

# The Takeaway

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## Understanding China's Currency Manipulation

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*The nominal value of a nation's currency is determined, to varying degrees, in the currency market. Since 2005, China's monetary regime has set the value of the Chinese Renminbi (RMB) rather than market forces. China's monetary policy has inspired debate about whether China is adhering to International Monetary Fund (IMF) protocols,<sup>1,2</sup> and whether China can be labeled a currency manipulator.<sup>3,4</sup> Our analysis of this issue using real exchange rates provides additional evidence that China is undervaluing its currency, and thereby artificially inflating its net exports—to the benefit of US consumers but at the expense of the US trade deficit.*

There are two important measures of the exchange rate between two countries. The first is the nominal exchange rate, which measures the amount of one currency you can get in trade for another currency (e.g. dollars



### WHAT'S THE TAKEAWAY?

Our analysis of real exchange rates suggests that China is manipulating its currency.

The consistently low value of China's currency increases Chinese exports to the US and decreases the prices consumers pay for them.

China manipulates its currency as a means to drive its predominantly export-oriented economy, contributing to their growth in the last decades.

for euros) and is the rate you see posted at the currency exchange or in the newspaper. The second is the real exchange rate, which is a measure of the amount of one country's goods you can get in exchange for another country's goods, and is the metric of choice for our analysis. The real exchange rate is the nominal exchange rate adjusted for price level differences in the two countries. Due to constantly changing market conditions, both nominal and real exchange rates are usually volatile unless they are controlled.

Our focus on the real exchange rate is critical and appropriate for this analysis because the real exchange rate drives the trade balance between countries. A twenty-one year time series of the real exchange rate between the United States and eight other countries, including China, can determine if China significantly deviates from a larger trend. If found, this could be grounds for la-

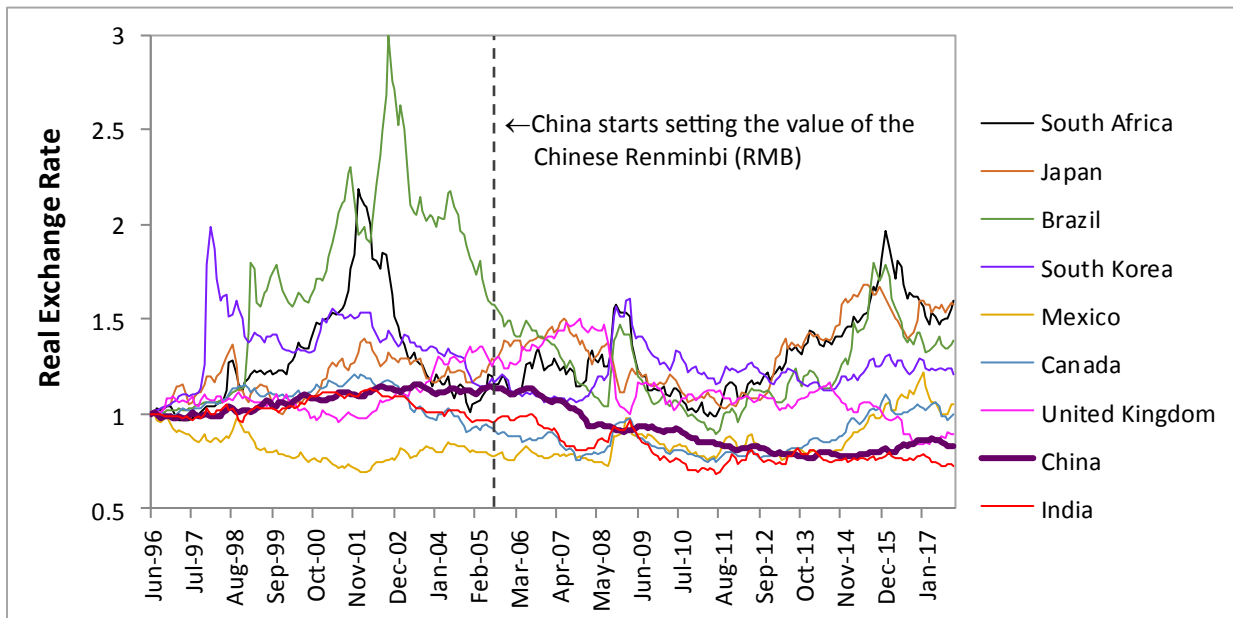
beling China as a currency manipulator. If China is manipulating its currency's value to improve its trade balance, we would expect to see a fall in the real exchange rate that is correlated with a rise in China's share of the US trade deficit.

**ANALYSIS AND APPLICATION**

To illustrate these comparisons, we first calculate and normalize the price level ratio and nominal exchange rate data. With these data, we then calculate the real exchange rate between the United States and all the other countries we examined. The results of our analysis are shown in Figure 1, where the real exchange rates represent the price of US goods relative to the goods of each country.

