



REAL ESTATE & ECONOMIC FORECAST

UNITED STATES

SUMMARY

Housing Affordability and Market Dynamics:

The Fair Value Variable (FVV) saw a slight improvement in February, with an increase to an estimated value of negative 30.7 percent, suggesting that house prices would need to decrease by this margin for historical affordability norms to be met, assuming constant mortgage rates and incomes. The nominal monthly mortgage payment decreased to \$2,273, reflecting a 6.17 percent year-over-year decline. The real mortgage payment index also saw a decrease, with a notable year-over-year decline of 8.75 percent.

Mortgage and Income Trends:

The proportion of median household income spent on annual mortgage payments remains high, with the housing expense change metric indicating a month-over-month decrease to 41.6 percent. This change is still being felt by consumers in the market, contributing to the current environment in the housing market.

Inflation Trends and Impacts:

In January, headline inflation showed a month-over-month decline, with value of 3.11 percent, a slight decrease from the 3.32 percent reported in December. However, inflation has largely stagnated in its decline, with the Federal Reserve indicating no plans to lower rates in March. Core inflation, the Fed's preferred metric, also experienced a month-over-month decline, with a value of 3.87 percent in January, remaining well above the Fed's 2 percent target.

Housing Market Prices and Starts:

The nominal median sales price of houses sold in Q4 2023 saw a significant year-over-year decline of 12.89 percent, the largest ever recorded since 1964. This aligns with the FVV's indication of strong overvaluation in the housing market.

Economic Indicators and Consumer Behavior:

The unemployment rate remained stable at 3.7 percent in January, with a year-over-year increase of 8.82 percent. The personal savings rate in December was 3.7 percent, showing a year-over-year increase of 8.82 percent but a decline from the previous month.

KEY DEVELOPMENTS

The rise in commercial real estate delinquency rates highlights increasing challenges for lenders, with German banks warning about exposure to losses. The surge in credit card delinquency rates signals growing economic instability, as consumers struggle to meet their financial obligations. The record decline in house prices reflects a significant shift in the housing market, impacting homeowners and investors alike. These developments underscore the importance of monitoring market trends and managing risks in the current economic environment.



Commercial Real Estate Delinquency Rates

In Q3 2023, the commercial real estate sector experienced a significant increase in delinquency rates. Lenders face challenges such as exposure to declining property values, refinancing difficulties, and the impact of rising interest rates. Despite these challenges, major investors like Blackstone are expanding their investments in the sector. Additionally, German banks have issued warnings about their exposure to losses driven by U.S. commercial real estate delinquencies and valuations.



Credit Card Delinquency Rates

In Q3 2023, credit card delinquency rates witnessed a year-over-year surge of 43 percent, reaching a level of 3 percent, a height not observed since Q2 2012. This unprecedented escalation signals economic instability, as credit card debt often sees an increase in delinquency rates before other types of debt. This is due to individuals prioritizing mortgage and auto loan payments over credit card liabilities.



Housing Prices

In Q4 2023, the nominal median sales price of houses sold saw a quarter-over-quarter decrease of \$17,700, settling at \$417,700. This represents a significant year-over-year decline of 12.89 percent, the largest ever recorded since 1964. This trend aligns with expectations from our flagship Fair Value Variable Index (FVV), which had signaled strong overvaluation. Despite the recent drop in home prices, the FVV remains in deep overvalue territory at 30.7 percent for February, highlighting the continued pressure on housing valuations.

FORECAST

Federal Reserve Rate Cuts

As stated in our January report, we still anticipate that the Federal Reserve will refrain from cutting rates in Q1 of 2024. This expectation is influenced by various factors, including the December 2023 and January 2024 inflation figures. We believe that the Federal Reserve, led by Jerome Powell, will adopt a cautious approach and observe how inflation evolves in the upcoming months. Their aim is to prevent a resurgence of inflation, which has led to a temporary halt in rate adjustments by the Federal Reserve.

Delinquency Rates

We forecast a rise in commercial real estate delinquency rates to 1.25 percent for Q4 2023, expecting this upward trend to persist into Q1 2024 due to the refinancing burden that many property owners face. 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.

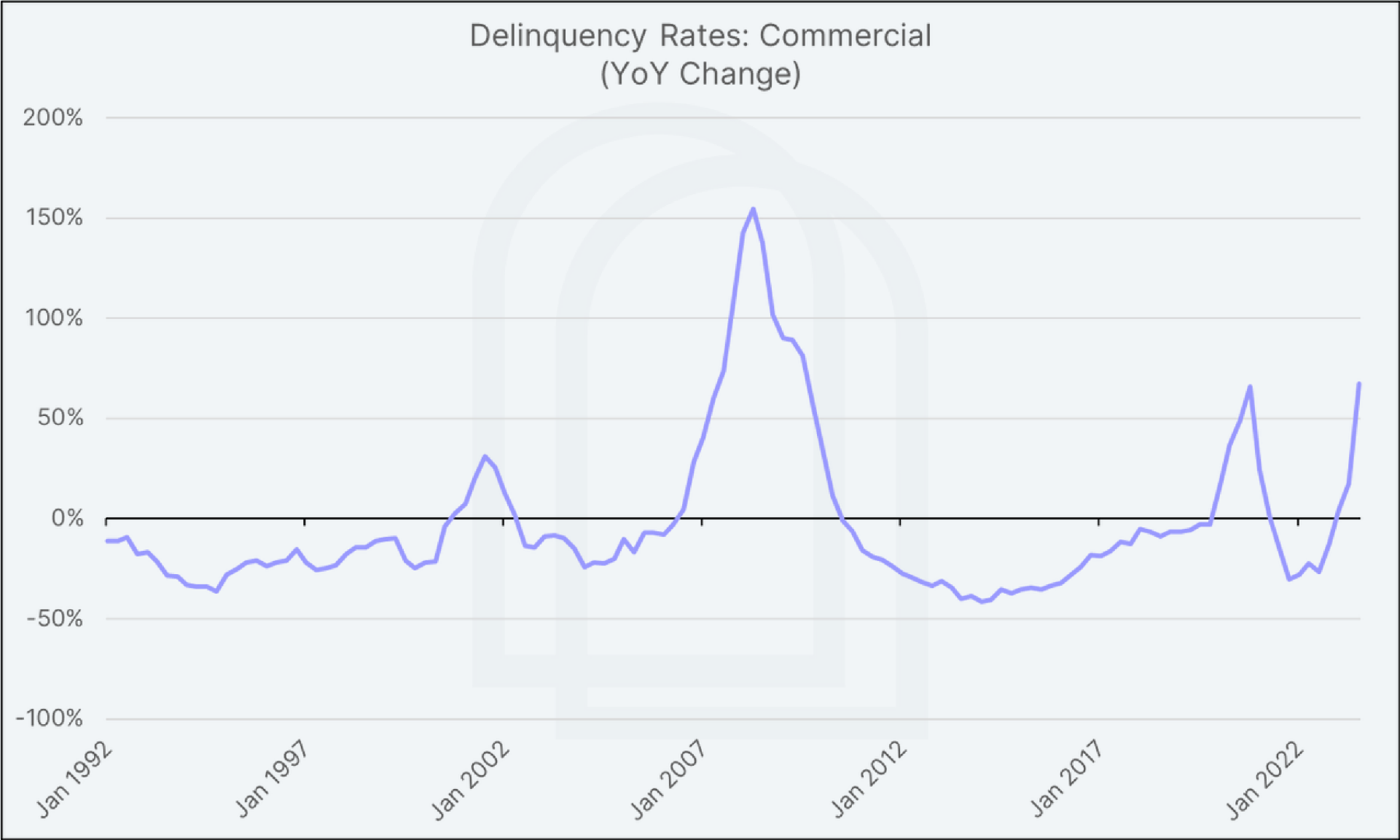
Additionally, we are forecasting that credit card delinquency rates will rise to 3.15 percent in Q4 2023. This rate has been rising since Q4 2021, and we believe that this trend will continue into the final quarter of 2023.

