Exchange Rates and the Current Account Balance:

A Case Study of the Yen

Jireh Tan
Department of Economics, Stanford University

jirehtan@stanford.edu

May 10 2010

Abstract

Whenever there exists persistent current account imbalances between countries, the surplus country is often accused of undervaluing its exchange rate to give its exports an unfair advantage, and is thus pressured into letting its exchange rate appreciate. A forensic exploration of the embittered trade history between the United States and Japan is undertaken to refute these claims. This paper seeks to demonstrate that such an accusation is faulty. Firstly, such an accusation does not specify by which measure an exchange rate is undervalued. Secondly, even if an exchange rate is undervalued by a specified measure, it does not follow automatically that an undervalued exchange rate is a deliberate mercantilist policy that gives exports an unfair advantage. Thirdly, even if the exchange rate were allowed to appreciate, there is no evidence to suggest that the current account balance would be restored; a corollary to this is that any restoration of competitive balance need not be accompanied by a change in the exchange rates. Finally, the constant bashing of the surplus country introduces volatility into the system and leads could lead a ‘one-way bet’ on the exchange rate that makes it harder, rather easier, to achieve current account balance. In light of this, the United States should have worked together with Japan in the 1980s and 1990s to stabilize the yen-dollar exchange rate.

I would like to thank Professor McKinnon for his invaluable guidance and Professor Rothwell for his neverending encouragement.
Contents

1 Introduction 2

2 Exchange Rates and the Current Account 4
  2.1 Exchange Rates: An Easy Target 4
  2.2 Undervaluation of the Yen: Testing the Hypothesis 6

3 Exchange Rates and Mercantile Advantage 12
  3.1 The Elasticities View 12
  3.2 The Scandinavian Model 16

4 The External Value of the Yen 20
  4.1 Conflicted Virtue 20
  4.2 The Effect of the High Yen on Internal Balance 22
  4.3 The One-way Bet 24
  4.4 The Syndrome of the Weak Yen 24
  4.5 Risk Premia 26
    4.5.1 Uncovered Interest Rate Parity 26
    4.5.2 Risk in the Labor Markets 28
  4.6 Deflation and the Liquidity Trap 32

5 Policy Recommendations 36
  5.1 Internal Balance 36
  5.2 External Balance 38

6 Conclusion 39
1 Introduction

The bashing of countries which run a current account surplus is not a new phenomenon, nor has it gone away. Earlier this year, eminent economist Paul Krugman, as op-ed contributor to a major American newspaper, made the following claims [11] about China:

China has become a major financial and trade power. But it doesn’t act like other big economies. Instead, it follows a mercantilist policy, keeping its trade surplus artificially high. And in today’s depressed world, that policy is, to put it bluntly, predatory… China’s currency is pegged by official policy at about 6.8 yuan to the dollar. At this exchange rate, Chinese manufacturing has a large cost advantage over its rivals, leading to huge trade surpluses. … Under normal circumstances, the inflow of dollars from those surpluses would push up the value of China’s currency, unless it was offset by private investors heading the other way. And private investors are trying to get into China, not out of it. But China’s government restricts capital inflows, even as it buys up dollars and parks them abroad, adding to a $2 trillion-plus hoard of foreign exchange reserves.

Compare this with what was said about Japan in 1984 [1]:

Washington has said for months that the United States deficit with Japan - $19.7 billion last year - has been enlarged because the yen is undervalued, making Japanese exports cheaper abroad. An array of restrictions on foreign access to Japan’s capital markets is blamed for depressing the value of the yen.

In fact, this phenomenon is not new, and its pattern is well-defined: countries that run current account surpluses are accused of undervaluing their currencies to unfairly give their exports a boost on the world markets. If the surplus country is on an explicit currency peg regime, as China is today, then the deficit country takes the peg as incontrovertible evidence that the surplus country is deliberately undervaluing its currency for the purposes of mercantile advantage. If the surplus
country is not on an explicit currency peg regime, as Japan was in the 1980s, then the deficit country accuses the surplus country of clandestinely intervening in foreign exchange markets to keep the exchange rate down for the purposes of mercantile advantage. This phenomenon is not unique to Japan and China. In fact, history has repeated itself: the United States, which has also run deficits against other East Asian economies, has accused each in turn of undervaluing their exchange rates, and attempted at various points in time to pressure each into strengthening their exchange rates with respect to the dollar.

There is no means out of this impasse, and for the surplus country it is a lose-lose situation. McKinnon [13, 16] has coined a term for this dilemma: ‘conflicted virtue’. To describe this dilemma fully, one must first explicitly consider the asymmetry in global finance: though there are numerous national currencies, only a few major currencies – notably the dollar and the Euro – are used to denominate international assets and debts. It is precisely this asymmetry that leads to the problem of ‘conflicted virtue’. A country is ‘virtuous’ if it has a high savings rate. This high savings rate leads to current account surpluses, that is, the surplus country is making a loan to foreigners by exporting current consumption. Because the surplus country cannot lend in its own currency, it tends to build up claims against foreigners in foreign exchange, typically in dollars, which is the dominant world currency. Foreign debtor governments – particularly the government of the United States – then complain that the surplus country’s ongoing flow of trade surpluses is the unfair result of having an undervalued currency, and then pressure the surplus country to appreciate its currency against the dollar. The greater the pressure for appreciation, the greater the concern of domestic private holders of dollar assets that they will suffer capital losses in their home currency. As holders of dollar assets switch into the domestic currency and out of dollars, the surplus country becomes ‘conflicted’: if the exchange rate is not revalued, trade pressures mount and may erupt into outright trade wars, but if the exchange rate is revalued, financial fragility may result.¹

¹A symmetrical problem, known as ‘original sin’, exists for debtor countries, as first described by Eichengreen and Hausmann. When countries cannot issue long-term debt in their own currency, either a term mismatch or a currency mismatch occurs. By definition, firms and financial institutions cannot hedge away such a mismatch, resulting in
This problem is at the heart of the analysis of this paper, which seeks to provide alternative views on the current account and its relation to exchange rates. I first turn my attention to addressing the question of how to determine if exchange rates are undervalued, and whether the yen has been overvalued in recent history. Then, I will suggest that the valuation of exchange rates in Japan in recent years has not been the result of deliberate policy; instead, Japan has been the rather unfortunate victim of the ‘one-way’ bet on yen-dollar exchange rates. Next, I show that the appreciation of exchange rates is not a sufficient condition to restore current account balances, nor (going a step further) is it a necessary condition to restore balance. Finally, I argue that the volatility in exchange rates that results from bashing deficit countries is in fact counterproductive to the achievement of long-term trade balance, and has, in the Japanese case, brought about the destabilization of the entire economy. As such, I recommend that the United States and Japan arrive at a bilateral arrangement to stabilize the long-term value of the yen.

2 Exchange Rates and the Current Account

2.1 Exchange Rates: An Easy Target

I begin this section by positing that the relationship between exchange rates and the current account balance is not as obvious or as intuitive as economic journalists or politicians would have us believe. The current account surplus is due to the overly weak currency, they say, therefore the obvious solution is to revalue the currency of the surplus country and exports from the surplus country will fall while imports into the surplus country will rise, eliminating the imbalance.

