



Metal Industry Indicators

Composite Indexes of Leading and Coincident Indicators of Selected Metal Industries for October and November—Summary Report

December 20, 2013

The **primary metals leading index** increased 0.5% in November to 166.5 from a revised 165.6 in October, and its 6-month smoothed growth rate increased to 6.6% from a revised 6.2% in October. 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 fifth consecutive increase in the primary metals leading index growth rate, and it is indicating that a recovery in the primary metals industry is likely in the near future. Activity in the U.S. manufacturing sector is steadily increasing, particularly in the automotive industry, and is boosting the sector's metals consumption. Increased employment is stimulating residential construction despite rising interest rates. Furthermore, global economic growth appears to be rising, which could promote U.S. metal products exports.

Three of the four indicators that were available for the November index calculation increased, and one was unchanged from its October level. The highest stock price index combining construction and farm machinery companies and industrial machinery companies on record made the largest positive contribution, 0.3 percentage point, to the net increase in the primary metals leading index. The PMI, the Institute for Supply Management's purchasing managers' index, increased 0.2 percentage point. It pointed to further increases in manufacturing activity. The USGS metals price index growth rate inched up; however, its contribution rounded to zero. The average workweek in primary metals establishments stayed the same in November as in October. The November 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 increased 1.2% in October, the latest month for which it is available. Nearly all of its nine indicators posted gains, but it was the surge in the inflation-adjusted M2 money supply growth rate that was the major factor in the rise of the steel leading index. The highest index for new housing permits since shortly after to the start of the last recession and the S&P stock price index for steel companies made sizable positive contributions to the leading index. However, fewer average weekly hours in iron and steel plants offset some of those gains. The steel leading index growth rate indicates that the steel industry is poised to increase activity in the near term. The copper leading index increased 0.8% in October. Two of its indicators accounted for most of the increase in the index. A more than one-half-hour-longer average workweek in nonferrous, except aluminum, plants made the largest positive contribution. The index for new housing permits also lifted the copper leading

index higher. The copper leading index growth rate indicates that activity in the U.S. copper industry could increase in the near term.

The **metals price leading index** increased 0.2% to 110.5 in October, the latest month for which it is available, from an upwardly revised 110.3 in September. However, its 6-month smoothed growth rate slipped to 3.6% from a revised 3.8% in September. Only one of its four indicators posted an increase in October. 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 only positive contribution, 0.5 percentage point, to the metals price leading index. In contrast, a contraction in the yield spread between the U.S. 10-year Treasury Note and the federal funds rate contributed -0.2 percentage point. The Organization for Economic Cooperation and Development (OECD) Total Leading Index growth rate, which has been generally rising over the last 2 years, decreased in October. Nevertheless, the OECD leading index is still pointing to modest growth in many industrialized economies in the near future. The decrease in the growth rate of the inflation-adjusted value of new orders for U.S. nonferrous metal products was so small that its contribution rounded to zero. 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 October. The level U.S. metals inventories slipped slightly, but remained near record highs. However, declining global metal inventories and the relatively high leading index of metal prices growth rate indicate increases for some metals in the near future.

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

Primary Metals	0.7%
Steel	0.2%
Copper	0.1%

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 November and December is scheduled for release on the World Wide Web at 10:00 a.m. EST, Friday, January 24, 2014.

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						
October	106.9r	-2.8	6.0	-13.7	-3.2	-34.0
November	107.1	1.8	8.2	6.1	0.0	-11.2
December	107.9	0.7	5.8	1.7	-1.9	-10.4
2013						
January	108.0	6.0	7.1	4.2	3.3	-6.8
February	107.8r	-2.1	7.4	-4.7	-4.0	-9.4
March	107.4	-7.7	6.3	-9.3	-8.1	7.0
April	107.9r	-16.8	7.5	-10.9	-17.7	-1.4
May	108.8r	-9.7	11.6	-6.8	-11.6	-11.0
June	109.4r	-20.2	13.1r	-19.0	-21.9	-9.4
July	109.4	-18.5	16.6r	-18.2	-19.4	1.3
August	109.8r	-10.3	11.6r	-13.5	-11.5	-1.5
September	110.3r	-6.5	13.7r	-10.5	-6.0	-3.1
October	110.5	-4.8	11.5	-5.5	-5.5	-2.5
November	NA	-8.9	NA	-15.5	-8.8	9.7

