



# COMMODITY PRICE INDEXES:

## *Can They Predict Inflation?*

by Kevin L. Kliesen

Is inflation poised to move higher, perhaps to the double-digit levels last seen from 1979 to 1981? The answer to this question is currently one of the most intensely debated issues among economists and policymakers. Those who believe that inflation is well-contained point to the trend growth rates of the consumer price index (CPI) and the producer price index (PPI), which are currently less than 3 percent and 1 percent, respectively—the best performance for both since oil prices declined dramatically in 1986.<sup>1</sup> Those who see inflation rates going inexorably higher point to the dramatic increase in the yields on inflation-sensitive, 30-year Treasury bonds, which have risen more than 150 basis points between October 1993 and late June

of this year. Another potentially useful piece of evidence to ponder, however, is the behavior of commodity prices. What—if anything—can they tell us about future inflation rates?

### ***The Importance of Commodity Prices***

In a market economy, resources like labor and machinery (capital) are distributed on the basis of supply and demand. In such a system, prices serve as the mechanism by which resources are allocated to their most productive uses. For instance, suppose a reduction in the supply of crude oil creates a gasoline shortage, causing gasoline prices to rise. Those firms or individuals that are more sensitive to price changes will decide to use less gasoline, while those who are less sensitive to changes in gasoline prices will purchase about the same amount as they did before. In this manner, the change in price ensures that the reduced quantity of gasoline will go to those users who value it the most.

Is a (one-time) rise in the price of gasoline a precursor to inflation? Although an important input into

the production of many goods and services, gasoline is but one good in an economy made up of tens of thousands of goods and services. At any one time, the prices of some goods and services will be rising, while the prices of others are declining. A one-time increase in the price of gasoline, or any other commodity, does not constitute inflation. Inflation occurs, instead, when there are *persistent* increases in the prices of many goods and services.<sup>2</sup> As inflation rises, so typically does uncertainty about future inflation; this uncertainty then disrupts the functioning of the price mechanism, leading to inefficiencies in resource allocation.<sup>3</sup>

### ***The "Pass-Through" Process***

Future inflation is often hard to detect in the present for several reasons. First, the effects of excessive money growth, an important determinant of future inflation, typically are not felt for several quarters—perhaps years. Second, because many wages and prices are fixed by contracts between buyers and sellers, it takes some time before any price increases are passed along. This latter reason leads some economists to consider commodity prices an indicator of *future* inflation.

The principal linkage between changes in commodity prices and the inflation rate is rather straightforward. For instance, rubber is an important component in the production of tires. All other things equal, a rise in rubber prices will eventually result in higher tire prices, which in turn may be passed on in the form of higher car and truck prices.<sup>4</sup> Perhaps much of the recent alarm in financial markets stems from the double-digit increases in many commodity prices since last year. Substantial increases have occurred in the prices of lumber, steel, oil, cotton and cocoa, as well as many others. Eventually, to some degree, this portends higher prices for houses, autos, gasoline, clothes or candy bars. When viewed through this lens, indications are that higher prices are around the corner—although how much higher, no one knows.

### ***Weighing the Evidence***

The table at right lists the percentage change over various periods for four popular commodity price indexes and the CPI measure of overall inflation. Two distinguishing characteristics are important to note among the various commodity price indexes. First, except for the Journal of Commerce

index (JOC), each is measured on a futures price basis; the JOC index measures commodity prices on a "spot"—or cash—basis, the price that prevails at the current time. A futures price is the price that prevails on a futures contract, which stipulates the date, location, quantity and quality of a commodity the owner of the contract is legally bound to deliver.<sup>5</sup> Although changes in spot prices are useful in determining current inflationary pressures, changes in futures prices provide a barometer of future price movements, hence, the name.<sup>6</sup>

A second characteristic is the type and importance of commodities included in the index. Depending on the index, changes in a particular commodity price will have a larger effect on some indexes than on others. For example, the price of burlap, although no doubt important in certain industries, is not as important a commodity as, say, crude oil. Therefore, one would expect that a 10 percent increase in crude oil prices would have a larger effect on the Goldman Sachs commodity index (GS), which attaches a significant weight to the energy sector (48 percent), than it would on the Dow Jones futures index (DJ), which does not include crude oil prices at all. Thus, when tracking commodity price movements through a particular index, one must be aware of what is driving the index.

in the Commodity Research Bureau's (CRB) futures index, to a 7.2 percent rise for the JOC index.

