



# China and its Dollar Exchange Rate: A Worldwide Stabilizing Influence?

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# China and its Dollar Exchange Rate: A Worldwide Stabilizing Influence?

## Abstract

We argue that criticism concerning the Chinese dollar peg is misplaced as no predictable link exists between the exchange rate and the trade balance of an international creditor economy. The stable nominal yuan/dollar rate is argued to have stabilized Chinese, East Asian and global growth. However, linked to US low interest rates, Chinese sterilization policies and potentially subsidized capital allocation in China the real yuan/dollar rate is undervalued. This has caused—both in China and the United States— structural distortions and threatens to undermine global growth and stability. We propose Sino-American policy coordination to escape from the policy dilemma, which continues to drive global imbalances.

JEL-Code: F150, F310, F330.

Keywords: China, exchange rate, financial stability, economic stability, international policy coordination, currency war.

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## 1. Introduction<sup>1</sup>

Since 1994 when China unified its currency and achieved full current account convertibility by 1996, a stable yuan/dollar rate has anchored China's price level. It has also smoothed real economic growth at an amazingly high annual rate of 9 to 11 percent—almost without precedent in the annals of economic development. Although led by a surge in exports of manufactures in the 1990s, imports also surged so that China's overall trade remained roughly balanced (Table 1)—and trade frictions were minimal.

Beginning in 2002, however, China's domestic saving began increasing relative to domestic investment—while national saving in the United States slumped. The result of this international saving imbalance over the next decade was large and growing Chinese bilateral trade surpluses in manufactures with the United States and multilateral surpluses more generally (Table 1). The corresponding U.S. trade deficits accelerated American industrial decline with politically painful losses of jobs in manufacturing. Fortunately, China had become a full-fledged member of the World Trade Organization (WTO) in 2001. Thus the WTO's rules of the game inhibited outright protectionism by the US, EU, Japan, and smaller industrial economies—although anti dumping suits against Chinese goods (within the WTO's rubric) remain significant.

Stymied by the WTO but needing an easy political response to the decline in their manufacturing sectors, politicians in the industrial economies led by the United States began to claim that China's heretofore stable exchange rate of 8.28 yuan/ dollar was unfairly undervalued and a prime “cause” of China's emerging trade surpluses. Instead, the correct American economic response should have been to increase U.S. tax revenues while curbing both personal and government consumption so as to improve the national investment-saving balance and reduce America's trade deficit. But this proved, and still proves, to be politically too difficult. Far easier to look for a foreign villain—and the yuan/dollar rate was (and is) a politically convenient scapegoat.

However, in today's world of globalized finance for trade and investment, the claim that China could reduce its trade (net saving) by appreciating the RMB surplus is specious (Qiao 2007 and McKinnon and Schnabl 2009). If the RMB was sharply appreciated turning China into a higher cost country in which to invest, globally oriented firms would decamp and invest elsewhere so that investment in China itself would slump (McKinnon 2010a). China's saving-investment balance ( $S - I$ ) and trade surplus could well increase!

The now false idea that the exchange rate can be used to control the trade balance has deep historical roots. In the immediate post World War II era, when capital controls proliferated

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<sup>1</sup> We thank Tim Reichardt und Axel Löffler for excellent research assistance.

outside of the United States and foreign trade was more of a fringe activity, the Western industrial economies were more insular. For that era, using the exchange rate to control a country's trade balance was more plausible—and was central in the influential work of Nobel Laureate James Meade, *The Balance of Payments* (1951).

**Table 1: China's Multilateral Trade Balance and Bilateral Trade Balance vs. the US**

| Year | Trade Balance<br>billion US\$ | Trade Balance<br>percent of<br>GDP | Bilateral Trade<br>Balance<br>billion US\$ | Bilateral Trade<br>Balance<br>percent of GDP |
|------|-------------------------------|------------------------------------|--|--|
| 1980 | -1.0                          | -0.33%                             | -2.8                                       | -0,93%                                       |
| 1981 | 1.0                           | 0.34%                              | -3.2                                       | -1,08%                                       |
| 1982 | 4.8                           | 1.63%                              | -2.5                                       | -0,86%                                       |
| 1983 | 2.6                           | 0.82%                              | -1.0                                       | -0,33%                                       |
| 1984 | 0.1                           | 0.01%                              | -1.5                                       | -0,48%                                       |
| 1985 | -12.5                         | -4.04%                             | -2.8                                       | -0,93%                                       |
| 1986 | -7.4                          | -2.43%                             | -2.1                                       | -0,69%                                       |
| 1987 | 0.3                           | 0.09%                              | -1.8                                       | -0,55%                                       |
| 1988 | -4.1                          | -0.98%                             | -3.2                                       | -0,78%                                       |
| 1989 | -4.9                          | -1.07%                             | -3.5                                       | -0,75%                                       |
| 1990 | 10.7                          | 2.64%                              | -1.3                                       | -0,32%                                       |
| 1991 | 11.6                          | 2.74%                              | -1.8                                       | -0,43%                                       |
| 1992 | 5.1                           | 1.00%                              | -0.3                                       | -0,06%                                       |
| 1993 | -11.8                         | -1.84%                             | 6.4  | 0,99%  |
| 1994 | 7.4                           | 1.26%                              | 7.4  | 1,28%  |
| 1995 | 12.0                          | 1.58%                              | 8.6  | 1,14%  |
| 1996 | 17.6                          | 1.97%                              | 10.5                                       | 1,18%  |
| 1997 | 42.8                          | 4.35%                              | 16.5                                       | 1,67%  |
| 1998 | 43.8                          | 4.19%                              | 21.0                                       | 2,01%  |
| 1999 | 30.6                          | 2.78%                              | 22.5                                       | 2,05%  |
| 2000 | 28.8                          | 2.42%                              | 29.8                                       | 2,50%  |
| 2001 | 28.1                          | 2.13%                              | 28.2                                       | 2,14%  |
| 2002 | 37.4                          | 2.57%                              | 42.8                                       | 2,94%  |
| 2003 | 36.1                          | 2.19%                              | 58.7                                       | 3,56%  |
| 2004 | 49.3                          | 2.54%                              | 80.4                                       | 4,14%  |
| 2005 | 124.7                         | 5.46%                              | 114.3                                      | 5,01%  |
| 2006 | 208.9                         | 7.49%                              | 144.6                                      | 5,19%  |
| 2007 | 307.3                         | 8.80%                              | 163.2                                      | 4,67%  |
| 2008 | 348.7                         | 7.69%                              | 171.1                                      | 3,77%  |
| 2009 | 220.1                         | 4.36%                              | 143.6                                      | 2,84%  |

Source: Datastream.

However, by the new millennium with much greater globalization of trade and finance, Meade's view of the exchange rate had become obsolete—except in economics textbooks. But it is still the intellectual influence behind today's continuing American and European political pressure on China to appreciate the RMB as if that would reduce China's trade surplus. As J.M.

Keynes (1935, p 383) so aptly put it “...the ideas of economists and political philosophers, both when they are right and when they are wrong, are more powerful than is commonly understood. Indeed, the world is ruled by little else. Practical men, who believe themselves to be exempt from any intellectual influence, are usually the slaves of some defunct economist”.

Showing how and why the conventional view linking exchange rate changes to the trade balance breaks down as an economy becomes more open in trade and finance is all well and good. However, we also need an alternative more positive theory of why a stable dollar exchange rate is the best policy for a rapidly growing emerging market such as China—particularly one with a large saving surplus but whose own private capital market is still too immature to finance it internationally.

## **2. Three Stages of the Chinese Dollar Peg as a Stabilizer**

Why focus just on China’s *dollar* exchange rate? Despite monetary turmoil—past and present—emanating from the United States, the world is still mainly on a dollar standard. In East Asia, virtually all imports and exports—including the burgeoning intra-industry trade within the region—are invoiced in dollars. The dollar remains the dominant means of settling international payments among banks, and is the principal intervention currency used by governments, such as China’s, for smoothing exchange rate fluctuations. When China stabilizes the yuan/dollar rate, it is really stabilizing the rate against a much broader basket of currencies underlying inter-regional trade in Asia—and against dollar based financial markets beyond Asia.

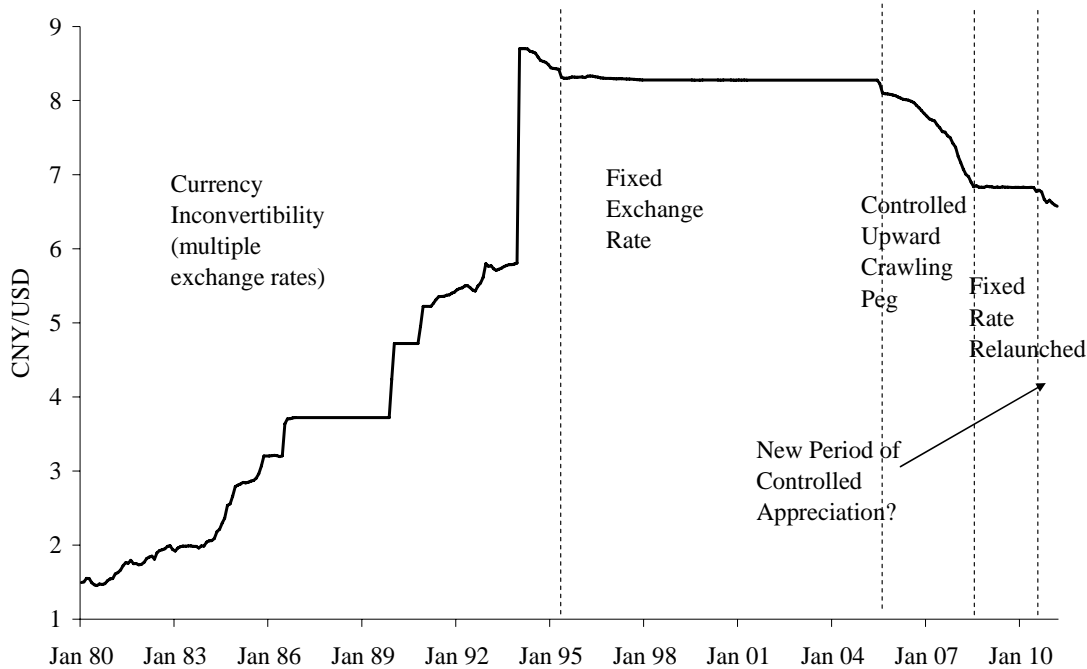
### *Stage 1. The Dollar Exchange Rate as the Nominal Anchor for the Chinese Economy*

Thus in 1994 when China’s system of multiple exchange rates was unified and currency restrictions on importing and exporting were eliminated, the yuan/dollar peg became the centerpiece for reducing China previously high and volatile inflation.

