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2Q2022

Reports
ITR Economics

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Economic Overview

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It is getting scarier out there in the economy. We have a bear market, Federal Reserve tightening, multi-decade highs in inflation, recent decline in real personal income (including transfer payments), and a tick-down in first-quarter US Real Gross Domestic Product (GDP). With all this, it's no surprise that talk of recession is splashed across the business news nearly every day, and confidence is waning among both consumers and businesses.

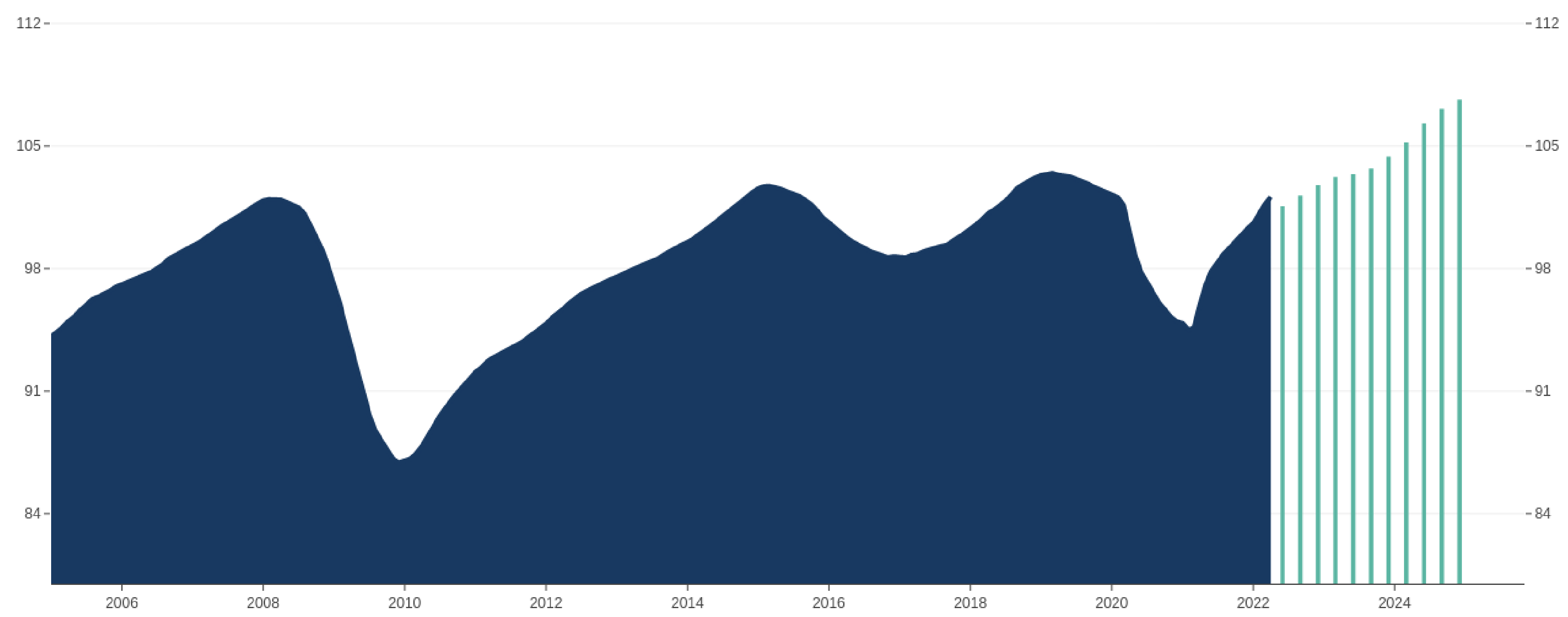
How concerned should you be? Some prudence on the back side of the business cycle is always a good idea, but here is what you really need to know:

1. Are we headed for Great Recession 2.0? We are not. Consumers and businesses are starting this period of business cycle softening in very strong fiscal shape. The situation is nearly the opposite of the period immediately prior to the Great Recession.
2. So what should you do? Focus on your margins and know your markets.

We are calling for relatively flat Real GDP at the bottom of this business cycle. Irrespective of whether actual results come in showing slight contraction or anemic growth, some markets will undergo mild recessions and others will have the proverbial "soft landing" – i.e., no recession, just slowing growth. This report will help you sort these markets. If you need more detail, or information on markets not covered in this report, reach out to us. We would love to help.

"There is so much uncertainty." We are hearing some version of this quite frequently from business leaders. We understand. There are an abnormally high number of disparate economic datapoints and risk factors muddying the waters. That being said, it is our job to identify the relative certainties in this cycle:

US Industrial Production Index
Annual Average (12MMA)



1. Interest rates will rise in response to the inflationary threat.
2. Inflation will moderate at least somewhat as demand cools and supply ramps up.
3. Labor will remain scarce and expensive given the myriad of factors causing the shortage. (Remember, the labor shortage predates COVID-19, which then exacerbated the issue.)
4. Consumers and businesses are well-positioned to take the punch presented by issues 1, 2, and (for employers) 3. Capitulation is not around the next corner.
5. Consumers' and businesses' financial firewalls won't always be so robust. Be prepared for a rocky economic period during the middle of the decade.

What do these factors mean for you?

First, now is a good time to borrow at fixed rates IF you have a project that promises to save on future costs in the more expensive world we find ourselves in this decade. Emphasize projects that have a short ROI or that combat labor scarcity and expense.

Second, margins will be squeezed if you aren't careful. Your customers may well start pushing back on price increases, especially as the elevated inflationary period sticks around. You may also find yourself in a period of "profitless prosperity" wherein your top line rises along with inflation, but a peek at the bottom line reveals struggles. Walmart and Target's disappointing first-quarter earnings reveal that even the blue chips are not immune.

Third, don't worry excessively. There is a lot of negative sentiment in the media and among consumers right now. Headlines and consumer sentiment are not reliable predictors of what is to come. Take comfort in the solid financial underpinnings of the economy and focus on what you can control.

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).

