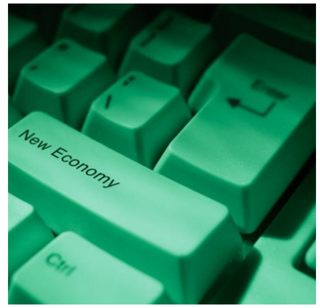

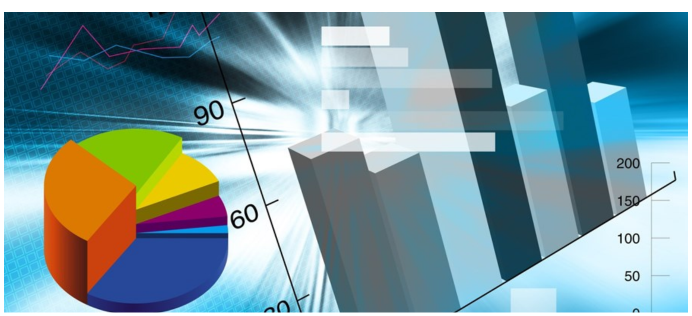

npta
National Paper Trade Association

May 2020

Economic Report

ITR ECONOMICS

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

overview

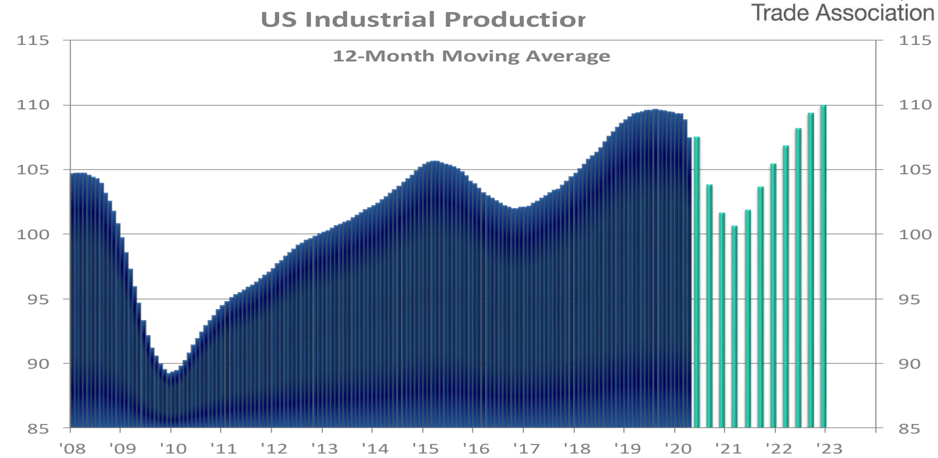
The global spread of COVID-19 and resulting shutdowns have amplified the business cycle decline that was already underway in the US and world economies. The initial economic impact has been painful for many businesses and workers due to the widespread government-mandated shutdowns. Unemployment claims since the middle of March totaled 40.8 million people, approximately 26.1% of the workforce. High unemployment typically means a weakened consumer, and the consumer is the bedrock of the US economy.

US Total Retail Sales in April came in 21.2% below April of 2019. Specific industries have been more severely impacted – monthly US Auto and Motor Vehicle Dealers Retail Sales in April were down 33.6% relative to one year ago and US Food Services and Drinking Places Retail Sales were down 48.8%. Tighter budgets and a high degree of uncertainty will likely hinder a broad array of consumer markets; large-ticket and discretionary purchases will likely be delayed.

The business-to-business sector is also facing financial strain. Depressed demand is putting cash flow to the test; meanwhile, fixed costs remain. Profitability concerns and low equipment utilization will likely reduce demand for new equipment. Fiscal and monetary stimulus may help cushion the blow, but it will take time for the effects to manifest in the market.

ITR Economics has been conducting an exhaustive review of all our forecasts. We had already been calling for contraction in US Real Gross Domestic Product (GDP) in the first quarter of 2020. We now expect deeper decline that will extend into the second quarter, meeting the technical definition of "recession." We are forecasting GDP rise starting in the third quarter of this year and a full-fledged recovery during the second half of 2021, assisted by the recent stimulus. Prior to COVID-19 and the oil prices crash, we had anticipated that certain economic imbalances would result in significant 2022-2023 decline. However, due to the black swan events, we are dealing with those imbalances now. We therefore expect slowing growth but no contraction for GDP in 2022.

Monthly US Industrial Production in April came in 15.8% below the April 2019 level as US Total Industry Capacity Utilization fell to the lowest rate on record, 64.9%. We expect decline in annual Production to persist into early 2021 due to diminished demand associated with US and global shutdowns as well as the negative effects of low oil prices on the US oil and gas sector – a key end market for many industrial goods. Our analysis



indicates that Industrial Production is likely to track at or below the lower end of the forecast range. We will reanalyze the forecast once the May data is released in mid-June with the benefit of more information regarding how the reopening of the economy is progressing.

Our Industrial Production forecast hinges on two assumptions: that the worst of the COVID-19 outbreak and associated shutdowns will be behind us by around the third quarter, and that oil prices will begin recovering around that same time; a second wave of shutdowns would likely necessitate a lower outlook. Plan for annual Industrial Production to rise from the first half of 2021 into at least late 2022. The $2 trillion-plus in fiscal stimulus will likely result in an “afterglow” that will favorably impact the economy in 2022.

If you trend with US Industrial Production, consider any actions you wish you had taken during the 2015-16 and 2008-09 downturns and try to apply those lessons to the current situation. Look for ways to aggressively cut costs, and talk with your banker.