In the 1980s, under Deng Xiao Peng, China began to move strongly, but gradually, away from a Soviet-style planned economy. Wage and price controls were slowly relaxed. But, out of necessity, the currency remained inconvertible with no free arbitrage between domestic prices and the very different relative dollar prices prevailing in international markets. During this 1980-93 period of currency inconvertibility, the “official” yuan/dollar rate was frequently and arbitrarily changed (Figure 1), and could not have been an anchor for the domestic price level. No open domestic capital market existed for the People’s Bank of China (PBC) to execute conventional monetary policy. Monetary control depended on very imperfect credit ceilings on

individual banks. The result was high and variable inflation which peaked out in 1994 at over 20 percent per year (Figure 2).

**Figure 1: The Yuan-Dollar Exchange Rate, 1980-2011**



Source:

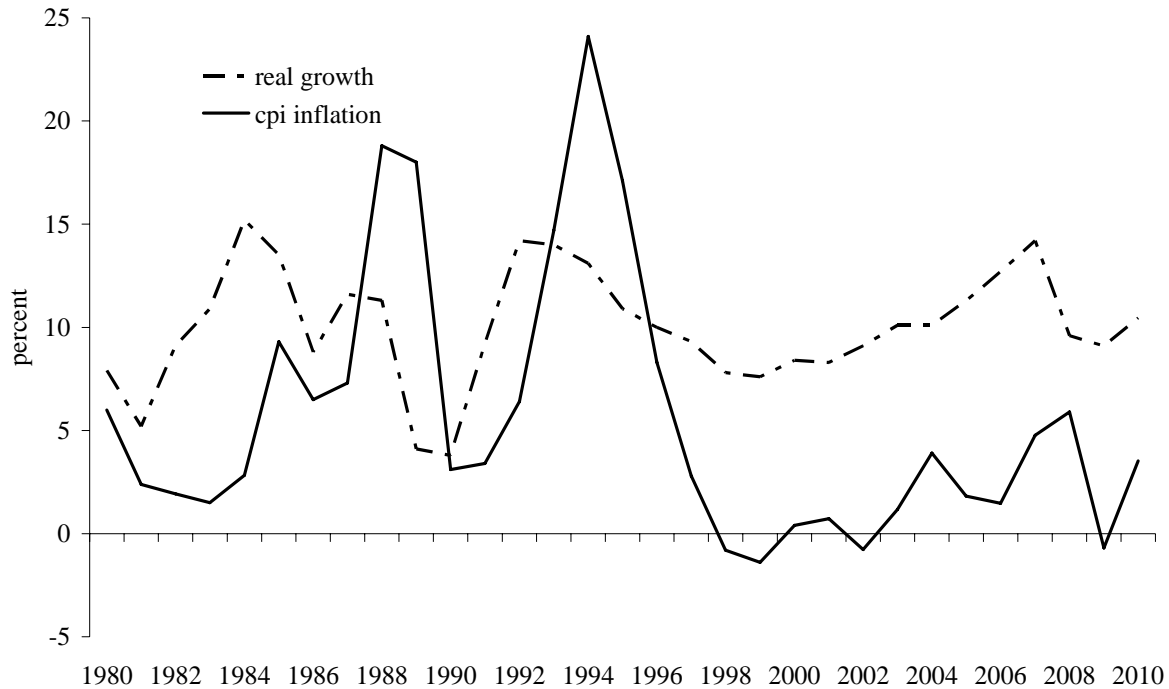
IMF.

But to maintain the new dollar exchange anchor for tradable goods as of 1995, the PBC was “forced” to disinflate sufficiently to maintain 8.28 yuan/dollar over the next decade. By 1997, inflation in China’s CPI had fallen to the American level—about 2 percent per year (Figure 2).

From time to time, other countries have used a fixed exchange rate as a “nominal anchor” to kill inflation. What seems virtually unique about the Chinese experience, however, is that inflation remained in abeyance (at least until the worldwide inflation of 2010-11?) *and* real GDP growth stabilized at a high level. Figure 2 also shows the roller coaster ride in real growth rates before 1996 during the period of currency inconvertibility, and the subsequent much smoother growth in real GNP of around 10 percent per year when the current account had been liberalized under a fixed dollar exchange rate. True, GDP growth slowed to just 8 percent or so in the global crisis of 2008-09 when Chinese exports fell sharply. But in 2010, growth bounced back to its “norm” of about 10 percent.

**Figure 2: Real GDP Growth and Consumer Price Inflation, China, 1980-**

**2010**



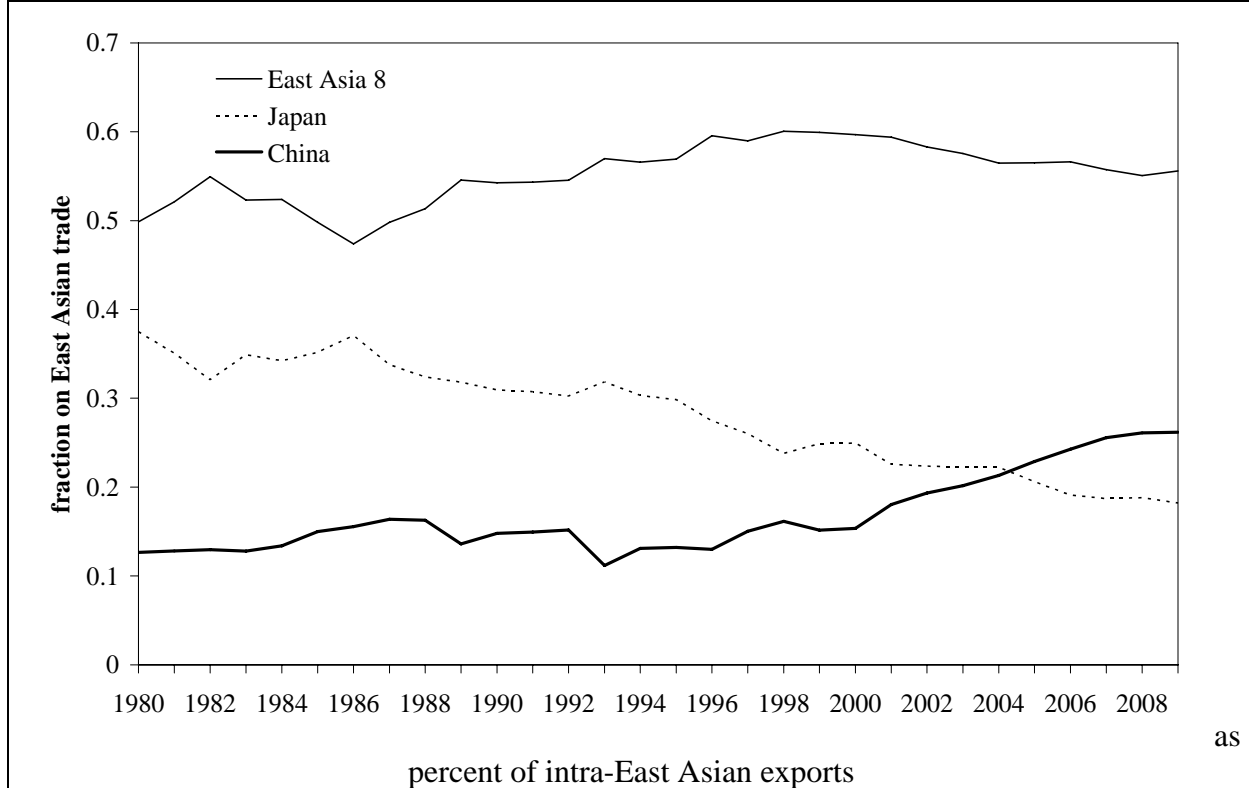
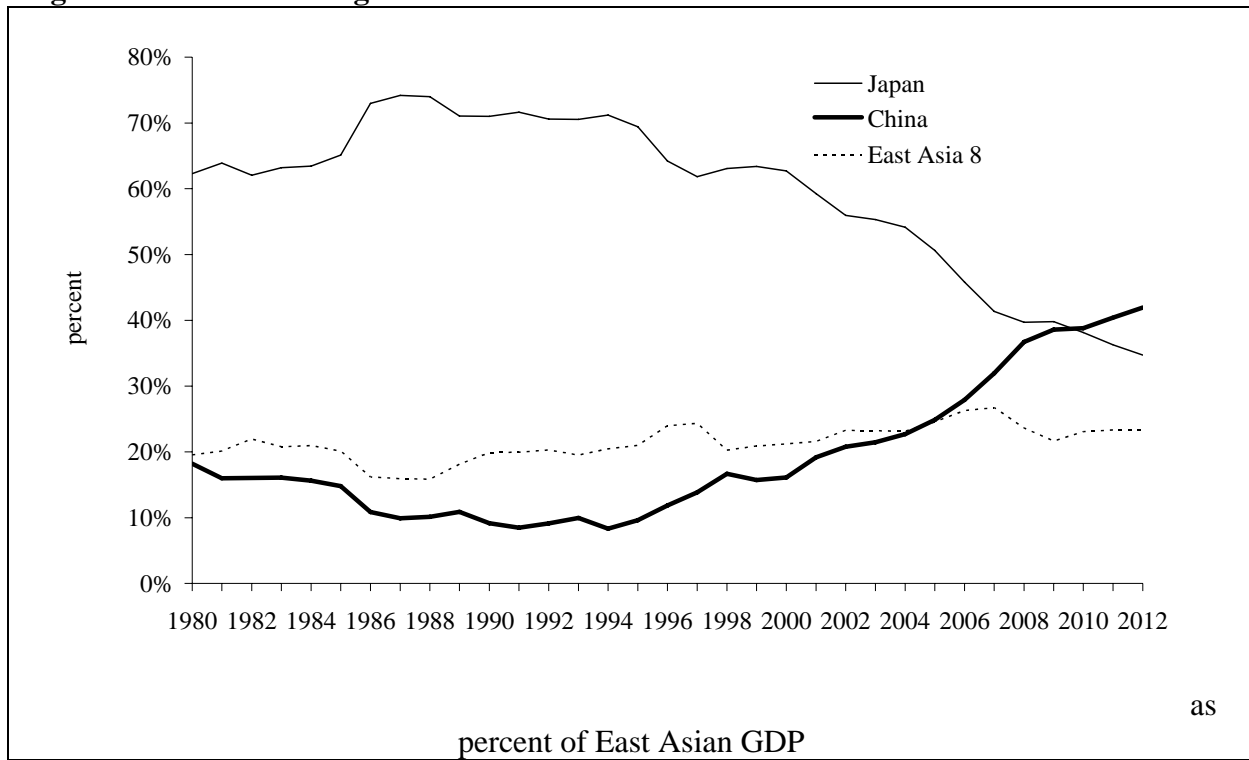
Source: IMF.

