



Metal Industry Indicators

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

May 17, 2013

The **primary metals leading index** decreased 1.9% in April to 157.5 from a revised 160.6 in March, and its 6-month smoothed growth rate dropped to -3.0% from an upwardly revised 0.5% in March. 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 is the second sharp decrease in row in the primary metals leading index, and the deeply negative growth rate suggests that the decline in U.S. metal industry activity growth could persist longer than earlier data indicated. Manufacturing and construction activity, which had been underpinning U.S. economic growth, are beginning to slow, decreasing domestic metals demand. Furthermore, slower global economic growth is reducing U.S. metals exports.

All four of the indicators that were available for the April index calculation decreased. A more than one-half-hour shorter average workweek in primary metals establishments made the largest contribution, -1.1 percentage points, to the overall decline in the leading index. The stock price index combining construction and farm machinery companies and industrial machinery companies contributed -0.5 percentage points to the leading index. The declining USGS metals price index growth rate contributed -0.2 percentage points. A decrease in the PMI also contributed -0.2 percentage points. However, it remained above the threshold that denotes an increase in future manufacturing activity. 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.

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).

The steel leading index decreased 1.3% in March, the latest month for which it is available. Five of its nine indicators decreased, with the PMI making the largest negative contribution. The steel leading index growth rate decreased sharply and suggests that activity in the steel industry could slow further in the near term. The copper leading index retreated 0.8% in March. Five of its six indicators decreased in March, with only the S&P stock price index for building products companies posting a positive contribution. The largest negative contribution came from a pullback from the nearly 3-hour longer workweek in nonferrous metals (except aluminum) plants in February. Also, decreases in the index for new housing permits and the copper price pulled the copper leading index down in March. Continued declines in these two indicators could slow copper industry activity in the near term.

The **metals price leading index** decreased 0.4% to 107.8 in March, the latest month for which it is available, from a revised 108.2 in February. Its 6-month smoothed growth rate decreased to 1.1% from a revised 2.0% in February. A sharp decline in the growth rate of the trade-weighted average exchange value of other major currencies against the U.S. dollar contributed -0.6 percentage points to the net decline in the metals price leading index. The falling growth rate of the inflation-adjusted value of new orders for U.S. nonferrous metal products contributed -0.2 percentage points. The contribution from a slightly closer yield spread between the U.S. 10-year Treasury Note and the federal funds rate rounded to zero. In contrast, the Organization for Economic Cooperation and Development (OECD) Total Leading Index growth rate contributed 0.3 percentage points to the metals price leading index. It indicates modest growth in many industrialized economies. However, China is not included in this index. 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 March. However, levels of these inventories continued to set new record highs. A drawdown of these metal inventories needs to take place before significant growth in metal prices occurs.

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	-1.0%
Steel	-0.7%
Copper	-1.7%

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) 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 21, 2013.

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)	MII Nonferrous Metals Price Index	U.S. Nonferrous Metal Products Inventories (1982\$)	Primary Aluminum	Primary Copper	Steel Scrap
2012						
March	107.0	-5.3	9.8	-20.0	-2.7	-3.0
April	107.3	-1.6	11.9	-20.3	0.0	-6.4
May	106.4	-20.3	16.1	-22.5	-19.6	-3.6
June	105.6	-17.0	18.5	-29.1	-15.3	-25.1
July	105.8	-13.6	20.8	-23.5	-13.0	-38.6
August	106.3	-9.9	20.1	-20.5	-9.5	-13.5
September	107.2	11.0	12.3	4.2	9.7	-17.9
October	107.1	-2.8	9.7	-13.7	-3.2	-34.0
November	107.4r	1.8	12.6r	6.1	0.0	-11.2
December	108.5	0.7	10.5	1.7	-1.9	-10.4
2013						
January	108.5	6.0	11.8	4.2	3.3	-6.8
February	108.2r	-2.1	11.5r	-4.7	-4.0	-9.4
March	107.8	-7.7	9.7	-9.3	-8.1	7.0
April	NA	-16.8	NA	-10.9	-17.7	-1.4

