



Metal Industry Indicators

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

December 11, 2015

The **primary metals leading index** edged down 0.1% in November to 157.9 from a revised 158.0 in October; however, its 6-month smoothed growth rate increased to -4.0% from a revised -4.7% in October (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 primary metals leading index growth rate has been negative for eleven consecutive months and suggests that growth in primary metals industry activity is likely to be slow or possibly decline in the near term. Manufacturing capacity utilization remained below its long-term trend. This reduced metals demand and could decrease it further in the near term. However, demand for transportation equipment, particularly aircraft, could boost domestic metals consumption slightly. The metals demand from the construction sector has underpinned the primary metals industry this year and could continue to support primary metals activity in the near-term. Weak global economic growth, particularly in China, and the strong U.S. dollar, is limiting U.S. metal exports and metal imports are still high, despite some recent slowdowns.

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 November index calculation decreased, and two increased (Table 3). The declining USGS metals price index growth rate contributed -0.4 percentage point to the net decline in the leading index. The PMI, the Institute for Supply Management's purchasing managers' index, fell below the threshold that indicates decreases in U.S. manufacturing activity. It also contributed -0.4 percentage point to the leading index. In contrast, a longer average workweek in primary metals establishments in November contributed 0.4 percentage point. A second consecutive rise in the stock price index combining construction and farm machinery companies and industrial machinery companies contributed 0.3 percentage point. 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.

The steel leading index decreased 0.3% to 111.3 in October from 111.6 in September (Table 4). Four of its nine indicators decreased in October, but a sharp decline in the inflation-adjusted M2 money supply growth rate made the largest negative contribution to the steel leading index. A one-half hour shorter average workweek in iron and steel plants also had a significantly negative affect on the leading index. In contrast, a jump in new orders for iron and steel products offset some of those declines. While steel imports applications decreased in November, import market share is still 29% year-to-date. The steel leading index growth rate slipped deeper into

negative territory and indicates further declines in domestic steel industry growth in the near term. The copper leading index increased 0.8% to 126.7 in October from 125.7 in September (Table 6). A longer average workweek in nonferrous metals, except aluminum, plants accounted for nearly half of the increase in the copper leading index. The construction related indicators, the index of new housing permits and the S&P stock price index also, lifted the leading index in October (Table 7). Activity in the construction sector is likely to continue to underpin the domestic copper industry activity in the near term.

The **metals price leading index** increased 0.4% to 104.6 in October, the latest month for which it is available, from 104.2 in September (Table 1) and its 6-month smoothed growth rate increased to 0.8% in October from -0.3% in September. Only one of its four indicators increased in October, the growth rate of the trade-weighted average exchange value of other major currencies against the U.S. dollar, it contributed 0.5 percentage point to the net gain in the metals price leading index. In contrast, the Organization for Economic Cooperation and Development (OECD) Total Leading Index growth rate was essentially the same in October as September which was the lowest that it has been in over 3 years, pointing to further decreases in growth for most industrialized countries. Its contribution was zero. The growth rate of the inflation-adjusted value of new orders for U.S. nonferrous metal products has hovered around the same level the last four months and its contribution was so slight that its contribution rounded to zero. The yield spread between the U.S. 10-year Treasury Note and the federal funds rate widened in October and it 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 in October. The actual value of U.S. metals inventories levels decreased from the recent record high. Although the metals price leading index growth rate moved into positive territory briefly (mostly because of recent volatility of the U.S. dollar), it is not yet indicating that metal prices are going to rise significantly in the near term. Although several metal manufacturing companies have announced production cuts, given the amount of surplus metals, global metals demand would have increase strongly before any sustained price rise could occur.