*Stage 2. China as Anchor for the Greater East Asian Economy*

China's own monetary and financial stability helped by a stable yuan/dollar rate is important of itself, but it is not the only issue. China has now displaced Japan as the dominant economy in East Asia, both in trade and size (Figure 3). Much more rapid growth in GDP for almost a decade and a half, and growing intra-industry trade links, make it not only the engine of high East Asian economic growth but also an anchor for stabilizing that growth.

Japan was dominant in economic size and in East Asian trade flows before 2002 (Figure 3). Japanese economists linked East Asian development to the so-called flying geese pattern—with Japan as the leading goose. But the Japanese economy never recovered from the collapsed bubbles in its stock and real estate markets in 1989, and remains mired with slow growth and near zero interest rates today.

**Figure 3: Economic Weights in East Asia**

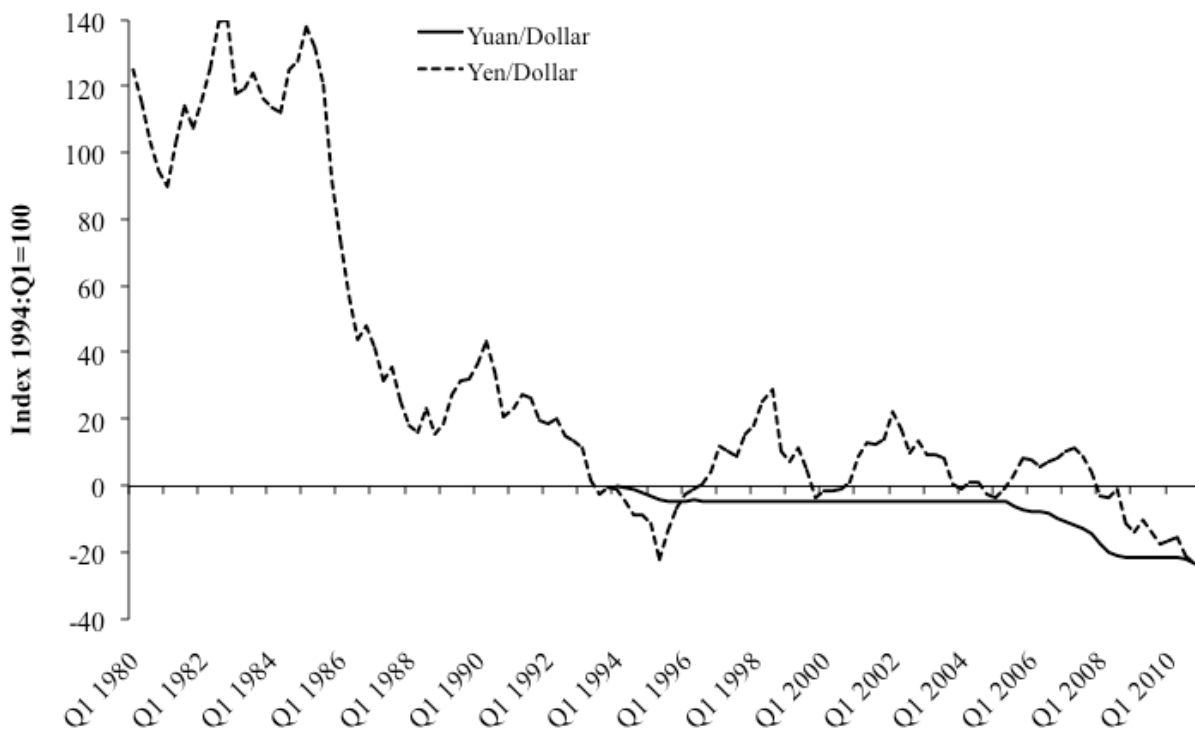


Source: IMF. Data on Taiwan included since 1989. Before East Asia 7.



More disturbingly for East Asia, the yen/dollar rate fluctuated from 360 per dollar in 1971 to 80 to the dollar in April 1995, and continues to fluctuate widely—albeit closer to 80 than to 360—as shown in Figure 4. Because the other East Asian economies were “normally” pegged to the dollar, these large fluctuations in the yen/dollar rate created cyclical instability in the smaller East Asian economies [Kwan 2001, McKinnon and Schnabl (2003)]. When the yen rose against the dollar, direct investment (largely by Japanese firms) flowed out of Japan to Thailand, Korea, and so on, and their exports to Japan boomed. When the yen was weak and Japan became more competitive, Japanese investment at home boomed while FDI in other Asia, as well as exports to Japan, slumped.

**Figure 4: Yen and Yuan against the Dollar**

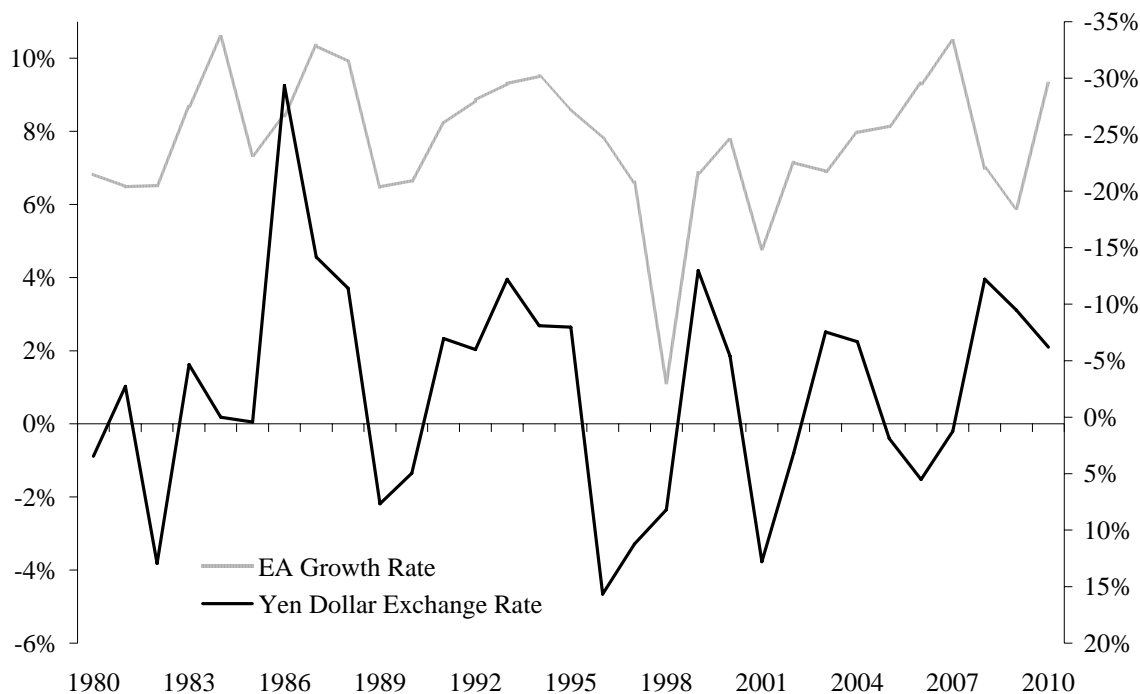


Source: Datastream.

So cyclical instability (which China largely avoided) in the smaller East Asian economies was aggravated by fluctuations in the yen/dollar rate. As shown in Figure 5, before the turn of the millennium, the fluctuations of the yen against the dollar was an important determinant of the business cycle of the smaller East Asian economies. Yen appreciation boosted

growth in the smaller East Asian economies, while yen depreciation put a drag on growth. After the turn of the millennium China gained a large economic weight in East Asia and the role of the yen/dollar exchange rate for East Asian business cycle fluctuations seems to have faded.

**Figure 5: Yen Dollar Exchange Rate Fluctuations and East Asian Growth**



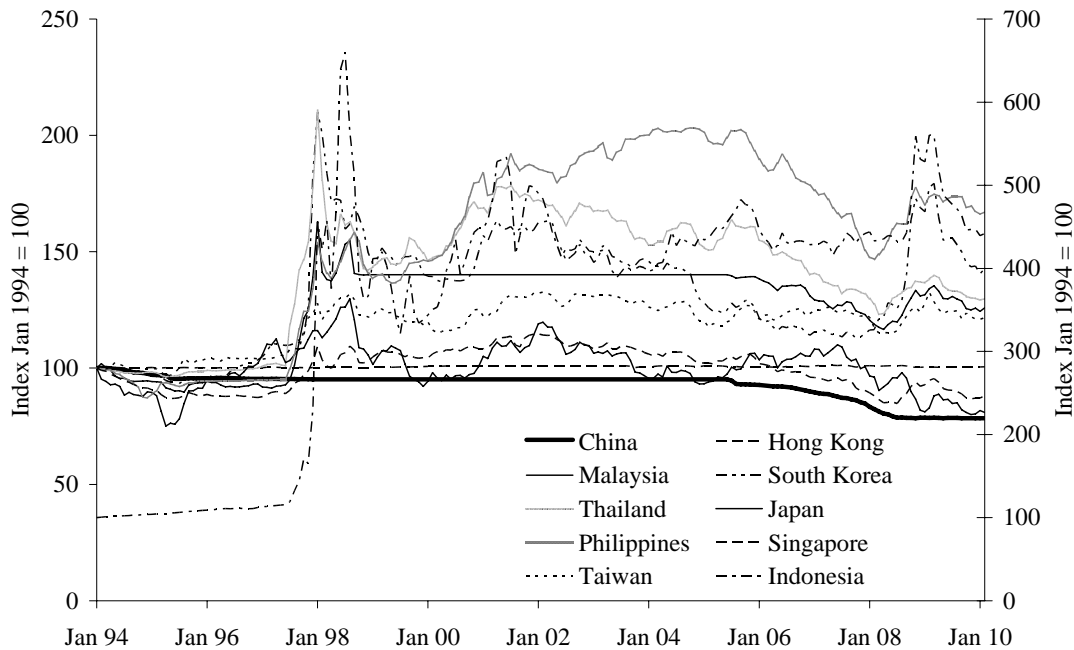
Source: IMF. East Asia (EA) defined as the smaller East Asian economies, i.e. Hong Kong, Indonesia, Malaysia, Philippines, Singapore, Thailand and Taiwan. Yen/dollar exchange rate in year-over-year percent changes.

