

## Currency Manipulation and its Distortion of Free Trade

By Arthur B. Laffer, Ph.D.<sup>1</sup>

### *Executive Summary and Introduction*

A prosperous economy is created via good economic policy and then getting out of the way to let America's amazing companies and citizens work, produce, and invest. The perfect pro-growth agenda includes: a low rate flat tax, spending restraint, sound money, minimal regulation, and free trade. While there are not many areas of agreement today on those policies between Republicans and Democrats, Republicans and Democrats should work together where they can. One such area would be working with President Obama to complete high standard trade agreements that effectively address tariff and non-tariff barriers. Completion of a well negotiated Trans-Pacific Partnership and the Transatlantic Trade and Investment Partnership, free trade agreements with most of the nations around the Pacific Ocean and the European Union, respectively, would benefit the United States. The complexities of today's interconnected global markets, however, bring new challenges to the proper construct of a high-standard 21<sup>st</sup> century free trade agreement.

The collapse of the gold standard in 1971 ushered many economies into a floating exchange rate system, allowing central banks to conduct independent policy as the key monetary tool. The interest rate was no longer forced to hold the value of the currency against its parity. The "floating" of exchange rates meant that central banks could focus on price stabilization and setting the path for domestic inflation. In other words, countries were no longer forced to accept inflation exported by trading partners, since floating exchange rates act as an automatic stabilizer to changes in external inflation. The move to floating exchange rates has also reignited one of the key policy questions of the past century: what happens when one country as a policy initiative devalues its currency against a trading partner's currency?

If a devaluation is completely offset by domestic price changes, the law of one price can be used to identify three possible responses to a devaluation. If, for example, the U.S. dollar is devalued against the British pound, any of the following could occur: (1) prices in U.S. dollars could rise by an amount equal to the dollar devaluation; (2) prices in British pounds could fall by the amount of the devaluation; or (3) some combination of (1) and (2). If the U.S. devalues the dollar by 11.7 percent, then prices in U.S. dollars will rise, relative to the prices in the other country's currency, by precisely 11.7 percent. Whether it is a revaluation or a devaluation, the law of one prices means that the exchange rate change leads to offsetting price changes in each and every product in both countries or, in dynamic terms, inflation rates.

The adjustment process described above assumes that neither monetary authority takes additional action to "sterilize" the devaluation via selling or buying bonds domestically. Sterilization essentially removes the potential inflationary effect of the devaluation on the money supply by absorbing the excess currency that was introduced from the devaluation.

When a country takes persistent, unilateral efforts to devalue its currency and sterilize price changes, it is trying to change its real exchange rate and is often called currency manipulation or "beggar-thy-neighbor" policies. These policies can undermine the system of floating exchange rates at the expense of the currency manipulator's trading partners. The traditional logic for devaluing a currency that seduces politicians has it that devaluation makes domestic goods cheaper relative to foreign goods. By raising import prices relative to export prices, world demand for domestically produced goods is stimulated. Undervaluation of a country's currency can improve a country's export competitiveness. Rather than allowing the domestic currency to appreciate such that domestic prices adhere to market fundamentals, some countries have engaged in currency manipulation as part of a long-term, export-driven growth tactic.

In fact, continued depreciation of the real exchange rate will not only increase a country's competitiveness from a relative price standpoint, but will also raise that country's exports over time as producers are able to diversify their goods and manufacture at a much larger scale than domestic demand would have otherwise supported. This is particularly important in industries where scale-of-production is critical. Because a devaluation leads domestic consumers to import less foreign-produced products, the home country will have more production in the foreign import substitute industries. Therefore, domestic employment will rise, domestic unemployment will fall and the devaluation will benefit employment in the home economy. The home country, in effect, would be competitively devaluing its currency and exporting domestic unemployment to trading partner countries. That is the politically seductive logic of how exchange rate

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<sup>1</sup> I would like to thank Collette Wheeler for her prodigious assistance on this paper. In every aspect of the research, organization and writing, this report simply would not have been possible without her tireless efforts.

policies can affect the domestic economy. While such “beggar-thy-neighbor” policies are explicitly forbidden by the IMF Articles of Agreement, there are no enumerated enforcement procedures to ensure compliance.

Successful currency manipulation inhibits the exchange rate from acting as an automatic stabilizer to macroeconomic events, and thereby leads to growth and trade imbalances. Currency manipulation has therefore, in part, inhibited the world from fully recovering from the financial crisis. For instance, real growth has been tepid at best for developed countries that do not intervene in the foreign exchange market, while countries that have been identified as currency interventionists have experienced a much steadier pace of recovery from the financial crisis—this has been dubbed as the two-speed global recovery.

The two-speed recovery has shown, in part, that persistent currency undervaluation has benefitted the currency manipulators at the expense of countries allowing the flexible adjustment of exchange rates, since the latter’s export-related activities must quickly respond to the external balances caused by trading partners’ currency devaluations. As of 2012, the scope of currency manipulation is estimated to be approximately \$1.5 trillion per year, with about 60 percent of these flows channeling into dollar assets. Moreover, the impact of currency manipulation has potentially dampened the U.S. current account by about 4 percent of GDP in 2012, which was approximately the size of the U.S. output gap in the corresponding year. While providing an exact number of U.S. jobs lost due directly to currency manipulation is tricky, it is likely that millions of jobs in the U.S. were lost as a result of current account imbalances that were generated, in part, by currency manipulation.

These spillover effects would likely disappear if exchange rates were liberalized to better exhibit market fundamentals, which would also potentially improve welfare in undervalued currencies’ economies by improving domestic demand. In fact, further movement toward freely floating exchange rates and the removal of capital account restrictions will help rebalance global growth, which in turn will reduce financial and economic risk. Moreover, research has found that future financial crises can be, in part, predicted by large current account imbalances as such distortions suggest the misallocation of capital. In fact, earlier studies from Laffer Associates confirm this link between current account imbalances and financial crises helped explain the Asian currency crisis in the late 1990’s.

Considering the employment and economic impact of currency manipulation on the United States and given that the United States is negotiating a free trade agreement, the Trans-Pacific Partnership (TPP), to avoid further harm and ensure the agreement’s benefits aren’t undermined by countries that have a history of manipulating their currencies, it is vital that the TPP include defined monetary policy standards and a means to identify currency manipulators and enforce violations.

The IMF has published what it sees as indicators of manipulation that demonstrate when a country is not keeping its commitments. Using those indicators, others have proposed a three-part test that would be an effective way to address currency manipulation in future free trade agreements. The test asks three key questions that if all are answered in the affirmative identify that country as a currency manipulator:

- Did the nation have a current account surplus over the six-month period in question?
- Did it add to its foreign exchange reserves over that same six-month period?
- Are its foreign exchange reserves more than sufficient (i.e., greater than three months normal imports)?

By including this test in all future trade agreements such as the Trans-Pacific Partnership (TPP), global leaders can adopt trade norms that lead to an even playing field for all member nations, and compel the IMF and WTO to adopt similar practices. If TPP does not include such a discipline, it is reasonable to expect certain countries in the negotiations that have historically and repeatedly manipulated their currencies to continue to do so, with a profound negative impact on the U.S. economy and jobs market.

Japan’s experience with currency intervention is also highlighted in this report. As a consequence of the Bank of Japan’s exceedingly accommodative monetary policy, the yen has depreciated over 45 percent against the dollar in nominal terms since late 2012. This devaluation coincides with the imposition of Abenomics, one “arrow” of which is substantial quantitative easing.

Since introducing quantitative easing in 2010, Japan has also added \$152,688 million in foreign exchange reserves, nearly a 15 percent increase. Additionally, with the exception of Q4 2013 and Q1 2014, the current account has been positive since the middle of 2010, albeit growing smaller as the value of imports becomes a larger share of total trade. The number of months of imports that foreign reserves can buy has declined from 16.43 in September 2010 to 14.57 in October 2014—although the decline is indicative that excess foreign reserves are shrinking, the magnitude is nonetheless still exceptionally disproportionate.

Given the excess of foreign reserves, presence of a current account surplus, historical precedent, and significant policy changes over the past month, Japan appears to be falling back into its past practice of foisting much of the burden of its flawed policies onto its trade partners instead of undertaking the necessary structural reforms. Japan’s experience highlights the importance of introducing criteria in future trade agreements to help identify currency interventionists.

There are certain concepts in the field of international economics that can help one think about how the global economy actually works. The nominal exchange rate, very simply, is the price of one country's currency in terms of another country's currency, i.e. the U.S. dollar (USD) price of the British pound (GBP), and is a concept fundamental to the understanding of international economics.

Additionally, the real exchange rate measures the prices of one country's goods and services relative to another country's using both nominal exchange rates and price levels. While there are many different approaches to measure the real exchange rate, at its core, it is essentially the purchasing power of one currency in relation to another currency's after being adjusted by the nominal exchange rate. Using the dollar and pound, the equation below summarizes the relationship between the real exchange rate, the nominal exchange rate ( $E_{\$/\pounds}$ ), the price level in the UK ( $P_{UK}$ ), and the price level in the U.S. ( $P_{U.S.}$ ).

$$\text{Real Exchange Rate } (\$/\pounds) = (E_{\$/\pounds} \cdot P_{UK}) / P_{U.S.}$$

The most basic concept in economics is price arbitrage for profit maximization. In relation to exchange rates, the opportunity to arbitrage prices exists when the price of good  $x$  is higher in one location than it is in another location. When there are such arbitrage opportunities, enterprising individuals will buy  $x$  in the cheaper location, transport the product to the higher-price location, and then sell that product at a profit, thereby making exceptional returns.<sup>2</sup> The price differential will continue to be arbitrated away until the prices in the two locations are equalized.

In terms of the global economy, the first analytic step is to observe the prices of identical goods or factors of production, such as labor, when there are no transportation costs. In such situations, prices of either goods or factors should be the same in all locations. This is called the "law of one price," or purchasing power parity, and is a static equilibrium condition.<sup>3</sup> In practice there usually are transportation costs, taxes, regulations, requirements, and other impediments to price arbitrage that may upset this relationship, making the price of a product the easiest part of the whole calculation:

$$\text{U.S. Domestic Price of a Good } (\$/\text{unit}) = (\pounds/\text{unit}) \cdot (\$/\pounds)$$

In spite of these frictions, the static arbitrage condition restated is that goods the world over should move toward equality of price. This tendency for goods prices to move toward the law of one price truly is a powerful force in the global marketplace. In dynamic terms, the rate of change in the USD price of good  $x$  should be the same whether you are actually buying the product in dollars or converting dollars to pounds and then buying the product in pounds.<sup>4</sup> More generally, the percentage increase in the dollar price of  $x$  should equal the percentage increase in the pound price of  $x$  plus the percentage increase in the dollar price of the pound. This is the dynamic arbitrage condition.

When analyzing exchange rates, the dynamic arbitrage condition is enormously helpful and means that exchange rates will move to offset the difference between USD inflation and GBP inflation. Thus differences in inflation should, in part, translate into differences in exchange rate movements resulting from arbitrage conditions. The law of one price is a consequence of arbitrage and, when monetary policy is incorporated, becomes the monetary approach to inflation and exchange rates—exchange rates will adjust to offset inflation differentials.

The law of one price or the purchasing power parity approach to exchange rates can then be augmented by incorporating money supply and central bank actions to account for inflation differences across nations. The incorporation of monetary policy yields the monetary approach to the balance of payments.<sup>5</sup> Why else would inflation rates differ across countries if not for monetary policy differences? They probably wouldn't.

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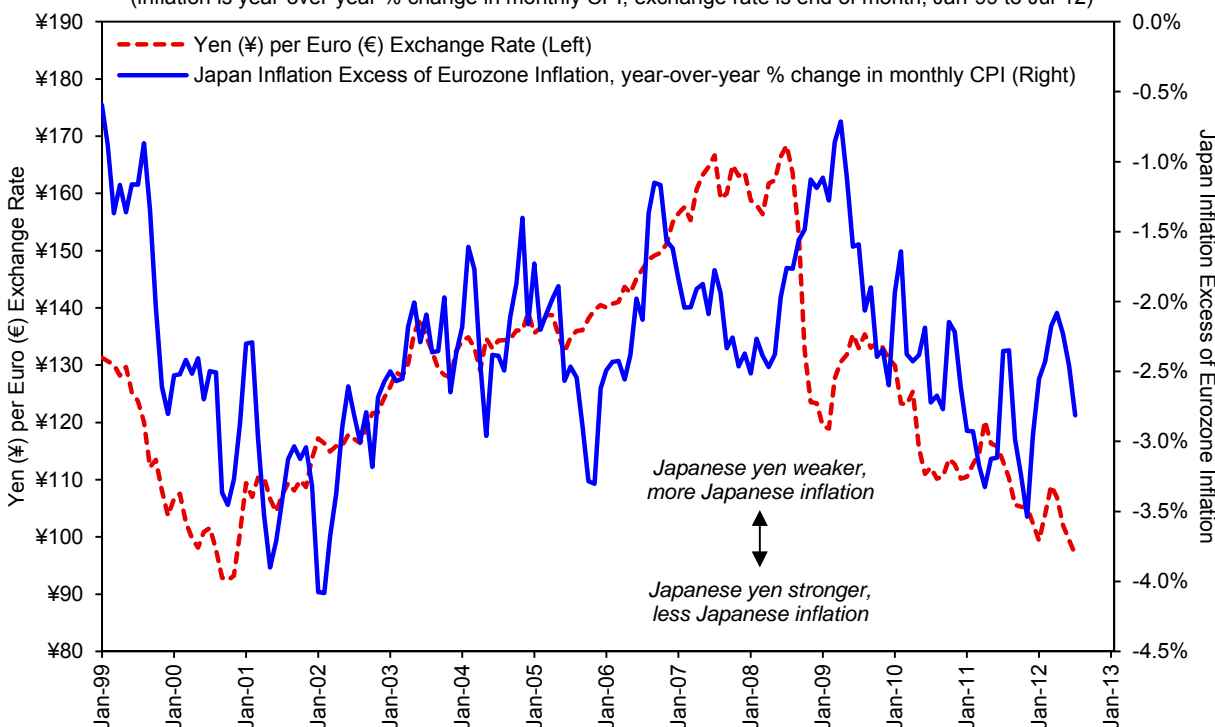
<sup>2</sup> Purchasing the product in the cheaper location will raise the price of  $x$  in that cheaper location, while selling the product in the higher price location will lower the price from increasing the supply of  $x$ .

<sup>3</sup> The pound-sterling (GBP) price of a barrel of oil, for example, should equal the dollar (USD) price of a barrel of oil times the GBP price of a USD. That is the static arbitrage condition for oil.

<sup>4</sup> In other words, if USD prices are going up 10% per annum, and GBP prices are going up 5% per annum, then the dollar price of the pound should be rising at 5% per annum.

<sup>5</sup> The monetary approach to the balance of payments is a conceptual framework that accounts for different rates of inflation and changing exchange rates—again, all based solely on the dynamic arbitrage condition combined with domestic monetary policies.

Figure 1  
**Relationship between Exchange Rates and Inflation: Japan and Eurozone**  
 (inflation is year-over-year % change in monthly CPI, exchange rate is end of month, Jan-99 to Jul-12)



Source: Federal Reserve Board of Governors, Eurostat, Japan Ministry of Internal Affairs

*International Trade Theory: Ricardian Equilibrium & Comparative Advantage*

Countries will produce and export goods for which they have a comparative advantage and import goods for which they are comparatively disadvantaged. The previous section on the law of one price would be applicable even if there were only one product in the world.<sup>6</sup> But as we all know, there is a myriad of products in this diverse world of ours.<sup>7</sup> It's not obvious how something like the price of haircuts is arbitrated across countries, let alone the price of bananas in the winter between the tropics and the frozen north. Pure purchasing power parity is the theory in a single product world. But now we can move to a multi-product world.<sup>8</sup>

In the 19<sup>th</sup> century, English economist David Ricardo developed the "Ricardian Synthesis," and introduced to the world the notion of comparative advantage in trade. The concept of comparative advantage explains international trade in goods and services in which countries export and import various products.<sup>9</sup> The resultant gains from trade are again driven by arbitrage and the individual's profit motive, and is applicable even for the case where one country produces all products "more efficiently" than another country.<sup>10</sup>

At a high level of generalization, comparative advantage explains why some countries import a product and why other countries export that product. The theory of comparative advantage also defines the equilibrium "terms-of-trade" (an exchange rate adjusted for purchasing power parity, which is very closely related to the real exchange rate) that determines the total amount of trade in each product amongst the many countries on the planet. Comparative advantage shows why free trade is also best for everyone.<sup>11</sup>

In simple terms, we can produce some products better than foreigners can produce them, and foreigners can produce other products better than we do. Both we and foreigners would be foolish in the extreme if we didn't sell those products that are made better domestically and buy those products which are made better in the other country. It's a win/win for everyone. With these general thoughts in mind, let's now drop down into the weeds and figure how the "terms-of-trade" is determined.

First, let's hypothetically take every single product that could be produced in the U.S. and then catalog the domestic cost to produce each of those products in USD.<sup>12</sup> Next, let's go to the UK and list the GBP cost to produce the same products we listed for the U.S. So now we have two columns of product costs; the first column is the dollar cost in the U.S. to produce the product, and the second is the

<sup>6</sup> The price of that one product in any currency should equal the price in any other currency times the exchange rate.  
<sup>7</sup> While the law of one price is "correct," its applicability is lessened because the real world can be far more complicated.  
<sup>8</sup> But again, remember that the law of one price should hold for each product in a multiproduct world but only after arbitrage and impediments to trade are taken into consideration. The law of one price's usefulness however, as you will quickly see, is limited to specific questions.  
<sup>9</sup> David Ricardo, *The Principles of Political Economy and Taxation*, Penguin Books, 1817.  
<sup>10</sup> The Ricardian notion of comparative advantage becomes quite helpful in putting concepts such as the terms-of-trade and then exchange rates into perspective.  
<sup>11</sup> The real exchange rate measures the costs to produce domestically over the foreign costs when expressed in the same currency. The terms of trade measures the price of exports in relation to imports. However, the two track each other very closely.  
<sup>12</sup> Note carefully, I'm not writing about the price of the product after trade, which should be the same everywhere, but the cost to produce the product in the absence of trade.

pound cost in the U.K. to produce that same product. The third column we'll construct from the first two columns is the ratio of column (1) cost in U.S. dollars divided by column (2) cost in U.K. pounds. This third column is the USD-to-GBP cost ratio for each and every product, which is the domestic cost in USD divided by the domestic cost in GBP. As you can probably guess, this third column is very close to being a listing of separate purchasing power parity exchange rates for each product at cost in its home country.

For example, assume a car costs \$1,000 to produce in the U.S., and £250 to produce in the U.K. The ratio of the price of the car in USD to GBP is 4 to 1, dollars to pounds.<sup>13</sup> Carrying on, we calculate the cost ratio for each and every product.<sup>14</sup> Once all the production cost ratios have been calculated for all those products, the production cost ratios should then be ranked from highest to lowest. Every product that can be made in the U.S. is listed and ranked according to the production cost ratio of dollars to pounds for each good. At the top of the list where production cost ratios are ranked, U.S. costs are the highest relative to GBP costs. As we move down the list, the cost ratios fall until the list stops where the U.S. production cost ratio of dollars is the lowest relative to GBP. The first product in our ranking costs more to produce in USD per GBP than any other product. As we move down the rankings, the dollar cost per pound declines. When we reach the last product in our ranking it has the lowest dollar cost per GBP of all products.

