

# Third Quarter 2024 Chartbook

Data as of May 31, 2024

# Third Quarter 2024 Outlook

## **Economy – Goldilocks Environment**

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- Inflation is showing signs of cooling after an uptick in price pressures in the first quarter.
- The pace of economic growth is likely to stabilize in our view and we don't anticipate a recession. We are in a period of economic normalization following the pandemic environment.

## **Equities – Narrow Leadership**

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- The S&P 500 is off to a strong start this year. Over the last month, however, leadership has narrowed, with the tech sector driving most of the returns.
- Fundamentals still look good for equities. Earnings are improving and the economic backdrop remains solid. Large cap valuations are the one area of concern.

## **Fixed Income – Rate Cuts on the Horizon**

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- Softer inflation, coupled with a slight uptick in the unemployment rate, provides the Fed with an opportunity to cut rates in the second half of the year. A July cut is still unlikely, however.
- Bond yields have gone down as markets anticipate Fed interest rate cuts. There has been yield volatility, but rate cut opportunities later this year could lower the ceiling on treasury yields.

# U.S. Economic Risk Overview

Indicator	Recession Risk	Trend Signal	Trend												Latest
ISM Manufacturing PMI	MODERATE	➡	46.4	46.5	47.6	48.6	46.9	46.6	47.1	49.1	47.8	50.3	49.2	48.7	
ISM Services PMI	LOW	⬇	53.6	52.8	54.1	53.4	51.9	52.5	50.5	53.4	52.6	51.4	49.4	53.8	
Industrial Production - YoY Change	LOW	➡	-0.4%	0.1%	-0.1%	-0.2%	-0.8%	-0.2%	1.1%	-0.8%	0.0%	-0.2%	-0.7%	0.4%	
Building Permits - YoY Change (3 Mo. Avg.)	MODERATE	⬇	-15.1%	-12.6%	-8.7%	-5.7%	-1.9%	-0.4%	4.8%	7.1%	3.1%	0.0%	-2.1%	-4.1%	
Unemployment Rate	LOW	➡	3.6%	3.5%	3.8%	3.8%	3.8%	3.7%	3.7%	3.7%	3.9%	3.8%	3.9%	4.0%	
Temporary Help Employment - YoY Change	HIGH	⬆	-6.8%	-7.3%	-7.4%	-8.1%	-8.4%	-7.9%	-7.3%	-7.0%	-6.7%	-6.3%	-6.1%	-6.5%	
Real Retail Sales - YoY Change (3 Mo. Avg.)	HIGH	➡	-2.1%	-1.1%	-0.8%	-0.2%	-0.3%	0.2%	0.8%	0.0%	-0.6%	-1.2%	-0.5%	-0.5%	
U. of Michigan Consumer Sentiment	LOW	⬇	64.4	71.5	69.4	67.9	63.8	61.3	69.7	79.0	76.9	79.4	77.2	69.1	
Leading Economic Index (LEI) - YoY Change	HIGH	⬆	-8.2%	-8.1%	-7.8%	-7.9%	-8.1%	-8.1%	-7.6%	-7.2%	-7.2%	-6.4%	-5.5%	-5.4%	
Treasury Yield Curve (10yr - 2yr)	HIGH	➡	-1.06%	-0.91%	-0.76%	-0.44%	-0.19%	-0.36%	-0.35%	-0.28%	-0.39%	-0.39%	-0.35%	-0.38%	

## Recession Riskometer

## Economic Trend Signal

## Commentary



**MODERATE**



**STABLE**

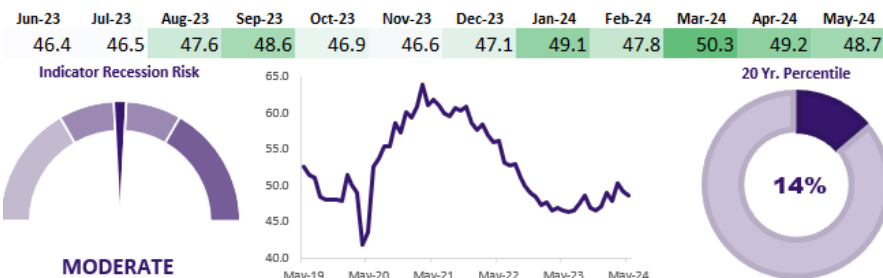
The dials on the left show our combined estimate of near-term recession risk and direction of economic growth, based on the average reading of ten economic indicators. The Recession Riskometer focuses on producer sentiment, output and manufacturing growth, employment, consumer strength and leading economic indicators.

- The U.S. economy is slowing from the strong pace of growth experienced in the second half of last year. The Fed's restrictive policy is weighing on parts of the economy, but cooling inflation and moderating employment growth is likely leading to the Fed to cutting rates, as early as this fall. Traditional recession indicators are flagging a moderate risk of recession, as captured by the Recession Riskometer. That said, the economic trend signal is stable. Four of ten indicators in our Recession Riskometer are signaling a low recession risk, two are signaling a moderate risk, while four indicators are signaling a high risk of recession.

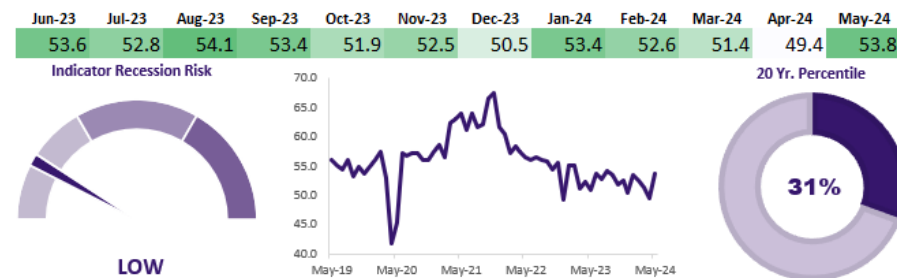
Sources are listed on pages 32-33.

## U.S. Economic Risk Indicators

### ISM Manufacturing PMI



### ISM Services PMI



The ISM Manufacturing PMI edged lower to 48.7 in May, contracting for the second straight month. This index is in the 14<sup>th</sup> percentile over the last 20 years.

The ISM Services PMI rose to a 9-month high of 53.8 in March, indicating activity in the service economy accelerated. This indicator is in the 12<sup>th</sup> percentile over the last 20 years.

A reading over 50 indicates expansion, below 50 signals contraction, and in the mid 40's suggests recession.

A reading over 50 indicates expansion, below 50 signals contraction, and in the mid 40's suggests recession.

# U.S. Economic Risk Indicators

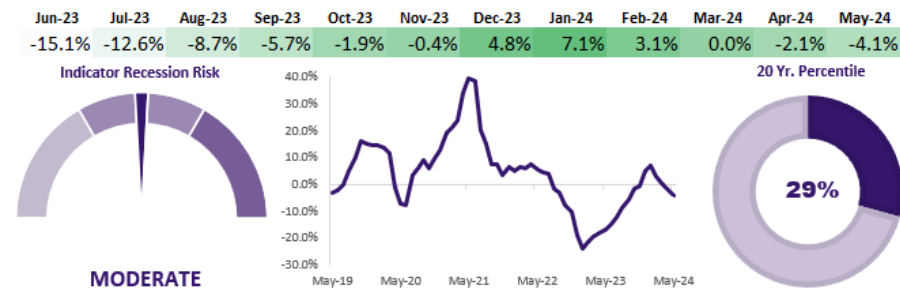
## Industrial Production - YoY Change



Industrial Production activity was flat on an annual basis in March, signaling an elevated risk of recession. Industrial production growth is in the 30<sup>th</sup> percentile over the past 20 years.

*Industrial Production Index measures real output for manufacturing, mining, and utilities. The YoY change in Industrial Production signals a high risk of recession when it falls into negative territory. There is a low recessionary risk when greater than 1%.*

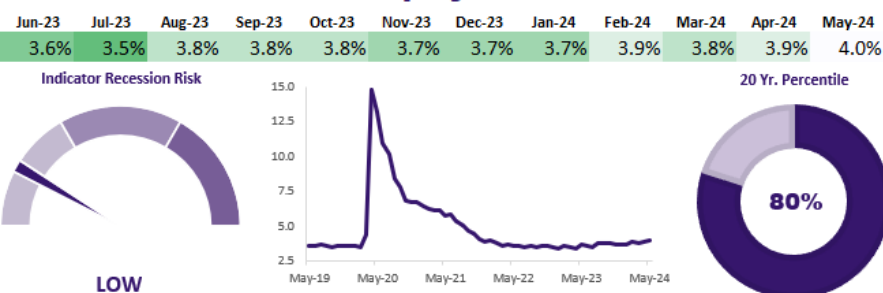
## Building Permits - YoY Change (3 Mo. Avg.)



The 3-month average of building permits rose 4.6% YoY through March, signaling a low recession risk. Housing activity growth is slowing, however. The current permits reading is in the 47<sup>th</sup> percentile over the past 20 years.

*Building Permits are a measure of the issuance of permits to build new housing units. Building permit growth is a measure of the total year-over-year percentage change in building permits (3-month average). This indicator signals a high recession risk when growth falls below -15% YoY.*

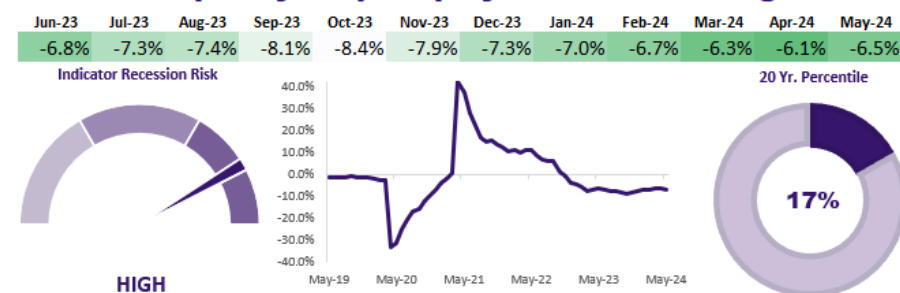
## U3 Unemployment Rate



The unemployment rate reached 4.0% in May for the first time since January 2022. The current reading is in the 80<sup>th</sup> percentile over the last 20 years.

*The U3 Unemployment Rate measures the percentage of people without jobs who are actively seeking work. This is often the officially quoted unemployment rate.*

## Temporary Help Employment - YoY Change

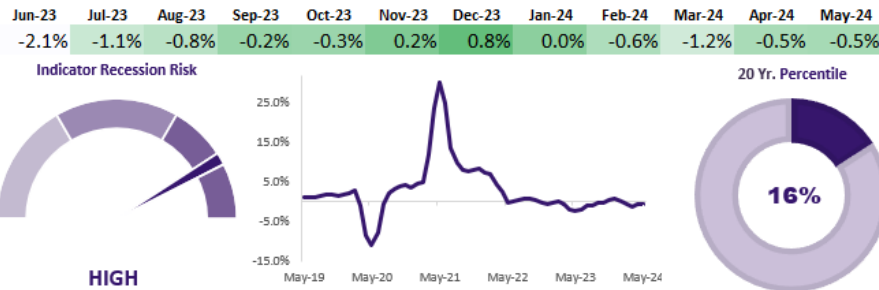


Temporary help employment growth fell 6.5% year-over-year in May. Temporary help employment is a leading indicator for the labor market, though low labor supply has increased demand for permanent employment. A declining trend is viewed as a warning sign.