A moment’s reflection will reveal the inadequacy of such an argument. Firstly, it is circular: if a country with a persistent surplus is defined as having an undervalued currency, then it is definitionally tautology that the currency needs to be appreciated in order to wind down that surplus. Secondly, there is no empirical evidence, as I shall show in subsequent sections, that an appreciation of the financial fragility. Hence, a convincing argument for pegging the exchange rate exists for such debtor countries, as governments must step in to provide an informal hedge.
currency of a creditor economy leads to an unwinding of the surplus. Thirdly, even if it could be conclusively shown that the level of the currency is an important factor determining the current account balance, then there is no reason why the surplus country should be accused of having an undervalued currency, because it could equivalently be said that it is the deficit country that has an overvalued currency, for exchange rates are relative. Be that as it may, there appears to be an unfair presumption that the deficit country is being victimized [18]. It makes no intrinsic sense, therefore, to make an assertion such as ‘the yen is overvalued’, for this assertion begs the question: overvalued by what measure? Finally, economic journalists and politicians tend to attack the nominal exchange rate, when in fact it is the real exchange rate that is the adjusting variable between countries. Though the nominal exchange rate is related to the real exchange rate, in later sections I will argue that an appreciation of the nominal exchange rate is not a necessary or sufficient condition for the adjustment of long-term fundamentals between countries.

If merely observing the current account balance is not enough to determine what the appropriate level of a currency is, then what can be done to determine whether a currency is overvalued or undervalued? Observing bilateral current account balances and bilateral exchange rates is insufficient: what is required, as Frankel points out [7] is a cross-sectional picture of real exchange rates and macroeconomic fundamentals (specifically economic per capita GDP). When such a cross-sectional picture is obtained, a clear pattern emerges – a pattern that is well-known to economists, and is known as the Balassa-Samuelson effect.

The Balassa-Samuelson effect explains the empirical phenomenon of systematically higher consumer price levels in wealthier countries than in less wealthy countries. In the Balassa-Samuelson model, countries have different levels of income because some countries are more productive in the traded goods sector than others. The higher the productivity growth rate in a country, the wealthier it becomes. Furthermore, it is assumed that growth in labor productivity in the non-traded goods sector is much slower than in the traded good sector. Since prices track productivity, and since consumer price levels are a composite of traded and non-traded goods, in equilibrium consumer
price levels are higher in wealthier countries than in less wealthy countries. Since real exchange rates are determined by both nominal interest rates and of relative rates of inflation, a corollary to the Balassa-Samuelson model is that in equilibrium, wealthier countries should have a higher real exchange rate (deflated by the CPI). It is also important to note that the Balassa-Samuelson effect posits an equilibrium level of the exchange rate independent of the current account balance. In the Balassa-Samuelson model, long-term economic fundamentals change whenever there is a change in relative productivity. The adjusting variables in the Balassa-Samuelson model are the relative rates of inflation in tradables versus non-tradables.

2.2 Undervaluation of the Yen: Testing the Hypothesis

Having established that observation of the current account balance is not enough to determine the appropriate value of the yen, I now move to propose an alternative way of finding what the appropriate value of the yen should be, drawing on Frankel’s study on the value of the renminbi [7]. With the Balassa-Samuelson effect firmly in mind, Frankel obtains country-level data on real exchange rate and per capita GDP (used as a measure of the wealth of a country) from the Penn World Tables\(^2\) to predict what the value of the renminbi should be. To be more exact, Frankel regresses the logarithm of the real exchange rate (dependent variable) against the logarithm of per capita GDP (independent variable) to obtain the elasticity of the real exchange rate with respect to per capita GDP. Frankel then calculates the residual, representing the percentage of the logarithm of the real exchange rate not predicted by the regression, which he takes to be the percentage undervaluation of the yuan.

For the yen, I repeat Frankel’s methodology, but with a few key changes. Firstly, access to the new Penn World Tables is limited to once every decade, and even so a cross-sectional picture of the yen once every decade cannot be helpful in showing very much, if at all. Therefore, as per

\(^2\)The Penn World Tables are a huge compendium of economic data from around the world. However, data collection is an expensive and time-intensive activity, so the Tables are released only once every decade. One should expect to see another release by the end of 2010.
McKinnon’s suggestion, building on studies done by *The Economist* [2], Big Mac prices are used as a proxy for the real exchange rate. Though this may seem a frivolous way of estimating real exchange rates, a recent survey on exchange rates conducted by *The Economist* [2] came to a similar conclusion as a study by the World Bank using data collected through more involved techniques [5].

Secondly, because data is available from 1991 - 2009, I have chosen not to take logarithms of the variables, which would return the elasticity. Instead, I have chosen to regress on the obtained values directly, to see what the yen should be in *levels* rather than in *differences*. Data on per capita GDP is obtained from the IMF, and Big Mac prices are regressed against per capita GDP in the following model:

\[
burgerPrice = \beta_0 + \beta_1 (perCapGDP) + \epsilon
\]

A sample regression for 2009 is given by Fig. 1. As can be seen, there is a positive, statistically significant relationship between Big Mac prices, our proxy for the real exchange rate, and per capita GDP, our measure for wealth. There are no surprises here; this is merely the Balassa-Samuelson effect in action.

With the Balassa-Samuelson relationship estimated by the regression, I then calculated the predicted value of the Big Mac price in Japan. I then calculated a value of over- or undervaluation, expressed as a percentage:

\[
percentage = (burgerPrice - predPrice)/predPrice \times 100
\]

where a positive sign implies overvaluation, while a negative one implies undervaluation. The

---

3 There are other concerns with using the Big Mac as a proxy for the real exchange rate, the key concern is that the Big Mac is not a standardized basket of goods. For example, in India, which is predominantly Hindu, a Big Mac is composed of chicken, not beef. However, the same argument may apply to any basket of goods, because preferences vary from country to country and so the consumption basket varies from country to country. Having some idea is better than having none, and that is why I have chosen to go ahead with burger prices.

4 In 2009, the prices of Big Macs in 33 countries and the Eurozone were published. These countries varied by region (the United States, Latin America, the Middle East, East Asia, Western and Eastern Europe are well-represented) and by level of development (the representation of countries at different stages of development is roughly equal, so there is no reason to suppose that our regression is over- or under-estimating the Balassa-Samuelson effect).
Figure 1: 2009: Big Mac Prices against Per Capita GDP at Constant Prices

(a)

<table>
<thead>
<tr>
<th></th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t</th>
<th>P &gt;</th>
<th>t</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>PerCapGDP</td>
<td>0.0000437</td>
<td>0.0000112</td>
<td>3.91</td>
<td>0.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cons</td>
<td>2.048882</td>
<td>0.3240648</td>
<td>6.32</td>
<td>0.00</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(b)

Source: The Economist, IMF

results are summarized in Fig. 2.

The data shows, unsurprisingly, the Balassa-Samuelson effect over time: the statistically significant positive correlation between the real exchange rate (represented by Big Mac prices) and the level of wealth in the country (represented by per capita GDP) is demonstrated for every year over the period 1991 - 2009.

It must be noted that these regressions can be divided into roughly two periods, from 1991 - 1998 and 1999 - 2009. From 1999 - 2009, the t-stat for the independent variable is fairly high, and the results are significant at a 1% level, with the exception of 2000 and 2001, where the results
Figure 2: Japan: Over/Undervaluation of the Yen, 1991 - 2009

