

Industrial Supply Association

SEPTEMBER 2022



Table of Contents

Economic Overview	1
Terminology and Methodology	2
Industrial Supply Association Markets Dashboard	3
US Industrial Production Index	4
US Civilian Aircraft Equipment Production Index	5
US Automobile Production Index	6
US Private Nonresidential Construction	7
US Primary Metals Production Index	8
US Real Gross Domestic Product	9
US Leading Indicators	10
Market Definitions	11
Management Objectives™	12

Economic Overview

A Scarier Economy

The global economy has shifted rapidly since the start of the year. Global trends include elevated inflation and slowing growth or even contraction in industrial, capex, and retail sectors. Furthermore, some countries are contending with weakening housing markets as central banks hike interest rates and consumers face affordability issues.

The US is working through a hangover stemming from the enormous fiscal and monetary stimulus of the preceding years, but the American consumer is providing a solid foundation for the economy and could help usher it through a relatively mild back side of the business cycle.

Other countries are not so fortunate and face more severe headwinds. Europe is still contending with war in Ukraine and now faces an energy crisis as it tries to rapidly wean itself away from Russian gas. We downgraded our outlook for European Union Industrial Production and anticipate contraction next year.

China-specific leading indicators show budding upward movement, but that country faces a unique real estate crisis. Large property developers have defaulted on their debt and are unable to complete projects. Further, lockdowns due to China's zero-COVID policy have disrupted production and increased uncertainty. Across most countries, leading indicators are generally declining, providing insight into the next two to four quarters. However, the back side of the business cycle is not uniform, but will continue to evolve.

In the US, a shift from inflation to disinflation is underway. The US Consumer Price Index in August came in 8.3% higher than in August of 2021. That 8.3% rate of inflation is a decrease from June's 9.1%, largely due to lower fuel costs. The supply chain has shown sustained improvement (though uneven across markets) from the gridlock of recent years; the Global Supply Chain Pressure Index has declined for four consecutive months, confirming that the relief is real. Additionally, retailers who overordered during COVID-related surges are now marking down excess inventory. These are clear signals that supply-side drivers of inflation are easing. Demand is also softening, taking the form of decline or slowing growth depending on the market.

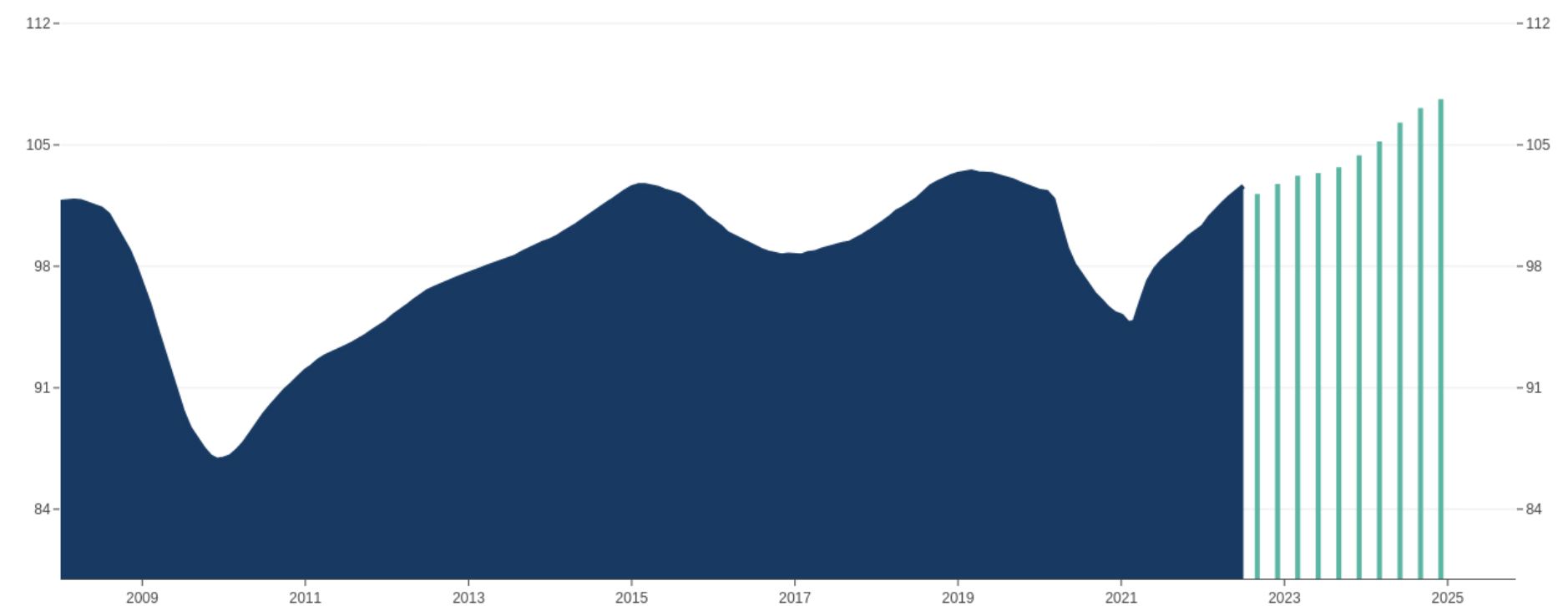
Monetary policy is the other major factor impacting inflation. The Federal Reserve Board has been very hawkish, stating that it is committed to returning inflation to an average of 2.0%. The Fed is rolling back its balance sheet (i.e., quantitative tightening) and has raised the federal funds rate from the near zero of early this year to 3.00-3.25% as of late September. Based on the Fed's track record, we are concerned that it may overtighten and adversely impact the business cycle. We are monitoring the 3-month to 10-year yield curve; if we see an extended inversion, it may impact our macroeconomic outlook.

Mortgage rates were around or below 3% for an extended period in 2020-21 and have since more than doubled, coming in at north of 6% at the time of this writing. Between higher borrowing costs and the prior surge in home prices, many would-be homebuyers are now facing affordability issues. This is cooling single-unit residential construction volume; companies operating in this market should plan on cyclical decline into mid-2023. The multi-unit market is benefiting somewhat from the lack of affordable single-family homes.

Elevated interest rates could also hinder businesses capital expenditures. However, built-up backlogs, demand for labor-saving equipment, and reshoring trends will help buoy business-to-business activity. Elevated interest rates could still have a cooling effect, but, per historical precedent, the impact would not be immediate.

What will the future hold? Our analysis suggests a rate-of-change low for the global economy in late 2023 followed by mild cyclical rise in 2024. However, central bank policies, the potential for escalating war, and regional economic problems (including the aforementioned issues in Europe and China) pose risks. At times like these, it takes courage to invest in your business. We encourage you to do so, but focus on high-ROI projects that address the long-term issues of margin squeeze and labor market tightness. Be conservative in your cash flow estimates so you don't get caught in a tough spot if some of the risks come to fruition.

