



REEF REPORT

REAL ESTATE & ECONOMIC FORECAST

UNITED STATES

SUMMARY

Economic Indicators:

Key economic indicators, such as the unemployment rate and bank credit, are showing mixed signals. The unemployment rate increased to 3.9 percent in April, up 14.71 percent year-over-year, potentially signaling a shift in labor market dynamics. However, bank credit grew by 1.16 percent year-over-year in May, suggesting lenders are picking up in activity.

Inflation and Interest Rates:

Inflation pressures are moderating but remain elevated. Headline CPI inflation decreased to 3.36 percent in April, while core CPI inflation stood at 3.62 percent. Despite this moderation, credit card interest rates have risen substantially, outpacing the increase in the Federal Funds Target Range and adding to the financial burden of consumers carrying revolving balances.

Housing Market:

The housing market is showing signs of cooling, with the median sales price of existing homes declining by 1.91 percent year-over-year in Q1 2024. Housing affordability remains a concern, as the percentage of median household income spent on annual mortgage payments has increased by 2.6 percent year-over-year and 65.28 percent over the past five years. The Fair Value Variable suggests potential overvaluation relative to historical income trends.

Construction and Trucking:

Building permit authorizations and residential construction employment are exhibiting divergent trends. While permit authorizations declined by 2.04 percent year-over-year in April, residential construction employment grew by 2.89 percent. The trucking industry, a key indicator of economic health, experienced a 1.31 percent year-over-year decline in employment.

Yield Curve Inversion:

The yield curve, as measured by the spread between 10-year and 2-year Treasury yields, remains inverted, marking the longest period of inversion on record. This persistent inversion has historically been a reliable predictor of recessions, although some experts question its current predictive power.

KEY DEVELOPMENTS

The May Reef Report highlights three key developments: the decline in the number of trucking employees, the persistent inversion of the yield curve, and the growing consumer reliance on credit card debt. Notably, the trucking industry has faced some of the largest headwinds, with supply chain fluctuations causing large disruptions in demand assumptions.

Trucking Industry Employment

I

In April, the total number of trucking employees decreased month-over-month, standing at 1,557,800. This decline suggests a potential softening in the demand for freight transportation services, which could be attributed to various factors such as shifts in consumer spending patterns, supply chain adjustments, or broader economic uncertainties. On a year-over-year basis, the number of trucking employees experienced a decline of 1.31 percent, signaling a potential slowdown in the industry.

Yield Curve Inversion

II

The yield curve, as measured by the spread between 10-year and 2-year Treasury yields, has been inverted since July 2022, marking the longest period of inversion on record. While historically a reliable predictor of recessions, recent debate among market experts questions the yield curve's current predictive power. Nonetheless, the prolonged inversion warrants close attention, as it may indicate investor expectations of future economic weakness.

Consumer Credit Card Debt

III

Consumer credit card debt levels continue to rise, with total outstanding debt reaching \$1,055.22 billion in April, a substantial 7.88 percent year-over-year increase. This persistent growth in credit card balances suggests consumers are increasingly relying on revolving credit to finance expenditures amidst high inflation and rising interest rates. The combination of growing debt levels and higher interest rates could strain household budgets and impact consumer spending.

FORECAST

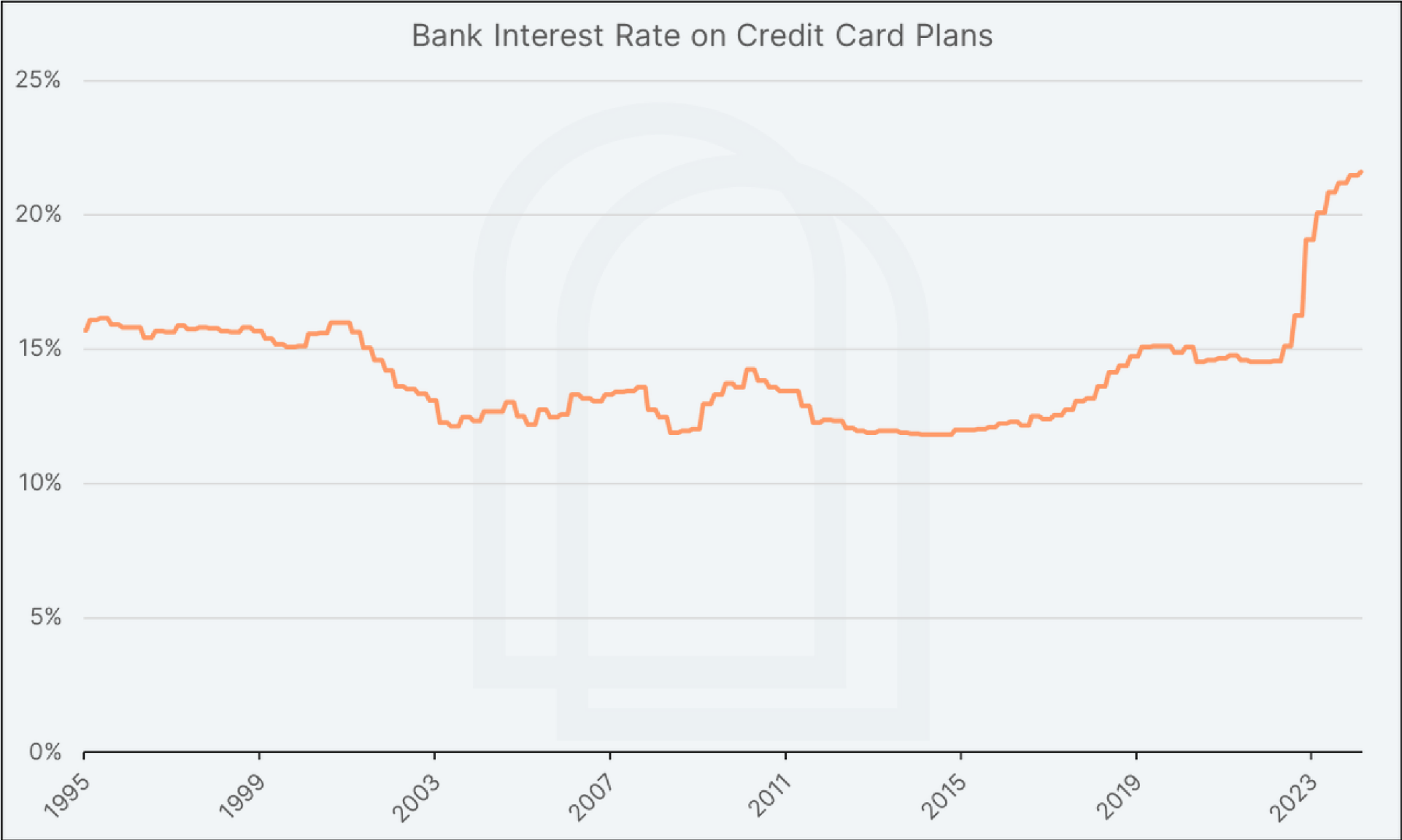
Nominal Monthly Mortgage Payment will Remain Elevated

The nominal monthly mortgage payment rose above \$2,000 in July 2022, and it is currently estimated to be \$2,278. Due to interest rates and home values remaining elevated, the payment has not fallen. We anticipate this figure to remain above \$2,100 through the summer. With the Federal Reserve signaling further delays in a rate cut, mortgage interest rates are unlikely to see significant declines. Home values would need to decline substantially over the summer in order for the nominal monthly mortgage payment to fall below \$2,100, and this has led us to this forecast. Home affordability will continue to remain an issue through out the year, and we do not anticipate softening through the summer.