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	0.4%
Steel	0.6%
Copper	1.4%

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 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
2014							
October	105.9r	-5.0r	-4.7	7.0	19.7	-5.7	-11.6
November	105.6r	-4.9	-8.9	9.1	24.0	-11.6	-26.6
December	104.8r	-5.6r	-14.6	8.4	-4.1	-14.5	-25.3
2015							
January	103.8	-6.4r	-28.6	13.0	-4.0	-33.0	-15.6
February	103.7r	-6.0	-21.3	12.6	-9.4	-21.5	-54.9
March	103.2	-6.0r	-15.1	11.1	-10.4	-14.9	-51.8
April	103.0r	-5.5r	-4.5	11.3	0.5	-8.5	-47.3
May	103.9r	-3.2r	-10.7	7.1	-19.3	-11.7	-42.7
June	104.2r	-2.0r	-20.1	8.4r	-23.8	-19.6	-29.9
July	103.8r	-2.1r	-28.9	13.4	-26.9	-30.1	-32.7
August	103.8r	-1.5r	-29.0	15.7	-28.1	-29.9	-42.1
September	104.2	-0.3	-26.3	15.2r	-23.1	-26.5	-43.5
October	104.6	0.8	-22.5	12.0	-31.4	-22.1	-62.1
November	NA	NA	-31.7	NA	-28.4	-33.7	-64.1

