

Metal Industry Indicators

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

June 17, 2016

The **primary metals leading index** increased 0.8% in May to 158.6 from a revised 157.4 in April, and its 6-month smoothed growth rate increased to 2.2% from 0.7% in April (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. This year's second positive datum in the 6-month smoothed growth rate, with the May datum being at 2.2%, suggests that primary metals industry activity continues to strengthen. 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 changes in activity for the overall U.S. economy (chart 8). Three of the four indicators that were available to calculate the May index increased (table 3). Average weekly hours and the USGS metals price index growth rate made the largest contribution to May's increase in the primary metals leading index. The May 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 1.2% to 112.4 in April from a revised 111.1 in March (table 4). Five of its nine indicators increased in April. Its 6-month smoothed growth rate increased to 1.9% from a revised -0.6% in April. This is the first positive growth since 2014. The growth rate of the price of steel scrap provided the largest positive contribution to the leading index, followed by the S&P stock price index for steel companies (table 5). The index of new private housing units authorized by permit and shipments of household appliances also added positive support to the steel leading index (table 5). This suggests strength in domestic steel industry activity in the near term. Supporting this thesis, on May 17, 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** increased 0.9% to 127.9 in April from a revised 126.7 in March and its 6-month smoothed growth rate increased to 1.1% from a revised -0.9% (table 6). Four of the six indicators provided positive support to the April copper leading index. The new orders for nonferrous metal products, the S&P stock price index for building products, and the index for new housing permits contributed equally to the increase in the copper leading index (table 7). The copper leading index growth rate turned positive for the first time this year; however, more data will be needed to corroborate the strength that the growth rate suggests within the copper industry.

The **leading index of metal prices** increased 0.8% to 106.7 in April from a revised 105.9 in March (table 1) and its 6-month smoothed growth rate increased to 4.3% in April from a revised 3.3% in March. The leading index

of metal prices signals major changes in the growth rate of nonferrous metal prices an average of 8 months in advance.

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

Primary Metals	-0.2%
Steel	-1.0%
Copper	0.5%

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 Jeff Busse (703-648-4914), (email, jbusse@usgs.gov) at the U.S. Geological Survey.

The *Metal Industry Indicators* summary report with indexes for May and June is scheduled for release on the World Wide Web at 10:00 a.m. EDT, Friday, July 22, 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
2015							
April	103.2	-4.6r	-4.5	8.3r	0.5	-8.5	-47.3
May	104.1r	-2.3r	-10.7	5.0r	-19.3	-11.7	-42.7
June	104.4r	-1.3r	-20.1	5.5r	-23.8	-19.6	-29.9
July	103.9r	-1.6r	-28.9	9.6r	-26.9	-30.1	-32.7
August	104.0r	-0.9r	-29.0	11.2r	-28.1	-29.9	-42.1
September	104.3r	0.0r	-26.3	9.5r	-23.7	-26.5	-43.5
October	104.6r	0.7r	-22.5	6.7r	-31.4	-22.1	-62.1
November	103.0r	-1.8r	-31.7	8.1r	-28.4	-33.7	-64.1
December	104.6r	1.2r	-22.9	10.8r	-17.8	-27.1	-58.1
2016							
January	104.3r	0.7r	-24.3	13.4r	-12.9	-28.4	-43.3
February	104.9r	1.7r	-16.0	9.5r	-0.2	-21.5	-35.9
March	105.9r	3.3r	-12.6	3.2r	-13.0	-13.9	-21.3
April	106.7	4.3	-1.2	1.4	10.7	-4.3	29.6
May	NA	NA	-9.3	NA	-1.9	13.0	63.9