Unemployment to Rise this Summer

Unemployment has been trending upwards over the past two years, with the rate currently standing at 3.9 percent. On a year-over-year basis, the unemployment rate experienced a 14.71 percent increase. Typically, unemployment does not correct downward without an economic recession. With rates remaining elevated, companies are facing higher financing costs. This places pressure on companies to slim down and find efficiencies. We anticipate the unemployment rate to breach 4.0 percent this summer due to the aforementioned factor being unlikely to dissipate. It should be noted that an unemployment rate of 4.0 percent, or higher, is below the historical average, but this ascension is still something to continue to monitor.

CREDIT CARD INTEREST RATES



Source: Board of Governors of the Federal Reserve System

CREDIT CARD INTEREST RATES

Credit card interest rates have been on the rise, adding to the financial burden of consumers who carry revolving balances. In February, the bank interest rate on credit card plans reached 21.6 percent, representing a significant 7.5 percent increase compared to the same period a year ago when rates stood at 20.1 percent.

The increase in credit card interest rates has outpaced the rise in the Federal Funds Target Range. In February 2023, the target range was set at 4.50 to 4.75 percent. Currently, the range has increased to 5.25 to 5.50 percent, reflecting a 75 basis point (bps) increase. However, credit card rates have experienced a more substantial increase of 150 bps over the same period.

This divergence between the Federal Funds Rate and credit card interest rates highlights the additional costs borne by consumers who rely on credit card financing. As credit card rates continue to climb, the cost of carrying revolving balances becomes more burdensome, potentially straining household budgets and impacting consumer spending power.

The combination of rising credit card interest rates and growing outstanding balances, as discussed in the Consumer Loans: Credit Card Debt section on Page 20, underscores the mounting financial pressures faced by consumers. Higher interest rates translate into increased borrowing costs, making it more challenging for individuals to pay down their credit card debt and manage their overall financial obligations.

For consumers carrying significant credit card balances, the impact of rising interest rates can be substantial. Even a seemingly small increase in rates can lead to a notable uptick in the total interest paid over time, prolonging the debt repayment process and eroding disposable income.

YIELD CURVE: 10Y - 2Y TREASURY RATE



Source: Federal Reserve Bank of St. Louis

YIELD CURVE: 10Y - 2Y TREASURY RATE

The yield curve, specifically the spread between the 10-year and 2-year U.S. Treasury yields, has been inverted since July 2022, marking the longest period of inversion on record. This persistent negative spread has historically been considered a reliable predictor of recessions, having been observed in the lead-up to nearly all recessions since 1955, with only one false signal during that period.

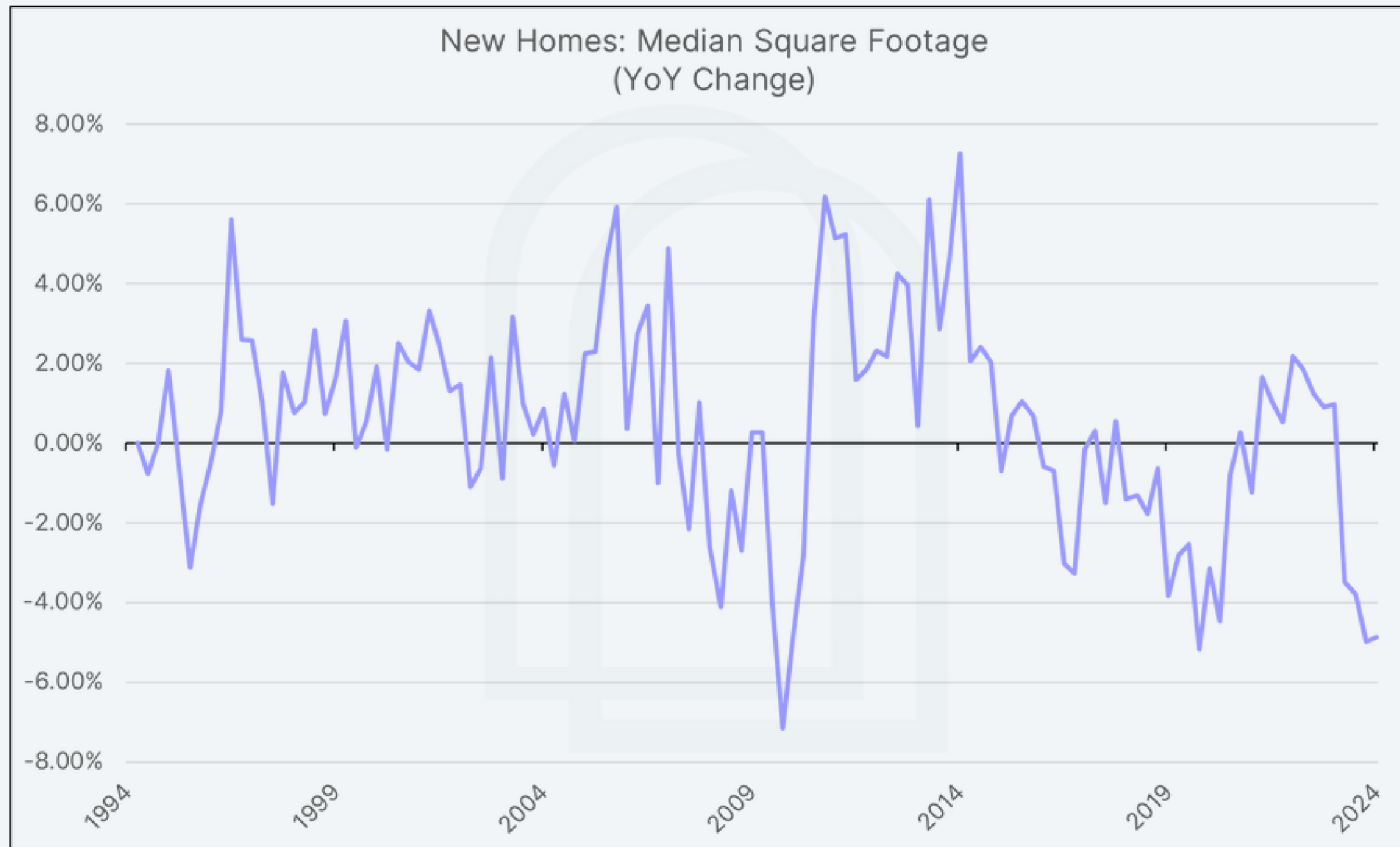
In April, the yield curve saw a month-over-month increase, with the spread between the 10-year and 2-year Treasury yields standing at -0.33 percent. However, on a year-over-year basis, the yield curve has decreased by 39.91 percent.

The inversion of the yield curve occurs when short-term interest rates exceed long-term rates, suggesting that investors anticipate economic weakness and potential interest rate cuts in the future. This market signal has traditionally been viewed as a harbinger of economic downturns, as it reflects a shift in investor sentiment and expectations.

However, there has been growing debate among market experts regarding the yield curve's predictive power in the current economic environment. A recent Reuters poll conducted in March revealed that nearly two-thirds of surveyed bond market strategists believe that the yield curve's ability to forecast recessions may not be as strong as it once was.

