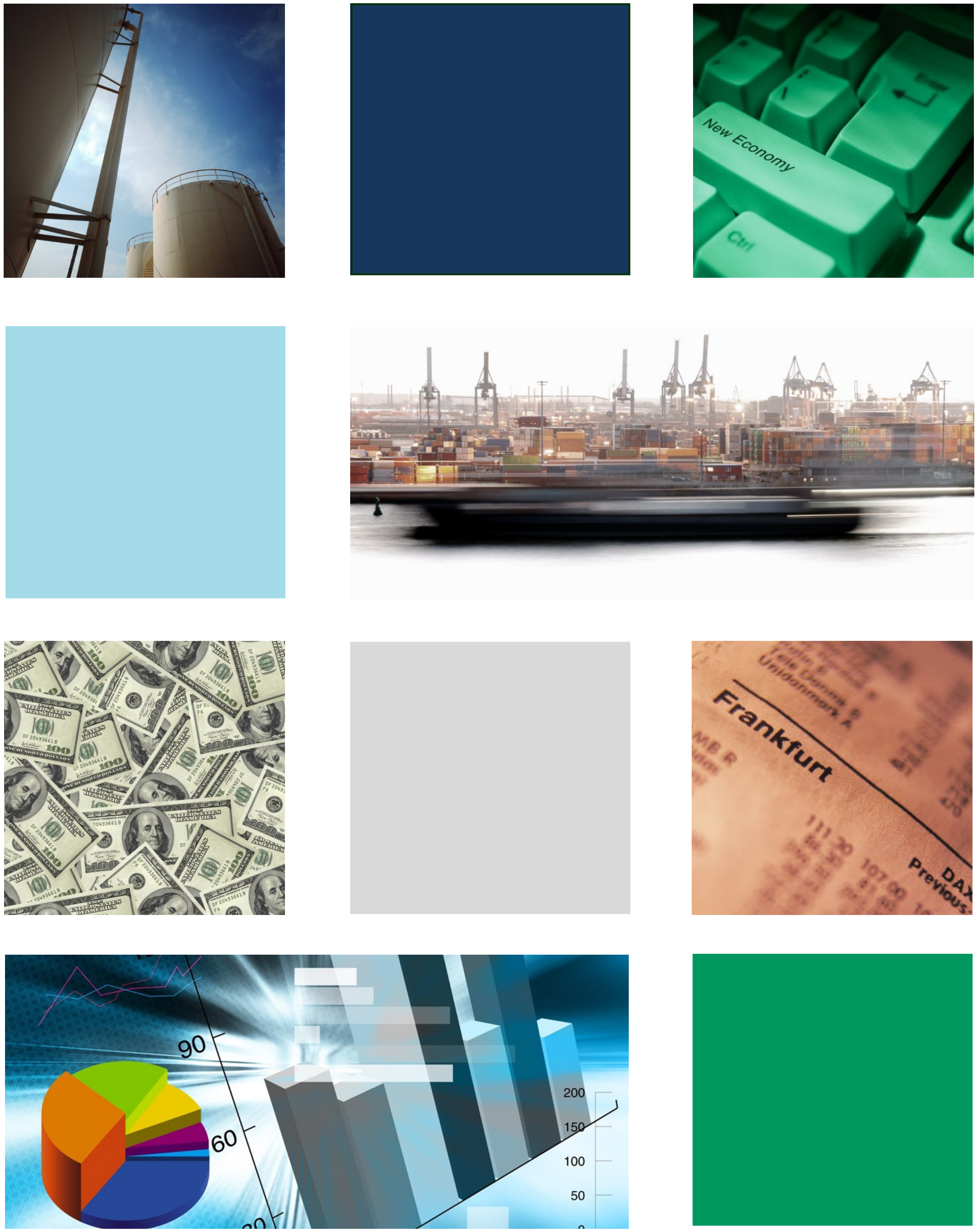


PMPA
PRECISION MACHINED
PRODUCTS ASSOCIATION

May 2024

Economic Report

ITR ECONOMICS

Table of Contents

overview

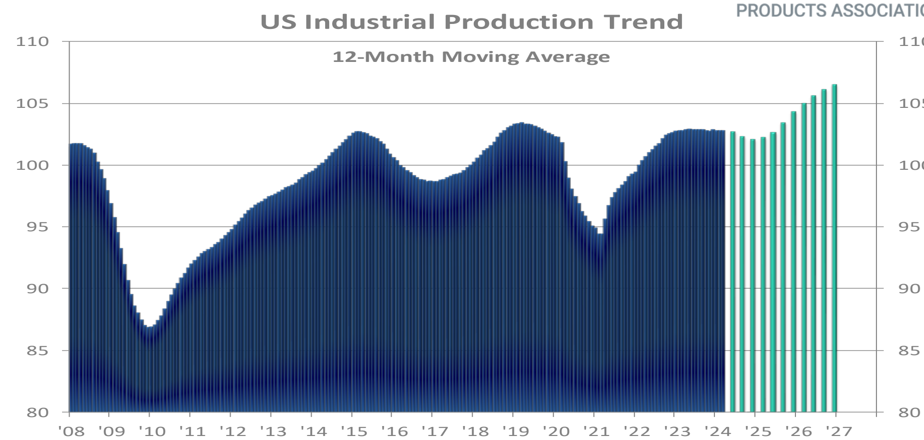
Divergent Outcomes Are Likely in 2024

Consumers are the bedrock of the US economy, and middle-to-upper-income demographics are proving resilient. Consumers are buying a record dollar-value and volume of goods and services, funded through rising income, lower savings, and - in some cases - more debt. Record buying is occurring despite material economic headwinds. Consumer prices are up roughly 22% over the last four years and borrowing costs have soared from record lows to multi-decade highs. These pressures have been felt more acutely by lower-income consumers. Meanwhile, many middle-to-upper-income consumers are benefiting from relatively high home values and equity values. Our analysis indicates that spending by higher-income consumers is having a larger impact on the economic data relative to spending by lower-income consumers.