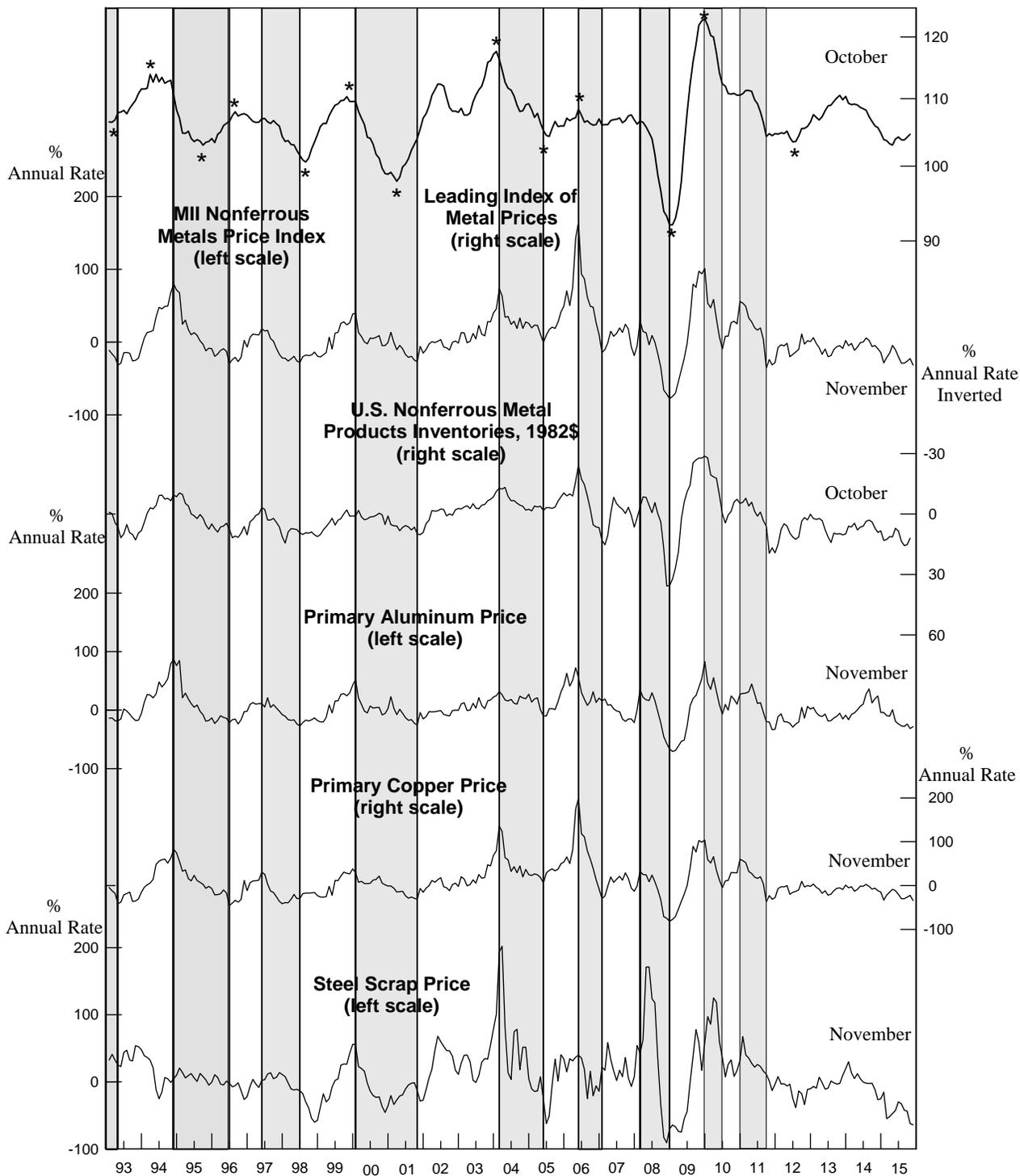
NA: Not available **r:** Revised

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
2014				
November	164.8	0.9	113.5	2.0
December	164.4	0.1	114.4	3.1
2015				
January	163.1	-1.6	113.4	0.9
February	163.0	-1.8	113.1	-0.1
March	159.7	-5.5	112.4	-1.5
April	161.1	-3.6	112.1	-2.1
May	162.5	-1.8	112.3	-1.8
June	163.1r	-0.8r	113.3	-0.1r
July	161.0r	-3.0	113.5r	0.2r
August	159.7	-4.0	112.7r	-1.1r
September	157.6r	-5.8r	111.7r	-2.5r
October	158.0r	-4.7r	112.1	-1.5
November	157.9	-4.0	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	October	November
1. Average weekly hours, primary metals (NAICS 331)	-0.1r	0.4
2. Weighted S&P stock price index, machinery, construction and farm and industrial (December 30, 1994=100)	0.0r	0.3
3. Ratio of price to unit labor cost (NAICS 331)	0.4	NA
4. USGS metals price index growth rate	0.0	-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\$	-0.4	NA