IMEC Markets Dashboard

		Current		Annual Growth Rate Forecast (12/12), Year-End*		
Page Number	Indicator	Growth Rate**	Phase	2022**	2023**	2024**
4	US Industrial Production Index	6.4%	C	2.8%	1.6%	3.1%
5	US Nondefense Capital Goods New Orders (excluding aircraft)	12.6%	C	7.6%	2.4%	8.2%
6	US Machinery New Orders	16.9%	C	9.0%	3.4%	9.4%
7	US Food Production Index	2.4%	B	3.3%	1.2%	1.5%
8	US Medical Equipment and Supplies Production Index	7.7%	C	4.3%	0.1%	4.1%

**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

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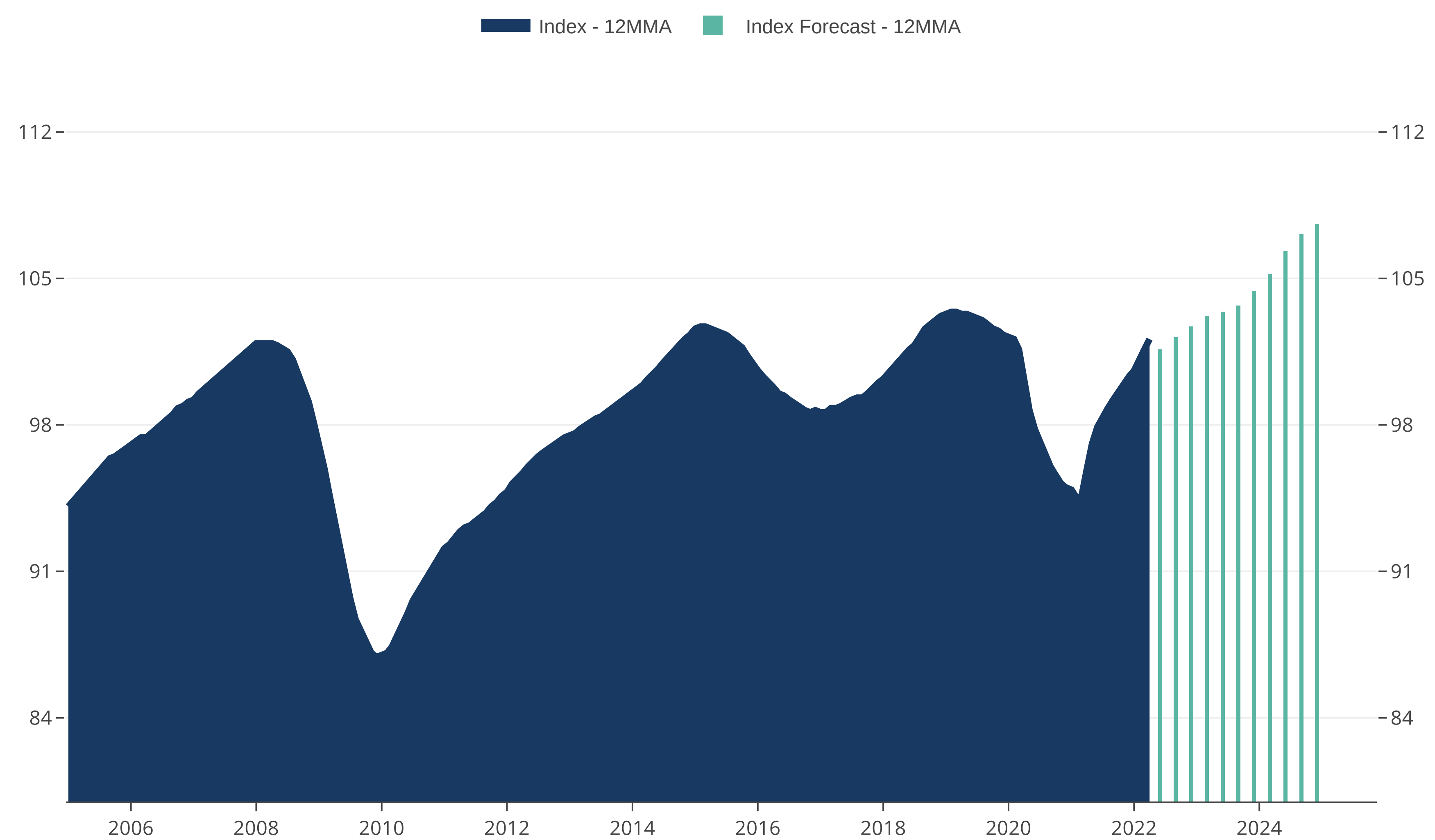
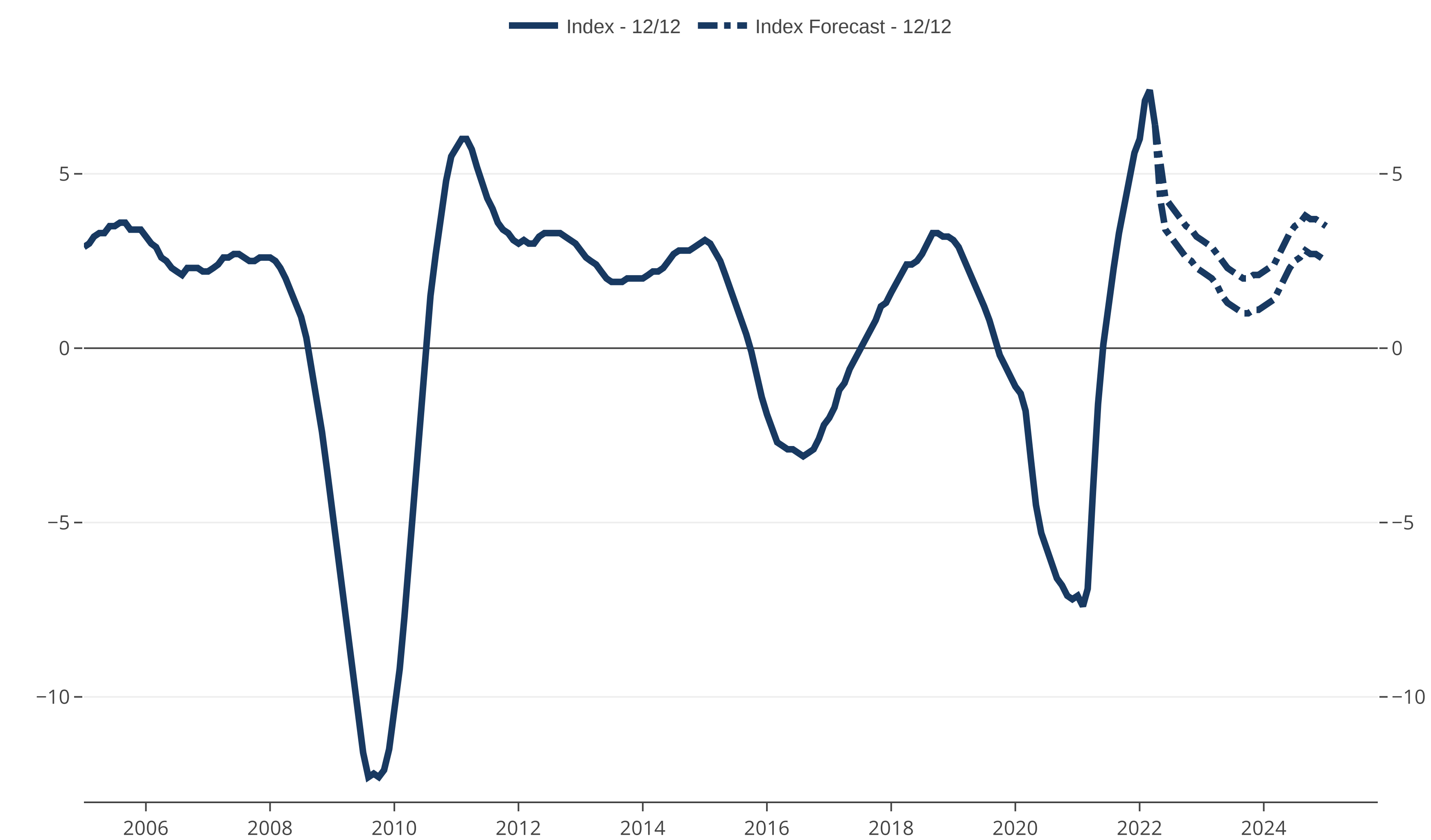
Production Transitioned to Phase C, Slowing Growth; Rise Likely Through at Least 2024