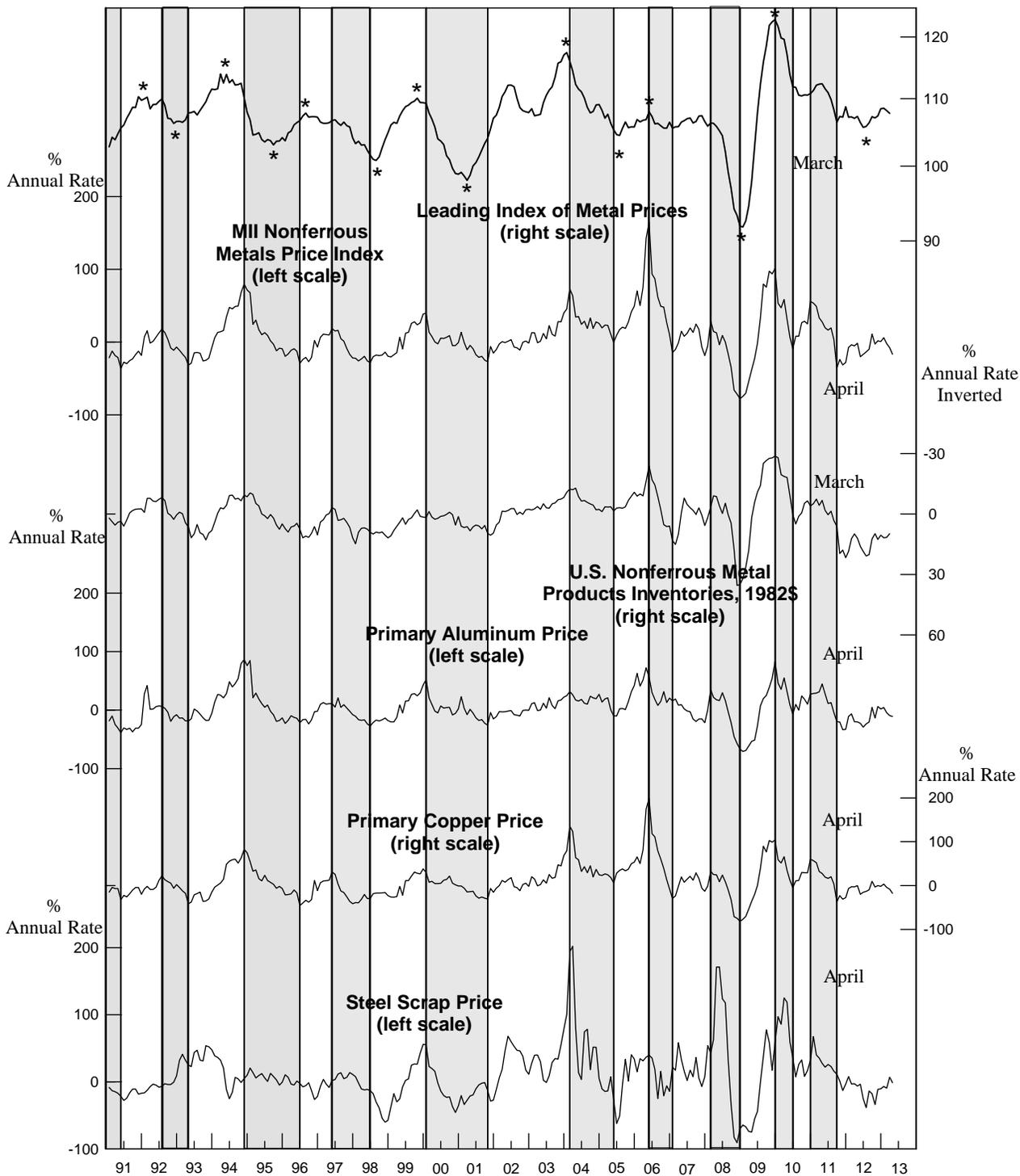
NA: Not available **r:** Revised

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.

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.

