REEF REPORT

REAL ESTATE & ECONOMIC FORECAST

UNITED STATES

SUMMARY

Labor Market Trends:
The unemployment rate slightly decreased to 4.2% in August 2024, down from 4.3% in July. Despite this minor improvement, the Sahm Rule, an indicator of recession, remains triggered. Year-over-year, the unemployment rate has risen significantly, suggesting potential broader economic challenges. Construction job openings decreased to 248,000 in July, down 29.3% year-over-year, potentially signaling future declines in construction employment.

Housing Market Indicators:
The housing market continues to show mixed signals. Building permit authorizations increased to 1,475,000 in August but declined 6.5% year-over-year. Housing starts rose to 1,356,000, up 3.9% from the previous year. The supply of new housing decreased to 7.5 months in July, a 2.73% year-over-year increase, while the supply of existing housing rose to 4.2 months in August, 27.3% higher than last year.

Affordability and Construction:
The Fair Value Variable (FVV) improved to -21.2%, but still suggests significant overvaluation relative to historical income trends. The portion of median household income spent on mortgage payments decreased to 32.2% in September, down 3.84% year-over-year, but remains 56.31% higher than five years ago. Residential construction employment slightly increased to 951,000 in August, up 3.02% year-over-year.

Mortgage Rates and Housing Costs:
Mortgage rates dropped to 6.35% in September, down 11.56% from the previous year. The nominal monthly mortgage payment decreased to $2,052, down 13.02% year-over-year, but still 71.66% higher than five years ago. The median square footage of new homes decreased to 2,104 in Q2 2024, down 6.24% year-over-year, reflecting changing market dynamics.

Consumer Finance and Economic Indicators:
The personal savings rate dropped to 2.9% in July, down 34.1% year-over-year, raising concerns about household financial resilience. Credit card delinquency rates increased to 3.25% in April, up 17.33% year-over-year, suggesting growing financial pressure on households. The Federal Reserve surprised markets with a 50 bps rate cut in September, signaling concerns about economic conditions and shifting focus towards employment issues.

KEY DEVELOPMENTS

The September Reef Report highlights three key developments: a surprising Federal Reserve rate cut, a continued decline in mortgage rates and payments, and mixed signals in the housing market. These factors collectively point to evolving economic conditions that could have substantial implications for monetary policy, the housing market, and overall economic health.

Federal Reserve Rate Cut

I

The Federal Reserve surprised markets with a 50 basis point rate cut at the September FOMC meeting. This decision was more aggressive than the market expectation, which had priced in an almost 50/50 probability of either a 25 bps or 50 bps reduction. The move signals a significant shift in the Fed's focus towards employment concerns, potentially setting aside lingering inflation worries. This unexpected cut, combined with expectations of further reductions, suggests the Fed is observing concerning economic trends and may be preparing for a more challenging economic environment ahead.

Continued Decline in Mortgage Rates and Payments

II

Mortgage rates have continued their downward trajectory, reaching 6.35% in September, an 11.56% decrease from the previous year. This decline has had a notable impact on housing affordability, with the nominal monthly mortgage payment decreasing to $2,052, down 13.02% year-over-year. The portion of median household income spent on mortgage payments also decreased to 32.2% in September, down 3.84% year-over-year. While these figures still remain elevated compared to historical norms, the trend suggests improving affordability conditions in the housing market.

Mixed Signals in the Housing Market

III

The housing market continues to present a complex picture. While building permit authorizations increased to 1,475,000 in August, they were down 6.5% year-over-year. Housing starts, on the other hand, rose to 1,356,000, up 3.9% from the previous year. The supply dynamics also show divergent trends, with new housing supply decreasing to 7.5 months in July, while existing housing supply increased to 4.2 months in August. Additionally, the median square footage of new homes decreased to 2,104 in Q2 2024, down 6.24% year-over-year, reflecting changing market dynamics and consumer preferences.

FORECAST

Declining Mortgage Rates

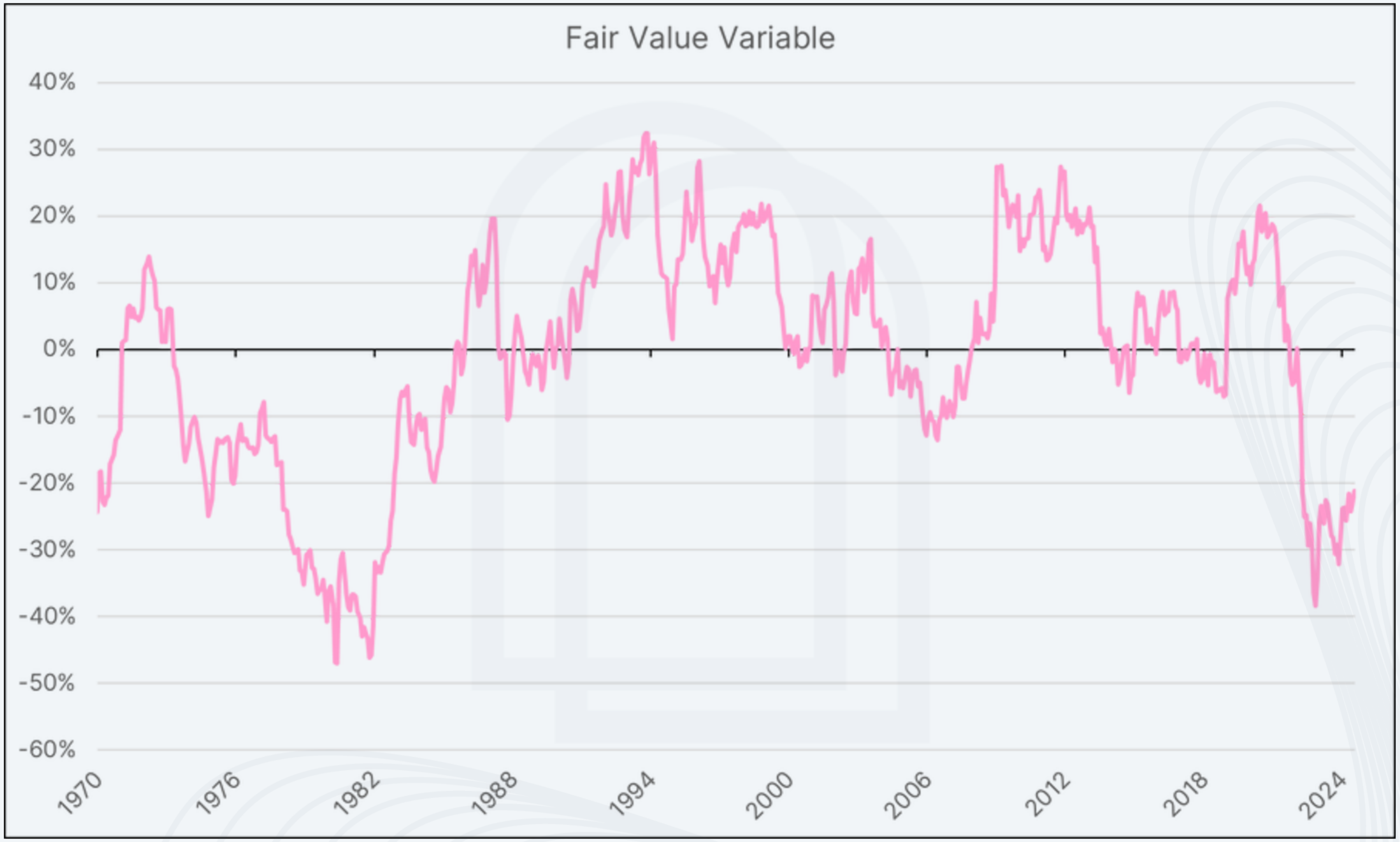
In our June report, we projected that the 30-year mortgage rate would remain above six percent through the end of the year. As of this writing, the rate stands at 6.09 percent, and with the Federal Reserve signaling further rate cuts in the coming months, we anticipate that mortgage rates may dip below this threshold.