We are facing some tough quarters ahead, but the economy is resilient and will recover. There are some silver linings to the current situation. We may see an increase in nearshoring and an increased utilization of technology that will create long-term opportunities for American businesses and lead to greater efficiencies. Above all, remember that this too shall pass, just like the hard times and recessions of the past. In the meantime, recessions present opportunities for those who manage their businesses carefully and keep calm amidst the storm.

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.**

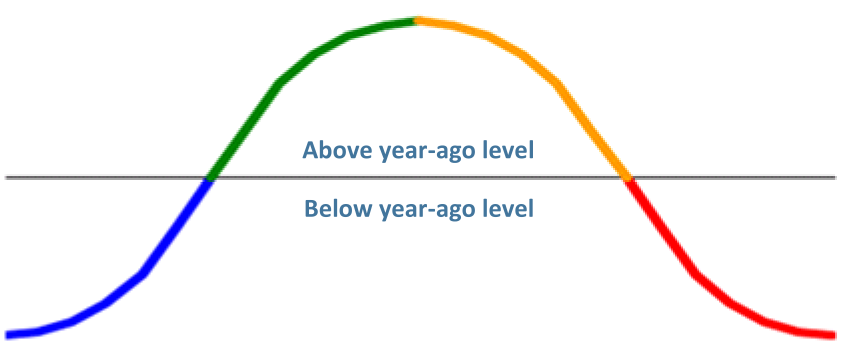
Rates-of-change reveal whether activity levels are rising or falling compared to last year. A rate-of-change trend illustrates and measures cyclical change and trends in the data.

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

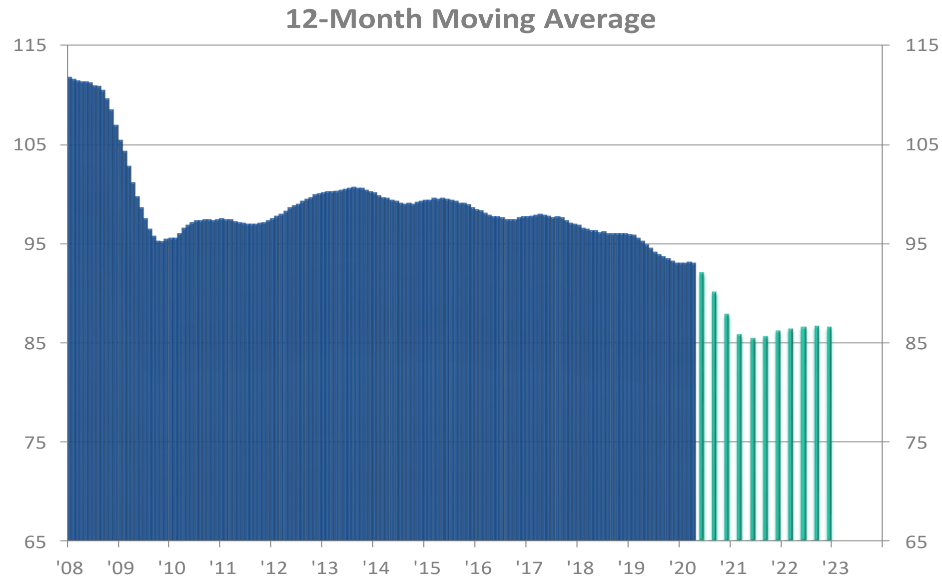
Industry	Current	Phase	2020	2021	2022
US Paper and Paper Products Production Index	-2.3%	D	-5.6%	-1.9%	0.5%
US Pulp, Paper, and Board Mills Production Index	-3.5%	D	-6.2%	-3.4%	0.4%
US Commercial Printing Production Index	-5.5%	D	-18.3%	-2.9%	1.6%
US Paper Bags and Treated Paper Products Production Index	-8.4%	D	-6.4%	-3.5%	0.0%
US Periodical, Book, and Other Publishers Production Index	-7.4%	D	-14.7%	-5.5%	-3.9%
US Media Spending on Print Advertising	-14.6%	D	-24.0%	-8.1%	-11.7%
US Durable Goods New Orders (without Aircraft)	0.2%	C	-14.6%	1.3%	7.6%
US Paper Producer Price Index*	-3.1%	D	-4.7%	0.5%	5.2%

*All growth rates are year-over-year except the US Paper Producer Price Index, which quotes the quarterly growth rate (ex. 4Q20 relative to 4Q19), since it is a measure of pricing.

RECOVERY | ACCELERATING GROWTH | SLOWING GROWTH | RECESSION

US Paper and Paper Products Production Index

Annual Production Will Decline Into Mid-2021 Followed by Mild Rise Into 2022



Industry Outlook

2020: -5.6%

2021: -1.9%

2022: 0.5%

Outlook & Supporting Evidence

- The forecast was lowered by 5.4%, 6.9%, and 4.5% for 2020, 2021, and 2022, respectively. Expect annual Production to decline into the middle of 2021 before mildly rising into the second half of 2022. Production will not exceed the current level during the next three years.
- Trends in the US ISM Purchasing Managers Index and our outlook for Paper and Paper Products Production decline in US Industrial Production into 2021 signal a business cycle low in the first half of 2021.
- If we see a near-sourcing trend as a result of COVID-19, Production may rise more than we are forecasting.

