



Exchange Rates and Timber Prices

Do foreign exchange rates affect US timber prices? We recently looked at this issue with Dr. Brooks Mendell and Amanda Lang of Forisk Consulting. Forisk published some of our findings back in March. Here is a little more discussion of the research.

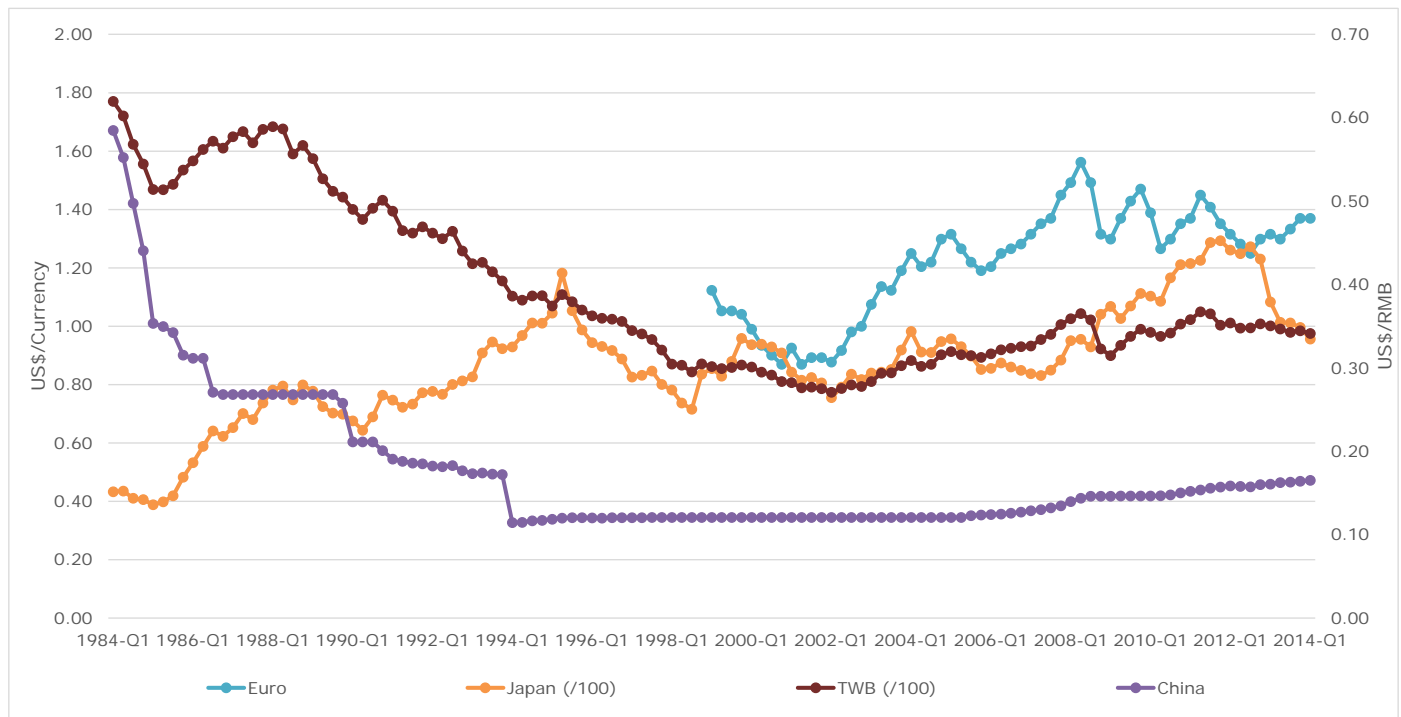
Exchange Rates

We start with exchange rates. Figure 1 shows the exchange rate for the US dollar with the currencies of three of the four largest economies in the world and the Broad Trade-Weighted US Dollar Index (TWB). **The chart shows the number of US dollars needed to buy one unit of the foreign currency.**

We had to do some manipulating to get all the data onto the chart. We divided the Japanese yen and the TWB by 100 and we put the Chinese RMB on the right-hand scale.

