



# Metal Industry Indicators

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

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April 15, 2016

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The **primary metals leading index** increased 2.8% in March to 160.5 from a revised 156.2 in February, and its 6-month smoothed growth rate moved into positive territory for the first month in over a year. It increased to 2.3% from a revised -3.2% in February (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 edged up in February. Slowly increasing residential construction activity is likely to underpin the primary metals industry in 2016. Modest U.S. economic growth is subsequently likely to support modest metal demand in the near term. However, weak global economic growth, particularly in China, increased global metals production, and the still relatively strong U.S. dollar continue to limit U.S. metal exports.

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).

All four of the indicators that were available for the March index calculation increased (Table 3). A surge in the stock price index combining construction and farm machinery companies and industrial machinery companies made the largest contribution, 1.4 percentage points, to the overall increase in the leading index in March. The PMI, the Institute for Supply Management's purchasing managers' index, increased for the third consecutive month. It rose above the threshold that indicates further increases in U.S. manufacturing activity. It contributed 0.6 percentage point to the leading index. A longer average workweek in primary metals establishments in March contributed 0.4 percentage point. The USGS metals price index growth rate increased for the fourth consecutive month and contributed 0.2 percentage point. The March 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 0.7% to 111.9 in February from 111.1 in January (Table 4). Four of its nine indicators increased in February, with the S&P stock price index for iron and steel companies rebounding from the 12-year low in January, making the largest positive contribution to the leading index. The rising steel scrap price growth rate also made a significant positive contribution. The increase in the PMI and the rising inflation-adjusted M2 money supply growth rate added smaller contributions to the steel leading index. Although the steel leading index growth rate remained in negative territory, it moved above the threshold that indicates further declines in domestic steel industry growth in the near term. It is yet to be revealed if the proposed 266% import

tariff on cold rolled steel flat products from China was the cause of decreased steel imports in February. The copper leading index remained at the 126.8 revised January level in February (Table 6). Movements among its indicators were varied, but the rebound in the copper price and the longer average workweek in nonferrous, except aluminum, plants offset the tightest yield spread between the U.S. 10-year Treasury Note and the federal funds rate in 3 years. It made the largest negative contribution to copper leading index in February. Activity in the domestic copper industry could be relatively choppy in the near term.

The **metals price leading index** increased 0.4% to 104.6 in February, the latest month for which it is available, from a revised 104.2 in January (Table 1) and its 6-month smoothed growth rate increased to 1.2% from a revised 0.4% in January. Two of its four indicators increased in February. A sharp increase in the growth rate of the trade-weighted average exchange value of other major currencies against the U.S. dollar made to largest positive contribution, 0.9 percentage point, to the net increase in the metals price leading index. The Organization for Economic Cooperation and Development (OECD) Total Leading Index growth rate increased slightly in February after falling to a 4-year low in January, it contributed 0.1 percentage point. It is still pointing to further decreases in growth for most industrialized countries. In contrast, the tight yield spread between the U.S. 10-year Treasury Note and the federal funds rate contributed -0.4 percentage point. The decline in the growth rate of the inflation-adjusted value of new orders for U.S. nonferrous metal products contributed -0.2 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 in February. The actual value of U.S. metals inventories levels also declined. This, along with the positive metals price leading index growth rate suggests that metal prices could rise if over-production would ease and high global inventories be allowed to drawdown in relationship to actual metals demand.

The percent changes from January to February for the **metal industry coincident indexes**, which measure current economic activity, are shown below. February 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 March and April is scheduled for release on the World Wide Web at 10:00 a.m. EDT, Friday, May 20, 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**