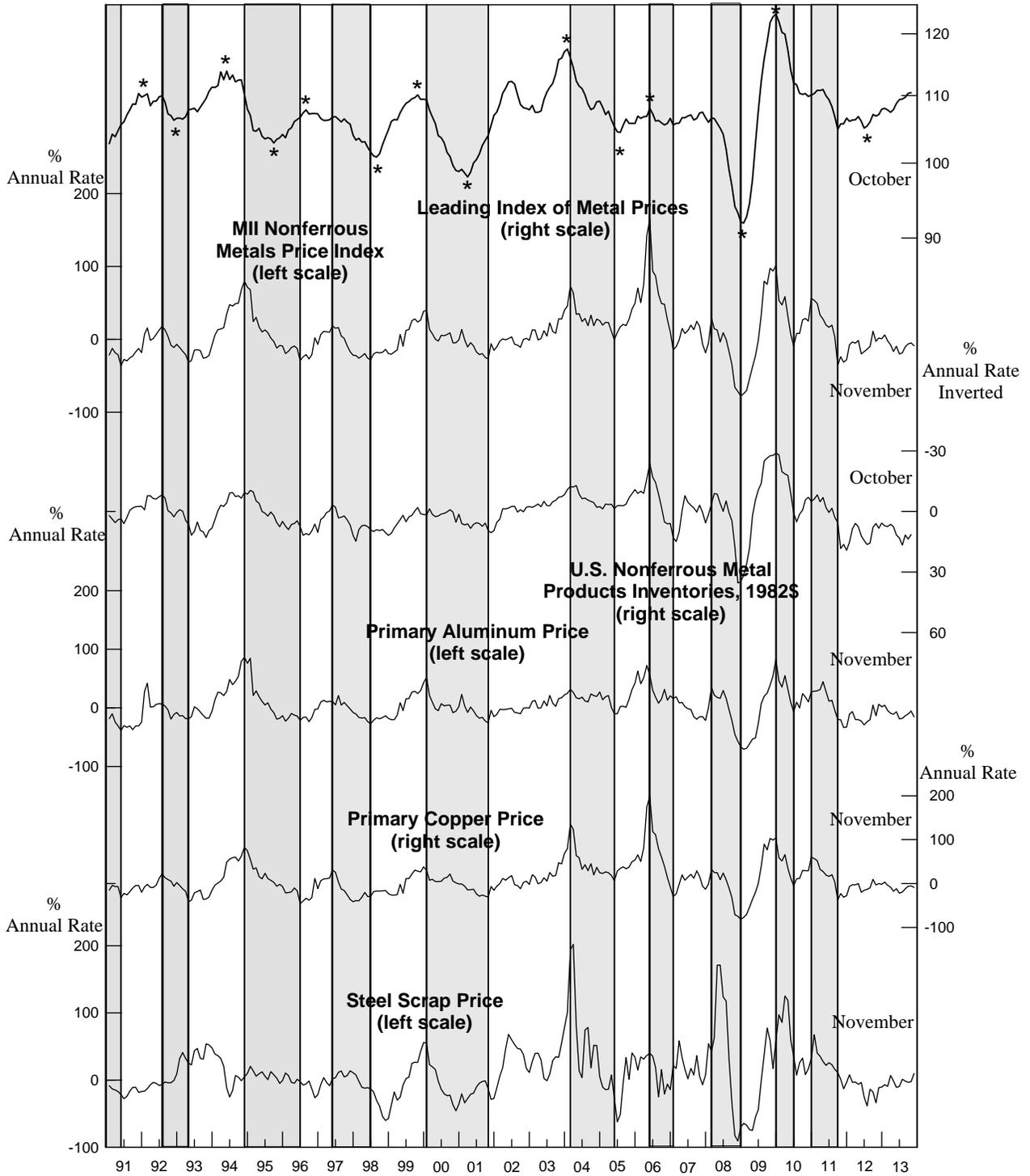
NA: Not available r: Revised

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				
November	158.7	-0.6	110.9	0.9
December	161.1	2.4	111.2	1.1
2013				
January	161.5	2.9	110.9	0.5
February	162.6	4.1	110.9	0.4
March	159.0	-0.2	109.9	-1.2
April	159.8	0.9	109.7	-1.6
May	159.6	0.7	110.2	-0.7
June	157.8	-1.5	109.9	-1.2
July	160.9r	2.0r	111.3r	1.4r
August	161.5	2.2	111.8	2.2
September	162.3	2.6	112.1	2.5r
October	165.6r	6.2r	112.9	3.7
November	166.5	6.6	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	October	November
1. Average weekly hours, primary metals (NAICS 331)	0.5r	0.0
2. Weighted S&P stock price index, machinery, construction and farm and industrial (December 30, 1994=100)	0.1	0.3
3. Ratio of price to unit labor cost (NAICS 331)	0.2	NA
4. USGS metals price index growth rate	0.1	0.0
5. New orders, primary metal products, (NAICS 331 & 335929) 1982\$	0.1	NA
