EFA
Economic Forensics & Analytics

State of the Economy for US Manufacturers

August 2023 Economic Outlook

With Data Input From **Source**Day

SourceDay has partnered with Economic Forensics and Analytics to provide indicators for the manufacturing industry connected to macroeconomic variables, industry changes and data SourceDay generates as a manufacturing-industry insider. Economists follow variables that describe manufacturing's supply chain and manager opinions on the industry's future prospects. Other macroeconomic variables influence decisions in manufacturing based on forecasted consumer demand and interest rates. SourceDay's internal data may have some prescience with respect to turning points in manufacturing outcomes and cycles based on their operations.

We start with an overview of macroeconomic conditions and the latest forecasts.

Key takeaways:

- Slower new orders and shipments are concerning, likely due to higher interest rates slowing general demand for manufactured products;

- Manager confidence remains under the recession-indicating threshold of 50 since Q4 2022 as of Q2 2023;

- Geopolitical issues may help some parts of manufacturing, especially defense, though supply-chain issues remain a headwind for manufacturing;

- As of Q2 2023, the forecast is improving for the American economy, but manufacturing is likely to move more slowly than the macroeconomy.

Summary of Current Conditions and Forecast

The American economy continues to wade through a time of both relatively-high inflation and interest rates. For manufacturing businesses, continued consumer and business spending growth is critical for a positive outlook (discussed below). The combined higher costs of credit, labor and consumer goods act as headwinds against such growth. There has yet to be a declared recession since May 2020 for the American economy; however, it is not as important that a recession is declared than how fading expectations and concerns over the future slow down consumer and business spending that may become higher inventories or lower profitability or both.

Continued job growth in the American economy has created some tailwinds for consumer and commercial demand for manufactured products. While there were two consecutive quarters of negative gross domestic product (GDP) growth after inflation ("real" growth) in 2022 (Q1 and Q2), jobs losses did not take place alongside negative real growth. Annualized growth of GDP has continued since Q3 2022 and labor markets remain "hot" as employers continue to hire in the aggregate; job openings remain historically high (though fading since Q1 2022), while labor-force levels continue to grow very slowly since the pandemic's shock in 2020. The combination of these headwinds and tailwinds have made for some confounding financial market activity.

Financial markets continue to baffle forecasts in two ways: (1) housing markets have stabilized in terms of prices, despite high mortgage interest rates; and (2) equity markets are rising in value during a time of relatively-high interest rates. Both of these changes have simple explanations. For housing markets, new and existing units' supply have not kept pace with demand since 2020 in trend; after a reversal due to rising interest rates and price increases since Q3 2022, home prices are back on the rise and construction starts have increased again in Q2 2023. For equity markets, investors' considerations of geopolitical issues and current interest rate environments suggest markets are reducing pricing of risk. In short, the outlook for the

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About EFA: Economic Forensics & Analytics (EFA) is an expert economic analysis firm with unique expertise in economic development and data analysis for the US manufacturing industry.

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Dr. Robert Eyler, founder and president of EFA, is Professor of Economics at Sonoma State University, where he has been teaching since 1995. He earned a Ph.D. from the University of California, Davis in 1998. He earned a B.A. in Economics at CSU, Chico in 1992. Dr. Eyler also serves on the board of directors of Redwood Credit Union, a $9 billion nonprofit financial cooperative. Robert has been a visiting scholar at both the University of Bologna and Stanford University.

SourceDay

About SourceDay: Learn more about how SourceDay's Unified Supplier Collaboration platform automates price, quantity and delivery date changes to direct material purchase orders (POs) and provides complete visibility into your direct material PO lifecycles here.

American economy remains positive, but with slower growth than the long-term trend. As we go through the indicators below, more connections to manufacturing will be made.

What These Indicators are Trying to Detect

Like other economic outlooks that mix leading and coincident (sometimes lagging) indicators together, these try to detect turns in the "business" cycle. In essence, our indicators should show the following:

- Leading indicators: when falling, moving toward the cycle's trough; when rising, the economy is going to grow within the next 12–24 months (or 4–8 quarters);

- Coincident indicators: compared to leading; for example:

  » When both are rising, the economy is currently growing and forecasted to grow;

  » When both are falling, recession is likely coming;

  » When leading is rising and coincident is falling, the economy has yet to trough or "bottom out", but is declining in trend;

  » When the coincident indicators are rising and the leading indicators are falling, the economy is expanding, but slowing down as it approaches the cycle's top or crest (next 4–8 quarters).