When the nominal exchange rate and price level ratio change congruently, the real exchange rate remains unchanged. On the oth-

**Figure 1: Real Exchange Rates Relative to the United States**



Source: Price data from the Organisation for Economic Co-operation and Development (OECD), nominal exchange rate data from the Federal Reserve Bank of St. Louis, plus authors' calculations

## *The data show patterns that are consistent with Chinese currency manipulation*

er hand, when the two variables diverge, the real exchange rates will show a corresponding change. Our results indicate that the real exchange rate between China and the United States fluctuates far less than the real exchange rate between the United States and other countries. Additionally, these results suggest that China's intervention into its exchange rate in 2005 was followed by a fall in the real exchange rate that is correlated with an increase in net exports to the United States. The data indicate that China's intervention into their currency valuation continues to result in the RMB showing a suspicious lack of market sensitivity.

Alternative explanations for falling real exchange rates, including falling Chinese inflation rates or positive net foreign direct investment (FDI) in China, do not adequately explain the results we have observed. According to World Bank inflation data for the past twenty years, China has had oscillating and overwhelmingly positive inflation rates. If the Chinese inflation rate exceeds the US inflation rate—and it usually has since 2004—then the US-China real exchange rate should be rising.<sup>5</sup> Yet, our results show this is not occurring, and a logical reason for this is that China's purposeful depression of its currency is keeping the exchange rate from adjusting in response to the difference in inflation rates. According to the Organization for Economic Co-operation and Development (OECD) data, net FDI into China has

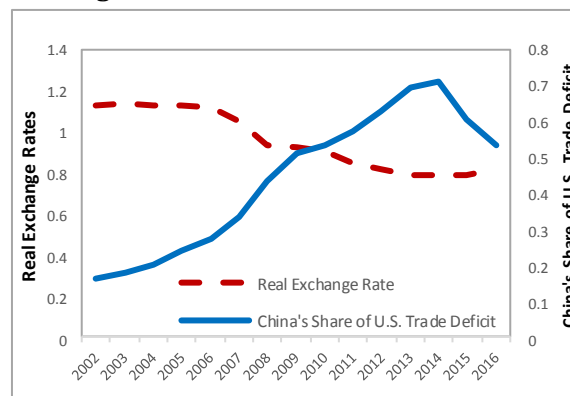
been positive since 2005, with outflows exceeding inflows only in 2016. FDI flows into China should appreciate its currency, and again this is not consistent with the real exchange rate derived in this analysis. The data show patterns that are consistent with Chinese currency manipulation.

### IMPLICATIONS

Though it is important to keep in mind that China's monetary policy impacts all of its trading partners, let us highlight how a depressed real exchange rate affects the United States in particular. Figure 2 shows how as the US-China real exchange rate fell, China's share of the US trade deficit rose. The degree of synchronization in this relationship demonstrates why China's monetary regime is such a salient issue for the United States.

How the United States should respond to China's currency manipulation is not clear. Cheaper Chinese goods benefit US consumers. Cheap Chinese imports hurt US producers, however, as they lose market share to foreign companies. If the US chooses to im-

**Figure 2: US-China Trade Balance and Real Exchange Rates**



Source: US trade balance data from the OECD, trade balance with China data from the US Census Bureau, plus authors' calculations

pose tariffs on goods benefiting from China's monetary regime, it is not guaranteed that this problem would be fully addressed, because China could offset the increase in tariffs with further currency changes. A potential policy solution to this issue is to offset the costs of US producers that are losing business; this can be done with something like a short-term adjustment stipend. It is not clear that taking direct action against China vis-à-vis the IMF or other international organization would benefit the United States in the long run, because domestic consumers benefit from China's artificially low prices.

There is another question prompted by our analysis that could be answered with further study. Considering the emphasis China has placed on exporting as a means for economic growth, our study reinforces the notion that China's economic ascent may be overstated. This would be even more apparent if further research can evaluate whether or not China is manipulating its exchange rate vis-à-vis its other major trading partners.

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Notes:

<sup>1</sup> Brown, J. (2012). US-China trade imbalance: The economic, political, and legal implications of Chinese currency manipulation. *BYU International Law & Management Review*, 9(1), 53-79.

<sup>2</sup> Mercurio, B. and Leung, C. (2009, October). Is China a 'Currency Manipulator'? The legitimacy of China's exchange regime under the current international legal framework. *International Lawyer*, 43(3), 1257-1300.

<sup>3</sup> Ogawa, E. and Sakane, M. (2006, April). The Chinese yuan after the Chinese exchange rate system reform. *RIETI Discussion Paper Series*, 06-E-019, 1-22.

<sup>4</sup> Elwell, C.K., Labonte, M., and Morrison, W.M. (2007, January). Is China a threat to the US economy? *Congressional Research Service*, RL33604.

<sup>5</sup> In the formula for the real exchange rate ( $\epsilon$ ) below,  $e$  = nominal exchange rate,  $p$  = Chinese CPI, and  $p^*$  = US CPI. As  $p$  increases,  $e$  must fall (increasing the value of the dollar), or  $\epsilon$  will rise.

$$\epsilon = e \frac{p}{p^*} \quad e = \frac{US\$}{RMB}$$

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