Phase & Amplitudes

Phase D

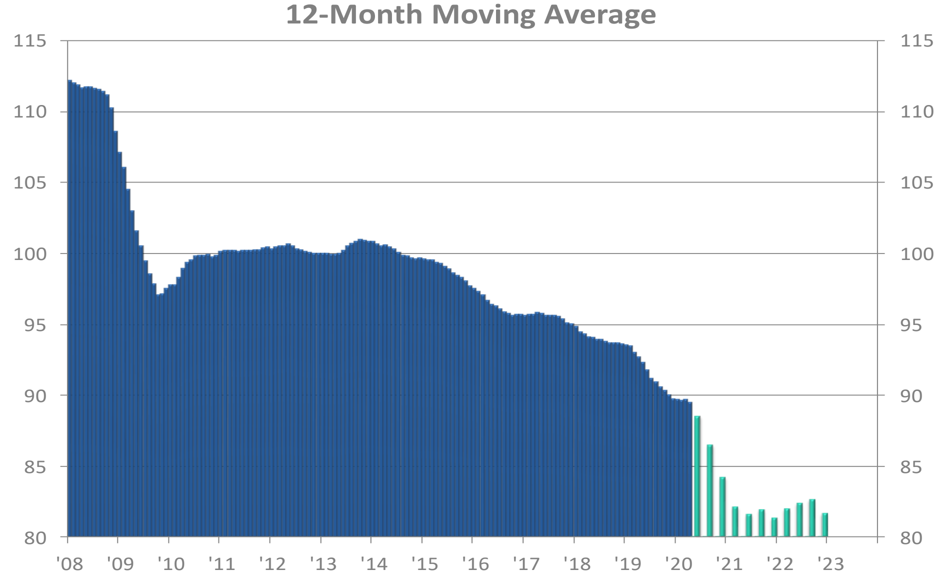
Recession

April 2020 Annual Growth Rate (12/12): -2.3%

April 2020 Annual Average (12MMA): 93.0

US Pulp, Paper, and Board Mills Production Index

Annual Production to Decline Throughout 2020



Industry Outlook

2020: -6.2%

2021: -3.4%

2022: 0.4%

Outlook & Supporting Evidence

- The forecast was revised downward by 4.8%, 8.2%, and 5.4% for 2020, 2021, and 2022, respectively. Annual Production will decline into mid-2021. Production will then vacillate around that level through the end of 2022.
- Annual Production has been on a general downward trajectory since the Great Recession, and our previous forecast called for business cycle decline in 2020. The macroeconomic decline expected as a result of the double black swan events will exacerbate the already anticipated Production decline during 2020.
- The expected macroeconomic recovery and expansion in 2021 will result in Production activity stabilizing during 2021.

Phase & Amplitudes

Phase D

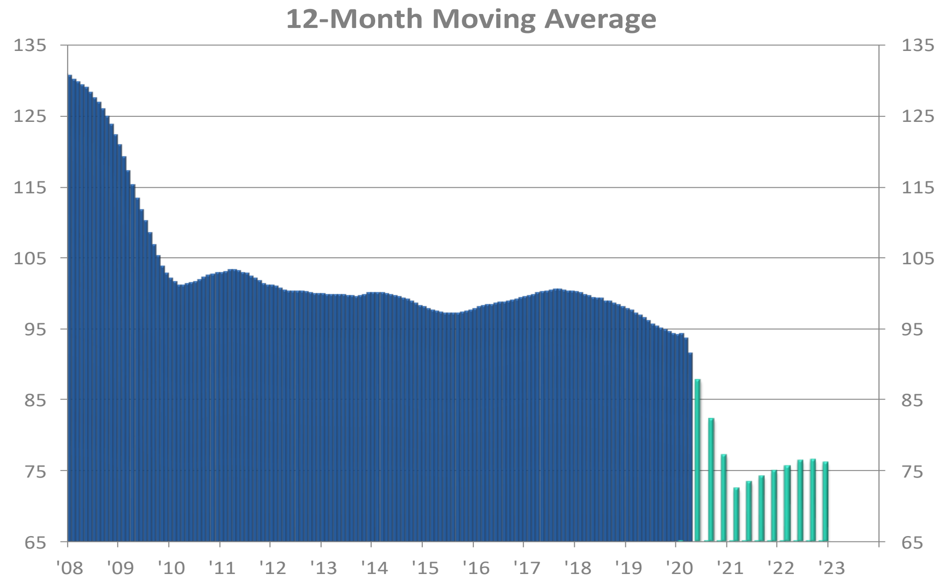
Recession

April 2020 Annual Growth Rate (12/12): -3.5%

April 2020 Annual Average (12MMA): 89.5

US Commercial Printing Production Index

Annual Production Is Unlikely to Return to Pre-COVID-19 Levels Through 2022



Industry Outlook

2020: -18.3%

2021: -2.9%

2022: 1.6%

Outlook & Supporting Evidence

- The forecast was lowered by 17.7%, 19.6%, and 16.0% for 2020, 2021, and 2022, respectively. Annual Production will decline into early 2021 before rising into the latter half of 2022.
- Projected decline in the Production rate-of-change is corroborated by our expectations for business-to-business activity and the consumer sector. Rising unemployment will likely result in consumers and businesses being more price conscious, which will place downside pressure on commercial printing activity.
- Our analysis indicates it is unlikely that annual Production will return to previous peak levels during the next 12 quarters.