- Economists can best see only 8 quarters in the future well, though economists tend to use three-year forecast windows.

In this update, manufacturing is our focus. Let's look at macroeconomic indicators next as context for changing economic conditions for manufacturing.

Macroeconomic Indicators

As the figures show, manufacturing orders, shipments and inventories have a cyclic nature; having macroeconomic indicators that signal turns in cycles, good or bad, is a classic goal of economic forecasting. These indicators were chosen based on their importance to the macroeconomy and also their statistical and theoretical relationship to turns in manufacturing's supply-chain indicators shown below. We consider the following indicators as prescient of change in the US economy:

- 10-Year Treasury Bond rates as a summary of long-term expectations, costs of credit and equity market reactions to monetary policy environments (leading);

- Job Openings in Manufacturing, as an indicator of hiring confidence (leading);

- The U-2 unemployment rate, which shows the percent of labor force out of work for 16 weeks or more and those that have completed temporary jobs (so-called "job losers"), a measure that tends to lead the economy versus be coincident (leading);

- GDP growth and forecasts to 2026 (a mix of the Federal Reserve's Survey of Professional Forecasters and EFA's forecast for the American economy), which is both coincident and leading based on the current growth rates and the forecasts respectively.

The grey shaded areas are recessions during the period covered by each metric.

### 10-Year Treasury Bond Yield, Q1 2002 to Q2 2023
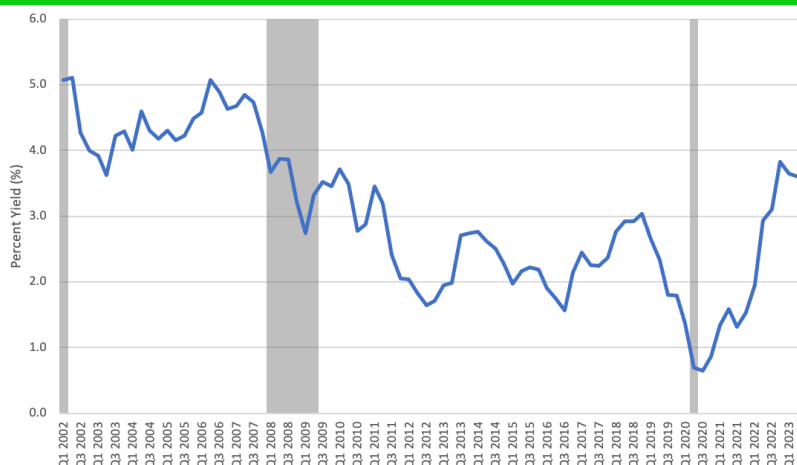
The recent reduction in the 10-year Treasury rate should drive more construction and economic confidence, which may lead to more durable goods purchases by consumers (appliances, automobiles, etc.) through 2024. This rate is still relatively high given the history shown from Q1 2002.

## Job Openings in Manufacturing, Q1 2002 to Q2 2023
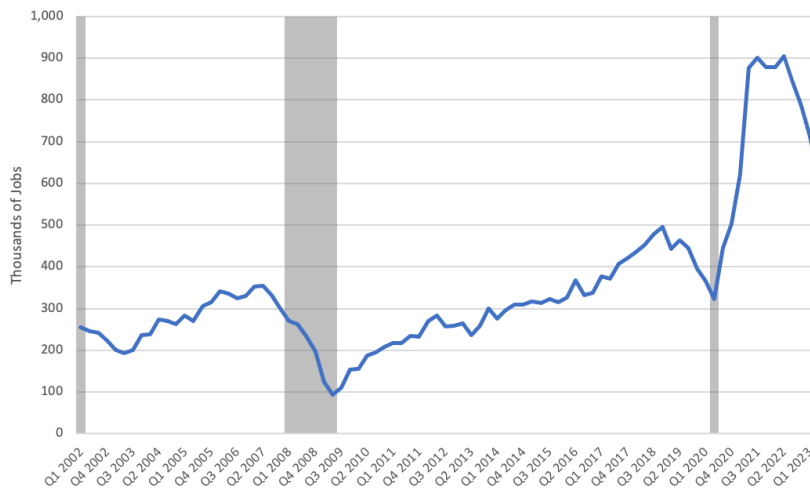
Job Openings have been a focus of following post-pandemic labor markets because of the surge in hiring just after the economy re-opened. However, the recent fade suggests a movement back to a pre-pandemic "normal" or a fade in confidence in manufacturing such that hiring is being reduced. In either case, lower levels of job openings portend a slower economy.

