C | A

CAMBRIDGE ASSOCIATES LLC

COMMODITIES

2002

Mike Walden
Craig Beach
Laura Brooks

CONTENTS

CONTENTS (continued)

Exhibits (continued)

CONTENTS (continued)

ABSTRACT

1. Between 1981 and 1998, commodities experienced bear market returns, while financial assets soared: the spot price component of the Goldman Sachs Commodity Index (GSCI) returned -3.8% annually while the S&P 500 returned 16.9% and the Lehman Brothers Government/Credit Bond Index, 11.0%. Since then, however, commodity markets have rallied, while equities have sunk into a prolonged bear market. Today, the outlook for commodities is mixed, but on balance we think this is a reasonable time to invest. The best time to buy commodities is in the teeth of a recession, when commodity prices are depressed. As the economy subsequently expands, capacity utilization rises and prices begin to increase as inventories decline. U.S. capacity utilization is currently at a relatively low 76.0%, but global industrial demand seems to be weakening further, which could lead to a softening of commodity markets. On the other hand, with inventory levels and capacity utilization both at low levels, and the probability of oil supply shocks relatively high, our assessment is that the upside opportunities for commodities outweigh the downside risks. In addition, commodities also appear relatively cheap from a longer-term perspective, with the GSCI priced at 58.0% of its post-1970 inflation-adjusted average.

2. The two main reasons for considering a *policy* allocation to commodities are to hedge against unexpected surges in inflation and to achieve greater portfolio diversification. The aggregate performance of the commodity markets tends to be positively correlated with inflation and negatively correlated with equities and bonds. Commodity-based investments also provide dramatic portfolio diversification benefits for the simple reason that an economic environment positive for commodity prices is generally negative for financial assets, and vice versa. In fact, the negative correlation of commodity returns with those of U.S. stocks has typically expanded during periods of financial stress when financial asset prices decline sharply and their correlations tend to converge to 1.0.

3. The historical data indicate that the returns of commodity indices are by no means perfectly correlated with inflation. This is because commodity prices are a leading rather than a coincident indicator of inflation, with sharp changes in commodity prices flowing through to the CPI only after a considerable lag. In addition, the direction of inflation is more consequential than its absolute level: commodity index performance has been stronger in periods of increasing inflation (whatever the absolute level) and weaker in periods of decreasing inflation.

4. For investors considering a policy allocation to commodities, the key questions are whether and how they can implement such an allocation without incurring punitive opportunity costs, and whether they can stay the course during periods when weak returns on commodities act as a drag on total portfolio returns. From January 1, 1970 through June 30, 2002, the average annual compound return

(AACR) from spot price changes on a diversified basket of commodities is -2.4%. This is reflective of the persistent longer-term decline in commodity prices resulting from additions of new capacity to meet increased demand and from technological innovations that steadily enhance mankind's ability to increase the yield on commodities of all sorts. Fortunately, a variety of commodity futures indices (e.g., GSCI) has evolved over the last two decades, offering a lower-cost alternative than directly investing in commodities and providing three complementary sources of return: spot yield, roll yield, and collateral yield.

5. The performance characteristics of these commodity indices have been competitive with those of U.S. and global developed equities. For both the GSCI and the S&P 500, the real AACR from January 1, 1970 to June 30, 2002 is 6.1%, compared to 4.3% for the MSCI World Index. However, over shorter time horizons, commodities can underperform equities by a wide margin and investors should recognize that the greatest disparity may occur during the strongest periods for equities, and be prepared to withstand the short-term pain this entails.

6. If the case for a policy allocation to commodities is so compelling, why have so few institutions invested and why have most commodity managers found it so difficult to stay in business? First and foremost, the case for commodities fell victim to what was arguably the greatest bull market in U.S. financial assets in recorded history, fueled by two decades of systematically falling interest rates and benign inflation. However, investors' reluctance is also attributable to the complexity of an asset class whose returns derive primarily from roll and collateral yields rather than from the underlying raw materials. In other words, one is not investing in commodities *per se* (for which no compelling case can be made except on a speculative, tactical basis), but in derivative instruments with which many investors are unfamiliar and uncomfortable.

7. For those prepared to make a policy allocation to commodities, the size of that allocation should be a function both of the vulnerability of their liabilities to rising inflation and of their tolerance for risk. With regard to risk, it is worth noting that because commodity-based investments provide such striking diversification benefits when included in a portfolio of financial assets, efficient frontier models allocate the maximum commodities weight permitted, even if one assumes significantly lower returns than seem plausible.

8. Since commodities are priced in U.S. dollars, non-U.S. dollar-denominated investors need to assess carefully just how much inflation-hedging and diversification benefits an allocation to commodities might provide. To the extent that inflation in any given country is reflected in rising commodity prices, an allocation to commodities should serve as an effective hedge. In addition, if inflation in one's home market is greater than that in the United States, the domestic currency will depreciate

against the U.S. dollar, increasing the returns on unhedged U.S. dollar-denominated investments (and, of course, vice versa). Whether the currency exposure should be hedged or not is a separate decision that should be made in the context of the currency exposure of the total portfolio. As an example, we would note that the GSCI, both hedged and unhedged, has been negatively correlated with U.K. equity returns in both high- and moderate-inflation periods, and has outperformed U.K. financial assets in high-inflation periods.

9. To what extent do the publicly traded stocks of commodity-rich companies share the attributes of and correlate with more direct commodity investments? There are two reasons why commodity-rich equities are imperfect substitutes for commodities or commodity-index products. First, these companies generally sell their production forward through the use of futures contracts, thereby *limiting* their exposure to the underlying commodities. Second, equities have risk and return characteristics that are quite different from those of commodities, including risks associated with the financial structure of the firm, quality of management, and diversity of product lines. As a result, the prices of commodity-rich stocks may be more strongly influenced by these corporate characteristics than by movements in the commodities markets. For example, while the returns of the GSCI are negatively correlated with those of the S&P 500 (as are the prices of oil and gas), the returns of the S&P Energy Stock Index are 62% correlated with those of the S&P 500.

SUMMARY

Introduction

Proponents of direct commodity investing claim that expanding populations and burgeoning economic growth throughout the developing world will stimulate demand for commodities, creating a disequilibrium between supply and demand that will result in sharp increases in the prices of many raw materials. Historical price trends do not support this theory, which has been promulgated and proved wrong many times in the past. In fact, investors in a diversified basket of commodities would have earned a negative real return during the last two decades, and the real price of most commodities has declined in the past two centuries, despite the world's increasing population and industrial development. Severe imbalances between supply and demand have proved relatively short-lived, and have been resolved by the addition of new capacity and/or by technological developments. For this reason, antagonists argue that commodities have not generated competitive rates of return in the past and will not do so in the future, and that there is consequently no compelling reason for investing in this asset class.

Although they appear to be at loggerheads, the Malthusian alarmists and the scoffing skeptics do not in fact occupy mutually exclusive positions. On the one hand, historical precedent suggests that commodities will fail to provide investors with attractive rates of return over the long term. Any direct commodity investment is simply an opportunistic bet on rising prices, which may prove profitable in the short term when inventories are unusually lean—as happened with oil prices in 1999 and 2000—but is not a viable long-term investment strategy. On the other hand, for obvious reasons, commodity prices are most likely to rise when an economy is running close to capacity, fueling inflationary pressures to the detriment of financial assets. Consequently, for those investors that believe a surge in the rate of inflation is anathema, commodities may provide an effective hedge against unanticipated bursts of inflation—but only if the opportunity cost of holding them is not too high.

From a long-term policy point of view, the key questions are whether and how investors can acquire exposure to commodities without incurring punitive opportunity costs, whether they can stay the course during periods when weak returns on commodities act as a drag on portfolio returns, and how the addition of commodities would affect the risk/return profile of the portfolio. Fortunately, the development of investment products composed of diversified baskets of fully collateralized, long-only, commodity futures contracts (e.g., Goldman Sachs Commodity Index) now provides a means of acquiring an exposure to commodities at a significantly reduced opportunity cost. (Appendix A gives a detailed account of these commodity index products.) This is because changes in commodity prices constitute only one of three components of return—spot yield, roll yield, and collateral yield—earned by investors in such products. The combination of the three returns is negatively correlated with equity and bond returns, positively correlated with changes in inflation, and offers more rewarding and less volatile returns than those based solely on the spot yield. (See Appendix B for a description of these components of returns.)

From a shorter-term strategic point of view, the key questions are: Is this a good time to buy? Are the physical products cheap or expensive? Are the futures contracts cheap or dear? Can we learn anything useful from the history of this asset class? To what extent are the determinants of price at all predictable over the next five or ten years?

The Policy Argument for Commodities

There are two primary reasons for a policy allocation to commodities. First, commodities provide a hedge against unexpected surges in inflation, enabling institutions to sell off commodities to support spending without having to sell off stocks and bonds at distressed prices. Second, commodities provide significant diversification benefits, as they historically have been negatively correlated with stocks and bonds. While these benefits are widely recognized, the key question for investors is whether they believe they can invest in commodities without incurring significant opportunity costs relative to equity investments.

Historically, commodities have provided both diversification benefits and inflation protection: their correlations with other asset classes are negative over the period 1970-2002, and have been increasingly negative during periods of unanticipated inflation, when the diversification is needed most. Commodity-based investments provide dramatic portfolio diversification benefits for the simple reason that an economic environment positive for commodity prices is generally negative for financial assets, and vice versa. Declining commodity prices reduce the cost of raw materials and increase corporate profits, which in turn support higher share prices, while the reverse is true of rising commodity prices. In fact, the correlation of commodity returns with those of U.S. equities is most sharply negative during the worst periods for financial assets. However, when economic decline is the root cause for poor or highly volatile financial asset returns, commodities are likely to fare much worse than equity and bond markets. For example, in 1997 and 1998 the Goldman Sachs Commodity Index (GSCI) returned -14.1% and -35.7%, respectively, compared to returns of 33.4% and 28.6% for the S&P 500 Index and 9.8% and 9.5% for the Lehman Brothers Government/Credit Bond Index. Although the Asian financial crises and the Russian debt default temporarily sacked world equity prices (e.g., July and August of 1998), the damage was merely a flesh wound compared to the carnage in certain commodity markets. On the other hand, investors that weathered the storm were richly rewarded in 1999 and 2000 when the GSCI returned 40.9% and 49.7%, as unusually lean world oil supplies and an economic rebound in many Asian nations sent crude oil prices soaring a cumulative 122.4%.

The diversification and inflation-hedging characteristics are generally true for all types of commodities. Energy, however, constitutes a special case, since it is both the largest component of most diversified baskets of commodities and the one commodity whose price changes ripple through every

sector of a developed economy. An exclusive focus on oil and gas investments can therefore constitute a viable strategy for inflation hedging (see our forthcoming report on oil and gas investing). However, holding a diversified basket of commodities provides investors with a greater assurance that they will be exposed to those commodities that are creating the inflationary pressures. Supply shocks or inventory build-ups can dominate business cycles and inflation trends in any commodity type. Moreover, the patterns of economic growth in developing economies may be quite different from those of already industrialized nations; in the former, supply pressures are more likely to be felt in agricultural products, while in the latter, pressures are more likely to occur in industrial metals.

Over the long run, the GSCI has satisfied the policy requirement that any commodity-based investment act as a hedge against unexpected surges in inflation without imposing punitive opportunity costs on the portfolio during periods when inflation is stable or declining. Since 1970, the risk and return characteristics of commodity indices like the GSCI have been competitive with those of U.S. and global developed equities, while their returns have correlated positively with changes in the rate of inflation, and negatively with the returns of stocks and bonds. Since 1970, commodities have achieved real returns equal to that of U.S. equities, with a 6.1% real AACR for both the S&P 500 and the GSCI, and greater than that of global equities, as the MSCI World Index returned 4.3%. However, over shorter time horizons, commodities can underperform equities by a wide margin and investors should recognize that the greatest disparity may occur during the strongest periods for equities, and that they must be prepared to withstand the short-term pain this entails. (See Exhibits 8 and 9.)

The argument for a long-term policy portfolio allocation to commodities should not rest solely on the historical performance of the GSCI, as returns from 1970 to 1990 are simulated. In addition, viable and liquid futures contracts have been available for many commodities (most notably oil) for just ten to 15 years, and as a result the composition and characteristics of the indices have changed significantly over time as liquidity in certain futures markets has improved. For example, although the real AACRs of the GSCI and S&P 500 are both 6.1% from January 1, 1970 to June 30, 2002, we assume that investors in commodities would incur some opportunity cost relative to equities over the long term. For long-term modeling purposes, we use real arithmetic return assumptions of 4.25% for commodities and 8.0% for U.S. stocks.

How much an institution should allocate to commodities in its policy portfolio is a function both of the vulnerability of its liabilities to rising inflation and of its tolerance for risk. With regard to risk, it is worth noting that because commodity-based investments provide such striking diversification benefits when included in a portfolio of financial assets, efficient frontier models routinely attempt to allocate the maximum commodities weight permitted, even if one assumes significantly lower returns than seems plausible.

The Strategic Argument for Commodities

In the period 1973-80, the spot price component of the GSCI had an AACR of 7.8%, while the S&P 500 returned 6.4%, and the Lehman Brothers Government/Credit Bond Index, 4.9%. In contrast, the spot price component of the GSCI returned -3.8% annually in the period 1981-98, while the S&P 500 returned 16.9% and the Lehman Brothers Government/Credit Bond Index, 11.0%. In short, the bear market in commodities coincided with the great bull market in financial assets. Since early 2000, the reverse has been the case: commodities have been in a bull market while equities have been in a bear market. Bonds have continued to perform well, as the decline in equities has been driven by negative sentiment and falling profits, while bonds have benefited from a decline in interest rates and the desire for investments that provide shelter from a sputtering economy.

Today, the outlook for commodities is mixed, but on balance we think this is a reasonable time to invest. The best time to buy commodities is in the teeth of a recession, when commodity prices are depressed. As the economy subsequently expands, capacity utilization rises and prices begin to increase as inventories decline. U.S. capacity utilization is currently at a relatively low 76.0%, but global industrial demand seems to be weakening further, which could lead to a softening of commodity markets. On the other hand, with inventory levels and capacity utilization both at relatively low levels, and the probability of oil supply shocks relatively high, our assessment is that the upside opportunities for commodities outweigh the downside risks. In addition, commodities also appear reasonably cheap from a long-term perspective, with the GSCI priced at 58.0% of its post-1970 inflation-adjusted average.

While skeptics argue that every shortage in this or that raw commodity immediately stimulates additional supply, which quickly drives prices down again, this is not always the case. Over the long term, supply does rise to meet demand, and sometimes in as short a period as six months. But not in all commodities at all times, and particularly not always in energy, the importance of which dwarfs that of any other raw material. When demand proves stronger than anticipated at a time when inventories are uncommonly lean and supplies already tight, prices may work their way irregularly higher over a period of years, until either demand pressures ease or more supply is brought to market. In the case of energy, over the long term both the growing demand from developing economies and the developed world's increasing reliance on supplies from the unstable Middle East are incontrovertible. In fact, in the brave new world of minimal inventories, prices have recently been as susceptible to brief spikes as they were to unforeseen craters in the early 1990s.

In the intermediate term, the inventory liquidations and capacity scale downs practiced by most large corporations in 2000 and 2001 should bode well for spot price returns, as it is likely that investment in infrastructure has slowed in tandem with the world economy. The manufacturing sector, which bore

the brunt of the 2001 recession, is a large consumer of energy resources, so any significant rebound in manufacturing would be positive for commodity investors, particularly since there is a long lead-time to bring new capacity on-line and most potentially competitive substitutes are still in the development stage. However, in the long run, there is no good reason to expect long-term real spot yields above 0%, as capacity increases to meet demand and technological innovations enhance mankind's ability to increase the yield on commodities of all sorts. For example, agricultural farms have achieved greater efficiency through innovative planting techniques and bio-engineered crops are driving down agricultural returns.

Commodities and Inflation

Commodities futures contracts serve as an inflation hedge because they provide an effective proxy for real economic assets whose value is independent of (but still denominated in) monetary units. As a result, the aggregate performance of the commodity markets tends to be positively correlated with inflation. The degree of that correlation, however, is variable over the business cycle, with the strongest correlations occurring in the mature phase of an economic expansion when capacity utilization rates are high.

The historical data indicate that the returns of commodity indices are by no means perfectly correlated with inflation. In fact, the correlation of the GSCI with the U.S. consumer price index (CPI) is only 0.21 over the period 1970-2002. There are several reasons for this low correlation. Although commodity prices are a key component of inflation, other determinants (such as labor costs) carry significantly greater weight. In addition, commodity prices are a *leading* rather than a *coincident* indicator of inflation, with sharp changes in commodity prices flowing through to the CPI only after a considerable lag (see Exhibit 17 for analysis). Finally, the roll yield has been a significant component of commodity index returns, but it has not exhibited a positive correlation with inflation.

Exhibit 4 provides a comparison of the real returns of commodity indices with those of other asset classes in periods of high and low inflation. U.S. and global ex U.S. developed equities, U.S. bonds, and U.S. cash performed significantly better in the period of low inflation, while oil and timberland performed markedly better in a high-inflation environment. Contrary to expectations, however, the GSCI performed worse during the period of high inflation than during the period of low inflation. This occurred because higher returns from the roll yield largely offset the absence of any return from spot price changes during the period of low inflation, whereas roll yield return was insignificant during the high-inflation period when spot prices were rising. What emerges from analysis of historical data on commodity index returns is that the *direction* of inflation is more consequential than its absolute level: commodity index performance has been stronger in periods of *increasing* inflation (whatever the absolute level) and weaker in periods of *decreasing* inflation. Exhibits 20 and 22 document this relationship by showing the rolling

returns of commodity indices and other asset classes sorted into quartiles according to the *rate* of U.S. inflation and the *rate of increase* in U.S. inflation, respectively. Exhibits 21 and 23 provide the same analysis for G7 inflation conditions. Both the U.S. and G7 analyses show that commodity returns have a stronger relationship with the *rate of increas*e in inflation than with the *rate* of inflation.

How Do Commodity Returns Respond to the Business Cycle?

Commodities and capital assets also respond differently to changes in the business cycle. On average, stock and bond returns tend to be positively correlated with U.S. GDP growth, while commodity index returns are somewhat negatively correlated (see Exhibit 24). More determinant of commodity index performance is the level of economic growth relative to potential (i.e., capacity utilization). In fact, between April 1, 1973 and June 30, 2002, the returns of the GSCI correlated -0.14 with U.S. GDP growth, but 0.17 with U.S. capacity utilization. Conversely, S&P 500 returns were 0.18 correlated with U.S. GDP growth, but -0.16 correlated with U.S. capacity utilization.

Commodity prices are most likely to rise when an economy is running close to capacity, fueling inflationary pressures to the detriment of financial assets. Commodities demonstrate a strong positive correlation to capacity utilization, particularly when inventory levels are low. When capacity utilization rates are high and inventories are low, increases in demand tend to result in price increases until capacity can be expanded, or substitute goods, new technology, or a reduction in demand relieve pricing pressure. To the extent that demand can be met from existing inventories, commodity prices should not increase. However, the more expensive the maintenance of inventories, which is a function of real interest rates, the smaller the cushion against surges in demand or interruptions in supply. This is particularly evident in emerging economies, where the high cost of capital has encouraged the minimization of inventories, even at times when demand is growing.

Commodities and Non-U.S. Dollar-Denominated Investors

Commodity prices and commodity index returns are all quoted in U.S. dollars, and the United States is the world's largest consumer of most commodities. Therefore, non-U.S. dollar-denominated investors need to assess carefully just how much inflation-hedging and diversification benefit an allocation to commodities might provide. Commodity index returns are more highly correlated with U.S. inflation than with a more generalized global rate of inflation. However, U.S. inflation is approximately 0.84 correlated with G7 inflation, and a sharp surge in the U.S. rate of inflation is unlikely to be an isolated phenomenon. To the extent that inflation in any given country is reflected in rising commodity prices, an allocation to commodities should serve as an effective hedge.

Non-U.S. dollar-denominated investors also must decide whether to hedge the currency translation exposure in their commodity investment. If inflation in one's home market is greater than that in the United States, the domestic currency will depreciate against the U.S. dollar, increasing returns on unhedged U.S. dollar-denominated investments (and, of course, vice versa). Whether the currency exposure should be hedged or not is a separate decision that should be made in the context of the currency exposure of the total portfolio.

It is notable, for example, that GSCI returns are negatively correlated with U.K. inflation during high-inflation periods, most likely due to timing differences in inflation in the United States and the United Kingdom (see Exhibit 28). Nevertheless, commodity index returns still provide some inflation protection and strong diversification characteristics. The GSCI, both hedged and unhedged, has been negatively correlated with U.K. equity returns in both high- and moderate-inflation periods, while it has outperformed financial assets in high-inflation periods. For example, between 1973 and 1981, the average annual return of the GSCI adjusted for U.K. inflation was -1.8% in dollars, and 0.5% in pounds, compared with pound-based returns of -3.8% for U.K. equities, -4.7% for U.K. gilts, and -2.5% for U.K. cash. During the low-inflation period 1982-2002 (through June 30), the GSCI performed worse than U.K. equities, with an average annual return of 4.4% unhedged and 5.6% hedged, compared with equity returns of 10.2% (see Exhibit 29). Hedged, risk-adjusted commodity returns were competitive with those of U.K. equities and bonds over the period 1970-2002. However, the results have been far from consistent, as commodities significantly outperformed (adjusted for risk) during the high inflation environment, 1970-81, but severely underperformed during the relatively benign inflation period 1982-2002 (see Exhibits 30 and 31).

Why Not Commodity-Rich Stocks?

To what extent do the publicly traded stocks of commodity-rich companies share the attributes of and correlate with more direct commodity investments? This has been the subject of many studies, most of which have concluded that although commodity-rich stocks may be influenced by movements in the commodity markets, their characteristics as common stocks dominate their pattern of returns. The returns of the GSCI are negatively correlated with those of the S&P 500 (as are the prices of oil and gas), but the returns of the S&P Energy Stock Index are 0.62 correlated with those of the S&P 500.[1] There are two reasons why commodity-rich equities are imperfect substitutes for commodities or commodity index products.

[1] Energy has been chosen since it is frequently cited as an inflation hedge. For results of broader testing, see Kenneth A. Froot, "Hedging Portfolios with Real Assets," (1994). *The Journal of Portfolio Management*, Vol 21, Number 4, Summer 1995, pp 60-77.

First, these companies generally have long lead times and large fixed costs, and create forward production schedules based on customer orders. This leverages their sensitivity to the underlying commodity price volatility, and therefore companies take measures to hedge this exposure. To lock in profits and reduce their cash flow volatility, they sell their production forward through the use of futures contracts. However, for investors, this limits their exposure to the underlying commodities, and provides significantly different risk/reward characteristics than those inherent in commodity futures contracts.

Second, equities have risk and return characteristics that are quite different from those of commodities. There are several types of risks associated with equity investing not encountered in commodity investing (financial structure of the firm, quality of management, diversity of product lines, etc.) and equity prices are largely dictated by market sentiment and the gyrations of the exchanges on which they trade. Commodity-rich stocks may fluctuate due to the level of external noise and corporate profitability of the company, which may or may not be heavily influenced by commodity prices during short-to-intermediate time periods. For example, if ExxonMobil miscalculates the expected synergies of a large acquisition or runs into financing problems, these events are likely to have a greater influence on the company's stock price than fluctuations in the price of oil.

Implementing a Commodities Program

If the case for a policy allocation to commodities is so compelling, why have so few institutions invested? First and foremost, the case for commodities fell victim to what was arguably the greatest bull market in U.S. financial assets in recorded history, fueled by two decades of systematically falling interest rates and benign inflation. However, investors' reluctance is also attributable to the complexity of an asset class whose returns derive primarily from roll and collateral yields rather than from the underlying raw materials. In other words, one is not investing in commodities *per se* (for which no compelling case can be made except on a speculative, tactical basis), but in derivative instruments with which many investors are unfamiliar and uncomfortable.