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.



COMMERCIAL REAL ESTATE: DELINQUENCY RATES



Source: Board of Governors of the Federal Reserve System

COMMERCIAL REAL ESTATE: DELINQUENCY RATES

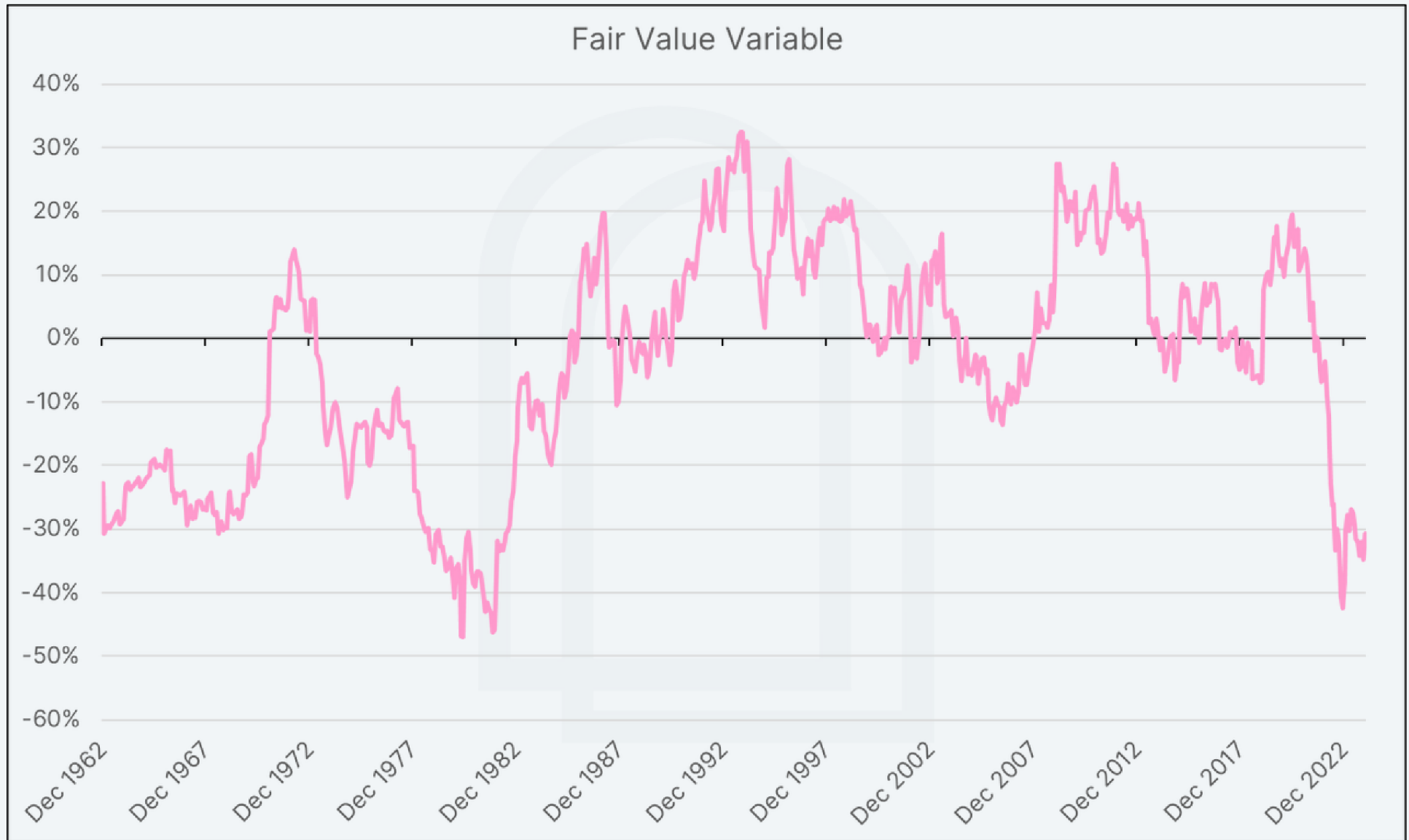
The commercial real estate sector experienced a notable quarter-over-quarter increase in delinquency rates, with a rate of 1.07 percent being reported in Q3 2023. In comparison to the previous year, there was a substantial 67.19 percent uptick in commercial real estate delinquency rates.

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.

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.

FAIR VALUE VARIABLE



Source: Reef Insights LLC

FAIR VALUE VARIABLE

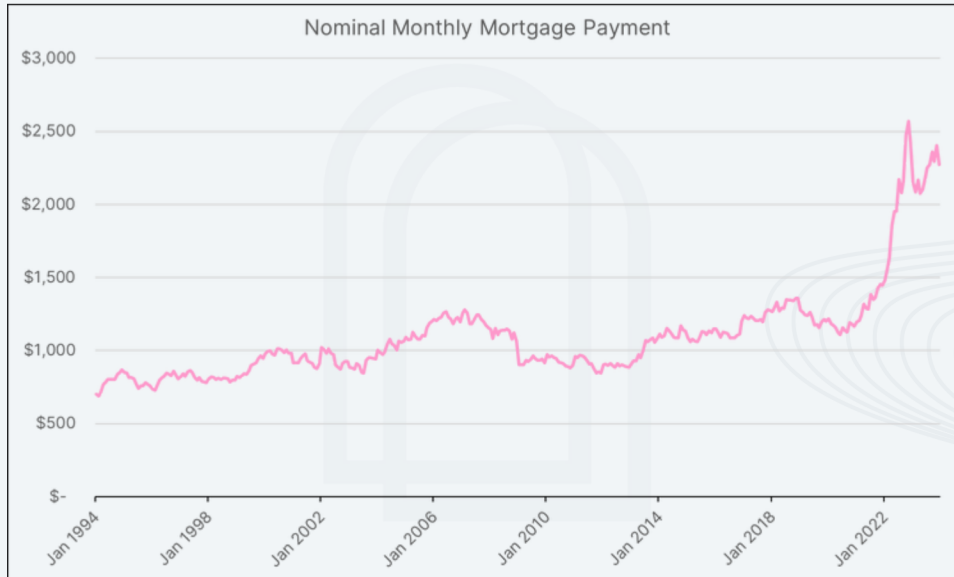
Our innovative metric, the Fair Value Variable (FVV), is designed to assess housing affordability more dynamically. It's built on three rolling averages, spanning 5, 10, and 15 years, each reflecting the portion of median household income devoted to annual mortgage payments. By comparing these historical 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 February, the FVV indicated a slight improvement over January, with an increase to an estimated value of negative 30.7 percent from negative 36.7 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 30.7 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.

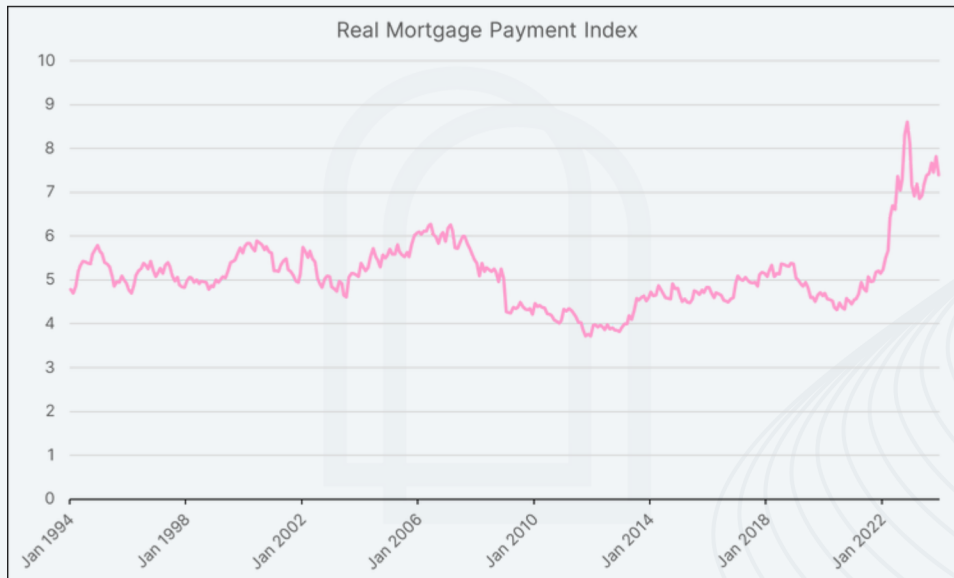
However, it's essential to recognize that this value is not static. Changes in either mortgage rates or household incomes could shift this number, altering the necessary adjustment in house prices to reach historical affordability norms. Thus, the FVV offers a vital perspective on the current state of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

In this case, the value for February 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 expected, as the market implied expectation of fed funds rates show higher for longer and spreads remained elevated.