6. Index of new private housing units authorized by permit	0.3	NA
7. Growth rate of U.S. M2 money supply, 2005\$	0.8	NA
8. PMI	0.0	0.2
Trend adjustment	0.0	0.0
Percent change (except for rounding differences)	2.1r	0.5
Coincident Index	September	October
1. Industrial production index, primary metals (NAICS 331)	-0.1r	0.2
2. Total employee hours, primary metals (NAICS 331)	0.1r	0.2
3. Value of shipments, primary metals products, (NAICS 331 & 335929) 1982\$	0.2r	0.2
Trend adjustment	0.1	0.1
Percent change (except for rounding differences)	0.3r	0.7

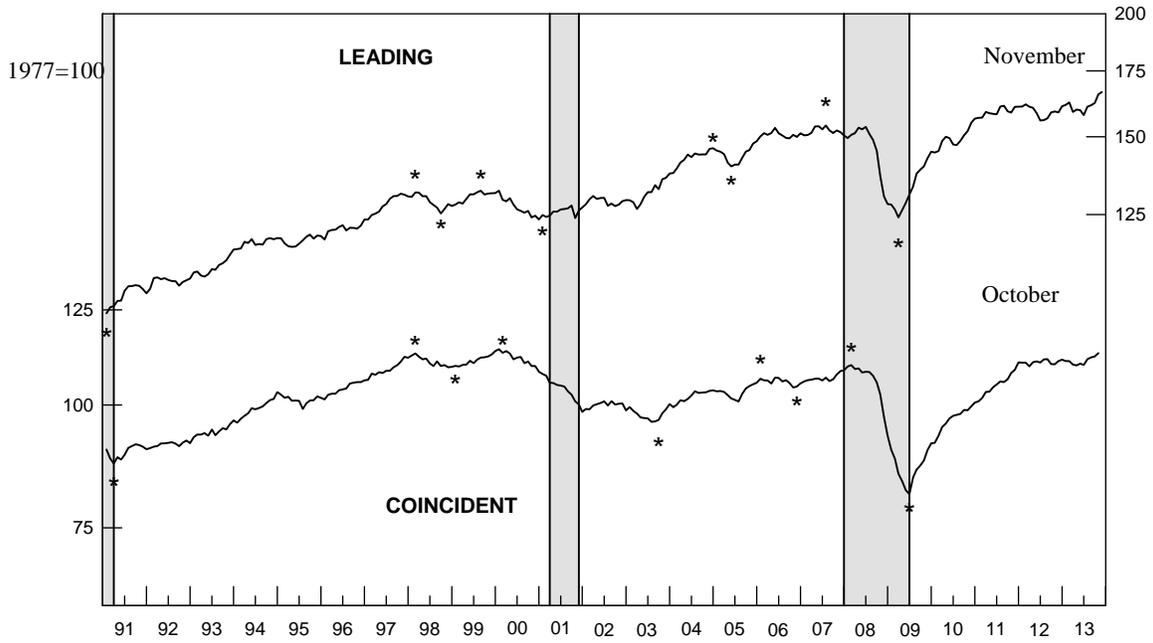
Sources: Leading: 1, Bureau of Labor Statistics; 2, Standard & Poor's and U.S. Geological Survey; 3, U.S. Geological Survey; 4, Journal of Commerce and U.S. Geological Survey; 5, U.S. Census Bureau and U.S. Geological Survey; 6, U.S. Census Bureau and U.S. Geological Survey; 7, Federal Reserve Board,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

