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China's Currency: Economic Issues and Options for U.S. Trade Policy

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Summary

The continued rise in China's trade surplus with the United States and the world, and complaints from U.S. manufacturing firms and workers over the competitive challenges posed by Chinese imports have led several Members to call for a more aggressive U.S. stance against certain Chinese trade policies they deem to be unfair. Among these is the value of the Chinese yuan relative to the dollar. From 1994 to July 2005, China pegged its currency to the U.S. dollar at about 8.28 yuan to the dollar. On July 21, 2005, China announced it would let its currency immediately appreciate by 2.1% (to 8.11 yuan per dollar) and link its currency to a basket of currencies (rather than just to the dollar). Many Members complain that the yuan has only appreciated only modestly (about 6%) since these reforms were implemented and that China continues to "manipulate" its currency in order to give its exporters an unfair trade advantage, and that this policy has led to U.S. job losses. Numerous bills were introduced in the 109th Congress to address China's currency policy, and these efforts have continued in the 110th session.

If the yuan is undervalued against the dollar (as many analysts believe), there are likely to be both benefits and costs to the U.S. economy. It would mean that imported Chinese goods are cheaper than they would be if the yuan were market determined. This lowers prices for U.S. consumers and dampens inflationary pressures. It also lowers prices for U.S. firms that use imported inputs (such as parts) in their production, making such firms more competitive. When the U.S. runs a trade deficit with the Chinese, this requires a capital inflow from China to the United States. This, in turn, lowers U.S. interest rates and increases U.S. investment spending. On the negative side, lower priced goods from China may hurt U.S. industries that compete with those products, reducing their production and employment. In addition, an undervalued yuan makes U.S. exports to China more expensive, thus reducing the level of U.S. exports to China and job opportunities for U.S. workers in those sectors. However, in the long run, trade can affect only the composition of employment, not its overall level. Thus, inducing China to appreciate its currency would likely benefit some U.S. economic sectors, but would harm others.

Critics of China's currency policy point to the large and growing U.S. trade deficit ($233 billion in 2006) with China as evidence that the yuan is undervalued and harmful to the U.S. economy. The relationship is more complex, for a number of reasons. First, an increasing level of Chinese exports are from foreign-invested companies in China that have shifted production there to take advantage of China's abundant low cost labor. Second, the deficit masks the fact that China has become one of the fastest growing markets for U.S. exports. Finally, the trade deficit with China accounted for 26% of the sum of total U.S. bilateral trade deficits in 2006, indicating that the overall U.S. trade deficit is not caused by the exchange rate policy of one country, but rather the shortfall between U.S. saving and investment. That being said, there are a number of valid economic arguments why China should adopt a more flexible currency policy. For a brief summary of this report, see CRS Report RS21625, *China's Currency: A Summary of the Economic Issues*, by Wayne M. Morrison and Marc Labonte. This report will be updated as events warrant.

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China's Currency: Economic Issues and Options for U.S. Trade Policy

Introduction

From 1994 until July 21, 2005, China maintained a policy of pegging its currency (the renminbi or yuan) to the U.S. dollar at an exchange rate of roughly 8.28 yuan to the dollar. The Chinese central bank maintained this peg by buying (or selling) as many dollar-denominated assets in exchange for newly printed yuan as needed to eliminate excess demand (supply) for the yuan. As a result, the exchange rate between the yuan and the dollar basically stayed the same, despite changing economic factors which could have otherwise caused the yuan to either appreciate or depreciate relative to the dollar. Under a floating exchange rate system, the relative demand for the two countries' goods and assets would determine the exchange rate of the yuan to the dollar. Many economists contend that for the first several years of the peg, the fixed value was likely close to the market value. But in the past few years, economic conditions have changed such that the yuan would likely have appreciated if it had been floating. The sharp increase in China's foreign exchange reserves (which grew from $403 billion at the end of 2003 to $1.2 trillion at the end of March 2007) and China's large trade surplus (which totaled $178 billion in 2006) are indicators that the yuan is significantly undervalued. Because its currency is not fully convertible in international markets, and because it maintains tight restrictions and controls over capital transactions, China can maintain the exchange rate policy and still use monetary policy to pursue domestic goals (such as full employment).[1]

The Chinese government modified its currency policy on July 21, 2005. It announced that the yuan's exchange rate would become "adjustable, based on market supply and demand with reference to exchange rate movements of currencies in a basket," (it was later announced that the composition of the basket includes the dollar, the yen, the euro, and a few other currencies), and that the exchange rate of the U.S. dollar against the yuan would be immediately adjusted from 8.28 to 8.11, an appreciation of about 2.1%. Unlike a true floating exchange rate, the yuan would (according to the Chinese government) be allowed to fluctuate by 0.3% on a daily basis against the basket. Since July 2005, China has allowed the yuan to appreciate steadily, but slowly. It has continued to accumulate foreign reserves at a rapid pace, which suggests that if the yuan were allowed to freely float it would appreciate much more rapidly. The current situation might be best described as a "managed float" —

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[1] The currency is convertible on a current account basis (such as for trade transactions), but not on a capital account basis (for various types of financial flows, such as portfolio investment). In addition, holdings of foreign exchange by Chinese firms and individuals are closely regulated by the government.

market forces are determining the general direction of the yuan's movement, but the government is retarding its rate of appreciation through market intervention.

The modest increase in the value of the yuan to date has done little to ease concerns raised in the United States, but the Chinese, with concerns about their own economy, have been reluctant to make significant changes to their currency. This paper reviews the various economic issues raised by China's present currency policy.[2] Major topics surveyed include

- The economic concerns raised by the United States over China's currency policy and China's concerns over changing that policy.
- How China's fixed exchange rate regime works and the various economic studies that have attempted to determine China's real, or market, exchange rate.
- Trends and factors in the U.S.-China trade imbalance. (What is causing it? Is China's currency policy to blame?)
- Economic consequences of China's currency policy for both China and the United States.
- Policy options on how the United States might induce China to reform its present currency policy, including current legislation introduced in Congress.

