



Metal Industry Indicators

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

November 13, 2015

The **primary metals leading index** edged down 0.1% in October to 157.5 from a revised 157.7 in September; however, its 6-month smoothed growth rate rose to -5.2% from a revised -5.6% in September (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 decreased for the fourth consecutive month and suggests that growth in primary metals industry activity is likely decline in the near term. Manufacturing capacity utilization is operating below its long-term trend. This has reduced metals demand and it is likely that demand will decrease further. However, demand for transportation equipment, particularly automotive equipment, could buoy domestic metals consumption slightly. The metals demand from the construction sector has underpinned the primary metals industry this year and could support primary metals activity in the near-term. The ongoing decline in global economic growth, particularly in China, and the strong U.S. dollar, is restraining U.S. metal exports and metal imports are still high.

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).

One of the four indicators that were available for the October index calculation decreased, one increased slightly, and two remained near their September levels (Table 3). A shorter average workweek in primary metals establishments in October made the only negative contribution, -0.2 percentage point, to the net decline in the leading index. An uptick in the stock price index combining construction and farm machinery companies and industrial machinery companies, which has been falling for over 2 years, contributed 0.1 percentage point. The PMI, the Institute for Supply Management's purchasing managers' index, moved closer to the threshold that indicates decreases in U.S. manufacturing activity. Its contribution rounded to zero. The USGS metals price index growth rate was essentially the same as in September. Its contribution was zero as well. The October 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 1.2% to 111.6 in September from a revised 113.0 in August (Table 4). Seven of its nine indicators decreased in September, but a sharp decline in the S&P stock price index for steel companies made the largest negative contribution to the steel leading index. In contrast, sales of new cars and light trucks rose to the highest level in ten years (Table 5). Despite this increase in automotive sales, much of the metal consumed by the automotive manufacturers was likely supplied by imports. Although steel imports decreased in September, import applications rose again in October. The steel leading index growth rate has fallen

deeper into negative territory and indicates a decline in domestic steel industry growth in the near term. The copper leading index decreased 2.0% to 125.7 in September from a revised 128.2 in August (Table 6). A severe cut in the average workweek in nonferrous metals, except aluminum, plants accounted for nearly the entire decline in the copper leading index. A drop in the index of new housing permits also pulled the leading index down in September (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 0.3% to 104.2 in September, the latest month for which it is available, from 103.9 in August (Table 1) and its 6-month smoothed growth rate increased to -0.3% in September from a revised -1.3% in August. Only one of its four indicators increased in September, 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 continued to decline and was the lowest that it has been in over 3 years, pointing to further decreases in growth for most industrialized countries. It contributed -0.2 percentage point. A rise in the growth rate of the inflation-adjusted value of new orders for U.S. nonferrous metal products 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 was the same as in August and its contribution also was 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 September. The actual value of U.S. metals inventories levels continued to rise and reached a new recent record high. Although the metals price leading index growth rate is still negative, it has steadily increased since the start of the year, indicating that metal prices are poised to rise quickly if the global economic climate improves.

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

Primary Metals	-0.4%
Steel	-0.2%
Copper	-2.7%

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 October and November is scheduled for release on the World Wide Web at 10:00 a.m. EST, Friday, December 11, 2015.

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							
September	106.4r	-4.5	-6.1	3.9	12.2	-8.1	-2.0
October	105.7r	-5.1r	-4.7	7.0	19.7	-5.7	-11.6
November	105.5	-4.9r	-8.9	9.1	24.0	-11.6	-26.6
December	104.7	-5.7	-14.6	8.4	-4.1	-14.5	-25.3
2015							
January	103.8	-6.5	-28.6	13.0	-4.0	-33.0	-15.6
February	103.6	-6.0	-21.3	12.6	-9.4	-21.5	-54.9
March	103.2r	-5.9	-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	7.1r	-19.3	-11.7	-42.7
June	104.3	-1.8	-20.1	8.3	-23.8	-19.6	-29.9
July	103.9r	-1.8r	-28.9	13.4	-26.9	-30.1	-32.7
August	103.9	-1.3r	-29.0	15.7r	-28.1	-29.9	-42.1
September	104.2	-0.3	-26.3	15.1	-23.1	-26.5	-43.5
October	NA	NA	-22.5	NA	-31.4	-22.1	-62.1

