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IS THE CASE FOR INVESTING IN COMMODITIES REALLY THAT OBVIOUS?

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This version: September 12, 2006

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Introduction

Although commodity markets have been around for centuries, investors' interest in them has always been quite limited. Over the last few years, however, this has changed completely. Commodities have very quickly become very popular and investment in commodities is growing at an unprecedented rate. It is estimated that over the past few years (institutional) investors have poured $75 billion into commodities and according to a recent institutional investor survey by Barclays Capital, many institutions expect to significantly increase their commodity exposure further over the next three years[1]. After initially taking a somewhat reserved view on the commodity investment boom, the supply side is rolling out a whole range of commodity-linked products; funds, ETFs, trackers, and all kinds of structured products. Given investors' appetite for and the very healthy profit margins earned on these products, the end of the boom may not be in sight yet.

The Main Arguments for Commodities

Investors' desire to take on commodity exposure seems motivated by just a few arguments that get repeated time and time again in the financial and popular press, at conferences and in supply-side research papers. Here they are:

On the Demand Side: China is Booming

China is very quickly becoming an economic powerhouse. Given the sheer size of the country (comparable to the US) and its population (1.3 billion), this will lead to a virtually insatiable demand for just about every commodity under the sun. This argument is usually supported by one or more "Imagine what would happen to China's demand for commodities if every Chinese bought a ….." stories, with cars, refrigerators and TVs being amongst the more popular examples.

On the Supply Side: Years of Under-Investment

After many years of price weakness and under-investment many commodity producers are not in very good shape. As a result, they have been unable to meet the recent increase in demand and commodity prices have risen to great heights. Given

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[1] Reuters December 16th, 2005.

the degree of under-investment, there is no quick and easy way to increase production, which means that supply will lag demand for many years to come.

Commodity Research: The Legg Mason and Gorton and Rouwenhorst Papers

In a paper from Legg Mason Wood Walker Inc[2], a Baltimore investment bank, it was shown that over the past 130 years commodities have outperformed bonds in a regular 18-year (more or less) cycle. According to this model, the next commodity up cycle started around 2002. So far, reality has confirmed the model as commodity prices have indeed risen very substantially since then.

A second piece of research that is often used to support the case for commodities is an academic paper by Gorton and Rouwenhorst (2006). These authors show that over the period 1959-2004 an equally-weighted portfolio of 34 different commodities would have generated an average return and volatility comparable to stocks. In addition, they found that the returns on this portfolio were negatively correlated with stocks and bonds. Altogether this makes commodities an ideal diversifier for any traditional stock/bond portfolio.

And Now for Some Common Sense

A senior investment consultant at Watson Wyatt in a recent Financial Times article[3], stated that: “Commodities are a relatively easy asset class to understand and to invest in so they provide low hanging fruit for pension funds’ diversification purposes”. Although remarks like this must be very comforting if you are a pension fund trustee, they could not be further from the truth. Supply and demand relationships in commodity markets are extremely complex and completely different for different markets. To become a true expert in only one or two of commodity markets takes a lifetime of study. And even the experts are known to get it very wrong at times.

Most people that talk and write about commodities, and that includes the above Watson Wyatt consultant, lack the background to draw well-founded conclusions, which leaves them extremely sensitive to gossip, hype and misinformation. Let’s

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[2] See Bannister and Forward (2002).

[3] See Financial Times, FTfm section, March 20, 2006, page 3.

therefore subject the most popular arguments for commodity investment to some good old-fashioned common sense and cynicism.

China

There is no doubt that China is doing well for itself. There are a couple of reasons for this. First of all, the global economy has been doing very well over the last couple of years. It is on track to grow 5.1% this year alone. Second, the majority of China's population is dirt poor, so labour costs are minimal. As a result, a lot of production is moved over from the West to China. What does this mean? It means that a significant chunck of the growth in China's demand for commodities simply reflects a shift in manufacturing location. It also means that China is a lot more dependent on the global economy than many believe. There may be 1.3 billion people in China, but only a very small fraction of those, which admittedly is still a lot of people in absolute terms, can afford any form of luxury. The majority of China's population is struggling to survive.

But there is more. Having become a super power in the global commodities markets, it is only a matter of time before China will force its suppliers to renegotiate to secure lower prices. Additionally, China is very likely to increase its own production of various commodities as well as shift production from low price to higher priced agricultural commodities. Production of cotton for example might well be partially replaced by corn or soybeans, with cheap cotton being imported from the US to make up the deficit. In time, China could well become a net exporter of a variety of commodities.

Finally, one has to recognize that China's future growth could be short circuited by a variety of events. Apart from inadequate infrastructure, a poorly functioning equity market, and serious bad loan problems, China's economic expansion has a tremendous impact on the environment, water is in short supply, hundreds of millions of people are migrating from rural areas to the big cities, inequality is growing, etc. In addition, if inflation in China picks up, the central bank will have no choice but to raise interest rates and a hard landing may be unavoidable.

Supply-Side Problems

The supply-side argument makes more sense. It is true that production of many commodities is running seriously low relative to demand. High commodity prices will stimulate the development of additional production capacity, the search for alternatives as well as slow down demand. However, these processes take time, also because commodity producers will need to be convinced that prices will stabilize at a relatively high level before they embark on multi-billion dollar projects. As a result, it is quite plausible that, assuming demand doesn't suddenly stall, prices of at least some commodities will remain high for quite some time to come.

