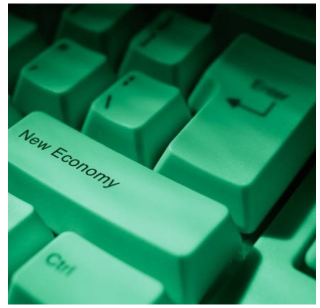

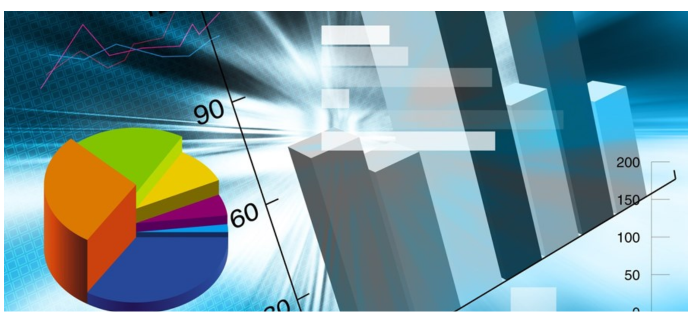

npta
National Paper Trade Association

November 2021

Economic Report

ITR ECONOMICS

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Click Here for a Brief Explanation of How to Read This Report

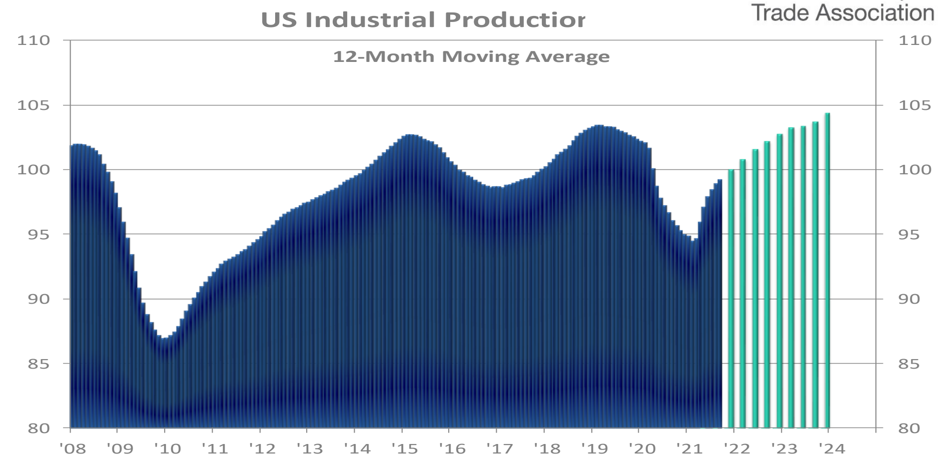
overview

Sharply rising activity has been the prevailing trend in the US macroeconomy since the middle of 2020. However, the vast majority of the key leading indicators we track are now in declining trends, signaling slowing growth on the horizon. Third-quarter data shows US Real Gross Domestic Product (GDP) tentatively transitioned to a slowing growth trend; we expect slowing growth will persist into the middle of 2023 before accelerating growth takes hold once more. Ensure you are not expecting the rates of rise experienced in 2021 to occur in 2022-23, if your business moves closely with Real GDP or Industrial Production.

Next year's slowing growth reflects the mathematical reality that the US economy simply cannot maintain its current pace of rise; it is not a sign of a weakened consumer. Indeed, the US consumer is strong. In aggregate, consumers have accumulated significant savings and wealth during the pandemic due to a host of factors, including stimulus payments, enhanced unemployment benefits, a tight labor market, and rising asset prices. In addition, consumers spent the first portion of the pandemic paying down debts; annual US Total Household Credit Card Debt is at a three-and-a-half-year low. The result is a consumer able to tap into both savings and potentially loans to drive economic growth in the coming years.

Consumer strength is particularly evident in the recent data for US Total Retail Sales. Annual US Total Retail Sales are at a record high, up double digits from the year-ago level and accelerating in their ascent. The increase is not just due to inflation; it is also attributable to increased activity. The overall consumer sector is and will continue to be healthy.

Despite favorable demand-side conditions, supply-side issues remain an impediment to macroeconomic growth. Supply chain issues are resulting in shortages of certain goods, putting upside pressure on prices. This is particularly evident in sectors like the automotive industry. The market for automobiles has seen higher prices in recent months as semiconductor shortages throttle auto production. In general, the supply chain issues are likely to persist in the near term, but less-robust demand in 2022 as economic growth slows will help the



supply chain untangle at least somewhat. Accordingly, pricing pressures will ease.