| Year | Actual Price | Predicted Price | t-stat of perCapGDP | P > |t| | Under/Overvaluation (%) |
|------|--------------|-----------------|---------------------|-----|---|------------------------|
| 2009 | 3.46         | 3.56            | 3.91                | 0.000 |   | -2.75                  |
| 2008 | 2.62         | 3.84            | 3.56                | 0.001 |   | -31.75                 |
| 2007 | 2.31         | 3.04            | 3.11                | 0.005 |   | -24.12                 |
| 2006 | 2.23         | 2.96            | 2.90                | 0.008 |   | -24.73                 |
| 2005 | 2.34         | 2.74            | 2.96                | 0.007 |   | -14.46                 |
| 2004 | 2.33         | 2.69            | 3.41                | 0.002 |   | -13.44                 |
| 2003 | 2.19         | 2.52            | 2.83                | 0.009 |   | -13.13                 |
| 2002 | 2.01         | 2.20            | 3.33                | 0.003 |   | -8.60                  |
| 2001 | 2.38         | 2.19            | 2.60                | 0.016 |   | 8.36                   |
| 2000 | 2.78         | 2.26            | 2.78                | 0.011 |   | 23.04                  |
| 1999 | 2.44         | 2.37            | 2.88                | 0.008 |   | 2.93                   |
| 1998 | 2.08         | 2.43            | 2.29                | 0.032 |   | -14.33                 |
| 1997 | 2.34         | 2.58            | 2.33                | 0.030 |   | -9.23                  |
| 1996 | 2.70         | 2.78            | 2.19                | 0.040 |   | -3.00                  |
| 1995 | 4.65         | 2.89            | 2.11                | 0.048 |   | 60.96                  |
| 1994 | 3.77         | 2.63            | 2.09                | 0.047 |   | 43.50                  |
| 1993 | 3.45         | 2.68            | 2.30                | 0.032 |   | 28.84                  |
| 1992 | 2.86         | 2.61            | 2.13                | 0.048 |   | 9.67                   |
| 1991 | 2.81         | 2.72            | 1.69                | 0.240 |   | 3.65                   |

are significant at a 2% level. However, from 1991 - 1998, the t-stat is not as high, and results are significant at only the 5% level, with the exception of 1991, where the result is not significant. However, the lower t-stat in the earlier period should not be misinterpreted as something faulty in the data or the theory: it must be pointed out that this lower t-stat is the consequence of having fewer samples earlier in the regression. The Big Mac Index published by *The Economist* came into inception only in 1986, and by 1991 prices were reported only for a handful of countries. In contrast, by 1999, *The Economist* was tracking Big Mac prices in over 30 countries, resulting in more data points for the regression, and therefore higher t-stat values.

How good are the results that are obtained from these regression? For 2009, I obtained approximately the same results obtained by *The Economist*’s survey on exchange rates [2], which echo the result of a World Bank paper using more involved data extrapolation processes [5]. For 2000, the

---

5To the credit of *The Economist*, equal representation was given to countries that were at different stages of development even from the very beginning, so even with relatively few data points there is no reason to suppose that the regressions over- or under-estimate the Balassa-Samuelson effect. What is concerning is the standard error of the result, which cannot be helped because there are so few data points available.
result was also approximately similar to those of Frankel’s [7]. The Big Mac Index can be said to give as a good idea – however rough that idea might seem – of what the exchange rate should be under the Balassa-Samuelson effect.

Figure 3: Yen Under/Overvaluation and Yen-Dollar Exchange Rate, 1991 - 2009

To give an idea of how much of the over- or undervaluation of the yen was due to nominal exchange rate fluctuations, Fig. 3 plots the regression results against the movements in the yen-dollar exchange rate. As is to be expected, the peaks of the under/overvaluation coincide with the troughs of the yen-dollar movement: as the nominal value of the yen strengthens, the real value of the yen should also strengthen. Fig. 3 also shows that from 1991 - 2009, the real value of the yen has fluctuated dramatically around the predicted Balassa-Samuelson value. The period can be roughly divided into two subperiods. The first is the overvaluation of the yen before 1995, when arm-twisting from the United States led to the systematic overvaluation of the nominal value of
the yen, culminating in the historic high of 96 yen to the dollar in 1995;\(^6\) during this period the yen was overvalued by over 60% according to the Balassa-Samuelson effect. The second period involves the undervaluation of the yen from 2002 - 2008, during which the carry trade brought the nominal value of the yen down, resulting a yen that is significantly undervalued at around 20 - 25%. The crisis, however, sparked a sudden unwinding of the carry trade, and the yen strengthened once again: by 2009 the yen almost correctly valued by the Balassa-Samuelson effect.

On first glance, the view the persistent current account surplus was due to a weak yen is to be patently unsupported by the evidence: 1995, the year during which the yen was at an all-time high, was still a deficit year. Section 3 will deal with explaining why a strong yen did not, has not and probably will not lead to a balancing of the trade deficit. The regressions also show that from 2002 - 2008, the yen was undervalued by about 20%. Does this give credence to the claim that the Japanese have been unfairly using their currency as a means of mercantile advantage? Not exactly. As Frankel [7] points out:

\[\ldots \text{as strong as the relationship between income per capita and the real exchange rate is, any given country at any given time is likely to lie rather far off the Balassa-Samuelson equilibrium line – due again to such factors as discrete devaluations, fluctuations of larger anchor currencies, monetary expansion, and speculative bubbles.}\]

Does this mean that the Balassa-Samuelson effect is meaningless? Not so: Frankel also points out a tendency for currencies to regress to the Balassa-Samuelson mean. This can occur in two ways: through fluctuations in the nominal exchange rate, or through changes in relative inflation rates. But this process takes time, and to demand rapid exchange rate appreciation can have undue side effects, as shall be seen in the Japanese context.

\(^6\)This high was recently surpassed in 2009 during the global crisis, when the yen touched 93 to the dollar and has hovered around that value since.
3 Exchange Rates and Mercantile Advantage

3.1 The Elasticities View

I leave aside temporarily the Balassa-Samuelson effect, which posits a relationship between the wealth level of a country and its nominal exchange rate, and focus in this section on the nominal exchange rate. This section seeks to explore the question of whether a change in exchange rates could affect the trade balance. On first glance, a devaluation of the exchange rate could theoretically increase a trade surplus (or reduce a trade deficit), but it is worth probing the assumptions of the theory in order to see if it fits the assertions fit the facts.

Economists who believe that an exchange rate devaluation brings about an improvement in the trade balance implicitly make reference to the elasticities view of the exchange rate [9]. In the elasticities view, the exchange rate is determined by the flow of currency through the foreign exchange market. Crucially, capital flows are treated as exogenous shocks rather than seen as endogenous to the model. Furthermore, this model assumes that macroeconomic variables – notably price level – remain constant. In this view of the exchange rates, as long as the Marshall-Lerner condition – that is, as long as the elasticities of the foreign demand for domestic exports and the domestic demand for foreign imports sum to more than unity – then a devaluation of the exchange rate will necessarily bring about in an improvement in the trade balance.\(^7\) Since, in the long run, demand tends to be elastic rather than inelastic, a devaluation of the exchange rate surely brings about an improvement in the trade balance.\(^8\)

However, even if one concedes that from such a point of view a devaluation would bring about an improvement of the trade balance, one still needs to consider other competing points of view. As McKinnon points out [15], there are multiple way of interpreting the trade balance. He invokes

\(^7\)For an elegant treatment of the derivation of the Marshall-Lerner condition, see Halwood and MacDonald’s canonical text on international finance.

\(^8\)A corollary to this is that, because demand elasticities tend to be far lower in the short term, it may actually take some time for the trade balance to improve – the J-curve effect.
national income accounting identities:

\[ B = X - M = S - I \]

where \( B \) is our trade balance, and \( X, M, S, I \) are the levels of exports, imports, savings and investment in the economy respectively. A negative \( B \) implies a trade deficit, while a positive \( B \) implies a trade surplus. Looking at it from the point of view of exports less imports focuses on the microeconomic aspects of pricing and its effects on the quantities demanded and supplied. The elasticities view therefore places macroeconomics in the background. However, McKinnon argues that such a view is inadequate in capturing the complexity of the situation today. Capital flows can no longer be said to be exogenous to the international system, as events such as the Asian Financial Crisis and the Tequila Crisis have demonstrated. Self-fulfilling expectations on the exchange rate can provoke movements in capital that could dramatically change the macroeconomic landscape.

