

# Commodity super cycles



## A reality check

By Maureen DeRooij

Do commodity super cycles exist, or are we simply seeing patterns in randomness? More importantly, are we in the middle of one that is showing signs of going bust?

Super cycles, or those much observed and quantifiable phases in economic activity, where waves of expansion and growth are followed by a slowdown and recession<sup>i</sup>, continue to pique the interests of investors and the media alike. In fact, the possible demise of the current commodity super cycle has spawned many eye-catching headlines, ranging from mere predictions<sup>ii</sup> to the dire “death bells” for the commodities super cycle in 2013.<sup>iii</sup>

Yet in any analysis of the waxing and waning of super cycles and their impact on commodity prices, one question seems to have been overlooked: Is there clear evidence that they exist in the first place or are they simply patterns in randomness?

Depending on who you are or who you represent, there are a number of reasons to be concerned about super cycles and their impact on commodity price trends.

At a national or government level, for example, super cycles can be an issue of critical importance for commodity-dependent

economies and commodity-exporting countries looking to steer policy decisions on inflation, currency, and balance of payments, with serious implications for the size and type of economy being developed.

At a corporate level, movements in commodity prices will drive decisions for capital investment to fund expansion of capacity. These decisions are often dependent on how the current price of a commodity relates to the expected future price. If you run an oil or mining company and know that it can take as long as 15 years for a project to be completed and start producing, you need to know if and what kind of return you can expect on that investment before you invest.

And given the increased popularity of commodity indexes since the late 1990s, where a wrong “bet” can have significant impact on one’s investment returns, reputation and personal wealth, others with a stake in the game also include individual investors or hedge funds.

### History and the super cycle

Theorists, prominent economists and policy makers have studied business cycles for at least the last 200 years; and there is some evidence that cycles were of interest even before that. Coherent analytical frameworks were in

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place by the early 20th century, including the one developed by Nikolai Kondratiev that was later further developed by the well-known economist, Joseph Schumpeter.

In 1925, Kondratiev, a prominent Russian economist, identified three phases of the business cycle – expansion, stagnation and recession.<sup>iv</sup> His basic premise was that the capitalist system would actually not

collapse as a result of a great depression but instead would self-regenerate. Kondratiev analysed 21 statistical series consisting of economic indicators such as interest rates, commodity prices, wages, rents, production and employment. Using data from the French, British, German and U.S. economies, he applied a nine-year moving average to reduce the noise from shorter cycles. He found strong evidence of a long wave cycle in the price level and interest rate series, and only in 6 of the 21 series was he unable to confirm the long wave presence all together. Kondratiev concluded that these capitalist economies exhibited a long wave economic cycle with an average duration of 54 years.

The notion that capitalism could be self-regulating and that it would not suffer an inevitable collapse was extremely unwelcome with the Soviet government under Stalin and Kondratiev was sent to a gulag in Siberia. Later sentenced to a further 10 years, he was actually executed by firing

possible causes for its ending. The authors reason that the key component for the start of a cycle is a sudden rise in demand, often caused by technological innovation such as had occurred during the industrial revolution, or the impulse resulting from industrialisation, urbanisation and increasing population.

Erten and Ocampo identified four super cycles that have occurred since the end of the 19<sup>th</sup> century, with characteristics differing for each analysed commodity. Each cycle starts with one of the above-mentioned conditions. The first was triggered by the rapid industrialisation of the U.S. driven by, amongst other factors, the emergence of the internal combustion engine and large-scale electrification. The second cycle was initiated after World War II with the rebuilding of Europe and the third was driven by Japan's remarkable manufacturing prowess. The latest cycle, the one that we are supposedly in now, is caused by the emergence of China.

David S. Jacks in "From Boom to Bust: A Typology of Real Commodity Prices in the Long Run"<sup>vi</sup> uses the data of real commodity prices over 160 years (from 1850 to 2010) for 30 commodities. His typology has real commodity price series consisting of long-run trends, medium-run cycles and short-run boom/bust episodes, which yield some interesting findings related to commodity super-cycles. First, Jacks concludes that indeed, commodity price super cycles have existed in the past, and do exist in the present. He begins by establishing a long-term upward trend in commodity prices but then detects deviations from this trend that last up to 70 years, with upswings of about 10 to 35 years. These upswings are demand-driven, which seem closely related to historical periods of mass industrialisation and urbanisation, combined with acute capacity constraints in many product categories. Second, Jacks' research shows that there are short-term booms and busts within each cycle and that these booms and busts seem to have become exacerbated in recent times. According to Jacks, 15 of the 30 commodities studied are currently in the midst of a super cycle.