MORTGAGE DATA



Source: Reef Insights LLC



Source: Reef Insights LLC

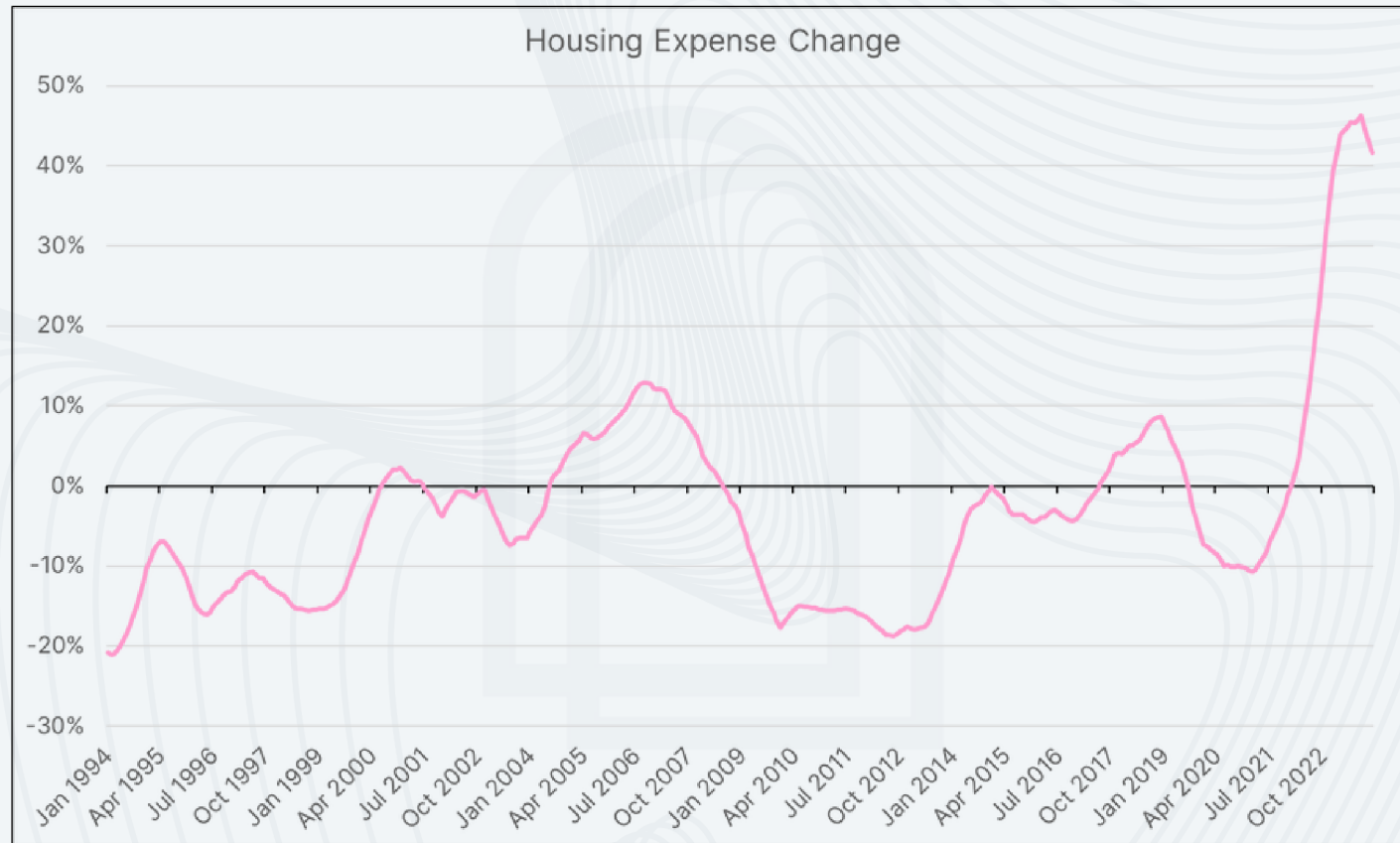
In calculating the nominal monthly mortgage payment, we consider several key factors: a 20 percent down payment, a 30-year maturity period for the mortgage, and a fixed interest rate. The variables utilized in this calculation are the prevailing mortgage rate and the median sales price of houses sold.

In February, we observed a decrease in the nominal monthly mortgage payment compared to the previous month, with the current estimated payment amounting to \$2,273. Looking at the data year-over-year, there was a notable decline of 6.17 percent in the nominal monthly mortgage payment. Over a broader timeframe of five years, there has been a significant increase of 78.09 percent in the nominal monthly mortgage payment.

In determining the real mortgage payment index, we calculated the nominal monthly mortgage payment and divided it by the prevailing Consumer Price Index (CPI) index value.

In February, we observed a decrease in the real mortgage payment index compared to the previous month, with the current estimated value standing at 7.4. Looking at the data year-over-year, there was a notable decline of 8.75 percent in the real mortgage payment index. Over the past five years, the real mortgage payment index has experienced an increase of 46.37 percent. These figures provide insight into the trends shaping mortgage payments relative to inflation, offering valuable perspectives for homeowners and market analysts alike.

HOUSING EXPENSE



Source: Reef Insights LLC

To derive the value for the housing expense change, which measures the volatility of housing expense, we have divided the percentage of median household income spent on annual mortgage payments rolling 1-year average by the rolling 10-year average. The housing expense change saw a decrease month-over-month, with a current estimated value of 41.6 percent being calculated in February. The reason that this metric matters is because consumers feel the rate of change more than we feel the absolute level. Given this, we can see that a 41.6 percent change is still being felt by consumers in the market and is probably contributing to the environment we are currently seeing in the housing market.

NEW & EXISTING HOUSING SUPPLY

The supply of new housing is gauged by assessing the ratio of newly constructed houses available for sale to those that have been recently sold. In December, we observed a decrease in the months' supply of new housing compared to the previous month, with the figure standing at 8.2 months. Looking at the data year-over-year, there was a decline of 3.53 percent in the months' supply of new housing.

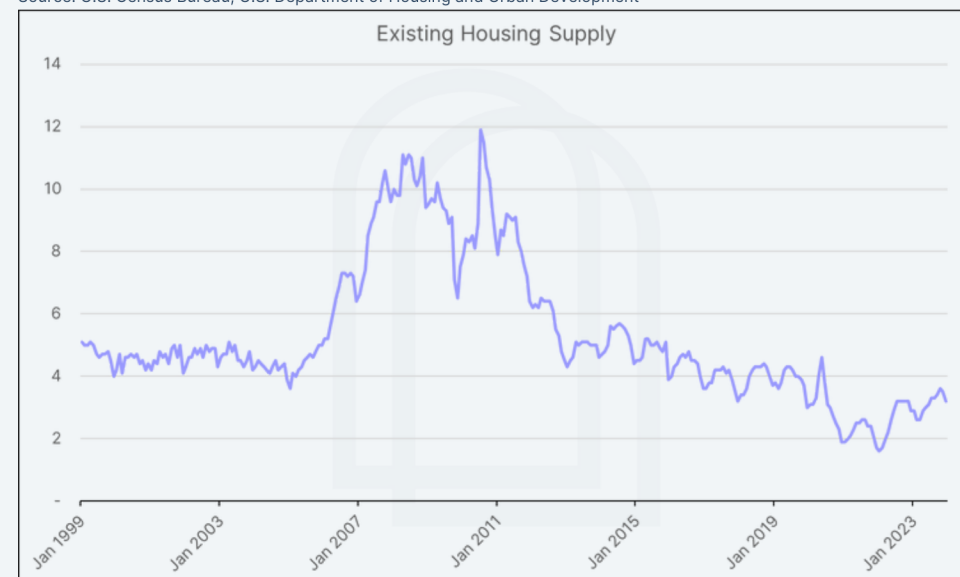
It's worth noting that while new housing constitutes a substantial portion of total housing sales, comprising roughly 10 percent of the market, fluctuations in its supply can have significant implications for home builders. A large supply may be indicative of home builders having difficulties offloading supply or homebuyer demand being suppressed.