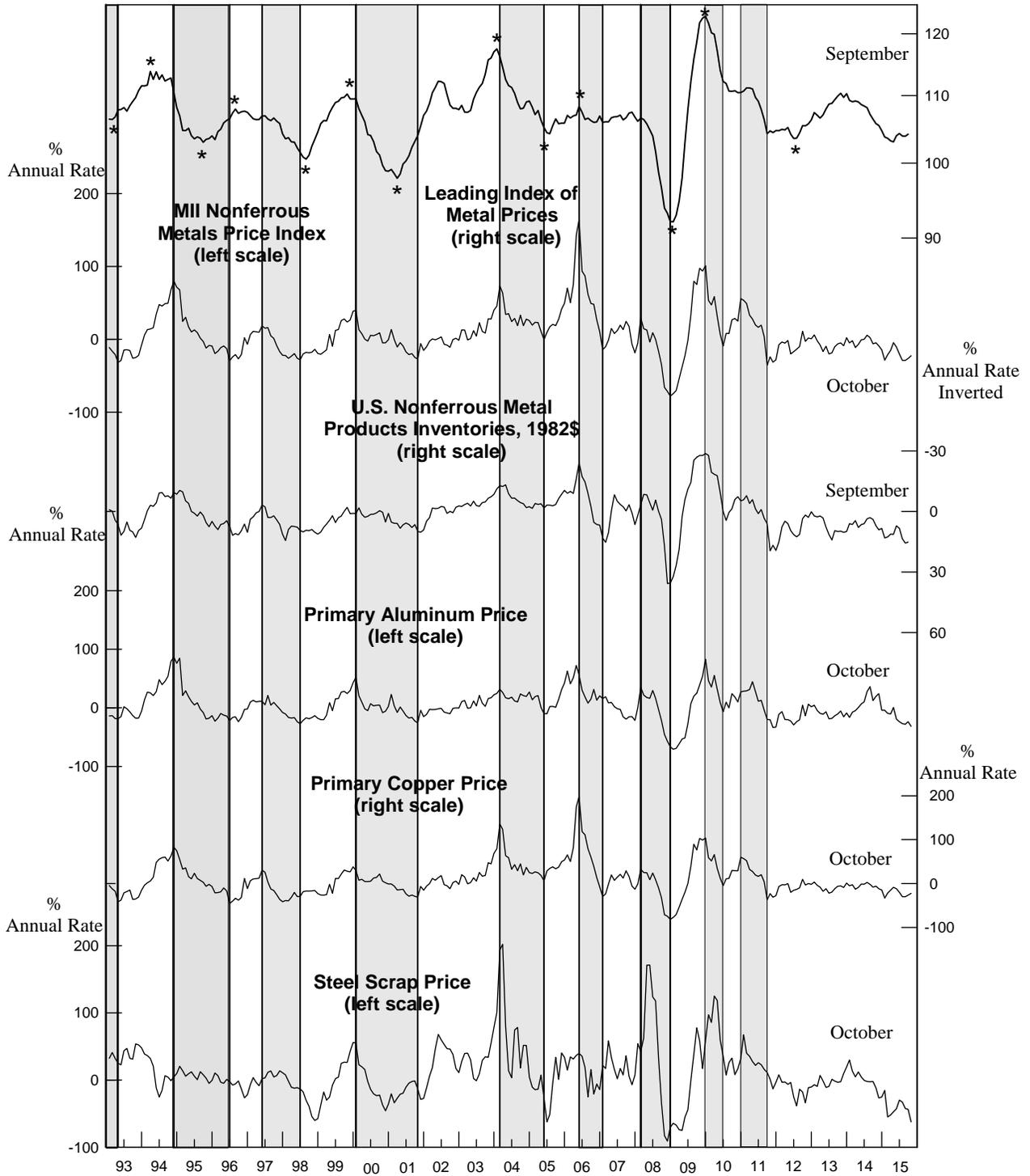
NA: Not available **r:** Revised

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				
October	165.2	1.5r	114.3	3.9
November	164.8	0.9r	113.5	2.0
December	164.4r	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	-3.6r	112.1	-2.1r
May	162.5r	-1.8r	112.3r	-1.8r
June	163.0r	-0.9r	113.3r	-0.2r
July	160.9r	-3.0r	113.4r	0.1r
August	159.7r	-4.0r	112.6r	-1.2r
September	157.7r	-5.6r	112.2	-1.8
October	157.5	-5.2	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.
The Contribution of Each Primary Metals Index Component to the Percent Change in the Index from the Previous Month

Leading Index	September	October
1. Average weekly hours, primary metals (NAICS 331)	-0.4r	-0.2
2. Weighted S&P stock price index, machinery, construction and farm and industrial (December 30, 1994=100)	-0.5r	0.1
3. Ratio of price to unit labor cost (NAICS 331)	-0.1	NA
