Value Added
A Product of the MOSERS' Investment Staff

A Newsletter for the MOSERS' Board of Trustees

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Commodities

"At the root of any successful decision is the knowledge to understand it."
-Anonymous

As promised, our second issue of *Value Added* is devoted to consideration of commodities as a potential asset class for the MOSERS portfolio. We will discuss why we believe an investment in an unleveraged commodity index makes sense for the portfolio and then explain how an investment in commodities could be made and implemented. While, in our opinion, our role is to specifically evaluate an investment based on its financial merits for the portfolio, we are aware of and sympathetic with the "perception" risk associated with an investment in commodities. The purpose of this newsletter is to attempt to go beyond some of the preconceived notions which may be associated with an investment in commodities and to, hopefully, better advise you as to what is being considered and what the expectations are for this asset class.

What Makes a New Asset Class?

In order for an investment to be considered a "new asset class" it must have characteristics that lead us to conclude that a passive investment in the instrument should, over time, produce returns above cash and that those returns will differ in timing in some substantive way from existing assets. Additionally, within this broad set of expectations, we would also expect that (i) the returns produced by the asset class will not depend on the skill of the investor, (ii) the returns and liquidity of the asset class will be of sufficient magnitude to justify a meaningful allocation, and (iii) the allocation to the asset class will offer significant diversification characteristics.

Commodities -- A New Asset Class

While it is our belief that an investment in commodities would meet all of the expectations noted, the major appeal of this asset class stems from the fact that commodities are truly different than any of the other assets in the MOSERS portfolio. To further explain, we are presently diversified across more than 1,000 different U.S. stocks. However, that will not keep our U.S. stock portfolio from experiencing declines in market value when the stock market goes down. We have more than 400 different bonds in our portfolio. However, that will not keep our bond portfolio from experiencing declines in market value when interest rates rise. Unlike either bonds or stocks, commodity prices rise and fall based on near-term supply and demand and near-term perceptions of unexpected inflation. Unlike most traditional assets that derive their value from expectations about the future, or more precisely, the present-value of the discounted future, the commodity markets are focused on today. Consequently, the old adage "Good news for the economy is bad news for the financial markets" does not apply to commodities. In the commodity markets, "Good news really is good news." While all of the assets in our current portfolio are financial assets, commodities are completely different. Commodities are similar to farmland, timberland, and real estate in that you actually own something tangible, however; they are even different from these assets because the value of farmland, etc., is ultimately determined by the present value of future cashflows expected to be produced. The value of commodities comes from the current supply and demand for them. Commodities are a vital and large part of the global economy and, considering that they have been around much longer than either stocks or bonds, they really should not be viewed as being the "latest fad" in alternative investments.

Commodities are considered to be a hedge against unexpected inflation for a couple of reasons. The short-term nature of commodities removes some of the risk involved with certain other assets such as long-term bonds and stocks. If you own bonds and a period of unexpected inflation causes interest rates to rise, the value of your bonds will decrease. Even if you hold your bonds to maturity the principal that you receive will be worth less because of the inflation that has been experienced. Unexpected inflation is also bad for the stock market. Higher borrowing costs, and higher raw material and labor costs make it difficult for companies to continue to remain profitable. Future earnings (profits) over the long run are what drive stock prices higher.

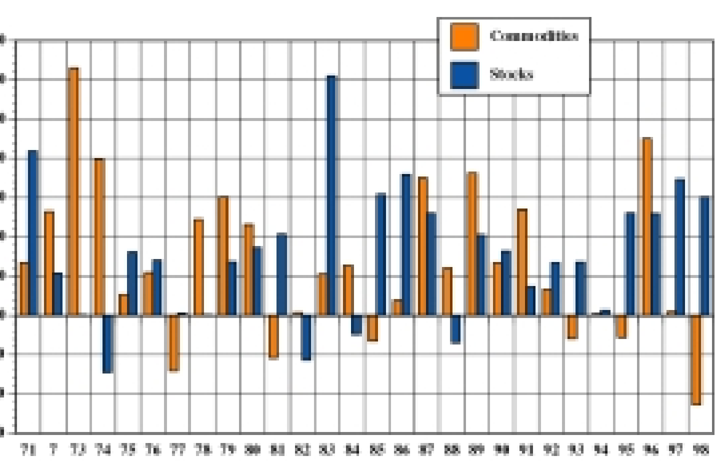
While unexpected inflation provides the best environment for commodities, expected inflation also provides a favorable set of conditions for commodity price increases. Oil, metals, coffee, sugar, and cattle prices have all benefited from, and in some cases, have been at the foundation of inflation in finished goods prices in the past. Because commodities are liquid and short-term in nature, the price can adjust very quickly to inflationary pressures.