U.S. Concerns Over China's Currency Policy and Recent Action

Many U.S. policymakers, business people, and labor representatives have charged that China's currency is significantly undervalued vis-a-vis the U.S. dollar by as much as 40%, making Chinese exports to the United States cheaper, and U.S. exports to China more expensive, than they would be if exchange rates were determined by market forces. They further argue that the undervalued currency has contributed to the burgeoning U.S. trade deficit with China, which has risen from $30 billion in 1994 to an estimated $232 billion in 2006, and has hurt U.S. production and employment in several U.S. manufacturing sectors (such as textiles and apparel and furniture) that are forced to compete domestically and internationally against "artificially" low-cost goods from China. Furthermore, many analysts contend that China's currency policy induces other East Asian countries to intervene in currency markets in order to keep their currencies weak against the dollar to remain competitive with Chinese goods.[3] Several groups are pressing the Bush

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[2] A brief summary of this report can be found in CRS Report RS21625, *China's Currency: A Summary of the Economic Issues*, by Wayne Morrison and Marc Labonte.

[3] See Prepared Remarks of Dr. C. Fred Bergsten, President, Institute for International (continued...)

Administration to pressure China either to revalue its currency or to allow it to float freely in international markets.[4] These issues are addressed in more detail later in the report.

President Bush and Administration officials have criticized China's currency policy on a number of occasions, stating that exchange rates should be determined by market forces. Initially, the Bush Administration rejected calls from several Members of Congress to apply direct pressure on China to force it to abandon its currency peg. Instead, the Administration sought to encourage China to reform its financial system — under the auspices of a joint technical cooperation program agreed to on October 14, 2003, for example — and take other measures that would pave the way toward adopting a more flexible currency policy.

The Administration's position on China's currency peg appears to have toughened beginning around April 2005 when then-U.S. Treasury Secretary John Snow asserted at a G-7 meeting (on April 16, 2005) that "China is ready now to adopt a more flexible exchange rate." This was likely driven in part by growing complaints from Members over China's currency policy and the introduction of numerous currency bills.

During the 109th congressional session, the Senate on April 6, 2005, failed (by a vote of 33 to 67) to reject an amendment (S.Amdt. 309) attached by Senator Schumer to S. 600 (a foreign relations authorization bill), which would have imposed a 27.5% tariff on Chinese goods if China failed to substantially appreciate its currency to market levels.[5] In response to the outcome of the vote, the Senate Republican leadership negotiated an agreement with the supporters of the bill to allow a vote on S. 295 (which was sponsored by Senator Schumer and which has same language as S.Amdt. 309) at a later date as long as the sponsors of the amendment agreed not to offer similar amendments to other bills for the duration of the 109th Congress. Supporters of S. 295 threatened to bring the bill up a vote on the bill on two separate occasions in 2006, but were convinced not to by Administration and Chinese officials.

Most Recent Events

Over the past year, some of the most significant events concerning China's currency policy have including the following:

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[3] (...continued)
Economics, before the House Small Business Committee, June 25, 2003.

[4] Besides the currency issue, several U.S. interest groups have complained about other Chinese economic policies deemed unfair, including Chinese government subsidies, selling goods below cost (dumping), poor environmental practices, abusive labor practices, and piracy of U.S. intellectual property rights. These issues are discussed in CRS Report RL33536, *China-U.S. Trade Issues*, by Wayne M. Morrison.

[5] Supporters of this legislation cited estimates of the yuan's undervaluation ranging from 15% to 40%; they derived the 27.5% tariff figure in their bill from the average of the low-high estimates.

- On December 14 and 15, 2006, the United States and China held high level talks under the newly-created "Strategic Economic Forum" (SED), designed to be a forum to meet on "bilateral and global strategic economic issues of common interests and concerns." China's currency policy was a major item of discussion. According to Treasury Secretary Henry Paulson, the two sides agreed on the need for balanced, sustainable growth in China, without large trade imbalances, with more exchange rate flexibility and greater emphasis on domestic consumption.[6]

- On May 15, 2007, the Chinese government announced it would increase the daily band in which the yuan is allowed to fluctuate against the dollar from 0.3% to 0.5%.[7]

- On May 17, 2007, 42 House Members filed a Section 301 petition with the U.S. Trade Representative's office over China's currency practices and requested that a trade dispute case be brought to the World Trade Organization (WTO). On June 13, 2007, the USTR's office announced that it had declined the petition.

- On May 22-23, 2007, the second round of SED meetings was held. Although China reiterated its commitments to greater reform and flexibility, it did not agree to any new major changes to its currency policy.

- On June 28, 2007, the Bank of China reported the yuan/dollar exchange rate at 7.62, an appreciation of 6.0% since July 21, 2005 (after the currency was reformed).[8]

Treasury Department Reports on Exchange Rates

The 1988 Omnibus Trade and Competitiveness Act requires the Treasury Department to annually report on the exchange rate policies of foreign countries that have large global current account surpluses and large trade surpluses with the United States and to determine if they "manipulate" their currencies against the dollar in order to prevent "effective balance of payment adjustments" or to gain an "unfair competitive advantage in international trade." If currency manipulation is found, Treasury is required to negotiate an end to such practices. Over the past several years, Treasury has issued a *Report on International Economic and Exchange Rate Policies* on a semi-annual basis, focused mainly on major U.S. trading partners. China was cited under this report for manipulating its currency five times from May 1992 to July 1994, largely because of its use of a dual exchange rate system (which

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[6] Treasury Department Press Release, December 15, 2006.

[7] This appears to have been mainly a symbolic gesture since the yuan has never appreciated by the full 0.3% on any day since it was reformed in July 2005.

[8] It has appreciated by 8.0% overall from when the rate was pegged at 8.28 prior to the July reforms.

it unified in early 1994) and restrictions that were imposed on access to foreign exchange by domestic firms. Neither China nor any other country has been designated as a currency manipulator since 1994.[9] However, over the past few years, the Treasury Department reports have increased their focus on China and have stepped up criticism of China's currency policy and the pace of its reforms. For example:

- In its May 17, 2005 report on exchange rate policies, the Treasury Department stated that China's currency peg policy was a substantial market distortion and posed a risk to its economy, its trading partners, and to global economic growth, and that "China is now ready to move to a more flexible exchange rate and should move now." The report noted that China had "committed to push ahead firmly and steadily to a market-based exchange rate and is taking concrete steps to bring about exchange rate flexibility," but warned that Treasury would monitor progress on China's foreign exchange market developments "very closely" over the next six months in advance of the preparation of the fall report.

