



HIGH YIELD - COMMODITIES SECTOR

Pacific Income Advisers

August 31, 2015

An Analysis of Commodity-Related Exposures in the US High Yield Market

A Tale of Two Markets

The bifurcation in the current high yield market is as pronounced as we have ever seen. As of the end of August 2015, commodity producers, and only commodity producers, have been hard hit during 2015. The table below shows year to date returns on all industries in the Credit Suisse index system. The six worst performing industries all make commodities or, in the case of oil services, perform tasks for those who produce them. And the best performing industry, refining, uses crude oil as its input. The commodity makers' bonds had an unweighted average YTD return of -8.80%, while the rest of the industries had an unweighted average return of 2.52%. We believe the conventional wisdom is correct that despite the great harm to energy, which is the largest component of the high yield index, almost all other industries will benefit from the plunge in crude prices, and consumer savings from gasoline will be spent on other goods. Just as cheap natural gas was a huge boon to many industries like chemicals and fertilizer, cheap oil will be an even bigger benefit because the total amount of energy (in both BTUs and dollars) derived from petroleum in the US is much greater than that from gas.

| YTD RETURNS ON HIGH YIELD INDUSTRIES | | January - August 2015 | |
|---------------------------------------|----------------|-------------------------|-------|
| Other Metals/Minerals | -14.72% | Broadcasting | 1.93% |
| Exploration & Production | -12.19% | Automotive | 2.09% |
| Energy Service & Equipment | -8.93% | Other Entertainment | 2.22% |
| Textiles | -6.72% | Manufacturing | 2.23% |
| Paper | -6.12% | Land Transportation | 2.74% |
| Steel | -4.10% | Other Energy | 2.94% |
| Aerospace/Defense | -1.57% | Midstream Energy | 2.94% |
| CLEC | -1.42% | Packaging | 2.98% |
| US Cable | -1.37% | Wireless Communications | 3.43% |
| Cable/Wireless Video | -0.89% | Real Estate Development | 3.58% |
| Fiber/Long Distance | -0.43% | Retail | 4.00% |
| Utility | -0.10% | Consumer Durables | 4.27% |
| Intl/Other Energy | 0.00% | Cellular/PCS | 4.30% |
| Other Mobile Comm | 0.00% | Airlines | 4.43% |
| Wireless Infrastructure | 0.18% | Environmental Services | 4.60% |
| Shipping | 0.69% | Healthcare | 4.84% |
| Information Technology | 0.89% | Other Non-Durables | 4.97% |
| Print/Other Media | 1.01% | Building Materials | 4.99% |
| International Cable | 1.11% | International Telecom | 5.06% |
| Data/Internet | 1.19% | Food/Tobacco Producers | 5.08% |
| Other Services | 1.33% | Restaurants | 5.13% |
| Fertilizer | 1.44% | Gaming/Leisure | 6.05% |
| Specialty Chemicals | 1.66% | Film Exhibition | 6.24% |
| Financial | 1.82% | Beverages & Bottling | 6.25% |
| Diversified Media | 1.88% | Refining | 6.82% |
| Consumer Non-Durables | 1.90% | | |

Source: Credit Suisse



Commodity Sector Outlook and Opportunities

We do not plan to invest in producers of commodities just because the prices of their products have fallen. With respect to oil prices, we believe oil prices will stay low (\$65 or less) for several years because Saudi Arabia needs to inflict enough pain to dissuade not just shale producers but also deepwater and frontier projects if they are ever to successfully tighten markets again. With respect to the other major commodity in the high yield market, coal, we also believe the forces acting against it are long term (especially its much weakened competitive position vis-à-vis natural gas and the much more difficult US regulatory regime.) We do see analyses purporting to show that the sector is “oversold” or that mean reversion is an underlying dynamic in commodity prices. We do not believe that. The analyses showing apparent technical opportunities in the market rely on static measurements of current leverage, current trading values of energy bonds versus equities, the potential for positive event risk in the form of M&A transactions, and the like. In our view, these analyses do not come to grips with the fact that these producers are now operating at unsustainable negative free cash flow and that the macro variables which will determine their future (essentially, anything which affects future commodity prices) are fiendishly difficult to forecast. Those who bought distressed bonds at the start of the year based on the notion that they were “oversold” have seen the value of those bonds drop so far in 2015 by 21.8%.

