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PROXY BATTLE:

Emerging Markets Are Not a Substitute for Commodities

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In recent years, many investors have considered an allocation to commodities in order to tap its portfolio diversification properties. This has given rise to a certain misconception expressed by market pundits, that emerging markets equity exposure can be used as a proxy for exposure to commodities. Some even go as far as to say that emerging markets equity gives an investor “all the commodity exposure that they need”. The argument is made that the emerging market economies have as their basis exports of minerals, crops, or energy resources, and therefore equities in these countries are dominated by their commodity exposure. However, this simplistic argument immediately runs into trouble, given the equally prominent argument put forward that emerging economies (in particular China and India) are responsible for driving up commodity prices due to their growing consumption of minerals and foodstuffs. This would instead imply that rising commodity prices should have a negative impact on emerging market stocks. Given this seeming contradiction, we examine the relationships between historical emerging market equity returns and commodity returns, and examine trade data to better understand the impact of commodity prices on the returns of emerging market economies. ►►

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We further investigate several emerging economies, each of which would seem to provide a clean exposure to a single commodity (Chile and Copper, South Africa and Gold, Russia and Oil). In general, we find little which supports the notion that emerging markets equities are a proxy for commodity exposure.

► COMMODITY PRODUCERS ARE NOT COMMODITIES

We first examine the historical return streams for broad market indices for the emerging market and commodity asset classes. Many studies have shown that investing in commodity-related equities does not result in a commodity-like return stream¹. This may at first seem puzzling – why wouldn't the price of copper be the largest factor in determining the price of a copper mining stock? There are some elementary reasons that explain this.

First, all equities demonstrate a large correlation with the overall equity market, i.e. they have an equity "beta". While this may seem straightforward, the impact of this beta can overwhelm the commodity price impact on a commodity-related stock. Second, equity represents ownership in a company, and because of this, its price is impacted by many pricing factors which have no parallel for the underlying commodity. Earning multiple expansion, dividend policy and corporate actions are all factors which will impact the price of a commodity-related equity, but have little impact on the price of the underlying commodity itself. Third, many commodity-related companies are aware of their commodity exposure, and actively hedge away this risk through the use of forward price agreements or other long-term pricing mechanisms. While this does not immunize them from the price impacts of the underlying commodity, it diminishes the relationship between a company's revenue stream (and profitability) and the price of the underlying commodity².

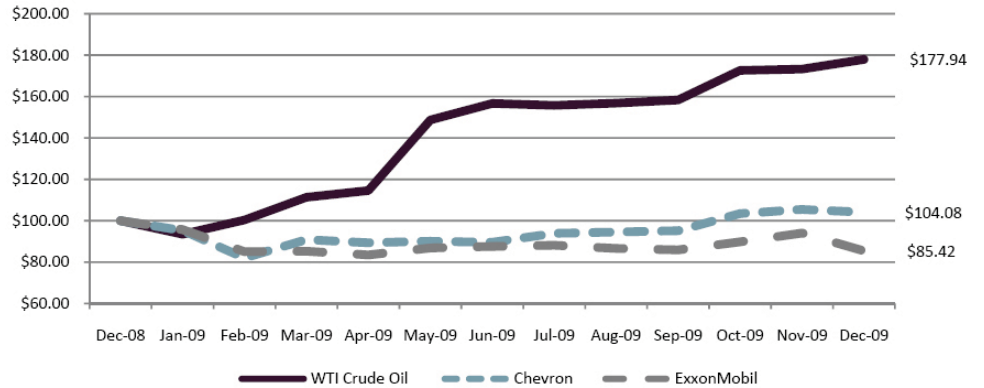
There are a multitude of examples of commodity-linked companies whose stock performance demonstrates remarkable divergence from its associated commodity. For example, the below graph shows the cumulative value of a \$100 investment in both ExxonMobil and Chevron shares, compared to a similar investment in WTI crude, over the course of 2009.

While the two stocks show relatively similar performance, crude oil's return is markedly different. It is hard to make an argument that either of the two oil companies would have served as a proxy for the price of oil over this time period.

¹ E.g. Atwill [2011], "Accept No Substitutes: Why Natural Resource Stocks are a Bad Way to Get Commodity Exposure", Parametric Research Brief

² On a related front, while equity "proxies" for the energy and metal sectors are readily available, there are no such clean exposures for the grain and soft commodities. Many equity index providers attempt to use seed or fertilizer companies, whose ties to the prices of these underlying commodities are especially tenuous.