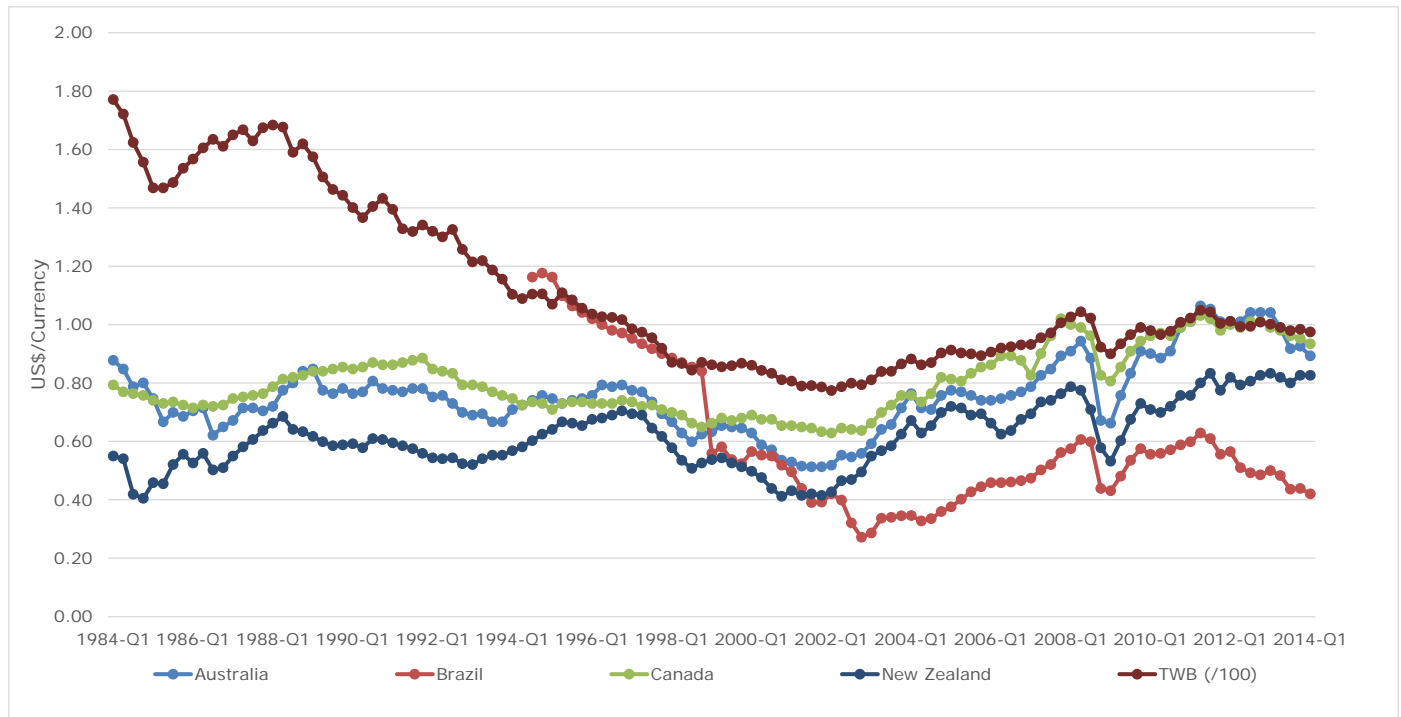
An increase indicates that the US dollar weakened against a currency, that it takes more US dollars to buy that currency—and a decrease indicates that the US dollar strengthened against that currency. The dollar strengthened considerably against the RMB and the TWB through the mid-1990s. It weakened against all four currencies beginning in 2002, but began to regain ground against the Euro and TWB in 2008. The yen kept gaining against the dollar through 2012, but has since fallen off sharply.

Figure 1. Large Economy Exchange Rates



Source: St. Louis Federal Reserve Bank

Figure 2. Timber Country Exchange Rates



Source: St. Louis Federal Reserve Bank

Figure 2 shows the exchange rate for four countries that are big wood producers and/or are popular with institutional timberland investors. (Uruguay is also a popular country for timberland investment, but its currency is pegged to the US dollar, so a chart of the Uruguayan peso would show a flat line and it would be perfectly correlated with the US dollar.)

The currencies for these four countries and the TWB all appear to have moved similarly over the past 30 years, and especially since the late 1990s. Note the drop in all five series in 2009.

Table 1 shows the correlation coefficients for the exchange rates for the past 30 years. The green cells are those where the correlation coefficient is greater than 0.50 and the red cells are those where the correlation coefficient is less than -0.50. Brazil has shown the weakest correlation with other currencies over the analysis period, while Japan has shown strong negative correlation with the Chinese RMB and the TWB.