As you should be able to see, the U.S. is relatively less efficient at producing those products where the cost ratio of dollars to pounds is high and more efficient relatively where the dollar/pound cost ratio is low. In effect, what we have done is to calculate what the exchange rate would have to be for every product to achieve purchasing power parity were there is no trade.

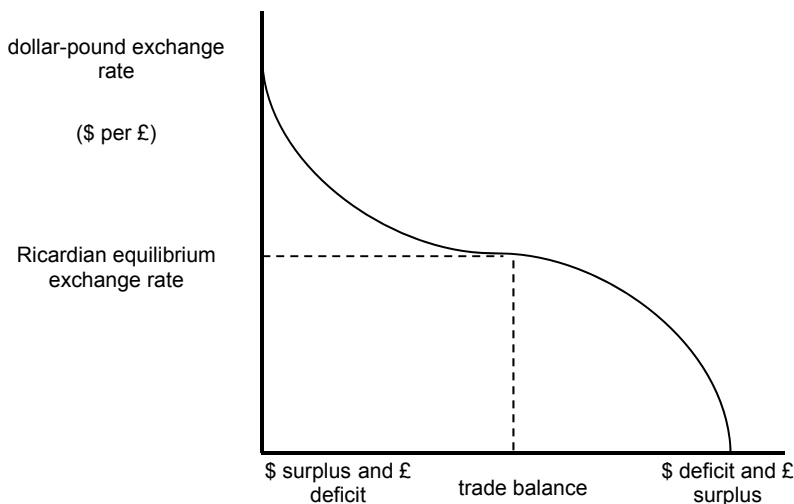
Because we're describing the dollar to pound relative marginal cost of producing each and every product (e.g. the ratio of dollar to pound production costs) these ratios are effectively organized into a supply schedule. The highest USD to GBP product is on the one end of the ranking where U.K. production costs are (relative to the U.S.) the most efficient—those goods the U.S. would most likely import rather than produce domestically—and the lowest USD to GBP product is on the other end where U.S. production costs are (relative to the U.K.) most efficient—those goods the U.S. would most likely produce for domestic consumption and export. When a product's ratio is high the U.S. will most likely import that good from the UK because it is cheaper to import from the U.K. than it is to produce at home, given the exchange ratios.

Looking at any one product no matter the cost ratio of dollars to pounds, if the actual dollar-pound exchange rate falls (i.e. the dollar strengthens vis-à-vis the pound), the U.S. would most likely want to import more of that product and/or export less of that product. For the U.K., a declining dollar-pound exchange rate would do the opposite. A falling dollar-pound actual exchange rate makes the U.S. advantage of producing that product less and the U.S. advantage of buying that product from the U.K. greater. The above statement is true for each and every product in any country.

Therefore if we look at all products, we can run a mental experiment of lowering the dollar-pound exchange rate and, as we do, adding up all exports and subtracting all imports for each and every product at each and every exchange rate. Adding up all exports and subtracting all imports is nothing more than calculating the hypothetical trade balance at each and every dollar-pound exchange rate (see Figure 3).

When the dollar-pound exchange rate is high, the U.S. will have a comparative advantage in lots of products and a comparative disadvantage in but a few. The U.S. will export lots and lots to the U.K. and import little. As the dollar-pound exchange rate declines, the U.S. will export less and less of each product it does export, there will be fewer products exported from the U.S., there will be more products imported into the U.S. and finally there will be more and more imported of each product the U.S. does import. In Figure 2 below this hypothetical relationship is illustrated.

Figure 2



Somewhere along the spectrum of product exchange rates is the Ricardian equilibrium exchange rate. At this Ricardian equilibrium exchange rate, the dollar value of all imports is equal to the dollar value of all exports. This equilibrium also is where the pound value of British exports equals the pound value of British imports (see Figure 2).

<sup>13</sup> If cars were the only good in the world then the purchasing power exchange rate would be \$4 to the £.

<sup>14</sup> For some of the products, the production cost ratio will be 4:1; for others, 8:1; some will be 16:1; and for still others 0.1:1.

Ricardo made the proposition that there exists a unique equilibrium exchange rate where the dollar value of all imports is exactly equal to the dollar value of all exports. This Ricardian equilibrium exchange rate—or dollar-pound exchange rate—occurs where the dollar value of all imports of each and every product with a cost ratio higher than the equilibrium exchange rate is exactly equal to the dollar value of all exports from all products where the dollar-pound cost ratio is less than the equilibrium exchange rate.<sup>15</sup> Although by no means the focus of this report as the subject itself could constitute its own report (if not textbook), the equilibrium exchange rate for a number of currencies can be estimated using the methodology employed by Cline as of April 2014.<sup>16</sup>

If exchange rates are evaluated, then raised or lowered, the result is that the total value of all U.K. exports/U.S. imports is exactly equal to the U.S. exports/U.K. imports. This is the concept of the Ricardian equilibrium price. The U.S. exchanges goods with foreign partners. The U.S. produces some goods relatively cheaper than foreign partners, while foreign partners produce some goods relatively cheaper than does the U.S. The U.S. exports those goods for which it has a comparative advantage in exchange for goods imported that the foreign partner can produce at a comparative advantage.

Even if the U.S. could produce all goods more efficiently than its partner, trade still makes sense because the cost ratio is always chosen to balance trade.<sup>17,18</sup> In such a case, trade allows the foreign partner to specialize in the production of a good that the U.S. is *relatively* less skilled at producing. In turn, the U.S. is able to specialize in the production of the good where the U.S. is more skilled relatively, i.e. where the U.S. produces the product better.<sup>19,20</sup> It is a win-win situation. Both the U.S. and foreigners get to consume products from where they are produced the cheapest and get to produce products where the incomes generated are the highest. Both parties are better off. In these cases there are both production gains from trade and consumption gains from trade.

These are the gains from trade. Both consumers and producers are better off. This is comparative advantage. The U.S. has a comparative advantage in some products, and the U.K. has a comparative advantage in other products. The Ricardian equilibrium exchange rate exists where exports equal imports in USD terms, and in the same breath, exports equal imports in GBP terms. In the product spectrum described in Figure 3, a U.S. trade surplus occurs when the actual dollar-pound exchange rate is higher than the equilibrium rate. And, the U.S. surplus declines as the actual dollar-pound exchange rate declines, crossing zero at the Ricardian equilibrium exchange rate and then becoming ever-increasing U.S. deficits as the dollar-pound exchange rate continues to fall.

In other words, the lower the exchange rate (the lower the dollar price of the pound, i.e. the stronger the dollar), the more the U.S. will import of every product it imports, the less it will export of every product it exports, while exports increasingly become imports and the larger the U.S. trade deficit will be. Remember, this is just a hypothetical exercise showing the Ricardian relationship between the exchange rate, the terms-of-trade and the trade balance. So far there is nothing in economics that will cause this to happen. That comes in our next section.

The higher the dollar price of the pound (i.e. the weaker the dollar), the greater will be the U.S. trade surplus. The lower the dollar price of the pound, the greater will be the U.S. trade deficit. The Ricardian balance of comparative advantage serves as an exchange rate and a balance of trade relationship. The important point to retain from this section of this paper that will be critical to the next section of this paper is that there is a unique terms-of-trade or exchange rate associated with any given trade surplus or deficit.

### *Capital Flows, Exchange Rates, and Trade*

Imagine 175 countries chalked out on a large table top with boundaries that completely occupy the tabletop. And also imagine that each of these countries specifically—and the global system generally—is at equilibrium. An investor, seeking risk-adjusted after-tax returns for his portfolio, considers in which countries he shall invest and what the yields will be on his investments. For each country and for each investor, there is an exact asset allocation of investments for each country and the world as a whole. With the world in perfect equilibrium, no investor will want to alter his portfolio either by asset or by country. Everyone is precisely content with what he has.

Now imagine one country disrupts this serene balance. Imagine country 87 cuts tax rates or reduces government spending or runs a sounder monetary policy or limits unnecessary regulations or reduces barriers to trade. With lower tax rates or the other supply side improvements in country 87, after-tax returns on all assets in country 87 will increase. Investors everywhere will seek to increase their asset allocations to country 87 and symmetrically reduce their asset allocations in the other 174 countries. In a primitive world, each investor will physically move some capital from every country except country 87 into country 87. They will move just enough of each type of capital from and to the appropriate countries until serene balance is reestablished. Because investors move capital into country 87, country 87 will now run a capital surplus and, in order for its balance of payments to actually balance, must also run a trade deficit. The units of capital will not only physically move from one country to another resulting in trade surpluses and deficits, but the owners of those units of capital will now own capital in different countries, resulting in offsetting capital account deficits and surpluses.

Going back to our table top covered with chalked-in countries, machines and other pieces of capital will migrate from countries 1 through 86 and 88 through 175 into country 87. Each machine that goes from any one country into country 87 will be recorded as an export (an increase in the trade surplus) from the country it left and as an import (an increase in the trade deficit) for country 87. By the rules of accounting, a trade surplus is also a capital deficit, and a trade deficit is a capital surplus. The owners of the now-moved capital

<sup>15</sup> While I won't show it here, what's true for two countries is equally as true for many countries. The description and calculations are far more confusing, but the principle is the same.

<sup>16</sup> The Peterson Institute for International Economics offers an interactive map on their website that calculates the magnitude of currency undervaluation and overvaluation from its fundamental equilibrium exchange rate (<http://www.iie.com/interact/feers/map.html>). The estimates are based on the following study: William Cline, "Estimates of Fundamental Equilibrium Exchange Rates, May 2014," The Peterson Institute for International Economics, May 2014.

<sup>17</sup> G.D.A. MacDougall, "British and American Exports: A Study Suggested by the Theory of Comparative Costs," *The Economic Journal*, Vol. 61, December 1951.

<sup>18</sup> Bela Balassa, "An Empirical Demonstration of Classical Comparative Cost Theory," *Review of Economics and Statistics*, Vol. 45, August 1963.

<sup>19</sup> Bertil Ohlin, *Interregional and International Trade*, Harvard University Press, 1933.

<sup>20</sup> Paul Samuelson, "International trade and the equalisation of factor prices." *The Economic Journal*, 1948.

will own that same capital in a different country—in this case country 87. What is interesting and special about this approach to the balance of trade is that economic policies drive capital flows, which in turn determine the trade balance.

And now bringing in the Ricardian view of comparative advantage, the trade balance *pari passu* determines the terms-of-trade (see Figure 2 from previous section). As the final twist, harken back to the law of one price and the monetary approach to the balance of payments, we thus determine exchange rates and relative inflation. There really is no more.

In the immediate post-World War II period, economist Sidney Alexander postulated what became the absorption approach to the balance of trade—exports minus imports.<sup>21</sup> Countries, he argued, that have good economic policies will thereby also attract capital from everywhere. The after-tax yields on capital in these well-run countries will entice foreign investors to increase their investments in these countries relative to countries where after-tax yields are lower and policies are worse. Additionally, domestic investors in higher after-tax yield, better-run countries will also invest more in their own countries by reducing the amounts they invest abroad. All in all, countries that move to economically sound policies will attract capital, which comes in the form of a trade deficit/capital surplus via currency appreciation. The trade deficit/capital surplus, in turn, determines the terms-of-trade. In order to export less and import more, a country's goods have to become less competitive, i.e. that country's terms-of-trade have to improve, which is one and the same as a rise in the terms-of-trade. Ricardo, meet Alexander.

Capital inflows occur via the movement of traded goods. In our current world there are lots of examples of countries with trade deficits, capital surpluses and good economic policies. There are also lots of examples of bad economic policies, trade surpluses and capital flight. Imagine what has happened to Japan, for example, during the past quarter century (since the end of 1989 to be precise).

Starting in 1990, Japan moved from a sound, supply side set of economic policies to anti-growth tax increases, stimulus spending with huge government deficits and debt, and massive public and private unfunded liabilities in their pensions. The collapse in their economy and stock market has been catastrophic, as will be discussed in full detail in subsequent sections of this report.

For now, to see the effects on Japan's trade balance, capital flows and exchange rates, imagine there is a machine, say, in the far north of Hokkaido. Because of Japan's high taxes, unfunded liabilities and other ill-conceived policies, this machine has a negative actual and expected after-tax rate of return in Japan. What can investors and capital owners do? Quite simply, they can put that machine on a lorry, and then drive that machine down to Tokyo Harbor. They can then load that machine onto a ship in Tokyo Harbor and send that ship over to the United States. Once in the United States, the investor/owners offload that machine and put it onto another truck, only now in the U.S. Then, that machine can be transshipped to, say, Kansas where the machine is put into a new factory. In the new factory, the machine has a positive actual and expected after-tax rate of return. In Japan, the machine had a negative rate of return. The machine owner has just arbitrated after-tax rates of return.

By moving that machine from Hokkaido, Japan to Kansas, United States, the machine became a Japanese export. And when offloaded in the U.S., that machine became a U.S. import. The machine that Japan exported represents an increase in the Japanese trade surplus. The machine that the U.S. imported is an addition to the U.S. trade deficit. The owner of that machine now owns a machine in the U.S. rather than owning a machine in Japan. The Japanese trade surplus is, by double-entry accounting, also a Japanese capital deficit—Japanese capital has left Japan. Japanese capital has entered the U.S.

For the U.S., the machine is an import—part of the overall U.S. trade deficit. But for the U.S. as Japan, double-entry accounting prevails, and the machine import into the U.S. is also a U.S. capital surplus. This is the essence of Sidney Alexander's absorption approach to the trade balance. In effect, the trade deficit (i.e. an outflow of goods) is a capital surplus (an inflow of capital), while inflows of goods (trade surpluses) are outflows of capital (capital deficits). And capital flows respond to public policy. The absorption approach focuses on the attractiveness of capital as the key to the trade balance, the terms-of-trade and exchange rates.

### *The Case for Floating Exchange Rates*

Prior to discussing currency manipulation and the detrimental effects such a policy has at the expense of trading partners, it is helpful to review the economic rationale for allowing exchange rates to be freely determined by the foreign exchange rate market, or "floated".<sup>22</sup> In particular, the international experience of the gold standard following World War II highlights the case for a floating exchange rate system.

Before the removal of the gold standard in 1971, the Bretton Woods Agreement mandated that each currency have a fixed price relative to the U.S. dollar and that the value of the dollar be fixed in terms of gold.<sup>23</sup> Under the gold standard, independent monetary policy is nearly impossible because the key monetary tool, the interest rate, is used for holding the value of the currency against its parity rather than for managing inflation and the money supply. In the absence of independent monetary policy, simultaneous internal and external balance is not sustained and thus impedes international trade via long-term current account imbalances.<sup>24</sup> <sup>25</sup> Once the gold standard

<sup>21</sup> Sidney Alexander, "Effects of a Devaluation on a Trade Balance." *International Monetary Fund*, Vol. 2, No. 2, April 1952.

<sup>22</sup> As Harry Johnson aptly noted, flexible exchange rates are "determined daily in the markets for foreign exchange by the forces of demand and supply, without restrictions imposed by governmental policy on the extent to which rates can move." Harry Johnson, "The Case for Flexible Exchange Rates, 1969." *Federal Reserve Bank of St. Louis Review*, Vol. 51, June 1969.

<sup>23</sup> Michael Bordo, "The Bretton Woods international monetary system: a historical overview." *A retrospective on the Bretton Woods system: Lessons for international monetary reform*. University of Chicago Press, 1993.

<sup>24</sup> Internal balance within an economy is reflected by the full employment of resources and domestic price level stability. External balance implies that a country's current account (i.e. the net exports of goods and services plus the net unilateral transfers of income) does not generate or exacerbate macroeconomic problems domestically or abroad—that is, a country should not run a deficit so large that the country cannot repay its foreign debts and that a country should not run a surplus so large that another country is unable to repay its foreign debts. Policies aimed at external balance via currency intervention do not increase or decrease world aggregate demand, they instead switch demand from domestic to foreign producers (or vice versa).

<sup>25</sup> Harry Johnson, "The Case for Flexible Exchange Rates, 1969." *Federal Reserve Bank of St. Louis Review*, Vol. 51, June 1969.

collapsed and central banks instituted a floating exchange rate system, however, the policy focus shifted to open market operations (OMO) and to targeting interest rates.<sup>26</sup>

As indicated above, floating exchange rates allow for autonomous monetary policy, as central banks are not tied to intervene in currency markets to fix exchange rates while holding the domestic interest rate in line with the interest rate of the reserve or “Mth currency”.<sup>27,28</sup> For instance, under floating exchange rates, if a country’s economy starts generating upward pressure on prices, then the central bank can contract the money supply via OMO and thus bring about an appreciation of its currency without running the risk of reserve inflows undoing such action.

Additionally, independent monetary policy also ensures that each country can set its long-run inflation path rather than being forced to import inflation (or deflation) from the reserve currency country. If foreign prices increase, then the domestic currency appreciates due to market forces, which prevents inflationary effects from spilling over from abroad. Conversely, if domestic prices increase, foreign monetary authorities can decide to keep foreign inflation neutral with domestic inflation via an OMO—this is referred to as exporting domestic inflation. In fact, this ability to function as an automatic stabilizer to changes in external inflation is an additional reason why many economists favor a system of floating exchange rates.<sup>29,30,31,32,33,34,35,36</sup> However, like all movements toward market liberalization, floating the exchange rate successfully will require consistent, sound macroeconomic policies.<sup>37</sup>

#### *Differentiating between Currency Appreciation/Depreciation versus Revaluation/Devaluation*

One of the key policy questions of the past century has been what happens when one country devalues its currency against a trading partner’s currency. The words devaluation and revaluation as used here do not refer to normal everyday fluctuations and adjustments in exchange rates as may result from the aforementioned monetary approach to the balance of payments, but instead refer to government intervention in the foreign exchange markets designed to effectuate a “significant” change in the value of one country’s currency relative to another country’s currency. The central bank undertakes such a policy by announcing its willingness to trade domestic currency against foreign currency at the new exchange rate in unlimited amounts. Furthermore, while all currency manipulation involves some form of official intervention of financial flows, not all official flows are the result of currency manipulation.<sup>38</sup>

If a devaluation is completely offset by domestic price changes, the law of one price can be used to identify three possible responses to a devaluation. If, for example, the U.S. dollar is devalued against the British pound, any of the following could occur: (1) prices in U.S. dollars could rise by an amount equal to the dollar devaluation; (2) prices in British pounds could fall by the amount of the devaluation; or (3) some combination of (1) and (2). If the U.S. devalues the dollar by 11.7%, then prices in U.S. dollars will rise, relative to the prices in the other country’s currency, by precisely 11.7%. Whether it is a revaluation or a devaluation, the law of one price means that the exchange rate change leads to offsetting price changes in each and every product in both countries or, in dynamic terms, inflation rates.

The adjustment process described above assumes that neither monetary authority takes additional action to “sterilize” the devaluation via selling or buying bonds domestically. Sterilization essentially removes the potential inflationary effect of the devaluation on the money supply by absorbing the excess currency that was introduced from the devaluation.

#### *Currency Manipulation and the “Two-Speed Global Recovery”*

Although a system of floating exchange rates is generally preferred over a fixed regime, the system can be undermined when economic policies are not coordinated, especially when countries adopt “beggar-thy-neighbor policies”.<sup>39</sup> One example of such policy, and the focus of this report, is persistent undervaluation of the real exchange rate usually via sustained sterilized foreign exchange intervention, which is often coined as currency manipulation.<sup>40</sup>

The traditional logic for devaluing a currency that seduces politicians has it that devaluation makes domestic goods cheaper relative to foreign goods. Rather than allowing the domestic currency to appreciate such that domestic prices adhere to market fundamentals, some countries have engaged in currency manipulation as part of a long-term, export-driven growth tactic.

