RFC Ambrian

The Alchemist

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Exchange Rate Monitor

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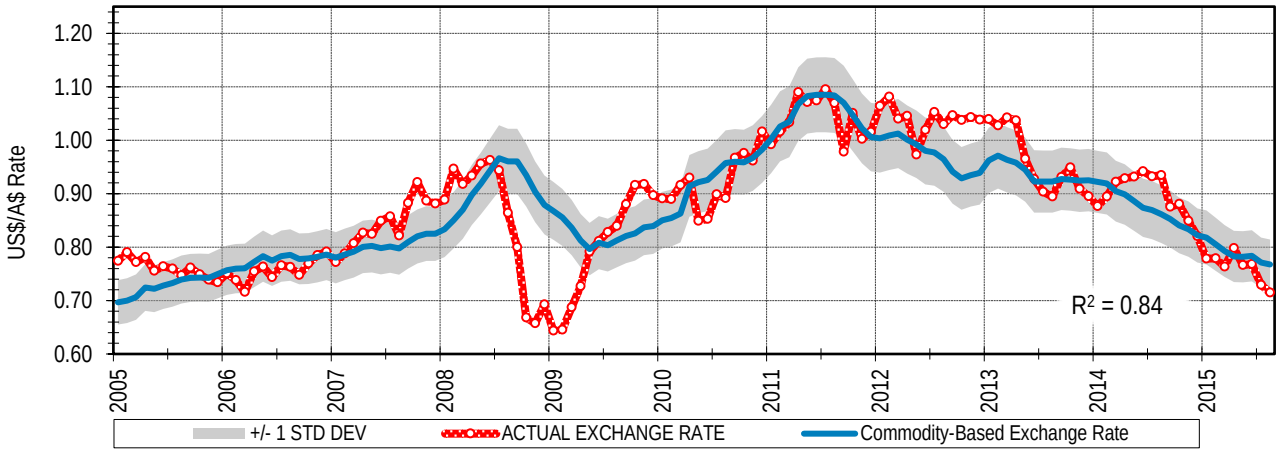
A number of compelling pieces of analysis are emerging debating where Chinese and US market developments will leave the Australian economy. With plenty of highly technical analysis becoming available, The Alchemist considers it timely to revisit the simple commodity price vs. A$ model and see what insight it can provide on current markets and implications for Australian commodities producers.

The model

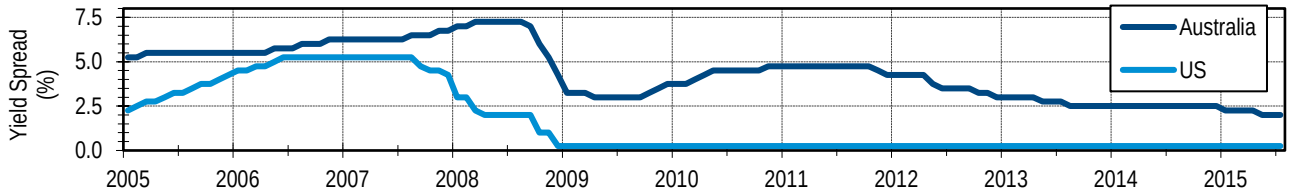
The Index of Commodity Prices ("ICP") is published monthly by the Reserve Bank of Australia ("RBA"), with historical records available from 1985. ICP constituent commodity weights are scaled to represent the value that each commodity contributes to Australian commodities exports. The index includes rural commodities (wool, barley, beef, etc.), base metals, bulks (iron ore, thermal and metallurgical coal), and a category for "other" which includes LNG, oil, gold, etc. A great deal of analysis can be conducted on this data but, for simplicity, The Alchemist uses a linear regression to show the relationship between this index and the actual US$/A$ exchange rate. A linear regression of US$-denominated all-commodities data against the exchange rate between 1985 and 1998 generates an estimate of the exchange rate that is within US$0.05 of the actual exchange rate in 89% of months modelled. The millennium marked a period of adjustment for the relationship and, after 2004, a similar relationship (Figure 1) formed that has held for the decade since. Over the more recent period, commodity-price exchange rate estimates are within US$0.05 of actual exchange rates in 69% of months.

Figure 1: Actual US$/A$ monthly average exchange rate compared to a regression of the RBA US$-denominated 'All Items' Commodity Index vs. the US$/A$ exchange rate



Source: RBA

Figure 2: US/Australian Target Interest Rates

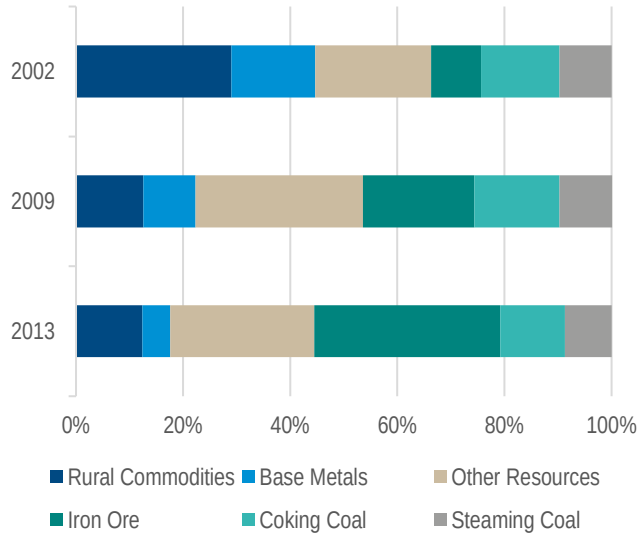


Source: RBA, US Dept of the Treasury

Several factors worth noting contributed to the altered relationship between commodities and the exchange rate.