Despite this divergence in opinions, the prolonged inversion of the yield curve warrants close attention. The negative spread between the 10-year and 2-year Treasury yields indicates that investors are pricing in the possibility of a future economic slowdown, even as other economic indicators may present mixed signals.

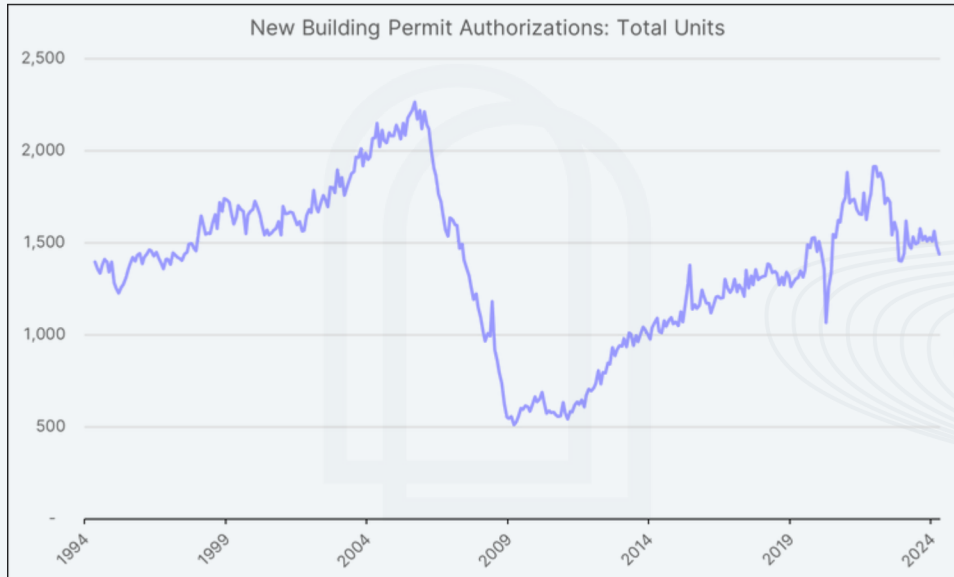
NEW HOMES: MEDIAN SQUARE FOOTAGE



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

The median square footage of newly constructed homes offers insights into homebuilder strategies and consumer preferences. In the first quarter of 2024, ending in January, we observed a quarter-over-quarter decrease, with the median square footage for new homes standing at 2,176 square feet. Compared to the same period last year, the median square footage declined by 4.85 percent.

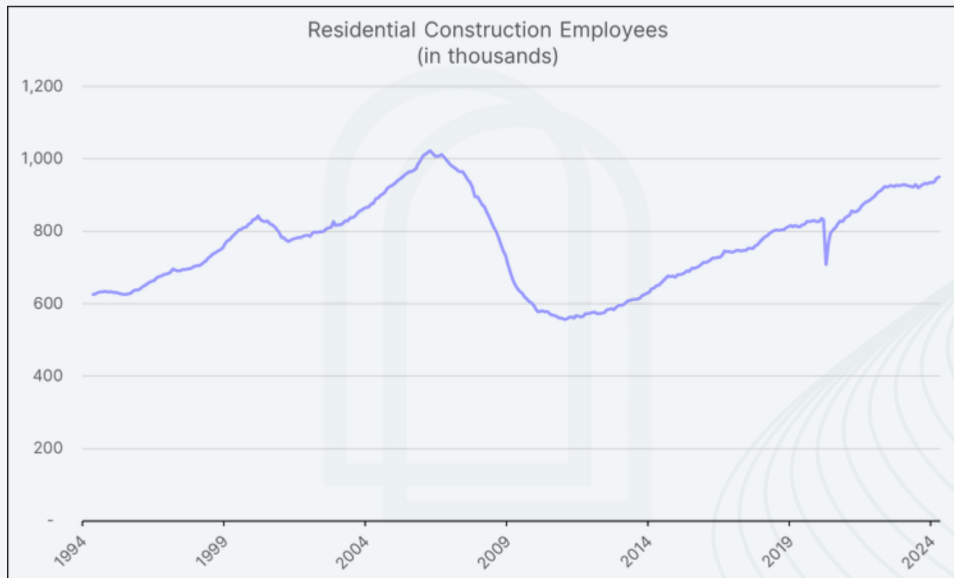
BUILDING ACTIVITY



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 April, we observed a month-over-month decrease, with 1,440,000 new permits authorized. On a year-over-year basis, the number of total new building permit authorizations declined by 2.04 percent.

It's worth noting that the current level of 1,440,000 new permits remains higher than the 10-year historical average of 1,400,000. This suggests that while there has been a recent pullback, the overall construction pipeline remains relatively elevated compared to long-term trends.