Relatively strong middle-to-upper-income consumers are driving growth in housing construction, as they are more likely to be able to buy despite still-elevated mortgage rates. Rise in US Single-Unit Housing Starts is likely to persist in the coming years given the tight stock of existing homes and expected improvement in financial conditions.

We expect slowing growth for US Real GDP in 2024, with the potential for one quarter of mild decline. The retail and services sectors are likely to see slowing growth. Sizable government spending is an upside for the economy and is benefiting not only the public sector, but it is also having knock-on positive effects in the private sector, noticeable in the nonresidential construction and services sectors.

Businesses are showing hesitance towards capex amid the slowing macroeconomy, high borrowing costs, and tight credit conditions. Total Manufacturing New Orders have plateaued and existing manufacturing capacity is being utilized at a lower rate. Contraction is likely for many non-high tech industrial markets in 2024, if it has not already materialized. Businesses, including those in the manufacturing sector, are holding larger amounts of cash than is typical this cycle, which may offset some of the downside impact of tight monetary policy. This is part of the reason we expect this downturn to be mild. The resilient consumer and near-sourcing will also contribute to the downturn being mild.



Growth Will Follow in 2025 and 2026; What to Know for Planning

Know your markets and where your products place relative to your competition. If your business caters directly to consumers, consider your end users' demographics, as your sales performance may differ depending on customers' income levels or on regional trends. Consider how price-and interest-rate-sensitive your clients are, as it will likely be hard to lift prices this year, and rates will likely move slightly lower but remain relatively high. Companies with exposure to the services sector or public spending are more likely to experience a soft landing relative to the industrial sector. Look for opportunities tied to reshoring.

If possible, try to keep an extra cash buffer this year to help you mitigate the current high interest rates and to provide both security and flexibility. This year will also be a good time to try to improve efficiencies and cut back on discretionary spending to help offset the impacts of wage pressures.

Evidence for the next business cycle rising trend is already forming. Accelerating growth in US Single-Unit Housing Starts, which lead the US economy, suggests 2025 will be a stronger year than 2024 for many markets. Additionally, the FOMC is messaging potential rate cuts starting late this year. Discernable impacts to the economy typically lag changes in rates, meaning much of the impact of these potential cuts would be seen in 2025 and 2026. Even if your market is poised for a downturn this year, make sure to look beyond and focus on how your business can be best positioned for the rise coming in 2025 and 2026.

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).

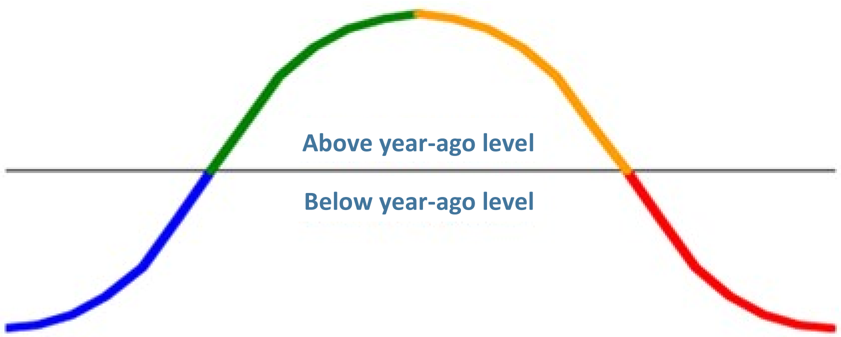
A rate-of-change above 0 indicates the data is higher than one year prior, while a rate-of-change below 0 indicates the data is below one year earlier.

Business Cycle:

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

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.

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.



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	0.0%	C	-0.8%	2.2%	2.1%
5	North America Light Vehicle Production	8.0%	C	0.5%	0.9%	3.7%
6	US Aircraft and Parts Production Index	9.1%	C	5.5%	-2.0%	6.2%
7	US Housing Starts	-3.6%	A	0.4%	7.3%	3.6%
8	US Heavy-Duty Truck Production Index	2.2%	C	-3.9%	2.7%	2.6%
9	US Medical Equipment and Supplies Production Index	1.4%	C	1.9%	-0.5%	1.9%
10	US Machinery New Orders	0.0%	C	-3.0%	4.7%	1.5%
11	US Ammunition, Small Arms, Ordnance, and Other Ordnance Accessories Production Index	2.6%	C	0.7%	7.2%	1.0%

