REEF REPORT

REAL ESTATE & ECONOMIC FORECAST

UNITED STATES

SUMMARY

Housing Affordability and Market Dynamics:
The Fair Value Variable (FVV) showed a slight improvement in January, with an increase to an estimated value of negative 25.9 percent. The nominal monthly mortgage payment decreased month-over-month to $2,210 in March, with a year-over-year increase of 1.87 percent. The real mortgage payment index saw a decrease month-over-month to 6.95 in February, with a year-over-year decline of 2.93 percent.

Mortgage and Income Trends:
The housing expense change metric saw a decrease in January to 40.9 percent, indicating a shift in housing costs relative to the 10-year average. This suggests continued pressure on consumers in the housing market.

Inflation Trends and Impacts:
Headline inflation exhibited a month-over-month increase to 3.17 percent in February, while core inflation experienced a decline to 3.76 percent in January. The Federal Reserve has indicated no plans to lower rates in the near term.

Housing Market Prices and Starts:
The nominal median sales price of houses sold in Q4 2023 experienced a significant year-over-year decline of 12.89 percent, the largest ever recorded since 1964, aligning with the FVV's indication of strong overvaluation in the housing market.

Economic Indicators and Consumer Behavior:
The unemployment rate increased month-over-month to 3.9 percent in February, with a year-over-year rise of 8.33 percent. The personal savings rate saw a month-over-month uptick to 3.8 percent in January, but a year-over-year decrease of 13.6 percent.

KEY DEVELOPMENTS

The rise in commercial real estate delinquency rates and credit card delinquency rates signal mounting challenges and growing economic instability. Additionally, inflation figures remain elevated above the Federal Reserve's target rate, which has caused the market to anticipate fewer rate cuts in 2024. These developments emphasize the need for vigilant monitoring of market trends and risk management in the current economic landscape.

I

Commercial Real Estate Delinquency Rates

The commercial real estate sector saw a notable increase in delinquency rates to 1.17% in Q4 2023, marking a year-over-year surge of 69.57%. This trend presents challenges for lenders, including exposure to declining property values, refinancing difficulties, and the impact of rising interest rates. Despite these challenges, major investors continue to expand investments in the sector, indicating diverging perspectives on market opportunities and risks.

II

Credit Card Delinquency Rates

Credit card delinquency rates reached 3.1% in Q4 2023, a level last seen in Q2 2012. This sharp year-over-year increase of 37% signals economic instability, as credit card debt often sees elevated delinquency rates before other types of debt. This trend arises as individuals prioritize essential payments such as mortgages over credit card bills, reflecting the financial strain faced by some segments of the population.

III

Inflation

Headline inflation experienced a month-over-month increase to 3.17% in February, indicating persistent inflationary pressures. The Federal Reserve's indication of no immediate rate cuts further emphasizes a cautious approach to managing inflation. Core inflation experienced a decline to 3.76% in February but remains elevated, highlighting the ongoing challenge of reining in inflation.

FORECAST

Federal Reserve Rate Cuts

Our previous forecast indicated that a rate cut would not occur in Q1 2024. In continuation of this forecast, we are extending this expectation into Q2 2024. We do not believe that the Federal Reserve will be comfortable cutting rates during this timeframe due to inflation remaining somewhat persistent, along with the new data on wages, which have continued to increase at an elevated pace.

Delinquency Rates

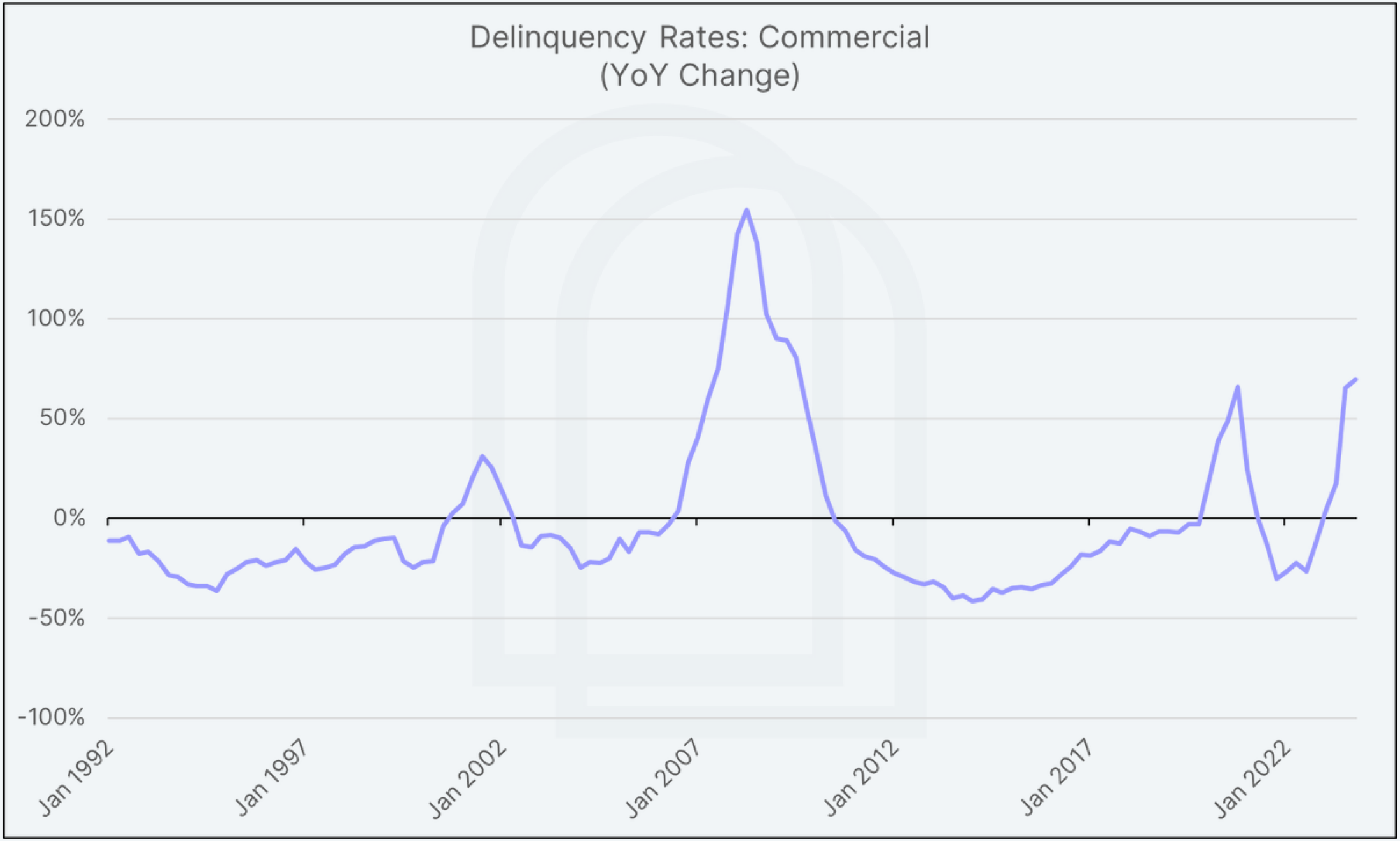
We forecast a rise in commercial real estate delinquency rates to 1.27 percent for Q1 2024. Similarly, we anticipate single-family delinquency rates to follow this trend, albeit with a potential delay of a few months, reflecting the differing market dynamics.

Our previous forecast, which estimated that credit card delinquency rates would rise to 3.15 percent in Q4 2023, was correct in direction but slightly ambitious in magnitude, with the actual figure being 3.10 percent. We are forecasting that credit card delinquency rates will rise to 3.23 percent in Q1 2024. This rate has been rising since Q4 2021, and we believe that this trend will continue.

Home Values

In January, we forecasted that the median sales price of homes would fall 3.5 percent in Q4 2023. When looking at the data release, we find that the sales price fell 4.1 percent. Aligned with the Fair Value Variable (FVV) insights, we expect a continued decrease in U.S. single-family home prices, influenced by new listings and rising ownership costs. We predict the data release for Q1 2024 will show that home values are continuing their decline into 2024. Come April 2024, we plan to release our estimate for the quarter-over-quarter change.

COMMERCIAL REAL ESTATE: DELINQUENCY RATES



Source: Board of Governors of the Federal Reserve System

COMMERCIAL REAL ESTATE: DELINQUENCY RATES

The commercial real estate sector experienced a notable quarter-over-quarter increase in delinquency rates, with a rate of 1.17 percent being reported in Q4 2023. In comparison to the same quarter of the previous year, there was a substantial 69.57 percent uptick in commercial real estate delinquency rates.