US Industrial Production Index Annual Average (12MMA)



Terminology and Methodology

Data Trends: Moving Averages and Totals

Quarterly Average (Three-Month Moving Average, or 3MMA)

The average of the latest three months of data, updated every month. In the example, \$57.79 is the quarterly average for the three months ending in March 2021 (i.e., the average for January, February, and March 2021).

Example: Monthly US Crude Oil Spot Prices averaged \$57.79 in the first quarter of 2021, a 26.3% increase from the first quarter of 2020.

Quarterly Total (Three-Month Moving Total, or 3MMT)

The total of the latest three months of data, updated every month. In the example, \$257.8 billion is the quarterly total for the three months ending in February 2021 (i.e., the total for December 2020, January 2021, and February 2021).

Example: Quarterly US Capital Goods New Orders totaled \$257.8 billion in February 2021.

Annual Average (12-Month Moving Average, or 12MMA)

The average of the latest 12 months of data, updated every month. In the example, 119.0 million is the annual average for February 2021 (i.e., the average for the 12-month period from March 2020 through February 2021).

Example: US Private Sector Employment averaged 119.0 million workers during the 12 months through February 2021, down 7.5% from one year earlier.

Annual Total (12-Month Moving Total, or 12MMT)

The total of the latest 12 months of data, updated every month. In the example, \$5.849 trillion is the annual total for February 2021 (i.e., the total for the 12-month period from March 2020 through February 2021).

Example: US Wholesale Trade totaled \$5.849 trillion during the 12 months through February 2021.

Growth Rates

Monthly Growth Rate (1/12 Rate-of-Change)

The percentage change between a given month and the same month one year earlier. In the example, 79.3% is the monthly growth rate for March 2021.

Example: Monthly US Copper Futures Prices were at \$4.00 per pound in March 2021, 79.3% above the March 2020 level of \$2.29.

Quarterly Growth Rate (3/12 Rate-of-Change)

The percentage change between a three-month period and the same three-month period from one year earlier. In the example, 26.3% is the quarterly growth rate for March 2021.

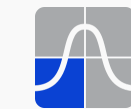
Example: US Crude Oil Spot Prices averaged \$57.79 in the first quarter of 2021, a 26.3% increase from the first quarter of 2020.

Annual Growth Rate (12/12 Rate-of-Change)

The percentage change between a 12-month period and the same 12-month period from one year earlier. In the example, -7.5% is the annual growth rate for February 2021; that is, US Private Sector Employment during March 2020 through February 2021 came in 7.5% below Employment from March 2019 through February 2020.

Example: US Private Sector Employment averaged 119.0 million workers during the 12 months through February 2021, down 7.5% from one year earlier.

Business Cycle Phases



Recovery (A)

The annual growth rate (12/12) is rising, but the rate of growth is still negative. We denote this phase with blue (for improving).



Accelerating Growth (B)

The annual growth rate (12/12) is rising, and the rate of growth is positive. We denote this phase with green (for go).



Slowing Growth (C)

The annual growth rate (12/12) is positive, but the rate of growth is declining. We denote this phase with yellow (for caution).



Recession (D)

The annual growth rate (12/12) is declining, and the rate of growth is negative. We denote this phase with red (for warning).

Industrial Supply Association Markets Dashboard

Page Number	Indicator	Current		Annual Growth Rate Forecast (12/12), Year-End*		
		Growth Rate**	Phase	2022**	2023**	2024**
4	US Industrial Production Index	4.4%	C	2.8%	1.6%	3.1%
5	US Civilian Aircraft Equipment Production Index	11.0%	C	6.1%	0.6%	13.4%
6	US Automobile Production Index	-11.4%	A	16.5%	8.7%	4.3%
7	US Private Nonresidential Construction	2.8%	B	5.3%	7.3%	5.0%
8	US Primary Metals Production Index	4.5%	C	-0.1%	-1.9%	4.4%
9	US Real Gross Domestic Product (<i>Quarterly Growth Rate</i>)	1.7%	C	1.7%	2.0%	3.2%

*Coloring denotes the business cycle phase at year-end. For example, if a value in the 2021 column is colored blue, the corresponding indicator is forecasted to be in Phase A, Recovery, at year-end 2021. Green denotes Phase B, yellow Phase C, and red Phase D.

**Annual growth rate (12/12) except where otherwise noted.



Recovery (A)



Accelerating Growth (B)



Slowing Growth (C)