8. PMI	0.0	-0.4
Trend adjustment	0.0	0.0
Percent change (except for rounding differences)	0.2r	-0.1
Coincident Index	September	October
1. Industrial production index, primary metals (NAICS 331)	-0.2r	0.3
2. Total employee hours, primary metals (NAICS 331)	-0.7r	-0.2
3. Value of shipments, primary metals products, (NAICS 331 & 335929) 1982\$	0.0	0.1
Trend adjustment	0.1	0.1
Percent change (except for rounding differences)	-0.8r	0.3

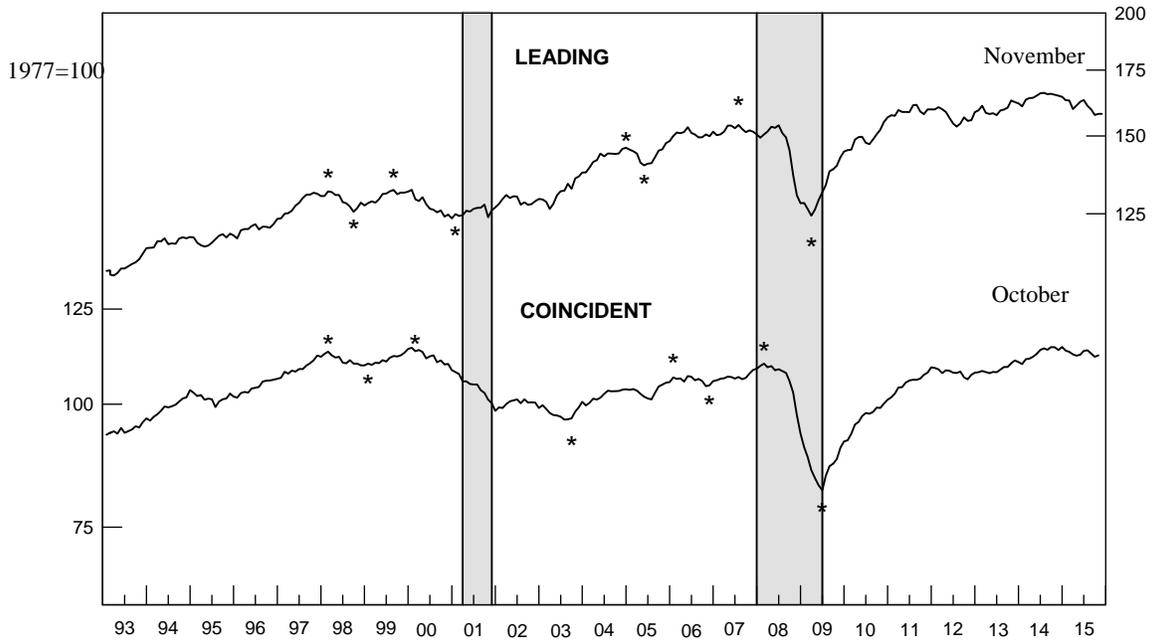
Sources: Leading: 1, Bureau of Labor Statistics; 2, Standard & Poor's and U.S. Geological Survey; 3, U.S. Geological Survey; 4, Journal of Commerce and U.S. Geological Survey; 5, U.S. Census Bureau and U.S. Geological Survey; 6, U.S. Census Bureau and U.S. Geological Survey; 7, Federal Reserve Board,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