There are other commodities which are not in the news because they have not been affected by plunging output prices... that is to say, the drivers of those businesses are different than those behind coal, oil, and metals. Foremost among these are commodity petrochemicals. This is one of our major holdings. We are comfortable owning commodity makers only when our investee is a low cost producer, when industry overcapacity which develops can be eliminated fairly quickly by market forces (such as plant closings or mine exhaustion,) or when we are very senior in the capital structure. We know that the US petrochemical sector will be low cost for many years, because the key input is natural gas, which will be abundant for a long time in the US and give the US industry, along with Mideast producers, a robust comparative advantage. In addition, the end products made by their customers are not heavily levered to construction, emerging markets, and China; most of what is produced is used in the stable US market, much of it on consumables, and US petrochemical makers are inextricably physically networked with their customers by logistics, pipelines, and the like. None of these is a feature of US shale producers, who are high cost, not physically integrated with customers, and most important are exposed to Saudi and OPEC strategic action to reduce prices. Nor will plastics producers ever face a 50 percent reduction in local demand, as coal producers in the US have since 2000. If there were “contagion” effects in the petrochemical sector, we would take advantage of them...but these companies’ margins have been very steady, and so have their bond prices during the commodity selloff.

We should mention we hold one additional smaller commodity company, which is a major producer of titanium dioxide (a building block for many products including paint) and soda ash, used in glassmaking. These bonds have fallen because slowing demand growth worldwide has created excess supply of the pigment. The holding is a low cost producer in a concentrated industry, where we believe rational competitors will mothball or close higher cost capacity (in this case, Chinese capacity) to restore pricing. This is the opposite of what we observe in the oil market, where many companies (and countries heavily reliant on oil revenues) are responding to lower prices by maintaining or even increasing production.

As we have said in the past, we like to buy “stressed” debt rather than distressed debt. We distinguish between the two not by the bond price (which can always go lower,) but by whether we believe the issuer has a 65% or better chance of eventually refinancing its debt by cutting capital expenditures, reducing costs, selling assets, or otherwise taking actions within its own control to survive past a recession when an economic recovery will “lift all boats.” That position does not describe the commodity producers today. They are not suffering from the normal stress of a recession but from a change in the macro environment (and, in the case of oil and gas, a technology-driven permanent change in the supply curve,) which has generated chronic industry overcapacity. Even after all the pain already inflicted by over a year of low prices, US inventories of crude and petroleum products are 30 percent above where they were before the shale revolution...and are still rising from an all-time peak. Although the shale



producers are making remarkable strides to cope with the situation (by drilling only prime sites, extracting pricing concessions from suppliers, and making engineering breakthroughs,) only a rise in the price will save them, and there is no fundamental reason to see that happen in time to avoid distressed exchanges of their bonds.

Lastly, the plunge in commodities has not really generated many opportunities, as the “contagion” effect has been small – the rest of the market has earned 2.52% year to date, which annualizes to 3.78%. This is not a great return, but it implies a fall in bond prices of just 4% since December and almost all of that fall is accounted for by commodity producers themselves. In general, a fall in the high yield market is not in itself an opportunity unless the manager had cash rather than bonds before a price decline. What we do look for is what we have historically – industries which are adjacent to the sector we are avoiding, supplying it or being supplied by it, but which have different economics. An example would be a company which is paid a fixed capacity fee and a per ton processing fee to process steel inside a major plant, but which has no exposure to the steel price itself. Another would be a pipeline, which transports gasoline at a fixed tariff per barrel but is not exposed to the gasoline price itself. The theme is that volumes are more stable than prices, and businesses whose economics are driven by commodity volumes rather than commodity prices will have more stable cash flows. Whether it is due to other managers also seeing these as opportunities or the generally much lower liquidity today versus other times of falling bond prices, those executable opportunities have not been more plentiful in 2015 than previously.

A Long-Term View on Commodity-Related Exposures in High Yield

During our careers, we have always underweighted companies primarily engaged in producing commodities. Our logic is different in some cases than in others. For example, as I have described in a prior paper, oil has been priced well above where it would be set in a fully competitive market due to the existence of oligopoly power enabled by the discipline of a swing producer. This means that the price can change radically due not just to shifts in supply and demand curves (which tend to change incrementally and slowly) but can also change suddenly and dramatically due to a decision such as Saudi Arabia’s in late 2014 to deliberately change its output regimen in order to drive future supply down.