A RECOVERY

B ACCELERATING GROWTH

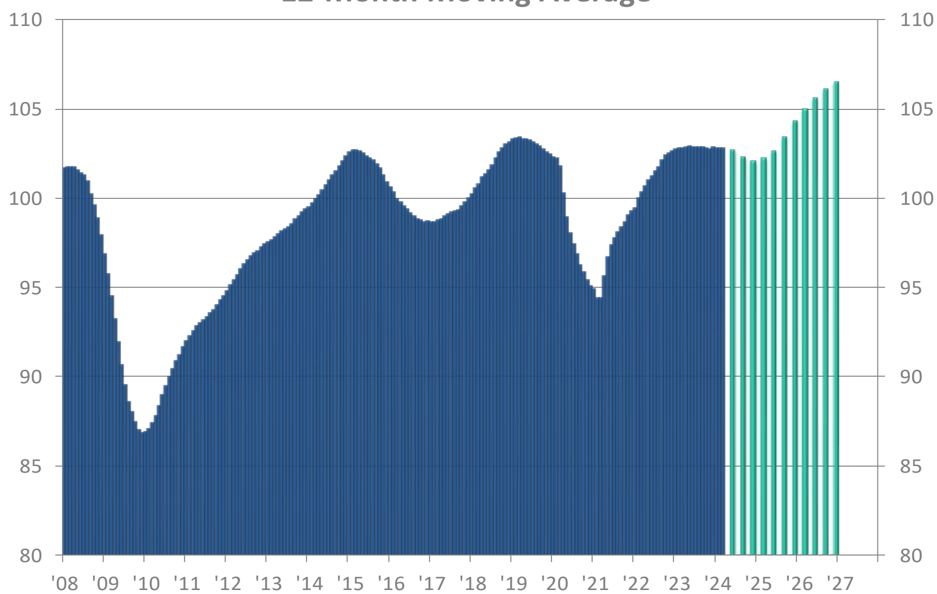
C SLOWING GROWTH

D RECESSION

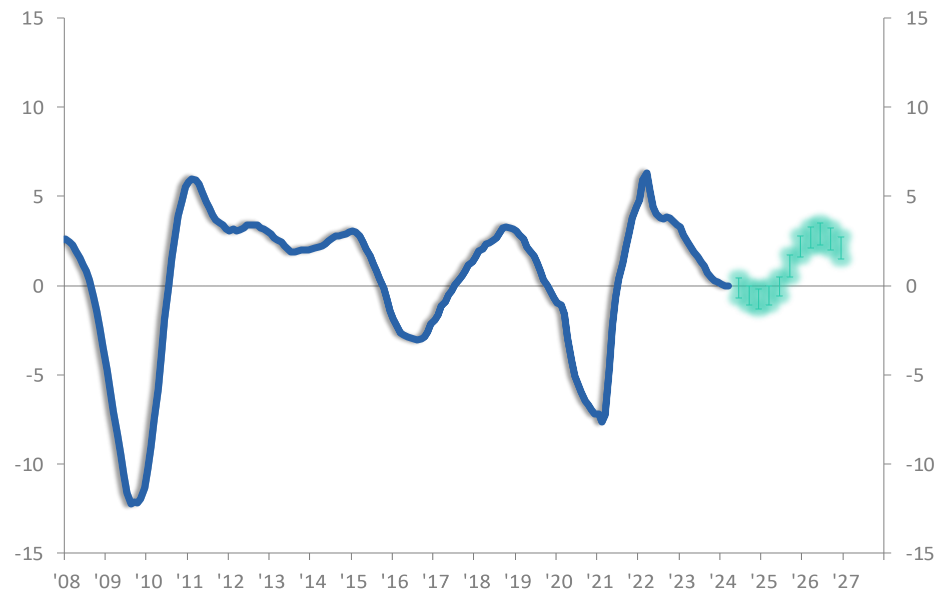
US Industrial Production Index

Forecast Lifted; Disparate Trends in Components Underscore Need to Know Your Industry's Trends

12-Month Moving Average



Year-over-Year Growth Rate



Industry Outlook

2024: -0.8%

2025: 2.2%

2026: 2.1%

Outlook & Supporting Evidence

- We upward revised the US Industrial Production forecast by 3.0% for 2024, 3.2% for 2025, and 3.6% for 2026. This revision reflects a milder downturn in 2024, due in part to domestic activity being boosted by government spending, elevated corporate profits and cash holdings, along with upside pressures stemming from the high-tech portion of Production.
- Tight monetary policy remains an impediment to the interest-rate-sensitive components within the industrial sector, such as machinery production which is down 4% from an early 2023 peak. A rate cut is probable late this year, but the effects are often lagged.
- Production will generally rise in 2025 and 2026, due in part to strong onshoring efforts which will help to secure supply chains.

Phase & Amplitudes

Phase C

Slowing Growth

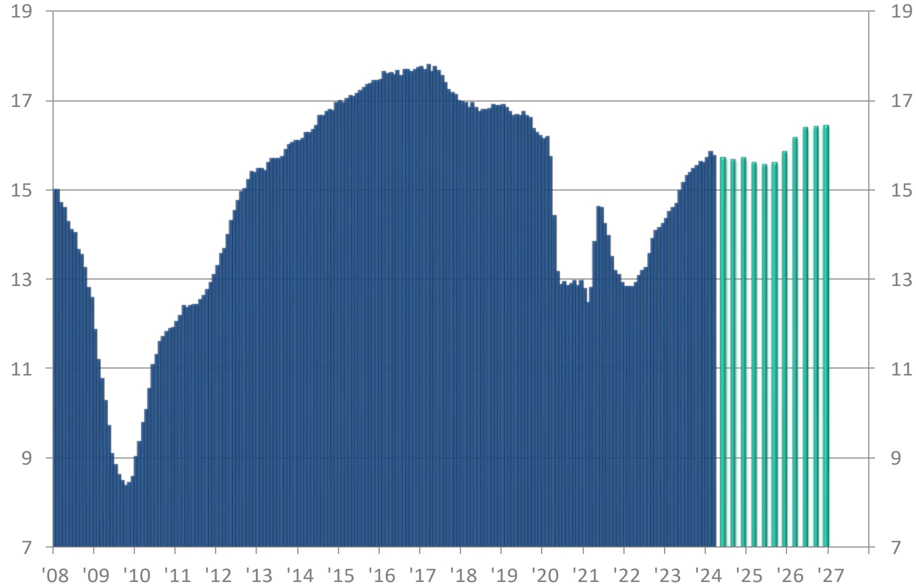
March 2024 Annual Growth Rate (12/12): 0.0%

