REEF REPORT

REAL ESTATE & ECONOMIC FORECAST

UNITED STATES

SUMMARY

Labor Market Overview:
The labor market presents mixed signals as unemployment held steady at 4.1% in October, though the 40bps increase from the year prior tells a more concerning story. Construction employment metrics particularly highlight this complexity, with job openings falling dramatically to 288,000—a 31.8% year-over-year decline. While the recent moderation in unemployment's upward trend has brought the Sahm Rule trigger below its threshold in October, the broader trajectory suggests continued labor market softening.

Housing Market:
The housing market continues to exhibit significant overvaluation despite some improvement, with our Fair Value Variable at -17.9%. This persistent premium is reflected in the resilient median home price of $420,400, which has maintained stability despite challenging market conditions. Supply dynamics show concerning trends, with new housing inventory at 7.6 months and existing homes at 4.2 months—the latter representing a 16.7% increase year-over-year. The rental market is also showing signs of softening, with vacancy rates climbing to 6.9%, extending their rise from pandemic-era lows.

Key Economic Indicators:
Core inflation remains stubbornly high at 2.65% year-over-year, with multiple alternative measures confirming persistent price pressures. Mortgage rates have climbed to 6.72%, notably diverging from Federal Reserve policy easing. Credit stress indicators are flashing warning signs, with commercial real estate delinquencies surging 43.4% year-over-year to 1.52%, while business loan charge-offs have increased 40% year-over-year, approaching levels last seen during the pandemic.

Construction Activity Signals:
Construction activity metrics suggest mounting pressure in the housing sector, with housing starts declining 3.96% year-over-year to 1,311,000 units and building permits falling 7.69% below the 10-year average. The widening negative spread between starts and completions mirrors patterns observed during previous periods of economic stress. Curiously, construction employment has grown 2.68%, showing unusual resilience that appears increasingly disconnected from other leading indicators in the sector.

KEY DEVELOPMENTS

The November 2024 REEF Report highlights an evolving economic landscape marked by divergent trends in monetary policy, housing market dynamics, and forward-looking indicators. While some metrics show tentative improvement, mounting pressures across multiple sectors suggest increasing market stress.

I

Federal Reserve Policy Pivot

The Federal Reserve's recent monetary stance has created an unusual dynamic in rate markets. Despite implementing 75 basis points of cuts during the current cycle, longer-duration yields have remained stubbornly high, leading to a persistent elevation in mortgage rates. This divergence from historical patterns, where Fed easing typically translates to lower mortgage rates, suggests structural changes in how monetary policy transmits to the housing market. The resilience in longer-term rates, combined with Fannie Mae's revised forecast for mortgage rates to remain above 6% through 2025, indicates that traditional monetary policy tools may have diminished effectiveness in addressing housing market affordability challenges.

II

Construction Market Inflection

The construction sector is showing clear signs of an approaching inflection point, evidenced by the widening negative spread between housing starts and completions—a pattern historically associated with significant market shifts. While current construction employment remains elevated at 957,000 workers, the 31.8% year-over-year collapse in job openings signals impending labor market weakness. This disconnect between current employment levels and forward-looking indicators, coupled with rising delinquency rates and softening builder sentiment, suggests the construction sector may be approaching a significant downturn similar to previous cyclical turning points in 1969, 1975, 1981, 1990, 2008, and 2020.

III

Credit Market Stress Signals

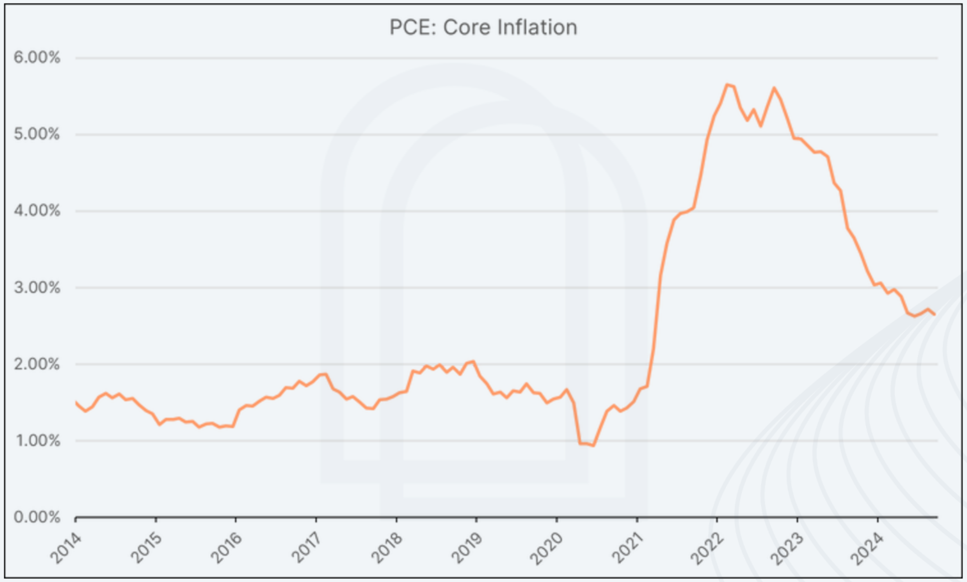
Credit markets are exhibiting increasing signs of stress across multiple sectors. Commercial real estate delinquencies have surged 43.4% year-over-year to 1.52%, while business loan charge-offs have risen 40% year-over-year to levels approaching those seen during the pandemic. These deteriorating credit conditions, combined with elevated housing supply levels and persistent affordability challenges (as indicated by our FVV at -17.9%), suggest mounting pressure on both commercial and residential real estate markets. The confluence of these stress signals, particularly in the context of sticky inflation and uncertain monetary policy effectiveness, points to potential broader market instability ahead.