- The Treasury Department's November 28, 2005 report praised China's July 2005 currency reforms, but stated that it had failed to fully implement its commitment to make its new exchange rate mechanism more flexible and to increase the role of market forces to determine the yuan's value. The report further stated that China's new managed float exchange rate regime, which Chinese officials described as "based on market supply and demand with reference to a basket of currencies," did not appear to play a significant role in determining the daily closing level of the yuan, and that trading behavior since the reforms strongly suggested that "the new mechanism remains, in practice, a tightly managed currency peg against the dollar."[10] However, Treasury stated that it decided not to cite China as a currency manipulator under U.S. trade law because of assurances it had received from Chinese officials that China was committed to "enhanced, market-determined currency flexibility" and that it would put greater emphasis on promoting domestic sources of growth, including financial reform.[11]

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[9] General Accountability Office, *Treasury Assessments Have Not Found Currency Manipulation, but Concerns about Exchange Rates Continue*, Report GAO-05-351, April 2005 [http://www.gao.gov/new.items/d05351.pdf]. South Korea and Taiwan have also been designated for currency manipulation in the Treasury reports.

[10] U.S. Treasury Department, *Report to Congress on International Economic and Exchange Rate Policies*, November 2005.

[11] The 1988 Omnibus Trade and Competitiveness Act requires the Treasury Department to determine whether countries manipulate the rate of exchange between their currency and the United States dollar for purposes of preventing effective balance of payments adjustment or gaining an unfair competitive advantage in international trade.

- The May 2006 Treasury report stated that the Chinese government has recognized the need to lessen its reliance on net exports for economic growth (and pledged to reduce the current account surplus) and to increase the role of domestic consumption. The report emphasized ongoing bilateral and multilateral discussions that were being held with China to induce it to adopt a more flexible currency policy and noted that a Treasury Department Financial Attache had been posted to Beijing in April.

- The Treasury Department's December 2006 report on exchange rate policies called China's currency policy "a core issue" in the U.S.-China relationship. The report noted that China had made progress in 2006 in making its currency more flexible, but stated that such reforms were cautious and "considerably less than needed."[12]

- The Treasury Department's June 2007 report stated that although China's central bank continued to heavily intervene in currency markets and that China's currency was significantly undervalued, it did not meet the technical requirements under U.S. law regarding currency manipulation. However, the report stated that "Treasury forcefully raises the Chinese exchange rate regime with Chinese officials at every available opportunity and will continue to do so."[13]

Many Members have been critical of Treasury's decision (since 1994) not to cite China as a currency manipulator, despite its large scale currency interventions to control the exchange rate with the dollar, its large global current account surpluses, and large and growing trade surpluses with the United States. Many Members have called for enactment of legislation to revise the criteria Treasury uses to make its currency manipulation determination or to require it to estimate the level of the yuan's misalignment against the dollar (see the Appendix for a list of China currency legislation).

China's Concerns Over Changing Its Currency Policy

Chinese officials argue that its currency policy is not meant to promote exports or discourage imports. They claim that China adopted its currency peg to the dollar in order to foster economic stability and investor confidence, a policy that is practiced by a variety of developing countries. Chinese officials have expressed concern that abandoning the current currency policy could spark an economic crisis in China and would especially be damaging to its export industries at a time when painful economic reforms (such as closing down inefficient state-owned enterprises and

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[12] U.S. Treasury Department, *Report to Congress on International Economic and Exchange Rate Policies*, December 19, 2006, p. 2.

[13] Treasury Department, *Report to Congress on International Economic and Exchange Rate Policies*, June 2007, p. 2.

laying off millions of workers) are being implemented.[14] In addition, Chinese officials also appear to be worried about the rising level of unrest in the rural areas, where incomes have failed to keep up with those in urban areas and public anger has spread over government land seizures and corruption. Chinese officials contend that appreciating the currency could reduce domestic food prices (because of increased imports) and agricultural exports (by raising prices in overseas markets), thus lowering the income of farmers and further raising tensions. They further contend that the Chinese banking system is too underdeveloped and burdened with heavy debt to be able to deal effectively with possible speculative pressures that could occur with a fully convertible currency, which typically accompanies a floating exchange rate.[15]

The combination of a convertible currency and poorly regulated financial system is seen to be one of the causes of the 1997-1998 Asian financial crisis.[16] Prior to the crisis, Chinese officials were reportedly considering moving towards reforming their currency policy, but the severe negative economic impact among several East Asian countries that had a floating currency appears to have convinced officials that China's currency peg was one of the main reasons why China's economy was relatively immune from crisis, and that gradually implementing reforms to make the currency more flexible is the best way to maintain stable economic growth.

U.S. officials counter that they are not asking China to immediately adopt a floating currency system, but to move more quickly to reform the financial sector and to make the currency more flexible (including allowing faster appreciation of the yuan, widening the band, and decreasing the level of intervention in international currency markets). The economics of a fixed exchange regime is examined in the next section.

The Economics of Fixed Exchange Rates

Fixed exchange rates have a long history of use, including the Bretton Woods system linking the major currencies of the world from the 1940s to the 1960s and the international gold standard before then. To understand how China's currency policy works, it is easiest to start with an explanation of how a fixed exchange rate works, which China operated until July 2005. Under the fixed exchange rate, the Chinese

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[14] China has reportedly eliminated over 60 million jobs in the state sector since 1997; layoffs over the past few years have averaged two million annually. See, Morgan Stanley, Global Economic Forum, *The Coming Rebalancing of the Chinese Economy*, March 27, 2006.

[15] Many analysts counter that China's currency policy may actually be undermining the financial stability of the banking system because, in order to purchase foreign currency to maintain a target exchange rate, the government must boost the money supply. While some of this money may be "sterilized" by government-issued bonds, some of it may enter the economy. Analysts contend that this has made the banks more prone to extend loans to risky ventures and thus may increase the level of bank-held non-performing loans.