Annual Average (12MMA)



Annual Growth Rate (12/12)



Current Phase

Phase C
Slowing Growth

Current Indicator Amplitude

- April 2022 Annual Growth Rate (12/12): 6.4%
- April 2022 Annual Average (12MMA), 2017=100: 102.1

Industry Outlook

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

Outlook & Supporting Evidence

- Annual US Industrial Production in April was 6.4% above the year-ago level and transitioned to Phase C, Slowing Growth.
- Annual Production will rise through at least year-end 2024, with results tracking the upper end of the forecast range in at least the coming quarters.
- Declining leading indicators foreshadow further slowing growth ahead. The strong financial standing of businesses and consumers, increased demand for domestic oil and gas production due to sanctions on Russia, and still-elevated liquidity despite quantitative tightening support our expectation for overall growth in the years ahead. We expect Production to undergo a slowing growth trend into the second half of 2023; then, growth will accelerate into the latter half of 2024.
- Our outlook is based on the expectation that as demand somewhat softens, supply chain issues will gradually ease during the remainder of 2022 and into 2023. The war in Ukraine and China's COVID-19 restrictions pose risks to this expectation and consequently the Production forecast.

US Nondefense Capital Goods New Orders (excluding aircraft)

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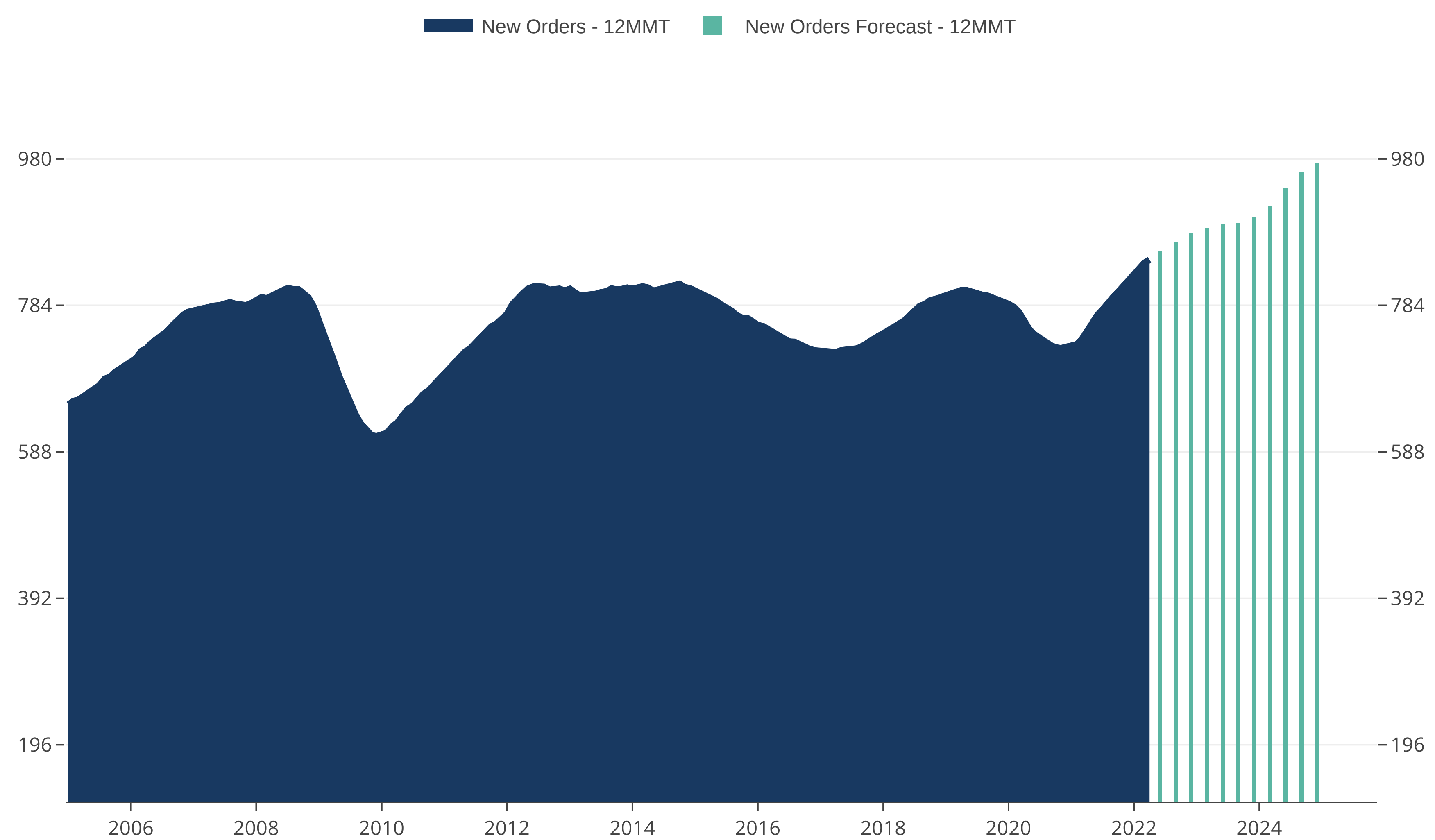
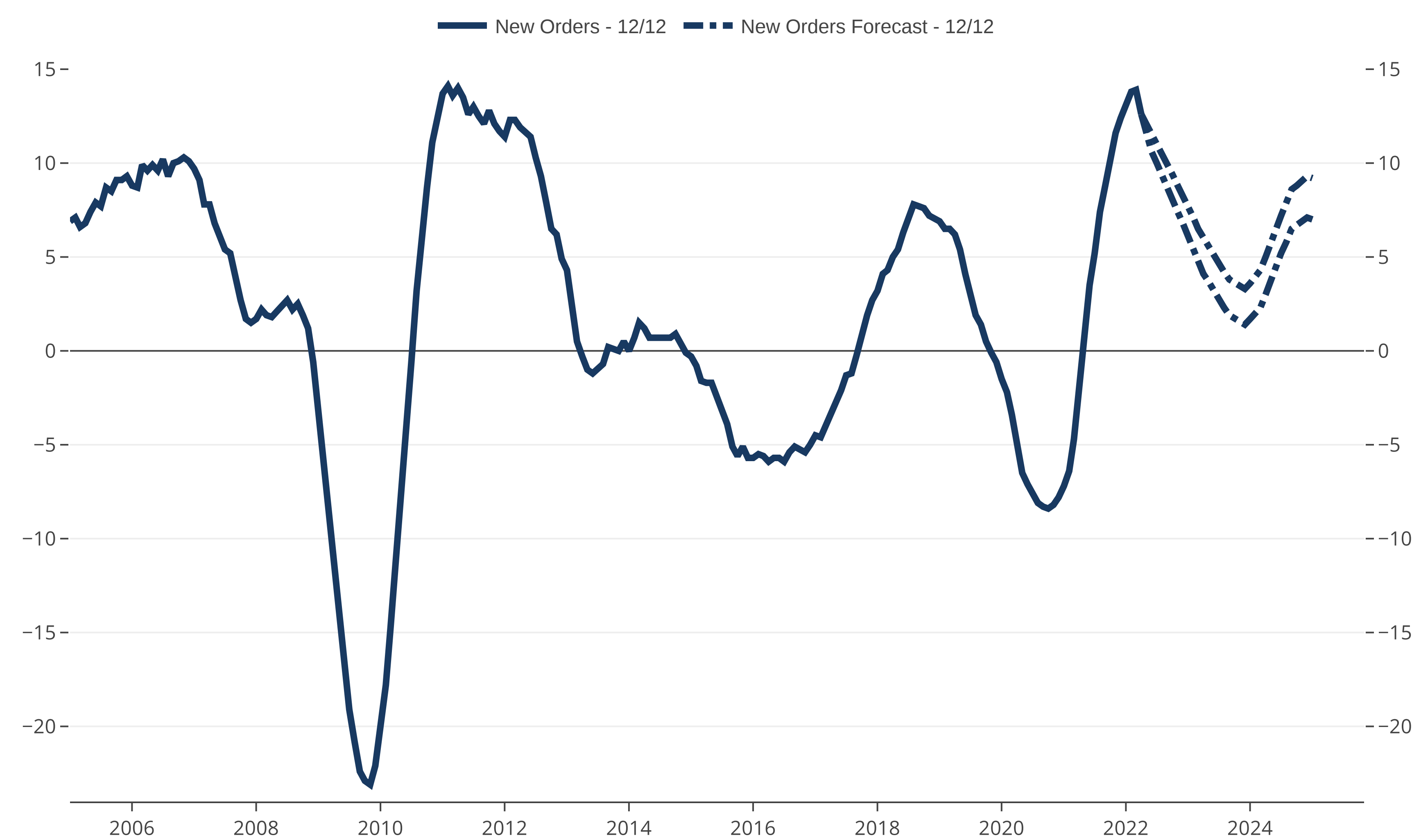
Forecast Revised; Recession Unlikely This Business Cycle, as Reshoring Activity Will Support Growth

Annual Total (12MMT)