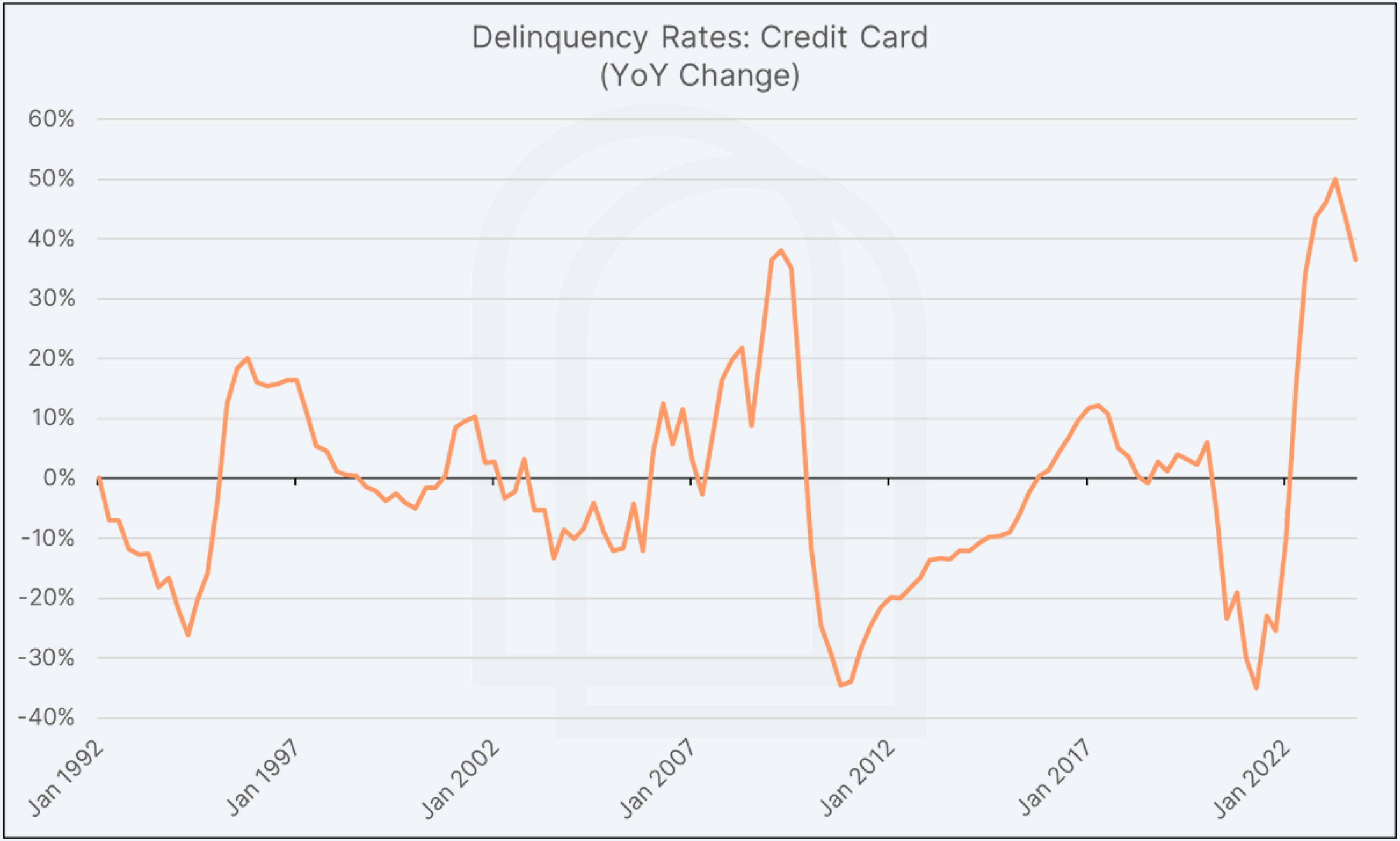
Delinquency rates for commercial real estate have risen consistently during economic downturns. Notably, in Q1 2010, rates spiked to 8.92 percent.

This trend poses challenges for lenders in terms of exposure, refinancing, and interest rates. Declining property values, particularly in sectors like office real estate, increase lenders' vulnerability to losses. For example, if a property's value falls below the loan amount, recovery becomes difficult in case of default. While the current level may not be indicative of a serious problem now, if the trend continues there will be ramifications.

Refinancing becomes problematic as property values decrease, leading some borrowers to consider defaulting rather than seeking additional capital for refinancing. Moreover, rising interest rates diminish profitability, prompting borrowers to reassess their financial viability, potentially increasing default risks. Despite these challenges, major investors plan to expand investments in commercial real estate, suggesting diverging perspectives on market opportunities and risks.

An important note is that within commercial real estate, different sectors are having very different experiences. For example, office is struggling with valuations coming in far below where they were in recent years, whereas warehousing and data centers have continued to perform well as demand increases.

CREDIT CARD: DELINQUENCY RATES



Source: Board of Governors of the Federal Reserve System

CREDIT CARD: DELINQUENCY RATES

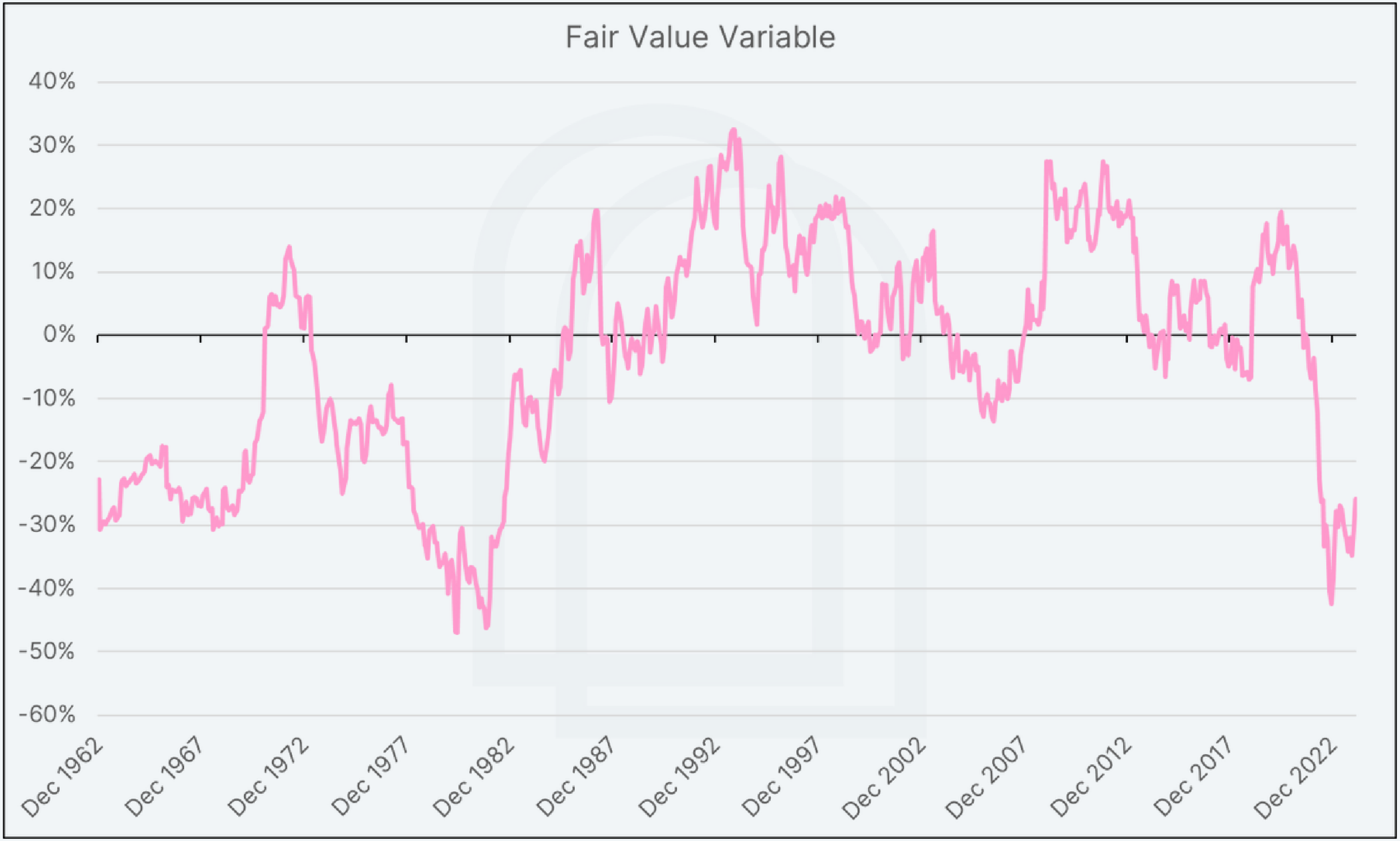
The year-over-year (YoY) change in credit card delinquency rates has exhibited an unprecedented surge, remaining elevated at 37% as of Q4 2023. This sharp increase is a significant departure from historical trends and warrants close attention given its implications.

Currently, credit card delinquency rates stand at 3.1%, a figure reminiscent of Q2 2012. This historical context underscores the severity of the current situation, indicating a return to levels of financial strain not seen in over a decade.

Monitoring credit card delinquency rates is crucial as they often serve as a barometer for consumer stability. A rise in delinquency rates suggests that some individuals are facing challenges in meeting their financial obligations, indicating potential economic distress.

It's noteworthy that credit card debt is often the first to exhibit elevated delinquency rates during periods of economic uncertainty. This trend arises as individuals prioritize essential payments such as mortgages over credit card bills, reflecting the gravity of financial strain faced by some segments of the population.

FAIR VALUE VARIABLE



Source: Reef Insights LLC

FAIR VALUE VARIABLE

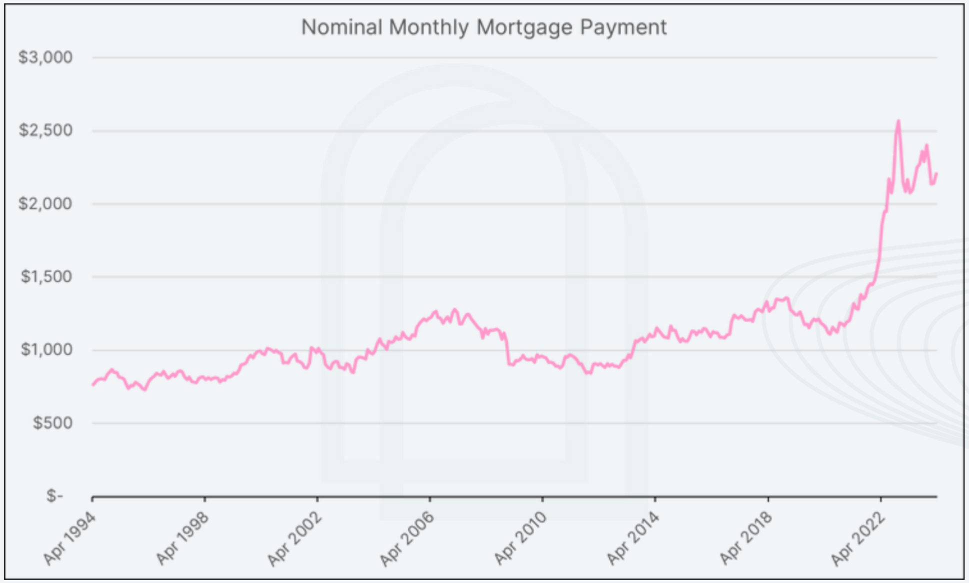
Our innovative metric, the Fair Value Variable (FVV), is designed to assess housing affordability more dynamically. It's built on three rolling averages, spanning 5, 10, and 15 years, each reflecting the portion of median household income devoted to annual mortgage payments. By comparing these historical averages against the current percentage of income allocated to mortgage payments, we derive a 'fair value' premium or discount for each period. These are then averaged out, yielding a premium or discount rate that influences the prevailing median house sales price.