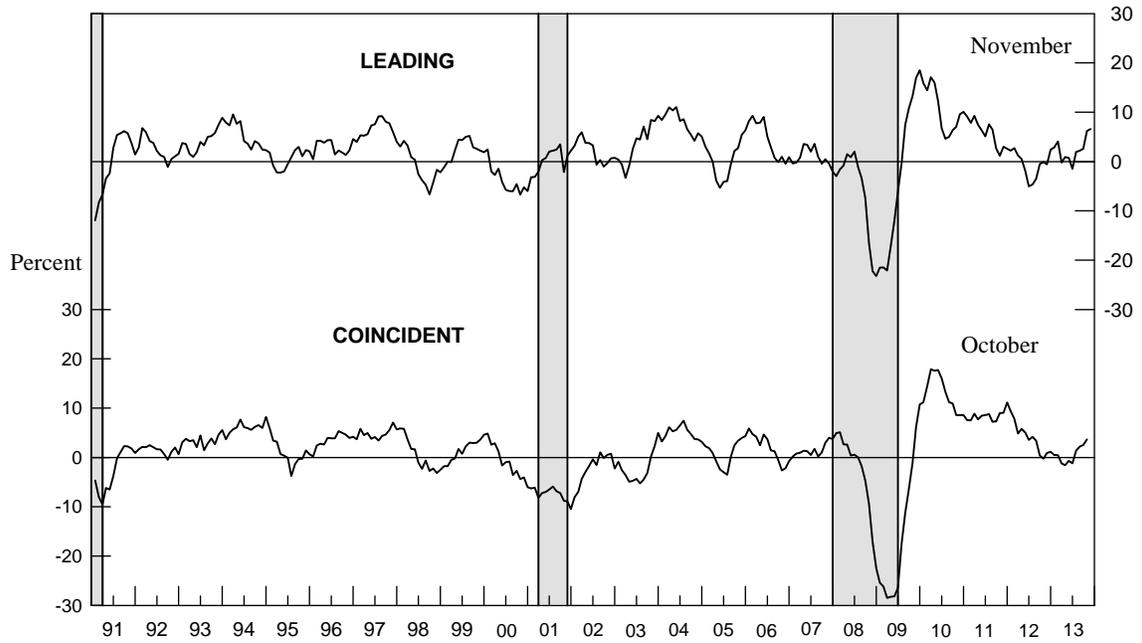
PRIMARY METALS: LEADING AND COINCIDENT INDEXES, 1991-2013 1977=100



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				
November	110.0	-1.3	116.1	0.1
December	111.3	1.2	116.1	-0.1
2013				
January	111.9	2.3	116.4	0.4
February	112.6	3.5	116.5	0.6
March	111.0	0.6	116.0	-0.2
April	111.8	2.0	116.1	-0.1
May	111.2	1.1	115.5	-1.1
June	110.4	-0.4r	116.4	0.5r
July	112.1	2.3	117.5	2.2
August	112.8	3.0	118.1	3.1
September	113.0r	2.7r	118.0r	2.7r
October	114.3	4.6	118.2	2.6