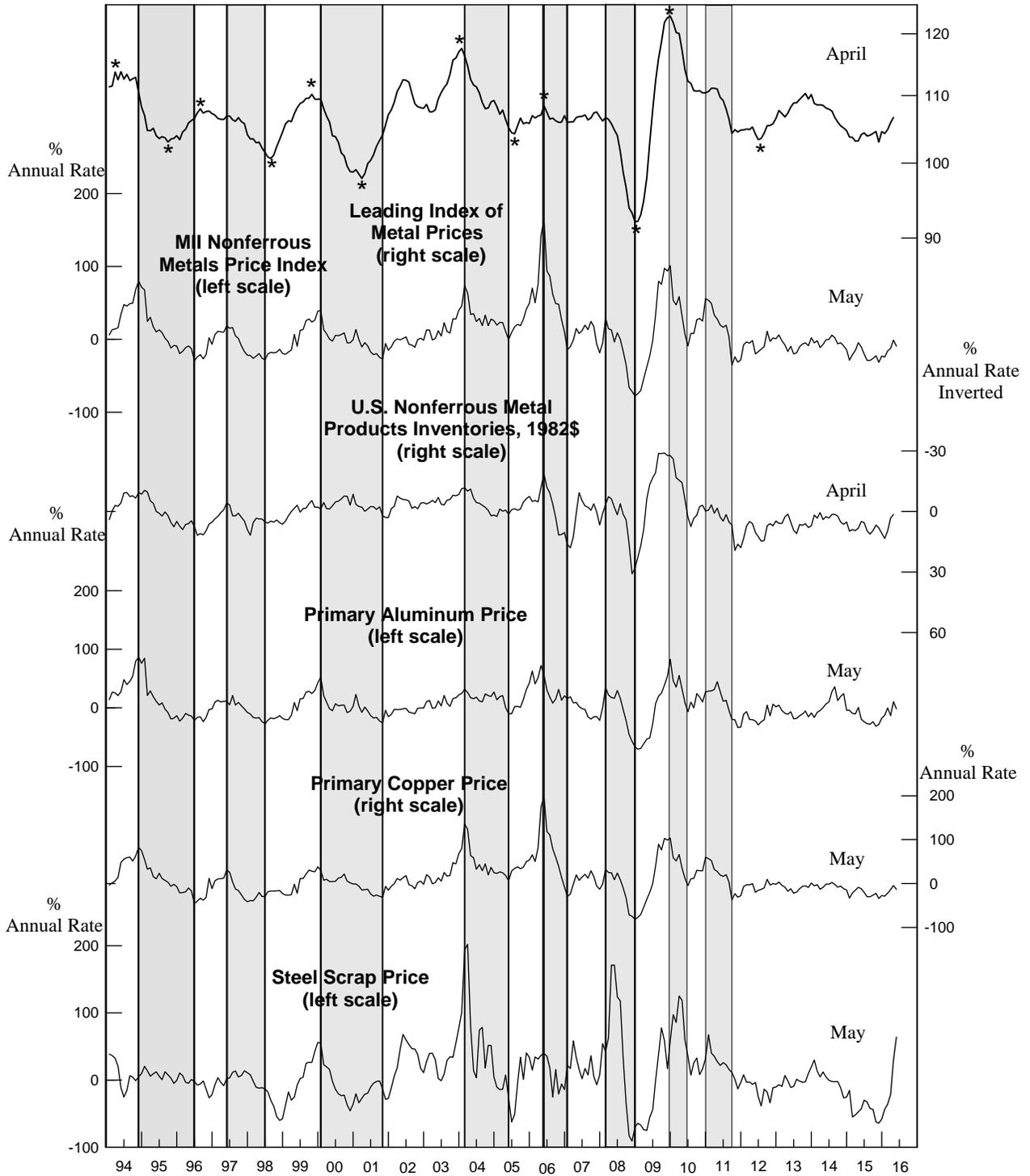
NA: Not available **r:** Revised

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.
Primary Metals Industry Indexes and Growth Rates