<sup>26</sup> Open market operations are the purchase or sale of domestic assets by monetary authorities. OMO’s are often used to influence the domestic interest rate and price level—the purchase of domestic bonds expands the money supply and reduces the interest rate (the government offers bondholders a higher price than what is prevailing in the market as the central bank must provide an incentive for bondholders to sell their bonds to the government, which effectively reduces the interest rate), while the sale of domestic bonds from the monetary authority is contractionary and increases the interest rate.

<sup>27</sup> Reserve or Mth are terms used to denote the country’s currency that is used to define the system of fixed exchange rates. For the Bretton Woods Agreement, the reserve or Mth currency was the U.S. dollar as other countries pegged their currencies to the U.S. dollar.

<sup>28</sup> Milton Friedman, “The Case for Flexible Exchange Rates,” In Friedman. *Essays in Positive Economics*, University of Chicago Press, 1953.

<sup>29</sup> Milton Friedman, “The Case for Flexible Exchange Rates,” In Friedman. *Essays in Positive Economics*, University of Chicago Press, 1953.

<sup>30</sup> Harry Johnson, “The Case for Flexible Exchange Rates, 1969.” *Federal Reserve Bank of St. Louis Review*, Vol. 51, June 1969.

<sup>31</sup> Egon Sohmen, “Flexible Exchange Rates: Theory and Controversy,” University of Chicago Press, 1961.

<sup>32</sup> Richard Caves, “Flexible Exchange Rates,” *American Economic Review*, Vol. 53, May 1963.

<sup>33</sup> Herbert Giersch, “On the Desirable Degree of Flexibility of Exchange Rates,” *Weltwirtschaftliches*, vol. 109, no. 2, 1973.

<sup>34</sup> Edward Tower and Thomas Willett, “The Theory of Optimum Currency Areas and Exchange-

Rate Flexibility,” *Special Papers in International Economics*, Vol. 11, Princeton University, International Finance Section, 1976.

<sup>35</sup> Richard Cooper, “Monetary Theory and Policy in an Open Economy,” *Scandinavian Journal of Economics*, Vol. 78, no. 2, 1976.

<sup>36</sup> Ben Bernanke, “Rebalancing the Global Recovery,” At the Sixth European Central Bank Central Banking Conference, Frankfurt, Germany, November 19, 2010.

<sup>37</sup> Michael Mussa, “Macroeconomic Policy and Trade Liberalization: Some Guidelines” *The International Bank for Reconstruction and Development/The World Bank*, January 1987.

<sup>38</sup> Official financial flows may be the result of financing development projects or temporary correction to debilitating market disorders and volatility.

<sup>39</sup> That is, strategic policies that increase the welfare of the country enacting it at the expense of other countries.

<sup>40</sup> Sterilization essentially removes the potential inflationary effect of the devaluation on the money supply by absorbing the excess currency that was introduced from the devaluation via selling bonds domestically.

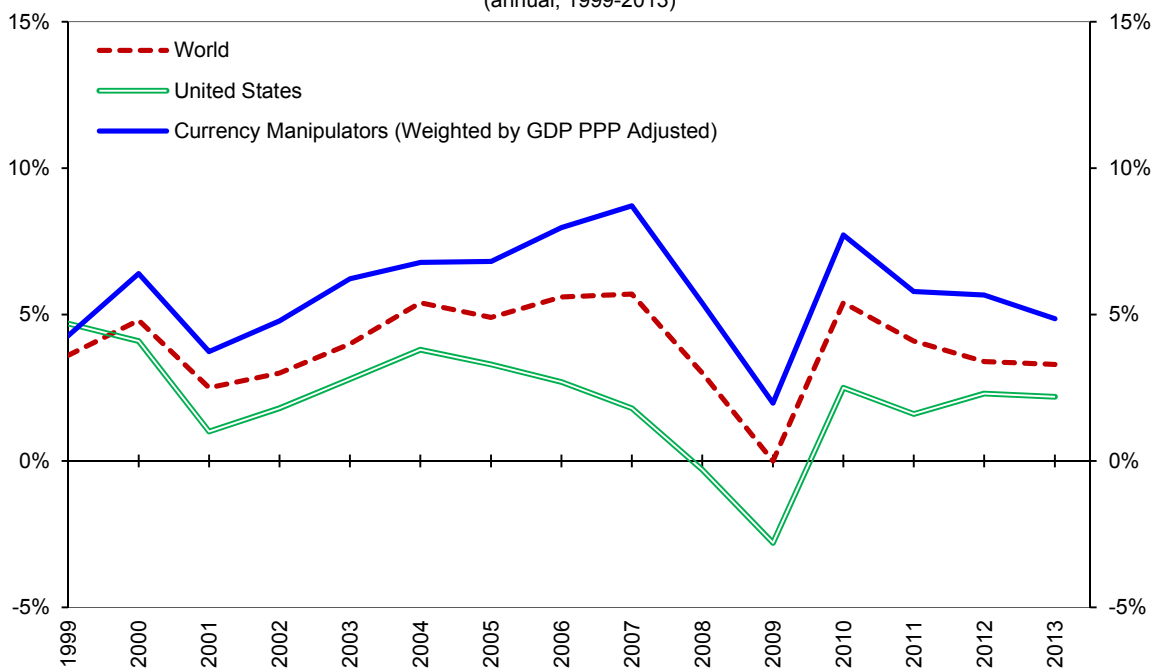


Undervaluation of a country's currency can improve a country's export competitiveness by raising import prices relative to export prices and thus stimulating world demand for domestically produced goods.<sup>41,42,43</sup>

In fact, continued depreciation of the real exchange rate will not only increase a country's competitiveness from a relative price standpoint, but will also raise that country's exports over time as producers are able to diversify their goods and manufacture at a much larger scale than domestic demand would have otherwise supported.<sup>44</sup> Because a devaluation leads domestic consumers to import less foreign-produced products, the home country will have more production in the foreign import substitute industries. Additionally, not only does the country with the depreciating currency gain an export advantage vis-à-vis the country with the appreciating currency, but also gains an advantage in third markets where similar products from both countries compete. Therefore, domestic employment will rise, domestic unemployment will fall and the devaluation will benefit employment in the home economy. The home country, in effect, would be competitively devaluing its currency and exporting domestic unemployment to trading partner countries. That is the politically seductive logic of how exchange rate policies can affect the domestic economy. While such "beggar-thy-neighbor" policies are explicitly forbidden by the IMF Articles of Agreement, there are no enumerated enforcement procedures to ensure compliance.<sup>45</sup>

Successful currency manipulation inhibits the exchange rate from acting as an automatic stabilizer to macroeconomic events, and thereby leads to growth and trade imbalances.<sup>46</sup> Currency manipulation has therefore, in part, inhibited the world from fully recovering from the financial crisis.<sup>47</sup> For instance, real growth has been tepid at best for developed countries while developing countries have experienced a much steadier pace of recovery from the financial crisis—this has been dubbed as the two-speed global recovery. Additionally, this two-speed trend is also present for manipulated currencies that have been undervalued historically as Figure 3 demonstrates. Meanwhile, in the U.S. for example, real GDP growth following mid-2009, the official end of the recession, has averaged around 2.25 percent annual rate but has exhibited a good deal of variability (Figure 4).

Figure 3  
Real GDP Growth: Annual % Change  
(annual, 1999-2013)



Source: IMF

<sup>41</sup> For example, if the U.S. devalues the dollar, the traditional view is that goods that are predominately made in the U.S. will become cheaper relative to foreign goods. With cheaper U.S. domestic goods, foreigners facing higher prices in their own country will buy more U.S. products, thereby raising U.S. export volume. If the U.S. devalues the dollar, not only will U.S. domestic goods be cheaper relative to foreign goods, but foreign goods will obviously be more expensive relative to U.S. domestic goods. Therefore, American consumers will buy fewer foreign goods at the same time that foreigners buy more American goods. Thus, U.S. exports will increase, all the while U.S. imports decline. According to that logic, it follows that the U.S. trade balance (exports minus imports) is going to improve (e.g. move toward greater surplus).

<sup>42</sup> Michael Dooley, David Folkerts-Landau, and Peter Garber "The Revived Bretton Woods System," *International Journal of Finance and Economics*, October 2004.

<sup>43</sup> Ben Bernanke, "Rebalancing the Global Recovery," At the Sixth European Central Bank Central Banking Conference, Frankfurt, Germany, November 19, 2010.

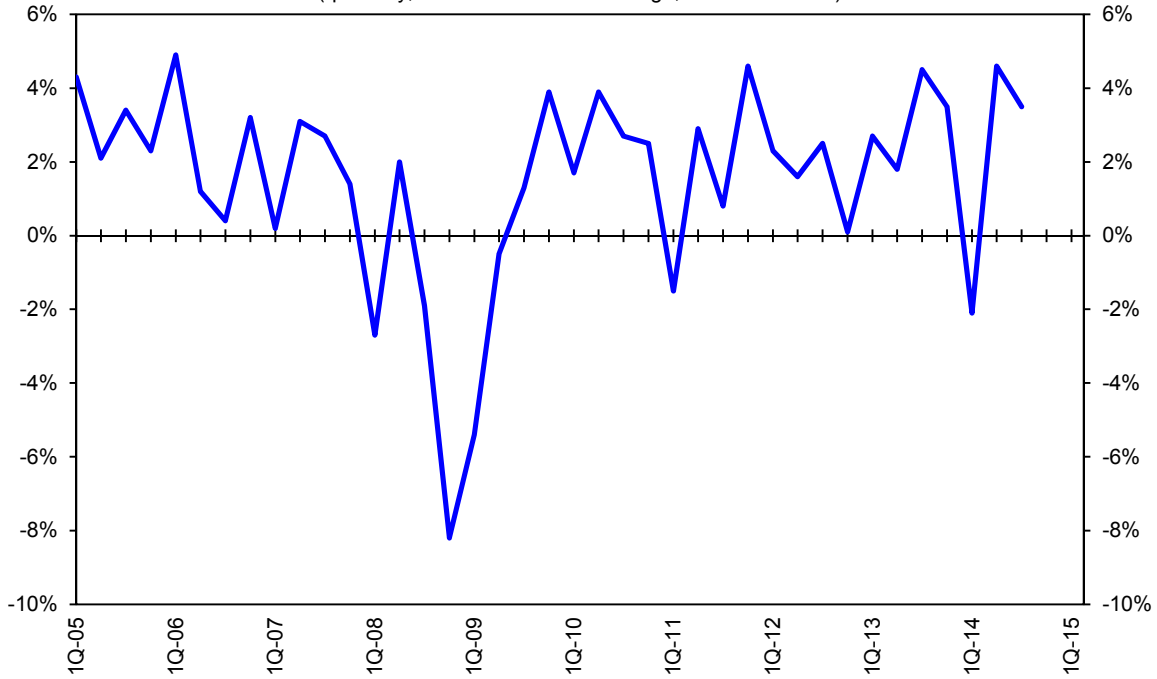
<sup>44</sup> Rudiger Dornbusch, Paul Krugman, and Richard N. Cooper, "Flexible exchange rates in the short run." *Brookings Papers on Economic Activity*, 1976.

<sup>45</sup> The IMF Articles of Agreement (Article VI, section 3), signed at the Bretton Woods conference in 1944; [www.imf.org/external/pubs/ft/aa/index.htm](http://www.imf.org/external/pubs/ft/aa/index.htm)

<sup>46</sup> Trade imbalances will be addressed in the following section.

<sup>47</sup> Large, persistent current account imbalances increase overall economic and financial risk.

Figure 4  
**U.S. Real GDP Growth: Quarterly Annualized % Change**  
 (quarterly, QoQ annualized % change, 1Q-05 to 3Q-14)

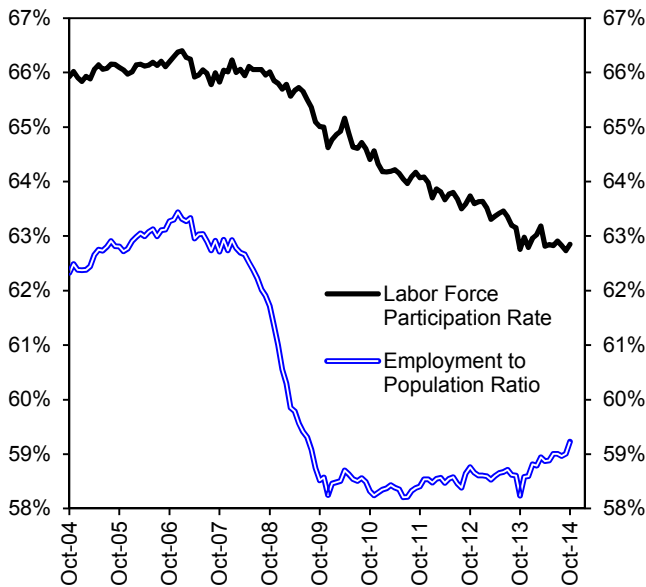


Source: U.S. Bureau of Economic Analysis

Lackluster U.S. growth has translated into labor market slack, which in turn has further led to slower recovery from the financial crisis. As Figure 5 and Figure 6 each demonstrate, the employment to population ratio has failed to recover to pre-crisis levels despite the unemployment rate falling, the latter of which is partly due to the participation rate dropping. Furthermore, as can be seen in Figure 7 and Figure 8, the unemployment rates in economies with undervalued currencies have stayed relatively low, while labor participation rates have risen in these countries compared to the U.S.

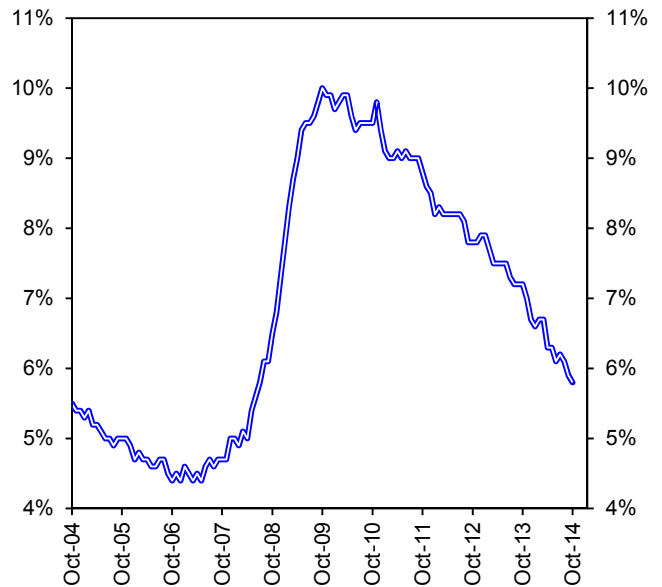
Figure 5 and Figure 6

**10-Year View: U.S. Employment to Population Ratio vs. Labor Force Participation Rate**  
 (monthly, Oct-04 to Oct-14)



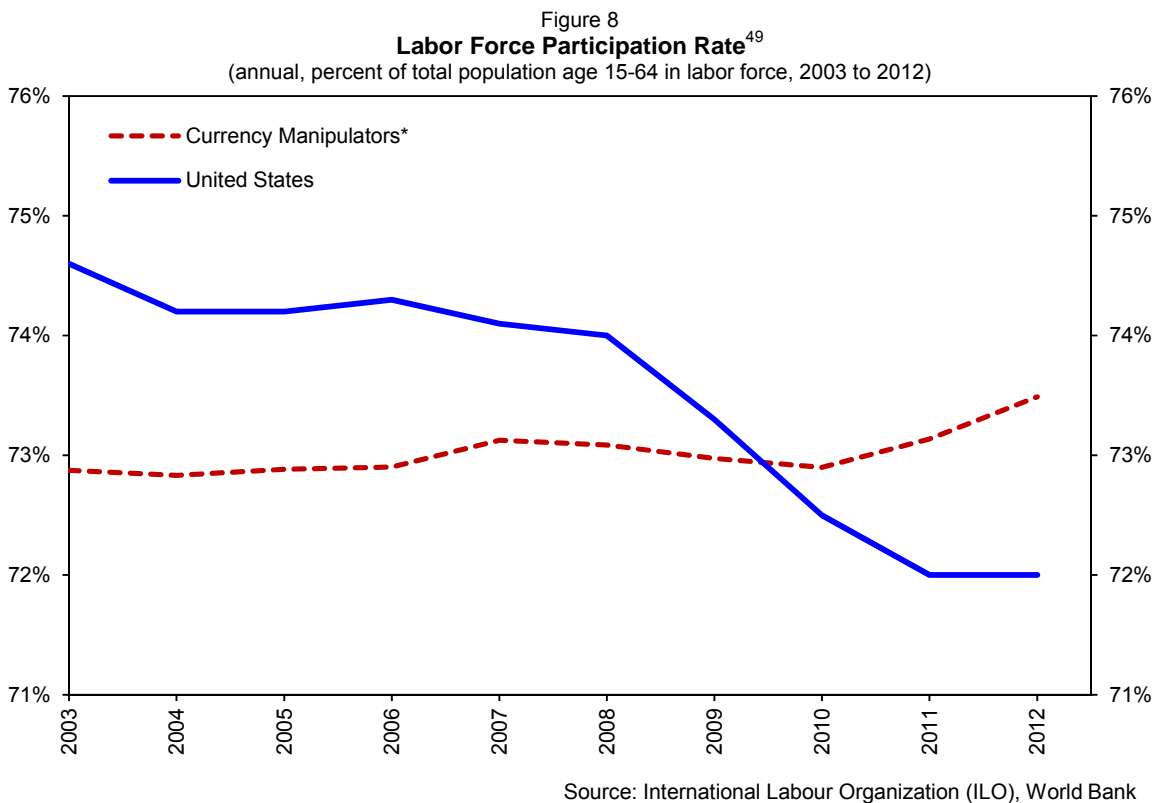
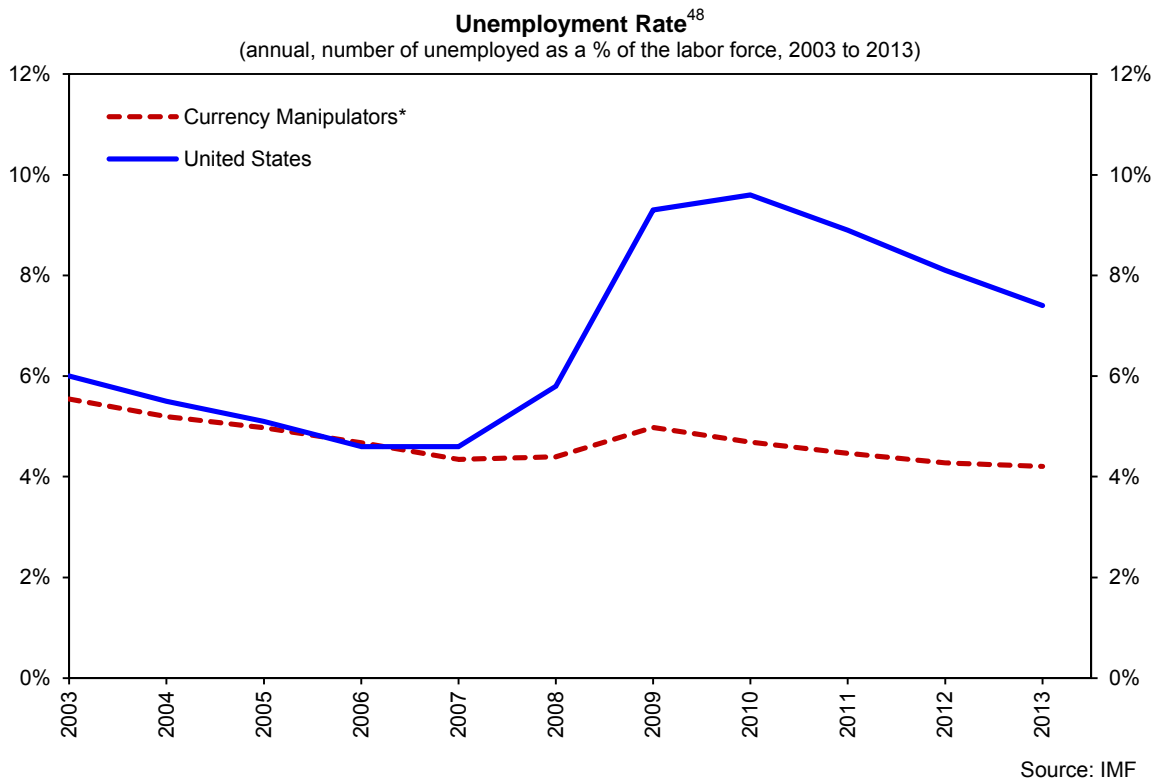
Source: Bureau of Labor Statistics

**10-Year View: U.S. Unemployment Rate**  
 (monthly, Oct-04 to Oct-14)



Source: Bureau of Labor Statistics

Figure 7



<sup>48</sup> \* Denotes that the following countries are excluded due to missing data: Angola, Libya, Qatar, Taiwan, and United Arab Emirates. Currency manipulators have been identified by F. Bergsten and J. Gagnon, "Currency Manipulation, the US Economy, and the Global Economic Order," *Peterson Institute for International Economics*, Policy Brief 12-25, 2012. The 22 countries are Algeria, Angola, Azerbaijan, China, Denmark, Hong Kong, Israel, Japan, Kazakhstan, Kuwait, Libya, Malaysia, Norway, Qatar, Russia, Saudi Arabia, Singapore, South Korea, Switzerland, Taiwan, Thailand, and the United Arab Emirates. The study covered the 2001 to 2011 period.