[16] Chinese officials contend that during the Asian crisis, when several other nations sharply devalued their currencies, China "held the line" by not devaluing its currency (which might have prompted a new round of destructive devaluations across Asia). This policy was highly praised by U.S. officials, including President Clinton.

central bank bought or sold as much currency as was needed to keep the yuan-dollar exchange rate constant at level (formerly about 8.28 yuan per dollar).[17] The primary alternative to this arrangement would be a floating exchange rate, as the U.S. maintains with economies like the Euro area, in which supply and demand in the marketplace causes the euro-dollar exchange rate to continually fluctuate. Under a floating exchange rate system, the relative demand for the two countries' goods and assets determines the exchange rate of the euro to the dollar. If the demand for Euro area goods or assets increased, more euro would be demanded to purchase those goods and assets, and the euro would rise in value (if the central bank kept the supply of yuan constant) to restore equilibrium.

When a fixed exchange rate is equal in value to the rate that would prevail in the market if it were floating, the central bank does not need to take any action to maintain the peg. However, over time economic circumstances change, and with them change the relative demand for a country's currency. If the Chinese had maintained a floating exchange rate, appreciation would likely have occurred in the past few years for a number of reasons. For instance, productivity and quality improvements in China may have increased the relative demand for Chinese goods and foreign direct investment in China. For the exchange rate peg to be maintained when economic circumstances have changed requires the central bank to supply or remove as much currency as is needed to bring supply back in line with market demand, which it does by increasing or decreasing foreign exchange reserves. This is shown in the following accounting identity, used to record a country's international balance of payments:

$$\textit{Current Account Balance} = \textit{Capital Account Balance}$$

$$\textit{[(Exports-Imports) + Net Investment Income+ Net Unilateral Transfers]} = \textit{[(Private Capital Outflow-Inflow) + Change in Foreign Exchange Reserves]}$$

Net investment income and net unilateral transfers between the United States and China are relatively small, so the current account balance is close to the trade balance (exports less imports). Thus, anytime net exports (exports less imports) or net private capital inflows (private capital inflows less outflows) increase, foreign exchange reserves must increase by an equivalent amount to maintain the exchange rate peg.

For the past several years, there has been excess demand for yuan (equivalently, excess supply of dollars) at the prevailing exchange rate peg. For the central bank to maintain the peg, it must increase its foreign reserves by buying dollars from the public in exchange for newly printed yuan. As seen in **Table 1**, foreign reserves grew from $75 billion in 1995 to $168 billion in 2000 to $1,066 billion in 2006.[18]

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[17] Prior 1994, China maintained a dual exchange rate system: an official exchange rate of about 5.8 yuan to the dollar and a market swap rate (used mainly for trade transactions) of about 8.7 yuan to the dollar (at the end of 1993). The reforms in 1994 unified the two rates. Since Hong Kong also fixes its exchange rate to the dollar, China in effect also maintains a fixed exchange rate with Hong Kong.

[18] Year-end values.

A significant level of China's reserves are believed to be in U.S. assets.[19] From 2004 to 2006, China's foreign exchange holdings rose by $456 billion, or 75%. China overtook Japan in 2006 to become the world's largest holder of foreign exchange reserves.

China's accumulation of foreign exchange reserves has continued to boom in 2007. From January-March 2007, those reserves increased by $136 billion to $1,202 billion. As long as the Chinese are willing to accumulate dollar reserves, they can continue to maintain the peg.[20] Rather than hold U.S. dollars, which earn no interest, the Chinese central bank mostly holds U.S. financial securities — primarily U.S. Treasury securities, but also likely U.S. Agency securities (e.g., the obligations of Fannie Mae and Freddie Mac).[21]

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[19] Only data on overall Chinese foreign reserves are publicly available. Data are not available to determine the value of assets by country held by China. Treasury Department data indicate that the total level of long-term securities (including stock, other equity, Treasury debt, agency debt, and corporate debt) held by China at the end of June 2006 was $682 billion. China's foreign exchange reserves at the end of June 2006 was $941 billion, indicating that at least 72% of China's reserves may be in U.S. assets (assuming that most of these assets are in the hands of a Chinese government entity). Source: U.S. Treasury "Report on Foreign Portfolio Holdings of U.S. Securities," May 2007; U.S. Treasury International Capital System.

[20] If the demand for yuan relative to dollars were to decline, the central bank would face the opposite situation. It would need to buy yuan from the public in exchange for U.S. dollars to maintain the peg. This strategy could only be continued until the central bank's dollar reserves were exhausted, at which point the peg would have to be abandoned.

[21] In March 2007, the Chinese finance minister announced that it would shift a small portion of the foreign reserves into higher yielding assets. Presumably, these reserves would remain invested in foreign assets; otherwise, the portfolio shift would alter the currency's value. See Jim Yardley and David Barboza, "China to Open Fund to Invest Currency Reserves," *New York Times*, March 9, 2007.

Table 1. China's Foreign Exchange Reserves and Overall Current Account Surplus: 1995-2006

Year	Cumulative Foreign Exchange Reserves			Current Account Balance	
	Billions of $	% of GDP	% of Imports	% of GDP	Billions of $
1995	75.4	10.8	57.1	0.2	1.3
1996	107.0	13.1	77.1	0.8	5.6
1997	142.8	15.9	100.4	3.6	32.5
1998	149.2	15.8	106.4	3.1	31.2
1999	157.7	15.9	95.1	1.4	21.1
2000	168.3	15.6	74.8	1.7	20.5
2001	215.6	18.1	88.5	1.3	17.5
2002	291.1	22.1	98.6	2.4	35.4
2003	403.3	28.1	97.7	2.8	31.4
2004	609.9	31.5	108.6	3.5	58.7
2005	818.9	35.5	124.1	7.1	116.1
2006	1,066.3	39.8	134.7	7.8	207.9

Source: Economist Intelligence Unit, International Monetary Fund, and People's Bank of China.
Note: 2006 data for GDP, imports, and current account balance are estimates.

