

Is Commodity Super Cycle Ending?

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I. Commodity Super Cycle Debate

The accelerating global economic slowdown is exacerbating a decline in commodity prices, calling into question the durability of their long run-up. In the past two years, coal has plummeted 40.3% from its peak; oil has fallen 19.1% and copper is off 18.5%. Grain price declines have been relatively moderate, with corn and soybean prices showing drops of around 10%.

The 20th century had two commodity super cycles; the first after World War II driven by post-war reconstruction and the second prompted by oil supply shocks in the 1970s. The latest super cycle began in 1997, triggered by double-digit growth in China and other emerging economies, ramped up biofuel production, speculative investing and climate-related disasters.

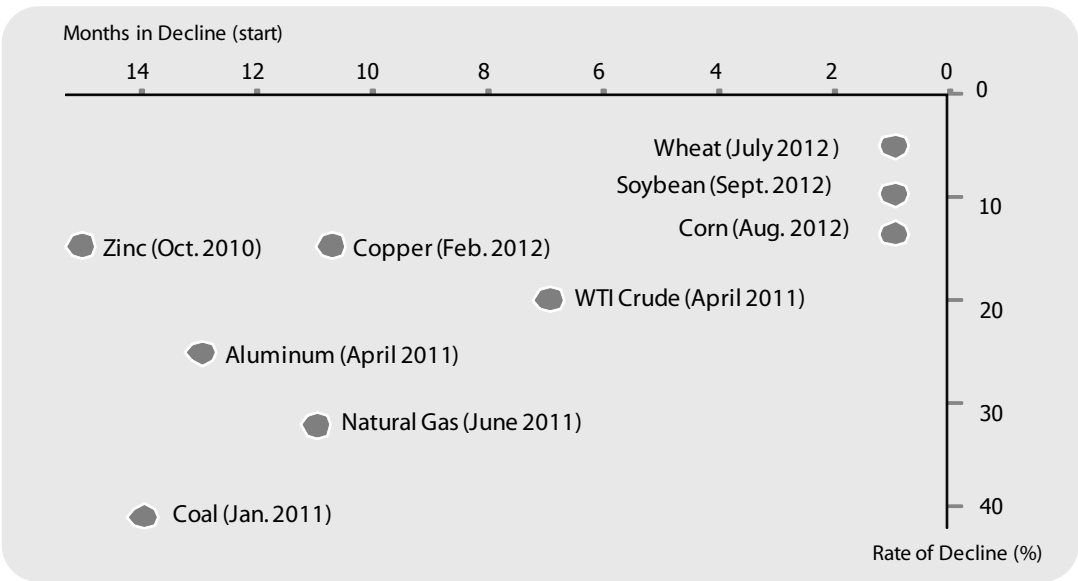
Commodity super cycles typically last more than 20 years. So, has the third super cycle already seen its best

years or is the current pullback simply a long pause before demand returns and puts upward pressure on prices again?

Those who say the cycle has run its course point to slower growth in China and technological advances in commodity development. Ruchir Sharma, head of Emerging Markets at Morgan Stanley Investment Management, said raw materials prices will decline in the next 20 years due to slower economic growth in China.

The commodity bulls, however, predict upward momentum will resume. They say China's urbanization is not completed and that infrastructure in advanced countries needs to be repaired and modernized. Worldwide low interest rates and excess liquidity to lubricate the buildup, they say. Jim Rogers, chairman of Roger Holdings and a guru in commodities investment, says agricultural products and raw materials will be better

Prices of Major Commodities



Note : 1. Figures in parentheses are the price peak dates in the past two years.
2. Rate of decline is the rate of change from peak to end-September 2012. Period of decline is the number of months price decline continued compared to the previous month until September 2012.
Source: KoreaPDS.

long-term investments than the US dollar, stocks or bonds.

