

Commodity Price Cycles

What is the connection? – part 2 of 2

By John Robertson

Reading time: 4-8 mins

Mining sector equity prices are volatile, but the connection with commodity prices may also be illusory.

Following on from last month's article on the sources and extent of commodity price volatility, this month I look at some aspects of the connection between commodity prices and the share prices of commodity producing companies.

How large an adjustment – Equities?

It is impossible to compile an equity market series as long as the 145 year copper price series described last month. Therefore, I am unable to make a direct comparison between equity prices and commodity prices over a similarly long time frame.

One approximation, used by *thebigpicture Economics* for these purposes, is created by splicing together the All Mining index (for which there is data going back as far as 1937), the All Resources index and the resources companies within the ASX 200, since the ASX ceased compiling and publishing a comprehensive resources index for the Australian market in 2001.

| Timing of Equity Cycles | |
|-------------------------|----------|
| Peaks | Troughs |
| May 1937 | May 1941 |
| May 1948 | Jun 1949 |
| Oct 1951 | Jun 1953 |
| Apr 1957 | Apr 1958 |
| Aug 1960 | Sep 1962 |
| Dec 1964 | Sep 1965 |
| Dec 1969 | Sep 1974 |
| Jul 1976 | Feb 1978 |
| Oct 1980 | Mar 1982 |
| Dec 1983 | Jun 1984 |
| Sep 1987 | Feb 1988 |
| Sep 1997 | Aug 1998 |
| Apr 2006 | |

This provides a single 70 year long proxy for the resources component of the Australian equity market. On my reckoning, there have been 13 market peaks (including the current cycle) and 12 market troughs during this time.

The average time from trough to peak has been 48 months. As with movements in commodity prices, the time it takes to move from a market peak to a trough is speedier: just 19 months.

The averages might exaggerate the duration of the cycle slightly. The median timings were 34 months for the upturn and 14 months for the downturn.

When the market begins to fall, the average drop is 39% (with a median of 33%). As in the commodity markets, the first part of this adjustment occurs relatively quickly. Half of it is over within four months.

The commodity price connection

The connection between commodity price movements and equity price changes is not as strong as might appear at first glance. While a rising commodity market usually favours higher equity values, it is too simplistic to say that equity values need the support of rising metal prices.

Over the period reviewed, the constructed mining index proxy rose by 8.6% a year, while the copper price rose by 4.7% a year. The correlation coefficient between the mining index and copper prices is 0.81 confirming, at face value, preconceptions that higher commodity prices are associated with higher equity values.

However, the impact of inflation on both series needs to be borne in mind. Inflation, using US consumer prices as a global proxy, was 3.8% a year for the same 70 year period. Generalised price movements would have been working in favour of both higher commodity prices and higher equity values.

The apparently high correlation between the two series might simply be another manifestation of the role of inflation in supporting the upward trajectory of both, rather than measuring the extent of the connection between commodity prices and equity values.

After adjusting for the effects of inflation, the copper price has risen by 0.5% a year and the mining index by 4.4%. More tellingly, the correlation coefficient between the two series drops to virtually nothing: a meager 0.03.

Rates of return

Rolling three monthly returns have been calculated over the 832 months of data available. During this period, the equity market indicator rose in 60% of cases. In only 32% of cases (i.e. about half the rises in the market), the rising market occurred when the copper price also rose. In the balance of cases, the market has been able to move ahead, while the copper price has been falling, or not changing.

There could be several reasons for a breakdown in the linkage between the two series:

- ▼ copper prices are being used as a proxy for a range of factors, which together could be influencing equity prices. The copper price alone might not be sufficient to reflect all of these;
- ▼ the equity market could be expecting upturns in commodity prices which fail to arrive. That would not be surprising given the speculative and forward-looking nature of the equity market. One piece of evidence for this is the relative frequency of equity market peaks (13) compared to commodity market peaks (just 8) within the sample period being considered here; and

| Annual Rates of Return 1937-2006 | |
|----------------------------------|-------|
| Australian Mining Equities | |
| - nominal values | +8.6% |
| - inflation adjusted | +4.4% |
| US\$ copper prices | |
| - nominal values | +4.7% |
| - inflation adjusted | +0.5% |



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▼ resource industry volume growth should support equity market returns, but not be reflected in commodity returns. Strong output growth contributing to higher equity values could dampen upward commodity price movements because of its impact on supplies.