We assess the supply of existing housing by analyzing the ratio of existing houses available for sale to those that have been sold. In December, there was a decline in the months' supply of existing housing compared to the previous month, with the figure reaching 3.2 months. However, when considering the data year-over-year, there was an increase of 5.33 percent in the months' supply of existing housing.

It's important to note that existing housing accounts for approximately 90 percent of the market. The current months' supply of existing homes remains lower than the 10-year historical average, which stands at 3.7. Notably, the supply of existing housing has been trending up. This is likely due to the heightened cost of housing, which was highlighted previously in the report.

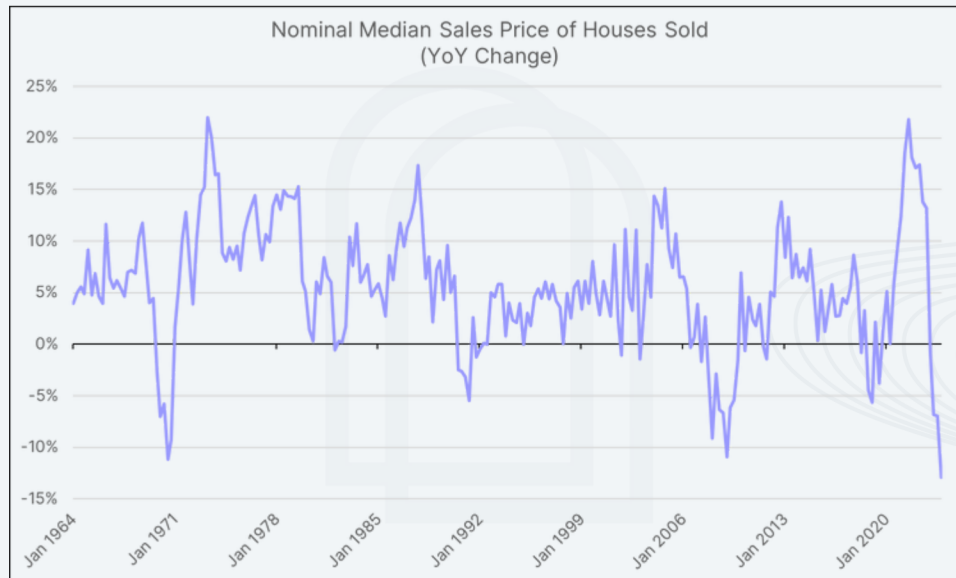


Source: U.S. Census Bureau, U.S. Department of Housing and Urban Development



Source: National Association of Realtors

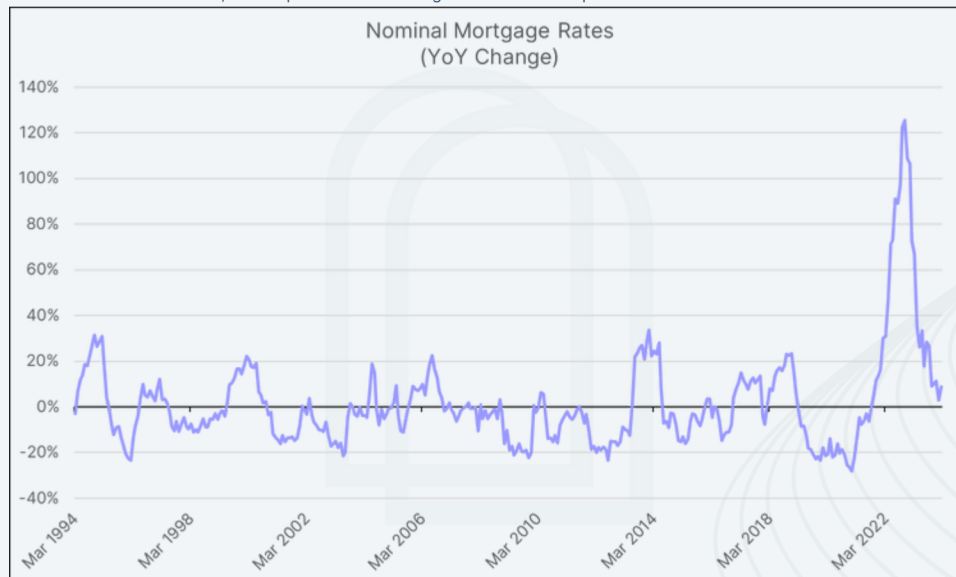
HOUSING: PRICES & RATES



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

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.

