

# Sample Company Timing Model™



March 2021



Indicator Signals

## Indicator Signals for Sample Company



| Indicator   | Mar-21 | Jun-21 | Sep-21 | Dec-21 | Mar-22 | Jun-22 | Timing |
|---|--------|--------|--------|--------|--------|--------|--------|
| US Industrial Production Index ⓘ                              | D      | A      | A      | B      | B      | C      | 2      |
| ITR Leading Indicator™ ⓘ                                      | D      | A      | B      | B      | N/A    | N/A    | 10     |
| US Nondefense Capital Goods New Orders (excluding aircraft) ⓘ | B      | B      | B      | C      | C      | C      | 1      |
| US Total Retail Sales ⓘ                                       | B      | B      | B      | C      | C      | C      | 1      |
| US Crude Oil Spot Prices ⓘ                                    | D      | A      | B      | B      | N/A    | N/A    | 3      |
| US Hardware Production Index ⓘ                                | A      | N/A    | N/A    | N/A    | N/A    | N/A    | 3      |
| US Metalworking Machinery New Orders ⓘ                        | A      | B      | B      | B      | B      | C      | 1      |

**Note:** The table above depicts what each of the included indicators is signaling for your business based on the relevant timing relationship (lead/lag). Each of these indicators gives evidence regarding the likely trajectory of your business. For example, if US Industrial Production normally leads your business by 12 months and is expected to be in Phase D as of December 2021, then the table would show "D" in the Dec-22 column.

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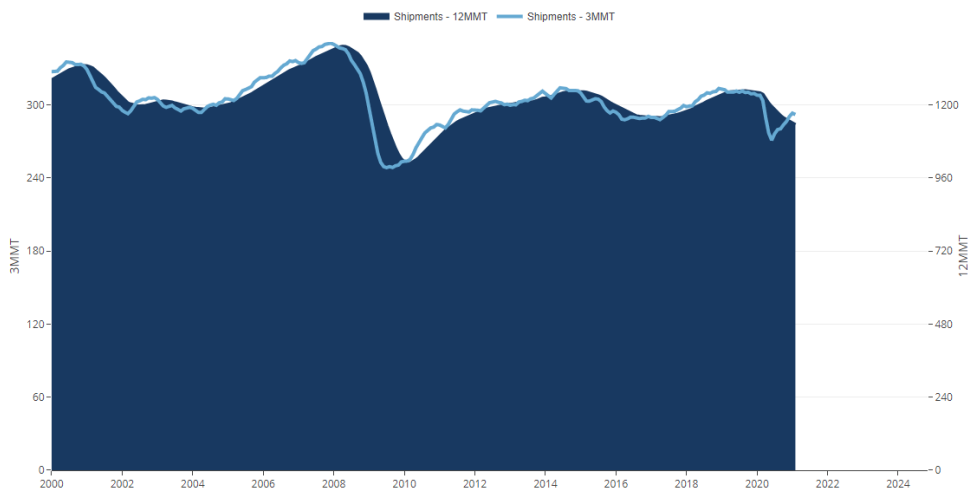
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Data Trends



### Data Trends for Sample Company Tons



#### Quarterly Shipments (3MMT)

292.2 Tons

#### Annual Shipments (12MMT)

1135.4 Tons

#### Outlook

- Macroeconomic trends suggest that annual Shipments are likely to generally rise in the second half of this year and during at least the first half next year.

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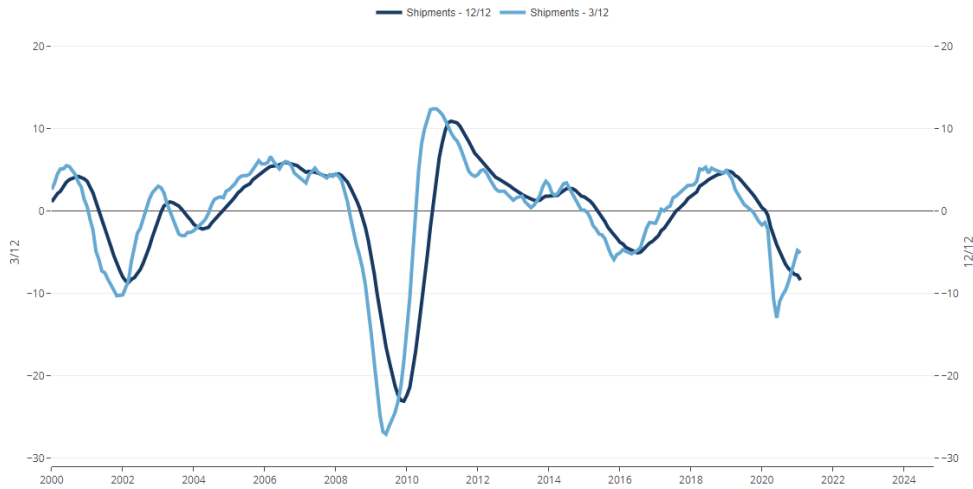