Phase & Amplitudes

Phase D

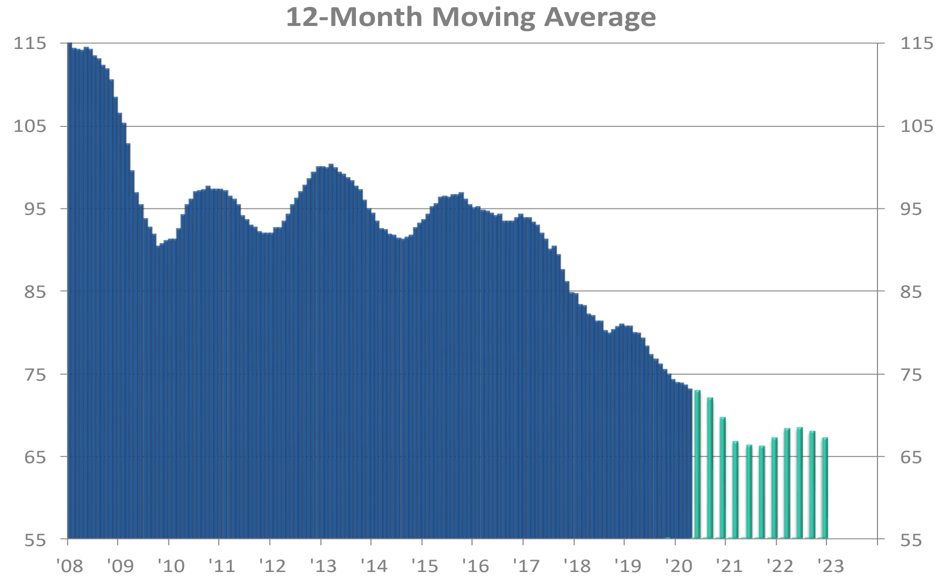
Recession

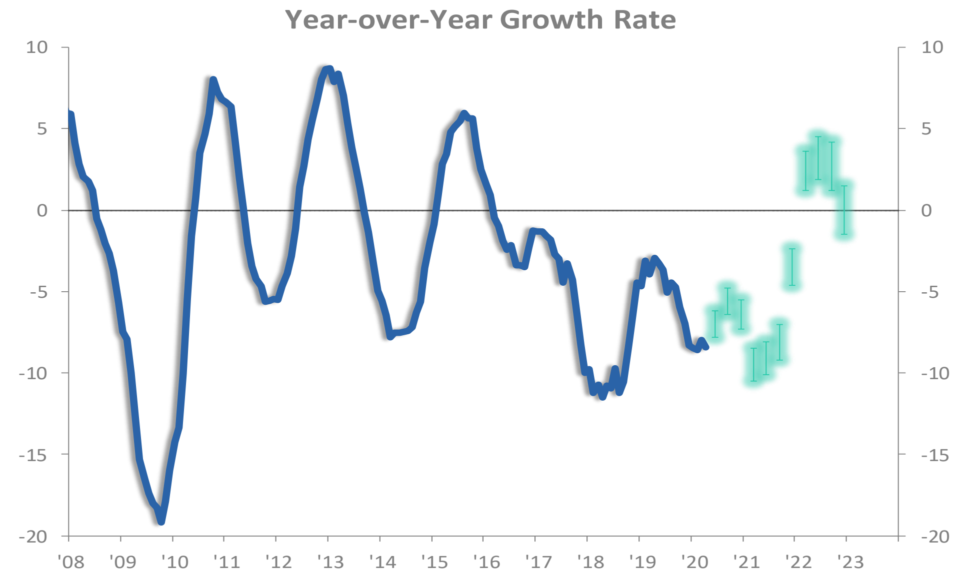
April 2020 Annual Growth Rate (12/12): -5.5%

April 2020 Annual Average (12MMA): 91.5

US Paper Bags and Treated Paper Products Production Index

Annual Production to Decline Into Mid-2021; Subsequent Rise Not to Reach Current Levels





Industry Outlook

2020: -6.4%

2021: -3.5%

2022: 0.0%

Outlook & Supporting Evidence

- The forecast was lowered by 5.7%, 9.6%, and 5.7% for 2020, 2021, and 2022, respectively. Annual Production will decline into the second half of 2021 before rising into the middle of 2022. Decline will then resume and persist through at least year-end 2022.
- General decline in annual Production this year is driven by declining industrial and consumer activity. Though subsequent macroeconomic recovery and expansion in 2021 and 2022 will boost annual Production during 2022, we do not expect annual Production to return to the current level during the next two years.