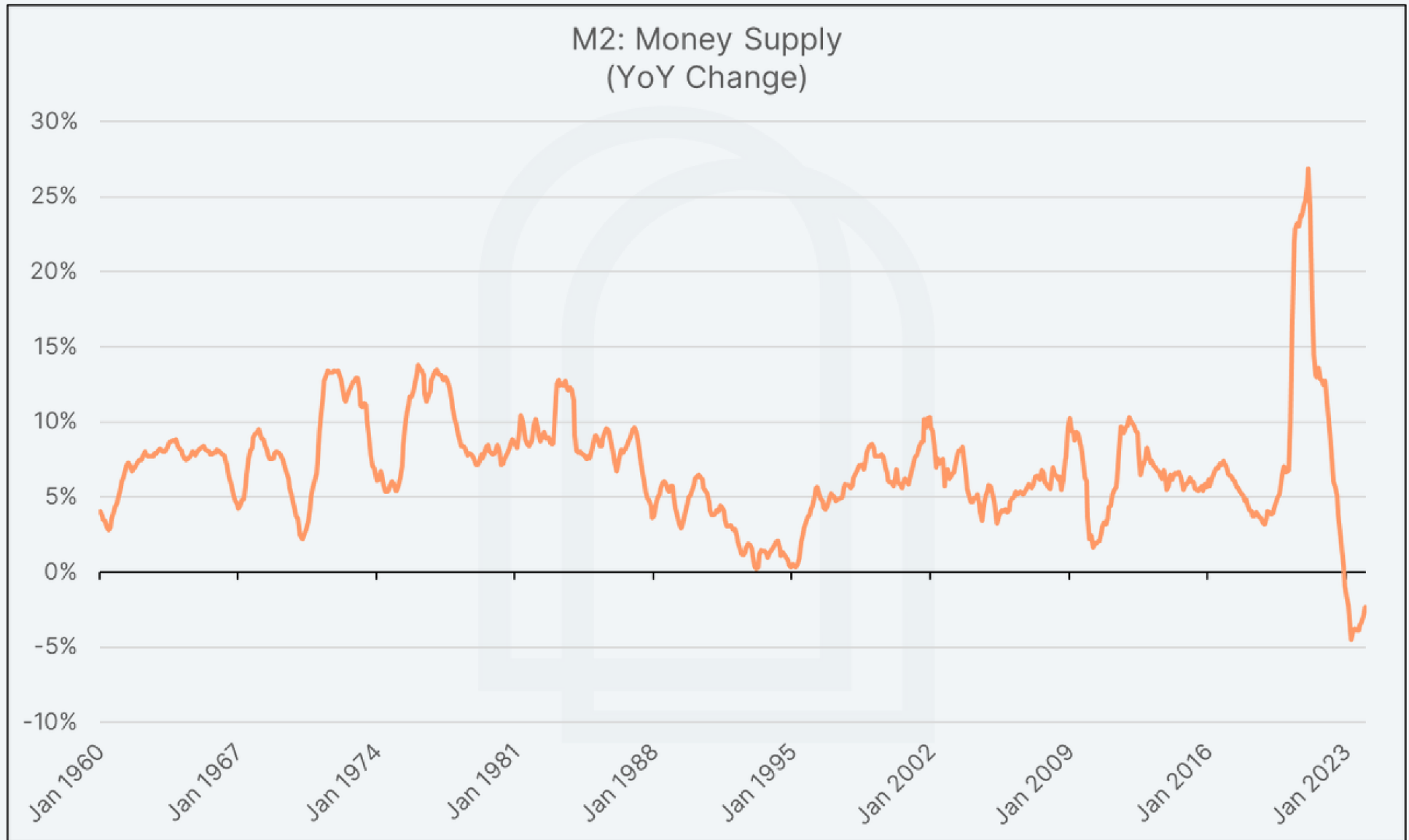


Source: Freddie Mac

The prevailing nominal mortgage rate, derived from applications submitted to Freddie Mac by lenders nationwide, experienced a month-over-month increase. In February, the prevailing rate stood at 6.77 percent. When compared to the previous year, there was a notable uptick of 8.87 percent in the prevailing nominal mortgage rate.

Mortgage rates were trending lower until Jerome Powell held his press conference on January 31, 2024. Powell indicated that the Fed is not planning on lowering rates in March, which prompted mortgage rates to trend upward.

M2 MONEY SUPPLY



Source: Board of Governors of the Federal Reserve System

M2 MONEY SUPPLY

M2 represents the U.S. Federal Reserve's comprehensive gauge of the total money supply, encompassing not only physical cash held by individuals but also funds deposited in checking accounts, savings accounts, and other short-term savings instruments. In December, M2 registered a month-over-month increase, reaching a figure of \$20,865 billion. However, when considering the data year-over-year, M2 experienced a decline of 2.31 percent.

Notably, February 2021 marked a significant milestone with the largest year-over-year increase in M2 at 27 percent. Furthermore, December 2022 marked an unprecedented occurrence as M2 saw a year-over-year decrease for the first time since 1949.

The Federal Reserve has been gradually reducing its balance sheet, primarily by tapering its asset purchases. This has a direct impact on the money supply, as it involves the withdrawal of liquidity from the financial system.

The reduction in the money supply, coupled with the Federal Reserve's policy actions to normalize interest rates, can lead to an increase in borrowing costs. Higher interest rates can affect consumer spending, business investment, and overall economic activity.

While a shrinking money supply might intuitively suggest lower inflationary pressures, other factors such as supply chain disruptions, fiscal policy changes, and international economic dynamics can influence inflationary trends independently of the money supply. Therefore, the relationship between money supply contraction and inflation may not be straightforward.

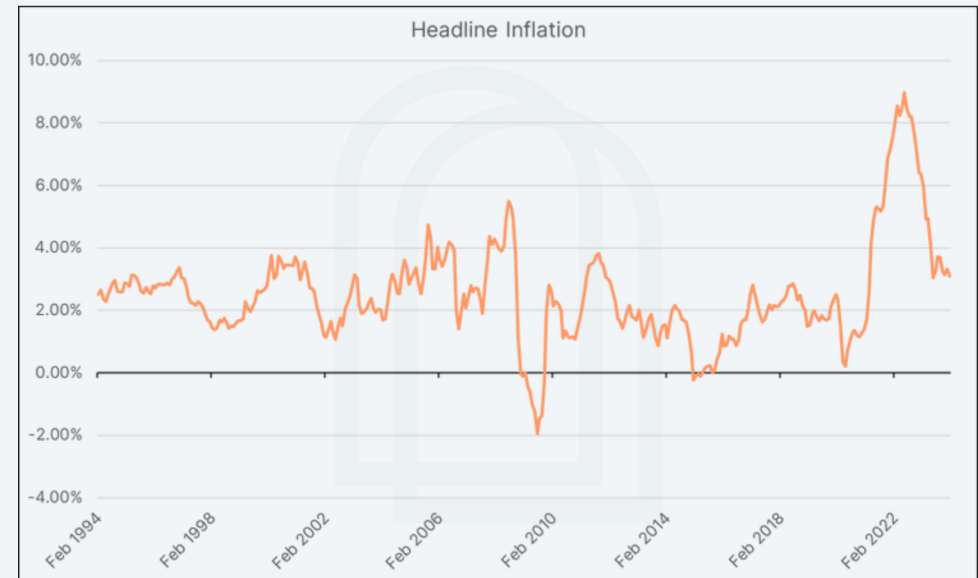
HEADLINE & CORE INFLATION

In January, headline inflation exhibited a month-over-month decline, with a reported value of 3.11 percent. This marks a slight decrease from the 3.32 percent value reported in December. Comparatively, in January of the previous year, headline inflation stood notably higher at 6.36 percent.

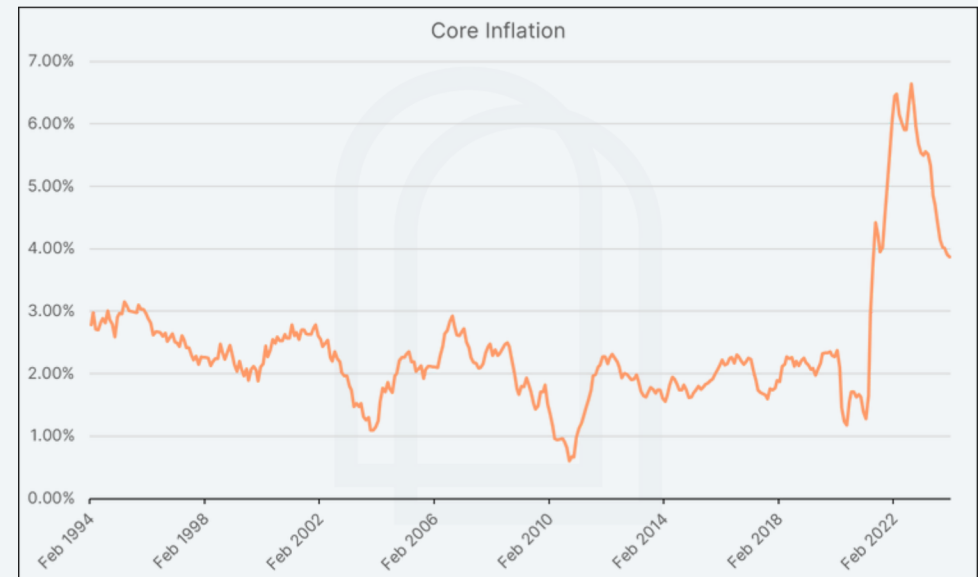
Inflation has largely stagnated on its decline. The Fed Chair, Jerome Powell, indicated that the Board does not plan on lowering rates in March because the Board is looking to gain more confidence in the data.

Similar to headline inflation, core inflation experienced a decline on a month-over-month basis, with January reporting a value of 3.87 percent. This represents a slight decrease compared to the 3.91 percent value reported in December. Notably, in January of the previous year, core inflation was notably higher, standing at 5.54 percent.

Core inflation is the preferred metric to be analyzed by the Fed. Notably, core inflation remains well above the Fed's 2 percent target.