**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
2012				
April	161.1	0.2r	112.9	6.3
May	159.7	-1.6	112.9	5.0
June	156.9	-4.9	112.8	3.8
July	156.9	-4.8	113.6	4.2
August	157.7	-3.4	113.7	3.4
September	159.6	-0.8	112.5	0.5
October	160.0	-0.3	112.6	0.1
November	159.8r	-0.6	113.8	1.7
December	162.2r	2.5r	114.0r	1.6r
2013				
January	163.3r	3.7r	113.6r	0.8r
February	163.6	4.0r	113.8	1.1r
March	160.6r	0.5r	112.7	-0.8
April	157.5	-3.0	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

Leading Index	March	April
1. Average weekly hours, primary metals (NAICS 331)	-0.4r	-1.1
2. Weighted S&P stock price index, machinery, construction and farm and industrial (December 30, 1994=100)	-0.1	-0.5
3. Ratio of price to unit labor cost (NAICS 331)	-0.4	NA
4. USGS metals price index growth rate	-0.3r	-0.2
5. New orders, primary metal products, (NAICS 331 & 335929) 1982\$	-0.2	NA
6. Index of new private housing units authorized by permit	-0.2	NA
7. Growth rate of U.S. M2 money supply, 2005\$	0.0	NA
8. PMI	-0.4r	-0.2
Trend adjustment	0.0	0.0
Percent change (except for rounding differences)	-2.0r	-2.0
Coincident Index	February	March
1. Industrial production index, primary metals (NAICS 331)	0.1r	-0.5
2. Total employee hours, primary metals (NAICS 331)	0.2r	-0.3
3. Value of shipments, primary metals products, (NAICS 331 & 335929) 1982\$	-0.2r	-0.3
Trend adjustment	0.1	0.1
Percent change (except for rounding differences)	0.2r	-1.0

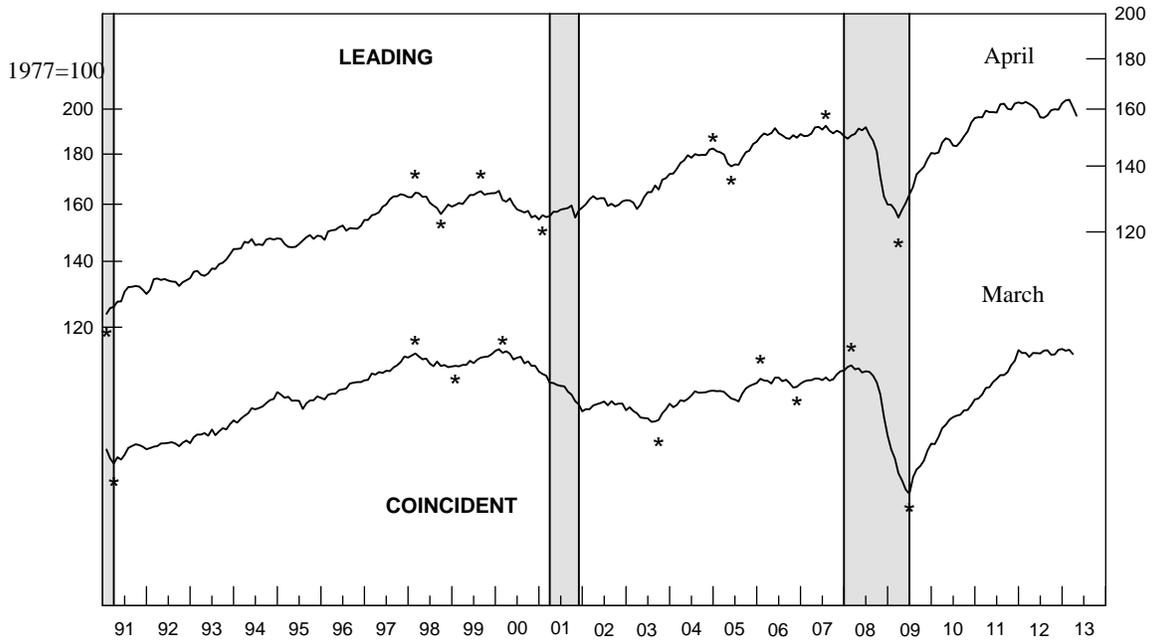
Sources: Leading: 1, Bureau of Labor Statistics; 2, Standard & Poor's and U.S. Geological Survey; 3, U.S. Geological Survey; 4, Journal of Commerce and U.S. Geological Survey; 5, U.S. Census Bureau and U.S. Geological Survey; 6, U.S. Census Bureau and U.S. Geological Survey; 7, Federal Reserve Board,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