Since July 2005, China has continued to accumulate foreign reserves at a rapid pace, but, unlike a fixed exchange rate regime, it has no longer purchased enough foreign reserves to entirely prevent the yuan from appreciating against the dollar. After an initial revaluation of 2% in July 2005, the yuan has appreciated steadily but very slowly by another 4.6% through the end of January 2007 (see **Figure 1**).[22] The current situation might be best described as a "managed float" — market forces are determining the general direction of the yuan's movement, but the government is retarding its rate of appreciation through market intervention (and thus, to some extent, is still pegging the yuan to the dollar).[23] Many of China's neighbors also

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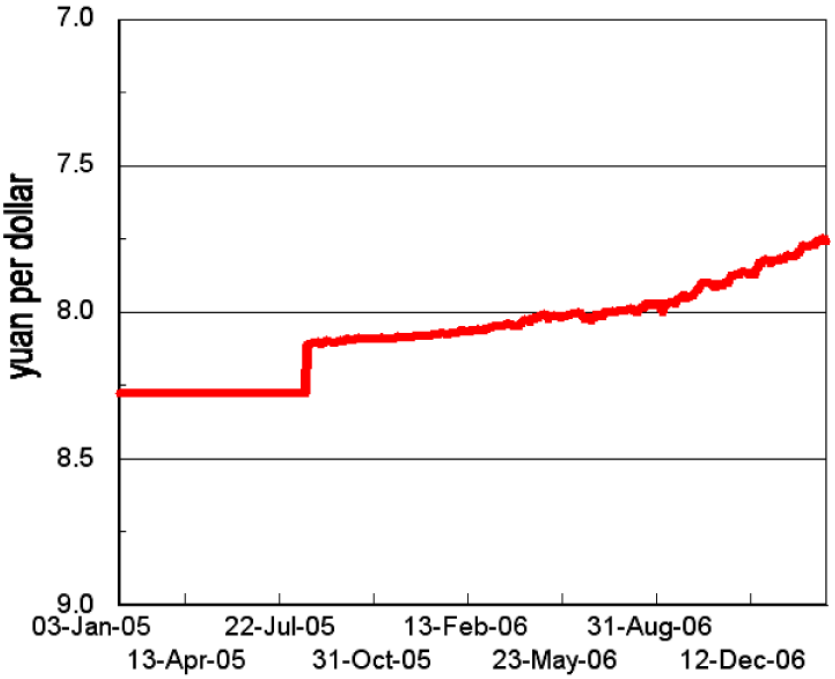
[22] By June 14, 2007, it had appreciated by a total of 5.9%.

[23] Officially, China fixed its exchange rate to a currency basket in July 2005, which is similar to fixing the yuan to one currency except the yuan is now theoretically fixed against the (weighted) average value of the currencies in its "basket": primarily the dollar, euro, yen, and Korean won. The exact weights of the currencies in the basket has not been announced. Theoretically, this means that the yuan would no longer be fixed to the dollar, since every time the other exchange rates in the basket appreciate or depreciate against the dollar, so will the yuan, but to a lesser extent. Thus, fixing the yuan to a basket of currencies does not rule out the possibility that the yuan could appreciate against the dollar (anytime the other

(continued...)

maintain managed floats, including Japan, whose foreign reserves increased by more than $30 billion from the third quarter of 2005 to the third quarter of 2006. The continued rapid accumulation of foreign reserves suggests that if the yuan were allowed to freely float, it would appreciate much more rapidly. In dollar terms, China's foreign reserves increased faster in 2006 than any other year despite the move to a managed float.

Figure 1. Yuan-Dollar Exchange Rate Before and After the July 2005 Announcement



Source: Federal Reserve.

Note: Exchange rates plotted in the chart are daily values.

Preventing the yuan from appreciating is not the only reason the Chinese government could be accumulating foreign exchange reserves. Foreign exchange reserves are necessary to finance international trade (in the presence of capital controls) and to fend off speculation against one's currency. A country would be expected to increase its foreign reserves for these purposes as its economy and trade grew. However, **Table 1** illustrates that the increase in foreign exchange reserves in China has significantly outpaced the growth of GDP or imports in the last few years.

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[23] (...continued)
currencies in the basket appreciate against the dollar). In practice, the yuan has changed in value very little against the dollar when the other currencies in the basket have changed in value vis-a-vis the dollar since July 2005, which casts doubt on China's claim that it has fixed the yuan to a basket — unless it is a basket that is overwhelmingly weighted to the dollar.

Ironically, speculation that the yuan would be revalued may have forced the Chinese central bank to accumulate even more reserves than they otherwise would have in the past few years. If investors believed that a revaluation of the yuan would soon occur, then they could profit by purchasing Chinese assets (popularly referred to as "hot money"), since those assets would be worth more in the investor's home currency after a revaluation. As shown in the equation on page 8, for any given trade balance, if private capital flows increase (putting upward pressure on the yuan), then official foreign reserves must also increase to keep the exchange rate constant. Since there are capital controls limiting private capital flows in China, it is not clear how well such a phenomenon could be measured. In any case, there is no way to differentiate between "speculative" and "non-speculative" capital flows. Nevertheless, data from the IMF provide evidence that is supportive of the hypothesis. In 2001, $3 billion of private portfolio capital flowed out of China, while in 2004 $82 billion flowed into China. To place that data in perspective, foreign reserves increased by $207 billion in 2004, so 40% of reserve accumulation offset capital inflows rather than the trade surplus. In 2005, inflows fell to $38 billion, perhaps because speculation subsided following the July revaluation.[24]

Economic activity, including the level of imports and exports, is not determined by the nominal exchange rate, but by the real (inflation-adjusted) exchange rate. Because the United States and China have had roughly similar increases in the overall price levels since 1994 (39% in China vs. 31% in the United States), the difference between the real and nominal rate has been small between 1994 and 2003. However, China had much higher inflation than the United States from 1994 to 1997, so the real and nominal exchange rates diverged considerably during that time. The real exchange rate appreciated from China's perspective, making their exports more expensive and U.S. imports cheaper. Since then, the real and nominal exchange rates have converged because China's inflation rate has been lower than U.S. inflation in the past few years. This can be seen in **Figure 2**. In 2003, the Chinese exchange rate reached its lowest level since 1994 in real terms, from the Chinese perspective, making their exports progressively less expensive since 1997. The yuan has risen slightly in real terms since 2004, so that there was virtually no difference between the nominal and real exchange rate in 2006.[25]

