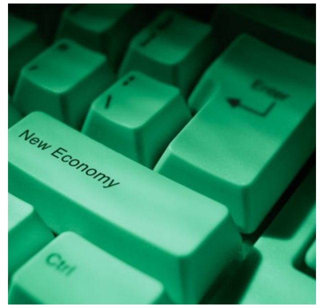

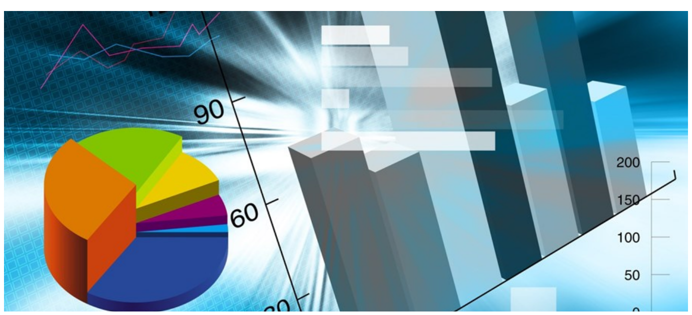

npta
National Paper Trade Association

May 2021

Economic Report

ITR ECONOMICS

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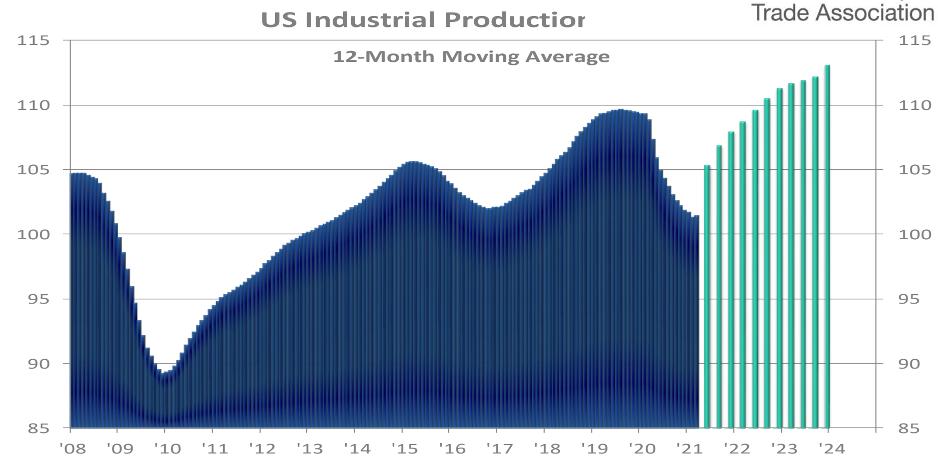
overview

The US economy is revving back up, and more rise is on the horizon. US Real Gross Domestic Product in the first quarter rose 0.4% above the same period one year ago and has 0.9% to go before equaling its last peak. Leading indicators point to sustained rise this year, with 2021 coming in appreciably stronger than 2020 for the vast majority of markets. We are forecasting robust rise for annual US Industrial Production in the near term, with record highs by around mid-2022 and rise extending through at least 2023.

Although COVID-19 still poses downside risks, potentially compounded by the spread of new variants, improvements in the death and vaccination rates are encouraging. Consumers will likely feel safer to venture out shopping, stoking demand for goods and services, and fewer employees will miss work due to COVID-19, helping alleviate supply-side snags. We will also see increased travel, for both business and leisure, which will assist recovery in a host of related industries, such as hotels, restaurants, airlines, and oil.

With the $1.9 trillion American Rescue Plan signed into law, fiscal stimulus now totals $4.9 trillion, or about 23% of US Nominal Gross Domestic Product (Nominal GDP) for 2020. The stimulus size is unprecedented; fiscal stimulus during the Great Recession totaled about $1.0 trillion, roughly 7% of Nominal GDP at that time, and the dispensation was much slower. The magnitude of the monetary stimulus is also much greater than during the Great Recession. The deflated M2 Money Supply annual growth rate peaked at 9.4% during the Great Recession, whereas the current growth rate is 22.0%, with more rise ahead. The scale of stimulus poses an upside risk to our forecasts. A portion of direct payments will be spent on discretionary items, boosting already record-high US Total Retail Sales, or will be put toward down payments in the booming single-family housing market. Financial behavior patterns established during the pandemic suggest that individuals will save some portion of their direct payments; boosted savings will likely bolster spending later this year and into 2022 as that money is tapped.

