



# Metal Industry Indicators

## Composite Indexes of Leading and Coincident Indicators of Selected Metal Industries for March and April—Summary Report

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May 20, 2016

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The **primary metals leading index** increased 0.5% in April to 159.1 from a revised 158.3 in March, and its 6-month smoothed growth rate increased to 0.7% from a revised -0.3% in March (Table 2). The 6-month smoothed growth rate is a compound annual rate that measures the near-term trend. Usually a growth rate above +1.0% signals an increase in metals activity, and a growth rate below -1.0% indicates a downturn in activity. The positive primary metals leading index growth rate suggests that the decline in growth in primary metals industry activity could be bottoming out in the near term. Manufacturing capacity utilization still remained below its long-term trend, however, the operating rate for durable goods increased slightly in April. Residential construction activity is likely to underpin the primary metals industry in the latter half of 2016, as was signaled by the rise in the index of new housing permits issued at the start of the second quarter of 2016. U.S. economic growth is likely to support modest metal demand in the near term. However, high global metal inventories and the still relatively strong U.S. dollar continued to limit U.S. metal exports. Moreover, China increased metals production, reaching a record level of steel production in April, and subsequently increased metals exports to the United States.

Metals are key inputs in durable goods manufacturing and construction, which account for almost a quarter of gross domestic product final sales. Therefore, the primary metals leading index also gives early signals of major changes in activity for the overall U.S. economy (Chart 8).

Two of the four indicators that were available for the April index calculation increased (Table 3) and two declined. A rise in the stock price index combining construction and farm machinery companies and industrial machinery companies made the largest contribution, 0.7 percentage point, to the net increase in the primary metals leading index in April. The USGS metals price index growth rate increased for the fifth consecutive month and contributed 0.2 percentage point. In contrast, the PMI, the Institute for Supply Management's purchasing managers' index, dropped for the first time this year. However, it remained above the threshold that indicates future increases in U.S. manufacturing activity. It contributed -0.2 percentage point to the leading index. A shorter average workweek in primary metals establishments in April also contributed -0.2 percentage point. The April leading index should be considered preliminary because only four of its eight indicators were available, and the leading index will be subject to revision when the other components are added next month.

The steel leading index increased 0.2% to 111.9 in March from a revised 111.7 in February (Table 4). Four of its nine indicators increased in March, with the S&P stock price index for iron and steel companies increasing for the second consecutive month, making the largest positive contribution to the leading index. The increase in the PMI and the rising inflation-adjusted M2 money supply growth rate also made large contributions to the steel leading index. The rising steel scrap price growth rate made a lesser positive contribution. Although the steel

leading index growth rate remained in negative territory, it moved above the threshold that indicates declines in domestic steel industry activity in the near term. Meanwhile, the steel import market-share is 25% despite a 5% decrease in permits from preliminary March imports. Although China was not the largest exporter of steel into the United States in April, imports from China still increased despite the preliminary 266% import tariff on cold-rolled steel flat products. On May 17<sup>th</sup>, the International Trade Administration (ITA) imposed an additional 256% tariff on cold-rolled steel from China. Total duties imposed on Chinese imports were more than 522%. The ITA also imposed a 71% tariff on cold-rolled steel from Japan. The copper leading index edged up 0.1% to 126.9 in March from 126.8 in February (Table 6). Movement among its indicators was varied, but the jump in the S&P stock price index for building product companies made the most positive impact on the copper leading index. However, the dip in the index for new housing permits in March offset much of that gain. Although the copper leading index growth rate rose in March, it has been negative since the start of the year. This suggests that activity in the domestic copper industry is likely to be relatively slow in the near term.

The **metals price leading index** increased 0.8% to 105.3 in March, the latest month for which it is available, from a revised 104.5 in February (Table 1) and its 6-month smoothed growth rate increased to 2.3% from a revised 1.0% in February. Three of its four indicators increased in March. A sharp increase in the growth rate of the trade-weighted average exchange value of other major currencies against the U.S. dollar made the largest positive contribution, 0.7 percentage point, to the net increase in the metals price leading index. The Organisation for Economic Cooperation and Development (OECD) Total Leading Index growth rate increased slightly in March, it contributed 0.1percentage point. It is still pointing to further growth declines for most industrialized countries. The wider yield spread between the U.S. 10-year Treasury Note and the federal funds rate in March also contributed 0.1 percentage point. In contrast, the declining growth rate of the inflation-adjusted value of new orders for U.S. nonferrous metal products contributed -0.1 percentage point. The metals price leading index signals major changes in the growth rate of nonferrous metal prices an average of 8 months in advance.

The growth rate of the inflation-adjusted value of U.S. nonferrous metal products inventories, which is an indicator of supply and usually moves inversely with the price of metals, decreased for the second month in a row in March. The actual value of U.S. metals inventories levels also declined. This, along with the positive metals price leading index growth rate would normally indicate that metal prices could increase. However, metals over-production, particularly in China, is suppressing metals prices.

The percent changes from February to March for the **metal industry coincident indexes**, which measure current economic activity, are shown below. March is the latest month for which these indexes are available.

|                |       |
|----------------|-------|
| Primary Metals | -0.6% |
| Steel          | 0.3%  |
| Copper         | 0.0%  |

Tables 1, 3, 5, and 7 identify the indicators and, for the industry indexes, show the contributions of each indicator to its respective index.