	Leading Index		Coincident Index	
	(1977 = 100)	Growth Rate	(1977 = 100)	Growth Rate
2015				
May	160.5r	-1.9r	109.7r	-3.0r
June	161.0r	-1.1r	110.6r	-1.3r
July	158.6r	-3.6r	110.6r	-1.1r
August	157.6r	-4.2r	110.1r	-1.7r
September	155.1r	-6.5r	109.0r	-3.3r
October	155.5r	-5.3r	108.9r	-3.0r
November	155.0r	-5.2r	109.3r	-1.9r
December	153.8r	-5.8r	108.6r	-2.7r
2016				
January	154.2r	-4.5	109.0r	-1.6r
February	154.7r	-3.2r	108.4r	-2.2
March	156.9r	-0.1r	108.5r	-1.6r
April	157.4r	0.7	108.3	-1.7
May	158.6	2.2	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.
Contribution of Each Primary Metals Index Component to the Percent Change in the Index from the Previous Month

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

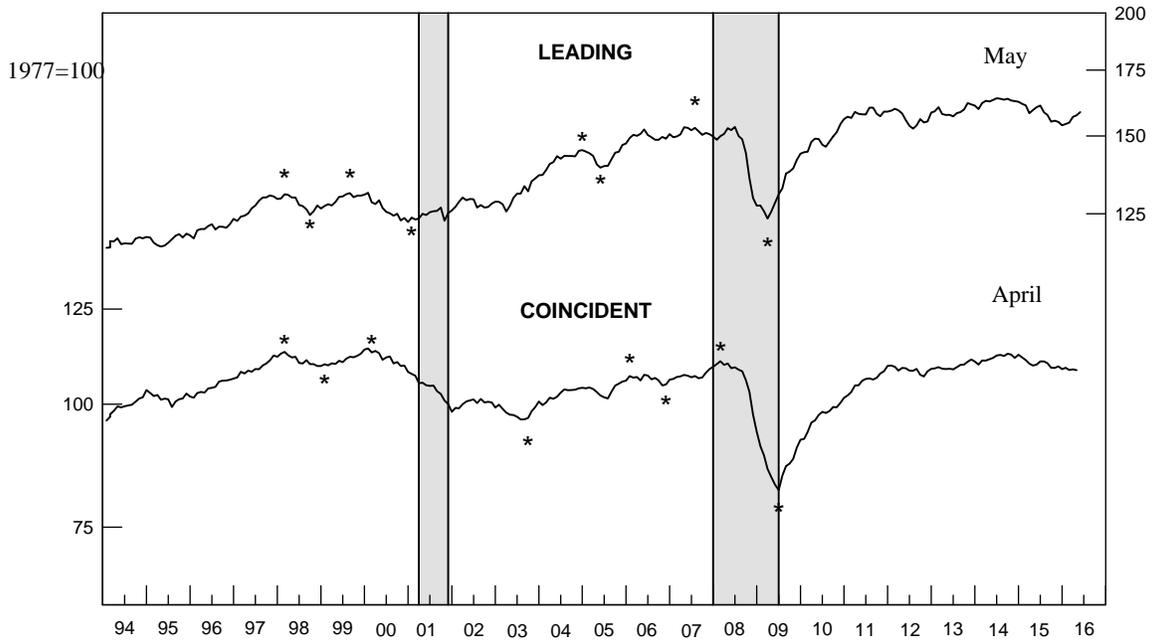
Sources: Leading: 1, Bureau of Labor Statistics; 2, Standard & Poor's and U.S. Geological Survey; 3, U.S. Geological Survey; 4, Journal of Commerce and U.S. Geological Survey; 5, U.S. Census Bureau and U.S. Geological Survey; 6, U.S. Census Bureau and U.S. Geological Survey; 7, Federal Reserve Board,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