Phase & Amplitudes

Phase D

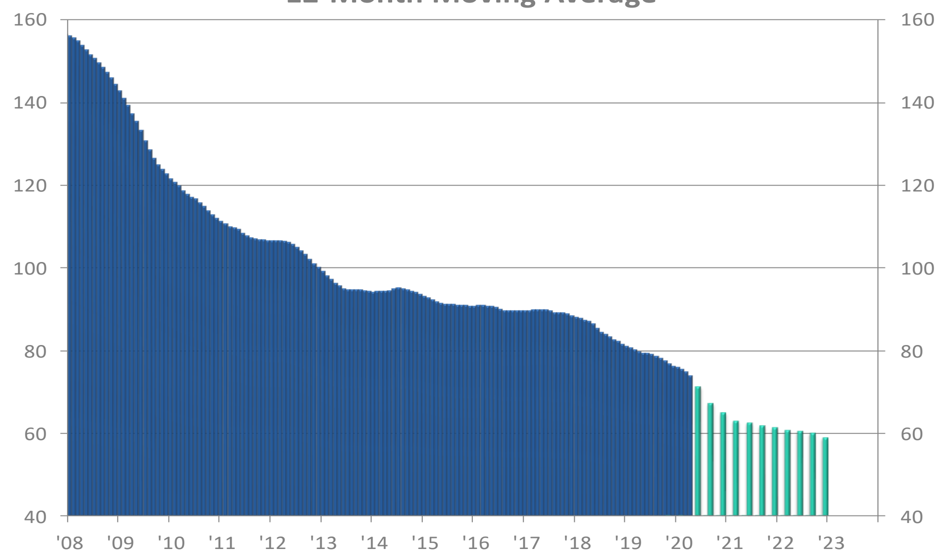
Recession

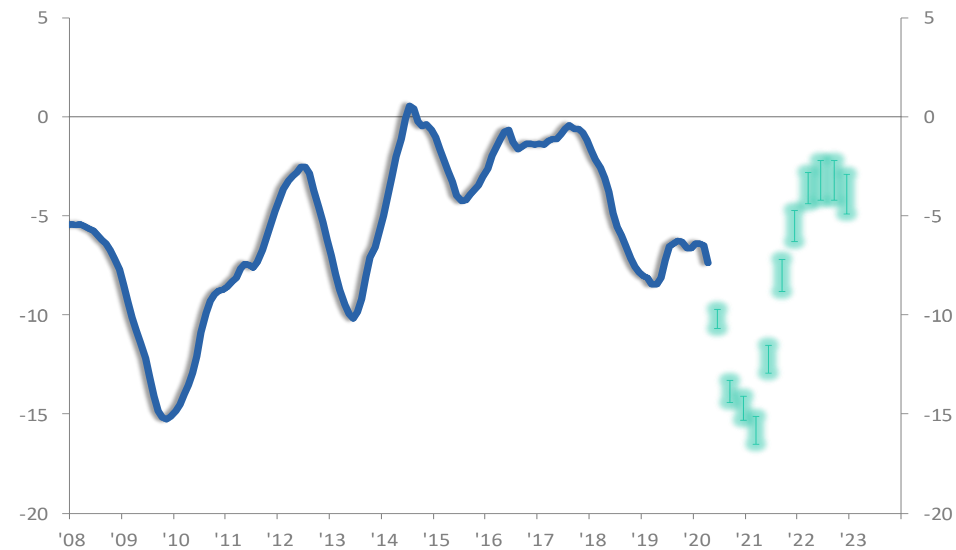
April 2020 Annual Growth Rate (12/12): -8.4%

April 2020 Annual Average (12MMA): 73.2

US Periodical, Book, and Other Publishers Production Index

Do Not Expect Annual Production to Reach Pre-COVID-19 Levels Through 2022





Industry Outlook

2020: -14.7%

2021: -5.5%

2022: -3.9%

Outlook & Supporting Evidence

- The forecast was lowered by 9.3%, 11.0%, and 7.5% for 2020, 2021, and 2022, respectively. Annual Production will generally decline through at least the next three years.
- Annual Production is expected to decline at a faster pace in 2020 than in 2021 and 2022 as a result of the double black swan events of COVID-19 and the oil supply-demand imbalance.
- We do not expect annual Production to reach pre-COVID-19 levels during the next three years.

Phase & Amplitudes

Phase D

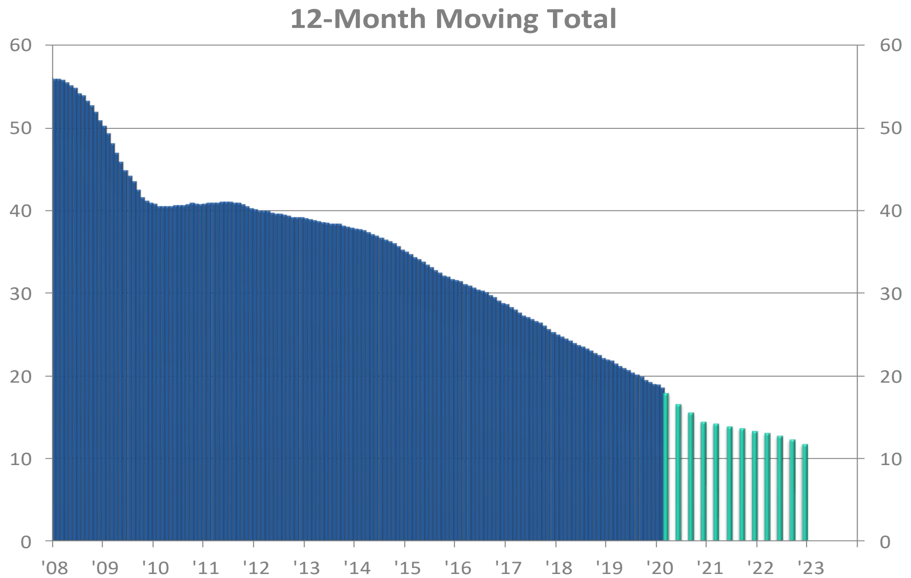
Recession

April 2020 Annual Growth Rate (12/12): -7.4%

April 2020 Annual Average (12MMA): 73.8

US Media Spending on Print Advertising

Annual Spending to Decline During at Least the Next Three Years



Industry Outlook

2020: -24.0%

2021: -8.1%

2022: -11.7%

Outlook & Supporting Evidence

- The forecast was revised downward by 11.7%, 9.0%, and 6.9% for 2020, 2021, and 2022, respectively. Annual Spending will decline through at least the next three years. Annual Spending is not expected to return to Pre-COVID-19 levels during the next three years.
- The double black swan events of COVID-19 and the oil supply-demand imbalance will drive decline in Spending this year. We expect that in late 2020, Spending will decline faster than during the Great Recession.