**The *Metal Industry Indicators* report is produced at the U.S. Geological Survey. For more information about these indexes and the *Metal Industry Indicators* monthly report, contact Gail James (703-648-4915), (e-mail, [gjames@usgs.gov](mailto:gjames@usgs.gov)) at the U.S. Geological Survey.**

**The *Metal Industry Indicators* summary report with indexes for April and May is scheduled for release on the World Wide Web at 10:00 a.m. EDT, Friday, June 17, 2016.**

**Table 1.**  
**Leading Index of Metal Prices and Growth Rates of the Nonferrous Metals Price Index, Inventories of Nonferrous Metal Products, and Selected Metal Prices**

|             | Six-Month Smoothed Growth Rates          |  |                                   |   |                  |                |             |
|-------------|--|--|-----------------------------------|---|------------------|----------------|-------------|
|             | Leading Index of Metal Prices (1967=100) | Leading Index of Metal Prices Growth Rates | MII Nonferrous Metals Price Index | U.S. Nonferrous Metal Products Inventories (1982\$) | Primary Aluminum | Primary Copper | Steel Scrap |
| <b>2015</b> |  |  |                                   |   |                  |                |             |
| March       | 103.3                                    | -5.8                                       | -15.1                             | 11.1  | -10.4            | -14.9          | -51.8       |
| April       | 103.2r                                   | -5.3                                       | -4.5                              | 11.3  | 0.5              | -8.5           | -47.3       |
| May         | 104.0                                    | -2.9r                                      | -10.7                             | 7.1   | -19.3            | -11.7          | -42.7       |
| June        | 104.3                                    | -1.8r                                      | -20.1                             | 8.4   | -23.8            | -19.6          | -29.9       |
| July        | 103.8                                    | -2.0                                       | -28.9                             | 13.2  | -26.9            | -30.1          | -32.7       |
| August      | 103.8                                    | -1.4                                       | -29.0                             | 15.3  | -28.1            | -29.9          | -42.1       |
| September   | 104.1                                    | -0.4                                       | -26.3                             | 15.0  | -23.1            | -26.5          | -43.5       |
| October     | 104.5                                    | 0.6  | -22.5                             | 11.8  | -31.4            | -22.1          | -62.1       |
| November    | 104.2r                                   | 0.2r                                       | -31.7                             | 12.1r   | -28.4            | -33.7          | -64.1       |
| December    | 104.5                                    | 1.0r                                       | -22.9                             | 13.1r   | -17.8            | -27.1          | -58.1       |
| <b>2016</b> |  |  |                                   |   |                  |                |             |
| January     | 104.1r                                   | 0.3r                                       | -24.3                             | 14.5r   | -12.9            | -28.4          | -43.3       |
| February    | 104.5r                                   | 1.0r                                       | -16.0                             | 11.4r   | -0.2             | -21.5          | -35.9       |
| March       | 105.3                                    | 2.3  | -12.6                             | 4.3   | -13.0            | -13.9          | -21.3       |
| April       | NA                                       | NA   | -1.2                              | NA  | 10.7             | -4.3           | 29.6        |