4. USGS metals price index growth rate	0.0r	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	-0.2	NA
7. Growth rate of U.S. M2 money supply, 2009\$	0.2	NA
8. PMI	-0.1r	0.0
Trend adjustment	0.0	0.0
Percent change (except for rounding differences)	-1.2r	-0.1
Coincident Index	August	September
1. Industrial production index, primary metals (NAICS 331)	-0.5r	0.1
2. Total employee hours, primary metals (NAICS 331)	-0.2r	-0.6
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)	-0.7r	-0.4

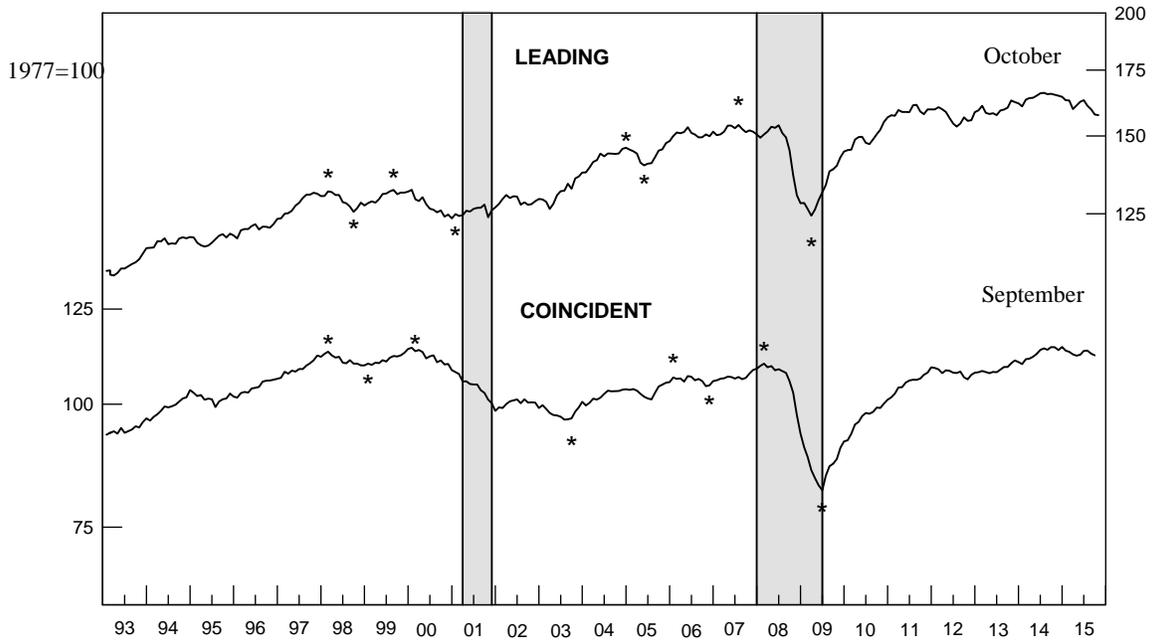
Sources: Leading: 1, Bureau of Labor Statistics; 2, Standard & Poor's and U.S. Geological Survey; 3, U.S. Geological Survey; 4, Journal of Commerce and U.S. Geological Survey; 5, U.S. Census Bureau and U.S. Geological Survey; 6, U.S. Census Bureau and U.S. Geological Survey; 7, Federal Reserve Board,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