1. Exports from Australia have changed in quantity and composition. In the 1990's, exports on average accounted for 17% of the Australian GDP. This average has risen to 20% across 2005-2014[1]. Commodities as a percentage of exports also increased, with minerals and fuels making up 26% of exports in 1991-1992 and 50% in 2013-2014[2]. In terms of composition, table 1 shows changes to the commodity weightings in the ICP since 2002. Over the period, iron ore has moved to become the dominant export commodity.

Table 1: RBA ICP commodity weights



Source: RBA Bulletin

2. Commodity-based derivatives have become available to hedgers and speculative traders. Between 2005 and 2015, the global annual number of derivative contracts for commodities increased from 874 million to over 3.7 billion[3]. As a result, early market data releases are highly traded upon. The resultant dislocations between the ICP-based expectations and actual exchange rates have become more responsive and pronounced.

3. US$/A$ yield spreads now account for a statistically significant portion of short-term exchange rate movement. This can be attributed to the emergence of carry trades. Movements of funds associated with a carry trade strategy are dictated by yield spreads between the two countries. Figure 2 shows US/Australian government target interest rates between 2005 and 2015, the same period as the updated linear regression.

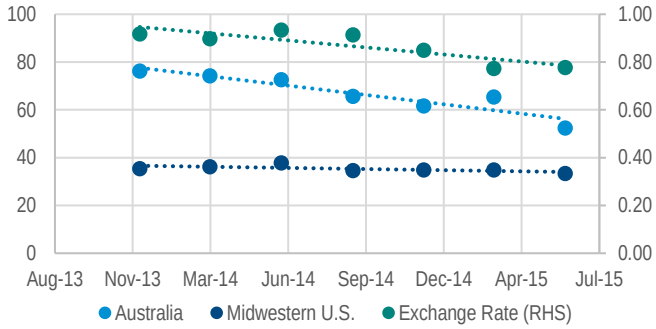
In spite of these changes, the dominant force remains movements in the commodity market, which have been shown to account for up to 80% of long-term exchange-rate movement. Simply put, over time, when commodity prices rise, the Australian dollar's value rises. Conversely when commodity prices fall, the Australian dollar falls.

What it means for Australian commodities producers

As a commodity-based currency, the Aussie dollar gives local producers a strong defensive position. In a market of falling commodity prices the exchange rate will prop up Australian dollar revenues while at the same time costs in US dollar terms will come down.

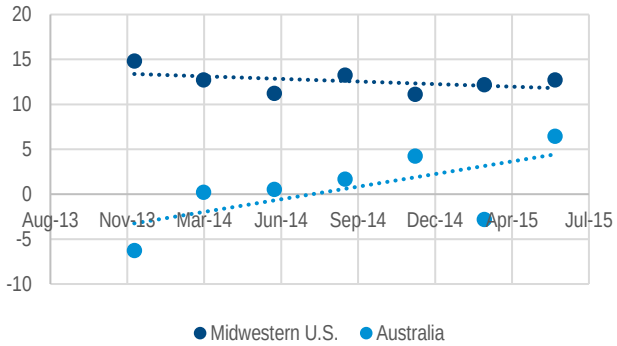
To demonstrate, the results of a single commodity producing company operating in Australia and the US can be broken out geographically. Figures 3 & 4 show selected quarterly costs and operating margins for Peabody Energy, a global coal producer, by location between 2013 and 2015.

Figure 3: Peabody Energy USD Operating costs per ton



Source: Peabody Energy 8-K reports, RBA

Figure 4: Peabody Energy US$ Operating margin per ton



Source: Peabody Energy, 8-K reports

Figure 3 demonstrates the effect of the falling exchange rate on US$ denominated production costs. In an environment of falling commodity prices, the US$ cost of producing in Australia decreases via a depreciating A$. This flows through to margins as shown in Figure 4, demonstrating that Australian producers have experienced an improvement in profitability with a decreasing Australian dollar. During a period when prices are low and production is being removed from the market, Australian dollar devaluation protects the margins and viability of Australian producers.

[1] World Bank
[2] "Fifty Years of Australia's Trade" Australian Government – Department of Foreign Affairs and Trade
[3] World Federation of Exchanges

While the above analysis focuses on a coal producer, this effect is occurring over all commodities to varying degrees. Over the past two years RFC Ambrian has observed that U.S. and China's iron ore producers have also moved from the middle of global cost curves to the high end, with the costs of US-based iron ore producers on average falling from the 60th percentile in 2011 to the 80th in 2015. China, with its currency pegged to the US dollar, has also seen its production become less competitive.

For the moment, concerns for the global economy have pushed the Australian dollar to below the levels predicted by current commodity prices. In the short term, this means that the protection already afforded by the exchange rate is increased, and positions Australian producers particularly well to wait out the storm.

RFC Ambrian Limited thealchemist@rfcambrian.com www.rfcambrian.com

Level 14
19-31 Pitt Street
Sydney NSW 2000

telephone +61 2 9250 0000
facsimile +61 2 9250 0001

Level 28, QV1 Building
250 St Georges Terrace
Perth WA 6000

telephone +61 8 9480 2500
facsimile +61 8 9480 2511

Condor House
10 St. Paul's Churchyard
London EC4M 8AL

telephone +44 (0)20 3440 6800
facsimile +44 (0)20 3440 6801