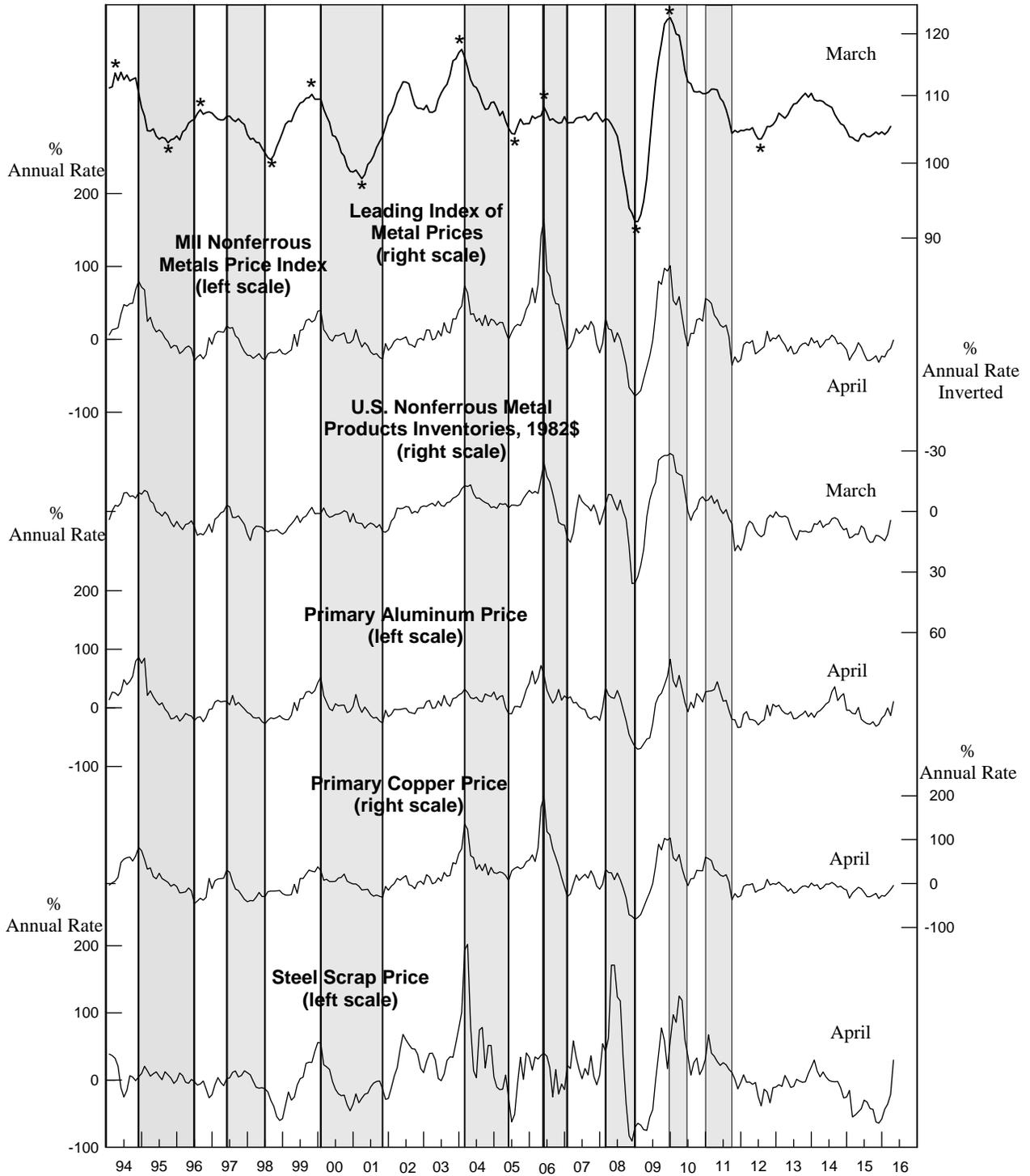
NA: Not available    r: Revised

**Sources:** U.S. Geological Survey (USGS), American Metal Market (AMM), the London Metal Exchange (LME), U.S. Census Bureau, the Organisation for Economic Cooperation and Development (OECD), and Federal Reserve Board.

**Note:** The components of the Leading Index of Metal Prices are the spread between the U.S. 10-year Treasury Note and the federal funds rate, and the 6-month smoothed growth rates of the deflated value of new orders for nonferrous metal products, the Organisation for Economic Cooperation and Development (OECD) Total Leading Index, and the reciprocal of the trade-weighted average exchange value of the U.S. dollar against other major currencies. The Metal Industry Indicators (MII) Nonferrous Metals Price Index measures changes in end-of-the-month prices for primary aluminum, copper, lead, and zinc traded on the London Metal Exchange (LME). The steel scrap price used is the price of No. 1 heavy melting. Inventories consist of the deflated value of finished goods, work in progress, and raw materials for U.S.-produced nonferrous metal products (NAICS 3313, 3314, & 335929). Six-month smoothed growth rates are based on the ratio of the current month's index or price to its average over the preceding 12 months, expressed at a compound annual rate.

**CHART 1.  
LEADING INDEX OF METAL PRICES AND GROWTH RATES  
OF NONFERROUS METALS PRICE INDEX, INVENTORIES OF  
NONFERROUS METAL PRODUCTS, AND SELECTED PRICES**

1967 = 100



Shaded areas are downturns in the nonferrous metals price index growth rate. Asterisks (\*) are peaks and troughs in the economic activity reflected by the leading index of metal prices. Scale for nonferrous metal products inventories is inverted.

**Table 2.**  
**The Primary Metals Industry Indexes and Growth Rates**

|             | Leading Index |             | Coincident Index |             |
|-------------|---------------|-------------|------------------|-------------|
|             | (1977 = 100)  | Growth Rate | (1977 = 100)     | Growth Rate |
| <b>2015</b> |               |             |                  |             |
| April       | 160.7         | -3.6        | 110.8            | -2.8        |
| May         | 162.2         | -1.6        | 111.1            | -2.3        |
| June        | 162.5         | -1.0        | 111.8            | -0.9        |
| July        | 160.2         | -3.3        | 111.9            | -0.6        |
| August      | 159.1         | -4.1        | 111.3            | -1.5        |
| September   | 156.7         | -6.3        | 110.2            | -3.0        |
| October     | 156.8         | -5.4r       | 110.3            | -2.6r       |
| November    | 157.2r        | -4.3r       | 110.5            | -1.7        |
| December    | 155.4r        | -5.7r       | 109.8            | -2.6        |
| <b>2016</b> |               |             |                  |             |
| January     | 155.8r        | -4.5r       | 110.1r           | -1.7r       |
| February    | 156.5r        | -3.0r       | 109.6r           | -2.2r       |
| March       | 158.3r        | -0.3r       | 109.4            | -2.2        |
| April       | 159.1         | 0.7         | NA               | NA          |

**NA:** Not available    **r:** Revised

**Note:** Growth rates are expressed as compound annual rates based on the ratio of the current month's index to the average index during the preceding 12 months.

**Table 3.**  
**The Contribution of Each Primary Metals Index Component to the Percent Change in the Index from the Previous Month**

|  |                 |              |
|--|-----------------|--------------|
| <b>Leading Index</b>   | <b>March</b>    | <b>April</b> |
| 1. Average weekly hours, primary metals (NAICS 331)  | 0.1r            | -0.2         |
| 2. Weighted S&P stock price index, machinery, construction and farm and industrial (December 30, 1994=100) | 0.7r            | 0.7          |
| 3. Ratio of price to unit labor cost (NAICS 331)   | 0.1             | NA           |
| 4. USGS metals price index growth rate   | 0.1r            | 0.2          |
| 5. New orders, primary metal products, (NAICS 331 & 335929) 1982\$   | 0.0             | NA           |
| 6. Index of new private housing units authorized by permit   | -0.4            | NA           |
| 7. Growth rate of U.S. M2 money supply, 2009\$   | 0.3             | NA           |
| 8. PMI   | 0.3r            | -0.2         |
| Trend adjustment   | 0.0             | 0.0          |
| Percent change (except for rounding differences)   | 1.2r            | 0.5          |
| <b>Coincident Index</b>  | <b>February</b> | <b>March</b> |
| 1. Industrial production index, primary metals (NAICS 331)   | 0.3r            | 0.1          |
| 2. Total employee hours, primary metals (NAICS 331)  | -0.9r           | -0.2         |
| 3. Value of shipments, primary metals products, (NAICS 331 & 335929) 1982\$                                | 0.0             | -0.2         |
| Trend adjustment   | 0.1             | 0.1          |
| Percent change (except for rounding differences)   | -0.5r           | -0.2         |