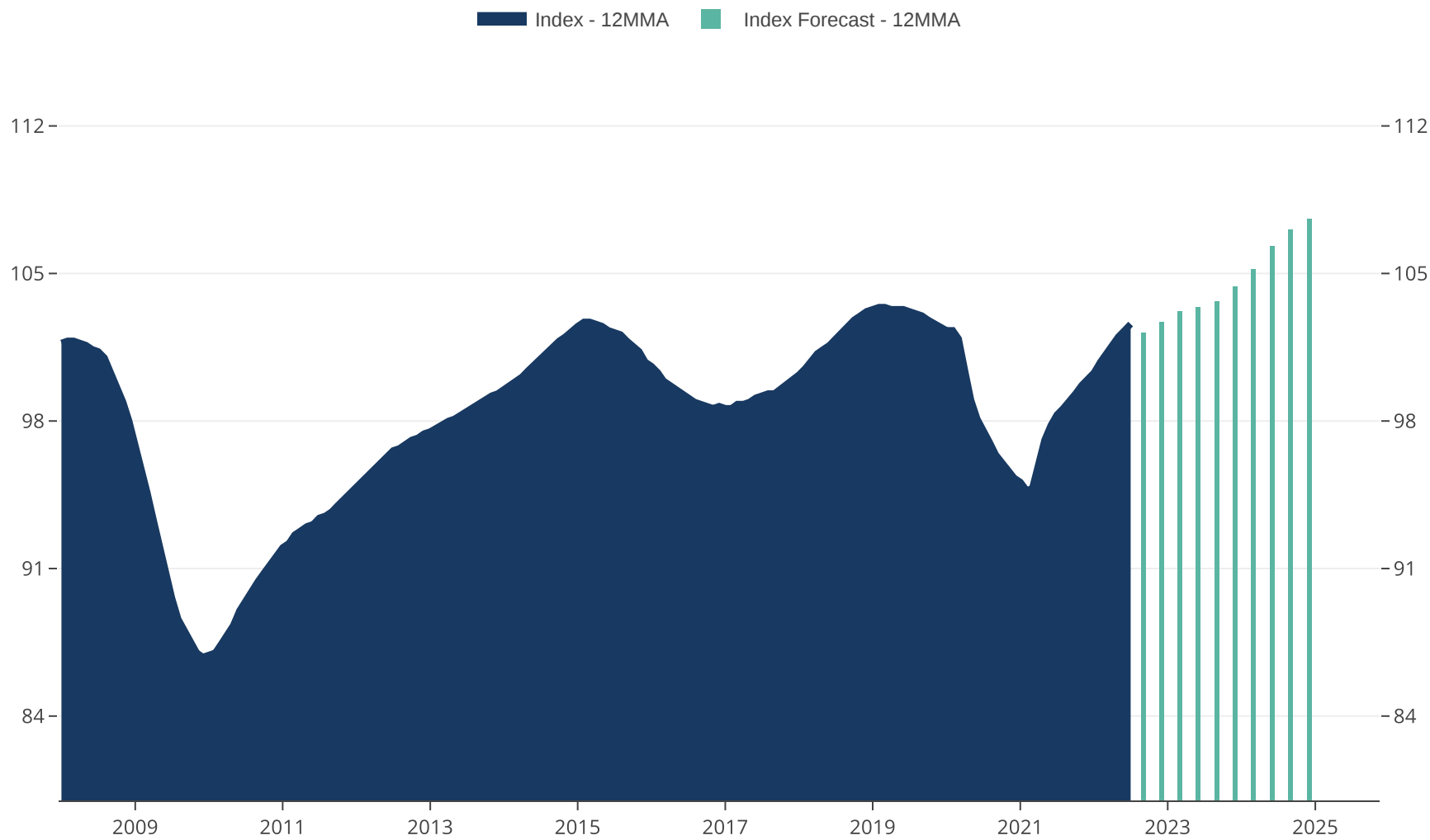


Recession (D)

US Industrial Production Index

Soft Landing Expected This Cycle; Backlogs, Reshoring, Consumer and Business Finance Support Growth

Annual Average (12MMA)



Annual Growth Rate (12/12)



Current Phase

**Phase C
Slowing Growth**

**Current Indicator
Amplitude**

- July 2022 Annual Growth Rate (12/12): 4.4%
- July 2022 Annual Average (12MMA), 2017=100: 102.6

Industry Outlook

Year	Annual Growth Rate
2022	2.8%
2023	1.6%
2024	3.1%

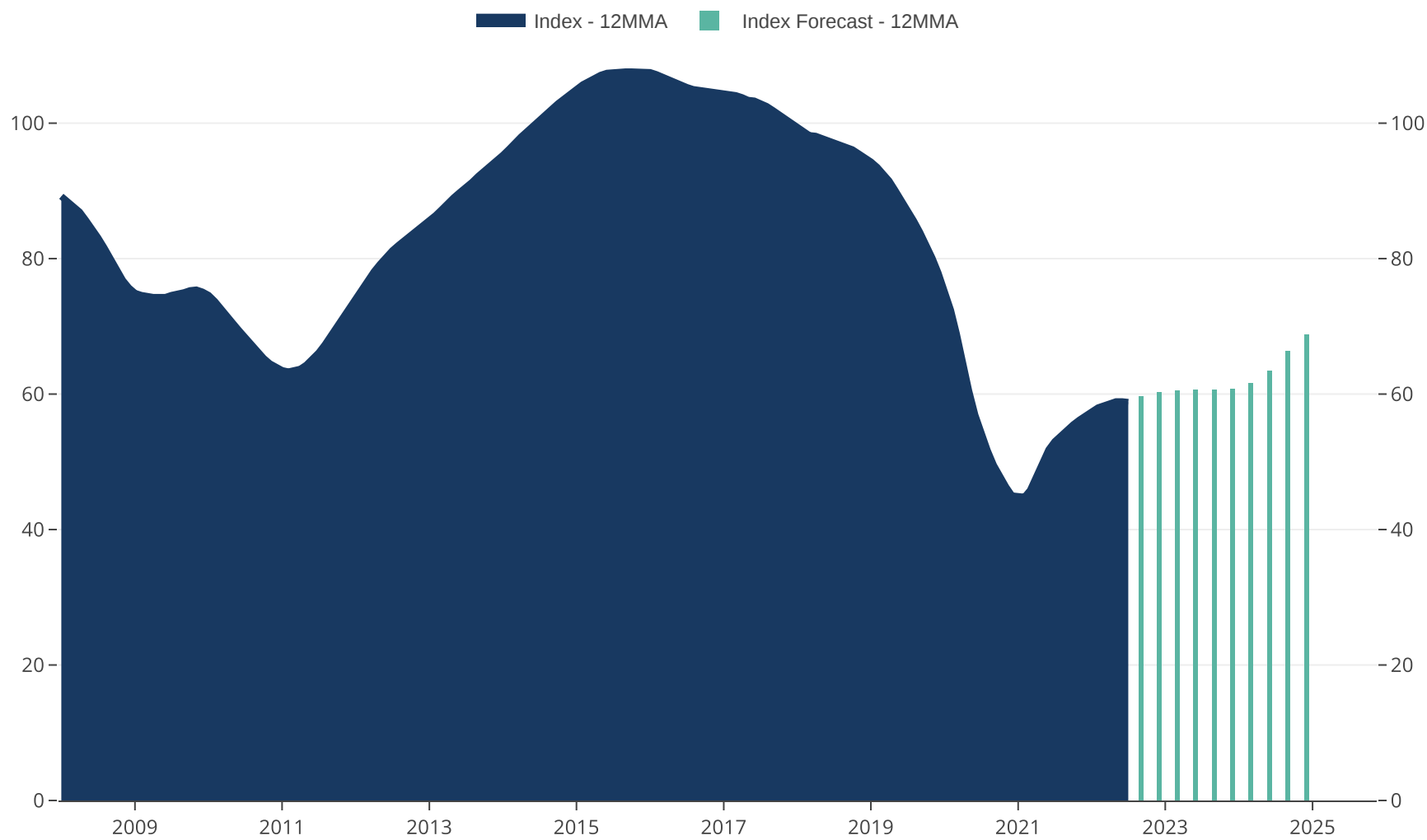
	Sep-22	Dec-22	Mar-23	Jun-23	Sep-23	Dec-23	Mar-24	Jun-24	Sep-24	Dec-24
Lower Forecast Range	2.8	2.3	2.0	1.3	1.0	1.1	1.4	2.3	2.8	2.6
Annual Growth Rate (%)	3.3	2.8	2.5	1.8	1.5	1.6	1.9	2.8	3.3	3.1
Upper Forecast Range	3.7	3.2	2.9	2.3	2.0	2.1	2.4	3.3	3.8	3.6