*Temporary help employment figures are viewed favorably if they are positive and trending higher. Changes in temporary help numbers are often used as a predictor of changes in future employment.*

# U.S. Economic Risk Indicators

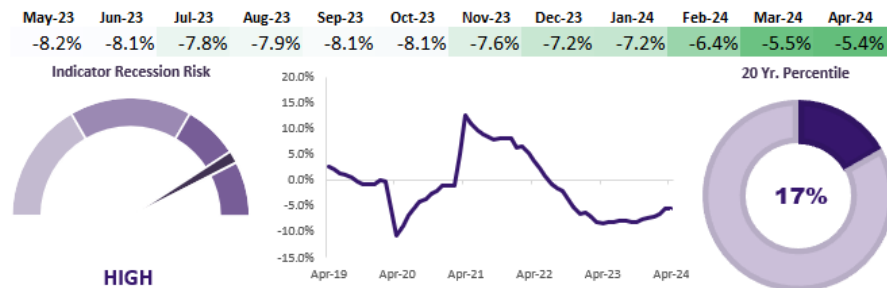
## Real Retail Sales (3 Mo. Avg.) - YoY Change



The 3-month average of Real Retail Sales fell 0.5% year-over-year in May. Adjusted for inflation, retail sales have stagnated over the last few years. This indicator is in the 16<sup>th</sup> percentile over the last 20 years.

*Real retail sales growth is a measure of the total year-over-year change in retail and food sales adjusted for inflation using the Consumer Price Index. Real retail sales typically decline heading into a recession.*

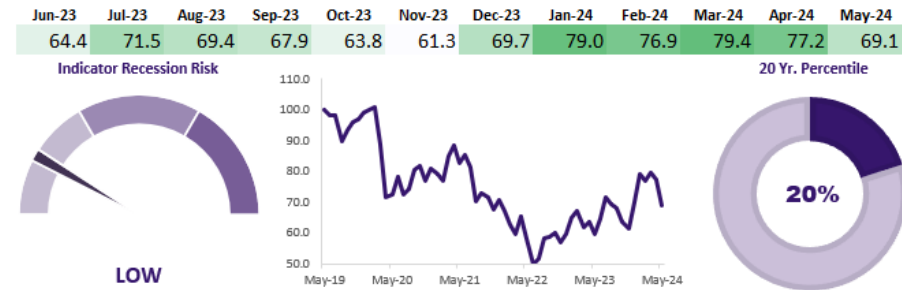
## Leading Economic Index (LEI) - YoY Change



The Leading Economic Index (LEI) declined 5.4% year-over-year in April. The LEI is in the 17<sup>th</sup> percentile over the last 20 years. The LEI signals a weakening outlook for the economy when it drops into negative territory.

*The Conference Board Leading Economic Index (LEI) is a composite index of several U.S. economic indicators that lead the economy. This indicator historically has declined in recessions and rises back into positive territory in expansions.*

## U. of Michigan Consumer Sentiment



The University of Michigan Consumer Sentiment index fell to 69.1 in May. Consumers are pessimistic about inflation. The current consumer sentiment reading is in the 20<sup>th</sup> percentile over the last 20 years.

*Strong consumer confidence is a positive signal for future consumer spending, but it is a concern if this indicator is trending lower. The index uses surveys to gather information on consumer expectations regarding the economy.*

















































## Treasury Yield Curve (10 Yr. Minus 2 Yr.)



The 2-10 yield curve spread held steady at -0.38% at the end of May. An inverted yield curve signals an elevated risk of recession over the next 12 to 24 months.

*The difference (spread) between the yields of the 10-Year and 2-Year maturity Treasury bonds is one of the early and reliable predictors of a recession. Under normal conditions the 10-Year/2-Year spread is positive, and as recession nears the spread flattens and turns negative. This indicator will shift to high recession risk when the spread is below zero.*

# Sector Valuations

Price-to-Earnings (P/E)						
Sector	Forward 12-Month P/E			Trailing 12-Month P/E		
	% Premium/Discount vs			% Premium/Discount vs		
	Current	20-Yr Avg.	Average	Current	20-Yr Avg.	Average
<b>S&amp;P 500</b>	20.6	15.9	 <b>30%</b>	24.9	17.8	 <b>40%</b>
Communication Services	18.8	17.4	 <b>8%</b>	21.8	20.2	 <b>8%</b>
Consumer Discretionary	24.1	21.3	 <b>13%</b>	26.7	22.6	 <b>18%</b>
Consumer Staples	20.4	17.6	 <b>16%</b>	22.1	18.6	 <b>19%</b>
Energy	12.4	13.4	 <b>-8%</b>	13.5	14.7	 <b>-9%</b>
Financials	15.1	13.0	 <b>16%</b>	16.5	14.3	 <b>15%</b>
Health Care	19.3	15.0	 <b>28%</b>	30.1	18.8	 <b>60%</b>
Industrials	21.0	16.7	 <b>25%</b>	23.5	18.0	 <b>31%</b>
Information Technology	28.1	17.2	 <b>63%</b>	36.6	20.3	 <b>81%</b>
Materials	20.2	15.1	 <b>34%</b>	22.8	16.7	 <b>37%</b>
Real Estate	16.7	18.7	 <b>-10%</b>	35.9	39.8	 <b>-10%</b>
Utilities	17.5	15.5	 <b>13%</b>	21.0	17.3	 <b>21%</b>
Price-to-Sales (P/S)						
Sector	Forward 12-Month P/S			Trailing 12-Month P/S		
	% Premium/Discount vs			% Premium/Discount vs		
	Current	20-Yr Avg.	Average	Current	20-Yr Avg.	Average
<b>S&amp;P 500</b>	2.7	1.7	 <b>55%</b>	2.8	1.8	 <b>52%</b>
Communication Services	3.4	2.2	 <b>51%</b>	3.6	2.4	 <b>48%</b>
Consumer Discretionary	2.2	1.5	 <b>49%</b>	2.3	1.6	 <b>47%</b>
Consumer Staples	1.3	1.1	 <b>18%</b>	1.4	1.2	 <b>17%</b>
Energy	1.3	1.0	 <b>26%</b>	1.4	1.1	 <b>23%</b>
Financials	2.9	2.2	 <b>29%</b>	2.3	2.0	 <b>15%</b>
Health Care	1.6	1.5	 <b>8%</b>	1.7	1.6	 <b>7%</b>
Industrials	2.2	1.5	 <b>49%</b>	2.3	1.6	 <b>44%</b>
Information Technology	7.5	3.3	 <b>129%</b>	8.5	3.5	 <b>141%</b>
Materials	2.2	1.4	 <b>54%</b>	2.3	1.5	 <b>50%</b>
Real Estate	6.0	5.5	 <b>10%</b>	6.4	5.9	 <b>9%</b>
Utilities	2.4	1.7	 <b>42%</b>	2.6	1.8	 <b>48%</b>

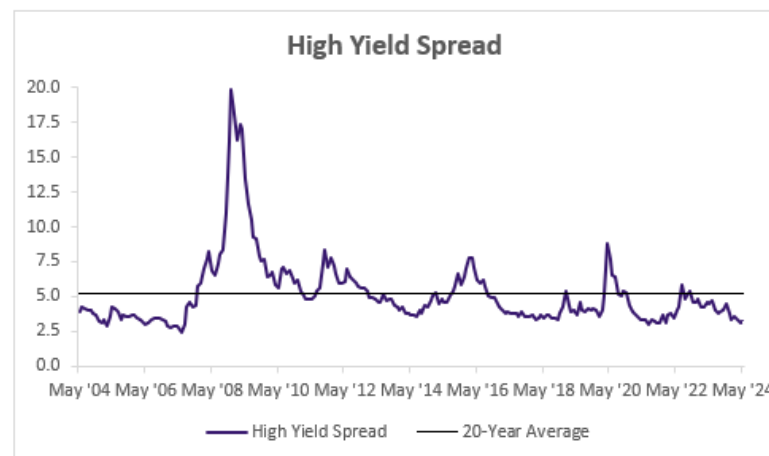
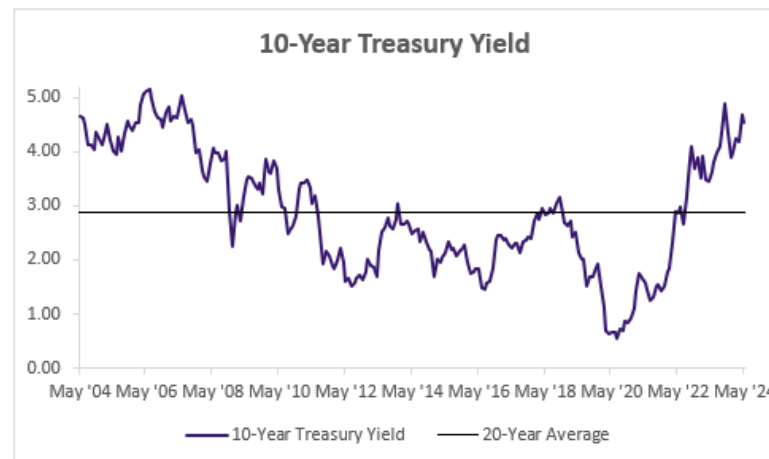


# Fixed Income Overview

Yield		
Index	Current	20 Yr. Avg.
Bloomberg US Treasury Bill 3 Mon.	5.27	1.43
Bloomberg US Treasury 1-3 Yr.	4.90	1.36
Bloomberg US Treasury 7-10 Yr.	4.50	2.36
Bloomberg US Treasury US TIPS	4.86	2.34
Bloomberg Municipal	3.93	2.92
Bloomberg GNMA	5.35	3.04
Bloomberg US Corp IG	5.52	4.15
Bloomberg US Corporate High Yield	8.18	7.91
Bloomberg US Aggregate 1-3 Yr.	5.07	1.74
Bloomberg US Aggregate Bond	5.10	3.27
Bloomberg Global Treasury Ex. US	2.79	1.40

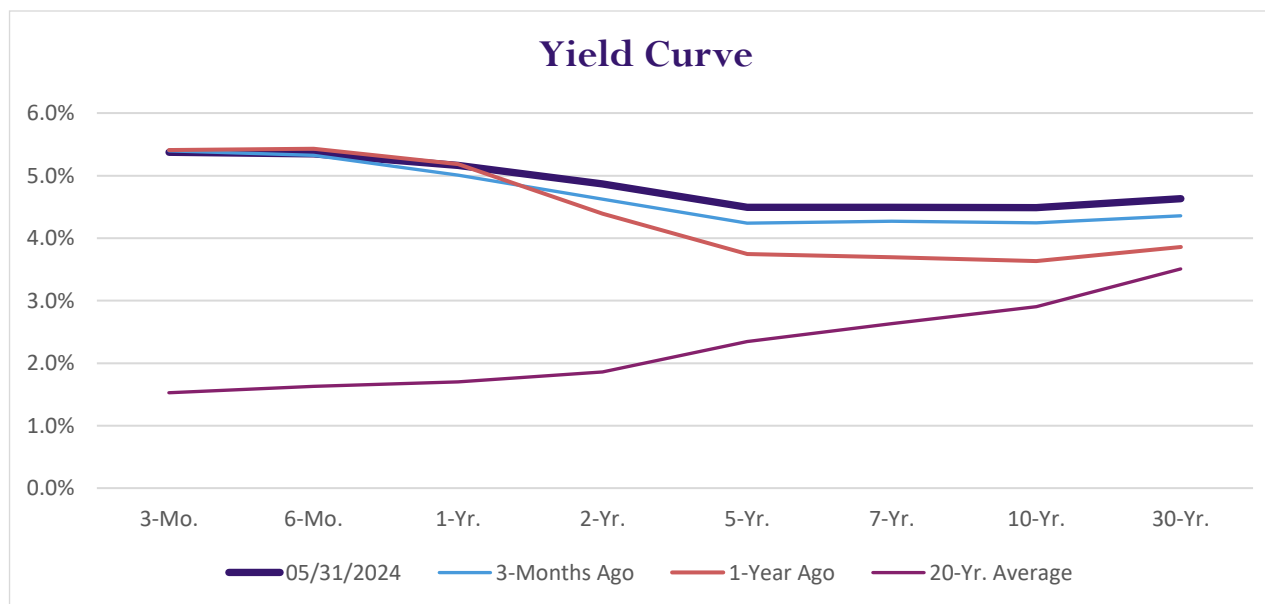
Spread vs 10-Yr Treasury Yield		
Index	Current	20 Yr. Avg.
Bloomberg Municipal	-0.56	0.01
Bloomberg GNMA	0.86	0.14
Bloomberg US Corp IG	1.03	1.25
Bloomberg US Corporate High Yield	3.69	5.01
Bloomberg US Aggregate 1-3 Yr.	0.58	-1.17
Bloomberg US Aggregate Bond	0.61	0.36
Bloomberg Global Treasury Ex. US	-1.70	-1.50

The Yield table shows current yields for several commonly used fixed income benchmarks, compared to their 20-year average. The Treasury Spreads table shows spreads of bond sectors relative to Treasury bonds.



