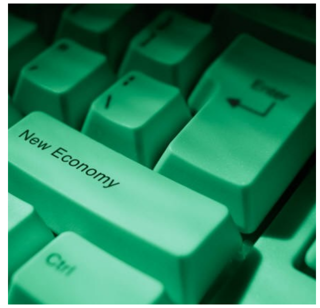
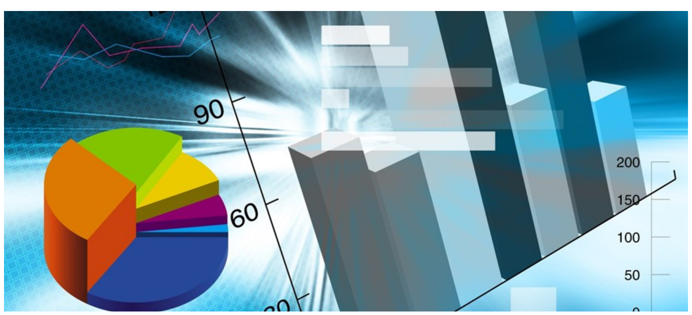




PMPA

PRECISION MACHINED PRODUCTS ASSOCIATION

August 2024

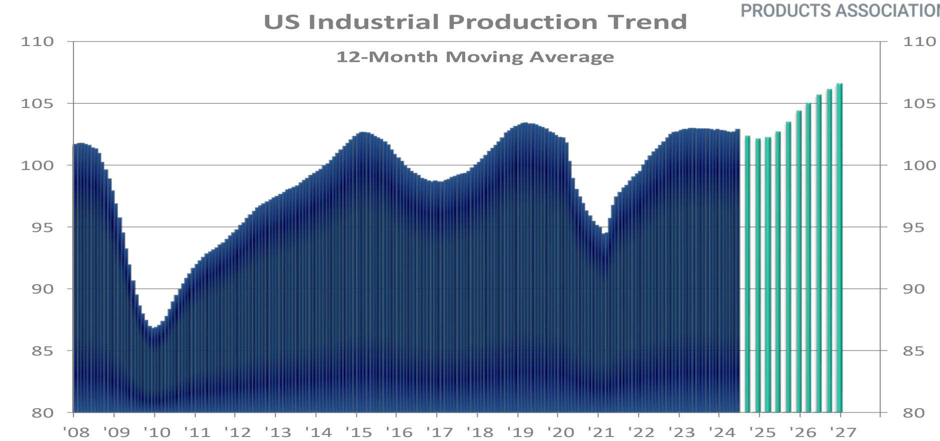
Economic Report

ITR ECONOMICS

Table of Contents

overview

Economic prospects have taken a positive turn, and we have adjusted many of our forecasts upward. On net, the economic evidence indicates that a plateau in 2024 is more likely than the previously forecasted mild recession for B2B spending and industrial activity, though this plateau may have a slight downward bias. Consumer- and services-heavy US Real GDP and US Total Retail Sales will slow in growth in 2024. Leading indicators signal a stronger year for the US macroeconomy come 2025.



Stimulating Factors and How to Harness These Trends

1.) Nearshoring and onshoring: While semiconductor and chip manufacturing dominate the news on onshoring efforts, manufacturers across the economy are moving supply chains closer to home at an accelerated pace post-COVID. Producing closer to home can improve agility, protection of intellectual property, and environmental compliance. Look for opportunities to gain market share from this trend of de-globalization; however, be aware that higher costs are a likely side effect. Margin-improvement is a must to sustain profitability in the coming years.

2.) Government spending: Federal government spending has increased considerably from 2020 onward. Knock-on effects to the private sector have shifted over the course of this business cycle in a milder direction. While the longer-term impacts remain to be seen, the near-term impacts are higher manufacturing and nonresidential construction activity than we would have otherwise seen. Consider targeting markets with exposure to government investments, either directly or indirectly.

3.) Corporate cash balances are elevated: Many businesses were able to pass along costs during the inflationary burst following the pandemic and were therefore able to build up cash holdings. This cash buffer makes the 2022-23 jump in interest rates less of an issue for some. If you are flush with cash, put it to use with a focus on reducing your dependency on labor, embracing new technology to improve efficiency, and prepping for an environment of higher inflation in the years ahead. Consider new products or markets to expand into over the longer term to buck some of the headwinds we see coming in the 2030s.

4.) Resilient consumers: The tight labor market has kept upside pressure on wages. As a result, US Real Personal Incomes are rising, allowing consumers to continue spending at a pace exceeding inflation. Like in the business world, outcomes are divergent. Look for ways to cater to consumers with more discretionary spending. Lower-income consumers are feeling the pinch of inflation and high interest rates more acutely.

Planning for Challenges Ahead

With large amounts of government spending, inflation is likely to be "sticky." Persistent inflation poses financial planning challenges and could increase the difficulty of passing along price increases. A further consequence of inflation is its impact on Federal Reserve policy; a rate cut is still on the table for later this year, but slow progress on inflation increases the risk of higher-for-longer rates. A delayed lowering of rates could prolong economic pain for industries most sensitive to rates.

Additionally, while the tight labor market will likely be a boon for consumers in the coming years, it will constrain opportunities for growth if your business is unable to staff up to meet demand. To that end, efficiency gains in your business—whether through implementation of AI, automation, or process improvements—will allow you to remain competitive.

Terminology & Methodology

Data Trends:

Monthly Moving Total (MMT) vs Monthly Moving Average (MMA):

Totals are used when it makes sense to add the data together, as with units sold or total dollars spent. Averages are used when the data cannot be compounded, such as with an index, percent, price level, or interest rates.

3MMT/A and 12MMT/A:

A 3-month or 12-month moving total/average is the total/average of the monthly data for the most recent 3 and 12 months, respectively. The 3MMT/A illustrates the seasonal changes inherent to the data series. The 12MMT/A removes seasonal variation in order to derive the underlying cyclical trend. It is also referred to as the annual total or annual average.

