Pricing Risks – Be Prepared for the Next Round of Commodity Price Swings

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95th ISM Annual International Supply Management Conference, April 2010

Abstract: Purchasing and supply managers were caught off-guard by the tremendous swings in commodity prices over the past few years. Although markets now appear less risky, the production cuts prompted by the recent global economic downturn will amplify the pricing risks over the next few years. Purchasing managers need to monitor the drivers of commodity markets in order to understand and anticipate commodity price movements.

With over 20 years of forecasting experience, the presenters will share tips and tools for forecasting commodity prices. The first step is to understand what drives prices and here we will highlight the reasons for the commodity price supercycle over the past few years and discuss whether these same factors are still a threat to global commodity markets today. Secondly, we will discuss how these pressure points can be tracked to monitor commodity markets in a more robust and systematic manner. This tracking system, or scorecards, can be designed to monitor high-frequency (i.e. weekly or monthly) data in order to better anticipate commodity price movements. Given that not all price drivers can be monitored with data, we will also highlight important qualitative factors and estimate the potential impacts these factors have on commodity price movements.

The goal of this workshop is to present the benefits and development a pricing risk scorecard system that allows supply chain managers to be more prepared for volatile commodity markets.

Background: The last several years have witnessed a tremendous increase and volatility in commodity prices. After a sharp sell-off during the 2001 recession, commodity prices rose to unprecedented levels between 2006 and 2008 only to collapse late that year. Their extraordinary rise has promoted many observers to label the episode as a "supercycle".
But while the strength and duration of this cycle was unprecedented, the behavior of markets during the past five years was in the broadest sense normal. Fundamentally, the initial recovery in demand that began in 2002 ran ahead of available supply, reducing inventories. This tightening in markets was reflected in prices which began rising. With enough time, however, the supply-side of markets began to adjust. Investments were made, which after a period of time, began to yield higher production. Higher prices also affected demand, with consumption growth slowing. With production growth first catching and then surpassing consumption growth, market balances began to shift from deficit to balance, and in many instances, to surplus. The transformation in markets was complete by early in 2008, although prices continued to move higher for a period of time.

The last few years have also led to a very high level of volatility (see chart 2 and appendix table 1). The exact cause is hard to pinpoint, but many analysts have concluded the heightened role of investors was a prominent cause. Traditionally, investors have been viewed as providing liquidity and thereby stability to markets. But can investors also be a de-stabilizing influence on markets? Interestingly, gold prices, where investors are virtually the entire market, were among the least volatile of all commodities over the last 30 years.
Whatever the cause or causes, this increased volatility has raised the need for reliable and timely market intelligence. Buyers and purchasing agents need to have a good feel of where prices are heading before entering a new contract or negotiation. Identification of major price drivers for the commodities key to your operations is a good first step in the right direction.

Drivers of Price Escalation
Prices have traditionally moved with changes in supply, demand and input costs. This framework works well with more downstream (semi-finished and finished) products that have a well-defined production process and localized market.

Commodity prices are more difficult to pinpoint an exact cause for upward or downward pricing pressure at any point in time due to:

1. Production costs typically do not influence prices
2. Markets are global, especially those that are exchange-trade
3. Exchange rates and interest costs will influence all commodities and therefore pricing differences by commodity is hard to ascertain

This is the primary reason for the importance of taking the following approach for identifying pricing pressure for the commodity prices key to your production process. The result is commodity scorecard for each key commodity that can help you better anticipate future pricing movements.

Building a Scorecard
The first step in the construction of a commodity scorecard is the identification of the underlying markets. You need to ask yourself the following questions:

1. Which country or region is dominant in the production of the material?
2. What are the key end-markets for the commodity? What are the key consuming markets?
3. Are there any substitute commodities or products?
4. Are there any primary input costs to the mining or production process?
5. Are investors an important factor in the market? If so, are there any technical or financial indicators that can help gauge their behavior?
6. Are there any institutional features of the market that require special attention, such as production agreements between countries or environmental regulations?

The second step is to gather the sources of information depending upon answers to the above questions. Most countries have statistical agencies that track timely updates of their economy, including production and consumption of their major markets. Please see http://www.census.gov/aboutus/stat_int.html for a current listing of these government statistical agencies.

Additionally certain sectors of the economy have global associations that track more detailed data. An internet search by commodity should quickly identify the key associations by sector.

The third step is to place the recent pricing experience in perspective. We recommend that you chart the commodity price over the long-term (i.e. back 30-50 years) to understand the longer-term trends within the industry. If the last year has taught us anything, it is that business (and pricing) cycles are alive and kicking. This long-term price chart plus an embedded trend line will help you gauge whether prices are moving too high or low compared to the historical averages.

Finally you need to decide the updating frequency (depending upon your resources and the frequency of your data sources) and compile the information in a format conducive to your buying horizon.