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Rates-of-Change

## Rates-of-Change for Sample Company



Current Phase



Phase D  
Recession

Quarterly Growth (3/12)

-5.1%

Annual Growth (12/12)

-8.4%

NEXT 12/12 LOW

2Q21

NEXT 12/12 HIGH

2Q22

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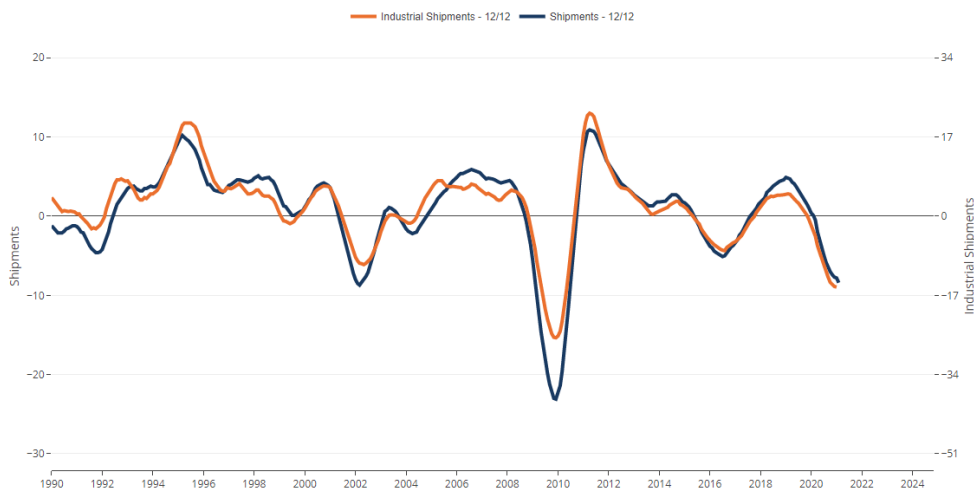


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Division Comparison - Sample Company Industrial Division

## Division Comparison for Sample Company Sample Company to Sample Company Industrial Division



Sample Company Industrial Division  
Phase



Phase D  
Recession

Sample Company Annual Growth  
(12/12)

-8.4%

Sample Company Industrial Division  
Annual Growth (12/12)

-15.2%

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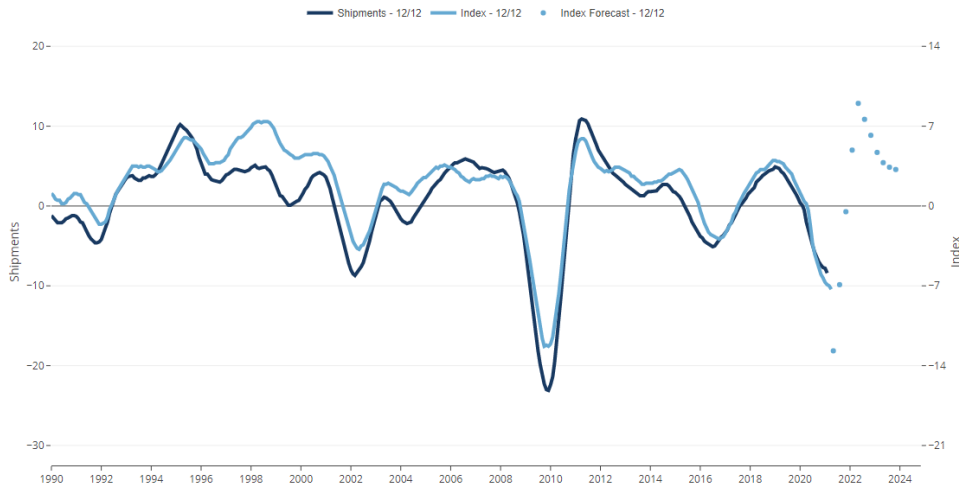
US Industrial Production Index