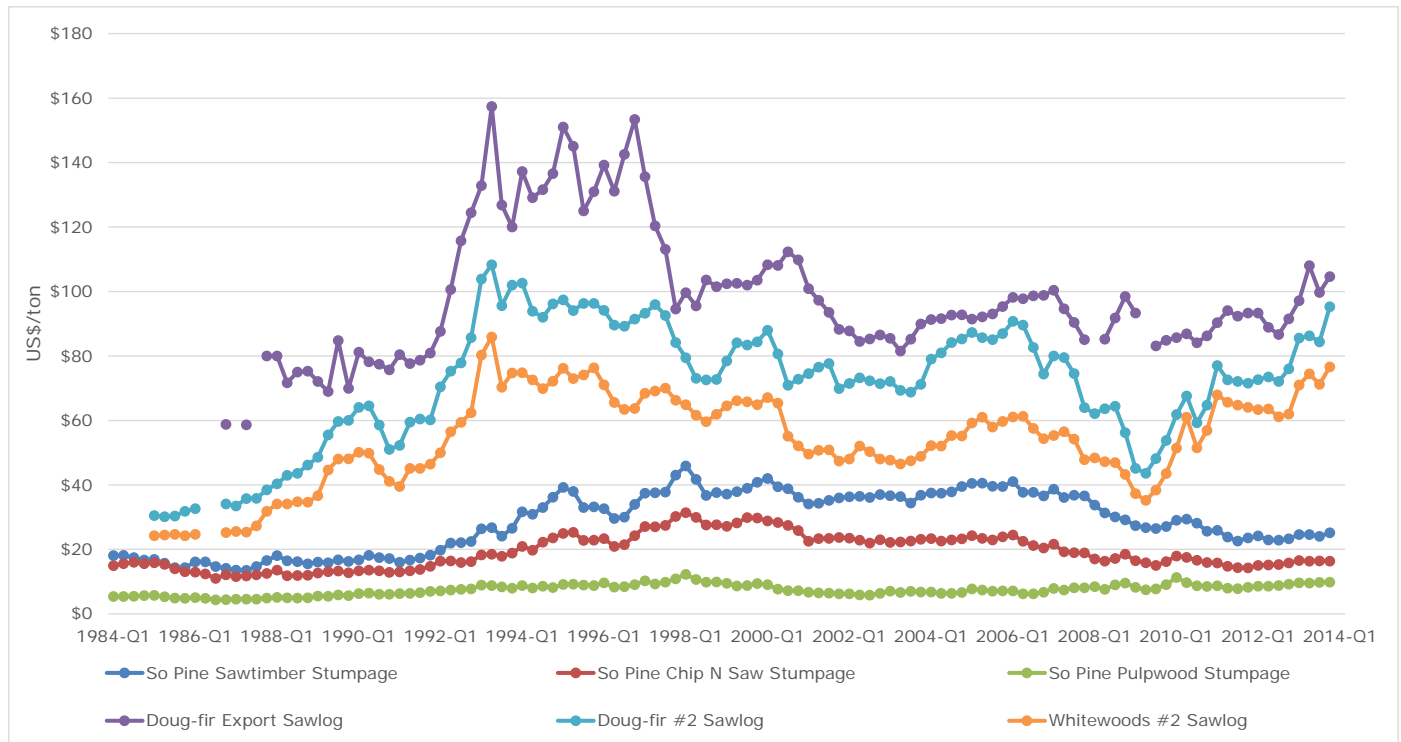
Timber Prices

Figure 3 shows southern and western timber prices since 1984. Table 2 shows the correlation coefficients for the wood prices.

Table 1. Correlation Coefficients of Exchange Rates, 1984-2014

	Australia	Brazil (since 1994)	Canada	China	Euro (since 1999)	Japan	New Zealand	TWB
Australia	1.0000	0.0640	0.9006	0.1181	0.8394	0.4616	0.8506	0.1350
Brazil (since 1994)		1.0000	-0.1764	-0.2452	0.3798	0.0574	0.0770	0.6043
Canada			1.0000	0.0066	0.8826	0.4680	0.7887	0.0655
China				1.0000	0.6643	-0.6793	-0.2572	0.8400
Euro (since 1999)					1.0000	0.5389	0.8774	0.9113
Japan						1.0000	0.6366	-0.5955
New Zealand							1.0000	-0.1482
TWB								1.0000

Figure 3. Southern and Western Timber Prices, nominal US\$/ton



Sources: *Timber Mart-South, Log Lines, Oregon Department of Forestry*

Table 2. Correlation Coefficients for Southern and Western Timber Prices, 1984-2014