In January, the FVV indicated a slight improvement over December, with an increase to an estimated value of negative 25.9 percent from negative 30.7 percent. This figure is crucial. It implies that, under current conditions where mortgage rates and household incomes remain stable, the selling price of houses would need to decrease by approximately 25.9 percent to align with historical affordability averages. It's a significant indicator of the gap between current market prices and what might be considered 'fair' based on past trends.

However, it's essential to recognize that this value is not static. Changes in either mortgage rates or household incomes could shift this number, altering the necessary adjustment in house prices to reach historical affordability norms. Thus, the FVV offers a vital perspective on the current state of the housing market, highlighting the interplay between mortgage costs, household earnings, and property values.

In this case, the value for January improved due to the significant drop in median sales price of houses sold. Incomes and mortgage rates remained relatively similar to the previous period. Mortgage rates did not precipitously fall, as many others have previously expected, as the market implied expectation of fed funds rates show higher for longer and spreads remained elevated.

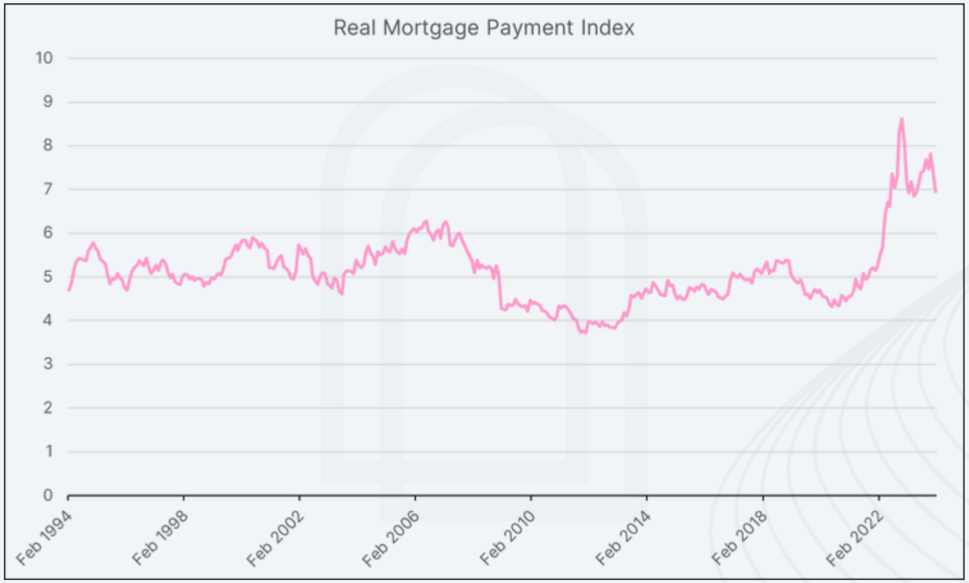
MORTGAGE PAYMENT DATA



Source: Reef Insights LLC

The nominal monthly mortgage payment is calculated by assuming that a 20 percent down payment is satisfied, the mortgage has a maturity of 30 years, and the interest rate is fixed. The variables used are the prevailing mortgage rate and the median sales price of houses sold.

The nominal monthly mortgage payment saw a decrease month-over-month, with a current estimated payment of $2,210 being calculated in March. Year-over-year, the nominal monthly mortgage payment is up 1.87 percent. Over the last five years, the nominal monthly mortgage payment has increased by 78.11 percent.



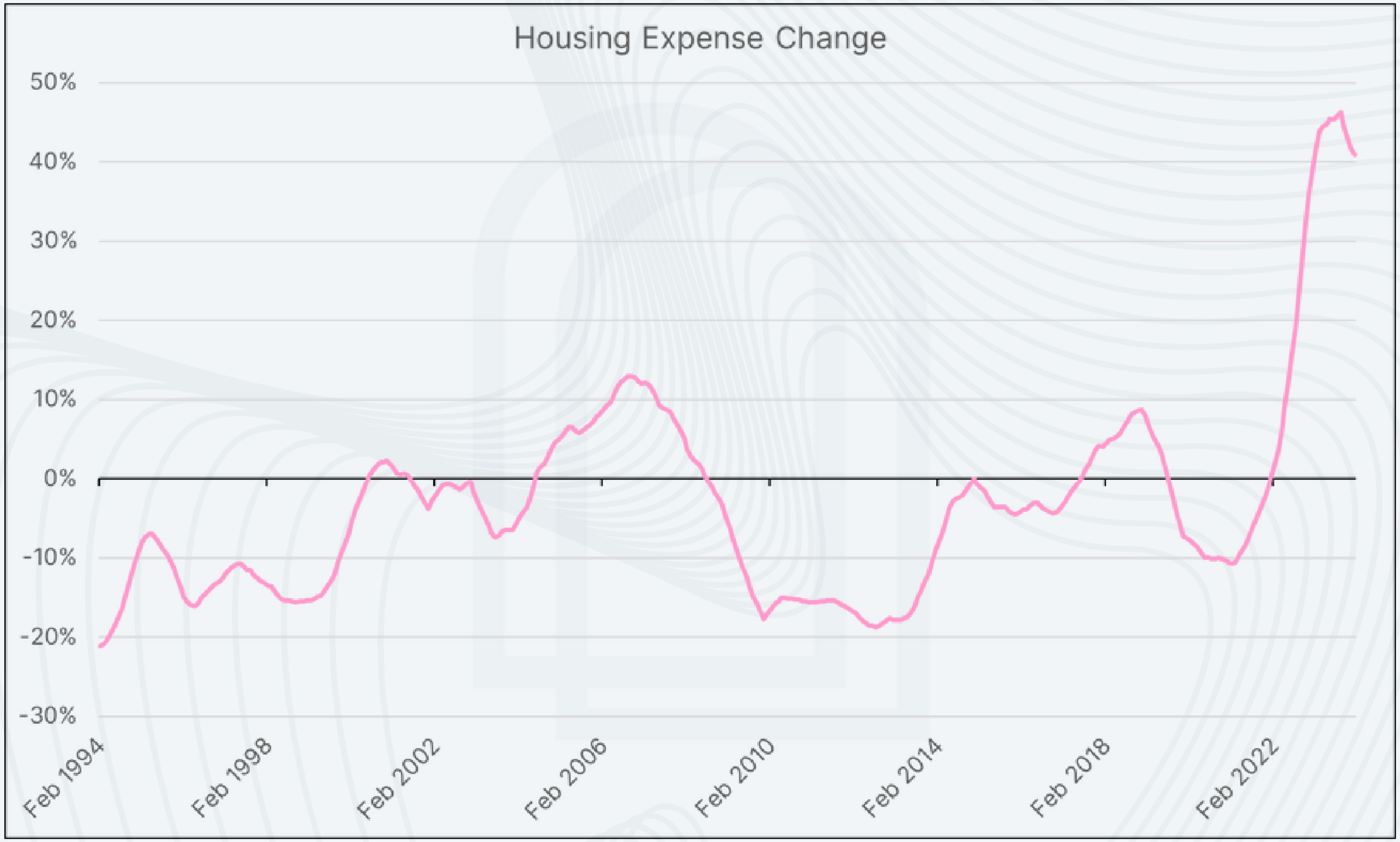
Source: Reef Insights LLC

To derive the value for the real mortgage payment index, we have divided the nominal monthly mortgage payment by the prevailing CPI index value.

The real mortgage payment index saw a decrease month-over-month, with a current estimated value of 6.95 being calculated in February. Year-over-year, the real mortgage payment index was down 2.93 percent. Over the last five years, the real mortgage payment index has increased by 39.46 percent.

The decrease in the index is a positive trend as it shows that in real terms, mortgage payments are headed back toward historical levels, however, it still remains elevated.

HOUSING EXPENSE



Source: Reef Insights LLC

To calculate the housing expense change, which assesses the fluctuation in housing costs, we've divided the percentage of median household income allocated to annual mortgage payments by the rolling 10-year average. This metric is pivotal for understanding the volatility in housing expenses. In January, we observed a decrease in the housing expense change, with the current estimated value standing at 40.9 percent. This level of volatility, relative to the 10-year average, has not been seen in the past 30 years.

NEW & EXISTING HOUSING SUPPLY

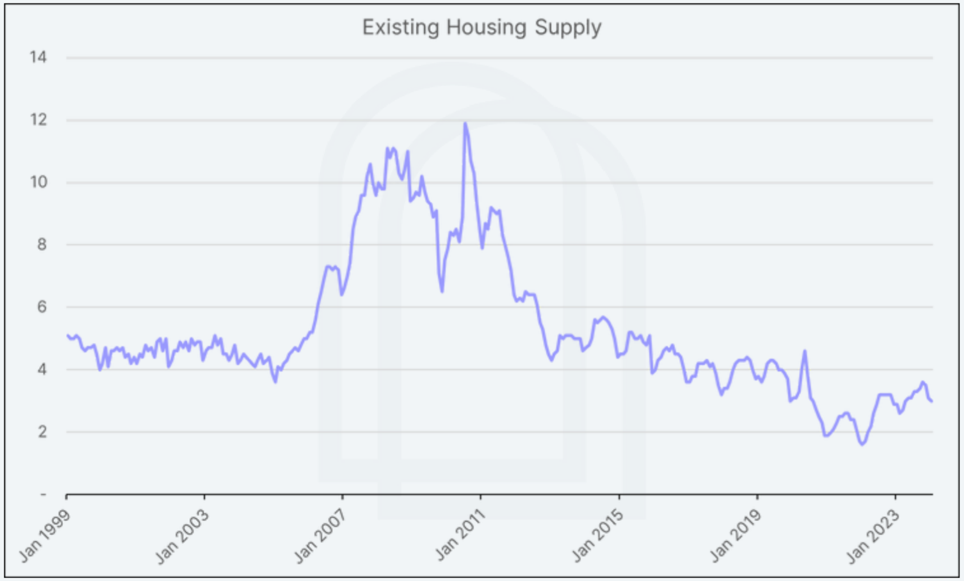
The supply of new housing is calculated by assessing the ratio of newly constructed houses available for sale to those sold. In January, this measure remained steady, with an 8.3-month supply reported. Compared to the previous year, there's been a 2.47 percent increase in the months' supply of new housing.

It's important to note that while new housing comprises a significant portion of total housing sales, it represents only about 10% of the overall market.