## Sample Company to US Industrial Production Index



Upcoming Macroeconomic Rebound Suggests Shipments Cyclical Rise Into 1H22



### Current Phase



**Phase D  
Recession**

2-Month Lead Time to Shipments 12/12

### Turning Point Analysis

- The projected 1Q21 low in the Index 12/12 suggests a 2Q21 low in the Shipments 12/12.
- The projected 1Q22 high in the Index 12/12 suggests a 2Q22 high in the Shipments 12/12.

## Indicator Phase Signals

| Mar-21 | Jun-21 | Sep-21 | Dec-21 | Mar-22 | Jun-22 |
|--------|--------|--------|--------|--------|--------|
| D      | A      | A      | B      | B      | C      |

### Current Indicator Amplitude

- February 2021 Index 12/12: -7.3%

**Note 1:** All indicators are shifted along the horizontal axis to reflect their cyclical relationship to Sample Company Shipments.

**Note 2:** View the complete indicator analysis: [US Industrial Production Index](#)

## Sample Company Timing Model™



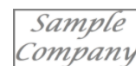
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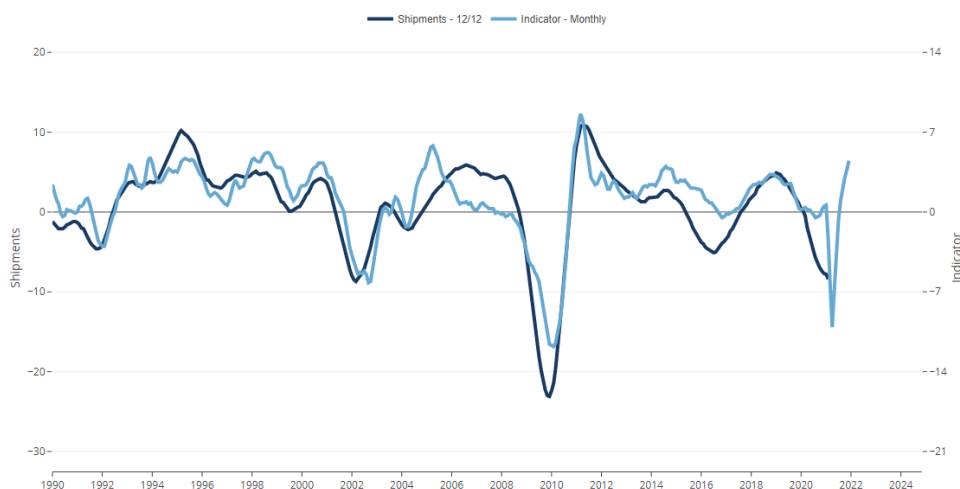
ITR Leading Indicator™



### Sample Company to ITR Leading Indicator™



Indicator Signals Imminent Macroeconomic Cyclical Low



#### Current Phase



**Phase B**  
**Accelerating Growth**

10-Month Lead Time to Shipments 12/12

#### Turning Point Analysis

- The 2Q20 low in the Indicator monthly suggests a 2Q21 low in the Shipments 12/12.
- Rise in the Indicator monthly into at least 1Q21 suggests subsequent rise in the Shipments 12/12 into at least 4Q21.

### Indicator Phase Signals

| Mar-21 | Jun-21 | Sep-21 | Dec-21 | Mar-22 | Jun-22 |
|--------|--------|--------|--------|--------|--------|
| D      | A      | B      | B      | N/A    | N/A    |

#### Current Indicator Amplitude

- February 2021 Indicator Monthly: 4.5

**Note 1:** All indicators are shifted along the horizontal axis to reflect their cyclical relationship to Sample Company Shipments.