Rates-of-Change:

A rate-of-change figure is the ratio comparing a data series during a specified time period to the same period one year ago. **Rates-of-change** are expressed in terms of the **annual percent change in a 12MMT/A, 3MMT/A, and actual monthly data.**

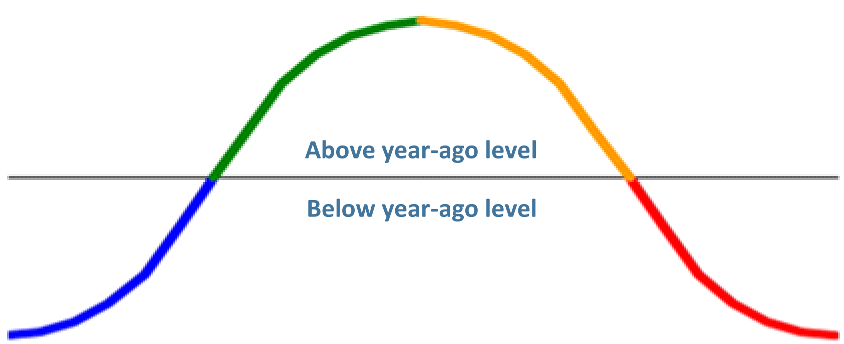
Rates-of-change reveal whether activity levels are rising or falling compared to last year. A rate-of-change trend illustrates and measures cyclical change and trends in the data.

ITR Economics' three commonly used rates-of-change are the **1/12**, **3/12**, and **12/12**, which represent the year-over-year percent change of a single month, 3MMT/A, and 12MMT/A (respectively).

A rate-of-change above 0 indicates the data is higher than one year prior, while a rate-of-change below 0 indicates the data is below one year earlier.

Business Cycle:

The data trends and rates-of-change identify positions in the business cycle. Those positions are:



Recovery (A): 12/12 is rising but is below zero; the data trend is below the year-ago level and is either heading toward a low or is in the early stages of rise. This is the first positive phase of the business cycle.

Accelerating Growth (B): 12/12 is rising and is above zero; the data trend is accelerating in its ascent and is above the year-ago level. This is the second positive phase of the business cycle.

Slowing Growth (C): 12/12 is declining but remains above zero; the data trend ascent is slowing or has stopped its rise, but it is still above the year-ago level. This is the first negative phase of the business cycle.

Recession (D): 12/12 is declining and is below zero; the data trend is below the year-ago level and the rate of decline is increasing. This is the second and final negative phase of the business cycle.

Business Cycle

Page Number	Industry	Current 12/12	Phase	2024	2025	2026
4	US Industrial Production Index	-0.1%	D	-0.8%	2.2%	2.1%
5	North America Light Vehicle Production	4.7%	C	0.5%	0.9%	3.7%
6	US Aircraft and Parts Production Index	5.9%	C	3.8%	-1.2%	7.1%
7	US Housing Starts	-2.1%	A	-3.5%	8.4%	4.2%
8	US Heavy-Duty Truck Production Index	1.4%	C	-3.9%	2.7%	2.6%
9	US Medical Equipment and Supplies Production Index	0.8%	C	-1.1%	0.9%	0.8%
10	US Machinery New Orders	0.1%	C	-0.3%	5.0%	4.4%
11	US Ammunition, Small Arms, Ordnance, and Other Ordnance Accessories Production Index	0.3%	B	5.3%	7.0%	-1.8%

A RECOVERY

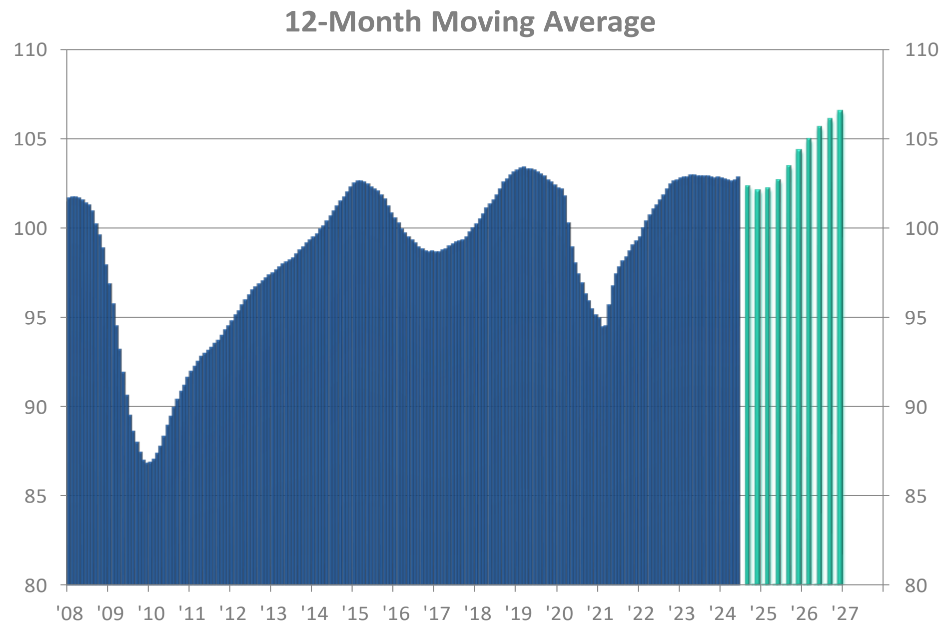
B ACCELERATING GROWTH

C SLOWING GROWTH

D RECESSION

US Industrial Production Index

Plateau in Near Term to Give Way to Rise in 2025 and 2026 as Macroeconomy Rebounds



Industry Outlook

2024: -0.8%

2025: 2.2%

2026: 2.1%

Outlook & Supporting Evidence

- US Industrial Production in the 12 months through June was roughly even with year-ago levels. We anticipate a general plateau for the remainder of this year with Production tracking the upper end of the forecast range.
- Despite the high-interest-rate environment, which would typically be a hindrance, Production has exhibited relative resilience, due in part to elevated corporate cash coupled with a generally well-positioned middle-to-upper-income consumer and heightened government spending.
- Rise will commence in 2025, extending through at least 2026. During this time, we anticipate a reinvigorated macroeconomy and an improved consumer base, as the labor market will remain tight. Lending conditions are also likely to improve.

