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U.S. MARKET COMMENT: COMMODITIES: BALANCING THE ECONOMIC POSSIBILITIES

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Commodities: Balancing the Economic Possibilities

Introduction

While central banks pursue an accommodative monetary policy designed to ward off deflation, rising commodity prices suggest that they could well tip the scales in the opposite direction, stimulating an unexpected kick in the rate of inflation. Oil and gold prices have led the surge, but 25 of 26 leading commodities experienced cumulative price gains over the past 13 months. This unusually wide breadth, widest since the 1970s, combined with tight inventories in key commodities, has yet to spur consumer price inflation, since the rising cost of raw materials has so far been absorbed by companies that find themselves unable to raise prices in the current environment. However, increases in commodity prices typically lead increases in consumer prices by six to 12 months and with margins already suffering from sluggish top-line growth, corporations will have to pass through any further increases. In addition, significant economic growth in Asia—especially in China—may support higher commodity prices over the long term, regardless of the overall level of inflation.

Deflation or Inflation: Which is it?

Since the primary benefit of holding commodities is to hedge against sharp increases in inflation, one may question the wisdom of investing in commodities when deflation appears to be the threat *du jour*. Indeed, with corporate and consumer leverage at historical highs, capacity utilization at little better than 75%, and capital goods expenditures growing only at 2% to 3%, investors may find it difficult to see where the inflationary pressures could come from. However, just as the spring melt will ultimately come, the stockpile of excess liquidity will eventually make its way into the economy.

The key question is whether the excess liquidity will flood the system too late to have a positive effect; that is, *after* deflation has taken hold, corporations have been crippled under their debt loads, and consumers have begun hoarding cash (as in Japan). Although history suggests that massive liquidity infusions can incite significant bouts of inflation, while dangerously masking leverage problems, the short answer is that we don't know how the battle between inflationary and deflationary forces might end. Consequently, just as we advise investors to continue holding bonds to hedge against potential deflation, so we think it makes sense to have some exposure to commodities as part of a hedge against inflation.

Commodity Valuations

The Goldman Sachs Commodity Index (GSCI) generated a total return of 61.4% and a price return of 64.7% over the trailing 14 months (January 1, 2002 to February 28, 2003), but commodities in

general remain undervalued. Much of the gains in 2002 represent a snap-back from depressed prices in 2001, while the index's overall performance was driven by its heavy weight in energy, currently 72%. As of February 28, the GSCI trades at approximately 74.8% of its post-1970 inflation adjusted average and several commodity sectors currently trade below their 1997 price levels. For example, the agriculture index remains 30.5% below its 1997 high, while the GSCI Industrial Metals Index is down 22.5% from its 1997 peak. The livestock index trails its 2001 peak by 12.3% and its 1997 high by 8.2%. In contrast, the energy index established a new high recently and remains 5.6% above its November 2000 peak.

Throughout the most recent cycle, commodity breadth has been unusually strong, with a basket of 26-leading commodities experiencing an average price gain of 41.4% over the period January 1, 2002 to January 31, 2003 (see Table A). However, energy has been the clear standout. For example, the GSCI Energy Index experienced a total return of 100.4% over the period January 1, 2002 to February 28, 2003, accounting for nearly 100% of the GSCI return since January 1, 2002. The impending war with Iraq has resulted in a $5 to $15 per barrel war premium for the price of crude oil. In addition, the refinery strikes in Venezuela, which removed 3.1 million barrels per day from the market, and the unseasonably cold winter in the Northeast, which resulted in 30% more heating degree days than normal, have lowered oil stocks to minimum operational levels. While Venezuela refineries are back on-line, production is approximately 50% of pre-strike levels, as disputes with President Chavez continue and the refinery labor force has been reduced by one-third. Further, days of inventory coverage on total U.S. crude and petroleum products has declined from nine days in the early 1990s to just two days today.[1] Finally, natural gas prices, which climbed 22% in January to over $5/mmBtu, continued to soar in February, reaching over $8.79/mmBtu on February 28, as unseasonably cold weather continued to drive inventories to dangerously low levels.