**Note 2:** View the complete indicator analysis: [ITR Leading Indicator™](#)

## Sample Company Timing Model™



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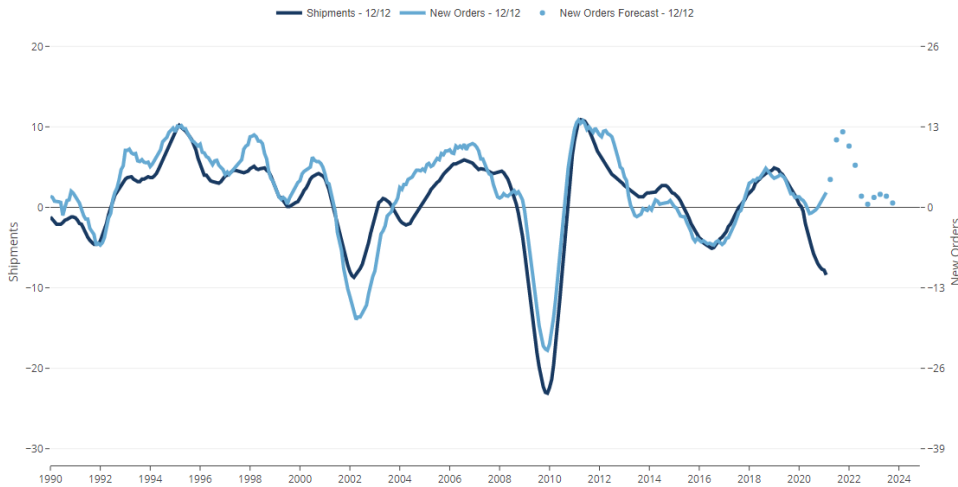
US Nondefense Capital Goods New Orders (excluding aircraft)



### Sample Company to US Nondefense Capital Goods New Orders (excluding aircraft)



New Orders 12MMT Is at Record High and Will Grow in Excess of 8% This Year



#### Current Phase



**Phase B**  
**Accelerating Growth**

1-Month Lead Time to Shipments 12/12

#### Turning Point Analysis

- The 2Q20 low in the New Orders 12/12 suggests an imminent low in the Shipments 12/12.
- The projected 3Q21 high in the New Orders 12/12 suggests a 3Q21 high in the Shipments 12/12.

### Indicator Phase Signals

| Mar-21 | Jun-21 | Sep-21 | Dec-21 | Mar-22 | Jun-22 |
|--------|--------|--------|--------|--------|--------|
| B      | B      | B      | C      | C      | C      |

#### Current Indicator Amplitude

- January 2021 New Orders 12/12: 2.4%

**Note 1:** All indicators are shifted along the horizontal axis to reflect their cyclical relationship to Sample Company Shipments.

**Note 2:** View the complete indicator analysis: [US Nondefense Capital Goods New Orders \(excluding aircraft\)](#)

# Sample Company Timing Model™



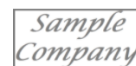
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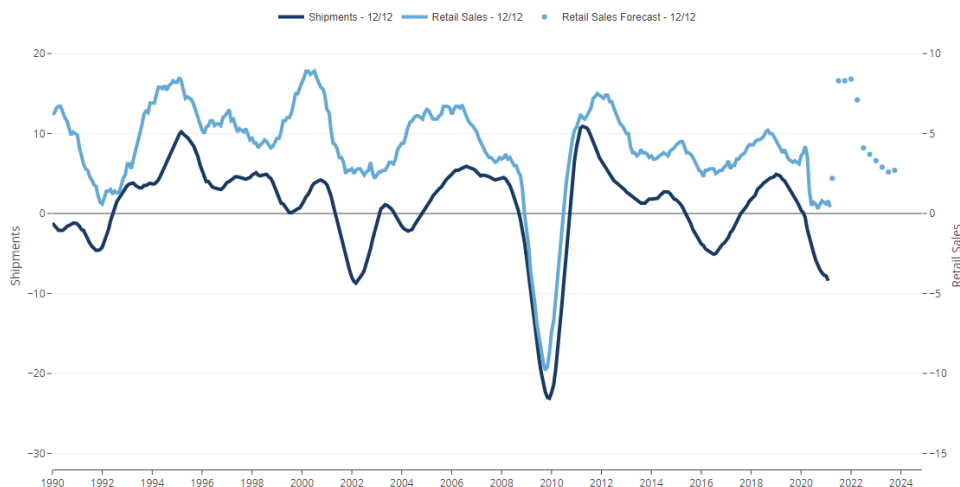
US Total Retail Sales



## Sample Company to US Total Retail Sales



Consumers Remain Strong; This Bodes Well for Retail Sales This Year



### Current Phase



**Phase B**  
**Accelerating Growth**

1-Month Lead Time to Shipments 12/12

### Turning Point Analysis

- The 3Q20 low in the Retail Sales 12/12 suggests an imminent low in the Shipments 12/12.
- The projected 3Q21 high in the Retail Sales 12/12 suggests a 3Q21 high in the Shipments 12/12.