Job Losers (U-2) Unemployment Rate, Q1 2002 to Q2 2023
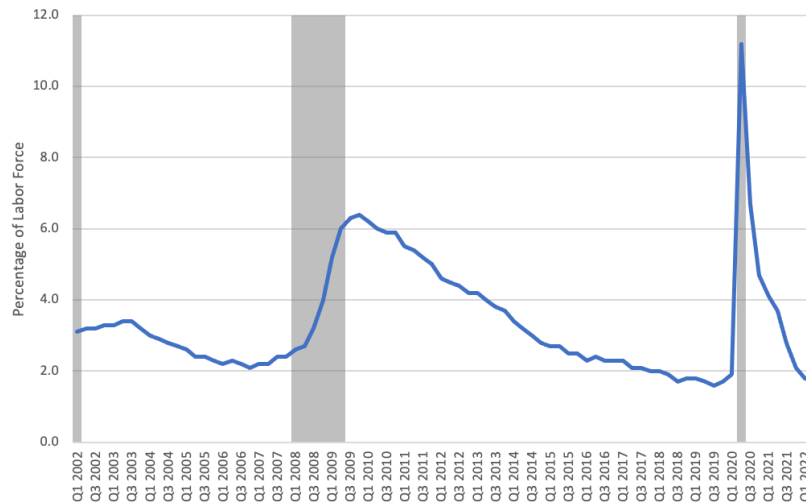
Since the Second World War, this metric has increased before a declared recession for each recession (there have been 13). Headline unemployment tends to be coincident with declared recessions; increases in long-term unemployment and the release of temporary workers tends to precede recession. For now, this indicator is historically low and changing very little in trend since early 2022.

GDP Growth, Annualized 12-Mo Change, Q1 2002 to Q4 2026
(Q3 2023 to Q4 2026 Forecasted)
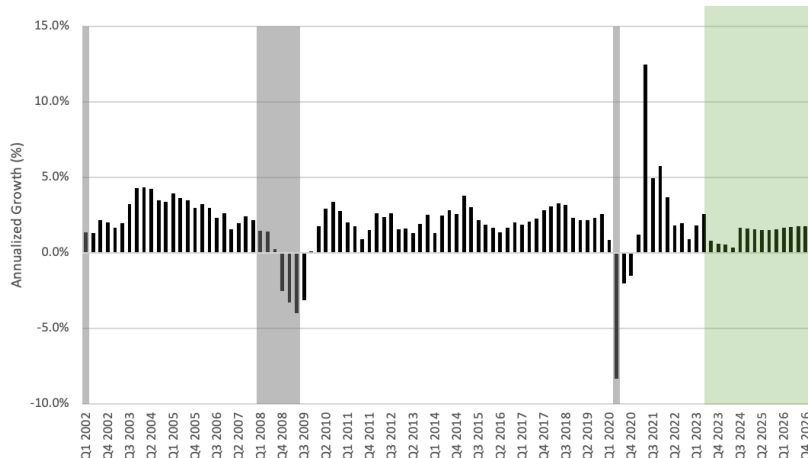
Forecasted GDP growth is low but non-negative to 2026. The slow reduction in inflation pressure and continued jobs growth are helping forecasts remain sanguine in light of headwinds and geopolitical issues.

The green shaded area is the forecast window as of Q2 2023.