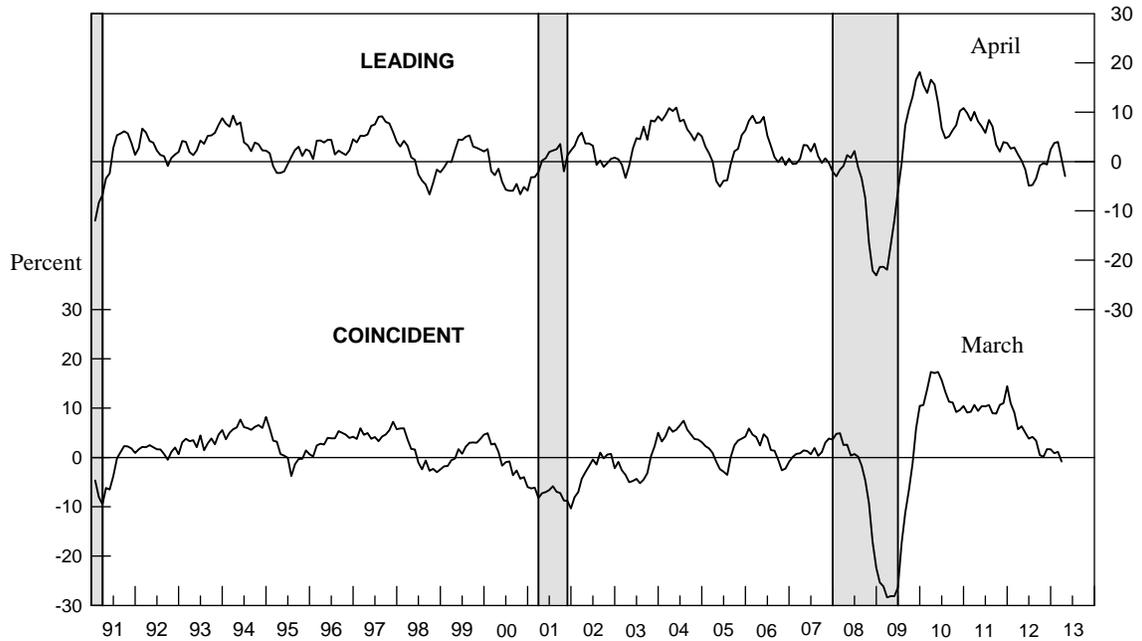
PRIMARY METALS: LEADING AND COINCIDENT INDEXES, 1991-2013 1977=100



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, 1991-2013 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>
2012				
April	111.1	0.3	115.7	3.8
May	110.4	-1.1	115.9	3.3
June	108.9	-3.6	115.3	1.6
July	108.6	-4.1	115.5	1.6
August	108.5	-3.9	116.1	1.9
September	110.2	-0.8r	114.7	-0.8
October	110.2	-0.6	115.2	-0.2
November	109.7r	-1.5	115.8r	0.5r
December	110.9	0.9	115.3r	-0.4r
2013				
January	112.2r	3.3	115.6r	0.3r
February	111.9r	2.8r	115.8r	0.5
March	110.5	0.3	115.0	-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