	Sep-22	Dec-22	Mar-23	Jun-23	Sep-23	Dec-23	Mar-24	Jun-24	Sep-24	Dec-24
Lower Forecast Range	101.7	102.3	102.8	102.9	103.2	103.9	104.7	105.8	106.6	107.1
Annual Average Index (2017=100)	102.2	102.7	103.2	103.4	103.7	104.4	105.2	106.3	107.1	107.6
Upper Forecast Range	102.6	103.2	103.7	103.9	104.2	104.9	105.7	106.8	107.6	108.1

US Civilian Aircraft Equipment Production Index

Forecast Changed Due to Historical Data Revision by Source; Production to Be Relatively Flat in 2023

Annual Average (12MMA)



Annual Growth Rate (12/12)



Current Phase

**Phase C
Slowing Growth**

Industry Outlook

<i>Year</i>	<i>Annual Growth Rate</i>
2022	6.1%
2023	0.6%
2024	13.4%

**Current Indicator
Amplitude**

- July 2022 Annual Growth Rate (12/12): 11.0%
- July 2022 Annual Average (12MMA), 2017=100: 58.8

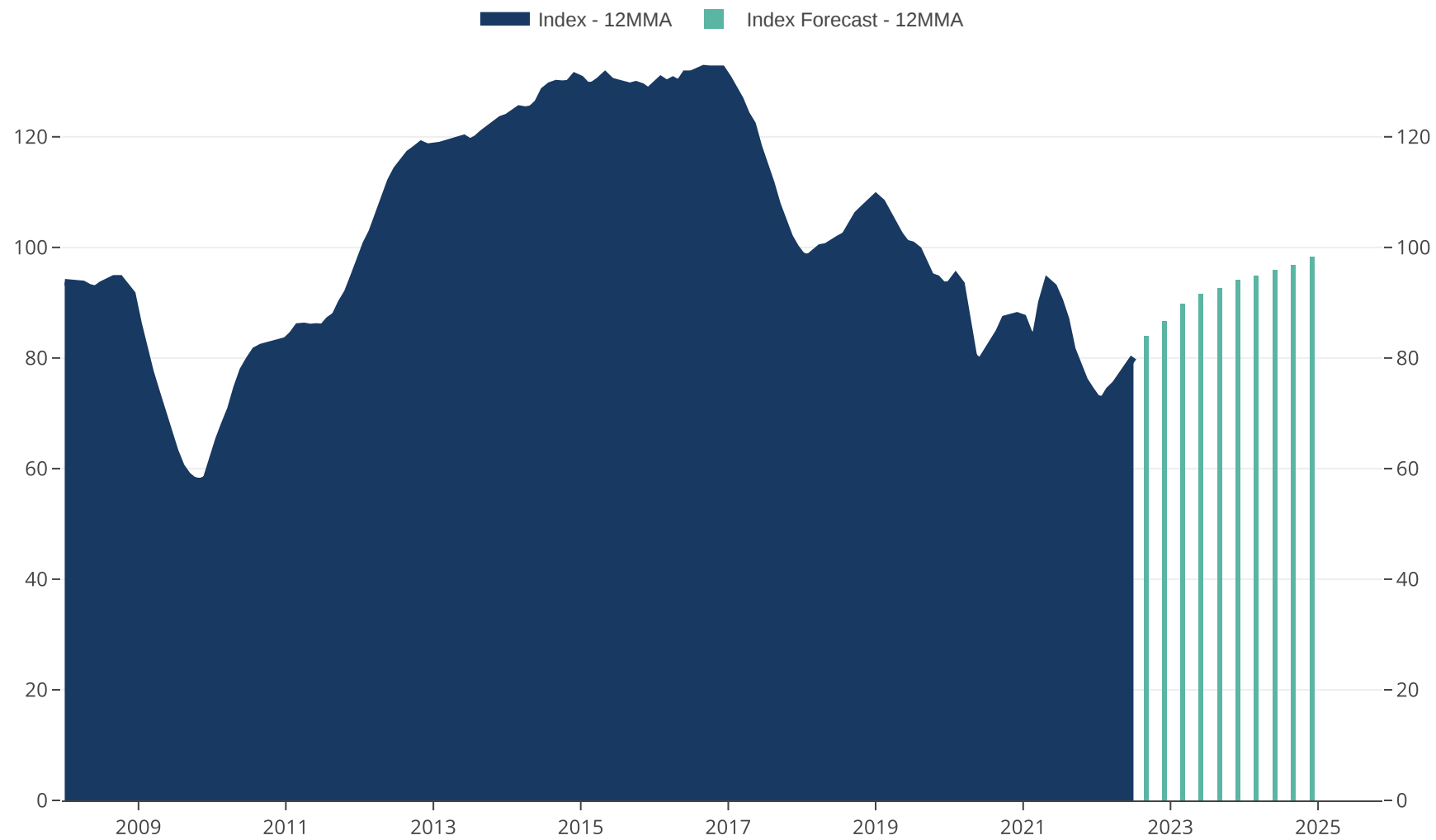
	Sep-22	Dec-22	Mar-23	Jun-23	Sep-23	Dec-23	Mar-24	Jun-24	Sep-24	Dec-24
Lower Forecast Range	7.7	4.8	2.3	1.0	0.1	-0.9	0.4	3.2	7.8	11.9
Annual Growth Rate (%)	9.0	6.1	3.6	2.4	1.6	0.6	1.9	4.7	9.3	13.4
Upper Forecast Range	10.3	7.4	4.9	3.8	3.1	2.1	3.4	6.2	10.8	14.9

Lower Forecast Range	59.0	59.6	59.7	59.8	59.7	59.8	60.7	62.5	65.4	67.9
Annual Average Index (2017=100)	59.7	60.3	60.5	60.6	60.6	60.7	61.6	63.4	66.3	68.8
Upper Forecast Range	60.4	61.1	61.2	61.4	61.5	61.6	62.5	64.3	67.2	69.7

US Automobile Production Index

Forecast Revised on Data Revision; Production Picking up Momentum but Will Trend Below 2019 Levels

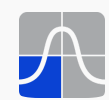
Annual Average (12MMA)



Annual Growth Rate (12/12)



Current Phase



Phase A Recovery

Current Indicator Amplitude

- July 2022 Annual Growth Rate (12/12): -11.4%
- July 2022 Annual Average (12MMA), 2017=100: 80.1