Naturally, the direction of commodity prices is of keen interest to economies at all levels as well as to the private sector. Major commodity exporters such as Australia, Russia and Brazil would get a significant boost if the super cycle resuscitates while resource-poor countries like Korea would have to factor in the impact of high commodity imports to economic potential and corporate balance sheets. Yet, there is little quantitative study of commodity super cycles. To fill the void, Samsung Economic Research Institute (SERI) did an analysis of the commodity super cycle based on the real value of commodity index¹ -- composed of energy, raw materials and grain.

II. Third Super Cycle Momentum is Exhausted

A commodity super cycle can be divided into four phases: 1) recovery, where prices turn upward; 2) expansion, where price increases gather momentum; 3) slowdown, where the uptrend becomes exhausted and begins to fall; and 4) recession, where the price decline becomes entrenched.

SERI's analysis concluded that the third super cycle that began in 1997 has largely exhausted itself. The price of some commodities has peaked and started to recede

while other commodities are nearing their apex.²

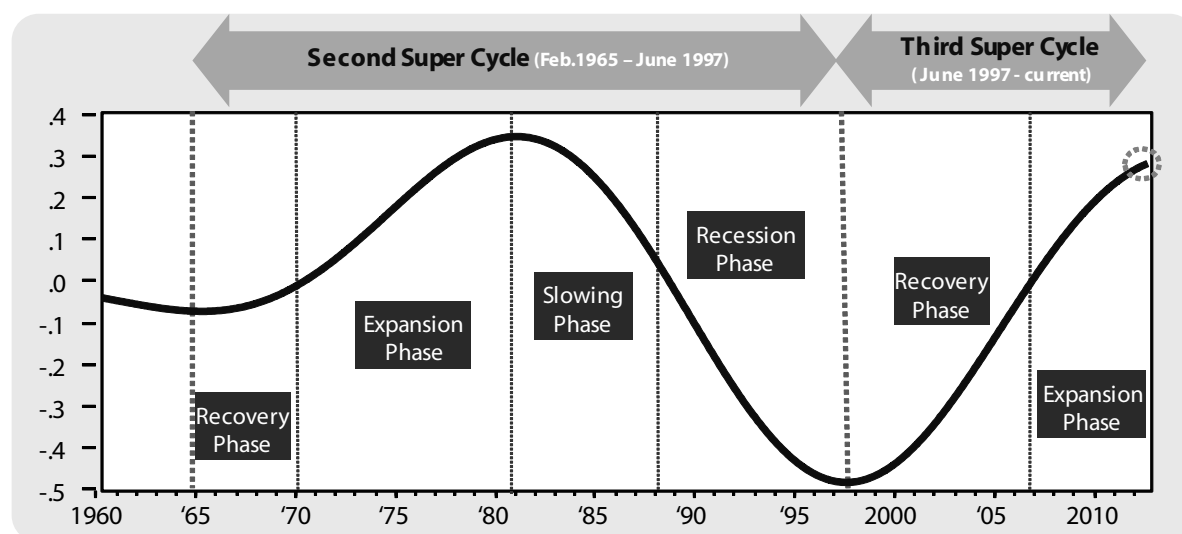
Energy and raw material prices are clearly dropping. Oil prices that had kept their upward trajectory since 1996 have peaked this year, while natural gas prices have entered a downward phase in 2006. Copper prices are currently near peak levels, while prices of aluminum and zinc have already entered a downward phase. In contrast, grain prices have not pulled back significantly because of droughts and flooding in key agricultural regions around the world in the past three years. Wheat price increases have slowed compared with prices of corn and soybeans.

Now, with outsized fiscal deficits in advanced countries, sluggish exports and declining domestic demand in emerging market economies slowing the global economy, no quick return to pre-crisis growth is expected soon. Global economic growth peaked in 2009. The long-term downward trend of commodity prices could be accelerated by the low growth of world economy. Especially, the prices of oil and copper, the two key industrial inputs, follow world economic growth by two to three years. Accordingly, their prices may have firmly entered a downward phase this year. Although various commodities may spike to new highs due to short-term events, the outlook is a prolonged decline.

