in history, beginning back in October 2022. Typically a harbinger of recessions, this inversion was somehow not predictive of historical patterns.

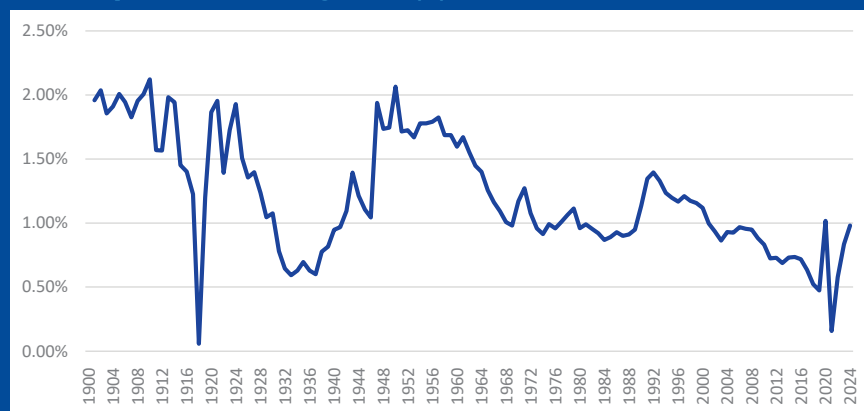
The breakeven inflation rate is a market based forecast indicator of inflation. It derives from comparing the nominal rate of a 5-year instrument such as a U.S. Treasury note to the equivalent 5-year rate on a security such as a TIPS (inflation-protected). The difference in yields for these two investments should represent the market's overall estimation of inflation during the ensuing 5-year period.

5-Year Breakeven Inflation Rate

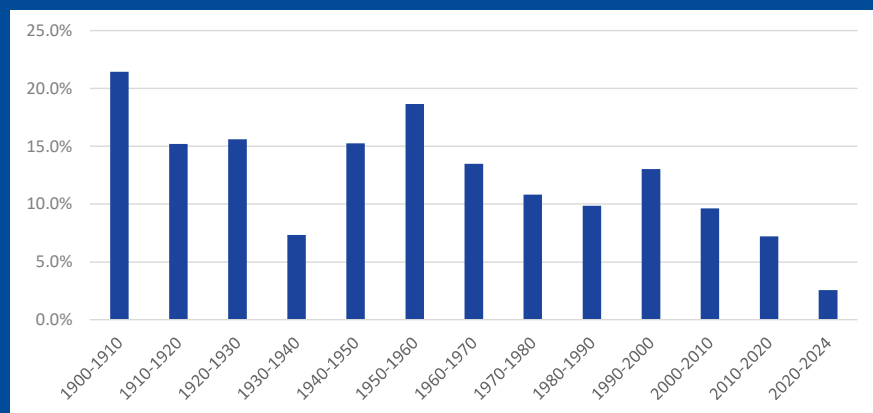


Population growth plays a crucial role in economic growth. As an advanced country with a declining birthrate, the U.S. faces a demographic headwind. As shown in the following two charts, population growth has slowed significantly over the past few decades. Additionally, these gains have recently been driven more by immigration than by organic growth. The economy depends on continued population gains and the U.S. is risking a slowdown by curbing immigration without an offsetting increase in birth rates.

U.S. Population Change (% by year)



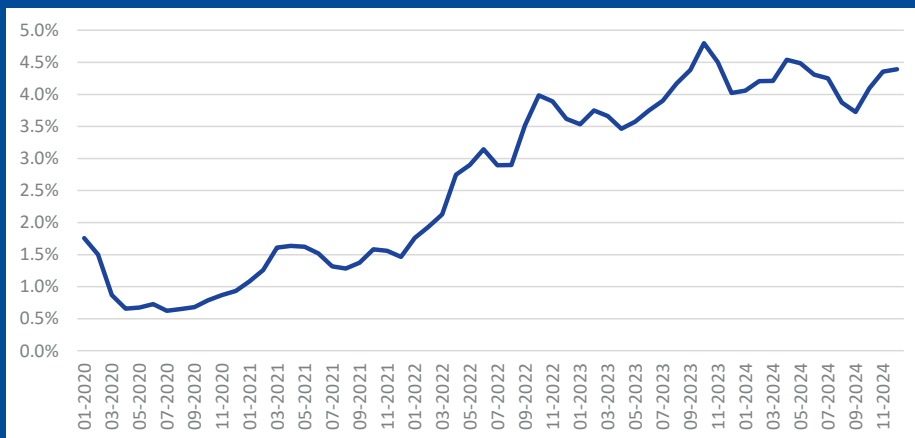
U.S. Population Growth by Decade



The next two graphs demonstrate the historic pace and magnitude of increases in the Fed Funds Rate from March 2021 through July 2023.