However, it remains unlikely that the 30-year mortgage rate will fall below five percent by year-end. Despite widespread speculation regarding the extent of the Fed's rate reductions, it is improbable that their actions will push the 30-year mortgage rate beneath five percent. Additionally, we do not believe that the decline in mortgage rates will be sufficient to restore normal demand levels. Affordability remains a challenge, and it will not be fully resolved by a reduction in rates.

Rising Months' Supply of Existing Homes

We anticipate that the months' supply of existing home sales will rise to 4.4 months by October. Several factors are influencing this forecast. Firstly, homebuilders are offering rate buydowns on new homes, likely diverting some demand away from existing homes. Secondly, while declining mortgage rates can encourage buyers to enter the market, they may also motivate sellers to list their homes. Lastly, potential homebuyers may be hesitant due to economic conditions. Rising unemployment, a tighter job market, and lower savings rates suggest that many buyers could delay entering the market.

FAIR VALUE VARIABLE (FVV)



Source: Reef Insights LLC

Our proprietary Fair Value Variable methodology evaluates housing affordability by calculating rolling 5, 10, and 15-year averages of the percentage of median income spent on mortgage payments. Dividing these averages by current income-to-payment ratios yields premiums/discounts which are then averaged and applied to median home prices.

In July, the FVV increased month-over-month to negative 21.2 percent, which indicates an improvement towards normalizing values. However, the FVV indicates homes are still significantly overvalued compared to historical averages.

HOUSING SUPPLY

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

Source: National Association of Realtors

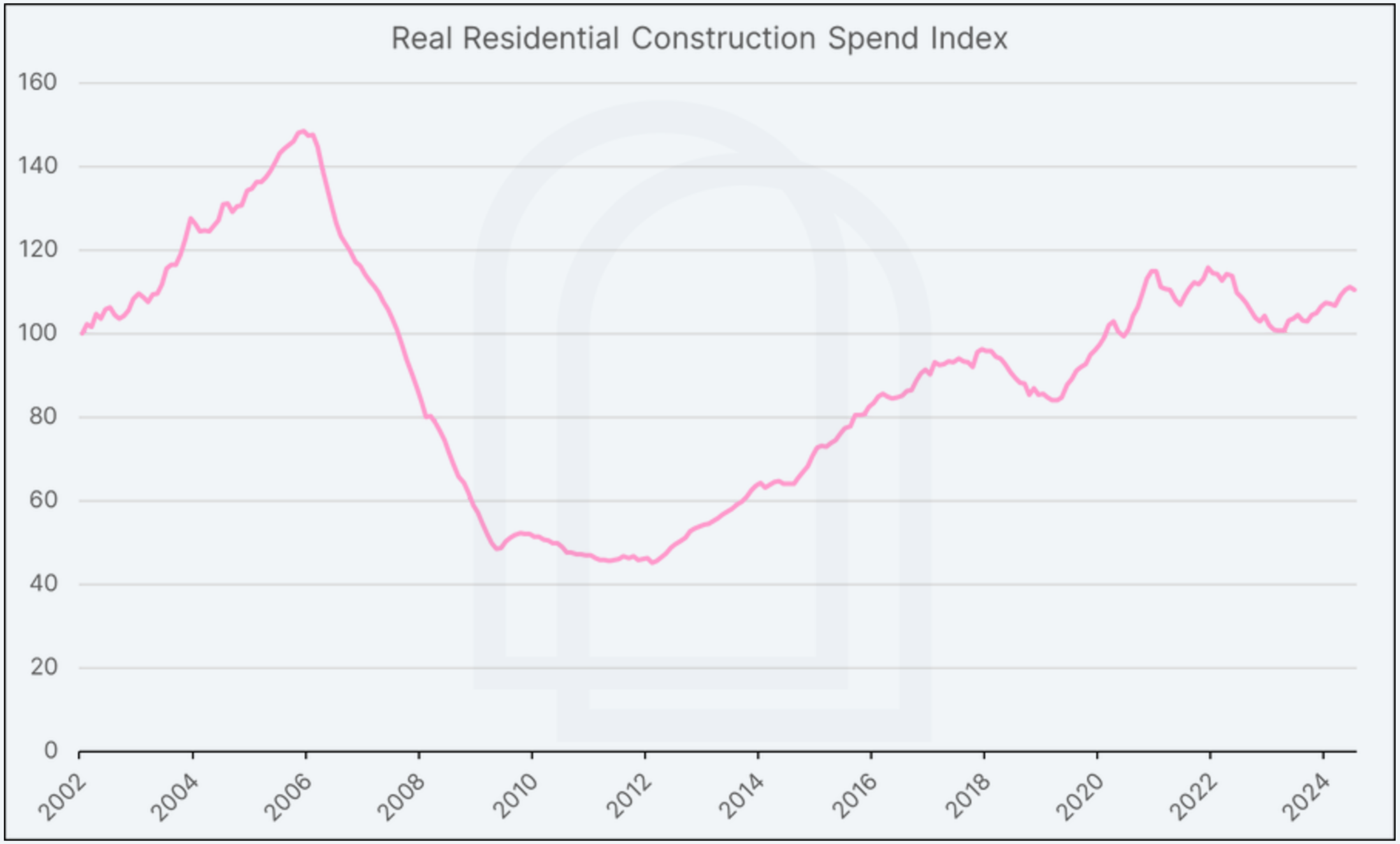
The supply of new housing, measured in months by the ratio of new houses for sale to those sold, experienced a month-over-month decline in July, settling at 7.5 months. Compared to the previous year, this figure represents a 2.73 percent increase in the months' supply.