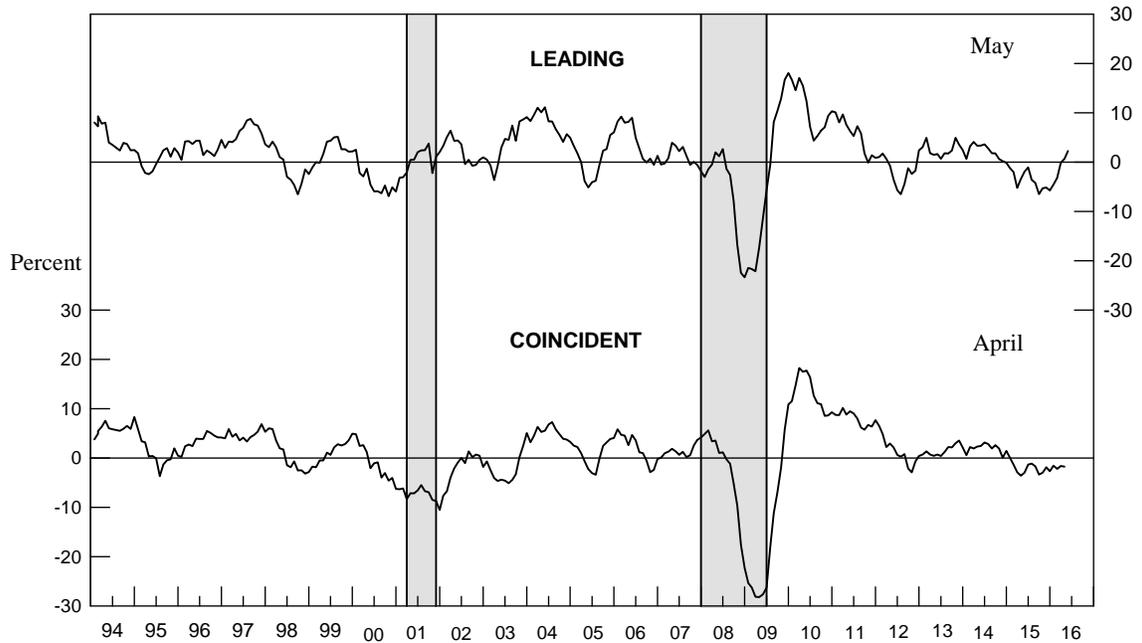
PRIMARY METALS: LEADING AND COINCIDENT INDEXES, 1994-2016 1977=100



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.
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>
2015				
May	113.0r	-1.8r	115.4r	-4.1r
June	112.6r	-2.2r	116.6r	-2.1r
July	111.5r	-3.9r	116.0r	-2.8r
August	111.9r	-2.7r	116.3r	-2.1r
September	110.4r	-4.7r	115.1r	-3.6r
October	110.6r	-3.7r	115.3r	-2.9r
November	110.4r	-3.7r	114.5r	-3.6r
December	109.7r	-4.2r	114.3r	-3.4r
2016				
January	110.4r	-2.4	115.1r	-1.5r
February	110.8r	-1.4r	115.6r	-0.3
March	111.1r	-0.6r	114.9r	-1.1r
April	112.4	1.9	113.8	-2.5