Choice of Investment Vehicle

Once investors decide to make a commodity allocation, implementation is no simple matter. The GSCI, Dow Jones-AIG (DJ-AIG) Commodity Index, and the recently created S&P Commodity Index (SPCI) are the only commodity indices with exchange-traded options and futures, while other indices are available through structured notes and over-the-counter transactions. Various arrangements can also be made to enter into swaps or structured note contracts that seek to provide the return that would be achieved by passively holding the underlying futures contracts that comprise any of these indices (see Appendix C). Although such arrangements are available through most major investment banking houses, each

carries its own terms—and to be sure—its own (typically onerous) fee schedule. Despite the existence of the GSCI for more than a decade, there are only a handful of managers that offer to replicate one or more indices in both separate accounts and commingled fund vehicles. Most provide passive management, although a few will manage on an "enhanced index" basis. The latter approach replicates the contracts in the index but allows the manager the flexibility and discretion to seek additional return at the margin by actively managing both the cash collateral and the roll yield components of the return. Some managers may also request latitude to overweight or underweight their exposure to the constituent commodities in order to reflect their view of relative valuations. Lastly, very few managers (Morgan Stanley most notably) offer diversified portfolios of long-only commodity contracts based on proprietary valuation models. Beyond this level of active management, one encounters managers who trade on both the long and the short side of the futures market, and has crossed over into the realm of managed futures (see our 1998 report, *Managed Futures*).

Appendix D provides information on long-only commodity managers and their standard fee structures. The fees for passive commodity allocations tend to be higher than those of equity and bond index funds—commodities are less liquid and there are more transactions associated with replicating a commodity index than an index like the S&P 500. Although evaluating the performance of an index manager is typically straightforward, investors should also examine the popularity of and organizational support for the product. For example, just three (Credit Suisse, Goldman Sachs, and Morgan Stanley) of the six commodity managers in business at the time of our 1996 *Commodities* report still manage commodity products today.[2]

Choice of Index

Measures of aggregate commodity prices have existed for several decades, but only in recent years have there been indices designed to quantify the returns achievable from investing in a diversified basket of commodity futures contracts. Limitations of the original commodity indices include the use of geometric average weighting, which results in the consistent understatement of aggregate returns for the markets they represent, and the use of equal-weighting, which vastly overstates the relative importance of, for example, orange juice, while understating the significance of oil. Indices with these limitations include the Commodity Research Bureau (CRB), Merrill Lynch Energy and Metal (ENMET), Investable Commodity Index (ICI), Journal of Commerce (JOC), and SPCI.

[2] Credit Suisse recently stopped marketing its product or providing data to Cambridge Associates, but continues to manage assets for current clients.

The indices most commonly used by institutional investors (e.g., GSCI, DJ-AIG, and Rogers International Commodity Index) base the individual commodity weightings on worldwide production, worldwide consumption, the value of the futures markets' open interest, or a combination of these factors. This index construction methodology is generally more popular because it more closely mirrors the economics driving commodity returns (see Appendix A for further detail on these indices).

Key Implementation Issues

In assessing how best to implement a commodity-based investment program, investors should address the following issues:

- Which index provides the most appropriate benchmark?
- Should that index be passively held (if possible), or accessed through some sort of active management?
- If passively held, should the vehicle be a swap, a structured note, a separate account, or an exchange-traded option on an index?
- If accessed through some sort of active management, should the vehicle be a separate "enhanced index" account, or a more aggressive long-only active management account using the index as a benchmark?

Summaries of the advantages and disadvantages of active and passive approaches are provided in Appendix C.

Notes on the Data

For exhibits that do not include data on inflation (consumer price index—CPI), gross domestic product (GDP), capacity utilization, and/or oil and gas, the return data is updated through August 31, 2002, which was the most recent month-end data point at the time of publication. However, exhibits including data on any of these categories have only been updated through June 30, 2002, due to the periodicity of the data (quarterly for GDP) or the fact that data is reported with a considerable lag (CPI).

EXHIBITS

Correlations and Historical Returns

Exhibit 1

CORRELATION MATRIX:
COMMODITY INDICES, CAPITAL MARKET INDICES, INFLATION AND COMMODITIES

January 1, 1970 - June 30, 2002

	GSCI	S&P 500	MSCI EAFE	LB Govt/ Credit	U.S. T-Bills	U.S. CPI-U	G7 CPI	U.S. PPI	S&P Energy	Oil	Gas	Gold
GSCI	1.00											
S&P 500	-0.27	1.00										
MSCI EAFE	-0.18	0.67	1.00									
LB Govt/Credit	-0.15	0.29	0.26	1.00								
U.S. T-Bills	0.03	-0.05	-0.13	-0.06	1.00							
U.S. CPI-U	0.21	-0.21	-0.24	-0.26	0.56	1.00						
G7 CPI	0.16	-0.15	-0.18	-0.17	0.53	0.93	1.00					
U.S. PPI	0.37	-0.20	-0.21	-0.25	0.40	0.79	0.77	1.00				
S&P Energy	0.11	0.62	0.44	0.15	-0.05	0.02	0.01	-0.03	1.00			
Oil	0.57	-0.27	-0.31	-0.19	0.05	0.29	0.25	0.28	0.18	1.00		
Gas	0.06	-0.01	0.05	0.11	0.00	0.01	0.04	0.14	0.07	0.01	1.00	
Gold	0.22	-0.09	0.16	0.04	-0.05	0.30	0.31	0.38	0.09	0.21	0.08	1.00

Sources: Bureau of Labor Statistics, Lehman Brothers, Inc., Oil & Gas Journal Energy Database, Standard & Poor's, Standard & Poor's Compustat, Thomson Datastream, and *The Wall Street Journal.* MSCI data are copyrighted by and proprietary to Morgan Stanley Capital International, Inc.

Note: Data for Lehman Brothers Government/Credit Bond Index, Standard and Poor's Energy Index, and Oil, Gas and Gold Index begins January 1, 1973.

Exhibit 2

CORRELATIONS DURING PERIODS OF HIGH AND LOW INFLATION: COMMODITY INDICES, CAPITAL MARKET INDICES, INFLATION AND COMMODITIES

January 1, 1973 - December 31, 1981
(High-Inflation Environment)

	GSCI	S&P 500	MSCI EAFE	LB Govt/ Credit	U.S. T-Bills	U.S. CPI-U	G7 CPI	U.S. PPI	S&P Energy	Oil	Gas	Gold
GSCI	1.00											
S&P 500	-0.41	1.00										
MSCI EAFE	-0.32	0.72	1.00									
LB Govt/Credit	-0.07	0.46	0.50	1.00								
U.S. T-Bills	-0.14	-0.11	-0.23	-0.26	1.00							
U.S. CPI-U	0.16	-0.25	-0.30	-0.25	0.51	1.00						
G7 CPI	0.10	-0.20	-0.30	-0.16	0.28	0.84	1.00					
U.S. PPI	0.39	-0.36	-0.31	-0.33	0.19	0.61	0.59	1.00				
S&P Energy	-0.15	0.75	0.40	0.34	-0.09	-0.08	-0.10	-0.22	1.00			
Oil	0.11	-0.19	-0.38	-0.07	0.00	0.18	0.23	-0.02	0.07	1.00		
Gas	-0.32	-0.04	-0.05	-0.04	-0.08	0.09	0.10	0.05	0.00	-0.05	1.00	
Gold	0.22	-0.03	0.22	0.07	-0.14	0.26	0.30	0.42	0.06	0.11	0.09	1.00

Exhibit 2 (continued)

CORRELATIONS DURING PERIODS OF HIGH AND LOW INFLATION: COMMODITY INDICES, CAPITAL MARKET INDICES, INFLATION AND COMMODITIES

January 1, 1982 - June 30, 2002
(Low-Inflation Environment)

	GSCI	S&P 500	MSCI EAFE	LB Govt/ Credit	U.S. T-Bills	U.S. CPI-U	G7 CPI	U.S. PPI	S&P Energy	Oil	Gas	Gold
GSCI	1.00											
S&P 500	-0.22	1.00										
MSCI EAFE	-0.14	0.65	1.00									
LB Govt/Credit	-0.20	0.15	0.10	1.00								
U.S. T-Bills	0.17	0.07	-0.01	0.24	1.00							
U.S. CPI-U	0.38	-0.14	-0.28	-0.19	0.37	1.00						
G7 CPI	0.31	-0.04	-0.21	0.01	0.58	0.90	1.00					
U.S. PPI	0.52	-0.09	-0.25	-0.08	0.24	0.63	0.53	1.00				
S&P Energy	0.29	0.54	0.47	-0.01	0.00	0.18	0.17	0.15	1.00			
Oil	0.83	-0.29	-0.26	-0.24	-0.01	0.35	0.23	0.47	0.26	1.00		
Gas	0.14	0.00	0.08	0.19	-0.04	-0.13	-0.10	0.16	0.10	0.01	1.00	
Gold	0.24	-0.11	0.17	0.11	-0.20	0.04	0.02	0.10	0.16	0.29	0.07	1.00

Sources: Bureau of Labor Statistics, Lehman Brothers, Inc., Oil & Gas Journal Energy Database, Standard & Poor's, Standard & Poor's Compustat, Thomson Datastream, and *The Wall Street Journal*. MSCI data are copyrighted by and proprietary to Morgan Stanley Capital International, Inc.

Exhibit 3

HISTORICAL NOMINAL RETURNS (%)

Investing in a High-Inflation Environment

Years Ended December 31	U.S. CPI-U	G7 CPI	S&P 500	LB Govt/ Credit	MSCI EAFE	GSCI	Change in Crude Oil Price	U.S. T-Bills
1973	8.7	10.3	-14.8	2.3	-14.9	75.0	184.0	7.6
1974	12.3	14.1	-26.4	0.2	-23.2	39.5	10.4	8.5
1975	6.9	9.1	37.2	12.3	35.4	-17.2	0.0	6.1
1976	4.9	8.0	23.6	15.6	2.5	-11.9	24.6	5.3
1977	6.7	7.4	-7.4	3.0	18.1	10.4	6.8	5.7
1978	9.0	7.6	6.4	1.2	32.6	31.6	0.0	8.1
1979	13.3	12.0	18.2	2.3	4.8	33.8	118.9	11.3
1980	12.5	11.7	32.3	3.1	22.6	11.1	16.9	13.1
1981	8.9	9.6	-5.0	7.3	-2.3	-23.0	-7.9	16.0
AACR (1973-81)	9.2	10.0	5.0	5.1	6.6	12.8	28.9	9.0
Standard Deviation	1.7	1.4	18.5	9.1	19.7	23.2	47.6	1.7

Investing in a Low-Inflation Environment

Years Ended December 31	U.S. CPI-U	G7 CPI	S&P 500	LB Govt/ Credit	MSCI EAFE	GSCI	Change in Crude Oil Price	U.S. T-Bills
1982	3.8	5.3	21.4	31.1	-1.9	11.6	-8.6	11.8
1983	3.8	4.6	22.4	8.0	23.7	16.3	-7.3	9.6
1984	3.9	4.1	6.1	15.0	7.4	1.1	-11.0	10.6
1985	3.8	3.8	31.6	21.3	56.2	10.0	-0.4	8.2
1986	1.1	1.4	18.6	15.6	69.4	2.0	-31.7	6.4
1987	4.4	3.5	5.1	2.3	24.6	23.8	-7.0	6.2
1988	4.4	3.8	16.6	7.6	28.3	27.9	3.3	7.4
1989	4.6	4.5	31.7	14.2	10.5	38.3	26.4	9.0
1990	6.1	5.5	-3.1	8.3	-23.4	29.1	30.5	8.2
1991	3.1	3.5	30.5	16.1	12.1	-6.1	-32.8	5.7
1992	2.9	2.7	7.6	7.6	-12.2	4.4	2.9	3.6
1993	2.7	2.6	10.1	11.0	32.6	-12.3	-27.8	3.2
1994	2.7	2.3	1.3	-3.5	7.8	5.3	23.0	4.6
1995	2.5	2.2	37.6	19.2	11.2	20.3	12.2	5.9
1996	3.3	2.4	23.0	2.9	6.0	33.9	32.4	5.4
1997	1.7	1.8	33.4	9.8	1.8	-14.1	-31.4	5.5
1998	1.6	1.3	28.6	9.5	20.0	-35.7	-32.2	5.1
1999	2.7	1.8	21.0	-2.1	27.0	40.9	112.4	5.1
2000	3.4	2.5	-9.1	11.9	-14.2	49.7	4.7	6.3
2001	1.6	1.2	-11.9	8.5	-21.4	-31.9	-2.1	3.5
2002 (6 mos)	1.8	1.5	-13.2	3.3	-1.6	14.8	35.4	0.9
AACR (1982-2002)	3.2	3.0	14.0	10.3	10.7	8.7	0.1	6.4
Standard Deviation	1.1	0.9	16.1	6.0	18.8	19.5	42.0	1.2
AACR (1973-2002)	5.0	5.1	11.2	8.7	9.4	9.9	8.1	7.2
Standard Deviation	1.9	1.9	16.9	7.2	19.0	20.6	44.0	1.5

Sources: Bureau of Labor Statistics, Lehman Brothers, Inc., Standard & Poor's, Thomson Datastream, and *The Wall Street Journal.* MSCI data are copyrighted by and proprietary to Morgan Stanley Capital International, Inc.

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

Exhibit 4

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

Investing in a High-Inflation Environment

Years Ended December 31	U.S. CPI-U	G7 CPI	S&P 500	LB Govt/ Credit	MSCI EAFE	GSCI	Change in Crude Oil Price	U.S. T-Bills
1973	8.7	10.3	-21.6	-5.9	-21.7	60.9	161.2	-1.0
1974	12.3	14.1	-34.5	-10.8	-31.6	24.2	-1.7	-3.5
1975	6.9	9.1	28.3	5.0	26.6	-22.6	-6.5	-0.8
1976	4.9	8.0	17.8	10.2	-2.2	-16.0	18.8	0.4
1977	6.7	7.4	-13.2	-3.5	10.6	3.4	0.1	-0.9
1978	9.0	7.6	-2.4	-7.2	21.7	20.7	-8.3	-0.8
1979	13.3	12.0	4.3	-9.7	-7.5	18.1	93.2	-1.7
1980	12.5	11.7	17.6	-8.4	8.9	-1.3	3.9	0.5
1981	8.9	9.6	-12.8	-1.5	-10.3	-29.3	-15.4	6.5
AACR (1973-81)	9.2	10.0	-3.8	-3.8	-2.4	3.3	18.0	-0.2
Standard Deviation	1.7	1.4	18.6	9.4	19.8	22.5	46.3	1.7

Investing in a Low-Inflation Environment

Years Ended December 31	U.S. CPI-U	G7 CPI	S&P 500	LB Govt/ Corp	MSCI EAFE	GSCI	Change in Crude Oil Price	U.S. T-Bills
1982	3.8	5.3	17.0	26.3	-5.5	7.4	-11.9	7.6
1983	3.8	4.6	17.9	4.0	19.2	12.0	-10.7	5.6
1984	3.9	4.1	2.1	10.7	3.3	-2.8	-14.3	6.4
1985	3.8	3.8	26.8	16.9	50.4	6.0	-4.0	4.2
1986	1.1	1.4	17.3	14.4	67.6	0.9	-32.5	5.3
1987	4.4	3.5	0.6	-2.0	19.3	18.5	-10.9	1.7
1988	4.4	3.8	11.7	3.0	22.8	22.5	-1.1	2.8
1989	4.6	4.5	25.8	9.2	5.6	32.1	20.8	4.2
1990	6.1	5.5	-8.7	2.1	-27.9	21.6	23.0	2.0
1991	3.1	3.5	26.6	12.7	8.8	-8.9	-34.8	2.6
1992	2.9	2.7	4.6	4.5	-14.6	1.5	0.0	0.7
1993	2.7	2.6	7.1	8.1	29.0	-14.7	-29.8	0.4
1994	2.7	2.3	-1.3	-6.0	5.0	2.6	19.8	1.9
1995	2.5	2.2	34.2	16.3	8.5	17.4	9.4	3.3
1996	3.3	2.4	19.0	-0.4	2.6	29.6	28.2	2.0
1997	1.7	1.8	31.1	7.9	0.1	-15.5	-32.6	3.7
1998	1.6	1.3	26.5	7.7	18.1	-36.8	-33.3	3.4
1999	2.7	1.8	17.9	-4.7	23.6	37.2	106.9	2.3
2000	3.4	2.5	-12.1	8.2	-17.0	44.8	1.3	2.8
2001	1.6	1.2	-13.2	6.8	-22.6	-33.0	-5.8	1.9
2002 (6 mos)	1.8	1.5	-14.7	1.4	-3.4	12.7	33.0	-0.9
AACR (1982-2002)	3.2	3.0	11.3	6.8	7.4	4.7	-4.5	3.1
Standard Deviation	1.1	0.9	16.2	6.3	19.0	18.9	41.1	1.3
AACR (1973-2002)	5.0	5.1	5.9	3.5	4.2	4.7	2.9	2.1
Standard Deviation	1.9	1.9	17.2	7.7	19.3	20.0	42.8	1.6

Sources: Bureau of Labor Statistics, Lehman Brothers, Inc., Standard & Poor's, Thomson Datastream, and *The Wall Street Journal.* MSCI data are copyrighted by and proprietary to Morgan Stanley Capital International, Inc.

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

Exhibit 5

HISTORICAL RETURNS (%) ADJUSTED FOR G7 INFLATION

Investing in a High-Inflation Environment

Years Ended December 31	G7 CPI	U.S. CPI-U	S&P 500	LB Govt/ Credit	MSCI EAFE	GSCI	Change in Crude Oil Price	U.S. T-Bills
1973	10.3	8.7	-22.7	-7.2	-22.8	58.7	157.5	-2.4
1974	14.1	12.3	-35.5	-12.2	-32.7	22.2	-3.3	-5.0
1975	9.1	6.9	25.8	3.0	24.1	-24.1	-8.3	-2.7
1976	8.0	4.9	14.4	7.0	-5.1	-18.5	15.3	-2.5
1977	7.4	6.7	-13.8	-4.1	9.9	2.7	-0.6	-1.6
1978	7.6	9.0	-1.2	-6.0	23.2	22.3	-7.1	0.4
1979	12.0	13.3	5.6	-8.6	-6.5	19.5	95.5	-0.6
1980	11.7	12.5	18.4	-7.7	9.8	-0.5	4.7	1.3
1981	9.6	8.9	-13.3	-2.1	-10.8	-29.7	-15.9	5.9
AACR (1973-81)	10.0	9.2	-4.5	-4.4	-3.0	2.6	17.2	-0.8
Standard Deviation	1.4	1.7	18.3	9.2	19.6	22.5	46.0	1.9

Investing in a Low-Inflation Environment

Years Ended December 31	G7 CPI	U.S. CPI-U	S&P 500	LB Govt/ Credit	MSCI EAFE	GSCI	Change in Crude Oil Price	U.S. T-Bills
1982	5.3	3.8	15.3	24.5	-6.8	5.9	-13.2	6.1
1983	4.6	3.8	17.0	3.2	18.2	11.1	-11.4	4.8
1984	4.1	3.9	1.9	10.5	3.1	-2.9	-14.5	6.2
1985	3.8	3.8	26.7	16.9	50.4	6.0	-4.0	4.2
1986	1.4	1.1	17.0	14.1	67.2	0.7	-32.7	5.0
1987	3.5	4.4	1.6	-1.2	20.4	19.6	-10.1	2.6
1988	3.8	4.4	12.4	3.7	23.6	23.3	-0.4	3.5
1989	4.5	4.6	26.0	9.3	5.8	32.3	20.9	4.3
1990	5.5	6.1	-8.2	2.6	-27.4	22.4	23.7	2.5
1991	3.5	3.1	26.0	12.2	8.3	-9.3	-35.1	2.1
1992	2.7	2.9	4.8	4.7	-14.5	1.6	0.2	0.9
1993	2.6	2.7	7.3	8.3	29.3	-14.5	-29.6	0.6
1994	2.3	2.7	-0.9	-5.7	5.4	2.9	20.2	2.3
1995	2.2	2.5	34.6	16.6	8.8	17.7	9.8	3.6
1996	2.4	3.3	20.1	0.5	3.6	30.8	29.3	3.0
1997	1.8	1.7	31.0	7.8	-0.1	-15.6	-32.7	3.6
1998	1.3	1.6	26.9	8.0	18.4	-36.6	-33.1	3.7
1999	1.8	2.7	18.9	-3.9	24.7	38.4	108.7	3.2
2000	2.5	3.4	-11.3	9.1	-16.3	46.1	2.1	3.7
2001	1.2	1.6	-12.9	7.2	-22.4	-32.7	-26.8	2.3
2002 (6 mos)	1.5	1.8	-14.7	1.4	-3.4	12.7	33.0	-0.9
AACR (1982-2002)	3.0	3.1	11.5	7.0	7.6	4.9	-5.5	3.3
Standard Deviation	0.9	1.1	16.1	6.1	18.9	19.1	41.3	1.0
AACR (1973-2002)	5.1	5.0	5.8	3.4	4.1	4.6	1.9	2.0
Standard Deviation	1.9	1.9	17.0	7.6	19.2	20.1	42.8	1.6

Sources: Bureau of Labor Statistics, Lehman Brothers, Inc., Standard & Poor's, Thomson Datastream, and *The Wall Street Journal*. MSCI data are copyrighted by and proprietary to Morgan Stanley Capital International, Inc.

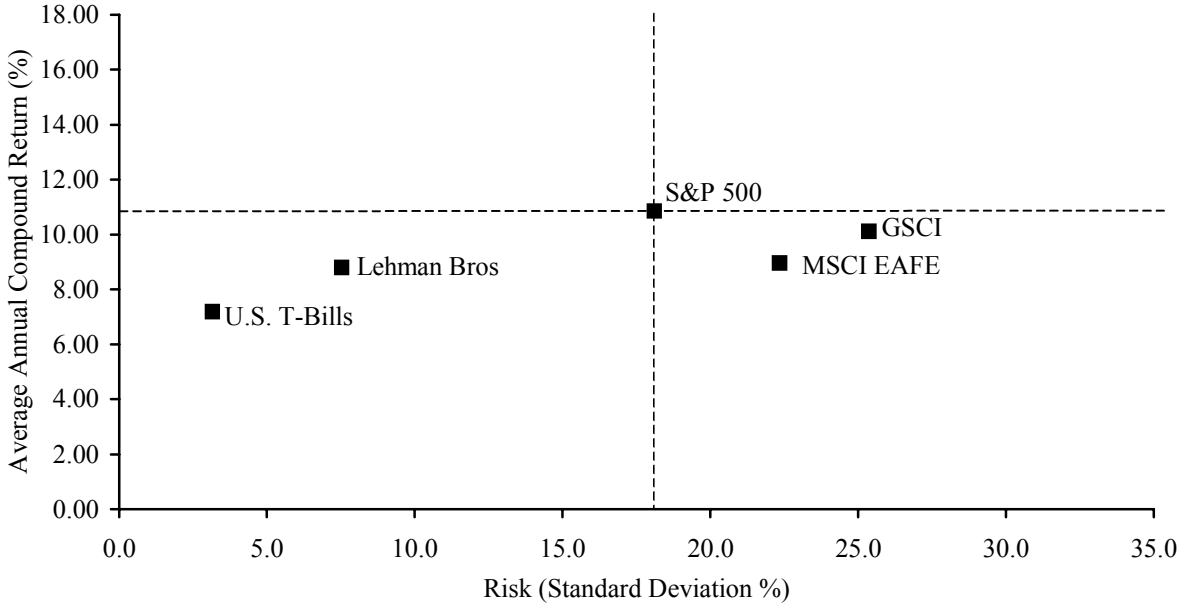
Note: Standard deviations are based on quarterly data and are annualized.

Risk/Return, Diversification Benefits, and Opportunity Costs of Holding Commodities

Exhibit 6

RISK/RETURN ANALYSIS OF COMMODITY INDICES AND CAPITAL MARKET RETURNS

January 1, 1973 - August 31, 2002



	Average Annual Compound Return (%)	Annual Standard Deviation (%)	Return to Deviation Ratio	Sharpe Ratio
GSCI	10.11	25.37	0.40	0.24
S&P 500	10.85	18.11	0.60	0.29
LB Govt/Credit	8.80	7.54	1.17	0.28
MSCI EAFE	8.96	22.35	0.40	0.18
U.S. T-Bills	7.18	3.16	---	---

Simple Return to Deviation Ratio: Calculated by dividing the average annual compound return by the annual standard deviation. This ratio does not consider risk-free alternatives.
Sharpe Ratio: Calculated by subtracting the average monthly T-Bill return (risk-free return) from the index's average monthly return, then dividing by the index's monthly standard deviation. Interpreted as the amount of return over the risk-free rate that can be expected for each unit of risk accepted.

Sources: Lehman Brothers Inc., Standard & Poor's, and Thomson Datastream. MSCI data are copyrighted by and proprietary to Morgan Stanley Capital International, Inc.