MACRO CONTEXT

UNEMPLOYMENT AND INFLATION

Source: U.S Bureau of Labor Statistics

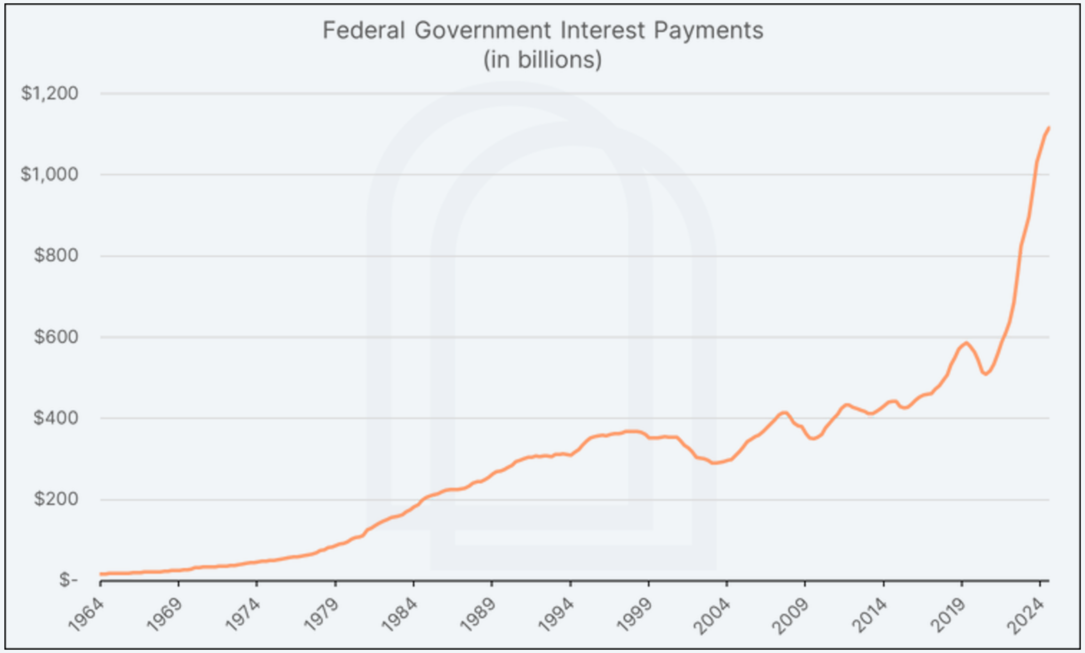
The unemployment rate, a key lagging economic indicator, held steady at 4.1% in October 2024. While this rate appears relatively low by historical standards, the year-over-year increase of 7.89% tells a more concerning story. This upward trajectory, though slowing in recent months, has been significant enough to trigger the Sahm Rule through most of 2024, falling just below the 0.5 percentage point threshold in October. We will closely monitor whether this recent moderation continues or if the broader upward trend reasserts itself in coming months.



Source: U.S. Bureau of Economic Analysis

Core PCE inflation, the Federal Reserve's preferred measure, registered at 2.7% year-over-year in September. While showing some moderation, inflation remains persistently above the Fed's 2% target. Alternative measures in October further support this story of stubborn inflation, with Median CPI at 4.1%, Core CPI at 3.3%, and the 16% Trimmed-Mean CPI at 3.2%. The consistency across these measures, which account for different aspects of price changes, suggests that inflationary pressures remain broadly entrenched in the economy rather than being driven by outliers. This persistent inflation, combined with elevated unemployment, continues to present a challenging environment for monetary policy makers.

FEDERAL GOVERNMENT INTEREST PAYMENTS

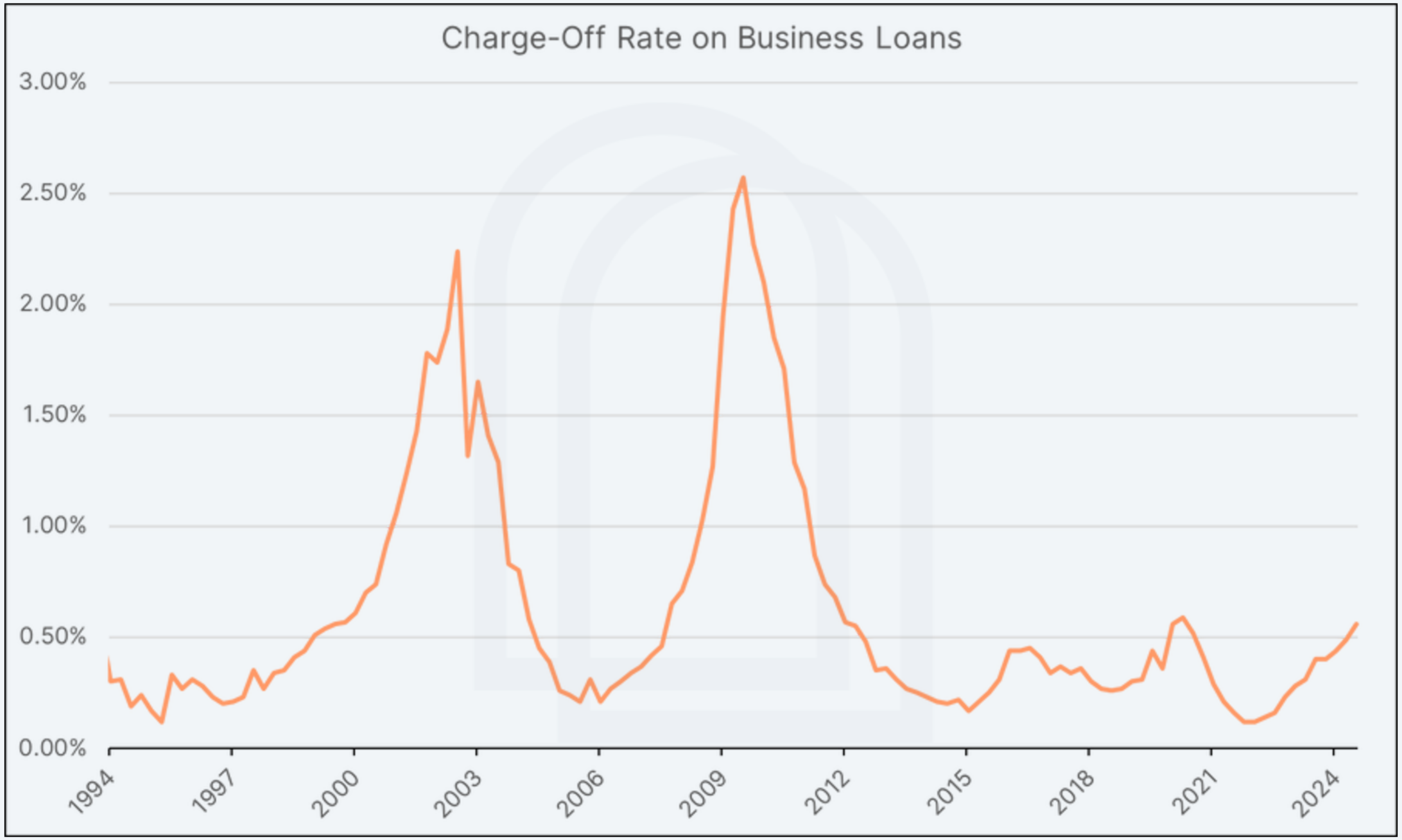


Source: U.S. Bureau of Economic Analysis

Federal government interest payments continued their upward trajectory, reaching $1,116.96 billion in July 2024, representing a 15.34% increase year-over-year. This persistent rise can be attributed to two primary factors: sustained high interest rates and ongoing deficit spending. The combination has pushed interest payments to historically significant levels, drawing increased attention from policymakers.

In response to these mounting costs, the Department of Government Efficiency (DOGE) has proposed a comprehensive spending reduction plan. The initiative targets $500 billion in annual cuts, focusing primarily on unauthorized expenditures and programs deemed misaligned with congressional intent. Notable targets include the Corporation for Public Broadcasting ($535 million), international organization grants ($1.5 billion), and various other programs totaling approximately $300 million. The fiscal implications of these proposed cuts extend beyond immediate savings—by potentially reducing the need for new borrowing and lowering overall debt levels, the plan could help moderate the growth of interest payments, which are currently projected to reach $1.7 trillion by 2034.