Due to the robust economic recovery already underway in the US and elsewhere, demand for commodities has spiked. Meanwhile, supply is lagging, resulting in significant upward pressure on prices. Quarterly average Prices for steel, copper, and oil have all risen above the pre-pandemic level and are up double digits (52.0%, 75.8%,



and 90.1%, respectively) from one year ago. With record or near-record shipping and labor costs compounding the situation, these increases will likely flow from producers to consumers. We recently raised our expectations for overall producer and consumer price inflation. Our outlook calls for inflation above 2% for virtually all of 2021 and 2022. Higher inflationary expectations will result in higher interest rates; this is already evident in US 10-Year Treasury Yields, which started the year below 1.0% and were up to 1.6% as of early May.

Many businesses are facing lengthening delivery times as suppliers and the global supply chain strain under backlogs from the pandemic, rising demand, and – in the South Central US – the complications wrought by severe winter weather. US Nondefense Capital Goods New Orders (excluding aircraft) during the first quarter were up 10.5% from the first quarter of 2020. Robust recovery in New Orders may be due in part to a new business practice: placing duplicate orders with multiple suppliers to prevent production hold-ups caused by missing parts. This may be inflating the latest New Orders data, and there could be a risk of canceled orders later this year.

The prevalent business challenges are changing as the economy recovers; "positive problems" are coming to the forefront. Think back to past periods of robust economic recovery and ask yourself what your business did well, and what you wish you had done. Apply those lessons for the current recovery trend. Most importantly, make sure you are taking proactive steps today to take advantage of cyclical rise ahead and prepare for record high activity in the industrial sector next year.

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:

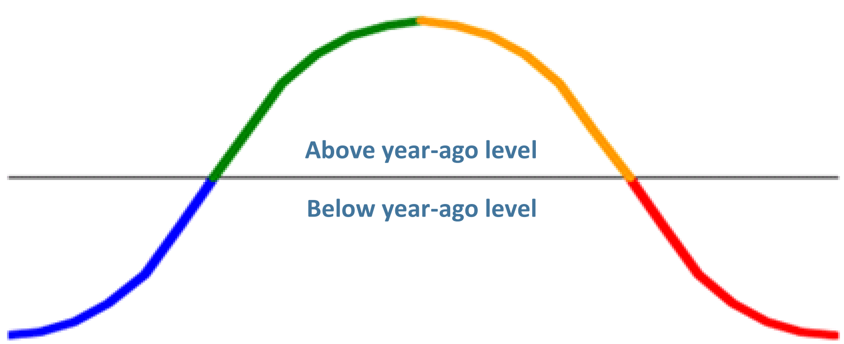
A rate-of-change figure is the ratio comparing a data series during a specified time period to the same period one year ago. **Rates-of-change** are expressed in terms of the **annual percent change in a 12MMT/A, 3MMT/A, and actual monthly data.**

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	Phase	2021	2022	2023
4	US Pulp, Paper, and Board Mills Production Index	-5.4%	D	-0.7%	-1.1%	-0.3%
5	US Commercial Printing Production Index	-14.5%	A	1.6%	-2.1%	-1.5%
6	US Media Spending on Print Advertising	-32.8%	D	-11.2%	-6.0%	-8.5%