Now in the new millennium and beyond, China has displaced Japan as the dominant East Asian economy—but with the yuan/ dollar rate kept much more stable since 1994 than was (and is) the yen/dollar rate (figure 4). Thus China is not only the engine of high economic growth for its smaller Asian suppliers and customers, but is also a better anchor for reducing cyclical instability in East Asia. The relatively stable yuan/dollar rate means that an “inadvertent” business cycle is not imparted to the smaller Asian countries (also dollar peggers) in the mode of their earlier experience with Japan and fluctuations in the yen/dollar rate.

Although the yuan/dollar rate has remained relatively stable, on occasion political pressure from the U.S. has induced periods of gradual RMB appreciation as from July 2005 to July 2008 (about 6 percent per year), and after June 2010 (Figure 6). In these intervals, a few other East

Asian countries have followed with (small) gradual appreciations. But insofar as these governments intervene, it is still a dollar based system. (The RMB is not used as an intervention currency because China's financial markets are underdeveloped with controls on capital inflows.) The dollar remains predominant in interbank markets and as an invoice currency in goods markets. However, the RMB now supplements the dollar's role as an exchange rate anchor in East Asia.

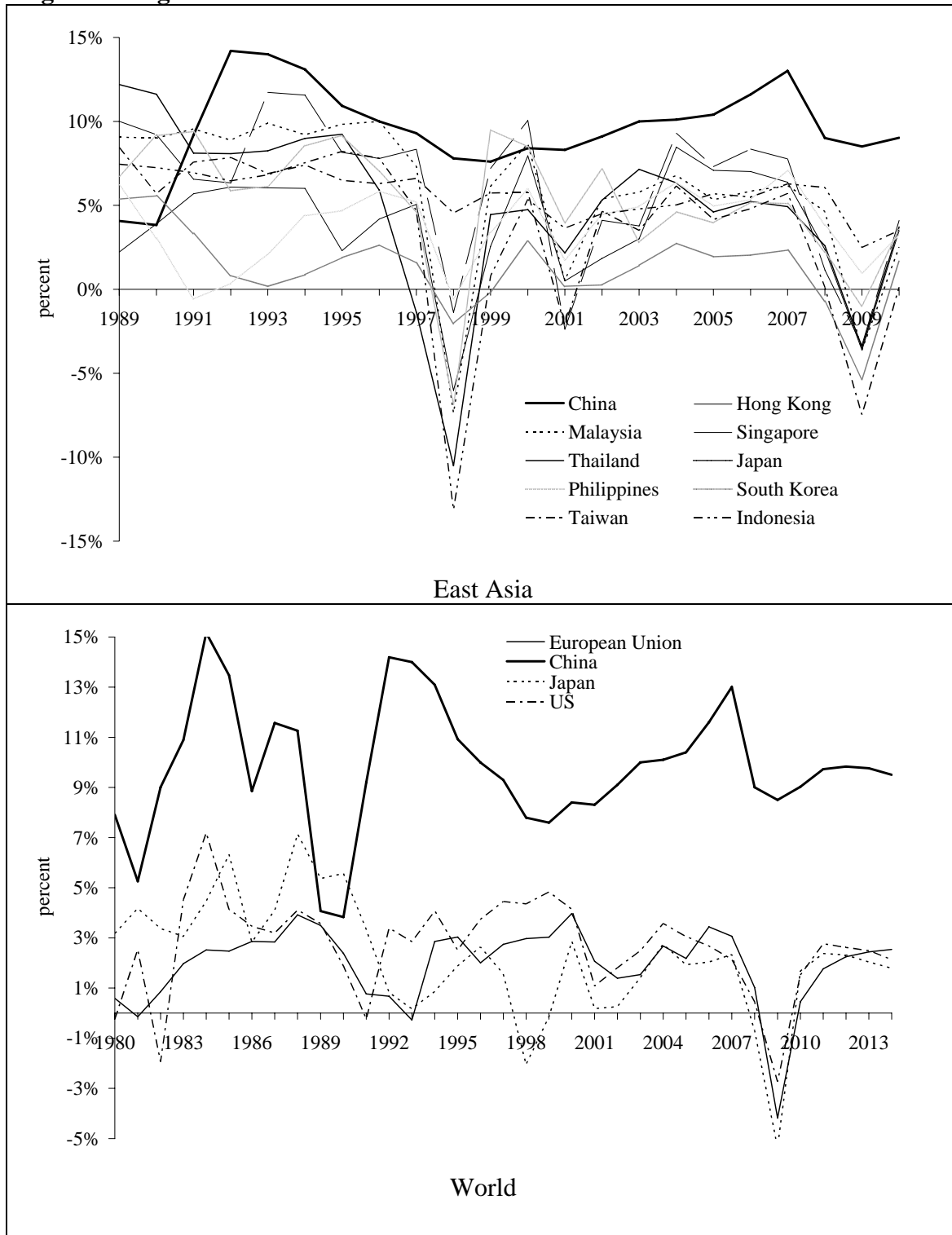
**Figure 6: East Asian Exchange Rates against the Dollar**



Source: IMF.

There is a second sense in which China provides stability to East Asia. Major macro economic shocks to the East Asian region not originating in China are smoothed by China's stabilizing presence. The upper panel of Figure 7 shows the real growth patterns in the 10 most important East Asian economies. In the great Asian crisis of 1997-98, one can see the sharp fall to negative growth in most of the 9—particularly the crisis 5: Indonesia, Korea, Malaysia, Philippines and Thailand. Meanwhile in the 10<sup>th</sup> country, during the recent crisis China's high growth barely dipped at all—just to 9 percent. Most importantly, despite misplaced foreign advice to depreciate the RMB in the face depreciations by the other 9 Asian countries shown in Figure 6, China opted to keep the yuan/dollar stable at 8.28 during the crisis. This stable Chinese anchor permitted the other 9 East Asian countries to export their way out to China and abroad, and thus recover much sooner.

**Figure 7: Regional and Global Growth Performance**



Source: IMF.

### *Stage 3. China as a Fiscal Stabilizer on the World Stage*

The same pattern of a stabilizing Chinese anchor for the East Asian economies prevails in response to “worldwide” macro shocks, i.e., those originating in the center country of the world dollar standard—the United States. The upper panel of Figure 7 shows the effect of the collapse in 2001-02 in the American stock-market dot.com bubble—where growth slowed sharply in the other 9 East Asian economies, but not in China with its stable yuan/dollar exchange rate. Similarly, in the global credit crunch of 2007-09, growth became negative or slowed sharply in the other 9 East Asian countries but only dipped moderately by one or two percentage points from its very high level in China.

In each of the two major macroeconomic crises, the stable yuan/dollar exchange rate facilitated counter-cyclical fiscal policy by China. In March 1998 in the middle of the Asian crisis, Premier Zhu Rongji announced a major “fiscal” expansion of over one half a trillion US dollars over the next three years. Similarly, in last half of 2008 in the midst of the global credit crunch from failing U.S. and European banks, an ever-larger China began an even bigger multi-trillion dollar fiscal expansion lasting through 2010. In both cases, increased central and local government spending was financed mainly by enormously increased credits from China’s huge state-owned banks—which the government in 2011 is now trying to reign in. China had reset its exchange rate at 6.83 yuan/dollar in July 2008 to June 2010 (Figure 1). So in both cases, the fixed yuan/dollar rate increased the effectiveness of China’s counter-cyclical fiscal expansion—as the old Mundell-Fleming model would have it (Mundell 1963). East Asia and the world economy more generally were indirect beneficiaries.

Can China now be considered a major stabilizing influence worldwide? A glance at the lower panel of Figure 7 suggests that this is plausible and has already happened. Growth in the European Union, Japan, and the United States plunged well into negative territory in the credit crunch of 2007-09, whereas China’s growth only dipped to a comfortable eight percent per year, and has subsequently recovered to its norm of 10 percent or so. But China itself was sharply impacted by the global credit crunch. To offset the sharp 50 percent fall in its exports in 2008-09, China’s massive fiscal stimulus in 2008-10 increased demand for both domestic and foreign goods. Imports were sucked in so that China’s trade surplus vanished—albeit very briefly—and the other East Asian countries quickly exported their way out of the downturn helped by a stable yuan/dollar rate. Beyond East Asia, the rest of the world’s exports to China also increased in 2009-11.

### **3. Sustainability, the Real Exchange Rate, and Wage Growth**

Is China’s new role as a worldwide stabilizer sustainable? In the longer run, dampening the large trade imbalance between the world’s two biggest economies—with a rise in

consumption in China and fall in the United States—is in everyone’s best interests. Although very important, the desirability of correcting the saving imbalance between the two countries is fairly obvious and will not be treated here. Be that as it may, the false American presumption that, to reduce China’s trade surplus, the nominal dollar value of the RMB must be appreciated should be discarded. The trade imbalance can be, and is best, corrected by mutual absorption adjustment—spending rising in China and falling in the U.S.—with no change in the nominal yuan/dollar rate (McKinnon 2007).

As experienced during the period between July 2005 and July 2008, a gradual appreciation of yuan against the dollar is unable neither to correct the imbalance in bilateral trade nor to keep inflationary pressure under control (McKinnon and Schnabl 2009). Hardened appreciation expectations would encourage one-way bets on yuan appreciation, which when combined with near zero U.S. interest rates, swamp China with hot money inflows. This forces the Peoples Bank of China to further continue its extensive non-market-based sterilization policies, which contribute—as we will show—to severe distortions of the Chinese and the international economy. A more flexible exchange rate with an ever-appreciating RMB would damage China’s role as an international stabilizer.

China is an *immature*, albeit very large, creditor country where the RMB is not used for international lending. Thus China cannot literally float its exchange rate because the outflow of purely private finance would be insufficient to cover China’s very large trade (net saving) surplus. If floating was attempted, the RMB would just spiral upward until the PBC was drawn back in to buy the surplus dollars that China’s private sector was unwilling to accumulate (McKinnon 2010b). So the preferred solution is to *credibly* fix the yuan/dollar rate so that hot money flows would be minimal.