BUSINESS LOANS: CHARGE-OFF RATES



Source: Board of Governors of the Federal Reserve System

Business loan charge-off rates—representing loans and leases removed from books and charged against loss reserves—climbed to 0.56% in Q3 2024, marking a concerning 40% increase year-over-year. This sharp rise brings charge-off levels close to those last observed during the pandemic, suggesting growing stress in business lending. The trend is particularly noteworthy given the current high-rate environment, where increased cost of financing appears to be straining business cash flows and debt serviceability.

NOMINAL MORTGAGE RATES

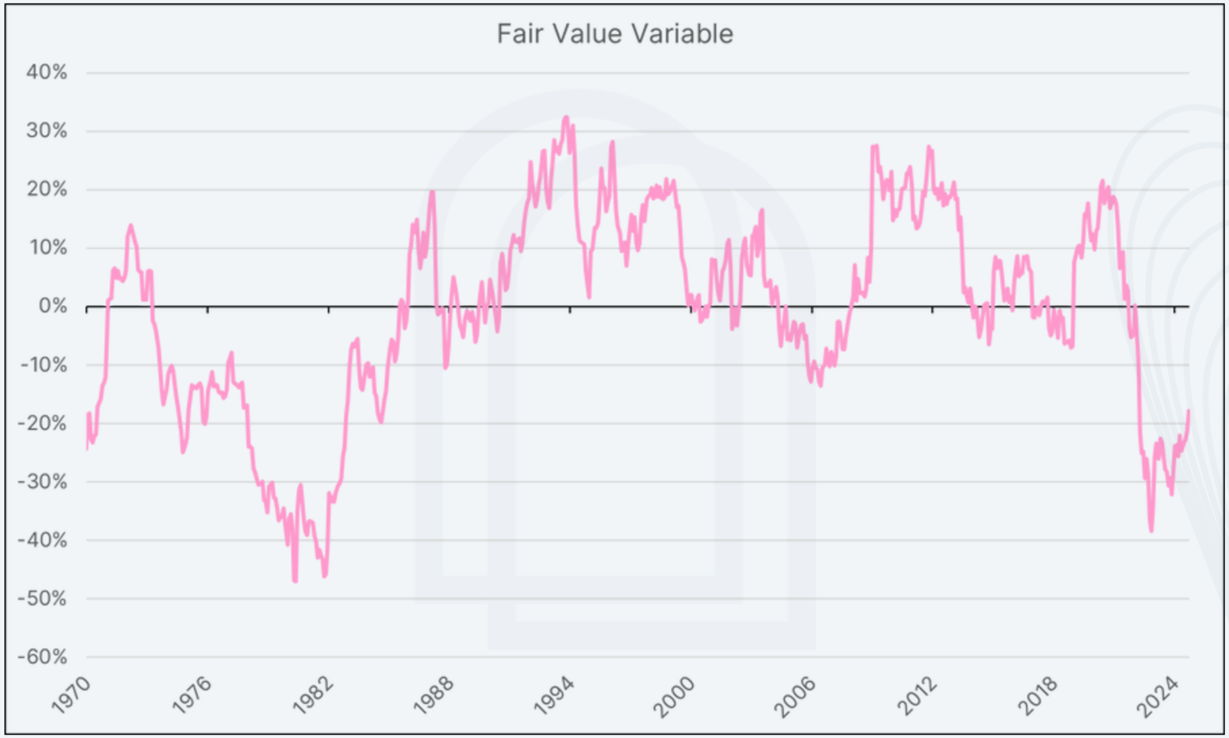
Source: Freddie Mac

Nominal mortgage rates, based on Freddie Mac's national lender survey, rose to 6.72% in November 2024, though remaining 13.4% below year-ago levels. Notably, rates have continued to climb despite the Federal Reserve implementing 75 basis points of cuts in the current cycle. This divergence from typical rate behavior during easing cycles can be attributed to the resilience of longer-duration Treasury yields, particularly the 10-year Treasury, which maintains a strong influence on mortgage rates.

The stubborn nature of these longer-duration yields poses a significant challenge for housing market relief. Fannie Mae has recently adjusted their forecasts to reflect this reality, revising their end-of-2025 projection for 30-year mortgage rates to 6.30%, a notable shift from previous expectations of rates declining into the 5% range. This persistent high-rate environment suggests that any meaningful affordability improvements will likely need to come from other market factors rather than rate relief.

HOUSING MARKET

FAIR VALUE VARIABLE (FVV)



Source: Reef Insights LLC

Building on the persistent high-rate environment, our proprietary Fair Value Variable (FVV) provides critical insight into current housing market valuations. The FVV methodology synthesizes affordability trends by comparing historical and current ratios of income to mortgage payments across multiple timeframes (5, 10, and 15-year averages), ultimately expressing housing's relative value position.

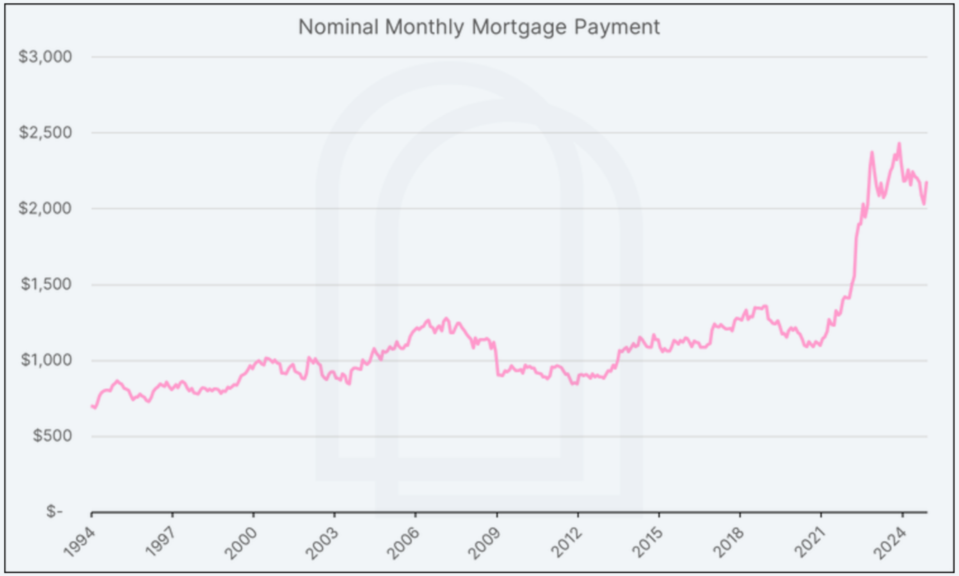
As of the latest data, the FVV stood at -17.9%, showing modest improvement from previous months but still indicating significant overvaluation relative to historical norms. This continued premium, despite elevated mortgage rates and their impact on affordability, suggests that home prices have yet to fully adjust to the new interest rate reality. While the gradual improvement in FVV signals some market normalization, the substantial negative reading reinforces concerns about broader housing affordability challenges that appear likely to persist given the previously discussed outlook for mortgage rates.