A RECOVERY

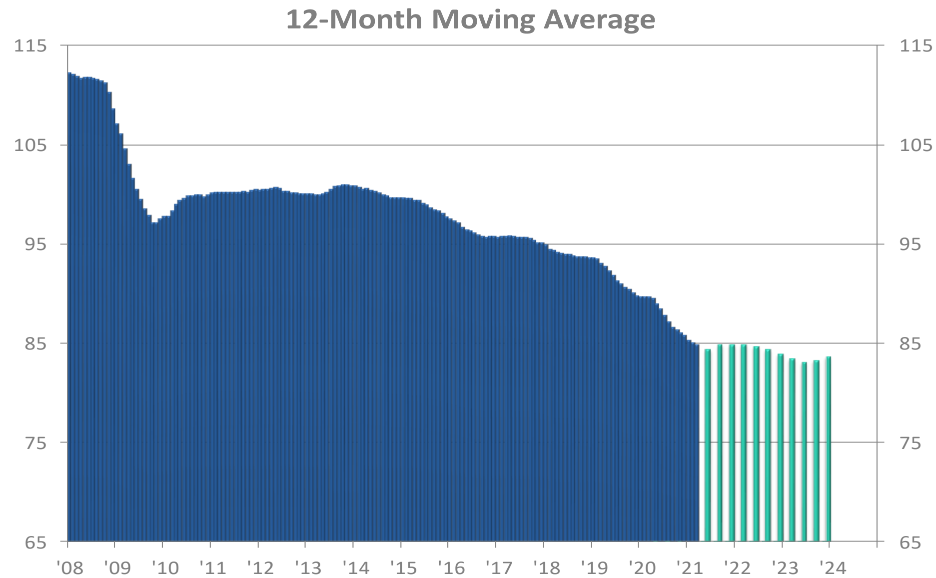
B ACCELERATING GROWTH

C SLOWING GROWTH

D RECESSION

US Pulp, Paper, and Board Mills Production Index

Imminent Phase A, Recovery, Will Result in Annual Production Leveling Off, Not Rising



Industry Outlook

2021: -0.7%

2022: -1.1%

2023: -0.3%

Outlook & Supporting Evidence

- US Pulp, Paper, and Board Mills Production during the 12 months through March was down 5.4% from one year ago. The ITR Checking Points™ system and trends in the Paper Capacity Utilization Rate signal an imminent transition to Phase A, Recovery, in line with our unchanged outlook.
- Annual Production will be flat into the first half of 2022 before decline resumes and persists through mid-2023. Annual Production will then rise through at least the end of that year.
- Recovery in the US industrial and retail sectors will increase the movement of goods and materials, boosting demand for paperboard products in the coming quarters. However, we do not expect Production activity to rise much due to competition from abroad.

Phase & Amplitudes

Phase D

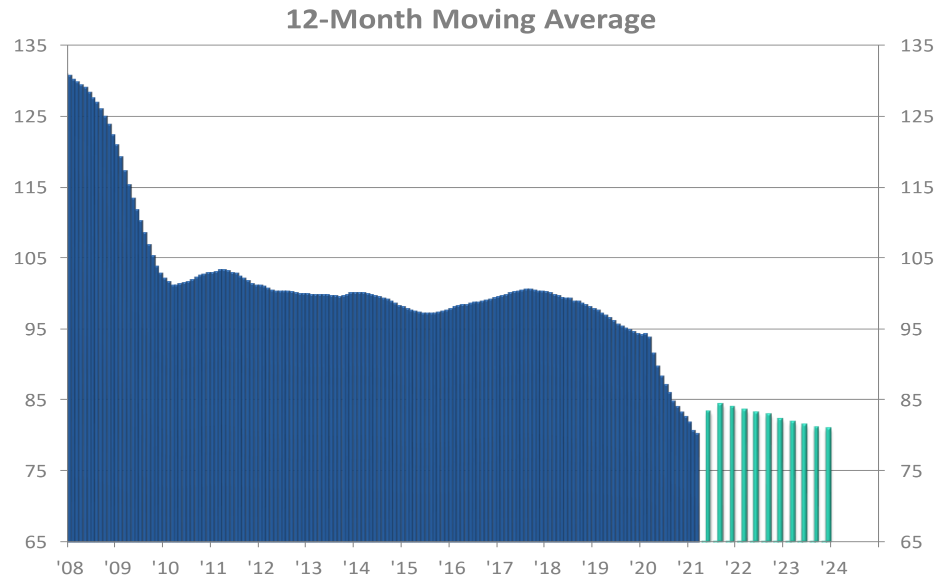
Recession

March 2021 Annual Growth Rate (12/12): -5.4%

March 2021 Annual Average (12MMA): 84.8

US Commercial Printing Production Index

Forecast Revised; Expect Annual Production to Rise in Near Term, Followed by Decline



Outlook & Supporting Evidence

- Results were 1.2% above the forecast range in March. We lifted the forecast for 2021 to account for macroeconomic upgrades and stronger-than-anticipated performance. Our outlook for annual Production in 2022 and 2023 is virtually unchanged.
- Annual Production will rise in the near term and then generally decline through at least year-end 2023. Annual Production will be above the current level through at least 2023.
- Annual Production tentatively transitioned to Phase A, Recovery, in March. Rise in the US Printing and Related Support Activities Utilization Rate suggests business cycle rise will persist in the coming quarters.
- As vaccine distribution proceeds and employment trends improve the consumer's position, firms may increase marketing efforts, bolstering demand this year.