Despite the year-over-over increase being negligible, new housing supply is currently about 25 percent above the 10-year average of 6.1 months.

In August, the supply of existing homes increased to 4.2 months, meaning it would take 4.2 months to sell all the available homes at the current sales pace if no new homes were added. Year-over-year, the supply has increased by 27.3 percent, and the current figure is above the 10-year average of 3.6.

This shows that the housing market is continuing to cool from it's red-hot levels of the past few years. It will be interesting to see how a lower federal funds rate will impact buying demand. We don't believe the increases in demand from marginally lower interest rates will be enough to reignite the market to previous levels.

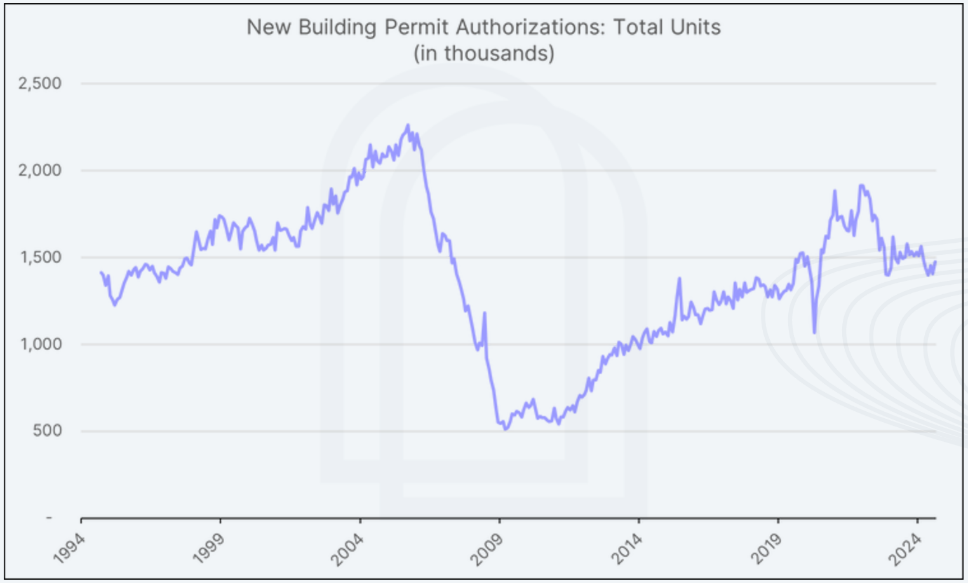
REAL RESIDENTIAL CONSTRUCTION SPENDING



Source: Reef Insights

The Real Residential Construction Spend Index is calculated by dividing the total residential construction spending by the Producer Price Index (PPI) for residential construction. As of July data, the index is at 111, unchanged from the prior month and up 5.9 percent from the same month in the prior year. Given the large pipeline of in-progress builds, this will likely be a resilient data point in the near future, however, we don’t believe it will be able to maintain these levels and will likely decline as developers and investors have a difficult time offloading some properties for values that generate their necessary returns.

BUILDING ACTIVITY



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

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

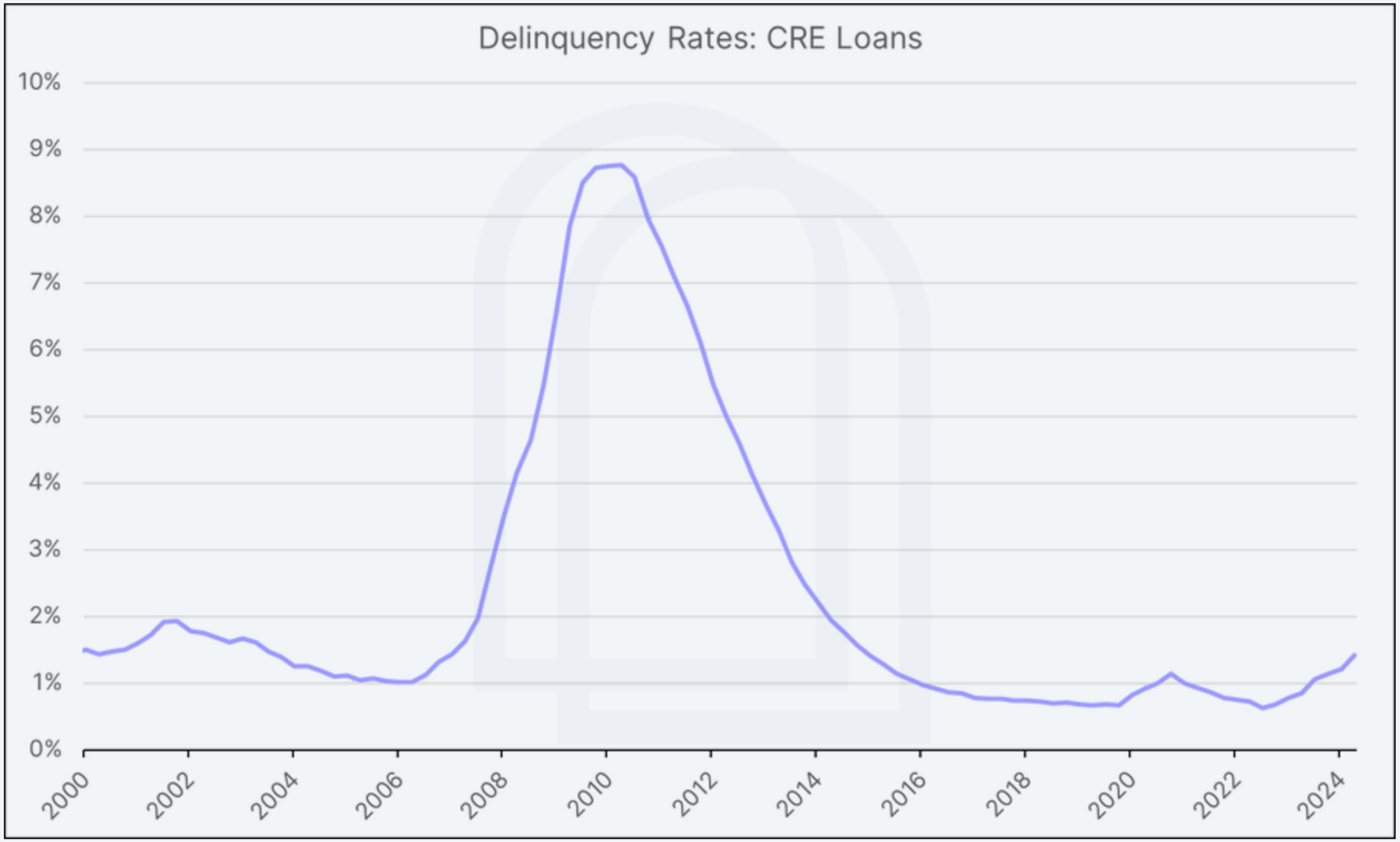
The number of new building permit authorizations is an important indicator of forthcoming construction activity. In August, we observed a month-over-month increase, with 1,475,000 new permits authorized. On a year-over-year basis, the number of total new building permit authorizations declined by 6.5 percent.