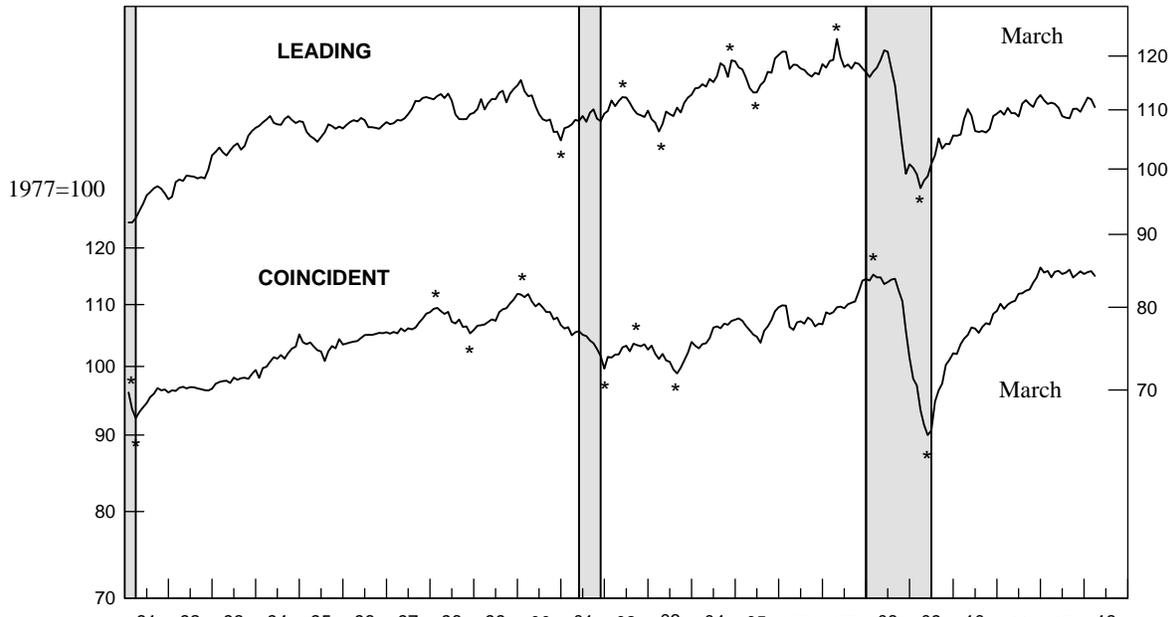
Leading Index	February	March
1. Average weekly hours, iron and steel mills (NAICS 3311 & 3312)	0.4	0.1
2. New orders, iron and steel mills (NAICS 3311 & 3312), 1982\$	0.2r	-0.3
3. Shipments of household appliances, 1982\$	0.0r	-0.2
4. S&P stock price index, steel companies	-0.2	-0.3
5. Retail sales of U.S. passenger cars and light trucks (units)	0.0	0.0
6. Growth rate of the price of steel scrap (#1 heavy melting, \$/ton)	0.1	0.0
7. Index of new private housing units authorized by permit	0.2	-0.2
8. Growth rate of U.S. M2 money supply, 2005\$	-1.1	0.0
9. PMI	0.1	-0.4
Trend adjustment	0.0	0.0
Percent change (except for rounding differences)	-0.3r	-1.3
Coincident Index		
1. Industrial production index, iron and steel products (NAICS 3311 & 3312)	-0.3r	-0.5
2. Value of shipments, iron and steel mills (NAICS 3311 & 3312), 1982\$	-0.2r	-0.6
3. Total employee hours, iron and steel mills (NAICS 3311 & 3312)	0.5	0.3
Trend adjustment	0.1	0.1
Percent change (except for rounding differences)	0.1r	-0.7

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; 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, 1991-2013