Phase & Amplitudes

Phase D

Recession

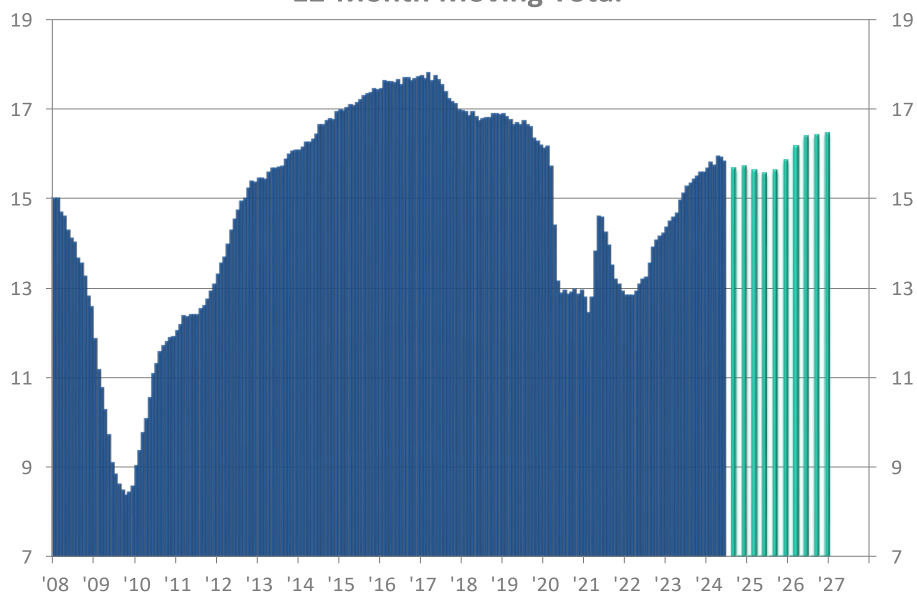
June 2024 Annual Growth Rate (12/12): -0.1%

June 2024 Annual Average (12MMA): 102.9

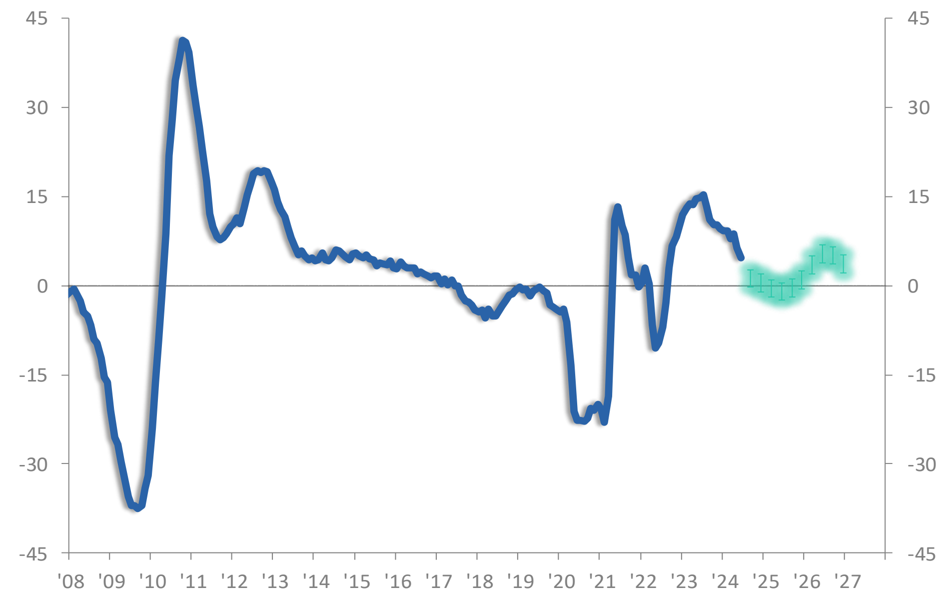
North America Light Vehicle Production

Weakening Retail Sales in the Auto Industry Signal Near-Term Plateau for Production

12-Month Moving Total



Year-over-Year Growth Rate



Industry Outlook

2024: 0.5%

2025: 0.9%

2026: 3.7%

Outlook & Supporting Evidence

- Annual North America Light Vehicle Production is slowing in growth and will plateau, skewing somewhat downward into mid-2025.
- Quarterly US Light Vehicle Retail Sales, measured in units, have fallen just below the year-ago level. Auto loan delinquency rates are steadily rising, signaling some pain among consumers, likely lower-income, who are struggling with still-high inflation and elevated interest rates. Dealers may continue to rebuild inventories, an upside for Production, but likely not up to pre-pandemic levels given the current higher-interest-rate environment.
- Rise will then take hold and extend through at least 2026, surpassing the current level. Rise will be characterized by easing financial conditions and a reinvigorated consumer.

Phase & Amplitudes

Phase C

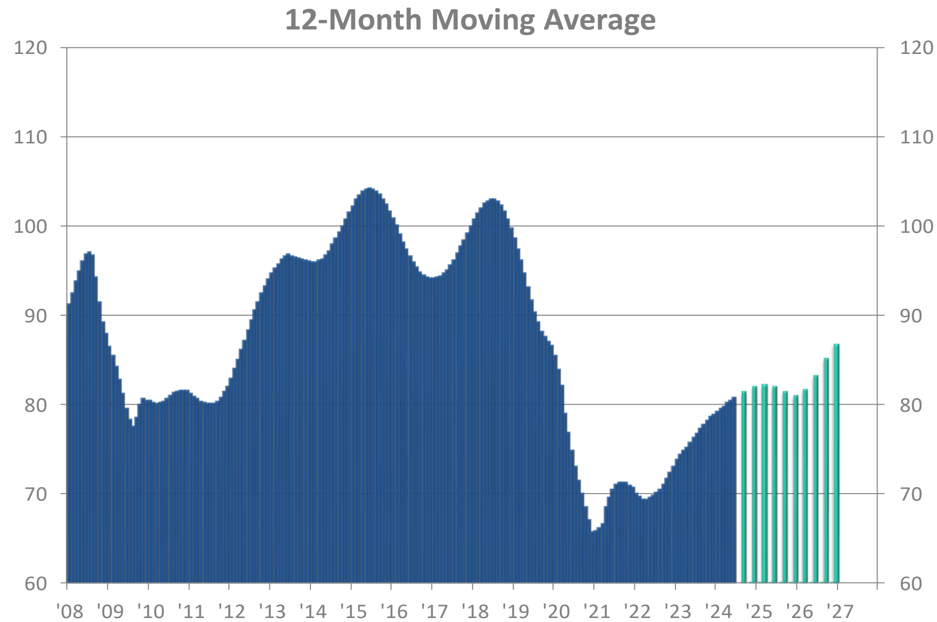
Slowing Growth

June 2024 Annual Growth Rate (12/12): 4.7%

June 2024 Annual Total (12MMT): 15.8 million units

US Aircraft and Parts Production Index

Forecast Revised Due to Data Revision, but Forecast Growth Rates Were Little Changed