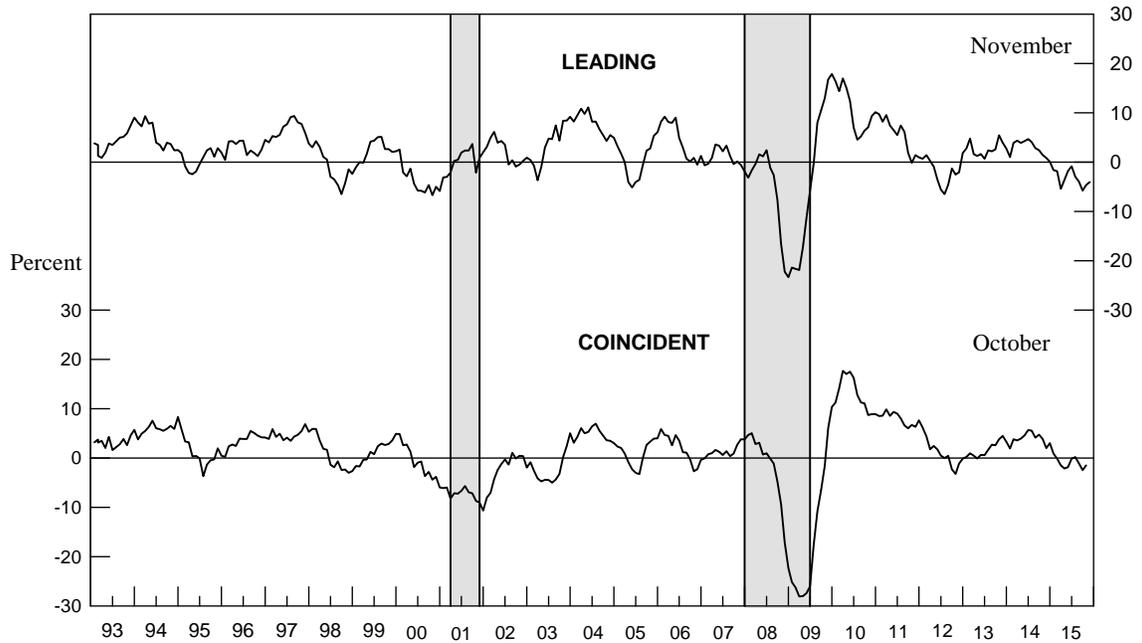
PRIMARY METALS: LEADING AND COINCIDENT INDEXES, 1993-2015 1977=100



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, 1993-2015 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>
2014				
November	115.0	0.7	121.0	2.9
December	114.6	-0.1	121.3	3.1
2015				
January	114.0	-1.1	119.4	-0.3
February	114.5	-0.5	119.5	-0.4
March	113.1	-2.9	118.9	-1.5
April	113.4	-2.1	118.0	-3.1
May	113.9	-1.2	117.5	-3.6
June	113.3	-2.1	118.7r	-1.6
July	112.6	-3.0	118.4	-2.0
August	113.0	-2.0	118.5	-1.7
September	111.6	-3.8	117.4r	-3.1r
October	111.3	-3.9	118.1	-1.6