<sup>49</sup> Note that national estimates and World Bank/ILO estimates will differ due to methodology and data definitions. \* Denotes that the following countries are excluded due to missing data: Angola, Libya, Qatar, Taiwan, and United Arab Emirates. Currency manipulators have been identified by F. Bergsten and J. Gagnon, "Currency Manipulation, the US Economy, and the Global Economic Order," *Peterson Institute for International Economics*, Policy Brief 12-25, 2012. The 22 countries are Algeria, Angola, Azerbaijan, China, Denmark, Hong Kong, Israel, Japan, Kazakhstan, Kuwait, Libya, Malaysia, Norway, Qatar, Russia, Saudi Arabia, Singapore, South Korea, Switzerland, Taiwan, Thailand, and the United Arab Emirates. The study covered the 2001 to 2011 period.

The two-speed recovery has shown, in part, that persistent currency undervaluation has benefitted the currency manipulators at the expense of countries allowing the flexible adjustment of exchange rates since their export-related activities must quickly respond to the external balances caused by trading partners' currency devaluations.<sup>50,51</sup> As of 2012, the scope of currency manipulation is estimated to be approximately \$1.5 trillion per year, with about 60 percent of these flows channeling into dollar assets.<sup>52,53</sup> Moreover, the impact of currency manipulation has potentially dampened the U.S. current account by about 4 percent of GDP in 2012, which was approximately the size of the U.S. output gap in the corresponding year.<sup>54,55</sup> While providing an exact number of U.S. jobs lost due directly to currency manipulation is tricky, it is likely that millions of jobs in the U.S. were lost as a result of the negative external demand shock (i.e. current account imbalances) that, in part, currency manipulation generated.<sup>56</sup>

These spillover effects would likely disappear if exchange rates were liberalized to better exhibit market fundamentals and would potentially improve welfare in undervalued currencies' economies by improving domestic demand.<sup>57</sup> In fact, further movement toward freely floating exchange rates and the removal of capital account restrictions will help rebalance global growth, which in turn will reduce financial and economic risk. Moreover, research has found that future financial crises can be, in part, predicted by large current account imbalances as such distortions suggest the misallocation of capital.<sup>58,59</sup> The general rule of thumb for current account sustainability is that surpluses or deficits should be less than 5 percent of GDP.<sup>60,61</sup> As Table 1 indicates, Norway, Singapore, and Switzerland run current account surpluses that are in excess of 5 percent of GDP as of 2012, while historically China, Hong Kong, Malaysia, and Thailand have as well.

Table 1

Current Account Balance (% of GDP)	2005	2006	2007	2008	2009	2010	2011	2012
Canada	1.88	1.37	0.78	0.22	-2.94	-3.51	-2.76	-3.42
China	5.87	8.55	10.11	9.30	4.87	4.01	1.86	2.35
Czech Republic	-0.93	-2.11	-4.40	-2.12	-2.46	-3.83	-2.83	-2.41
Hong Kong	11.88	12.69	13.02	14.99	9.88	7.03	5.63	1.68
Israel	3.02	4.63	3.16	1.44	3.85	3.10	1.26	0.33
Japan	3.63	3.93	4.86	3.29	2.92	3.71	2.02	1.02
South Korea	2.07	1.39	1.94	0.32	3.64	2.69	2.17	3.54
Malaysia	13.92	16.10	15.38	16.85	15.72	10.91	11.58	6.11
Norway	16.43	16.44	12.64	16.06	11.92	11.94	13.54	14.52
Singapore	21.09	24.41	25.75	15.00	17.40	26.24	23.83	17.93
Switzerland	13.81	13.78	8.96	1.10	7.10	13.82	5.99	8.54
Thailand	-4.34	1.12	6.35	0.81	8.30	3.12	1.20	-0.39
United Kingdom	-2.56	-3.30	-2.49	-1.53	-1.68	-3.28	-1.33	-3.75
United States	-5.65	-5.76	-4.93	-4.63	-2.65	-3.00	-2.95	-2.71

Source: International Monetary Fund, *Balance of Payments Statistics Yearbook*; World Bank; OECD

### Identifying Currency Manipulation: Trade Imbalances, & the Exchange Rate Adjustment Process

As previously discussed, currency manipulation is thought to occur when a country either purchases or sells foreign currency with the intent to move the domestic currency away from equilibrium or to prevent it from moving towards equilibrium. Although currency manipulation can target either the overvaluation or undervaluation of a currency, the overwhelming misuse by some countries over the past decade has been to undervalue currency to achieve export-driven growth at the expense of trading partners on the other side of the transaction by running deficits. The IMF explicitly prohibits its members from engaging in currency manipulation in order to "prevent effective balance of payments adjustment or to gain an unfair competitive advantage over other members" while encouraging members

<sup>50</sup> William Cline and John Williamson, "Currency Wars?" Peterson Institute for International Economics, Nov. 2010.

<sup>51</sup> Joseph Gagnon, "Alternatives to Currency Manipulation: What Switzerland, Singapore, and Hong Kong Can Do," Peterson Institute for International Economics, June 2014.

<sup>52</sup> Joseph Gagnon, "Combating Widespread Currency Manipulation," Peterson Institute for International Economics, July 2012.

<sup>53</sup> IMF, "Currency Composition of Official Foreign Exchange Reserves (COFER)", September 30<sup>th</sup>, 2014.

<sup>54</sup> Joseph Gagnon, "Combating Widespread Currency Manipulation," Peterson Institute for International Economics, July 2012.

<sup>55</sup> IMF, *World Economic Outlook*, April 2012.

<sup>56</sup> Joseph Gagnon, "Combating Widespread Currency Manipulation," Peterson Institute for International Economics, July 2012.

<sup>57</sup> When a currency is undervalued, demand is shifted from domestic consumers to foreign consumers.

<sup>58</sup> Jeffrey Frankel and Andrew Rose, "Currency Crashes in Emerging Markets: An Empirical Treatment" *Journal of International Economics*, 1996.

<sup>59</sup> Luis Catao and Gian Maria Milesi-Ferretti, "External Liabilities and Crises," International Monetary Fund, 2013.

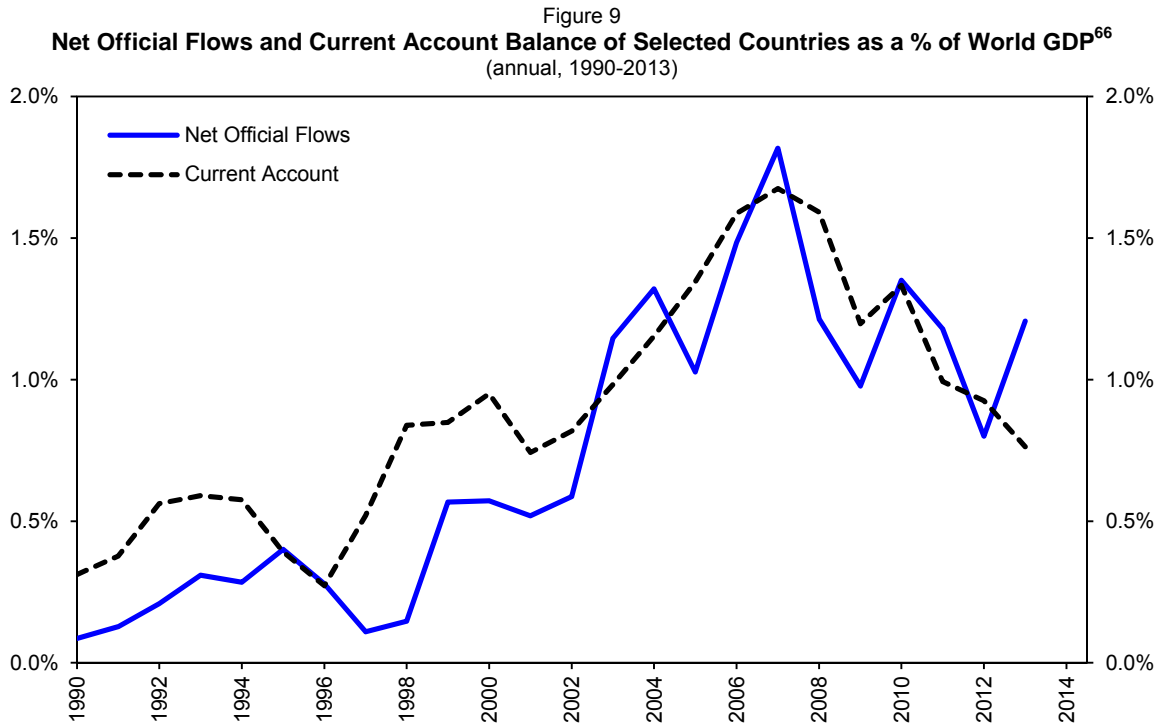
<sup>60</sup> Caroline Freund, "Current Account Adjustment in Industrialized Countries," International Finance Discussion Papers, Board of Governors of the Federal Reserve System, 2000.

<sup>61</sup> Richard Clarida, Manuela Goretti, and Mark Taylor, "Are There Thresholds of Current Account Adjustment in the G7?" In *G7 Current Account Imbalances*, edited by Richard Clarida, The University of Chicago Press, 2007.

to “take into account in their intervention policies the interests of other members, including those of the countries in whose currencies they intervene.”<sup>62</sup>

Following the financial crisis, the adoption of the Asian model of long-run export-driven growth has hindered international trade balances via blocking the exchange rate adjustment process.<sup>63</sup> To some, this is evident from the persistent current account surpluses found in many countries that have held their currencies undervalued, as Figure 9 demonstrates.<sup>64</sup> Running large current account surpluses can be multilaterally detrimental if they are the result of export-driven growth policies or inadequate aggregate demand. As the IMF notes,

*“Indeed, distortions may be transmitted globally through surpluses and deficits if they occur in large economies, undermining the efficient operation of the international monetary system. And the more concentrated the imbalances, the greater the risks to the global economy. The configuration of current account imbalances in the mid-2000s, with large deficits for the United States and large surpluses for China and Japan, is widely understood to have met those criteria for systemic risk.”(Page 4)*<sup>65</sup>



Source: Peterson Institute for International Economics

To understand the relationship between current account surpluses and currency manipulation, consider instead the case of a flexible exchange rate system where no country artificially or intentionally undervalues its currency, or in other words, where currencies are not manipulated.<sup>67</sup> If an economy’s exchange rate deviates from its market equilibrium such that it is undervalued, then market forces, and likely monetary policy, would move to appreciate the currency to restore equilibrium.<sup>68</sup> Accordingly, both foreign demand for exports and the current account surplus would decrease, while world demand would increase for the goods and services produced in countries where exchange rates depreciated as a result of these actions.<sup>69</sup>

<sup>62</sup> IMF. Principles and Procedures of IMF Surveillance. Article IV. Obligations Regarding Exchange Arrangements.

<https://www.imf.org/external/pubs/ft/history/2012/pdf/4a.pdf>

<sup>63</sup> The Asian countries that are thought to have engaged in financing growth-oriented trade surpluses include China, Taiwan, Hong Kong, Singapore, Japan, South Korea, and Malaysia. Refer to Michael Dooley, David Folkerts-Landau, and Peter Garber, “An Essay on the Revived Bretton Woods System.” Federal Reserve Bank of San Francisco Proceedings. No. Feb. 2005.

<sup>64</sup> Joseph Gagnon, “Alternatives to Currency Manipulation: What Switzerland, Singapore, and Hong Kong Can Do,” Peterson Institute for International Economics, June 2014.

<sup>65</sup> IMF, *World Economic Outlook: Legacies, Clouds, Uncertainties*, October 2014.

<sup>66</sup> “Selected Countries” are Algeria, Angola, Azerbaijan, China, Denmark, Hong Kong, Israel, Japan, Kazakhstan, Korea, Libya, Malaysia, Norway, Russia, Singapore, Switzerland and Thailand. These data have been reproduced from a dataset published with the following paper: Joseph E. Gagnon, “Alternatives to Currency Manipulation: What Switzerland, Singapore, and Hong Kong Can Do,” *Peterson Institute for International Economics*, Policy Brief, June 2014. <http://www.piie.com/publications/interstitial.cfm?ResearchID=2622>

<sup>67</sup> Currencies are still influenced by other policies through the interest rate channel, such as government spending, tax rates, capital restrictions or controls, and money creation.

<sup>68</sup> For instance, market forces bring about an appreciation due to the increase of foreign demand for the competitively priced exports since foreign consumers must purchase these exports in local currency, thus increasing demand for the local currency. The central bank could tighten monetary policy via a contractionary OMO, which essentially increases the interest rate differential and thus directs capital flows to move into assets of the undervalued currency’s economy, resulting in currency appreciation.

<sup>69</sup> In particular, the countries that ran a large current account deficit with the once undervalued currency’s economy will benefit the most from internal and external balance being restored.

However, the stabilizing adjustment process described above is incomplete when currencies are manipulated, in part, as the result of heavy foreign exchange market intervention by central banks for the purpose of thwarting or slowing the appreciation of their currencies.<sup>70</sup> In order to measure the degree of active foreign exchange market intervention, the change in international reserves as a percent of GDP is considered.

The accumulation of international reserves is an indicator of currency manipulation through the following process. Given that the value of domestic goods and services becomes immediately cheaper relative to foreign imports following a devaluation of the domestic currency (given that prices are sticky in the short-run), foreign demand for exports increases as a result. As such, output rises and demand for local currency increases due to the rise in transactions that accompany foreign consumers' purchases.

Domestic interest rates would normally respond to the excess money demand by increasing, however, the central bank cannot allow this response since it would bring about an appreciation of the currency. Instead, the central bank must intervene in the foreign exchange market by buying foreign assets and expanding the money supply until foreign demand is met, hence why persistent current account surpluses tend to correspond with net purchases of official foreign assets as evidenced in Figure 9.<sup>71</sup>

In this way, the purchase of foreign assets (i.e. currency intervention) corresponds to a rise in official reserves in the balance of payments account, and strongly correlates to the current account surpluses depicted in Figure 9.<sup>72,73,74,75,76</sup> In fact, research has suggested that for every \$1.00 of net official financial flows, the current account increases by \$0.60 to \$1.00.<sup>77</sup> Furthermore, the effect of official financial flows has been found to be more important than fiscal policy in explaining the movement of current account balances across countries over time.<sup>78</sup> As former Federal Reserve Board Chairman Paul Volcker implied, "Trade flows are affected more by ten minutes of movement in the currency markets than by ten years of (even successful negotiations in Geneva)."<sup>79</sup>

Many countries with historically undervalued currencies have not slowed down their extensive purchasing of official foreign assets, mainly as a means to avoid the currency appreciation that would have brought current account balance, as seen in Table 2.<sup>80,81,82</sup> Interestingly, more than one-third of the countries identified as currency manipulators are in Asia, as depicted in Table 2. While this may stem as a reaction to the Asian financial crisis of 1997-1998, research has indicated that these reserve levels are in excess of capital flight "insurance".<sup>83</sup> However, during the most recent global financial crisis, accumulating large amounts of reserves made little difference to restore export demand given that the rationale for accumulating reserves is to protect the domestic currency from depreciating to the point of collapse. Indeed, it is more likely that the accumulation of reserves is the result of maintaining export-driven growth.<sup>84,85</sup>

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<sup>70</sup> Ben Bernanke, "Rebalancing the Global Recovery." At the Sixth European Central Bank Central Banking Conference, Frankfurt, Germany, November 19<sup>th</sup>, 2010.

<sup>71</sup> This offsetting of foreign exchange rate interventions, which is referred to as sterilization, is undertaken to avoid undesired impacts on domestic monetary bases. However, in practice, this is very difficult to conduct as will be discussed in subsequent section.

<sup>72</sup> Joseph Gagnon, "Global Imbalances and Foreign Asset Expansion by Developing Economy Central Banks," Peterson Institute for International Economics, 2012.

<sup>73</sup> Tamim Bayoumi and Christian Saborowski, "Accounting for Reserves" *Journal of International Money and Finance*, 2014.

<sup>74</sup> IMF, External Balance Assessment (EBA): Technical Background of the Pilot Methodology, Washington, 2012.

<sup>75</sup> IMF, External Balance Assessment (EBA): Technical Background of the Pilot Methodology, Washington, 2012.

<sup>76</sup> Tamim Bayoumi, Joseph Gagnon, and Christian Saborowski. "Official Financial Flows, Capital Mobility, and Global Imbalances," Peterson Institute for International Economics, October 2014.

<sup>77</sup> Joseph Gagnon, "The Elephant Hiding in the Room: Currency Intervention and Trade Imbalances," Peterson Institute for International Economics, March 2013.

<sup>78</sup> Joseph Gagnon, "Global Imbalances and Foreign Asset Expansion by Developing-Economy Central Banks," Peterson Institute for International Economics, 2012.

<sup>79</sup> C. Fred Bergsten and Joseph Gagnon, "Currency Manipulation, the US Economy, and the Global Economic Order," Peterson Institute for International Economics, December 2012.