Two Examples – Aluminum and Natural Rubber

ALUMINUM

Step 1 – Identify the key price drivers
1. Production – The highest producing countries are China, Russia, and U.S., in descending order
2. Key consuming markets – Can stock, construction, transportation equipment in China, U.S. Japan, Germany and Russia
3. Various substitutes such as plastics, glass, copper and aerospace composite
4. Bauxite and alumina are key input costs
5. Simple technical indicators - 100 and 200 day [price] moving averages
6. Forward curves, spreads and inventories

Source: http://www.world-aluminium.org;
http://minerals.usgs.gov/minerals/pubs/commodity/aluminum

Step 2 – Identify timely data to represent price drivers
1. Production – International Aluminum Institute (http://www.world-aluminium.org/Statistics/Current+statistics), the Aluminum Association (http://www.aluminum.org/) also offers detailed statistics on the North American market; however much of this information requires a subscription
2. Key consuming markets – Timely data for industrial production of beverage cans, construction products and transportation equipment, such as aircraft and cars, is
available for the U.S. and China. Please see
http://www.federalreserve.gov/releases/g17/Current/ (U.S.) and
http://www.stats.gov.cn/english/statisticaldata/index.htm (China). Also the United
Nations compiles industrial production by country but is not as timely as the source
government sites (http://unstats.un.org/unsd/mbs/app/DataSearchTable.aspx).

3. The price indexes of composite and glass is reported by the U.S. Bureau of Labor
Statistics (http://www.bls.gov/ppi/). The London Metal Exchange offers daily prices for
copper and plastics (http://www.lme.co.uk/plastics-data.asp and
http://www.lme.co.uk/copper.asp).

4. Input costs – Bauxite and alumina information is collected by the U.S. Geological
Survey (http://minerals.usgs.gov/minerals/pubs/commodity/bauxite/)

5. Technical indicators – The London Metal Exchange and Shanghai Future Exchange
offer daily prices to calculate these technical indicators
(http://www.lme.co.uk/aluminium.asp) and (http://www.shfe.com.cn/Ehome/index.jsp).

6. Forward curves, spreads and inventories – LME and SHFE can be used for forward
curves, spreads and visible inventories. Reported inventories are posted by the
International Aluminum Institute (http://www.world-
aluminium.org/Statistics/Current+statistics).

Step 3 – Compile pricing history
London Metal Exchange and Shanghai Metal Exchange offer daily, weekly or monthly price
data
Source: https://secure.lme.com/Data/community/Dataprices_daily_metals.aspx#stocks;
http://www.shfe.com.cn/Ehome/index.jsp

NATURAL RUBBER
Step 1 – Identify the key price drivers
1. Production – Southeast Asia (Thailand, Indonesia and Malaysia) produces over 70% of
global natural rubber with Thailand being the largest of the three producers.
2. Key consuming markets – Tire and car production are key determinants of rubber
consumption. Although China is fast becoming the largest car market in the world,
Japan still produces the most cars.
3. Substitute products – Synthetic rubber
4. Input costs – While not an input cost, oil prices do correlate well with this market.
5. Technical measures - 100 and 200 day [price] moving averages
6. There are a few commodity exchanges for natural rubber and these future prices may
indicate future upward or downward movement.

Step 2 – Identify timely data to represent price drivers
1. Production – World production is offered by the Thai Rubber Association
(http://www.thainr.com/en/index.php?detail=stat-world). Although the data is more than
4 months old, it does break down production by the major producing countries.
2. Timely industrial production and capacity utilization is available for tire and car
production in the United States. Japanese auto production can also be tracked at a
monthly frequency at the Japan Automobile Manufacturers Association
(http://www.jama.org/statistics/motorvehicle/production/mv_prod_month.htm).
3. The price index of synthetic rubber is reported by the U.S. Bureau of Labor Statistics (http://www.bls.gov/ppi/)

4. Brent oil prices, a good proxy of global oil markets, are reported at a daily frequency on various website (http://www.bloomberg.com/markets/commodities/energyprices.html).

5. Technical measures can be calculated using the daily prices reported by the Singapore commodity exchange.


Step 3 – Compile pricing history

Completed scorecard for these two industries will be presented during the ISM presentation.

References

CPM Group, Commodities Derivatives Market Value Implodes; Gold Regains a Bit of Market Share. Market Commentary No. 2, June 11, 2009

Duncan, Richard. The Dollar Crisis, John Wiley and Sons (Asia), Singapore, 2005


Sommer, Martin. The Boom in Non-Fuel Commodity Prices: Can it Last? with Christopher Gilbert, IMF World Economic Outlook, Chapter 5, September 2006

Vansteenkiste, Isabela. How Important are Common Factors in Driving Non-Fuel Commodity Prices?, European Central Bank Working Paper Series No 1072 July 2009

Appendix Table 1: Standard Deviations in Monthly Price Changes
Higher standard deviations signal increased volatility

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* benzene and ethylene excluded from calculation

**Composite Indexes**
- CRB Foodstuffs: 3.1 2.4 1.5 2.8 3.8 2.5 4.0 3.0
- CRB Raw Industrials: 1.9 2.5 1.5 1.9 1.6 1.9 4.1 2.4