It's worth noting that the current level of 1,475,000 new permits is still above the 30-year historical average of 1,387,000. However, the number has been hovering around the 1,500,000 level for over a year now.

In August, there was a month-over-month increase in the number of housing starts, with a total of 1,356,000 reported. Compared to the same time last year, this number is up by 3.9 percent.

The current overall trend over the past few years for both permits and housing starts has been downward as the cost of building and borrowing has risen, and the demand for new homes has declined as affordability issues abound.

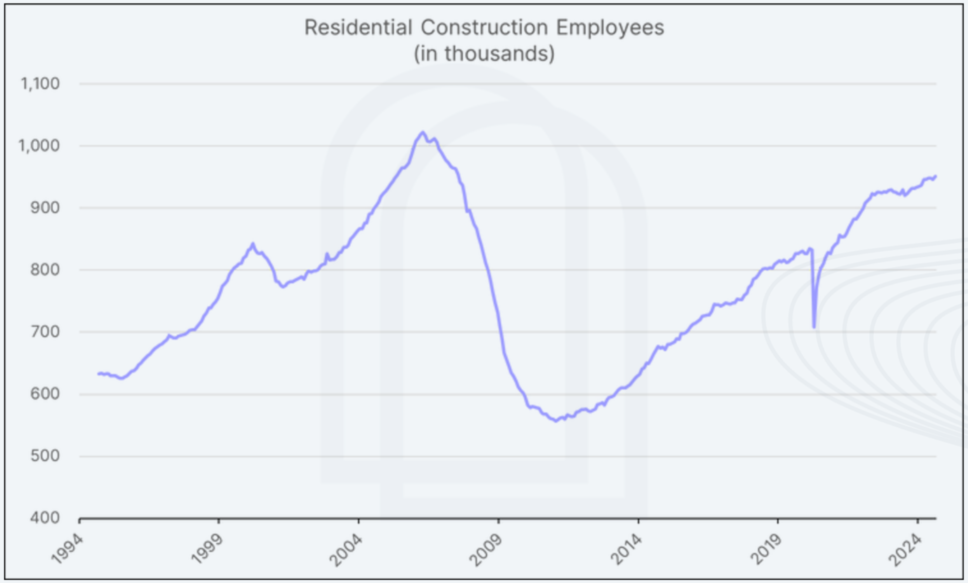
DELINQUENCY RATES: CRE LOANS



Source: Board of Governors of the Federal Reserve System

Commonly, commercial real estate delinquency rates rise during recessionary periods. Commercial real estate delinquency rates saw an increase quarter-over-quarter, with a delinquency rate of 1.42 percent being reported in Q2 2024. Year-over-year, commercial real estate delinquency rates were up 67.06 percent.

CONSTRUCTION EMPLOYEES AND MORTGAGE RATES



Source: U.S. Bureau of Labor Statistics

Source: Freddie Mac

The number of residential construction employees serves as a leading indicator, often exhibiting declines before housing prices experience a downturn. In August, we observed a slight month-over-month increase, with 951,000 residential construction employees reported. On a year-over-year basis, the number of residential construction employees grew by 3.02 percent.

Historically, a reduction in the residential construction workforce has preceded softening in housing market conditions. The current uptick in construction employees is noteworthy, especially considering that housing starts have been declining. Typically, these metrics move correlatively. This divergence could be attributed to the lag between housing starts and employment, as construction timelines play a significant role in workforce demands.

The current average mortgage rate, based on loan applications submitted to Freddie Mac by lenders nationwide, has decreased month over month, reaching 6.35 percent in September. Notably, compared to the same period last year, this rate has declined by 11.56 percent. As of September 19th, the average rate is even lower, at 6.09 percent, representing a 15.3 percent decline from the prior year.

While the recent decrease in mortgage rates is a positive development for potential homebuyers, it's important to note that rates remain historically high. The Federal Reserve's stance on monetary policy suggests that significant rate cuts may not be imminent, indicating that substantial relief in this area could still be some time away.

JOB OPENINGS: CONSTRUCTION

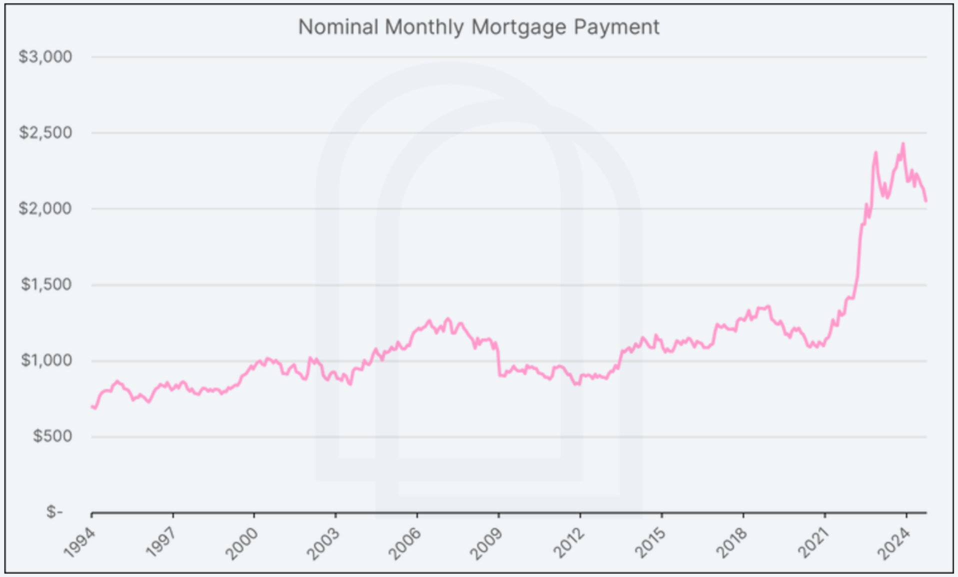
Source: U.S. Bureau of Labor Statistics

Construction job openings typically precede employment and can be a signal of the current sentiment of builders and developers. As of July data, construction job openings sat at 248,000. This is down from a peak of 456,000 in February 2024. Year-over-year, job openings are down 29.3 percent. This is a significant decline for the data point over such a short period, potentially signaling future declines in construction employment.

HOUSING COSTS

The nominal monthly mortgage payment is calculated assuming a 20 percent down payment, a 30-year mortgage term, and a fixed interest rate. This calculation uses the current mortgage rate and the median sales price of houses sold. In September, the estimated monthly mortgage payment decreased to $2,052. Notably, compared to the same period last year, the monthly payment has dropped by 13.02 percent.