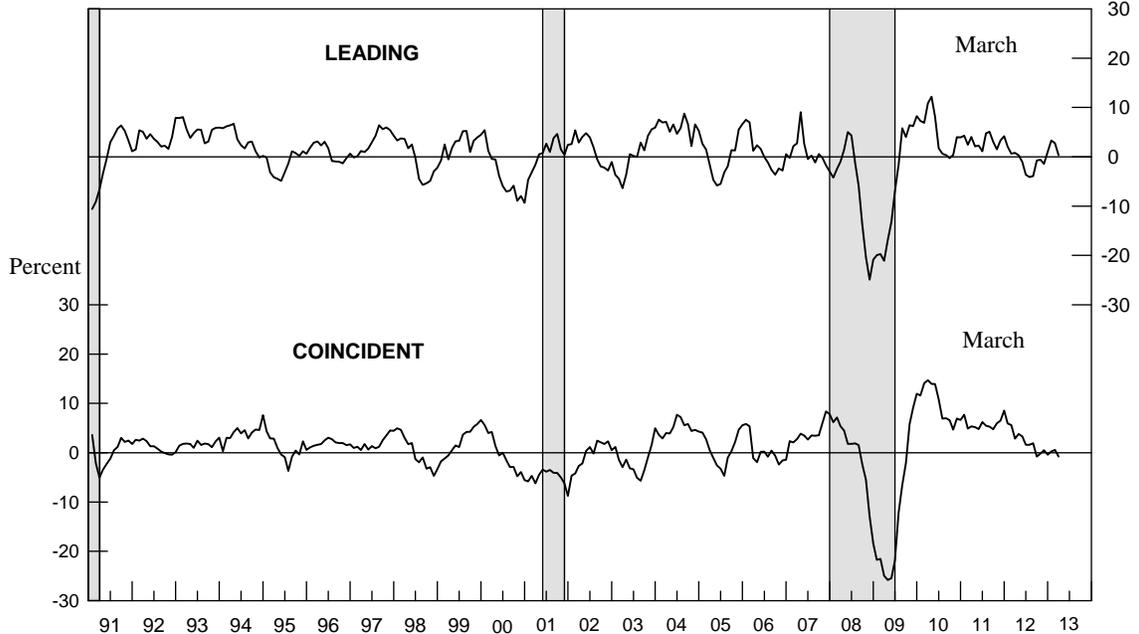
1977=100



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, 1991-2013

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

	Leading Index		Coincident Index	
	(1977 = 100)	Growth Rate	(1977 = 100)	Growth Rate
2012				
April	124.5	5.9	109.7	2.1
May	121.5	1.0	106.5	-3.9
June	122.7	2.9	107.8	-1.6
July	124.3	5.2	110.4	2.7
August	123.3	3.2	108.4	-1.2
September	125.1	5.4	106.8	-3.6
October	124.2	2.6	107.1	-2.8
November	125.9	4.6	106.7	-3.0
December	128.1	6.9r	108.1r	-0.3r
2013				
January	126.3	3.3	104.1r	-6.8r
February	130.7	9.4r	108.4r	1.2r
March	129.7	7.0	106.6	-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 7.
The Contribution of Each Copper Index Component to the Percent Change in the Index from the Previous Month

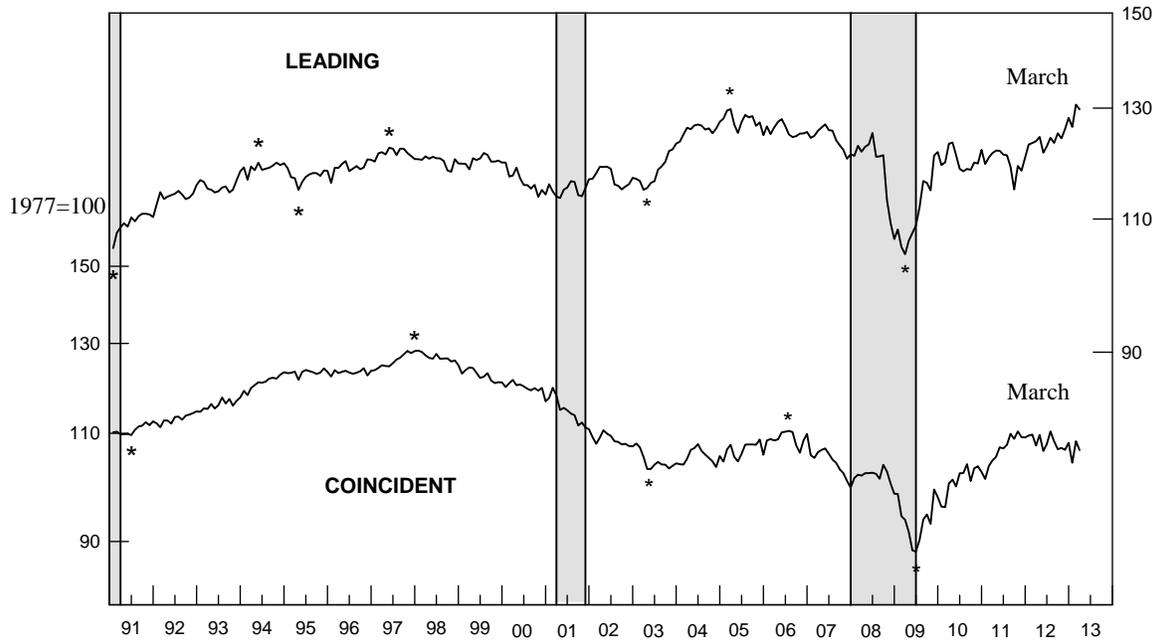
Leading Index	February	March
1. Average weekly hours, nonferrous metals (except aluminum) (NAICS 3314)	2.9	-0.8
2. New orders, nonferrous metal products, (NAICS 3313, 3314, & 335929) 1982\$	-0.1r	-0.1
3. S&P stock price index, building products companies	0.5	0.5
4. LME spot price of primary copper	-0.2	-0.2
5. Index of new private housing units authorized by permit	0.2	-0.2
6. Spread between the U.S. 10-year Treasury Note and the federal funds rate	0.0	0.0
Trend adjustment	0.0	0.0
Percent change (except for rounding differences)	<u>3.3r</u>	<u>-0.8</u>
Coincident Index		
1. Industrial production index, primary smelting and refining of copper (NAICS 331411)	1.2r	-0.3
2. Total employee hours, nonferrous metals (except aluminum) (NAICS 3314)	2.7	-1.5
3. Copper refiners' shipments (short tons)	NA	NA
Trend adjustment	0.1	0.1
Percent change (except for rounding differences)	<u>4.0r</u>	<u>-1.7</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; 6, Federal Reserve Board and U.S. Geological Survey. Coincident: 1, Federal Reserve Board; 2, Bureau of Labor Statistics; 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, 1991-2013