Exhibit 7

RISK/RETURN ANALYSIS OF COMMODITY INDICES AND CAPITAL MARKET RETURNS DURING PERIODS OF HIGH AND LOW U.S. INFLATION

Average Annual Compound Return, Standard Deviation (%), and Sharpe Ratio for Varying Inflationary Conditions

January 1, 1970 - August 31, 2002

	GSCI	S&P 500	MSCI EAFE	LB Govt/Credit
1970-2002				
Average Annual Compound Return	11.45	10.98	9.59	8.80
Annualized Standard Deviation	18.23	15.67	16.88	6.09
Sharpe Ratio	0.31	0.31	0.23	0.28
1973-81 (High Inflation)				
Average Annual Compound Return	12.81	5.03	6.64	5.12
Annualized Standard Deviation	23.53	16.57	16.94	7.85
Sharpe Ratio	0.26	-0.15	-0.05	-0.43
1982-2002 (Low Inflation)				
Average Annual Compound Return	8.96	13.48	9.99	10.44
Annualized Standard Deviation	16.46	15.49	17.42	5.11
Sharpe Ratio	0.23	0.50	0.28	0.76

Sharpe Ratio: Calculated by subtracting the average monthly U.S. T-Bill return (risk-free return) from the index's average monthly return, then dividing by the index's monthly standard deviation. Interpreted as the amount of return over the risk-free rate that can be expected for each unit of risk accepted.

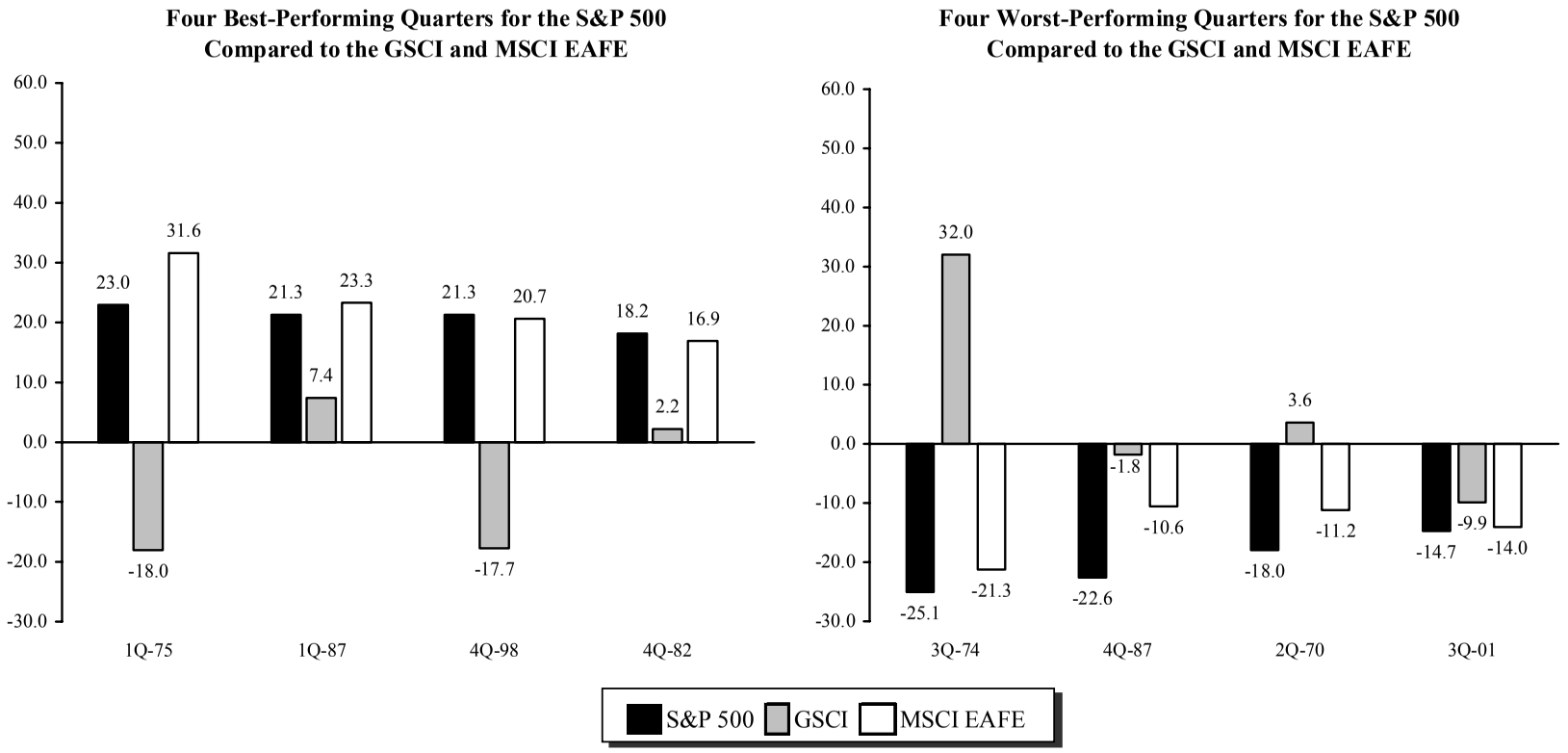
Sources: Lehman Brothers Inc., Standard & Poor's, and Thomson Datastream.

Note: Data for Lehman Brothers Government/Credit Bond Index begin January 1, 1973.

Exhibit 8

OPPORTUNITY COST OF HOLDING COMMODITIES OR MSCI EAFE RELATIVE TO THE S&P 500

First Quarter 1970 - Second Quarter 2002



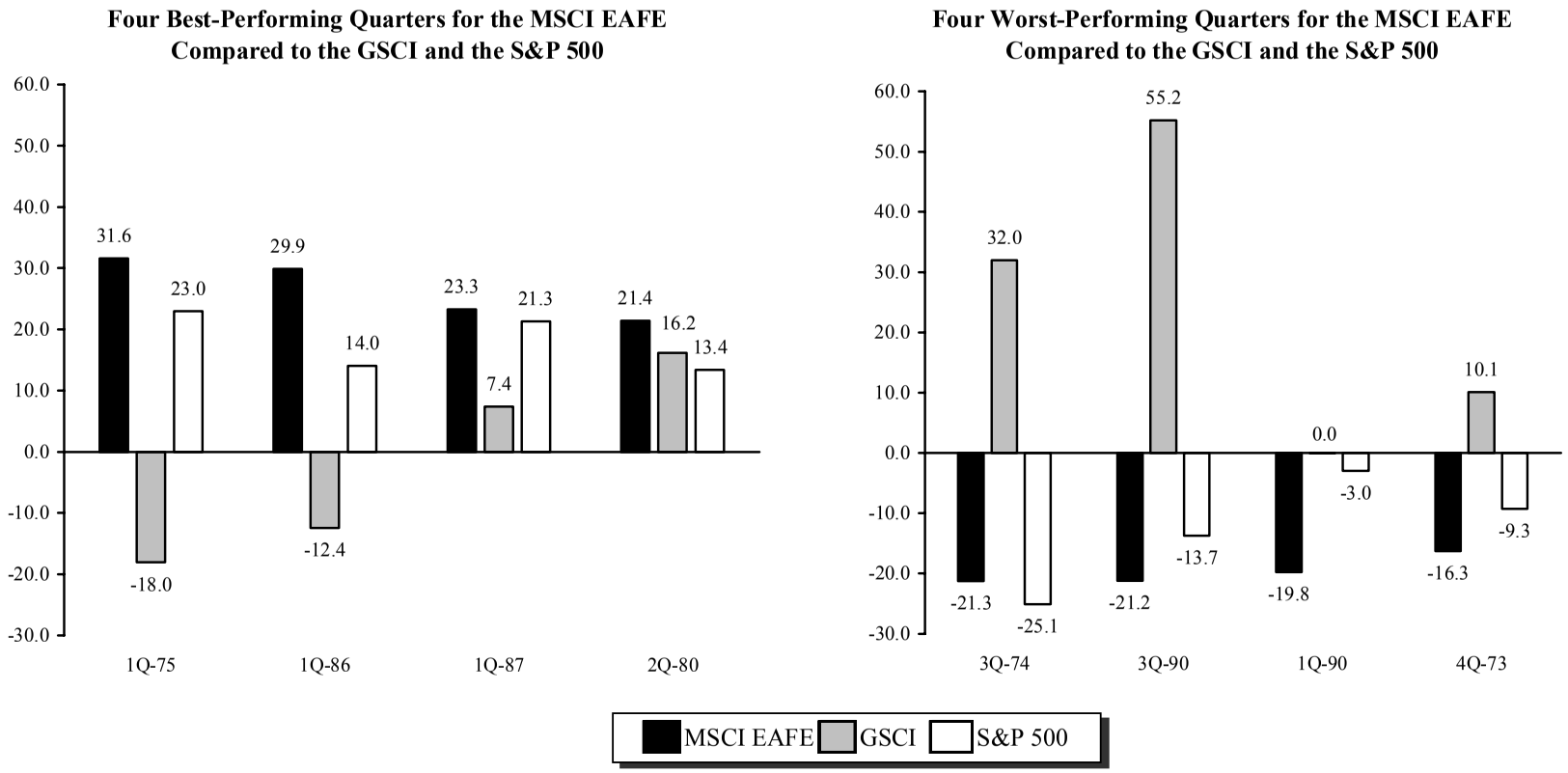
Sources: Standard & Poor's and Thomson Datastream. MSCI data are copyrighted by and proprietary to Morgan Stanley Capital International, Inc.

Notes: Correlations with the S&P 500: In positive return quarters, the correlation between MSCI EAFE and the S&P 500 is 0.55, while the correlation between GSCI and the S&P 500 is -0.19. In negative return years, the correlations are 0.49 and -0.25, respectively, while over the entire period, the correlations are 0.67 and -0.27, respectively.

Exhibit 9

OPPORTUNITY COST OF HOLDING COMMODITIES OR THE S&P 500 RELATIVE TO MSCI EAFE

First Quarter 1970 - Second Quarter 2002



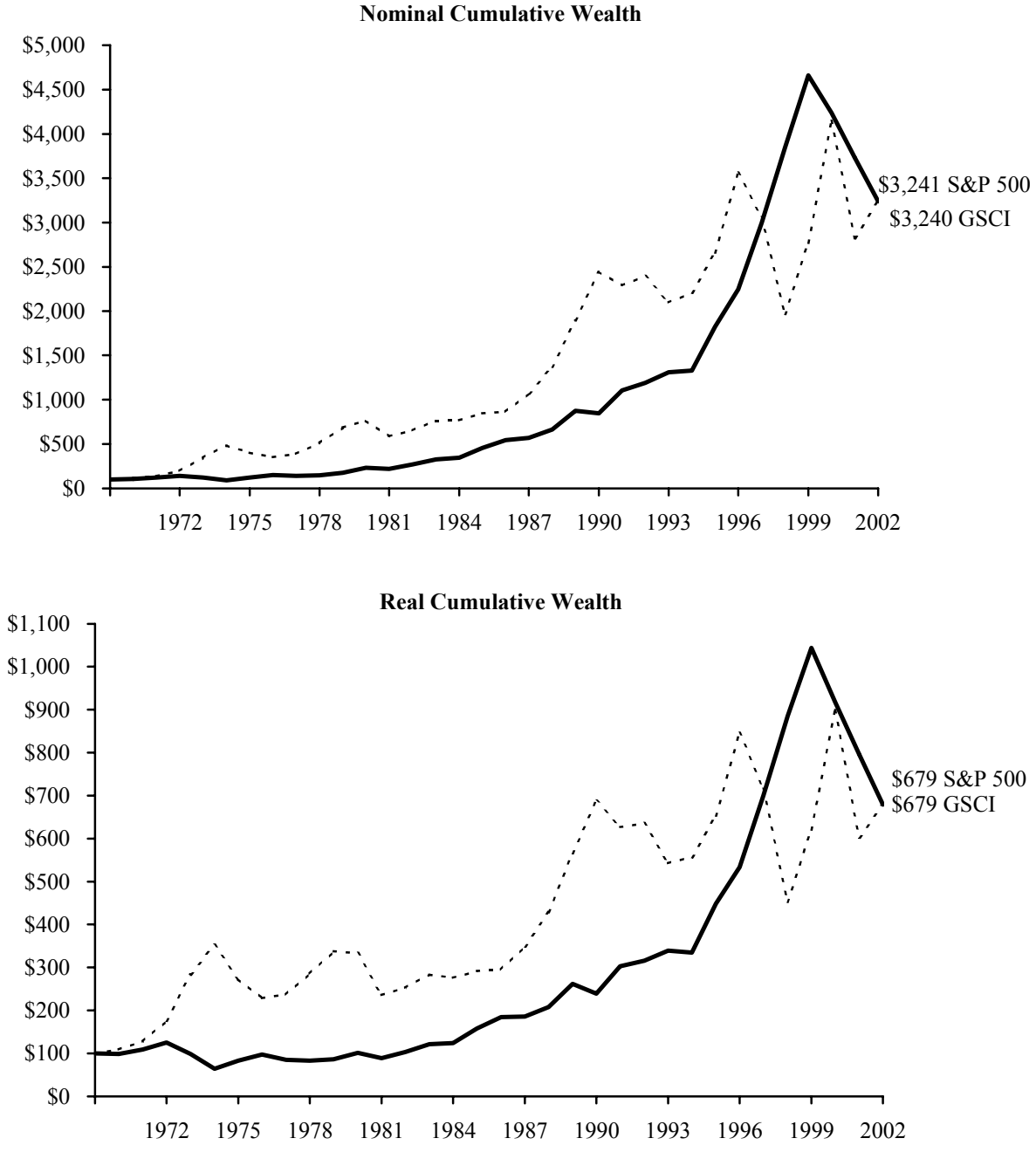
Sources: Standard & Poor's and Thomson Datastream. MSCI data are copyrighted by and proprietary to Morgan Stanley Capital International, Inc.

Notes: Correlations with MSCI EAFE: In positive return quarters, the correlation between GSCI and MSCI EAFE is -0.14, while the correlation between the S&P 500 and MSCI EAFE is 0.46. In negative return years, the correlations are -0.32 and 0.66, respectively, while over the entire period, the correlations are -0.18 and 0.67, respectively.

Exhibit 10

CUMULATIVE WEALTH OF THE GSCI AND THE S&P 500

January 1, 1970 - June 30, 2002



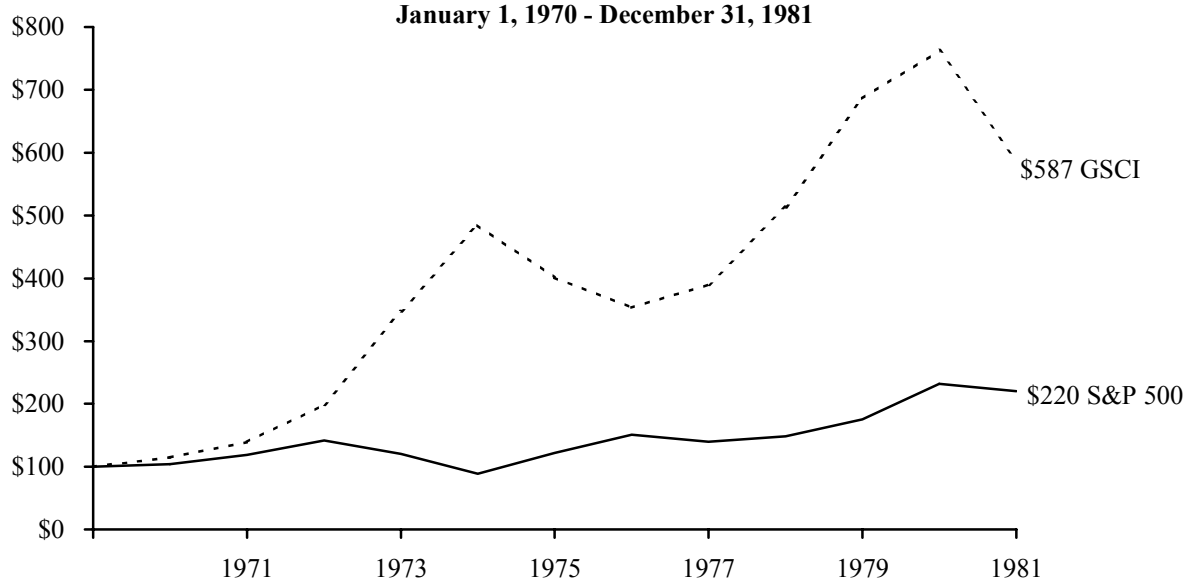
Sources: Standard & Poor's and Thomson Datastream.

Exhibit 11

NOMINAL CUMULATIVE WEALTH OF THE GSCI AND THE S&P 500 DURING PERIODS OF HIGH AND LOW INFLATION

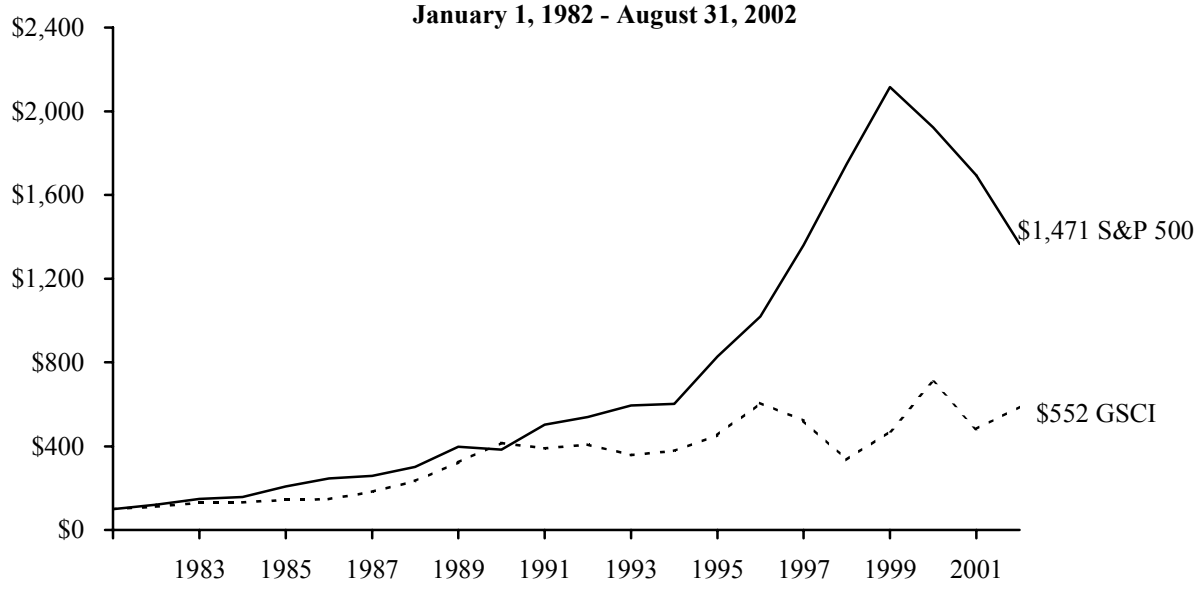
Nominal Cumulative Wealth in High-Inflation Environment

January 1, 1970 - December 31, 1981



Nominal Cumulative Wealth in Low-Inflation Environment

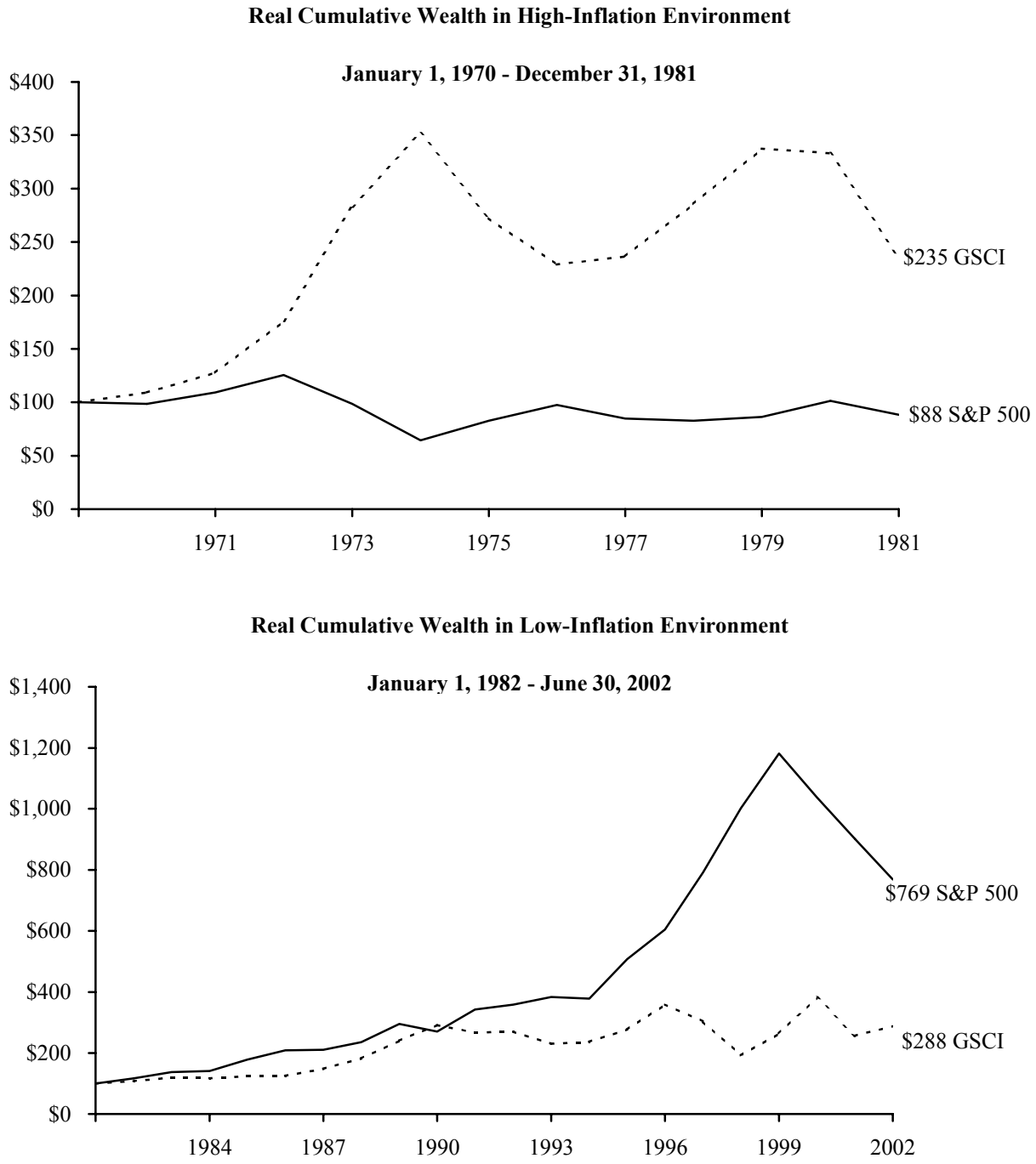
January 1, 1982 - August 31, 2002



Sources: Standard & Poor's and Thomson Datastream.

Exhibit 12

REAL CUMULATIVE WEALTH OF THE GSCI AND THE S&P 500 DURING PERIODS OF HIGH AND LOW INFLATION

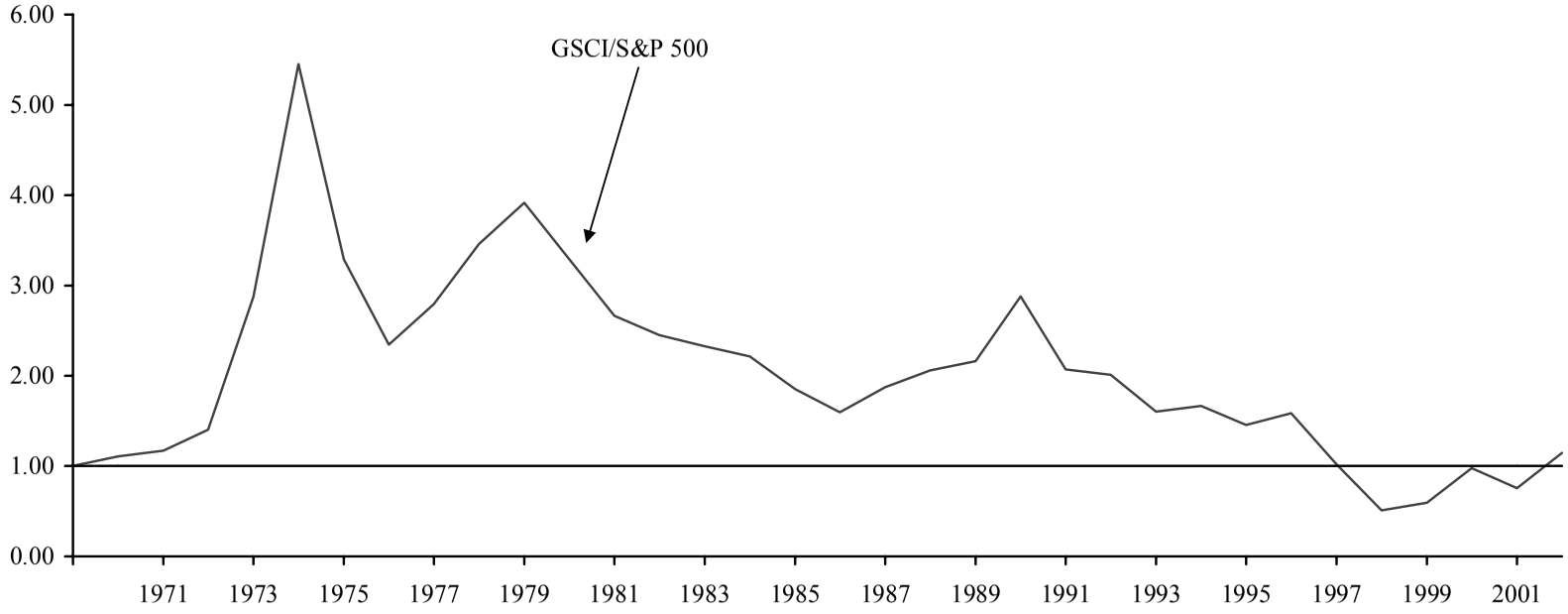


Sources: Standard & Poor's and Thomson Datastream.