HOUSING COSTS

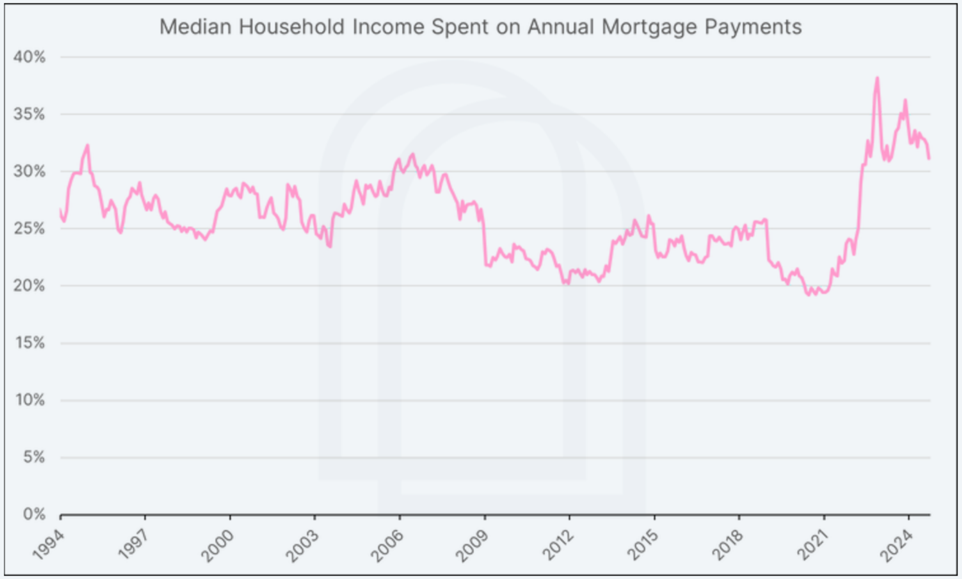
The substantial market overvaluation indicated by the FVV becomes more tangible when examining specific housing cost metrics. The typical monthly mortgage payment, calculated using a conventional 30-year fixed mortgage with 20% down, increased to $2,175 in November 2024. While this represents a 10.69% decrease year-over-year, the five-year trend tells a more dramatic story, with payments having surged 80.99% since 2019.

Recent months have seen payments climb again as mortgage rates edge higher while home prices remain stubbornly elevated, creating a particularly challenging environment for first-time homebuyers whose market participation continues to decline.

The affordability squeeze becomes even more apparent when viewing housing costs relative to income. The median household now dedicates 31.2% of their annual income to mortgage payments. Though this marks an 11.31% decrease from last year's peak, it remains significantly above post-2008 historical averages. The 49.17% increase in this metric over the past five years far outpaces wage growth, creating real strain on household budgets. This pressure is particularly acute given that most households operate with minimal financial cushion, often relying on credit card debt to bridge gaps in spending power. The persistence of these elevated housing costs relative to income helps explain why the market remains significantly overvalued despite high mortgage rates.

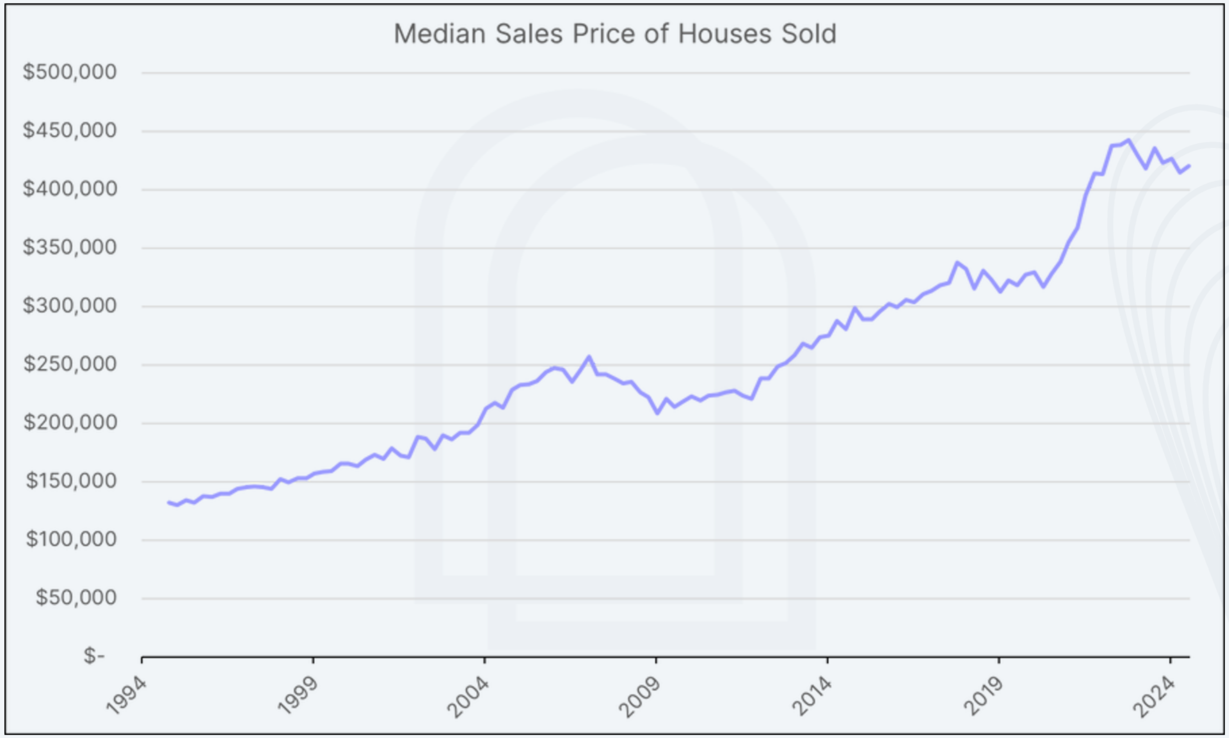


Source: Reef Insights LLC



Source: Reef Insights LLC

MEDIAN SALES PRICE OF HOUSES SOLD



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

Despite the challenging affordability landscape detailed above, median home prices have shown remarkable resilience. At $420,400 in July 2024, prices increased $5,900 quarter-over-quarter, with only a modest 3.45% decline year-over-year. This stability might seem counterintuitive given the combination of elevated mortgage rates, increasing housing supply, and broader economic uncertainty that typically would pressure prices downward.

The resilience in home prices can be attributed to the unique characteristics of residential real estate transactions. Unlike financial assets, homes are infrequently traded and primarily exchanged between parties who view them as residences rather than investments. This fundamental characteristic creates natural price stickiness, with regional variations in price declines failing to develop into a broader national trend. This dynamic helps explain the persistent gap between market valuations and affordability metrics, as highlighted by our FVV analysis.