March 2024 Annual Average (12MMA): 102.8

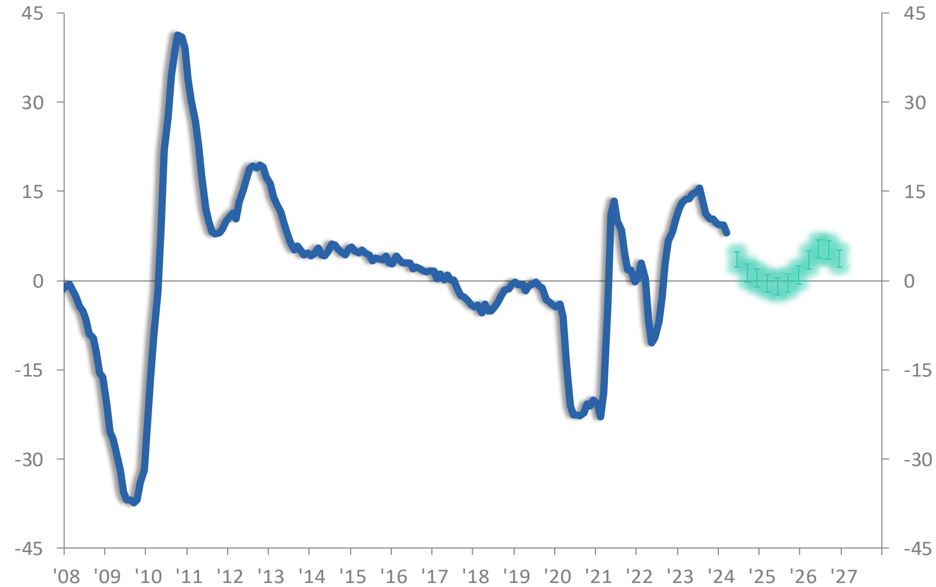
North America Light Vehicle Production

Light Vehicle Production to Plateau With a Downward Bias Into Late 2025 Given Opposing Factors

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 will plateau with a mild downward bias into the second half of 2025.
- Generally flat Production is a result of opposing factors. There is upside from more resilient middle-to-upper-income consumers, which is corroborated by accelerating and record-high US New Car Dealers Retail Sales, which typically attracts this income bracket of consumers. US Used Car Dealers Retail Sales are flat, and the rate-of-change is hovering around the zero line. Expect Production downsides from high interest rates and rising, but still relatively low, auto loan delinquency rates.
- Annual Production will begin to rise in the second half of 2025. Rise will hold throughout 2026, with annual Production coming in 4% above the current level.

Phase & Amplitudes

Phase C

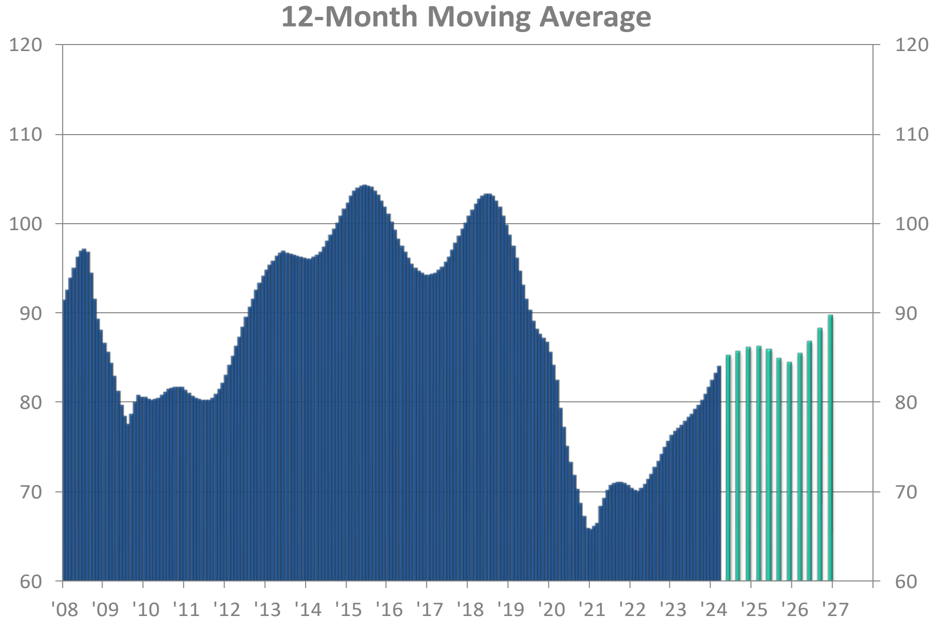
Slowing Growth

March 2024 Annual Growth Rate (12/12): 8.0%

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

US Aircraft and Parts Production Index

Expect Rise Into Early 2025 From Unfilled Orders and Accelerating Utilization; Boeing Remains a Risk



Industry Outlook

2024: 5.5%

2025: -2.0%

2026: 6.2%

Outlook & Supporting Evidence

- Annual US Aircraft and Parts Production will rise into early 2025. Upside pressures come from rising aircraft and parts unfilled orders in both defense and nondefense spaces and acceleration in the Aerospace and Miscellaneous Transportation Capacity Utilization monthly growth rate.
- Boeing's quality control and regulatory issues remain a downside risk. Annual Boeing Commercial Aircraft Undelivered Firm Orders remains elevated at 5,698 units, but Boeing may struggle to scale up production and damage to their brand could impact future orders.
- Expect mild Production decline in most of 2025. Production will pick back up and rise throughout 2026.