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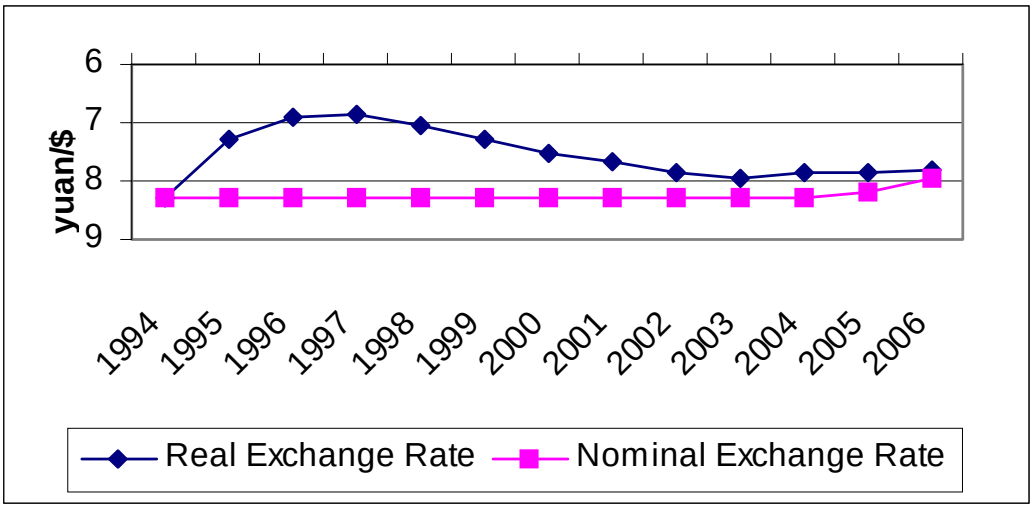
[24] 2004 and 2005 data are estimates. Private portfolio capital flows are measured as portfolio investment, short-term capital, valuation changes, exceptional financing, and net errors and omissions. Some analysts have argued that some speculative flows are likely to be recorded in errors and omissions since capital controls require them to be made covertly. For more information, see Eswar Prasad and Shang-Jin Wei, "The Chinese Approach to Capital Inflows: Patterns and Possible Explanations," IMF working paper 05/79, April 2005.

[25] Some commentators have suggested that the extent of yuan undervaluation can be estimated from inflation differentials. In other words, although the nominal exchange rate has been constant, adjusting for inflation can determine how much the real rate has depreciated, and proves that the yuan is undervalued. The problem with this approach is that the estimate will be highly sensitive to the selection of the base year. For example, if the base year was 1996, the yuan would have been undervalued by 14% in 2002, but if the base year was 1994, the yuan would have been *overvalued* by 5% in 2002. The current account balance was close to zero (one definition of equilibrium) in both years.

Figure 2. Nominal and Real Yuan-Dollar Exchange Rate, 1994-2006



Source: CRS calculations based on IMF data.

Note: Real exchange adjusted for inflation using the consumer price index. Charted is inverted for illustrative purposes.

In the long run, real (inflation-adjusted) exchange rates return to their market value whether they are (nominally) fixed or floating. Imagine that the demand for Chinese goods and services were to increase. If the yuan were floating, it would appreciate, as more yuan were acquired to purchase Chinese goods. It would continue to appreciate until the excess demand for Chinese goods was exhausted (since they are now more expensive in terms of foreign currency), at which point the trade balance would return to its equilibrium level. With a fixed exchange rate, the real exchange rate returns to its market value through price adjustment instead, which takes time. If the exchange rate were fixed below the level that would prevail in the market, Chinese exports would be relatively inexpensive and U.S. imports would be relatively expensive. As long as this situation prevailed, the trade surplus with the United States would persist. The trade surplus (plus net remittances) is equal to the capital flowing from China to the United States. Part of this capital consists of the purchase of U.S. assets by private Chinese citizens. The other portion consists of the accumulation of dollar reserves by the Chinese central bank. By increasing its dollar reserves, the central bank is also increasing the supply of yuan. This causes the inflation rate in China to rise, all else equal.[26] Over time, as prices rise, exports will

[26] The Chinese can try to offset the upward pressure on prices by selling Chinese government securities to take the additional yuan out of circulation (called "sterilized intervention"). But this will push interest rates back up, attracting more foreign capital to China, causing the central bank's dollar reserves and the supply of yuan to expand again. It is difficult to tell whether the Chinese have sterilized their foreign reserve accumulation in recent years. All else equal, if China sterilized its intervention, the growth rate of the money supply and the inflation rate would not rise. The growth rate of one measure of the Chinese money supply, M2, accelerated in both 2001 and 2002. The growth rate of another measure, M1, decelerated in 2001 but accelerated in 2002. Inflation was very low through 2003, but rose to 3.9% in 2004. However, inflation and money growth could have been

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become more costly abroad and imports less costly. At that point, the trade surplus will return to its equilibrium value. Although the nominal exchange rate never changed, because of the rise in prices, the real exchange rate would now equal the market rate that would prevail if the exchange rate had been floating. Thus, undervaluing a fixed exchange rate does not confer any permanent competitive advantage for a country's exporters and import-competing industries. However, because price adjustment takes time, floating exchange rates return to the equilibrium value much more quickly than fixed exchange rates.

Thus, when a country uses its monetary policy to influence the value of it currency, it can no longer use its monetary and fiscal policy to counteract changes in the business cycle (the U.S. loses no policy flexibility from China's peg). For example, a peg would prevent a country from lowering its interest rates to offset an economic downturn. If it did, capital would flow out of the country to assets with higher interest rates in the rest of the world, and the country would find its currency peg under pressure (since investors would sell the country's currency and buy foreign currency to transfer their capital abroad) until it raised its interest rates.

This loss of monetary autonomy is relatively unimportant for small countries that fix their exchange rate to large neighbors that share the same business cycle, since the large neighbor would also likely be affected by the downturn and lower its interest rates. But the loss in autonomy is costly when a country is tied to a partner to whom it is not closely linked and does not experience similar business cycles, as is arguably the case between the United States and China.

However, China loses less monetary autonomy than most countries with a fixed exchange rate through its use of capital controls (legal barriers restricting access to foreign currency). The currency is convertible on a current account basis (such as for trade transactions), but not on a capital account basis (for various types of financial flows, such as portfolio investment). In addition, nearly all Chinese enterprises are required to turn over their foreign currency holdings to China's state bank in exchange for yuan, and purchases of foreign exchange by individuals and firms in China are closely regulated. Because capital cannot easily leave China when interest rates are lowered, China retains some flexibility over its monetary and fiscal policy despite the fixed exchange rate.