RESIDENTIAL RENTAL VACANCY RATE

Source: U.S. Census Bureau

While home prices remain sticky, the rental market is showing signs of softening. The residential rental vacancy rate increased to 6.9% in July 2024, up 4.55% year-over-year. This continues the steady rise from the historic lows seen during the pandemic, when vacancy rates reached unprecedented levels due to intense housing demand and limited mobility.

The increase in vacancies, particularly pronounced in the Sun Belt region, suggests a potential shift in the rental market dynamics that could impact property profitability. This trend bears watching as it coincides with our earlier observations about broader market stress signals, including rising loan charge-offs and persistent affordability challenges. However, it's important to note that current vacancy rates are moving closer to historical norms rather than indicating immediate market distress.

SUPPLY & CONSTRUCTION

HOUSING SUPPLY

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

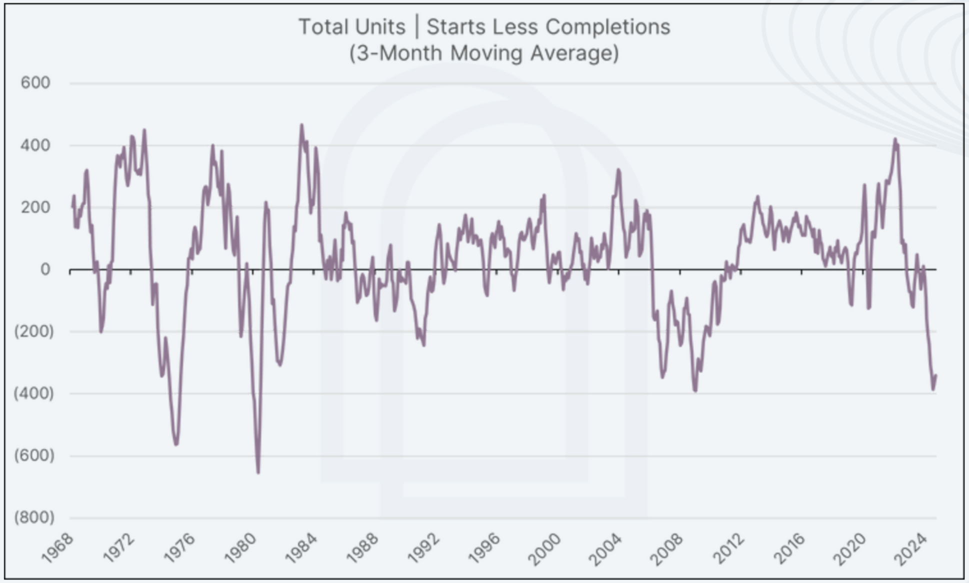
Source: National Association of Realtors

The softening in rental vacancies coincides with broader shifts in overall housing supply dynamics. The market shows divergent trends between new and existing housing inventory, though both remain elevated above historical averages.

New housing supply, representing about 10% of the market, decreased to 7.6 months in September 2024, showing only a modest 1.3% increase year-over-year. While this marks a decline from recent peaks, inventory remains notably above the 10-year historical average. More significantly, the existing home market, which comprises 90% of all housing activity, reported 4.2 months of supply in October 2024. This represents a substantial 16.7% increase year-over-year and exceeds the 10-year historical average of 3.6 months.

These elevated supply levels in both markets would typically pressure prices downward, yet as noted earlier, home prices have remained relatively stable. This disconnect between supply and price dynamics further underscores the unique nature of the current housing market, where traditional market forces appear to be having less influence than historical patterns would suggest.

BUILDING ACTIVITY

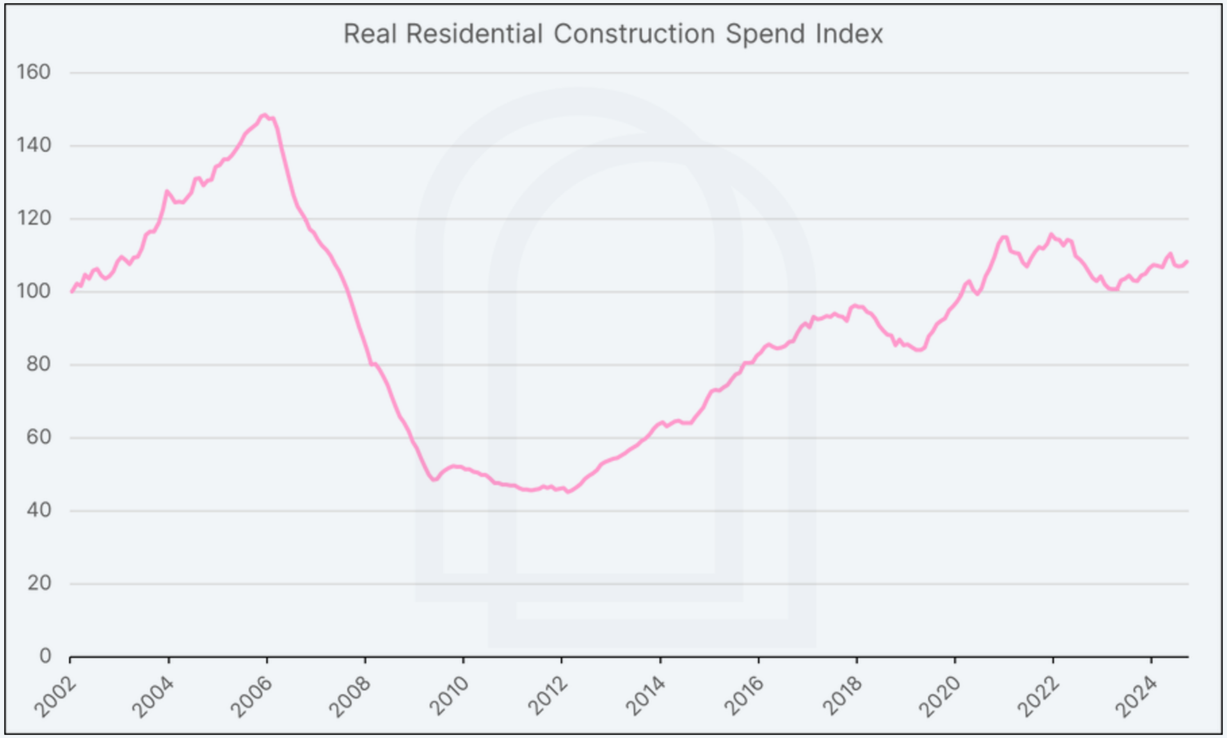


Source: U.S. Census Bureau, U.S. Department of Housing and Urban Development

Despite elevated supply levels, building activity metrics suggest a potential slowdown in future inventory growth. Housing starts declined to 1,311,000 units in October 2024, down 3.96% year-over-year, while building permit authorizations showed an even sharper decrease of 7.69% year-over-year to 1,416,000 units – falling below the 10-year historical average of 1,419,000. These declining forward-looking indicators contrast sharply with current completion rates, which increased 16.79% year-over-year to 1,614,000 units in October.