	So Pine Sawtimber Stumpage	So Pine Chip N Saw Stumpage	So Pine Pulpwood Stumpage	Doug-fir Export Sawlog	Doug-fir #2 Sawlog	Whitewoods #2 Sawlog
So Pine Sawtimber Stumpage	1.0000	0.9228	0.5594	0.4014	0.6607	0.5415
So Pine Chip N Saw Stumpage		1.0000	0.5543	0.4743	0.6360	0.5381
So Pine Pulpwood Stumpage			1.0000	0.5402	0.6200	0.7457
Doug-fir Export Sawlog				1.0000	0.8166	0.7927
Doug-fir #2 Sawlog					1.0000	0.9455
Whitewoods #2 Sawlog						1.0000

All species and products are positively correlated with each other, and most are very strongly correlated. The domestic Doug-fir and whitewoods prices show the highest correlation, followed closely by the correlation between southern pine sawtimber and chip n saw. The weakest relationship is between Doug-fir export logs and the larger southern pine products, which is likely because the recent increase in west coast log prices has not been echoed in the South. The market for southern pine log exports has historically much smaller than the market for western log exports.

FX and Timber Prices

Table 3 shows the correlations among foreign exchange rates and US timber prices. We don't see an obvious pattern, nor do many of the relationships make sense.

We might expect, for example, a positive correlation between currencies and export timber prices. As a currency strengthens, US-sourced logs sold in terms of US dollars would become less expensive to international buyers so they could afford to bid more, so prices would rise in US dollars, but not the home currency.

Table 3. Correlation Coefficients for Exchange Rates and US Wood Prices, 1984-2014

	So Pine Sawtimber Stumpage	So Pine Chip N Saw Stumpage	So Pine Pulpwood Stumpage	Doug-fir Export Sawlog	Doug-fir #2 Sawlog	Whitewoods #2 Sawlog
Australia	-0.3038	-0.4582	0.2405	-0.1268	-0.0128	0.1663
Brazil (since 1994)	0.0702	0.2774	0.5743	0.8114	0.4667	0.6023
Canada	-0.2943	-0.5248	0.1740	-0.2990	-0.1031	0.0476
China	-0.7300	-0.5981	-0.5917	-0.5077	-0.7614	-0.6898
Euro (since 1999)	-0.5133	-0.7426	0.4596	-0.3108	-0.2653	0.0242
Japan	0.3755	0.1876	0.6112	0.2455	0.4527	0.5715
New Zealand	0.0322	-0.1890	0.3853	-0.0292	0.1628	0.2800
TWB	-0.8695	-0.7520	-0.6249	-0.2784	-0.6087	-0.5441

But the correlations are all over the range for the Doug-fir export logs—from a positive 0.81 for Brazil to a negative -0.51 for China. This is the opposite of what we'd expect for China. It has been importing large volumes of Doug-fir logs, the Doug-fir price has been increasing and the RMB has been strengthening against the dollar. The low correlation is likely being influenced by the first ten years of the data, where US timber prices were rising and the RMB was falling in value against the dollar.

But why should the Brazil real be strongly positively correlated with the price of export sawlogs—which it doesn't import? And why would the real be most strongly correlated with Doug-fir export logs and domestic whitewood logs, but less correlated with domestic Doug-fir logs when all the three price series are strongly correlated with each other?

Some of the currencies that are highly correlated with each other show different correlations with timber prices. For example, the dollars from Australia, Canada and New Zealand are all highly correlated (Table 1), but they exhibit varying degrees of correlation with different timber prices.

Also, since the export market for southern pine timber is very small, the value of the US dollar compared to other currencies should have little impact on southern pine timber prices.

Summary

We conclude that exchange rates have little direct impact on US timber prices and the apparently strong correlations are not indicators of cause and effect. Why might this be the case?

First, because timber prices are influenced by the demand for wood, and less so by the relative value of one currency compared to another. Strong economic growth (and demand for wood) can occur whether a currency is strengthening or weakening. The US dollar has strengthened against most of the currencies over the past 2 years, but its economy and demand for wood (as suggested by housing starts) are not growing strongly.

Second, the markets for the different timber species, products and grades differ in terms of the consumer products that are made from those timber "products" and in terms of the geographic markets where those consumer products are sold. So the prices for different types of timber will move in different directions even if the world's currencies move together.

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