	<b>Leading Index of Metal Prices (1967=100)</b>	<b>Leading Index of Metal Prices Growth Rates</b>	<b>MII Nonferrous Metals Price Index</b>	<b>U.S. Nonferrous Metal Products Inventories (1982\$)</b>	<b>Primary Aluminum</b>	<b>Primary Copper</b>	<b>Steel Scrap</b>
<b>2015</b>							
February	103.7	-5.9	-21.3	12.6	-9.4	-21.5	-54.9
March	103.3	-5.8	-15.1	11.1	-10.4	-14.9	-51.8
April	103.1r	-5.3	-4.5	11.3	0.5	-8.5	-47.3
May	104.0r	-3.0r	-10.7	7.1	-19.3	-11.7	-42.7
June	104.2r	-1.9r	-20.1	8.4	-23.8	-19.6	-29.9
July	103.8r	-2.0	-28.9	13.2	-26.9	-30.1	-32.7
August	103.8r	-1.4	-29.0	15.3	-28.1	-29.9	-42.1
September	104.1r	-0.4	-26.3	15.0	-23.1	-26.5	-43.5
October	104.5r	0.6r	-22.5	11.8r	-31.4	-22.1	-62.1
November	104.1r	0.1r	-31.7	10.8r	-28.4	-33.7	-64.1
December	104.5r	1.1r	-22.9	13.2r	-17.8	-27.1	-58.1
<b>2016</b>							
January	104.2r	0.4r	-24.3	14.7r	-12.9	-28.4	-43.3
February	104.6	1.2	-16.0	11.1	-0.2	-21.5	-35.9
March	NA	NA	-12.6	NA	-13.0	-13.9	-21.3