Annual Growth Rate (12/12)



Current Phase

Phase C
Slowing Growth

Current Indicator Amplitude

- April 2022 Annual Growth Rate (12/12): 12.6%
- April 2022 Annual Total (12MMT), Billions of USD: $845.0

Industry Outlook

Year	Annual Growth Rate
2022	7.6%
2023	2.4%
2024	8.2%

Outlook & Supporting Evidence

- Annual New Orders totaled $845.0 billion in April. The annual growth rate decreased to 12.6%, marking a tentative transition to Phase C, Slowing Growth.
- The US Census Bureau issued its annual data revision. The adjustment lowered annual New Orders by about 10% and indicates a much lower annual-growth-rate low in 2020 than previously reported. Economic fundamentals and their expected impact on New Orders are generally unchanged. As a result, we revised our forecast for New Orders roughly proportionately to the Census Bureau's data revision. Our new outlook, like the previous outlook, calls for a slowing growth in New Orders for the remainder of this year and in 2023, followed by accelerating rise in 2024.
- We do not expect the slowing growth in New Orders to give way to recession. Supply chain issues have incentivized the return of some manufacturing to the US. Additionally, capex will likely benefit from elevated corporate cash balances and a push for automation amid address labor and other capacity constraints.
- Higher prices will contribute to rise in dollar-denominated New Orders during the forecast period. We expect inflation to peak around the third quarter of this year. Inflation will then ease but remain elevated relative to 2010s levels. If inflation rates differ significantly from our expectations, it would pose a risk to our outlook.