Industry Outlook

Year Annual Growth Rate

2022	16.5%
2023	8.7%
2024	4.3%

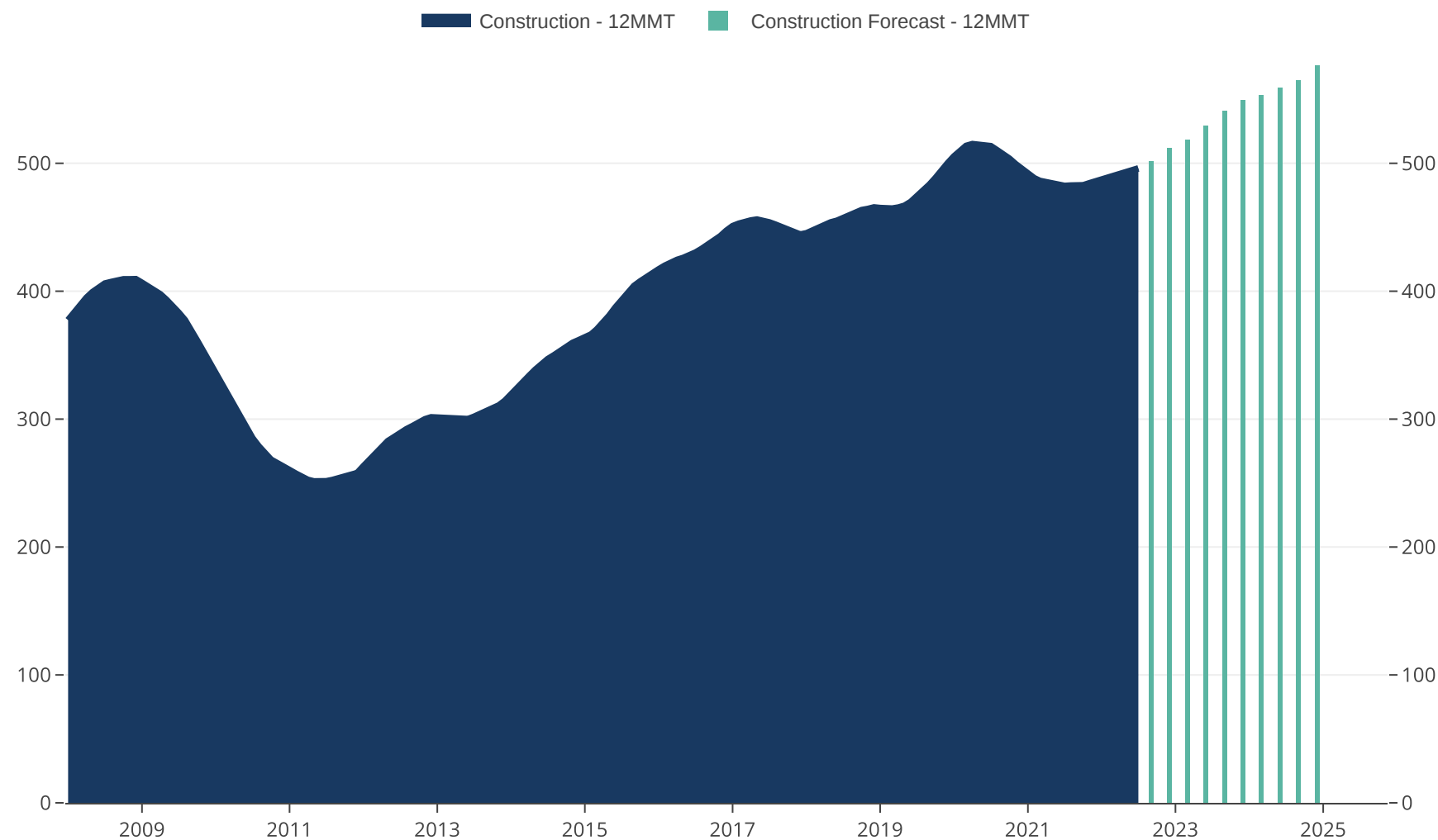
	Sep-22	Dec-22	Mar-23	Jun-23	Sep-23	Dec-23	Mar-24	Jun-24	Sep-24	Dec-24
Lower Forecast Range	1.3	15.0	19.5	14.8	8.9	7.2	4.2	3.2	3.0	2.8
Annual Growth Rate (%)	2.8	16.5	21.0	16.3	10.4	8.7	5.7	4.7	4.5	4.3
Upper Forecast Range	4.3	18.0	22.5	17.8	11.9	10.2	7.2	6.2	6.0	5.8

Lower Forecast Range	82.6	85.5	88.7	90.4	91.3	92.8	93.6	94.5	95.4	96.8
Annual Average Index (2017=100)	83.9	86.6	89.8	91.6	92.6	94.1	94.9	95.9	96.8	98.2
Upper Forecast Range	85.1	87.7	90.9	92.8	93.9	95.4	96.3	97.3	98.1	99.6