## Indicator Phase Signals

| Mar-21 | Jun-21 | Sep-21 | Dec-21 | Mar-22 | Jun-22 |
|--------|--------|--------|--------|--------|--------|
| B      | B      | B      | C      | C      | C      |

### Current Indicator Amplitude

- February 2021 Retail Sales 12/12: 0.4%

**Note 1:** All indicators are shifted along the horizontal axis to reflect their cyclical relationship to Sample Company Shipments.

**Note 2:** View the complete indicator analysis: [US Total Retail Sales](#)



## Sample Company Timing Model™



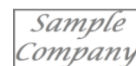
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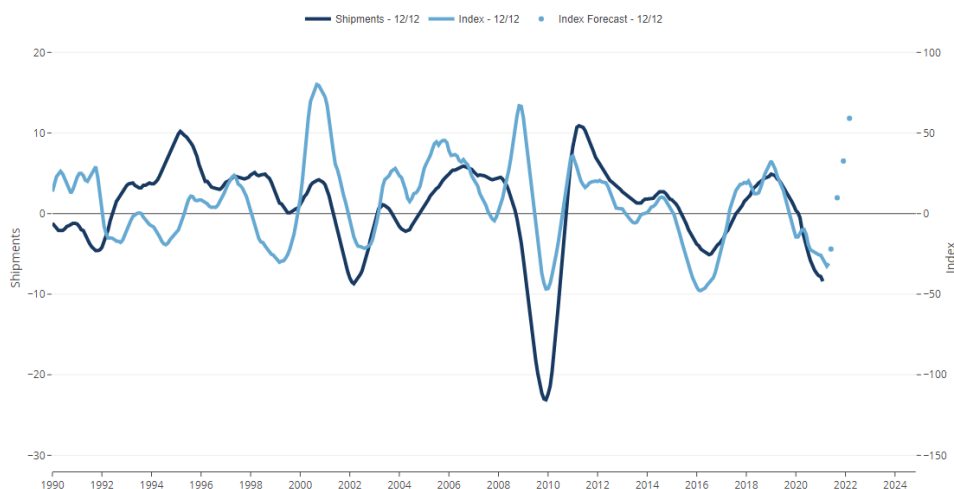
US Crude Oil Spot Prices



### Sample Company to US Crude Oil Spot Prices



GDP Recovery Is Supporting Energy Demand; Expect Prices 12/12 to Rise This Year



#### Current Phase



#### Phase A Recovery

3-Month Lead Time to Shipments 12/12

#### Turning Point Analysis

- The 1Q21 low in the Index 12/12 suggests a 2Q21 low in the Shipments 12/12.
- Rise in the Index 12/12 into at least 4Q21 suggests subsequent rise in the Shipments 12/12 into at least 1Q22.

### Indicator Phase Signals

| Mar-21 | Jun-21 | Sep-21 | Dec-21 | Mar-22 | Jun-22 |
|--------|--------|--------|--------|--------|--------|
| D      | A      | B      | B      | N/A    | N/A    |

#### Current Indicator Amplitude

- February 2021 Index 12/12: -30.9%

**Note 1:** All indicators are shifted along the horizontal axis to reflect their cyclical relationship to Sample Company Shipments.