Industry Outlook

2024: 3.8%

2025: -1.2%

2026: 7.1%

Outlook & Supporting Evidence

- We revised our outlook for annual US Aircraft and Parts Production due to a revision to the historical data by the Federal Reserve Board. The forecasted year-end growth rates and timing of the cyclical low are little changed.
- Annual Production will rise into early 2025, led by prior rise in aircraft orders and utilization production capacity. Decline will then take hold and persist into the end of that year, lagging the current softening in the macroeconomy. Production will then rise through at least 2026.
- Regulatory and production capacity issues tied to Boeing are a downside risk.

Phase & Amplitudes

Phase C

Slowing Growth

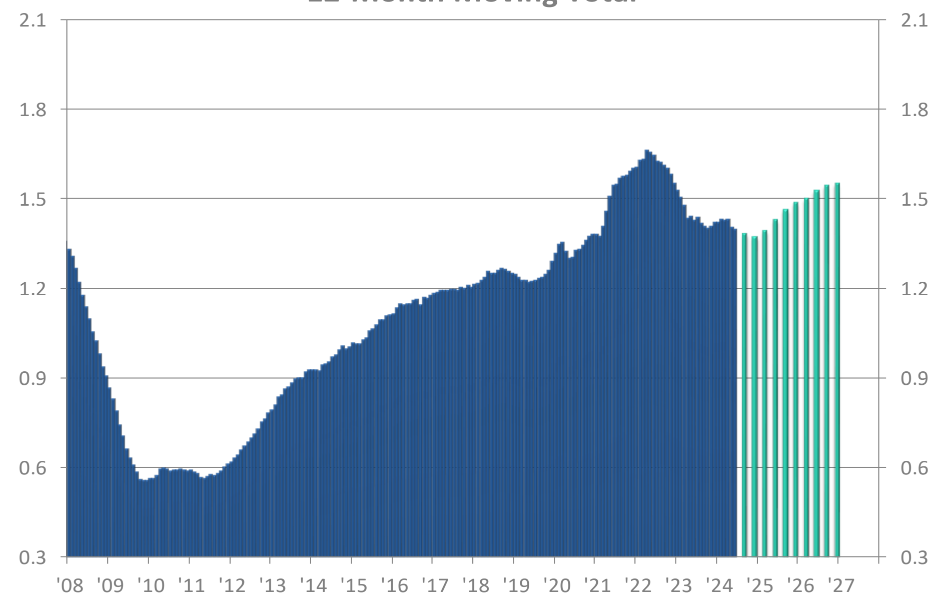
June 2024 Annual Growth Rate (12/12): 5.9%

June 2024 Annual Average (12MMA): 80.8

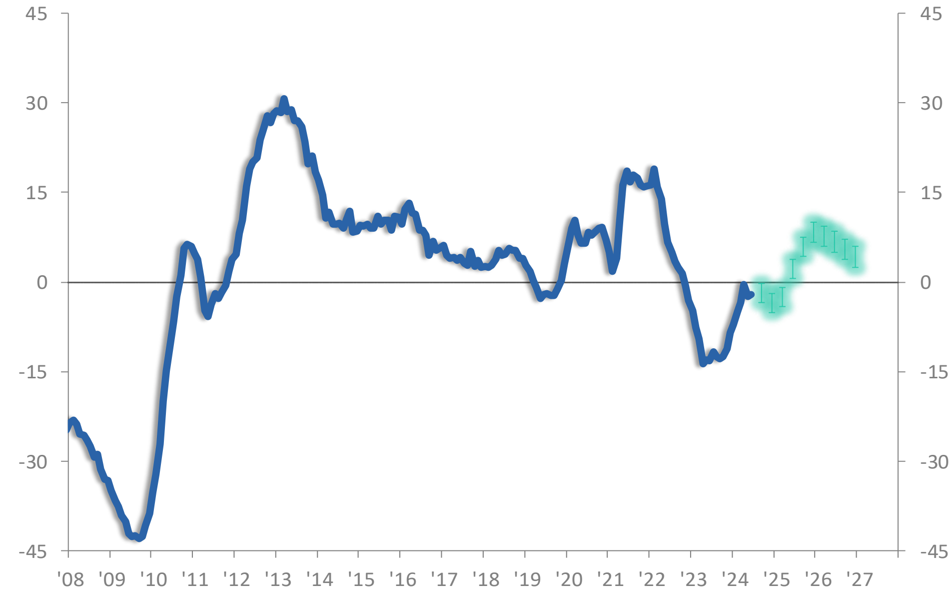
US Housing Starts

Forecast Lowered by 2.3% to 3.9% on Multi-Units; Single-Units Are in Late Phase B

12-Month Moving Total



Year-over-Year Growth Rate



Industry Outlook

2024: -3.5%

2025: 8.4%

2026: 4.2%

Outlook & Supporting Evidence

- We revised our outlook for annual US Housing Starts downward by 3.9%, 2.9%, and 2.3% for 2024, 2025, and 2026, respectively. The downgrade stemmed from the multi-unit component of Starts, which has experienced a deeper-than-anticipated pullback.
- US Single-Unit Housing Starts are accelerating in growth amid a still-tight existing housing market, but are nearing Phase C, Slowing Growth. Mortgage rates remain elevated compared to the low rates buyers became accustomed to in the 2010s. Affordability remains a constraint.
- US Multi-Unit Housing Starts are in Phase D, Recession. Investing in new multi-units is less attractive both given softening rents and a weakening low-to-middle-income consumer as well as options for lower-risk returns elsewhere.