Industry Outlook

2021: 1.6%

2022: -2.1%

2023: -1.5%

Phase & Amplitudes

Phase A

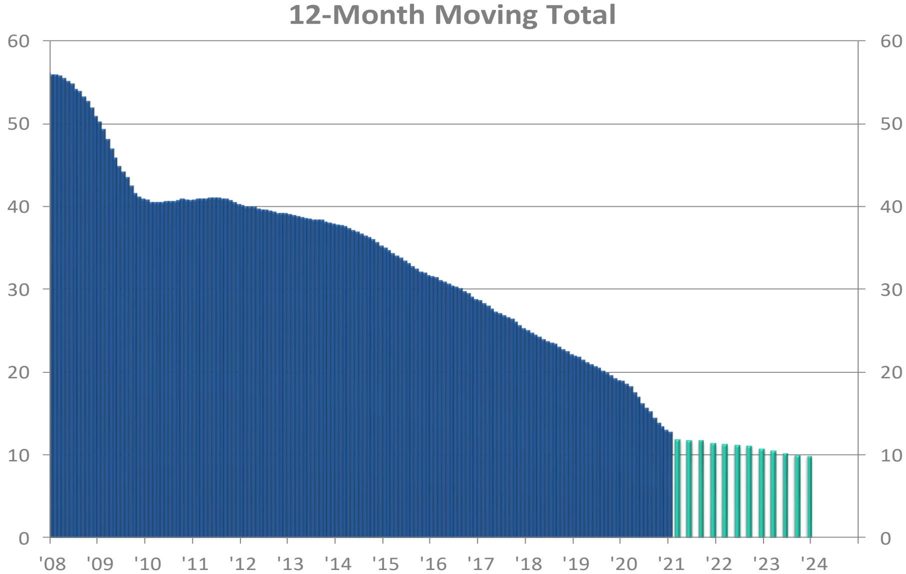
Recovery

March 2021 Annual Growth Rate (12/12): -14.5%

March 2021 Annual Average (12MMA): 80.3

US Media Spending on Print Advertising

Spending to Decline Through the Next Three Years as More Advertising Becomes Digital



Industry Outlook

2021: -11.2%

2022: -6.0%

2023: -8.5%

Outlook & Supporting Evidence

- US Media Spending on Print Advertising during the 12 months through January totaled $12.6 billion, down 32.8% from one year ago. The quarterly Spending rate-of-change is rising, signalizing a transition to Phase A, Recovery, in the near term, in line with our unchanged outlook.
- Annual Spending is expected to decline through at least the next three years, though the pace of decline will ease during much of this year and into 2022.
- Recovery and expansion in the US industrial and retail sectors will alleviate some of the downside pressure on Spending this year and during 2022. However, we do not expect Spending to rise during the next three years as advertisements increasingly shift to the digital market.

Phase & Amplitudes

Phase D

Recession

January 2021 Annual Growth Rate (12/12): -32.8%

January 2021 Annual Total (12MMT): $12.6 billion

INDICATORS

US Leading Indicators

Indicator	Direction		
	2Q21	3Q21	4Q21
ITR Leading Indicator™	●	●	N/A
ITR Retail Sales Leading Indicator™	●	●	●
The Conference Board's US 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

- The ITR Retail Sales Leading Indicator™ suggests business cycle rise in US Total Retail Sales will persist into at least the fourth quarter of 2021.

- The US Total Industry Capacity Utilization Rate signals business cycle rise in US Industrial Production through at least the third quarter of 2021.

- Business-to-business spending is in an accelerating growth trend, signaling a confident industrial sector. The US ISM PMI corroborates the business-to-business trend and suggests further upward momentum in the manufacturing sector will extend through 2021.

The US residential construction, retail, and industrial sectors have transitioned to business cycle rise. Leading indicators suggest rise will be sustained in the coming quarters. Implement Phase A and B management objectives (pages 9 and 10) to help maximize success this year.

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). 2012 = 100, not seasonally adjusted (NSA).