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

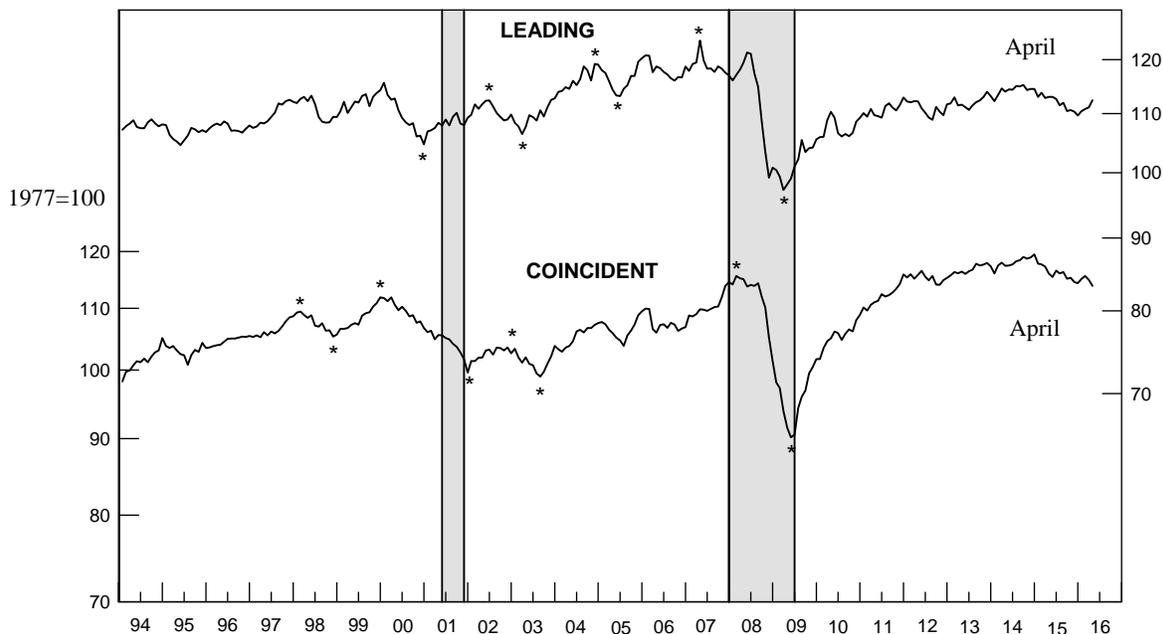
Leading Index	March	April
1. Average weekly hours, iron and steel mills (NAICS 3311 & 3312)	-0.4r	0.0
2. New orders, iron and steel mills (NAICS 3311 & 3312), 1982\$	0.0r	-0.1
3. Shipments of household appliances, 1982\$	-0.1r	0.1
4. S&P stock price index, steel companies	0.7	0.4
5. Retail sales of U.S. passenger cars and light trucks (units)	-0.3r	0.2
6. Growth rate of the price of steel scrap (#1 heavy melting, \$/ton)	0.1	0.6
7. Index of new private housing units authorized by permit	-0.4	0.2
8. Growth rate of U.S. M2 money supply, 2009\$	0.3	-0.1
9. PMI	0.3	-0.1
Trend adjustment	0.0	0.0
Percent change (except for rounding differences)	<hr/> 0.2	<hr/> 1.2
Coincident Index		
1. Industrial production index, iron and steel products (NAICS 3311 & 3312)	0.2r	-0.2
2. Value of shipments, iron and steel mills (NAICS 3311 & 3312), 1982\$	-0.3r	-0.4
3. Total employee hours, iron and steel mills (NAICS 3311 & 3312)	-0.6	-0.4
Trend adjustment	0.1	0.1
Percent change (except for rounding differences)	<hr/> -0.6r	<hr/> -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, The 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