The widening negative spread between starts and completions is particularly noteworthy as this pattern has historically preceded significant market shifts. Similar spreads were observed in 1969, 1975, 1981, 1990, 2008, and 2020 – all periods of economic stress. The current dynamic, where starts are declining rapidly while completions remain robust, suggests the market is working through a backlog of in-progress construction. Once this pipeline clears, we anticipate a significant lull in building activity, potentially presaging broader market weakness.

REAL RESIDENTIAL CONSTRUCTION SPENDING

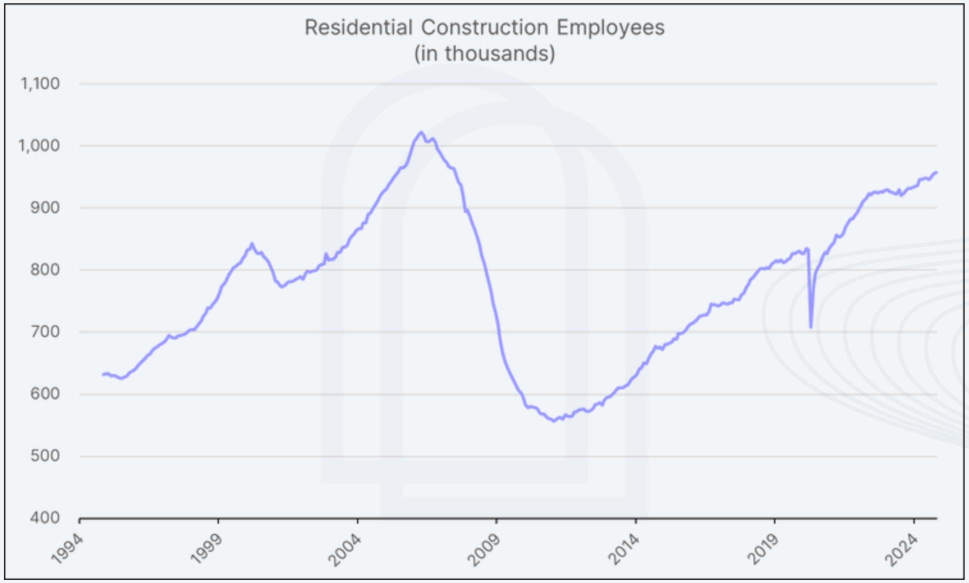


Source: Reef Insights

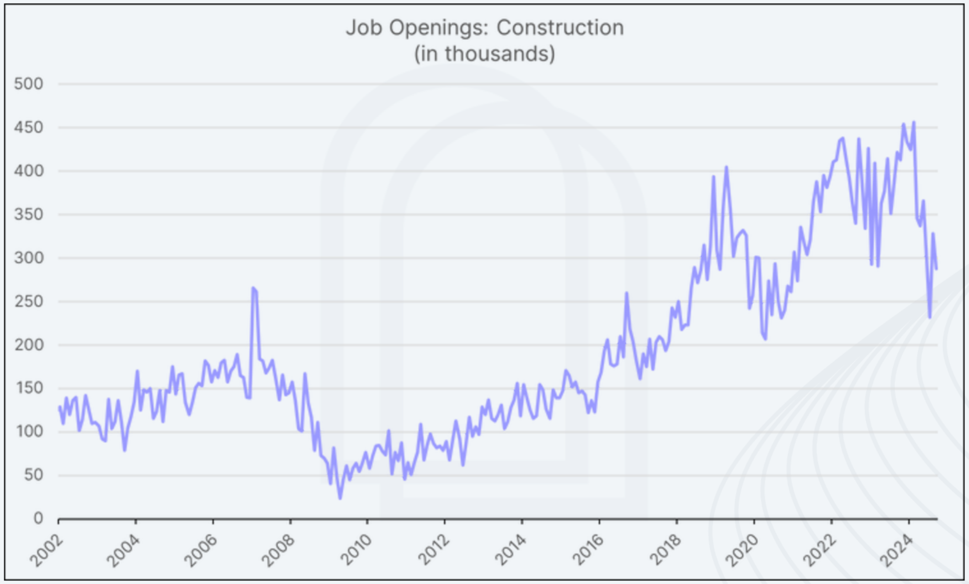
Alongside the concerning spread between starts and completions, the Real Residential Construction Spend Index, which adjusts total residential construction spending for inflation using the PPI for residential construction, provides additional context for building activity. The index reached 108.2 in September 2024, posting a 5.05% increase year-over-year.

However, this apparent strength merits caution when viewed in a broader context. Real construction spending has remained relatively flat since the pandemic, failing to show significant growth despite periods of intense housing demand. Given the previously discussed elevation in new housing supply and declining forward-looking indicators, real spending may face downward pressure as builders adjust to softening market conditions. This pattern would be consistent with historical precedent – during the Great Recession, this index experienced substantial declines as the market corrected.