**Note 2:** View the complete indicator analysis: [US Crude Oil Spot Prices](#)

## Sample Company Timing Model™



March 2021



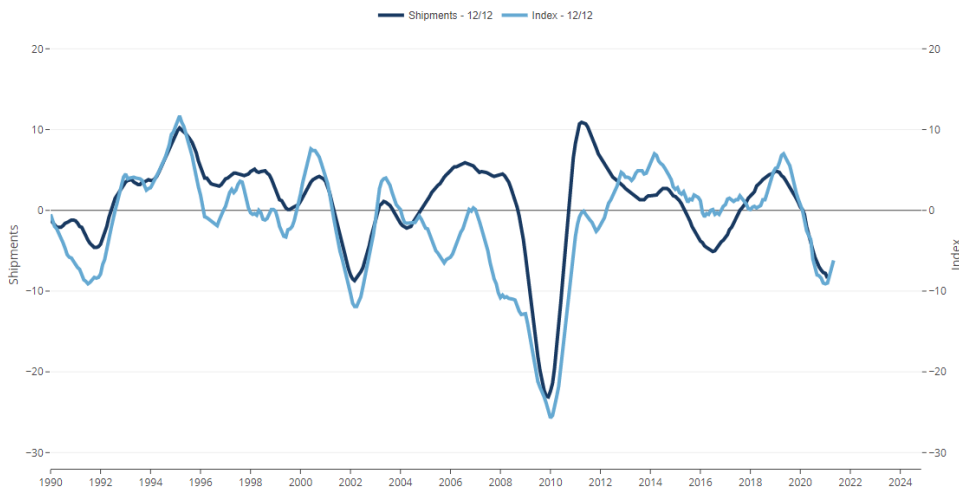
US Hardware Production Index



### Sample Company to US Hardware Production Index



Indicators Signal Upward Trajectory for Index 12/12 Into at Least Late 2021



#### Current Phase



#### Phase A Recovery

3-Month Lead Time to Shipments 12/12

#### Turning Point Analysis

- The 4Q20 low in the Index 12/12 suggests a 1Q21 low in the Shipments 12/12.

### Indicator Phase Signals

| Mar-21 | Jun-21 | Sep-21 | Dec-21 | Mar-22 | Jun-22 |
|--------|--------|--------|--------|--------|--------|
| A      | N/A    | N/A    | N/A    | N/A    | N/A    |

#### Current Indicator Amplitude

- February 2021 Index 12/12: -6.2%

**Note 1:** All indicators are shifted along the horizontal axis to reflect their cyclical relationship to Sample Company Shipments.

# Sample Company Timing Model™



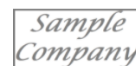
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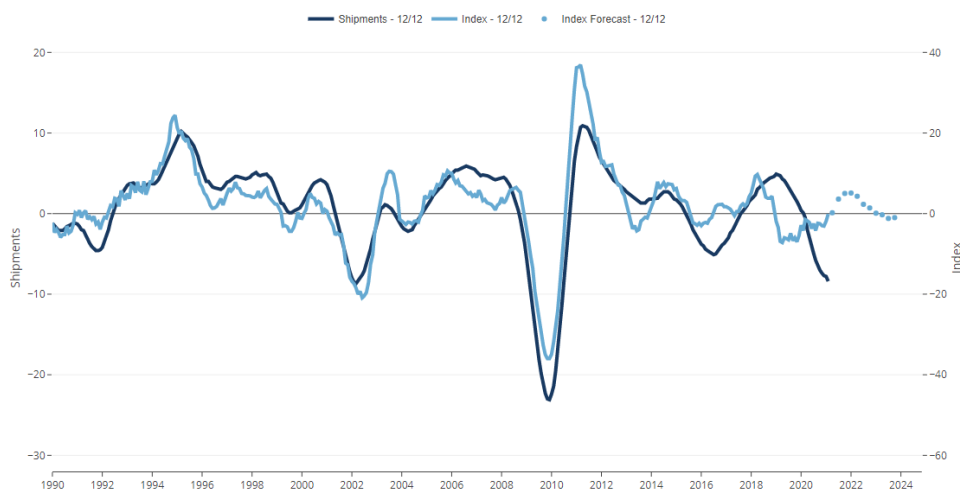
US Metalworking Machinery New Orders



## Sample Company to US Metalworking Machinery New Orders



Recovery in Auto and Aircraft Sectors to Bolster New Orders 12/12 Into 1H22



### Current Phase



### Phase A Recovery

1-Month Lead Time to Shipments 12/12

### Turning Point Analysis

- The ongoing rise in the New Orders 12/12 suggests an imminent low in the Shipments 12/12.
- The projected 1Q22 high in the New Orders 12/12 suggests a 1Q22 high in the Shipments 12/12.

## Indicator Phase Signals

| Mar-21 | Jun-21 | Sep-21 | Dec-21 | Mar-22 | Jun-22 |
|--------|--------|--------|--------|--------|--------|
| A      | B      | B      | B      | B      | C      |

### Current Indicator Amplitude

- January 2021 Index 12/12: -0.1%

**Note 1:** All indicators are shifted along the horizontal axis to reflect their cyclical relationship to Sample Company Shipments.