That said, international competitiveness can still be better balanced by encouraging ongoing *real* (but not nominal) RMB appreciation. Suppose that China’s fixed nominal dollar exchange is credibly preserved, perhaps by an international agreement, so that hot money flows end. Then the PBC need no longer sterilize the increases in the domestic monetary base from the now greatly diminished official accumulation of foreign exchange reserves. With the domestic price of tradables pinned down by the fixed exchange rate, non-tradables prices including wages, would then rise faster—a continual “real” appreciation.

### *Investment Distortions in China*

From a global perspective the current Chinese boom with growth rates well above nine percent may not be lasting. The unprecedented low level of global interest rates has driven China’s investment beyond what could be sustainable in the long run. The business cycle theories of Knut Wicksell (1898) and Friedrich August von Hayek (1929) help to understand the

long-term risks, which are linked to interest rates close to zero in the US (and other large industrial countries) combined with buoyant inflows of FDI and hot money into China (and many other emerging markets), which trigger real exchange rate stabilization.

To model business cycle fluctuations Wicksell (1898) and Hayek (1929) distinguished between “good” investment – which yields returns above a “natural” equilibrium interest rate<sup>2</sup> – and low return (speculative) investments. Overinvestment is triggered when the central bank (Wicksell 1898) or the banking sector (Hayek 1929) keep interest rates below the natural interest rate during the economic upswing. These older monetary overinvestment theories were modelled for closed economies. However, in today’s global capital markets, interest rates in emerging markets can decline below the “natural interest rate” due to buoyant capital inflows from highly liquid, low yield developed capital markets in the United States, Europe, and Japan (Hoffmann and Schnabl 2011).

Because growth in the US, Japan and the euro area remains sluggish, the Federal Reserve, the Bank of Japan and the European Central Bank continue to keep interest rates exceptionally low. Since recovery and growth is faster in East Asia, the low interest rates in the large countries feed carry trades into higher interest East Asian countries. If, as since June 2010 (when China’s government announced again de-pegging the yuan/dollar rate) and the RMB became more likely to appreciate, there is a double incentive to borrow in dollars and to invest in higher yield foreign currency assets. For instance, a carry trader can borrow for close to zero in the US and earn a return of 5% in buoyant China. Assuming that the yuan will appreciate – say by 3% per year – the overall return would be 8% (if Chinese capital controls are circumvented).

**Table 2: Interest Rates and GDP Growth for U.S. and China**

|      | China        |              |                          |            | United States |              |                    |            |
|------|--------------|--------------|--------------------------|------------|---------------|--------------|--------------------|------------|
|      | Deposit Rate | Lending Rate | Interbank Overnight Rate | GDP Growth | Deposit Rate  | Lending Rate | Federal Funds Rate | GDP Growth |
| 2000 | 2.25         | 5.85         |                          | 8.37       | 6.65          | 9.23         | 6.24               | 6.39       |
| 2001 | 2.25         | 5.58         |                          | 10.41      | 3.73          | 6.92         | 3.89               | 3.36       |
| 2002 | 1.98         | 5.31         | 2.4                      | 10.50      | 1.88          | 4.67         | 1.67               | 3.46       |
| 2003 | 1.98         | 5.31         | 2.18                     | 13.41      | 1.23          | 4.12         | 1.13               | 4.70       |
| 2004 | 2.25         | 5.58         | 2.01                     | 17.69      | 1.79          | 4.34         | 1.35               | 6.51       |
| 2005 | 2.25         | 5.58         | 2.01                     | 16.38      | 3.76          | 6.19         | 3.21               | 6.49       |
| 2006 | 2.52         | 6.12         | 1.31                     | 18.76      | 5.27          | 7.96         | 4.96               | 6.02       |
| 2007 | 4.14         | 7.47         | 1.97                     | 19.62      | 5.25          | 8.05         | 5.02               | 4.95       |
| 2008 | 2.25         | 5.31         | 2.21                     | 18.46      | 3.05          | 5.09         | 1.93               | 2.19       |
| 2009 | 2.25         | 5.31         | 0.83                     | 9.57       | 1.12          | 3.25         | 0.16               | -1.74      |
| 2010 | 2.5          | 5.56         | 2.24                     | 12.88      | 0.518         | 3.25         | 0.17               | 3.57       |

Source: Datastream; GDP for 2010 are IMF staff estimates; values for Chinese deposit and lending rates are from November 2010.

<sup>2</sup> At the equilibrium interest rate saving is equal to investment:  $S=I$ .

Enterprises compare the expected return on investment with the financing conditions on capital markets. A falling interest rate allows for additional investment with lower returns, i.e. a lower marginal efficiency. Overinvestment in China is likely because private capital inflows have brought the Chinese interest rate to a level, which is uncommonly low for fast growing emerging markets. Money market rates have been floating between one and three percent (Table 2), while the economy has been growing at real rates around ten percent (Figure 2). In contrast in the US, the gap between the interest rate and the real growth rate has been much smaller.

Figure 8 shows the extraordinary increase in gross fixed capital formation as a proportion of total GDP expenditure since 1980 in China compared to the United States. By 2009, China's fixed investment had risen to 44 percent of GDP (the world's highest) whereas it has remained at 18 to 20 percent in the U.S. for 30 years. True, China has a lot of catching up to do relative to the more mature and highly capitalized U.S. But it is not unreasonable to suppose that real returns to fixed assets in China have been driven below some natural Wicksell level. A possible grace is China's extremely high national saving rate in the neighbourhood of 50 percent of GDP (which the government can mobilize to deal with crises through its ownership of state-owned banks) that allows lower, or even negative-yield investments to usually get bailed out by new finance. The trade surplus of 5 percent of GDP (Figure 8) is further safety valve mitigating domestic overinvestment.

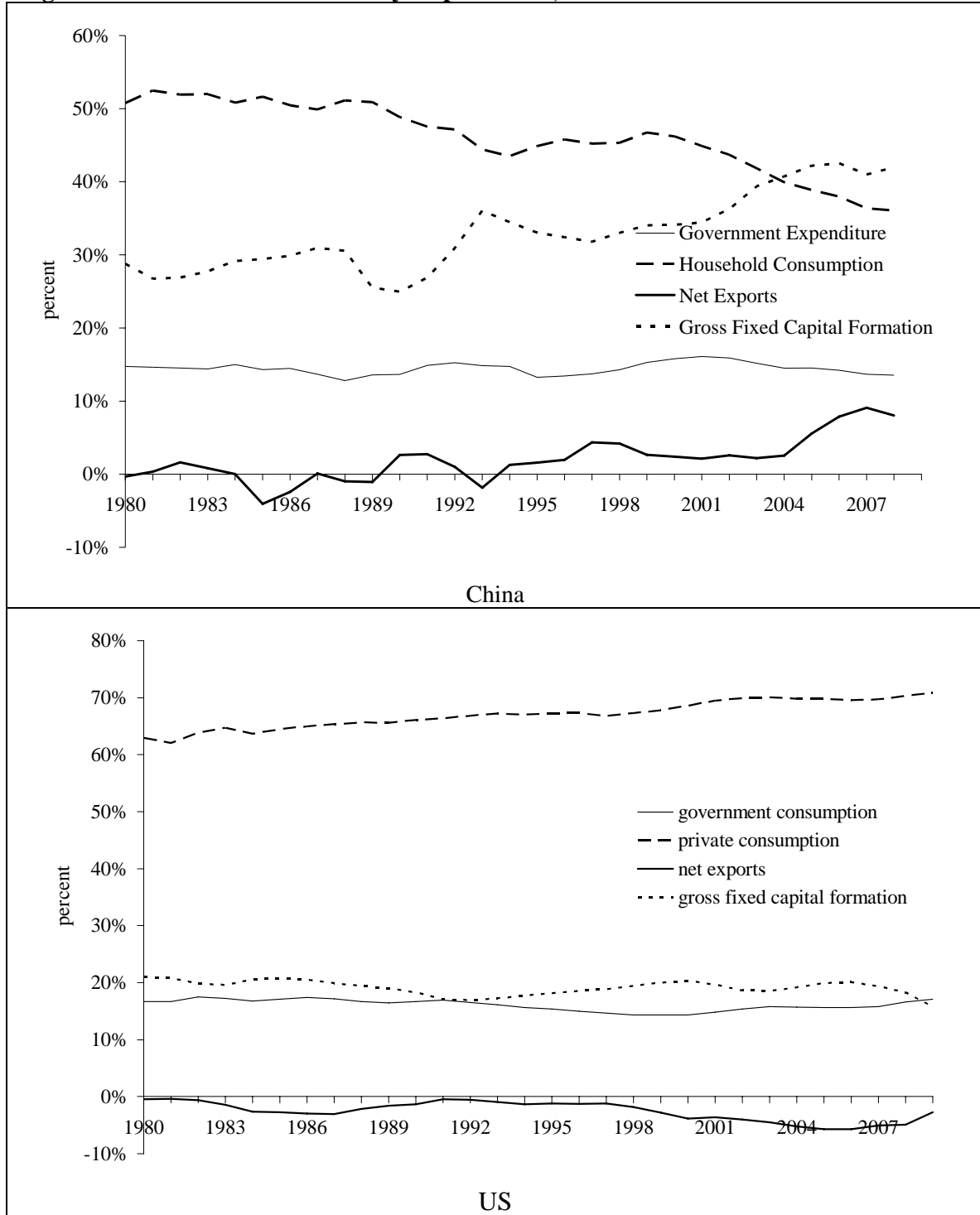
Despite the general notion of an export-led economy, investment rather than net exports have been the major driver of Chinese growth and employment. Figure 8 shows that by 2008 investment (plus inventory changes) accounted for about 42% of GDP thereby constituting the most important GDP expenditure component. In addition net exports accounted for 8% of GDP by expenditure in 2008. Because investment and exports make up about half of Chinese GDP, Chinese economic policies have been keen to sustain investment of Chinese enterprises, with focus on the export sector.

### *China's Financial Trap and Sterilization*

China's massive accumulation of official foreign exchange reserves originates from the combination of low U.S. interest rates and incomplete Chinese exchange rate stabilization: the lingering threat that the RMB could appreciate. But unless sterilized, this reserve buildup would cause a tremendous monetary expansion that undermines Chinese domestic price and financial stability. The Peoples Bank of China (PBC) therefore sterilizes a large part of foreign reserve accumulation. The PBC's balance sheet (Figure 9) shows on the asset side (with positive sign) the dramatic rise of foreign exchange reserves since the turn of the millennium, and on the liability side (with negative signs) the sterilization instruments, namely government deposits at the central bank, central bank bonds issued mainly to commercial banks, and in particular reserve requirements.