# U.S. Treasury Yield Curve

	U.S Treasury Yields							
Date	3-Mo.	6-Mo.	1-Yr.	2-Yr.	5-Yr.	7-Yr.	10-Yr.	30-Yr.
<b>05/31/2024</b>	5.38%	5.35%	5.16%	4.87%	4.49%	4.49%	4.49%	4.63%
<b>3-Months Ago</b>	5.40%	5.33%	5.01%	4.63%	4.24%	4.27%	4.24%	4.36%
<b>1-Year Ago</b>	5.41%	5.43%	5.19%	4.39%	3.75%	3.69%	3.64%	3.86%
<b>20-Yr. Average</b>	1.53%	1.63%	1.70%	1.86%	2.35%	2.63%	2.90%	3.51%
<b>3-Month Change</b>	-0.02%	0.02%	0.15%	0.24%	0.25%	0.23%	0.24%	0.27%

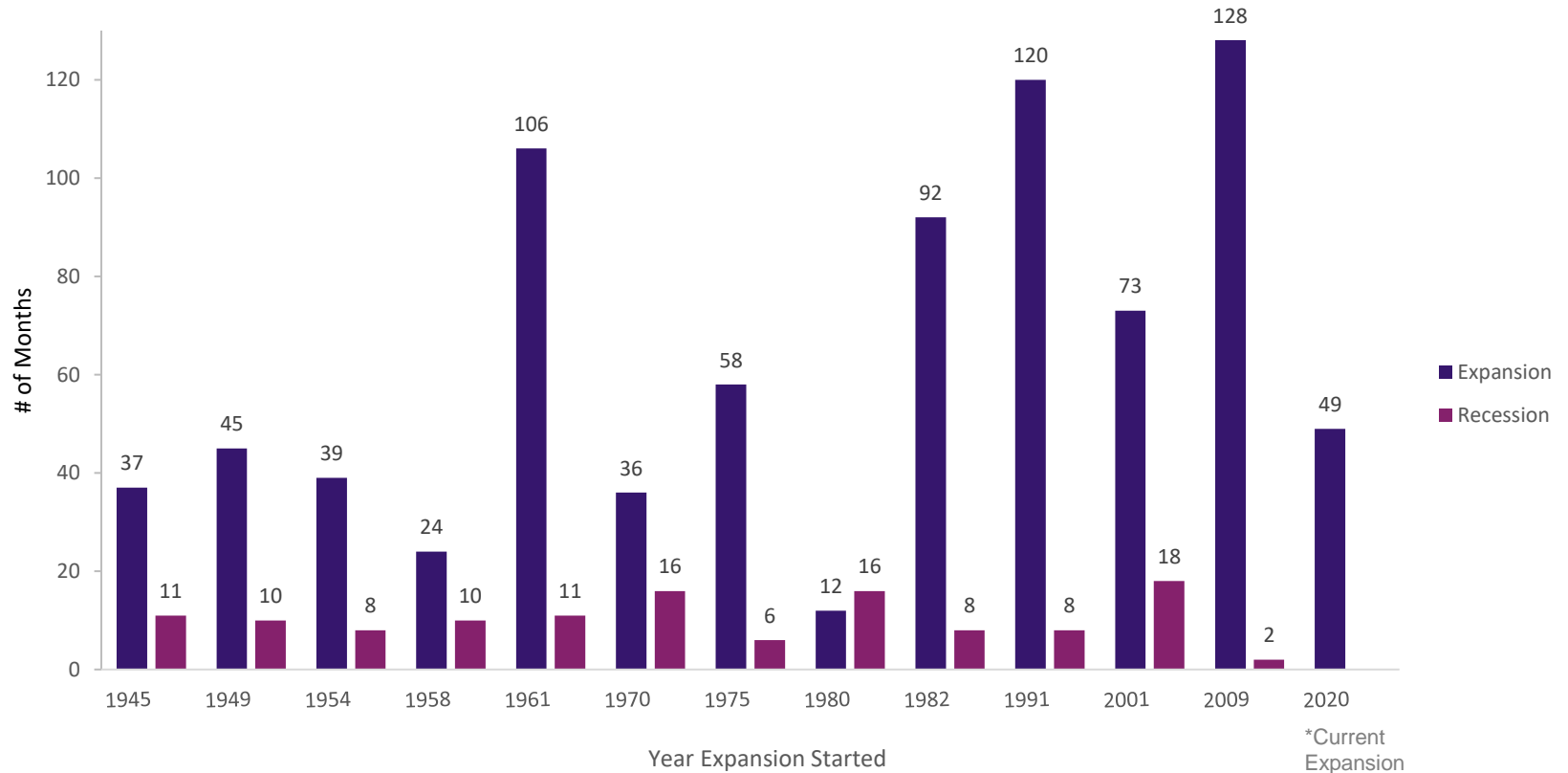




# U.S. Economic Overview

Employment	As of	Latest	Previous	1 Yr. Ago	3 Mo. Avg.	12 Mo. Avg.	1 Mo. Diff.	1 Yr. Diff.	Percentile (10 Yrs.)	1 Yr. Trend	5 Yr. Trend	Trend	Latest
US Nonfarm Monthly Payrolls ('000)	May-24	272	165	303	249	230	107	-31	62%				272
US Total Nonfarm Payrolls - YoY Change	May-24	1.8%	1.8%	2.5%	1.8%	1.9%	0.0%	-0.8%	48%				1.8%
U3 Unemployment Rate	May-24	4.0%	3.9%	3.7%	3.9%	3.8%	0.1%	0.3%	60%				4.0%
U6 Unemployment Rate	May-24	7.4%	7.4%	6.8%	7.4%	7.1%	0.0%	0.6%	67%				7.4%
Quits Rate	Apr-24	2.2%	2.2%	2.3%	2.2%	2.3%	0.0%	-0.1%	36%				2.2%
Job Openings: Total Nonfarm ('000)	Apr-24	8,059	8,355	9,904	8,409	8,866	-296	-1,845	69%				8,059
Initial Jobless Claims ('000) 4 Wk. MA - Month End	May-24	223	210	227	216	221	13	-4	64%				223
KC Fed LMCI Momentum Indicator	May-24	0.1	0.1	-0.2	0.1	0.0	0.0	0.3	20%				0.1
Labor Force Participation Rate	May-24	62.5%	62.7%	62.6%	62.6%	62.6%	-0.2%	-0.1%	29%				62.5%
Employment to Population Ratio	May-24	60.1	60.2	60.3	60.2	60.3	-0.1	-0.2	53%				60.1
Consumer	As of	Latest	Previous	1 Yr. Ago	3 Mo. Avg.	12 Mo. Avg.	1 Mo. Diff.	1 Yr. Diff.	Percentile (10 Yrs.)	1 Yr. Trend	5 Yr. Trend	Trend	Latest
Retail Sales - YoY Change	May-24	2.3%	2.7%	2.4%	2.9%	2.9%	-0.5%	-0.2%	17%				2.3%
Vehicle Sales (Mil. Units, annualized)	May-24	15.9	15.8	15.5	15.7	15.7	0.1	0.4	33%				15.9
Personal Savings Rate	Apr-24	3.6%	3.6%	5.2%	3.7%	4.1%	0.0%	-1.6%	8%				3.6%
Production	As of	Latest	Previous	1 Yr. Ago	3 Mo. Avg.	12 Mo. Avg.	1 Mo. Diff.	1 Yr. Diff.	Percentile (10 Yrs.)	1 Yr. Trend	5 Yr. Trend	Trend	Latest
Industrial Production - YoY Change	May-24	0.4%	-0.7%	0.1%	-0.2%	-0.2%	1.1%	0.2%	50%				0.4%
Capacity Utilization	May-24	78.7%	78.2%	79.5%	78.4%	78.8%	0.6%	-0.8%	61%				78.7%
Core Capital Goods Orders - YoY Change	Apr-24	0.3%	1.0%	2.5%	0.7%	0.8%	-0.7%	-2.2%	46%				0.3%
Housing & Construction	As of	Latest	Previous	1 Yr. Ago	3 Mo. Avg.	12 Mo. Avg.	1 Mo. Diff.	1 Yr. Diff.	Percentile (10 Yrs.)	1 Yr. Trend	5 Yr. Trend	Trend	Latest
Building Permits ('000)	May-24	1,386	1,440	1,532	1,437	1,503	-54	-146	55%				1,386
Housing Starts ('000)	May-24	1,277	1,352	1,583	1,309	1,404	-75	-306	50%				1,277
New Home Sales ('000)	Apr-24	634	665	687	643	665	-31	-53	52%				634
S&P/Case-Shiller Home Price Index (20 city) - YoY Change	Mar-24	7.4%	7.3%	-1.0%	7.1%	3.3%	0.0%	8.4%	76%				7.4%
Total Construction Spending - YoY Change	Apr-24	10.0%	10.5%	1.3%	10.7%	9.5%	-0.5%	8.7%	67%				10.0%
Survey Data	As of	Latest	Previous	1 Yr. Ago	3 Mo. Avg.	12 Mo. Avg.	1 Mo. Diff.	1 Yr. Diff.	Percentile (10 Yrs.)	1 Yr. Trend	5 Yr. Trend	Trend	Latest
ISM Manufacturing PMI Composite	May-24	48.7	49.2	46.6	49.4	47.9	-0.5	2.1	18%				48.7
ISM Manufacturing PMI New Orders	May-24	45.4	49.1	42.6	48.6	48.1	-3.7	2.8	6%				45.4
ISM Services PMI Composite	May-24	53.8	49.4	51.0	51.5	52.5	4.4	2.8	18%				53.8
ISM Services PMI New Orders	May-24	54.1	52.2	54.0	53.6	54.6	1.9	0.1	9%				54.1
U. of Michigan Consumer Sentiment	May-24	69.1	77.2	59.5	75.2	70.8	-8.1	9.6	18%				69.1
Inflation	As of	Latest	Previous	1 Yr. Ago	3 Mo. Avg.	12 Mo. Avg.	1 Mo. Diff.	1 Yr. Diff.	Percentile (10 Yrs.)	1 Yr. Trend	5 Yr. Trend	Trend	Latest
Consumer Price Index (CPI) - YoY Change	May-24	3.3%	3.4%	4.0%	3.4%	3.3%	-0.1%	-0.8%	74%				3.3%
PCE Price Index - YoY Change	Apr-24	2.7%	2.7%	4.4%	2.6%	3.0%	0.0%	-1.8%	71%				2.7%
Producer Price Index (PPI) - YoY Change	May-24	2.2%	2.3%	1.2%	2.1%	1.4%	0.0%	1.1%	61%				2.2%
Average Hourly Earnings - YoY Change	May-24	4.1%	4.0%	4.6%	4.1%	4.3%	0.1%	-0.5%	62%				4.1%
GDP	As of	Latest	Previous	1 Yr. Ago	2 Qtr. Avg.	4 Qtr. Avg.	1 Qtr. Diff.	1 Yr. Diff.	Percentile (10 Yrs.)	1 Yr. Trend	5 Yr. Trend	Trend	Latest
Real GDP - QoQ (SAAR)	Q1-24	1.3%	3.4%	2.2%	2.3%	2.9%	-2.1%	-1.0%	15%				1.3%
Real GDP - YoY Change	Q1-24	2.9%	3.1%	1.7%	3.0%	2.8%	-0.3%	1.2%	64%				2.9%
Other	As of	Latest	Previous	1 Yr. Ago	3 Mo. Avg.	12 Mo. Avg.	1 Mo. Diff.	1 Yr. Diff.	Percentile (10 Yrs.)	1 Yr. Trend	5 Yr. Trend	Trend	Latest
Treasury Yield Curve (10 Yr. Minus 2 Yr.) - Month End	May-24	-0.38%	-0.35%	-0.76%	-0.37%	-0.49%	-0.03%	0.38%	13%				-0.38%
Leading Economic Index (LEI) - YoY Change	Apr-24	-5.4%	-5.5%	-8.3%	-5.8%	-7.3%	0.1%	2.9%	16%				-5.4%