Interestingly, and similar to Erten and Ocampo, Jacks observes that although real commodity prices of both energy and non-energy commodities have been on the rise since 1950 across all weighting schemes, over the full duration of his study (160 years) commodities "to be grown" show long-term declines in real prices versus commodities "in the ground" (energy, metals, minerals), which show long-term increases in real prices.

### Where are we today?

Research, both old and new, seems to demonstrate that commodity super cycles do exist. And there is a general consensus among experts that we are currently within a commodity super cycle that started in the late 1990s.

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squad on the same day as the sentencing in September 1938. In the 1930s, Schumpeter further endorsed the concept of cycle theory, calling it the "Kondratiev Waves" in honour of the economist.

Many prominent economics and finance professionals have endorsed their findings, and several very detailed studies focused on commodity price cycles have come to light in the last few years.

One of these is Bilge Erten and Jose Antonio Ocampo's "Super-cycles of Commodity Prices Since the Mid-19th Century"<sup>v</sup>, which examines the contributing factors behind the start of commodity super cycles, as well as the

Erten and Ocampo estimate the length of each cycle to be approximately 30 to 40 years, half of which consists of rising prices, followed by falling prices. Energy, and to a lesser extent metals, exhibit real-commodity cycle price peaks that are higher than the peaks of previous cycles. Non-energy commodities, primarily agricultural products, exhibit the opposite behaviour, with each cycle resulting in peak real-commodity prices that are below the peak of the previous cycle. This behaviour can be explained by the supply side innovations in agricultural efficiency and the growing urbanisation of the world's population.