Source: U.S. Census Bureau, U.S. Department of Housing and Urban Development

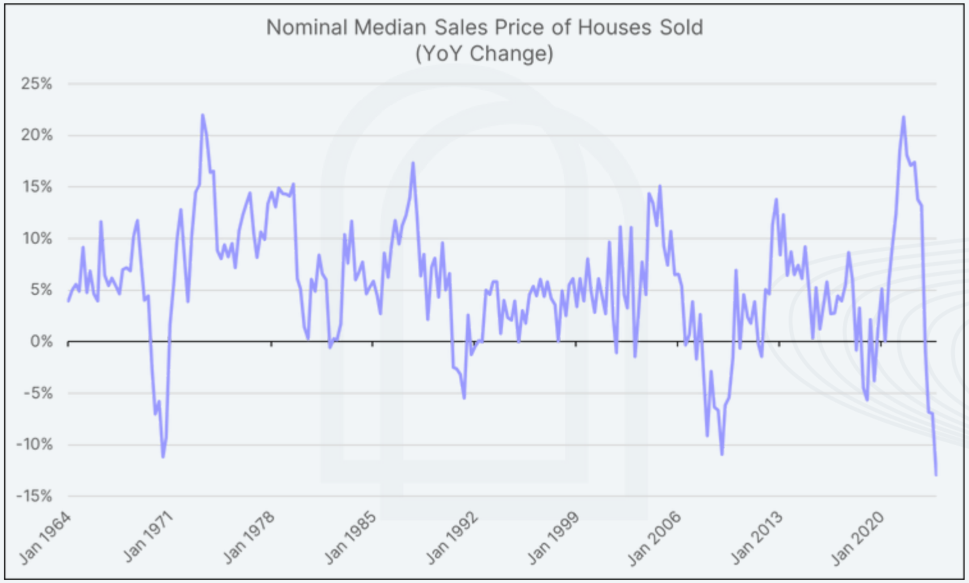
The supply of existing housing is calculated by examining the ratio of available existing homes to those sold. In January, this measure experienced a decline, with a reported 3-month supply. Comparing year-over-year data, there's been a 5.33 percent increase in the months' supply of existing housing.

It's noteworthy that existing housing represents approximately 90% of the market, underscoring its significance within the housing sector. Interestingly, the current months' supply of existing homes is below the 10-year historical average of 3.7, indicating potential shifts in market dynamics or demand-supply equilibrium.



Source: National Association of Realtors

HOUSING: PRICES & RATES



Source: U.S. Census Bureau, U.S. Department of Housing and Urban Development

Source: Freddie Mac

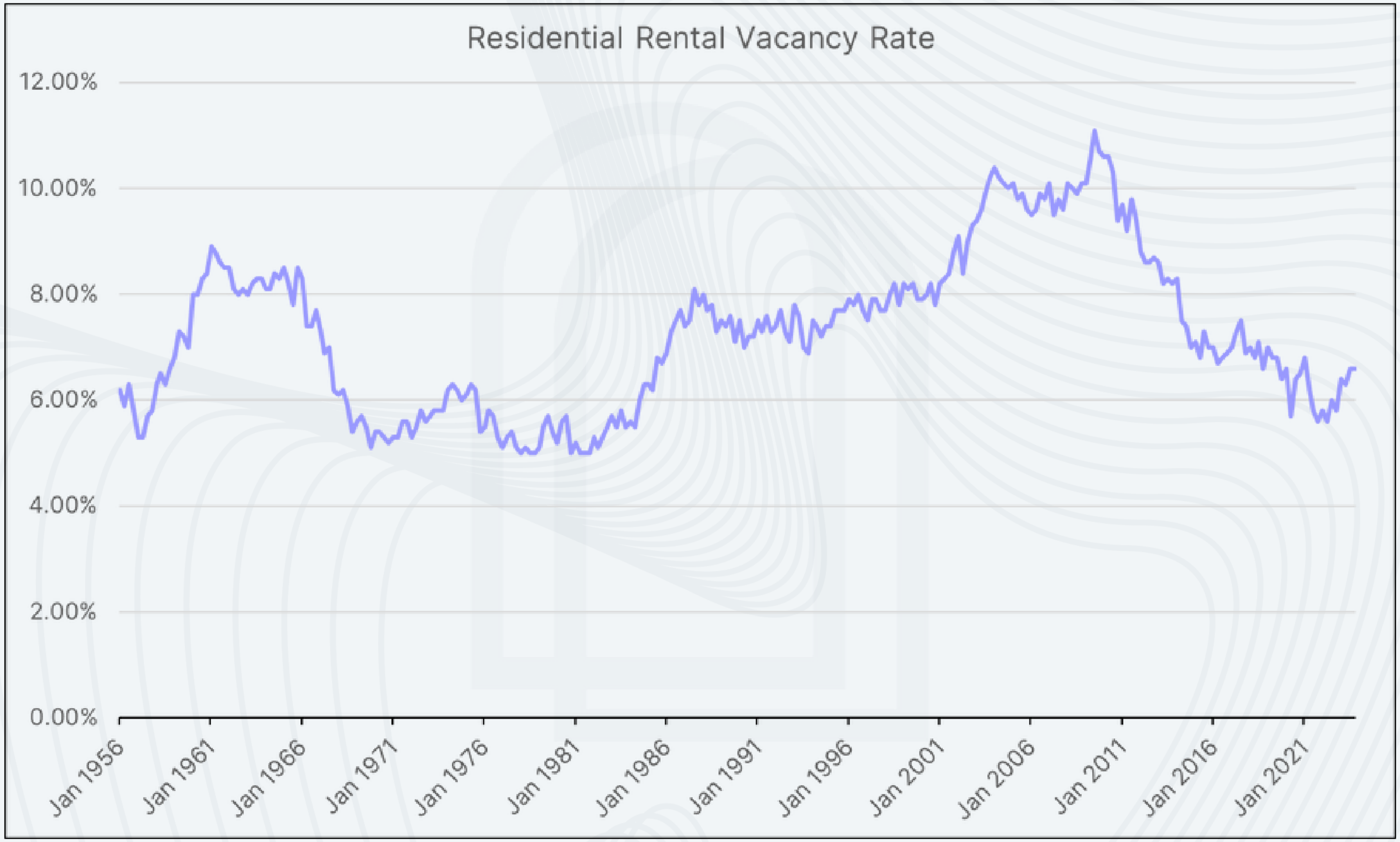
In Q4 2023, the nominal median sales price of houses sold experienced a decrease of $17,700 quarter-over-quarter, bringing the figure to $417,700. Looking at the data year-over-year, there was a significant decline of 12.89 percent.

Dating back to 1964, this is the largest year-over-year decline recorded. Although regional markets are important to consider when looking at residential housing, this highlights the speed at which housing valuations are declining.

In the mortgage market, the current nominal interest rate is determined by the applications received by Freddie Mac from lenders nationwide. There has been a noticeable uptick in nominal mortgage rates compared to the previous month, with March reporting a prevailing rate of 6.94 percent.

This uptick can largely be attributed to the Federal Reserve delaying in rate cuts. Looking back over the year, there's been an increase of 4.36 percent in the prevailing nominal mortgage rate.

RESIDENTIAL RENTAL VACANCY RATES



Source: U.S. Census Bureau

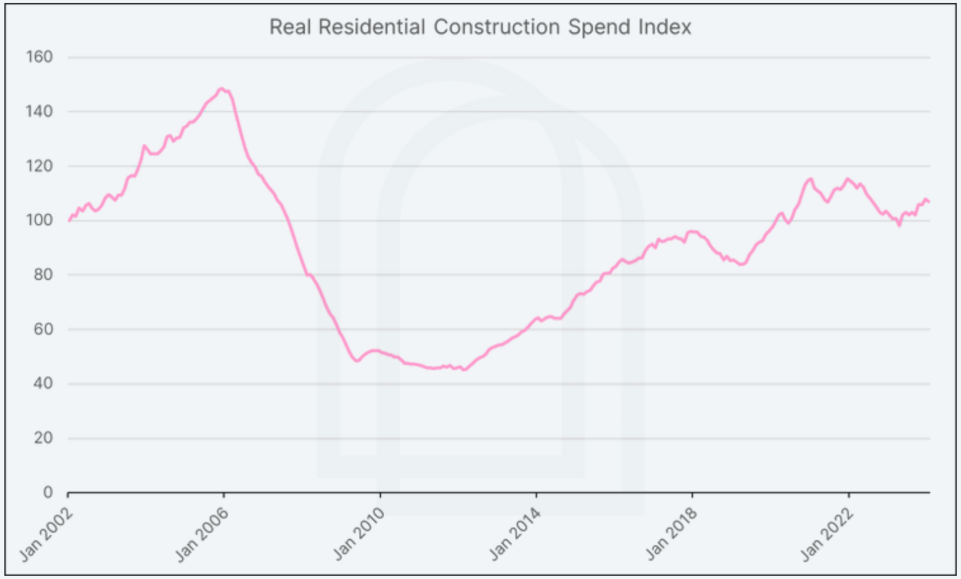
When there's an uptick in residential rental vacancies, it tends to lower the profitability of properties. In Q4 2023, the rental vacancy rate remained steady compared to the previous quarter, sitting at 6.6 percent. However, looking at the year-on-year trend, there's been a significant increase of 13.79 percent in the rental vacancy rate. This, in addition to elevated mortgage rates, will decrease the profitability of rental properties, which will place pressure on property valuations.

RESIDENTIAL CONSTRUCTION & HOUSING STARTS

In general, housing starts tend to decrease during economic recessions. There was a month-over-month decline in housing starts, with 1,331,000 starts reported in January. Compared to the previous year, housing starts have decreased by 0.67 percent. Housing starts are commonly viewed as a crucial leading indicator for the economy, especially within the housing sector.