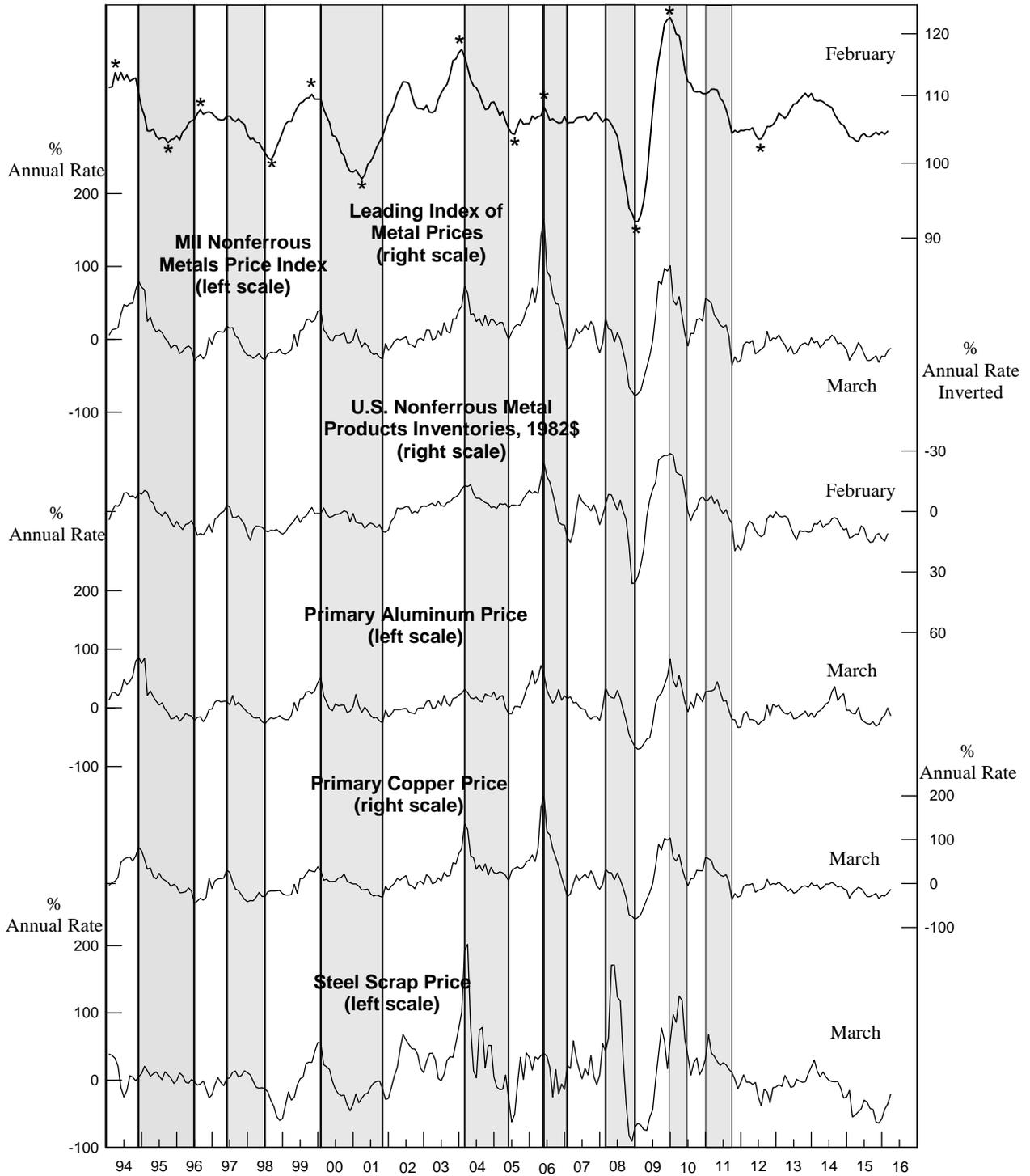
**NA:** Not available    **r:** Revised

**Sources:** U.S. Geological Survey (USGS), American Metal Market (AMM), the London Metal Exchange (LME), U.S. Census Bureau, the Organization 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 Organization 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>				
March	159.5r	-5.4r	111.1r	-2.3r
April	160.7r	-3.6	110.8r	-2.8
May	162.2r	-1.6	111.1r	-2.3r
June	162.5r	-1.0r	111.8r	-0.9r
July	160.2r	-3.3r	111.9r	-0.6r
August	159.1r	-4.1r	111.3r	-1.5r
September	156.7r	-6.3	110.2r	-3.0
October	156.8r	-5.5r	110.3r	-2.5r
November	157.1r	-4.4r	110.5r	-1.7r
December	155.2r	-5.9r	109.8r	-2.6r
<b>2016</b>				
January	155.5r	-4.7r	110.0r	-1.9r
February	156.2r	-3.2r	109.3	-2.7
March	160.5	2.3	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>February</b>	<b>March</b>
1. Average weekly hours, primary metals (NAICS 331)	-0.8r	0.5
2. Weighted S&P stock price index, machinery, construction and farm and industrial (December 30, 1994=100)	0.4r	1.4
3. Ratio of price to unit labor cost (NAICS 331)	0.2	NA
4. USGS metals price index growth rate	0.3r	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	-0.1	NA
7. Growth rate of U.S. M2 money supply, 2009\$	0.1	NA
8. PMI	0.2r	0.6
Trend adjustment	0.0	0.0
Percent change (except for rounding differences)	0.3r	2.7
<b>Coincident Index</b>	<b>January</b>	<b>February</b>
1. Industrial production index, primary metals (NAICS 331)	-0.1r	0.1
2. Total employee hours, primary metals (NAICS 331)	0.1	-0.8
3. Value of shipments, primary metals products, (NAICS 331 & 335929) 1982\$	0.0r	0.0
Trend adjustment	0.1	0.1
Percent change (except for rounding differences)	0.1r	-0.6