Beyond the war premium, rising energy prices are based on actual supply constraints, rather than "what ifs." Prices could decline if Venezuela resumes full capacity in short order and the Iraqi conflict is resolved expeditiously, but many experts warn that taking such low inventories into the summer travel season could keep oil prices high for some time. On the other hand, some analysts note the potential for significant supply increases from Russia and the Caspian region. The point is that no one truly knows where oil prices will go, as evidenced by January futures contract prices of $33/bbl for February 2003, $29 for June 2003, and $26 for December 2003. Since crude was trading at approximately $37/bbl on February 28, 2003, the recent run was likely exacerbated by a short squeeze.

Bucking the significant increases in commodity prices, capacity utilization in the United States is 75.7%, which is low by historical standards—capacity utilization has averaged 81.7% since 1967, ranging

[1] Source: "Commodity Watch," Goldman Sachs Research, January 23, 2003.

from a low of 70.8% (in 1982) to a high of 89.4% (in 1967). Historically, commodity prices have risen significantly when capacity utilization was high and inventories particularly low. The uncharacteristically low inventory levels coming out of the 2001 recession and the reluctance to invest in capacity infrastructure suggest that moderately rising global demand or sharply rising Asian demand could quickly absorb excess capacity and support higher commodity prices. However, prices are only one part of investing in commodities, and have delivered negative real returns over the long term (see Table B). As a result, institutions typically invest in long-only collateralized futures contracts like the GSCI, which provide three complementary sources of return—spot yield, roll yield, and collateral yield—and much better long-term performance than direct investing.[2]

China

With over 20% of the world's population, but only 11% of world GDP share and per capita income 2.5% that of the United States, China is considered the next big global growth story. China's main advantage is that it has more workers than jobs, resulting in the lowest cost of labor among manufacturing-based economies. Indeed, China has possessed this advantage for quite some time, but only began realizing significant export growth after opening its markets in the early 1970s—China has increased its world share of exports from 1% in the 1970s to 5% today. However, if one compares this growth with other nations that had competitive labor advantages historically, China appears to have significant room to grow. For example, Hong Kong's export market share grew from 0.5% in the mid-1950s, when per capita income was 15% of the U.S. level, to over 3.5% in early 1990s, when per capita income reached 80% of the U.S. level. Perhaps the most relevant example is that of Japan—during its ascent to becoming the world's second largest economy, Japan increased its share of world export growth from 1% in 1950 to nearly 11% by the late 1980s. In addition, Japan's per capita income rose from 20% of the U.S. level in the 1950s to nearly 140% of the U.S. level in 1998, before settling back to approximately par with the United States. Given China's huge population, a significant rise in its domestic income would fuel commodity demand for domestic consumption, as well as export production.

Currently, China is a net importer of several key industrial commodities. For example, China consumes 16% of the world's aluminum, 16% of copper, 7% of nickel, and 25% of iron ore, despite producing just 9%, 10%, 5%, and 0% of these commodities, respectively (see Table C). Therefore, significant growth in China's export markets is likely to increase demand for these key commodities. The biggest commodities play in China is likely to result from rising national income levels and a greater demand for energy, industrial, and agricultural goods *domestically*. China currently consumes just 15

[2] For further discussion of this topic please see our 2002 report, *Commodities.*

kilograms of meat per person, compared to 81 grams and 91 grams per person in Taiwan and Hong Kong, which are significantly more affluent (see Table C). Indeed, compared to Taiwan and Hong Kong, China consumes similar fractions of all major food types except rice. Finally, Asia overall, with a population of three billion, or ten times that of the United States, consumes approximately 19 million barrels of oil daily, compared to 22 million barrels being consumed daily in the United States. As a result, some see a doubling of Asian oil consumption, to 35 million to 45 million barrels daily, over the next ten years.[3]

Conclusion

While the economic threats for U.S. investors appear skewed towards deflation, the main deflation-fighting tool, liquidity, could just as likely spur a significant bout of inflation. Commodities in general are currently undervalued, primarily as a result of extremely low inventory levels, and Asian demand is rising. However, the war premium has inflated prices in the key energy sector by 15% to 30%, suggesting that it might be best to wait until this effect dissipates.

[3] Source: "The Gloom, Boom, & Doom Report," by Marc Faber, Marc Faber Limited, November 25, 2002.