Phase & Amplitudes

Phase A

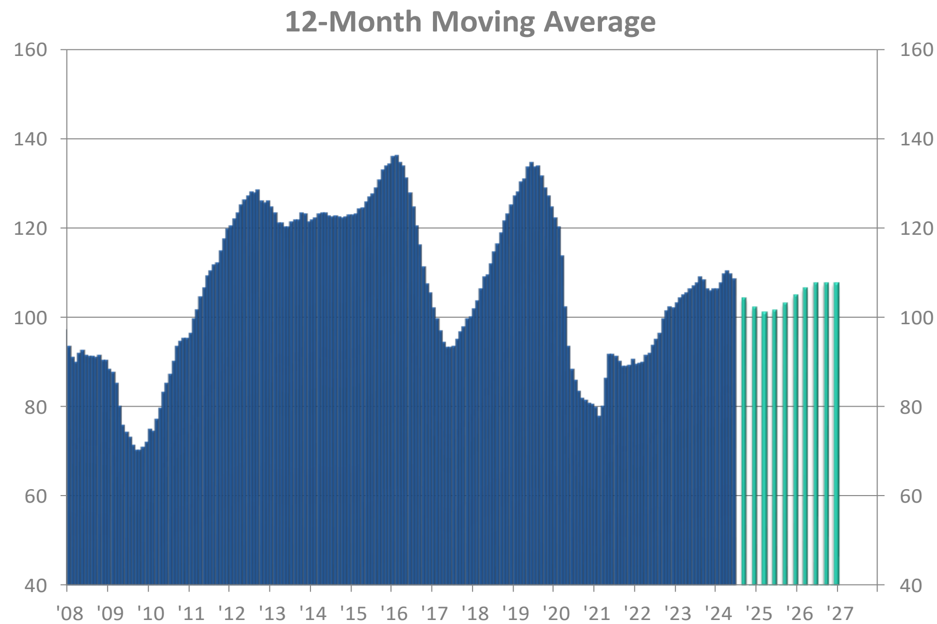
Recovery

June 2024 Annual Growth Rate (12/12): -2.1%

June 2024 Annual Total (12MMT): 1.4 million units

US Heavy-Duty Truck Production Index

Softening Industrial Sector to Weigh on Production Into Early 2025 Before Rise Takes Hold



Industry Outlook

2024: -3.9%

2025: 2.7%

2026: 2.6%

Outlook & Supporting Evidence

- Annual US Heavy-Duty Truck Production declined in June but was 1.4% above its year-ago level. A near-term transition to Phase D, Recession, is likely given the softening industrial sector. High interest rates, which have a lagged impact on Production, will continue to pose a downside pressure in the coming quarters. Annual Production will decline into early 2025.
- A stronger B2B environment coupled with a recovering industrial sector will lead to annual rise for Production in early 2025, extending through 2026. Early signs of improvement in US Total Wholesale Trade are a promising signal that freight activity will begin to recover, helping boost demand for new trucks.
- PMPA members should keep an eye on emerging mandates for EV trucks.

Phase & Amplitudes

Phase C

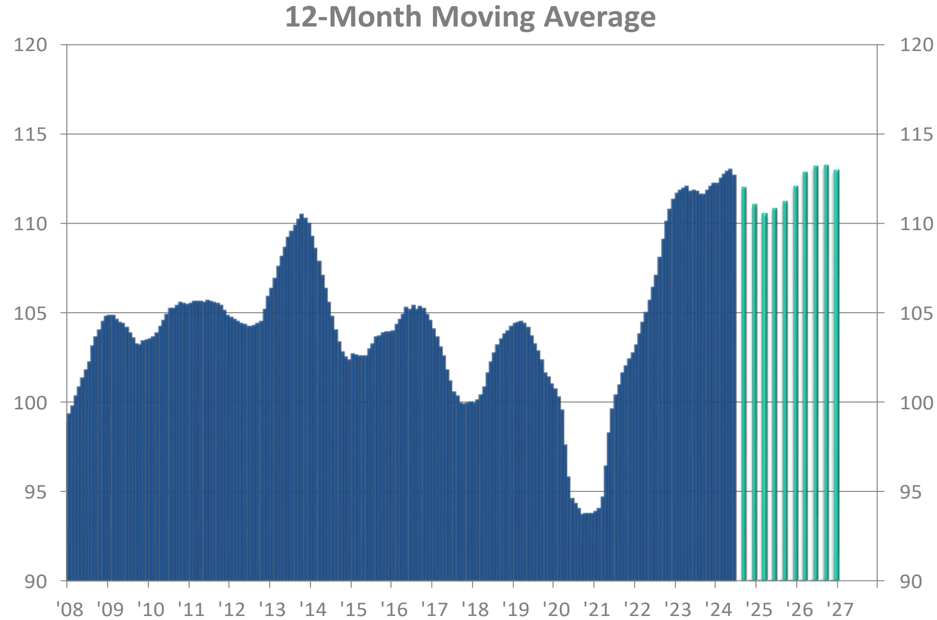
Slowing Growth

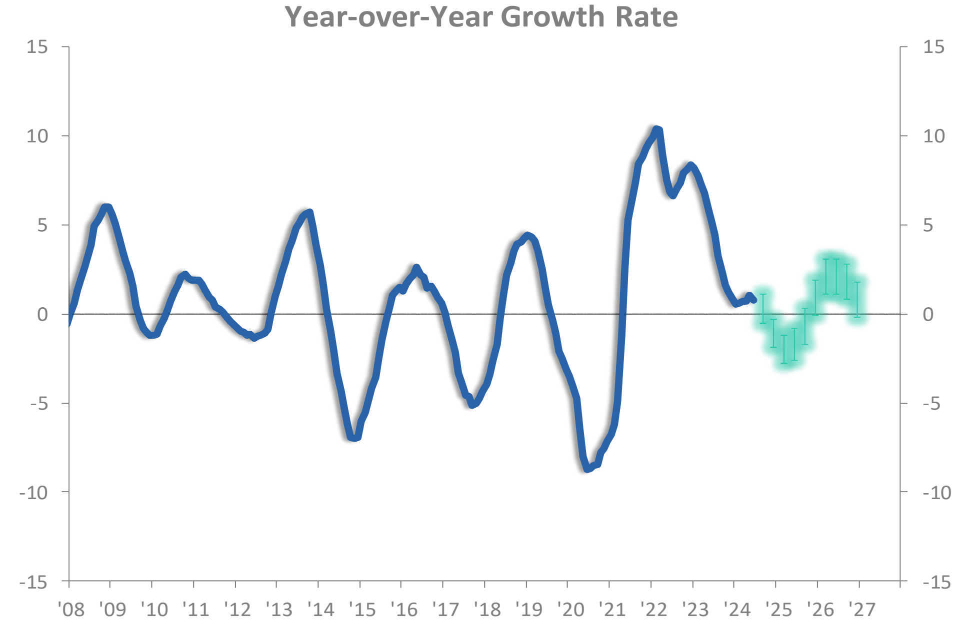
June 2024 Annual Growth Rate (12/12): 1.4%