Exhibit 13

RELATIVE CUMULATIVE WEALTH OF THE GSCI AND THE S&P 500

January 1, 1970 - August 31, 2002



Sources: Standard & Poor's and Thomson Datastream.

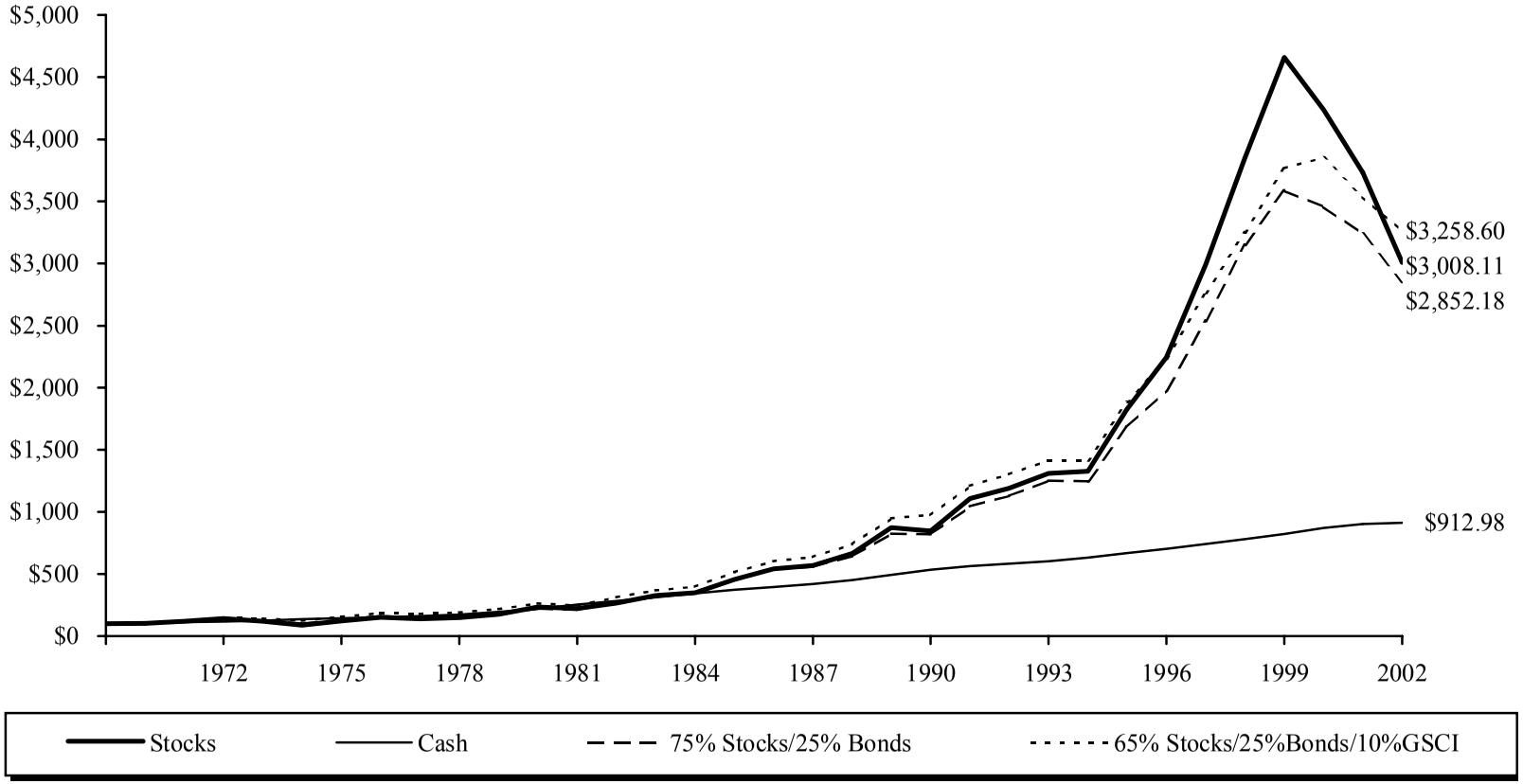
Notes: Relative Cumulative Wealth Index isolates relative performance. By focusing on whether the line is rising or falling, one can identify over- and under-performance during any period. The distance between the relative line and the horizontal line measures cumulative relative performance since the starting date.

Exhibit 14

DIVERSIFICATION BENEFITS OF INCLUDING COMMODITIES IN A PORTFOLIO

January 1, 1970 - August 31, 2002

Cumulative Wealth

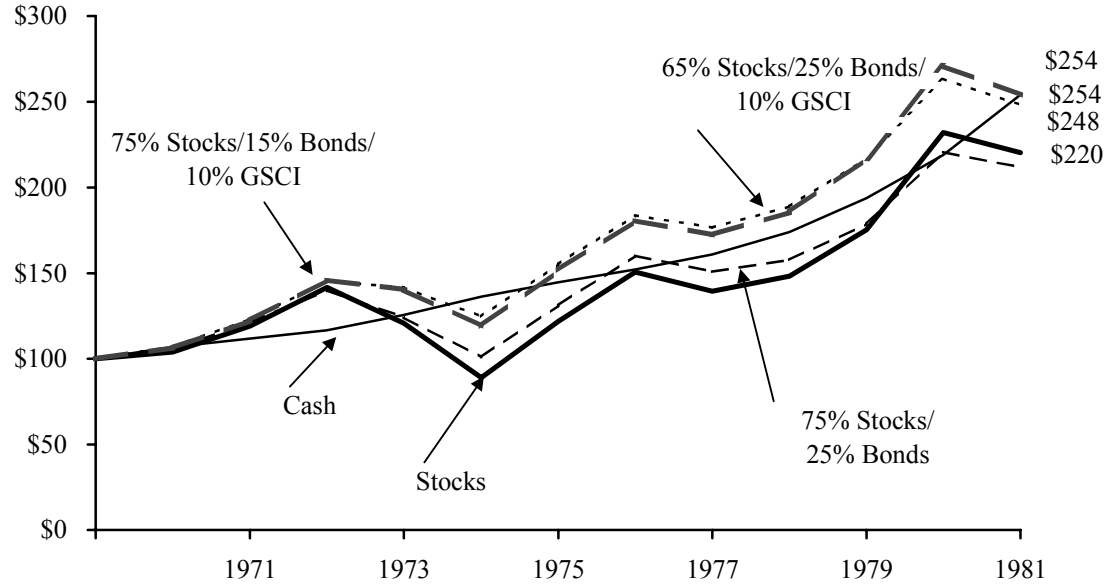


Sources: Salomon Smith Barney, Standard & Poor's, and Thomson Datastream.

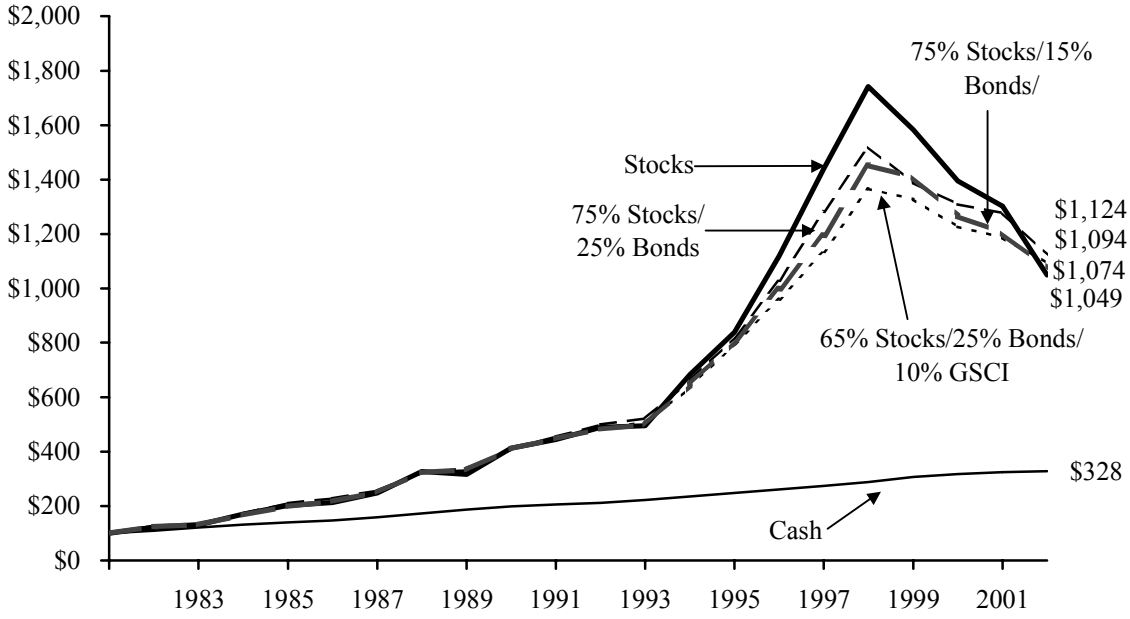
Exhibit 15

DIVERSIFICATION BENEFITS OF INCLUDING COMMODITIES IN A PORTFOLIO DURING PERIODS OF HIGH AND LOW INFLATION

January 1, 1970 - December 31, 1981 (High-Inflation Environment)



January 1, 1982 - August 31, 2002 (Low-Inflation Environment)



Sources: Salomon Smith Barney, Standard & Poor's, and Thomson Datastream.

Exhibit 16

HISTORICAL SPOT RETURNS (%) OF GSCI COMPONENTS COMPARED TO THE S&P 500

Years Ended December 31	GSCI	GSCI Agriculture	GSCI Energy	GSCI Industrial Metals	GSCI Livestock	GSCI Precious Metals	S&P 500
January 1, 1973 - December 31, 1981 (High-Inflation Environment)							
1973	48.7	74.9	---	---	19.2	---	-14.8
1974	20.7	44.5	---	---	-17.2	35.6	-26.4
1975	-30.5	-45.3	---	---	9.2	-5.2	37.2
1976	-13.8	-13.6	---	---	-14.4	3.6	23.6
1977	0.8	-6.8	---	---	9.2	10.5	-7.4
1978	21.2	13.1	---	17.8	27.5	34.7	6.4
1979	23.2	30.1	---	48.1	6.1	182.6	18.2
1980	13.0	31.8	---	-17.7	2.1	-7.5	32.3
1981	-25.0	-31.3	---	-12.5	-15.9	-36.0	-5.0
Average	6.5	10.8	---	8.9	2.9	27.3	7.1
High	48.7	74.9	---	48.1	27.5	182.6	37.2
Low	-30.5	-45.3	---	-17.7	-17.2	-36.0	-26.4
Standard Deviation	23.9	29.2	---	28.2	28.2	36.3	16.6
AACR	3.6	4.5	---	5.9	1.8	16.2	5.0
January 1, 1982 - August 31, 2002 (Low-Inflation Environment)							
1982	-0.1	-15.9	---	-8.0	16.3	15.9	21.4
1983	7.3	21.2	0.4	-3.8	4.5	-14.9	22.4
1984	-9.5	-16.5	-11.3	-14.6	0.5	-22.6	6.1
1985	0.3	5.2	6.9	12.1	-10.1	6.2	31.6
1986	-18.8	-21.8	-36.2	-4.7	-4.9	21.0	18.6
1987	3.2	15.6	-4.6	108.3	1.7	18.6	5.1
1988	12.2	29.3	5.2	6.4	15.6	-12.8	16.6
1989	12.4	-10.4	33.0	-20.8	4.6	-3.3	31.7
1990	6.1	-17.0	18.0	9.8	0.0	-6.1	-3.1
1991	-19.6	13.0	-31.1	-21.1	-11.6	-11.3	30.5
1992	2.3	-8.7	4.3	5.3	8.2	-4.9	7.6
1993	-9.6	19.0	-25.7	-13.7	-1.5	18.9	10.1
1994	10.5	8.1	15.3	64.5	-5.9	-1.2	1.3
1995	12.6	13.6	21.0	-11.3	-0.2	0.5	37.6
1996	5.8	-17.9	20.4	-12.7	4.6	-5.4	23.0
1997	-18.4	-1.8	-26.6	-6.7	-9.1	-16.0	33.4
1998	-24.3	-20.0	-29.5	-18.7	-19.8	-2.0	28.6
1999	46.2	-10.4	94.3	34.1	26.8	1.9	21.0
2000	26.9	12.1	40.4	-6.7	9.6	-2.7	-9.1
2001	-31.5	-14.1	-40.9	-16.2	-6.5	-0.7	-11.9
2002 (8 mon)	27.2	24.5	40.3	-0.4	-17.9	11.5	-19.4
Average	2.0	0.3	4.7	3.9	0.2	-0.4	14.4
High	46.2	29.3	94.3	108.3	26.8	21.0	37.6
Low	-31.5	-21.8	-40.9	-21.1	-19.8	-22.6	-19.4
Standard Deviation	16.2	14.9	31.0	21.6	15.5	15.6	15.5
AACR	0.3	-1.0	0.0	0.6	-0.4	-1.2	13.5
January 1, 1973 - August 31, 2002							
Average	3.3	3.5	---	4.7	1.0	7.2	12.2
High	48.7	74.9	---	108.3	27.5	182.6	37.6
Low	-31.5	-45.3	---	-21.1	-19.8	-36.0	-26.4
Standard Deviation	18.9	20.3	---	23.0	20.2	24.0	15.8
AACR	1.3	0.6	0.0	1.5	0.3	3.4	10.9

Sources: Standard & Poor's and Thomson Datastream.

Notes: Statistics are based on the periods available. Standard deviations are based on monthly data and are annualized.

Commodity Performance Under Varying Market and Economic Conditions

Exhibit 17

STATISTICAL ANALYSIS OF COMMODITY RETURNS AS A PREDICTOR OF INFLATION

Objective

- To evaluate the importance and timing of commodity index returns in predicting changes in inflation.

Methodology

- Calculated annual returns for the Goldman Sachs Commodity Index (GSCI) total return index from January 1, 1970, through June 30, 2002.
- Returns were regressed on U.S. inflation (CPI-U), lagging the GSCI by various periods. The lag was created by starting the GSCI annual returns on January 1, 1970, and measuring the CPI-U for subsequent periods.
- The independent variable was the GSCI and the dependent variable was U.S. inflation.

Results

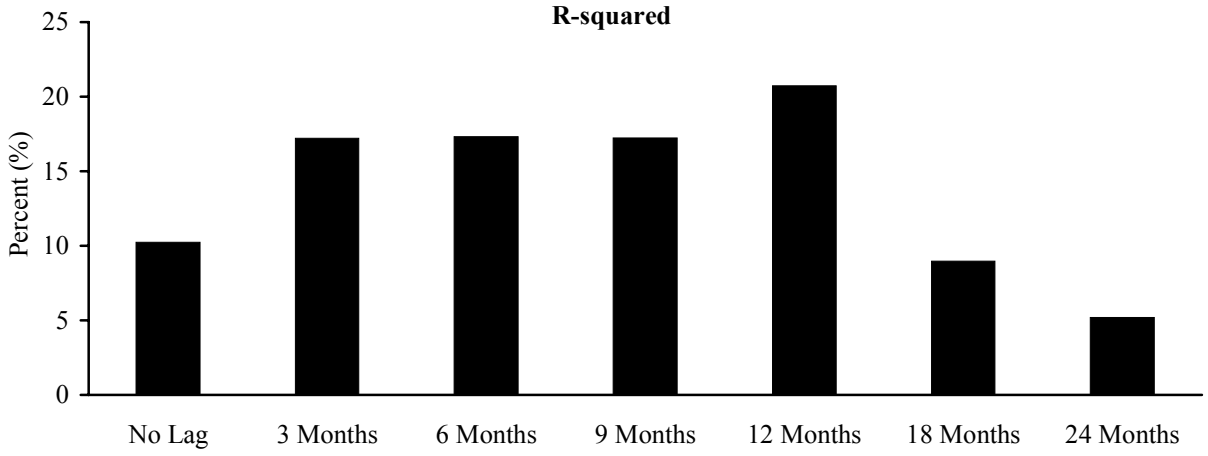
- The importance of the GSCI in predicting inflation, as measured by the R-Squared of the regression, is greatest with a 12-month lag, after which the relationship weakened.
- The significance of the relationship, as measured by the Percent Confidence, followed the same pattern, peaking at 99.7% after a one-year lag.
- The correlation between inflation and the GSCI, albeit less convincing, followed a similar pattern, reaching a high of 26% when the CPI lagged inflation by one year.
- For all lag periods, the R-squared was low for two reasons: 1) many factors other than commodity prices influence, or explain, changes in inflation; and 2) commodity index returns include a roll return that has a very low correlation with inflation (7%).

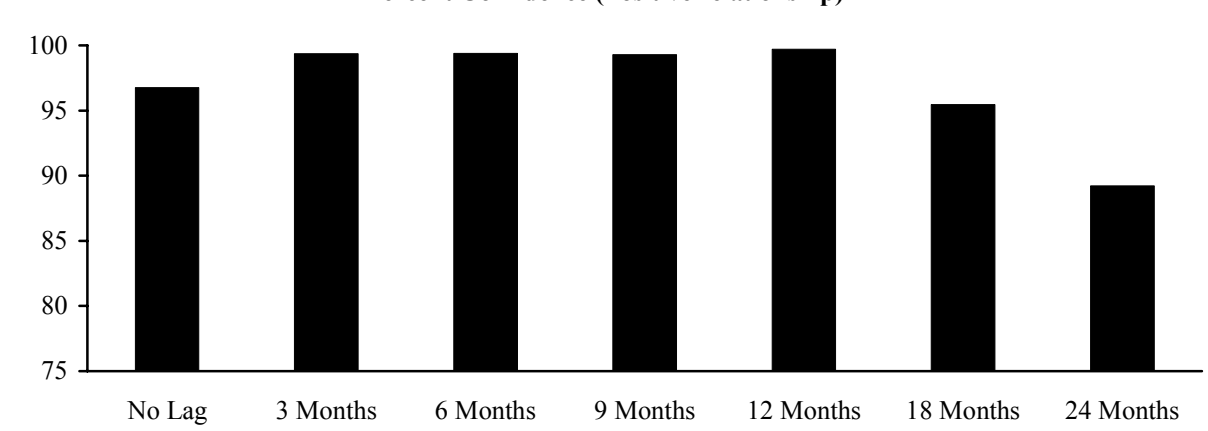
Exhibit 17 (continued)

STATISTICAL ANALYSIS OF COMMODITY RETURNS AS A PREDICTOR OF INFLATION

Results from Regressing the GSCI on U.S. Inflation, Lagging GSCI by Various Periods

January 1, 1970 - June 30, 2002





Regression Results

	No Lag	3 Months	6 Months	9 Months	12 Months	18 Months	24 Months
T-Stat (x-coefficient)	1.85	2.50	2.51	2.46	2.76	1.69	1.24
R-squared	10.22%	17.22%	17.32%	17.24%	20.74%	8.98%	5.20%
Correlation	0.21	0.20	0.16	0.18	0.26	0.09	0.16

Sources: Bureau of Labor Statistics and Thomson Datastream.

Exhibit 18

COMMODITY PERFORMANCE RANKED BY QUARTILE OF U.S. EQUITY RETURNS

Real Rolling Four-Quarter Returns

January 1, 1973 - June 30, 2002

Quartile 1	Mean	High	Low	Std Dev
S&P 500	31.2	56.8	22.6	7.5
GSCI	1.5	43.2	-36.8	20.4
U.S. CPI-U	3.5	10.5	1.4	2.1
MSCI EAFE	23.8	86.6	0.1	24.2
LB Govt/Credit	11.0	26.1	-4.5	8.3
U.S. T-Bills	3.5	6.5	-1.1	1.9
Real Estate	6.2	15.5	-8.4	5.1
S&P Energy	21.6	43.7	-1.0	12.4
Oil	-9.9	48.2	-64.1	27.5
Gas	5.6	81.7	-43.5	31.8
Gold	-4.8	28.0	-31.8	14.3
GSCI Spot	-8.2	21.1	-35.0	15.8
GSCI Agriculture	-6.4	27.6	-48.9	16.7
GSCI Livestock	-5.8	10.3	-35.1	10.3
GSCI Precious Metal	-2.9	37.1	-22.1	14.0

Quartile 3	Mean	High	Low	Std Dev
S&P 500	3.7	9.5	-2.4	3.6
GSCI	7.1	53.9	-33.5	17.9
U.S. CPI-U	5.9	14.4	1.5	3.9
MSCI EAFE	4.0	29.0	-15.5	13.3
LB Govt/Credit	1.1	27.1	-12.6	8.3
U.S. T-Bills	1.3	7.4	-2.1	2.5
Real Estate	3.4	15.8	-9.5	5.9
S&P Energy	7.4	29.1	-16.6	11.6
Oil	7.5	93.2	-31.0	30.1
Gas	7.8	91.5	-54.4	29.3
Gold	12.3	105.3	-28.1	33.1
GSCI Spot	-0.1	39.1	-24.9	13.2
GSCI Agriculture	0.2	34.3	-31.3	16.0
GSCI Livestock	-2.6	28.6	-19.2	10.8
GSCI Precious Metal	14.1	149.4	-25.5	37.8

Quartile 2	Mean	High	Low	Std Dev
S&P 500	15.4	22.4	9.9	3.9
GSCI	7.9	37.2	-22.6	17.7
U.S. CPI-U	4.0	12.5	1.1	2.3
MSCI EAFE	12.2	67.6	-16.0	19.7
LB Govt/Credit	5.1	26.3	-12.5	7.7
U.S. T-Bills	2.8	7.6	-0.1	1.9
Real Estate	4.4	12.6	-9.4	5.0
S&P Energy	18.1	58.0	-13.7	15.2
Oil	11.2	106.9	-32.5	31.3
Gas	5.3	76.4	-40.8	27.7
Gold	-6.9	24.0	-40.1	13.8
GSCI Spot	-0.9	42.4	-19.6	13.6
GSCI Agriculture	-7.4	23.8	-27.5	14.6
GSCI Livestock	-0.7	23.5	-22.2	9.6
GSCI Precious Metal	-6.2	26.6	-42.6	14.2

Quartile 4	Mean	High	Low	Std Dev
S&P 500	-16.1	-6.2	-45.4	8.8
GSCI	7.6	60.9	-33.0	25.2
U.S. CPI-U	6.8	14.8	1.1	3.5
MSCI EAFE	-13.1	19.8	-44.1	17.3
LB Govt/Credit	-0.7	10.3	-20.4	8.0
U.S. T-Bills	1.2	8.4	-3.5	3.2
Real Estate	4.2	10.9	-3.6	3.7
S&P Energy	-10.0	20.6	-38.6	14.6
Oil	21.4	161.2	-31.8	61.4
Gas	15.2	175.8	-62.8	42.6
Gold	7.0	84.0	-42.1	31.1
GSCI Spot	-3.4	36.7	-32.5	18.3
GSCI Agriculture	0.5	66.9	-39.7	28.4
GSCI Livestock	-5.7	18.5	-27.7	11.4
GSCI Precious Metal	3.4	120.7	-46.1	37.2

Sources: Bureau of Labor Statistics, Lehman Brothers, Inc., National Council of Real Estate Investment Fiduciaries, Oil & Gas Journal Energy Database, Prudential Realty Group, Standard & Poor's, Standard & Poor's Compustat, Thomson Datastream, and *The Wall Street Journal.* MSCI data are copyrighted by and proprietary to Morgan Stanley Capital International.