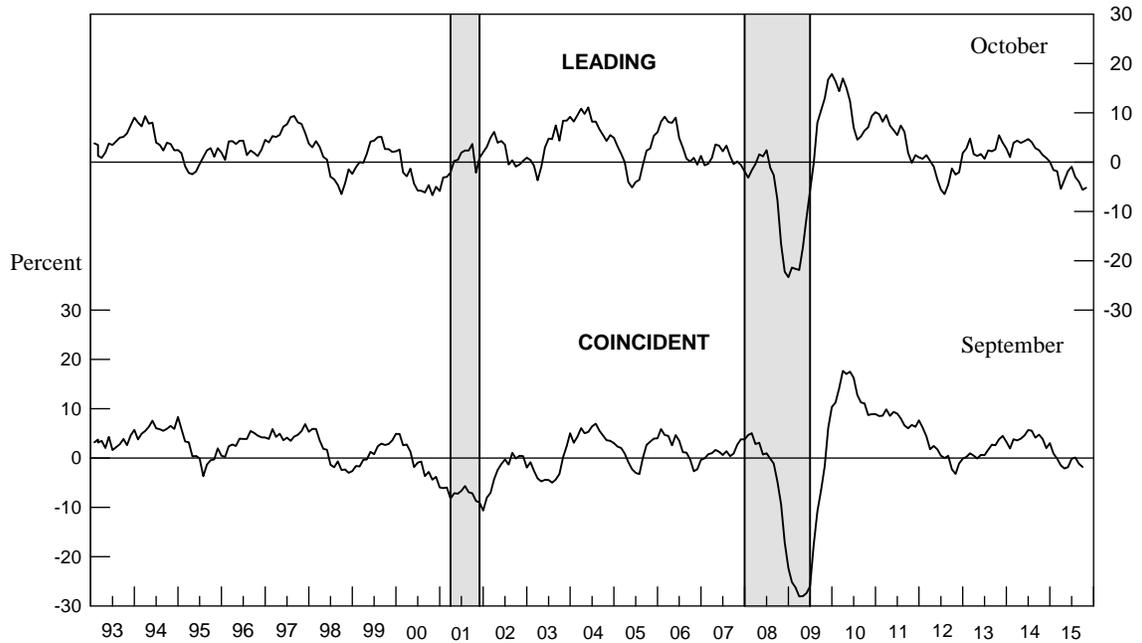
PRIMARY METALS: LEADING AND COINCIDENT INDEXES, 1993-2015 1977=100



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				
October	114.9	0.6	120.9	3.3
November	115.0	0.7r	121.0	2.9
December	114.6	-0.1	121.3	3.1
2015				
January	114.0	-1.1	119.4	-0.3
February	114.5r	-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	113.9r	-1.2r	117.5	-3.6r
June	113.3r	-2.1r	118.8	-1.6
July	112.6r	-3.0r	118.4	-2.0
August	113.0r	-2.0r	118.5r	-1.7r
September	111.6	-3.8	118.3	-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 5.
The Contribution of Each Steel Index Component to the Percent Change in the Index from the Previous Month

Leading Index	August	September
1. Average weekly hours, iron and steel mills (NAICS 3311 & 3312)	0.3	-0.2
2. New orders, iron and steel mills (NAICS 3311 & 3312), 1982\$	0.1r	-0.3
3. Shipments of household appliances, 1982\$	-0.1r	-0.2
4. S&P stock price index, steel companies	0.1	-0.5
5. Retail sales of U.S. passenger cars and light trucks (units)	0.0	0.2
6. Growth rate of the price of steel scrap (#1 heavy melting, \$/ton)	-0.2	-0.1
7. Index of new private housing units authorized by permit	0.1	-0.2
8. Growth rate of U.S. M2 money supply, 2009\$	0.2	0.2
9. PMI	-0.2	-0.1
Trend adjustment	0.0	0.0
Percent change (except for rounding differences)	0.3	-1.2
Coincident Index		
1. Industrial production index, iron and steel products (NAICS 3311 & 3312)	-0.5r	0.3
2. Value of shipments, iron and steel mills (NAICS 3311 & 3312), 1982\$	0.1r	-0.1
3. Total employee hours, iron and steel mills (NAICS 3311 & 3312)	0.4	-0.5
Trend adjustment	0.1	0.1
Percent change (except for rounding differences)	0.1r	-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, 1993-2015