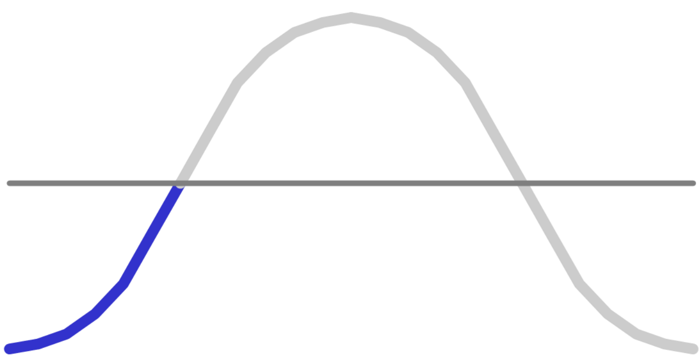
US Pulp, Paper, and Board Mill Production Index — NAICS 3221. This industry group comprises establishments primarily engaged in manufacturing pulp, paper, or paperboard. Source: FRB. Index, 2012 = 100, NSA.

US Commercial Printing Production Index — NAICS 32311. This industry comprises establishments primarily engaged in printing on apparel and textile products, paper, metal, glass, plastics, and other materials, except fabric (grey goods). The printing processes employed include, but are not limited to, lithographic, gravure, screen, flexographic, digital, and letterpress. Establishments in this industry do not manufacture the stock that they print, but may perform post printing activities, such as folding, cutting, or laminating the materials they print, and mailing. Source: FRB. Index, 2012 = 100, NSA.

US Media Spending on Print Advertising — Media spending in the US on print advertising. Includes magazine and newspaper advertising. Source: Kantar Media. Measured in billions of dollars, 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

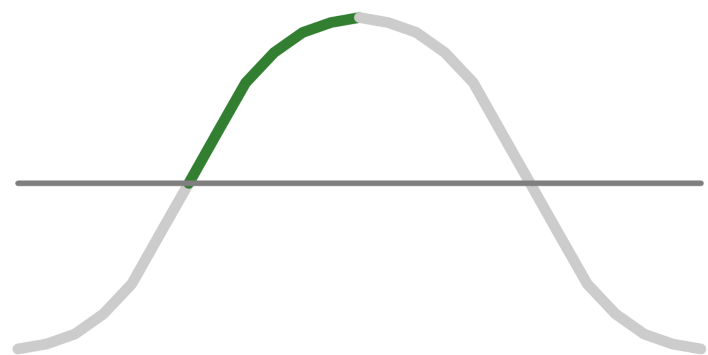
7 Improve corporate governance (rent a CFO; establish a board of advisors or board of directors)

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

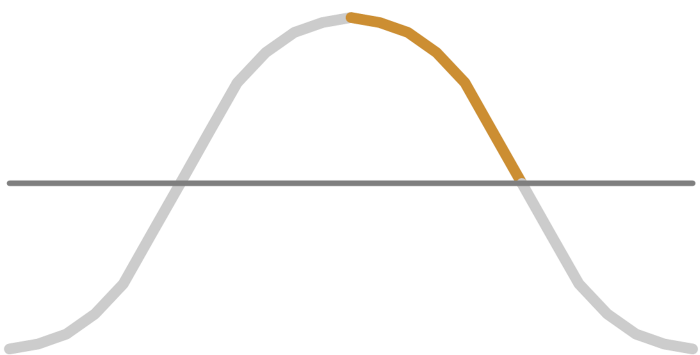
Phase



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

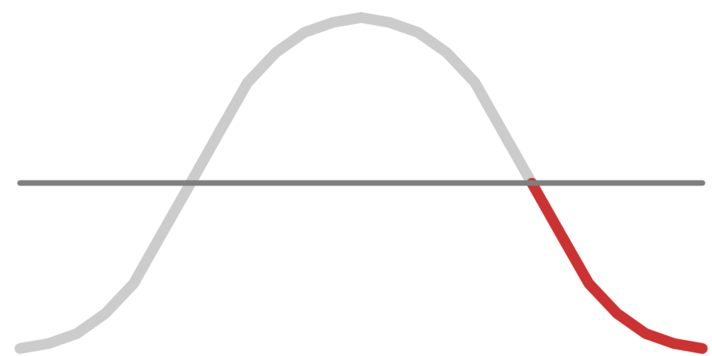
7 Consider capital equipment needs for the next cycle

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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