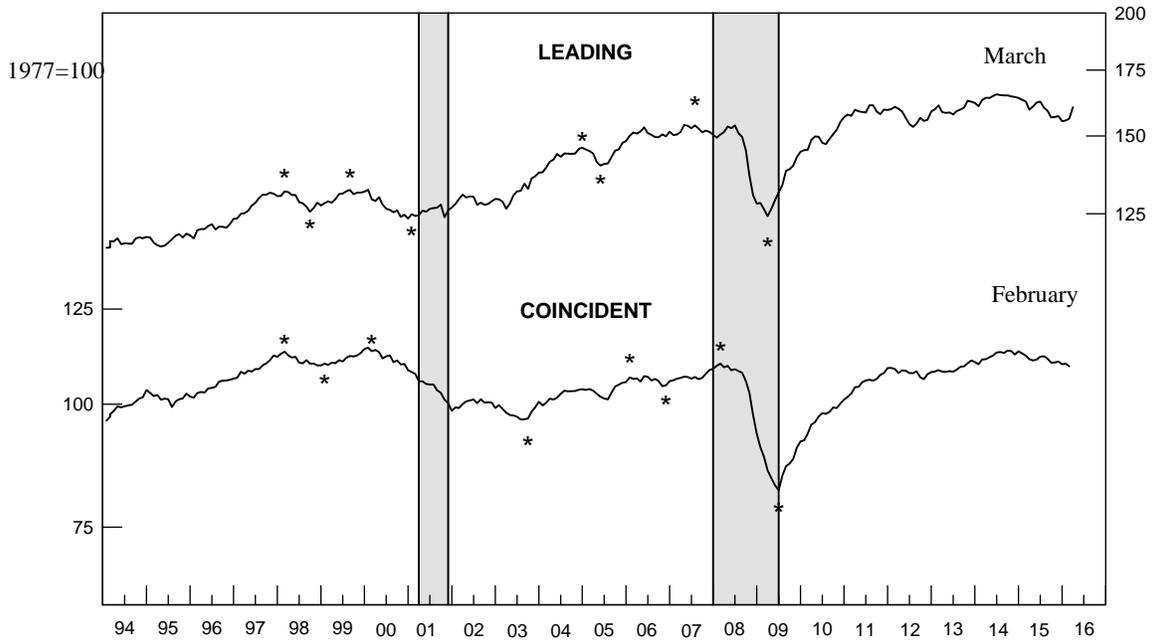
**Sources:** Leading: 1, Bureau of Labor Statistics; 2, Standard & Poor's and U.S. Geological Survey; 3, U.S. Geological Survey; 4, Journal of Commerce and U.S. Geological Survey; 5, U.S. Census Bureau and U.S. Geological Survey; 6, U.S. Census Bureau and U.S. Geological Survey; 7, Federal Reserve Board, 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.**

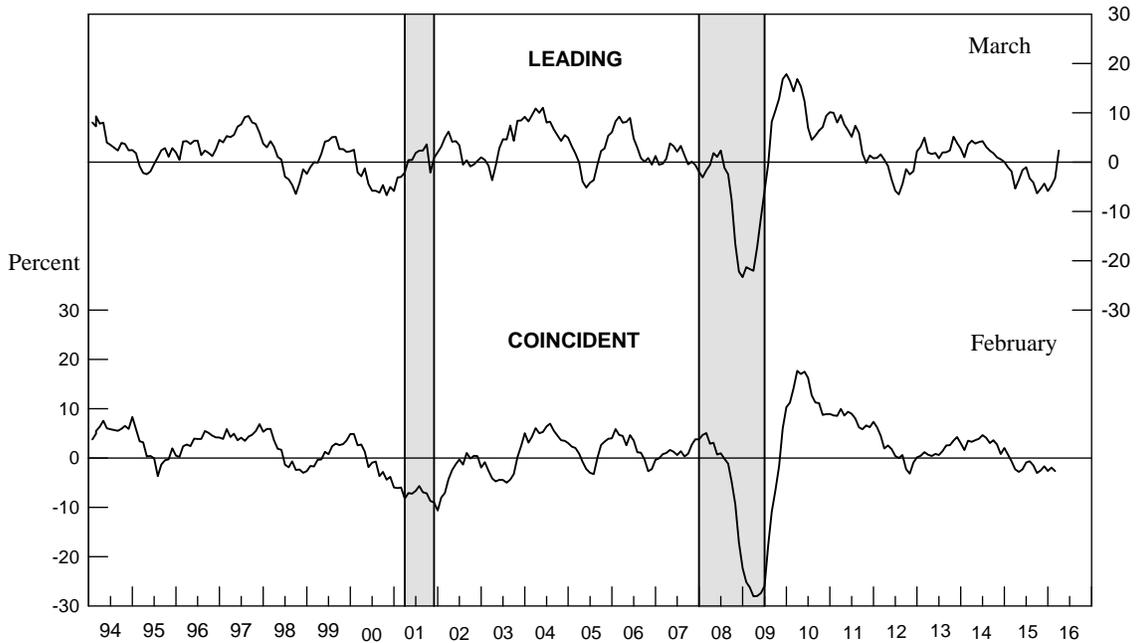
**PRIMARY METALS: LEADING AND COINCIDENT INDEXES, 1994-2016** 1977=100