1977=100

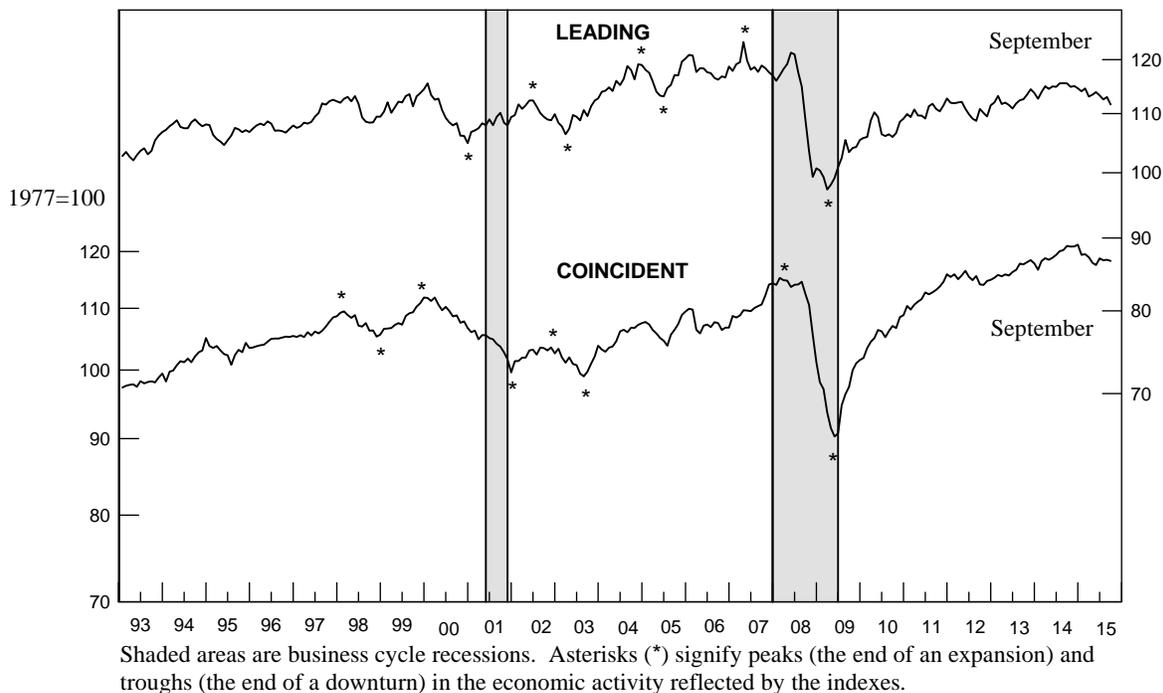
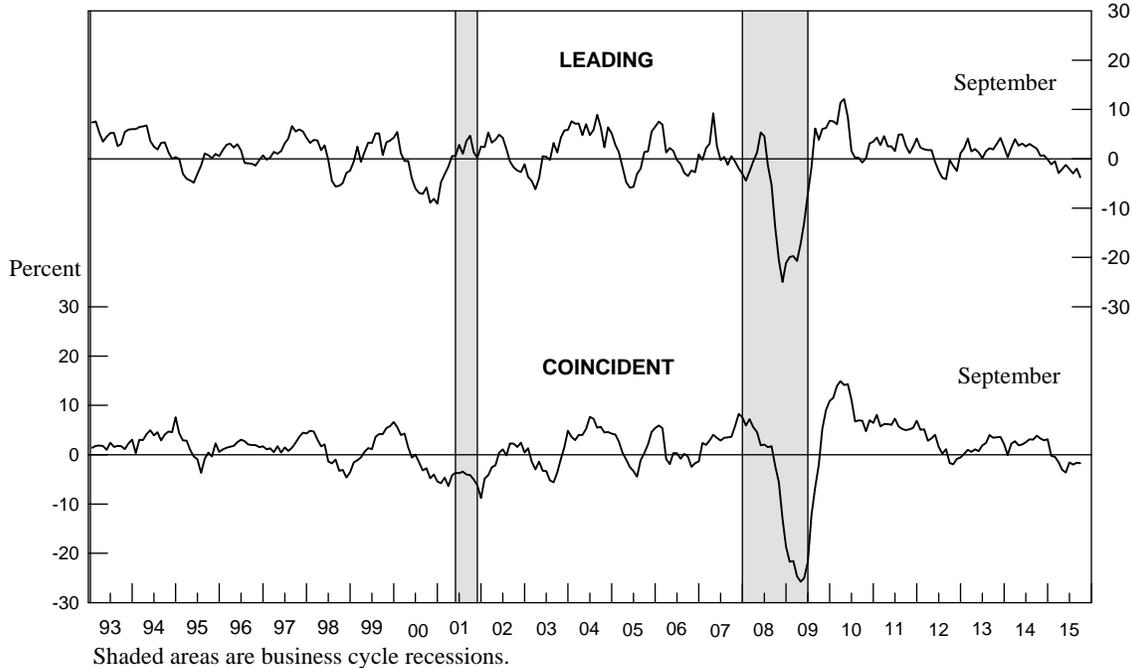