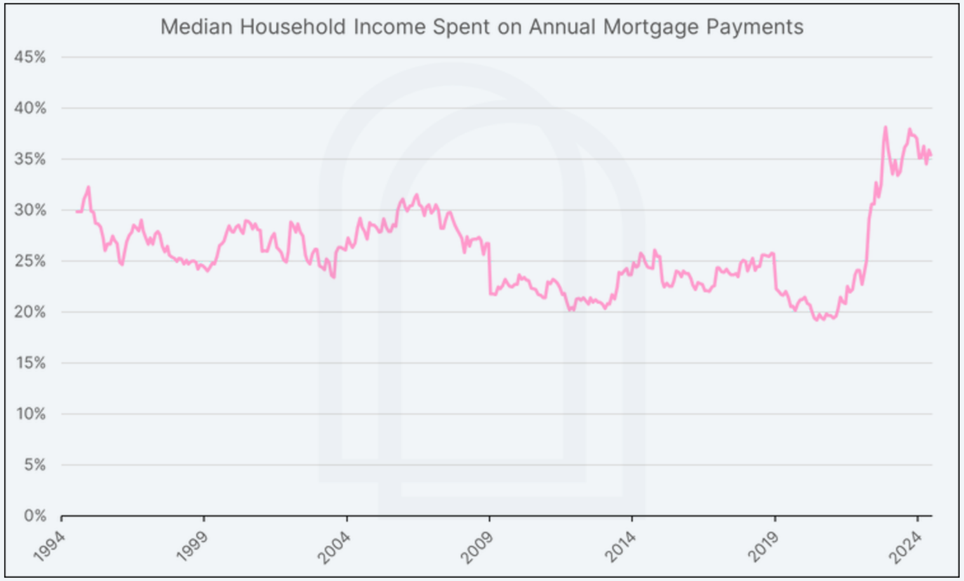
Over the past five years, the monthly mortgage payment has increased by 71.66 percent, underscoring the significant decline in affordability as a larger portion of household income is directed towards mortgage costs. This trend has been driven by the combination of higher interest rates and elevated home prices in recent years.



Source: Reef Insights LLC

To calculate the median household income spent on annual mortgage payments, we annualized the current monthly mortgage payment and compared it to the previous year's median household income.

In September, the portion of median household income spent on mortgage payments decreased to 32.2 percent, down from the previous month. This figure represents a year-over-year decrease of 3.84 percent, indicating an improvement in affordability compared to the same period last year. Over the past five years, however, this metric has surged by 56.31 percent.



Source: Reef Insights LLC

NEW HOMES: MEDIAN SQUARE FOOTAGE

Source: U.S. Census Bureau

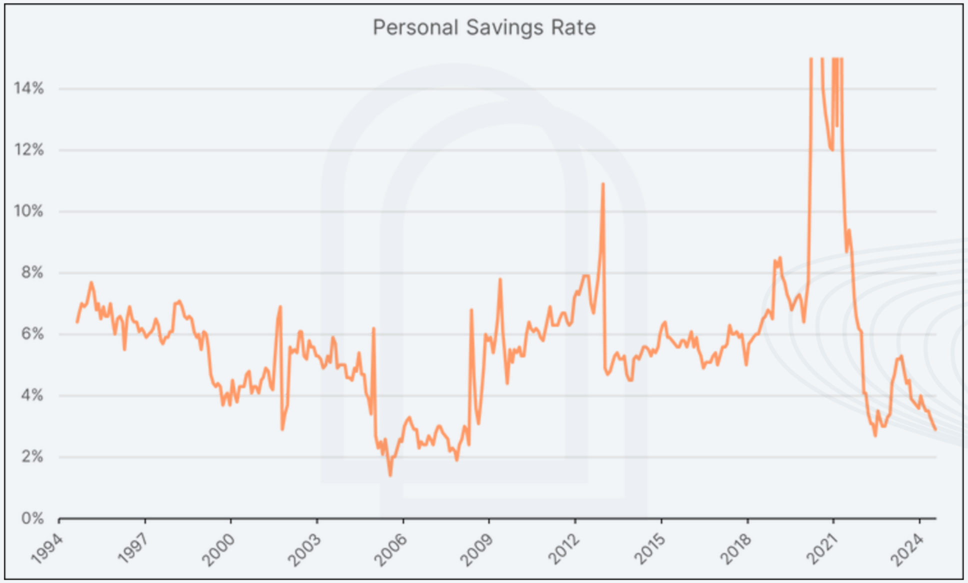
NEW HOMES: MEDIAN SQUARE FOOTAGE

The median square footage of new homes in the United States continues its downward trajectory, reflecting evolving market dynamics and consumer preferences. In Q2 2024, the median size of newly constructed homes reached 2,104 square feet, marking a notable decrease from previous periods. This figure represents a 6.24 percent reduction compared to the same quarter in the previous year, underscoring a significant shift in the housing market.

The decline becomes even more pronounced when viewed against recent historical data. Just two years prior, in Q2 2022, the median square footage peaked at 2,325 square feet, indicating a substantial 9.5 percent decrease over this short period. For broader context, it's worth noting that the all-time high for median new home size was recorded at 2,488 square feet in Q3 2015, further emphasizing the current downward trend.

This ongoing reduction in new home sizes raises important questions about changing consumer preferences and the evolving concept of what Americans consider "home." The trend appears to be driven by a combination of factors, including worsening affordability and broader economic considerations. As homeownership becomes increasingly challenging for many Americans, the market seems to be responding by offering smaller homes in an attempt to align with consumers' reduced buying power.