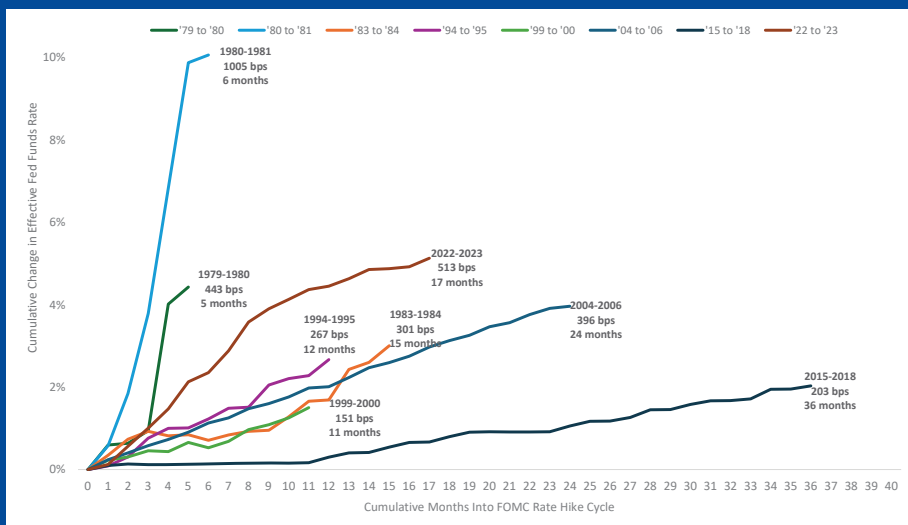
The pace of increases to the Fed Funds Rate transferred into associated increases in 10-year Treasury Rates moving from a quarterly average as low as 1.32% in 2021 to a quarterly average of 4.21% in 2024.

10-Year UST (quarterly average)



Effective Federal Funds Rate

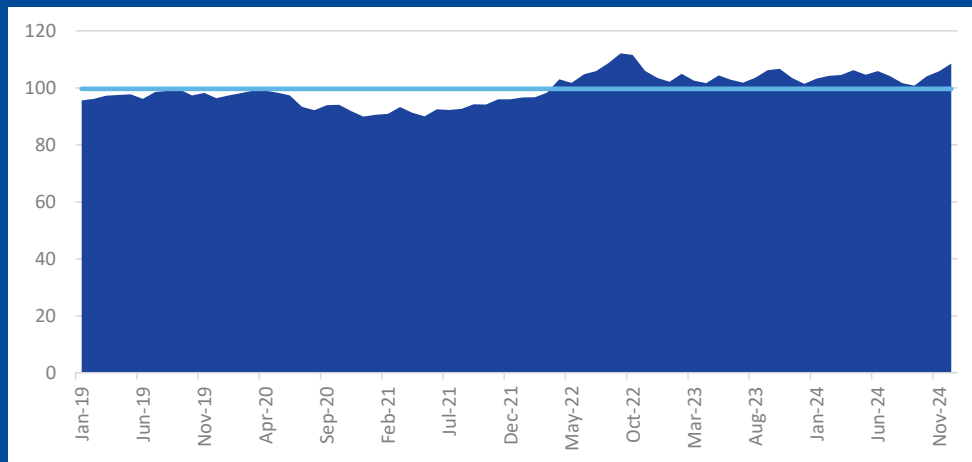
- The Federal Open Market Committee (FOMC) in 2022-2023 hiked rates faster than at any time since 1979-1981.
- The FOMC has now reduced rates by 100 basis points since September 2024. Rates on U.S. Treasury have not yet responded as expected.



Inflation can have significant negative effects on the value of a country's currency exchange rate by eroding purchasing power. Economists generally believe the exchange rate penalty for high inflation is much greater than the reward for low inflation. It's almost impossible to isolate inflation's specific impact on the value of a currency. Numerous additional factors can influence an exchange rate, such as trade balances, economic growth, expectations for growth and changes in monetary and fiscal policy. Nevertheless, unusually high levels of inflation are not good in terms of sustaining monetary value. The U.S. Dollar weakened from an index value of 99 in March 2020 to below 90 in December 2020. However,

supply chain bottlenecks and excess government stimulus were worldwide post-Covid trends not unique to the U.S. The U.S. Dollar has resumed a strengthening posture back above 100 (currently 108).

U.S. Dollar Index



Note: Light blue line is average for the period.

Key Observations

The sheer amount of post-Covid fiscal and monetary stimulus prevented an immediate recession/depression, albeit at the cost of higher inflation, higher interest rates, and a massive increase in public debt. The benefits included insurance against a deeper recession, and a low unemployment rate. Given that inflation has outpaced wages, that trade-off may not have been as favorable as policymakers hoped.

The health of the highly leveraged U.S. economy (including residential and commercial real estate markets) is closely tied to interest rates and the availability of financing. Higher interest rates haven't yet shown their full effect given historically high percentages of fixed-rate business and consumer loans. Inflation seems to be highly sensitive around the recent levels of the Fed Funds Rate, cooling when above a FFR of 5%, but then re-accelerating when falling below 4.5%. By contrast, from a commercial real estate perspective, transaction volume and pricing appears to improve when the 10-year Treasury falls to 4% or less, while conditions weaken when the 10-year UST rises above 4.5%. Frustratingly, these two economic reactions are currently at odds with each other. Ideally for real estate, the economy would allow the Fed to cool inflation with Treasury yields sustainability below 4.0%. Until then, transaction volume and price gains will be constrained.

SOURCES:

NFM Research
Bureau of Economic Analysis
Department of the Treasury
Federal Reserve Economic Data (FRED)
ICE Data Indices
The Federal Reserve
U.S. Bureau of Labor Statistics
U.S. Census Bureau