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

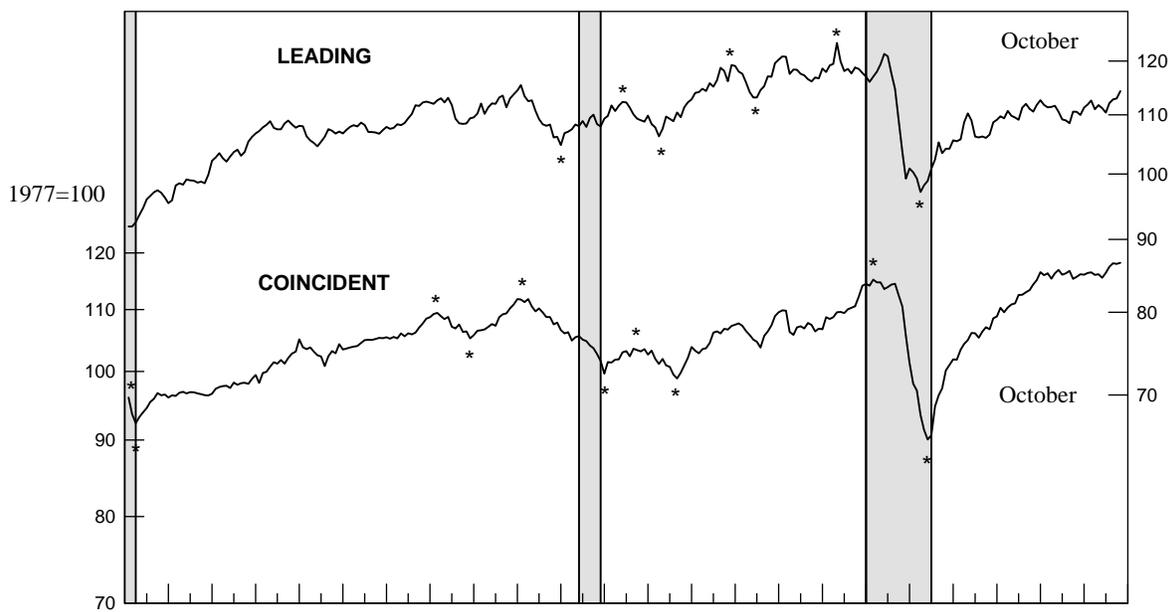
Leading Index	September	October
1. Average weekly hours, iron and steel mills (NAICS 3311 & 3312)	-0.2r	-0.3
2. New orders, iron and steel mills (NAICS 3311 & 3312), 1982\$	0.2	0.0
3. Shipments of household appliances, 1982\$	-0.1	0.1
4. S&P stock price index, steel companies	0.2	0.2
5. Retail sales of U.S. passenger cars and light trucks (units)	-0.3	0.0
6. Growth rate of the price of steel scrap (#1 heavy melting, \$/ton)	0.1	-0.1
7. Index of new private housing units authorized by permit	0.2r	0.3
8. Growth rate of U.S. M2 money supply, 2005\$	-0.1	0.8
9. PMI	0.1	0.0
Trend adjustment	0.0	0.0
Percent change (except for rounding differences)	0.1r	1.0
Coincident Index		
1. Industrial production index, iron and steel products (NAICS 3311 & 3312)	-0.1r	0.2
2. Value of shipments, iron and steel mills (NAICS 3311 & 3312), 1982\$	0.0r	0.3
3. Total employee hours, iron and steel mills (NAICS 3311 & 3312)	-0.2	-0.5
Trend adjustment	0.1	0.1
Percent change (except for rounding differences)	-0.2r	0.1