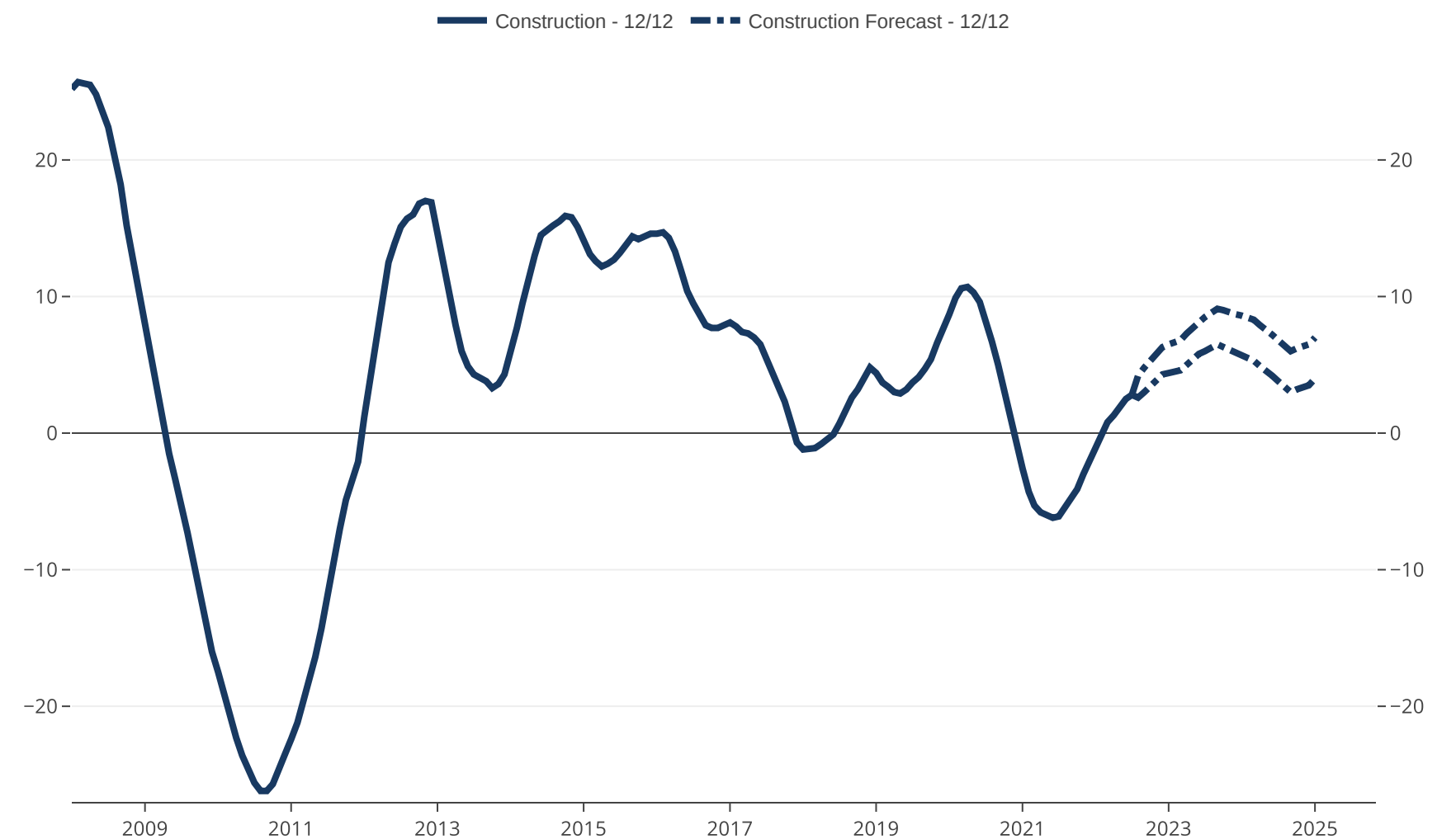
US Private Nonresidential Construction

Forecast Lowered on Sluggish Rising Trend; Accelerating Growth Expected Into Late 2023

Annual Total (12MMT)



Annual Growth Rate (12/12)



Current Phase



**Phase B
Accelerating
Growth**

Industry Outlook

<i>Year</i>	<i>Annual Growth Rate</i>
2022	5.3%
2023	7.3%
2024	5.0%

**Current Indicator
Amplitude**

- July 2022 Annual Growth Rate (12/12): 2.8%
- July 2022 Annual Total (12MMT), Billions of \$: 496.0

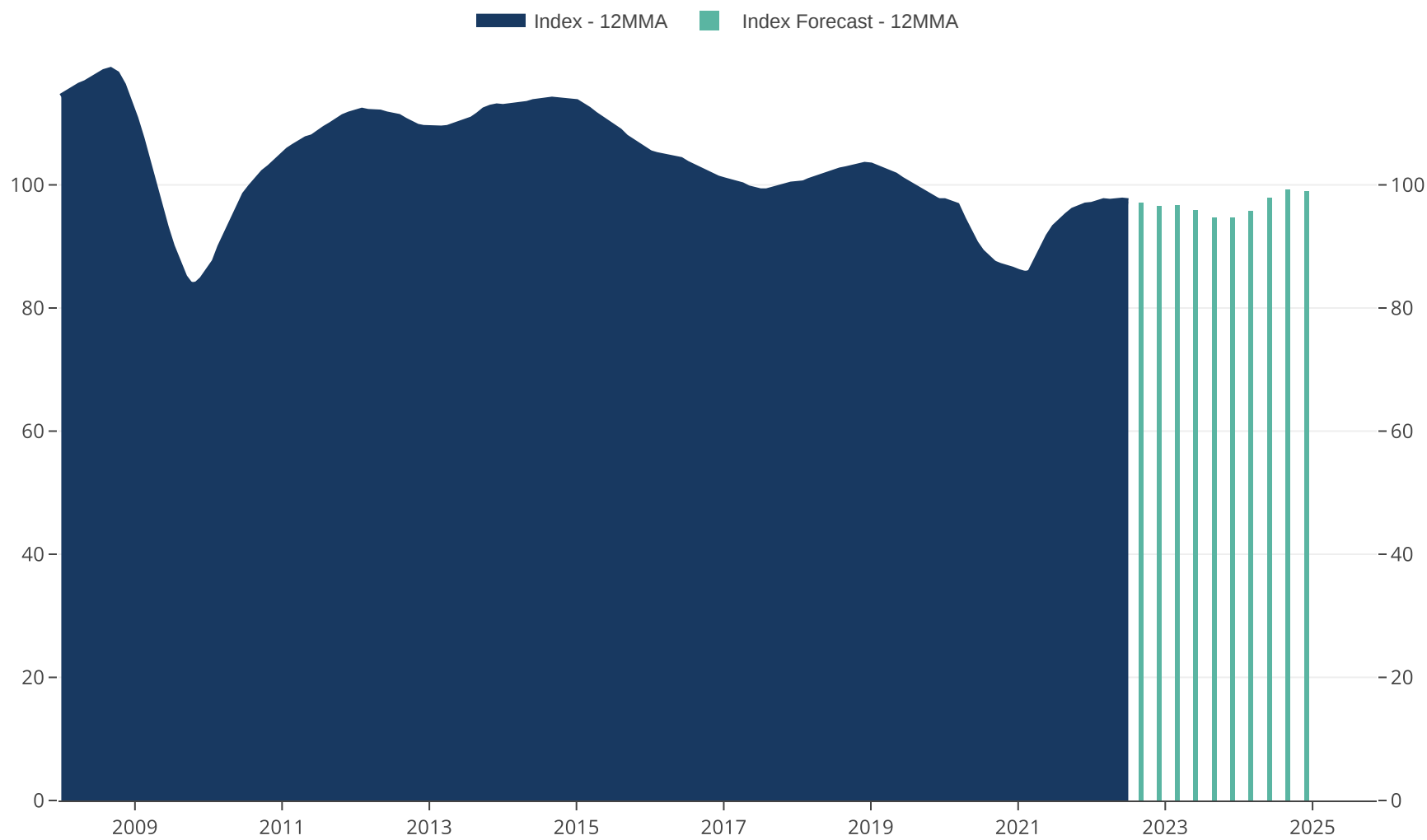
	Sep-22	Dec-22	Mar-23	Jun-23	Sep-23	Dec-23	Mar-24	Jun-24	Sep-24	Dec-24
Lower Forecast Range	3.0	4.3	4.6	5.8	6.5	5.9	5.3	4.2	3.0	3.5
Annual Growth Rate (%)	3.9	5.3	5.7	7.0	7.8	7.3	6.8	5.7	4.5	5.0
Upper Forecast Range	4.8	6.3	6.8	8.2	9.1	8.7	8.3	7.2	6.0	6.5

Lower Forecast Range	497.2	506.7	512.7	523.1	534.1	541.7	545.6	551.2	556.8	568.1
Annual Total Construction (Billions of \$)	501.5	511.6	518.1	529.0	540.6	548.9	553.4	559.1	564.9	576.3
Upper Forecast Range	505.8	516.4	523.5	534.9	547.1	556.1	561.1	567.1	573.1	584.6