## Post-WWII Expansions and Recessions



# S&P 500 Historical Returns

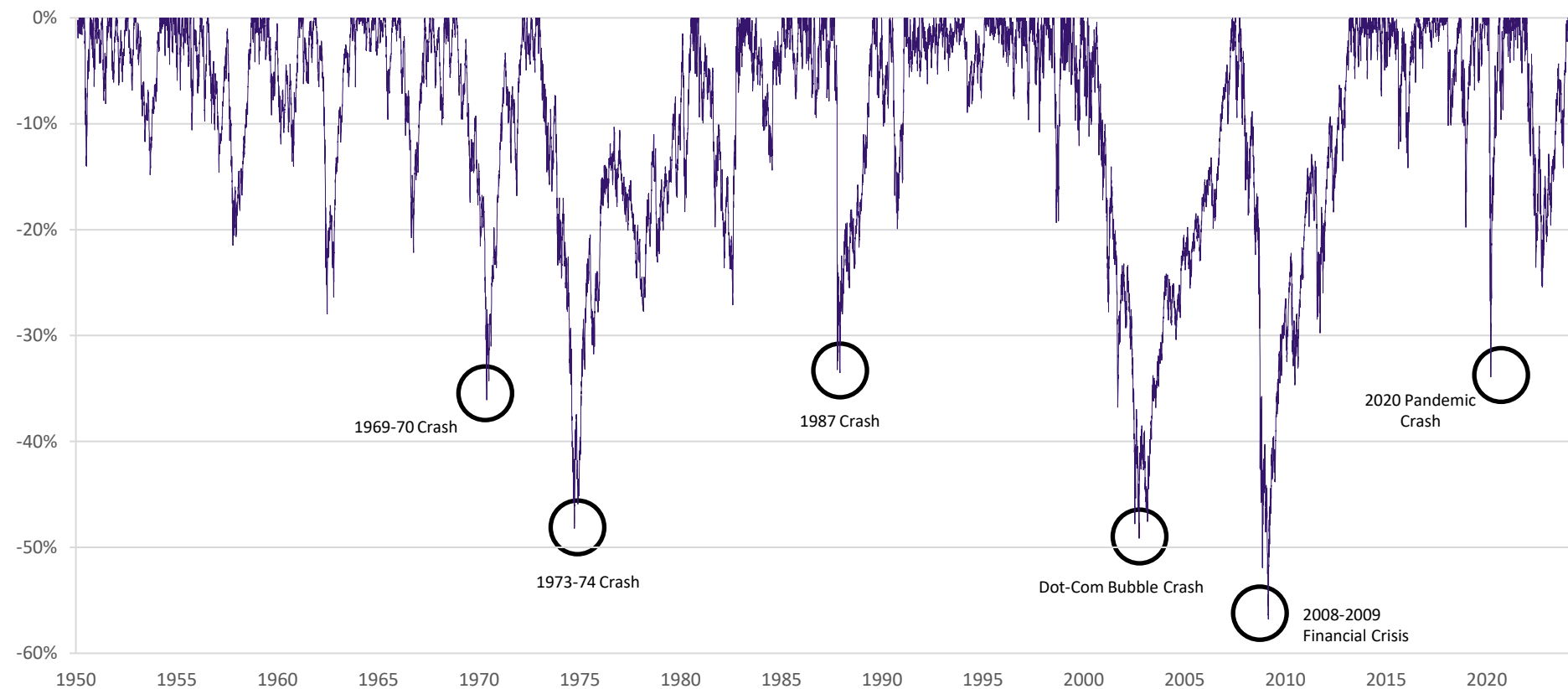
	January	February	March	April	May	June	July	August	September	October	November	December	Annual	
YTD	1.68	5.34	3.22	-4.08	4.96								11.30	YTD
2023	6.28	-2.44	3.67	1.56	0.43	6.61	3.21	-1.59	-4.77	-2.10	9.13	4.54	26.29	2023
2022	-5.17	-2.99	3.71	-8.72	0.18	-8.25	9.22	-4.08	-9.21	8.10	5.59	-5.76	-18.11	2022
2021	-1.01	2.76	4.38	5.34	0.70	2.33	2.38	3.04	-4.65	7.01	-0.69	4.48	28.71	2021
2020	-0.04	-8.23	-12.35	12.82	4.76	1.99	5.64	7.19	-3.80	-2.66	10.95	3.84	18.40	2020
2019	8.01	3.21	1.94	4.05	-6.35	7.05	1.44	-1.58	1.87	2.17	3.63	3.02	31.49	2019
2018	5.72	-3.69	-2.54	0.38	2.41	0.62	3.72	3.26	0.57	-6.84	2.04	-9.03	-4.38	2018
2017	1.90	3.97	0.12	1.03	1.41	0.62	2.06	0.31	2.06	2.33	3.07	1.11	21.83	2017
2016	-4.96	-0.13	6.78	0.39	1.80	0.26	3.69	0.14	0.02	-1.82	3.70	1.98	11.96	2016
2015	-3.00	5.75	-1.58	0.96	1.29	-1.94	2.10	-6.03	-2.47	8.44	0.30	-1.58	1.38	2015
2014	-3.46	4.57	0.84	0.74	2.35	2.07	-1.38	4.00	-1.40	2.44	2.69	-0.25	13.69	2014
2013	5.18	1.36	3.75	1.93	2.34	-1.34	5.09	-2.90	3.14	4.60	3.05	2.53	32.39	2013
2012	4.48	4.32	3.29	-0.63	-6.01	4.12	1.39	2.25	2.58	-1.85	0.58	0.91	16.00	2012
2011	2.37	3.43	0.04	2.96	-1.13	-1.67	-2.03	-5.43	-7.03	10.93	-0.22	1.02	2.11	2011
2010	-3.60	3.10	6.03	1.58	-7.99	-5.23	7.01	-4.51	8.92	3.80	0.01	6.68	15.06	2010
2009	-8.43	-10.65	8.76	9.57	5.59	0.20	7.56	3.61	3.73	-1.86	6.00	1.93	26.46	2009
2008	-6.00	-3.25	-0.43	4.87	1.30	-8.43	-0.84	1.45	-8.91	-16.79	-7.18	1.06	-37.00	2008
2007	1.51	-1.96	1.12	4.43	3.49	-1.66	-3.10	1.50	3.74	1.59	-4.18	-0.69	5.49	2007
2006	2.65	0.27	1.24	1.34	-2.88	0.14	0.62	2.38	2.58	3.26	1.90	1.40	15.79	2006
2005	-2.44	2.10	-1.77	-1.90	3.18	0.14	3.72	-0.91	0.81	-1.67	3.78	0.03	4.91	2005
2004	1.84	1.39	-1.51	-1.57	1.37	1.94	-3.31	0.40	1.08	1.53	4.05	3.40	10.88	2004
2003	-2.62	-1.50	0.97	8.24	5.27	1.28	1.76	1.95	-1.06	5.66	0.88	5.24	28.68	2003
2002	-1.46	-1.93	3.76	-6.06	-0.74	-7.12	-7.80	0.66	-10.87	8.80	5.89	-5.87	-22.10	2002
10 Yr. Avg.	0.94	0.35	0.73	1.37	1.16	1.14	3.21	0.47	-2.18	1.71	4.04	0.23	12.89	
25 Yr. Avg.	-0.08	-0.25	1.48	1.76	0.65	-0.03	1.46	0.18	-1.57	1.72	2.27	1.09	8.81	
40 Yr. Avg.	1.22	0.67	1.36	1.57	1.52	0.40	1.51	0.15	-0.89	1.13	2.03	1.74	12.85	
% Positive (10 Yrs.)	50%	50%	70%	80%	90%	80%	90%	60%	40%	60%	90%	60%	80%	
% Positive (25 Yrs.)	48%	52%	72%	72%	72%	64%	64%	60%	48%	64%	80%	76%	76%	
% Positive (40 Yrs.)	63%	63%	73%	70%	78%	65%	58%	60%	48%	65%	73%	80%	83%	