Phase & Amplitudes

Phase C

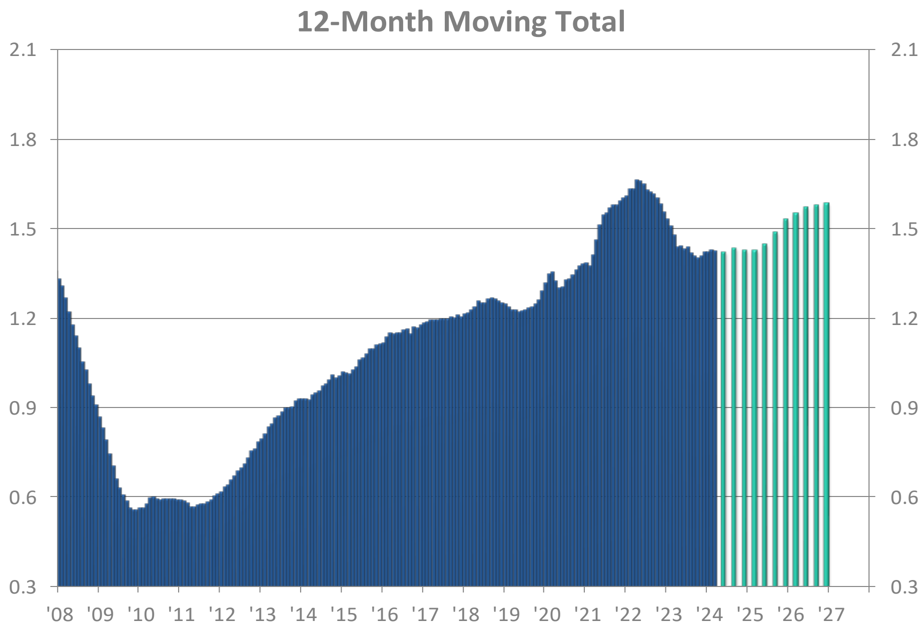
Slowing Growth

March 2024 Annual Growth Rate (12/12): 9.1%

March 2024 Annual Average (12MMA): 84.0

US Housing Starts

Annual US Housing Starts to Plateau Into Early 2025 as Single and Multi-Unit Starts Trends Differ



Industry Outlook

2024: 0.4%

2025: 7.3%

2026: 3.6%

Outlook & Supporting Evidence

- Annual US Housing Starts will plateau into early 2025 as components of Starts are trending in different directions.
- US Single-Unit Housing Starts are accelerating in growth. Affordability constraints will dampen rise, but low existing inventory indicates a need for new construction.
- US Multi-Unit Housing Starts are contracting. The US Apartment Market Tightness Index suggests nascent improvement in market conditions, but commercial real estate lending conditions are a downside.
- Following this plateau, annual US Housing Starts will rise through at least 2026.