<sup>80</sup> Currency manipulators have been identified by F. Bergsten and J. Gagnon. Currency Manipulation, the US Economy, and the Global Economic Order. PIIE Policy Brief 12-25. Washington: Peterson Institute for International Economics, (2012). The 22 countries are Algeria, Angola, Azerbaijan, China, Denmark, Hong Kong, Israel, Japan, Kazakhstan, Kuwait, Libya, Malaysia, Norway, Qatar, Russia, Saudi Arabia, Singapore, South Korea, Switzerland, Taiwan, Thailand, and the United Arab Emirates. The study covered the 2001 to 2011 period.

<sup>81</sup> Joseph Gagnon, "Alternatives to Currency Manipulation: What Switzerland, Singapore, and Hong Kong Can Do," Peterson Institute for International Economics, June 2014.

<sup>82</sup> Joseph Gagnon, "The Elephant Hiding in the Room: Currency Intervention and Trade Imbalances," Peterson Institute for International Economics, March 2013.

<sup>83</sup> Olivier Jeanne and Romain Ranciere, *The Optimal Level of International Reserves for Emerging Market Countries: Formulas and Applications*, International Monetary Fund, 2006.

<sup>84</sup> Michael Dooley, David Folkerts-Landau, and Peter Garber "The Revived Bretton Woods System," *International Journal of Finance and Economics*, October 2004.

<sup>85</sup> Morris Goldstein, "Currency Manipulation and Enforcing the Rules of the International Monetary System." Conference on "IMF Reform," *Reforming the IMF for the 21st Century*, 2006.

Table 2  
**Official Foreign Assets of Selected Countries<sup>86</sup>**  
(\$ billion at year end)

Country	2013 Level	2012 Change	2013 Change	Average change, 2012-2013 (% of GDP)
Algeria	195	8	6	3
Angola <sup>1</sup>	38	10	0	4
Azerbaijan	50	5	5	7
China <sup>2</sup>	4,065	159	566	4
Denmark	86	4	4	1
Hong Kong	311	32	-6	5
Israel	82	1	8	2
Japan <sup>3</sup>	1,239	-28	45	0
Kazakhstan <sup>2</sup>	142	16	69	20
Korea <sup>3</sup>	349	20	26	2
Kuwait	442	3	120	33
Libya <sup>1</sup>	119	14	3	11
Malaysia <sup>3</sup>	138	6	-1	1
Norway <sup>3</sup>	880	128	144	27
Qatar	212	46	65	28
Russia	471	32	-2	1
Saudi Arabia	726	115	85	14
Singapore <sup>3,4</sup>	543	11	57	12
Switzerland	498	197	30	18
Taiwan	417	18	14	3
Thailand	162	6	-10	-1
United Arab Emirates <sup>1</sup>	1,044	57	181	31
Total	12,207	860	1,410	

Sources: Gagnon

Additionally, one should examine the number of months of imports that could be purchased with the amount of official reserves held to assess whether a country is accumulating an excessive amount of reserves. For many countries, reserves equivalent to about three months of imports should be sufficient for protection against trade shocks, however, a higher number may be more appropriate for countries that heavily rely on exporting non-renewable commodities.<sup>87</sup> As Table 3 highlights, the countries that have historically allowed their currencies to float (i.e. the U.S., EU, UK, and Canada) do not come near holding foreign reserves in excess of three months of imports. On the other hand, Japan's and Switzerland's holdings of foreign reserves are nearly five and seven times larger (respectively) than three months of imports, suggesting that both countries have amassed a large amount of foreign reserves.

<sup>86</sup> This table is sourced directly from: Joseph Gagnon, "Alternatives to Currency Manipulation: What Switzerland, Singapore, and Hong Kong Can Do," Peterson Institute for International Economics, 2014.

<sup>87</sup> IMF, "Assessing Reserve Adequacy," Paper prepared by the Monetary and Capital Markets, Research, and Strategy, Policy, and Review Departments, 2011.

Table 3  
**Foreign Reserves in Selected Countries**  
(as of Sep-14)

Country	Foreign Reserves as a % of GDP	Foreign Reserves in Months of Imports**
US	0.3%	0.20
EU	0.3%	0.09
UK	2.8%	1.15
Canada	3.4%	1.25
Norway*	10.5%	4.67
South Korea	24.5%	6.50
Czech Republic	24.9%	4.19
Japan	25.2%	14.53
Israel	27.4%	10.82
Malaysia	34.7%	6.11
China	37.5%	23.13
Thailand	40.2%	6.78
Switzerland	71.2%	21.95
Singapore	85.8%	6.38
Hong Kong	107.8%	6.42

\* Norway's foreign reserve data are as of Aug-14 due to data availability \*\* Import figures are from 2012 due to data availability

Source: IMF, World Bank, State Administration of Foreign Exchange

While running a large current account surplus is not necessarily bad or indicative of currency manipulation, when it is in conjunction with the accumulation of reserves and the increase of reserves over a specified time period, then one must consider the most probable explanation is that the country at hand is manipulating its currency. In fact, as indicated earlier, the IMF has provided a framework for identifying countries engaging in currency manipulation.<sup>88</sup> The IMF uses the following guidelines to identify potential currency manipulators, which then allows the IMF to pursue discussion with the offending member(s): (i.) large-scale foreign exchange market intervention in one direction; (ii.) unsustainable borrowing or lending as reflected in the current account; (iii.) maintenance of exchange rate for balance of payments purposes; (iv.) pursuing policies that promote excessive capital flows in either direction for balance of payments purposes; (v.) exchange rate behavior that is unrelated to economic and financial fundamentals; and (vi) unsustainable private capital flows.<sup>89</sup>

In the U.S., the Omnibus Trade and Competitiveness Act of 1988 identifies currency manipulators as countries who have, "material global current account surpluses" and "significant bilateral trade surpluses with the United States"<sup>90</sup> Once a foreign country is pegged as a currency manipulator under the Omnibus Act, the U.S. Secretary of the Treasury must,

*"take action to initiate negotiations with such foreign countries on an expedited basis, in the International Monetary Fund or bilaterally, for the purpose of ensuring that such countries regularly and promptly adjust the rate of exchange between their currencies and the United States dollar to permit effective balance of payments adjustments and to eliminate the unfair advantage."*<sup>91</sup>

Following the framework established by the IMF and others,<sup>92</sup> this report identifies a country as a currency manipulator and thus a violator of a majority of the principles outlined by the IMF's Article IV (in terms of domestic currency devaluation), if *all* of the following criteria are met over a six-month period.

1. The country has maintained a cumulative current account surplus over the six-month period at hand;
2. The country has increased its purchases of official reserve assets over the same six-month period; and,
3. The country has accumulated official reserve assets that are in excess of the value of three months of goods and services imports, which are determined using actual import data from the twelve months preceding the six-month period.

<sup>88</sup> IMF. Principles and Procedures of IMF Surveillance. Article IV. Obligations Regarding Exchange Arrangements. <https://www.imf.org/external/pubs/ft/history/2012/pdf/4a.pdf>

<sup>89</sup> IMF. Principles and Procedures of IMF Surveillance. Article IV. Obligations Regarding Exchange Arrangements. <https://www.imf.org/external/pubs/ft/history/2012/pdf/4a.pdf>

<sup>90</sup> Omnibus Trade and Competitiveness Act of 1988, 22 U.S.C. § 5304(b), § 3004(b)

<sup>91</sup> Omnibus Trade and Competitiveness Act of 1988, 22 U.S.C. § 5304(b), § 3004(b)

<sup>92</sup> Joseph Gagnon's criteria most closely reflect this report's requirements. For detailed discussion, refer to the following study: Gagnon, J.E. "Combating Widespread Currency Manipulation." Policy Brief Number PB12-19, Peterson Institute for International Economics, (July 2012).

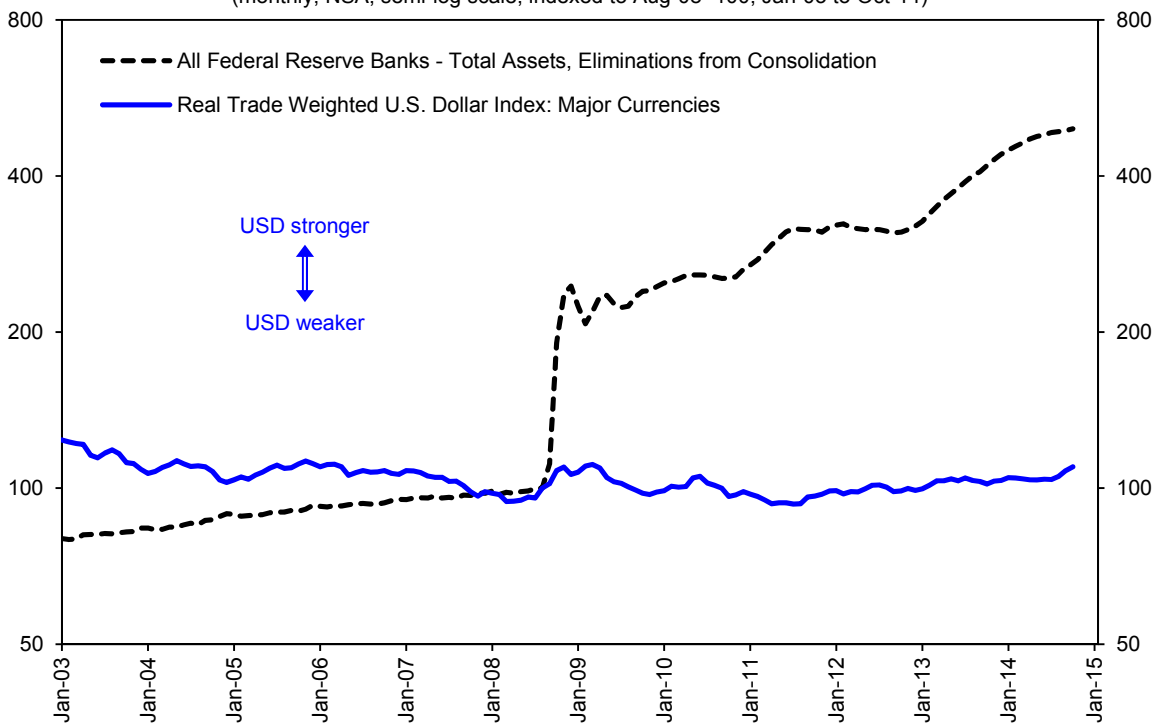


Although it is important to consider foreign reserves as a share of GDP over time, nominal GDP levels will not likely change much over a six month time period and thus are not likely to impact foreign reserves as a share of GDP in a significant way over such a short timeframe. This criterion would be especially important to utilize in a context where the benefit of having longer time-series of data is not practicable, such as in identifying currency manipulators in the context of violating free trade agreement provisions prohibiting currency manipulation. However, the criteria set forth by this paper should not minimize the importance of conducting a comprehensive time-series analysis—in fact, it is important to analyze the data in a time-series fashion in order to better understand how current figures fit with the historical context of the data. The requirements presented in this report are distinguishable from those of the IMF’s in that they provide concrete metrics to help policymakers quickly identify manipulators. Facilitating the process of identifying offending countries is the first step of developing an international mechanism to enforce IMF principles. Ultimately, this should expedite the adjustment process that is needed to correct distortions caused by persistent current account imbalances and thus move global growth on a more sustainable path.

*Monetary Policy or Currency Manipulation? The Experiences of the U.S., Canada, Euro Area, and U.K. versus Japan and Switzerland*

The distinction between monetary policy and currency manipulation is important for international relations as the former focuses on domestic policies, such as price stability and unemployment rate objectives, while the latter implies exchange rate targeting, which is generally considered externally oriented (i.e. beggar-thy-neighbor strategy to improve export competitiveness). However, exchange rates are not insulated from monetary policy, such as the Federal Reserve’s Quantitative Easing (QE),<sup>93</sup> since such policies affect interest rates and prices.<sup>94</sup> Yet the effects of monetary policy on the real exchange rate are thought to often be small and short-lived anyway—this also applies to current account balances and aggregate demand.<sup>95,96</sup> Indeed, as Figure 11 demonstrates, the real exchange rate between the U.S. dollar and the basket of currencies of its seven major trading partners has been relatively stable despite QE more than quadrupling U.S. total assets. In fact, the real exchange rate has actually appreciated since the inception of QE in December of 2008 by 3.3 percent.<sup>97</sup> Furthermore, data suggest that spillover from U.S. quantitative easing has not been to the detriment of the world, but rather has had a small but positive impact.<sup>98</sup>

Figure 11  
**U.S. Federal Reserve Total Assets vs. Real Trade Weighted U.S. Dollar Index**  
 (monthly, NSA, semi-log scale, indexed to Aug-08=100, Jan-03 to Oct-14)



Source: Federal Reserve Board of Governors

<sup>93</sup> The Federal Reserve’s policy has targeted a federal funds rate near zero and included the buying of Treasury and agency mortgage-backed securities, which has resulted in the Federal Reserve’s asset balance sheet growing from about \$800 billion prior to the recession to nearly \$4.5 trillion as of November 12<sup>th</sup>, 2014.

<sup>94</sup> However, even with QE, which would normally bring about depreciation via the interest rate channel, the U.S. dollar managed to appreciate given that it is often used as a “safe-haven” currency during periods of high investor risk aversion, such as was the case during the European sovereign debt crisis.

<sup>95</sup> Christopher Neely, “The Difference Between Currency Manipulation and Monetary Policy.” *International Economic Trends*, Federal Reserve Bank of St. Louis, February 2011.

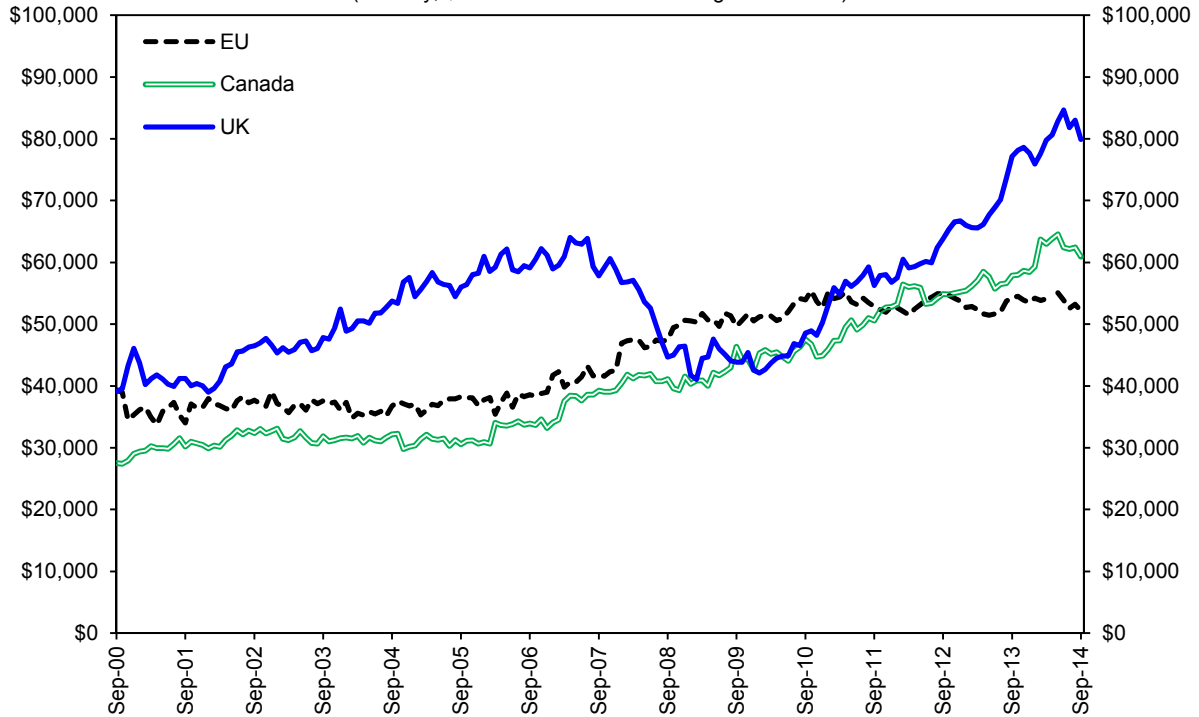
<sup>96</sup> Derek Anderson, et al., “Getting to Know GIMF: The Simulation Properties of the Global Integrated Monetary and Fiscal Model,” International Monetary Fund, 2013.

<sup>97</sup> The seven currencies of the major trading partners include the Euro, Canadian dollar, Japanese yen, British pound, Swiss franc, Australian dollar, and Swedish krona. For more information, refer to Federal Reserve’s bulletin: [http://www.federalreserve.gov/pubs/bulletin/2005/winter05\\_index.pdf](http://www.federalreserve.gov/pubs/bulletin/2005/winter05_index.pdf)

<sup>98</sup> IMF, “2012 Spillover Report—Background Papers,” International Monetary Fund, July 10<sup>th</sup>, 2012.

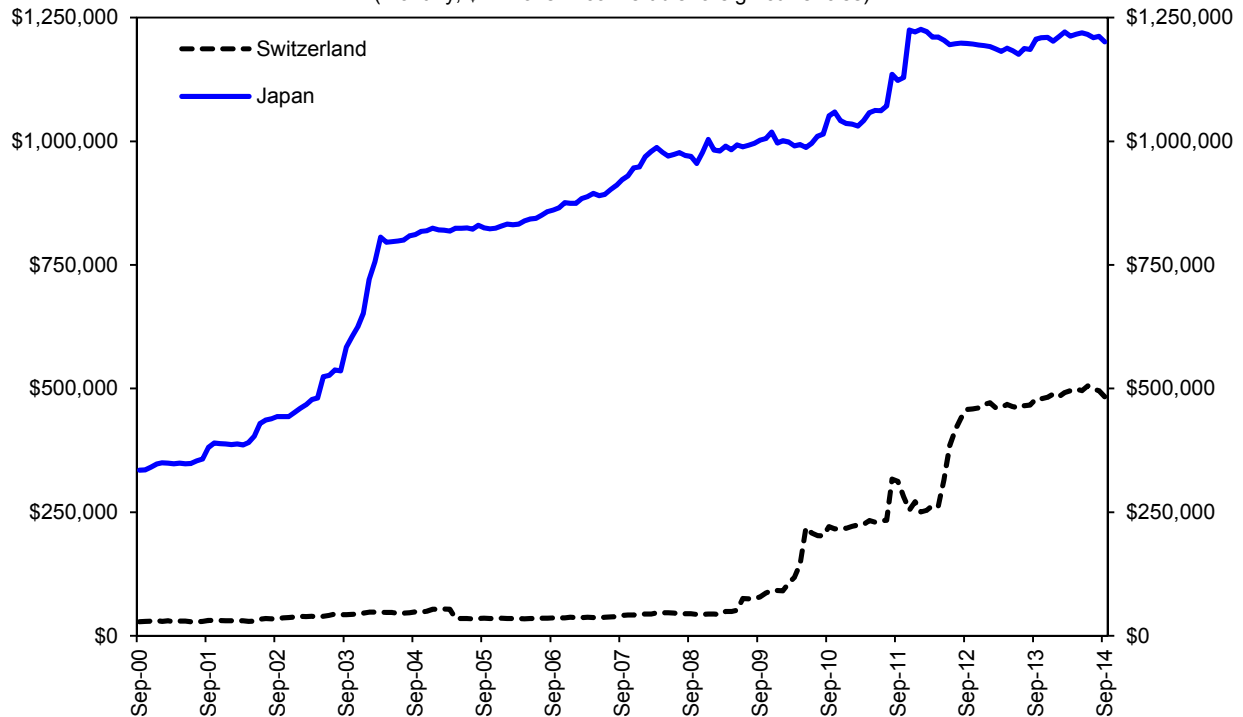
Furthermore, the growth in official foreign reserves has been modest in areas such as the U.S., EU, UK, and Canada, especially relative to Japan and Switzerland as Figure 12 and Figure 13 demonstrate. In fact, since September of 2000, the U.S. and EU have increased their official foreign reserves by 45 and 33 percent, respectively. Although the UK and Canada have increased foreign reserves by 104 and 122 percent, both figures are dwarfed by Japan's and Switzerland's numbers of 259 and 1,586 percent.