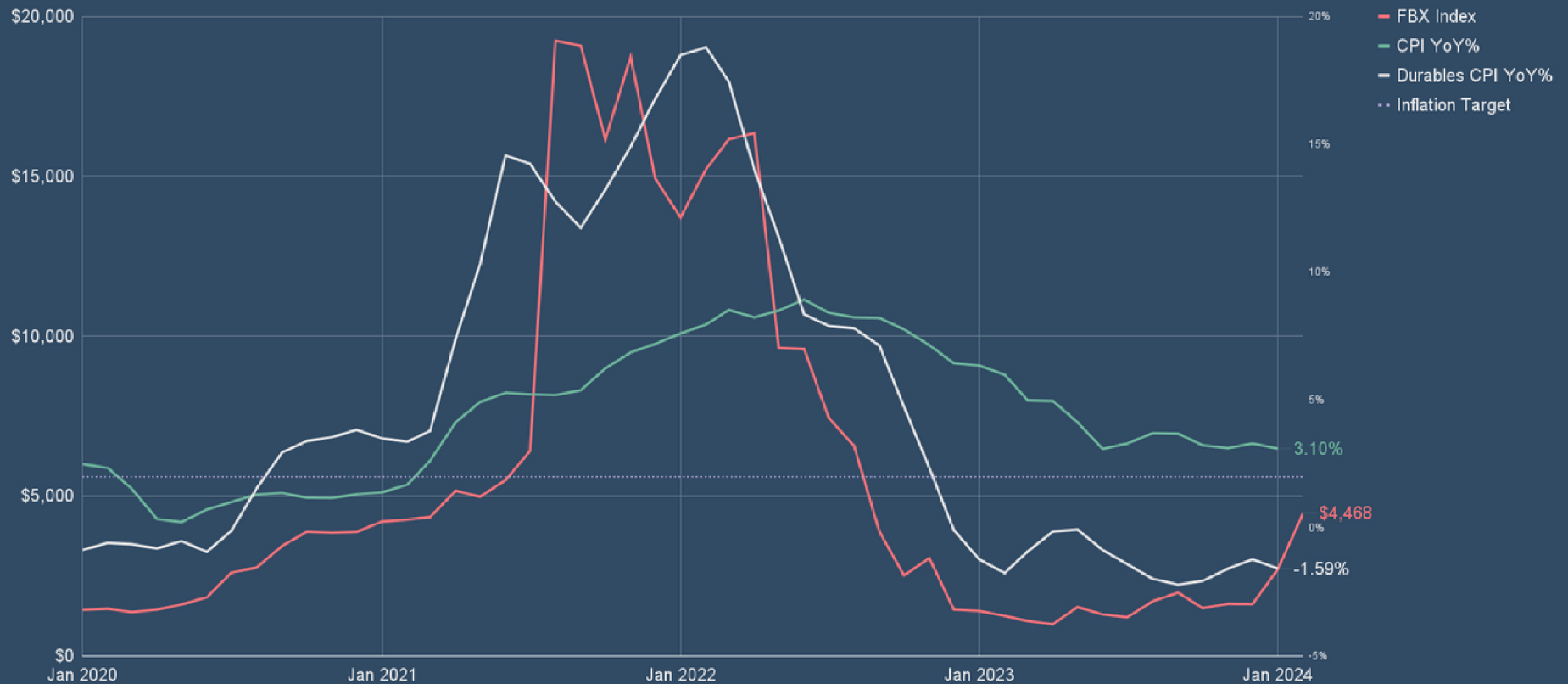
Source: U.S. Bureau of Labor Statistics



Source: U.S. Bureau of Labor Statistics

OCEAN SHIPPING RATES' IMPACT ON US INFLATION

FBX Index (Left) Impact on Inflation (Right)



Source: Freightos Baltic Index, U.S. Bureau of Labor Statistics | Chart by Reef Insights

Reef Insights

OCEAN SHIPPING RATES' IMPACT ON US INFLATION

The latest Consumer Price Index (CPI) figures show persistent inflation in the US, with headline CPI up by 3.1 percent year-over-year through January and core CPI at 3.9 percent. Ocean Shipping Rates are a significant factor influencing these trends, as they directly affect the cost of imported goods. When shipping rates increase, costs are often passed down to businesses and consumers.

We analyze both headline CPI and durables CPI, noting that durable goods are more sensitive to shipping rates due to their import-heavy nature. Although durables represent a smaller segment of the overall CPI basket, their impact on the economy is significant.

In August 2021, ocean shipping rates surged from around \$5,000 to over \$19,000 per Forty-Foot Equivalent Unit (FEU), contributing to inflationary pressures. Rates remained high until April 2022, supporting persistent inflation throughout that year. However, rates declined for the remainder of the year, coinciding with a cooling of inflation, with ocean rates stabilizing at approximately \$1,500 and inflation around 3.5 percent in the second half of 2023.

Currently, inflation remains steady at late-2023 levels, but the escalation of conflict in the Red Sea has caused a sharp rise in ocean rates, surpassing \$4,400 in early February 2024. This increase is partly due to rerouting cargo around the Horn of Africa and a shift in ocean capacity supply. The resurgence in shipping costs could reignite inflation, potentially influencing the Federal Reserve's approach to interest rates.

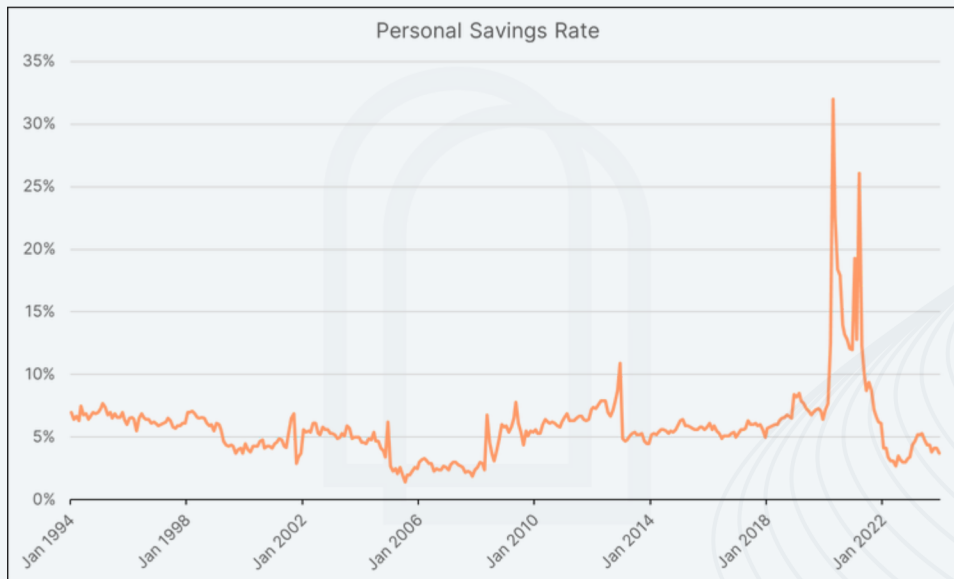
UNEMPLOYMENT RATE & PERSONAL SAVINGS RATE



Source: U.S. Bureau of Labor Statistics

The unemployment rate stands as one of the most dependable lagging economic indicators, reflecting the state of the economy with a certain time delay. In January, there was no change in the unemployment rate from the previous month, holding steady at 3.7 percent. However, compared to the same period last year, there was a notable increase of 8.82 percent in the unemployment rate.

It's difficult to say whether the year-over-year increase is significant. The unemployment rate was at historic lows, so it's possible that this increase is simply a reversion to the mean. On the other hand, this could be an indication of a tightening labor market.