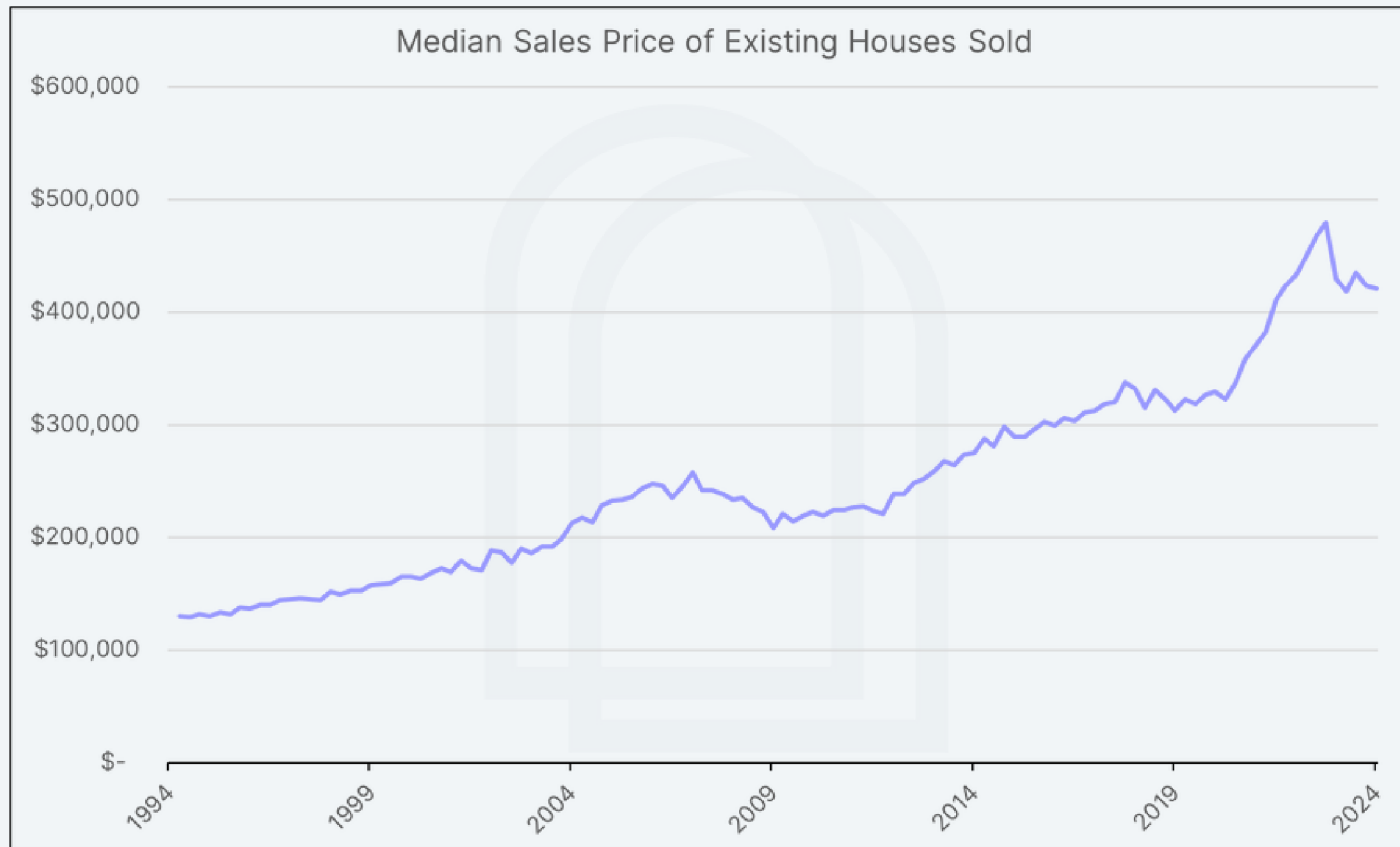


Source: U.S. Bureau of Labor Statistics

The number of residential construction employees serves as a leading indicator, often exhibiting declines before housing prices experience a downturn. In April, we witnessed a month-over-month increase, with 950,000 residential construction employees reported. On a year-over-year basis, the number of residential construction employees grew by 2.89 percent.

Historically, a reduction in the residential construction workforce has preceded softening in housing market conditions. The current upward trend in employment within this sector suggests that homebuilders are maintaining their labor forces in anticipation of sustained demand. However, should this metric begin to reverse course, it could signal a shift in builders' expectations and foreshadow potential pricing pressures in the housing market.

MEDIAN SALES PRICE DATA



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

The median sales price of existing houses sold is a closely watched metric that directly reflects housing market conditions and affordability trends. In the first quarter of 2024, ending in January, the nominal median sales price stood at \$420,800. This figure represents a quarter-over-quarter decrease of \$2,400 from the previous quarter. On a year-over-year basis, the nominal median sales price of existing houses sold declined by 1.91 percent. This downward trajectory in pricing could be attributed to several factors, including higher mortgage rates, affordability constraints, and shifts in housing demand dynamics.

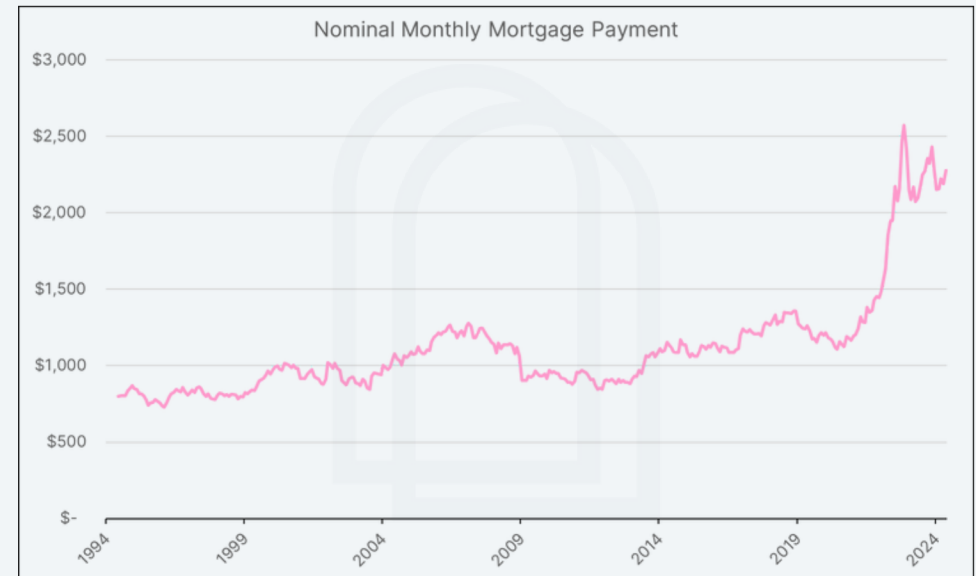
HOUSING COSTS

Calculated based on a 20 percent down payment, 30-year mortgage term, prevailing rates, and median home prices, the nominal monthly mortgage payment is a key gauge of housing affordability. In May, this metric increased month-over-month to \$2,278, up 8.45 percent year-over-year.

Over the past five years, the nominal payment has surged 85.19 percent, reflecting rapidly declining affordability as more household income goes towards mortgage costs amidst higher interest rates and home prices.

The housing expense change is a metric designed to gauge the fluctuation in housing expenses relative to household incomes. It is calculated by dividing the percentage of median household income spent on annual mortgage payments (rolling 1-year average) by the rolling 10-year average.

In March, we observed a month-over-month decrease in the housing expense change, with the current estimated value standing at 41.2 percent. This figure represents the degree to which housing expenses have deviated from their longer-term trend.