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)	-0.2	-0.3
2. New orders, iron and steel mills (NAICS 3311 & 3312), 1982\$	-0.3	0.3
3. Shipments of household appliances, 1982\$	-0.2	0.1
4. S&P stock price index, steel companies	-0.5	0.1
5. Retail sales of U.S. passenger cars and light trucks (units)	0.2	-0.1
6. Growth rate of the price of steel scrap (#1 heavy melting, \$/ton)	-0.1	-0.2
7. Index of new private housing units authorized by permit	-0.2	0.2
8. Growth rate of U.S. M2 money supply, 2009\$	0.2	-0.4
9. PMI	-0.1	0.0
Trend adjustment	0.0	0.0
Percent change (except for rounding differences)	<u>-1.2</u>	<u>-0.3</u>
Coincident Index		
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\$	-0.1	0.4
3. Total employee hours, iron and steel mills (NAICS 3311 & 3312)	-0.9r	-0.2
Trend adjustment	0.1	0.1
Percent change (except for rounding differences)	<u>-1.0r</u>	<u>0.6</u>

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, 1993-2015

1977=100

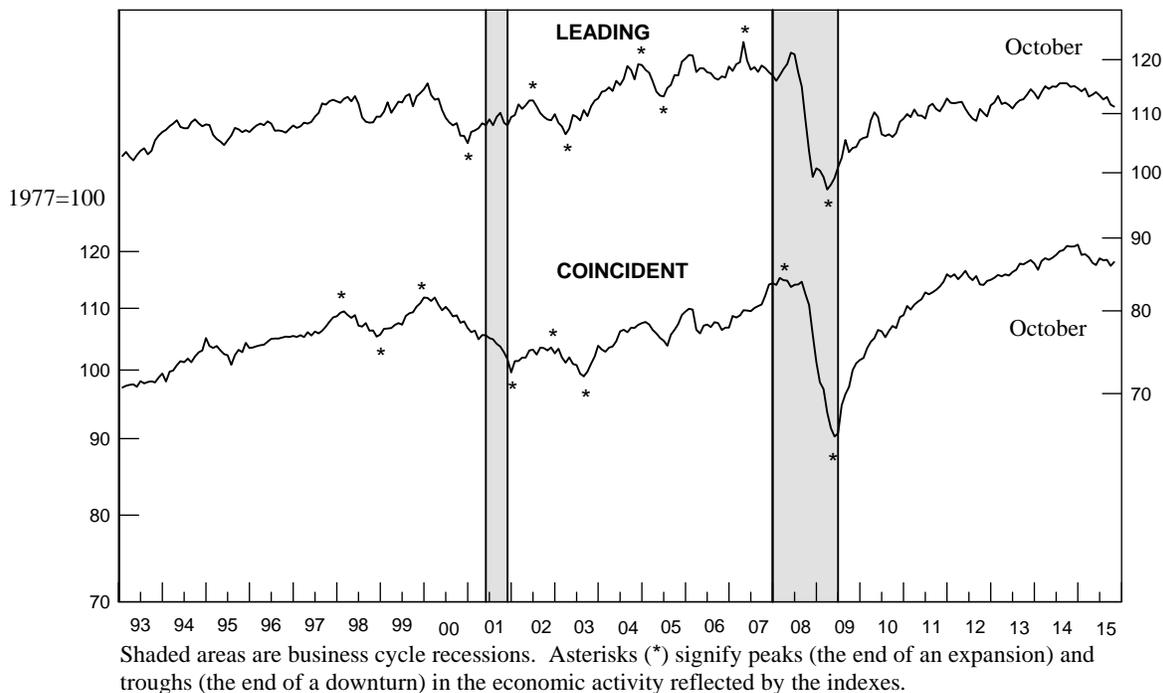
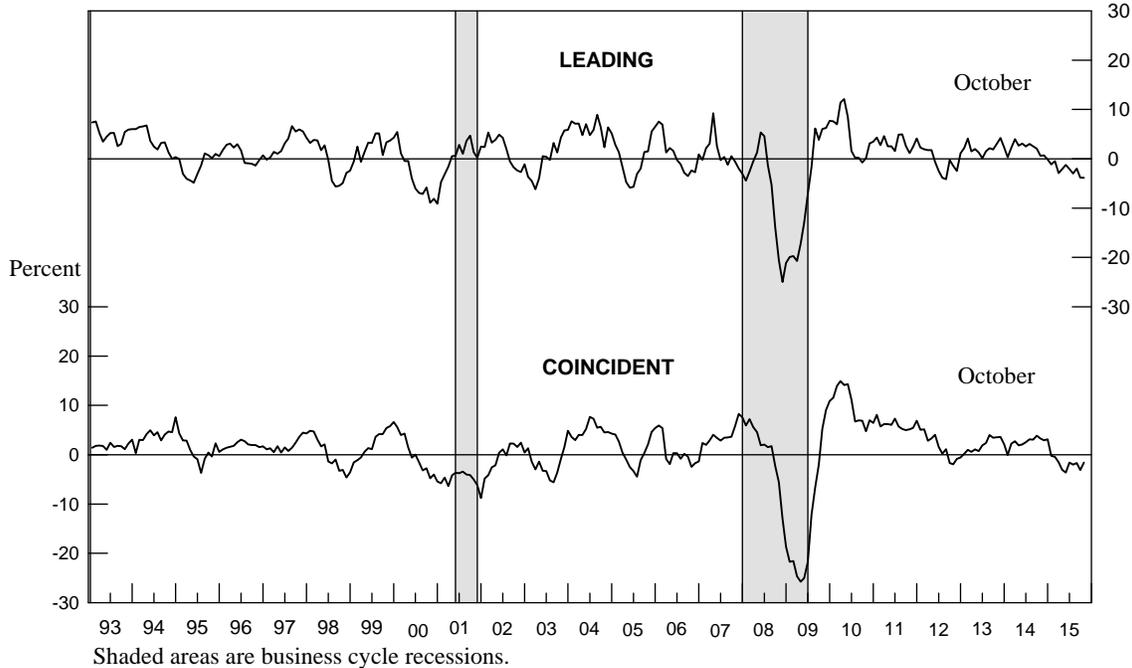