In fact, focusing on the levels of savings and investment in the economy could lead us to the opposite conclusion: that is, a revaluation could bring about an increase the trade surplus because it makes the country seem like a more expensive place to invest, driving down the level of investment. The gap between savings and investment - and therefore the trade balance - increases. To reinterpret this from an export-import point of view, investment in the country slows, which reduces economic growth. Lower growth then reinforces the slump in investment, as investors are wary of investing in countries with dim growth prospects, which again reduces economic growth. Sluggish economic growth is then associated with lower relative inflation (or even deflation), that brings down the relative price of exports and drives up the relative price of imports, which leads to an increased level of exports and a decreased level of imports.

On first sight, Fig. 4 may seem to offer credence to the view that the Japanese have been deliberately undervaluing their currency to give their exports an unfair advantage. If the yen were truly a freely-floating currency, then one should expect to see little or no change in the amount of foreign exchange reserves. Yet from 1995 - 2005, a period over which the nominal yen-dollar
exchange rate has remained fairly constant, there was a more than fivefold increase in the dollar-valuation of Japanese foreign exchange reserves, implying that the Japanese have been intervening to keep the external value of the yen down. This sharp increase in foreign exchange reserves is commonly used – with implicit reference to the elasticities view of exchange rates – as evidence that the yen has been undervalued as part of an unfair mercantilist strategy. However, as McKinnon argues [14], the elasticities view is inadequate in describing the situation in Japan. In fact, in periods where the yen-dollar exchange rate increased the most, Japan’s trade surplus against the United States did not unwind.

In the 1980s, there was immense anti-Japanese sentiment in the United States, and politicians, perceiving that the yen was unfairly undervalued, began clamoring for trade sanctions against Japan. In 1985, as part of the Plaza-Louvre Accords, a huge appreciation of the yen took place,
and by 1988 the yen had doubled in value, from 254.78 yen per dollar to 127.18 yen per dollar (Fig. 4). The strengthening of the yen had no discernable effect on the trade balance, as shown by Fig. 5. By the time the yen reached its peak in 1995 Japanese exports to the US were still well above Japanese imports from the US. If the elasticities view held, the gap between imports and exports should have closed after some time, allowing for the J-curve effect to kick in. But even with such a dramatic strengthening of the yen, exports to the US continued on an upward trend.\(^9\) This runs completely counter to what the elasticities trade view predicts. As such, the effect of an exchange rate change on the trade balance is indeterminate. Qiao [18] has suggested that in light of the inadequacies of the elasticities view, placing pressure on surplus countries such as China to revalue their currencies may not be an effective way of restoring external equilibrium.

\(^9\)Note, however, the sharp downturn in Japanese exports and imports to and from the United States in 2008. This was caused by the credit crunch and the global recession.
In fact, the idea that a currency revaluation or devaluation alone is insufficient in achieving trade balance is neither new nor novel. The Tinbergen Principle, that has been more fully explored by a generation of economists prior to this [6], states that each policy target requires at least one policy tool. To achieve internal balance and external balance, therefore, one requires at least two tools. Namely, one would require a switching policy to change the price of exports relative to imports, ensuring that trade balance is restored, as well as an absorption policy, to adjust the associated macroeconomic changes in price levels or aggregate demand. But can external balance occur without policy intervention in the first place? This is the question that will be addressed in the next section.

3.2 The Scandinavian Model

So far I have argued that an exchange rate movement is not a sufficient condition for restoring trade balance. In this section I will go a step further and argue that, in certain contexts, an exchange rate movement is not a necessary condition for restoring trade balance either – contrary to what economic journalists and politicians claim. To show this, I will rely on Lindbeck’s Scandinavian Model of Wage Adjustment [12], as interpreted by McKinnon and Ohno [15]. A simple model can provide us with the basic tools to understand the complex issue.

Lindbeck’s Scandinavian model deals with a small open economy where there are two goods – traded and non-traded. Because of arbitrage, it is assumed that the law of one price holds and so we have

\[ p_t = p_w e \]

where \( p_t, p_w \) are the domestic traded goods price and world price respectively, and \( e \) is the spot rate. Taking logarithms on both sides gives us an approximation of the relative rates of change, yielding

\[ \hat{p}_t = \hat{p}_w + \hat{e} \]
where the hat denotes the relative rate of change of the variable. In the labor markets, we assume that marginal revenue productivity theory of wages holds, and so the equilibrium wage in the traded goods sector is merely equal to the price of traded goods multiplied by the marginal product of labor, as such:

\[ w_t = p_t q_t \]

where \( w_t, q_t \) are the wages and the marginal product in the traded goods sector respectively. We take logarithms again to find the approximate relative rate of change:

\[ \hat{w}_t = \hat{p}_t + \hat{q}_t \]

Now, Lindbeck’s key assumption in the model is the assumption of wage solidarity, that is, increases in wages in the traded and non traded goods sector match each other and are equal. Though this assumption may seem preposterous, in the context of Japan under the fixed exchange regime in the 1950s and 1960s it is an empirically valid assumption (see McKinnon and Ohno [15]), resulting from the strong position of labor unions in different sectors of the economy.

Conversely, an expression for prices in the non-traded goods sector is derived by using a symmetrical reasoning. By definition, non-traded goods are not subject to arbitrage, so the prices depend only on the gains in productivity in the non-traded sector:

\[ w_n = p_n q_n \]

where \( w_n, p_n, q_n \) are the wages, price and the productivity in the non-traded goods sector respectively. Taking logarithms on both sides to get the approximate relative rates of change yields

\[ \hat{p}_n = \hat{w}_n - \hat{q}_n \]

The general price level \( p \) can be thought of as a weighted average of the price level in the two
sectors, that is

\[ p = \hat{p}_t^{\alpha} \hat{p}_n^{1-\alpha} \]

Taking logarithms to find the relative rates of change gives the following:

\[ \hat{p} = \alpha \hat{p}_t + (1 - \alpha)\hat{p}_n \]

This equation may be transformed by simple substitutions into

\[ \hat{p} = \hat{p}_w + \hat{e} + (1 - \alpha)(\hat{q}_t - \hat{q}_n) \]

which is the key equation describing the price level in Lindbeck’s Scandinavian Model. Note that an implicit assumption has been made, which I will now make explicit: so far the demand side of the story has been ignored. This is because the model assumes that the economy is cost-accommodating, and so demand side factors have no influence on the domestic price level.

What are the implications of the model? If, indeed, the economy has a fixed exchange rate, then any changes in the price level will be attributed solely to changes in the world price and changes in the productivity in the traded and non-traded sector, as well as the composition of the goods in the economy. Furthermore, differentials in the rate of productivity growth in the traded and non-traded goods sector lead to differentials in the rate of change of the price level, and therefore differentials in the rate of the increase of the real exchange rate – this is why the Scandinavian Model is sometimes known as the Balassa-Samuelson effect in time-series [15].

Where does external balance under a fixed exchange rate regime come from then? The answer is: through wage inflation. As McKinnon [14] says,

From the 1950s into the 1970s, Japan's catch-up phase, productivity growth in manufacturing was much higher than in the U.S. But international competitiveness was roughly balanced by Japan's much higher wage growth when the yen-dollar exchange rate was
The numbers confirm this. As Fig. 6 shows, there was far higher productivity in the traded goods sector in Japan than in the United States, as evidenced by the higher rates of growth in industrial production and in labor productivity in Japan. Though the exchange rate was fixed, competitive balance was re-established by the rapid growth of money wages in Japan, which far outstripped money wage growth in the United States.