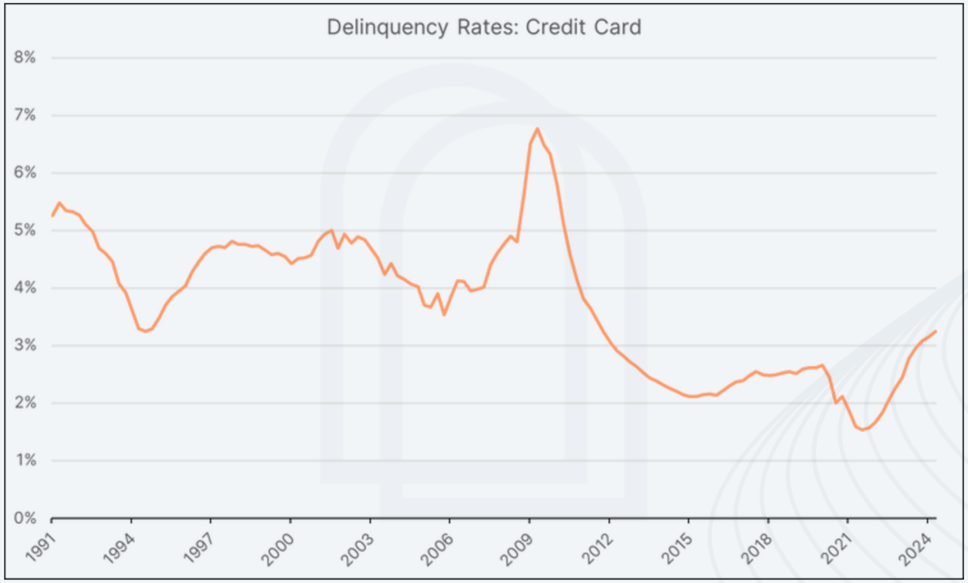
CONSUMER: CREDIT & SAVINGS



Source: U.S Bureau of Economic Analysis

The personal savings rate, which represents the percentage of personal income remaining after personal outlays and taxes, experienced a decline in July. The rate dropped to 2.9 percent, marking a decrease from the previous month. More notably, this figure reflects a substantial year-over-year reduction of 34.1 percent.

This significant decline in the personal savings rate raises concerns about household financial resilience and consumer spending capacity. A lower savings rate may indicate that individuals are allocating a larger portion of their income to cover expenses, potentially due to rising costs of living or economic pressures.



Source: Board of Governors of the Federal Reserve System

Credit card delinquency rates, a key indicator of consumer financial health, have shown an upward trend in recent months. In April, the delinquency rate reached 3.25 percent, marking an increase from the previous quarter. More significantly, this figure represents a substantial year-over-year rise of 17.33 percent.

This upward movement in credit card delinquencies is particularly noteworthy as these rates typically escalate during periods of economic stress. The considerable annual increase suggests growing financial pressure on households, potentially reflecting broader economic challenges such as inflation, rising interest rates, or employment instability.

UNEMPLOYMENT RATE

Source: U.S. Bureau of Labor Statistics

UNEMPLOYMENT RATE

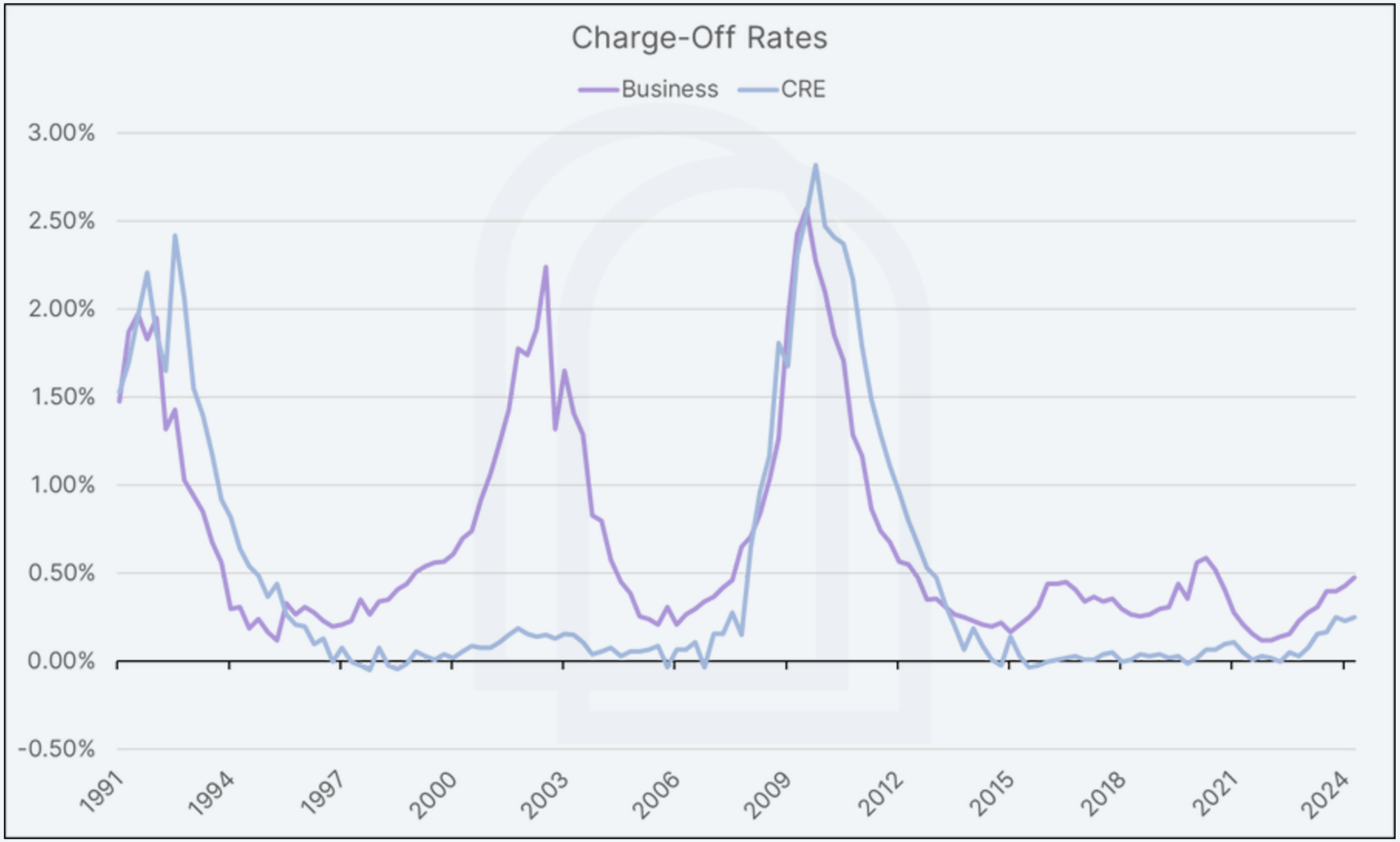
In our August report, we noted that as of the July unemployment figure, the Sahm Rule had been triggered. This rule states that a recession is likely underway when the three-month moving average of the national unemployment rate rises by 0.50 percentage points or more relative to its low during the previous 12 months. The Sahm Rule has proven to be a valuable tool for policymakers and economists, as it provides a simple yet effective method for identifying economic downturns in real time. Its accuracy in predicting past recessions has made it an important metric in economic forecasting and policy discussions.

The August unemployment figure came in at 4.2 percent, a 0.1 percentage point decline from July. However, despite the decline, the triggering of the Sahm Rule remains in effect. It will be interesting to see how the employment rate evolves for the remainder of the year. Historically, once the unemployment rate starts to rise, some acceleration typically follows.

That said, it is worth noting that external factors may be helping employment figures hold steady longer than expected. One key factor is government spending, which includes both direct and indirect government jobs through spending and investments. This suggests that the resilience in the job figures may be somewhat bolstered by government support, at a larger scale than seen in previous downturns.