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>				
March	113.1	-2.8	118.4r	-1.3r
April	113.4	-2.1	117.3r	-2.9r
May	113.9	-1.2	116.9r	-3.5r
June	113.3	-2.1	117.9r	-1.8r
July	112.4	-3.2	117.4r	-2.3r
August	112.8	-2.2	117.6r	-1.8r
September	111.4	-4.1	116.5r	-3.3r
October	111.2	-3.9r	116.6r	-2.6r
November	111.1	-3.6	115.7r	-3.7r
December	110.4	-4.1	115.7r	-3.2r
<b>2016</b>				
January	111.1	-2.5r	116.3r	-1.6r
February	111.9	-0.8	116.6	-0.8

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**

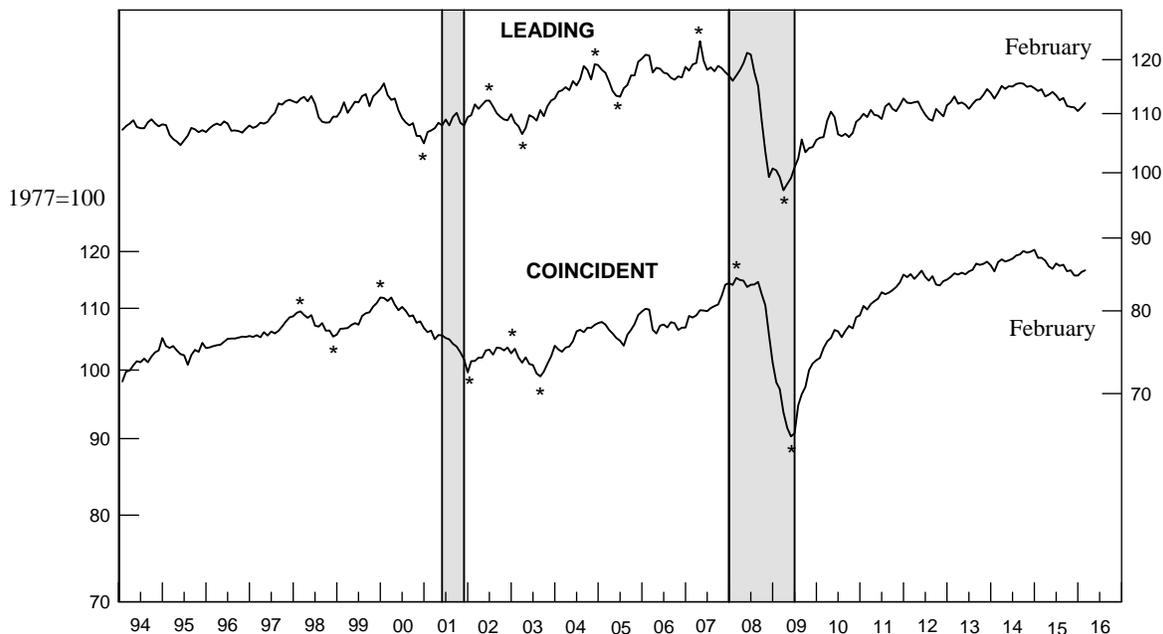
<b>Leading Index</b>	<b>January</b>	<b>February</b>
1. Average weekly hours, iron and steel mills (NAICS 3311 & 3312)	0.2	0.0
2. New orders, iron and steel mills (NAICS 3311 & 3312), 1982\$	0.1	0.0
3. Shipments of household appliances, 1982\$	-0.1	-0.2
4. S&P stock price index, steel companies	-0.5	0.4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