Figure 6: Japan under the Fixed Exchange Rate, 1955 - 1970
(average annual percentage change)

<table>
<thead>
<tr>
<th>Wholesale Prices</th>
<th>Money Wages</th>
<th>Consumer Prices</th>
</tr>
</thead>
<tbody>
<tr>
<td>US</td>
<td>Japan</td>
<td>US</td>
</tr>
<tr>
<td>1.34</td>
<td>0.98</td>
<td>4.31</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Labor Productivity</th>
<th>Industrial Production</th>
<th>Money Base</th>
</tr>
</thead>
<tbody>
<tr>
<td>US</td>
<td>Japan</td>
<td>US</td>
</tr>
<tr>
<td>2.84</td>
<td>8.47</td>
<td>4.40</td>
</tr>
<tr>
<td>3.46</td>
<td>15.32</td>
<td>3.98</td>
</tr>
</tbody>
</table>

Note: Labor Productivity calculated for manufactured goods

The fixed exchange rate, therefore, is not the mercantilist devil that it is often claimed to be. The Scandinavian Model, in fact, was so named because it described the economic systems of Scandinavian countries in the 1950s and 1960s under a fixed exchange rate regime. The fixed exchange rate played a role in the Japanese economy that was crucial to its initial success. Under a fixed exchange rate system, Japan was able to anchor its price level for traded goods while promoting money wage growth. As in the Scandinavian Model, the traded goods sector – which had a much higher growth rate in productivity than the non-traded sector – became the leading sector in wage setting [14]:

Employers in export activities bid vigorously for skilled and unskilled workers, subject to remaining internationally competitive at the fixed exchange rate. Thus workers in export-oriented manufacturing receive the main fruits from the high productivity growth
there. But then, from labor solidarity...these high wage settlements spread into the rest of the economy...

Thus, a fixed exchange rate regime – even one that ostensibly ‘undervalues’ its exchange rate – can also achieve external balance through the rapid associated increase in money wages in the traded goods sector. Exchange rate change is not a necessary condition for the restoration of international competitiveness when prices are not sticky. In contrast, as the next section argues, exchange rate variability can destabilize the system, even as it introduces another factor: exchange rate risk.

4 The External Value of the Yen

4.1 Conflicted Virtue

I now return to the Big Mac regressions that demonstrate the Balassa-Samuelson effect. In Fig. 2, it was shown that by a Balassa-Samuelson measure, the yen has been relatively weak every year from 2002 - 2008. Critics of the weak yen argue that the Bank of Japan has been artificially keeping the yen down in order to give Japanese exports an export boost. On first sight, the massive intervention embarked upon by the Bank of Japan over the period 2000 - 2004, one of the largest interventions known to recent international economics, provides credence to this claim. Yet this claim is questionable, because it does not take into account the key reason why the Bank of Japan is so sensitive to the level of the yen – in particular to the yen-USD exchange rate – that is, because Japan is a creditor country that suffers from the problem of conflicted virtue [16].

Conflicted virtue refers to the phenomenon in which a creditor country is exposed to financial fragility under the dollar standard, through no fault of its own, but rather through incomplete debt markets. Under the dollar standard, several countries on the periphery of the standard – including many East Asian countries such as Japan [16] – are unable to issue debt or lend in their own currency. Even though Japan is the second largest economy in the world, foreigners have not warmed up to the idea of borrowing in yen, and Japan is still very much at the periphery of the
dollar standard. Instead, Japanese institutions tend to buy up low-risk dollar-denominated bonds [15]. This leads inevitably to financial fragility, as there is a currency mismatch in the loan structure within the economy. A sudden appreciation of the yen with respect to the dollar could therefore bankrupt the financial sector, whose assets are denominated in dollars, but whose liabilities are denominated in yen.

Countries that suffer from conflicted virtue are ‘virtuous’ in the sense that they have high savings rates, which in part may reflect a high degree of risk assumed by the financial sector because of the incomplete debt markets. As recently as February 2009, the *New York Times* [20] reported:

Today...even well-off Japanese households use old bath water to do laundry, a popular way to save on utility bills...The Takigasaki family in the Tokyo neighborhood of Nakano goes further to save a yen or two. Although the family has a comfortable nest egg, Hiroko Takigasaki carefully rations her vegetables...Her husband has a well-paying job with the electronics giant Fujitsu, but “I dont know when the ax will drop,” she says. “Really, we need to save much, much more (emphasis added).”

Such meticulous frugality appears to be typical of the average Japanese household today, presumably because the memories of the lean years of the ‘lost decade’ are fresh in the Japanese mindset.\(^{10}\)

The trade surplus, therefore, reflects primarily the preference of the Japanese to save, rather than exchange rate undervaluation per se.

In the absence of complete debt markets, the Japanese government has attempted to overcome financial fragility by develop domestic long-term debt markets in yen that are attractive to foreign buyers. However, because of fears that the yen might suddenly appreciate, foreign takeup of long-term debt denominated in yen has been anaemic at best [16]. As such, the only other means out of this impasse is for the government to hold the nominal value of the yen to the dollar fairly constant. Yet when Japan does this, it is accused of unfairly holding its exchange rate down for the

\(^{10}\)As McKinnon points out, this also reflects the experiences of the other East Asian surplus economies, which have, since the Asian Financial Crisis, preferred to run trade surpluses rather than deficits, primarily in the form of government savings.
sake of giving Japanese exports an unfair mercantile advantage. Thus, the ‘virtuous’ country runs into a ‘conflict’: not let its currency appreciate, and face fierce criticisms and even threats of trade sanctions from its trade partners (as Japan did in the early 1970s); or let it currency appreciate and face financial fragility (as Japan did in the late 1980s and the 1990s). The next section focuses on the move from a fixed exchange rate to a floating one, and explores the economic ramifications associated therewith.

### 4.2 The Effect of the High Yen on Internal Balance

So far, only the effects of the yen’s appreciation on external balance have been discussed – the past appreciations of the yen-dollar exchange rate have not brought about an unwinding of Japan’s trade surplus with the United States. But what about the effect of the yen’s appreciation on internal balance? As previously mentioned, Japan suffers from conflicted virtue, which is why the Bank of Japan is so sensitive to the level of the yen-dollar exchange rate. The Japanese are so acutely aware of the level of the exchange rate that they have even coined a term for the economic malaise associated with a strong yen – *endaka fukyo*, or the ‘high-yen induced recession’.

Not only does a high external value of a country’s currency – one that is either very high above purchasing power parity, or above the value implied by the Balassa-Samuelson relationship – makes the country’s exports less attractive on the world market, but it also makes the country a relatively more expensive place to invest. According to McKinnon and Ohno [15], this is precisely what happened in Japan. From 1992 to 1995, the yen began an upward climb that would eventually peak at 85 to the dollar in June 1995. By the Big Mac regressions, in 1995 the yen was overvalued by about 60%. As a result, over the same period growth in private investment became sharply negative, and even highly expansionary public investment was not enough to prevent total investment from falling, which was an important reason for the sustained recession that Japan underwent over the same period.

More subtly, a sharp and continual appreciation of the exchange rate interferes with the workings
of price mechanisms, and therefore prevents internal balance from taking place. This goes counter to what the current wisdom on floating exchange rates would have us believe. As Friedman argues [8]:

The argument for flexible exchange rates is... very nearly identical to the argument for daylight savings time... obviously it is much simpler to change the clock that guides all than to have each individual change his pattern of reaction to the clock... the situation is exactly the same in the exchange market. It is far simpler to allow one price to change, namely, the price of foreign exchange, than to rely upon changes in the multitude of prices that together constitute the internal price structure.