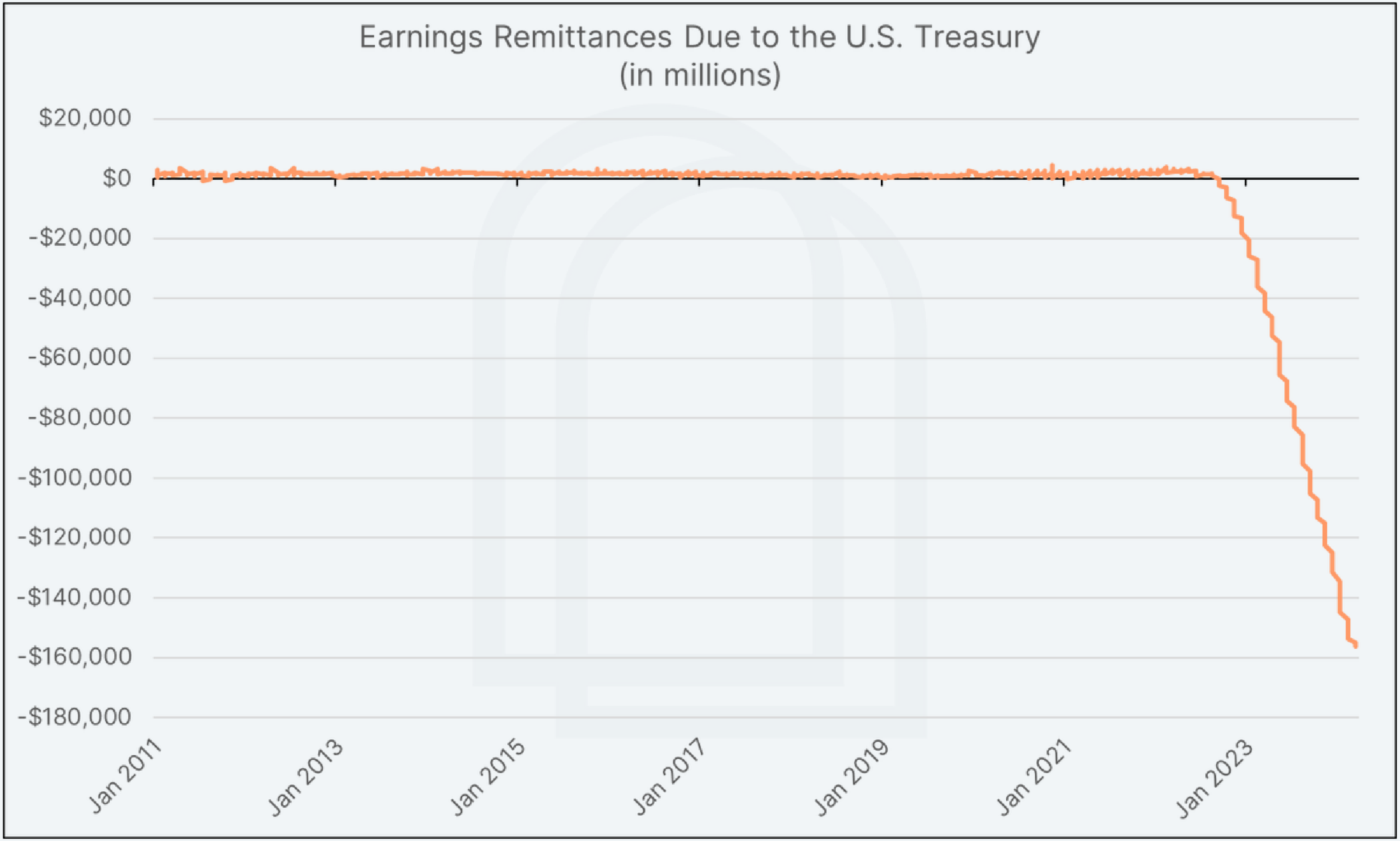
Source: U.S. Census Bureau, U.S. Department of Housing and Urban Development

The Real Residential Construction Spend Index is calculated by dividing the Total Construction Spending: Residential by the PPI: Residential Construction figure. During the Great Recession, there was a significant drop in this index. In January, the index experienced a month-over-month decrease, registering a value of 106.99. However, compared to the previous year, the index showed an increase of 4.71 percent year-over-year.



Source: Reef Insights LLC

FEDERAL RESERVE EARNINGS REMITTANCES TO THE TREASURY



Source: Board of Governors of the Federal Reserve System

FEDERAL RESERVE EARNINGS REMITTANCES TO THE TREASURY

As of the end of February, the Federal Reserve has encountered a significant financial challenge, amassing over $154 billion in losses.

Under the Federal Reserve Act, Reserve Banks are required to remit excess earnings to the U.S. Treasury after covering operational costs, dividends, and maintaining a surplus. However, when earnings fall short of meeting these obligations, a deferred asset is recorded. Historically, between 2011 and 2021, the Fed's remittances totaled over $920 billion. However, starting in September 2022, remittances turned negative due to the Fed's actions, including rate hikes aimed at tightening monetary policy to combat inflation.

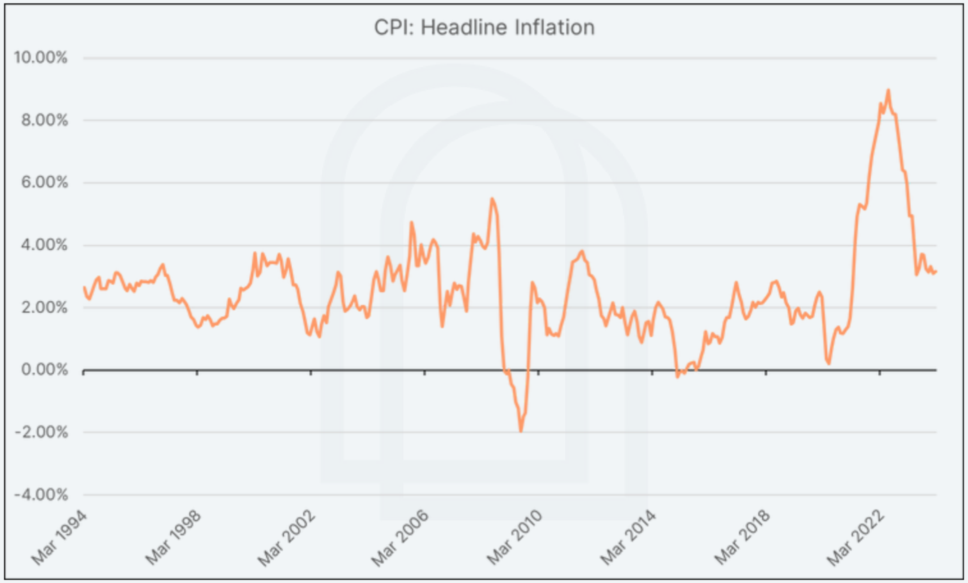
The losses incurred are a direct consequence of the Fed's policy decisions, including sharp increases in interest rate targets and reductions in the size of its balance sheet. These measures are intended to counteract high inflation levels. The Fed's income primarily stems from interest earned on assets held on its balance sheet and interest payments from reserves banks are required to hold with it. However, reducing the balance sheet results in lower income, while rising interest rates increase the Fed's interest payments to banks, collectively leading to financial losses.

Despite these financial setbacks, the Fed emphasizes that its operational capacity and ability to conduct monetary policy remain intact. According to projections by the New York Fed in April 2023, the Fed anticipates returning to positive net income by 2025. Furthermore, it estimates carrying this deferred asset until mid-2027, after which it plans to resume transferring funds to the Treasury.

HEADLINE & CORE INFLATION

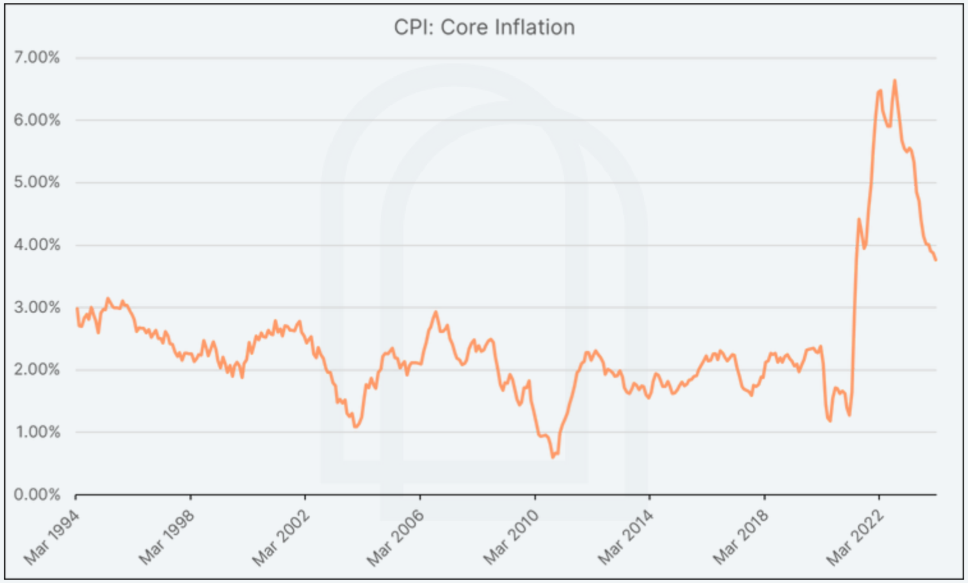
In February, headline inflation exhibited a month-over-month increase, with a reported value of 3.17 percent. This marks a slight acceleration from the 3.11 percent value reported in January. Comparatively, in February of the previous year, headline inflation stood notably higher at 5.97 percent.

Inflation has largely stagnated on its decline. Additionally, the recent resiliency has caused expectations of the timing of rate cuts to shift, in line with our forecasts.



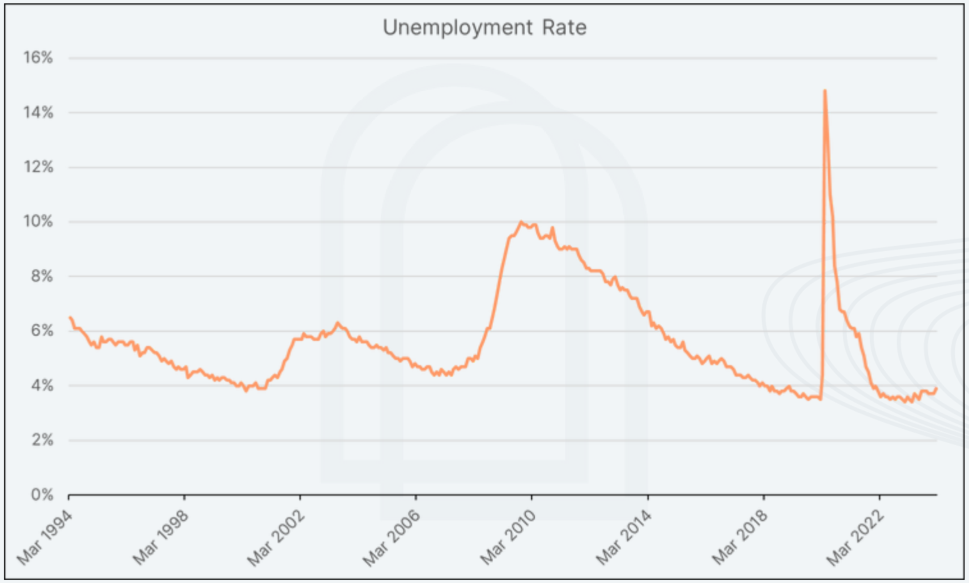
Source: U.S. Bureau of Labor Statistics

Similar to headline inflation, core inflation experienced a decline on a month-over-month basis, with February reporting a value of 3.76 percent. This represents a slight decrease compared to the 3.87 percent value reported in January. Notably, in February of the previous year, core inflation was notably higher, standing at 5.49 percent.