CONSTRUCTION EMPLOYEES AND JOB OPENINGS



Source: U.S. Bureau of Labor Statistics



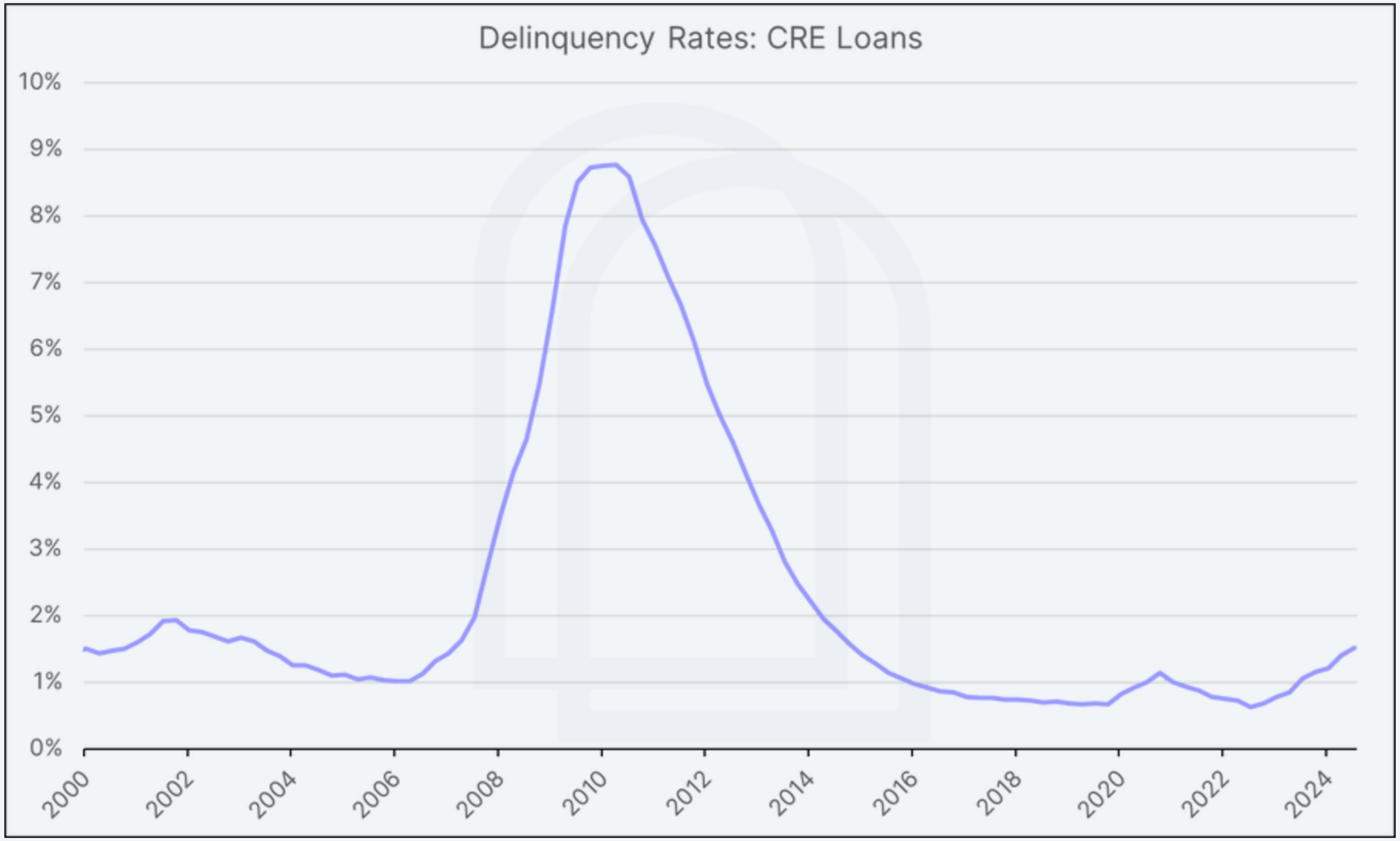
Source: U.S. Bureau of Labor Statistics

The labor market indicators for construction present a complex and potentially concerning picture. While residential construction employment grew 2.68% year-over-year to 957,000 workers in October 2024, this increase appears at odds with other market signals. Historically, construction employment declines precede housing price corrections, making the current employment growth particularly noteworthy given the negative starts-to-completions spread discussed earlier. This divergence might be temporarily explained by increased labor demands from natural disaster reconstruction efforts, particularly in regions affected by hurricanes and tornadoes, rather than reflecting underlying market strength.

More tellingly, construction job openings, a leading indicator of builder sentiment, have declined dramatically. September data showed only 288,000 openings, down from a peak of 456,000 in February 2024 – a steep 31.8% year-over-year decline. This significant drop in job openings over such a short period typically signals upcoming reductions in construction employment, aligning more closely with the cautionary signals from building permits and housing starts. This disconnect between current employment levels and forward-looking indicators, combined with reported struggles in homebuilder earnings, suggests the construction labor market may be approaching an inflection point.

MARKET RISKS & OUTLOOK

DELINQUENCY RATES: CRE LOANS



Source: Board of Governors of the Federal Reserve System

The concerning trends in construction and housing metrics are further amplified by developments in the commercial real estate sector. CRE loan delinquency rates increased to 1.52% in Q3 2024, marking a dramatic 43.4% rise year-over-year. This sharp uptick is particularly significant as rising commercial real estate delinquencies have historically been a reliable indicator of broader economic stress.

This trend in CRE delinquencies, when viewed alongside earlier discussed metrics like rising business loan charge-offs and the negative spread in construction starts versus completions, suggests mounting pressure across both commercial and residential real estate sectors.

FORECAST

Our November 2024 projections reflect a cautiously pessimistic outlook driven by persistent market strains and deteriorating fundamentals across multiple sectors. The interplay between monetary policy, housing supply dynamics, and labor market trends suggests continued challenges through 2025.

Mortgage Rate Outlook

I

We expect mortgage rates to remain elevated through 2025, with limited downside despite Fed easing. Given the persistent disconnect between Fed policy and longer-duration yields, we project the 30-year mortgage rate will stabilize in a range of 6.25-6.75% through mid-2025. This forecast reflects both the structural changes in rate markets and revised industry projections, including Fannie Mae's recent adjustment of end-2025 rates to 6.30%. While further Fed cuts are anticipated, their impact on mortgage rates may continue to be muted by robust longer-term Treasury yields and elevated inflation expectations.

Supply and Inventory Dynamics

II

Housing supply is projected to increase moderately through 2024, with existing home inventory likely reaching 4.5-4.8 months by mid-2025. This expansion will be driven by several factors: the completion of in-progress construction pushing new inventory into the market, marginally higher listing activity as sellers adjust to the rate environment, and potentially slower absorption rates due to affordability constraints. The new home market may see particular pressure as builders work through their backlog of projects while starts continue to decline, potentially leading to increased use of incentives and price concessions.

Construction Employment Trajectory

III

The current disconnect between construction employment and leading indicators appears unsustainable. We anticipate construction employment to decline by 5-7% through 2025 as the negative spread between starts and completions resolves. This correction is likely to materialize in stages, beginning with reduced hours and overtime before moving to outright job losses, particularly as current disaster reconstruction activity normalizes. The dramatic decline in job openings suggests this adjustment may begin sooner than typical cycles, potentially as early as Q2 2025.

DATA TABLE

Metric	This Period	Last Period	Year Ago	Latest Release
Housing Starts: Total Units	1,311	1,353	1,365	Oct-24
New Housing Supply	7.60	7.90	7.50	Sep-24
Existing Housing Supply	4.20	4.30	3.60	Oct-24
Nominal Median Sales Price of Houses Sold	$ 420,400	$ 414,500	$ 435,400	Jul-24
New Building Permit Authorizations: Total Units	1,416	1,425	1,534	Oct-24
Case-Shiller Index	325.03	325.46	311.78	Aug-24
Residential Construction Employees	957	956	932	Oct-24
Nominal Mortgage Rates	6.72	6.08	7.79	Nov-24
Deliquency Rates: Single-Family	1.73	1.73	1.72	Jul-24
Deliquency Rates: Commercial	1.52	1.41	0.85	Jul-24
PPI: Residential Construction	322	321	311	Oct-24
Construction Spending: Residential	$ 925	$ 924	$ 888	Sep-24
Housing Inventory: Median Days on Market	58	55	52	Oct-24
Nominal Monthly Mortgage Payment	$ 2,175	$ 2,034	$ 2,435	Nov-24
Real Mortgage Payment Index	6.81	7.08	7.68	Sep-24
Median Household Income Spent on Annual Mortgage Payments	31.15	32.41	35.13	Sep-24
Fair Value Variable	(17.85)	(21.33)	(30.63)	Sep-24