Even in the absence of price volatility from strategic behavior by a cartel, commodity prices are set by marginal producers at the steeply sloped right hand side of their supply curves and are therefore, highly sensitive to even small changes in supply and demand. Even worse, in the case of physical commodities which are internationally traded, prices are driven by supply and demand in world markets, and thus incorporate demand from industrial production and construction in emerging markets, which are historically much more volatile than demand in the relatively stable US market. This means, for example, that a change in a single macro variable (such as even a modest change in the Chinese growth rate to a still enviable level) can drive highly correlated severe drops in an entire array of commodity prices, which is exactly what is occurring now. We do not have, and do not believe we can develop, a comparative advantage in such macro level forecasting of the growth rate of a major importer. Internationally traded commodities are also inherently subject to another macro variable we likewise cannot forecast – foreign exchange rates, which can stray from equilibrium levels for extended periods due to financial speculation or policy decisions by monetary authorities. Thus, a physically superior producer of, say, wheat or paper could quickly become internationally uncompetitive due to appreciation in its currency. If we could make those currency calls correctly, we would be currency traders instead of high yield investors. We want obligors whose economics rely as much as possible on analyzable and stable engineering facts and microeconomic analysis, and as little as possible on being right about macroeconomic forecasts. Chinese growth or the value of the euro have at most a very indirect, and certainly very minor, effect on demand for US health care, theater admission tickets, or even a very locally produced and consumed commodity such as road salt in New York State. As we have seen, small changes in expected growth in China have huge impacts on commodity companies worldwide. This is exactly what we do not want in a highly leveraged investee where our downside is unlimited and our upside return is capped.

The volatility of commodity producers is certainly not an obscure phenomenon, and our observations are not original. We

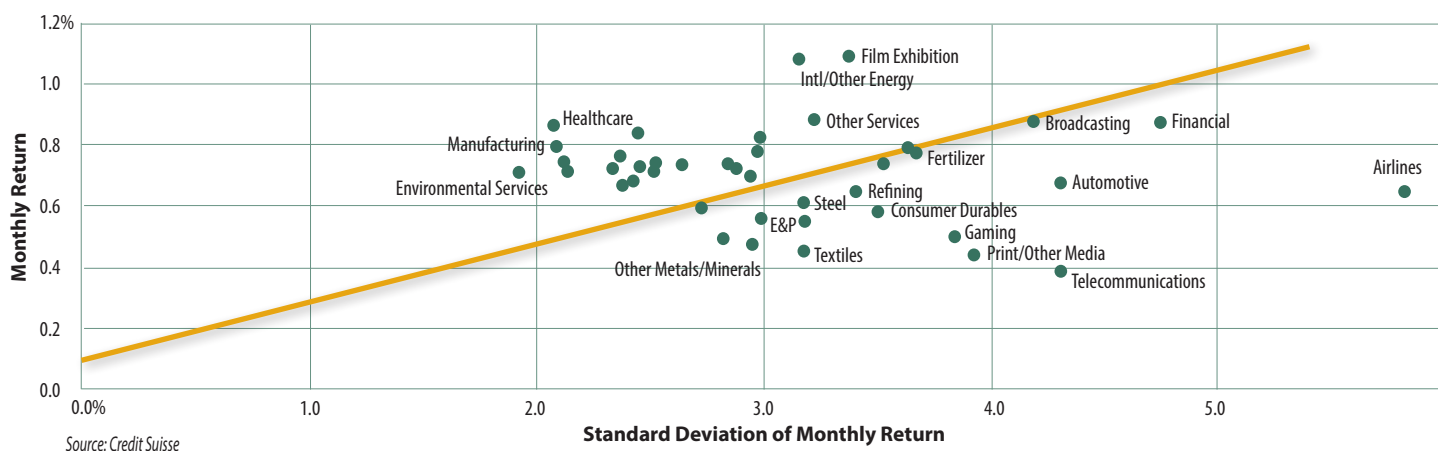


are simply saying that commodity prices are more volatile than other prices, and to the extent their producers sell in the spot market or short-term contract market and have cost structures with high operating leverage (and they do,) their cash flows will be highly variable. That alone does not mean investing in commodities is unwise. But given that high yield bonds have very asymmetric price risk (losses can be 100 percent and gains are limited by the bond's callability) and given that commodity prices, being correlated, are only minimally diversifiable, it suggests that default rates will tend to be high on commodity producers, bond price volatility will be substantial, and spreads will have to be very high to make the two-sided risk of their prices economic for a high yield investor.