Source: U.S. Bureau of Labor Statistics

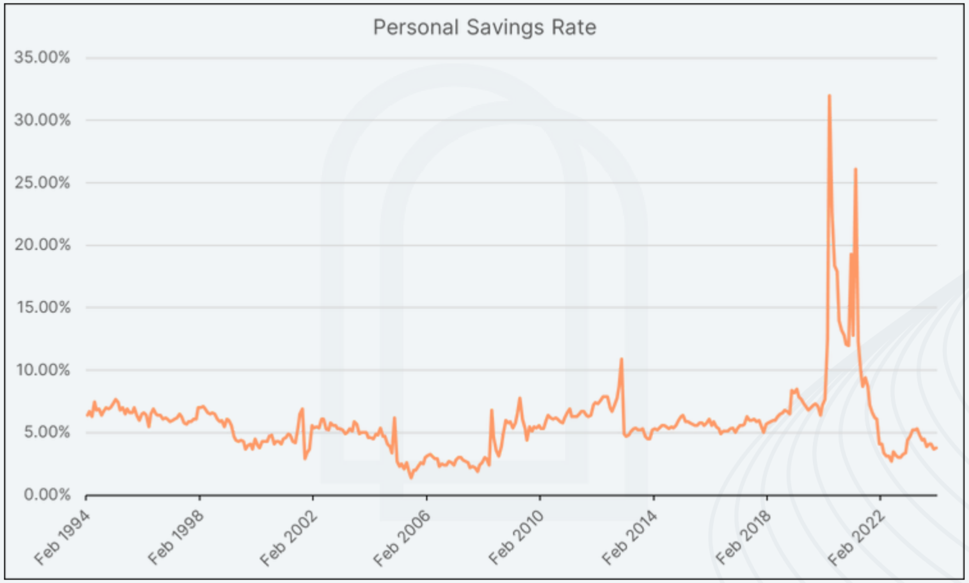
UNEMPLOYMENT RATE & PERSONAL SAVINGS RATE



Source: U.S. Bureau of Labor Statistics

The unemployment rate stands as a dependable lagging economic indicator. In February, there was a month-over-month increase in the unemployment rate, reaching 3.9 percent. Comparing this to the previous year, there was a notable rise of 8.33 percent in the unemployment rate.

This will be an important metric to track over the course of the year due to it having an impact on various elements of the economy.



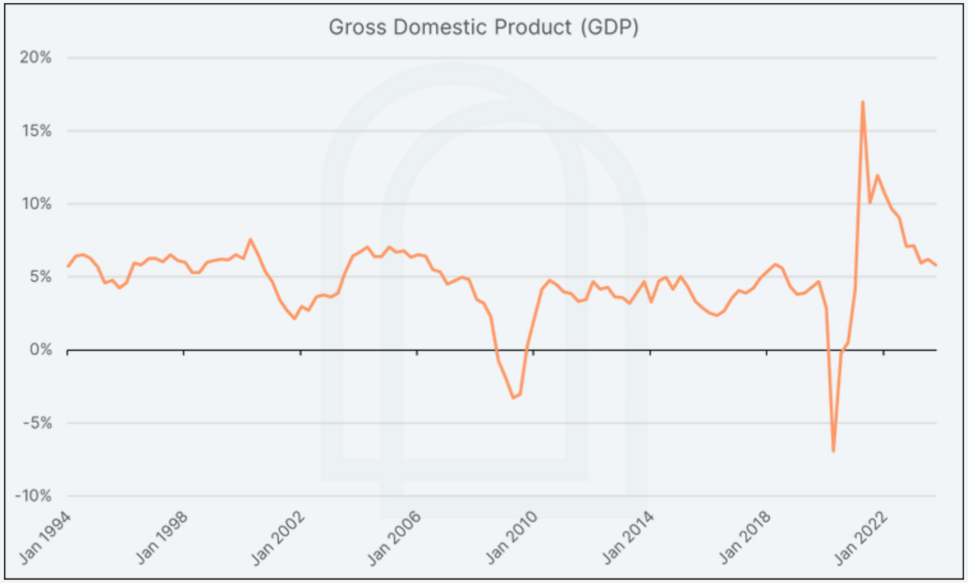
Source: U.S. Bureau of Economic Analysis

The personal savings rate represents the percentage of personal income remaining after subtracting personal outlays and taxes. In January, there was a month-over-month uptick in the personal savings rate, reaching 3.8 percent. However, compared to the previous year, there was a decrease of 13.6 percent in the personal savings rate.

Notably, the savings rate remains well below its historic average, which means that many Americans are finding it difficult to save at the same rate that has previously been observed.

GDP & DEBT-TO-GDP

Gross domestic product (GDP), a key indicator of economic output, measures the market value of goods and services produced within the United States. In the most recent quarter, GDP experienced growth, with an annualized figure of $27,945 billion reported in Q4 2023. This represents a robust year-over-year increase of 5.82 percent. The upward trend in GDP reflects a positive momentum in the U.S. economy, driven by strong consumer spending, investment, and government expenditures.

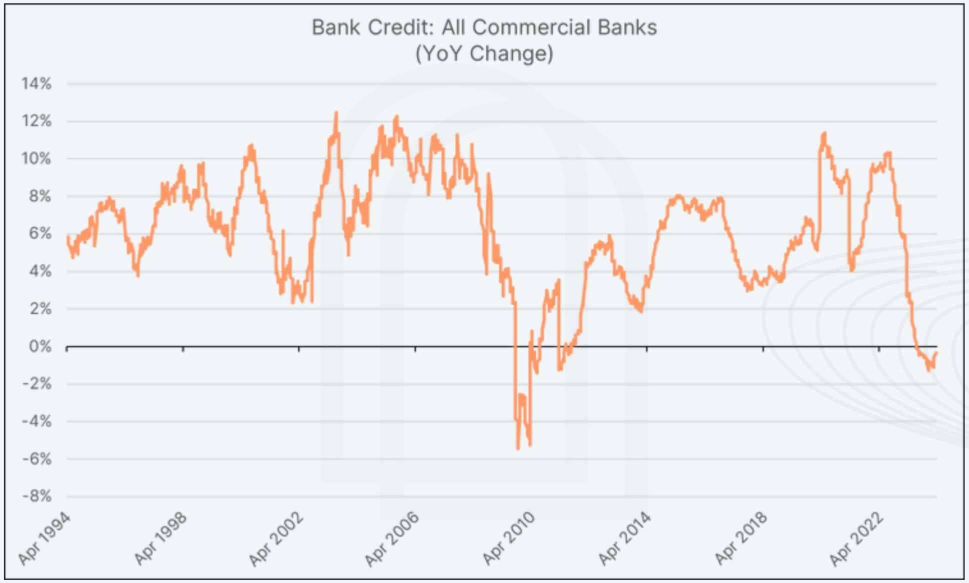


Source: U.S. Bureau of Economic Analysis

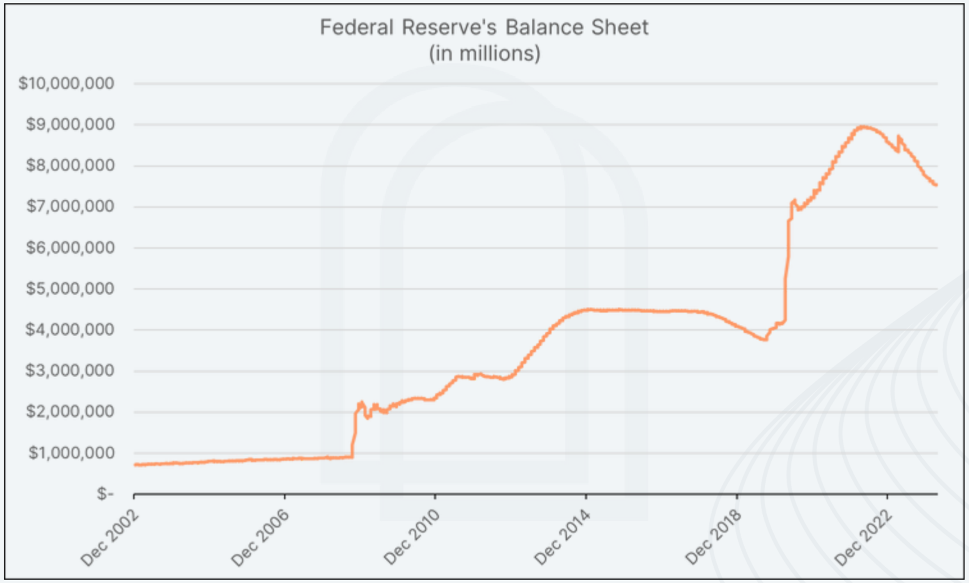
The debt-to-GDP ratio is a critical metric that compares a country's public debt to its gross domestic product (GDP), providing insight into its ability to repay debts. In the most recent quarter, the United States saw an increase in this ratio, with a debt-to-GDP of 121.70 percent reported in Q4 2023. This marks a year-over-year rise of 5.82 percent. The uptrend in the debt-to-GDP ratio underscores the growing debt burden relative to the economic output, warranting close monitoring for fiscal sustainability.