Summary, Q2 2023: Macroeconomic Overview and Manufacturing Outlook*			
10-Year Treasuries	↔	Job Openings, Manu	↓
U-2 Unemployment	↑	GDP Forecasts to 2026	↑

Manufacturing Indicators*	
Indicator	Signal for Manufacturing (Q1 and Q2 2023)
New Orders	↓
Shipments	↓
Unfilled Orders	↑
Inventories	↔
ISM PMI Index	↓

*These arrows indicate trends over the last six months; each arrow suggests the recent trend's effects on manufacturing's overall outlook for the next 4-8 quarters.

Manufacturing Indicators

Manufacturing indicators here describe manufacturing's supply chain. Our market-wide indicators for the US are:

- **New orders:** when rising, this is a market-driven sign of manufacturing confidence that demand is going to rise;

- **Shipments:** when rising, this shows orders are being fulfilled and that customers are not asking for delays due to a lack of demand;

- **Unfilled Orders:** when rising, this indicator shows an inability to gain access to inputs or some supply-chain problem;

- **Inventories:** when rising, this is part of new orders that goes unshipped and accumulates over time.

We also include the ISM Purchasing Managers' Index (PMI) as a qualitative indicator of the current outlook of purchasing managers in manufacturing over the next twelve months. While we show the supply-chain indicators by quarter to match the macro indicators, we show the PMI by month. The graphics show movement of these main indicators before, during and after recessions since 1992 and where we are as Q2 2023 came to an end. The figures below show these changes over time with respect to recent recessions. The six-month moving averages reduce volatility and focus on trend.

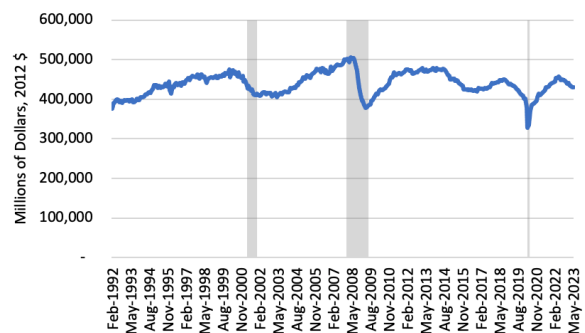## Summary: Manufacturing Indicators

These indicators all suggest more headwinds than tailwinds for manufacturing for the next twelve months, with data from February 1992 to May 2023. Data are in 2012$ to adjust for inflation effects.

- New orders and shipments are both fading in trends in the first two quarters of 2023;
  - » Durable goods orders continue to rise (e.g., appliances, automobiles, machinery);
  - » Non-durable goods orders (e.g., clothing, household supplies, fuel, milk) are falling;

- Unfilled orders are also fading, a sign that supply-chain concerns are low and inflation should also be fading;

- Inventories are also fading, a sign that slowing consumer and commercial demand means there is a focus on reducing inventories as to not increase the costs of storage in light of fading new orders.

- Manager confidence is fading (the PMI index is shown from 2008 to 2023 based on available data).
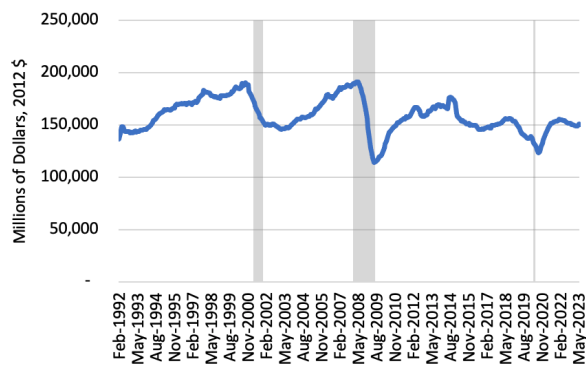