However, Friedman’s ignores the fact that goods and services are differentiated according to the degree of their exposure to the world market – some are not even traded, others are traded but manufacturers exert a degree of monopoly power and are able to influence prices, others still are traded but manufacturers cannot influence prices. Because of differing degrees of exposure to the world market, the speed of the reaction of relative prices to a change in exchange rates differs for different products, and so an exchange rate appreciation or depreciation is not the straightforward cure that Friedman suggests. As McKinnon [15] puts it, an exchange rate change is not analogous to daylight savings time because “it is as if the clock were advanced by 60 minutes for some individuals, 40 minutes for others, 25 minutes for yet others; the ensuing confusion would be no less than in the case of uneven inflation or deflation.” The purchasing power parity exchange rate – or real exchange rate – will drift until the law of one price is restored, within the Balassa-Samuelson bounds, but it can do this either by a change in the exchange rates, or in the relative rates of inflation. Hence, an exchange rate appreciation that forces purchasing power parity exchange rates above equilibrium could force deflation in the economy in order to achieve equilibrium. This is in fact what happened in Japan, as shall subsequently be shown.
4.3 The One-way Bet

A further problem associated with economies suffering from conflicted virtue is that when there is external political pressure for the country to appreciate its currency, markets begin to anticipate an appreciation in the valuation of the currency. Domestic holders of foreign currency assets begin to worry that the external valuation of their assets relative to their will be wiped out, and so they begin dishoarding their foreign currency assets to switch back into domestic currency assets. Additionally, the currency is subject to speculative runs that make it harder to control domestic monetary policy. This is exactly what happened in Japan [16].

Over the period 2000 - 2004, a renewed spate of Japan-bashing in the United States brought about fears that the yen would appreciate against the dollar, as it had over the the course of the Nixon Devaluation (1971) and the Plaza-Louvre Accords (1985). Japanese financial institutions – particularly pension funds – began a massive run out of dollar into yen. Furthermore, speculation on the yen led to enormous amounts of hot money inflows into Japan. The Bank of Japan, had to intervene at a historically unprecedented level just to keep the yen-dollar rate constant. Had Japan not done so, the sharp rise in the yen-dollar value could have resulted in financial turbulence. Thus, the Bank of Japan’s foreign exchange intervention strategy should not be seen as a deliberate policy to undervalue the yen for the sake of boosting exports. Instead, this policy should be seen as the Bank of Japan’s reaction to the vagaries of an open capital market, and the consequence of conflicted virtue. It was this intervention that set the stage for a subsequent yen carry trade and an ever weaker yen until the carry trade unwound in 2008.

4.4 The Syndrome of the Weak Yen

Whence the weak yen in the Big Mac regressions then? The Balassa-Samuelson effect measures the implied valuation of the real, rather than the nominal, exchange rate. It is this crucial piece of the puzzle that the commentators on the Japanese trade surplus have missed out. Though the nominal exchange rate does affect the real exchange rate, the real exchange rate can also be affected
by another factor: the relative price levels between two countries. In Japan, the weakness of the yen in recent years can be attributed to the falling price levels – in fact, Japan has the dubious distinction of being the only among developed countries to be suffering from deflation, rather than fighting off inflation. As Fig. 7 shows, Japan’s deflation is starkly contrasted to the inflation in the United States and in Europe. Since 1995, prices in Japan have weakened slightly, while prices in the United States and in Europe have continued on an upward trend – at least until the recent financial crisis.

![Figure 7: Price Levels in Japan, Europe and the United States, 1995 - 2009](source: OECD)

How did Japan get into a deflationary spiral? Again, the answer can be found in by looking at the nominal exchange rate. In the Scandinavian Model, wages are led by the higher-productivity traded goods sector. In a fixed exchange rate regime, growth of wages in the traded-goods sector depend on the (typically high) positive growth in productivity in the sector. However, in a floating
exchange rate regime, there is a wage risk premium introduced into the system.

4.5 Risk Premia

4.5.1 Uncovered Interest Rate Parity

The idea of a risk premium is commonly encountered in the literature discussing why exchange rate movements do not always move to equalize interest rate differentials across countries, as suggested by the simplistic uncovered interest rate parity condition. Including the risk premium in the uncovered interest rate parity condition yields the following equation:

\[ i = i^* + \hat{e} + \varphi \]

where (as in the discussion of the Scandinavian Model) \( \hat{e} \) refers to the change in nominal exchange rate, \( i, i^* \) are domestic and foreign interest rates (assumed to be exogenously determined by governments) respectively, and \( \varphi \) is the risk premium. Rearranging the terms gives us the following:

\[ \hat{e} = i - i^* - \varphi \]

which implies that the change in exchange rates is equal to the differential in domestic and foreign interest rates less a risk premium. The risk premium is the element that explains why exchange rate movements don’t always equalize the interest rate differentials.

In an ideal world with no financial asymmetries, there is no reason why we should suppose that the risk premium should be biased in one direction or another. However, as McKinnon [13] points out, the current financial system is not an ideal world with no financial asymmetries. Rather, the current financial system operates under a de facto dollar standard, where countries at the financial periphery face incomplete debt markets and therefore suffer from conflicted virtue or original sin. In Japan’s case, McKinnon argues that the risk premium is, in fact, negative, for two reasons: the problem of conflicted virtue, and the one-way bet that arises from Japan-bashing. The
assets of Japanese financial institutions are primarily denominated in dollars, while their liabilities are primarily denominated in yen, resulting in conflicted virtue. At such high levels of currency mismatch, even relatively small fluctuations in the yen-dollar exchange rate could threaten the solvency of the entire financial system. Japan-bashing by its trade partners – which has in the past resulted in one-way bets on the direction of the yen – exacerbates this problem. The expectation of the direction of the volatility, therefore, is negative. Tai [21] has confirmed the bias in the direction of the risk premium on the yen.

Figure 8: Interest Rate Differentials and Japanese Foreign Exchange Reserves, 1991 - 2009

It is little wonder, therefore, that Japan suffers from what Calvo and Reinhardt have called the "fear of floating". [4]. To clarify, Calvo and Reinhardt, writing in 2000, find no evidence of signifi-
icant Japanese manipulation of the currency, and label Japan a “committed floater”. Significant Japanese intervention in the foreign exchange markets took place principally over the period 2001 - 2004, when the United States began cutting interest rates sharply to restimulate the economy in the wake of the bursting of the dotcom bubble (Fig. 8 – but Japan’s intervention in foreign exchange markets should not be maligned. The intervention was undertaken not to bring down the external value of the yen, but to hold it roughly constant against the dollar (refer to Fig. 4). However, because of the high negative risk premium, when the Federal Reserve cut interest rates, the differential between US interest rates and Japanese interest rates was no longer high enough to justify the holding of dollar assets. Japanese financial institutions began to massively dishoard dollar assets in order to run back into yen, which would have provoked a sharp spike in the yen-dollar exchange rate. In order to prevent further financial contagion associated with conflicted virtue, the Bank of Japan was obliged to keep the external value of the yen fairly constant. Theoretically, it could have done this in one of two ways: either by cutting interest rates to restore a large enough differential such that the run from dollars into yen would cease, or by intervening in the foreign exchange markets to buy up the excess dollars. The former option was – and still is – out of the question, because the Bank of Japan is already operating at the zero-bound on interest rates, hence the massive intervention in foreign exchange markets. The negative interest rate risk premium thus places Japan in a bind when it comes to exchange rate policy. However, the negative risk premium can also arise in the labor markets.