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

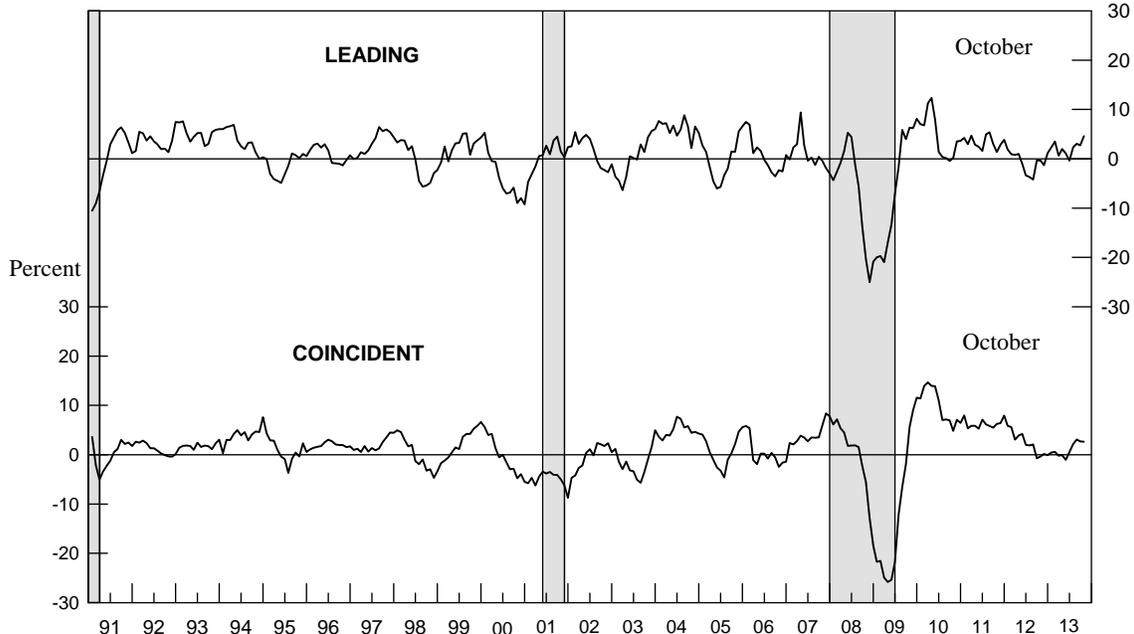
1977=100



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

	<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				
November	124.0	4.6	106.7	-3.0
December	126.1	6.8	108.1	-0.3
2013				
January	124.2	2.9	104.3	-6.5
February	128.6	9.3	108.2	0.8
March	127.2	6.2	106.0	-2.7
April	126.8	4.9	105.1	-4.0
May	129.8	8.9	107.2	0.2
June	127.3r	3.7r	104.1	-5.2
July	129.7	6.6	107.7r	1.4r
August	129.6	5.5	108.3	2.9r
September	131.2r	6.8r	107.6r	1.7r
October	132.2	7.3	107.7	1.8

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

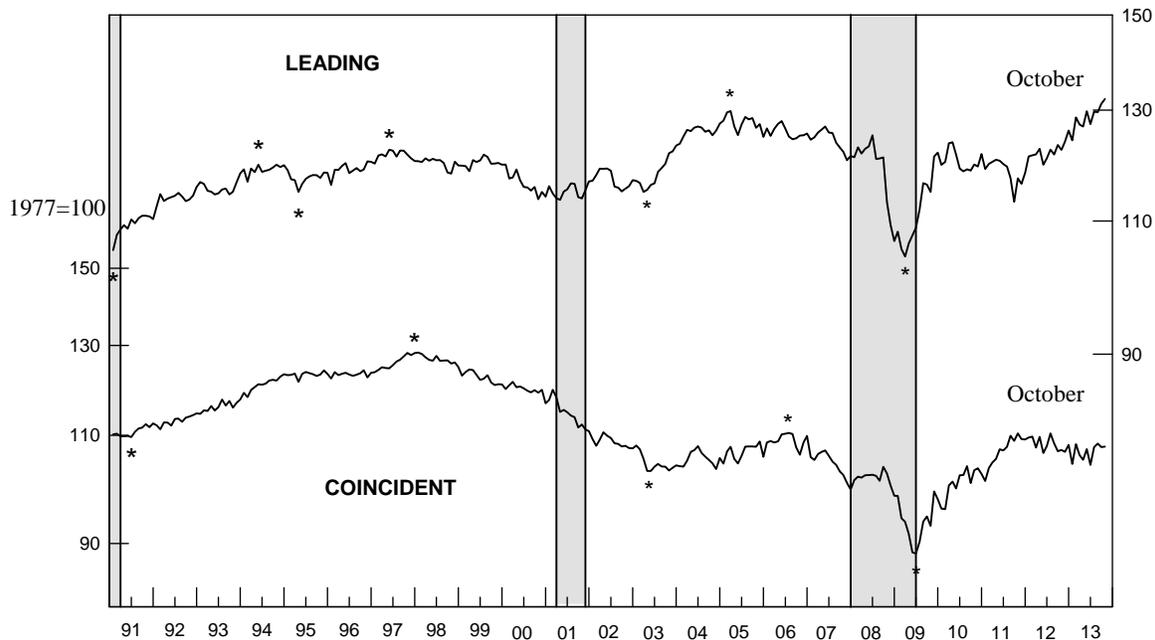
	September	October
Leading Index		
1. Average weekly hours, nonferrous metals (except aluminum) (NAICS 3314)	0.1r	0.7
2. New orders, nonferrous metal products, (NAICS 3313, 3314, & 335929) 1982\$	0.2r	0.1
3. S&P stock price index, building products companies	0.5	-0.2
4. LME spot price of primary copper	0.1	0.0
5. Index of new private housing units authorized by permit	0.3r	0.4
6. Spread between the U.S. 10-year Treasury Note and the federal funds rate	0.1	-0.2
Trend adjustment	0.0	0.0
Percent change (except for rounding differences)	<u>1.3r</u>	<u>0.8</u>
Coincident Index		
1. Industrial production index, primary smelting and refining of copper (NAICS 331411)	0.1	-0.3
2. Total employee hours, nonferrous metals (except aluminum) (NAICS 3314)	-0.8r	0.3
3. Copper refiners' shipments (short tons)	NA	NA
Trend adjustment	0.1	0.1
Percent change (except for rounding differences)	<u>-0.6r</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; 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