**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**

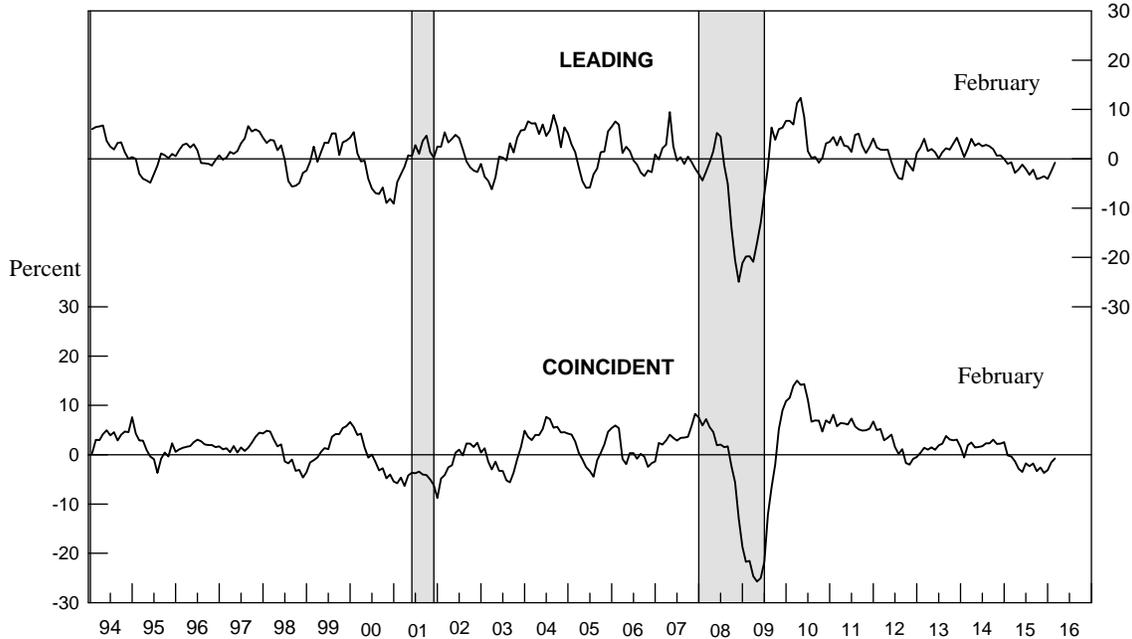
1977=100



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>				
March	128.7	1.1	111.9r	3.1r
April	128.4	0.7	111.0r	1.4r
May	129.7	2.5	111.6r	2.3r
June	129.5	1.8	111.2r	1.4r
July	126.9	-2.1	110.2r	-0.1r
August	128.2	-0.1	110.4r	0.6r
September	125.7	-3.8	108.0r	-3.4r
October	126.7r	-2.2r	109.5r	-0.7r
November	128.1	0.1	110.4r	0.4r
December	128.2	0.2r	110.9r	0.5r
<b>2016</b>				
January	126.8r	-1.6r	111.9r	2.2
February	126.8	-1.8	111.9	2.0