US Primary Metals Production Index

Forecast Revised; Waning Industrial Demand, Decline in Commodities Suggest Production Decline Ahead

Annual Average (12MMA)



Annual Growth Rate (12/12)



Current Phase

**Phase C
Slowing Growth**

**Current Indicator
Amplitude**

- July 2022 Annual Growth Rate (12/12): 4.5%
- July 2022 Annual Average (12MMA), 2017=100: 97.3

Industry Outlook

Year	Annual Growth Rate
2022	-0.1%
2023	-1.9%
2024	4.4%

	Sep-22	Dec-22	Mar-23	Jun-23	Sep-23	Dec-23	Mar-24	Jun-24	Sep-24	Dec-24
Lower Forecast Range	1.4	-1.0	-1.7	-2.5	-3.6	-3.0	-2.1	0.8	3.6	3.0
Annual Growth Rate (%)	2.2	-0.1	-0.7	-1.6	-2.6	-1.9	-0.9	2.0	4.9	4.4
Upper Forecast Range	3.0	0.8	0.3	-0.7	-1.6	-0.8	0.3	3.2	6.2	5.8

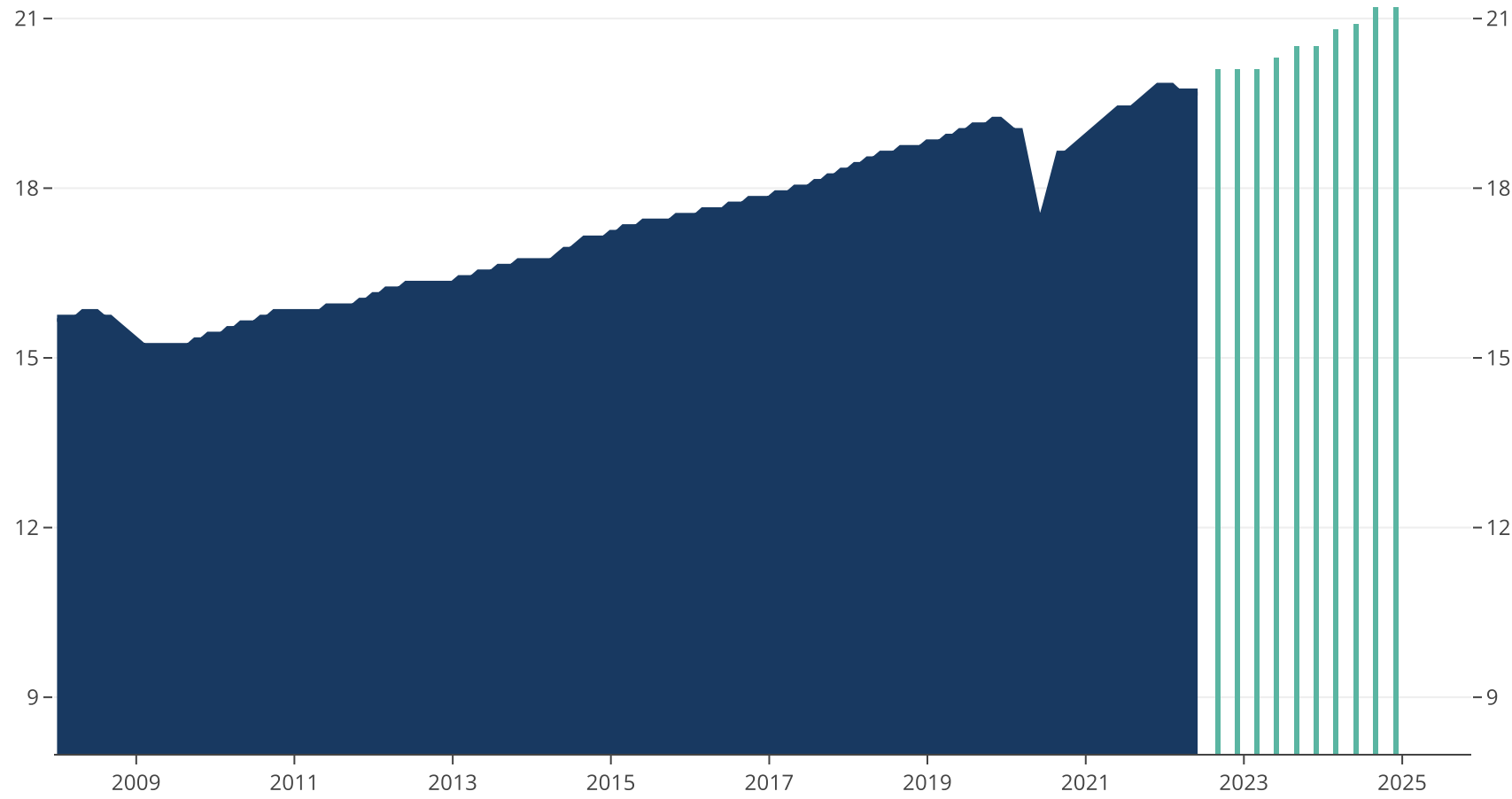
Lower Forecast Range	96.3	95.7	95.6	95.0	93.6	93.6	94.6	96.7	98.0	97.6
Annual Average Index (2017=100)	97.1	96.5	96.6	95.9	94.6	94.7	95.7	97.8	99.2	98.9
Upper Forecast Range	97.9	97.4	97.6	96.8	95.5	95.8	96.9	99.0	100.4	100.2

US Real Gross Domestic Product

GDP Quarter-to-Quarter Decline Led by Net Exports, Government Spending, While Consumer Sector Rose

Quarterly Average (3MMA)

Real GDP - 3MMA Real GDP Forecast - 3MMA



Quarterly Growth Rate (3/12)

Real GDP - 3/12 Real GDP Forecast - 3/12



Current Phase



**Phase C
Slowing Growth**

**Current Indicator
Amplitude**

- June 2022 Quarterly Growth Rate (3/12): 1.7%
- June 2022 Quarterly Average (3MMA), Trillions of Chained 2012 \$: 19.7

Industry Outlook

Year Quarterly Growth Rate

2022	1.7%
2023	2.0%
2024	3.2%

	Sep-22	Dec-22	Mar-23	Jun-23	Sep-23	Dec-23	Mar-24	Jun-24	Sep-24	Dec-24
Lower Forecast Range	3.0	1.4	1.2	1.3	1.4	1.7	2.8	2.9	3.0	2.9
Quarterly Growth Rate (%)	3.3	1.7	1.5	1.6	1.7	2.0	3.1	3.2	3.3	3.2
Upper Forecast Range	3.6	2.0	1.8	1.9	2.0	2.3	3.4	3.5	3.6	3.5

Lower Forecast Range	20.1	20.1	20.1	20.2	20.4	20.5	20.7	20.9	21.1	21.1
Quarterly Average Real GDP (Trillions of Chained 2012 \$)	20.1	20.1	20.1	20.3	20.5	20.5	20.8	20.9	21.2	21.2
Upper Forecast Range	20.2	20.2	20.2	20.3	20.5	20.6	20.8	21.0	21.2	21.3

US Leading Indicators

Indicator	Direction		
	4Q22	1Q23	2Q23
ITR LEADING INDICATOR™	●	●	N/A
ITR RETAIL SALES LEADING INDICATOR™	●	●	●
US OECD LEADING INDICATOR	●	●	N/A
US ISM PMI (PURCHASING MANAGERS INDEX)	●	●	●
US TOTAL CAPACITY UTILIZATION RATE	●	●	N/A

Green denotes that the indicator signals cyclical rise for the economy in the given quarter. Red denotes the opposite.