A Critique of Various Estimates of the Yuan's Undervaluation

Although it is certain that the yuan would appreciate if the central bank were not increasing its foreign reserves, since the value of the yuan has changed little since 1994, there is no direct way to determine how much it would appreciate — even if there was a consensus about what China's current account balance should be, there are no observations until June 2005 to estimate how sensitive its imports and exports would be to changes in the exchange rate. Estimates of the extent of the yuan's

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[26] (...continued)
affected by factors other than reserve accumulation in recent years. It has been argued that sterilization is an "unfair" practice to use with a peg, since it is meant to prevent the price adjustment that brings trade between the two countries back into equilibrium.

undervaluation have been cited in many articles and interviews. This report attempts to evaluate only those estimates in which the author explains how the estimate was derived. It should be noted that many of the estimates were made some time ago, so the yuan may be more or less undervalued at this point than when the estimates were made. The estimates are grouped below into two broad methodological categories: the "fundamental equilibrium exchange rate" method and the "purchasing power parity" method.

Estimates Based on Fundamental Equilibrium Exchange Rates. One method for estimating misalignments in exchange rates is referred to as the fundamental equilibrium exchange rate (FEER) method. It is based on the belief that current account balances at the present are temporarily out of line with their "fundamental" value, either because of unsustainable forces in the economy or government intervention. Once an estimate has been made of what the fundamental current account balance should be, one can calculate how much the exchange rate must change in value to achieve that current account adjustment. As will be discussed below, this is not an uncontroversial method. Many economists would reject the notion that current account balances worldwide are misaligned, or that economists can predictably determine how much they must be adjusted to come back into alignment. Thus, the following estimates are only valid if one accepts the assumptions underlying them.

Ernest Preeg, senior fellow at the Manufacturers' Alliance, estimated that the yuan was undervalued by 40% in 2003.[27] While this claim is not based on any formal analysis, he uses several rule-of-thumb estimates to reach this conclusion. His first observation is that the increase in Chinese foreign exchange reserves equaled 100% of the Chinese trade surplus less net foreign direct investment (FDI) flows in the first six months of 2002. He concludes that the entire trade surplus less net foreign direct investment would be zero in the absence of the increase in foreign exchange reserves. His second observation is a rule-of-thumb estimate that a 1% decline in the dollar leads to a $10 billion decline in the trade deficit in the United States He then observes that the dollar would need to decline by 40% according to that rule of thumb to eliminate the trade deficit since the U.S. trade deficit equaled about $400 billion in 2002. Since the Chinese trade surplus plus net FDI flows equaled 100% of the increase in foreign exchange reserves, he concludes that if the central bank no longer increased its foreign exchange reserves by letting the yuan float, the surplus less FDI would be zero and the yuan would appreciate by 40%, based on the U.S. ratio.[28]

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[27] Ernest H. Preeg, "Exchange Rate Manipulation to Gain an Unfair Competitive Advantage: The Case against Japan and China," in C. Fred Bergsten and John Williamson, eds., *Dollar Overvaluation and the World Economy* (Washington, DC: Institute for International Economics, 2003).

[28] In addition to the general criticisms of all studies below, there some specific criticisms of the Preeg estimate. First, Preeg's conversion of the rule of thumb from dollar terms to percentage of the total trade deficit is without justification. His conversion implies that if the U.S. trade deficit were $1, a 40% decline in the dollar would lower the deficit by $1. By that logic, if the trade deficit were $1 trillion, a 40% decline in the dollar would lower the deficit by $1 trillion. Clearly, a 40% decline in the dollar cannot have such different

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The Institute for International Economics (IIE) estimates that the yuan was 15-25% undervalued in 2003. It argues that the "underlying" current account surplus was 2.5-3% of GDP in 2003, larger than the actual surplus (1.5%) (it does not explain why).[29] It then argues that the surplus should be reduced by $50 billion (or 4% of GDP) to return to equilibrium, which would leave China with a deficit of 1-1.5% of GDP in equilibrium. It believes that the revaluation required to achieve this reduction in the current account surplus is unusually large because of the extensive use of imports in the production of Chinese exports. IIE Fellow Morris Goldstein testified that

> These estimates of [yuan] misalignment can be obtained either by solving a trade model for the appreciation of the RMB that would produce equilibrium in China's overall balance of payments, or by gauging the appreciation of the RMB that make a fair contribution to the reduction in global payment imbalances, especially the reduction of the U.S. current-account deficit to a more sustainable level.[30]

Goldman Sachs Economic Research Group has estimated that the yuan was 9.5-15% undervalued in 2003.[31] They argue that the current account less FDI should be zero in equilibrium (which means that China would have a current account deficit equal to FDI), which could be accomplished with a 9.5-15% revaluation. This is based on their elasticity (i.e., the degree to which demand changes due to price changes) estimates that exports would fall 0.2% and imports would rise 0.5% when the exchange rate rose 1%.

Virginie Coudert and Cecile Couharde use the most sophisticated analysis to estimate their parameters. They argue that China has an underlying current account deficit of between 1.5% and 2.8% of GDP. The smaller number comes from a cross-country regression of the current account balance based on variables such as per-capita income, demographics, and the budget deficit; the larger number is an estimate

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[28] (...continued)
effects on the trade deficit simply because the dollar value of the trade deficit has changed. Second, Preeg applies his estimate based on U.S. data to the Chinese trade surplus without any supporting evidence. Since the United States and China have different economies, trading patterns, trade balances, and exchange rate regimes, there is no reason to think the estimate would be the same for both countries. He also uses overall and bilateral trade balances interchangeably. There is no reason to think that a 40% decline in the dollar would have the same effect on a $400 billion U.S. overall trade deficit (from which he does not subtract FDI) as a 40% decline in the yuan would have on a $60 billion bilateral Chinese trade surplus less FDI.

[29] According to the data cited elsewhere in this report, the actual surplus in 2002 was 2.9% of GDP and 2.2% in 2003.