EXHIBIT 1

Source: Dow Jones-UBS Commodity Index

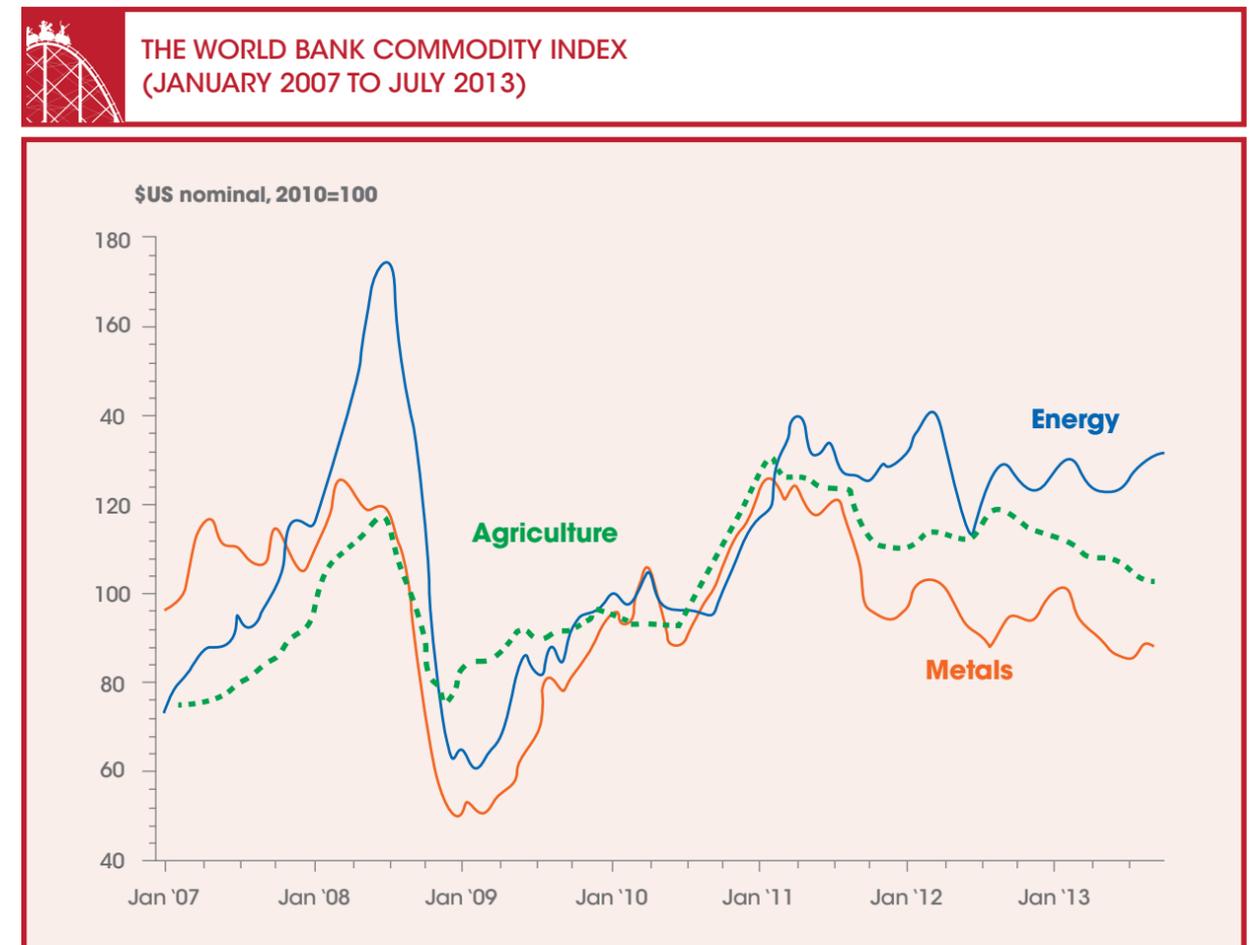


EXHIBIT 2

Source: The World Bank Commodity Markets Outlook, 2013

If we accept this, then the question arises—at which point are we on this commodity price roller coaster? And are we to sit back and enjoy the ride on the upswing or should we hold on tight as global commodity prices reach a tipping point and start to nosedive? Although some surmise we have passed the peak, there is no clear agreement on this issue.

### 1998 TO 2008: REAPING THE BENEFITS OF THE UPSWING

Between 1998 and 2008, commodity prices nearly doubled, as indicated by the Dow Jones Commodity Index; with certain components, such as oil and gold, increasing by 700 percent during the same time period.<sup>vii</sup> Institutions and individual investors have poured more than US\$440 billion into commodity funds since 2004.<sup>viii</sup> Erten and Ocampo attribute this upswing to, “the strong global growth performance by the BRIC economies, and especially China, which is particularly metal- and energy-intensive”<sup>ix</sup>. Undoubtedly, recent growth in these countries is leading to an insatiable demand for food, fuels and metals, feeding into construction of infrastructure facilities to support economic growth as well as demand for consumer goods from the rapid accumulation of wealth.

### 2008 TO 2011: A DIP FROM A BLIP

The collapse of Lehman Brothers in September 2008 and the global economic crisis that followed led to a sharp, albeit temporary, dip in commodity prices. The Dow Jones Commodity Index fell by over 50 percent between July 2008 and March 2009; picking up again from the second quarter of 2009 (refer to **Exhibit 1**). By early 2011, metals and agriculture prices recovered to their peak of 2008, with energy prices following closely behind (refer to **Exhibit 2**).

### 2011 TO 2013: A SLOW FALL?

Commodity prices have been trending downward since the second half of 2011,

leading many analysts to predict the end of the current super cycle. A comment from Citigroup, for example, states that slowing economic growth in China will be a key factor responsible for declining commodity prices:

Economic growth in China, the biggest user of everything from copper to cotton to coal, slowed to 7.4 percent in the third quarter [of 2012], from as much as 12 percent in 2010... China has reached a new phase, less focused on infrastructure and urbanisation, both of which are highly commodity intensive.<sup>x</sup>

### Looking ahead — are we at a tipping point?

When examining the upswing phase of a super cycle, for example, factors to consider include industrialisation, urbanisation and demographic changes resulting from population growth and economic prosperity. Most often, these factors are symbiotic and simultaneous.