# Asset Class Historical Return Heat Map

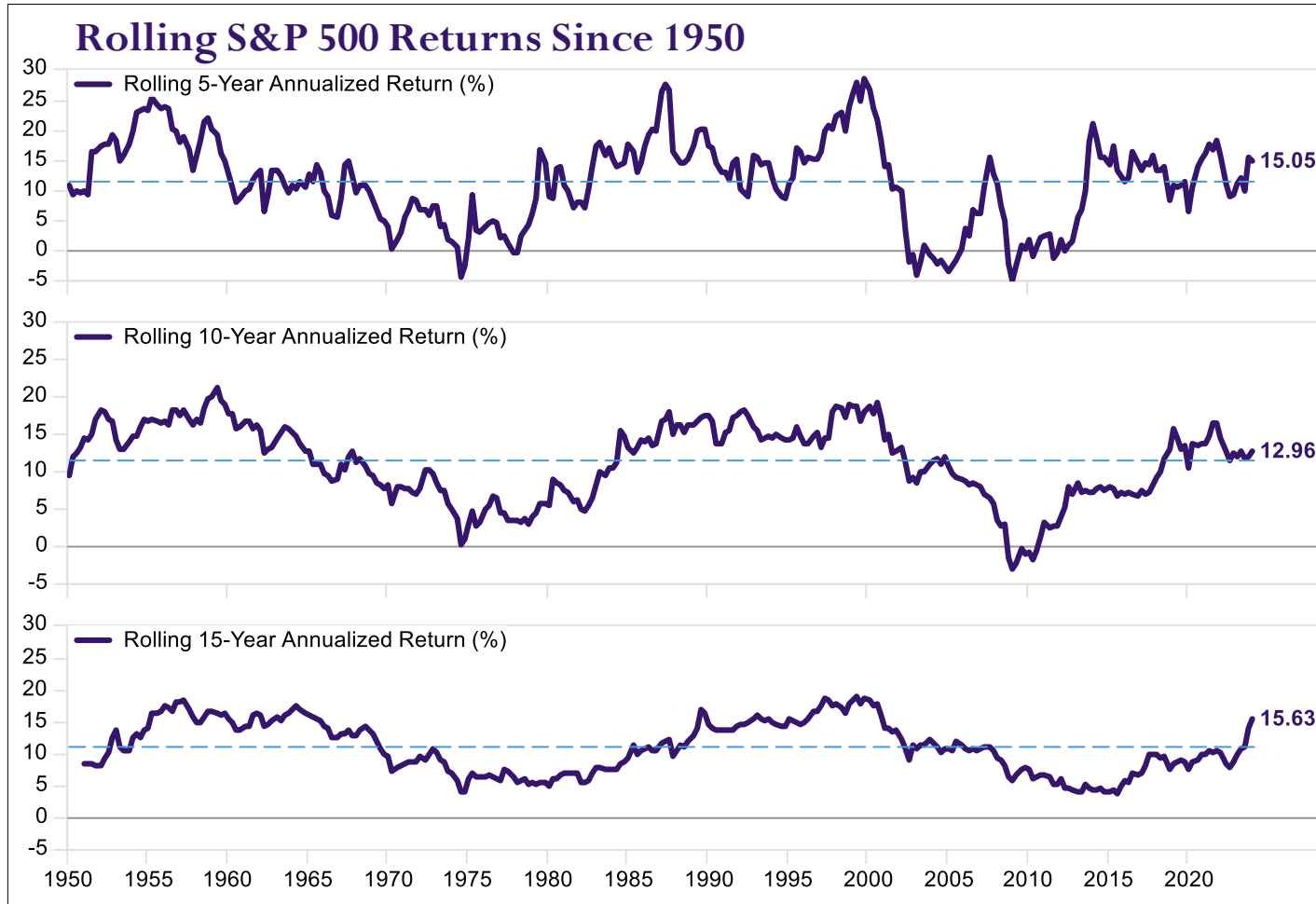
Asset Class	Calendar Year Return											Annualized Return			
	YTD	2023	2022	2021	2020	2019	2018	2017	2016	2015	2014	1-Year	3-Year	5-Year	10-Year
US Large Cap	11.30%	26.29%	-18.11%	28.71%	18.40%	31.49%	-4.38%	21.83%	11.96%	1.38%	13.69%	28.19%	9.57%	15.80%	12.69%
US Large Cap Growth	15.50%	30.03%	-29.41%	32.01%	33.47%	31.13%	-0.01%	27.44%	6.89%	5.52%	14.89%	31.77%	8.97%	16.69%	14.43%
US Large Cap Value	6.48%	22.23%	-5.22%	24.90%	1.36%	31.93%	-8.95%	15.36%	17.40%	-3.13%	12.36%	24.03%	9.40%	13.79%	10.19%
US Mid Cap	7.87%	16.44%	-13.06%	24.76%	13.66%	26.20%	-11.08%	16.24%	20.74%	-2.18%	9.77%	25.97%	4.67%	12.26%	9.76%
US Small Cap	1.59%	16.05%	-16.10%	26.82%	11.29%	22.78%	-8.48%	13.23%	26.56%	-1.97%	5.76%	20.34%	0.62%	10.13%	8.99%
International Developed	7.07%	18.24%	-14.45%	11.26%	7.82%	22.01%	-13.79%	25.03%	1.00%	-0.81%	-4.90%	18.53%	3.06%	8.05%	4.60%
Emerging Market Equities	3.41%	9.83%	-20.09%	-2.54%	18.31%	18.42%	-14.57%	37.28%	11.19%	-14.92%	-2.19%	12.39%	-6.23%	3.55%	2.66%
REITs	-3.21%	13.96%	-25.96%	45.91%	-11.20%	23.10%	-4.22%	3.76%	6.68%	4.48%	32.00%	9.62%	-0.28%	2.51%	4.97%
Commodities	6.79%	-7.91%	16.09%	27.11%	-3.12%	7.69%	-11.25%	1.70%	11.77%	-24.66%	-17.01%	10.95%	6.85%	8.15%	-1.08%
Gold	12.49%	12.82%	-0.74%	-4.28%	20.95%	18.03%	-2.81%	12.79%	7.75%	-10.88%	-1.75%	17.75%	6.42%	11.07%	5.57%
Intermediate-Term Treasurys	-2.81%	3.58%	-14.89%	-3.07%	9.98%	8.50%	0.90%	2.55%	1.05%	1.63%	9.00%	-2.17%	-4.65%	-1.24%	0.85%
Long-Term Treasurys	-7.55%	2.66%	-31.09%	-4.37%	18.10%	15.11%	-2.00%	8.98%	1.43%	-1.59%	27.48%	-8.64%	-10.96%	-4.97%	0.19%
TIPS	-0.08%	3.90%	-11.85%	5.96%	10.99%	8.43%	-1.26%	3.01%	4.68%	-1.44%	3.64%	1.56%	-1.39%	2.09%	1.86%
Mortgage-Backed Securities	-2.01%	5.40%	-10.76%	-1.45%	3.68%	5.85%	1.02%	1.86%	1.56%	1.39%	5.97%	0.88%	-2.84%	-0.70%	0.76%
Corporate IG Bonds	-1.12%	8.52%	-15.76%	-1.04%	9.89%	14.54%	-2.51%	6.42%	6.11%	-0.68%	7.46%	4.40%	-2.71%	0.98%	2.28%
High Yield Corporate Bonds	1.63%	13.44%	-11.19%	5.28%	7.11%	14.32%	-2.08%	7.50%	17.13%	-4.47%	2.45%	11.24%	1.78%	4.19%	4.30%
US Aggregate Bonds	-1.64%	5.53%	-13.01%	-1.54%	7.51%	8.72%	0.01%	3.54%	2.65%	0.55%	5.97%	1.31%	-3.10%	-0.17%	1.26%

For each time frame, the heat map colors range from green (stronger relative performance) to red (weaker relative performance). There is a box around the return of the best performing asset class in each time period.

# S&P 500 Drawdowns (1950-2024)



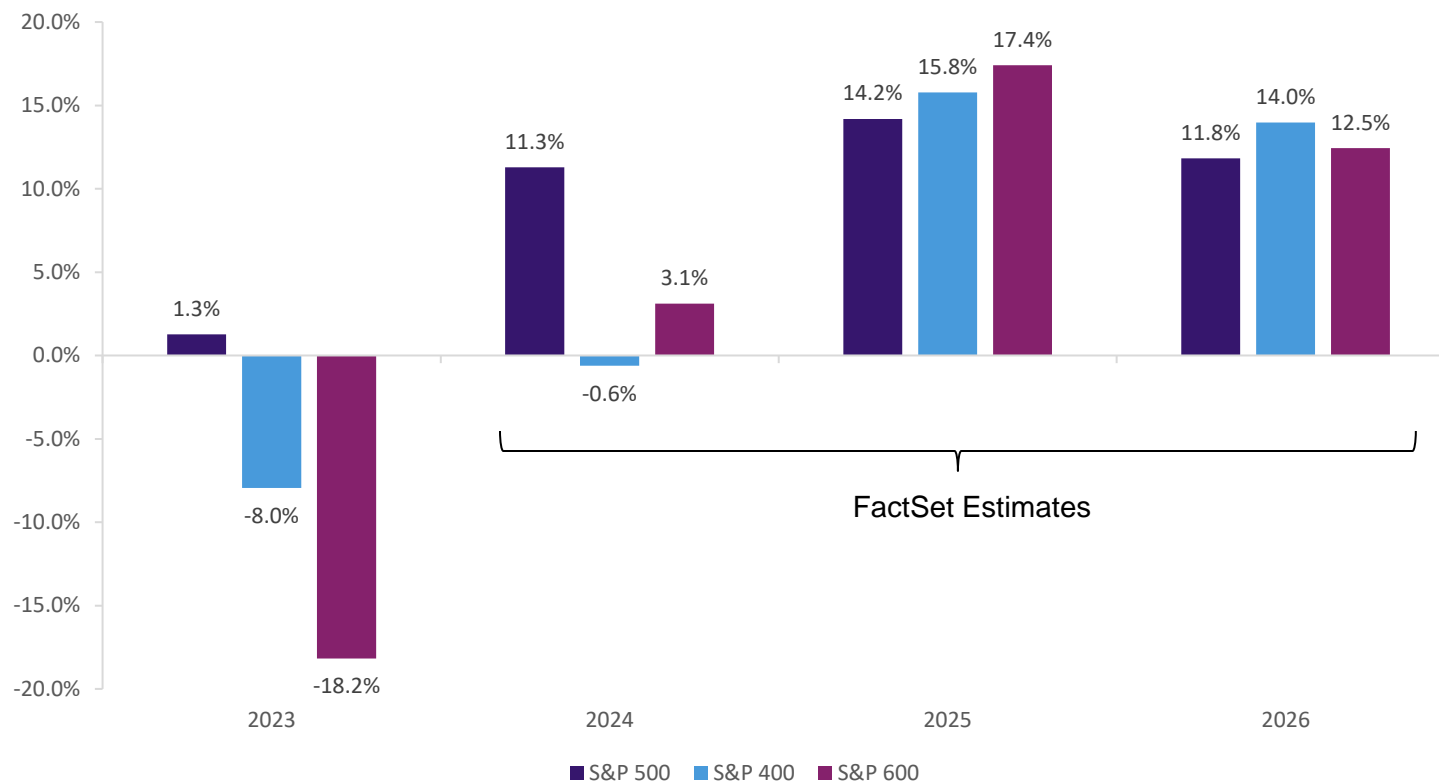
# Rolling S&P 500 Returns Since 1950



The charts above show the rolling 5, 10, and 15-year annualized returns for the S&P 500 (including dividend reinvestment) since 1950. Returns are through the end of each quarter. As an example, the most recent 5-year rolling return on this chart represents the annualized return from 4/1/2018 through 3/31/2024. The average return for each rolling chart is represented by the dashed blue line. Shorter holding periods have larger variability in returns.