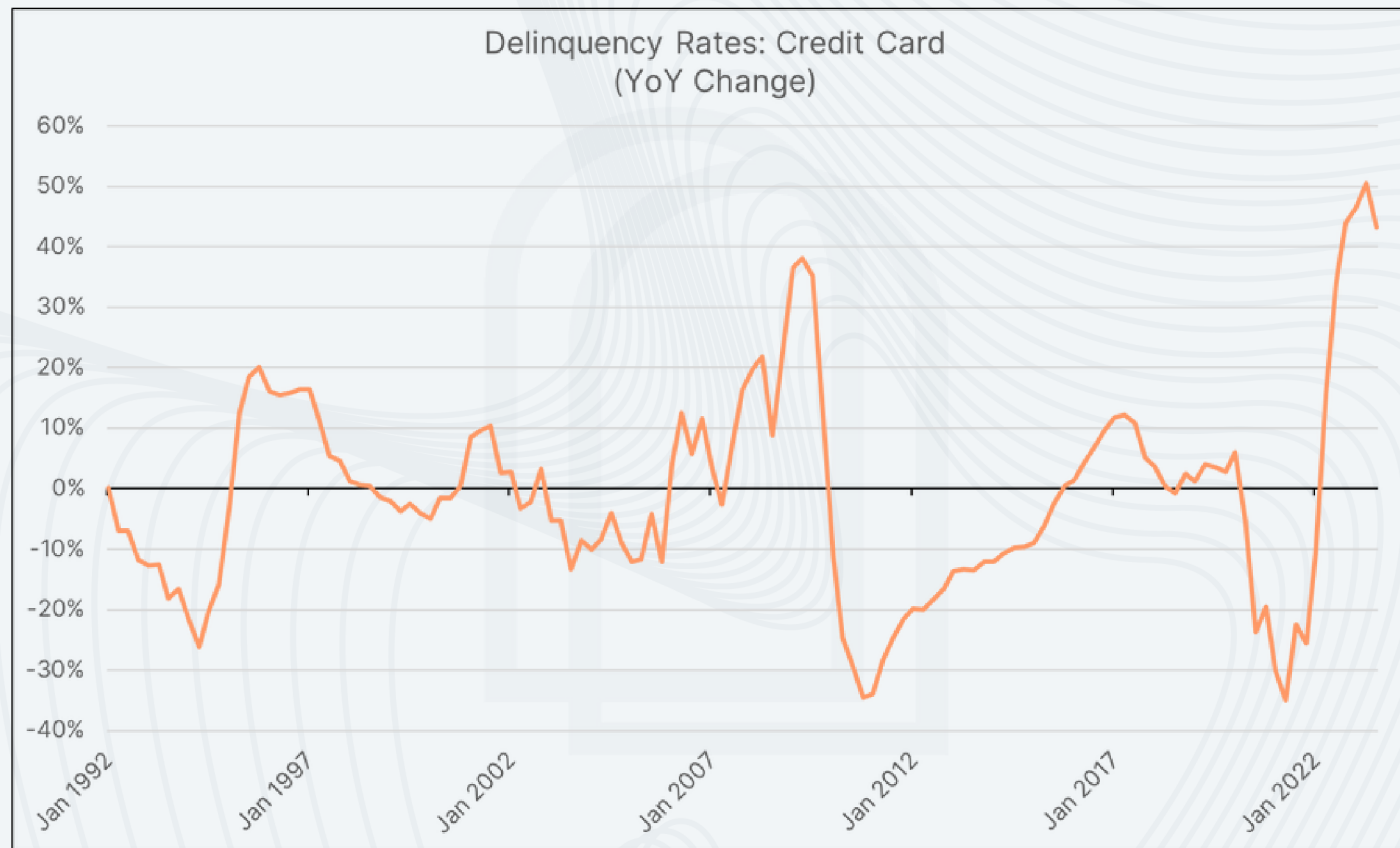


Source: U.S. Bureau of Economic Analysis

Unlike the unemployment rate, the personal savings rate, which represents the proportion of personal income after subtracting personal outlays and taxes, shows a clear picture.

In December, there was a decline in the personal savings rate compared to the previous month, with the rate recorded at 3.7 percent. However, looking at the data year-over-year, there was an increase of 8.82 percent in the personal savings rate. The savings rate, after rising last year, has started to decline back towards historic lows.

CREDIT CARD DELINQUENCY RATES



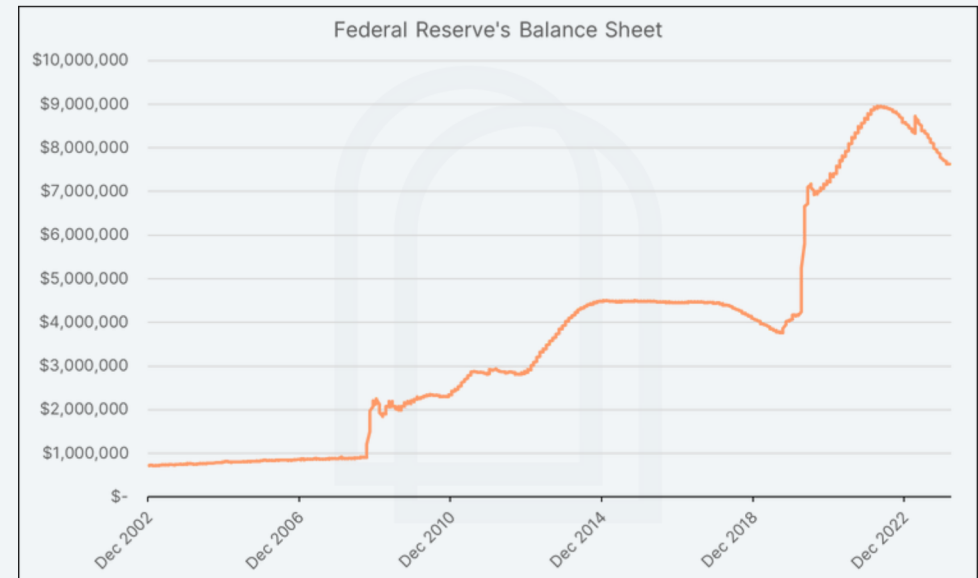
Source: Board of Governors of the Federal Reserve System

As of Q3 2023, the year-over-year change in credit card delinquency rates has surged to 43 percent, marking an unprecedented escalation. Currently standing at 3 percent, the delinquency rates have reached a level not seen since Q2 2012. Credit card debt is often the first to witness an increase in delinquency rates, as individuals tend to prioritize mortgage and auto loan payments over credit card liabilities.

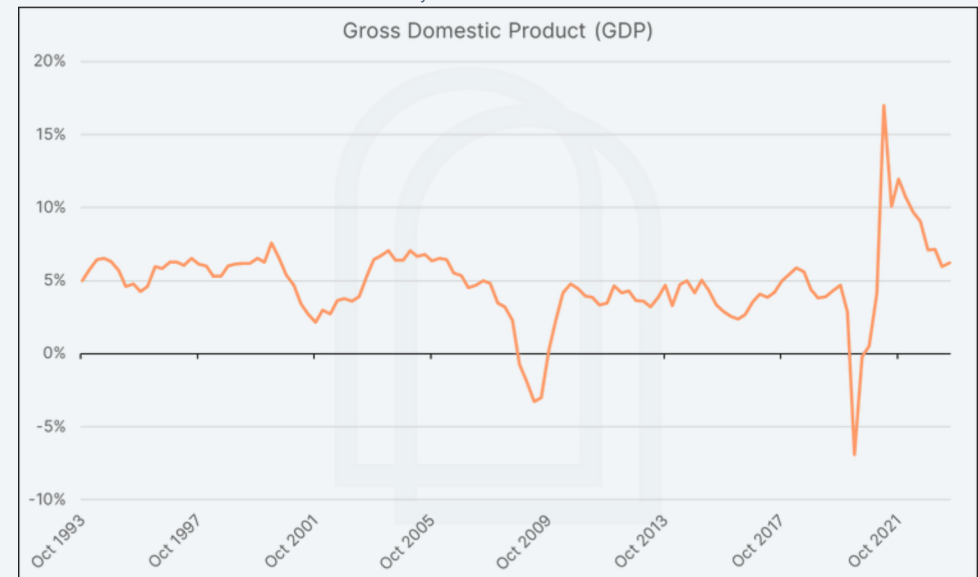
FED BALANCE SHEET & GDP

Historically, the Federal Reserve will expand its balance sheet by buying more assets, a policy also known as quantitative easing (QE). The Federal Reserve's balance sheet saw a decrease month-over-month, with a figure of \$7.63 trillion being reported in February. Year-over-year, the balance sheet was down 8.96 percent. This decline in the balance sheet is known as quantitative tightening (QT). QT serves as one of the levers the Fed can use to put restrictive measures on the economy, in this case, in an attempt to cool inflation back to target levels.