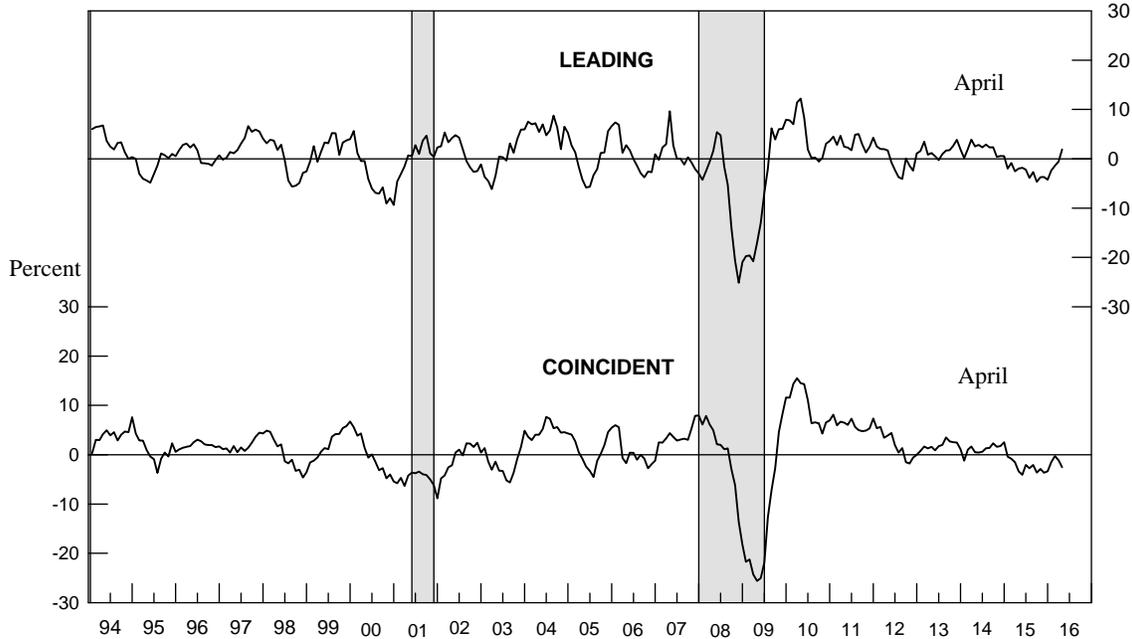
1977=100



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.
Copper Industry Indexes and Growth Rates**

	Leading Index		Coincident Index	
	(1977 = 100)	Growth Rate	(1977 = 100)	Growth Rate
2015				
May	129.4r	2.6r	111.6	2.3
June	129.0r	1.7r	111.2	1.4
July	126.4r	-2.1	110.2	-0.1
August	127.9r	0.0r	110.4	0.6
September	125.5r	-3.5r	108.0	-3.4
October	126.3r	-2.2	109.5	-0.7
November	126.4r	-1.8r	110.4	0.4
December	127.6r	0.0r	111.6r	1.7
2016				
January	126.2r	-1.8r	111.9	2.0r
February	126.2r	-1.8	111.5r	1.2r
March	126.7r	-0.9r	111.5r	1.1r
April	127.9	1.1	112.0	2.2

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

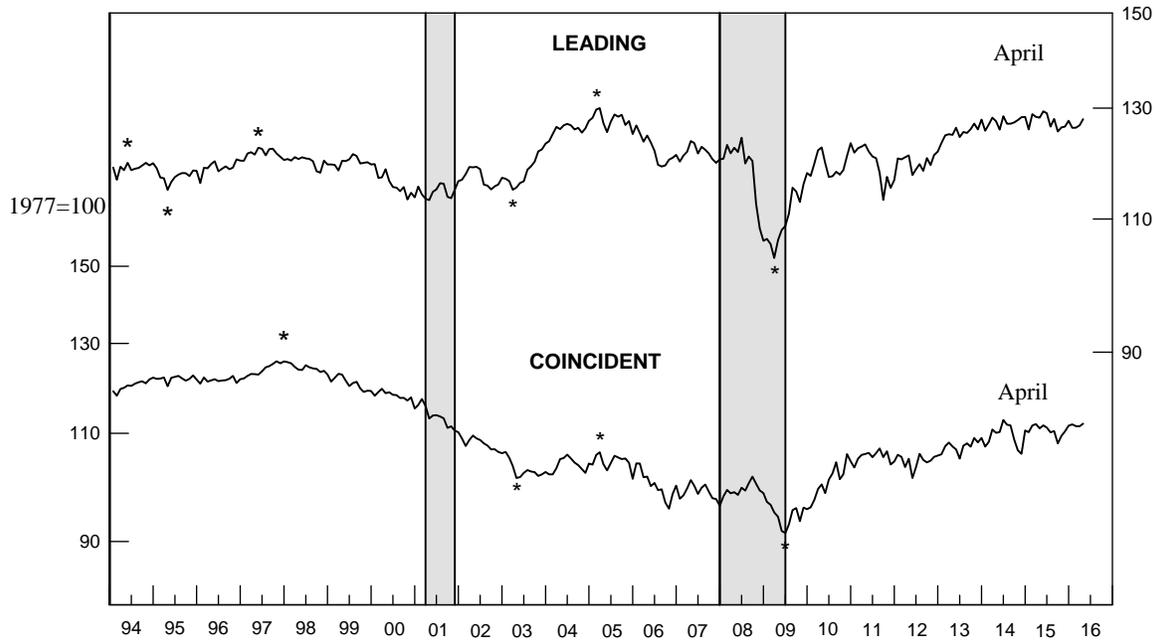
Leading Index	March	April
1. Average weekly hours, nonferrous metals (except aluminum) (NAICS 3314)	-0.2	0.3
2. New orders, nonferrous metal products, (NAICS 3313, 3314, & 335929) 1982\$	0.0r	-0.1
3. S&P stock price index, building products companies	0.8	0.3
4. LME spot price of primary copper	0.2r	0.2
5. Index of new private housing units authorized by permit	-0.5r	0.3
6. Spread between the U.S. 10-year Treasury Note and the federal funds rate	0.1	-0.1
Trend adjustment	0.0	0.0
Percent change (except for rounding differences)	0.3r	0.9
Coincident Index		
1. Industrial production index, primary smelting and refining of copper (NAICS 331411)	0.1r	0.1
2. Total employee hours, nonferrous metals (except aluminum) (NAICS 3314)	-0.2	0.4
3. Copper refiners' shipments (short tons)	0.0	0.0
Trend adjustment	0.1	0.1
Percent change (except for rounding differences)	0.0r	0.5