Let's now turn to the data. How has commodity risk historically been compensated by actual returns in the high yield market? This is not a simple question to analyze without doing a very granular study of individual industries. If we work with the already existing industry sub-indices of the major Wall Street databases, it is difficult to find "pure plays" in commodities, because each industry sub-index contains many smaller industries with distinct economics. For example, individual industry sub-indices do not separately keep track of copper producers, iron ore producers, gas producers, and so on. And an industry like "utility" can include both safe traditional regulated electricity producers with captive distribution markets and producers of commodity power for sale in the wholesale market. So the opportunities to focus on pure commodity exposure in existing databases are limited by the compromises made in assembling a workable system of industry indices. The best proxies we have are the highly aggregated industry categories "energy exploration and production" and "mining and metals," which is where coal companies are included. Even these are not ideal proxy datasets of the commodity itself, because the index for mining and metals includes processors and distributors whose margin is not positively correlated with (and may even be negatively correlated with) the margin of the producer of the raw commodity itself. The only metal having its own sub-index is steel and that captures both producers of commodity grades like hot rolled coils and producers of specialty fabricated alloys, as well as some steel service centers which fabricate and distribute, but do not create, steel.

Having acknowledged these data limitations, Exhibit 1 shows the historical bond return volatility and the average return of many high yield industry sub-indices during the period 2000 to 2015 (thus fully capturing two recessions.) Financial asset pricing theory suggests that ex ante (and, over long periods, ex post) returns should be positively correlated with risk – that is, that the data points should be clustered around a theoretical "security market line" which would be positively sloped, as shown in the graph. The intercept with the y coordinate is the average risk free monthly rate during 2000-2015. What we actually see is that the risk/return points are not correlated at all. The "R squared" of the best fit line "explains" only 2 percent of the variation in returns, so there is no statistically significant ex post relationship. The high yield market, it seems, has not been very good at realizing ex ante which industries would provide good and poor returns for the risk being assumed.

EXHIBIT 1 - RETURN VS. VOLATILITY





We can see that our best proxies for commodity producers (steel, other metals and minerals, and E&P) are all below the line, indicating inadequate return for the volatility risk borne. As an aside from the commodities discussion, we are completely unsurprised that some of the least well rewarded risks in our market have been in the telecommunications, airline, print media, and gaming industries, which we have always severely underweighted. Some of the most highly rewarded industries per unit of risk have been manufacturing, environmental services, healthcare, film exhibition, and “other services,” where we have been chronically overweighted. These data points correspond very closely to the investment theses we have developed in these spaces over 27 years (based on our bottom-up analyses of industries, done well in advance of seeing this graph.) In an environment where there are large and sustained differences in return per unit or risk, the decision of which industries to weight is crucial, and over time commodities have not been an attractive set of industries.

Another way to quantify and rank these industry data is to form a measure of return per unit of risk and rank the industries on that metric (see Exhibit 2). Note that the three most pure-play commodity industries – steel, E&P, and other metals and minerals – all rank 10 to 20% below the mean and median industry scores for return per unit risk.

EXHIBIT 2 - INDUSTRIES RANKED BY MONTHLY RETURN/STANDARD DEVIATION 2000 – 2015

| | | | |
|-------------------------|--------|-------------------------------------|-----------------------|
| Healthcare | 41.92% | Commodity & Fertilizer | 21.26% |
| Environmental Services | 37.18% | Information Technology | 21.14% |
| Restaurants | 36.36% | Broadcasting | 21.05% |
| Beverages & Bottling | 35.68% | Wireless Infrastructure | 20.39% |
| Manufacturing | 35.49% | US Cable | 19.77% |
| Intl/Other Energy | 34.66% | Steel | 19.42% |
| Food/Tobacco Producers | 34.22% | Refining | 19.16% |
| Aerospace/Defense | 33.62% | Exploration & Production | 18.90% |
| Other Energy | 32.65% | Financial | 18.54% |
| Film Exhibition | 32.58% | Other Metals/Minerals | 17.70% |
| Other Non-Durables | 31.24% | Cable/Wireless Video | 17.34% |
| Land Transportation | 29.89% | Consumer Durables | 16.91% |
| Shipping | 29.68% | International Cable | 16.54% |
| Packaging | 28.51% | Diversified Media | 16.48% |
| Consumer Non-Durables | 28.43% | Paper | 16.41% |
| Midstream Energy | 28.41% | Automotive | 15.81% |
| Retail | 27.71% | Gaming/Leisure | 15.39% |
| Other Services | 27.70% | Textiles | 14.41% |
| Other Entertainment | 26.42% | Print/Other Media | 11.46% |
| Specialty Chemicals | 26.23% | Airlines | 11.18% |
| Real Estate Development | 24.28% | International Telecom | 10.65% |
| Utility | 23.94% | Fiber/Long Distance | 8.86% |
| Building Materials | 22.15% | CLEC | 8.16% |
| Service & Equipment | 22.09% | Other Mobile Comm | 3.50% |
| Cellular/PCS | 22.05% | Data/Internet | -2.54% |
| Wireless Communications | 22.04% | | |
| | | Average/Median | 22.61% / 22.04 |