Rapid industrial growth and population pressures have traditionally fuelled the demand for raw materials. The current super cycle owes its origins primarily to the accelerated investment-led growth in China, with contribution from growth spurts in India, Russia, Brazil and smaller yet dynamic economies in Southeast Asia. Since the turn of the century, rapid urbanisation in these countries has called for greater investment in housing and utilities, transportation networks and other infrastructure. Population pressures have also led to a multi-fold demand for food.

Growing wealth and increasing affluence have contributed to the insatiable demand for consumer products and luxury goods, globally. Gold has culturally been an important asset for the increasing middle class and wealthier Indians, while the rich in China are indulging in everything from fine wines to watches.

Modern agriculture has helped many of these countries achieve efficiency in

food production, but the simultaneous surge in demand for energy commodities and mining products has helped maintain global prices for these commodities.

Although China and India have achieved tremendous growth, there are still hundreds of millions of people, mostly in rural areas, that are relatively poor compared to Western standards. And whilst perhaps not as spectacular as in China and India, population growth and the associated development and urban migration in other countries in Southeast Asia should also be considered. According to the United Nations, the world population will touch 7.72 billion in 2020<sup>xi</sup>, with most of the growth coming from the developing nations. These masses will not stop and sit back, they will work hard to achieve further economic growth and this will require massive amounts of natural resources. I think that all these factors will continue to support commodity prices in the coming decades.

Adding to this are the developments on the supply side. The question here is whether or not this will become increasingly constrained. There has definitely been a slowdown these past few years in new capability coming on line, especially in the mining sector. There is also evidence of resource nationalism as well as social unrest, as recently seen in the mines of South Africa. There are concerns about water, soil and even genetically modified agricultural products that are limiting supply side gains. Even though the threats of short-term supply bottlenecks are a possibility, I do not subscribe to the view that supply constraints can impact prices in the long run. Eventually, supply steps up to fulfil demand—through new resources and/or new technologies—albeit with a lag.

It is another story when it comes to the possibility of an eventual demise in commodity prices. Erten and Ocampo quote Joseph Schumpeter who, in 1939, reasoned that, “demand for raw materials

will decline as eventually any industry will attract competition, leading to decreasing profits and hence reducing derived demand for commodities”<sup>xii</sup>. This point of view alludes to supply side factors; claiming that capacity increases and over-production (in response to higher prices) play a hand in the declining commodity prices. For example, the discovery and production of natural gas from shale has shifted supply from shortage to glut, and has had a subsequent dampening effect on oil prices.

Another opinion that is of interest is from Alan Heap, former head of Commodities Research at Citibank. In a 2005 report titled “China: The Engine of a Commodity Super Cycle”<sup>xiii</sup> he states that a decline in commodity prices is observed only when developing economies become services-oriented economies and have less demand for raw materials:

In the U.S., intensity rose strongly during the early 1900s, then plateaued and declined from around 1940 as its economy evolved. The highly materials intensive growth phase came to an end, as the economy became increasingly services-based.

Needless to say, a large number of emerging economies are still behind on the industrialisation curve. Many still rely on the agriculture sector and most are still far from transitioning into service economies.

### Conclusion

The simple question of “have we passed the peak of the current cycle?” turns out to be not so simple at all, with proponents and opponents each making convincing arguments. The uncertainty stems from a number of sources, such as firstly, disagreement over the future prospects of big commodity consumers such as China and India, and the potential future rise of other developing economies; secondly, the capricious impact of technological

developments on both supply and demand; and thirdly, the occurrence of smaller-scale boom and bust periods within a larger cycle, further exacerbating the difficulty of determining where within a super cycle we find ourselves.

Nevertheless, the simple push of demographic growth and the urge for nations to develop—especially in Asia—means it is unlikely that we are heading into a steep downward phase; even developed nations continue to be sizeable users of both basic commodities (energy, metals) and consumer goods. My expectation is that, as the world’s population becomes bigger and wealthier, the demand for all goods, commodities included, will continue to increase. Perhaps this old Chinese proverb says it all: “Do not look for the waves, look for the current.”

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