Notes: GSCI Precious Metal data begin in the second quarter of 1973. GSCI Agriculture, Livestock, and Precious Metal are spot returns.

Exhibit 19

COMMODITY PERFORMANCE RANKED BY QUARTILE OF U.S. BOND RETURNS

Real Rolling Four-Quarter Returns

January 1, 1973 - June 30, 2002

Quartile 1	Mean	High	Low	Std Dev
LB Govt/Credit	15.5	27.1	9.4	6.2
GSCI	-5.0	17.4	-33.5	12.4
U.S. CPI-U	3.0	5.5	1.1	1.1
S&P 500	21.4	56.8	-28.5	16.5
MSCI EAFE	18.5	86.6	-30.4	30.4
U.S. T-Bills	4.0	7.6	0.0	2.3
Real Estate	4.7	15.8	-9.5	7.1
S&P Energy	13.0	36.8	-16.6	15.0
Oil	-16.4	18.8	-64.1	20.4
Gas	1.9	81.7	-51.1	30.7
Gold	-2.3	28.0	-22.2	14.1
GSCI Spot	-12.3	9.8	-32.1	10.5
GSCI Agriculture	-8.2	27.6	-28.3	13.5
GSCI Livestock	-7.9	12.0	-35.1	9.3
GSCI Precious Metal	-1.7	37.1	-25.5	15.5

Quartile 3	Mean	High	Low	Std Dev
LB Govt/Credit	1.7	4.2	-2.0	1.6
GSCI	12.0	55.6	-29.3	22.4
U.S. CPI-U	4.8	10.5	1.5	2.3
S&P 500	6.1	27.9	-18.6	13.5
MSCI EAFE	5.6	52.7	-31.8	17.0
U.S. T-Bills	2.5	8.4	-2.1	2.3
Real Estate	5.0	10.6	-3.6	3.4
S&P Energy	10.3	58.0	-32.8	18.0
Oil	9.9	85.0	-31.0	28.6
Gas	11.4	91.5	-54.4	33.4
Gold	-6.2	24.6	-40.9	15.3
GSCI Spot	0.8	39.1	-31.1	16.3
GSCI Agriculture	-5.7	41.2	-36.9	19.0
GSCI Livestock	-0.7	16.0	-22.8	9.7
GSCI Precious Metal	-7.1	26.6	-41.2	14.6

Quartile 2	Mean	High	Low	Std Dev
LB Govt/Credit	6.9	9.4	4.4	1.5
GSCI	2.6	44.8	-36.8	21.5
U.S. CPI-U	3.7	7.1	1.1	1.7
S&P 500	9.3	37.5	-23.9	18.1
MSCI EAFE	0.7	56.1	-28.0	18.8
U.S. T-Bills	2.3	7.3	-1.6	1.8
Real Estate	4.0	14.4	-8.6	5.6
S&P Energy	10.5	54.0	-26.5	17.4
Oil	-2.2	75.4	-33.3	23.2
Gas	9.0	175.8	-62.8	44.6
Gold	-8.5	18.4	-31.8	13.2
GSCI Spot	-7.4	22.8	-35.0	13.1
GSCI Agriculture	-9.1	25.3	-48.9	16.5
GSCI Livestock	-4.1	7.0	-21.3	8.0
GSCI Precious Metal	-7.0	23.7	-31.4	10.5

Quartile 4	Mean	High	Low	Std Dev
LB Govt/Credit	-7.4	-2.0	-20.4	4.3
GSCI	14.2	60.9	-27.8	18.6
U.S. CPI-U	8.6	14.8	2.5	3.9
S&P 500	-3.1	37.3	-45.4	17.1
MSCI EAFE	1.9	38.8	-44.1	20.7
U.S. T-Bills	0.1	5.8	-3.5	2.4
Real Estate	4.4	10.9	-2.0	3.2
S&P Energy	3.0	49.5	-38.6	21.2
Oil	38.7	161.2	-16.8	58.9
Gas	11.5	72.1	-38.4	20.1
Gold	24.7	105.3	-42.1	37.1
GSCI Spot	6.1	42.4	-29.4	15.0
GSCI Agriculture	9.7	66.9	-39.7	23.5
GSCI Livestock	-2.2	28.6	-27.7	13.8
GSCI Precious Metal	25.0	149.4	-46.1	47.1

Sources: Bureau of Labor Statistics, Lehman Brothers, Inc., National Council of Real Estate Investment Fiduciaries, Oil & Gas Journal Energy Database, Prudential Realty Group, Standard & Poor's, Standard & Poor's Compustat, Thomson Datastream, and *The Wall Street Journal*. MSCI data are copyrighted by and proprietary to Morgan Stanley Capital International, Inc.

Notes: GSCI Precious Metal data begin in the second quarter of 1973. GSCI Agriculture, Livestock, and Precious Metal are spot returns.

Exhibit 20

COMMODITY PERFORMANCE RANKED BY QUARTILE OF U.S. INFLATION

Real Rolling Four-Quarter Returns

January 1, 1973 - June 30, 2002

Quartile 1	Mean	High	Low	Std Dev
U.S. CPI-U	10.1	14.8	6.7	2.4
GSCI	7.1	60.9	-29.3	22.3
S&P 500	-4.1	28.3	-45.4	17.9
MSCI EAFE	-3.6	28.2	-44.1	19.4
LB Govt/Credit	-5.4	5.9	-20.4	6.8
U.S. T-Bills	0.1	8.4	-3.5	3.3
Real Estate	4.1	8.7	-2.0	3.0
S&P Energy	1.0	49.5	-38.6	23.8
Oil	31.3	161.2	-18.7	60.6
Gas	18.1	46.7	5.2	8.7
Gold	18.9	105.3	-42.1	43.4
GSCI Spot	-1.6	36.7	-35.0	18.3
GSCI Agriculture	1.7	66.9	-48.9	30.6
GSCI Livestock	-3.7	28.6	-27.7	12.7
GSCI Precious Metal	19.1	149.4	-46.1	52.6

Quartile 3	Mean	High	Low	Std Dev
U.S. CPI-U	3.3	3.8	2.8	0.3
GSCI	10.3	53.9	-14.8	19.3
S&P 500	13.7	40.1	-23.9	14.7
MSCI EAFE	9.6	56.1	-28.0	21.4
LB Govt/Credit	8.2	26.1	-6.9	7.3
U.S. T-Bills	2.9	6.5	0.2	1.8
Real Estate	2.7	9.0	-9.5	6.7
S&P Energy	15.7	58.0	-11.6	16.1
Oil	5.6	75.4	-45.7	28.6
Gas	19.8	175.8	-40.8	47.5
Gold	-3.3	26.1	-18.0	11.4
GSCI Spot	0.0	39.1	-30.6	15.0
GSCI Agriculture	-1.8	27.6	-25.1	12.7
GSCI Livestock	-3.0	16.0	-22.2	9.6
GSCI Precious Metal	-3.1	26.6	-22.5	12.6

Quartile 2	Mean	High	Low	Std Dev
U.S. CPI-U	5.0	6.6	3.8	0.9
GSCI	11.7	55.6	-29.8	18.0
S&P 500	5.7	37.3	-15.9	14.1
MSCI EAFE	2.7	38.8	-31.8	15.4
LB Govt/Credit	5.4	27.1	-4.5	7.2
U.S. T-Bills	2.8	7.6	-1.2	2.4
Real Estate	3.9	10.9	-5.0	3.7
S&P Energy	8.5	40.8	-16.6	14.8
Oil	4.4	85.0	-31.8	23.1
Gas	6.4	81.7	-22.1	23.9
Gold	-7.1	24.6	-31.4	13.7
GSCI Spot	-3.5	31.7	-32.1	11.9
GSCI Agriculture	-7.0	41.2	-28.3	18.0
GSCI Livestock	-2.3	18.5	-35.1	10.7
GSCI Precious Metal	-7.1	13.5	-25.5	10.1

Quartile 4	Mean	High	Low	Std Dev
U.S. CPI-U	2.1	2.8	1.1	0.6
GSCI	-4.9	41.2	-36.8	18.5
S&P 500	17.6	56.8	-28.5	19.4
MSCI EAFE	17.1	86.6	-30.4	29.5
LB Govt/Credit	7.8	26.0	-6.0	8.2
U.S. T-Bills	3.0	6.5	0.4	1.6
Real Estate	7.4	15.8	-3.8	4.8
S&P Energy	11.2	43.7	-15.7	14.4
Oil	-9.6	106.9	-64.1	33.6
Gas	-9.9	72.1	-62.8	31.7
Gold	-0.1	28.0	-23.1	13.1
GSCI Spot	-7.3	42.4	-32.5	16.0
GSCI Agriculture	-5.8	17.0	-22.7	12.7
GSCI Livestock	-5.7	23.5	-21.3	9.7
GSCI Precious Metal	0.8	37.1	-17.4	13.3

Sources: Bureau of Labor Statistics, Lehman Brothers, Inc., National Council of Real Estate Investment Fiduciaries, Oil & Gas Journal Energy Database, Prudential Realty Group, Standard & Poor's, Standard & Poor's Compustat, Thomson Datastream, and *The Wall Street Journal.* MSCI data are copyrighted by and proprietary to Morgan Stanley Capital International, Inc.

Notes: GSCI Precious Metal data begin in the second quarter of 1973. GSCI Agriculture, Livestock, and Precious Metal are spot returns.

Exhibit 21

COMMODITY PERFORMANCE RANKED BY QUARTILE OF G7 INFLATION

Real Rolling Four-Quarter Returns

January 1, 1973 - June 30, 2002

Quartile 1	Mean	High	Low	Std Dev
G7 CPI	10.5	14.2	7.8	2.0
GSCI	1.6	58.7	-31.4	22.5
S&P 500	-1.6	26.5	-46.5	18.8
MSCI EAFE	-6.0	24.1	-45.2	16.6
LB Govt/Credit	-4.3	8.1	-19.4	7.4
U.S. T-Bills	-0.9	7.4	-5.0	3.4
Real Estate	3.0	8.6	-3.7	3.9
S&P Energy	4.3	50.6	-39.8	23.6
Oil	32.0	157.5	-19.4	57.9
Gas	21.0	77.7	-3.5	17.4
Gold	13.8	107.7	-41.8	44.8
GSCI Spot	-6.2	34.8	-36.3	18.6
GSCI Agriculture	-1.9	64.2	-49.9	31.1
GSCI Livestock	-9.1	11.2	-36.5	11.9
GSCI Precious Metal	16.4	152.4	-45.8	52.2

Quartile 2	Mean	High	Low	Std Dev
G7 CPI	5.3	7.7	4.1	1.2
GSCI	14.1	56.5	-10.4	16.0
S&P 500	9.0	54.4	-17.9	17.4
MSCI EAFE	5.2	30.4	-31.4	17.2
LB Govt/Credit	6.9	25.5	-6.0	9.6
U.S. T-Bills	3.7	6.6	-1.6	2.3
Real Estate	4.6	10.6	-5.0	3.9
S&P Energy	9.1	36.1	-27.0	16.8
Oil	1.4	86.1	-19.4	22.3
Gas	0.4	27.6	-21.6	12.5
Gold	-3.1	31.0	-31.0	17.3
GSCI Spot	-0.7	32.5	-17.0	11.5
GSCI Agriculture	-8.3	26.0	-26.1	14.1
GSCI Livestock	0.3	29.6	-16.3	10.4
GSCI Precious Metal	-5.4	35.0	-31.8	17.0

Quartile 3	Mean	High	Low	Std Dev
G7 CPI	3.0	3.8	2.4	0.5
GSCI	9.7	55.6	-14.9	19.8
S&P 500	10.4	38.6	-16.9	14.3
MSCI EAFE	15.2	80.6	-25.4	24.5
LB Govt/Credit	7.0	25.7	-6.4	6.7
U.S. T-Bills	2.6	5.1	0.5	1.3
Real Estate	2.0	9.5	-9.7	6.7
S&P Energy	11.7	59.0	-12.7	17.6
Oil	-0.2	76.5	-64.1	32.6
Gas	17.1	178.2	-38.1	44.3
Gold	-1.3	24.8	-18.7	11.2
GSCI Spot	-0.9	40.6	-30.7	15.5
GSCI Agriculture	3.1	42.3	-24.6	14.1
GSCI Livestock	-1.2	17.3	-15.9	9.0
GSCI Precious Metal	-0.9	27.4	-16.4	11.6

Quartile 4	Mean	High	Low	Std Dev
G7 CPI	1.8	2.4	0.9	0.4
GSCI	-1.0	41.9	-36.6	21.1
S&P 500	15.4	45.6	-28.0	19.0
MSCI EAFE	11.6	86.3	-29.9	27.5
LB Govt/Credit	6.4	18.5	-5.7	6.4
U.S. T-Bills	3.2	5.5	0.9	1.1
Real Estate	8.2	16.1	-0.4	4.1
S&P Energy	11.5	43.6	-15.2	14.0
Oil	-2.9	108.7	-52.9	33.7
Gas	-5.0	93.0	-62.7	39.9
Gold	-1.8	27.8	-23.2	11.6
GSCI Spot	-4.6	43.7	-32.3	16.8
GSCI Agriculture	-6.3	18.2	-22.9	12.8
GSCI Livestock	-4.7	24.6	-21.8	10.5
GSCI Precious Metal	-1.5	29.6	-17.5	10.9

Sources: Lehman Brothers, Inc., National Council of Real Estate Investment Fiduciaries, Oil & Gas Journal Energy Database, Prudential Realty Group, Standard & Poor's, Standard & Poor's Compustat, Thomson Datastream, and *The Wall Street Journal.* MSCI data are copyrighted by and proprietary to Morgan Stanley Capital International, Inc.

Notes: GSCI Precious Metal data begin in the second quarter of 1973. GSCI Agriculture, Livestock, and Precious Metal are spot returns.

Exhibit 22

COMMODITY PERFORMANCE RANKED BY QUARTILE OF CHANGES IN RATE OF U.S. INFLATION

Real Rolling Four-Quarter Returns

January 1, 1973 - June 30, 2002

Quartile 1	Mean	High	Low	Std Dev
U.S. CPI-U % Change	24.3	176.3	10.0	31.0
GSCI	5.9	14.8	1.7	3.6
S&P 500	14.4	55.6	-28.8	19.3
MSCI EAFE	6.7	40.1	-45.4	20.3
LB Govt/Credit	7.5	56.1	-44.1	26.7
U.S. T-Bills	-1.0	16.9	-20.4	8.2
Real Estate	1.7	6.3	-3.1	2.5
S&P Energy	5.4	15.5	-1.8	3.7
Oil	12.7	58.0	-38.6	21.2
Gas	34.6	161.2	-29.6	54.3
Gold	11.0	76.4	-38.4	30.9
GSCI Spot	10.7	84.0	-42.1	29.5
GSCI Agriculture	5.1	36.7	-29.4	16.0
GSCI Livestock	3.9	66.9	-39.7	23.7
GSCI Precious Metal	-2.1	28.6	-27.7	11.9

Quartile 3	Mean	High	Low	Std Dev
U.S. CPI-U % Change	-5.8	-0.7	-11.5	3.4
GSCI	4.6	14.4	1.5	2.7
S&P 500	5.0	39.3	-22.4	15.7
MSCI EAFE	7.6	39.0	-12.1	13.3
LB Govt/Credit	2.1	23.0	-27.9	12.2
U.S. T-Bills	4.8	26.1	-12.5	7.4
Real Estate	1.8	6.5	-2.1	2.3
S&P Energy	2.0	9.5	-9.5	5.9
Oil	9.1	43.7	-10.6	12.4
Gas	1.9	62.5	-34.8	22.5
Gold	20.6	175.8	-54.4	42.5
GSCI Spot	-0.5	103.5	-40.1	24.8
GSCI Agriculture	-3.4	39.1	-32.1	14.5
GSCI Livestock	-6.3	17.3	-31.3	14.0
GSCI Precious Metal	-3.6	18.5	-35.1	11.0

Quartile 2	Mean	High	Low	Std Dev
U.S. CPI-U % Change	4.3	9.1	-0.7	3.1
GSCI	5.3	13.3	1.6	3.5
S&P 500	2.9	36.3	-21.3	13.9
MSCI EAFE	6.3	34.2	-34.5	16.9
LB Govt/Credit	7.3	86.6	-33.3	21.4
U.S. T-Bills	3.1	24.0	-12.4	8.8
Real Estate	1.8	7.3	-3.5	2.6
S&P Energy	4.4	14.4	-8.6	4.8
Oil	7.3	49.5	-32.6	19.4
Gas	9.6	156.2	-50.2	43.7
Gold	6.2	52.6	-40.8	22.4
GSCI Spot	5.1	105.3	-30.5	26.7
GSCI Agriculture	-1.1	42.4	-25.5	13.4
GSCI Livestock	2.4	44.0	-32.8	19.9
GSCI Precious Metal	-4.1	23.5	-26.3	11.3

Quartile 4	Mean	High	Low	Std Dev
U.S. CPI-U % Change	-20.9	-11.6	-41.4	8.3
GSCI	4.4	12.6	1.1	3.1
S&P 500	-2.4	36.7	-28.2	14.8
MSCI EAFE	12.7	56.8	-28.5	22.2
LB Govt/Credit	9.4	85.7	-30.4	29.0
U.S. T-Bills	9.1	27.1	-12.6	9.5
Real Estate	3.5	8.4	-2.2	2.7
S&P Energy	6.2	15.8	-4.9	4.5
Oil	7.7	35.4	-32.8	19.2
Gas	-14.3	38.7	-64.1	19.8
Gold	-3.6	91.6	-62.8	30.6
GSCI Spot	-7.1	49.6	-40.9	19.2
GSCI Agriculture	-12.8	14.2	-35.0	13.1
GSCI Livestock	-12.7	34.3	-48.9	16.6
GSCI Precious Metal	-4.8	12.0	-22.8	8.7

Sources: Bureau of Labor Statistics, Lehman Brothers, Inc., National Council of Real Estate Investment Fiduciaries, Oil & Gas Journal Energy Database, Prudential Realty Group, Standard & Poor's, Standard & Poor's Compustat, Thomson Datastream, and *The Wall Street Journal.* MSCI data are copyrighted by and proprietary to Morgan Stanley Capital International, Inc.

Notes: GSCI Precious Metal data begin in the second quarter of 1973. GSCI Agriculture, Livestock, and Precious Metal are spot returns.

Exhibit 23

COMMODITY PERFORMANCE RANKED BY QUARTILE OF CHANGES IN RATE OF G7 INFLATION

Real Rolling Four-Quarter Returns

January 1, 1973 - June 30, 2002

Quartile 1	Mean	High	Low	Std Dev
G7 CPI % Change	17.0	80.0	8.1	14.6
GSCI	18.3	58.7	-17.2	19.6
S&P 500	5.8	38.6	-46.5	19.5
MSCI EAFE	4.6	57.0	-45.2	24.9
LB Govt/Credit	-1.1	9.9	-19.4	7.3
U.S. T-Bills	1.6	4.8	-5.0	2.6
Real Estate	5.5	11.3	-3.7	3.8
S&P Energy	14.6	59.0	-39.8	20.7
Oil	39.7	157.5	-31.4	53.8
Gas	12.9	78.0	-38.1	29.2
Gold	15.5	107.7	-19.3	34.3
GSCI Spot	6.7	34.8	-17.5	14.1
GSCI Agriculture	5.6	64.2	-24.6	21.6
GSCI Livestock	-1.0	29.6	-26.8	11.2
GSCI Precious Metal	19.3	152.4	-18.7	44.3

Quartile 3	Mean	High	Low	Std Dev
G7 CPI % Change	-5.3	-0.9	-9.2	2.7
GSCI	1.2	41.9	-31.4	16.9
S&P 500	7.7	38.4	-13.8	13.9
MSCI EAFE	4.0	30.4	-15.5	11.1
LB Govt/Credit	3.7	24.4	-12.5	7.8
U.S. T-Bills	1.9	6.2	-4.3	3.0
Real Estate	2.9	15.7	-9.7	6.1
S&P Energy	8.1	50.6	-29.7	16.5
Oil	-4.3	22.6	-29.6	14.4
Gas	10.6	77.7	-32.0	22.7
Gold	-4.6	50.2	-40.1	19.7
GSCI Spot	-6.8	21.3	-33.6	12.3
GSCI Agriculture	-5.1	42.3	-37.3	20.6
GSCI Livestock	-5.6	18.3	-36.5	10.7
GSCI Precious Metal	-6.2	40.8	-42.6	16.8

Quartile 2	Mean	High	Low	Std Dev
G7 CPI % Change	2.7	7.7	-0.8	3.1
GSCI	9.5	55.6	-36.6	22.8
S&P 500	8.2	34.6	-35.5	18.4
MSCI EAFE	7.6	86.3	-34.4	24.6
LB Govt/Credit	4.1	23.4	-13.8	9.2
U.S. T-Bills	2.0	6.6	-5.0	2.9
Real Estate	4.1	14.7	-8.8	5.2
S&P Energy	8.6	36.1	-33.7	19.2
Oil	11.3	152.0	-50.3	41.7
Gas	16.3	178.2	-54.3	43.9
Gold	3.7	105.3	-41.8	26.8
GSCI Spot	0.1	43.7	-29.0	17.9
GSCI Agriculture	-2.0	41.7	-39.3	18.8
GSCI Livestock	-3.5	24.6	-27.4	13.3
GSCI Precious Metal	2.4	95.5	-45.8	26.3

Quartile 4	Mean	High	Low	Std Dev
G7 CPI % Change	-17.2	-9.3	-41.0	7.7
GSCI	-4.5	43.3	-33.4	16.2
S&P 500	11.3	54.4	-28.0	21.3
MSCI EAFE	9.8	85.7	-29.9	28.9
LB Govt/Credit	9.0	25.7	-5.8	8.6
U.S. T-Bills	3.0	7.4	-3.9	2.7
Real Estate	5.3	16.1	-6.8	5.7
S&P Energy	5.4	33.3	-33.4	16.6
Oil	-15.1	38.8	-64.1	19.8
Gas	-5.9	93.0	-62.7	30.5
Gold	-6.4	25.5	-41.5	14.6
GSCI Spot	-12.1	14.3	-36.3	12.2
GSCI Agriculture	-11.4	17.4	-49.9	14.8
GSCI Livestock	-4.7	10.4	-21.3	8.1
GSCI Precious Metal	-5.9	35.0	-41.6	15.2

Sources: Bureau of Labor Statistics, Lehman Brothers Inc., National Council of Real Estate Investment Fiduciaries, Oil & Gas Journal Energy Database, Prudential Realty Group, Standard & Poor's, Standard & Poor's Compustat, Thomson Datastream, and *The Wall Street Journal.* MSCI data are copyrighted by and proprietary to Morgan Stanley Capital International, Inc.

Notes: GSCI Precious Metal data in the begin second quarter of 1973. GSCI Agriculture, Livestock, and Precious Metal are spot returns.