**Note 2:** View the complete indicator analysis: [US Metalworking Machinery New Orders](#)

# Sample Company Timing Model™



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Timing Model Guide

## Timing Model Guide



The data points included below are hypothetical and are provided here only to give guidance regarding how to read this report.

**Indicator Snapshot**

Current Phase

Phase B  
Accelerating Growth

Coincident Relationship to Sales 12/12

**Indicator Snapshot**

The indicator snapshot will tell you which phase of the business cycle the indicator is in. It will also tell you whether the indicator leads, lags, or moves in real time with the company.

**Current Phase**

Phase B  
Accelerating Growth

2 Month Lag Time

**2 Month Lag Time**

This indicator lags your company by two months.

**Current Phase**

Phase B  
Accelerating Growth

5 Month Lead Time

**5 Month Lead time**

This indicator leads your company by five months.

**Current Phase**

Phase B  
Accelerating Growth

Coincident Relationship

**Coincident Relationship**

This indicator moves in real time with your company (no lead or lag time).

**Rise Signals That The Acceleration in US Industrial Production Will Persist Into Mid-2018**

**Headline**

Simple! What your Economist wants you to know about this indicator, such as what has changed in the indicator since your last report and what it means for your company.

**Indicator Phase Signals**

| Mar 18 | Jun 18 | Sep 18 | Dec 18 |
|--------|--------|--------|--------|
| B      | A      | C      | D      |

**Indicator Phase Signals**

When lead/lag time is taken into account, the indicator's trajectory suggests a course of future business cycle phases for your company, shown here.

*Example: ITR expects Phase B in a six-month leading indicator through December 2021 before a March 2022 transition to Phase C. This would be shown as Phase B through June 2022 and Phase C in September 2022, given the six-month lead time.*

An indicator phase signal does not mean your company will enter that phase at that time.

*Example: Your company may enter recession even if US Industrial Production avoids recession.*

**Turning Point Analysis**

- The expected 2Q18 high in the Index 12/12 suggests a 2Q18 high in the Sales 12/12.
- The expected 4Q19 low in the Index 12/12 suggests a 4Q19 low in the Sales 12/12.

**Turning Point Analysis**

This tells you when the indicator is reaching a cyclical high or low and when this suggests the company will reach a cyclical high or low, based on the leading, lagging, or coincident relationship.

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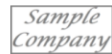
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Terminology and Methodology



## Terminology and Methodology



## Data Trends

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

Totals are used for data that can be added together, such as units sold or dollars spent. Averages are used for data that cannot be compounded, such as index readings, percentages, price levels, and 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 percentage change in a 12MMT or 12MMA, 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

Recovery  
(A)

The 12/12 is rising below 0, and the data trend is either heading toward a low or is in the early stages of recovery. This is the first positive phase of the business cycle.

Accelerating Growth  
(B)

The 12/12 is rising above 0, and 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)

The 12/12 is declining but remains above 0; data trend ascent is slowing or has stopped, but the data trend is still above last year. This is the first negative phase of the business cycle.

Recession  
(D)

The 12/12 is below 0; the data trend is below the year-ago level, and the rate of decline is intensifying. This is the second and final negative phase of the business cycle.

# HOW TO CALCULATE RATES-OF-CHANGE

# Sample Company Timing Model™



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Indicator Definitions

## Indicator Definitions



### US Industrial Production Index

Index of total industrial production in the United States; includes manufacturing, mining, and utilities. Source: Federal Reserve Board. 2012 = 100, not seasonally adjusted (NSA).

### US Nondefense Capital Goods New Orders (excluding aircraft)

New orders for nondefense capital goods, excluding aircraft, in the United States. Includes farm machinery and equipment, construction machinery, mining machinery, nondefense small arms and ordnance, industrial machinery, commercial and service industry equipment, other general purpose machinery, photographic equipment, metalworking machinery, turbine and generator manufacturing, power transmission equipment, pumps and compressors, material handling equipment, electronic computers, computer storage devices and peripheral equipment, communications equipment, nondefense search and navigation equipment, electrometrical equipment, electrical equipment, heavy duty truck manufacturing, railroad rolling stock, nondefense ship and boat building, office and institutional furniture, and medical equipment and supplies. Source: US Census Bureau. Measured in billions of dollars, not seasonally adjusted (NSA).