Figure 1: Cumulative value of \$100 over 2009, Price Returns Only.



Source: Bloomberg, Parametric

Over longer time periods, we can observe that the price of oil and the share prices of the two oil companies exhibit times of similar and dissimilar return patterns. However, the long-term patterns point out the power of the equity beta. Over the course of 2001-2010, the correlation of Chevron and ExxonMobil was 0.78, while their average correlation with the price of oil was 0.38. That is, the stocks of the two oil companies had nearly twice the correlation with each other than they did with their supposed “common driver” of returns.

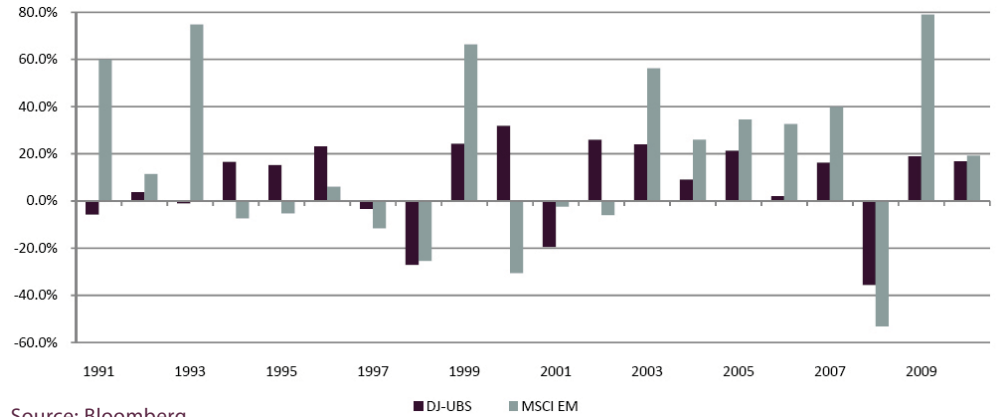
All in all, the linkages between commodity prices and commodity-related equities are, ultimately, somewhat modest.

► EMERGING MARKET EQUITIES ARE NOT COMMODITIES

Given the above discussion, even if it is the case that commodity production drives the economies of emerging markets economies, it would be hard to maintain the argument that holding emerging markets equities can be a proxy for commodity exposure. Putting these objections aside, let’s examine the return streams of these two asset classes over the last twenty years, and see if any linkages exist despite the above arguments. We will use the MSCI Emerging Markets Index to represent the broad emerging markets equity asset class, while for commodities we will use the Dow Jones – UBS Commodity Index Total Return. Figure 2 shows the annual returns for these two benchmarks over the last twenty years.

The earlier part of this time period provides limited proof of any relationship between the movements in the commodity markets and movements in the emerging markets equity, with numerous examples of returns which go in opposite directions.

Figure 2: Annual Returns, Dow Jones-UBS Commodity Index Total Return vs MSCI Emerging Markets.



Source: Bloomberg

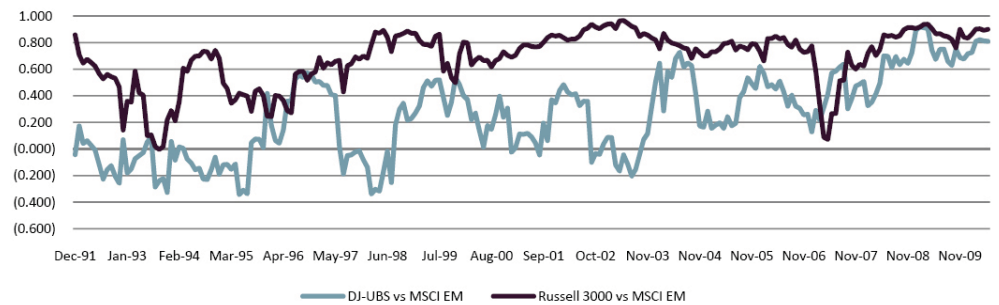
However, starting in 2003, directionally both indices line up, and demonstrate a seeming increase in correlation. Could this be proof that, at least in recent years, emerging markets equities and commodities have proven to be proxies? Closer examination shows otherwise on two fronts. First, examination of the period of 2003-2010 yields dramatically different risk/return profiles for the two benchmarks:

	DJ-UBSCI	MSCI EM
RETURN (ANN)	6.2%	22.1%
VOLATILITY (ANN)	5.4%	7.1%

Source: Bloomberg

Second, even if one allows a “proxy” to simply mean a high correlation between two return streams, it is hard to make an argument for emerging markets equities to be a proxy for commodities. The below graph shows the rolling 12-month correlations of DJ-UBSCI and MSCI EM (blue line) and Russell 3000® and MSCI EM (purple line).

Figure 3: Rolling 12-Month Correlation, 1991-2010.



Source: Bloomberg, Parametric

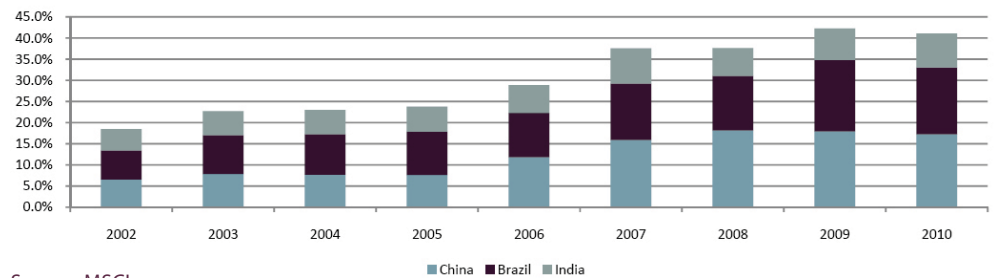
While the correlation between emerging markets equities and commodities has been persistently low, the correlation between the two equity indices has consistently been

much higher than that between emerging markets equities and commodities, and has maintained generally high levels. Said another way, if one argues that emerging markets equities is a proxy for commodities based on correlation alone, the above graph suggests instead a stronger argument for saying emerging markets equities is a proxy for US equities! A primary reason for many to invest in commodities in the first place is its low correlation with US equities, and the above graph clearly refutes considering emerging markets equity as a commodity proxy on this basis.

► WAS THE PROXY ARGUMENT EVER TRUE?

Another curious fact presented by the above graph provides further evidence that commodity and emerging markets equity performance are not linked. Over the course of 2002–2010, the combined weights assigned to India, Brazil, and China in the MSCI EM Index almost doubled, from 20% to 40%, as shown in the below graph.

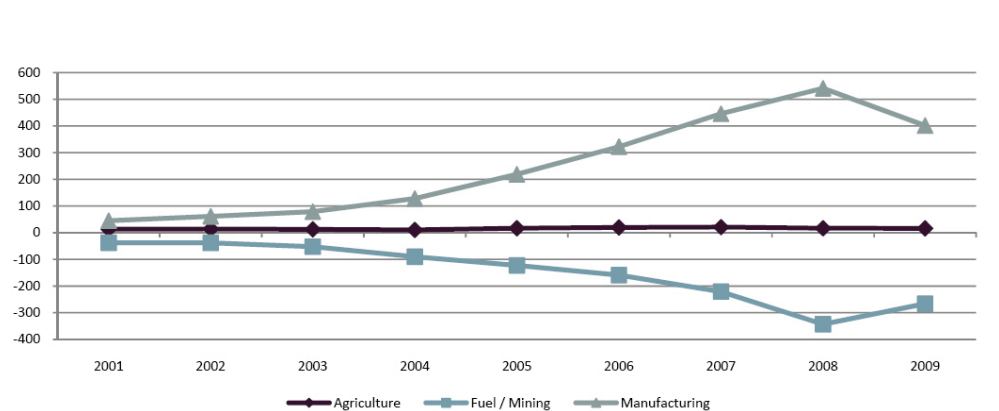
Figure 4: Weight to India, Brazil & China in MSCI EM Index.



Source: MSCI

At the same time, an examination of the trade data shows the economies of these countries have diversified their economies away from commodity production, and into manufacturing. For example, the below graph shows the WTO trade sector data for China, Brazil, and India, combined.

Figure 5: Exports - Imports (\$bn), for China, Brazil, and India combined.