The Legg Mason and Gorton and Rouwenhorst Papers

Cycle theories will always be popular with a specific clientele, but unless there is a solid economic explanation for it, finding that commodities beat stocks and vice versa in an 18-year cycle doesn't mean much for the future. The Gorton and Rouwenhorst (2006) paper is also problematic because it only looks at the returns on one specific commodity portfolio. Their study does not account for the high degree of heterogeneity in commodities. A different portfolio might have produced completely different results. This is an especially important point since most commodity investors tend to invest in products linked to the GSCI index, which holds over 75% in energy commodities, as opposed to 14% in the Gorton and Rouwenhorst portfolio.

What We Really Know and What That Means

Since investors haven't been interested in commodities for very long, very little research has been done on the investment merits of commodities. Apart from Gorton and Rouwenhorst (2006), only three other papers have recently appeared on this subject: Erb and Harvey (2006), Kat and Oomen (2006a) and Kat and Oomen (2006b). Since these three papers study the behaviour of individual commodities, they allow for a more balanced view on the true investment merits of commodities. Some of the most important conclusions from the above papers are as follows:

(1) Commodities do not offer investors a consistent risk premium.
(2) Commodity volatility is comparable to that of large cap US stocks.
(3) Skewness and kurtosis in commodity returns are not excessive.

(4) Commodities are uncorrelated with stocks and bonds.

Given commodities' risk characteristics, adding a well-balanced portfolio of commodities to a traditional portfolio of stocks and bonds will reduce the volatility of that portfolio. However, it will also have an impact on the portfolio's expected return. If one accepts and extrapolates the finding that commodities have not offered a risk premium over the last 50 years, then the overall expected return will come down when commodities are added. In that case there is no free lunch; just a simple trade-off. To assess whether that trade-off is fair, one might consider bringing the portfolio's volatility back to its original level by adding another, better compensated, asset or asset class. If the resulting portfolio's expected return exceeded that of the original portfolio, investing in commodities would be a worthwhile move and vice versa.

Let's ponder on this a little longer. How likely is it that the above comparison will show that commodities indeed make a worthwhile addition to our portfolio? Since they are uncorrelated with stocks and bonds, commodities will be very effective in driving down volatility. Given this reduction in volatility, we will be able to substantially increase our allocation to a more generously compensated risky asset, like stocks for example. The result is likely to be an overall increase in expected return, confirming the merits of commodities as a diversifier. If we were to assume that "This time it is all different" and commodities do offer a significant risk premium, as so many people seem to do nowadays, then things of course only get better. If the expected commodity return were similar to that of the initial portfolio then we would indeed have a free lunch, since volatility would drop, but the portfolio's expected return would remain unchanged.

What does this mean exactly? It means that *commodities are a worthwhile diversifier under a variety of assumptions with respect to their expected return*. The only case where it no longer works out is when commodities were to offer a significant negative risk premium. In that case the reduction in volatility would simply not be worth the loss in expected return.

Conclusion

For many investors the world is turning a bit too fast these days. They don't collect raw information and make up their own minds. Instead, they adopt ready available opinions, as found in newspapers, magazines, etc. Unfortunately, the latter are typically based on misinformation and misunderstanding and sourced from people that clearly 'talk their book', i.e. have a vested interest in the market going a particular direction. This also seems to be the case with commodities. Although sounding plausible, more careful study reveals serious shortcomings in the main arguments for a further commodity bull market. The case for commodities as an investment appears remarkably robust though. Commodities make for an attractive diversifier, even without a proper risk premium.

Commodities' expected return is critical for the decision whether to invest in them or not. So what will the future bring? A combination of increased fabrication demand and investment demand has driven up commodity prices to unprecedented levels[4]. As long as the global economy does not suddenly dip, fabrication demand will stay strong, while, depending on the commodity[5], supply may take quite some time to catch up. This means that when it comes to future commodity prices the most uncertain factor is investment demand. If the current commodity investment boom persists, however, it is not unlikely that prices will remain high or rise even further, thereby leaving the case for commodities intact.

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[4] Of course the 33% drop of the US dollar over 2002-2004 has been an important factor as well. However, commodity prices continued to rally even when the dollar recovered in 2005. Also note that, unlike the Seventies, inflation has not been an important factor in the current commodity bull market.

[5] Obviously, agricultural production can respond much quicker to increased demand and higher prices than energy and industrial commodity production.

REFERENCES

Bannister, B. and P. Forward (2002), The Inflation Cycle of 2002 to 2015, Legg Mason Equity Research, April 19.

Erb, C. and C. Harvey (2006), The Tactical and Strategic Value of Commodity Futures, *Financial Analysts Journal,* March/April, pp. 69-97.

Gorton, G. and G. Rouwenhorst (2006), Facts and Fantasies About Commodity Futures, *Financial Analysts Journal,* March/April, pp. 47-68.

Kat, H and R. Oomen (2006a), What Every Investor Should Know About Commodities Part I: Univariate Return Analysis, Working Paper 29, Alternative Investment Research Centre, Cass Business School, London. Downloadable from www.cass.city.ac.uk/airc.

Kat, H and R. Oomen (2006b), What Every Investor Should Know About Commodities Part II: Multivariate Return Analysis, Working Paper 33, Alternative Investment Research Centre, Cass Business School, London. Downloadable from www.cass.city.ac.uk/airc.