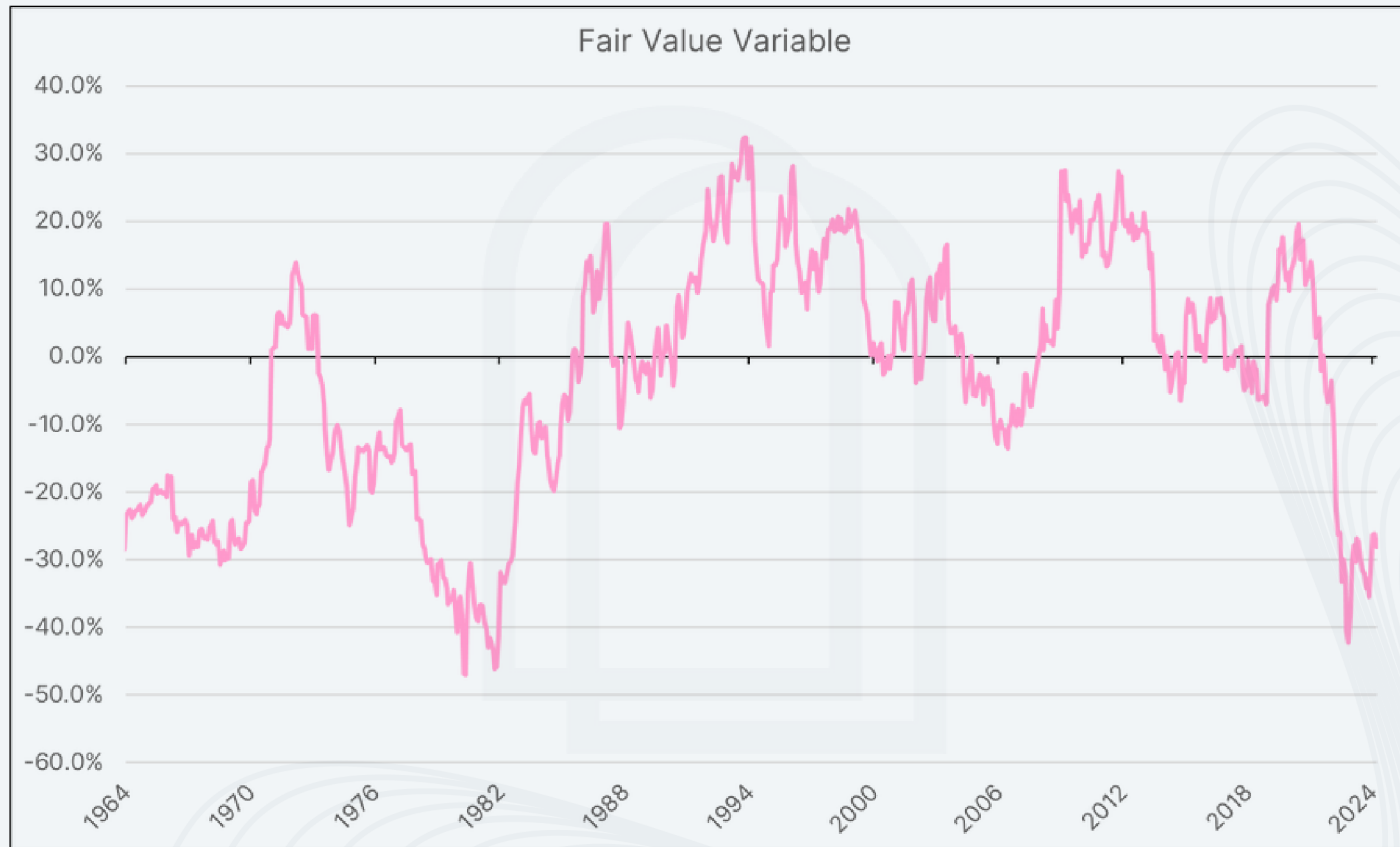


Source: Reef Insights LLC



Source: Reef Insights LLC

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 March, the FVV declined month-over-month to negative 28.1 percent, suggesting potential overvaluation relative to historical income trends.

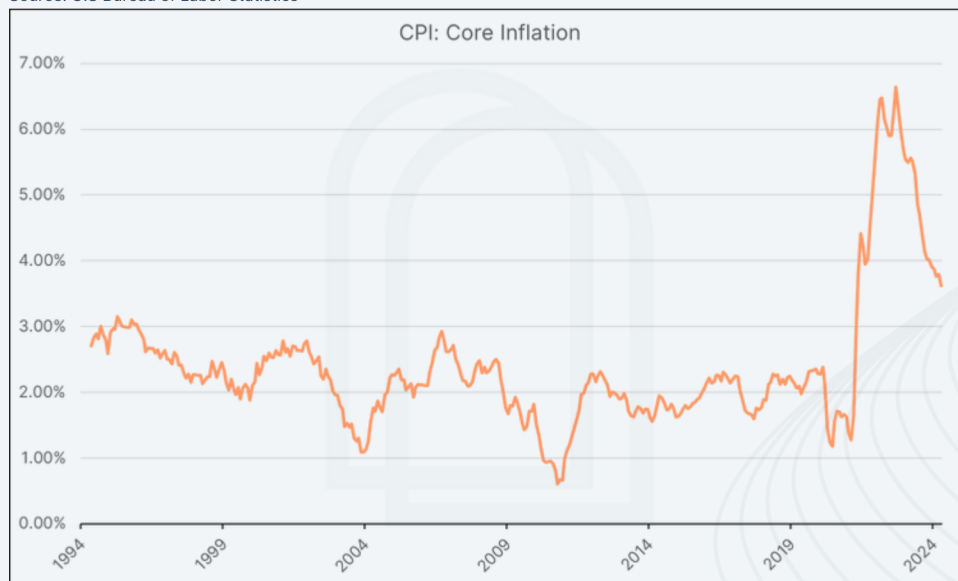
CPI INFLATION



Source: U.S Bureau of Labor Statistics

The Consumer Price Index (CPI) for headline inflation, which measures the overall increase in prices for goods and services, provides insights into broader inflationary pressures faced by consumers. In April, headline inflation saw a month-over-month decrease, with the year-over-year percent change standing at 3.36 percent, down from 3.48 percent in March.

Compared to the same period last year, when headline inflation was reported at 4.94 percent, the current level of 3.36 percent represents a moderation in the pace of price increases on a year-over-year basis.



Source: U.S Bureau of Labor Statistics

Core inflation, which strips out volatile food and energy prices, is closely monitored as a key measure of underlying inflationary pressures. In April, core inflation exhibited a month-over-month decrease, with the year-over-year percent change standing at 3.62 percent, down from 3.8 percent in March.

When compared to the same period last year, when core inflation was reported at 5.52 percent, the current level of 3.62 percent represents a significant moderation in the pace of price increases, excluding the more volatile components.