4.5.2 Risk in the Labor Markets

As McKinnon has suggested [16], exchange rate risk has introduced a negative risk premium in Japanese labor markets. This negative wage risk premium arises from two main assumptions – firstly, firms are risk averse. Secondly, firms have sufficient bargaining power to extract the risk premium they desire. It is now helpful to return to the Scandinavian Model to see why the negative risk premium arises.
It is assumed that (as in the Scandinavian model) the marginal revenue productivity theory of wages holds. However, wages are set in advance, so employers and workers bargain at period \( \tau \) to determine wages at period \( \tau + 1 \). Since the marginal revenue productivity theory of wages holds, wages at time \( \tau + 1 \) will equal the expected marginal revenue product. As in the Scandinavian model, it is the traded sector of goods that leads wage determination:

\[
w_t = \mathbb{E}_\tau+1(p_t q_t) = \mathbb{E}_\tau+1(p_w e q_t)
\]

where \( \mathbb{E}_n \) is the expectation operator at time \( n \). It is then further assumed that \( p_w \) is known in advance, because firms can either hedge their risks on forward markets or they adopt a ‘price-to-market’ strategy and hold the price of the good in the foreign markets constant. Furthermore, we assume that \( q_t \) is known in advance: that is, employers know in advance how productive their workers will be. Then our equation becomes

\[
w_t = \mathbb{E}_\tau+1(p_w e q_t) = p_w q_t \mathbb{E}_\tau+1(e)
\]

Taking logarithms yields the following:

\[
\hat{w}_t = \hat{p}_w + \hat{q}_t + \mathbb{E}(\hat{e})
\]

Recall from the uncovered interest rate parity with risk premium condition that

\[
\hat{e} = i - i^* - \varphi
\]

Thus, the negative interest rate risk premium can also introduce a negative wage risk premium into the labor markets. Intuitively, this makes sense: since a large proportion of Japan’s exports is denominated in dollars, risk-averse employers are wary of giving wage generous increases – regardless of how productive the workers actually are – because they could be bankrupted should a sudden
appreciation of the yen with respect to the dollar occur.

The importance of the exchange rate cannot be understated. The asymmetry in financial markets is mirrored in the goods and services markets because the dollar is used predominantly as the invoice currency for Japanese exports. The yen is used as an invoicing currency for Japanese firms to a far lesser extent than the currencies of other developed economies are used to invoice their exports – 35% of Japan’s exports are denominated in yen, whereas over 90% of US exports are denominated in dollars, over 70% of German exports are denominated in Euros, and over 50% of the United Kingdom’s exports are denominated in pound sterling [17]. Japanese firms – like Japanese financial institutions – are thus very sensitive to the level of the yen-dollar exchange rate.
Attempts to promote the yen as an invoicing currency have not been extremely successful. Japanese firms have not been able to make exchange rate risk disappear by demanding that their exports be invoiced in yen.

If exchange rate risk exists, why not hedge it away? The answer is that it is impossible to hedge such a risk away, because this risk exists by consequence of being on the dollar standard, and from the phenomenon of conflicted virtue. There are no debt markets developed enough to hedge such massive amounts of yen-dollar risk, so this risk cannot be hedged by definition. Exporters therefore are caught by exchange rate risk, and refuse to settle for higher wages. This is captured by Fig 9: barely a few years after Japan let its exchange rate float, wage growth began to slow down dramatically, and in recent years wage growth has been sluggish or even negative, despite the fact that in most of these years productivity growth in Japan remained healthily above zero. With high wage deflation, it is unsurprising that Japan has been experiencing a long period of deflation. This is consistent with the view that the overshooting of the exchange rate above that implied by purchasing power parity can force domestic price levels down in order to achieve equilibrium.

So far, only the effects of exchange rate volatility on wages have been discussed. This discussion was motivated by the assumption of marginal revenue productivity theory, where wages are set according to the marginal revenue product of the individual worker. But what happens when labor markets are not as flexible as this? In real life, employers are not only expected to pay their workers a certain salary – they are also obliged in certain jurisdictions to provide workers with other benefits, for example, health insurance and retirement pensions. Hiring is also often done by basis of contracts, so it may be a lot more difficult to fire than to hire.

Thus, exchange rate volatility can also adversely impact labor markets in another way: through adversely impacting job creation [3]. A firm’s decision to create new jobs in export-oriented activities incurs irrecoverable costs, such as training the individual, as well as high per-worker variable costs, for example, providing health insurance. Therefore, an increase in exchange rate volatility may well deter firms from creating employment. Furthermore, firms often ‘price-to-market’ – that
is, they keep local prices fixed even as the exchange rate fluctuates. Exchange rate variability can thus certainly influence the variability of profits, and to reduce the variability of profits, firms may choose to reduce investment in human resources and employment in trade.

In the case of Japan, the flexible exchange rate period has been accompanied by a rapid growth in non-standard employment. It is helpful for a moment to dwell on the definitions of non-standard employment in Japan, which can refer to either of one of two concepts: temporary workers or day workers. Temporary workers refer to those who are employed on a contract lasting more than 1 month but less than a year; day workers refer to those employed on a contract of less than 1 month’s duration. The Ministry of Labor only collects statistics for temporary workers, and so any data available is likely to understate the full effect of the growth in non-standard employment. Temporary and day workers are not entitled to the full set of benefits that full-time workers are guaranteed. They are not guaranteed medical insurance, are not eligible for certain pension payments, and in many cases they lack job security as their contracts often contain exit clauses and may be terminated in case of unfavorable economic circumstances.

Fig. 10 shows the upward trend in the number of temporary workers in the floating rate era. In 2009, temporary workers in Japan amounted to almost 6.5 million, or about 4.5% of the Japanese population. Over the same period, the total amount of insurance disbursed to temporary workers decreased significantly, suggesting that firms have decreased their insurance coverage for temporary workers. As Houseman [10] has postulated, “the spectacular growth in part-time employment may partly reflect the need for further labor flexibility in Japanese companies due to recent cyclical volatility and the appreciation of the yen.”

4.6 Deflation and the Liquidity Trap

Wage deflation and weak job creation carries over into general deflation – one means by which lowering wages affects the general price level is through consumer expenditure, which remains sluggish. Fig. 11 shows the average household expenditure in Japan over the floating exchange
rate period. In recent years, expenditure growth has been sluggish or even negative.

This deflation cannot be fought through the ordinary ‘textbook’ means. In fact, deflation, exchange rate appreciation and trade pressures are complexly linked. As McKinnon [13] describes, the history of the yen-dollar exchange rate has proceeded in five stylized stages:

1. The Federal Reserve sets monetary policy independently without paying heed to international conditions.

2. A mercantile dispute erupts between Japan and the United States, with the United States focusing on the yen as unfairly valued. Self-fulfilling expectations on the yen-dollar exchange
rate place upward pressure on the yen. In order to avoid outright trade wars the Bank of Japan allows the yen to appreciate, which makes export less competitive in the short run. However, the Bank of Japan hesitates to flood the markets with liquidity to bring the yen back down.

3. The Bank of Japan now has to tolerate relative deflation to sustain the higher dollar value of the yen. Eventually, the relative fall in Japanese price levels restores mercantile competitiveness.

4. Trade disputes recur, leading to further yen appreciations that continually force Japan into deflation. Expectations that the yen will become ever-higher are set in place.
5. To finance the current account surplus, the increasing currency risk from the buildup of dollar claims in Japan dampens capital outflows as financial institutions try to run from dollars into yen. This places upward pressure on the yen even when there is little or no mercantile pressure from the United States.

An apparently weak yen, therefore, cannot be said to be an unfair mercantilist strategy – quite the opposite. As McKinnon has put it, Japan is suffering from a deflationary hangover associated with an erratically appreciating yen [14]; it is precisely this deflationary hangover that leads to a weak (real) external value of the yen. Ironically, it is precisely the floating of the exchange rates – which critics of Japan have often cited as the solution to long-term trade imbalances – that have
prevented the balancing of international competitiveness.