Although this discrepancy widens over time, commodity price indexes and consumer inflation generally have moved in the same direction over the last three years (36 months). Over a longer horizon, however, the linkage appears to be less precise: consumer prices have increased 19.3 percent over the past five years (60 months), while most commodity price indexes have *decreased*, reflecting the negative long-term trend of commodity prices relative to those of all other prices. This pattern may not hold all of the time because each index weights individual commodities differently, and most commodity prices do not rise and fall in lockstep on a continuous basis. For example, reflecting the weakness in oil prices over the last few years, the GS index—heavily weighted toward energy prices—shows commodity price *deflation* over the past 12 months to 60 months. The DJ index, by contrast, shows just the opposite.

This discrepancy also arises because a significant part of the CPI measures inflation in the service sector, which, by and large, is little influenced by changes in commodity prices. Despite these shortcomings, one should not downplay the usefulness of commodity price indexes. They still offer additional

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#### ENDNOTES

- <sup>1</sup> The trend inflation rate is defined as the percentage increase in each index on a continuous 12-month moving average basis.
- <sup>2</sup> A discussion of the causes of inflation is outside the scope of this article. For an introductory discussion of this topic, see Keith M. Carlson, "Do Price Indexes Tell Us About Inflation? A Review of the Issues," *Review*, Federal Reserve Bank of St. Louis (November/December 1989), pp. 12-30.
- <sup>3</sup> In general, the costs of inflation depend on the extent to which it is anticipated or not. For some insights into the costs of inflation, see Michelle R. Garfinkel, "What Is an 'Acceptable' Rate of Inflation?—A Review of the Issues," *Review*, Federal Reserve Bank of St. Louis (July/August 1989), pp. 3-15.
- <sup>4</sup> Some situations may arise to prevent such a "pass through." Increases in rubber prices may be absorbed by the tire manufacturer if competitive pressures precluded such a move; in such a case, the firm would incur increased costs and reduce profits, perhaps leading to decreases in employment. The firm may also offset the higher prices through increased productivity. In this instance, the firm would reduce its costs by making its workers and machines work more efficiently, producing more output with fewer (or the same) amounts of inputs.
- <sup>5</sup> For example, a holder of a crude oil futures contract is legally required to deliver to a specific place 1,000 barrels of crude oil at the time of the contract's expiration.
- <sup>6</sup> Despite these differences, spot and futures prices for most commodities tend to move together closely over time. Furthermore, because of arbitrage, spot and futures prices converge by the date of the contract's expiration.

### Change in Selected Commodity Price Indexes Over Various Periods Monthly Data (May 1994)

Simple Percent Change Over the Most Recent Period Indicated

Price Index	Sector Weighted Heaviest (percent)	3 mo.	6 mo.	12 mo.	18 mo.	24 mo.	36 mo.	48 mo.	60 mo.
CRB Futures	Agricultural (48%)	1.1	4.6	9.9	14.0	10.6	6.5	-6.4	-2.9
Dow Jones Futures	See note	-1.2	7.0	17.5	22.0	21.1	13.3	7.4	6.2
Goldman Sachs	Energy (48%)	3.2	7.1	-2.5	-1.9	-8.4	-8.4	-6.9	-6.2
Journal of Commerce	Industrial metals (35%)	4.6	7.2	4.9	4.5	3.0	2.8	-3.1	-4.0
CPI	Housing (41%)	0.7	1.2	2.4	3.9	5.7	8.8	14.3	19.3

Note: The Dow Jones Futures index includes 12 commodities of equal weight: 6 agriculture, 3 industrial, 2 livestock and gold.

As the table shows, the various commodity price indexes often move in significantly different directions over various periods. What's more, they sometimes move in the opposite direction of the CPI. Over the past six months, for example, consumer prices have increased 1.2 percent; meanwhile, commodity prices, by any measure, have increased substantially more, ranging from a 4.6 percent rise

information about price pressures in the economy that may be hard to detect in the broader measures of price changes. Nevertheless, the analyst who follows commodity price indexes would be well advised to look at a cross section of indexes, not just focus on one.