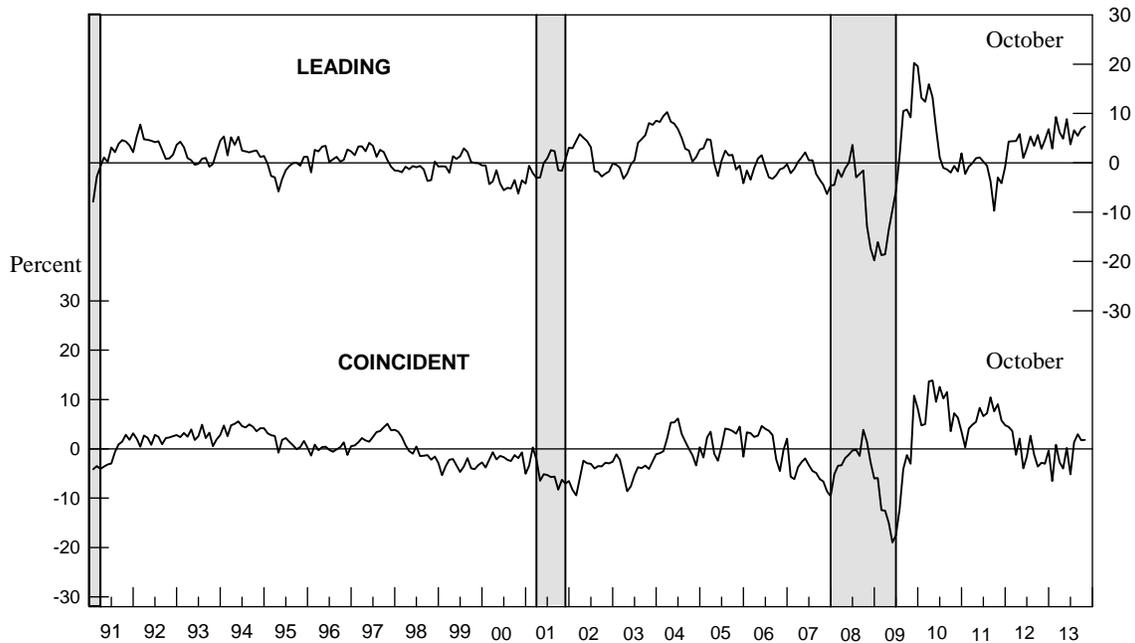
1977=100



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

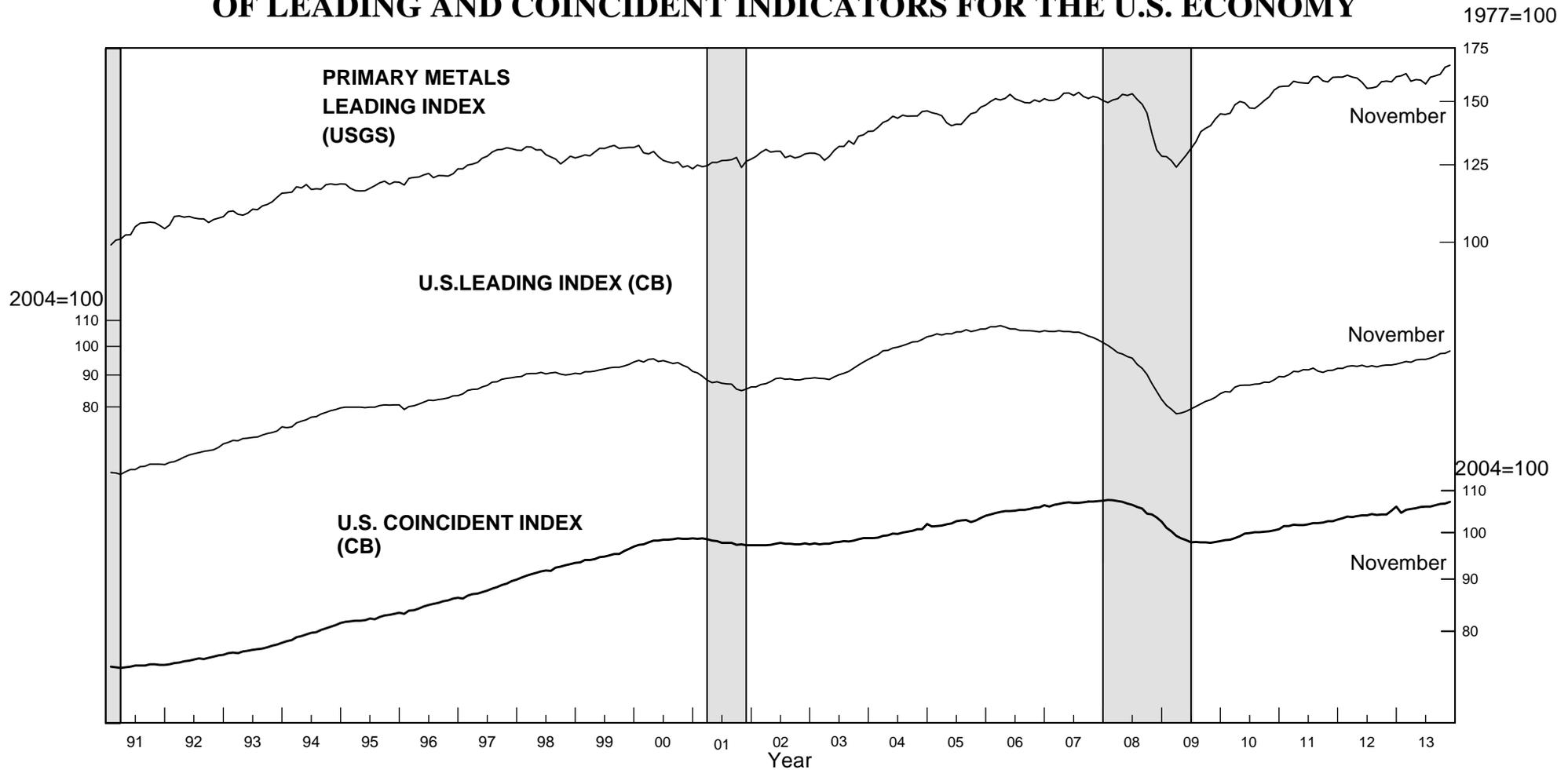


Shaded areas are business cycle recessions.

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).

December 2013