Another issue confronting many US firms is the difficulty of finding and retaining workers in the tight national labor market. Annual US Private Sector Employment is currently 4.1% below the pre-pandemic peak, but not for lack of job openings or opportunities. Many workers are reluctant to reenter the workforce due to the pandemic or difficulties finding childcare. This is causing pain for many businesses as they struggle to find qualified workers and find themselves having to compete with other firms while also contending with a narrower labor pool. It's tempting to think these labor issues may be alleviated somewhat by the general return of in-person schooling in most parts of the US and the end of enhanced unemployment benefits in September. However, the major driver of labor market tightness – demographics – predates the pandemic and will take many years to resolve. We urge businesses to take steps such as ensuring a top-notch workplace culture to attract and retain workers in what will be a persistently tight labor market in the coming years.

Slowing growth is not something to fear, but it is something to plan for. If you take steps to prepare your business for the lower growth rates of 2022-23, in both the overall economy and most markets, you will find yourself ahead of the competition.

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.**

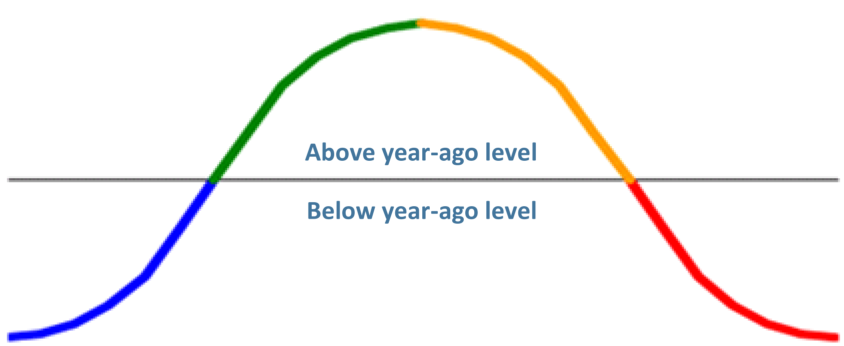
Rates-of-change reveal whether activity levels are rising or falling compared to last year. A rate-of-change trend illustrates and measures cyclical change and trends in the data.

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	-0.3%	A	2.0%	1.7%	-1.7%
5	US Commercial Printing Production Index	2.9%	B	5.5%	0.2%	-2.1%
6	US Media Spending on Print Advertising	-23.2%	A	-8.9%	-4.8%	-10.2%