US Machinery New Orders

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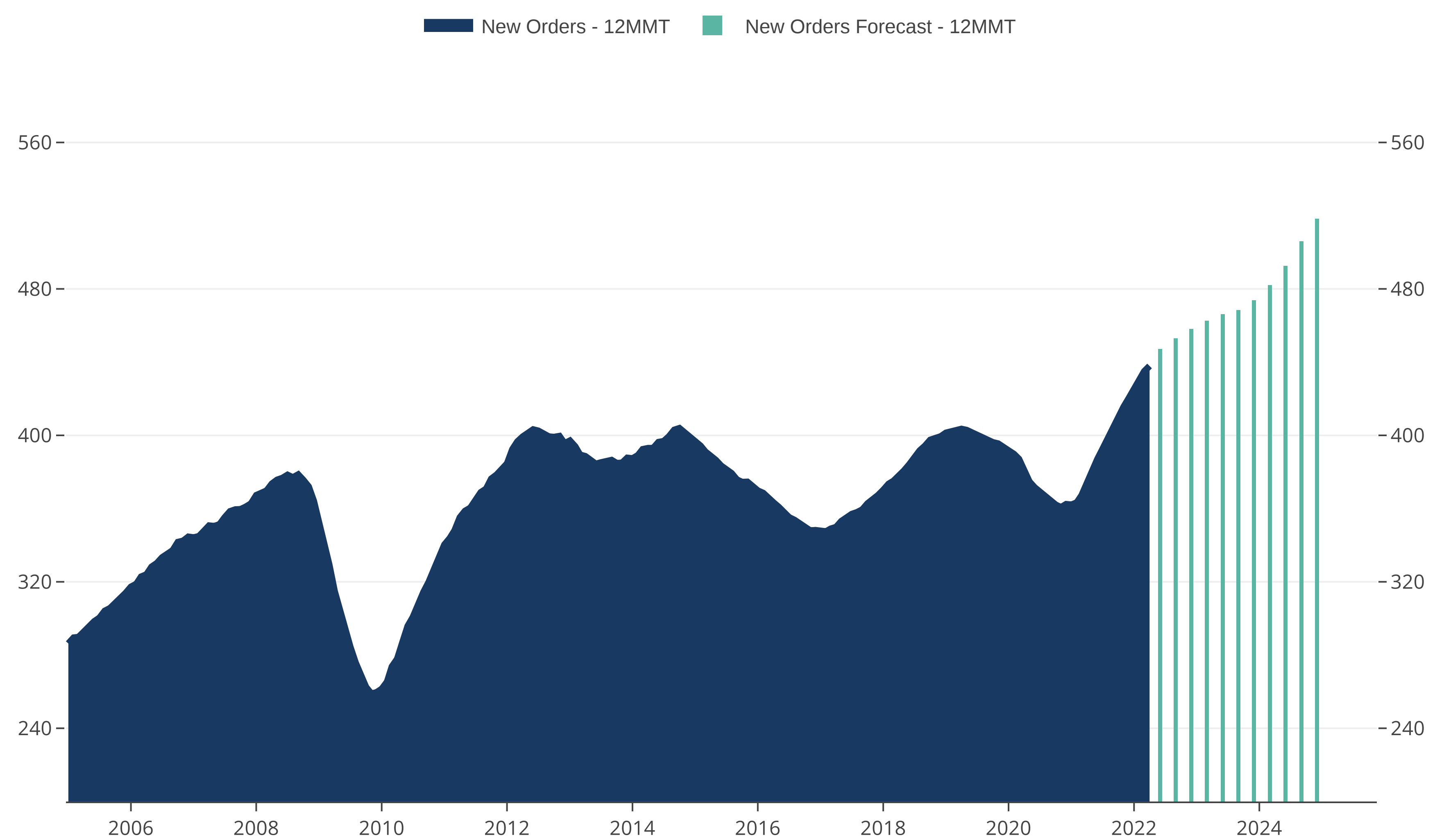
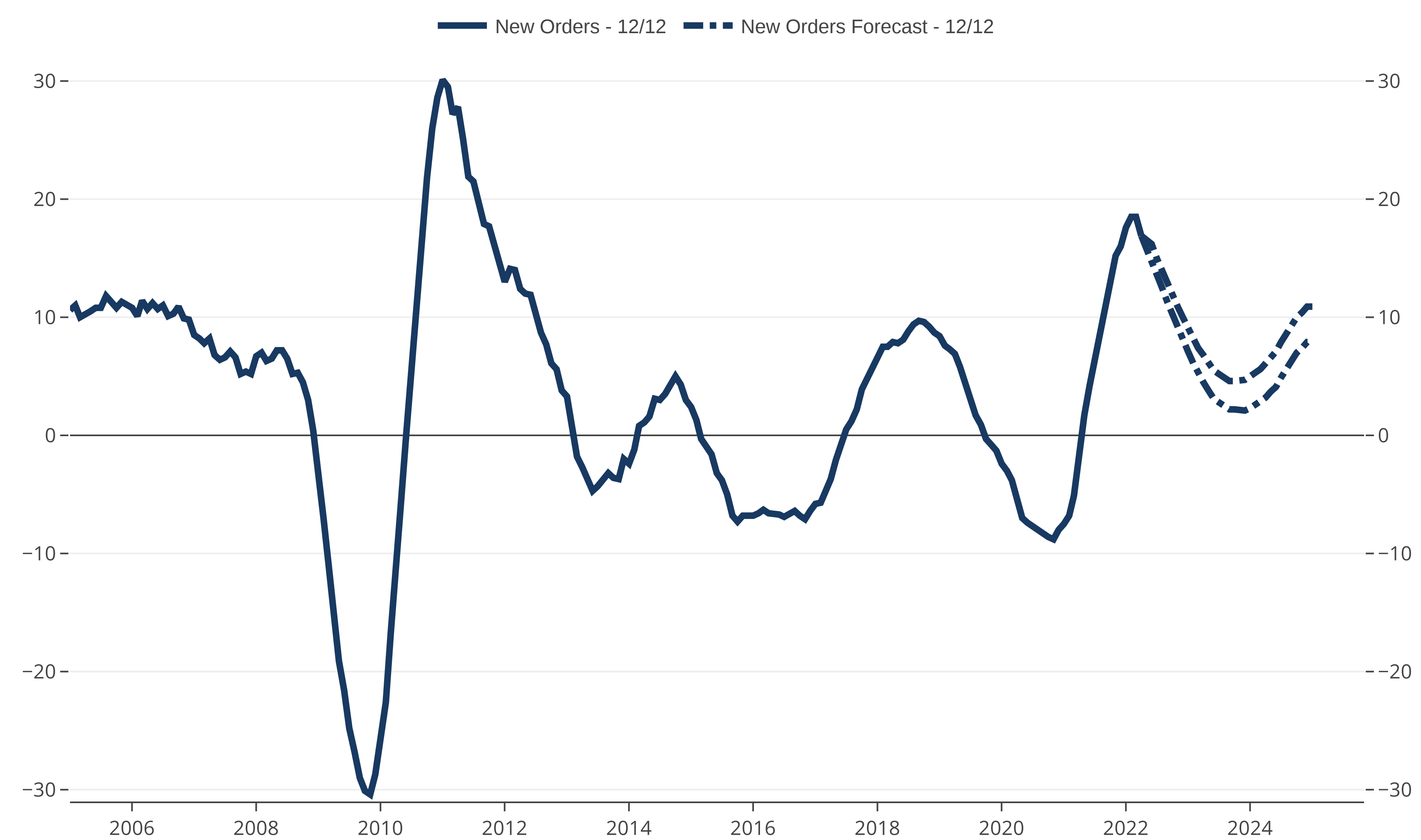
Forecast Revised; New Orders Transitioned to Slowing Growth Trend That Will Persist Through '23