Source: World Trade Organization

That is, while the index weights for China/Brazil/India in the MSCI EM Index increased over the last ten years, their economies exported an increasing amount of manufactured goods and imported a growing amount of fuel and mining products.

At an index level, this combination results in the MSCI EM Index having less commodity exposure in recent years. Seemingly, if the “commodity proxy” argument was correct, this should have resulted in a decline in the correlations between commodities and emerging markets equities in recent years. Instead, the correlations between commodities and emerging markets equities have increased over the last decade, e.g. in the 1990-2002 period, correlations are between -0.20 and 0.40, while in the 2002-2010 period they have remained roughly between 0.20 and 0.80.

This results in the observation that when the emerging markets countries had more of their economy based in commodity production (1991-2003), there was little correlation between emerging markets equities and commodity index level exposures, and when the emerging markets countries diversified their economies away from commodity production, correlation increased between emerging markets equities and commodity index level exposures. While one can conjecture many reasons why this may be the case, it remains clear that there is only a limited connection between an economy’s reliance on commodity production and the correlation of that country’s equity market with the commodity market.

► TINKER, TAILOR, IMPORTER, EXPORTER

At the root of the “commodity proxy” argument is the belief that emerging economies are dominated by the exportation of raw materials. When we dig into the trade data, we can see why this thesis fails when considering the broad emerging markets universe.

Below presents the top importer/exporters of nine major commodities, all of which have representation in the major commodity indices.

Figure 6: 2009 Trade Data

Wheat		Corn/Maize		Oil Seeds		Cotton	
Top 5 Exporters	% of Total	Top 5 Exporters	% of Total	Top 5 Exporters	% of Total	Top 5 Exporters	% of Total
USA	17.0%	USA	46.0%	USA	37.4%	USA	32.2%
Canada	16.7%	France	9.4%	Brazil	25.1%	Uzbekistan	15.0%
France	11.9%	Argentina	8.2%	Canada	9.2%	India	9.5%
Australia	11.8%	Brazil	6.6%	Argentina	4.3%	Brazil	6.4%
Russia	8.7%	Ukraine	5.1%	Ukraine	2.1%	Greece	3.9%
Top 5 Importers		Top 5 Importers		Top 5 Importers		Top 5 Importers	
Algeria	5.4%	Japan	16.7%	China	41.2%	China	22.2%
Egypt	5.3%	Rep. of Korea	7.3%	Germany	6.6%	Bangladesh	12.4%
Italy	5.1%	Mexico	6.4%	Japan	5.9%	Turkey	10.1%
Japan	4.3%	Spain	5.0%	Netherlands	5.2%	Indonesia	7.9%
Indonesia	3.9%	Egypt	4.3%	Mexico	4.2%	Vietnam	5.3%

Crude Oil		Natural Gas		Copper Ore		Aluminum Ore	
<u>Top 5 Exporters % of Total</u>		<u>Top 5 Exporters % of Total</u>		<u>Top 5 Exporters % of Total</u>		<u>Top 5 Exporters % of Total</u>	
Saudi Arabia	16.0%	Russia	20.9%	Chile	29.7%	Australia	39.6%
Russia	10.5%	Norway	15.2%	Indonesia	16.6%	Brazil	15.3%
Iran	6.7%	Algeria	7.5%	Peru	12.8%	Guinea	5.3%
UAE	4.9%	Canada	7.3%	Australia	9.7%	Jamaica	4.7%
Nigeria	4.7%	Qatar	5.0%	Canada	4.3%	USA	4.7%
<u>Top 5 Importers</u>		<u>Top 5 Importers</u>		<u>Top 5 Importers</u>		<u>Top 5 Importers</u>	
USA	21.5%	Germany	15.5%	China	28.1%	China	16.9%
China	9.6%	Japan	14.1%	Japan	26.7%	Canada	10.4%
Japan	8.6%	Italy	11.3%	Rep. of Korea	10.7%	Russia	9.7%
India	7.0%	France	7.7%	India	9.8%	USA	7.8%
Rep. of Korea	5.4%	USA	7.0%	Germany	5.4%	Bahrain	7.5%

Source: UN Comtrade database

On reviewing these, two large scale themes appear. First, the list of top exporters is rarely dominated by emerging markets countries, and the list of top importers is rarely dominated by developing economies. That is, in most cases, the top five importers and exporters consist of a blend of both developed and emerging economies. Second, in almost every category, the total amount exported by emerging markets countries is offset by the total amount imported by other emerging markets countries.