A RECOVERY

B ACCELERATING GROWTH

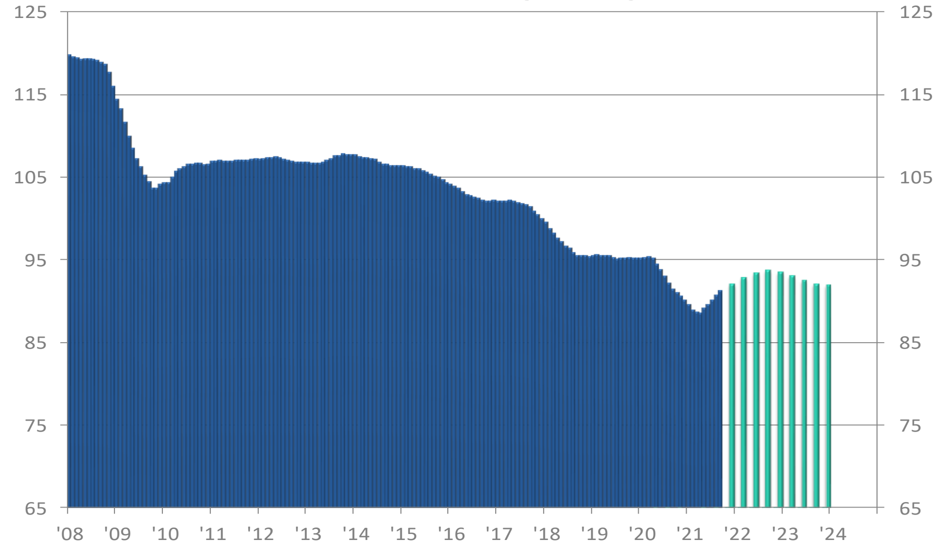
C SLOWING GROWTH

D RECESSION

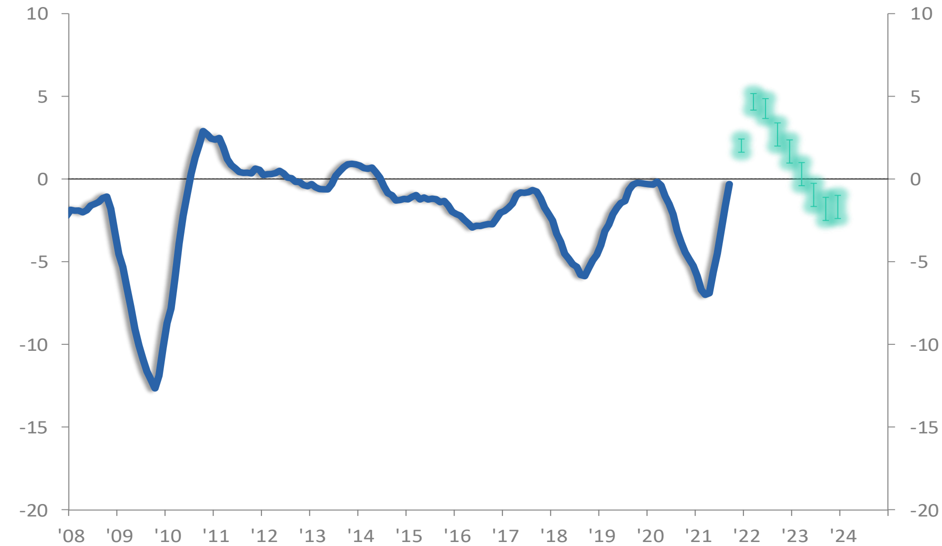
US Pulp, Paper, and Board Mills Production Index

Forecast Lifted on Strength of Consumer; Rising Retail Sales Driving Paperboard Demand

12-Month Moving Average



Year-over-Year Growth Rate



Industry Outlook

2021: 2.0%

2022: 1.7%

2023: -1.7%

Outlook & Supporting Evidence

- Annual US Pulp, Paper, and Board Mills Production was 1.3 percentage points above the forecast range in September. Consumer strength is boosting retail sales, driving up demand for paperboard. We adjusted the forecast to account for the recent outperformance as well as our updated forecast for overall US Paper and Products Production. We lifted the annual Production outlook by 2.7-5.6% for each of the next three year ends.
- Annual Production will rise into the second half of 2022 and then decline through 2023.
- Expect Production to transition to the back side of the business cycle around the second quarter of 2022, following trends in the US consumer and industrial sectors.

Phase & Amplitudes

Phase A

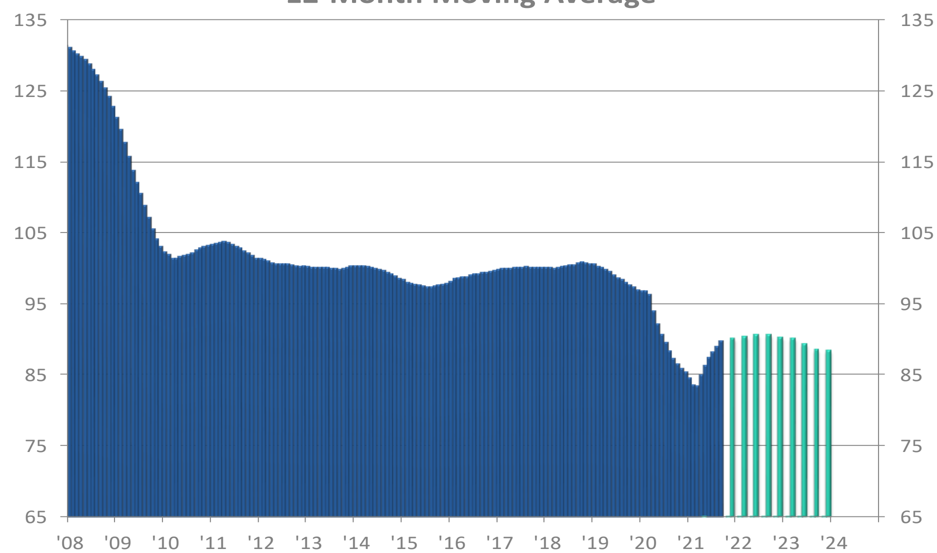
Recovery

September 2021 Annual Growth Rate (12/12): -0.3%

September 2021 Annual Average (12MMA): 91.2

US Commercial Printing Production Index

Annual Production Will Plateau During 2022; B2B Strength to Counteract Digitalization