Figure 12  
**Foreign Currency Reserves**  
 (monthly, \$ millions in convertible foreign currencies)



Source: Board of Governors of the Federal Reserve System

Figure 13  
**Foreign Currency Reserves**  
 (monthly, \$ millions in convertible foreign currencies)



Source: Board of Governors of the Federal Reserve System

The key difference between reserve growth in the U.S., EU, UK, and Canada versus Japan and Switzerland is the source of growth—the first group of countries can tie their reserve increases to corresponding market fluctuations in exchange rates, to capital gains, and to interest accrued on investment portfolios.<sup>99</sup> This should come as no surprise given that the U.S., EU, UK, and Canada, since the late 1990's, have only intervened twice in the foreign exchange market in a coordinated, multilateral effort to support the euro in 2000 and then the yen in 2011 following Japan's devastating earthquake and tsunami.<sup>100,101,102,103</sup> The second group—Japan and Switzerland—cannot trace their reserve growth to valuation and fluctuations on pre-existing portfolios. Indeed, both Japan's and Switzerland's reserve growth is due to exchange rate objectives, which is evident from their extensive foreign currency purchases and domestic currency sales in the foreign exchange market.<sup>104</sup>

In order to adequately cover Japan's experience with foreign reserve growth and currency intervention, the material will be presented in the following section. For now, discussion will focus on Switzerland's more recent break from its fifteen-year long non-interventionist policy on exchange rates. On March 12<sup>th</sup>, 2009, prompted by the spillover effects of the global financial crisis, the Swiss National Bank (SNB) intervened in the foreign exchange market to suppress further appreciation of the Swiss franc and to safeguard against deflation.<sup>105,106</sup> In fact, leading up to March 12<sup>th</sup>, the Swiss franc approached a record high against the euro and thus put downward pressure on import prices to an already weakened Swiss economy—this led the SNB to believe that monetary policy was too restrictive and could spark deflation.<sup>107,108</sup> As a result, the SNB reduced interest rates, purchased domestic private-sector bonds, and more relevantly, began intervening in the foreign exchange market by purchasing euros in March of 2009.<sup>109</sup> Within three days, these actions brought about an immediate 4 percent depreciation to the Swiss franc relative to the euro.

By the end of 2009, the SNB felt that the risk of deflation had subsided and decided to only intervene in the foreign exchange market if the Swiss franc showed signs of "excessive" appreciation, as noted in its annual report:

*"The inflation forecast published in December 2009 gave the SNB sufficient leeway to maintain its expansionary monetary policy. The SNB also announced that it would take firm action to prevent any excessive appreciation of the Swiss franc against the euro" (page 34).<sup>110</sup>*

Nevertheless, Switzerland once again faced large capital inflows into the franc in early 2010, which had been initiated by the worsening of the European sovereign-debt crisis. In order to counteract the franc appreciation from these safe-haven inflows, the SNB undertook further currency intervention as reflected by the SF138 billion increase of foreign reserves from January to May of 2010.<sup>111</sup> To put this in perspective, this results to a SF28 billion increase in reserves per month, whereas in the previous intervention, foreign reserves grew by SF9.4 billion in the month of March in 2009.<sup>112</sup> Furthermore, in the 2010 round of currency intervention, only 40 percent of these reserve accumulations transmitted to the monetary base, which is in contrast to the 2009 intervention, as depicted in Figure 14 on the following page.<sup>113,114</sup> However, by June of 2010, the SNB reversed course and found that,

*"...an appreciation of the Swiss franc was no longer such a threat to price stability and the economy as it had been previously. Thus it [the SNB] refrained from carrying out any further interventions on the foreign exchange market in the second half of the year" (page 32).<sup>115</sup>*

<sup>99</sup> Linda Goldberg, Cindy Hull, and Sarah Stein. "Do industrialized countries hold the right foreign exchange reserves?" *Current Issues in Economics and Finance*, New York Federal Reserve, 2013.

<sup>100</sup> Federal Reserve Bank of New York, Treasury and Federal Reserve Foreign Exchange Operations Quarterly Reports [http://www.newyorkfed.org/markets/quar\\_reports.html](http://www.newyorkfed.org/markets/quar_reports.html).

<sup>101</sup> European Central Bank, annual reports, 2000-2011.

<sup>102</sup> Her Majesty's Treasury, *Debt and Reserves Management Report, 2010-11, Exchange Equalisation Account: Report and Accounts, 2000-01, and Exchange Equalisation Account: Report and Accounts, 2010-11*.

<sup>103</sup> Bank of Canada, "Backgrounders: Intervention in the Foreign Exchange Market", Bank of Canada, 2012.

<sup>104</sup> Linda Goldberg, Cindy Hull, and Sarah Stein. "Do industrialized countries hold the right foreign exchange reserves?" *Current Issues in Economics and Finance*, New York Federal Reserve, 2013.

<sup>105</sup> Historically, the Swiss franc has been viewed as a "safe-haven" currency, which can significantly increase capital flow into the Swiss franc. As a result, investor demand tends to put upward pressure on the Swiss franc to appreciate in times of crisis and high volatility.

<sup>106</sup> Swiss National Bank, annual reports, 2000-2009; and press release, "Swiss National Bank Sets Minimum Exchange Rate at CHF 1.20 per Euro," September 6, 2011. [http://www.snb.ch/en/mmr/reference/pre\\_20110906/source/pre\\_20110906.en.pdf](http://www.snb.ch/en/mmr/reference/pre_20110906/source/pre_20110906.en.pdf).

<sup>107</sup> The Swiss government's concern over lower import prices is that it would shift aggregate demand to foreign goods, away from Swiss goods.

<sup>108</sup> Swiss National Bank's Annual Report, 2009. [http://www.snb.ch/en/i/about/pub/annrep/id/pub\\_annrep](http://www.snb.ch/en/i/about/pub/annrep/id/pub_annrep)

<sup>109</sup> Owen Humpage, "The Limitations of Foreign Exchange Intervention: Lessons from Switzerland," *Economic Commentary*, Cleveland Federal Reserve Bank, October 18th, 2013.

<sup>110</sup> Swiss National Bank, "Foreign Exchange Reserves and Swiss Franc Securities," 2009 available at [http://www.snb.ch/en/i/about/pub/annrep/id/pub\\_annrep](http://www.snb.ch/en/i/about/pub/annrep/id/pub_annrep)

<sup>111</sup> Swiss National Bank, "Foreign Exchange Reserves and Swiss Franc Securities," 2010 available at [http://www.snb.ch/en/i/about/pub/annrep/id/pub\\_annrep](http://www.snb.ch/en/i/about/pub/annrep/id/pub_annrep)

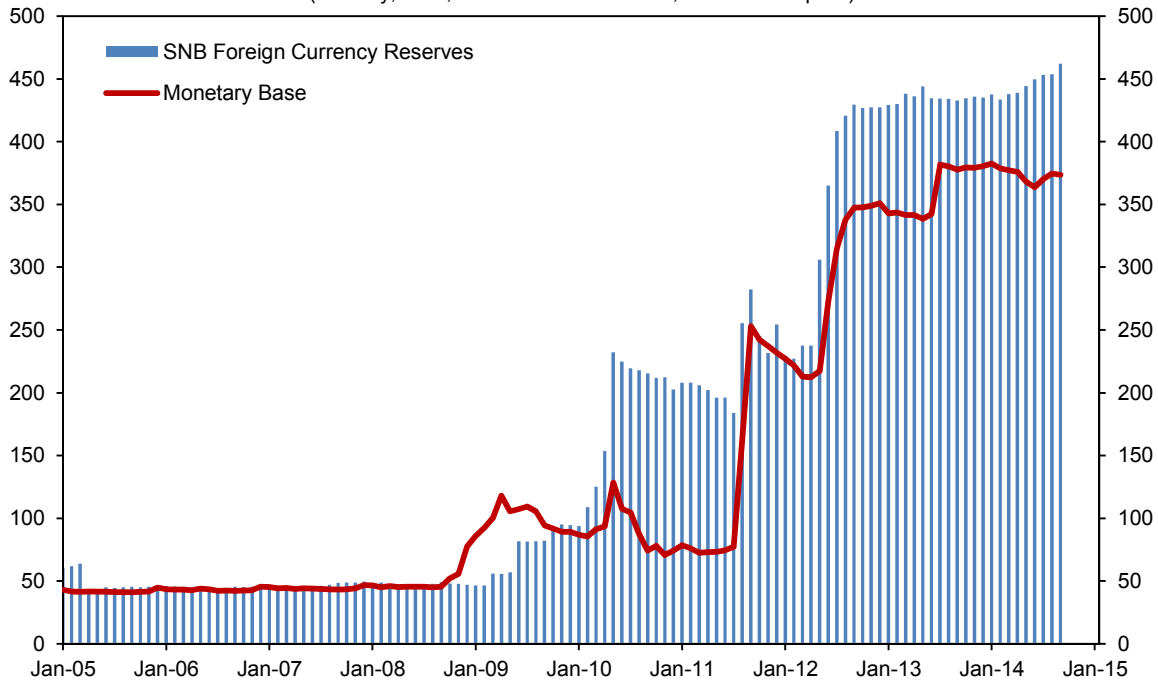
<sup>112</sup> Swiss National Bank, "Foreign Exchange Reserves and Swiss Franc Securities," 2009 available at [http://www.snb.ch/en/i/about/pub/annrep/id/pub\\_annrep](http://www.snb.ch/en/i/about/pub/annrep/id/pub_annrep)

<sup>113</sup> The absence of the monetary base increase with heavy foreign exchange intervention implies that the SNB sterilized the intervention.

<sup>114</sup> Owen Humpage, "The Limitations of Foreign Exchange Intervention: Lessons from Switzerland," *Economic Commentary*, Cleveland Federal Reserve Bank, October 18th, 2013.

<sup>115</sup> Swiss National Bank, "Foreign Exchange Reserves and Swiss Franc Securities," 2010. [http://www.snb.ch/en/i/about/pub/annrep/id/pub\\_annrep](http://www.snb.ch/en/i/about/pub/annrep/id/pub_annrep)

Figure 14  
**Swiss Monetary Base vs. SNB Foreign Currency Reserves**  
 (monthly, NSA, billions of Swiss francs, Jan-05 to Sep-14)



Source: Swiss National Bank

Naturally, the Swiss franc appreciated in the absence of currency intervention and by August 2011, the franc had reached historical levels in real trade weight terms, thus leading the SNB to deem the franc as “massively overvalued” (page 36).<sup>116</sup> Despite carrying out non-sterilized policy to depreciate the franc, the SNB was not successful and thus announced on September 6<sup>th</sup>, 2011 that it would,

*“...no longer tolerate a EUR/CHF exchange rate below a minimum rate of CHF 1.20...The SNB emphasised that it would enforce this minimum rate with the utmost determination and was prepared to purchase foreign currency in unlimited quantities for this purpose” (page 38).*<sup>117</sup>

On September 18<sup>th</sup>, 2014, the SNB issued a press release stating it would continue to enforce the exchange rate floor of CHF1.20 per euro,

*“The economic outlook has deteriorated considerably. The Swiss franc is still high. With the three-month Libor close to zero, the minimum exchange rate remains the key instrument to avoid an undesirable tightening of monetary conditions. The SNB will therefore continue to enforce the minimum exchange rate with utmost determination. For this purpose, it is prepared to purchase foreign currency in unlimited quantities. If necessary, it will take further measures immediately” (page 1).*<sup>118</sup>

Although Japan, Switzerland, and China are by far the easiest outliers to identify based on current data, there are other countries that are cause for concern as well, at least on a smaller scale. For instance, based on the data presented in Figure 15, the Czech Republic, Israel, Malaysia, Thailand, Singapore, Hong Kong, and South Korea have not only accumulated more foreign reserves since the inception of QE in December 2008, but have also increased the amount of reserves in excess of the value of three months of imports.<sup>119</sup> Furthermore, 10 of the 14 countries in Table 4 have foreign reserves that are between 25 to almost 110 percent of nominal GDP as of September 2014.<sup>120</sup> Despite years of the Federal Reserve’s QE, the U.S. foreign reserves as a share of nominal GDP is a negligible 0.26 percent—this is in sharp contrast to the monetary easing conducted in Switzerland, which has resulted in foreign reserves accounting for over 70 percent of nominal GDP. What is especially interesting about this contrast is that not only are the U.S. dollar and Swiss franc safe-haven currencies, but that both countries implemented monetary easing, citing concerns of internal imbalances (the U.S. was mainly faced with a slack labor force while Switzerland sought to establish price stabilization). Furthermore, when comparing the percentage point change in the foreign reserve share of nominal GDP, it shows that Switzerland has been increasing foreign reserves relative to nominal GDP at a much faster rate than other countries who have also been accumulating reserves since QE started. As Gagnon demonstrates, small and medium-sized economies that have used currency intervention as a growth strategy

<sup>116</sup> Swiss National Bank, “Foreign Exchange Reserves and Swiss Franc Securities,” 2011. [http://www.snb.ch/en/i/about/pub/annrep/id/pub\\_annrep](http://www.snb.ch/en/i/about/pub/annrep/id/pub_annrep)

<sup>117</sup> Swiss National Bank, “Foreign Exchange Reserves and Swiss Franc Securities,” 2011. [http://www.snb.ch/en/i/about/pub/annrep/id/pub\\_annrep](http://www.snb.ch/en/i/about/pub/annrep/id/pub_annrep)

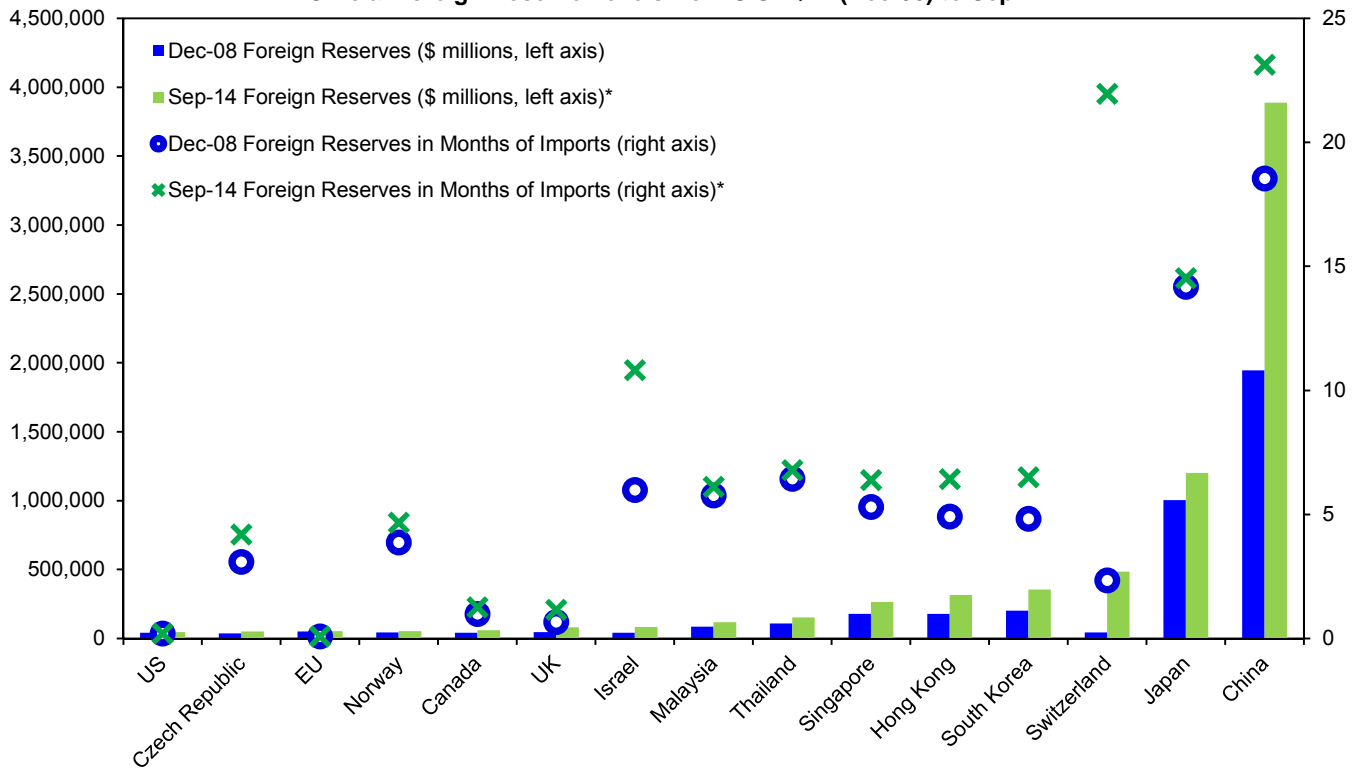
<sup>118</sup> Swiss National Bank, “Monetary Policy Assessment of 18 September 2014: Swiss National Bank Reaffirms Minimum Exchange Rate,” Press Release, Zurich, September 18<sup>th</sup>, 2014. [http://www.snb.ch/en/mmr/reference/pre\\_20140918/source/pre\\_20140918.en.pdf](http://www.snb.ch/en/mmr/reference/pre_20140918/source/pre_20140918.en.pdf)

<sup>119</sup> Each country’s rationale for purchasing official foreign reserves differs—for instance, Hong Kong has been driven by the central bank’s response to currency pressure, whereas in Singapore, currency intervention has a historical precedent.