# Earnings Outlook Brightens for Mid and Small Caps

## Earnings Growth

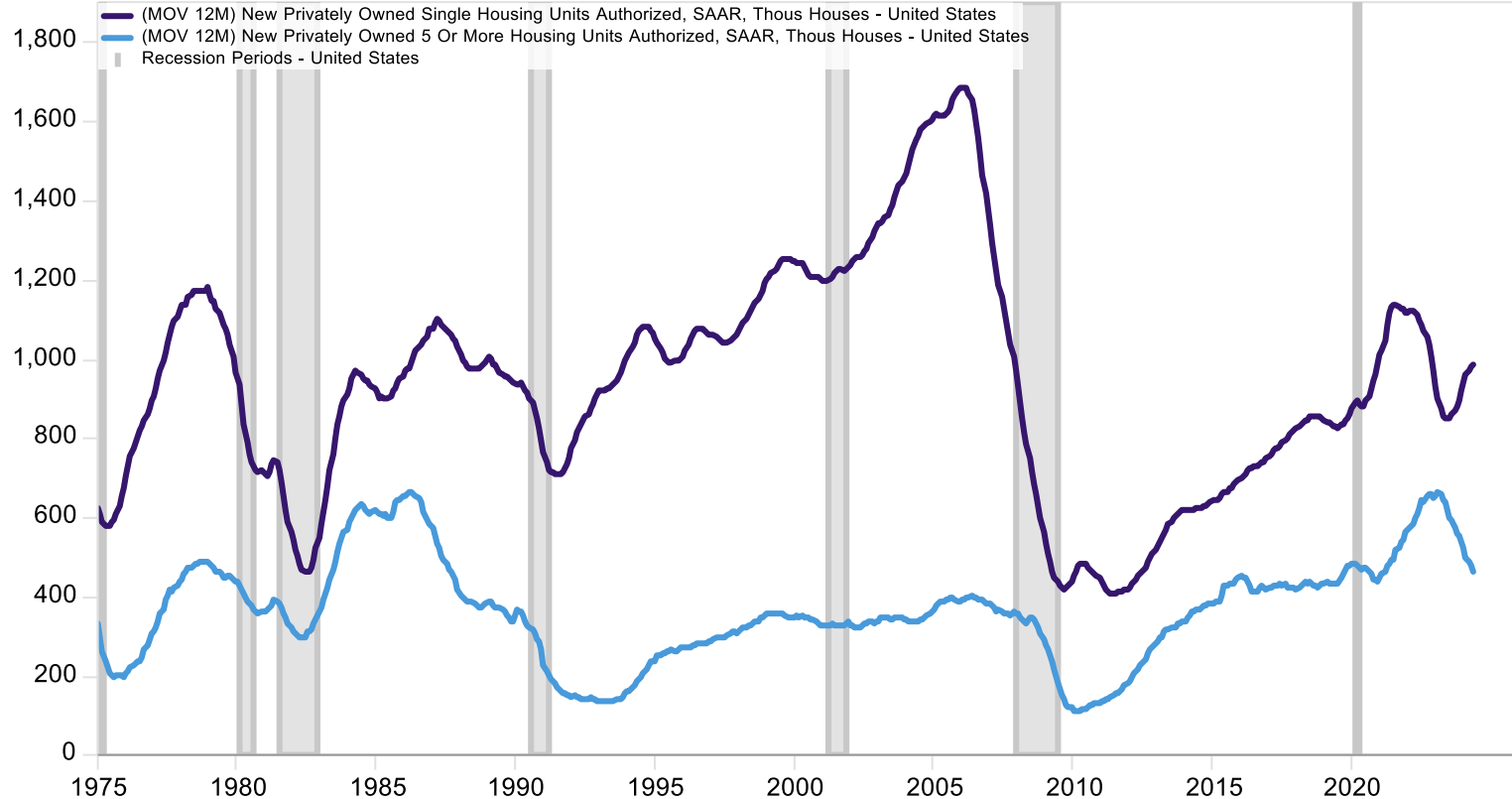


Mid (S&P 400) and Small Cap (S&P 600) equities have lagged large caps (S&P 500) in performance in recent years and one key reason is weaker earnings growth. That may change in the next few years, based on earnings growth projections from FactSet Research. Earnings growth expectations are higher in 2025 and 2026 for mid and small cap equities when compared to large cap stocks. Furthermore, valuations are currently much lower for mid and small caps versus large caps.



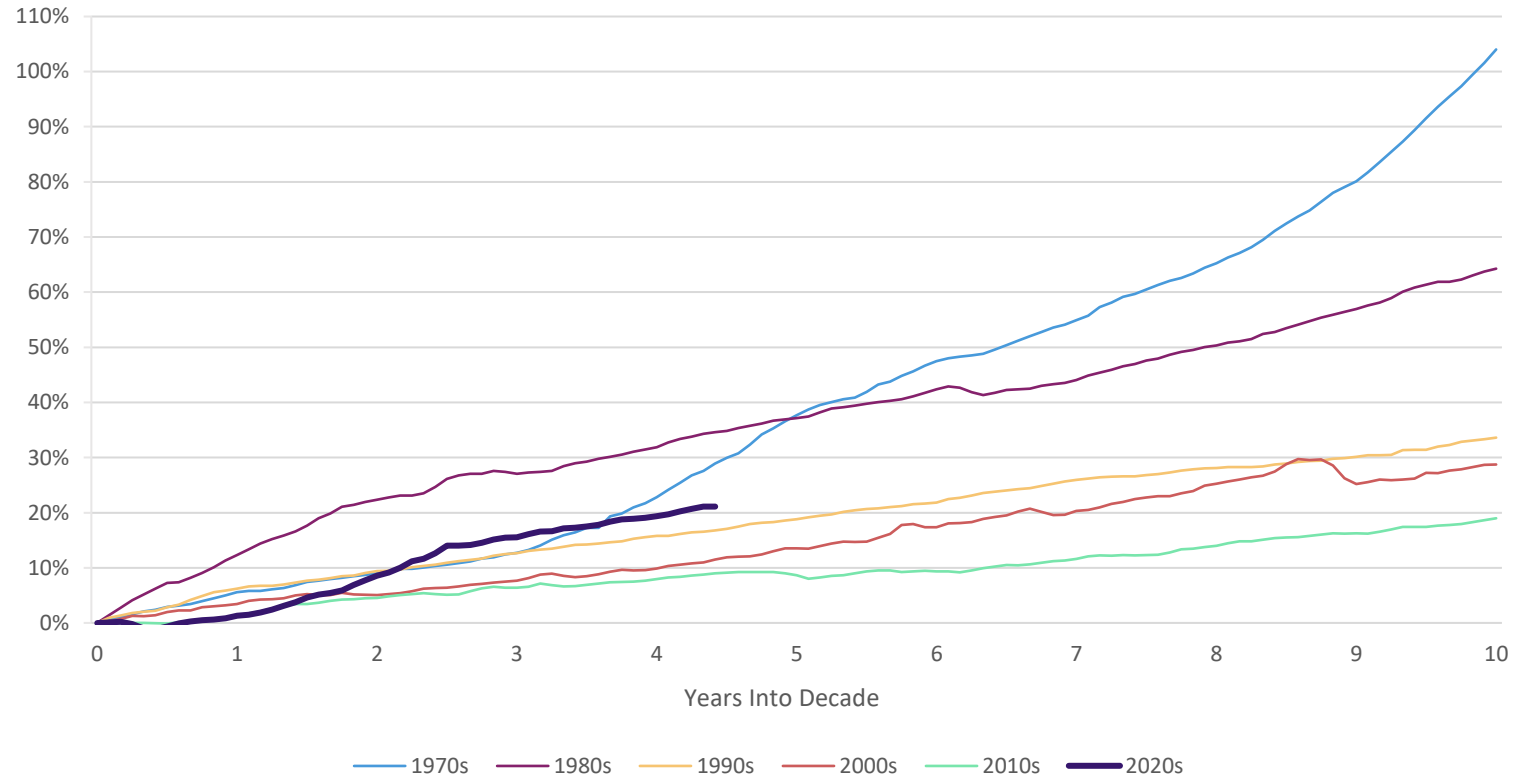
## Building Permits: Single-Family vs. Multi-Family

Thousands ('000)

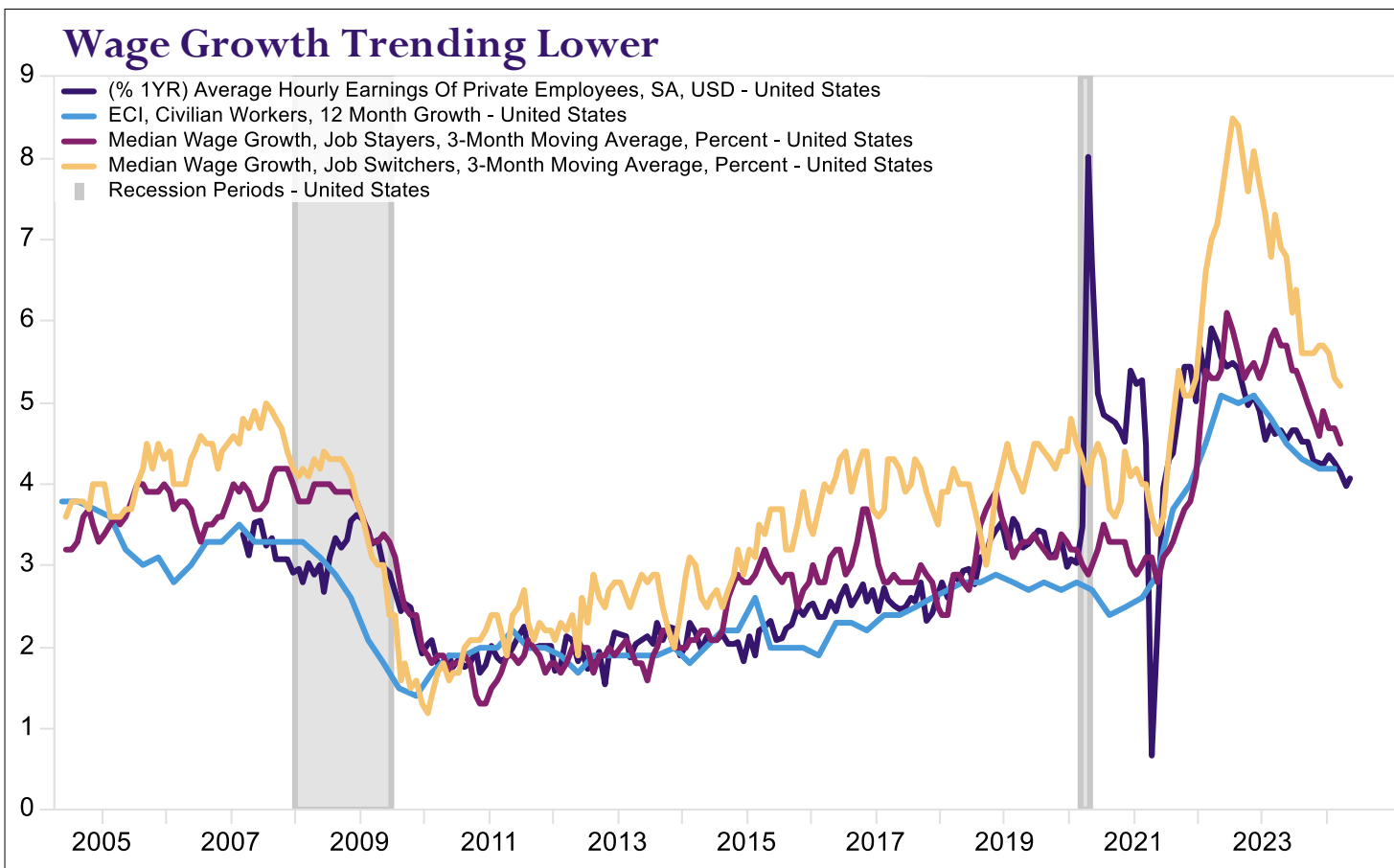


The housing market is still in a rolling recession. High mortgage rates put the brakes on housing activity. Homeowners with low rates are choosing to stay put, limiting existing home inventory. Within residential construction, building permits for single-family houses are trending higher based on a rolling 12-month average. There is a shortage of homes for sale, pushing demand for new homes higher. However, multi-family (rentals) building permits are trending lower, creating a divergence. This hasn't happened in the last 50 years.

## Total CPI Inflation by Decade



We are nearly four-and-a-half years into the 2020s. The Consumer Price Index (CPI) increased 21.1% since the start of the decade, which is more than the entire 2010s when CPI increase by only 19%. However, inflationary pressures are still relatively low when compared to the 1970s and 1980s. Total CPI inflation increased by 104% in the 1970s and 64% in the 1980s. Though inflation isn't at those levels, consumers are really feeling it because of the low inflation environment in the last few decades.



Looking at a variety of wage growth metrics, wages are still growing at a stronger pace than before the pandemic, but the pace of growth is slowing across the board. This is a disinflationary trend, and a major reason why we are unlikely to see inflationary pressures reignite. Easing wage growth has coincided with inflation slowing since the cycle peak in 2022. The good news is wages are rising faster than inflation

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Additional risks are associated with international investing, such as currency fluctuations, political and economic instability, and differences in accounting standards. Emerging markets involve heightened risks related to the same factors as well as increased volatility and lower trading volume.

The **Recession Riskometer** is the average reading of ten economic indicators – Unemployment, ISM Manufacturing and Non-Manufacturing Indexes, Industrial Production Growth, Building Permits Growth, Temporary Staffing Employment Growth, Real Retail Sales Growth, Consumer Confidence as measured by the University of Michigan, Philadelphia Federal Reserve's Leading Indicator for the U.S. Index, as well as the difference between 10- and 2-year Treasury rates.

The Economic Trend Signal measures the average of whether each of the ten indicators in the **Recession Riskometer** are improving, neutral or declining in their most recent reading as compared to historical data.