Phase & Amplitudes

Phase D

Recession

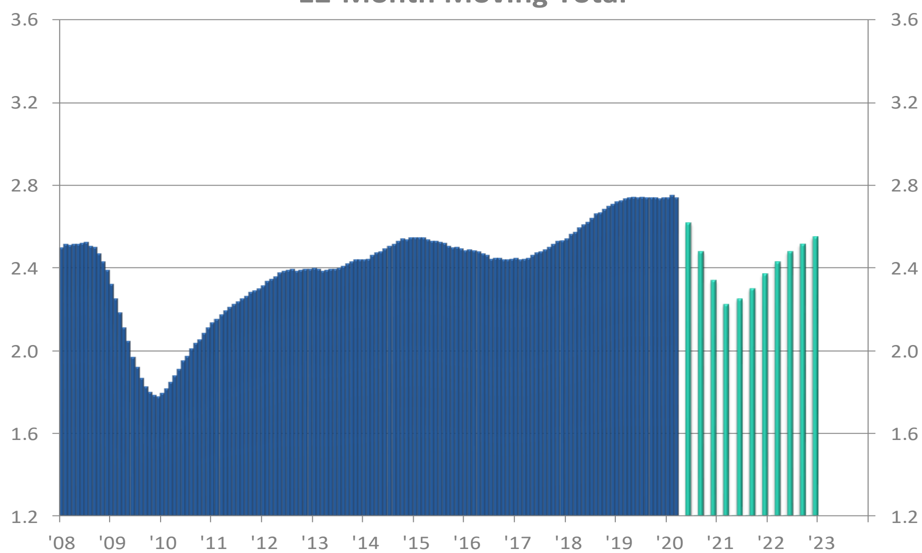
February 2020 Annual Growth Rate (12/12): -14.6%

February 2020 Annual Total (12MMT): $18.5 billion

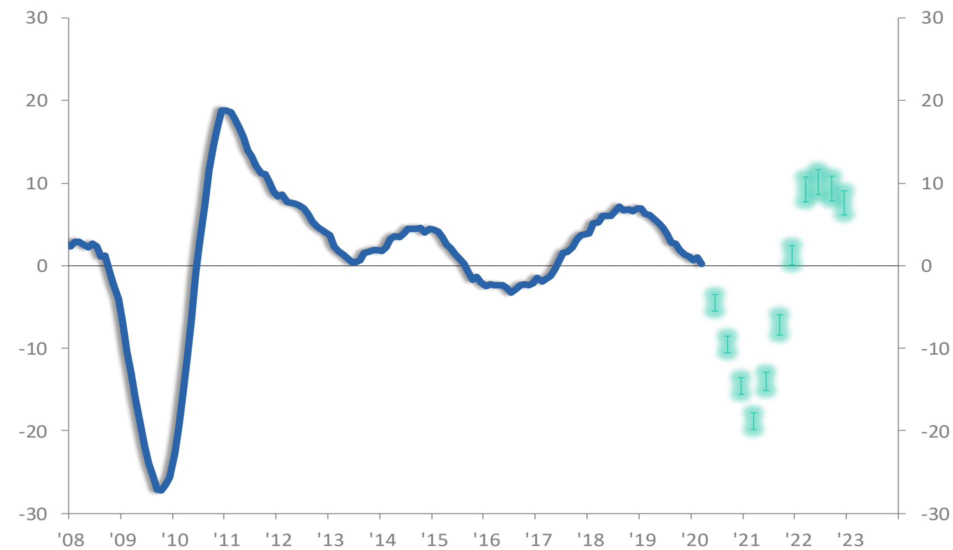
US Durable Goods New Orders (without Aircraft)

New Orders Will Decline Into Early 2021 Followed by Rise Through at Least Late 2022

12-Month Moving Total



Year-over-Year Growth Rate



Industry Outlook

2020: -14.6%

2021: 1.3%

2022: 7.6%

Outlook & Supporting Evidence

- Annual average New Orders data was revised downward an average of 2.6% for the last 12 months by the US Census Bureau. This, along with the double black swans of COVID-19 and the oil supply-demand imbalance, necessitated a revision to the forecast. We lowered the outlook for New Orders by 19.2%, 21.0%, and 12.7% for 2020, 2021, and 2022, respectively. Annual New Orders will decline into early 2021 before rising through at least year-end 2022.
- Projected decline in US Industrial Production and business-to-business activity into early 2021 will contribute to decline in New Orders into next year. Plan for annual New Orders to recover and expand during 2021 and through 2022.

Phase & Amplitudes

Phase C

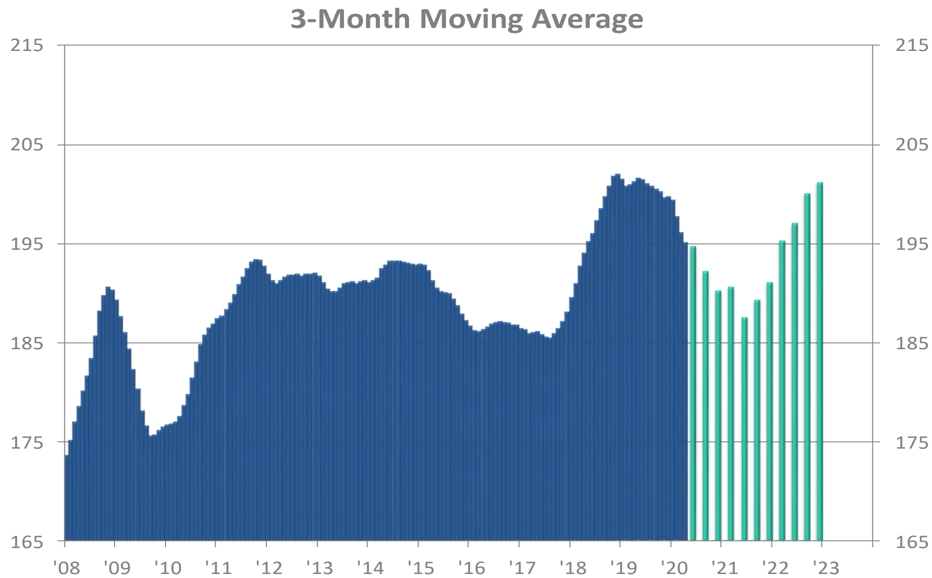
Slowing Growth

March 2020 Annual Growth Rate (12/12): 0.2%

March 2020 Annual Total (12MMT): $2.736 trillion

US Paper Producer Price Index

Prices Will Decline Into the Middle of 2021 Before Rising Through at Least Late 2022