Source: Credit Suisse



Volatility comes from several sources. An obvious one is actual default risk. Steel and mining have historically had materially higher default rates than the high yield index. E&P has not, but that is to be expected over the period 2000 - 2015 because OPEC does not change its price policy often and the oligopoly component of the oil price has protected efficient and inefficient producers alike until now. But when OPEC does drive down the oil price (as in 1986 and today,) the E&P default rate goes up manifold...and we believe that if we look at historical default rates again in 2017, E&P will look much riskier than it has over the comparatively benign years between 2000 and 2015. Already in 2015, energy producers and coal companies represent 53% and 28%, respectively, of all high yield defaults through the end of August (including, as we should, distressed exchange offers, which are de facto defaults.) And the damage will continue, as two thirds of all bonds trading at dollar prices under 80 are in the energy and coal sectors. Obviously, the price and return volatility quantified in Exhibit 2 does not capture only actual defaults, but also changes in risk premia demanded by a market which perceives and prices that default risk well ahead of an actual default.

The Global Growth Outlook and Its Impact on US High Yield

We certainly think growth in China will be lower than it has been historically. For many years that country has experienced unprecedented investment (50% of GDP.) Imbalances have grown in the financial system and huge misallocations of capital have taken place, but the inability of the Chinese to invest outside their economy has allowed the misallocations to persist. We are not macroeconomists, but eventually this must end badly...China has vast financial reserves, which make it far more robust than other Asian countries were in 1997, but eventually growth must slow and is possibly already well below the official number. Emerging markets, which are heavily oriented to exports of commodities, will be hurt even worse, and the capital flows into these economies, which have underpinned their growth, have already reversed. Net commodity importers like Japan and Europe may actually benefit on the margin. But our portfolio is, by design, overwhelmingly driven by the strongest and, more importantly, the least volatile economy. We do not believe the commodity bust will have a significant effect on US growth. We have historically seen a very benign environment for US default rates as long as GDP growth has exceeded the very modest level of 1.5%. The US economy has recessions. Commodity-producing emerging markets have depressions.

Valuation in Today's US High Yield Market

We do not agree with the majority of prognosticators who believe that the non-energy market is rich. That assessment must always be made in relation to the risk and potential return in the high yield market vis-à-vis 1) the history of our market and 2) current conditions in other asset classes such as emerging markets, investment grade, and equities. Although spreads in our market (ex energy) are slightly lower than the historical average, we believe the future vector of non-energy defaults is also far lower, and that ex post earned credit spreads for an investor buying today will actually be better than the historical average... which is a long way of saying we do not believe a recession is imminent or that if one comes it will be as severe, so the market should weather it. And we believe that the reversal of Fed policy (and the eventual shrinking of its enormous balance sheet) will have greater impacts on investment grade debt and equity markets than on the high yield market.

Bob Sydow is a Senior Vice President and High Yield Portfolio Manager at Pacific Income Advisers. Bob has been a High Yield Portfolio Manager for over 25 years and has covered the energy industry his entire career. Prior to joining PIA, Bob founded Grandview Capital in 1999. From 1989 to 1999, he was VP, SVP, and Co-Portfolio Manager for SunAmerica Investments' High Yield Bond Department, which grew tenfold to \$4 billion during his tenure. Previously, he spent three years as Treasurer, Asset/Liability Manager, and High Yield Portfolio Manager at First Interstate Bancorp and five years in various financial positions at Atlantic Richfield Company (ARCO).

Disclosure

Pacific Income Advisers, Inc. (PIA) is an autonomous investment management firm registered under the Investment Advisers Act of 1940. PIA manages a variety of fixed income and equity assets for primarily United States clients. Although the information contained in this report has been obtained from sources we believe to be reliable, the accuracy and completeness of such information and the opinions expressed herein cannot be guaranteed. This publication and any recommendation contained herein speak only as of the date hereof and are subject to change without notice.