June 2024 Annual Average (12MMA): 108.6

US Medical Equipment and Supplies Production Index

Forecast Revised; Decline Likely in Near Term Before Rise Takes Hold





Industry Outlook

2024: -1.1%

2025: 0.9%

2026: 0.8%

Outlook & Supporting Evidence

- We revised our forecast for US Medical Equipment and Supplies Production due primarily to a revision to historical data. The overall trajectory of the forecast is little changed.
- Annual Production will mildly decline into the beginning of 2025, given a softening consumer. A multitude of factors including the aging population, nearshoring, and tariffs on some Chinese medical goods will keep Production relatively elevated in the coming quarters.
- Rise will then commence by mid-2025 and persist into the second half of 2026.

Phase & Amplitudes

Phase C

Slowing Growth

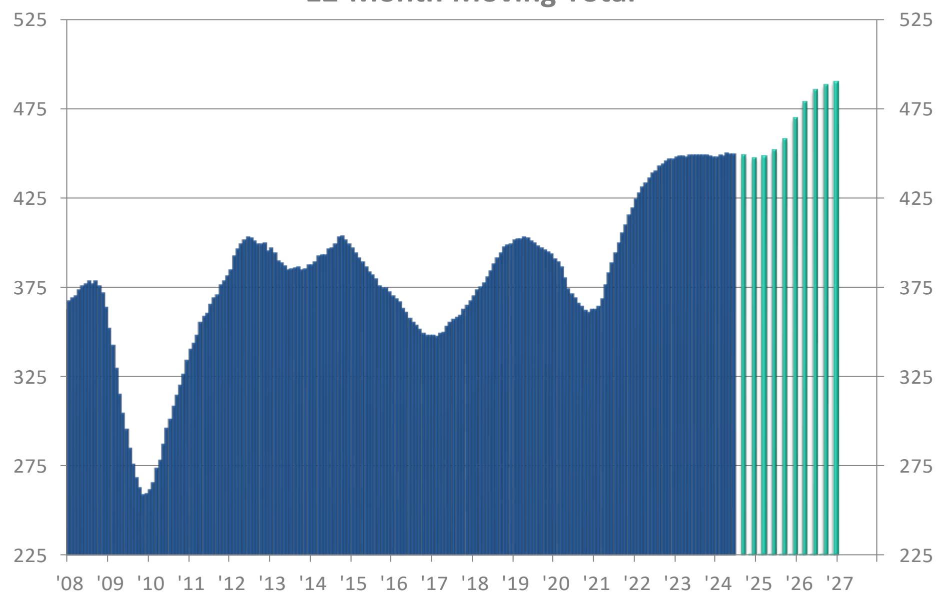
June 2024 Annual Growth Rate (12/12): 0.8%

June 2024 Annual Average (12MMA): 112.7

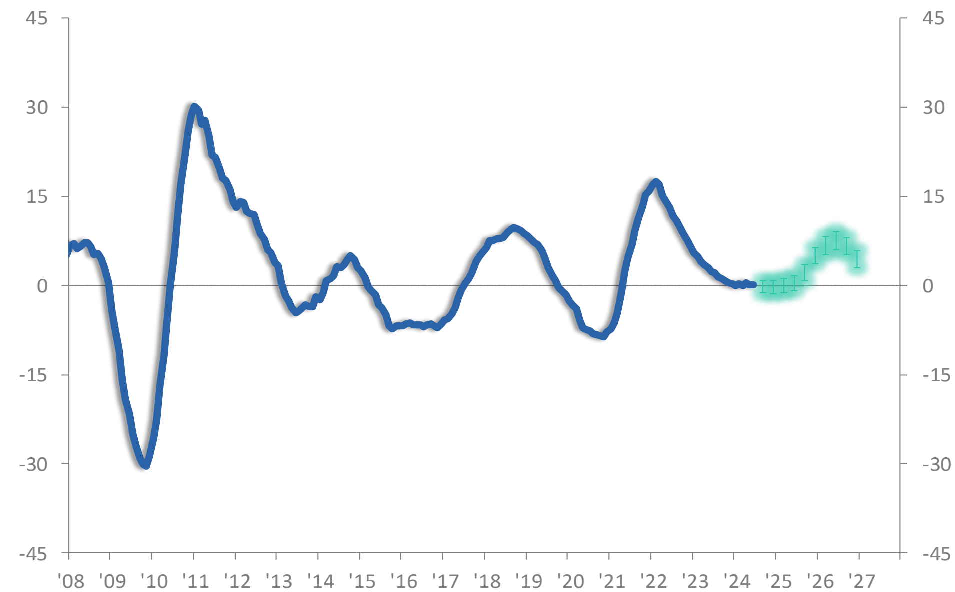
US Machinery New Orders

Forecast Revised; Plateau With Downward Bias in Near Term Before Rise in 2025 and 2026

12-Month Moving Total



Year-over-Year Growth Rate



Industry Outlook

2024: -0.3%

2025: 5.0%

2026: 4.4%

Outlook & Supporting Evidence

- We revised our forecast for US Machinery New Orders upward by 2.7%, 3.0%, and 5.9% for 2024, 2025, and 2026, respectively, in alignment with our slightly stronger macro outlook that is outlined in the overview on page 1. A general plateau with a downward bias is likely in the near term.
- Rise will take hold in the first half of 2025, in line with our expectations for the industrial sector. Upward movement in the US ISM PMI (Purchasing Managers Index), as well as prior rise in corporate cash in the manufacturing industry tentatively corroborates our expectation for rise in 2025. Elevated interest rates remain a downside pressure.
- Rise will persist through at least 2026, though growth will begin to slow in the second half of that year.