CHART 5.
STEEL: LEADING AND COINCIDENT GROWTH RATES, 1993-2015

Percent



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
2014				
November	129.0	2.4	104.7	-6.6
December	128.8	1.8	109.4	1.6
2015				
January	126.3	-2.0	109.2	1.0
February	129.2	2.1	110.7	3.3
March	128.7	1.1	111.2	3.6
April	128.4	0.7	110.2	1.7
May	129.7	2.5	110.8	2.6r
June	129.5	1.8	110.6	2.1r
July	126.9	-2.1	109.5r	0.4r
August	128.2	-0.1	109.7r	1.0r
September	125.7	-3.8	106.1r	-4.9r
October	126.7	-2.2	107.6	-2.3

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

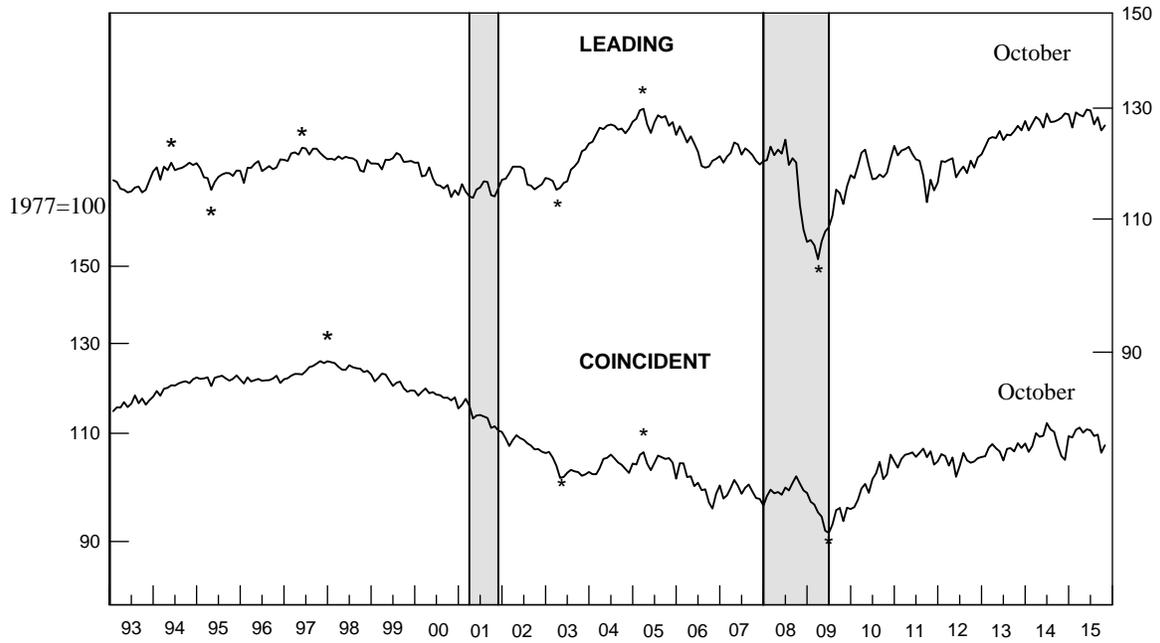
	September	October
Leading Index		
1. Average weekly hours, nonferrous metals (except aluminum) (NAICS 3314)	-1.6	0.4
2. New orders, nonferrous metal products, (NAICS 3313, 3314, & 335929) 1982\$	0.0	0.0
3. S&P stock price index, building products companies	-0.1	0.2
4. LME spot price of primary copper	0.0	0.0
5. Index of new private housing units authorized by permit	-0.3	0.3
6. Spread between the U.S. 10-year Treasury Note and the federal funds rate	0.0	-0.1
Trend adjustment	0.0	0.0
Percent change (except for rounding differences)	-2.0	0.8
Coincident Index		
1. Industrial production index, primary smelting and refining of copper (NAICS 331411)	-0.5r	0.3
2. Total employee hours, nonferrous metals (except aluminum) (NAICS 3314)	-2.9r	1.0
3. Copper refiners' shipments (short tons)	NA	NA
Trend adjustment	0.1	0.1
Percent change (except for rounding differences)	-3.3r	1.4