<sup>120</sup> Due to data availability, Norway’s figure is representative of August 2014

could have stabilized prices and employment via independent monetary policy without running large current account surpluses and foreign reserve balances.<sup>121</sup>

Figure 15  
Official Foreign Reserve Levels from U.S. QE1 (Dec-08) to Sep-14



\* Norway's foreign reserve data are as of Aug-14 due to data availability

Source: IMF, World Bank

Table 4

Country	% Change in Foreign Reserves from Dec-08 to Sep-14	Dec-08 Foreign Reserves as a % of GDP	Sep-14 Foreign Reserves as a % of GDP	% Point Change in Foreign Reserves as a % of GDP from 2008 to 2014
EU	3.00%	0.30%	0.28%	0.01%
US	6.70%	0.30%	0.26%	-0.03%
Japan	19.70%	20.70%	25.18%	4.49%
Norway*	24.20%	9.50%	10.49%	0.97%
Malaysia	36.50%	37.10%	34.70%	-2.38%
Czech Republic	38.20%	16.00%	24.86%	8.90%
Thailand	41.60%	39.60%	40.15%	0.56%
Canada	46.70%	2.70%	3.40%	0.70%
Singapore	48.30%	92.40%	85.75%	-6.60%
UK	72.10%	1.70%	2.81%	1.09%
South Korea	76.50%	20.10%	24.47%	4.41%
Hong Kong	77.10%	81.20%	107.81%	26.58%
Israel	99.50%	19.60%	27.40%	7.82%
China	99.78%	42.79%	37.54%	-5.25%
Switzerland	994.70%	8.40%	71.19%	62.77%

\* Norway's foreign reserve data are as of Aug-14 due to data availability

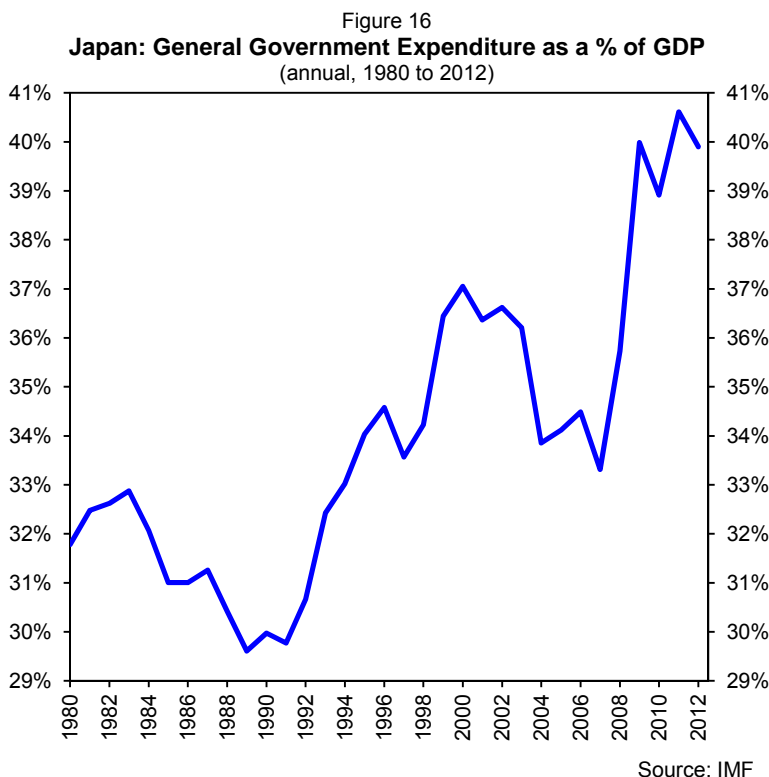
Source: IMF, World Bank, State Administration of Foreign Exchange

<sup>121</sup> Joseph Gagnon, "Flexible Exchange Rates for a Stable World Economy," Peterson Institute for International Economics, 2011.

Case Study: The Japanese Experience

The government of Japan raised the nation's consumption tax rate from 5 percent to 8 percent this past April and had originally signed into law another increase to 10 percent beginning in October 2015, which has now been postponed eighteen months following news that the Japanese economy contracted for two consecutive quarters.<sup>122,123</sup> On top of the consumption tax increase, Japan has also printed money as if there were no tomorrow and devalued the once all-powerful yen.<sup>124</sup> As a consequence of the Bank of Japan's exceedingly accommodative monetary policy, which will be further discussed in this section, the yen has since declined by over 55 percent in nominal terms from the yen's dollar high of ¥75.72 on October 28, 2011. One year later, the yen still remained strong at or close to equilibrium around ¥78 per USD,<sup>125</sup> but has since declined approximately 47 percent on a nominal basis against the dollar following the introduction of "Abenomics" in late 2012. In fact, the equilibrium exchange rate between the yen and dollar was estimated in May 2014 to be at ¥101 per USD (which it was at the time), however, the exchange rate now stands around ¥118 per USD, which is likely well out of equilibrium range.<sup>126</sup>

Government spending has increased beyond recognition in spite of the fact that Japan's net national debt is over 140 percent of its GDP—the highest in the developed world. At the same time, in fiscal years 1989-1991, Japanese federal government spending averaged about 30 percent of GDP.<sup>127</sup> Since then, government expenditures have steadily increased to about 40 percent of GDP in the 2010-2012 period (see Figure 16). And now they want to spend even more. In 1988, Japan's stock market comprised 42 percent of the world's stock market and yet today, Japan's stock market is only 7 percent of the world's stock market.<sup>128</sup>



With declining population growth rates as a result of declining birth rates and scarcely any immigration, large actual and prospective increases in dependency ratios such as the number of retirees per worker as well as poor stock market and economic performance, Japan has witnessed an enormous increase in her unfunded liabilities, both public and private. From 1980 to 2013, the number of people older than 64 per 100 members of the working-age population has increased from 13 to 41.<sup>129</sup> To put things in perspective, for the same ratio over the same time period, the United States only saw an increase from 17 to 21.3.<sup>130</sup> In the simplest terms, Japanese companies guaranteed workers retirement benefits in excess of what was warranted by their payroll deductions and in addition invested those payroll deduction proceeds in the Japanese stock market.

As previously discussed, capital flees Japan via running a trade surplus, which Japan has done on an annual basis in nominal terms, up until very recently, since 1981 (refer to Figure 17). However, given that Japan's real effective exchange rate is at historical lows, it

<sup>122</sup> Annualized, Japan shrank 7.3 percent and 1.6 percent in the second and third quarter of 2014, respectively.

<sup>123</sup> Toko Sekiguchi and George Nishiyama, "Japan Prime Minister Shinzo Abe Calls Snap Election," *The Wall Street Journal*, November 18<sup>th</sup>, 2014.

<sup>124</sup> Arthur B. Laffer and Nicholas C. Drinkwater, "Japan: What Ever Happened to the Rising Sun?" Laffer Associates, October 23rd, 2014.

<sup>125</sup> William Cline and John Williamson, "Updated Estimates of Fundamental Equilibrium Exchange Rates," Peterson Institute for International Economics, November 2012.

<sup>126</sup> William Cline, "Estimates of Fundamental Equilibrium Exchange Rates, May 2014," Peterson Institute for International Economics, May 2014.

<sup>127</sup> Arthur B. Laffer and Nicholas C. Drinkwater, "Japan: What Ever Happened to the Rising Sun?" Laffer Associates, October 23rd, 2014.

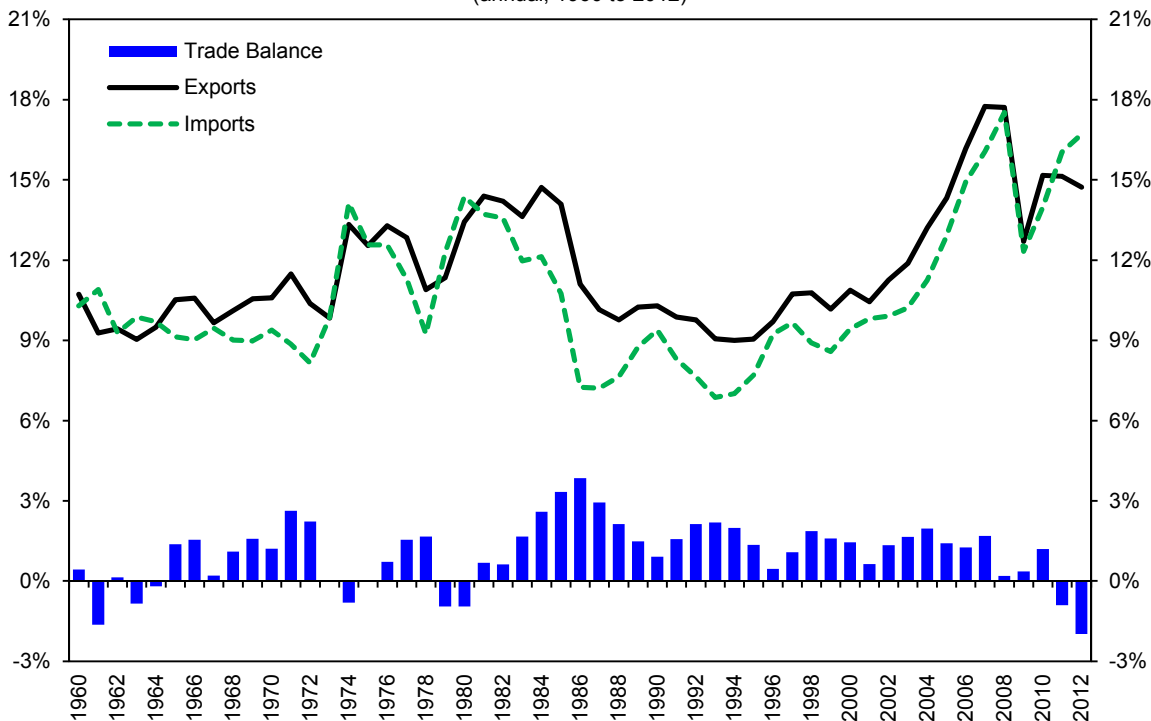
<sup>128</sup> Ibid.

<sup>129</sup> Ibid.

<sup>130</sup> Source: World Bank: Age dependency ratio, old (% of working-age population). <http://data.worldbank.org/indicator/SP.POP.DPND.OL?page=6>

would not be surprising to see a reemergence of Japan's trade surplus in nominal terms once the volumes of imports and exports have had sufficient time to adjust.<sup>131</sup>

Figure 17  
Trade in Goods and Services as a % of GDP in Nominal Terms  
(annual, 1960 to 2012)



Source: World Bank

The incident triggering the trade deficit/capital surplus that Japan has experienced since 2011 was the Tōhoku earthquake and the subsequent tsunami that killed nearly 16,000 people and destroyed the Fukushima Daiichi nuclear power plant. This enormous human and economic tragedy destroyed a significant portion of Japan's capital stock and caused an increase in the marginal productivity of capital (with both quantity and price responses) and a reduction in the marginal productivity of labor.

The quantity response of the increase in marginal productivity of capital was the transition from Japan running a trade surplus (i.e. being a net exporter of capital) to running a trade deficit (i.e. being a net importer of capital). With the tsunami's destruction of so much capital, Japan was all of a sudden in need of more capital, and was not willing to export as much as it had previously.<sup>132</sup>

The price response to the disaster was a further real appreciation of the yen, as Japanese terms of trade improved, making 1.) exports from Japan less competitive relative to imports from other countries and, at the same time, 2.) making imports to Japan more competitive relative to Japanese domestic goods. These price effects combined to result in Japan's transition from being a net capital exporter to a net capital importer, which remains the case today. As Japan grows its capital stock back to its pre-tsunami norm and continues with its poor economic policies, expect Japan's trade deficit to revert back to a trade surplus (and thus, Japan's status as a net capital exporter).

After the tsunami, the yen strengthened (see Figure 18) as economics would dictate, but due to the world's central banks jointly intervening to weaken the yen, the currency was never quite able to reach the strength that it would have reached without intervention.<sup>133</sup> The central banks' logic was that a stronger yen would make exports from Japan relatively less competitive, which would hurt Japan at its most vulnerable of times. Unfortunately, these well-meaning central banks only delayed and ultimately harmed Japan's recovery, as the yen's strength was a natural response to the tsunami and an important component of Japan's economic recovery.<sup>134</sup>

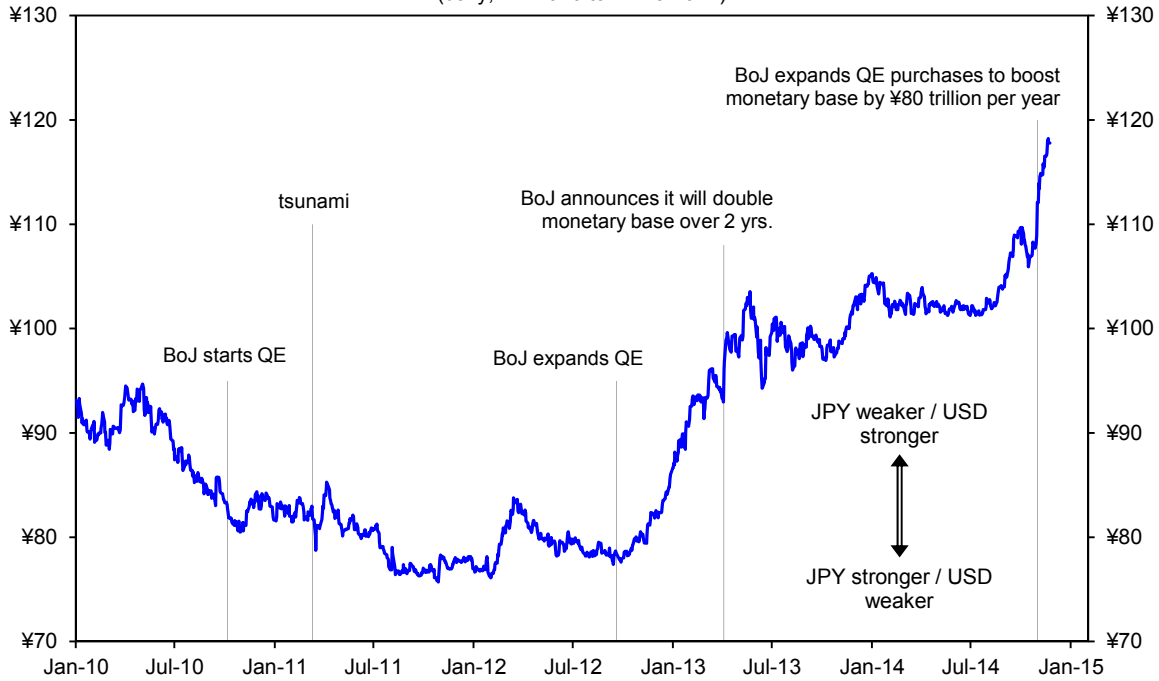
<sup>131</sup> Also, import demand tends to be price inelastic in the short run.

<sup>132</sup> Arthur B. Laffer, "Through the Laffer Lens: Japan's Black Swan Event," Laffer Associates, March 18, 2011.

<sup>133</sup> Wayne Winegarden and Scott Vaughn, "Through the Laffer Lens: Japan's Policy Response," Laffer Associates, April 7, 2011.

<sup>134</sup> Arthur B. Laffer, "Through the Laffer Lens: Japan's Black Swan Event," Laffer Associates, March 18, 2011.

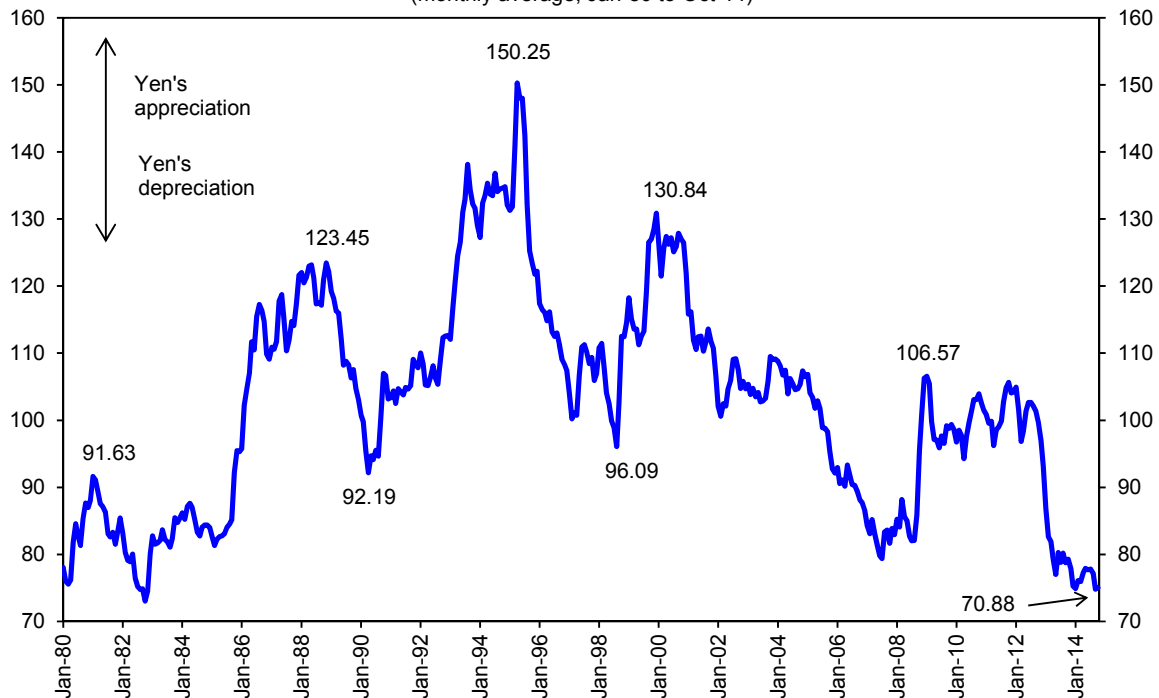
Figure 18  
**JPY/USD Exchange Rate**  
 (daily, 1/1/2010 to 11/23/2014)



Source: Federal Reserve Board of Governors, Laffer Associates

Since late 2012, the yen has depreciated over 45 percent against the dollar in nominal terms (Figure 18). This devaluation coincides with the imposition of Abenomics, one “arrow” of which is substantial quantitative easing. Furthermore, the yen’s real effective exchange rate has depreciated to its 1982 level, which is below half of its high in the mid 1990s, as Figure 19 demonstrates.<sup>135</sup> In fact, the Bank of Japan put further depreciation pressure on the yen after announcing at the end of October 2014 that it will “conduct money market operations so that the monetary base will increase at an annual pace of about 80 trillion yen” by expanding its asset purchases.<sup>136</sup>

Figure 19  
**Japan Real Effective Exchange Rate**  
 (monthly average, Jan-80 to Oct-14)



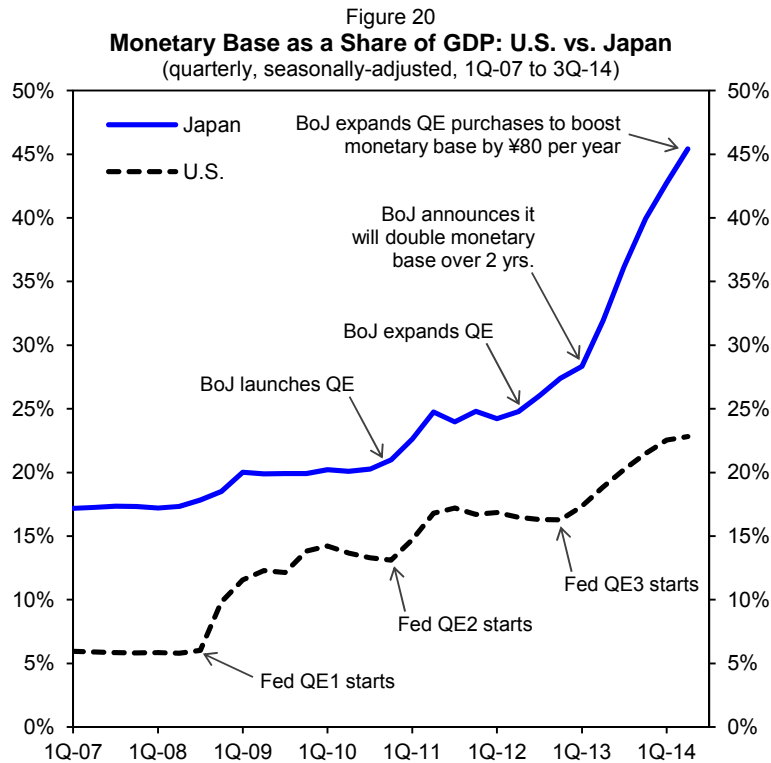
Source: Bank of Japan

<sup>135</sup>Bank of Japan, *Monthly Report of Recent Economic and Financial Developments*, Bank of Japan, November 2014.

<sup>136</sup>Bank of Japan, *Monthly Report of Recent Economic and Financial Developments*, Bank of Japan, November 2014.