CHART 5.
STEEL: LEADING AND COINCIDENT GROWTH RATES, 1993-2015

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**

	<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				
October	128.1	1.4	105.4	-5.8
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	1.7r
May	129.7	2.5	110.8r	2.5r
June	129.5	1.8	110.6r	2.2r
July	126.9	-2.1	109.1r	-0.2r
August	128.2r	-0.1r	109.4r	0.5
September	125.7	-3.8	103.4	-4.4

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**

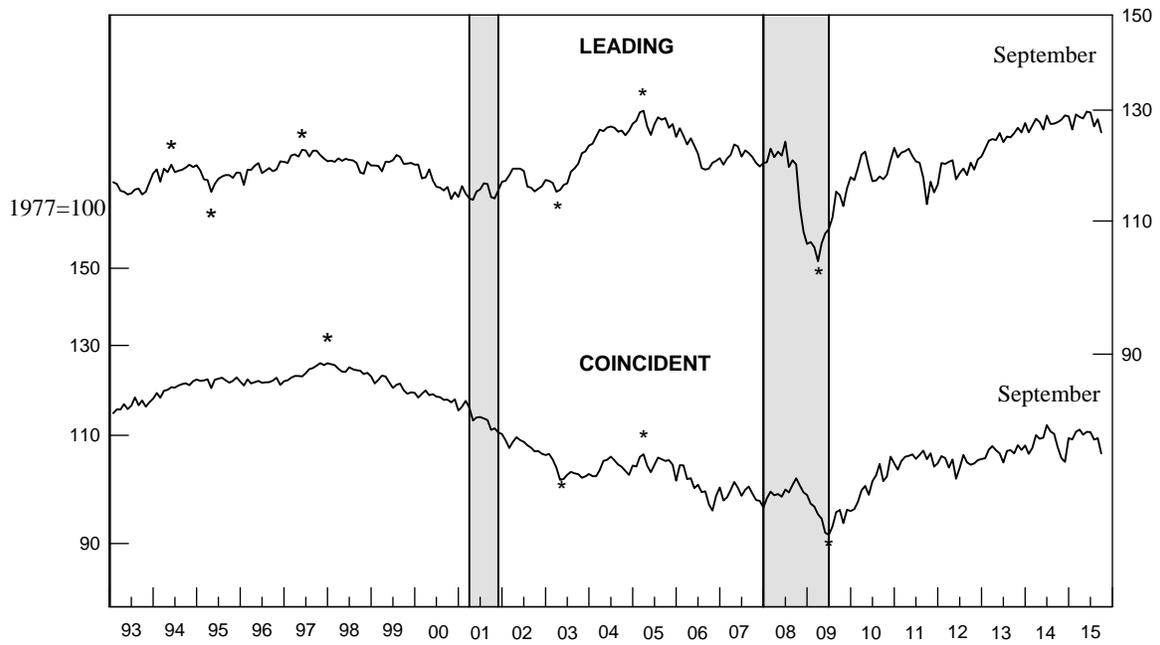
	August	September
Leading Index		
1. Average weekly hours, nonferrous metals (except aluminum) (NAICS 3314)	0.6r	-1.6
2. New orders, nonferrous metal products, (NAICS 3313, 3314, & 335929) 1982\$	0.0r	0.0
3. S&P stock price index, building products companies	0.5	-0.1
4. LME spot price of primary copper	-0.1	0.0
5. Index of new private housing units authorized by permit	0.2r	-0.3
6. Spread between the U.S. 10-year Treasury Note and the federal funds rate	-0.1	0.0
Trend adjustment	0.0	0.0
Percent change (except for rounding differences)	<u>1.1r</u>	<u>-2.0</u>
Coincident Index		
1. Industrial production index, primary smelting and refining of copper (NAICS 331411)	0.2r	0.0
2. Total employee hours, nonferrous metals (except aluminum) (NAICS 3314)	0.0	-2.8
3. Copper refiners' shipments (short tons)	NA	NA
Trend adjustment	0.1	0.1
Percent change (except for rounding differences)	<u>0.3r</u>	<u>-2.7</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; 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