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**

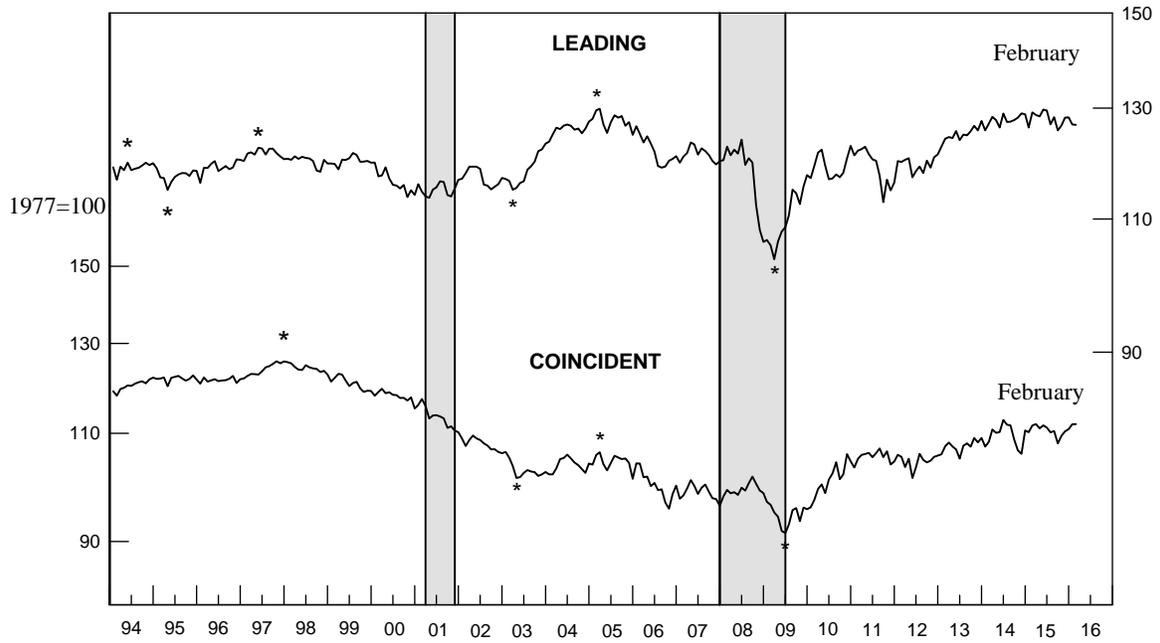
<b>Leading Index</b>	<b>January</b>	<b>February</b>
1. Average weekly hours, nonferrous metals (except aluminum) (NAICS 3314)	0.1	0.2
2. New orders, nonferrous metal products, (NAICS 3313, 3314, & 335929) 1982\$	0.0r	-0.1
3. S&P stock price index, building products companies	-0.8	0.1
4. LME spot price of primary copper	-0.2	0.2
5. Index of new private housing units authorized by permit	0.0	-0.1
6. Spread between the U.S. 10-year Treasury Note and the federal funds rate	-0.2	-0.3
Trend adjustment	0.0	0.0
Percent change (except for rounding differences)	<u>-1.1r</u>	<u>0.0</u>
<b>Coincident Index</b>		
1. Industrial production index, primary smelting and refining of copper (NAICS 331411)	0.3r	0.0
2. Total employee hours, nonferrous metals (except aluminum) (NAICS 3314)	0.5r	-0.1
3. Copper refiners' shipments (short tons)	NA	NA
Trend adjustment	0.1	0.1
Percent change (except for rounding differences)	<u>0.9</u>	<u>0.0</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**