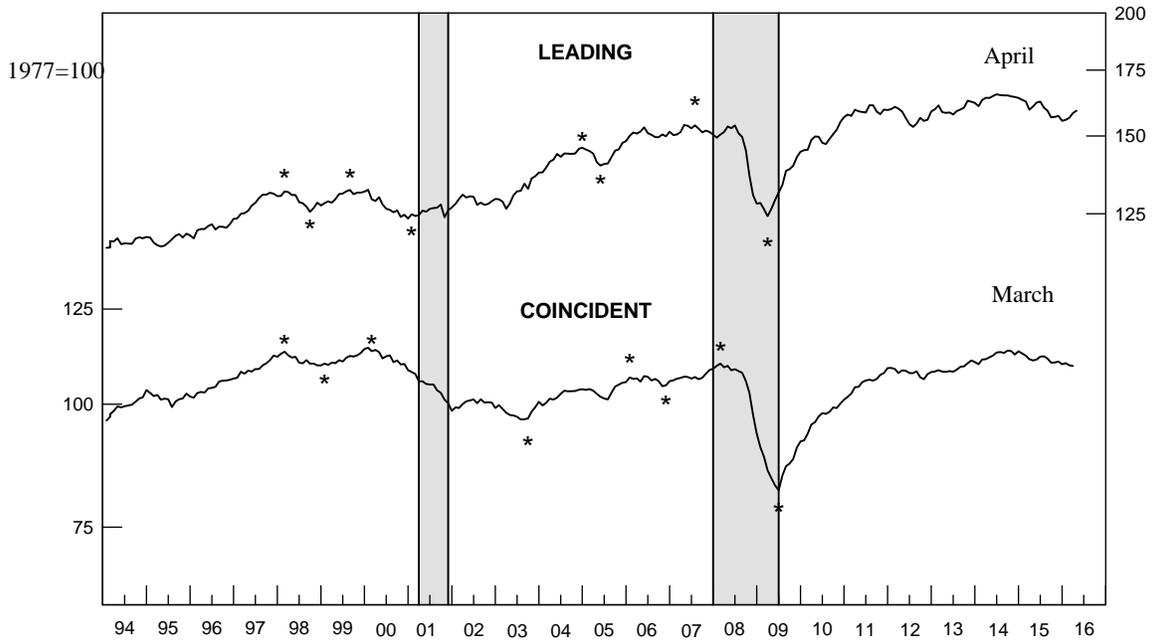
**Sources:** Leading: 1, Bureau of Labor Statistics; 2, Standard & Poor's and U.S. Geological Survey; 3, U.S. Geological Survey; 4, Journal of Commerce and U.S. Geological Survey; 5, U.S. Census Bureau and U.S. Geological Survey; 6, U.S. Census Bureau and U.S. Geological Survey; 7, Federal Reserve Board, Conference Board, and U.S. Geological Survey; and 8, Institute for Supply Management. Coincident: 1, Federal Reserve Board; 2, Bureau of Labor Statistics and U.S. Geological Survey; and 3, U.S. Census Bureau and U.S. Geological Survey. All series are seasonally adjusted, except 2, 3, and 4 of the leading index.

**NA:** Not available    **r:** Revised

**Note:** A component's contribution, shown in Tables 3, 5, 7, and 9, measures its effect, in percentage points, on the percent change in the index. Each month, the sum of the contributions plus the trend adjustment equals (except for rounding differences) the index's percent change from the previous month.

**CHART 2.**

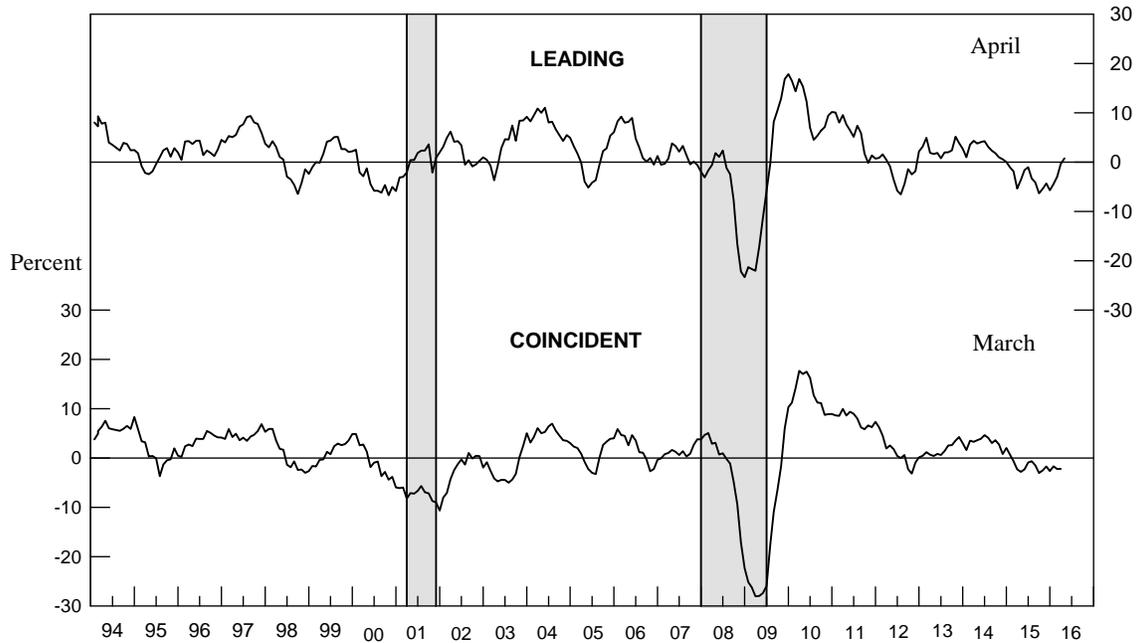
**PRIMARY METALS: LEADING AND COINCIDENT INDEXES, 1994-2016** 1977=100



Shaded areas are business cycle recessions. Asterisks (\*) signify peaks (the end of an expansion) and troughs (the end of a downturn) in the economic activity reflected by the indexes.