In other words, over the past few years Japan expanded its quantitative easing program from a small-scale to a massive-scale program. While the Japanese and U.S. quantitative easing programs are roughly the same absolute size, Japanese QE is being placed on an economy that is around one third the size of the U.S. economy. Accordingly, while the U.S. monetary base as a share of U.S. GDP has increased by 17 percentage points since 3Q-08 (from 6 percent to 23 percent), Japan's monetary base as a share of Japanese GDP has increased by 32 percentage points over the same period (from 18 percent to 50 percent).



Source: Bank of Japan, Cabinet Office (Gov't of Japan), Federal Reserve Bank of St. Louis, U.S. Bureau of Economic Analysis

Since 1991, Japan has conducted official intervention in the foreign exchange market 376 times.<sup>137</sup> Historically, heavy official Japanese intervention has prevailed since the 1970s in order to protect the competitiveness of its exports by curbing substantial yen appreciation. However, by 2005, the Ministry of Finance did not intervene again until September of 2010—just one month prior to Japan's launch of quantitative easing. Although the intervention in quarter one of 2011 was part of the multilateral effort following the tsunami, Japan unilaterally intervened to weaken the yen six more times in 2011. As Table 5 demonstrates, the total size of Japan's 2011 intervention was an astonishing 3 percent of nominal GDP. While 3 percent may seem rather negligible, when considering that the net effect of trade (i.e. exports less imports) was only -0.9 percent of Japan's GDP in 2011, the size of the intervention is put into perspective.<sup>138</sup>

<sup>137</sup> Ministry of Finance Japan, Foreign Exchange Intervention Operations. ([http://www.mof.go.jp/english/international\\_policy/reference/feio/index.htm](http://www.mof.go.jp/english/international_policy/reference/feio/index.htm))

<sup>138</sup> Even when one considers that total trade (i.e. the sum of exports and imports) was 31 percent as a share of GDP in 2011, currency interventions conducted by Japan were still 1/10<sup>th</sup> of the size of total trade when scaled by GDP—no small matter.

Table 5  
**Japanese Official Foreign Exchange Market Interventions**

Year	# of Interventions	Size of Intervention (¥100 million)	Size of Intervention as a % of GDP
1991	4	702	-
1992	23	7,170	-
1993	50	25,580	-
1994	55	20,639	0.42
1995	43	49,589	0.99
1996	5	16,037	0.31
1997	8	11,284	0.22
1998	3	30,470	0.59
1999	15	76,410	1.51
2000	6	31,731	0.62
2001	10	32,107	0.64
2002	8	40,162	0.8
2003	91	204,250	4.09
2004	47	148,313	2.94
2005	-	-	-
2006	-	-	-
2007	-	-	-
2008	-	-	-
2009	-	-	-
2010	1	21,249	0.44
2011	7	142,971	3.03
2012	-	-	-
2013	-	-	-
2014	-	-	-

Source: Ministry of Finance Japan

While monetary authorities of developed countries tend to focus on price stability and domestic employment and thus do not seem to accumulate a large share of reserves relative to nominal GDP (Table 6), Japan has pursued policies such that foreign reserve holdings are large enough to, “ensure sufficient liquidity in order to be prepared for purchases and sales of foreign exchange, etc., needed to secure the stability of Japan’s currency.”<sup>139,140</sup> In contrast, the U.S. only officially intervenes in order to counter, “disorderly market conditions, provided that market exchange rates for the U.S. dollar reflect actions and behavior consistent with IMF Article IV, Section 1.”<sup>141,142</sup> Indeed, as Table 6 reflects, Japan not only has a high foreign reserve ratio to nominal GDP, but its reserve holdings could purchase over 14.5 months of imports, indicating the magnitude of Japan’s direct foreign exchange interventions and purchases of foreign assets relative to other countries. Given Japan’s expansion of quantitative easing in October of 2014, it should come as no surprise if these numbers become larger and thus push Japan to become even more of an outlier.

<sup>139</sup> Ministry of Finance Japan, “Guidelines for the Management of Foreign Assets Held in the Foreign Exchange Fund Special Account,” Ministry of Finance Japan, April 2005.

<sup>140</sup> Table 6 is a reproduction of Table 3.

<sup>141</sup> Board of Governors of the Federal Reserve System, “Foreign Currency Directive,” Minutes of the Federal Open Market Committee, January 26-27, 2010.

<sup>142</sup> Linda Goldberg, Cindy Hull, and Sarah Stein. “Do industrialized countries hold the right foreign exchange reserves?” *Current Issues in Economics and Finance*, New York Federal Reserve, 2013.

Table 6  
**Foreign Reserves in Selected Countries**  
(as of Sep-14)

Country	Foreign Reserves as a % of GDP	Foreign Reserves in Months of Imports**
US	0.3%	0.20
EU	0.3%	0.09
UK	2.8%	1.15
Canada	3.4%	1.25
Norway*	10.5%	4.67
South Korea	24.5%	6.50
Czech Republic	24.9%	4.19
Japan	25.2%	14.53
Israel	27.4%	10.82
Malaysia	34.7%	6.11
China	37.5%	23.13
Thailand	40.2%	6.78
Switzerland	71.2%	21.95
Singapore	85.8%	6.38
Hong Kong	107.8%	6.42

\* Norway's foreign reserve data are as of Aug-14 due to data availability \*\* Import figures are from 2012 due to data availability

Source: IMF, World Bank, State Administration of Foreign Exchange

Can Japan be identified as a currency manipulator given the criteria outlined by this report? Given the negative relationship between the yen's real effective exchange rate and nominal exports as shown in Figure 21, it is easy to see why depreciating the yen for export competitiveness would be enticing.<sup>143</sup> Furthermore, recent remarks from Japanese Prime Minister Shinzo Abe highlight the Japanese economy's dependence on a weak yen, export-driven growth policy, "No matter how much sweat they put in, no matter how good their ideas, [businesses] couldn't compete due to the strong yen, and many jobs were lost."<sup>144</sup> Although price stabilization has been the official rationale behind Japan's accommodative policies, it has been well documented that, "Large devaluations are generally associated with large declines in the real exchange rate (RER) and concomitant low rates of inflation"<sup>145</sup>—this is thought to be due to the "slow adjustment in the price of nontradable goods and services, not [the] slow adjustment in the price of goods that are imported or exported."<sup>146</sup> Moreover, countries with low inflation can successfully devalue their currency by 50 percent, bring about a 30 percent depreciation of the long-run real exchange rate, and improve exports without permanently increasing inflation, perhaps explaining to some degree why sustained yen depreciation has not translated into sustained domestic inflation.<sup>147</sup>

With that said, the first criteria for identifying a currency manipulator is a current account surplus over the six month period of interest. Japan has kept a current account surplus totaling ¥2,024 billion over the six months spanning Q2 and Q3 in 2014 (or ¥4,048 in annual terms).<sup>148</sup> However, this is in spite of a trade deficit that is growing rather than shrinking, which is in part, due to Japan's heavier reliance on foreign imports of fuel and energy following the tsunami,<sup>149</sup> as well as weak foreign demand for Japanese produced goods and services from a tepid global recovery.<sup>150</sup> Nevertheless, the yen's real effective exchange rate has depreciated to historical lows, which is expected to "underpin" future export volume and growing trade and current account surpluses.<sup>151</sup>

<sup>143</sup> Cabinet Office, Japan. <http://www.esri.cao.go.jp/index-e.html>; World Bank World Development Indicators.

<sup>144</sup> Takashi Nakamichi and Mitsuru Obe, "Japan's Finance Minister Rings Alarm Over Yen Weakness," *The Wall Street Journal*, November 21<sup>st</sup>, 2014.

<sup>145</sup> Ariel Burstein, Martin Eichenbaum, and Sergio Rebelo, "Large Devaluations and the Real Exchange Rate," *Journal of Political Economy*, April 2005.

<sup>146</sup> Ariel Burstein, Martin Eichenbaum, and Sergio Rebelo, "Large Devaluations and the Real Exchange Rate," *Journal of Political Economy*, April 2005.

<sup>147</sup> Miguel Kiguel and Nita Ghei, *Devaluation in Low-Inflation Economies, Volume 1*, World Bank, 1993.

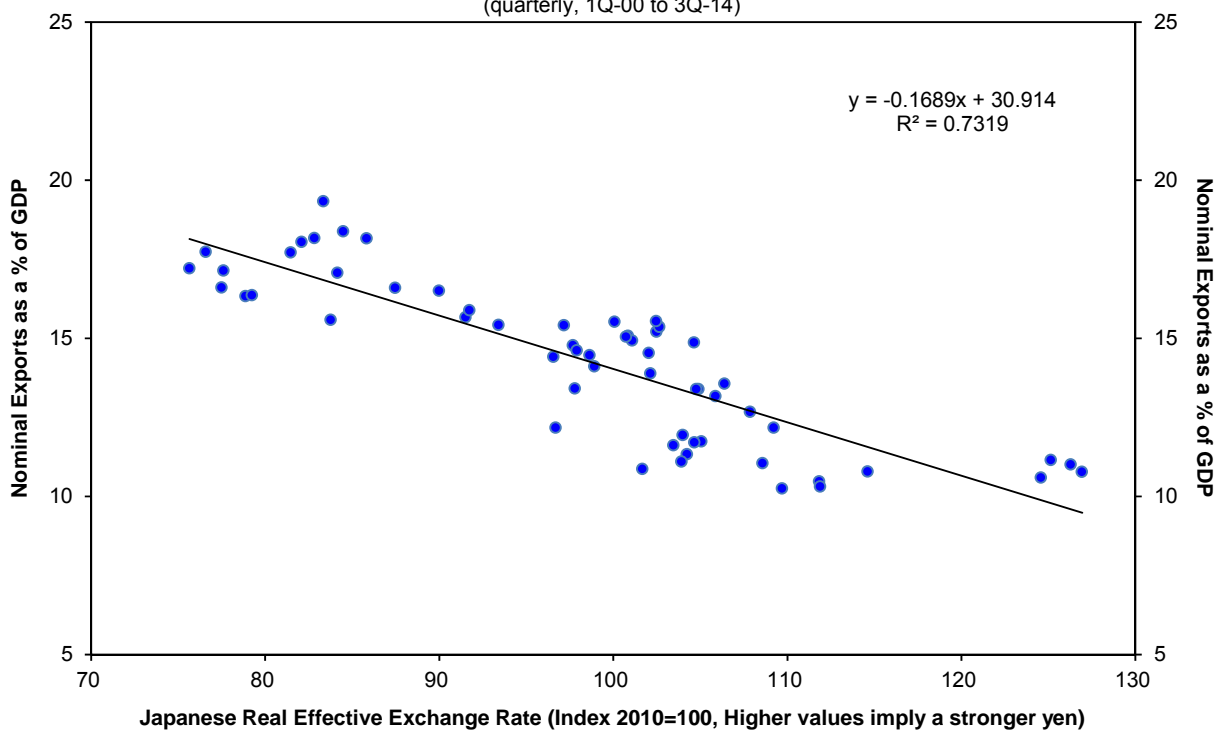
<sup>148</sup> Ministry of Finance Japan, Balance of Payments. [http://www.mof.go.jp/english/international\\_policy/reference/balance\\_of\\_payments/ebpnet.htm](http://www.mof.go.jp/english/international_policy/reference/balance_of_payments/ebpnet.htm)

<sup>149</sup> Of course, the irony here being that had the world's central banks allowed the yen to appreciate following the tsunami (and thus reflect market fundamentals), rather than jointly intervening to force a depreciation of the yen, Japan's trade deficit would likely be in better shape since a stronger yen would have made oil imports relatively cheaper to the Japanese consumer.

<sup>150</sup> Or perhaps due to the J curve effect following a devaluation.

<sup>151</sup> Bank of Japan, *Monthly Report of Recent Economic and Financial Developments*, Bank of Japan, November 2014.

Figure 21  
**Japanese Exports as a % of GDP Response to REER**  
 (quarterly, 1Q-00 to 3Q-14)



Source: Bureau of Economic Analysis

Second, foreign reserves held by Japan decreased by \$11,808 million over the same six month period, but the percentage change was rather small at less than 1 percent.<sup>152</sup> Given that Japan recently ramped up their QE, it is very likely that reserves will begin accumulating again. Lastly, Japan's reserves at the end of September 2014 are still large enough in magnitude to purchase 14.54 months of imports, indicating that reserves are more than sufficient.<sup>153</sup> Given that only two out of the three criteria are met using the six months covering quarters 2 and 3 in 2014, Japan is not identified as a currency manipulator. However, given the excess of foreign reserves, presence of a current account surplus, historical precedent, and significant policy changes over the past month, Japan appears to be falling back into its past practice of foisting much of the burden of its flawed policies onto its trade partners instead of undertaking the necessary structural reforms. It would therefore be wise to reassess Japan's progress as data becomes available to determine if it reverts back to meeting the three criteria.<sup>154</sup>

Although Japan does not meet the requirements set forth to be identified as a currency manipulator over the past six months, it is still useful to examine how these variables have changed since Japan initiated quantitative easing in October of 2010. Japan has added \$152,688 million in foreign exchange reserves, nearly a 15 percent increase. It is useful to analyze the percentage point change in foreign reserves relative to nominal GDP since over time reserve growth should be scaled to GDP growth to identify whether the country was actively accumulating reserves. For Japan, foreign reserves as a share of nominal GDP have increased by 6.11 percentage points from the September 2010 level. Additionally, with the exception of Q4 2013 and Q1 2014, the current account has been positive since the middle of 2010,<sup>155</sup> albeit growing smaller as the value of imports becomes a larger share of total trade.<sup>156</sup> The number of months of imports that foreign reserves can buy has declined from 16.43 in September 2010 to 14.57 in October 2014—although the decline is indicative that excess foreign reserves are shrinking, the magnitude is nonetheless still exceptionally disproportionate.<sup>157</sup>

#### Policy Implications and Guidelines

As this report has demonstrated, currency manipulation does not add to aggregate global growth or demand, it simply shifts demand to goods and services produced by the country manipulating its currency. Therefore, currency manipulation is a zero-sum game where the offending country benefits at the expense of its trading partners—this has exacerbated current account imbalances and has inhibited global recovery from the financial crisis due to the two speed growth that results in part from currency intervention. Given that

<sup>152</sup> IMF Data Template on International Reserves and Foreign Currency Liquidity. (<http://www.imf.org/external/np/sta/ir/IRProcessWeb/colist.aspx>); World Bank World Development Indicators (<http://data.worldbank.org/indicator/NE.IMP.GNFS.CD>).

<sup>153</sup> Import data is as of 2012 due to availability.

<sup>154</sup> IMF Data Template on International Reserves and Foreign Currency Liquidity. (<http://www.imf.org/external/np/sta/ir/IRProcessWeb/colist.aspx>); World Bank World Development Indicators (<http://data.worldbank.org/indicator/NE.IMP.GNFS.CD>).

<sup>155</sup> Although the trade balance is in deficit, the current account has managed to stay positive due to net factor income (another component of the current account) not only increasing, but also growing as a larger share of the Japanese current account while the trade balance has shrunk in comparison.

<sup>156</sup> IMF Data Template on International Reserves and Foreign Currency Liquidity. (<http://www.imf.org/external/np/sta/ir/IRProcessWeb/colist.aspx>); World Bank World Development Indicators (<http://data.worldbank.org/indicator/NE.IMP.GNFS.CD>).

<sup>157</sup> The decline in reserves may be understated as October 2014 data for imports in dollar terms are not yet available—the most recent data is as of 2012.

the IMF has failed to enforce its Article IV principles, it falls to bilateral and regional arrangements to lead the way to form a multilateral coalition. The guidelines endorsed by this report will establish a working definition of currency manipulation and will serve to exert pressure and develop tangible workable examples, compelling the multilateral institutions to act to address these distortions or become irrelevant. This report echoes the sentiment of Former Federal Reserve Board Chairman Ben Bernanke,

*“As currently constituted, the international monetary system has a structural flaw: It lacks a mechanism, market based or otherwise, to induce needed adjustments by surplus countries, which can result in persistent imbalances...In particular, for large, systemically important countries with persistent current account surpluses, the pursuit of export-led growth cannot ultimately succeed if the implications of that strategy for global growth and stability are not taken into account...Thus, it would be desirable for the global community, over time, to devise an international monetary system that more consistently aligns the interests of individual countries with the interests of the global economy as a whole. In particular, such a system would provide more effective checks on the tendency for countries to run large and persistent external imbalances, whether surpluses or deficits. Changes to accomplish these goals will take considerable time, effort, and coordination to implement. In the meantime, without such a system in place, the countries of the world must recognize their collective responsibility for bringing about the rebalancing required to preserve global economic stability and prosperity.”<sup>158</sup>*

In order to adequately support liberalized trade, currency manipulators must be deterred from their current practices. These “beggar-thy-neighbor” policies operate as a hidden import tariff or export subsidy, creating barriers to trade and thus distorting the global economy. At the very least, requiring the three guidelines proposed by this report for major international trade free agreements, such as the Trans-Pacific Partnership and the Transatlantic Trade and Investment Partnership, would help ensure that all participating countries benefit from the gains from trade.

Although it is true that the countries who manipulate their currencies will lose export competitiveness as a result of market forces restoring their fundamental exchange rate, it is also possible that foreign demand for these countries’ exports will actually *increase* as global imbalances are corrected. In fact, the Bank of Japan has linked weak foreign demand for Japanese exports to the lackluster global economic recovery—rebalancing global growth would likely restore aggregate demand and thus benefit Japan.<sup>159</sup> Furthermore, artificially devaluing domestic currency can lead to undesirable, long-run economic distortions in the home country, such as weak domestic demand and price instability. Ideally, voluntary cooperation would significantly reduce offending countries’ foreign exchange interventions and accumulation of excess foreign reserves.

One of the more challenging tasks will be to ensure compliance of the guidelines proposed in this report in order to avoid the free rider issue. For instance, if only half of the offending countries voluntarily agree to diverge from interventionist policy, then the countries that continue to intervene benefit at the expense of those who return to a market-determined system. Developing countries, such as Brazil and India, are often forced to act as a currency defender against other countries’ “beggar-thy-neighbor” policies and thus should be encouraged to participate in multilateral coordination efforts that highlight and object to currency manipulation. Such heterogeneous support could help put pressure on multilateral institutions, such as the IMF, to adequately pursue and investigate countries that violate IMF guidelines.

Furthermore, part of the solution must be to seek sustainable growth from sources other than net export growth. Otherwise, there will be little perceived incentive for those countries considering intervening to forego the practice, given intervention in the name of export competitiveness has previously worked in their favor, at least over the short and medium run. Although one of the goals of the Bretton Woods system was to prevent these detrimental beggar-thy-neighbor policies, especially given the turmoil such currency wars caused during the inter-war years, there was no formal mechanism put into place to check the behavior of surplus economies.<sup>160</sup> Although this report by no means identifies this mechanism or comes close to solving the problem at hand, it at least develops a set of measurable criteria to determine whether a currency is being manipulated. In order for any misalignment in the global economy to be corrected, it is first necessary to properly identify the countries engaging in market disrupting behavior, and determine the appropriate repercussions for those that continue to employ currency manipulation in order to disincentivize its further use.

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<sup>158</sup> Ben Bernanke, “Rebalancing the Global Recovery,” At the Sixth European Central Bank Central Banking Conference, Frankfurt, Germany, November 19, 2010.

<sup>159</sup> Bank of Japan, *Monthly Report of Recent Economic and Financial Developments*, Bank of Japan, November 2014.

<sup>160</sup> John Williamson, “Getting Surplus Countries to Adjust,” Peterson Institute for International Economics, 2011.