¹ The energy and non-energy index among the World Bank Commodity Index (January 1960 - August 2012) was converted into real prices.

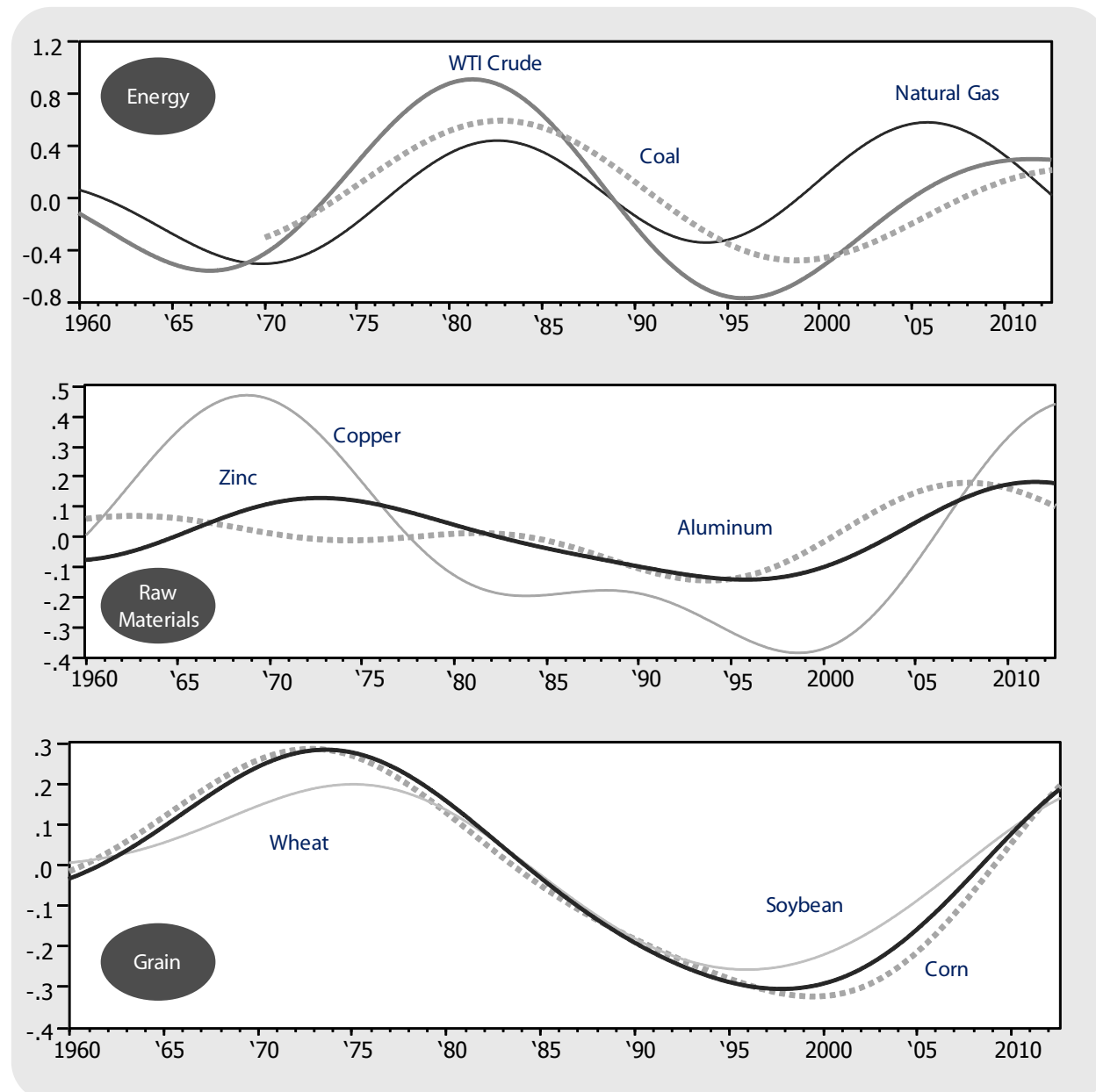
² The super cycle was analyzed based on the Asymmetric Christiano-Fitzgerald (2003) methodology. Analysis methodology used bandpass filtering, which filters only elements included in certain ranges among various cycles that constitute the long-term time series of commodity prices.