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, 1993-2015

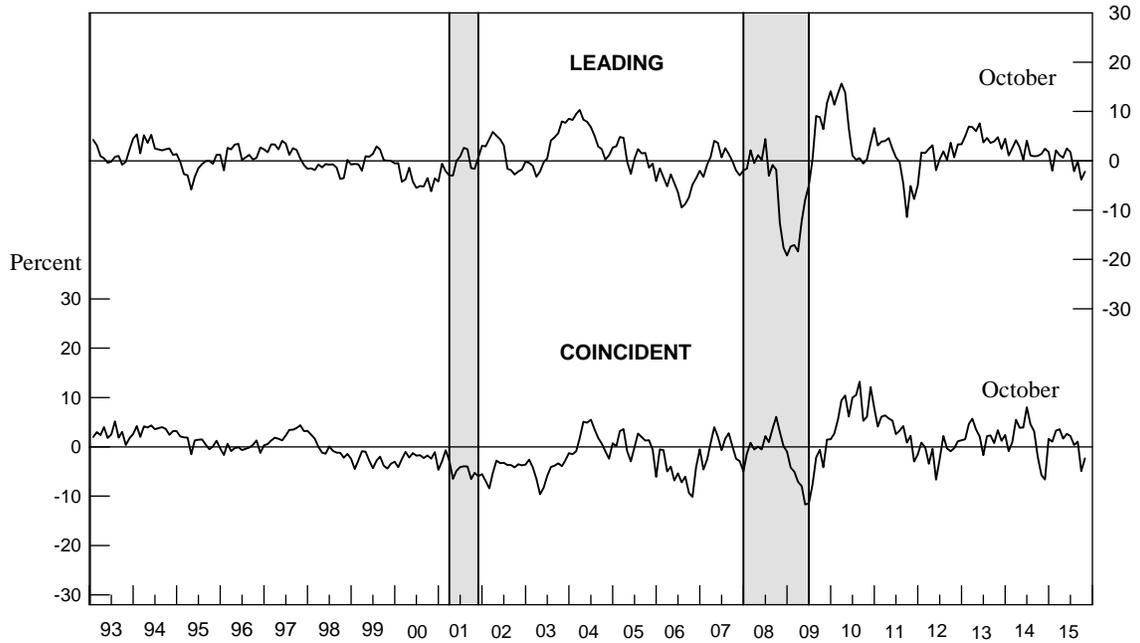
1977=100



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, 1993-2015

Percent

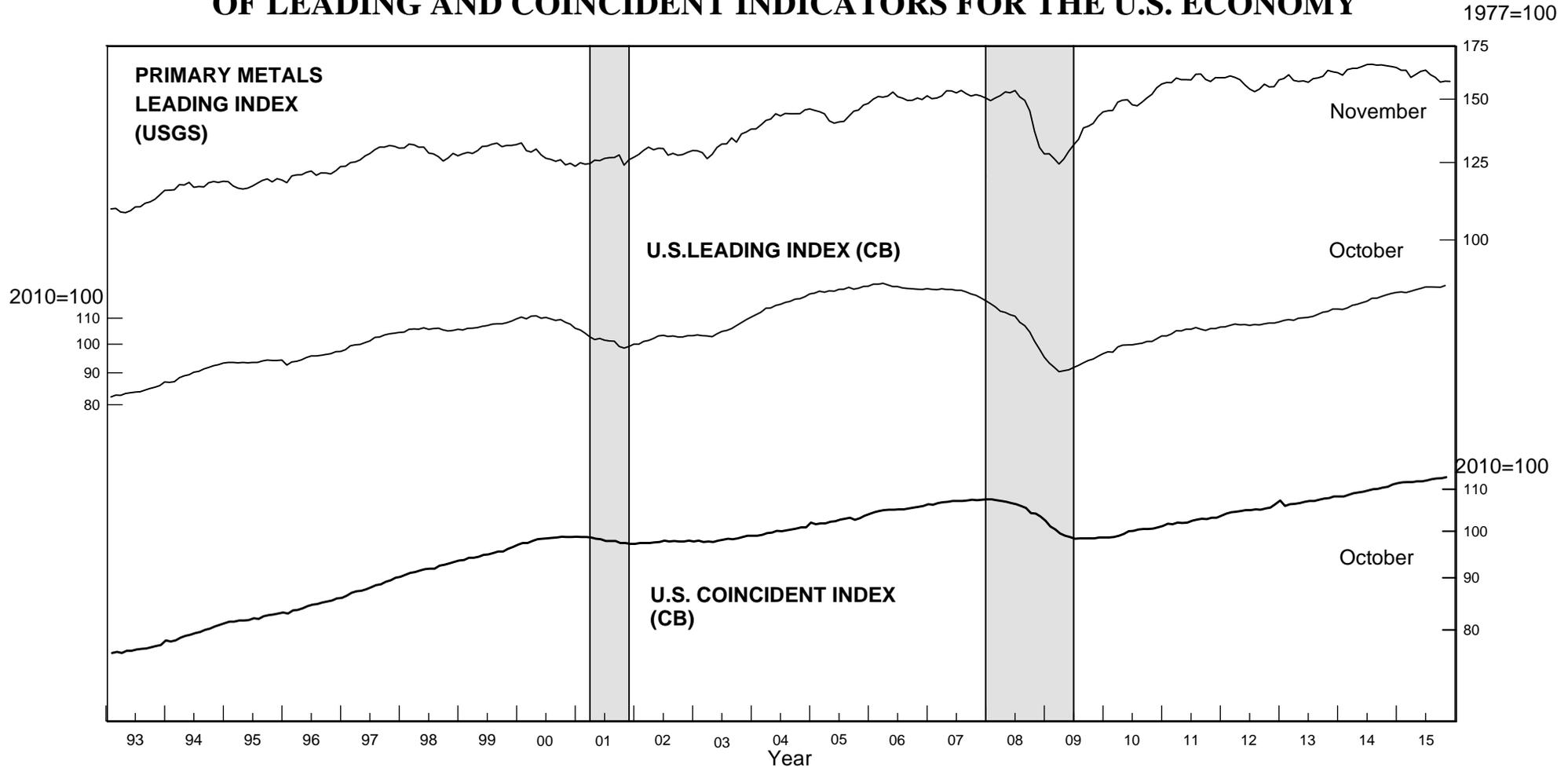


Shaded areas are business cycle recessions.

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 2015