Annual Total (12MMT)



Annual Growth Rate (12/12)



Current Phase

Phase C
Slowing Growth

Current Indicator Amplitude

- April 2022 Annual Growth Rate (12/12): 16.9%
- April 2022 Annual Total (12MMT), Billions of USD: $437.9

Industry Outlook

Year	*Annual Growth Rate*
2022	9.0%
2023	3.4%
2024	9.4%

Outlook & Supporting Evidence

- Due to a data revision by the US Census Bureau, an adjustment to our outlook for US Machinery New Orders was necessary. Our revision to the forecast was roughly proportionate to the Census Bureau's revision to the data.
- New Orders transitioned to a slowing growth trend. Industrial leading indicators such as the ITR Leading Indicator™ and the US ISM PMI (Purchasing Managers Index) signal less-robust New Orders growth moving forward. Slowing growth is expected to persist through 2023. The annual-growth-rate low of 3.4% is virtually unchanged from the prior outlook, but it has been pushed slightly later in 2023. Slowing growth will be followed by accelerating growth, which will persist through at least 2024.
- Given the supply chain issues prevalent in the economy, some buyers have been placing multiple orders in order to hedge against delays. This could lead to order cancellations on the back side of the business cycle and poses a downside risk to our forecast.

US Food Production Index

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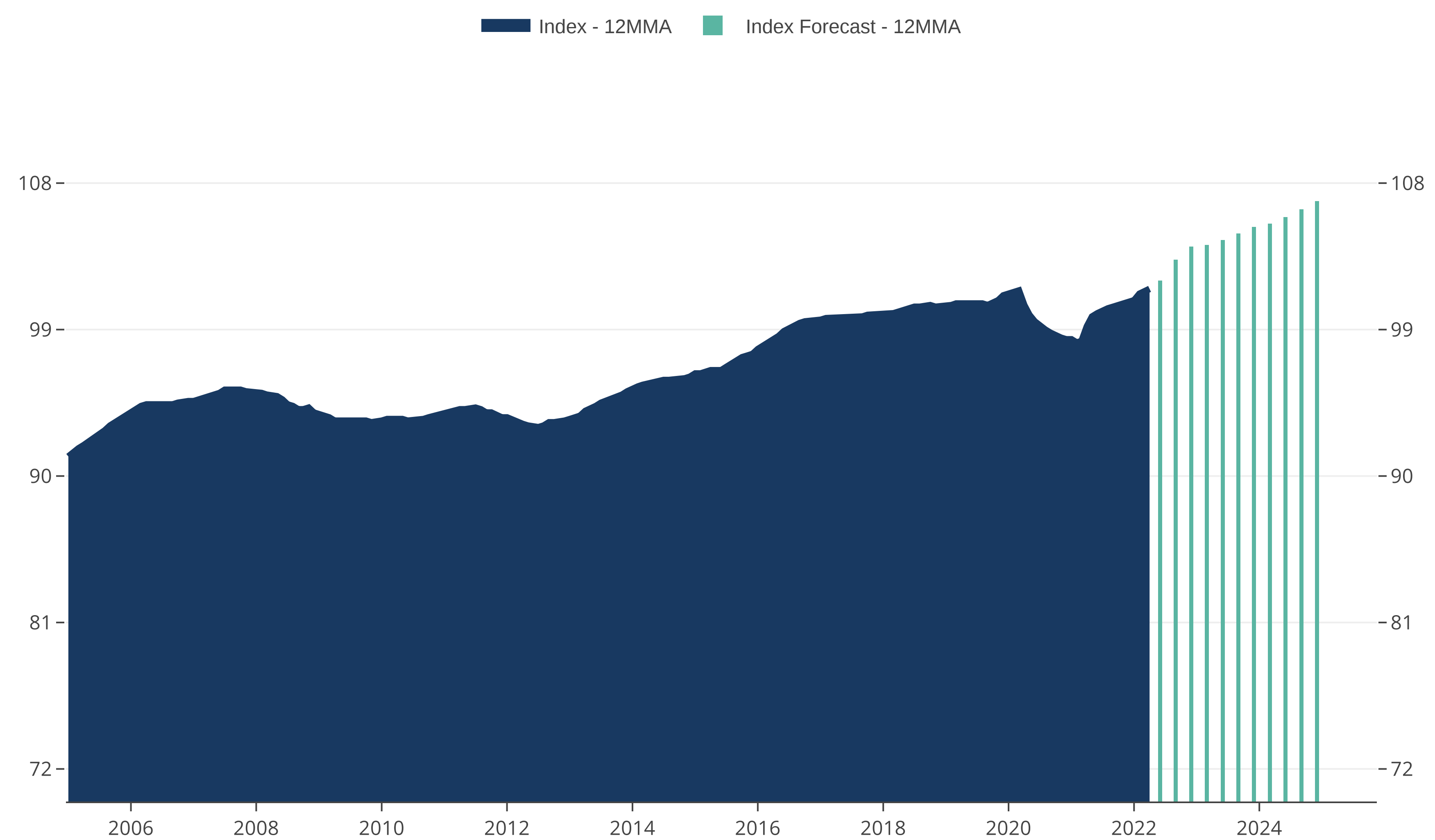
Production at Record-High Level; Growth Rates to Be Elevated This Year, More Typical in '23-24

Annual Average (12MMA)



Annual Growth Rate (12/12)

Current Phase

Phase B Accelerating Growth

Current Indicator Amplitude

- April 2022 Annual Growth Rate (12/12): 2.4%
- April 2022 Annual Average (12MMA), 2017=100: 101.5

Industry Outlook

Year	Annual Growth Rate
2022	3.3%
2023	1.2%
2024	1.5%

Outlook & Supporting Evidence

- Annual US Food Production in April was at a record high and up 2.4% from the same period one year ago.
- Expect annual Production to generally rise through at least 2024. The pace of rise will accelerate this year before slowing growth takes hold and persists through next year. The annual growth rate will gradually rise in 2024.
- While fertilizer availability could be an issue, US food producers may be able to gain some market share lost by Russia and Ukraine. This factors into our outlook for stronger-than-typical growth through the end of this year.
- US Corporate Profits for Food, Beverage, and Tobacco Products Industries are at record highs, indicating that many producers have the capital to reinvest in automation and efficiencies or additional production capacity, which bodes well for future Production growth.
- Additionally, the US Department of Agriculture has announced plans to invest in the food supply chain. If effective, this initiative could also help increase Production capacity.
- Labor shortages, supply chain disruptions, and inflationary pressures are downside factors for Production. We expect inflation and supply chain disruptions to begin to ease later this year. The tight labor market will likely remain a challenge in the coming years.