Source: U.S. Office of Management and Budget

BANK CREDIT & FED BALANCE SHEET



Source: Board of Governors of the Federal Reserve System



Source: Board of Governors of the Federal Reserve System

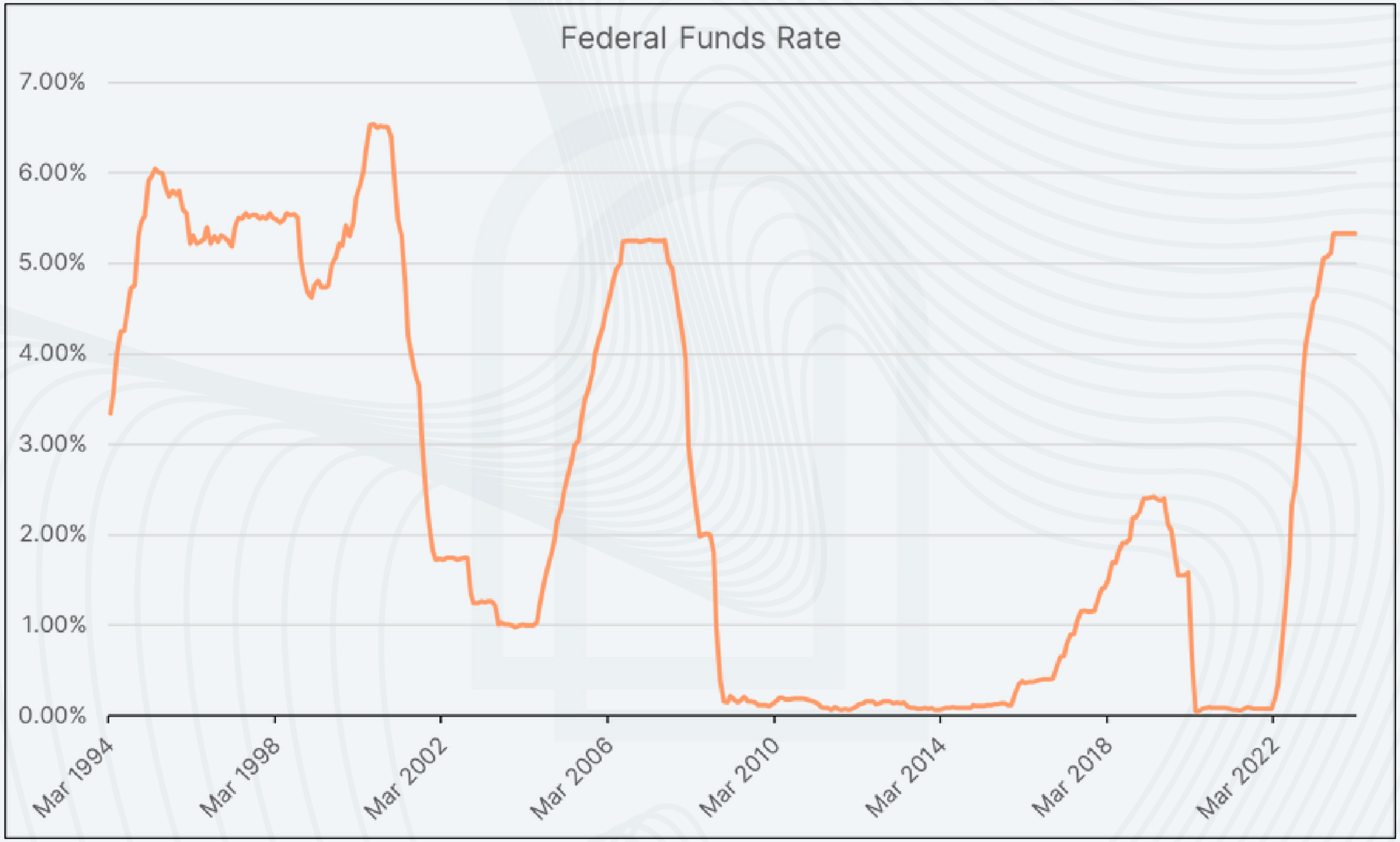
During an economic downturn, it's common for bank credit to shrink as lenders become more cautious about extending loans. However, in March, we observed a different trend. Bank credit actually increased, with a reported total of $17,469 billion. Despite this monthly rise, on a year-over-year basis, bank credit experienced a slight decrease of 0.33 percent. This indicates a nuanced situation where short-term changes might not fully reflect the longer-term trend.

Notably, the last time bank credit contracted on a year-over-year basis was during the Great Recession.

In the past, the Federal Reserve has occasionally found it useful to engage in a strategy called quantitative easing (QE) to stimulate the economy by purchasing additional assets, thereby expanding its balance sheet.

However, in 2022, the Federal Reserve's balance sheet actually decreased, with a reported figure of $7,541,969 million. This indicates a month-over-month decline. Furthermore, on a year-over-year basis, the balance sheet showed a significant decrease of 12.7 percent. The Federal Reserve has indicated that it plans to continue decreasing its balance sheet.

FEDERAL FUNDS RATE



Source: Board of Governors of the Federal Reserve System

The federal funds rate is the interest rate at which depository institutions trade federal funds (balances held at the Federal Reserve Banks) with each other overnight. The federal funds rate remained unchanged month-over-month, with a target range of 5.25 - 5.50 percent being reported in February. Our guidance, which we published in January, suggested that there would not be a rate cut in Q1. Furthermore, we do not anticipate a rate cut in Q2 due to uncertainty in the outlook of inflation data, leading the Federal Reserve to be cautious in their approach and avoid cutting rates prematurely.

DATA TABLE

Metric	This Period	Last Period	Year Ago	Latest Release
Housing Starts: Total Units	1,331	1,562	1,340	1/1/2024
New Housing Supply	8.30	8.30	8.10	1/1/2024
Existing Housing Supply	3.00	3.10	2.90	1/1/2024
Nominal Median Sales Price of Houses Sold	$ 417,700	$ 435,400	$ 479,500	10/1/2023
New Building Permit Authorizations: Total Units	1,489	1,493	1,354	1/1/2024
Case-Shiller Index	310.67	311.83	294.39	12/1/2023
Residential Construction Employees	936	936	927	2/1/2024
Nominal Mortgage Rates	6.94	6.63	6.50	3/1/2024
Deliquency Rates: Single-Family	1.69	1.72	1.78	10/1/2023
Deliquency Rates: Commercial	1.17	1.06	0.64	10/1/2023
PPI: Residential Construction	316	314	304	2/1/2024
Construction Spending: Residential	$ 912	$ 910	$ 866	1/1/2024
Housing Inventory: Median Days on Market	69	61	65	1/1/2024
Nominal Monthly Mortgage Payment	$ 2,210	$ 2,141	$ 2,169	3/1/2024
Real Mortgage Payment Index	6.95	7.40	7.16	1/1/2024
Median Household Income Spent on Annual Mortgage Payments	34.37	36.57	34.61	1/1/2024
Fair Value Variable	(25.89)	(30.66)	(30.30)	1/1/2024

DATA TABLE

Metric	This Period	Last Period	Year Ago	Latest Release
Housing Expense Change	40.92	41.57	39.35	1/1/2024
Nominal Median Household Income	$ 74,580	$ 70,780	$ 70,780	2022
Headline Inflation	3.17	3.11	5.97	2/1/2024
Core Inflation	3.76	3.87	5.49	2/1/2024
Unemployment Rate	3.90	3.70	3.60	2/1/2024
Federal Funds Rate	5.33	5.33	4.57	2/1/2024
Personal Savings Rate	3.80	3.70	4.40	1/1/2024
Jobless Claims	209,000	210,000	230,000	3/9/2024
10-Year U.S. Treasury Yield Minus 2-Year U.S. Treasury	(0.34)	(0.26)	(0.76)	3/1/2024
Residential Rental Vacancy Rate	6.60	6.60	5.80	10/1/2023
Real Residential Construction Spend Index	106.99	108.05	102.18	1/1/2024
Household Savings	$ 807	$ 2,207	$ 2,207	2022
Bank Credit: All Commercial Banks	$ 17,469	$ 17,449	$ 17,527	3/6/2024
Delinquency Rates: Credit Card	3.10	2.97	2.27	10/1/2023
Gross Domestic Product (GDP)	$ 27,945	$ 27,610	$ 26,408	10/1/2023
M2 (Money Supply)	$ 20,782	$ 20,827	$ 21,209	1/1/2024
Federal Reserve's Balance Sheet	$ 7,542	$ 7,539	$ 8,639	3/13/2024

DATA TABLE

Metric	This Period	Last Period	Year Ago	Latest Release
PCE: Headline Inflation	4.52	5.94	7.94	1/1/2024
PCE: Core Inflation	2.85	2.94	4.90	1/1/2024
Debt-to-GDP	121.67	120.13	118.98	10/1/2023

SOURCES

Metric	Frequency	Sources	Notes
Housing Starts: Total Units	Monthly	U.S. Census Bureau, U.S. Department of Housing and Urban Development	As provided by the Census, start occurs when excavation begins for the footings or foundation of a building. All housing units in a multifamily building are defined as being started when this excavation begins. Beginning with data for September 1992, estimates of housing starts include units in structures being totally rebuilt on an existing foundation.
New Housing Supply	Monthly	U.S. Census Bureau, U.S. Department of Housing and Urban Development	The months' supply is the ratio of new houses for sale to new houses sold. This statistic provides an indication of the size of the new for-sale inventory in relation to the number of new houses currently being sold. The months' supply indicates how long the current new for-sale inventory would last given the current sales rate if no additional new houses were built.
Existing Housing Supply	Monthly	National Association of Realtors	The National Association of Realtors monthly housing indicators are based on a representative sample of local boards and multiple listing services. Sales volume, inventory, and price levels for existing homes are measured for the US in aggregate and by census region. Existing homes, unlike new homes, are homes that are owned and occupied before coming onto the market. Inventory indicates the number of properties marked as "active" on the market or those pending sales. When a seller lists a property, it becomes counted as inventory.
Nominal Median Sales Price of Houses Sold	Quarterly	U.S. Census Bureau, U.S. Department of Housing and Urban Development	The purpose of the Survey of Construction (SOC) is to provide national and regional statistics on starts and completions of new single-family and multifamily housing units and statistics on sales of new single-family houses in the United States. The United States Code, Title 13, authorizes this survey and provides for voluntary responses. The Department of Housing and Urban Development partially funds this survey. The SOC also provides statistics on characteristics of new privately-owned residential structures in the United States. Data included are various characteristics of new single-family houses completed, new multifamily housing completed, new single-family houses sold, and new contractor-built houses started.
New Building Permit Authorizations: Total Units	Monthly	U.S. Census Bureau, U.S. Department of Housing and Urban Development	Starting with the 2005-02-16 release, the series reflects an increase in the universe of permit-issuing places from 19,000 to 20,000 places.
Case-Shiller Index	Monthly	S&P Dow Jones Indices LLC	The S&P CoreLogic Case-Shiller Home Price Indices measure the price level of existing single-family homes in the U.S.
Residential Construction Employees	Monthly	U.S. Bureau of Labor Statistics	Construction employees in the construction sector include: Working supervisors, qualified craft workers, mechanics, apprentices, helpers, laborers, and so forth, engaged in new work, alterations, demolition, repair, maintenance, and the like, whether working at the site of construction or in shops or yards at jobs (such as precutting and preassembling) ordinarily performed by members of the construction trades.
Nominal Mortgage Rates	Weekly	Freddie Mac	On November 17, 2022, Freddie Mac changed the methodology of the Primary Mortgage Market Survey® (PMMS®). The weekly mortgage rate is now based on applications submitted to Freddie Mac from lenders across the country. For more information regarding Freddie Mac's enhancement, see their research note.
Deliquency Rates: Single-Family	Quarterly	Board of Governors of the Federal Reserve System	The charge-off rates are annualized and are calculated net of recoveries. Delinquent loans and leases encompass those that are past due by thirty days or more and are still accruing interest, as well as those in nonaccrual status. This comprehensive approach provides insight into the financial health and performance metrics of these major banks, considering both charge-offs and delinquencies in their loan portfolios.