Phase & Amplitudes

Phase A

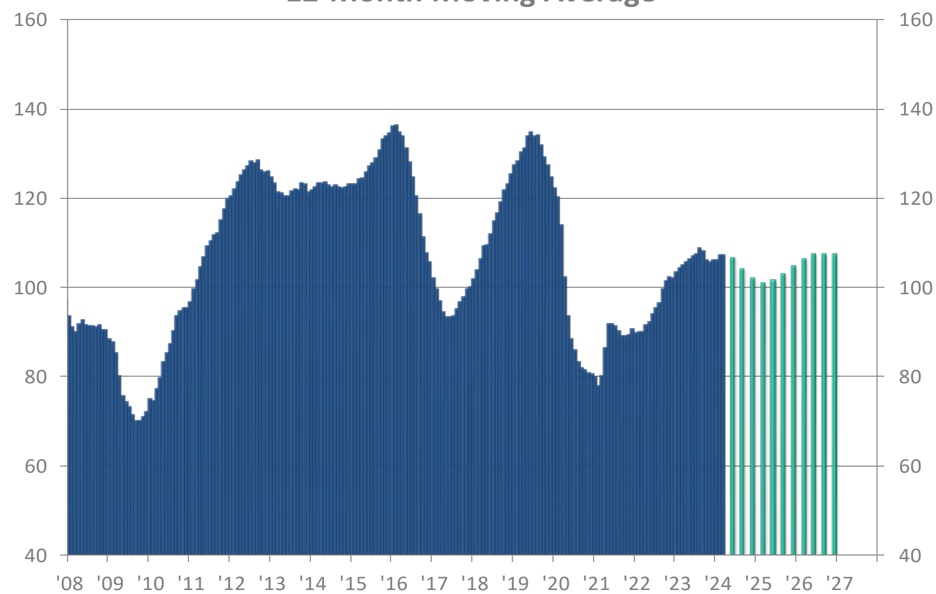
Recovery

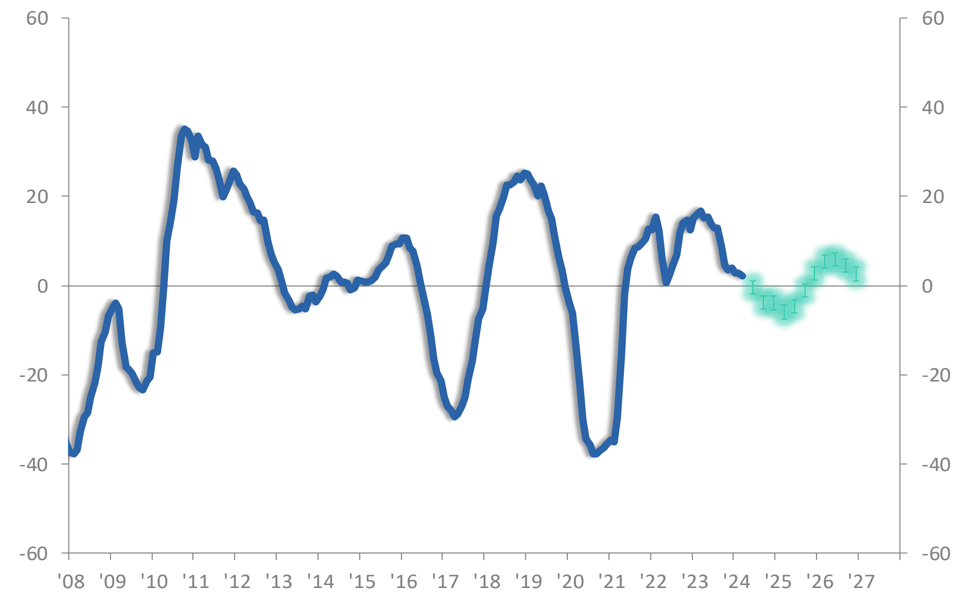
March 2024 Annual Growth Rate (12/12): -3.6%

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

US Heavy-Duty Truck Production Index

Forecast Revised Upward; Relatively Mild Decline Still Likely Into Early 2025





Industry Outlook

2024: -3.9%

2025: 2.7%

2026: 2.6%

Outlook & Supporting Evidence

- We upward revised the US Heavy-Duty Truck Production forecast, most notably in 2024 by 11.3% and 2025 by 7.5%; 2026 is virtually unchanged.
- While the freight industry remains in a recession, industrial activity has been stronger than anticipated (as outlined on the Page 4) and business-to-business spending has proven resilient. Production has not been as negatively impacted by elevated interest rates as we expected.
- We still expect that high interest rates and slowing macroeconomic momentum will result in some decline this year, but it will be a relatively mild 5.9% decline from the current level to the forecasted early 2025 Production low.
- Annual Production will then rise for the remainder of the forecast period.

Phase & Amplitudes

Phase C

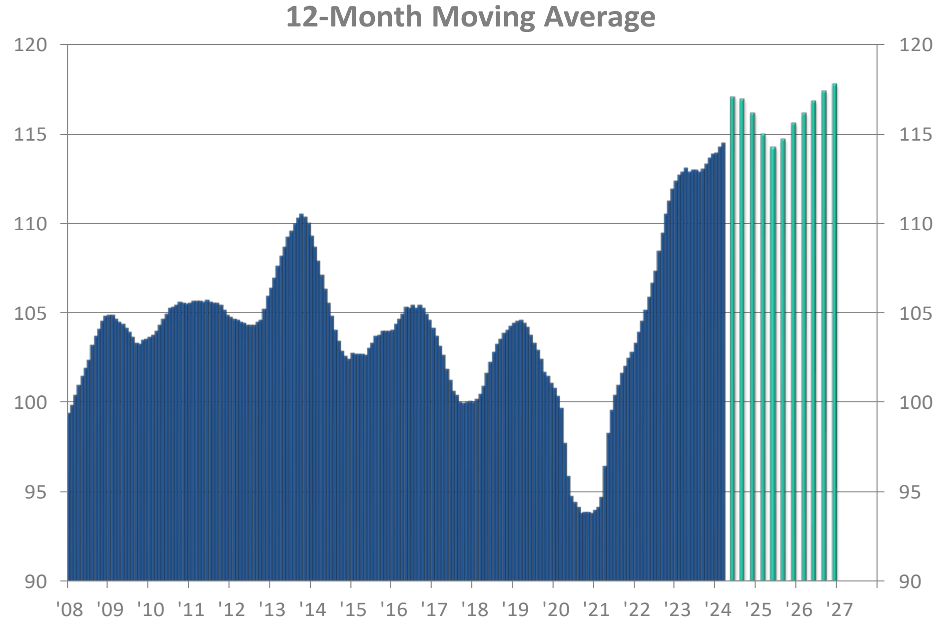
Slowing Growth

March 2024 Annual Growth Rate (12/12): 2.2%

March 2024 Annual Average (12MMA): 107.2

US Medical Equipment and Supplies Production Index

Production to Decline Soon; Long-Term Trajectory Is Strong From Onshoring and Demographics



Industry Outlook

2024: 1.9%

2025: -0.5%

2026: 1.9%

Outlook & Supporting Evidence

- Annual US Medical Equipment and Supplies Production will rise in the near term before transitioning to decline by the second half of the year. Mild decline in Production will extend into mid-2025.
- While medical services demand is likely to continue to rise, as evidenced by rising inflation-adjusted US Hospitals Personal Consumption Expenditures, the related equipment and supplies market is more susceptible to downward pressure. Production is historically prone to hard landings, but we expect this one to be mild.
- The combination of onshoring and an aging demographic bodes well for the long-term trajectory of Production. Production will reach record highs in the near term and then again in 2026.