US Medical Equipment and Supplies Production Index

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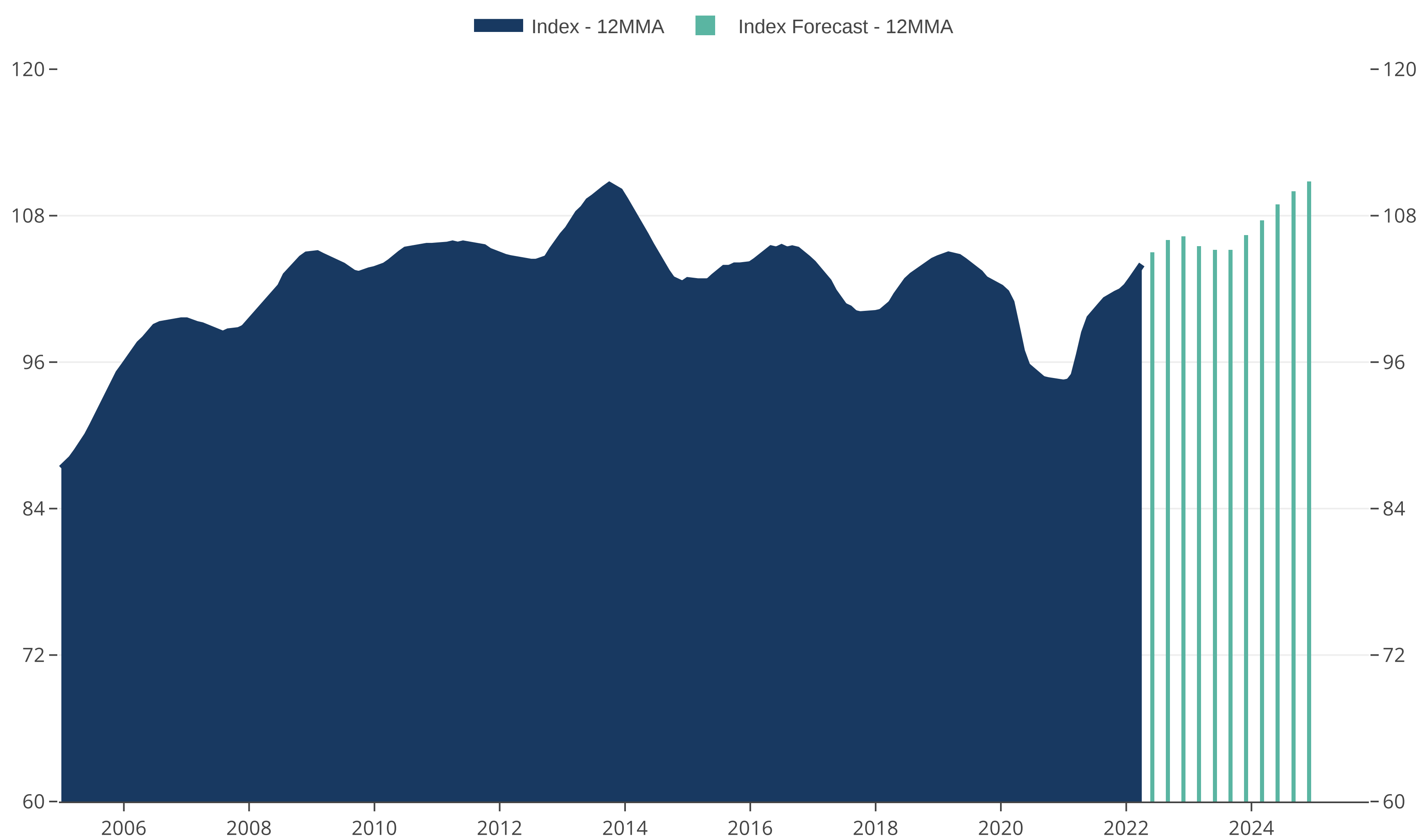
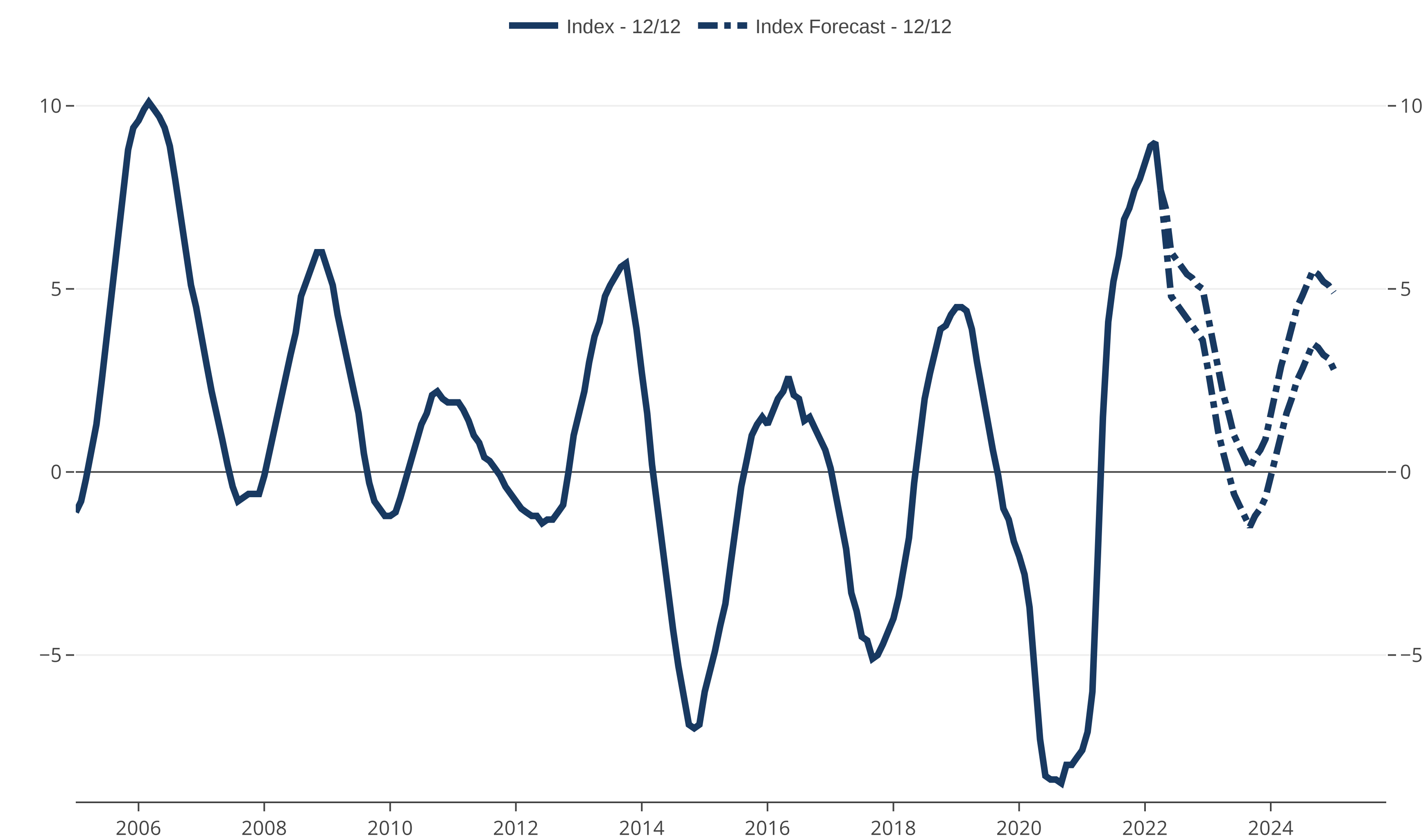
Production Transitions to Slowing Growth Trend; Mild Recession Expected This Business Cycle