Commodity prices also can adjust very abruptly to supply and demand changes. These drastic moves usually come when the world economy is very strong. The best examples are the oil shortages caused by supply interruptions. When political events have caused the supply of oil to be decreased in the midst of an otherwise strong economy, we saw the price of oil rise very quickly. This increase in the price of oil caused commodity indices to perform very well (energy is by far the largest component of the most well-known commodity index).

Diversification is achieved in a portfolio by assembling groups of assets which behave differently from one another (meaning that their performance is not correlated). From the correlation matrix (above right) you can see that commodities have a negative correlation to all financial asset classes.

When you look at this table, think about the steps that have been taken to diversify the MOSERS portfolio. Notice that most of the asset classes we have used for diversification purposes are much more correlated to each other than any of them are to commodities. Because of the negative correlations between commodities and all financial asset classes, research indicates that an allocation of as little as 5% to commodities can lower the risk in a portfolio substantially, with returns staying about the same. **It is important to point out that we would not expect an investment in this asset class to increase returns**. Obviously, future outcomes are unknowable, however; observations of the past suggest different outcomes depending on the time period you evaluate. In recent history, the decade of the 1970s provided the greatest return by being in commodities. High oil prices, due to the embargo and rampant inflation, produced returns from commodities that were substantially above average. At the same time, this was a period of extreme difficulty for both stocks and bonds. Many of us remember the double-digit mortgage rates of the late 1970s and early 1980s. The last 15 years have been just the opposite of the 1970s. We have experienced relatively stable or falling interest rates and no big inflation shocks. In this environment, both stocks and bonds have performed quite well while commodity returns have averaged about 8.5% during this time period. When and if a period like the 1970s will present itself again is uncertain at best. However, if the future includes unexpected inflation, wars, oil embargo's, droughts, or floods, then commodities could soften the downside risk to the MOSERS portfolio. The best way to look at an investment in this asset class is to consider why individuals buy automobile insurance. You buy it with the hope you won't ever need it, but when you do need it you are very happy that you have it. (You probably would not consider canceling your car insurance policy just because you have not had an accident for the last 15 years.)

There is one more thing about the returns of this asset class and how they are derived that is important to understand before making such an investment. In most periods, we would expect an investment in commodities to underperform equities and deliver performance similar to the expected returns for our fixed income investments. However, while fixed income will generally deliver returns with low volatility, commodities will generate the same returns with several years of lower than expected performance and a few years where returns are substantially in excess of what is expected. This type of volatility could not be tolerated if we were looking at commodities as a stand-alone investment. But as one component of a portfolio with a large allocation to stocks and bonds it becomes desirable. The graph below shows the annual returns from the Goldman Sachs Commodities Index (GSCI) and the S&P 500 since the GSCI began in 1970. The most important thing to take from this graph is that in every year when stocks delivered negative returns, commodities performed better than stocks.



	GSCI	S& P 500	Lehman Govt/Corp	EAFE Index
GSCI	1.000			
S&P 500	(0.084)	1.000		
Lehman Govt/Corp	(0.148)	0.374	1.000	
EAFE Index	(0.065)	0.477	0.240	1.000

How to Passively Invest in Commodities

When most people think of investing in commodities, terms like "speculation," "leverage," "risky" and statements like "I lost my life savings trading pork bellies" come to mind. Most people have heard of someone who speculated in pork bellies or heating oil in hopes of "making a killing." If they invested a few thousand dollars, they could control several thousand dollars worth of pork bellies through the use of leverage. With only a slight increase in the price of pork bellies they would make many times their investment. They usually ended up with a truck load of pork bellies, or a call from the broker informing them that the investment was a total loss. While we hope it is obvious by now, an investment in commodities by MOSERS would be different from that in a number of ways.

If MOSERS were to invest in this asset class, a commodity index would be used. The index is designed to provide investors with a reliable and publicly available benchmark for investment performance in the commodity markets, comparable to the S&P 500 for equities or the Lehman indices for bonds. As such, the index is a composite index of commodity sector returns, representing an unleveraged, long-only investment in commodity futures that is broadly diversified across the full spectrum of commodities available. The returns are calculated on a fully collateralized basis with full reinvestment of the collateral. The combination of these attributes provides investors with a representative and realistic picture of realizable returns attainable in the commodities markets.

The previous paragraph contains a number of terms that might need further explanation.