Phase & Amplitudes

Phase C

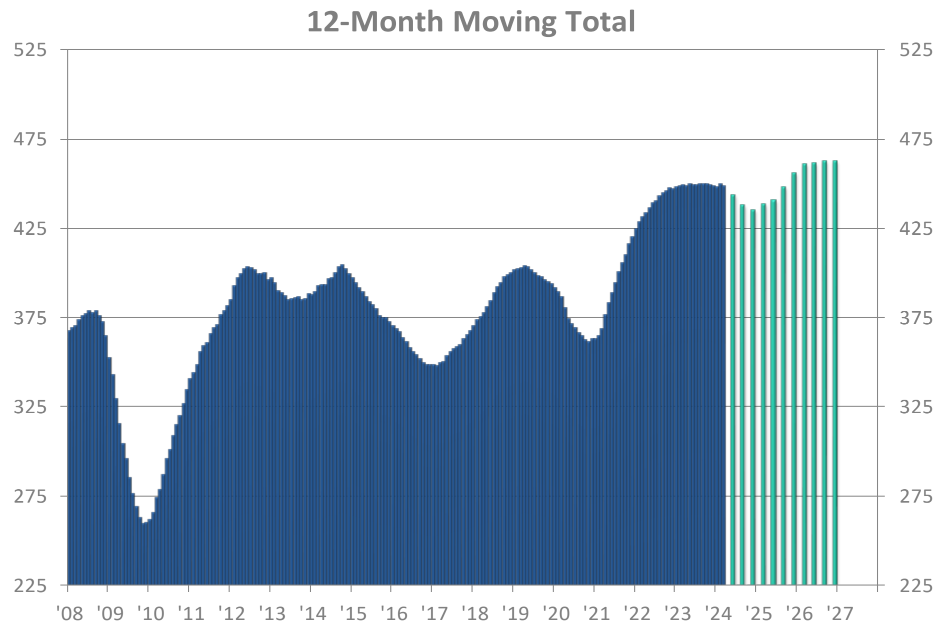
Slowing Growth

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

March 2024 Annual Average (12MMA): 114.5

US Machinery New Orders

New Orders to Track Upper End of Forecast Range; Mild Decline Still Likely This Year



Industry Outlook

2024: -3.0%

2025: 4.7%

2026: 1.5%

Outlook & Supporting Evidence

- Annual US Machinery New Orders will decline mildly in 2024. The manufacturing sector, a major end market for New Orders, has been contracting. Machinery Manufacturing Capacity Utilization is in decline, corroborating the downward trajectory of New Orders this year.
- There are some upsides that are suggesting that the upper range of the New Orders forecast may be a potential outcome this year. The upward revision of US Industrial Production forecast, recovery in US Wholesale Trade of Durable Goods, spikes in prices for commodities such as copper, and record-high (albeit slowing) US Corporate Profits for Domestic Manufacturing Industries are all indicators signaling potential upside.
- New Orders will generally rise in 2025 and 2026 from improved macroeconomic momentum.

Phase & Amplitudes

Phase C

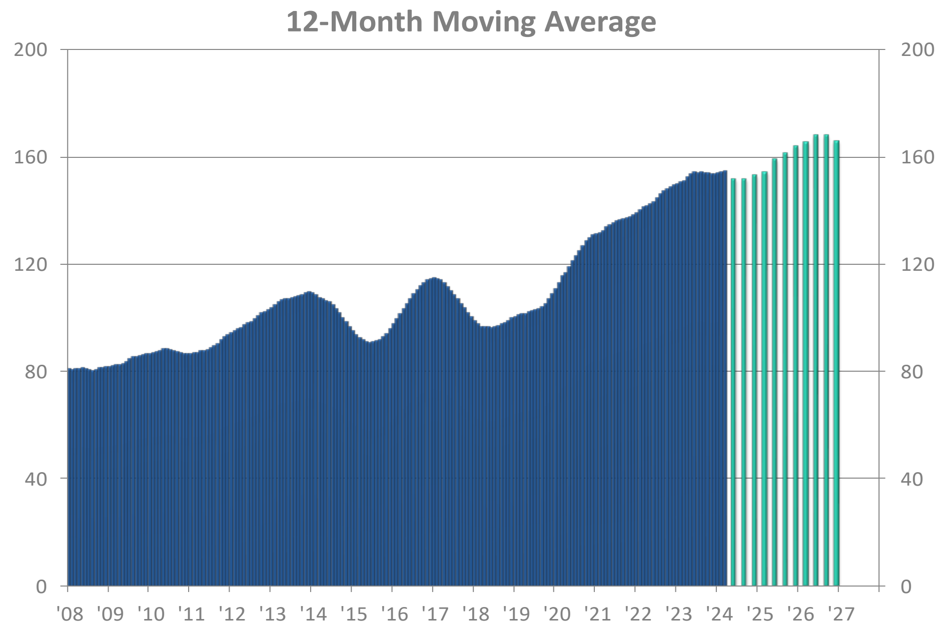
Slowing Growth

March 2024 Annual Growth Rate (12/12): 0.0%

March 2024 Annual Total (12MMT): $448.6 billion

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

Production to Plateau in 2024, Rise Throughout 2025; Recent Foreign Aid Bill Is an Upside



Industry Outlook

2024: 0.7%

2025: 7.2%

2026: 1.0%

Outlook & Supporting Evidence

- Annual US Ammunition, Small Arms, Ordnance, and Other Ordnance Accessories Production in the 12 months through March was 2.6% above the year-ago level. Production will generally plateau for the remainder of this year before rising into the mid-2026.
- Accelerating US National Defense Expenditures are an upside signal.
- A $95 billion foreign aid bill was recently enacted, with portions of funding slated to replenish weapons and other Production-related supplies for Ukraine and Israel. The exact impact on Production is unknown and capacity constraints could be a limiting factor on how quickly Production would be impacted. This is an upside risk to our outlook, and makes it more likely for the near term to track along the upper end of the forecast range.