Industry Outlook

2021: 5.5%

2022: 0.2%

2023: -2.1%

Outlook & Supporting Evidence

- Annual US Commercial Printing Production in September was up 2.9% from one year ago. Production has transitioned to Phase B, Accelerating Growth, as expected. The outlook is unchanged.
- Annual Production will be relatively flat into the second half of 2022 and then decline through at least year-end 2023.
- High levels of business-to-business spending, as measured by US Nondefense Capital Goods (excluding aircraft), are expected in the coming years, as firms - flush with record cash holdings - are willing and able to spend. This will help counteract some of the headwinds commercial printing faces in an era of increased digitalization.

Phase & Amplitudes

Phase B

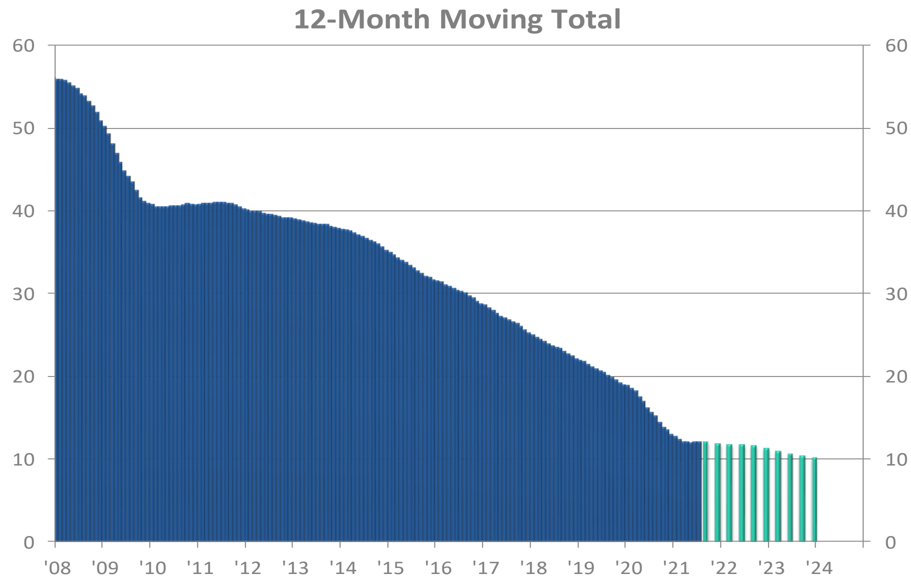
Accelerating Growth

September 2021 Annual Growth Rate (12/12): 2.9%

September 2021 Annual Average (12MMA): 89.7

US Media Spending on Print Advertising

Forecast Lifted; Expect Spending to Be Flat in Near Term, Propped Up by In-Store Retail Sales



Industry Outlook

2021: -8.9%

2022: -4.8%

2023: -10.2%

Outlook & Supporting Evidence

- Annual Media Spending on Print Advertising through June came in 1.5% above the forecast range. We have lifted our inflation outlook since the last forecast, and there has been considerable improvement in in-store activity, necessitating a revision to the annual Spending outlook. We lifted the forecast by 3-5% for each of the next three year ends.
- We expect annual Media Spending to be relatively flat in the near term and then decline throughout 2022 and 2023. Media Spending will be in Phase A, Recovery, into the second quarter of next year. Subsequent Phase D, Recession, will last into late 2023.
- Corporate Profits suggest sufficient means to pay for advertising. Additionally, record-high US In-Store Retail Sales mean consumers are out and about, a boon for print advertising.

Phase & Amplitudes

Phase A

Recovery

July 2021 Annual Growth Rate (12/12): -23.2%

July 2021 Annual Total (12MMT): $12.0 billion

INDICATORS

US Leading Indicators

Indicator	Direction			What it means for the US economy
	4Q21	1Q22	2Q22	• The consensus of the leading indicator movements suggests that US industrial sector activity will transition to Phase C, Slowing Growth, following a first-quarter-of-2022 business cycle peak, as forecasted.
ITR Leading Indicator™	Green	Green	N/A	• Trends in the US ISM PMI (Purchasing Managers Index) suggest that the post-peak business cycle decline will extend into at least late 2022.
ITR Retail Sales Leading Indicator™	Green	Green	Green	• The ITR Leading Indicator™ strongly confirms the trajectory of our US Industrial Production forecast.
US OECD Leading Indicator	Green	Red	Red	
US ISM PMI (Purchasing Managers Index)	Green	Green	Red	
US Total Capacity Utilization Rate	Green	Red	N/A	

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

While our system of leading indicators suggests that Phase C, Slowing Growth, will characterize the US industrial sector next year, our analysis suggests many segments of the economy will avoid outright contraction. Scrupulously evaluate your supply chain to ensure you are as prepared as possible for rising activity in many sectors next 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). 2017 = 100, not seasonally adjusted (NSA).