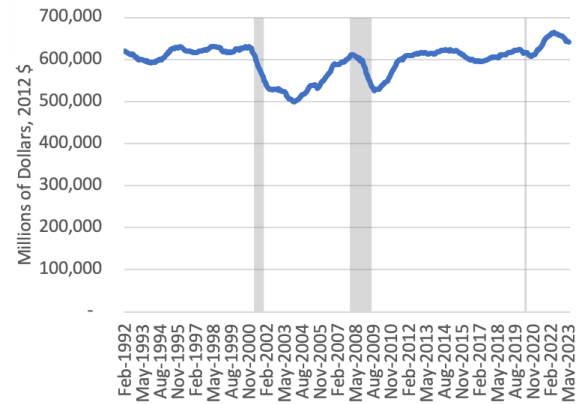New Orders, 2012$, 6-month MA
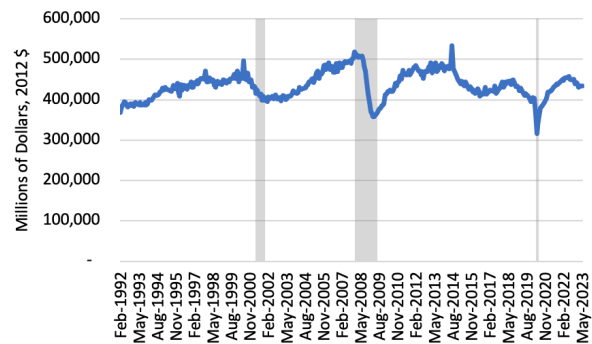
Shipments, 2012$, 6-Month MA

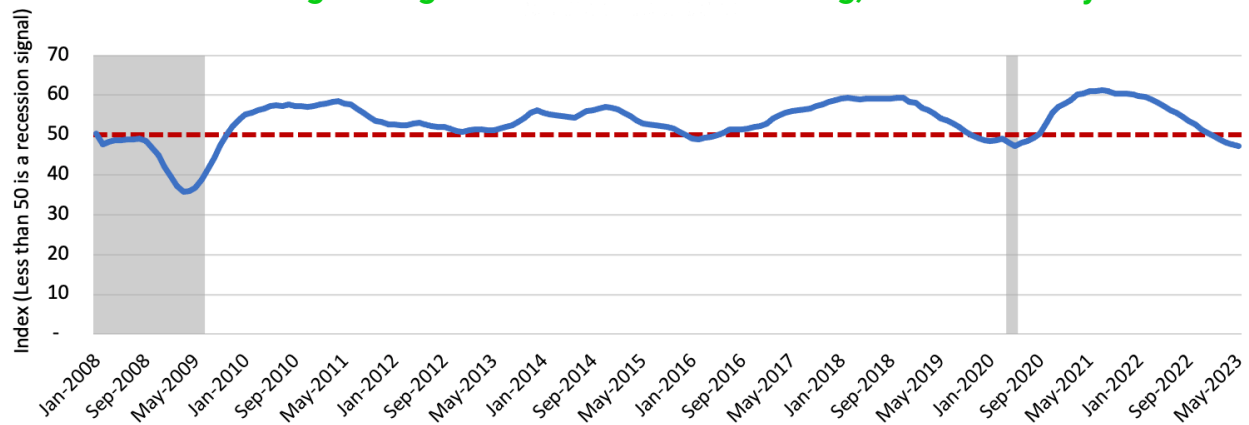**These indicators all suggest more headwinds than tailwinds for manufacturing for the next twelve months…**