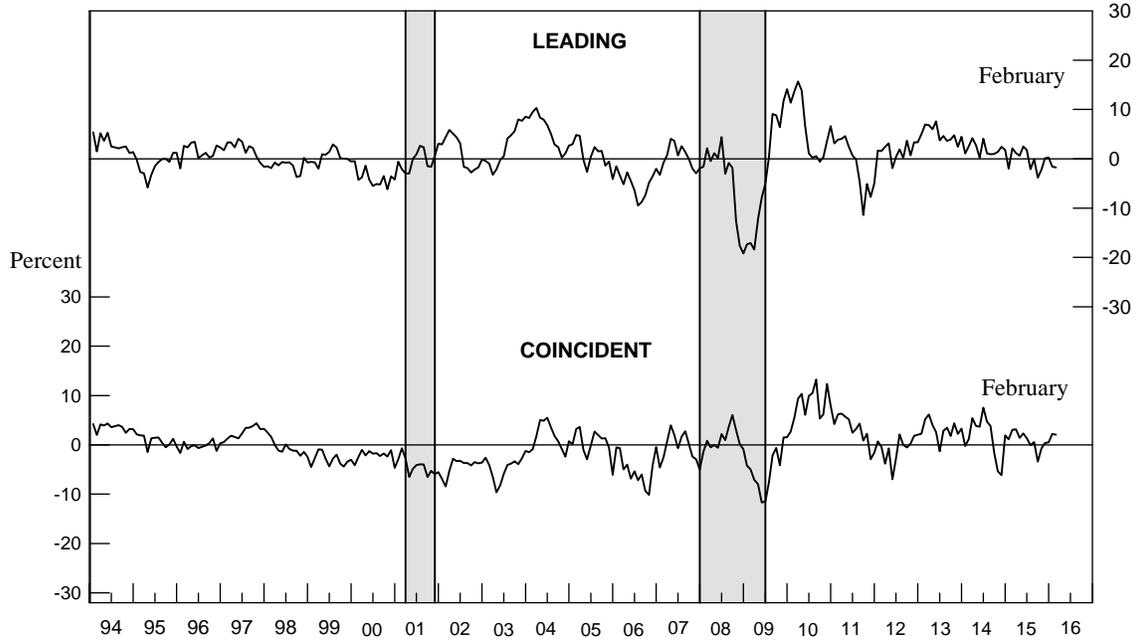
1977=100



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

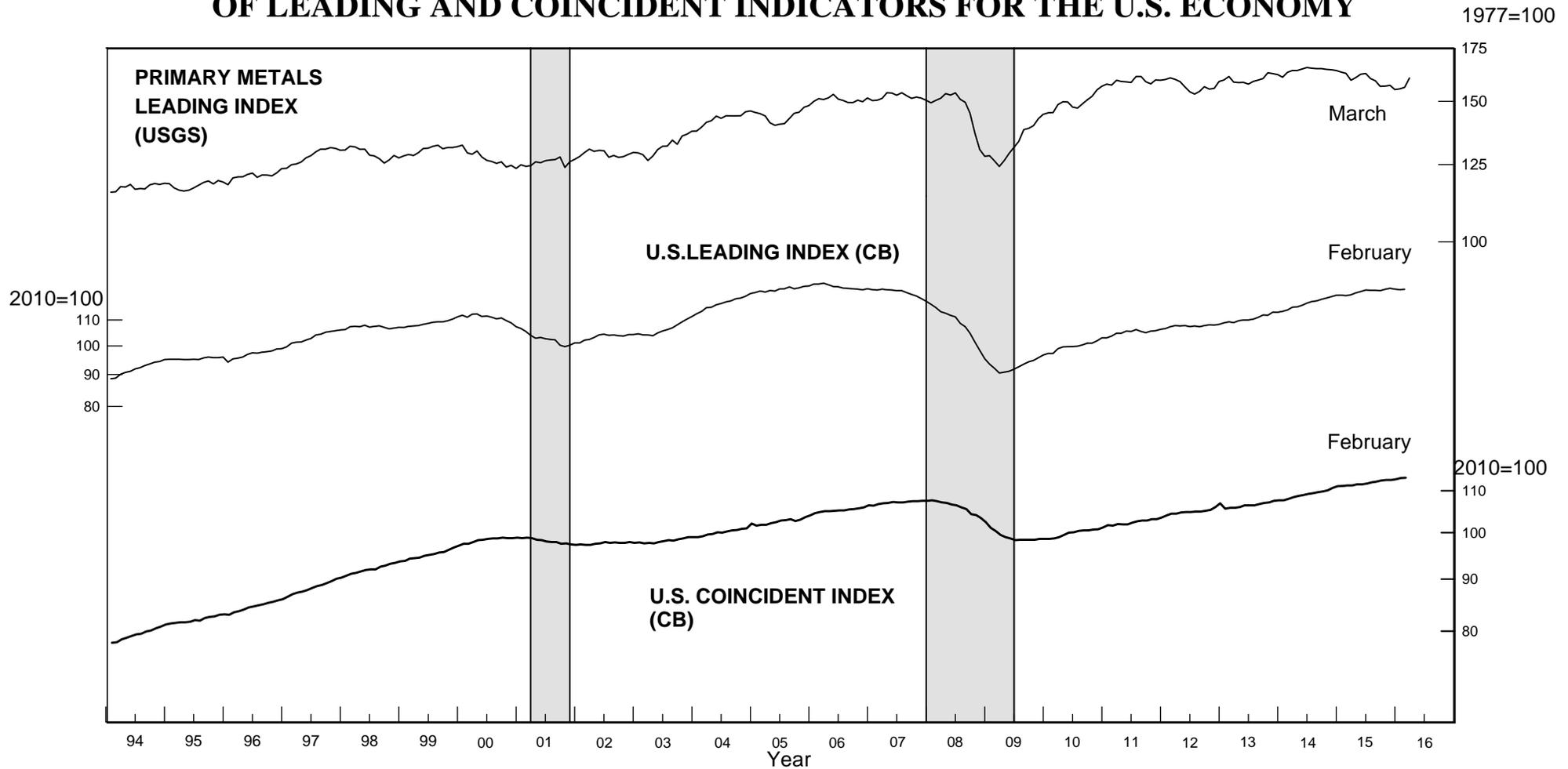


Shaded areas are business cycle recessions.

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).

April 2016