### US Crude Oil Spot Prices

US Free On Board (FOB) spot price of West Texas Intermediate (WTI) crude oil, taken at the Cushing, Oklahoma, supply hub. This is widely seen as the benchmark price of crude oil for the North American market. Measured in dollars per barrel, monthly average, not seasonally adjusted (NSA).

### US Metalworking Machinery New Orders

New orders for metal working machinery in the United States. This industry comprises establishments primarily engaged in manufacturing metalworking machinery, such as metal cutting and metal forming machine tools; cutting tools; and accessories for metalworking machinery; special dies, tools, jigs, and fixtures; industrial molds; rolling mill machinery; assembly machinery; coil handling, conversion, or straightening equipment; and wire drawing and fabricating machines. Source: US Census Bureau. NAICS Code: 33351. Measured in billions of dollars, not seasonally adjusted (NSA).

### ITR Leading Indicator™

The ITR Leading Indicator is a proprietary index comprised of consumer, industrial, financial, and global components. Movements in the Leading Indicator suggest the possible course of business cycle movements in US Industrial Production, a measure of the overall economy's activity, approximately three quarters in advance. A reading of zero or lower is indicative of recession.

### US Total Retail Sales

Total retail sales in the United States, including motor vehicles and parts, furniture and home furnishings, electronics and appliances, building materials and garden supplies, food and beverages, health and personal care products, gasoline stations, clothing, and other miscellaneous goods. Includes store and non-store retail sales. Non-store retailers include those that sell via television commercials, catalogs, the internet, etc. Source: US Census Bureau. Measured in trillions of dollars, not seasonally adjusted (NSA).

### US Hardware Production Index

Production index for hardware manufacturing. This industry comprises establishments primarily engaged in manufacturing metal hardware, such as metal hinges, metal handles, keys, and locks (except coin-operated, time locks). Includes hardware for doors, locks, luggage, cabinets, automobiles, aircraft, pianos, etc. 2012 = 100, NSA.

# Sample Company Timing Model™



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Management Objectives

## Management Objectives™



### Phase A



#### Recovery

- Scrupulously evaluate the supply chain
- Model positive leadership (culture turns to behavior)
- Start to phase out marginal opportunities (products, processes, people); repair margins
- Perform due diligence on customers and extend credit
- Be on good terms with a banker; you will need the cash more now than in any other phase
- Invest in customer market research; know what they value and market/price accordingly
- Hire key people and implement company-wide training programs ahead of Phase B
- Allocate additional resources to sales and marketing
- Invest in system/process efficiencies
- Make opportunistic capital and business acquisitions; use pessimism to your advantage

### Phase B



#### Accelerating Growth

- Ensure quality control keeps pace with increasing volume
- Invest in workforce development: hiring, training, retention
- Ensure you have the right price escalator; space out price increases
- Maximize your profit margins through differentiation; stand out from the crowd and set yourself apart
- Use improved cash flow to strategically position the business to beat the business cycle
- Expand credit to customers
- Improve corporate governance (rent a CFO; establish a board of advisors or board of directors)
- Communicate competitive advantages; build the brand
- Query users for what they want and what is important to them
- Sell the business in a climate of maximum goodwill

### Phase C



#### Slowing Growth

- Know if your markets are headed for a soft landing or a hard landing
- Cash is king; beware of unwarranted optimism
- Stay on top of aging receivables
- Revisit capital expenditure plans
- Lose the losers: if established business segments are not profitable during this phase, eliminate them
- Use competitive pricing to manage your backlog through the coming slowdown
- Avoid committing yourself to long-term expenses at the top of the price cycle, but lock in revenue
- Go entrepreneurial and/or counter-cyclical
- Evaluate your vendors for financial strength; if needed, look for additional vendors as a safety net
- If the cycle looks recessionary, cross-train key people to prepare for workforce attrition/reduction

### Phase D



#### Recession

- Implement aggressive cost-cutting measures
- Offer alternative products with a lower cost basis
- Perform due diligence on acquisitions while valuations are falling
- Reduce advertising as consumers become more price conscious
- Enter or renegotiate long-term leases
- Negotiate labor contracts
- Consider capital equipment needs for the next cycle
- Tighten credit policies
- Develop programs for advertising, training, and marketing to implement in Phase A
- Lead with optimism, remembering that Phase D is temporary