SOURCES

Metric	Frequency	Sources	Notes
Deliquency Rates: Commercial Real Estate	Quarterly	Board of Governors of the Federal Reserve System	The charge-off rates are annualized and are calculated net of recoveries. Delinquent loans and leases encompass those that are past due by thirty days or more and are still accruing interest, as well as those in nonaccrual status. This comprehensive approach provides insight into the financial health and performance metrics of these major banks, considering both charge-offs and delinquencies in their loan portfolios.
PPI: Residential Construction	Monthly	U.S. Bureau of Labor Statistics	The Producer Price Index (PPI) program measures the average change over time in the selling prices received by domestic producers for their output. The prices included in the PPI are from the first commercial transaction for many products and some services.
Construction Spending: Residential	Monthly	U.S. Census Bureau	Construction work done each month on new structures or improvements to existing structures for private and public sectors (in 50 states and the District of Columbia).
Housing Inventory: Median Days on Market	Monthly	Realtor.com	With the release of its September 2022 housing trends report, Realtor.com® incorporated a new and improved methodology for capturing and reporting housing inventory trends and metrics. The new methodology updates and improves the calculation of time on market and improves handling of duplicate listings. Most areas across the country will see minor changes with a smaller handful of areas seeing larger updates. As a result of these changes, the data released since October 2022 will not be directly.
Nominal Monthly Mortgage Payment	Monthly	Reef Insights LLC	The nominal monthly mortgage payment is determined based on the current prevailing mortgage rate and the median sales price of houses sold. Our calculations are grounded in the following assumptions: a 20 percent down payment, a 30-year maturity period, and a fixed interest rate.
Real Mortgage Payment Index	Monthly	Reef Insights LLC	The real mortgage payment index is calculated by dividing the nominal monthly mortgage payment by the prevailing CPI index value.
Median Household Income Spent on Annual Mortgage Payments	Monthly	Reef Insights LLC	To determine the median household income spent on annual mortgage payments, we have annualized the prevailing nominal monthly mortgage payment and divided that payment by the prior years' median household income.
Fair Value Variable	Monthly	Reef Insights LLC	The analysis incorporates three distinct rolling averages signifying the percentage of median household income allocated to annual mortgage payments. These averages span 5 years, 10 years, and 15 years, respectively. In the determination of a 'fair value' premium or discount for each period, the established averages are divided by the prevailing percentage of median household income dedicated to annual mortgage payments. The resultant values are subsequently averaged to ascertain a premium or discount, which is applicable to the prevailing median sales price of houses sold.
Housing Expense Change	Monthly	Reef Insights LLC	The computed values have been obtained through the division of the rolling 1-year average for the percentage of median household income allocated to annual mortgage payments by the rolling 10-year average.
Nominal Median Household Income	Annually	U.S. Census Bureau	The median divides the income distribution into two equal parts: one-half of the cases falling below the median income and one-half above the median. For households and families, the median income is based on the distribution of the total number of households and families including those with no income. The median income for individuals is based on individuals 15 years old and over with income. Median income for households, families, and individuals is computed on the basis of a standard distribution.

SOURCES

Metric	Frequency	Sources	Notes
CPI: Headline Inflation	Monthly	U.S. Bureau of Labor Statistics	The CPIs are based on prices for food, clothing, shelter, and fuels; transportation fares; service fees (e.g., water and sewer service); and sales taxes. Prices are collected monthly from about 4,000 housing units and approximately 26,000 retail establishments across 87 urban areas. To calculate the index, price changes are averaged with weights representing their importance in the spending of the particular group. The index measures price changes (as a percent change) from a predetermined reference date. In addition to the original unadjusted index distributed, the Bureau of Labor Statistics also releases a seasonally adjusted index. The unadjusted series reflects all factors that may influence a change in prices. However, it can be very useful to look at the seasonally adjusted CPI, which removes the effects of seasonal changes, such as weather, school year, production cycles, and holidays.
CPI: Core Inflation	Monthly	U.S. Bureau of Labor Statistics	The "Consumer Price Index for All Urban Consumers: All Items Less Food & Energy" is an aggregate of prices paid by urban consumers for a typical basket of goods, excluding food and energy. This measurement, known as "Core CPI," is widely used by economists because food and energy have very volatile prices.
Unemployment Rate	Monthly	U.S. Bureau of Labor Statistics	The unemployment rate represents the number of unemployed as a percentage of the labor force. Labor force data are restricted to people 16 years of age and older, who currently reside in 1 of the 50 states or the District of Columbia, who do not reside in institutions (e.g., penal and mental facilities, homes for the aged), and who are not on active duty in the Armed Forces.
Federal Funds Rate	Monthly	Board of Governors of the Federal Reserve System	The federal funds market consists of domestic unsecured borrowings in U.S. dollars by depository institutions from other depository institutions and certain other entities, primarily government-sponsored enterprises.
Personal Savings Rate	Monthly	U.S. Bureau of Economic Analysis	Personal saving as a percentage of disposable personal income (DPI), frequently referred to as "the personal saving rate," is calculated as the ratio of personal saving to DPI. Personal saving is equal to personal income less personal outlays and personal taxes; it may generally be viewed as the portion of personal income that is used either to provide funds to capital markets or to invest in real assets such as residences.
Jobless Claims	Weekly	U.S. Employment and Training Administration	An initial claim is a claim filed by an unemployed individual after a separation from an employer. The claim requests a determination of basic eligibility for the Unemployment Insurance program.
10-Year U.S. Treasury Yield Minus 2-Year U.S. Treasury	Weekly	Board of Governors of the Federal Reserve System	This particular yield curve is derived by subtracting the 10-year U.S. Treasury by the 2-Year U.S. Treasury.
Residential Rental Vacancy Rate	Quarterly	U.S. Census Bureau	The rental vacancy rate is the proportion of the rental inventory that is vacant for rent.
Real Residential Construction Spend Index	Monthly	Reef Insights LLC	This index is constructed by dividing the Total Construction Spending: Residential by the CPI: Residential Construction.
Household Savings	Annually	U.S. Bureau of Economic Analysis	To calculate the amount of household savings, the BEA starts with personal income, and then subtracts from that personal taxes to derive disposable personal income. Then, personal outlays are subtracted from disposable income. This results in an estimate of household savings.

SOURCES

Metric	Frequency	Sources	Notes
Bank Credit: All Commercial Banks	Weekly	Board of Governors of the Federal Reserve System	The H.8 release provides an estimated weekly aggregate balance sheet for all commercial banks in the United States. The release also includes separate balance sheet aggregations for several bank groups: domestically chartered commercial banks; large domestically chartered commercial banks; small domestically chartered commercial banks; and foreign-related institutions in the United States
Delinquency Rates: Credit Card	Quarterly	Board of Governors of the Federal Reserve System	For more information, check out the Charge-Off and Delinquency Rates on Loans and Leases at Commercial Banks release.
Gross Domestic Product (GDP)	Quarterly	U.S. Bureau of Economic Analysis	Gross domestic product (GDP), the featured measure of U.S. output, is the market value of the goods and services produced by labor and property located in the United States.
M2 (Money Supply)	Monthly	Board of Governors of the Federal Reserve System	Beginning May 2020, M2 consists of M1 plus (1) small-denomination time deposits (time deposits in amounts of less than $100,000) less IRA and Keogh balances at depository institutions; and (2) balances in retail MMFs less IRA and Keogh balances at MMFs. Seasonally adjusted M2 is constructed by summing savings deposits (before May 2020), small-denomination time deposits, and retail MMFs, each seasonally adjusted separately, and adding this result to seasonally adjusted M1.
Federal Reserve's Balance Sheet	Weekly	Board of Governors of the Federal Reserve System	For more information, check out the H.4.1 release.
PCE: Headline Inflation	Monthly	U.S. Bureau of Economic Analysis	Table 9.1U - Comparison of the PCE Price Index with the CPI reconciles the changes in the personal consumption expenditures (PCE) chain-type price index, prepared by the Bureau of Economic Analysis (BEA), with changes in the consumer price index for all urban consumers (CPI), prepared by the Bureau of Labor Statistics (BLS).
PCE: Core Inflation	Monthly	U.S. Bureau of Economic Analysis	Table 9.1U - Comparison of the PCE Price Index with the CPI reconciles the changes in the personal consumption expenditures (PCE) chain-type price index, prepared by the Bureau of Economic Analysis (BEA), with changes in the consumer price index for all urban consumers (CPI), prepared by the Bureau of Labor Statistics (BLS).
Debt-to-GDP	Quarterly	U.S. Office of Management and Budget	Federal Debt: Total Public Debt as Percent of Gross Domestic Product (GFDEGDQ188S) was first constructed by the Federal Reserve Bank of St. Louis in October 2012.

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Real Estate Economic Forecast - Monthly
Real Estate Economic Forecast - Quarterly
Forecast Evaluation - Semi-Annual

Our monthly and quarterly reports will contain similar information, but the duration of our forecasts, as well as the focus, will differ depending on the report. Monthly reports place an emphasis on short-term estimates, whereas our quarterly reports will seek to forecast on a quarter-to-quarter basis.

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