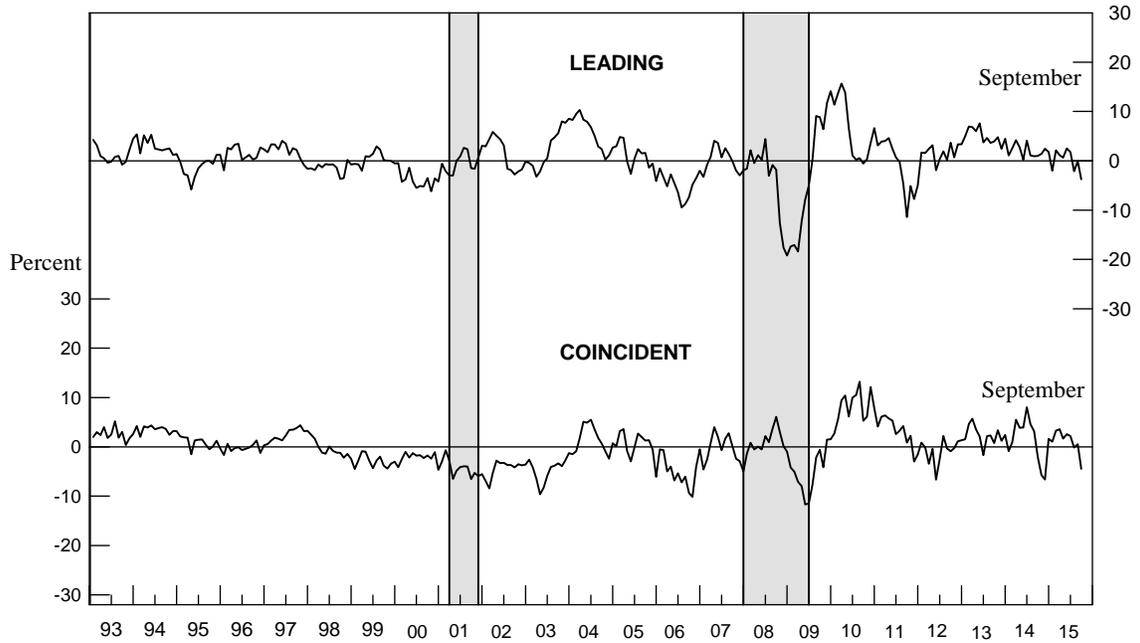
1977=100



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

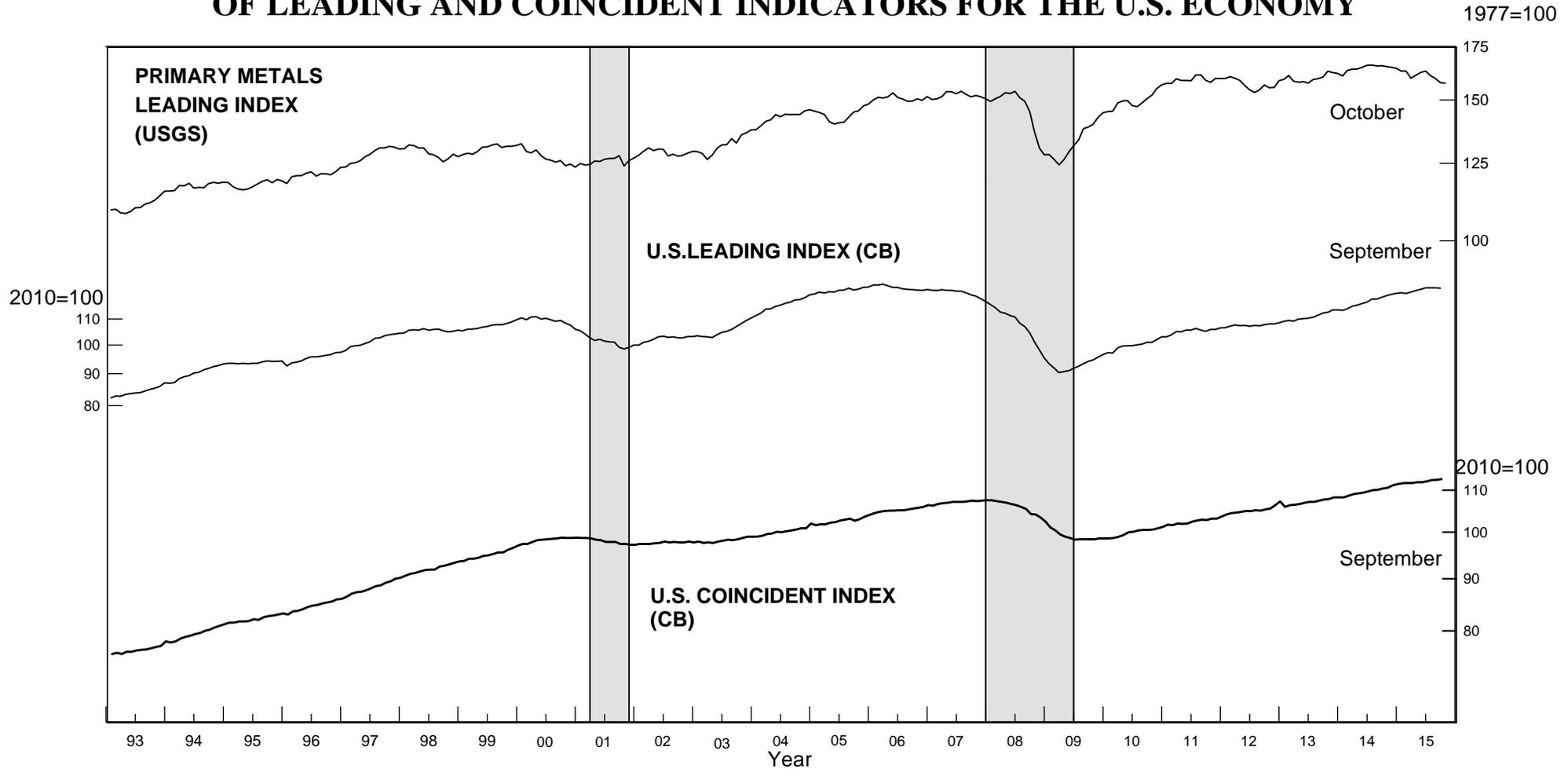


Shaded areas are business cycle recessions.

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).

November 2015