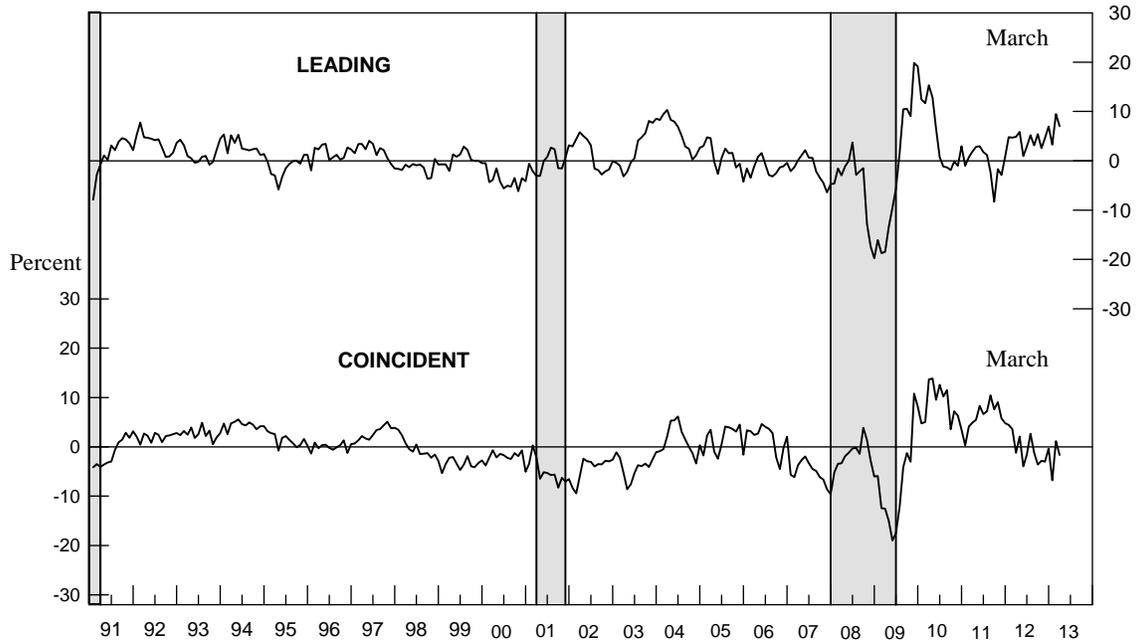
1977=100



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, 1991-2013

Percent

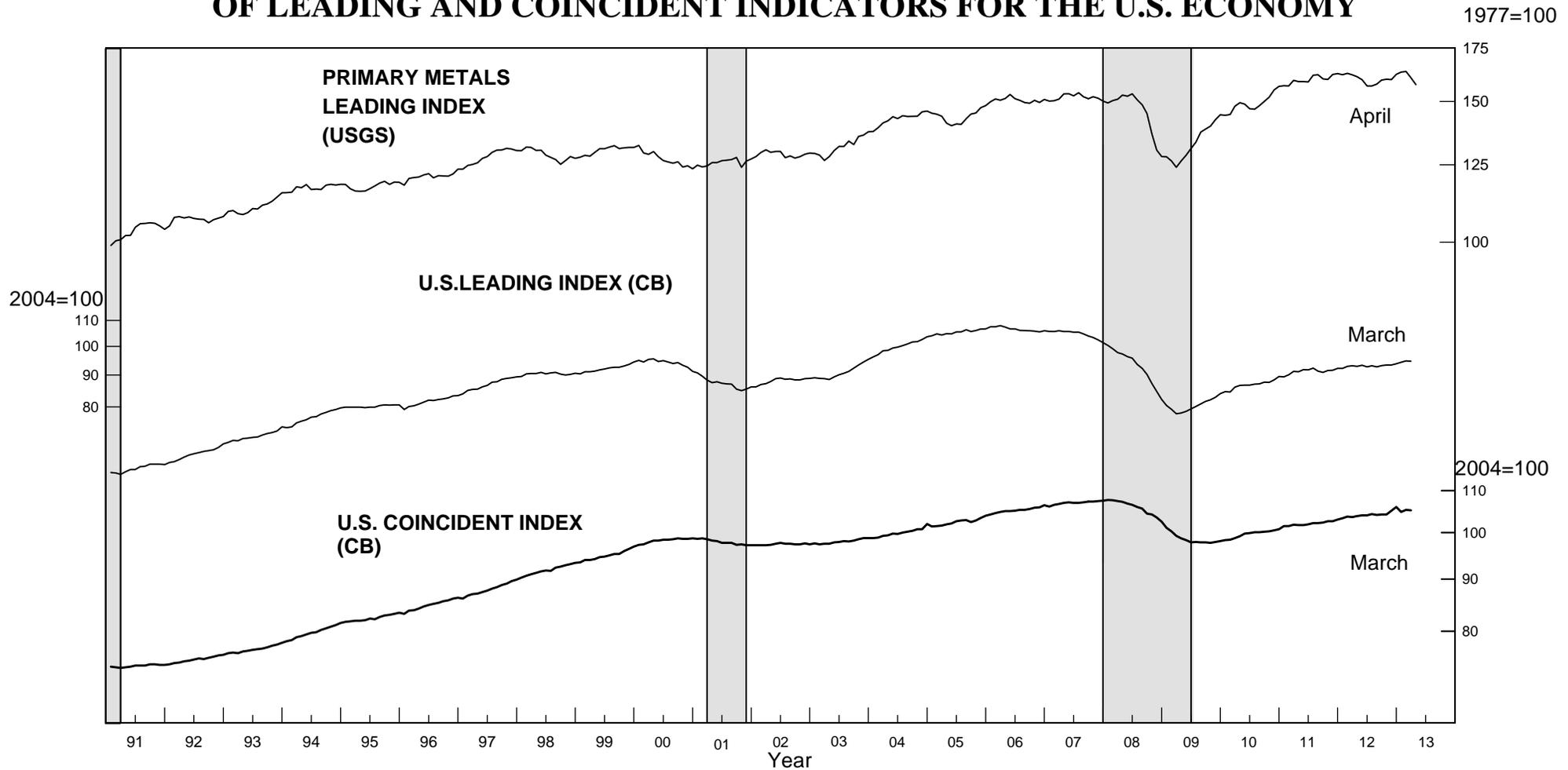


Shaded areas are business cycle recessions.

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 2013