**CHART 3.**

**PRIMARY METALS: LEADING AND COINCIDENT GROWTH RATES, 1994-2016** Percent



Shaded areas are business cycle recessions.

The growth rates are expressed as compound annual rates based on the ratio of the current month's index to its average level during the preceding 12 months.

**Table 4.**  
**The Steel Industry Indexes and Growth Rates**

|             | <u>Leading Index</u> |                    | <u>Coincident Index</u> |                    |
|-------------|----------------------|--------------------|-------------------------|--------------------|
|             | <u>(1977 = 100)</u>  | <u>Growth Rate</u> | <u>(1977 = 100)</u>     | <u>Growth Rate</u> |
| <b>2015</b> |                      |                    |                         |                    |
| April       | 113.4                | -2.1               | 117.3                   | -2.9               |
| May         | 113.9                | -1.2               | 116.9                   | -3.5               |
| June        | 113.3                | -2.1               | 117.9                   | -1.8               |
| July        | 112.4                | -3.2               | 117.4                   | -2.3               |
| August      | 112.8                | -2.2               | 117.6                   | -1.8               |
| September   | 111.4                | -4.1               | 116.5                   | -3.3               |
| October     | 111.2                | -3.8r              | 116.6                   | -2.6               |
| November    | 111.1                | -3.5r              | 115.6r                  | -3.8r              |
| December    | 110.6r               | -3.9r              | 115.6r                  | -3.2               |
| <b>2016</b> |                      |                    |                         |                    |
| January     | 111.2r               | -2.4r              | 116.4r                  | -1.3r              |
| February    | 111.7r               | -1.1r              | 116.9r                  | -0.3r              |
| March       | 111.9                | -0.5               | 115.9                   | -1.7               |

r: Revised

**Note:** Growth rates are expressed as compound annual rates based on the ratio of the current month's index to the average index during the preceding 12 months.

**Table 5.**  
**The Contribution of Each Steel Index Component to the Percent Change in the Index from the Previous Month**

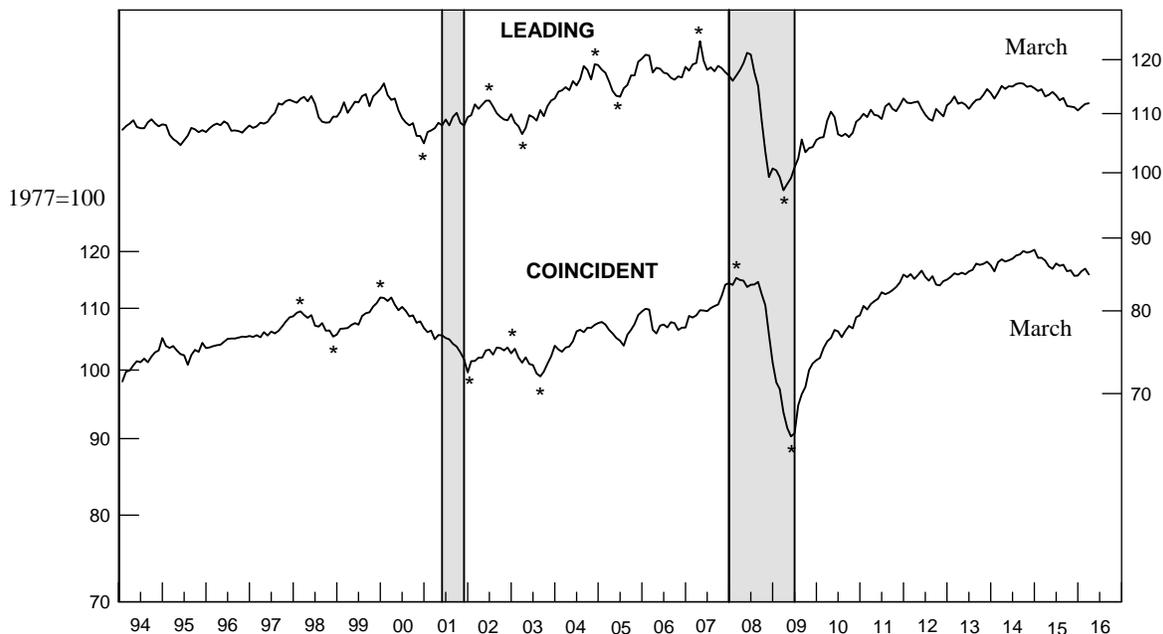
| <b>Leading Index</b>  | <b>February</b> | <b>March</b> |
|---|-----------------|--------------|
| 1. Average weekly hours, iron and steel mills (NAICS 3311 & 3312)           | 0.0             | -0.3         |
| 2. New orders, iron and steel mills (NAICS 3311 & 3312), 1982\$             | 0.0             | -0.1         |
| 3. Shipments of household appliances, 1982\$                                | -0.4r           | -0.2         |
| 4. S&P stock price index, steel companies                                   | 0.4             | 0.7          |
| 5. Retail sales of U.S. passenger cars and light trucks (units)             | 0.0             | -0.2         |
| 6. Growth rate of the price of steel scrap (#1 heavy melting, \$/ton)       | 0.3             | 0.1          |
| 7. Index of new private housing units authorized by permit                  | -0.1            | -0.4         |
| 8. Growth rate of U.S. M2 money supply, 2009\$                              | 0.1             | 0.3          |
| 9. PMI  | 0.2             | 0.3          |
| Trend adjustment  | 0.0             | 0.0          |
| Percent change (except for rounding differences)                            | 0.5r            | 0.2          |
| <b>Coincident Index</b>   |                 |              |
| 1. Industrial production index, iron and steel products (NAICS 3311 & 3312) | 0.5r            | 0.0          |
| 2. Value of shipments, iron and steel mills (NAICS 3311 & 3312), 1982\$     | -0.2r           | -0.5         |
| 3. Total employee hours, iron and steel mills (NAICS 3311 & 3312)           | -0.1            | -0.6         |
| Trend adjustment  | 0.1             | 0.1          |
| Percent change (except for rounding differences)                            | 0.3r            | -1.0         |