Annual Average (12MMA)



Annual Growth Rate (12/12)



Current Phase

Phase C
Slowing Growth

Current Indicator Amplitude

- April 2022 Annual Growth Rate (12/12): 7.7%
- April 2022 Annual Average (12MMA), 2017=100: 104.0

Industry Outlook

Year	*Annual Growth Rate*
2022	4.3%
2023	0.1%
2024	4.1%

Outlook & Supporting Evidence

- April marked a tentative transition to a slowing growth trend for US Medical Equipment and Supplies Production. Annual Production will rise into the end of 2022 then mildly decline into mid-2023. Production will then rise through at least 2024.
- US Medical and Diagnostic Laboratories Services Revenue and US Hospitals Services Revenue are in slowing growth trends, which supports our expectation that Production slowing growth will persist. However, both these Services Revenue measures are still elevated. Elevated Services Revenues, along with our analysis of the overall US economy, inform our outlook and suggest a milder recession for Production this business cycle compared to previous cycles.
- Potential new COVID-19 variants could set back expenditures and investments in this sector and result in lower Production, a downside risk to our forecast.

US Leading Indicators

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Indicator	Direction		
	3Q22	4Q22	1Q23
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

• Ongoing descent in the majority of leading indicators suggests the nascent slowing growth trend in US Industrial Production is likely to hold.

• The preponderance of leading indicators are exhibiting cyclical trends that signal Production will be on the back side of the business cycle into at least early next year.

• We expect a soft landing - or no-recession scenario - for the US industrial sector this cycle given the financial health of consumers and businesses, as well as ongoing interest in reshoring and shortening supply chains.

Slowing growth is the predominant trend for the US economy and many end markets, and leading indicators suggest further waning momentum ahead. While the back side of the business cycle will pose new challenges, don't expect much improvement in the tight labor market. Focus on reducing your dependence on labor, increasing efficiency, and improving your benefits and company culture.

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 Machinery New Orders

New orders for machinery in the United States. Industries in the machinery manufacturing subsector create end products that utilize mechanical force, for example, the application of gears and levers, to perform work. Some important processes for the manufacture of machinery are forging, stamping, bending, forming, and machining, which are used to shape individual pieces of metal. Processes such as welding and assembling are used to join separate parts together. Although these processes are similar to those used in metal fabricating establishments, machinery manufacturing is different because it typically employs multiple metal forming processes in manufacturing the various parts of the machine. Moreover, complex assembly operations are an inherent part of the production process. Measured in billions of dollars, not seasonally adjusted (NSA). Source: US Census Bureau

US Medical Equipment and Supplies Production Index

Medical equipment and supplies manufacturing index for the United States. Examples of products made by these establishments are surgical and medical instruments, surgical appliances and supplies, dental equipment and supplies, orthodontic goods, ophthalmic goods, dentures, and orthodontic appliances. Source: Federal Reserve Board. NAICS Code: 3391. Index, 2017 = 100, not seasonally adjusted (NSA).

US Nondefense Capital Goods New Orders (excluding aircraft)

New orders for nondefense capital goods, excluding aircraft, in the United States. Includes farm machinery and equipment, construction machinery, mining machinery, nondefense small arms and ordnance, industrial machinery, commercial and service industry equipment, other general purpose machinery, photographic equipment, metalworking machinery, turbine and generator manufacturing, power transmission equipment, pumps and compressors, material handling equipment, electronic computers, computer storage devices and peripheral equipment, communications equipment, nondefense search and navigation equipment, electrometrical equipment, electrical equipment, heavy duty truck manufacturing, railroad rolling stock, nondefense ship and boat building, office and institutional furniture, and medical equipment and supplies. Source: US Census Bureau. Measured in billions of dollars, not seasonally adjusted (NSA).

US Food Production Index

Industries in the US Food Manufacturing subsector transform livestock and agricultural products into products for intermediate or final consumption. The industry groups are distinguished by the raw materials (generally of animal or vegetable origin) processed into food products. The food products manufactured in these establishments are typically sold to wholesalers or retailers for distribution to consumers. Source: Federal Reserve Board. NAICS Code: 311. Index, 2017 = 100, not seasonally adjusted (NSA).

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