Phase & Amplitudes

Phase C

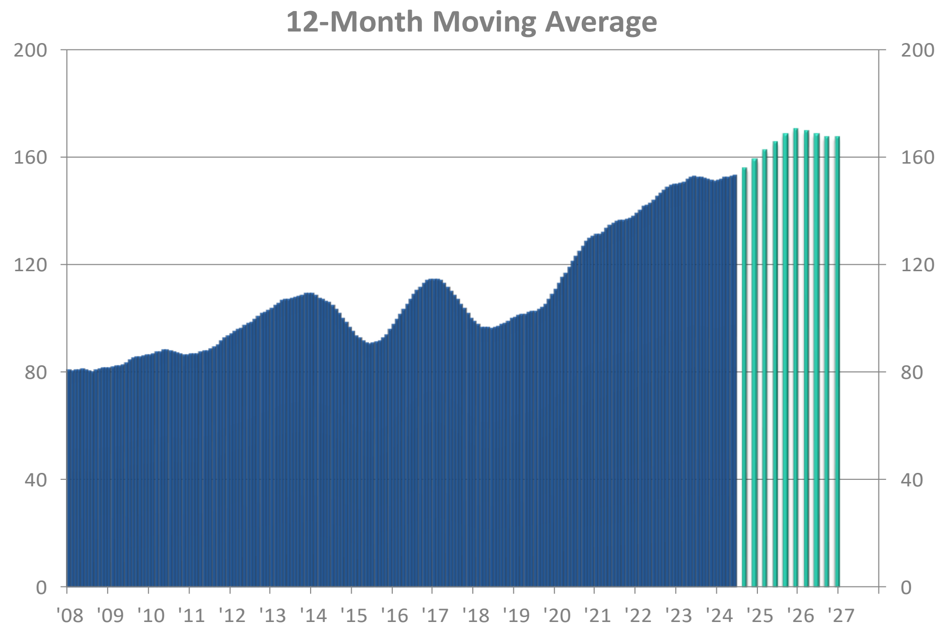
Slowing Growth

June 2024 Annual Growth Rate (12/12): 0.1%

June 2024 Annual Total (12MMT): $449.6 billion

US Ammunition, Small Arms, Ordnance, and Other Ordnance Accessories Production Index

Forecast Revised Upward; Rise Imminent Given Rising Geopolitical Risk, Followed by Decline in 2026



Industry Outlook

2024: 5.3%

2025: 7.0%

2026: -1.8%

Outlook & Supporting Evidence

- We revised the forecast due primarily to a revision to historical data. The annual growth rate outlook was changed by +4.6, -0.2, and -2.8 percentage points for the coming three year-ends. We now expect imminent rise in Production, pulled in from our prior expectations for rise to commence at the end of this year.
- Annual Production will rise through 2025, led by rise in US National Defense Expenditures and Gross Investment Real GDP. The prevalence of geopolitical tensions may spur demand for defense supplies, for both consumers and government.
- Decline will then take hold for Production in early 2026, extending through the end of that year.

Phase & Amplitudes

Phase B

Accelerating Growth

June 2024 Annual Growth Rate (12/12): 0.3%

June 2024 Annual Average (12MMA): 153.5

INDICATORS

US Leading Indicators

Indicator	Direction		
	3Q24	4Q24	1Q25
ITR Leading Indicator™	●	●	N/A
ITR Retail Sales Leading Indicator™	●	●	●
US OECD Leading Indicator	●	●	●
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

- Many of our leading indicators are flashing green and signaling a stronger economy in 2025, though the strength of rise is weak and we are still seeing some signs of stress for the economy, which will likely persist through the end of this year.

- While Retail Sales are still rising, we anticipate that the rate of rise will be somewhat muted in the coming quarters. Retail Sales will not decline, but they are not likely to exhibit growth rates similar to those seen from 2020 to 2022, as we have moved into a different consumer environment, given lower savings rates and increased loan delinquency rates.

- We have yet to see well-defined rise in the US Total Industry Capacity Utilization Rate, unlike the performance of other leading indicators, highlighting the probability of a softening manufacturing sector in the near term.

While most leading indicators are flashing green, downside pressures will linger this year. Overall, the rest of this year will be a bit sluggish. However, it will be a good time to reevaluate your competitive advantages and improve upon strategies so that you can capitalize on the stronger economy expected in 2025 and 2026.

Appendix — 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). Index, 2017 = 100, not seasonally adjusted (NSA).

North America Light Vehicle Production — Passenger car and light-duty truck production (classes 1-3) in the US, Canada, and Mexico combined, including transplants. A passenger car is a road motor vehicle, other than a motorcycle, intended for the carriage of passengers and designed to seat no more than nine persons (including the driver). Source: WardsAuto. Measured in millions of units, NSA.

US Aircraft & Parts Production Index — This US industry comprises establishments primarily engaged in one or more of the following: (1) manufacturing or assembling complete aircraft; (2) developing and making aircraft prototypes; (3) aircraft conversion (i.e., major modifications to systems); and (4) complete aircraft overhaul and rebuilding (i.e., periodic restoration of aircraft to original design specifications). It also includes manufacturing aircraft parts or auxiliary equipment and/or developing and making prototypes of aircraft parts and auxiliary equipment. Aircraft parts include such items as aircraft assemblies, brakes, fuselage wing tail assemblies, propellers and parts, wheels, airframe assemblies, engines, turbines, joints, targets, etc. Auxiliary equipment includes such items as crop dusting apparatus, armament racks, inflight refueling equipment, and external fuel tanks. Source: FRB. Index, 2017 = 100, NSA.

US Housing Starts — Total number of privately-owned housing units started in the United States. Start of construction occurs when excavation begins for the footings or foundation of a building. All housing units in a multi-family building are defined as being started when this excavation begins. Source: US Census Bureau. Measured in millions of units, NSA.

US Heavy-Duty Truck Production — This industry comprises establishments primarily engaged in (1) manufacturing heavy duty truck chassis and assembling complete heavy duty trucks, buses, heavy duty motor homes, and other special purpose heavy duty motor vehicles for highway use or (2) manufacturing heavy duty truck chassis only. Includes trucks weighing 14,000 pounds or more. Source: FRB, Index, 2017 = 100, NSA.