**Sources:** Leading: 1, Bureau of Labor Statistics; 2, U.S. Census Bureau and U.S. Geological Survey; 3, U.S. Census Bureau and U.S. Geological Survey; 4, Standard & Poor's; 5, U.S. Bureau of Economic Analysis and American Automobile Manufacturers Association; 6, Journal of Commerce and U.S. Geological Survey; 7, U.S. Census Bureau and U.S. Geological Survey; 8, Federal Reserve Board, Conference Board, and U.S. Geological Survey; and 9, Institute for Supply Management. Coincident: 1, Federal Reserve Board; 2, U.S. Census Bureau and U.S. Geological Survey; and 3, Bureau of Labor Statistics and U.S. Geological Survey. All series are seasonally adjusted, except 4 and 6 of the leading index.

r: Revised

**CHART 4.**  
**STEEL: LEADING AND COINCIDENT INDEXES, 1994-2016**

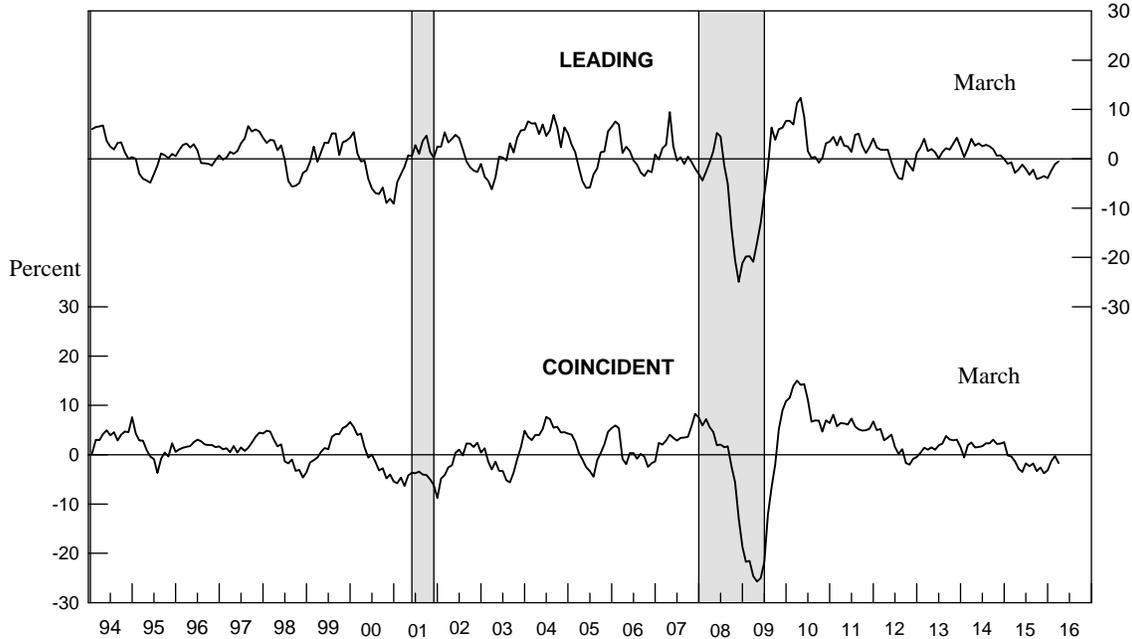
1977=100



Shaded areas are business cycle recessions. Asterisks (\*) signify peaks (the end of an expansion) and troughs (the end of a downturn) in the economic activity reflected by the indexes.

**CHART 5.**  
**STEEL: LEADING AND COINCIDENT GROWTH RATES, 1994-2016**

Percent



Shaded areas are business cycle recessions.

The growth rates are expressed as compound annual rates based on the ratio of the current month's index to its average level during the preceding 12 months.

**Table 6.  
The Copper Industry Indexes and Growth Rates**

|             | <u>Leading Index</u> |                    | <u>Coincident Index</u> |                    |
|-------------|----------------------|--------------------|-------------------------|--------------------|
|             | <u>(1977 = 100)</u>  | <u>Growth Rate</u> | <u>(1977 = 100)</u>     | <u>Growth Rate</u> |
| <b>2015</b> |                      |                    |                         |                    |
| April       | 128.4                | 0.7                | 111.0                   | 1.4                |
| May         | 129.7                | 2.5                | 111.6                   | 2.3                |
| June        | 129.5                | 1.8                | 111.2                   | 1.4                |
| July        | 126.9                | -2.1               | 110.2                   | -0.1               |
| August      | 128.2                | -0.1               | 110.4                   | 0.6                |
| September   | 125.7                | -3.8               | 108.0                   | -3.4               |
| October     | 126.7                | -2.2               | 109.5                   | -0.7               |
| November    | 128.2r               | 0.2r               | 110.4                   | 0.4                |
| December    | 128.2                | 0.2                | 111.6r                  | 1.7r               |
| <b>2016</b> |                      |                    |                         |                    |
| January     | 126.8                | -1.6               | 111.9                   | 2.1r               |
| February    | 126.8                | -1.8               | 111.7r                  | 1.6r               |
| March       | 126.9                | -1.2               | 111.6                   | 1.3                |

r: Revised

**Note:** Growth rates are expressed as compound annual rates based on the ratio of the current month's index to the average index during the preceding 12 months.