What It Means for the US Economy

- As of the most recent month of data, the US Total Industry Capacity Utilization Rate signals that US Industrial Production will be on the back side of the business cycle through the first quarter of 2023, corroborating what other leading indicators have signaled.
- The US ISM PMI (Purchasing Managers Index), which looks a little further out, signals growth-rate decline in Industrial Production will persist through the second quarter of next year.
- The ITR Retail Sales Leading Indicator™ is declining. While the timing relationship has been altered this cycle due to the unprecedented fiscal stimulus issued during the pandemic, decline in the Indicator aligns with our expectation for growth-rate decline in US Total Retail Sales. The Indicator suggests Retail Sales will be on the back side of the business cycle into at least the second half of 2023.

A silver lining of slowing global growth will be improved availability and delivery times for inputs. We are already seeing supply chains improve, albeit not across the board. Smoother production flow could free up management time. Use any extra time during the next year of slowing economic growth to focus on your longer-term plans. Can you improve your efficiency? Are there new products you can introduce or markets you can enter in the coming years to grow your business?

Market Definitions

US Industrial Production Index

Index of total industrial production in the United States; includes manufacturing, mining, and utilities. Source: Federal Reserve Board (FRB). 2017 = 100, not seasonally adjusted (NSA).

US Automobile Production Index

Automobile Production. This U.S. industry comprises establishments primarily engaged in (1) manufacturing complete automobiles (i.e., body and chassis or unibody) or (2) manufacturing automobile chassis only. Source: FRB. Index, 2017 = 100, NSA.

US Primary Metals Production Index

Industries in the Primary Metal Manufacturing subsector smelt and/or refine ferrous and nonferrous metals from ore, pig or scrap, using electrometallurgical and other process metallurgical techniques. Establishments in this subsector also manufacture metal alloys and superalloys by introducing other chemical elements to pure metals. The output of smelting and refining, usually in ingot form, is used in rolling, drawing, and extruding operations to make sheet, strip, bar, rod, or wire, and in molten form to make castings and other basic metal products. Source: FRB. Index, 2017 = 100, NSA.

US Civilian Aircraft Equipment Production Index

Index for US establishments primarily engaged in one or more of the following: (1) manufacturing aircraft engines and engine parts; (2) developing and making prototypes of aircraft engines and engine parts; (3) aircraft propulsion system conversion (i.e., major modifications to systems); (4) aircraft propulsion systems overhaul and rebuilding (i.e., periodic restoration of aircraft propulsion system to original design specifications). Source: FRB. NAICS Code: 336412,3. Index, 2017 = 100, NSA.

US Private Nonresidential Construction

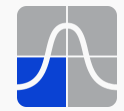
Private nonresidential construction in the United States. Includes private construction of the following types: office, commercial, automotive, lodging, dining, retail, warehouse, storage facilities, schools, dormitories, sports facilities, galleries, museums, hospitals, medical buildings, special care facilities, religious buildings, fitness centers, amusement parks, movie theaters, social centers, transportation facilities, power facilities, and manufacturing facilities. Source: US Census Bureau. Measured in billions of dollars, NSA.

US Real Gross Domestic Product

Real (inflation-adjusted) gross domestic product (GDP) in the United States. GDP is the monetary value of all the finished goods and services produced within a country's borders in a specific time period. GDP includes all private and public consumption, government outlays, investments and exports minus imports that occur within a defined territory. Put simply, GDP is a broad measurement of a nation's overall economic activity. Source: Bureau of Economic Analysis. Measured in trillions of 2012 chained dollars, seasonally adjusted annual rate (SAAR).

Management Objectives™

Phase A



Recovery

- Scrupulously evaluate the supply chain
- Model positive leadership (culture turns to behavior)
- Start to phase out marginal opportunities (products, processes, people); repair margins
- Perform due diligence on customers and extend credit
- Be on good terms with a banker; you will need the cash more now than in any other phase
- Invest in customer market research; know what they value and market/price accordingly
- Hire key people and implement company-wide training programs ahead of Phase B
- Allocate additional resources to sales and marketing
- Invest in system/process efficiencies
- Make opportunistic capital and business acquisitions; use pessimism to your advantage

Phase B



Accelerating Growth

- Ensure quality control keeps pace with increasing volume
- Invest in workforce development: hiring, training, retention
- Ensure you have the right price escalator; space out price increases
- Maximize your profit margins through differentiation; stand out from the crowd and set yourself apart
- Use improved cash flow to strategically position the business to beat the business cycle
- Expand credit to customers
- Improve corporate governance (rent a CFO; establish a board of advisors or board of directors)
- Communicate competitive advantages; build the brand
- Query users for what they want and what is important to them
- Sell the business in a climate of maximum goodwill

Phase C



Slowing Growth

- Know if your markets are headed for a soft landing or a hard landing
- Cash is king; beware of unwarranted optimism
- Stay on top of aging receivables
- Revisit capital expenditure plans
- Lose the losers: if established business segments are not profitable during this phase, eliminate them
- Use competitive pricing to manage your backlog through the coming slowdown
- Avoid committing yourself to long-term expenses at the top of the price cycle, but lock in revenue
- Go entrepreneurial and/or counter-cyclical
- Evaluate your vendors for financial strength; if needed, look for additional vendors as a safety net
- If the cycle looks recessionary, cross-train key people to prepare for workforce attrition/reduction

Phase D



Recession

- Implement aggressive cost-cutting measures
- Offer alternative products with a lower cost basis
- Perform due diligence on acquisitions while valuations are falling
- Reduce advertising as consumers become more price conscious
- Enter or renegotiate long-term leases
- Negotiate labor contracts
- Consider capital equipment needs for the next cycle
- Tighten credit policies
- Develop programs for advertising, training, and marketing to implement in Phase A
- Lead with optimism, remembering that Phase D is temporary