Commodity Super Cycle



Note: Axis y is the change between commodity price and long-term trend price. For example, 0.1 means a 10% rise from long-term trend price, while -0.1 means a 10% decline.

Super Cycle for Energy, Raw Materials and Grain Prices



III. Factors in Declining Commodity Prices

Considering the fact that the commodity market has reached an inflection point, it is essential to view the market's future with both macro and micro perspectives. It is clear that the macro environment of the commodity market is weak, but there are several micro issues that need to be monitored closely. Those issues will shape the speed of decline henceforth in commodity prices: shale gas, renewable energy, biofuel, China demand and climate abnormalities. Each of these carries questions of their own about the magnitude of their

impact, but there is no doubt they will be influential.

1. Is shale gas an energy savior?

The shale gas development boom, led by the US, has boosted expectations that it will become an energy savior. A total of 173 billion tons of shale gas reserves are confirmed in 32 countries worldwide, the level of which is near crude oil reserves of 206 billion tons.

However, environmental concerns have arisen over the tremendous amount of water used to extract the

gas and pollution risks. The worries have slowed production expansion. If these environmental factors are reflected in prices, it may jeopardize the price attractiveness of shale gas.

Shale gas has high potential to replace coal and natural gas used in power generation in the US, but its impact on the oil market will be limited. Meanwhile, China that has the world's largest shale gas reserves³ plans massive shale gas exploration and technology development until 2015. Even if shale gas production does not reach worldwide scale, it will impact the energy market if China launches production.

2. Is renewable energy a promising alternative?

The push to lower carbon emissions blamed for altering climate conditions prompted a rush to reduce reliance on fossil fuels. The renewable energy market grew rapidly but investment became a casualty of the global financial turmoil after 2008. Key companies including Solyndra (US), Evergreen Solar (US), Q-Cells (Germany) and Solon (Germany) have declared bankruptcy, while Germany, the world's largest solar power producer, slashed subsidies on renewable energy.

Although renewable energy is forecast to grow 3.8% on annual average until 2025, there appears to be little chance of it replacing coal and oil as major power generation source. Difficulty in technological innovation and other hurdles will hinder development. However, tightened greenhouse gas emission regulations, resolution of eurozone crisis, and revived carbon emissions trading could bolster efforts for clean energy.

3. Will trade-off continue between food and energy production?

The US, the world's biggest corn producer, is already near its goal of securing 15 billion gallons of corn-based ethanol for 2022.⁴ With the corn-based ethanol industry already in a slump, further growth in corn prices will be limited unless crops are severely damaged.

However, diversion of corn to ethanol production is under attack. This is increasing the need to seek next-generation fuel made from non-food materials, but development of cellulose and algae-based ethanol and biodiesel by the US' target date of 2022 is unlikely. Hence, higher production of soybean-based biodiesel is very likely in the US. If this transpires, upward pressure will move from corn to soybeans. In other words, the trade-off between food and energy is set to continue.

3 China has 19% of the world's shale gas reserves (Africa has 18% and the US 13%).

4. Will China's commodity appetite continue to expand?

China's rapid industrialization and urbanization since 2000 led to insatiable demand for all types of commodities. As of 2011, China consumes 49% of the world's coal, 40% of its copper and 26% of its soybeans, and will likely continue functioning as a "black hole," though on a lower scale. With China switching its growth strategy from exports to domestic demand, growth in its consumption of raw materials is likely to slacken. However, urbanization, currently at 51% of the population, is projected to rise to 55% by 2020, propelling up demand for raw materials.