**Table 7.  
The Contribution of Each Copper Index Component to the Percent Change  
in the Index from the Previous Month**

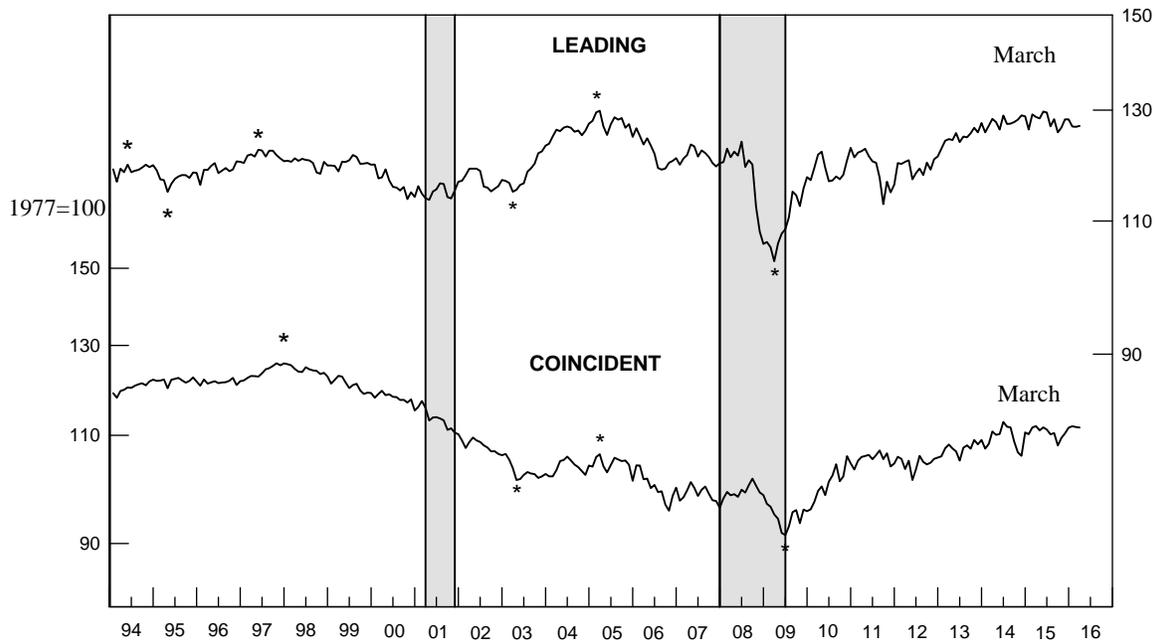
| <b>Leading Index</b>   | <b>February</b> | <b>March</b> |
|--|-----------------|--------------|
| 1. Average weekly hours, nonferrous metals (except aluminum) (NAICS 3314)              | 0.2             | -0.2         |
| 2. New orders, nonferrous metal products, (NAICS 3313, 3314, & 335929) 1982\$          | -0.1            | -0.1         |
| 3. S&P stock price index, building products companies                                  | 0.1             | 0.8          |
| 4. LME spot price of primary copper  | 0.2             | 0.1          |
| 5. Index of new private housing units authorized by permit                             | -0.1            | -0.6         |
| 6. Spread between the U.S. 10-year Treasury Note and the federal funds rate            | -0.3            | 0.1          |
| Trend adjustment   | 0.0             | 0.0          |
| Percent change (except for rounding differences)                                       | <u>0.0</u>      | <u>0.1</u>   |
| <b>Coincident Index</b>  |                 |              |
| 1. Industrial production index, primary smelting and refining of copper (NAICS 331411) | -0.1r           | 0.0          |
| 2. Total employee hours, nonferrous metals (except aluminum) (NAICS 3314)              | -0.1r           | -0.2         |
| 3. Copper refiners' shipments (short tons)   | NA              | NA           |
| Trend adjustment   | 0.1             | 0.1          |
| Percent change (except for rounding differences)                                       | <u>-0.1r</u>    | <u>-0.1</u>  |

**Sources:** Leading: 1, Bureau of Labor Statistics; 2, U.S. Census Bureau and U.S. Geological Survey; 3, Standard & Poor's; 4, London Metal Exchange; 5, U.S. Census Bureau and U.S. Geological Survey; and 6, Federal Reserve Board and U.S. Geological Survey. Coincident: 1, Federal Reserve Board; 2, Bureau of Labor Statistics; and 3, American Bureau of Metal Statistics, Inc. and U.S. Geological Survey. All series are seasonally adjusted, except 3, 4, and 6 of the leading index.