**Figure 8: Chinese and US GDP by Expenditure, 1980-2009**

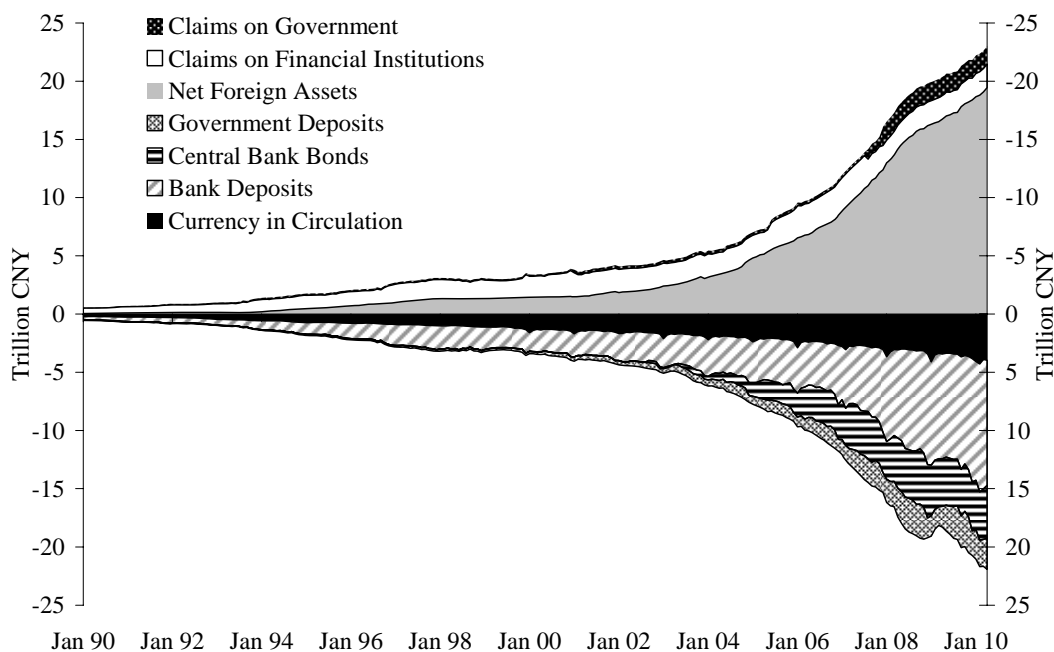


Source: Datastream.

Because the Chinese monetary and exchange rate policies are operating under the permanent threat of speculative capital inflows, the sterilization operations cannot be market based. Sterilization at market interest rates, for instance via open-market central bank bond sales, would drive Chinese interest rates upwards and thus attract additional speculative capital inflows. Therefore sterilization operations are non-market based, usually through increasing required reserves – both in dollars and domestic currency – at low remuneration rates or through coercive low interest rate bonds sales to the state controlled banking sector.

Non-market based sterilization policies lead to distortions in capital and goods markets because the interest rate structure is fragmented, and allows for “centrally planned” capital allocation via a dependent central bank and a state controlled banking sector (Schnabl 2010). As sterilization is usually non-market based – with required reserves being remunerated at around 2% – the general interest rate level in China is kept extremely low (but not as low as in the United States). In a high-growth economy, the demand for capital is high—whereas sterilization and direct credit constraints keep the supply of capital tight.<sup>3</sup>

**Figure 9: Peoples Bank of China Balance Sheet**



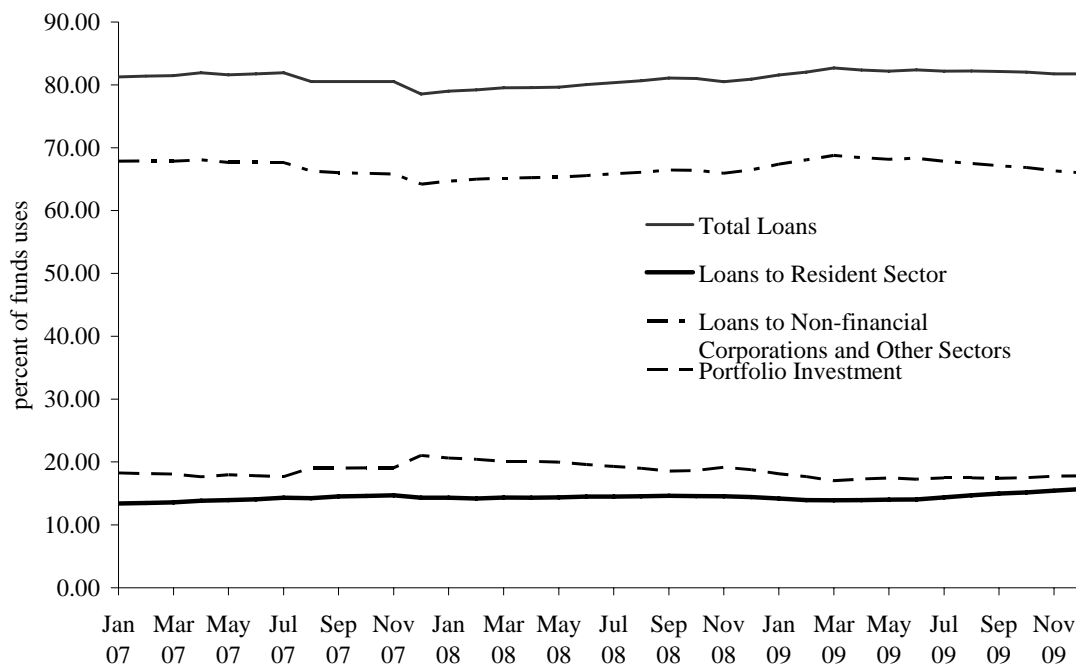
Source: IMF.

<sup>3</sup> The non-market based sterilization measures in combination with capital controls and state controlled capital allocation also constitute a drag on Chinese attempts to internationalize the RMB. An international currency has to be freely convertible and to be backed by developed capital markets. Non-market based sterilization further fragments Chinese capital markets making it even more difficult to use the RMB as an international clearing currency.

The resulting surplus demand for capital puts the monetary authorities into the position of directing capital into sectors with preferential treatment via the so-called “window guidance”:<sup>4</sup> “The PBC will strengthen window guidance and credit guidance to intensify efforts to adjust the credit structure. Efforts will be made to optimize the credit structure, to encourage growth in some sectors while discouraging growth in others.”<sup>5</sup> Two strategies of credit allocation are likely. First, the enterprise sector (which has a preference for investment) is likely to receive preferential treatment vs. the household sector (which has a preference for consumption). Second, within the private enterprise sector, State-Owned Enterprises (SOEs) and exporters are likely to be prime beneficiaries of state-directed capital allocation.

The lower panel of Figure 10 shows the uses of funds of the Chinese banking sector since 2007 when data became available. The shares of non-financial corporations and the resident sector are fairly constant, which can be seen as an indication for “centrally planned” capital allocation. The share of loans to non-financial corporations dominates with roughly 65%, while the share of loans to the resident sector remains small at around 15%. The state controlled flows of funds in favor of the enterprise sector help explain why the share of GDP of household consumption has gradually declined, whereas gross fixed capital formation and net exports have gradually increased (upper panel of Figure 8).

**Figure 10: Uses of Funds of the Chinese Banking Sector as Percent Total Funds Uses**



Source: Peoples Bank of China.

<sup>4</sup> Preferential treatment of specific sectors and enterprises via window guidance (*madoguchi shidō*) was a common way of credit allocation during the catch-up process of Japan (Hamada and Horiuchi 1987: 244-246).

<sup>5</sup> China Monetary Policy Report Quarter Two, 2008, 13.

Within the enterprise sector, export enterprises are likely to be subsidized by the provision of low cost capital. Hale and Long (2010) provide evidence that Chinese large and state-owned firms have better access to low-cost capital than small private firms. Tighter capital constraints (preferential capital allocation) in smaller (larger) firms are linked to higher (lower) efficiency. Prasad (2009: 227) argues that Chinese export enterprises are subsidized via the provision of low-cost capital, including interest rate subsidies to agricultural and energy sectors to hold down the cost of inputs for industrial production.

State-Owned Enterprises (SOEs) borrow from the large state-owned banks at below-market nominal rates of interest. But with inflation from the hot money inflows, real interest rates facing SOEs are driven down further so that they become over-capitalized with declining real yields compared to Domestic Private Enterprise (FDEs), which are much more productive and better at absorbing labor. Not being able to borrow so easily from the state-owned banks, the FDEs find that they have to self-finance their large investment spending, which accounts for much China's sharp rise in corporate saving—and hence trade surplus—in recent years.

On goods markets, the structural distortions prevent the real exchange rate from appreciating. Nominal exchange rate stabilization – as for instance criticized by Cline and Williamson (2009), Bergsten (2010) and the US public – cannot be distorting, as fixed exchange rates do not cause balance of payments misalignments themselves.<sup>6</sup> But, exports are subsidized from the Peoples Bank of China stabilizing the price level by preventing inflation in non-tradables prices. The economic structure is tilted towards the production of export goods at the expense of the domestic oriented economy (for instance services).

Sterilization, however necessary, limits real exchange rate appreciation. If the Peoples Bank of China would leave its foreign currency purchases unsterilized, the monetary base would grow so that prices and wages increase. The resulting real appreciation would raise non-traded (domestic) goods prices relative to traded (foreign) goods prices thereby shifting the demand (and consumption) to foreign (i.e. imported) goods. Chinese net exports and US net imports would decline, but this process is interrupted by monetary sterilization made necessary by near-zero U.S. short-term interest rates. Otherwise, China's nominal interest rates would also be driven toward zero.

In summary, the system of Chinese investment based export promotion has two pillars, both of which are linked by the PBC's unavoidable policy of sterilization. These are (1) the subsidized capital allocation via the state owned banking sector to promote investment in the export sector at below-market interest rates, and (2) inadvertently preventing the real exchange rate from appreciating so as to artificially stimulate exports. The resulting structural distortions in China's goods and financial markets endanger the sustainability of its long-term economic growth.

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<sup>6</sup> Whereas with a floating exchange rate the monetary policy is determined by the central bank and the exchange rate is left to float, under a peg the exchange rate is targeted and money supply is left to market forces. Economies with underdeveloped goods and capital markets have been using pegs ever since to import macroeconomic and financial stability (McKinnon and Schnabl 2004).