Our view is that, despite these governmental influences, the unemployment rate will likely continue to climb. A combination of a challenging business environment—especially for small and medium-sized businesses and select sectors—and companies being forced to become leaner, will drive further layoffs and attrition without backfilling positions.

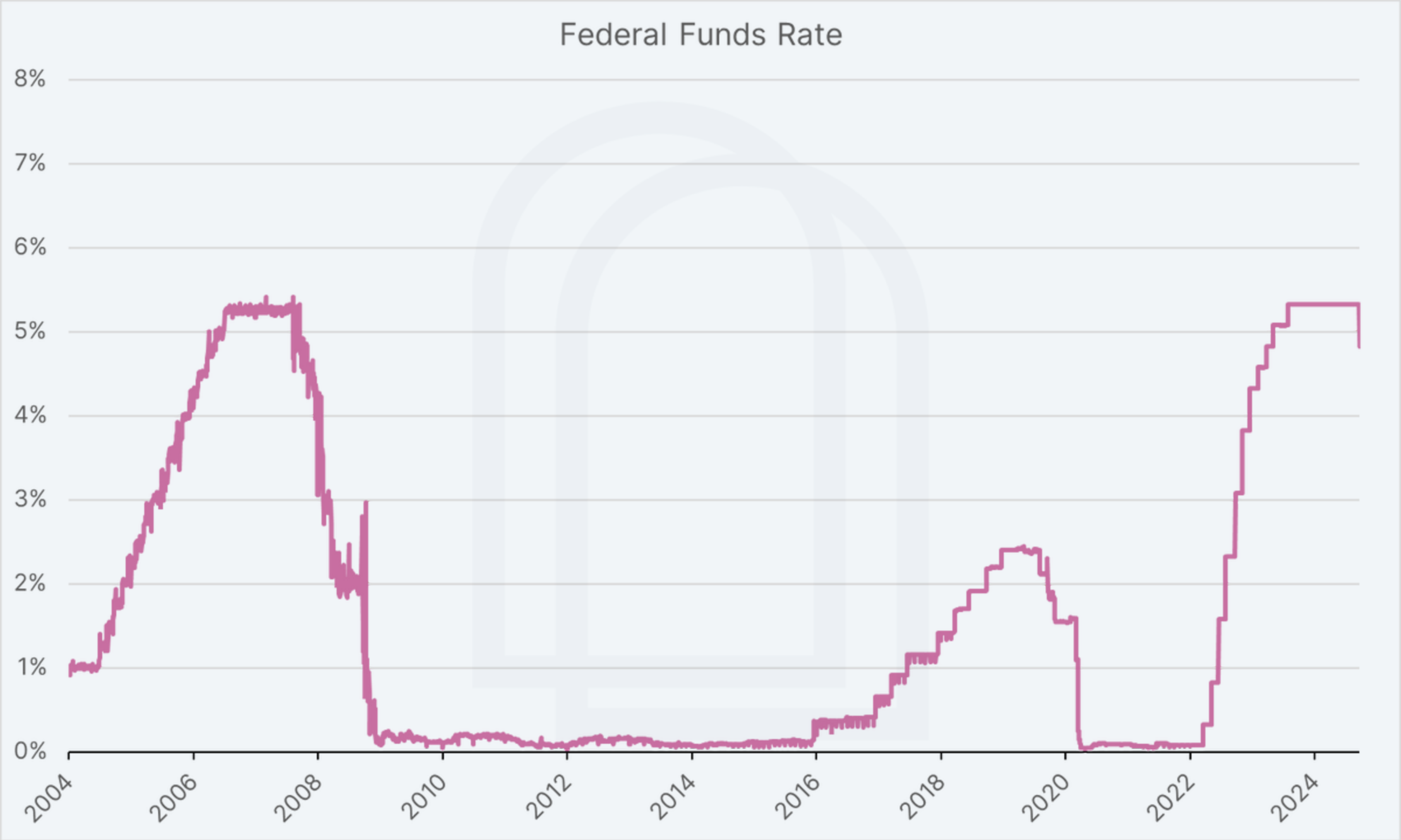
CHARGE-OFF RATES



Source: Board of Governors of the Federal Reserve System

The second quarter of 2024 has witnessed a concerning trend of rising charge-off rates across various loan categories, indicating increased financial stress throughout different sectors of the economy. The business sector showed signs of strain, with business loan charge-offs increasing by 55 percent to 0.48 percent, while commercial real estate loans saw a 56 percent increase to 0.25 percent. This uniform upward trend across diverse loan types suggests a broad-based deterioration in loan performance, likely driven by persistent inflation, higher interest rates, and subdued demand. While these levels aren't concerning by historical standards, a rapid rise is cause to monitor.

FEDERAL FUNDS RATE



Source: Federal Reserve Bank of New York

FEDERAL FUNDS RATE

At the September FOMC meeting, the committee decided to reduce the policy rate by 50 bps, surprising the market, which had priced in an almost 50/50 probability of either a 25 bps or 50 bps reduction. While the exact number itself may not matter much—given that the market is also expecting further cuts at the remaining meetings this year and into next—the decision gives us insight into what the Fed is currently seeing in the economy.

During Powell's press conference following the decision, our key takeaway was this: the Fed is observing the same economic trends that we are, but they're hesitant to fully articulate their concerns. Based on the revised jobs data and business condition trends, the Fed has notably shifted its focus toward employment, to the extent that they seem willing to set aside lingering concerns about inflation.

The only other possibility is that the Fed acted politically, responding to significant pressure from politicians to cut rates more aggressively. However, this is unlikely, given Powell and the Fed's slow response to rising inflation in 2021 despite similar pressures. That said, with this being an election year, the possibility can't be entirely dismissed.

Nonetheless, the question remains: What will the Fed do for the rest of the year? As of this writing, the market is pricing in a strong probability of another 50 bps cut at the next meeting. Such a move would only make sense if there is continued deterioration in employment and business conditions as more lagging data points emerge.

This aligns with our previous forecasts, where we stated that a significant decline in economic conditions would force the Fed to respond more drastically. However, even with the potential for an accelerated rate-cutting cycle through the end of this year and into next, the Fed may be swinging at a fastball down the middle of the plate, just a little too late to make contact.