The U3 Unemployment Rate measures the percentage of people without jobs who are actively seeking work. This is often the officially quoted unemployment rate. The U6 Unemployment Rate expands the definition of U3 by including "discouraged workers", or those who have stopped looking for work because current economic conditions make them believe that no work is available for them, other "marginally attached workers", or those who would like and are able to work, but have not looked for work recently, as well as part-time workers who want to work full-time, but cannot due to economic reasons.

The ISM Manufacturing Index is based on surveys of over 400 manufacturing firms across 20 industries by the Institute of Supply Management. Equal weight is given to responses in five areas - new orders, production, supplier deliveries, employment and inventories. Generally, a reading over 50 indicates expansion, and a reading in the low 40's suggests recessionary conditions. Changes in the index are also helpful in gauging the direction of economic growth.

The ISM Services Index is based on surveys of over 350 non-manufacturing firms in 17 industries representing over 80% of the U.S. economy by the Institute of Supply Management. The survey shows the percentage of managers reporting higher activity, lower activity or no change in the following areas: business activity, new orders, employment, supplier deliveries, backlog of orders, new export orders, inventory change, inventory sentiment, imports, and prices.

Industrial Production and Capacity Utilization is measured monthly by the United States Federal Reserve, based on hours worked by industrial-sector employees. The report shows total amount of US industrial production as a percentage compared to a baseline year. It also offers percentage changes from month to month and year to year, and a breakdown of production by industry grouping.

Building Permits are a measure of the issuance of permits to build new housing units (single and multi-family units). Building Permits Growth is a measure of the total year-over-year percentage change of the 3-month average of building permits. This indicator leads housing construction and provides a signal for potential weakness in the housing sector when it is declining.

# Definitions (cont.)

The US Bureau of Labor Statistics surveys the temporary staffing industry is surveyed in its Professional and Business Services. They produce a report on Temporary Help Employment - changes in this figure are often used as a predictor of changes in future employment. Changes in Temporary Help Employment is a coincident economic indicator.

Real Retail Sales Growth is a measure of the total year-over-year change in retail and food sales adjusted for inflation using the Consumer Price Index. Real Retail Sales figures provided are the year-over-year change of the 3-month average. By neutralizing the impact of inflation, the year-over-year change in retail and food sales provides a better view into consumer spending strength because growth in this figure indicates stronger demand without the impact of rising prices. Real Retail and Food Sales typically decline heading into recession, and a weaker read is a concern for the economy.

The University of Michigan Consumer Sentiment Index is survey of consumer confidence conducted via telephone surveys to gather information on consumer expectations regarding the overall economy.

The Leading Economic Index (LEI) is a composite index of several U.S. economic indicators that lead the economy including building permits, manufacturers' new orders, and consumer expectations. This index is often used as a proxy to gauge where the economy is heading over the next several months because it measures the strength of leading indicators. The Leading Economic Index historically has declined ahead of recessions and trends higher during expansions.

The difference (spread) between the yields of the 10-Year and 2-Year maturity Treasury bonds. Often referred to as the 10-Year/2-Year spread, this metric is one of the early and reliable predictors of recession. Under normal conditions the 10-Year/2-Year spread is positive, as investors demand higher risk premium for longer -term bonds. Spreads are usually wider early in an economic recovery and narrow as growth sets in. As recession becomes more likely, spreads tend to move toward zero or turn negative - this occurs because in periods when economic growth slows inflation decreases and demand for credit declines, pushing long term rates lower.

A Price/Earnings (P/E) ratio is a measure for equity analysis. It is calculated by dividing the current market price of a stock by its earning per share.

A Price/Book (P/B) ratio is a measure for equity analysis. It is calculated by dividing the current market price of a stock by the most recent book value per share.

The yield curve is a graphical representation of several yields or interest rates across different bond maturities. Typical maturities include 3-month, 6-month, 1-year, 2-year, 5-year, 10-year and 30-year.

The High-Yield - US Treasury spread is the percentage difference in current yields of various classes of high-yield bonds compared against U.S. Treasury bonds.



# Definitions (cont.)

Percentile is a method of ranking a metric versus its history by measuring the percentage of group observations equal to or lower than it. As an example, if a metric scores in the 80<sup>th</sup> percentile, it is greater than 80% of all other group observations over the stated time period and lower than 20% of the group observations.

Standard deviation is a statistical method used to gauge asset risk based on measuring the dispersion in returns relative to the average over a specified period of time.

The Global Industry Classification Standard (GICS) is a classification system for equities, it is used by various equity indexes to classify domestic and international stocks and breaks equities down to 11 sectors, which Morningstar breaks down into three groups as described below. Stocks in Energy, Industrials, Information Technology and Telecommunication Services are classified as Sensitive. Consumer Discretionary, Financials and Materials are defined as Cyclical, and Consumer Staples, Health Care and Utilities are classified as Defensive.

**Sensitive** - The sensitive super sector includes industries which ebb and flow with the overall economy, but not severely so. Sensitive industries fall between the defensive and cyclical industries as they are not immune to a poor economy but they also may not be as severely impacted by a poor economy as industries in the cyclical super sector. In general, the stocks in these industries move closely to the direction of the economy.

**Cyclical** - The cyclical super sector includes industries significantly impacted by economic shifts. When the economy is prosperous these industries tend to expand and when the economy is in a downturn these industries tend to shrink. In general, the stocks in these industries expand faster when the economy is growing and also contract faster in a recession.

**Defensive** - The defensive super sector includes industries that are relatively immune to economic cycles. These industries provide services that consumers require in both good and bad times, such as healthcare and utilities. In general, the stocks in these industries are not very sensitive to the direction of the economy.

A drawdown is a measure of the decline from a peak point for an investment or an index. It is typically quoted for a specified period of time, and measured as the percentage between the peak and the subsequent trough in value. The duration of a drawdown indicates the time elapsed before the investment returns to the starting peak value.

A simple moving average of an investment or an index calculates its average price for a set period to the most recent price. The moving average is updated each successive period by deleting the price from the earliest date and adding the newly available most recent price. The result is a trend line for price movements, which may be an indicator of market sentiment. Generally, if the moving average is trending higher and the investment or index price rises above the moving average, sentiment is considered to be bullish, as prices are likely to continue higher, and it may be a good time to buy. If the moving average trend slopes downward, and the investment price is below the moving average, this may be a bearish, or sell signal, as prices may continue to move down.

# Index Definitions

The S&P 500 is an index of 500 stocks chosen for market size, liquidity and industry grouping (among other factors) designed to be a leading indicator of U.S. equities and is meant to reflect the risk/return characteristics of the large cap universe.

The S&P Growth Index is a float adjusted, market capitalization weighted index of 317 stocks drawn from the S&P 500 Index that exhibit strong growth characteristics. S&P Dow Jones Indexes uses three factors to measure growth: sales growth, the ratio of earnings change to price, and momentum.

The S&P Value Index is a float adjusted, market capitalization weighted index of 364 stocks drawn from the S&P 500 Index that exhibit strong value characteristics. S&P Dow Jones Indexes uses three factors to measure value: the ratios of book value, earnings and the sales to price sales metric.

The S&P MidCap 400 provides investors with a benchmark for mid-sized companies. The index, which is distinct from the large-cap S&P 500®, measures the performance of 400 mid-sized companies, representing more than 7% of available market cap.

The S&P MidCap 400 Growth Index represents the growth companies of the S&P MidCap 400 Index which itself is composed of mid-cap stocks from the broad U.S. equity market. Growth companies are identified by three factors: book value to price ratio, earnings to price ratio, and sales to price ratio.

The S&P MidCap 400 Value Index represents the value companies of the S&P MidCap 400 Index which itself is composed of mid-cap stocks from the broad U.S. equity market. Value companies are identified by three factors: book value to price ratio, earnings to price ratio, and sales to price ratio.

The S&P SmallCap 600 measures the small-cap segment of the U.S. equity market. Introduced in 1994, the index is designed to track the performance of 600 small-size companies in the U.S, reflecting this market segment's distinctive risk and return characteristics. The index measures a segment of the market that is typically known for less liquidity and potentially less financial stability than large-caps, the index was constructed to be an efficient benchmark composed of small-cap companies that meet investability and financial viability criteria.

# Index Definitions (cont.)

The S&P SmallCap 600 Growth Index represents the growth companies of the S&P SmallCap 600 Index which itself is composed of small cap stocks from the broad U.S. equity market. Growth companies are identified by three factors: book value to price ratio, earnings to price ratio, and sales to price ratio.

The S&P SmallCap 600 Value Index represents the value companies of the S&P SmallCap 600 Index which itself is composed of small-cap stocks from the broad U.S. equity market. Value companies are identified by three factors: book value to price ratio, earnings to price ratio, and sales to price ratio.

The MSCI EAFE is designed to measure the equity market performance of developed markets (Europe, Australasia, Far East) excluding the U.S. and Canada. The Index is market-capitalization weighted.

The MSCI EAFE Growth index represents large and mid-cap securities exhibiting overall growth style characteristics across Developed Markets countries around the world, excluding the U.S. and Canada.

The MSCI EAFE Value index represents large and mid cap securities exhibiting overall value style characteristics across Developed Markets countries around the world, excluding the U.S. and Canada.

The MSCI Emerging Markets is designed to measure equity market performance in global emerging markets. It is a float-adjusted market capitalization index.

The MSCI Europe Index is a free float-adjusted market capitalization index that is designed to measure developed market equity performance in Europe.

The MSCI Pacific Index captures large and mid-cap representation across five Developed Markets (DM) countries in the Pacific region. With 470 constituents, the index covers approximately 85% of the free float-adjusted market capitalization in each country.

# Index Definitions (cont.)

The MSCI ACWI is a free float-adjusted market capitalization weighted index that is designed to measure the equity market performance of developed and emerging markets. The MSCI ACWI consists of 46 country indexes comprising 23 developed and 23 emerging market country indexes. The developed market country indexes included are: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Hong Kong, Ireland, Israel, Italy, Japan, Netherlands, New Zealand, Norway, Portugal, Singapore, Spain, Sweden, Switzerland, the United Kingdom and the United States. The emerging market country indexes included are: Brazil, Chile, China, Colombia, Czech Republic, Egypt, Greece, Hungary, India, Indonesia, Korea, Malaysia, Mexico, Peru, Philippines, Poland, Qatar, Russia, South Africa, Taiwan, Thailand, Turkey and United Arab Emirates.

The S&P 500® Consumer Discretionary Index comprises those companies included in the S&P 500 that are classified as members of the GICS® Consumer Discretionary sector.

The S&P 500® Consumer Staples Index comprises those companies included in the S&P 500 that are classified as members of the GICS® Consumer Staples sector.

The S&P 500® Energy Index comprises those companies included in the S&P 500 that are classified as members of the GICS® Energy sector.

The S&P 500® Financials Index comprises those companies included in the S&P 500 that are classified as members of the GICS® Financials sector.

The S&P 500® Health Care Index comprises those companies included in the S&P 500 that are classified as members of the GICS® Health Care sector.

The S&P 500® Industrials Index comprises those companies included in the S&P 500 that are classified as members of the GICS® Industrials sector.

The S&P 500® Information Technology Index comprises those companies included in the S&P 500 that are classified as members of the GICS® Information Technology sector.

# Index Definitions (cont.)

The S&P 500® Materials Index comprises those companies included in the S&P 500 that are classified as members of the GICS® Materials sector.

The S&P 500® Real Estate Index comprises those companies included in the S&P 500 that are classified as members of the GICS® Real Estate sector.

The S&P 500® Telecommunication Services Index comprises those companies included in the S&P 500 that are classified as members of the GICS® Telecommunication Services sector.

The S&P 500® Utilities Index comprises those companies included in the S&P 500 that are classified as members of the GICS® Utilities sector.

The Bank of America Merrill Lynch U.S. Treasury Bill 3 Month index measures the performance of a single issue of outstanding treasury bill which matures closest to, but not beyond, three months from the rebalancing date. The issue is purchased at the beginning of the month and held for a full month; at the end of the month that issue is sold and rolled into a newly selected issue.