Industry Outlook

4Q20: -4.7%

4Q21: 0.5%

4Q22: 5.2%

Outlook & Supporting Evidence

- The quarterly Price Index was lowered 4.8 and 2.4 percentage points for 2020 and 2021, and was raised 6.4 percentage points for 2022. We expect quarterly Prices to decline into the middle of 2021 before rising through at least year-end 2022.
- Projected decline in the US Paper Producer Price Index will likely be driven by a general decline in commodities prices, which is due to a supply-demand imbalance as a result of COVID-19.
- Prices will rise due to upward momentum in the US industrial sector during the majority of 2021 and 2022. Rising economic activity during that time will boost demand, and therefore Prices.

Phase & Amplitudes

Phase D

Recession

April 2020 Quarterly Growth Rate (3/12): -3.1%

April 2020 Quarterly Average (3MMA): 195.1

INDICATORS

US Leading Indicators

Indicator	Direction			What it means for the US economy
	2Q20	3Q20	4Q20	
ITR Leading Indicator™	●	●	●	
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.

- Updated leading indicator data suggests that business cycle decline in US Industrial Production will persist through at least the end of this year
- The ITR Leading Indicator™, the ITR Retail Sales Leading Indicator™, and the US ISM PMI (Purchasing Managers Index) lost tentative lows due to the economic impacts of the double black swan events
- Sharp decline in the US Total Industry Capacity Utilization Rate suggests the aforementioned impacts will contribute to markedly diminished industrial sector activity into at least the second half of this year

US Industrial Production was already contracting when March's double black swans – the COVID-19 pandemic and oil pricing collapse – intensified the recession. ITR is monitoring leading indicators carefully to assess the projected impact of these events.

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 Paper and Paper Products Production Index — NAICS 322. Industries in the Paper Manufacturing subsector that make pulp, paper, or converted paper products. Source: FRB. Index, 2012 = 100, 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 Paper Bags and Treated Paper Products Production Index — NAICS 32222. This industry comprises establishments primarily engaged in one or more of the following: (1) cutting and coating paper and paperboard; (2) cutting and laminating paper, paperboard, and other flexible materials (except plastics film to plastics film); (3) manufacturing bags, multiwall bags, sacks of paper, metal foil, coated paper, laminates, or coated combinations of paper and foil with plastics film; (4) manufacturing laminated aluminum and other converted metal foils from purchased foils; and (5) surface coating paper or paperboard. Source: FRB. Index, 2012 = 100, NSA.

US Periodical, Book, and Other Publishers Production Index — NAICS 51112-9. This industry comprises establishments known either as magazine publishers or periodical publishers. These establishments carry out the operations necessary for producing and distributing magazines and other periodicals, such as gathering, writing, and editing articles, and selling and preparing advertisements. These establishments may publish magazines and other periodicals in print or electronic form. Source: FRB. Index, 2012 = 100, NSA.

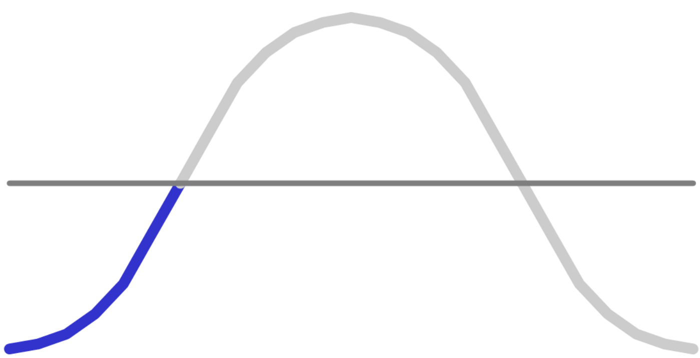
US Media Spending on Print Advertising — Media spending in the US on print advertising. Includes magazine and newspaper advertising. Source: Kantar Media. Measured in billions of dollars, NSA.

US Durable Goods New Orders (without Aircraft) — New orders for durable goods (excluding aircraft) in the US. Includes wood products, nonmetallic mineral products, primary metals, fabricated metals, machinery, computers and electronic products, electrical equipment, appliances and components, transportation equipment except for aircraft, furniture and related products, etc. Source: US Census Bureau. Measured in trillions of dollars, NSA.

US Paper Producer Price Index — Producer Price Index for paper in the US. Includes writing and printing papers, ground wood paper, newsprint, packaging and converting paper, coated and laminated paper, film, gift wrap papers, and other miscellaneous papers. Source: US Bureau of Labor Statistics. Index, 1982 = 100, NSA.