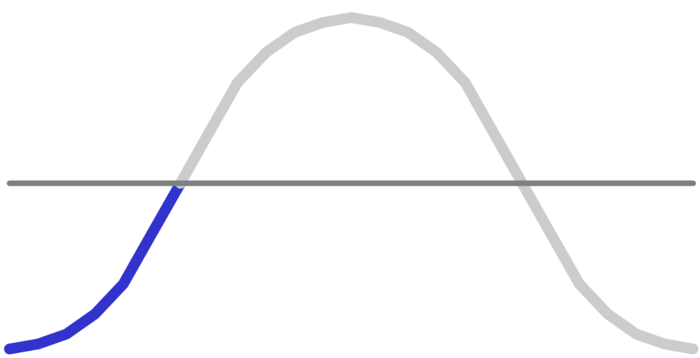
US Medical Equipment & Supplies Production Index — Medical equipment and supplies manufacturing index for the United States. Examples of products made by these establishments are surgical and medical instruments, surgical appliances and supplies, dental equipment and supplies, orthodontic goods, ophthalmic goods, dentures, and orthodontic appliances. Source: FRB. Index, 2017 = 100, 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. Source: US Census Bureau. Measured in billions of dollars, NSA.

US Ammunition, Small Arms, Ordnance, and Other Ordnance Accessories Production Index — Production index for the manufacture of ammunition, small arms, ordnance, and ordnance accessories. Includes bullets, shot, shells, ammunition cartridges, arming and fusing devices, bombs, detonators, missile warheads, torpedoes, guns, machine guns, cannons, small firearms, flame throwers, pellet guns, pistols, rifles, shotguns, rocket launchers, submachine guns, tank artillery, tranquilizer guns, etc. Source: FRB. Index, 2017 = 100, NSA.

Management Objectives™

Phase



A

1 Scrupulously evaluate the supply chain

2 Model positive leadership (culture turns to behavior)

3 Start to phase out marginal opportunities (products, processes, people); repair margins

4 Perform due diligence on customers and extend credit

5 Be on good terms with a banker; you will need the cash more now than in any other phase

6 Invest in customer market research; know what they value and market/price accordingly

7 Hire key people and implement company-wide training programs ahead of Phase B

8 Allocate additional resources to sales and marketing

9 Invest in system/process efficiencies

10 Make opportunistic capital and business acquisitions; use pessimism to your advantage

Management Objectives™

1 Ensure quality control keeps pace with increasing volume

2 Invest in workforce development: hiring, training, retention

3 Ensure you have the right price escalator; space out price increases

4 Maximize your profit margins through differentiation; stand out from the crowd and set yourself apart

5 Use improved cash flow to strategically position the business to beat the business cycle

6 Expand credit to customers

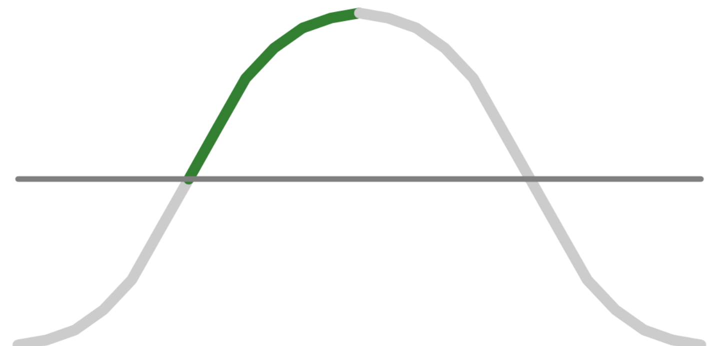
7 Improve corporate governance (rent a CFO; establish a board of advisors or board of directors)

8 Communicate competitive advantages; build the brand

9 Query users for what they want and what is important to them

10 Sell the business in a climate of maximum goodwill

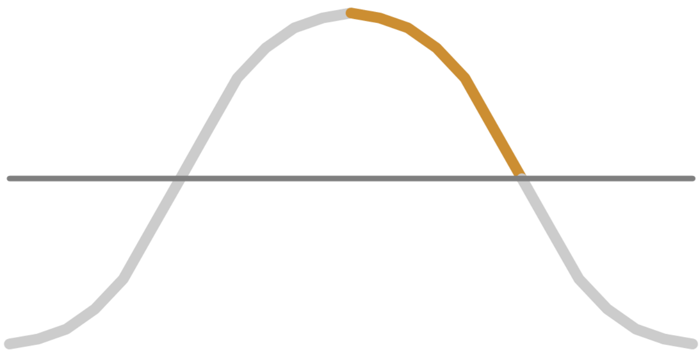
Phase



B

Management Objectives™

Phase



C

1 Know if your markets are headed for a soft landing or a hard landing

2 Cash is king; beware of unwarranted optimism

3 Stay on top of aging receivables

4 Revisit capital expenditure plans

5 Lose the losers: if established business segments are not profitable during this phase, eliminate them

6 Use competitive pricing to manage your backlog through the coming slowdown

7 Avoid committing yourself to long-term expenses at the top of the price cycle, but lock in revenue

8 Go entrepreneurial and/or counter-cyclical

9 Evaluate your vendors for financial strength; if needed, look for additional vendors as a safety net

10 If the cycle looks recessionary, cross-train key people to prepare for workforce attrition/reduction

Management Objectives™

1 Implement aggressive cost-cutting measures

2 Offer alternative products with a lower cost basis

3 Perform due diligence on acquisitions while valuations are falling

4 Reduce advertising as consumers become more price conscious

5 Enter or renegotiate long-term leases

6 Negotiate labor contracts

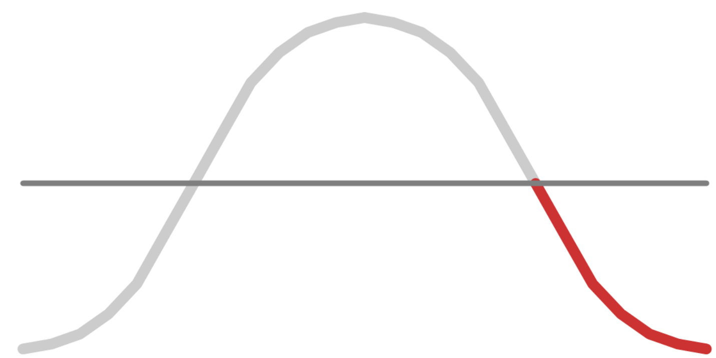
7 Consider capital equipment needs for the next cycle

8 Tighten credit policies

9 Develop programs for advertising, training, and marketing to implement in Phase A

10 Lead with optimism, remembering that Phase D is temporary

Phase



D