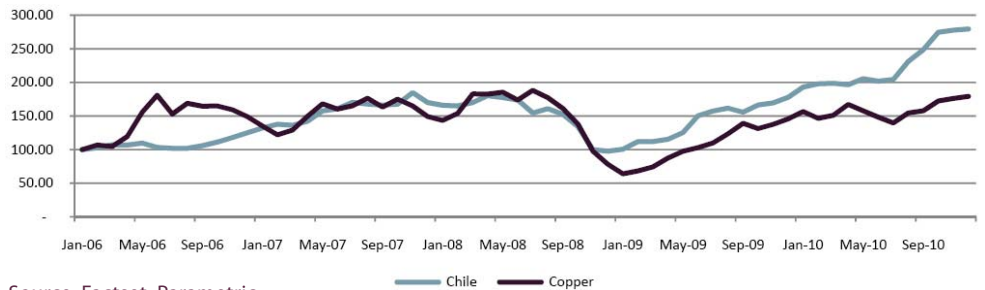
The proxy argument is based on the supposition that emerging markets economies are boosted by an increase in commodity prices, but this is an overly simplistic representation of their economies as a group. Emerging countries have a diverse profile of commodity import/export patterns, and because of this, it is difficult to make a sweeping generalization about commodity prices and their effects on emerging markets economies. Further, due to the relatively low correlation among the price movements of various commodities, it is rare to see a case where all commodity prices move together. Given this, and the wide variety of import/export profiles in emerging markets countries, we need to be very specific about which commodity prices went up before we can easily quantify whether it was beneficial for the emerging markets economies as a whole. Does a rise in copper help Chile and Indonesia's mining sectors more than it harms Chinese and Korean manufacturing? Or does a rise in the price of cotton harm Bangladesh and Vietnam's textile industries more than it helps the cotton growing regions of Uzbekistan, India, and Brazil? Understanding the intertwining relationship between commodity prices and the various emerging markets countries makes clear that the "commodity proxy" argument is essentially a remarkable oversimplification.

►► SINGLE COUNTRIES AND THE COMMODITIES THEY PROXY

The above narrative has at its root a denial of the "commodity proxy" argument based on the different return streams or import/export patterns of the emerging markets countries considered as a broad group. Perhaps this grouping of countries in index-level data clouds some important linkages between commodity prices and the stock markets of individual emerging market countries. To investigate this possibility further, we track three proxy countries – namely, Copper and Chile, Gold and South Africa, and Crude Oil and Russia.

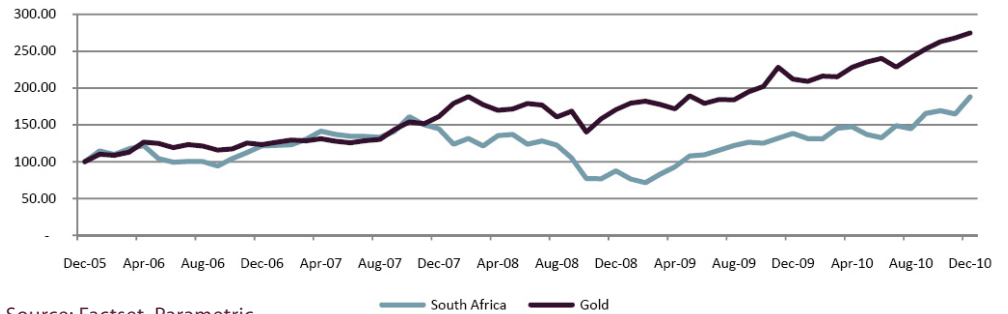
The below three graphs show relative performance between these three country/commodity pairs over the last five years:

Figure 7: Cum'l Return of \$100, 2006-2010, S&P IPI Chile and Spot Copper



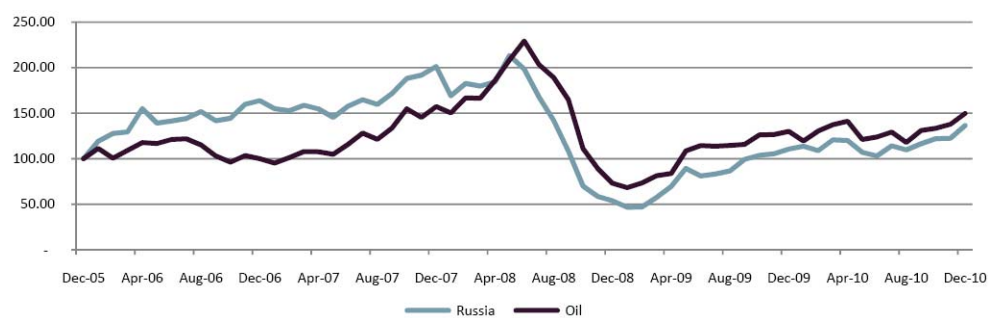
Source: Factset, Parametric

Figure 8: Cum'l Return of \$100, 2006-2010, S&P IPI South Africa and Spot Gold



Source: Factset, Parametric

Figure 9: Cum'l Return of \$100, 2006-2010, S&P IPI Russia and Spot Oil



Source: Factset, Parametric

While there is a rough equivalence between the two return streams over certain time periods, the above graphs demonstrate numerous periods of disparity. For example, during the financial crisis of 2008, gold prices rallied while South African equities fell, and similarly, in early 2006, Chilean equities did not respond to a rapid increase in the price of copper. However, these cumulative value graphs in many ways disguise the degree of the differences between the individual country returns and their associated commodity. The below chart better outlines some key differences:

	5-yr Correlation	5-yr Return (ann)	5-year Volatility (p.a.)
South Africa	0.27	13.5%	30.4%
Gold		22.4%	27.5%
Chile	0.35	23.9%	22.9%
Copper		15.8%	37.4%
Russia	0.74	6.4%	24.4%
Oil		8.4%	34.8%

Source: Bloomberg, Factset, Parametric

All three country/commodity pairs demonstrate very low correlation, and gaining exposure to these countries' equity markets would not be an adequate "proxy" for the associated commodity. This is only reinforced by the risk/return attributes demonstrated over this time period. In particular, the investor looking for gold exposure through owning South African equities, or oil exposure through owning Russian equities, found this "proxy" did not give them anything like the return pattern they were seeking over the 2006-2010 time period.

As in the case of emerging markets countries as a group, a larger degree of similarity exists for the equity returns of the above countries with respect to the US equity market than to the commodity markets. The below table shows the correlation between each of these countries and the Russell 3000, as well as the correlation for each country's associated commodity.

	South Africa	Chile	Russia
5-Yr Correlation with Russell 3000	0.81	0.59	0.67
5-Yr Correlation with Associated Commodity	0.27	0.35	0.74

Source: Bloomberg, Parametric

Once again, the equity beta overpowers any linkage each country may have with its associated commodity, especially in the case of South Africa and Chile, with the correlation with US equities dwarfing the correlation with the associated commodity. Even in the case of Russia, where we see similar (and relatively modest) correlation coefficients for both US equities and oil, it would be hard to argue that Russia is a proxy for one, and not the other. Given the level of correlation, a more sensible conclusion would be that Russia shows similar returns to both, but is a proxy for neither.

► CONCLUSION

The claim that emerging markets equity exposure is an adequate “proxy” for exposure to commodities is not supported in our study. At the top level, returns of equities have many drivers which will not impact commodity prices. And, many of the extractive industries used as a basis for this argument use pricing hedges to remove the impact of commodity prices on their revenues and profits. Historical return patterns between the broad emerging markets equity universe and broad commodity portfolios yield very little evidence that commodity prices impact emerging markets equity returns. An examination of trade data shows that the underlying logic for this proxy argument (that emerging markets countries are mainly exporters of commodities) is broadly false, and that for a broad portfolio of emerging markets countries, the varying import/export patterns make it problematic to trace the impact of an increase in commodity prices. A closer examination of country/commodity proxy pairs in the emerging markets finds a similar lack of “proxy”-like qualities. Given the breadth of this evidence, we conclude that investors should not assume their emerging markets equity exposure is also providing them with commodity exposure. This is especially true for those investors looking to their commodity exposure for its portfolio diversification properties. In order to gain this benefit, a commodity allocation must be done directly in the commodity asset class and not through any of the purported equity proxies.

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