External balance has been disrupted by the erratically appreciating yen, but so has internal balance. After unsuccessful attempts to fight deflation and stimulate the Japanese economy by aggressive cuts in the interest rate, the Bank of Japan announced, in April 1999, its infamous zero-interest-rate policy. With a zero bound on interest rates, the Bank of Japan has no further leverage over the economy through interest-rate policy. In fact, the monetary transmission mechanism has broken down. Over the period 1995 - 2004, the money base grew aggressively (with the exception of 2000, where there was a slight dip), as the Bank of Japan adopted a strategy of quantitative easing; this was due in no small part to unsterilized interventions on the foreign exchange markets that flooded the domestic economy with yen. However, liquidity in the system, represented by M2 + CDs, has grown at a more reserved pace. Yet GDP growth rates are still sputtering, and prices are still falling, which indicate that the monetary transmission mechanism is not working as it is supposed to. The advent of the crisis in 2007 saw the money base contract sharply, as the carry trade unwound and as liquidity shut down within the system, and the Bank of Japan has struggled to increase the money base again. It remains to be seen what the long-term effects of the crisis are.

5 Policy Recommendations

5.1 Internal Balance

In light of this, what is to be one? Certain commentators, such as Svensson [19], have argued that given that it is the high external value of the yen that has depressed the Japanese economy and brought about deflation, a ‘foolproof’ way to kickstart the Japanese economy would be to stabilize the value of the yen at a relatively lower level:

The economy is hence jump-started by (a) a real depreciation of the domestic currency, (b) a lower long real interest rate and (c) increased inflation expectations. . . the output gap will rise because of (a) and (b). Inflation will increase above the inflation target by
(a), (c) and the increase in the output gap, and thus induce a real appreciation of the domestic currency.

However, such a solution would not be practically tenable, because the Bank of Japan has already had to intervene at historically unprecedented in recent years to keep the external value of the yen fairly stable (refer to Fig. 4). It is inconceivable that such massive scales of intervention would be ignored by the United States, which is currently looking for easy solutions to unwinding the trade deficit that it is running with its creditor nations, one of which is Japan. Such massive scales of intervention could spark of accusations that Japan is a ‘currency manipulator’ and could even reignite trade disputes.

Furthermore, even if we suppose that the Bank of Japan could manage to keep the value of the yen down, fears of future yen appreciations could still remain – and perversely even strengthen – should the yen depreciate today. This could increase the absolute value of the negative risk premium, and lead to further wage deflation. Unilateral intervention by the Bank of Japan lacks long-term credibility that stems from forces that lie outside Japanese control – namely, mercantile pressure from the United States. To avoid the problem of deflation, therefore, some form of bilateral stabilization of the yen-dollar exchange rate is in order. Such bilateral action could take two possible and complementary forms [13]: commercial agreements governing trade disputes and monetary accords stabilizing the long-term value of the yen-dollar exchange rate. The latter would also have the added positive side effect of diminishing the carry trade that also exacerbates exchange rate movements.

Once bilateral stabilization of the yen-dollar exchange rate has taken place, the risk premium that adversely impacts labor markets would diminish, and wages would begin to rise. In the long run, purchasing power parity is restored, and so this has no adverse effect on international competitiveness. Wage increases also have the positive side-effect of spreading out the gains in wealth amongst a broader spectrum, which could boost consumption in Japan and therefore reduce savings: a positive feedback effect that could reduce the trade surplus. As Jing Ulrich, chairwoman
of China equities and commodities at J.P. Morgan, recently said, “Letting wages rise benefits workers . . . letting the currency rise benefits currency speculators” [22].

5.2 External Balance

The return to a situation of external balance could be achieved in accordance with the bilateral stabilization policies described above, which would increase Japanese consumer expenditures, and therefore decrease private savings. In addition to this, however, the United States must also embark on policies that attempt to increase the level of domestic savings in the United States. Recall the balance-of-payments identity, that states that the current account surplus is the domestic level of savings less the domestic level of investment. Too much emphasis has been placed on the exchange rate, privileging the elasticities view, and leaving the macroeconomic picture in the background.

America’s policies in the last few years have proved unfortunately disastrous: the low interest rates of 2002 - 2004 led domestically to rising asset prices, which ultimately resulted in a bubble. Should America wish to reduce its trade deficit with other countries such as Japan, a switching policy such as a yen devaluation would not be enough. Perversely, this could widen the trade deficit when interpreted from a balance-of-payments accounting point of view, as it might make Japan seem like a more attractive place to invest, thereby causing more investment to be remitted there. Instead, the United States also needs to embark on absorption policies aimed at increasing the savings rate: diminishing the massive budget deficit seems like a plausible starting point, as does improving prudential supervision to reduce the amount of leverage that banks are tempted to take on.

The exchange rate is an easy target, but it is by no means a panacea, or even a mild pain reliever. A strong yen may improve the competitiveness of the United States with respect to Japan in the short run, but in the long run such an effect washes out as purchasing power parity is restored by deflation in Japan – and at great cost to the Japanese. Japan embarked on exchange rate appreciation, but this has not decreased its trade surplus with the United States, but instead led
to economic pain that results from the problem of conflicted virtue. A more sensitive appreciation of the dollar standard is required before American policymakers can fight the trade deficit.

6 Conclusion

In this paper, I examined the role of exchange rates in combating the trade deficit by focusing on Japan’s experience with the United States. I showed that merely observing the level of the current account surplus or deficit is not enough in determining if a currency is overvalued. I provided an alternative, and suggested, as per Frankel, that one should also take into account the Balassa-Samuelson effect when determining what the level of a currency should be. I have also shown that the floating exchange rate period in Japan – during which the yen erratically appreciated almost fourfold in the span of less than two decades – confused the adjustment process, and in the restoration of purchasing power parity price levels in Japan fell. In contrast, the fixed exchange rate period was a period of rapid growth in Japan, and was arguably one of the factors crucial to the success of the Japanese economy.

This specific case study, however, is instructive in providing policy ideas not only for Japan, but also for another country whose economic condition appears to be suspiciously similar to that of Japan’s in the 1960s, when the yen was pegged to the dollar. That country is China.

Like Japan in the past, China’s exchange rate is currently pegged to the dollar. Furthermore, since 1994, China has also run consistent trade surpluses against the United States – it now competes with Japan as top creditor nation to the United States. The surplus position also leads to the problem of conflicted virtue as described in Section 4.1, while international pressure to appreciate the yuan has become acutely intense.

However, China should remain steadfast in its defense of the peg. As Section 2.1 laid out, the exchange rate is an easy target when there are persistent current account deficits and surpluses. However, as Section 3.2 demonstrated, an exchange rate appreciation is neither sufficient nor necessary for the unwinding of external imbalances. Instead, policymakers and journalists should stop
implicitly adopting an elasticities view of the exchange rate, and instead adopt a more macroeconomic perspective on the current account balance, which views the deficit in the United States as the result of low savings, rather than of an overvalued dollar.

More importantly, expectations need to be controlled. Even the slightest hint of an appreciation could provoke a dishoarding of dollar assets into the domestic currency, and hot money inflows speculating on the one-way bet, as described in Section 4.3. It would be quite disastrous if the world’s second and third largest economies were to be mired in deflation and low economic growth, especially given China’s recent contributions to world recovery through the largest fiscal stimulus that the world has seen in recent years. Wage deflation would prevent China’s poor from lifting themselves out of poverty, while benefitting currency speculators who arguably do not add to economic efficiency or productivity growth.

The floating of the yen did very little for the trade deficit that the United States was running against Japan; it did even less for the Japanese themselves who are still trapped in a deflationary spiral fueled by negative wage growth and loss of monetary control. Critics of those countries running a surplus against the United States should take heed: the evidence provides little justification for an appreciation of the currencies of these countries against the dollar. With one tool – the exchange rate – at best only one target can be hit, and at considerable economic cost. Further improvements in the trade balance must be accompanied by other policies that may be less palatable from a political point of view, but more effective from an economic one.
References