UNEMPLOYMENT

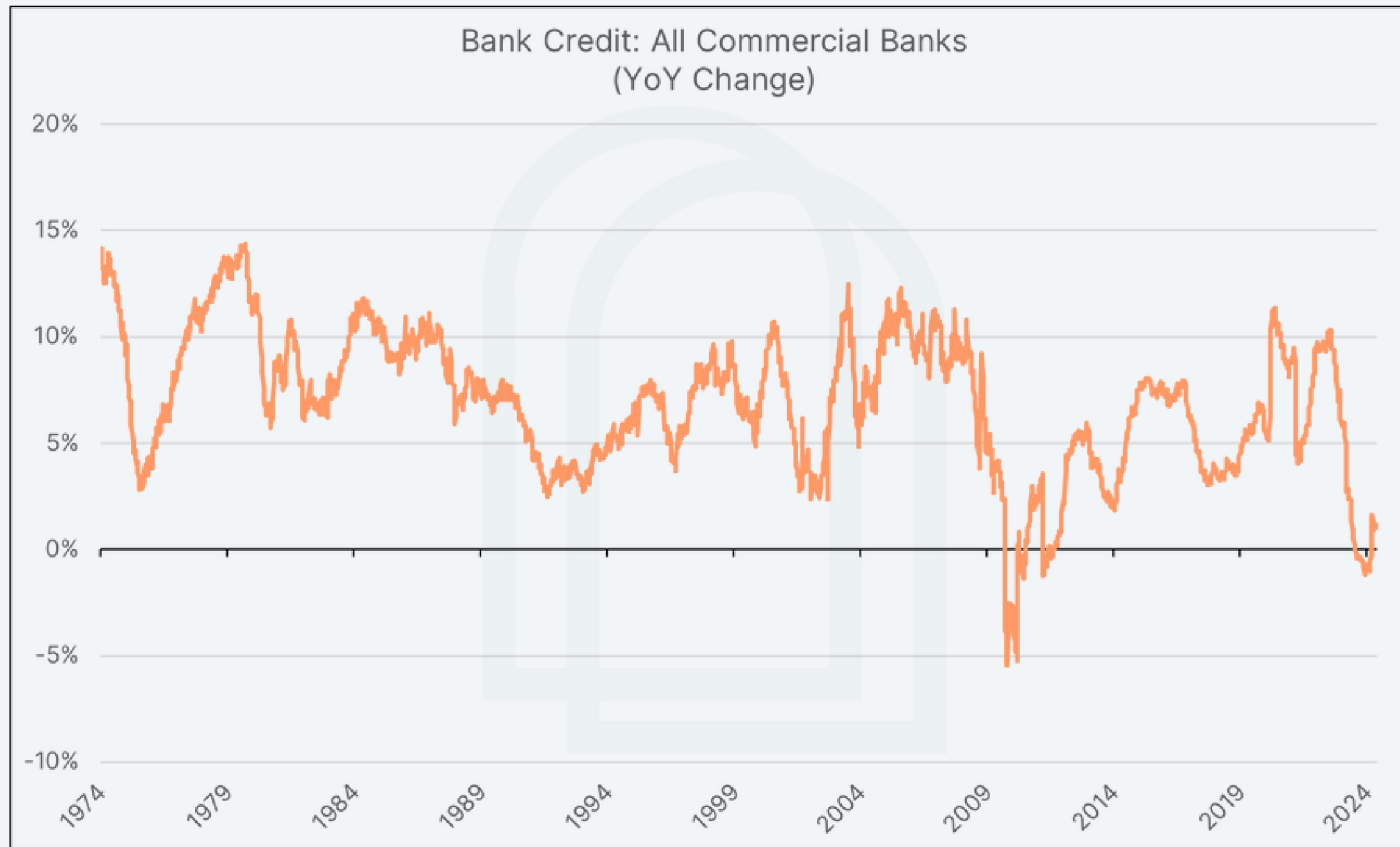


Source: U.S. Bureau of Labor Statistics

The unemployment rate is widely regarded as one of the most reliable lagging economic indicators, providing insights into the overall health of the labor market. In April, the unemployment rate saw a month-over-month increase, rising to 3.9 percent. On a year-over-year basis, the unemployment rate experienced an upward trajectory of 14.71 percent.

While the current unemployment rate of 3.9 percent remains relatively low by historical standards, the year-over-year increase signals a potential shift in labor market dynamics.

BANK CREDIT: ALL COMMERCIAL BANKS



Source: Board of Governors of the Federal Reserve System

Bank credit, which encompasses loans and leases extended by commercial banks, is a closely watched indicator that tends to contract during recessionary periods. In May, we observed a month-over-month increase in bank credit, with the total outstanding credit standing at \$17,547 billion. On a year-over-year basis, bank credit grew by 1.16 percent.

The expansion of bank credit signals that lenders are actively extending loans and leases, which can fuel economic activity by providing businesses and consumers with access to financing for investments and purchases. However, it's important to note that excessive credit growth can also contribute to the buildup of systemic risks within the financial system.

HOUSING DATA

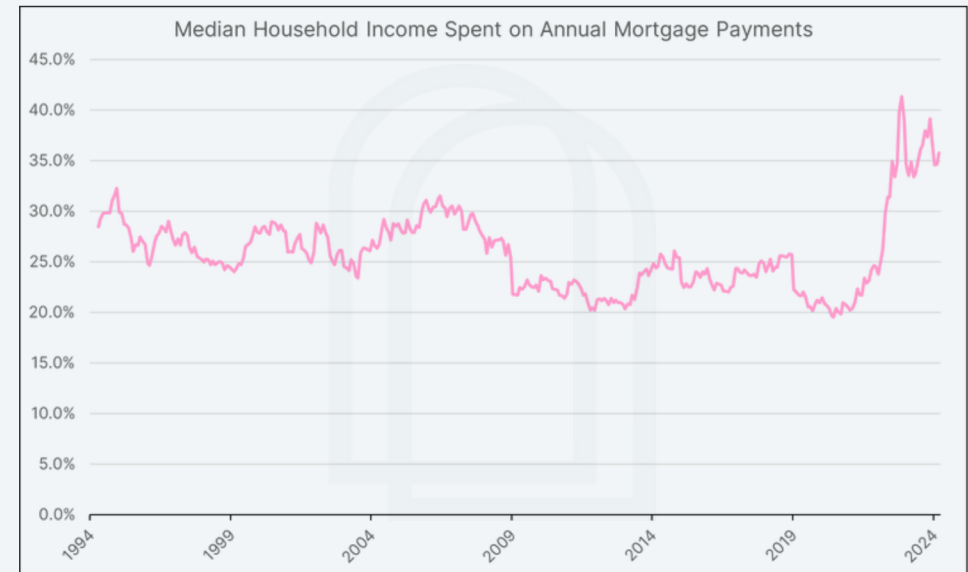
This metric provides insights into the affordability of housing by evaluating the percentage of median household income allocated towards annual mortgage payments. The calculation involves annualizing the prevailing nominal monthly mortgage payment and dividing it by the prior year's median household income figure.

In May, we noted a month-over-month increase, with the current estimated value standing at 35.8 percent of median household income being spent on annual mortgage payments. Compared to the same period last year, this figure has risen by 2.6 percent, reflecting the impact of higher home prices and interest rates on housing costs relative to incomes.

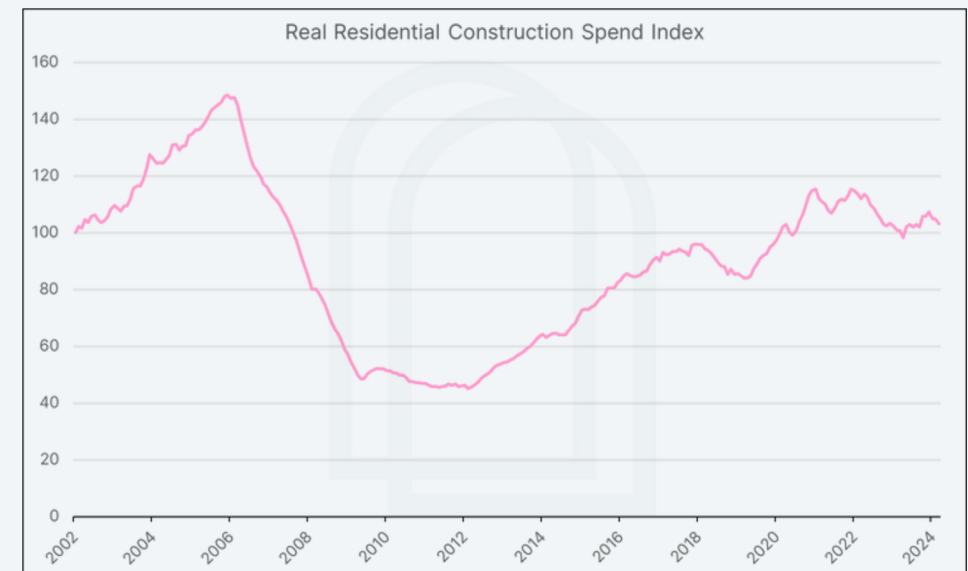
Taking a longer-term perspective, the median household income spent on annual mortgage payments has surged by a substantial 65.28 percent over the past five years. This significant increase highlights the erosion of housing affordability, as a larger portion of household budgets is being dedicated to mortgage payments.

The Real Residential Construction Spend Index is calculated by dividing the Total Construction Spending: Residential figure by the Producer Price Index (PPI) for Residential Construction, effectively adjusting for inflation.

In March, we observed a month-over-month decrease in the Real Residential Construction Spend Index, with the reported value standing at 103.17. However, on a year-over-year basis, the index exhibited an increase of 2.4 percent.