Exhibit 24

COMMODITY PERFORMANCE RANKED BY QUARTILE OF U.S. ECONOMIC GROWTH

Real Rolling Four-Quarter Returns

January 1, 1973 - June 30, 2002

Quartile 1	Mean	High	Low	Std Dev
GDP % Change	5.1	7.7	3.9	1.1
GSCI	0.4	33.8	-36.8	15.5
U.S. CPI-U	4.6	10.1	1.1	2.5
S&P 500	14.9	56.8	-13.2	19.2
MSCI EAFE	19.0	85.7	-2.2	23.3
LB Govt/Credit	6.2	26.0	-7.2	8.8
U.S. T-Bills	2.7	6.5	-1.6	3.0
Real Estate	7.5	14.4	3.0	3.1
S&P Energy	13.2	43.7	-13.2	15.3
Oil	-10.7	18.8	-64.1	18.6
Gas	7.1	81.7	-43.5	27.1
Gold	-1.5	30.0	-31.4	18.8
GSCI Spot	-8.5	21.4	-32.1	12.0
GSCI Agriculture	-9.1	27.6	-32.8	15.2
GSCI Livestock	-3.7	28.6	-35.1	13.4
GSCI Precious Metal	-1.8	37.1	-25.5	15.9

Quartile 3	Mean	High	Low	Std Dev
GDP % Change	2.0	2.7	1.1	0.5
GSCI	12.0	60.9	-27.8	21.9
U.S. CPI-U	4.1	11.0	1.1	2.4
S&P 500	13.6	39.0	-21.6	15.6
MSCI EAFE	7.8	56.1	-21.7	19.3
LB Govt/Credit	5.7	26.1	-11.0	7.1
U.S. T-Bills	2.1	6.5	-1.1	1.7
Real Estate	2.1	8.6	-9.5	5.3
S&P Energy	16.2	58.0	-22.7	17.2
Oil	13.0	161.2	-29.8	37.7
Gas	18.7	175.8	-54.4	41.7
Gold	0.1	58.2	-42.1	17.9
GSCI Spot	1.8	36.7	-29.4	14.3
GSCI Agriculture	-1.4	60.9	-39.7	18.4
GSCI Livestock	-0.3	14.1	-21.3	7.9
GSCI Precious Metal	-1.6	26.6	-46.1	14.7

Quartile 2	Mean	High	Low	Std Dev
GDP % Change	3.3	3.8	2.8	0.3
GSCI	4.1	53.9	-33.5	21.9
U.S. CPI-U	3.6	9.6	1.5	1.7
S&P 500	10.7	29.2	-15.9	13.3
MSCI EAFE	13.7	86.6	-14.6	19.9
LB Govt/Credit	3.6	24.0	-12.5	8.2
U.S. T-Bills	2.6	5.6	-1.1	1.7
Real Estate	5.9	15.8	-7.0	4.6
S&P Energy	8.3	36.8	-13.3	12.7
Oil	3.5	106.9	-50.2	32.3
Gas	0.9	91.5	-40.8	33.4
Gold	-5.7	28.0	-40.1	14.3
GSCI Spot	-1.7	42.4	-35.0	17.2
GSCI Agriculture	-2.4	41.2	-48.9	18.9
GSCI Livestock	-3.8	23.5	-22.2	10.8
GSCI Precious Metal	-4.7	29.8	-42.6	13.9

Quartile 4	Mean	High	Low	Std Dev
GDP % Change	-1.5	1.1	-5.4	1.7
GSCI	7.5	55.6	-33.0	20.8
U.S. CPI-U	8.0	14.8	1.6	4.1
S&P 500	-5.6	26.9	-45.4	17.9
MSCI EAFE	-13.8	17.9	-44.1	15.4
LB Govt/Credit	0.8	27.1	-20.4	11.4
U.S. T-Bills	1.4	8.4	-3.5	3.5
Real Estate	2.7	9.0	-8.4	4.9
S&P Energy	-0.9	49.5	-38.6	22.2
Oil	24.4	157.3	-45.7	58.6
Gas	7.3	91.6	-62.8	27.3
Gold	14.8	105.3	-40.9	40.0
GSCI Spot	-4.2	31.7	-32.5	16.8
GSCI Agriculture	-0.4	66.9	-36.9	25.2
GSCI Livestock	-7.0	12.0	-27.7	9.3
GSCI Precious Metal	16.3	149.4	-41.2	49.7

Sources: Bureau of Labor Statistics, Lehman Brothers, Inc., National Council of Real Estate Investment Fiduciaries, Oil & Gas Journal Energy Database, Prudential Realty Group, Standard & Poor's, Standard & Poor's Compustat, Thomson Datastream, and *The Wall Street Journal.* MSCI data are copyrighted by and proprietary to Morgan Stanley Capital International, Inc.

Notes: GSCI Precious Metal data begin in the second quarter of 1973. GSCI Agriculture, Livestock, and Precious Metal are spot returns.

Exhibit 25

COMMODITY PERFORMANCE RANKED BY QUARTILE OF U.S. CAPACITY UTILIZATION

Real Rolling Four-Quarter Returns

January 1, 1973 - June 30, 2002

Quartile 1	Mean	High	Low	Std Dev
U.S. Capacity Utilization	84.9	88.3	83.4	1.5
GSCI	17.2	60.9	-16.9	18.6
U.S. CPI-U	7.2	14.8	1.4	3.9
S&P 500	2.1	46.0	-45.4	21.0
MSCI EAFE	-0.3	28.2	-44.1	18.8
LB Govt/Credit	-1.7	11.5	-20.4	8.6
U.S. T-Bills	0.7	4.5	-3.5	2.5
Real Estate	4.6	14.3	-2.0	3.4
S&P Energy	4.8	32.3	-38.6	18.7
Oil	33.4	161.2	-32.6	60.0
Gas	5.8	29.5	-40.8	20.0
Gold	17.4	105.3	-23.1	35.0
GSCI Spot	5.4	36.7	-19.8	12.2
GSCI Agriculture	10.7	66.9	-17.5	21.5
GSCI Livestock	-2.3	28.6	-27.7	13.1
GSCI Precious Metal	20.4	149.4	-18.5	44.7

Quartile 3	Mean	High	Low	Std Dev
U.S. Capacity Utilization	80.7	81.5	79.8	0.6
GSCI	1.3	37.2	-29.3	15.5
U.S. CPI-U	4.7	12.5	1.7	2.8
S&P 500	9.6	37.3	-23.9	13.8
MSCI EAFE	9.6	52.7	-28.0	19.9
LB Govt/Credit	4.9	24.0	-12.5	8.2
U.S. T-Bills	2.7	6.5	-2.2	2.4
Real Estate	3.2	12.6	-9.5	6.8
S&P Energy	13.3	58.0	-29.3	18.0
Oil	4.1	106.9	-29.8	27.5
Gas	12.1	91.6	-28.1	28.6
Gold	-7.0	24.0	-40.1	13.4
GSCI Spot	-3.7	42.4	-31.1	13.2
GSCI Agriculture	-9.6	17.2	-36.9	12.7
GSCI Livestock	-3.3	23.5	-22.8	9.6
GSCI Precious Metal	-9.7	26.6	-42.6	15.4

Quartile 2	Mean	High	Low	Std Dev
U.S. Capacity Utilization	82.5	83.4	81.6	0.6
GSCI	11.1	55.6	-36.8	25.7
U.S. CPI-U	4.5	14.4	1.5	3.2
S&P 500	7.9	37.5	-14.5	15.8
MSCI EAFE	3.2	20.6	-31.8	13.3
LB Govt/Credit	1.7	16.3	-12.6	6.5
U.S. T-Bills	2.0	5.3	-1.7	1.6
Real Estate	5.7	15.8	-3.6	4.4
S&P Energy	9.7	43.7	-22.7	15.6
Oil	6.4	85.0	-33.3	30.3
Gas	20.0	175.8	-38.4	44.5
Gold	2.1	103.5	-42.1	25.1
GSCI Spot	0.9	39.1	-29.4	17.6
GSCI Agriculture	-2.8	41.2	-39.7	19.7
GSCI Livestock	-2.6	16.0	-21.1	9.4
GSCI Precious Metal	0.0	93.8	-46.1	22.8

Quartile 4	Mean	High	Low	Std Dev
U.S. Capacity Utilization	77.1	79.7	73.0	2.1
GSCI	-5.0	21.5	-33.0	12.8
U.S. CPI-U	4.0	9.4	1.1	2.2
S&P 500	13.6	56.8	-28.5	21.0
MSCI EAFE	13.6	86.6	-30.4	33.6
LB Govt/Credit	11.2	27.1	0.4	8.3
U.S. T-Bills	3.3	8.4	-2.1	3.0
Real Estate	4.5	9.6	-8.6	4.7
S&P Energy	8.8	54.0	-32.8	20.2
Oil	-12.2	75.4	-64.1	26.2
Gas	-4.0	81.7	-62.8	31.2
Gold	-4.1	28.0	-40.9	19.1
GSCI Spot	-14.7	3.4	-35.0	11.0
GSCI Agriculture	-10.9	27.6	-48.9	17.6
GSCI Livestock	-6.5	12.0	-35.1	10.2
GSCI Precious Metal	-1.0	37.1	-41.0	17.7

Sources: Bureau of Labor Statistics, Lehman Brothers Inc., National Council of Real Estate Investment Fiduciaries, Oil & Gas Journal Energy Database, Prudential Realty Group, Standard & Poor's, Standard & Poor's Compustat, Thomson Datastream, and *The Wall Street Journal.* MSCI data are copyrighted by and proprietary to Morgan Stanley Capital International, Inc.

Notes: GSCI Precious Metal data begin in the second quarter of 1973. GSCI Agriculture, Livestock, and Precious Metal are spot returns.

Exhibit 26

COMMODITY PERFORMANCE UNDER VARYING G7 GDP GAP CONDITIONS

Real Rolling Four-Quarter Returns

January 1, 1973 - June 30, 2002

Quartile 1	Mean	High	Low	Std Dev
G7 GDP Gap	1.5	2.5	0.1	0.7
GSCI	23.8	60.9	-5.5	15.1
U.S. CPI-U	7.6	14.8	3.7	3.6
S&P 500	0.2	37.3	-45.4	17.8
MSCI EAFE	1.1	52.7	-44.1	23.0
LB Govt/Corp	-2.6	9.2	-20.4	7.3
U.S. T-Bills	0.8	4.5	-3.1	2.3
Real Estate	3.5	7.1	-3.6	2.7
S&P Energy	8.4	58.0	-38.6	20.6
Oil	40.7	161.2	-31.8	59.3
Gas	6.1	27.1	-22.1	13.9
Gold	21.2	105.3	-19.9	36.9
GSCI Spot	7.7	36.7	-10.3	11.7
GSCI Agriculture	11.4	66.9	-21.8	22.5
GSCI Livestock	-0.6	28.6	-27.7	10.8
GSCI Precious Metal	25.1	149.4	-18.5	46.1

Quartile 3	Mean	High	Low	Std Dev
G7 GDP Gap	-1.0	-0.6	-1.5	0.3
GSCI	-2.4	44.8	-33.5	16.9
U.S. CPI-U	4.6	12.6	1.4	3.4
S&P 500	9.7	46.0	-23.9	16.8
MSCI EAFE	1.1	27.6	-28.0	13.3
LB Govt/Corp	3.3	16.3	-12.6	8.1
U.S. T-Bills	2.2	5.6	-1.6	1.9
Real Estate	5.1	15.8	-9.5	6.2
S&P Energy	9.4	49.5	-22.7	15.0
Oil	0.3	48.2	-29.6	17.9
Gas	19.2	175.8	-40.8	45.7
Gold	-4.9	49.6	-42.1	16.5
GSCI Spot	-3.8	22.8	-29.4	13.3
GSCI Agriculture	-2.8	34.3	-39.7	17.8
GSCI Livestock	-6.3	10.3	-22.2	8.8
GSCI Precious Metal	-6.9	40.3	-46.1	15.2

Quartile 2	Mean	High	Low	Std Dev
G7 GDP Gap	-0.3	0.1	-0.6	0.2
GSCI	10.2	53.9	-15.5	18.2
U.S. CPI-U	3.4	6.7	1.1	1.3
S&P 500	15.7	37.5	-13.2	14.0
MSCI EAFE	21.8	86.6	-15.5	28.3
LB Govt/Corp	7.8	26.0	-3.5	8.2
U.S. T-Bills	3.6	6.4	-0.9	1.9
Real Estate	6.0	12.0	-8.4	5.0
S&P Energy	16.0	54.0	-10.8	14.9
Oil	-3.6	75.4	-64.1	33.4
Gas	2.0	91.5	-43.5	34.5
Gold	-4.5	28.0	-23.1	13.6
GSCI Spot	-4.7	39.1	-30.6	15.6
GSCI Agriculture	-10.2	10.4	-25.1	10.2
GSCI Livestock	-1.3	18.5	-14.6	9.2
GSCI Precious Metal	-5.6	29.8	-25.5	13.9

Quartile 4	Mean	High	Low	Std Dev
G7 GDP Gap	-2.7	-1.5	-5.0	1.1
GSCI	-6.9	37.2	-36.8	16.7
U.S. CPI-U	4.6	12.3	1.1	3.0
S&P 500	7.4	56.8	-34.5	21.6
MSCI EAFE	2.0	32.1	-31.6	18.7
LB Govt/Corp	7.6	27.1	-10.8	9.1
U.S. T-Bills	2.2	8.4	-3.5	3.4
Real Estate	3.4	14.4	-7.0	5.3
S&P Energy	2.9	35.9	-32.8	20.1
Oil	-5.4	106.9	-33.3	24.9
Gas	6.6	81.7	-62.8	29.2
Gold	-3.3	53.7	-40.9	21.3
GSCI Spot	-11.2	42.4	-35.0	15.3
GSCI Agriculture	-11.0	28.7	-48.9	19.0
GSCI Livestock	-6.5	23.5	-35.1	12.5
GSCI Precious Metal	-2.5	37.1	-41.2	18.2

Sources: Bureau of Labor Statistics, Goldman, Sachs & Co., National Council of Real Estate Investment Fiduciaries, Lehman Brothers Inc., Standard & Poor's, Standard & Poor's Compustat, Thomson Datastream and *The Wall Street Journal.*

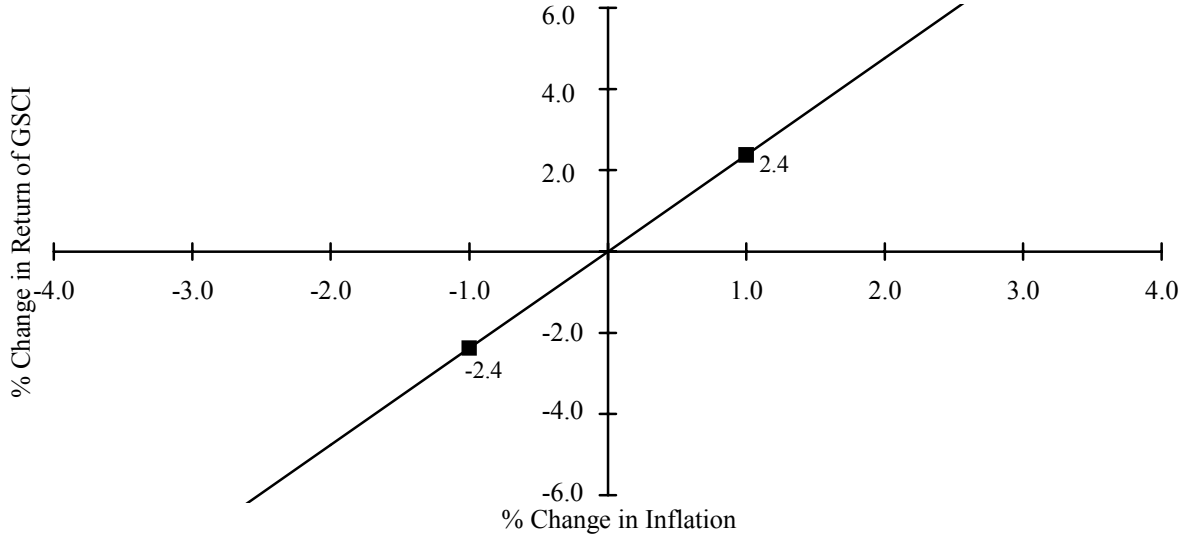
Notes: G7 GDP Gap is actual Gross Domestic Product divided by potential Gross Domestic Product. GSCI Precious Metal data begin in the second quarter of 1973. GSCI Agriculture, Livestock, and Precious Metal are spot returns.

Exhibit 27

HEDGING AGAINST INFLATION
Inflation Betas

January 1, 1970 - June 30, 2002

Asset Class	Inflation Beta
Gold	5.6
Oil & Gas	4.6
GSCI Energy	4.6
Commodities (GSCI)	2.4
Timber	1.4
Private Real Estate	0.8
Cash	0.6
Public Real Estate	-0.5
Non-U.S. Bonds	-0.5
U.S. Equity	-1.1
Non-U.S. Equity	-1.4
U.S. Bonds	-1.5
Venture Capital *	-2.4



Sources: Bureau of Labor Statistics, Cambridge Associates LLC Non-Marketable Alternative Assets Database, Hancock Timber Resources Group, National Association of Real Estate Investment Trusts, Inc., National Council of Real Estate Investment Fiduciaries, Standard & Poor's, and Thomson Datastream.

Notes: Inflation betas measure the relative sensitivity of each asset class to changes in the rate of inflation. For each 1% change in inflation, the percentage return of an asset class is affected by the amount of its inflation beta. For example, in a year in which inflation increases by 2%, the expected returns on U.S. Equity will be -2.3% less than if inflation had not increased. Timberland data for 1960 through 1986 are the John Hancock Timberland Index, 1987 through present are the NCREIF Timberland Index. Commodity and GSCI Energy Sector data begin January 1, 1970.

* Data are through March 31, 2002.

Commodity Performance for Non-U.S. Dollar Investors: The U.K. Example

Exhibit 28

CORRELATION MATRIX: COMMODITY INDICES, U.K. CAPITAL MARKET INDICES AND U.K. INFLATION

January 1, 1973 - December 31, 1981 (High-Inflation Environment)

	GSCI ($)	GSCI (£)	FTSE All-Share	MSCI World ex U.K.	U.K. Gilts	U.K. T-Bills	U.K. RPI
GSCI ($)	1.00						
GSCI (£)	0.89	1.00					
FTSE All-Share	-0.34	-0.38	1.00				
MSCI World ex U.K.	-0.51	-0.34	0.49	1.00			
U.K. Gilts	-0.13	-0.18	0.60	0.17	1.00		
U.K. T-Bills	-0.15	-0.13	-0.05	0.00	-0.08	1.00	
U.K. RPI	-0.19	-0.10	0.28	0.37	0.18	0.15	1.00

January 1, 1982 - June 30, 2002 (Low-Inflation Environment)

	GSCI ($)	GSCI (£)	FTSE All-Share	MSCI World ex U.K.	U.K. Gilts	U.K. T-Bills	U.K. RPI
GSCI ($)	1.00						
GSCI (£)	0.86	1.00					
FTSE All-Share	-0.14	0.03	1.00				
MSCI World ex U.K.	-0.22	0.08	0.75	1.00			
U.K. Gilts	-0.21	-0.24	0.39	0.13	1.00		
U.K. T-Bills	0.16	0.12	0.12	0.02	0.13	1.00	
U.K. RPI	0.03	-0.02	-0.06	-0.09	-0.03	0.50	1.00

January 1, 1970 - June 30, 2002

	GSCI ($)	GSCI (£)	FTSE All-Share	MSCI World ex U.K.	U.K. Gilts	U.K. T-Bills	U.K. RPI
GSCI ($)	1.00						
GSCI (£)	0.87	1.00					
FTSE All-Share	-0.23	-0.17	1.00				
MSCI World ex U.K.	-0.29	-0.04	0.57	1.00			
U.K. Gilts	-0.19	-0.23	0.49	0.13	1.00		
U.K. T-Bills	0.05	0.04	0.02	-0.01	0.03	1.00	
U.K. RPI	-0.02	0.00	0.12	0.02	0.03	0.44	1.00

Sources: Barclays Capital and Thomson Datastream. MSCI data are copyrighted by and proprietary to Morgan Stanley Capital International.

Note: Data are denominated in Sterling (£), unless otherwise noted.

Exhibit 29

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

Investing in a High-Inflation Environment

Years Ended December 31	U.K. RPI	GSCI ($)	GSCI (£)	U.K. Equities	MSCI World ex U.K.	U.K. Gilts	U.K. T-Bills
1973	10.4	58.5	60.1	-35.4	-21.4	-17.5	-1.2
1974	18.3	18.0	16.6	-59.2	-35.9	-28.3	-4.8
1975	25.2	-33.9	-23.2	101.4	19.6	9.3	-11.3
1976	15.0	-23.4	-8.9	-11.1	19.6	-1.3	-2.4
1977	13.0	-2.3	-13.3	32.0	-23.5	33.1	-4.4
1978	8.1	21.8	14.4	0.4	1.6	-9.9	1.1
1979	17.4	14.0	4.8	-5.8	-13.7	-10.9	-2.6
1980	15.3	-3.7	-10.6	17.4	0.2	5.2	1.3
1981	12.0	-31.2	-13.9	1.6	7.4	-9.3	2.3
AACR (1973-81)	14.9	-1.8	0.5	-3.8	-7.0	-4.7	-2.5
Standard Deviation	3.8	23.4	24.0	32.8	16.1	14.8	3.6

Investing in a Low-Inflation Environment

Years Ended December 31	U.K. RPI	GSCI ($)	GSCI (£)	U.K. Equities	MSCI World ex U.K.	U.K. Gilts	U.K. T-Bills
1982	6.3	5.0	23.9	21.6	22.1	45.3	5.9
1983	4.9	10.9	23.6	23.2	30.1	11.1	5.3
1984	4.9	-3.7	20.6	25.8	24.8	2.1	4.8
1985	5.5	4.3	-16.4	13.9	6.2	5.6	6.9
1986	3.5	-1.4	-3.9	23.2	33.9	7.8	7.5
1987	4.1	18.8	-6.2	3.7	-13.2	11.8	5.6
1988	6.4	20.3	24.9	4.9	22.1	3.0	4.2
1989	7.7	28.4	44.0	26.3	21.0	-1.9	6.7
1990	9.7	17.7	-1.7	-17.7	-38.7	-5.0	5.5
1991	4.3	-10.0	-7.2	15.8	17.2	13.9	7.2
1992	3.0	1.4	25.3	16.9	13.5	13.5	6.3
1993	1.4	-13.5	-11.5	26.7	23.5	32.7	4.2
1994	2.6	2.6	-3.0	-8.3	-2.4	-14.4	2.8
1995	3.1	16.7	17.6	20.1	17.9	13.8	3.6
1996	2.7	30.3	18.3	13.6	-1.0	6.1	3.3
1997	3.7	-17.1	-13.8	19.1	15.4	18.6	3.2
1998	3.0	-37.6	-38.3	10.4	20.1	25.9	4.4
1999	1.4	39.0	43.5	22.5	28.7	-1.7	3.9
2000	3.2	45.0	56.5	-8.9	-9.5	4.6	2.9
2001	0.9	-32.5	-30.7	-14.0	-15.7	-7.1	1.9
2002 (6 mos)	1.5	13.1	8.0	-10.3	-14.6	0.6	0.5
AACR (1982-2002)	4.1	4.4	5.6	10.2	8.0	8.3	4.7
Standard Deviation	1.9	19.3	20.8	16.9	19.4	11.1	1.7
AACR (1973-2002)	7.2	2.5	4.0	5.7	3.2	4.2	2.4
Standard Deviation	3.5	20.6	21.8	22.9	18.8	12.6	3.0

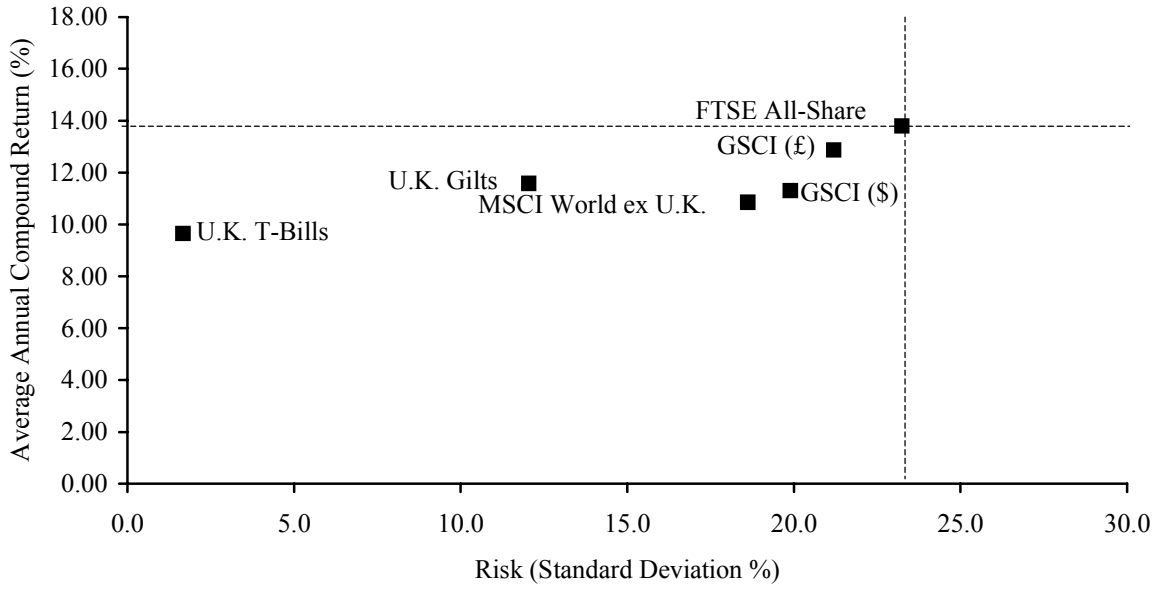
Sources: Barclays Capital and Thomson Datastream. MSCI data are copyrighted by and proprietary to Morgan Stanley Capital International, Inc.