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. GDP saw an increase quarter-over-quarter, with annualized figure of \$27.9 trillion being reported in Q3 2023. Year-over-year, GDP was up 5.8 percent. This growth in GDP is still elevated against historical averages, however, it is trending back to those levels.

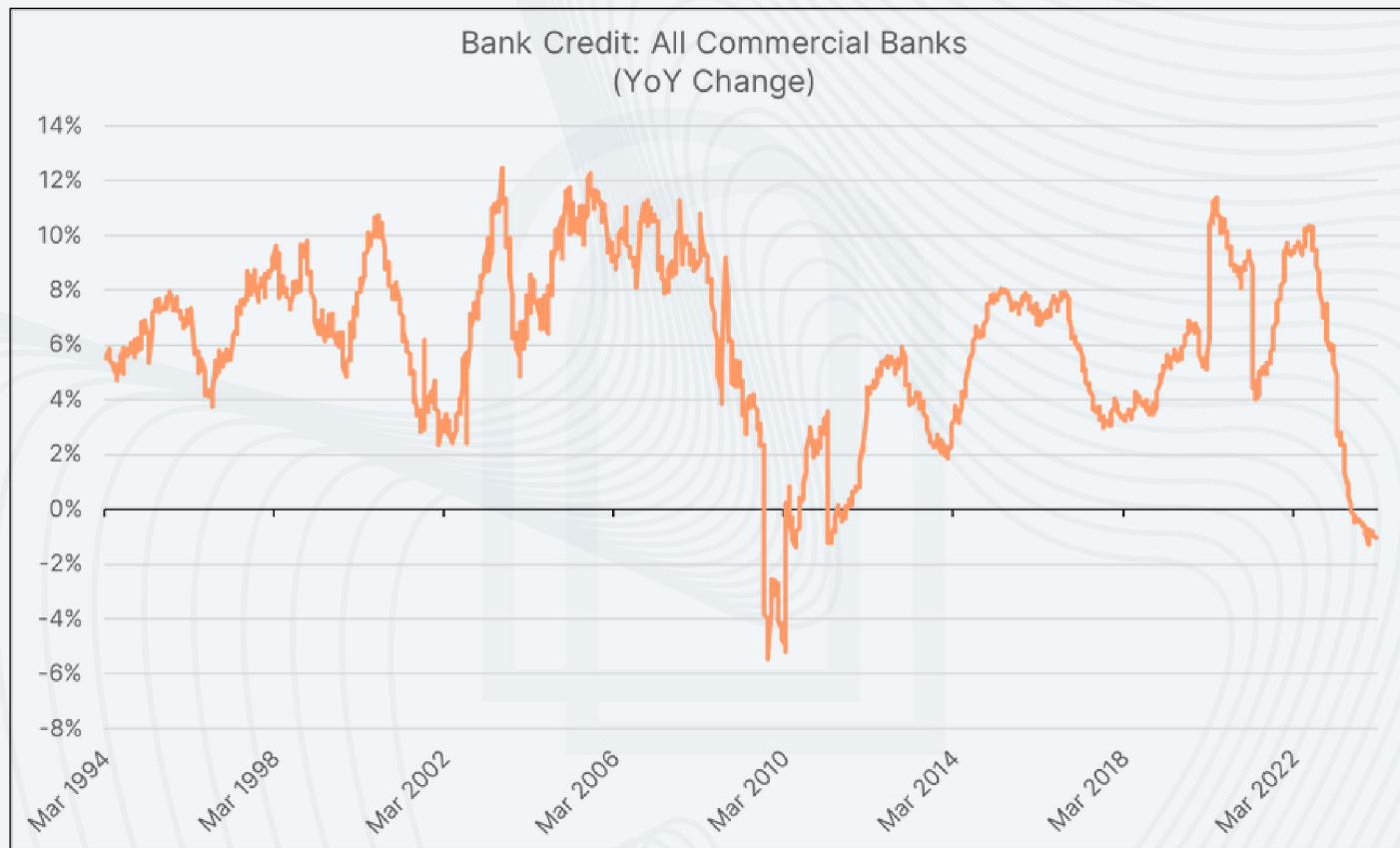


Source: Board of Governors of the Federal Reserve System



Source: U.S. Bureau of Economic Analysis

BANK CREDIT



Source: Board of Governors of the Federal Reserve System

Bank credit is contracting for the second time since 1974, making it harder for businesses to secure loans. The first contraction occurred in 2009 due to losses from mortgage-backed securities during the financial crisis. Bank credit is a lagging indicator, meaning it reacts after a recession. Since July 2023, bank credit has shown a negative year-over-year change, and the coming months will reveal whether this trend will persist.

DATA TABLE

Item	This Period	Last Period	Year Ago	Latest Release
Housing Starts: Total Units	1,331	1,562	1,340	1/1/2024
New Housing Supply	8.20	8.80	8.50	12/1/2023
Existing Housing Supply	3.20	3.50	2.90	12/1/2023
Nominal Median Sales Price of Houses Sold	\$ 417,700	\$ 435,400	\$ 479,500	10/1/2023
New Building Permit Authorizations: Total Units	1,470	1,493	1,354	1/1/2024
Case-Shiller Index	312.15	312.71	296.90	11/1/2023
Residential Construction Employees	938	936	930	1/1/2024
Nominal Mortgage Rates	6.63	6.61	6.13	2/1/2024
Delinquency Rates: Single-Family	1.72	1.73	1.78	7/1/2023
Delinquency Rates: Commercial	1.07	0.86	0.64	7/1/2023
PPI: Residential Construction	314	313	303	1/1/2024
Construction Spending: Residential	\$ 922	\$ 909	\$ 863	12/1/2023
Housing Inventory: Median Days on Market	61	52	72	12/1/2023
Nominal Monthly Mortgage Payment	\$ 2,273	\$ 2,403	\$ 2,422	12/1/2023
Real Mortgage Payment Index	7.40	7.82	8.11	12/1/2023
Median Household Income Spent on Annual Mortgage Payments	36.57	38.67	38.97	12/1/2023
Fair Value Variable	(30.66)	(34.72)	(38.38)	12/1/2023

DATA TABLE

Item	This Period	Last Period	Year Ago	Latest Release
Housing Expense Change	41.57	43.03	36.49	12/1/2023
Nominal Median Household Income	\$ 74,580	\$ 70,780	\$ 70,780	2022
Headline Inflation	3.11	3.32	6.36	1/1/2024
Core Inflation	3.87	3.91	5.54	1/1/2024
Unemployment Rate	3.70	3.70	3.40	1/1/2024
Federal Funds Rate	5.33	5.33	4.33	1/1/2024
Personal Savings Rate	3.70	4.10	3.40	12/1/2023
Jobless Claims	212,000	220,000	216,000	2/10/2024
10-Year U.S. Treasury Yield Minus 2-Year U.S. Treasury	(0.34)	(0.26)	(0.67)	2/1/2024
Residential Rental Vacancy Rate	6.60	6.60	5.80	10/1/2023
Real Residential Construction Spend Index	109.53	107.31	103.48	12/1/2023
Household Savings	\$ 807	\$ 2,207	\$ 2,207	2022
Bank Credit: All Commercial Banks	\$ 17,391	\$ 17,408	\$ 17,575	2/7/2024
Delinquency Rates: Credit Card	2.98	2.77	2.08	7/1/2023
Gross Domestic Product (GDP)	\$ 27,939	\$ 27,610	\$ 26,408	10/1/2023
M2 (Money Supply)	\$ 20,865	\$ 20,768	\$ 21,358	12/1/2023
Federal Reserve's Balance Sheet	\$ 7,634	\$ 7,631	\$ 8,385	2/14/2024

SOURCES

Item	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.
Delinquency 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

Item	Frequency	Sources	Notes
Delinquency 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

Item	Frequency	Sources	Notes
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.
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

Item	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.

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We currently produce three reports:

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.

On a semi-annual basis, we will be releasing a report that evaluates our past forecasts. We believe it's important to gauge our performance, and we intend to do it publicly so that you can determine if our forecasts are worth your consideration.

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