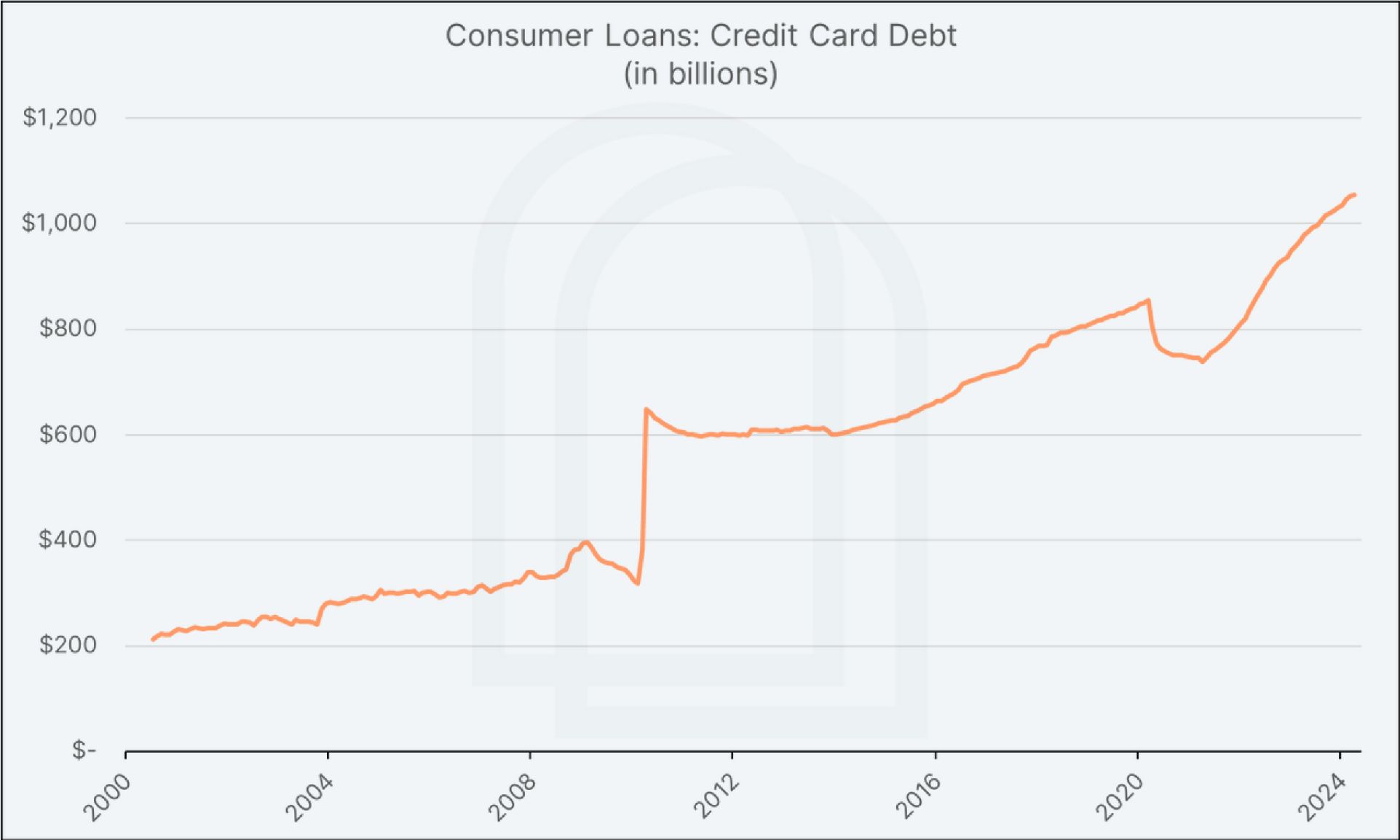


Source: Reef Insights



Source: Reef Insights

CONSUMER CREDIT CARD DEBT



Source: Board of Governors of the Federal Reserve System

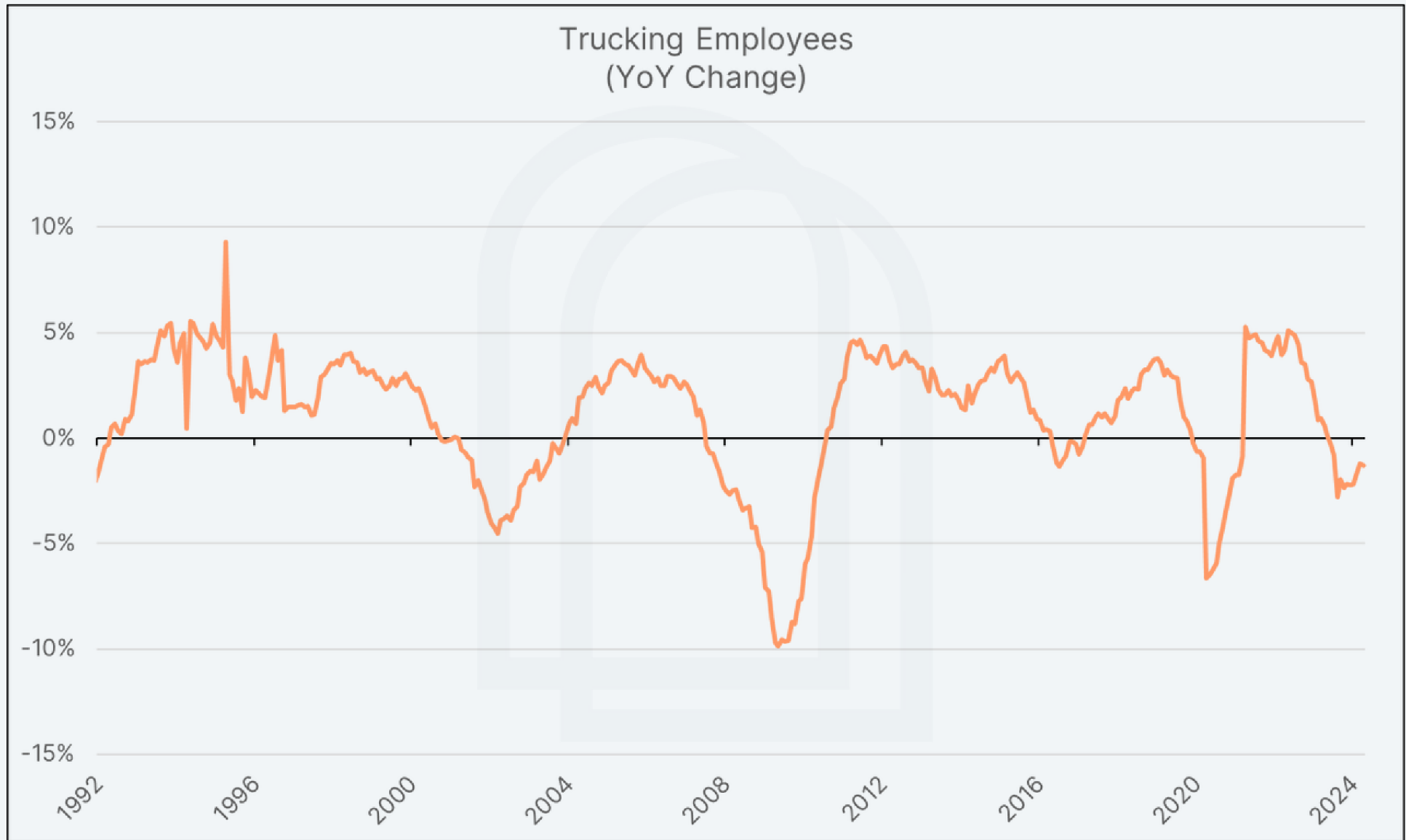
CONSUMER CREDIT CARD DEBT

Credit card debt levels serve as an important indicator of consumer financial health and spending patterns. In April, we witnessed a month-over-month increase in total outstanding credit card debt, which rose to \$1,055.22 billion. This figure represents a substantial 7.88 percent year-over-year increase, continuing the upward trend in consumer reliance on revolving credit.