Notes: Data are denominated in Sterling (£), unless otherwise noted. Standard deviations are based on quarterly data and are annualized.

Exhibit 30

RISK/RETURN ANALYSIS OF COMMODITY INDICES AND U.K. CAPITAL MARKET RETURNS

January 1, 1970 - June 30, 2002



	Average Annual Compound Return	Annual Standard Deviation	Return to Deviation Ratio	Sharpe Ratio
GSCI (£)	12.2	21.2	0.58	0.61
GSCI ($)	10.3	19.9	0.52	0.33
FTSE All-Share	13.8	23.2	0.59	0.71
MSCI World ex U.K. (£)	11.0	18.6	0.59	0.26
U.K. Gilts	11.6	12.1	0.96	0.64
U.K. T-Bills	9.6	1.7	---	---

Sources: Barclays Capital and Thomson Datastream.

Notes: Data are denominated in Sterling (£), unless otherwise noted. Return to Deviation Ratio is calculated by dividing the average annual compound return by the annual standard deviation. This ratio does not consider risk-free alternatives.The Sharpe Ratio is calculated by subtracting the average quarterly T-Bill return (risk-free return) from the index's average quarterly return, then dividing by the index's quarterly standard deviation. Interpreted as the amount of return over the risk-free rate that can be expected for each unit of risk accepted.

Exhibit 31

RISK/RETURN ANALYSIS OF COMMODITY INDICES AND U.K. CAPITAL MARKET RETURNS DURING PERIODS OF HIGH AND LOW U.K. INFLATION

Average Annual Compound Return (%), Standard Deviation (%), and Sharpe Ratio for Varying Inflationary Conditions

January 1, 1970 - June 30, 2002

	GSCI (£)	GSCI ($)	FTSE All-Share	MSCI World ex U.K.	U.K. Gilts
1970-2002					
Average Annual Compound Return	12.86	11.30	13.80	10.84	11.58
Annualized Standard Deviation	21.21	19.90	23.25	18.62	12.05
Sharpe Ratio	0.30	0.17	0.36	0.13	0.32
1970-81 (High Inflation)					
Average Annual Compound Return	18.13	15.89	12.37	8.29	9.18
Annualized Standard Deviation	21.60	20.53	31.51	17.43	13.72
Sharpe Ratio	0.69	0.51	0.11	-0.27	-0.21
1982-2002 (Low Inflation)					
Average Annual Compound Return	9.89	8.69	14.64	12.37	13.01
Annualized Standard Deviation	20.98	19.54	16.86	19.35	11.00
Sharpe Ratio	0.08	-0.04	0.66	0.34	0.71

Sources: Barclays Capital and Thomson Datastream.

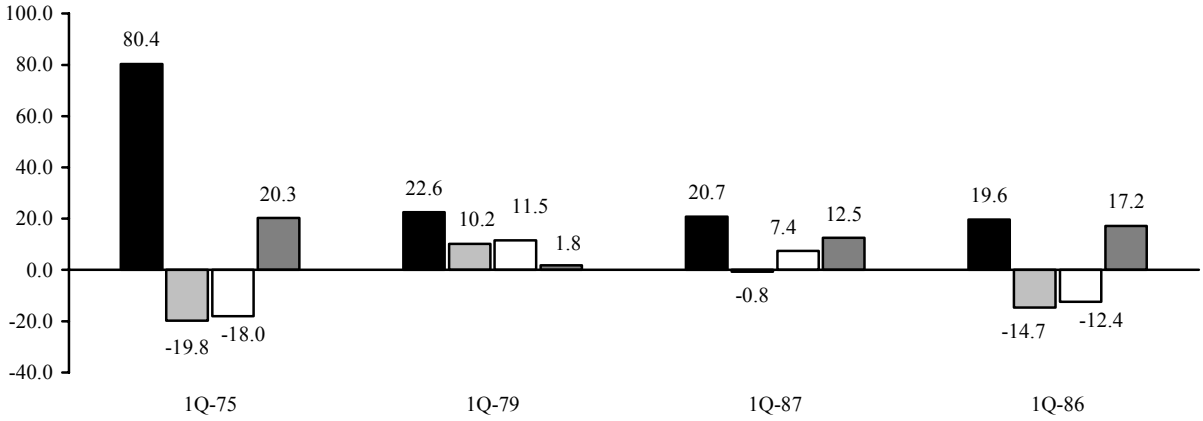
Notes: Data are denominated in Sterling (£), unless otherwise noted. Standard deviations are based on quarterly data and are annualized. The Sharpe Ratio is calculated by subtracting the average quarterly T-Bill return (risk-free return) from the index's average quarterly return, then dividing by the index's quarterly standard deviation. Interpreted as the amount of return over the risk-free rate that can be expected for each unit of risk accepted.

Exhibit 32

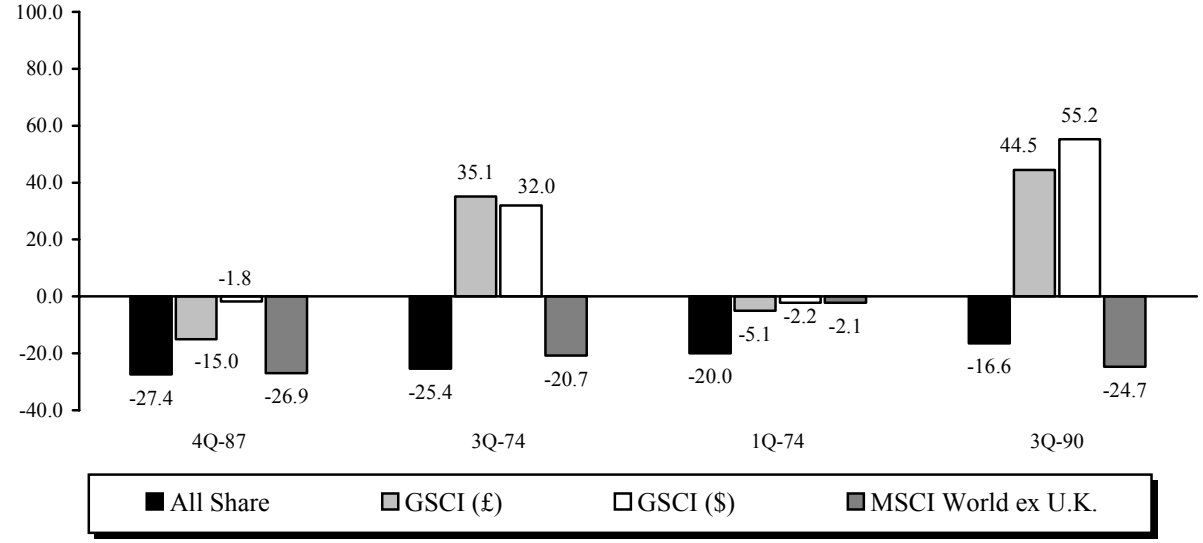
OPPORTUNITY COST OF HOLDING COMMODITIES OR MSCI WORLD EX U.K. RELATIVE TO THE FTSE ALL-SHARE

First Quarter 1970 - Second Quarter 2002

Four Best-Performing Quarters for the FTSE All-Share Compared to the GSCI and MSCI World ex U.K.



Four Worst-Performing Quarters for the FTSE All-Share Compared to the GSCI and MSCI World ex U.K.



Source: Thomson Datastream. MSCI data are copyrighted by and proprietary to Morgan Stanley Capital International, Inc.

Notes: Data are denominated in Sterling (£), unless otherwise noted. Correlations with the FTSE All-Share: In positive return quarters, the correlation between MSCI World ex U.K. and the FTSE All-Share is 0.28, the correlation between GSCI (£) and the FTSE All-Share is -0.25, and the correlation between GSCI ($) and the FTSE All-Share is -0.25. In negative return years, the correlations are 0.65, -0.03, and -0.14, respectively, while over the entire period, the correlations are 0.57, -0.17, and -0.23, respectively.

Exhibit 33

COMMODITY PERFORMANCE RANKED BY QUARTILE OF U.K. EQUITY MARKET RETURNS

Real Rolling Four-Quarter Returns

January 1, 1973 - June 30, 2002

Quartile 1	Mean	High	Low	Std Dev
U.K. Equities	33.8	101.4	22.5	16.8
GSCI ($)	1.2	39.0	-33.9	17.8
GSCI (£)	4.1	44.0	-26.7	20.0
MSCI World ex U.K.	23.4	63.8	-23.5	19.9
U.K. Gilts	16.3	47.1	-4.3	13.1
U.K. T-Bills	3.6	8.8	-12.5	5.4
U.K. RPI	6.6	26.9	1.4	6.4

Quartile 3	Mean	High	Low	Std Dev
U.K. Equities	4.3	11.6	-1.4	3.8
GSCI ($)	5.9	54.8	-37.6	22.2
GSCI (£)	6.6	61.2	-38.3	23.3
MSCI World ex U.K.	2.2	22.8	-17.1	12.6
U.K. Gilts	2.5	25.9	-14.7	10.3
U.K. T-Bills	2.6	7.7	-11.1	4.0
U.K. RPI	7.7	25.0	1.3	5.7

Quartile 2	Mean	High	Low	Std Dev
U.K. Equities	17.2	22.2	12.0	3.3
GSCI ($)	5.6	41.9	-20.2	17.9
GSCI (£)	8.9	45.8	-16.4	19.7
MSCI World ex U.K.	13.9	50.5	-13.1	13.1
U.K. Gilts	9.1	45.3	-3.6	9.0
U.K. T-Bills	3.5	7.2	-9.9	3.2
U.K. RPI	6.0	22.9	1.1	4.8

Quartile 4	Mean	High	Low	Std Dev
U.K. Equities	-17.9	-1.8	-61.5	16.4
GSCI ($)	3.2	58.5	-34.9	25.7
GSCI (£)	3.9	60.1	-37.9	24.6
MSCI World ex U.K.	-14.6	34.0	-44.4	16.8
U.K. Gilts	-5.2	24.6	-28.3	13.1
U.K. T-Bills	1.2	6.7	-6.9	3.9
U.K. RPI	9.5	21.9	0.9	6.8

Sources: Barclays Capital and Thomson Datastream. MSCI data are copyrighted by and proprietary to Morgan Stanley Capital International, Inc.

Note: Data are denominated in Sterling (£), unless otherwise noted.

Exhibit 34

COMMODITY PERFORMANCE RANKED BY QUARTILE OF CHANGE IN U.K. INFLATION

Real Rolling Four-Quarter Returns

January 1, 1973 - June 30, 2002

Quartile 1	Mean	High	Low	Std Dev
U.K. RPI % Change	30.4	74.8	10.0	16.9
GSCI ($)	10.5	58.5	-25.9	22.1
GSCI (£)	11.1	61.2	-26.1	24.1
U.K. Equities	3.6	28.1	-50.3	21.6
MSCI World ex U.K.	6.4	54.0	-23.0	21.2
U.K. Gilts	0.4	29.5	-24.2	12.7
U.K. T-Bills	2.2	7.5	-11.1	4.0

Quartile 3	Mean	High	Low	Std Dev
U.K. RPI % Change	-7.0	-0.7	-13.8	3.6
GSCI ($)	-0.5	39.4	-37.6	21.7
GSCI (£)	0.8	55.3	-38.3	22.5
U.K. Equities	15.7	101.4	-17.7	21.7
MSCI World ex U.K.	9.5	51.7	-38.7	18.0
U.K. Gilts	7.8	36.0	-14.7	11.3
U.K. T-Bills	3.1	8.8	-11.3	4.7

Quartile 2	Mean	High	Low	Std Dev
U.K. RPI % Change	5.5	9.9	-0.7	2.9
GSCI ($)	6.6	49.3	-31.2	22.3
GSCI (£)	7.9	56.5	-23.9	20.7
U.K. Equities	5.1	60.3	-61.5	26.9
MSCI World ex U.K.	-0.4	30.1	-44.4	20.6
U.K. Gilts	-1.4	18.6	-28.3	11.7
U.K. T-Bills	1.3	6.7	-12.5	4.6

Quartile 4	Mean	High	Low	Std Dev
U.K. RPI % Change	-25.1	-14.2	-57.5	10.3
GSCI ($)	-0.5	41.9	-34.7	15.9
GSCI (£)	3.9	45.3	-37.9	19.5
U.K. Equities	12.0	44.5	-15.8	16.8
MSCI World ex U.K.	8.8	63.8	-23.5	23.9
U.K. Gilts	15.4	47.1	-6.2	13.5
U.K. T-Bills	4.1	8.7	-4.4	3.3

Sources: Barclays Capital and Thomson Datastream. MSCI data are copyrighted by and proprietary to Morgan Stanley Capital International, Inc.

Note: Data are denominated in Sterling (£), unless otherwise noted.

Exhibit 35

COMMODITY PERFORMANCE RANKED BY QUARTILE OF U.K. CAPACITY UTILIZATION

Real Rolling Four-Quarter Returns

January 1, 1973 - June 30, 2002

Quartile 1	Mean	High	Low	Std Dev
U.K. Capacity Utilization	84.7	86.4	83.6	0.8
GSCI ($)	13.0	58.5	-25.9	19.5
GSCI (£)	8.4	60.1	-26.1	22.6
U.K. Equities	10.4	56.1	-35.4	19.7
MSCI World ex U.K.	4.0	29.1	-40.5	17.8
U.K. Gilts	4.1	25.7	-17.5	10.3
U.K. T-Bills	4.3	7.5	-2.4	2.2
U.K. RPI	6.1	15.8	3.1	3.1

Quartile 3	Mean	High	Low	Std Dev
U.K. Capacity Utilization	80.0	81.4	78.8	0.8
GSCI ($)	5.8	54.8	-26.7	21.3
GSCI (£)	10.8	61.2	-23.9	23.5
U.K. Equities	4.9	51.6	-59.2	23.2
MSCI World ex U.K.	4.2	54.0	-35.9	25.5
U.K. Gilts	6.9	36.0	-28.3	14.9
U.K. T-Bills	2.3	7.7	-5.3	3.8
U.K. RPI	6.6	19.1	1.1	5.8

Quartile 2	Mean	High	Low	Std Dev
U.K. Capacity Utilization	82.6	83.5	81.4	0.7
GSCI ($)	6.9	41.9	-37.6	20.7
GSCI (£)	7.3	55.3	-38.3	24.3
U.K. Equities	6.7	38.7	-61.5	21.6
MSCI World ex U.K.	7.3	51.7	-44.4	21.7
U.K. Gilts	3.4	25.9	-26.1	13.4
U.K. T-Bills	3.4	8.8	-6.9	3.5
U.K. RPI	5.7	19.9	2.1	5.2

Quartile 4	Mean	High	Low	Std Dev
U.K. Capacity Utilization	76.6	78.6	71.8	1.9
GSCI ($)	-9.5	34.2	-34.9	15.9
GSCI (£)	-2.9	23.9	-30.7	13.9
U.K. Equities	14.6	101.4	-14.0	24.3
MSCI World ex U.K.	8.8	63.8	-23.5	19.3
U.K. Gilts	7.8	47.1	-14.1	16.4
U.K. T-Bills	0.8	7.6	-12.5	6.0
U.K. RPI	11.3	26.9	0.9	7.7

Sources: Barclays Capital and Thomson Datastream. MSCI data are copyrighted by and proprietary to Morgan Stanley Capital International, Inc.

Note: Data are denominated in Sterling (£), unless otherwise noted.

APPENDIX A

Commodity Indices

Appendix A

COMMODITY INDICES

Dow Jones-AIG (DJ-AIG) Commodity Index

The DJ-AIG Commodity Index is composed of 20 physical commodities, the weightings of which are determined primarily by liquidity data (relative amount of trading activity in the given commodity) and tempered by dollar-adjusted production data. The index includes spot, roll, and collateral yields. Dow Jones reviews and determines the component weights each June, while the actual rebalancing and re-weighting takes place in January. The resulting changes are governed by two rules. First, no group of related commodities may represent comprise more than 33% and no single commodity may represent less than 2% of the index. Currently energy and agriculture each represent about one third of the index. On November 16, 2001, the Chicago Board of Trade announced the listing of futures contracts on the DJ-AIG Commodity Index. Finally, it should be noted that the version of the DJ-AIG Commodity Index frequently quoted in the financial press only captures spot yields.

Goldman Sachs Commodity Index (GSCI)

The GSCI, which has evolved as the industry standard, was created in 1991 with simulated history going back to 1970. The composition has changed greatly over the past 15 years (oil was not added until 1987, natural gas in 1990), so care should be taken when drawing conclusions about historical performance. It captures all three components of yield, is composed of contracts on 26 different commodities, and is weighted according to the physical quantity of world production. Energy, with a particularly large allocation to oil, has historically comprised 50% to 66% of the value of the index. The index is reconstituted annually, so the composition may change significantly during the year. Index contracts are rolled monthly on the fifth to ninth business days of the month, with 20% of the contracts (number of contracts, not value of contracts) rolling each day at the end of the day.

Rogers International Commodity Index (RICI)

The RICI has an inception date of 1984 with simulated returns prior to 1997. It is composed of 35 fixed weight contracts based on worldwide consumption. Component weights are reviewed and set in December, with changes taking effect in January. The index is rebalanced monthly based on the fix weights established at the beginning of the year. To determine the return, weights are multiplied by the price changes in nearby futures each contract month. Currently, energy and agriculture represent nearly 75% of the index.

Appendix A (continued)

COMMODITY INDICES

Standard & Poor's Commodity Index (SPCI)

Finally, Standard & Poor's developed a commodity index in 2001, based on 17 commodities with futures and options trading on the New York Board of Trade. The index has history available back to 1970, but a slight weighting change occurs in 1987—prior to 1987 the weights are based on all open interest in commodities, but post-1987 the weights are based on commercial open interest only. Despite excluding gold, its coverage of six major commodity sectors—energy, fibers, grains, livestock, metals, and soft—more or less mirrors the exposure of other commodity indices. However, the Standard & Poor's index uses a geometric weighting system. This keeps the weights of individual commodities fixed throughout the year as the index is essentially rebalanced in real time, selling what rises in value and purchasing what falls in value. This also makes the S&P index more difficult and costly to replicate than other indices as managers tracking the SPCI would have to constantly buy and sell securities to match index weights, rather than let their holdings freely adjust with the market (and the index) between reconstitution dates. Other characteristics of the SPCI include spot and collateral yields, as well as annual reconstitution in February, based on the average value of Commodities Open Interest for the 104 weeks prior to the last Friday in October. Energy made up 48% of the index as of June 30, 2002.

Exhibit A-1

CHARACTERISTICS OF MAJOR COMMODITY INDICES

	Dow Jones-AIG Commodity Index (DJ-AIGCI)	Goldman Sachs Commodity Index (GSCI)	Rogers International Commodity Index (RICI)	Standard and Poor's Commodity Index (SPCI)
Composition (as of 6/30/2002)				
Energy	39%	64%	44%	53%
Livestock	7%	7%	3%	10%
Crops	29%	19%	27%	30%
Industrial Metals	15%	6%	14%	4%
Precious Metals	10%	3%	7%	3%
Residual	---	1%	5%	---
Number of Contracts	20	26	35	17
Weighting	Liquidity and Production	Production Quantity	World Consumption Patterns	Commercial Open Interest
Weighting Changes	Annually Dollar Weight	Annually Dollar Weight	Annually Dollar Weight	Annually Dollar Weight
Rebalancing	Annually	Annually	Monthly	Constantly
Returns				
Price	Yes	Yes	Yes	Yes
Roll Yield	Yes	Yes	Yes	No
Collateral Yield	Yes	Yes	Yes	Yes
Return Series Inception Date	January 1, 1991	January 1, 1970	January 1, 1984	January 1, 1988

Notes: Weightings are calculated using arithmetic averages. In contrast, the weighting for the Standard and Poor's Commodity Index is calculated using geometric averages. Goldman Sachs Commodities Index data are as of July 22, 2002. Numbers may not total due to rounding.

Exhibit A-2

COMMODITY INDEX COMPONENTS AND WEIGHTINGS (%)

	DJ-AIGCI	GSCI	RICI	SPCI
Crude Oil	15.6	37.8	35.0	6.5
Heating Oil	5.1	7.2	3.0	13.3
Unleaded Gasoline	5.0	7.8	3.0	10.7
Natural Gas	11.8	7.5	3.0	17.6
Palm Oil/Soybean Oil	2.0	---	2.0	2.9
Flaxseed	---	---	0.2	---
Other Oils	---	3.8	---	---
Bean Meal	---	---	---	2.8
Aluminum	5.4	3.3	4.0	---
Copper	5.8	1.8	4.0	3.9
Nickel	2.1	0.6	1.0	---
Lead	---	0.2	2.0	---
Tin	---	---	1.0	---
Zinc	1.7	0.6	2.0	---
Gold	7.3	2.2	3.0	---
Silver	2.7	0.2	2.0	2.8
Platinum	---	0.2	1.8	---
Palladium	---	---	0.3	---
Cotton	3.5	1.9	3.0	4.4
Wheat	4.2	6.6	7.0	6.3
Corn	6.2	5.0	4.0	5.0
Coffee	2.5	0.6	2.0	3.8
Soybeans	8.9	2.6	3.0	3.1
Sugar	1.3	1.5	1.0	4.1
Cocoa	2.1	0.5	1.0	2.9
Barley	---	---	0.8	---
Canola	---	---	0.7	---
Oats	---	---	0.5	---
Orange Juice	---	0.7	0.7	---
Live Cattle	4.3	4.6	2.0	7.8
Lean or Live Hogs	2.7	1.9	1.0	2.1
Feeder Cattle	---	0.9	---	---
Pork Bellies	---	---	---	---
Wool	---	---	1.0	---
Rubber	---	---	1.0	---
Silk	---	---	0.2	---
Lumber	---	---	1.0	---

Sources: Dow Jones & Company, Inc., Goldman, Sachs & Co., Roger Raw Materials, Standard and Poor's, and Thomson Financial Datastream.

Notes: Goldman Sachs Commodities Index data are as of July 22, 2002. Numbers may not total due to rounding.

Exhibit A-3

COMMODITY INDEX REAL RETURNS: WITH AND WITHOUT THE ROLL YIELD COMPONENT

	DJ-AIGCI Total Return (%)		GSCI Total Return (%)		SPCI Total Return (%)	
	w/ Roll Yield	w/o Roll Yield	w/ Roll Yield	w/o Roll Yield	w/ Roll Yield	w/o Roll Yield
1970	---	---	15.1	12.2	---	---
1971	---	---	21.1	11.9	---	---
1972	---	---	42.4	37.2	---	---
1973	---	---	75.0	60.8	---	---
1974	---	---	39.5	31.5	---	---
1975	---	---	-17.2	-25.7	---	---
1976	---	---	-11.9	-9.4	---	---
1977	---	---	10.4	6.5	---	---
1978	---	---	31.6	30.5	---	---
1979	---	---	33.8	36.4	---	---
1980	---	---	11.1	25.4	---	---
1981	---	---	-23.0	-14.5	---	---
1982	---	---	11.6	11.5	---	---
1983	---	---	16.3	17.1	---	---
1984	---	---	1.1	0.0	---	---
1985	---	---	10.0	8.4	---	---
1986	---	---	2.0	-12.7	---	---
1987	---	---	23.8	10.3	---	---
1988	---	---	27.9	20.6	25.3	24.1
1989	---	---	38.3	23.4	4.4	2.2
1990	---	---	29.1	15.7	7.5	6.2
1991	-5.8	-5.6	-6.1	-14.5	1.4	-0.8
1992	3.7	4.6	4.4	5.9	0.2	4.3
1993	-1.1	5.5	-12.3	-7.0	-0.1	6.1
1994	16.6	21.4	5.3	15.0	17.0	20.8
1995	15.2	14.5	20.3	19.2	13.6	13.5
1996	23.2	9.9	33.9	12.5	24.9	9.6
1997	-3.4	-5.0	-14.1	-14.1	7.9	4.1
1998	-27.0	-16.3	-35.7	-21.2	-24.7	-13.3
1999	24.4	33.0	40.9	52.8	11.7	22.5
2000	31.8	28.8	49.7	35.6	48.0	49.1
2001	-19.5	-15.4	-31.9	-29.1	-27.7	-26.0
2002 (6 mos)	12.0	16.7	14.8	20.8	13.9	19.4
Average	5.8	7.7	13.8	12.1	8.2	9.5
High	31.8	33.0	75.0	60.8	48.0	49.1
Low	-27.0	-16.3	-35.7	-25.7	-27.7	-26.0
Standard Deviation	18.0	16.1	24.7	19.3	18.7	17.4
AACR	4.5	6.8	11.3	9.3	6.9	8.4

Sources: Dow Jones & Company, Inc., Standard & Poor's, and Thomson Financial Datastream.