Phase & Amplitudes

Phase C

Slowing Growth

March 2024 Annual Growth Rate (12/12): 2.6%

March 2024 Annual Average (12MMA): 154.8

INDICATORS

US Leading Indicators

Indicator	Direction		
	2Q24	3Q24	4Q24
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

- The ITR Leading Indicator™ rose in March. Despite recent rise in the Indicator, elevated interest rates coupled with recent weakness seen across a collection of consumer indicators suggest there will be mild decline in US Industrial Production this year.

- The US Total Industry Capacity Utilization Rate is signaling that relatively less capacity is being used and suggests downward momentum for Industrial Production into the second half of this year.

- The ITR Retail Sales Leading Indicator™ rose in March to its highest level since 2022. Strength among middle-to-upper-income consumers has bolstered US Retail Sales despite unfavorable financing conditions; however, growth in US Retail Sales is slowing as some consumers show signs of distress, evidenced in rising credit card delinquency rates.

Downward pressure is likely to last for much of 2024 but will be relatively mild. It is important to start preparing now for the next cyclical rising trend in 2025 and 2026, keeping implementation times in mind. What can you do to improve efficiency and margins? What can you do to reduce the impacts of a tight labor market on your business? What new markets or products might you want to move into?

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.

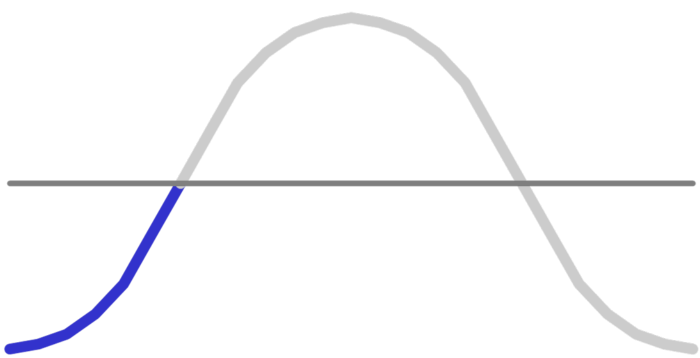
US Medical Equipment & Supplies Production Index — Medical equipment and supplies manufacturing index for the United States. Examples of products made by these establishments are surgical and medical instruments, surgical appliances and supplies, dental equipment and supplies, orthodontic goods, ophthalmic 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

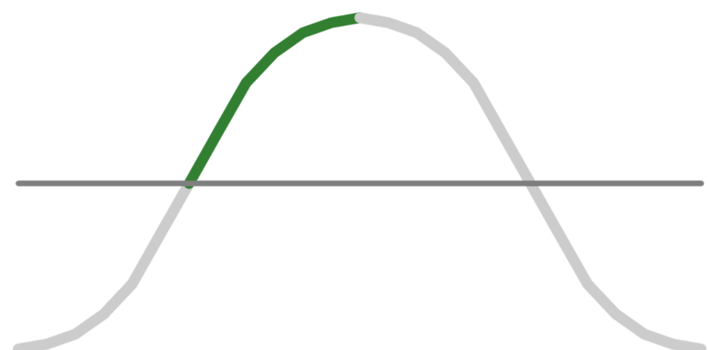
7 Improve corporate governance (rent a CFO; establish a board of advisors or board of directors)

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

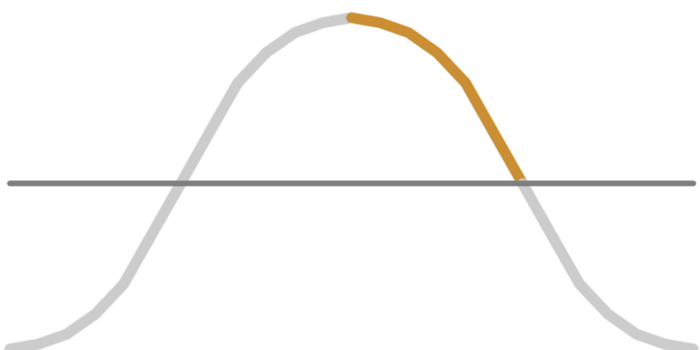
Phase



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

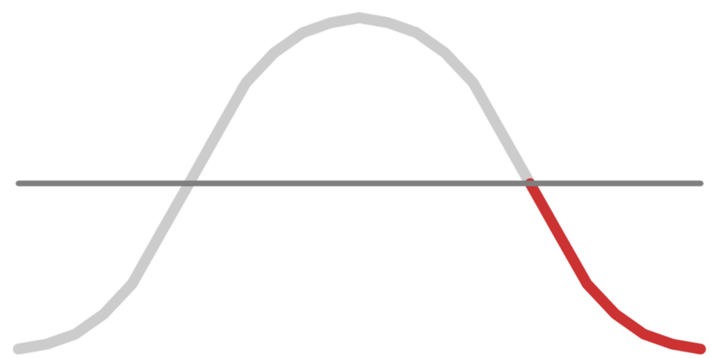
7 Consider capital equipment needs for the next cycle

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



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