Table A

INDIVIDUAL COMMODITY PRICE RETURNS DURING KEY PERIODS

Price Returns (%)

Commodities	High-Inflation 1973-81	Broad Demand 1987-89	Gulf War 1990-91	Asian Financial Crisis 1997-98	Wide Breadth Inventory Rebuilding 1/1/02 - 1/31/03
Coffee	---	---	---	46.73	134.47
Propane	---	273.68	-61.48	-59.70	110.44
Natural Gas	---	---	---	-52.22	106.25
Wool	38.63	45.36	-16.40	-22.66	77.40
Diesel	---	---	---	-52.89	76.44
Cotton	---	15.41	-16.29	-17.57	71.17
Cocoa	193.95	-52.08	37.65	-1.13	70.94
Oil	883.15	21.45	-12.39	-53.53	68.90
Jet Kerosene	---	56.25	-29.40	-56.19	46.73
Nickel	---	135.32	-13.29	-35.37	44.05
Platinum	---	---	-31.98	-1.62	39.75
Gold	515.38	2.56	-11.90	-21.67	32.11
Soy Beans	---	30.67	-5.43	-22.47	27.73
Wheat	---	42.74	-0.53	-11.63	25.53
Live Steers	---	---	---	-10.49	23.14
Eggs	---	41.38	-40.49	-14.19	21.37
Corn	---	61.27	5.46	-21.76	20.26
Copper	---	---	---	-34.35	17.23
Tin	---	---	-19.21	-10.60	15.99
Sugar	37.52	121.38	-27.26	-26.88	13.96
Pork Bellies	---	-33.33	-36.63	-48.63	13.04
Chicken	---	5.62	-2.49	-8.29	10.60
Aluminum	---	36.41	-30.07	-18.92	6.21
Silver	304.41	-3.45	-25.58	6.77	4.84
Zinc	---	---	-11.88	-12.43	3.94
Lean Hog	---	---	---	-67.01	-4.03
Average	328.84	47.10	-17.48	-24.18	41.48
GSCI Sub-Indices (Price Returns)					
Energy[1]	---	33.53	-18.63	-48.26	72.55
Precious Metals[2]	433.98	-0.07	-16.67	-17.70	29.87
Agriculture	48.30	33.96	-6.21	-21.39	21.61
Livestock	17.10	23.06	-11.58	-27.06	6.77
Average	166.46	22.62	-13.27	-28.60	32.70

Sources: Bridgewater, Bureau of Labor Statistics, Oil and Gas Journal Energy Database, and Thomson Datastream.

Note: Due to changes in base pricing and index calculation methodologies, many *individual* commodities lack a continuous price series or data prior to the 1990s.

[1]GSCI Energy Index data begin December 31, 1982.