However, a performance disparity between commodities and stocks has also been found in more broadly based, peer reviewed research. The copper price-resource sector connection described here is consistent with some of the conclusions drawn by academic researchers Gary Gorton and K. Geert Rouwenhorst¹ about commodity prices and equity values.

Their study of commodity price movements and related equity values between 1959 and 2004 led them to conclude that “commodity company stocks behave more like other stocks than their counterparts in the commodity futures market”, meaning that “an investment in commodity company stocks has not been a close substitute for an investment in commodity futures”.

The shift in valuation

One reason for commodity price movements to deviate from equity prices is that commodity prices might not accurately signal what is happening to company values.

thebigpicture Economics has been working closely with EIM Capital Managers, a specialist resource sector fund manager, to identify some of the relevant valuation issues which might have an impact on resources sector investment decisions.

EIM Capital Managers has financial models of over 60 resource companies. They are typically companies moving into production or on the verge of expanding production over the coming two to three years. Its coverage excludes the larger ASX resource companies included in the ASX 100.

In aggregate, these companies produced a return on funds employed of just 6.8% for the year ended June 2005, well below their costs of capital and well below Australian industrial company returns.

However, the EIM analysis points to a radical change happening. It foresees returns among the resources group jumping to 11.8% in 2006 and 17.6% in 2007. Some of that improvement is cyclical, so that the return subsequently declines to 15.1% by 2009 as prices revert to more normal levels.

But even these numbers understate the improvement. The returns are biased toward the larger (and more profitable) companies within the group. In 2005, the median return was a negative 2.5%, which is expected to have risen to 1.3% in the financial year just completed, peak at 19.0% in 2008 and still be at 15.7% in 2009.

Perhaps a better indication of the change underway comes from applying the same output prices as prevailed in 2005 to the EIM financial models for 2009. Holding the prices constant in this way will eliminate the effect of any anticipated changes in raw material prices. The resulting return analysis will reflect anticipated movements in output and likely changes in costs of production.

Using this approach, the expected 2009 median return is still 17.5%.

In other words, the radical change in the financial performance of this group of companies does not rely on the price cycle but reflects some fundamental changes in its production profiles and operating costs.

We are already seeing some pressures emerge constraining the profitability of industrial companies and some evidence, such as rising labour costs and tightening monetary policy, suggesting that we might be near the top of a profit cycle. Further large rises in industrial company returns seem unlikely.

However, even if we ignore this likelihood and assume heroically the addition of two to three percentage points in industrial company returns over the next four years, there are grounds for anticipating a radical change in relative valuation between industrial companies and their resource counterparts. The competitive balance between the two sectors appears set to change.

From previously offering an economic return well below the benchmark industrial companies, the outlook changes to a better than benchmark return by this group of resource companies. This has important implications for asset allocation decisions.

As usual with markets, if this scenario is realised, the implications might take some time to assimilate. They might be ignored while some of the more pressing adjustments associated with changes in commodity price momentum preoccupy investors in the short-term.

A seismic shift?

Given the duration of the current cycle, the commodity market risks are inevitably looming larger.

The interplay of the commodity price cycle and consequent policy changes, driven by fears about inflation, could easily mean investors become more conscious of downside risks during the balance of 2006.

By the end of 2006 or early 2007, however, if history is any guide, most of any downward adjustment could have run its course. Without that distraction, a seismic shift in valuation among these emerging resources companies and a redefinition of their investment attractiveness should be more evident.

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¹ Rouwenhorst, K. Geert & Gorton, Gary B., *Facts and Fantasies about Commodity Futures*, 28 February 2005, Yale ICF Working Paper No. 04-20.