Unfilled Orders, 2012 $, 6-Month MA

Inventories, 2012$, 6-Month MA

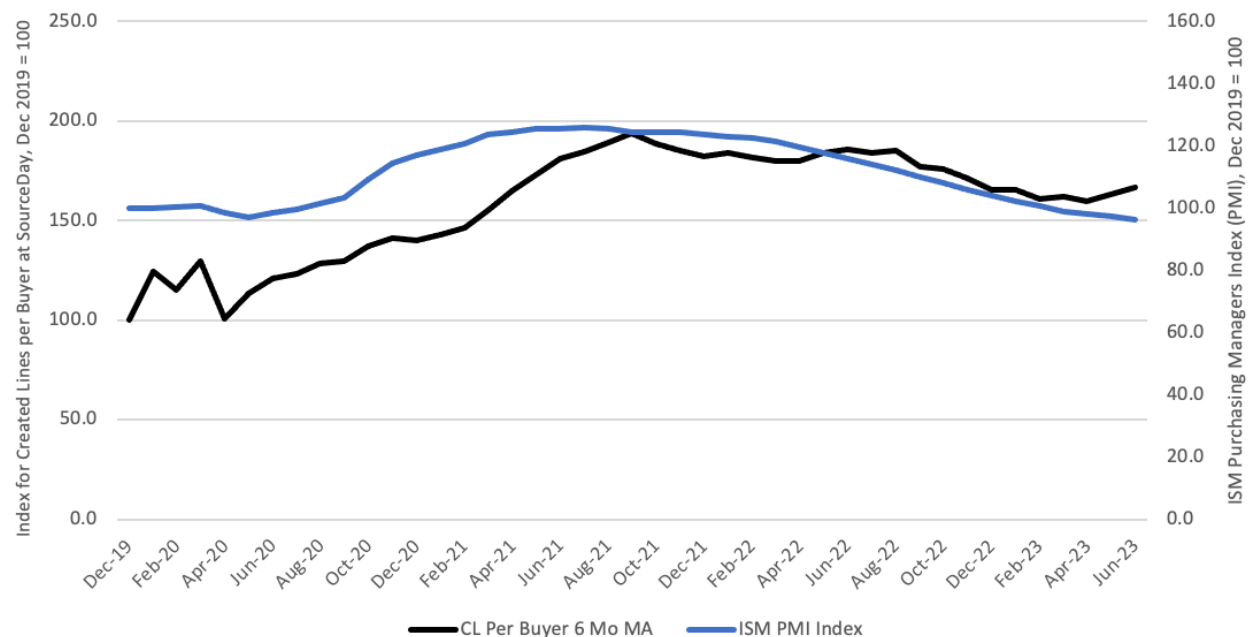**ISM Purchasing Managers Index for Manufacturing, Jan 2008–May 2023**

SourceDay Indicators:

SourceDay tracks many internal indicators, two of which we focus on here. Created lines per buyer (new buyer-vendor relationships for specific products), indicating new orders to come; and Changes per Purchase Order (PO), which indicates a buyer change in perceived or actual need in terms of volume from a manufacturer. Changes per PO can be seen as coincident with manufacturing output; these changes will shift total orders and ultimate shipment levels and thus reflect overall manufacturing outcomes. For the 43 months of data we have, SourceDay's changes per PO—when converted into a six-month moving average—is not highly related to the ISM PMI index as shown above, but is highly related to new orders at the macroeconomic level (correlation between SourceDay's changes per PO and national manufacturing new orders is approximately 88 percent between December 2019 to June 2023). The more lines and subsequent POs generated by SourceDay's relationships, the more explanatory or prescient SourceDay's data should become.

SourceDay creates new lines of business and connects current and new buyers of goods to current and new vendors. In this way, turns in the manufacturing cycle may be seen by SourceDay due to its interactions with both buyers and vendors. When a new "line" is created, it is a signal of new purchase orders to come; such line creation should precede new orders generally, perhaps at the macroeconomic level. Hence, as the number of new lines rises, this may forecast new orders rising generally in the US market. EFA tested how causal that relationship may be; we used lines per buyer to normalize data and not have growth of new buyers created spurious correlation among indicators. Those tests did not reveal any one-way causality; however, new lines created per buyer at SourceDay between Dec 2019 and June 2023 explain approximately 50 percent of the variability in the six-month moving average of new orders in manufacturing for the American economy over the same 43 months.

SourceDay Created Lines per Buyer (2012$, 6 Month Moving Average) and ISM PMI Data, Dec 2019 to June 2023

The ISM PMI data we showed earlier, along with manufacturing new orders, is a classic barometer of hiring and growth decisions in manufacturing and then in the macroeconomy. As purchasing manager confidence is rising, SourceDay should expect to see more lines created and more purchase orders or positive changes in purchase orders. Notice in the figure that compares SourceDay Created Lines per Buyer and the PMI that turns in each have followed each other since 2019 on a monthly basis. The six-month moving average of changed lines at SourceDay has slightly increased since February 2023. If the ISM PMI begins to rise in late 2023, this provides more evidence that SourceDay's interactions with buyers of manufactured goods may forecast manager confidence in the economy. If SourceDay's data provide this foresight, that is a rare event for one firm to have that strong a connection to an entire industry. SourceDay may be on the cusp of that power. It is the causal structure that is most sought after and the hardest to find in practice. The more lines and subsequent POs generated by SourceDay's relationships, the more explanatory or prescient SourceDay's data should become for the national data and manufacturing outlook.

Acknowledgements and References