Exhibit A-4

GOLDMAN SACHS COMMODITY INDEX, STANDARD AND POOR'S COMMODITY INDEX AND DOW JONES-AIG COMMODITY INDEX COMPONENT RETURNS (%)

	GSCI			SPCI			DJ-AIGCI		
	Spot	Collateral	Roll	Spot	Roll	Collateral	Spot	Roll	Collateral
1970	4.9	6.8	2.6	---	---	---	---	---	---
1971	6.7	4.6	8.5	---	---	---	---	---	---
1972	31.5	4.4	3.4	---	---	---	---	---	---
1973	48.7	7.8	8.8	---	---	---	---	---	---
1974	20.7	8.6	7.1	---	---	---	---	---	---
1975	-30.5	6.0	11.9	---	---	---	---	---	---
1976	-13.8	5.1	-3.2	---	---	---	---	---	---
1977	0.8	5.5	2.9	---	---	---	---	---	---
1978	21.2	7.8	0.6	---	---	---	---	---	---
1979	23.2	11.1	-2.7	---	---	---	---	---	---
1980	13.0	12.5	-12.8	---	---	---	---	---	---
1981	-25.0	15.1	-11.0	---	---	---	---	---	---
1982	-0.1	11.7	-0.1	---	---	---	---	---	---
1983	7.3	9.3	-0.8	---	---	---	---	---	---
1984	-9.5	10.3	1.0	---	---	---	---	---	---
1985	0.3	8.0	1.2	---	---	---	---	---	---
1986	-18.8	6.3	17.5	---	---	---	---	---	---
1987	3.2	6.2	13.2	---	---	---	---	---	---
1988	12.2	7.2	6.6	12.8	1.2	11.3	---	---	---
1989	12.4	8.8	13.1	-9.0	2.3	11.1	---	---	---
1990	6.1	8.2	12.7	-4.7	1.3	11.0	---	---	---
1991	-19.6	5.6	10.2	-9.7	2.3	8.8	-10.6	-0.2	5.0
1992	2.3	3.6	-1.5	-1.0	-4.1	5.3	1.0	-0.9	3.6
1993	-9.6	3.1	-5.9	0.6	-6.1	5.5	2.5	-6.6	3.0
1994	10.5	4.4	-9.0	13.4	-3.8	7.4	16.5	-4.8	4.9
1995	12.6	5.8	1.1	5.0	0.0	8.6	8.3	0.7	6.3
1996	5.8	5.4	20.3	0.4	15.3	9.2	3.8	13.2	6.2
1997	-18.4	5.2	-0.2	-4.9	3.8	9.0	-9.8	1.6	4.9
1998	-24.3	5.0	-18.9	-20.1	-11.4	6.7	-19.8	-10.8	3.5
1999	46.2	5.0	-8.4	13.1	-10.8	9.4	27.2	-8.6	5.8
2000	26.9	6.3	11.1	36.0	-1.2	13.2	21.2	3.1	7.6
2001	-31.5	3.5	-4.1	-33.1	-1.6	7.1	-18.3	-4.1	2.8
2002 (6 mos)	19.9	1.0	-6.1	16.1	-5.6	3.4	15.6	-4.7	1.1
High Inflation 1973-81:									
AACR	3.6	8.8	-0.1	---	---	---	---	---	---
Standard Deviation	25.8	3.4	8.5	---	---	---	---	---	---
Low Inflation 1982-2002:									
AACR	0.0	6.3	2.1	---	---	---	---	---	---
Standard Deviation	18.4	2.6	9.9	---	---	---	---	---	---
Since Inception:									
AACR	2.2	6.9	1.7	-0.3	-1.5	8.7	2.2	-2.1	4.7
Standard Deviation	20.2	3.0	9.1	16.5	6.5	2.6	15.4	6.3	1.8
Common Period 1991-2002:									
AACR	-0.7	4.7	-1.5	-0.2	-2.2	8.1	2.2	-2.1	4.7
Standard Deviation	23.2	1.5	10.6	17.9	7.1	2.5	15.4	6.3	1.8

Sources: Dow Jones & Company, Inc., Standard & Poor's, and Thomson Financial Datastream.

APPENDIX B

Sources of Commodity Returns

Appendix B

SOURCES OF COMMODITY RETURNS

Spot, Roll, and Collateral Yields

The development of investment products composed of diversified baskets of fully collateralized, long-only, commodity futures contracts provides a means of acquiring an exposure to commodities at significantly reduced cost. (Appendix A gives a detailed account of commodity indices upon which these products are based.) This is because changes in commodity prices constitute only one of three components of return—spot yield, roll yield, and collateral yield—earned by investors in such products.

Spot yield is the price appreciation or depreciation of the underlying futures contract held in the index, and it is driven by imbalances between supply and demand for commodities.

Roll yield is derived from the difference between the spot price of a commodity and the price of its futures contract (or from the price difference between two futures contracts with different expiration dates). Roll yield can either be positive (backwardation) or negative (contango). Positive roll yield exists if the spot price is higher than that of the futures contract—the futures price will converge, or roll up to the spot price as the futures contract nears expiration. Conversely, negative roll yield exists if the futures contract price is higher than the spot price and the futures contract falls in price as the two converge.

Collateral yield is the interest earned on the cash posted as margin, which is invested in three-month Treasury bills, but may be managed for value added by active managers.

The combination of the three returns is negatively correlated with equity and bond returns, positively correlated with changes in inflation, and offers more rewarding and less volatile returns than those based solely on the spot yield.

Appendix B (continued)

SOURCES OF COMMODITY RETURNS

The Role of Volatility

Futures' prices and ultimately returns are driven not only by the demand for the underlying asset, but also by the volatility of the underlying asset price and the cost of physically storing that asset. The former component is true not just of commodities, but of all futures contracts—the greater the gyrations in the price of the underlying asset, the more valuable a contract with a fixed future purchase price on that asset. The latter component, the physical cost of storage, is unique to commodities and varies significantly depending on the product, with energy being significantly more expensive to store than precious metals. However, these performance drivers are also related—that is, the greater the cost of storage, the greater the level of volatility in the underlying price of the commodity.

APPENDIX C

Investing in Commodities

Appendix C

INVESTABLE VEHICLES

Swap Agreements: This is an agreement between two parties to exchange cash flows in the future. Typically, the exchanges occur at multiple periods of time in the future, although not necessarily (e.g., a forward contract). In this case, the exchange of future cash flows will be determined by the value of an underlying commodity index. Fees on this type of arrangement can run up to the T-bill rate plus 100 basis points (bps), but the costs are largely contingent on the the size of the investment.

Over-The-Counter Derivatives: These are options and futures contracts entered into without a medium of exchange. These derivatives provide greater flexibility in structuring and can be customized through negotiations with the issuing bank or securities firm. Liquidity is severely reduced due to the absence of exchange trading, and pricing of the derivative is the by-product of buyer/seller negotiations rather than broad market forces. Inherent in these obligations is the counterparty risk that either party to the contract will default on their obligation.

Exchange-Traded Index Futures/Options: These are options and futures contracts that are traded on a public exchange such as the Chicago Mercantile Exchange. The exchange acts as a clearinghouse for trades by establishing bid and ask prices, and relieving both participants in the transaction from counterparty risk. Prices are publicly quoted and liquidity is enhanced, although it may still be quite limited. The bid/ask cost of rolling the futures can be as high as 70 bps for experienced managers, and oversight could tax in-house staff. The downside to exchange-traded derivatives is the reduced flexibility in the structuring of the transaction.

Exhibit C-1

SELECTING THE APPROPRIATE STRATEGY FOR COMMODITY-BASED INVESTING

Passive Versus Active Exposure

- Exposure to commodity indices can be achieved passively through an instrument that is pegged to the underlying index, or through "enhanced index" or actively managed products.
- Enhanced index managers seek to add value by timing contract roll dates, actively managing cash collateral, and reducing transaction and commission costs.
- Active managers will manage cash, roll dates and transaction costs, and will also seek to add value by underweighting and overweighting certain commodity contracts according to the manager's assessment of relative value.

Sources of Value Added

Passive	**"Enhanced"**	**Active**
Hold Index	Outperform 3-Month T-Bills	Over/Underweight Contracts
Lower Transaction Costs		Manage Calendar Roll

Caveats of Active Exposure

- Active management does not guarantee higher returns than passively holding or replicating the index.
- Additional risk is assumed with active management:
  - credit risk
  - tracking error to underlying index
  - counterparty risk

Exhibit C-2

SELECTING THE APPROPRIATE INVESTMENT VEHICLE FOR COMMODITY-BASED INVESTING

Passive Versus Active Exposure to a Commodity Index

Passive Exposure

Over-the-Counter Investment Vehicles

- Swap

  \+ Easy to understand and value
  \- Credit risk
  \- Interest rate risk
  \- Expensive: paying LIBOR + spread
  \- Locked into fixed maturity, illiquid
  \- Cash settlement issues

- Structured Note

  \+ Tailored to suit institution's risk tolerance
  \+ May provide current income
  \- Locked into fixed maturity, illiquid
  \- Difficult to value
  \- Credit risk
  \- Expensive

Exchange-Traded Index Futures/Options on a Commodity Index

\+ Liquid, visible market
\+ Inexpensive
\- Only available on GSCI
\- Oversight could tax in-house staff (daily settlement, monthly roll forward)

Active Exposure

Enhanced Management

\+ Cheapest alternative
\+ Higher returns on cash collateral (relative to index)
\+ Lower transaction costs (relative to index)
\+ Higher roll yield (relative to index)
\- Tracking error

Active Management

\+ Benefits of enhanced management
\+ Add value from over/underweighting commodities
\+ Roll return enhancement from contract weightings *and* timing of roll
\- Manager risk
\- Expensive

APPENDIX D

Cost of Active Management

Appendix D

COST OF ACTIVE MANAGEMENT

Firm	Product	Minimum Investment	Management Fee Schedule	Performance-Based Fees
Goldman Sachs Asset Mgmt	Investment Fund - Commingled	$500,000	0.750% on first $10 mm 0.500% on next $15 mm 0.350% above $25 mm	None
Goldman Sachs Asset Mgmt	Total Portfolio - Separate Account	$20,000,000	0.400% on first $50 mm 0.350% on next $50 mm 0.300% on next $100 mm Negotiable over $200 mm	None
Morgan Stanley	CIP I	$250,000	2.250% of assets	20% of net profits in excess of U.S. CPI
Morgan Stanley	CIP II	$5,000,000	1.250% of assets	12.5% of net profit above U.S. CPI + 2.5%
Oppenheimer	Real Asset Fund	Negotiable	1.09% of assets	None
PIMCO	CommoditiesPLUS	$25,000,000	0.450% of assets	Inquire with Manager
Price Group (RJO Securities)	Rogers Raw Material Fund, LP	$1,000,000	Greater of: 0.650% of assets *or* 1.00% of cumulative profit	None

Representative Manager Fact Sheets

GOLDMAN SACHS ASSET MANAGEMENT
GSCI Total Portfolio
32 Old Slip, 18th Floor
New York, NY 10005
212-902-1000
www.gs.com

Philosophy: Commodities
Tax-Exempt Product Accounts (6/30/02): N/A
Tax-Exempt Product Assets (6/30/02): N/A
Total Product Assets (6/30/02): $298 mm
Total Firm Assets (6/30/02): $297,691 mm

New Business Contact: Douglas Meyer 212-855-0449
Organization: Broker Affiliate
Parent/Affiliate: Goldman, Sachs & Co.

Year Founded: 1988
Registered: SEC
Compliant: AIMR

Investment Approach: The firm utilizes a semi-passive commodities investment strategy. The commodities program seeks to enhance the returns achieved by the Goldman Sachs Commodities Index (GSCI) while maintaining the relative weightings of the index, so as not to impair its inflation hedging characteristics. An initial investment in the GSCI is achieved by purchasing GSCI futures contracts with a nominal amount equal to the initial allocation. Approximately 3.0% of the cash is used to purchase Treasury Bills for the initial margin with the balance invested in a short-duration fixed income portfolio. Reducing transaction costs is another source utilized for adding value. In each case, the firm attempts to maintain the basic structure and weightings of the GSCI. The portfolio does not use leverage and only holds long positions.

Research: Types of Commodities: Energy, industrial metals, precious metals, livestock, and agricultural products.

Investment Results:

Annual Total Returns (%)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	6 mos 2002
Goldman Sachs Asset Mgmt	---	---	---	---	35.6	-13.9	-36.0	40.5	49.3	-31.5	15.7
Goldman Sachs Commodity Index	4.4	-12.3	5.3	20.3	33.9	-14.1	-35.7	40.9	49.7	-31.9	14.8

Average Annual Compound Returns (%) Through Fiscal Year 6/30/02

	10YR	9YR	8YR	7YR	6YR	5YR	4YR	3YR	2YR	1YR
Goldman Sachs Asset Mgmt	---	---	---	---	0.3	0.1	6.9	12.3	-5.1	-7.6
Goldman Sachs Commodity Index	2.7	3.7	4.1	5.6	0.2	0.0	6.7	12.0	-6.2	-8.3

Performance Notes: Performance represents the GSCI Total Portfolio. Returns include return on cash reserves. Performance is gross of management fees.

MORGAN STANLEY INVESTMENT MANAGEMENT
MS Commodity Investment Portfolio, L.P.
1221 Avenue of the Americas
New York, NY 10020
212-762-8426
www.morganstanley.com/im

Philosophy: Commodities
Tax-Exempt Product Accounts (6/30/02): ---
Tax-Exempt Product Assets (6/30/02): ---
Total Product Assets (6/30/02): $15 mm
Total Firm Assets (6/30/02): $401,532 mm

New Business Contact: Wayne Peterson 212-762-7365
Organization: Broker Affiliate
Parent/Affiliate: Morgan Stanley

Year Founded: 1975
Registered: SEC
Compliant: AIMR, Level II

Investment Approach: Morgan Stanley Dean Witter Commodities Management Inc. the General Partner of the MS Commodity Investment Portfolio L.P., pursues a trading strategy designed to capture the overall rate of commodity price inflation by maintaining long positions in commodity futures. The portfolio is maintained in a diversified manner and looks to overweight and underweight individual commodities based on their relative strength and value. The liquidity of each commodity also influences its level of inclusion in the Partnership's portfolio. The General Partner's trading strategy is generally technical in nature (i.e. a series of mathematical rules are applied to a series of current and historical commodities prices) with some subjective input. The General Partner's trading strategy is limited in the following manner: (1) the Partnership maintains only long positions in commodity interests; (2) the Partnership trades only futures contracts that are now, or may hereafter be, traded on a recognized commodity exchange; (3) the Partnership will only trade traditional commodity interests and not futures on financial instruments and foreign currencies; and (4) the underlying value of the positions entered into in the commodity interest markets are targeted at 1.0 times the assets of the Partnership. In addition, the portfolio maintains a 10% minimum exposure to energy, precious metals, and base metals, limits exposure to 15% in any one individual commodity, limits exposure to 35% in each of the energy, precious metals and base metals sectors and to 25% in any other individual commodity sector. The General Partner will continuously evaluate the foregoing factors over time and may continue to refine and modify its trading approach in the future.

Research: Types of Commodities: Energy, metals, agricultural products, and other commodities as selected by the General Partner.

Investment Results:

Annual Total Returns (%)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	6 mos 2002
Morgan Stanley Investment Mgmt	---	---	---	12.1	14.9	1.1	-28.1	15.3	7.2	-20.9	4.3
Goldman Sachs Commodity Index	4.4	-12.3	5.3	20.3	33.9	-14.1	-35.7	40.9	49.7	-31.9	14.8

Average Annual Compound Returns (%) Through Fiscal Year 6/30/02

	10YR	9YR	8YR	7YR	6YR	5YR	4YR	3YR	2YR	1YR
Morgan Stanley Investment Mgmt	---	---	0.1	-0.6	-3.6	-6.5	-3.7	-1.3	-7.6	-7.5
Goldman Sachs Commodity Index	2.7	3.7	4.1	5.6	0.2	0.0	6.7	12.0	-6.2	-8.3

Performance Notes: Performance represents the MS Commodity Investment Portfolio I Limited Partnership. Returns include return on cash reserves. Performance is net of advisory and performance-related incentive fees.

MORGAN STANLEY INVESTMENT MANAGEMENT
MS Commodity Investment Portfolio II, L.P.
1221 Avenue of the Americas
New York, NY 10020
212-762-8426
www.morganstanley.com/im

Philosophy: Commodities
Tax-Exempt Product Accounts (6/30/02): ---
Tax-Exempt Product Assets (6/30/02): ---
Total Product Assets (6/30/02): $6 mm
Total Firm Assets (6/30/02): $401,532 mm

New Business Contact: Wayne Peterson 212-762-7365
Organization: Broker Affiliate
Parent/Affiliate: Morgan Stanley

Year Founded: 1975
Registered: SEC
Compliant: AIMR, Level II

Investment Approach: Morgan Stanley Dean Witter Commodities Management Inc. the General Partner of the MS Commodity Investment Portfolio II, L.P., pursues a trading strategy designed to capture the overall rate of commodity price inflation by maintaining long positions in commodity futures. The portfolio is maintained in a diversified manner and looks to overweight and underweight individual commodities based on their relative strength and value. The liquidity of each commodity also influences its level of inclusion in the Partnership's portfolio. The General Partner's trading strategy is generally technical in nature (i.e. a series of mathematical rules are applied to a series of current and historical commodities prices) with some subjective input. The General Partner's trading strategy is limited in the following manner: (1) the Partnership maintains only long positions in commodity interests; (2) the Partnership trades only futures contracts that are now, or may hereafter be, traded on a recognized commodity exchange; (3) the Partnership will only trade traditional commodity interests and not futures on financial instruments and foreign currencies; and (4) the underlying value of the positions entered into in the commodity interest markets are targeted at 1.0 times the assets of the Partnership. In addition, the portfolio maintains a 10% minimum exposure to energy, precious metals, and base metals, limits exposure to 15% in any one individual commodity, limits exposure to 35% in each of the energy, precious metals and base metals sectors and to 25% in any other individual commodity sector. The General Partner will continuously evaluate the foregoing factors over time and may continue to refine and modify its trading approach in the future.

Research: Types of Commodities: Energy, metals, agricultural products, and other commodities as selected by the General Partner.

Investment Results:

Annual Total Returns (%)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	6 mos 2002
Morgan Stanley Investment Mgmt	---	---	---	---	---	2.1	-27.5	17.9	8.7	-20.3	5.3
Goldman Sachs Commodity Index	4.4	-12.3	5.3	20.3	33.9	-14.1	-35.7	40.9	49.7	-31.9	14.8

Average Annual Compound Returns (%) Through Fiscal Year 6/30/02

	10YR	9YR	8YR	7YR	6YR	5YR	4YR	3YR	2YR	1YR
Morgan Stanley Investment Mgmt	---	---	---	---	-2.6	-5.3	-2.3	0.1	-6.5	-6.3
Goldman Sachs Commodity Index	2.7	3.7	4.1	5.6	0.2	0.0	6.7	12.0	-6.2	-8.3

Performance Notes: Performance represents the MS Commodity Investment Portfolio II Limited Partnership. Returns include return on cash reserves. Performance is net of advisory and performance-related incentive fees.

OPPENHEIMERFUNDS
Oppenheimer Real Asset Fund
498 Seventh Avenue
New York, NY 10018
888-470-0862
www.oppenheimerfunds.com

Philosophy: Commodities
Tax-Exempt Product Accounts (6/30/02): N/A
Tax-Exempt Product Assets (6/30/02): N/A
Total Product Assets (6/30/02): $175 mm
Total Firm Assets (6/30/02): $125,000 mm

New Business Contact: Scott Brooks 212-323-0896
Organization: Insurance Company Affiliate
Parent/Affiliate: Massachusetts Mutual Life Insurance Co.

Year Founded: 1960
Registered: SEC
Compliant:

Investment Approach: The fund's investment objective is to seek total return. The fund normally invests at least 65% of its assets in hybrid investments that are commodity-linked derivative instruments, mainly structured notes. The other 35% of assets is normally invested in futures contracts, investment-grade and non-investment-grade corporate bonds and notes, asset-backed securities, repurchase agreements and securities issued or guaranteed by the U.S. government or its agencies, and instrumentalities, including mortgage-backed securities. Through substantial investments in commodity-linked derivative investments along with a meaningful portion of assets in debt securities for liquidity and income purposes, exposure to commodity markets is achieved in the absence of actual physical commodities. The fund's assets are normally allocated to a variety of different commodity sectors, based on weightings of the components of the benchmark index, the Goldman Sachs Commodity Index (GSCI). However, the fund is actively managed and its investment allocations typically differ from the weightings of the GSCI. A four-step process to investment selection is employed. The first step is macro-economic analysis, whereby expectations regarding potential commodity returns are developed through evaluation of the overall business cycle. Secondly, commodity sector allocation decisions are made amongst the energy, agriculture, livestock, industrial metals, and precious metals sectors from broad economic analysis. Third, security selection is implemented to provide the proper mix of investment types for liquidity and income. The fourth and final step is performance and portfolio risk monitoring, which takes place on an ongoing basis.

Research: The firm relies on in-house research supplemented by external sources.

Investment Results:

Annual Total Returns (%)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	6 mos 2002
OppenheimerFunds	---	---	---	---	---	---	-44.8	37.1	42.5	-31.1	11.4
Goldman Sachs Commodity Index	4.4	-12.3	5.3	20.3	33.9	-14.1	-35.7	40.9	49.7	-31.9	14.8

Average Annual Compound Returns (%) Through Fiscal Year 6/30/02

	10YR	9YR	8YR	7YR	6YR	5YR	4YR	3YR	2YR	1YR
OppenheimerFunds	---	---	---	---	---	-4.7	1.0	10.0	-7.5	-10.2
Goldman Sachs Commodity Index	2.7	3.7	4.1	5.6	0.2	0.0	6.7	12.0	-6.2	-8.3

Performance Notes: Performance represents the Oppenheimer Real Asset Fund, Class Y shares. Returns include return on cash reserves. Performance is gross of management fees.

PRICE GROUP
Rogers Raw Materials Fund, L.P.
141 West Jackson, Suite 1340A
Chicago, IL 60604
312-648-2883
www.pricegroup.com

Philosophy: Commodities
Tax-Exempt Product Accounts (6/30/02): N/A
Tax-Exempt Product Assets (6/30/02): N/A
Total Product Assets (6/30/02): $20 mm
Total Firm Assets (6/30/02): $200 mm

New Business Contact: George Rohrs 312-648-2883
Organization: Broker Affiliate

Year Founded: 1988
Registered: No
Compliant:

Investment Approach: The firm utilizes a passive commodity asset management strategy that seeks to track the performance of the Rogers International Commodity Index (RICI) within a 96% correlation. The RICI is an unleveraged long only investment, fixed weighted, and invested in 35 world-traded commodities among North American, European, Asian, and Australian commodities markets. Weightings in the RICI are primarily determined on a consumption basis in an effort to mirror the world's consumption patterns of a wide array of various raw materials. The firm believes the large number of unrelated commodity markets worldwide provide substantial diversification within the asset class as well as global exposure that is representative of the current state of international trade. The Rogers Raw Materials Fund seeks to replicate the returns of the RICI by buying futures contracts on the individual commodities within the RICI. The Rogers Fund's investment is fully collateralized and unleveraged.

Research: Types of Commodities: Energy, industrial metals, precious metals, agricultural products, livestock, and other commodities which are in the Rogers International Commodity Index.

Investment Results:

Annual Total Returns (%)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	6 mos 2002
Price Group	---	---	---	---	---	---	---	39.5	25.2	-19.8	17.5
Goldman Sachs Commodity Index	4.4	-12.3	5.3	20.3	33.9	-14.1	-35.7	40.9	49.7	-31.9	14.8

Average Annual Compound Returns (%) Through Fiscal Year 6/30/02

	10YR	9YR	8YR	7YR	6YR	5YR	4YR	3YR	2YR	1YR
Price Group	---	---	---	---	---	---	---	11.0	-1.5	1.6
Goldman Sachs Commodity Index	2.7	3.7	4.1	5.6	0.2	0.0	6.7	12.0	-6.2	-8.3

Performance Notes: Performance represents the Rogers Raw Materials Fund Limited Partnership. Returns include return on cash reserves. Performance is net of management fees.