DATA TABLE

Metric	This Period	Last Period	Year Ago	Latest Release
Housing Starts: Total Units	1,356	1,237	1,305	Aug-24
New Housing Supply	7.50	8.40	7.30	Jul-24
Existing Housing Supply	4.20	4.10	3.30	Aug-24
Nominal Median Sales Price of Houses Sold	$ 412,300	$ 426,800	$ 418,500	Apr-24
New Building Permit Authorizations: Total Units	1,475	1,406	1,578	Aug-24
Case-Shiller Index	325.23	323.72	308.52	Jun-24
Residential Construction Employees	951	946	923	Aug-24
Nominal Mortgage Rates	6.35	6.73	7.18	Sep-24
Deliquency Rates: Single-Family	1.73	1.71	1.73	Apr-24
Deliquency Rates: Commercial	1.42	1.21	0.78	Apr-24
PPI: Residential Construction	320	319	310	Aug-24
Construction Spending: Residential	$ 953	$ 957	$ 885	Jul-24
Housing Inventory: Median Days on Market	53	51	48	Aug-24
Nominal Monthly Mortgage Payment	$ 2,052	$ 2,135	$ 2,360	Sep-24
Real Mortgage Payment Index	7.04	7.16	7.39	Jul-24
Median Household Income Spent on Annual Mortgage Payments	32.21	32.77	33.49	Jul-24
Fair Value Variable	(21.20)	(22.86)	(27.80)	Jul-24

DATA TABLE

Metric	This Period	Last Period	Year Ago	Latest Release
Housing Expense Change	33.59	34.40	37.11	Jul-24
Nominal Median Household Income	$ 80,610	$ 74,580	$ 74,580	2023
Headline Inflation	2.59	2.92	3.72	Aug-24
Core Inflation	3.27	3.21	4.41	Aug-24
Unemployment Rate	4.20	4.30	3.80	Aug-24
Federal Funds Rate	5.33	5.33	5.33	Aug-24
Personal Savings Rate	2.90	3.10	4.40	Jul-24
Jobless Claims	219,000	231,000	210,000	Sep-24
10-Year U.S. Treasury Yield Minus 2-Year U.S. Treasury	(0.34)	(0.26)	(0.75)	Sep-24
Residential Rental Vacancy Rate	6.60	6.60	6.30	Apr-24
Real Residential Construction Spend Index	110.56	111.19	104.42	Jul-24
Household Savings	$ 807	$ 2,207	$ 2,207	2022
Bank Credit: All Commercial Banks	$ 17,827	$ 17,798	$ 17,287	Sep-24
Delinquency Rates: Credit Card	3.25	3.15	2.77	Apr-24
Gross Domestic Product (GDP)	$ 28,652	$ 28,269	$ 27,063	Apr-24
M2 (Money Supply)	$ 21,054	$ 21,025	$ 20,793	Jul-24
Federal Reserve's Balance Sheet	$ 7,109	$ 7,115	$ 8,024	Sep-24

DATA TABLE

Metric	This Period	Last Period	Year Ago	Latest Release
PCE: Headline Inflation	2.50	2.47	3.31	Jul-24
PCE: Core Inflation	2.62	2.58	4.19	Jul-24
Debt-to-GDP	121.57	122.35	119.47	Apr-24
Real GDP	$ 22,925	$ 22,759	$ 22,225	Apr-24
Trucking Employees	1,544	1,545	1,543	Aug-24
Industrial Production	103	102	103	Aug-24
Credit Card Interest Rates	21.51	21.59	20.84	May-24
Charge-Off Rate: Credit Card Loans	4.73	4.65	3.38	Apr-24
Charge-Off Rate: Business Loans	0.48	0.43	0.31	Apr-24
Charge-Off Rate: Commercial Real Estate Loans	0.25	0.23	0.16	Apr-24
Yield Curve	(0.25)	(0.43)	(0.93)	Aug-24
Total Assets: Money Market Funds	$ 6,547,307	$ 6,440,700	$ 5,917,351	Apr-24
Federal Government Interest Payments	$ 1,089	$ 1,059	$ 910	Apr-24
CPI: Rent in U.S. City Average	422	421	402	Aug-24
Consumer Loans: Credit Card Debt	$ 1,069	$ 1,064	$ 1,005	Aug-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 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.

ABOUT

Shane McIntosh

holds a double major in Finance and Supply Chain Management from the Carlson School of Management at the University of Minnesota. Shane also manages private capital across a variety of markets and asset classes.

Jake Enos

holds a major in Finance and a minor in Accounting from the Carlson School of Management at the University of Minnesota. Jake also runs syndication investments in real estate in the Midwest.

We currently produce two reports:

Real Estate Economic Forecast - Monthly
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.

If you'd like to review past forecasts, additional content, or subscribe to our newsletter, you can do all of these things through our website, reefinsights.com

DISCLAIMER

Disclaimer for Reef Insights LLC

Effective Date: January 7, 2024

The information provided by Reef Insights LLC ("Reef Insights", "we", "us", or "our") on our website, through our reports, newsletters, and other publications, is for general informational and educational purposes only. All information on the site is provided in good faith, however, we make no representation or warranty of any kind, express or implied, regarding the accuracy, adequacy, validity, reliability, availability, or completeness of any information on the site.

Forward-Looking Statements
Some of the information provided by Reef Insights may contain projections or other forward-looking statements regarding future events or the future financial performance of markets. We wish to caution you that these statements are only predictions and that actual events or results may differ materially. These forward-looking statements are subject to numerous risks and uncertainties, many of which are beyond our control.

Not Financial Advice
The content provided by Reef Insights is not intended to be and does not constitute financial advice, investment advice, trading advice, or any other advice. The content is for informational and educational purposes only and should not be construed as a recommendation to invest, trade, or engage in any specific financial strategy.
We are not registered investment advisors, brokers, or dealers. Nothing we say, write, or publish should be taken as financial advice. Our content should not be relied upon for making investment or financial decisions.

No Client Relationship
Your use of our website or services does not create a client, advisory, fiduciary, or professional relationship between you and Reef Insights.

Responsibility for Decisions
Any use or reliance on our content is solely at your own risk and discretion. You should conduct your own research, review, analysis, and verify our content before relying on them. Making financial and investment decisions based on any information presented by us is not advisable and done at your own risk.

Limitation of Liability
In no event shall Reef Insights LLC, nor its directors, employees, partners, agents, suppliers, or affiliates, be liable for any indirect, incidental, special, consequential, or punitive damages, including without limitation, loss of profits, data, use, goodwill, or other intangible losses, resulting from (i) your access to or use of or inability to access or use the service; (ii) any conduct or content of any third party on the service; (iii) any content obtained from the service; and (iv) unauthorized access, use, or alteration of your transmissions or content, whether based on warranty, contract, tort (including negligence), or any other legal theory, whether or not we have been informed of the possibility of such damage.

Changes to Disclaimer
We reserve the right to update or change our Disclaimer at any time. Your continued use of our service after we post any modifications to the Disclaimer on this page will constitute your acknowledgment of the modifications and your consent to abide and be bound by the modified Disclaimer.

Contact Us
If you have any questions about this Disclaimer, please contact us at legal@reefinsights.com