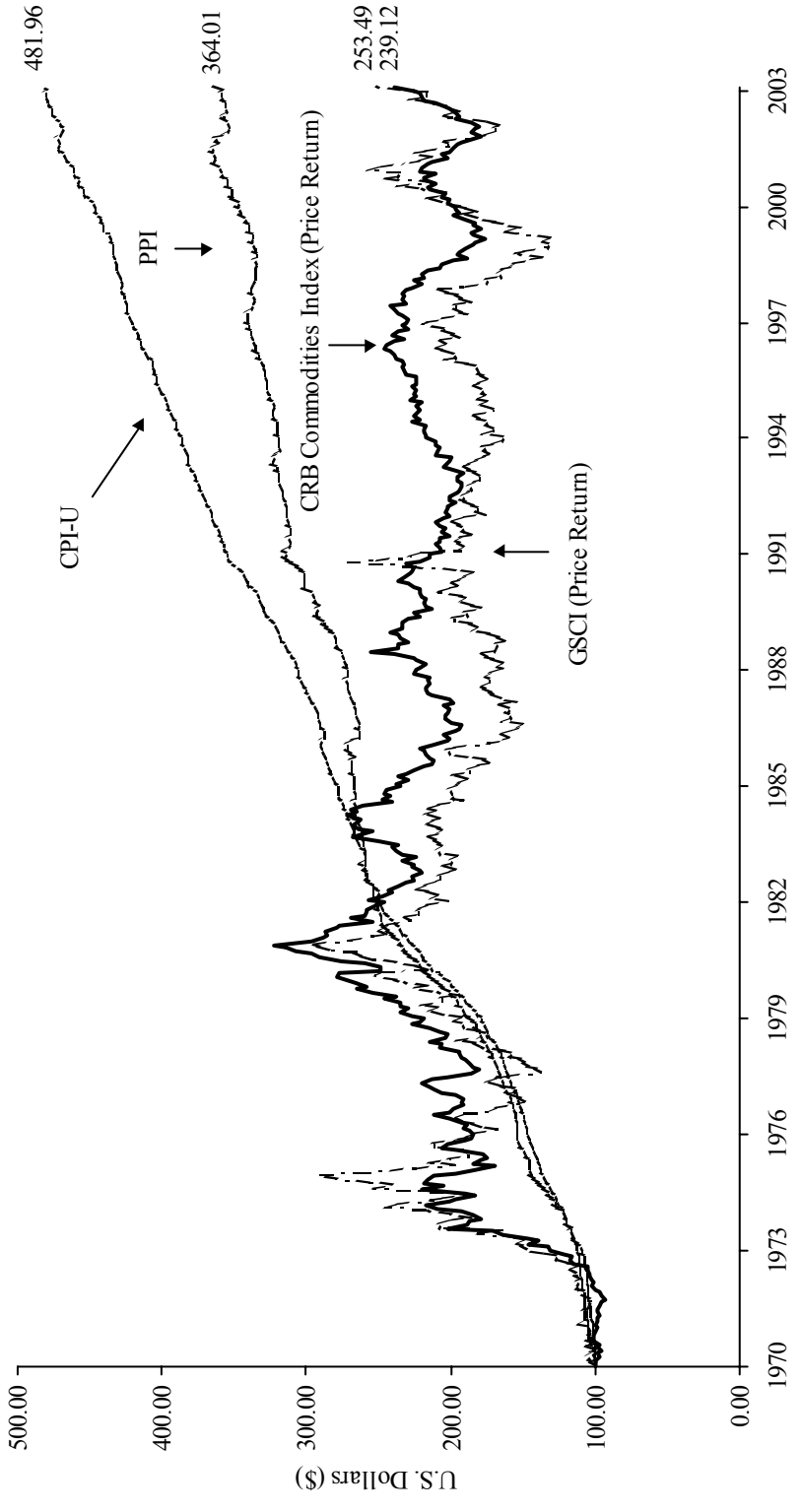
[2]GSCI Precious Metals Index data begin January 31, 1973.

Table B

HISTORICAL COMMODITY PRICE RETURNS AND INFLATION

January 1, 1970 - January 31, 2003

Cumulative Wealth Index
(December 31, 1969 = $100)



Sources: Bridgewater, Bureau of Labor Statistics, and Thomson Datastream.

Table C

CHINA'S INDUSTRIAL COMMODITIES AND FOOD CONSUMPTION

China's Share of World Production and Consumption (%)
2002

Element	World Production	World Consumption	Difference
Alumina	9	16	+7
Copper	10	16	+6
Nickel	5	7	+2
Seaborne Iron Ore	0	25	+25
Gold	6	6	---
Platinum	0	22	+22
Aluminum	17	16	-1
Lead	19	12	-7
Magnesium	47	8	-39
Molybendium	21	4	-17
Tin	31	20	-11
Zinc	21	19	-2
Seaborne Steam Coal	18	0	-18

Food Consumption (kilograms per person)

Commodity	China	Taiwan	Hong Kong
Meat	15	81	91
Fish	4	59	57
Rice	154	85	60
Fruit	12	92	92
Liquid Milk	6	39	52
Vegetables	19	70	78
Fruit Juices	0	19	3

Sources: Consumer Asia 1995 (taken from Marc Faber's *Tomorrow's Gold*) and Rio Tinto.