Management Objectives™

Phase



A

1 Model positive leadership (culture turns to behavior)

2 Establish tactical goals that lead to strategic achievement

3 Develop a system for measurement and accountability re: objective 2

4 Align compensation plans with objectives 2 and 3

5 Be keenly aware of the BE (Break Even) point and check it regularly

6 Judiciously expand credit

7 Check distributions systems for readiness to accommodate increased activity

8 Review and uncover competitive advantages

9 Invest in customer market research (know what they value)

10 Improve efficiencies with investment in technology and software

11 Start to phase out marginal opportunities

12 Add sales staff

13 Build inventories (consider lead time and turn rate)

14 Introduce new product lines

15 Determine capital equipment needs and place orders

16 Begin advertising and sales promotions

17 Hire "top" people

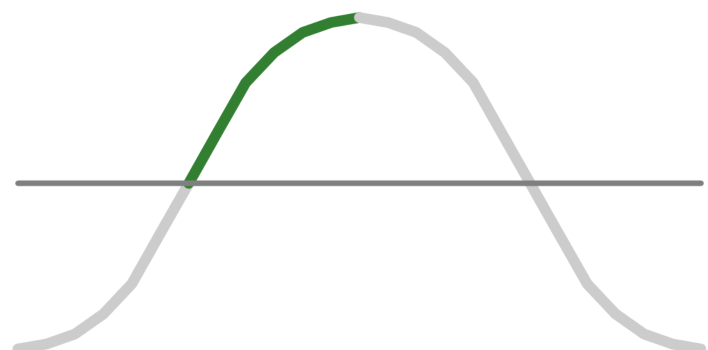
18 Implement plans for facilities expansion

19 Implement training programs

Management Objectives™

1 Accelerate training
2 Check the process flow for possible future bottlenecks
3 Continue to build inventory
4 Increase prices
5 Consider outside manufacturing sources if internal pressures are becoming tight
6 Find the answer to "What is next?"
7 Open distribution centers
8 Use improved cash flow to improve corporate governance
9 Use cash to create new competitive advantages
10 Watch your debt-to-equity ratio and ROI
11 Maintain/pursue quality; don't let complacency set in
12 Stay in stock on A items, and be careful with C items
13 Consider selling the business in a climate of maximum "goodwill"
14 Penetrate new selected accounts
15 Develop plan for lower activity in traditional, mature markets
16 Freeze all expansion plans (unless related to "What is next?")
17 Spin off undesirable operations
18 Consider taking on subcontract work if the backside of the cycle looks recessionary
19 Stay realistic – beware of linear budgets
20 Begin missionary efforts into new markets
21 Communicate competitive advantages to maintain margins

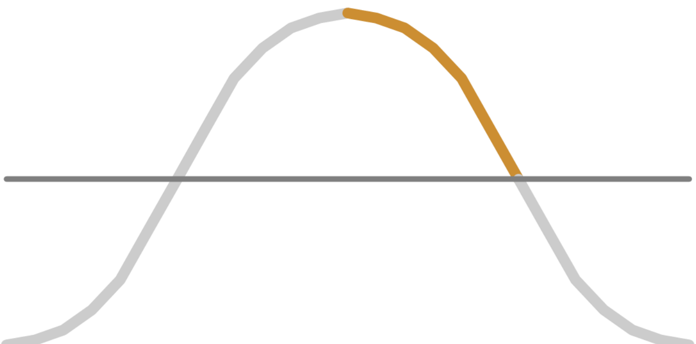
Phase



B

Management Objectives™

Phase



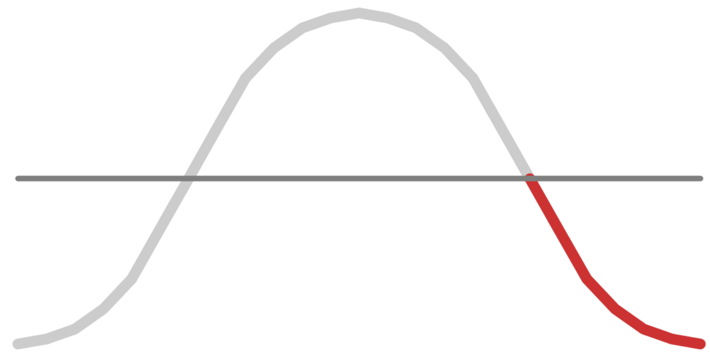
C

1 Cross train key people to prepare for workforce reduction if the cycle looks recessionary
2 Set budget reduction goals by department
3 Avoid long-term purchase commitments late in the price cycle
4 Concentrate on cash and balance sheet
5 Reduce advertising and inventories
6 De-emphasize commodity/services in anticipation of diminishing margins
7 Weed out inferior products (lose the losers)
8 Encourage distributors to decrease inventory
9 Identify and overcome any competitive disadvantages
10 Make sure you and the management team are not in denial
11 Cross train key people
12 Watch Accounts Receivable aging
13 Increase the requirements for justifying capital expenditures
14 Evaluate vendors for strength (don't get caught honoring their warranties with no one to accept returned goods)
15 Manage the backlog through pricing and delivery; try to fill the funnel

Management Objectives™

1 Continue force reduction
2 Reduce advertising – be very selective
3 Continue to avoid long-term purchase commitments
4 Review all lease agreements
5 Increase the requirements for justifying capital equipment
6 Eliminate all overtime
7 Reduce overhead labor
8 Combine departments with like capabilities and reduce management
9 Select targets of opportunity where price will get the business
10 Tighten credit policies – increase scrutiny
11 Look for opportunistic purchases
12 Grab market share as your competitor dies
13 Prepare training programs
14 Negotiate union contracts, if possible
15 Develop advertising and marketing programs
16 Enter or renegotiate long-term leases
17 Look for additional vendors
18 Consider capital expenditures and acquisitions in light of market-by-market potential
19 Make acquisitions – use pessimism to your advantage
20 Lead with optimism and "can do" attitude to mitigate employee anxiety

Phase



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