## *International Distortions*

From an international perspective, the distortion of the Chinese economy towards industrial production and exports matches the decline of the industrial sector in the United States—China’s most important trading partner. Since the early 1980s—when the trade deficit between the U.S. and Japan emerged—the share of industrial employment on total employment has declined steadily. Similarly, since 2002, rising Chinese exports of manufactures have also contributed to deindustrialization in the United States (Cline 2005 and Bergsten 2010).

However, the dominant factor in the decline of the U.S. manufacturing sector is the fall in national saving in the United States—leading to a large multilateral trade deficit (lower panel of Figure 8). Because America’s overseas creditors in East Asia are largely manufacturing countries—particularly Japan in the 1980s and 90s and China now—the real transfer of their saving necessitated that their trade surpluses in manufactures be matched by U.S. trade deficits in manufactures. So this saving deficiency in the United States sped the decline in American manufacturing. As of 2004, McKinnon (2005) estimated that actual employment in manufacturing was just 10.1 percent of the U.S. labor force but it would have been 14 percent without the trade deficit in manufactures: the difference was 4 to 5 million lost jobs in manufacturing.

Reflecting the increasing national saving in China, the upper panel of Figure 8 shows that, since the mid 1990s, investment and net exports as share of Chinese GDP have gradually increased up to roughly 50%. During the same time period, the share of Chinese consumption has fallen. The adjustment of the U.S. and Chinese current account balances is closely linked to the monetary policies in both countries. In the U.S. a gradual decline in short-term interest rates encouraged private dissaving and capital outflows to the emerging market economies, in particular to East Asia and China.

In China and East Asia buoyant capital inflows triggered—independent from the exchange rate regime—excessive reserve accumulation cum sterilization activities by central banks. The relative monetary tightening in East Asia stimulated net saving by discouraging investment. Heavy East Asian purchases of dollar bonds—largely central banks investing in U.S. Treasuries—have kept U.S. long-term interest rates low—thus stimulating U.S. consumption expenditures and the real estate bubble from 2002 to 2007. Starting from a substantially higher level than China’s, Figure 8 shows U.S. consumption inclusive of government spending continuing to increase to an astonishing 70% of GDP in 2009—a reflection of the overall decline in America’s national saving rate.

This saving (trade) imbalance between the two countries cannot be corrected by just changing monetary policies in the right direction. America’s saving shortage forces it to keep borrowing net from foreigners to avoid a serious domestic credit crunch. Thus the U.S. will continue to suffer the consequences of de-industrialization as long as its personal and government saving rates remain so low. Even so, the global system can be made less inflationary and less accident prone by higher interest rates in the U.S. coupled with little or no sterilization in China with an end to credit and other subsidies for its exports.

#### 4. Adjusting Chinese-US Imbalances

For immature creditor countries on the periphery of the world dollar standard producing manufactured goods such as China, foreign mercantile pressure to appreciate their currencies or move towards more flexible exchange rates is misplaced. A more flexible yuan/dollar rate would produce macroeconomic distress without having any predictable effect on the current account balance (McKinnon 2010a, Qiao 2007). Yet, the distortions in the international economy, which are caused by low interest rate policies in the US and real exchange rate stabilization in China require a foresighted policy response. Otherwise the distortions would be perpetuated until they culminate into a severe adjustment crisis at an unspecified future point of time. The policy solution has to involve both China and the US.

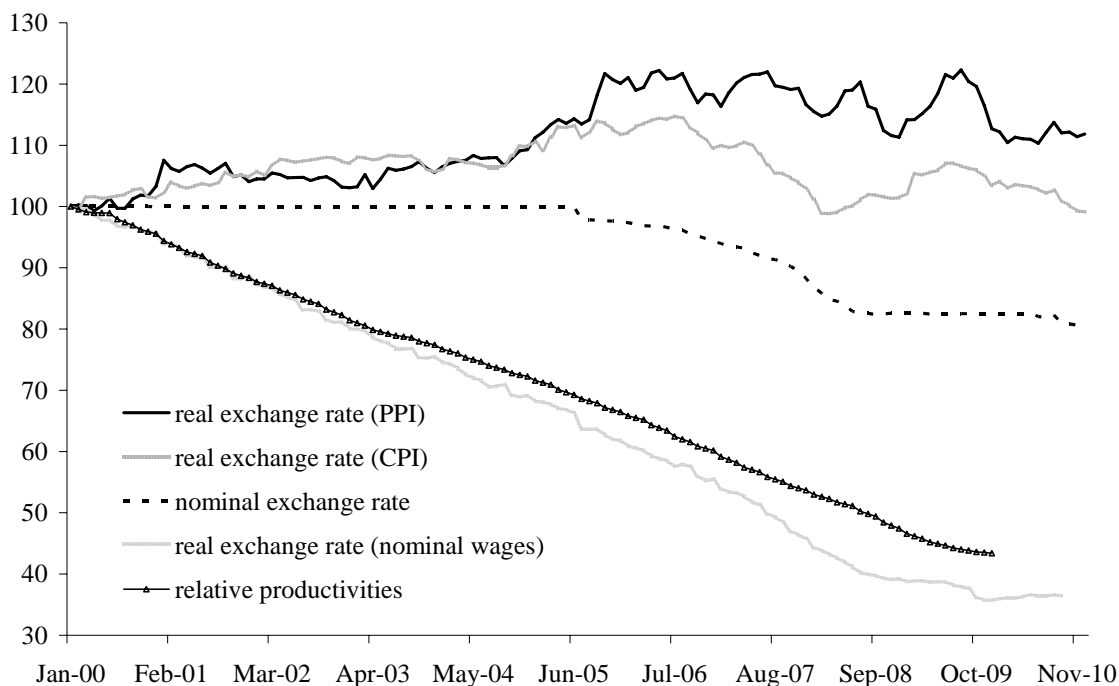
As shown above, the sterilization measures of the Peoples Bank of China in combination with subsidized capital allocation have distorted the Chinese economy towards investment in the export sector. To visualize the distortions Figure 11 shows the real exchange rate of the Chinese yuan calculated alternately by relative consumer prices, producer prices, nominal wages and relative productivity starting in January 2000, i.e. before interest rate cuts of the Federal Reserve and sterilization activities of China accelerated. The intuition of Figure 11 is based on the Balassa-Samuelson model, which argues that the real exchange rate (when deflated by consumer prices) of a country in the economic catch-up process should appreciate (De Grauwe and Schnabl 2005). There are four – diverging! – trends in Figure 11.

First, because of relatively high productivity gains in Chinese manufacturing versus U.S. manufacturing, the Balassa-Samuelson model would predict a considerable real appreciation of the Chinese yuan based on consumer prices. Given a fixed nominal exchange rate, this real appreciation could be achieved via relative consumer price and wage increases in China compared to the US—as ever increasing wages in China spread into services and non-tradable activities with lower productivity growth than manufacturing. This internal real appreciation is a preferred alternative to having nominal RMB appreciation. But it has not happened.

Second, in line with the assumptions of the Balassa-Samuelson effect the nominal wage based real exchange rate follows closely the productivity based real exchange rate. Relative wages seem to have traced relative productivity gains of the Chinese industrial sector as argued by McKinnon and Schnabl (2006). This is in line with the fierce bargaining of Chinese labor unions for higher wages (McKinnon 2010c), which suggests a substantial real wage based RMB appreciation against the dollar.

Third, in contrast to the prediction of the Balassa-Samuelson-effect, the consumer price based real exchange rate has shown little net change since the beginning of the new millennium. During the years 2000 to 2006, some real depreciation occurred linked to lower cpi inflation in China than in the U.S.. From July 2005 to July 2008, the gradual nominal appreciation of the RMB and rising inflation in China contributed to real appreciation against the dollar. More recently, higher consumer price inflation in China in 2010 and 2011 has driven real appreciation of the RMB. But since January 2000, there has been little net change.

**Figure 11: Yuan/Dollar Real Exchange Rate Proxies**



Sou

Source: IMF. Productivity is measured as GDP per capita.

Fourth, if producer prices are used to calculate the real exchange rate between RMB and dollar, we observe a real depreciation of the Chinese RMB, as the yuan/dollar rate is double deflated by Chinese producer prices and faster rising US producer prices (Figure 11). The resulting producer-price based real depreciation of the RMB is again opposed to the wage-based appreciation of the Chinese currency. If perfect arbitrage in traded goods markets held, the relative price of Chinese and US producer goods would have had to follow the nominal exchange rate.

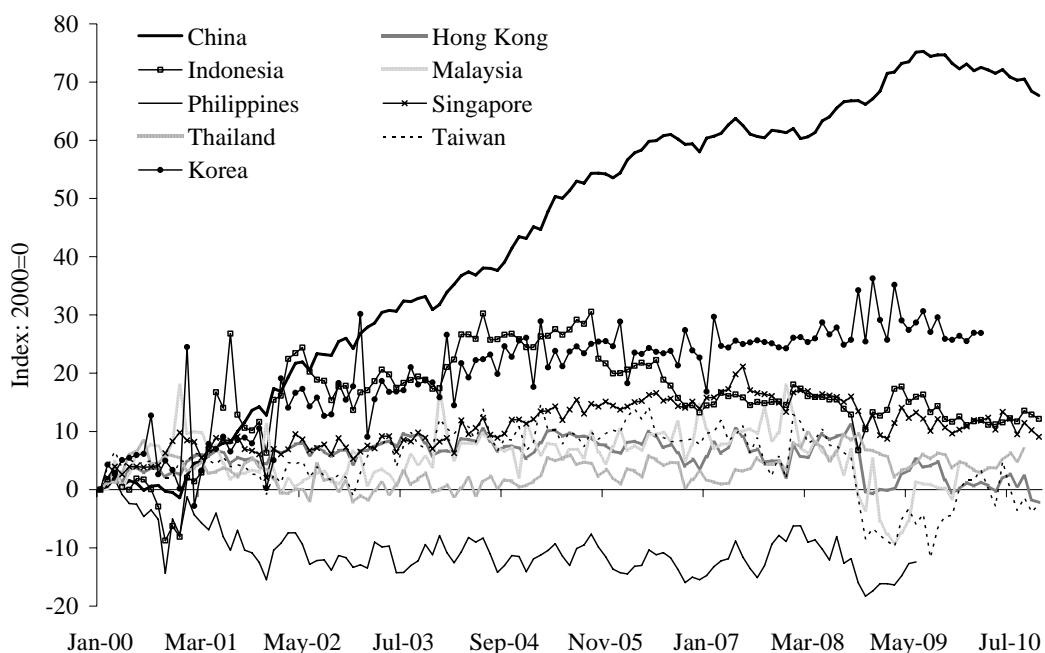
But the RMB has – despite moderate nominal appreciation – depreciated in real terms against the dollar. This phenomenon contributes to the rising Chinese-US trade imbalance and the distortions in both the Chinese and US economies. This ultra competitiveness of China’s economy also shows up in its trade relations with other East Asian economies. As shown in Figure 12, within East Asia a systematic gradual divergence of the wage-based real exchange rate from the cpi-based real exchange rate is only observed in China.