Table D

HISTORICAL RETURNS (%) ADJUSTED FOR U.S. INFLATION

Investing in a High-Inflation Environment

Years Ended December 31	U.S. CPI-U	U.S. PPI	G7 CPI	S&P 500	LB Govt/ Credit	GSCI Total Rtn.	GSCI Agclt	GSCI Lvstk	GSCI Prec Met*	Change in Crude Oil Price
1973	8.7	11.5	10.3	-21.6	-5.9	60.9	127.8	2.8	41.4	161.2
1974	12.3	18.5	14.1	-34.5	-10.8	24.2	66.4	-31.4	18.1	-1.7
1975	6.9	6.6	9.1	28.3	5.0	-22.6	-43.5	33.9	-14.5	-6.5
1976	4.9	3.8	8.0	17.8	10.2	-16.0	-21.8	-12.0	-2.0	18.8
1977	6.7	6.9	7.4	-13.2	-3.5	3.4	-16.3	26.8	2.1	0.1
1978	9.0	9.1	7.6	-2.4	-7.2	20.7	5.9	35.6	21.0	-8.3
1979	13.3	12.9	12.0	4.3	-9.7	18.1	19.0	6.6	146.9	93.2
1980	12.5	11.7	11.7	17.6	-8.4	-1.3	15.7	-11.2	-19.4	3.9
1981	8.9	7.1	9.6	-12.8	-1.5	-29.3	-35.9	-20.0	-41.5	-15.4
AACR (1973-81)	9.2	9.7	10.0	-3.8	-3.8	3.3	3.1	0.9	8.3	18.0
Standard Deviation	1.7	2.6	1.4	18.6	9.4	22.5	33.8	22.8	36.1	46.3

Investing in a Low-Inflation Environment

Years Ended December 31	U.S. CPI-U	U.S. PPI	G7 CPI	S&P 500	LB Govt/ Corp	GSCI Total Rtn.	GSCI Agclt	GSCI Lvstk	GSCI Prec Met	Change in Crude Oil Price
1982	3.8	3.6	5.3	17.0	26.3	7.4	-21.4	43.4	10.4	-11.9
1983	3.8	0.5	4.6	17.9	4.0	12.0	15.0	17.9	-18.6	-10.7
1984	3.9	1.7	4.1	2.1	10.7	-2.8	-10.7	4.6	-26.0	-14.3
1985	3.8	1.9	3.8	26.8	16.9	6.0	9.1	-12.9	2.8	-4.0
1986	1.1	-2.3	1.4	17.3	14.4	0.9	-3.4	21.1	20.5	-32.5
1987	4.4	2.1	3.5	0.6	-2.0	18.5	10.4	40.7	12.8	-10.9
1988	4.4	4.0	3.8	11.7	3.0	22.5	23.5	18.0	-16.1	-1.1
1989	4.6	5.0	4.5	25.8	9.2	32.1	-7.2	10.5	-5.8	20.8
1990	6.1	5.6	5.5	-8.7	2.1	21.6	-16.5	19.3	-10.8	23.0
1991	3.1	0.2	3.5	26.6	12.7	-8.9	9.8	-2.7	-13.5	-34.8
1992	2.9	1.6	2.7	4.6	4.5	1.5	-11.1	22.5	-7.0	0.0
1993	2.7	0.2	2.6	7.1	8.1	-14.7	16.4	5.0	16.4	-29.8
1994	2.7	1.8	2.3	-1.3	-6.0	2.6	5.5	-13.6	-3.7	19.8
1995	2.5	2.1	2.2	34.2	16.3	17.4	23.9	0.7	-0.6	9.4
1996	3.3	2.8	2.4	19.0	-0.4	29.6	-5.2	11.5	-7.1	28.2
1997	1.7	-1.1	1.8	31.1	7.9	-15.5	3.0	-7.8	-15.5	-32.6
1998	1.6	-0.1	1.3	26.5	7.7	-36.8	-25.6	-28.8	-2.3	-33.3
1999	2.7	3.0	1.8	17.9	-4.7	37.2	-21.0	11.4	1.2	106.9
2000	3.4	3.5	2.5	-12.1	8.2	44.8	-4.3	5.0	-4.4	1.3
2001	1.6	-1.7	1.2	-13.2	6.8	-33.0	-24.3	-4.4	-1.1	-27.1
2002	2.4	1.2	2.0	-23.9	8.5	29.0	8.8	-11.6	20.4	53.6
AACR (1982-2002)	3.2	1.7	3.0	9.6	7.1	5.8	-2.4	5.7	-3.1	-3.6
Standard Deviation	1.1	1.7	0.9	16.7	6.3	18.8	15.1	15.2	13.7	40.7
AACR (1973-2002)	4.9	4.0	5.0	5.4	3.7	5.1	-0.8	4.2	0.2	2.4
Standard Deviation	1.9	2.7	1.9	17.4	7.7	19.9	22.4	17.8	22.8	42.5

Sources: Bureau of Labor Statistics, Lehman Brothers, Inc., Standard & Poor's, Thomson Datastream, and *The Wall Street Journal.*

Note: Standard deviations are based on quarterly data and are annualized.

*GSCI Precious Metals Index data begin April 1, 1973.