Also, the effects of higher wealth will have a lasting impact on energy and grain consumption. China's energy consumption per person was 1.9 tons in 2010, and this is projected to rise to 2.7 tons in 2020. Higher meat consumption linked to China's growing middle class already has made China a top importer of soybeans to feed livestock. A shift to more organized, corporate-modeled livestock industry will sustain demand for grain. China's imports of corn in 2020 will be four times its imports in 2011, while its imports of soybeans will increase by 1.5 times.

5. Will climate abnormalities be intractable?

Worldwide, extreme climate events like drought, floods and heat waves are increasing in number and frequency, expanding climate risks. The generally accepted cause for this is manmade global warming caused by emissions of greenhouse gases, though other factors like the atmospheric and ocean current phenomena of El Nino and La Nina also play an important role. As food production and energy consumption are sensitive to climate conditions, food and energy prices will continue to rise, and volatility will continue to grow. Abnormal climate events will cause production of wheat and corn to decrease by 5.5% and 3.8% respectively compared to a normal climate, while prices will rise an average 20%.⁵ Furthermore, frequent heat waves and unusual cold spells are causing increased demand for energy. Finally, climate change is increasing concerns about water shortages, increasing the potential for greater costs for agriculture and resource development, which depend on large quantities of water.

4 In addition to its plans to produce 15 billion gallons of corn-based ethanol, the US also plans to produce 21 billion gallons of next-generation biofuel.

5. Lobell, D. B., Schlenker, W. & Costa-Roberts, J. (2011). Climate trends and global crop production since 1980. *Science*, 333(6042)

IV. Using a Long-term Decline in the Commodity Market as a New Opportunity

The five factors shaping commodity prices going forward will have long-term staying power. In respect of this, businesses must understand not only short-term changes in commodity prices, but also long-term cyclical phenomena and recognize opportunities to exploit them.

First, the end of the third super cycle gain opens the door to expand investment in resource exploration and development and related technology. Investing to secure resources when prices are rising is a high-cost, low-profit business. The right time to invest is when prices are in slowdown and recession phases.

The return on investment, of course, cannot be expected to be quick. In general, when commodity prices are falling, short-term expected returns for resource production technology and services fall, contracting investments. Long-term expected returns, however, actually rise, making it necessary to invest against the trend. As a result of stagnant investment in resource development during the falling phase of the second super cycle (1980-1990), supply was unable to meet demand in the 2000s, causing commodity prices to spike. However, Glencore International in Switzerland, which originally was an energy trading firm, invested in underdeveloped regions when commodity prices were muted in the 1990s. As a result, it was positioned to be-

come the world's No.1 commodity firm when the third super cycle materialized.

Second, it will be necessary to closely monitor emerging economies that are major commodity exporters such as Russia and Brazil. Falling commodity prices benefit advanced economies by reducing manufacturing costs, stabilizing prices and improving trade balances. Furthermore, savings on commodity inputs can be deployed in the development of alternative resources and related industries. However, commodity price drops can contract commodity exporting emerging countries' economies and worsen their fiscal problems. There is a tendency for Korea's exports to move in line with such countries' economic conditions. Korea's exports to commodity exporting nations accounted for 10% of its total in 2002, but grew to 15.4% in 2011. Korea must be prepared for any large downturn in global commodity demand that would contract the commodity exporters' economies. On the other hand, a decline in commodity prices would likely expand opportunities for mergers and acquisitions in these countries' commodity firms.

On another front, it is necessary to keep a close eye on the intermediate and consumer markets of emerging economies whose share for manufacturing is high and commodity exports are low. This would bolster opportunities for Korean exporters to gain a foothold in the next leaders of emerging economies such as Turkey and Poland. SERI

Commodity Super Cycle Analysis and Response