### *Real Exchange Rate Adjustment*

In Figure 11, the gap between the real exchange rate proxy based on relative productivity and the consumer price based real exchange rate can be seen as a proxy for the distortions in the Chinese economy and its international trade. One explanation of this Chinese real exchange rate puzzle is that the sterilization policy of the Peoples Bank of China is at its root (Schnabl 2010). Assuming that the output of the Chinese export sector is based on input of labor and capital, and

given the fact that relative wages have followed relative productivity increases (as suggested by Figure 11), the ability of Chinese export enterprises to keep prices low should be due to low cost capital. Low cost financing due to US low interest rate policies and due to subsidies via the state controlled banking sector may allow the export industry to keep prices for industrial goods low. The resulting soaring exports and high profits of the Chinese enterprise sector are translated into high corporate saving and the structurally high current account surplus.

**Figure 12: Divergence of Wage-Based and CPI-Based Real Exchange Rate Concepts in East Asia**



Source: IMF. Index = cpi-based real exchange rate index – wage based real exchange rate index.

If this is the case, to cure the distortions, phasing out capital subsidies is the natural way. Once sterilization stops and the price of capital increases, profit margins of Chinese export enterprises would shrink. Both Chinese consumer prices as well as producer prices would have to rise and the Chinese yuan would appreciate in real terms. On the supply side, with interest rates rising, investment would decrease, the overcapacities in the export sector would shrink, and relative productivity gains would slow down. Reversing the trends in Figure 11, the consumer price based real exchange rate, the producer price based real exchange rate and the relative productivity would converge. China's economic and trade structure would be consolidated.

However, as a prerequisite the US would have to increase interest rates, as otherwise speculative capital inflows into China would not stop until Chinese interest rates were also driven toward zero. Thus, both China and the US would have to participate in the solution. In this international policy coordination problem, the US Fed has to be the leader in increasing



interest rates internationally. Under the asymmetrical world dollar standard it has the greatest degree of autonomy in monetary policy. To better preserve global financial and exchange rate stability in transition, the Fed could lead the other big three central banks – European Central Bank, Bank of England, Bank of Japan – to jointly phase in the global return to the natural interest rate. By escaping from its current zero interest liquidity trap, bank credit could actually expand within the American economy where it has been steadily falling (McKinnon 2010d).

But in the absence of a more rational Fed interest-rate policy, China is trapped into various second-best responses: sterilization and encouraging high money wage growth while accepting the need for controls to slow the inflows of financial capital. Sterilization would continue to ensure macroeconomic stability in China in the face of buoyant capital inflows. The credible perpetuation of the yuan-dollar peg would anchor the domestic price level and restrict speculative capital inflows betting for appreciation. Tradable goods prices would be still anchored by the fixed nominal exchange rate even though labor-intensive service costs (non-tradables) would rise in price.

As Chinese GDP per capita is low, Chinese workers would welcome higher wages and increase their consumption. Further wage increases would reduce the profit margins of Chinese export enterprises and force them to lift prices in international markets. The extremely high corporate saving rate would fall and the current account surplus would decline.

However, maintaining a stable nominal exchange rate is the key to sustaining high wage growth. Employers are more willing to grant high wage increases as long as the exchange rate is fixed so as to limit the fear that it will suddenly appreciate (McKinnon and Schnabl 2006). After Japan shifted from fixed to flexible exchange rates in the early 1970s, the sharply appreciating yen significantly reduced growth in nominal and real Japanese wages by the end of the 1970s. Further yen appreciations in the 1980s to the mid 1990s became part and parcel of Japan's ongoing deflation to the present day, where nominal Japanese wages continue to fall. (McKinnon 2010c). China certainly wants to avoid a Japan-like trap of an ever-appreciating currency.

## **5. A Concluding Note on Worldwide Inflation**

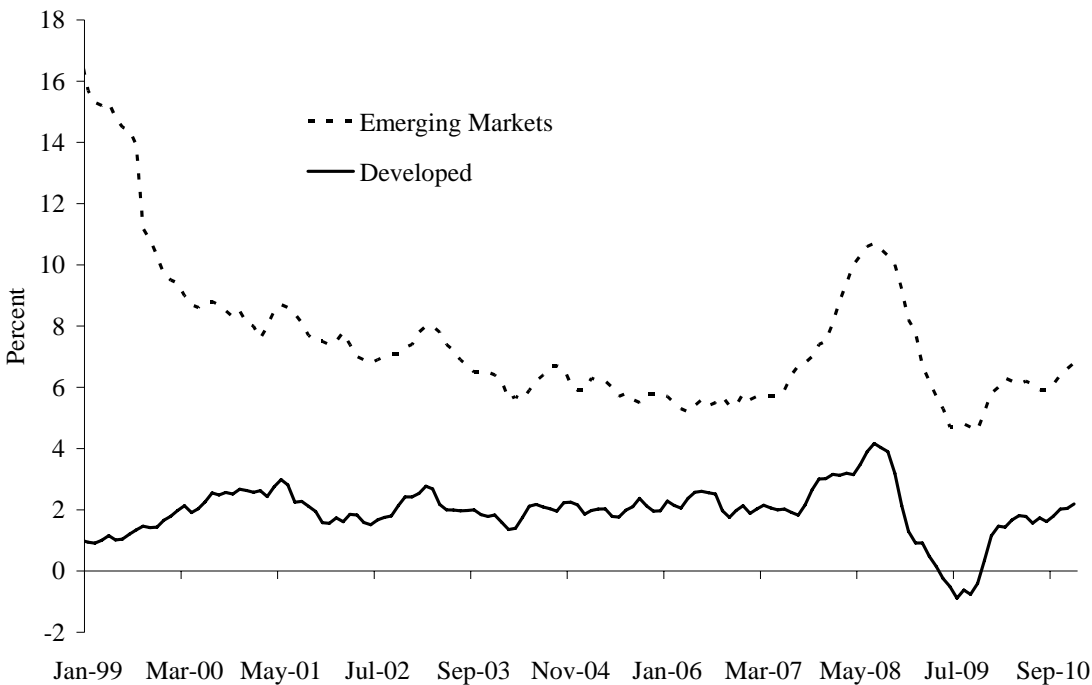
China's current uncomfortable inflation, about 5% in the CPI and 6.6% in its PPI (through January 2011) is not just "made in China". Despite tightened capital controls, hot money flows into China have forced the People's Bank of China to buy dollar reserves to prevent a precipitous appreciation of the RMB. But these dollar purchases by the PBC tend to increase the monetary base unless contained by massive sterilization efforts. To further slow the inflows, the PBC has pegged domestic interest rates below their natural level. Both because the sterilization is imperfect (there is still some excessive issue of domestic money and credit) and the controlled nominal interest rates are less than the rate of inflation, there is excess demand in China's goods markets that is inflationary--which further reduces "real" rates.

But this is not the whole story. Other emerging markets are experiencing the same problem. Low or zero short-term interest rates in the mature industrial countries—the United States, Japan, the Euro Zone, and Britain—are inducing hot money inflows into the naturally

higher growth, and higher interest rate, emerging markets on their periphery. Like China, the other emerging markets are also losing monetary control to a greater or lesser extent. The result is much higher inflation than in the mature industrial countries.

The upper graph in Figure 13 shows the mean rate of inflation in 28 Emerging Markets (EM): Russia, Poland, Czech Republic, Hungary, Romania, Ukraine, Turkey, Israel, UAE, Saudi Arabia, South Africa, China, India, Hong Kong, Korea, Taiwan, Singapore, Indonesia, Malaysia, Thailand, Brazil, Mexico, Chile, Peru, Colombia, Argentina, Venezuela. Since 2001, the EM inflation rate has averaged 4 to 5 percentage points higher than in Developed Market (DM) economies despite the EM countries showing a small net nominal appreciation of their dollar exchange rates that would normally shield them from international inflation. But through foreign exchange intervention to cope with hot money inflows, it is the attempt by central banks *to resist* nominal appreciation that leads to domestic losses of monetary control.

**Figure 13: Emerging Markets and Developed Markets Inflation**



Source: IMF, Morgan Stanley.

So collectively, emerging markets are involuntarily inflating with higher demands for goods and services that initially shows up most strongly in increasing primary commodity prices. Through mid March, 2011, *The Economist* commodity-price index (all items) increased 35.6% year over year with food items increasing slightly faster.

In addition, there is a second channel by which near-zero short-term interest rates in the mature “center” bid up primary commodity prices. In well organized international commodity futures markets, investors, desperately in search of higher yields, are emboldened to borrow at

short term in dollars or yen to invest in long positions in primary commodities. Even if just episodic, such speculative activity in mature financial markets can also be a source of inflationary pressure—as seems to be the case in 2010-11.

High-growth China with its huge demand for industrial raw materials is often blamed for the current surge in primary commodity prices. But China's growing demands for raw materials have been a major factor for more than a decade including the inaptly named “great moderation” of the late 1990s to the mid 2000s, where worldwide inflation in goods and services seemed remarkably low. Clearly, the current outburst of commodity price inflation has a monetary origin: the unusual conjunction of ultra low interest rates in the mature industrial countries led by the United States (McKinnon 2010d).

Thus, China is caught up in the current inflationary maelstrom, which is not primarily of its own making. So the question is whether the Chinese government's anti inflationary measures, such as higher reserve requirements for its commercial banks, will undermine its role as the great counter-cyclical stabilizing force in the world economy—as portrayed in this paper. Clearly China can't do much about the worldwide inflation, but it might be able to continue with high real economic growth despite the necessary massive monetary sterilization made necessary by hot money inflows. Because of such sterilization, however, the downside is that China becomes much less likely to correct its domestic distortions arising from (inadvertent) subsidization of investment and exports—leading to over investment and over exporting as described above.

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