Commodity Futures— Commodity futures are contracts between two parties for the sale and purchase of a standard amount of some commodity at a set price at a set future date. Futures have been used for many years as a way of reducing risk for producers and end users of commodities. A farmer will sell futures contracts for the crops being grown in order to lock in a price today that will allow for a reasonable profit. The food producer will buy the futures contract to lock in the price of the crop that will be converted to some other form of food. This contract provides some measure of stability to the price of a number of materials. As an investor, commodity futures can be purchased and then resold before they expire and the investor captures the price change from the time of purchase to the time of the sale. It is important to reiterate the last point, **these contracts are purchased and sold by an investor like MOSERS, prior to the expiration of the futures contract, thus; we would never be required to take physical delivery of any commodities.**

A composite index of commodity sector returns— There are a number of different indices that can be used for investing in commodities. The indices contain different commodities and in different weightings. Some weightings are based on world consumption of the commodities, this type of index construction will generally produce and exposure of as much as 50% to energy. Others try to limit the exposure to energy by changing the weightings so that oil is not such a dominant piece of the index. In these cases, equal weighting or optimized weighting are used to construct the index. The mainstays of all commodities indices are energy, precious metals, base metals, grains, livestock, and food/fiber. The decision as to which index to use would be similar to the process for determining which domestic equity index to use as our benchmark. In our view, the index should be priced daily, it should be liquid, it should be investable, and it should be of public record. Beyond that, it is important to understand the impact different events will have on the index selected.

Unleveraged, long-only investment— This phrase is important because it removes much of the risk associated with some of the horror stories we have heard about commodity investing. In television advertisements for commodity investing, you are told that with a $5,000 investment you can control $25,000 worth of oil or pork bellies. This is accomplished through the use of leverage, meaning that you are borrowing money to complete the transaction. Because of leverage, a small increase in the price will produce significant returns on a percentage basis because you only have $5,000 invested. What they don't stress is what happens if the price should happen to go down. The investor can be required to provide additional funds in a "cash call" because the investment is now worth much less than it was initially. It is very possible that the entire $5,000 investment and more can be lost.

An unleveraged investment in commodities uses no borrowed funds to complete the transaction. The funds needed to purchase the futures contract are only a fraction of the actual dollars at work in the investment. The majority of the dollars at work are invested in Treasury Bills or some other liquid form of asset. These liquid assets provide the collateral for the commodity futures. Each day the futures contract is marked to market (priced), and each day the collateral pool is either added to or taken from, depending on the direction of the price movement for that day. By having the full amount of the contract invested (contract amount plus collateral account), the investor is no longer leveraged. The return to the investor will be the return on the index future plus the return on the collateral. The following example shows the difference between the fully collateralized investment and the leveraged investment.

How Leverage Impacts Return	Fully Collateralized	Leveraged
Returns in a Rising Commodity Market		
Cost of Future Contract (current value $30,000)	$ 5,000.00	$5,000.00
Collateral placed in Treasuries	$25,000.00	$ -
Total Investment	$30,000.00	$5,000.00
Value of contract at expiration $30000*1.03	$30,900.00	$30,900.00
Change in value of contract	$ 900.00	$ 900.00
interest earned on collateral @ 5.5%	$ 343.75	$ -
Total Return	$1,243.75	$900.00
% Return (Total Return / Total Investment)	4.15%	18.00%
Returns in a Falling Commodity Market		
Cost of Future Contract (current value $30,000)	$ 5,000.00	$5,000.00
Collateral placed in Treasuries	$25,000.00	$ -
Total Investment	$30,000.00	$5,000.00
Value of contract at expiration $30000*.97	$29,100.00	$29,100.00
Change in value of contract	$ (900.00)	$ (900.00)
interest earned on collateral @ 5.5%	$ 343.75	$ -
Total Return	$(556.25)	$(900.00)
% Return	-1.85%	-18.00%

Long only— Refers to the situation in which the investor only buys futures and then sells those same contracts – we do not sell a contract short (sell something that one does not own) expecting to buy it back at a later date and lower price. Short selling produces substantial additional risk since one can lose more than one has invested. Short selling is often employed with the use of leverage.

When divided into its component parts, a seemingly complex investment is reduced to something no more difficult to employ than many of the investment vehicles already being used at MOSERS.

For the many financial reasons outlined in this letter, we believe in investment and commodities makes sense for a portfolio like MOSERS with its high exposure to equities. However, a careful evaluation of the non-financial issues must be weighed against the strong diversification benefits of this asset class. There are no right or wrong answers. However, we hope you now have a better understanding of the merits associated with an investment in this asset class and that some of the common misperceptions associated with commodities have been eliminated.

This newsletter will be produced and distributed three to four weeks in advance of each scheduled board meeting with the objective of educating the Trustees regarding investment issues facing the pension fund. If you have questions or would like additional information on any topic contain herein, please contact the investment staff.

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