The Bloomberg U.S. Treasury: 1-3 Year Index measures the performance of U.S. Treasury securities with remaining maturities of one to three years.

The Bloomberg U.S. Treasury: 7-10 Year Index measures the performance of U.S. Treasury securities that have a remaining maturity of at least seven years and less than 10 years.

The Bloomberg U.S. Treasury: U.S. TIPS Index includes all publicly issued, U.S. Treasury inflation-protected securities that have at least one year remaining to maturity, are rated investment grade, and have \$250 million or more of outstanding face value.

The Bloomberg U.S. Municipal Bond Index is an unmanaged, market-value-weighted index of investment-grade municipal bonds with maturities of one year or more.

The Bloomberg GNMA Index measures the performance of Government National Mortgage Association (GNMA or “Ginnie Mae”) bonds. It is a subset of the Bloomberg Barclays U.S. Aggregate index.

# Index Definitions (cont.)

The Bloomberg U.S. Corporate (Investment Grade) Bond Index measures the investment grade, fixed-rate, taxable corporate bond market. It includes USD-denominated securities publicly issued by U.S. and non-US private-sector industrial, utility and financial issuers. Certificates of deposit are also included. Launched in July 1973, securities included must be rated investment grade (Baa3/BBB-/BBB- or higher). Eligible senior and subordinated corporate securities must have at least one year until final maturity, but in practice the index holdings has a fluctuating average life of around 10.75 years. The index is unhedged and rebalances monthly.

The Bloomberg U.S. Corporate High-Yield Index measures the market of USD-denominated, non-investment grade, fixed-rate, taxable corporate bonds. Securities are classified as high-yield if the middle rating of Moody's, Fitch, and S&P is Ba1/BB+/BB+ or below, excluding emerging market debt.

The Bloomberg U.S. Aggregate 1-3 Years Index consists of publicly issued investment grade corporate, US Treasury and government agency securities with remaining maturities of one to three years.

The Bloomberg Capital U.S. Aggregate Bond Index, which was originally called the Lehman Aggregate Bond Index, is a broad based flagship benchmark that measures the investment grade, US dollar-denominated, fixed-rate taxable bond market. The index includes Treasuries, government-related and corporate debt securities, MBS (agency fixed-rate and hybrid ARM pass-throughs), ABS and CMBS (agency and non-agency) debt securities that are rated at least Baa3 by Moody's and BBB- by S&P. Taxable municipals, including Build America bonds and a small amount of foreign bonds traded in U.S. markets are also included. Eligible bonds must have at least one year until final maturity, but in practice the index holdings has a fluctuating average life of around 8.25 years. This total return index, created in 1986 with history backfilled to January 1, 1976, is unhedged and rebalances monthly.

The Bloomberg Global Treasury ex U.S. Bond Index consists of those securities included in the Barclays Global Aggregate Bond Index that are Treasury securities, with the U.S. excluded. The Barclays Global Aggregate Bond Index is comprised of several other Barclays indexes that measure fixed income performance of regions around the world.

The JP Morgan Emerging Markets Bond Index (EMBI) Global Diversified measures the performance of fix-rate for external-currency denominated debt instruments including Brady bonds, loans, Eurobonds in emerging markets. Countries covered are Argentina, Brazil, Bulgaria, Mexico, Morocco, Nigeria, the Philippines, Poland, Russia, and South Africa. It covers more of the eligible instruments than the EMBI+ by relaxing somewhat the strict EMBI+ limits on secondary market trading liquidity.

# Index Definitions (cont.)

The Bloomberg Commodity Index is a broadly diversified index that measures 22 exchange-traded futures on physical commodities in five groups (energy, agriculture, industrial metals, precious metals, and livestock), which are weighted to account for economic significance and market liquidity. No single commodity can comprise less than 2% or more than 15% of the index; and no group can represent more than 33% of the index. However, between rebalancings, group weightings may fluctuate to levels outside the limits. The index rebalances annually, weighted 2/3 by trading volume and 1/3 by world production.

The Bloomberg US Treasury 20+ Year index represents the 20+ Year component of the Barclays US Treasury Index. Included securities must have at least 20 years to final maturity regardless of call features, and least \$250 million par amount outstanding. They must be rated investment grade (Baa3/BBB- or higher) by at least two of the following ratings agencies: Moody's, S&P, Fitch.

The Dow Jones U.S. Select REIT Index tracks the performance of publicly traded REITs and REIT-like securities and is designed to serve as a proxy for direct real estate investment, in part by excluding companies whose performance may be driven by factors other than the value of real estate. The index is a subset of the Dow Jones U.S. Select Real Estate Securities Index (RESI), which represents equity real estate investment trusts (REITs) and real estate operating companies (REOCs) traded in the U.S.

The S&P GSCI Gold Index, a sub-index of the S&P GSCI, provides investors with a reliable and publicly available benchmark tracking the COMEX gold future. The index is designed to be tradable, readily accessible to market participants, and cost efficient to implement. The more widely tracked S&P GSCI index is recognized as a leading measure of general price movements and inflation in the world economy. The index represents commodity market beta is world-production weighted and is designed to be investable by including the most liquid commodity futures.

Federal funds rate is the interest banks charge one another when lending reserve balances on an overnight basis. Typically banks with reserve capital above the minimum required to be held at the Federal Reserve will lend the excess to banks who need to meet minimums.

Treasury yield is the return on investment of U.S. government's debt obligations. Short-term Treasury bills offer no interest payments and are issued at discount from face value. The yield of the three-month Treasury bill is the difference between the discount price and face value, expressed as an annualized percentage rate.

Longer-term Treasury notes are issued for maturities from 1-10 years and offer an interest (or coupon) payment. They may be purchased at premium or discount from face value. The yield on 1- and 2- year Treasury notes is based on their coupon payment and face value, adjusted upward if the note was purchased at discount, and downward if the note was purchased at a premium. It is also expressed as an annualized percentage rate.



# Index Definitions (cont.)

Factor Indices are designed to reflect the performance of stocks representing a specific set of factor characteristics. Factor-specific indexes are calculated based on Russell and FTSE index universes. The cut-off date for the calculation of all factor data is the close of business on the last business day of the month prior to the review month. Detail on the calculation of each individual factor follow:

**Momentum** is defined as the cumulative total local return, calculated over the period that starts twelve months prior to the effective date, and ends the Monday following the third Friday of the previous month. A full period history is required to calculate Momentum. Country Relative Momentum is calculated in excess of the country median stock level of Momentum.

**Quality** is defined as a composite of Profitability and Leverage. Indexes derived from each eligible universe consider three individual measures of Profitability and a single measure of Leverage. Annual reported financial statement items are sourced from a third-party data provider.

**Size** is calculated as the natural logarithm of each company's full market capitalization in USD. Shares in issue as of the review effective date and price and foreign exchange rates as of the data cut-off date are used to calculate each company's full market capitalization.

**Value** is represented by a composite of three common valuation measures: • Cash-flow Yield = Latest Annual Cash-Flow / Full Market Capitalization • Earnings Yield = Latest Annual Net Income / Full Market Capitalization • Sales to Price = Latest Annual Sales / Full Market Capitalization Sales to Price is calculated in excess of the country median stock level. Annual measures of cashflow, net income and sales are sourced from a third-party data provider.

**Volatility** is defined as the standard deviation of five years of weekly (Wednesday to Wednesday) total local returns prior to the rebalance month. A minimum of 52 weekly return observations are required to calculate volatility. Country Relative Volatility is calculated in excess of the country median stock level of Volatility.

**Yield** is calculated as the natural logarithm of each company's twelve-month trailing dividend yield. Companies whose trailing dividend yield is zero are assigned a negative normalized score (Z-Score).

# Asset Class Indexes

## Asset Class

US Large Cap  
US Large Cap Growth  
US Large Cap Value  
US Mid Cap  
US Small Cap  
International Developed  
Emerging Market Equities  
REITs  
Commodities  
Gold  
Intermediate-Term Treasurys  
Long-Term Treasurys  
TIPS  
Mortgage-Backed Securities  
Corporate IG Bonds  
High Yield Corporate Bonds  
US Aggregate Bonds

## Index

S&P 500  
S&P 500 Growth  
S&P 500 Value  
S&P Midcap 400  
S&P SmallCap 600  
MSCI EAFE  
MSCI Emerging Markets  
DJ US Select REIT  
Bloomberg Commodities  
S&P GSCI Gold  
Bloomberg US Treasury 7-10 Yr  
Bloomberg US Treasury 20+ Yr  
Bloomberg US Treasury US TIPS  
Bloomberg GNMA  
Bloomberg US Corporate IG  
Bloomberg US Corporate High Yield  
Bloomberg US Aggregate Bond

# Data Sources

## Economic Indicator

Nonfarm Monthly Payrolls ('000)  
Total Nonfarm Payrolls - YoY Change  
U3 Unemployment Rate  
U6 Unemployment Rate  
Quit Rate  
Job Openings: Total Nonfarm Payroll  
Initial Jobless Claims ('000) 4 Wk. MA - Month End  
KC Fed LMCI Momentum Indicator  
Labor Force Participation Rate  
Employment to Population Ratio  
Temporary Help Employment  
Retail Sales - YoY Change  
Vehicle Sales (Mil. Units, annualized)  
Personal Savings Rate  
Real Retail Sales (3MMA) - YoY Change  
Industrial Production - YoY Change  
Capacity Utilization  
Core Capital Goods Orders - YoY Change  
Building Permits ('000)  
Housing Starts ('000)

## Source

U.S. Bureau of Labor Statistics  
U.S. Bureau of Labor Statistics  
U.S. Bureau of Labor Statistics  
U.S. Bureau of Labor Statistics  
U.S. Bureau of Labor Statistics  
U.S. Bureau of Labor Statistics  
U.S. Employment and Training Administration  
Federal Reserve Bank of Kansas City  
U.S. Bureau of Labor Statistics  
U.S. Bureau of Labor Statistics  
U.S. Bureau of Labor Statistics  
U.S. Bureau of the Census  
U.S. Bureau of Economic Analysis  
U.S. Bureau of Economic Analysis  
Federal Reserve Bank of St. Louis  
Board of Governors of the Federal Reserve System (US)  
Board of Governors of the Federal Reserve System (US)  
U.S. Bureau of the Census  
U.S. Bureau of the Census  
U.S. Bureau of the Census

# Data Sources (cont.)

## Economic Indicator

New Home Sales  
S&P/Case-Shiller Home Price Index (20 city) - YoY Change  
Total Construction Spending - YoY Change  
ISM Manufacturing Composite PMI  
ISM Manufacturing New Orders  
ISM Services Composite PMI  
ISM Services New Orders  
U. of Michigan Consumer Sentiment  
Consumer Price Index (CPI) - YoY Change  
Personal Consumption Expenditure (PCE) - YoY Change  
Producer Price Index (PPI) - YoY Change  
Average Hourly Earnings - YoY Change  
Real GDP – QoQ (SAAR)  
Real GDP – YoY Change  
Treasury Yield Curve (10-Yr. Minus 2-Yr.)  
Leading Economic Index (LEI) – YoY Change

## Source

U.S. Bureau of the Census  
S&P Dow Jones Indices LLC  
U.S. Bureau of the Census  
Institute for Supply Management  
Institute for Supply Management  
Institute for Supply Management  
Institute for Supply Management  
University of Michigan  
U.S. Bureau of Labor Statistics  
U.S. Bureau of Economic Analysis  
U.S. Bureau of Labor Statistics  
U.S. Bureau of Labor Statistics  
U.S. Bureau of Economic Analysis  
U.S. Bureau of Economic Analysis  
Federal Reserve Bank of St. Louis  
The Conference Board