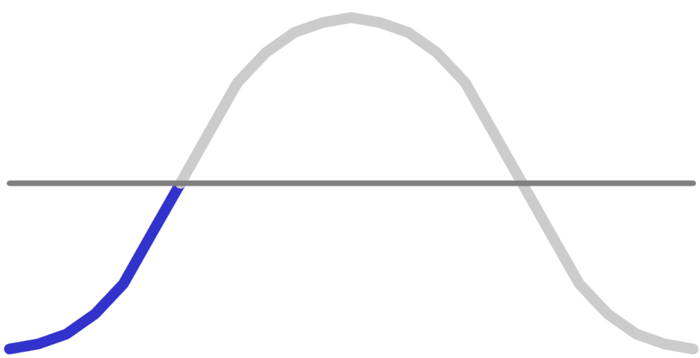
US Pulp, Paper, and Board Mill Production Index — NAICS 3221. This industry group comprises establishments primarily engaged in manufacturing pulp, paper, or paperboard. Source: FRB. Index, 2017 = 100, NSA.

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, 2017 = 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

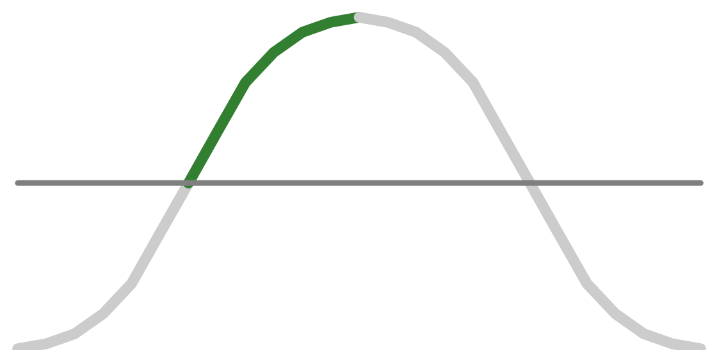
7 Improve corporate governance (rent a CFO; establish a board of advisors or board of directors)

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

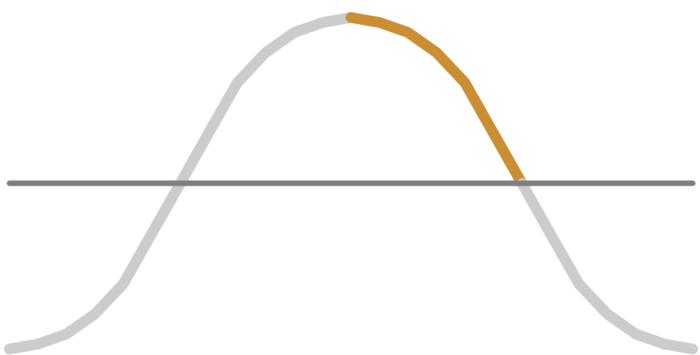
Phase



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

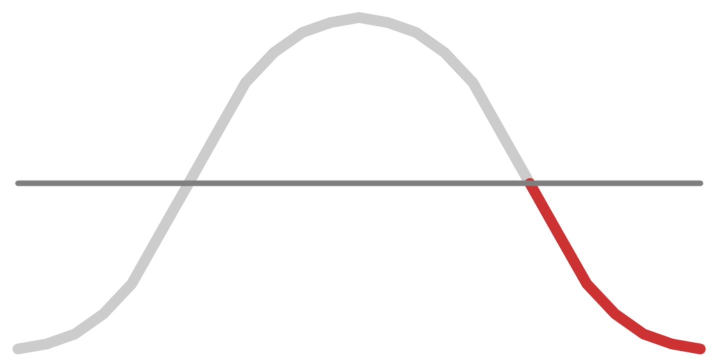
7 Consider capital equipment needs for the next cycle

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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