The persistent rise in credit card balances suggests that consumers are leaning more heavily on credit cards to finance their expenditures amid the backdrop of high inflation and rising interest rates. This increased credit utilization could signal potential financial strain for households as borrowing costs continue to escalate.

As noted in our previous analysis, "The figures indicate consumers' financial position to continue to deteriorate. Credit card rates have risen along with the Fed's interest rate hikes, pushing borrowing costs higher." Higher credit card debt levels, coupled with rising interest rates, can exacerbate the burden on household budgets and potentially impact overall consumer spending in the long run.

TRUCKING INDUSTRY



Source: U.S. Bureau of Labor Statistics

TRUCKING INDUSTRY

The trucking industry plays a vital role in the U.S. economy, serving as a key indicator of overall economic health. The change in the number of trucking employees is closely monitored as a leading economic indicator, providing valuable insights into the state of goods transportation and the broader economic landscape.

In April, we observed a month-over-month decrease in the total number of trucking employees, with the figure standing at 1,557,800. This decline suggests a potential softening in the demand for freight transportation services, which could be attributed to various factors such as shifts in consumer spending patterns, supply chain adjustments, or broader economic uncertainties.

On a year-over-year basis, the number of trucking employees experienced a decline of 1.31 percent. This contraction in the trucking workforce may signal a slowdown in the industry, as companies adjust their labor force in response to changing market conditions and freight volumes.

The trucking industry is highly sensitive to fluctuations in economic activity, as it facilitates the movement of goods across various sectors, including manufacturing, retail, and construction. A sustained decline in trucking employment could potentially foreshadow a broader economic slowdown, as reduced freight demand often precedes a contraction in overall business activity.

However, it's important to consider the broader context when interpreting changes in trucking employment. Factors such as technological advancements, shifts in supply chain strategies, and regulatory changes can also impact the industry's workforce dynamics. For instance, the adoption of automation and efficiency improvements in logistics operations could potentially lead to a reduction in the number of trucking employees, even in the face of stable or growing freight volumes.

DATA TABLE

Metric	This Period	Last Period	Year Ago	Latest Release
Housing Starts: Total Units	1,360	1,287	1,368	4/1/2024
New Housing Supply	8.30	8.80	8.10	3/1/2024
Existing Housing Supply	3.20	2.90	2.70	3/1/2024
Nominal Median Sales Price of Houses Sold	\$ 420,800	\$ 423,200	\$ 429,000	1/1/2024
New Building Permit Authorizations: Total Units	1,440	1,485	1,470	4/1/2024
Case-Shiller Index	312.18	310.36	293.46	2/1/2024
Residential Construction Employees	950	947	923	4/1/2024
Nominal Mortgage Rates	7.17	6.79	6.43	5/1/2024
Delinquency Rates: Single-Family	1.69	1.72	1.74	10/1/2023
Delinquency Rates: Commercial	1.17	1.06	0.69	10/1/2023
PPI: Residential Construction	318	317	307	4/1/2024
Construction Spending: Residential	\$ 896	\$ 902	\$ 857	3/1/2024
Housing Inventory: Median Days on Market	47	50	43	4/1/2024
Nominal Monthly Mortgage Payment	\$ 2,278	\$ 2,192	\$ 2,101	5/1/2024
Real Mortgage Payment Index	7.24	7.02	7.19	3/1/2024
Median Household Income Spent on Annual Mortgage Payments	35.82	34.70	34.90	3/1/2024
Fair Value Variable	(28.11)	(26.19)	(30.29)	3/1/2024

DATA TABLE

Metric	This Period	Last Period	Year Ago	Latest Release
Housing Expense Change	41.20	41.32	43.95	3/1/2024
Nominal Median Household Income	\$ 74,580	\$ 70,780	\$ 70,780	2022
Headline Inflation	3.36	3.48	4.94	4/1/2024
Core Inflation	3.62	3.80	5.52	4/1/2024
Unemployment Rate	3.90	3.80	3.40	4/1/2024
Federal Funds Rate	5.33	5.33	4.83	4/1/2024
Personal Savings Rate	3.20	3.60	5.20	3/1/2024
Jobless Claims	222,000	232,000	225,000	5/11/2024
10-Year U.S. Treasury Yield Minus 2-Year U.S. Treasury	(0.34)	(0.26)	(0.54)	5/1/2024
Residential Rental Vacancy Rate	6.60	6.60	6.40	1/1/2024
Real Residential Construction Spend Index	103.17	104.66	100.75	3/1/2024
Household Savings	\$ 807	\$ 2,207	\$ 2,207	2022
Bank Credit: All Commercial Banks	\$ 17,547	\$ 17,538	\$ 17,345	5/8/2024
Delinquency Rates: Credit Card	3.10	2.97	2.27	10/1/2023
Gross Domestic Product (GDP)	\$ 28,284	\$ 27,957	\$ 26,814	1/1/2024
M2 (Money Supply)	\$ 20,841	\$ 20,749	\$ 20,903	3/1/2024
Federal Reserve's Balance Sheet	\$ 7,304	\$ 7,353	\$ 8,457	5/15/2024

DATA TABLE

Metric	This Period	Last Period	Year Ago	Latest Release
PCE: Headline Inflation	2.71	2.50	4.44	3/1/2024
PCE: Core Inflation	2.82	2.84	4.78	3/1/2024
Debt-to-GDP	121.62	120.13	118.98	10/1/2023
Real GDP	\$ 22,769	\$ 22,679	\$ 22,112	1/1/2024
Trucking Employees	1,558	1,558	1,578	4/1/2024
Industrial Production	103	103	103	4/1/2024
Credit Card Interest Rates	21.59	21.47	20.09	2/1/2024
Charge-Off Rate: Credit Card Loans	4.07	3.49	2.42	10/1/2023
Charge-Off Rate: Business Loans	0.40	0.40	0.23	10/1/2023
Charge-Off Rate: Commercial Real Estate Loans	0.24	0.13	0.03	10/1/2023
Yield Curve	(0.38)	(0.34)	(0.64)	4/1/2024
Total Assets: Money Market Funds	\$ 6,357,551	\$ 6,142,962	\$ 5,223,061	10/1/2023
Federal Government Interest Payments	\$ 1,059	\$ 1,026	\$ 874	1/1/2024
CPI: Rent in U.S. City Average	416	415	395	4/1/2024
Consumer Loans: Credit Card Debt	\$ 1,055	\$ 1,053	\$ 978	4/1/2024
New Homes: Median Square Footage	2,176	2,199	2,287	3/1/2024

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.
Delinquency Rates: Single-Family	Quarterly	Board of Governors of the Federal Reserve System	The charge-off rates are annualized and are calculated net of recoveries. Delinquent loans and leases encompass those that are past due by thirty days or more and are still accruing interest, as well as those in nonaccrual status. This comprehensive approach provides insight into the financial health and performance metrics of these major banks, considering both charge-offs and delinquencies in their loan portfolios.

SOURCES

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

SOURCES

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.

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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.

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