r: Revised    NA: Not available

**CHART 6.**  
**COPPER: LEADING AND COINCIDENT INDEXES, 1994-2016**

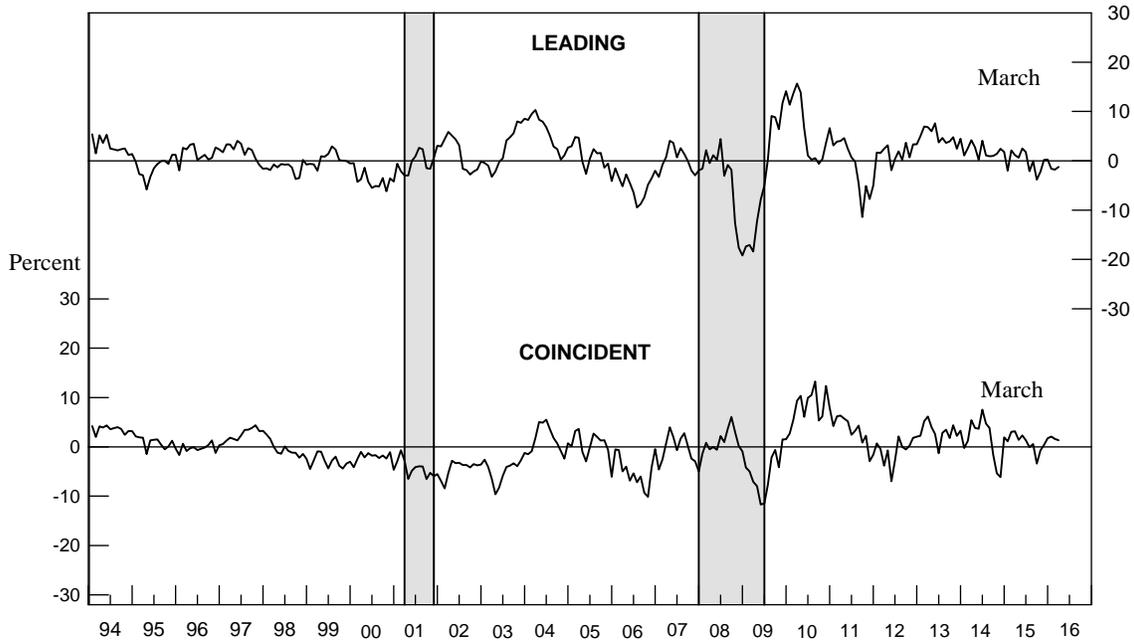
1977=100



Shaded areas are business cycle recessions. Asterisks (\*) signify peaks (the end of an expansion) and troughs (the end of a downturn) in the economic activity reflected by the indexes.

**CHART 7.**  
**COPPER: LEADING AND COINCIDENT GROWTH RATES, 1994-2016**

Percent

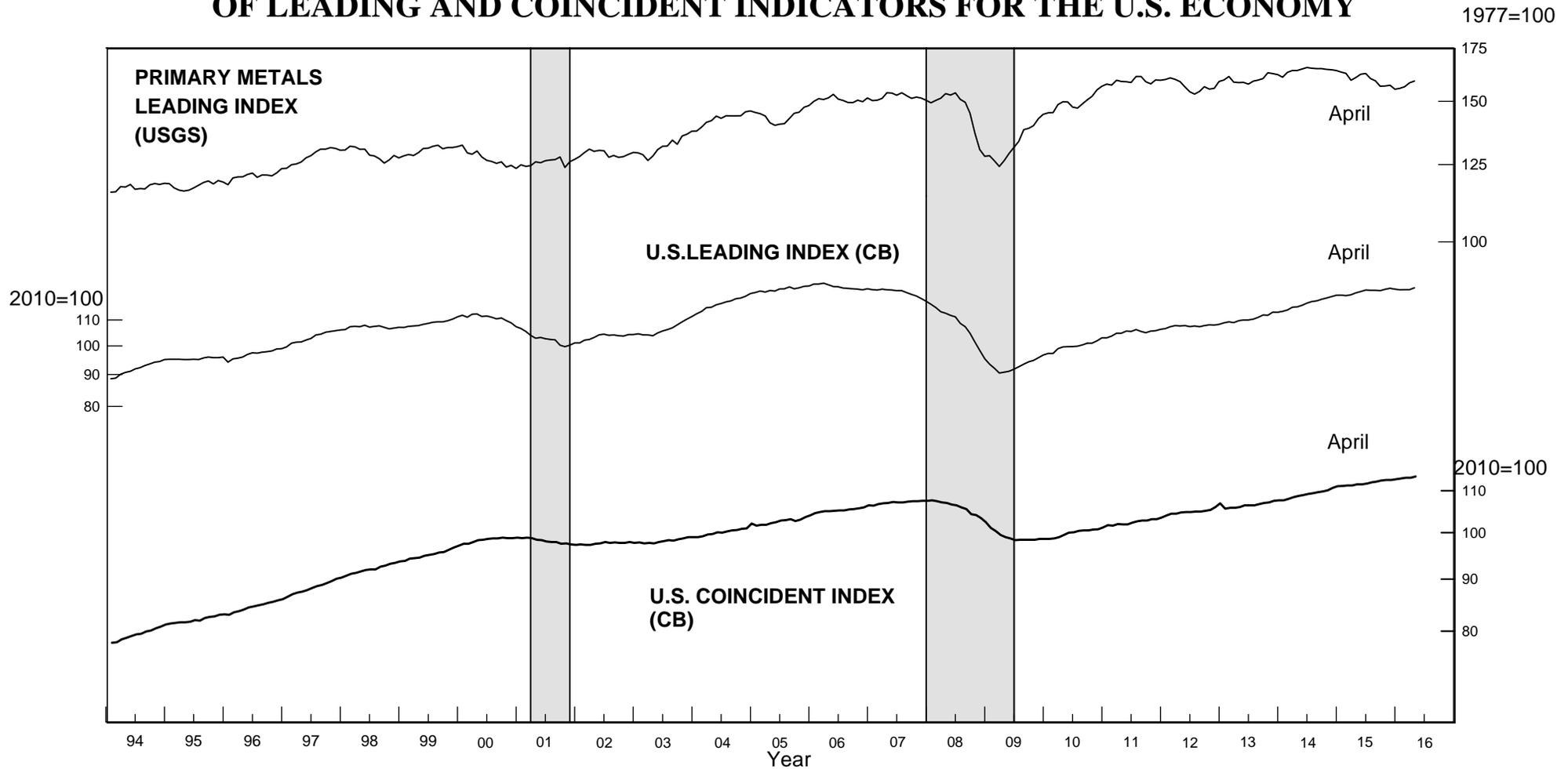


Shaded areas are business cycle recessions.

The growth rates are expressed as compound annual rates based on the ratio of the current month's index to its average level during the preceding 12 months.

**Chart 8.**

**PRIMARY METALS LEADING INDEX AND COMPOSITE INDEXES  
OF LEADING AND COINCIDENT INDICATORS FOR THE U.S. ECONOMY**



Shaded areas are business cycle recessions.

Sources: U.S. Geological Survey (USGS) and Conference Board (CB).

May 2016