DATA TABLE

Metric	This Period	Last Period	Year Ago	Latest Release
Housing Expense Change	31.50	33.09	37.95	Sep-24
Nominal Median Household Income	$ 80,610	$ 74,580	$ 74,580	2023
Headline Inflation	2.58	2.41	3.25	Oct-24
Core Inflation	3.30	3.26	4.02	Oct-24
Unemployment Rate	4.10	4.10	3.80	Oct-24
Federal Funds Rate	4.83	5.13	5.33	Oct-24
Personal Savings Rate	4.60	4.80	4.40	Sep-24
Jobless Claims	213,000	219,000	213,000	Nov-24
10-Year U.S. Treasury Yield Minus 2-Year U.S. Treasury	(0.34)	(0.26)	(0.19)	Nov-24
Residential Rental Vacancy Rate	6.90	6.60	6.60	Jul-24
Real Residential Construction Spend Index	108.20	107.21	103.00	Sep-24
Household Savings	$ 807	$ 2,207	$ 2,207	2022
Bank Credit: All Commercial Banks	$ 17,917	$ 17,946	$ 17,268	Nov-24
Delinquency Rates: Credit Card	3.23	3.24	2.97	Jul-24
Gross Domestic Product (GDP)	$ 29,350	$ 29,017	$ 27,968	Jul-24
M2 (Money Supply)	$ 21,221	$ 21,141	$ 20,681	Sep-24
Federal Reserve's Balance Sheet	$ 6,924	$ 6,967	$ 7,811	Nov-24

DATA TABLE

Metric	This Period	Last Period	Year Ago	Latest Release
PCE: Headline Inflation	2.09	2.27	3.42	Sep-24
PCE: Core Inflation	2.65	2.72	3.66	Sep-24
Debt-to-GDP	120.04	120.83	117.77	Apr-24
Real GDP	$ 23,386	$ 23,224	$ 22,781	Jul-24
Trucking Employees	1,546	1,546	1,548	Oct-24
Industrial Production	102	103	103	Oct-24
Credit Card Interest Rates	21.76	21.51	21.19	Aug-24
Charge-Off Rate: Credit Card Loans	4.37	4.73	3.49	Jul-24
Charge-Off Rate: Business Loans	0.56	0.49	0.40	Jul-24
Charge-Off Rate: Commercial Real Estate Loans	0.25	0.23	0.16	Apr-24
Yield Curve	0.10	(0.09)	(0.64)	Oct-24
Total Assets: Money Market Funds	$ 6,547,307	$ 6,440,700	$ 5,917,351	Apr-24
Federal Government Interest Payments	$ 1,117	$ 1,097	$ 968	Jul-24
CPI: Rent in U.S. City Average	425	424	407	Oct-24
Consumer Loans: Credit Card Debt	#N/A	$ 1,077	$ 1,025	Nov-24
New Single-Family Home Sales	738	709	694	Sep-24
New Housing Units Completed	1,614	1,688	1,382	Oct-24

DATA TABLE

Metric	This Period	Last Period	Year Ago	Latest Release
Job Openings: Construction	288	328	422	Sep-24
New Homes: Median Square Footage	2,171	2,101	2,221	Jul-24
Median Sales Price of New Houses Sold	$ 426,300	$ 410,900	$ 426,100	Sep-24

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.
Real GDP	Quarterly	U.S. Bureau of Economic Analysis	Real gross domestic product is the inflation adjusted value of the goods and services produced by labor and property located in the United States.
Trucking Employees	Monthly	U.S. Bureau of Labor Statistics	Each month, CES surveys approximately 119,000 businesses and government agencies, representing approximately 629,000 individual worksites.
Industrial Production	Monthly	Board of Governors of the Federal Reserve System	The industrial production (IP) index measures the real output of all relevant establishments located in the United States, regardless of their ownership, but not those located in U.S. territories.

SOURCES

Metric	Frequency	Sources	Notes
Credit Card Interest Rates	Monthly	Board of Governors of the Federal Reserve System	This release is generally issued on the fifth business day of each month.
Charge-Off Rate: Credit Card Loans	Quarterly	Board of Governors of the Federal Reserve System	The 100 largest banks are measured by consolidated foreign and domestic assets. Charge-offs are the value of loans and leases removed from the books and charged against loss reserves. Charge-off rates are annualized, net of recoveries. Delinquent loans and leases are those past due thirty days or more and still accruing interest as well as those in nonaccrual status.
Charge-Off Rate: Business Loans	Quarterly	Board of Governors of the Federal Reserve System	The 100 largest banks are measured by consolidated foreign and domestic assets. Charge-offs are the value of loans and leases removed from the books and charged against loss reserves. Charge-off rates are annualized, net of recoveries. Delinquent loans and leases are those past due thirty days or more and still accruing interest as well as those in nonaccrual status.
Charge-Off Rate: Commercial Real Estate Loans	Quarterly	Board of Governors of the Federal Reserve System	The 100 largest banks are measured by consolidated foreign and domestic assets. Charge-offs are the value of loans and leases removed from the books and charged against loss reserves. Charge-off rates are annualized, net of recoveries. Delinquent loans and leases are those past due thirty days or more and still accruing interest as well as those in nonaccrual status.
Yield Curve	Daily	Federal Reserve Bank of St. Louis	Starting with the update on June 21, 2019, the Treasury bond data used in calculating interest rate spreads is obtained directly from the U.S. Treasury Department. Series is calculated as the spread between 10-Year Treasury Constant Maturity (BC_10YEAR) and 2-Year Treasury Constant Maturity (BC_2YEAR). Both underlying series are published at the U.S. Treasury Department.
Total Assets: Money Market Funds	Quarterly	Board of Governors of the Federal Reserve System	For more information about the Flow of Funds tables, see the Financial Accounts Guide.
Federal Government Interest Payments	Quarterly	U.S. Bureau of Economic Analysis	For more information about this series, please see http://www.bea.gov/national/.
CPI: Rent in U.S. City Average	Monthly	U.S. Bureau of Labor Statistics	The Consumer Price Index (CPI) is a measure of the average change over time in the prices paid by urban consumers for a market basket of consumer goods and services. Indexes are available for the U.S. and various geographic areas. Average price data for select utility, automotive fuel, and food items are also available.
Consumer Loans: Credit Card Debt	Monthly	Board of Governors of the Federal Reserve System	For further information, please refer to the Board of Governors of the Federal Reserve System's H.8 release.
New Single-Family Home Sales	Monthly	U.S. Census Bureau	For further further information, please refer to the New Residential Sales report that is published by the U.S. Census Bureau.
Hew Housing Unit Completed	Monthly	U.S. Census Bureau	This metric's official title is New Privately-Owned Housing Units Completed: Total Units, and further information can be found on the New Residential Construction report that is published by the U.S. Census Bureau.
Job Openings: Construction	Monthly	U.S. Bureau of Labor Statistics	This data can be found in the Job Openings and Labor Turnover Survey report that is published by the U.S. Bureau of Labor Statistics.
New Homes: Median Square Footage	Quarterly	U.S. Census Bureau, U.S. Department of Housing and Urban Development	For further information, please refer to the Quarterly Starts and Completions by Purpose of Design release.
Median Sales Price of New Houses Sold	Monthly	U.S. Census Bureau	For further further information, please refer to the New Residential Sales report that is published by the U.S. Census Bureau.

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Forecast Evaluation - Semi-Annual

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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