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

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

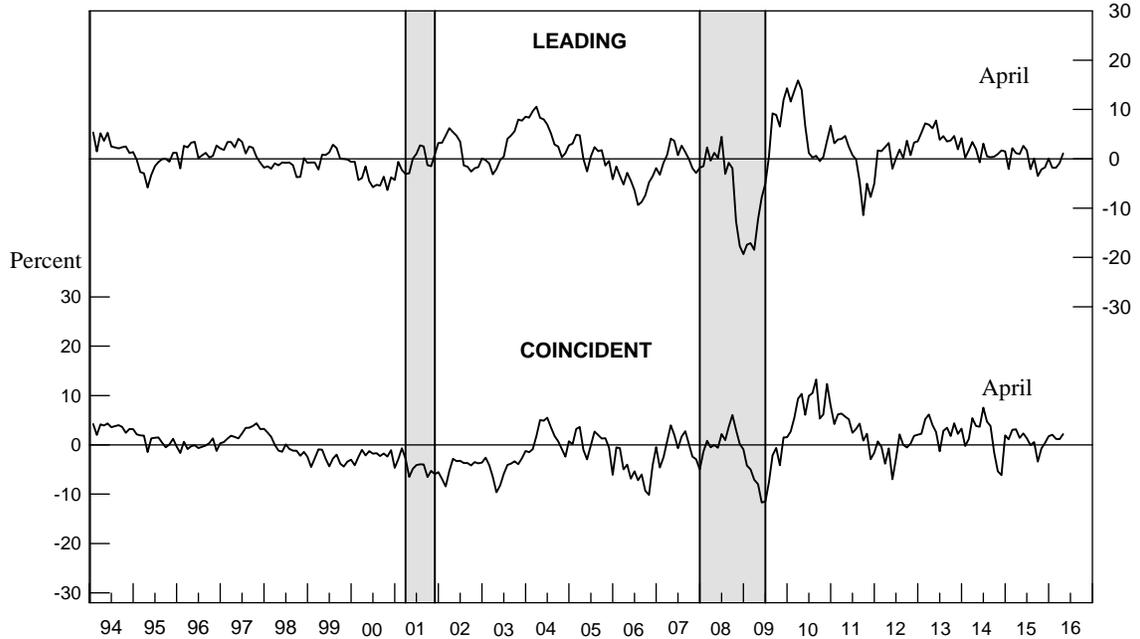
1977=100



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

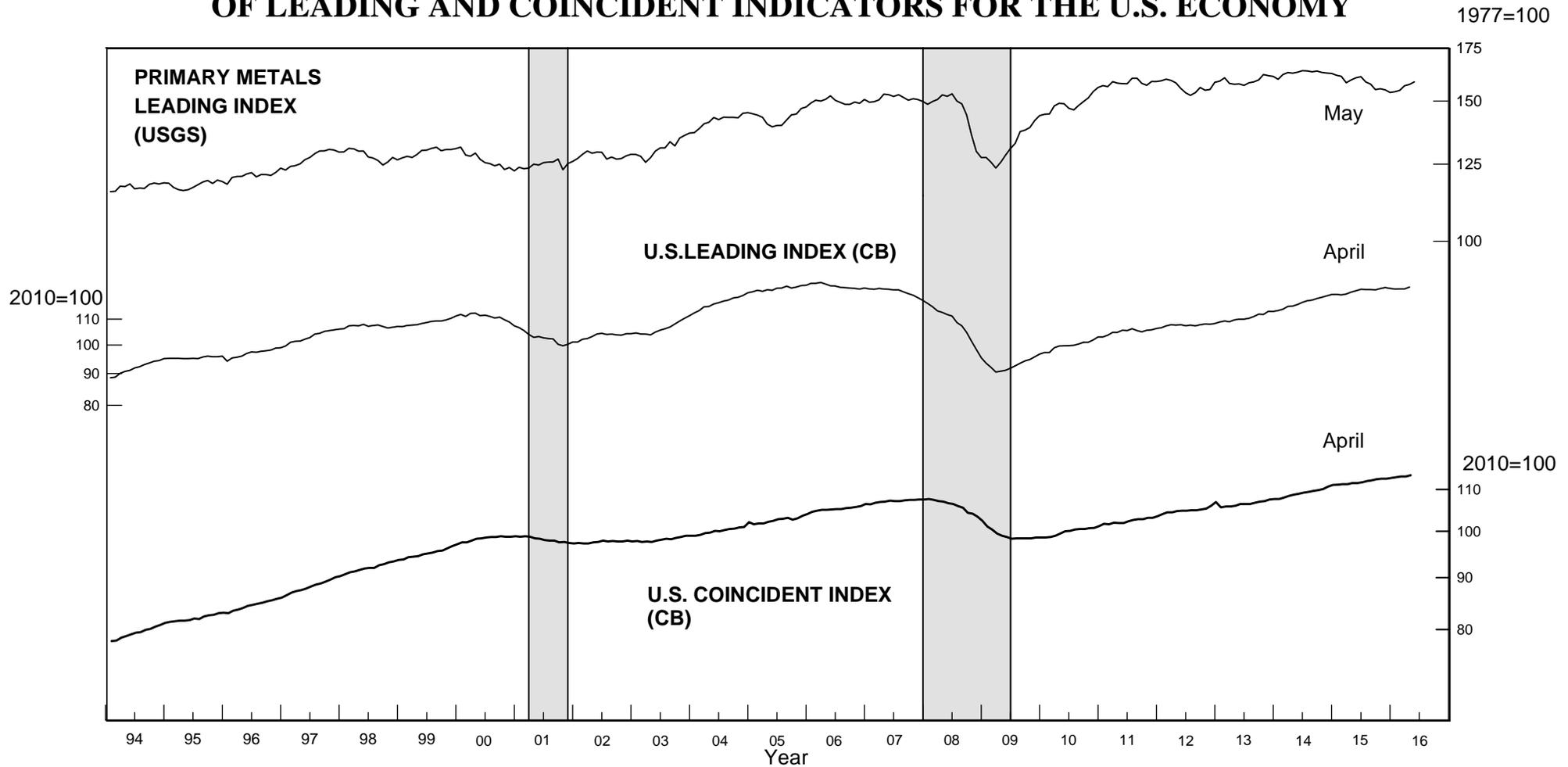


Shaded areas are business cycle recessions.

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 The Conference Board (CB).

June 2016