[30] Morris Goldstein, testimony before the Subcommittee on Domestic and International Monetary Policy, Committee on Financial Services, U.S. House of Representatives, October 1, 2003.

[31] Jim O'Neill and Dominic Wilson, *How China Can Help the World,* Goldman Sachs Global Economics Paper 97, September 17, 2003.

of the largest current account deficit that would stabilize China's debt-to-GDP ratio. They estimate that the yuan was 44%-54% undervalued against the dollar in 2003.[32]

All of these estimates are based on a similar logic, so a few general observations can be made about all of them. First, none of the estimates are the product of theoretically grounded, econometrically estimated economic models. Rather, they are "back of the envelope" estimates based on a few simple "rule of thumb" assumptions. "Rules of thumb" such as the Preeg 10%-$1 billion estimate or the Goldman Sachs import and export elasticities may not be accurate over time or over large changes in the exchange rate.

The main source of contention in all of the estimates of the yuan's undervaluation is the definition of an "equilibrium" current account balance. All of the estimates are based on the appreciation that would be required for China to attain "equilibrium" in the current account balance. But there is no consensus based on theory or evidence to determine what equilibrium would be; rather, the authors base equilibrium on their own personal opinion, with some using arbitrary assumptions and others more sophisticated ones.[33] Yet this assumption is crucial — Dunaway et al. demonstrate that changing the assumed equilibrium current account balance by 2 percentage points of GDP changes the estimated undervaluation by as much as 25 percentage points.[34] Some economists argue that the current account balance would always be close to zero in equilibrium, but this neglects the fact that countries with different saving and investment rates may willingly lend to and borrow from one another for long periods of time.

In fact, the Preeg, IIE, and Goldman Sachs estimates use an assumption of equilibrium less favorable to China than the current account balance. These studies actually call for balance only in official and portfolio borrowing. They still allow for foreign direct investment (FDI) inflows, which means their estimate of China's overall "equilibrium" current account position is actually a deficit. If they had chosen balance (the traditional "equilibrium" measure with a fixed exchange rate) instead of a deficit as their equilibrium benchmark, their estimates of the yuan's undervaluation would have been smaller. Even if portfolio flows are essentially limited by capital controls at present, it is not clear why requiring the Chinese to borrow from the rest of the world is any less unsustainable than the current arrangement where China is lending to the rest of the world. With capital controls and net FDI inflows, increasing foreign reserves is the only way that China can keep its net foreign indebtedness from increasing. And all measures rule out any accumulation of foreign official reserves for reasons other than to influence the exchange rate.

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[32] Virginie Coudert and Cecile Couharde, "Real Equilibrium Exchange Rate in China," Centre d'Etudes Prospectives et d'Informations Internationales, working paper 2005-01, January 2005.

[33] A thorough attempt to estimate exchange rates using this method can be found in John Williamson, ed., *Estimating Equilibrium Exchange Rates* (Washington, DC: Institute for International Economics, 1994).

[34] Steven Dunaway et al., "How Robust are Estimates of Equilibrium Real Exchange Rates: The Case of China," IMF working paper 06/220, October 2006.

It is particularly difficult to determine the equilibrium current account balance in China because of the presence of capital controls. If China were to maintain capital controls after currency reform (if, for example, they revalued the peg rather than let the yuan float), current account balance may be a reasonable assumption. But if capital controls were eliminated, as is typically the case with a floating exchange rate, the economic situation would change entirely — "equilibrium" could now involve persistent borrowing from or lending to the rest of the world by private Chinese citizens, which would result in a corresponding persistent trade deficit or surplus, respectively. If private citizens lent as much to the United States in equilibrium as the Chinese central bank is currently lending (and U.S. lending to China remained unchanged), then the equilibrium market exchange rate would be equal to the current fixed rate, and the trade deficit would remain unchanged. If private capital outflows exceeded the current increase in foreign reserves, the yuan would depreciate. Since China is a country with both a high national saving rate and a high investment rate, it is not clear whether China would be a net borrower (in which case it would run a current account deficit) or lender (current account surplus) if their currency floated and capital controls were abolished. This issue is particularly relevant when the equilibrium exchange rate is defined as "market determined," since capital controls currently prevent portfolio investment flows from being market determined. Bosworth argues that China's high internal saving rate is more than sufficient to finance its investment, so it makes sense for China to offset FDI inflows with official outflows in the form of foreign reserve accumulation rather than run a current account deficit. Therefore, he argues, foreign reserve accumulation should not be considered proof of undervaluation.[35] Wang argues that, based on estimates derived from other developing economies, China's equilibrium current account surplus may be even larger than the actual surplus, so the yuan is overvalued.[36]

The FEER approach is also based on a belief that the overall U.S. trade deficit is unsustainable, and revaluing the yuan would reduce it. This goes beyond an argument that China has fixed the yuan at an artificially low level, and argues that the dollar, which is market determined against most of its trading partners, is incorrectly valued. For example, the Coudert and Couharde estimate that the yuan is 54% undervalued is based on a corresponding estimate that the dollar was 35% overvalued, the yen 37% undervalued, and the euro 27% undervalued in 2003. If trade and financial markets are rational over the medium run, then the value of the dollar and the size of the trade deficit are never unsustainable — if they were, investors would be unwilling to hold U.S. assets and would sell the dollar, and the trade deficit would decline. There is no widely accepted theoretical approach to determining trade deficit sustainability, and *prima facie* evidence does not suggest the U.S. trade deficit is unsustainable over the next few years — it has lasted several years, it did not prevent the U.S. economy from achieving record growth and low unemployment in the late 1990s, U.S. investment income paid to foreigners is not

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[35] Barry Bosworth, "Valuing the Renminbi," paper presented at Tokyo Club Research Meeting, February 9-10, 2004.

[36] Tao Wang, "Exchange Rate Dynamics," in Eswar Prasad, ed., "China's Growth and Integration into the World Economy," International Monetary Fund, Occasional Paper 232, 2004, Ch. 4.

large, and there have not been any unusually large or sudden declines in the dollar since the trade deficit emerged.[37]

Further, if the Chinese central bank stopped buying U.S. assets, and hence reduced its bilateral trade deficit with the United States, it is unlikely that the overall U.S. trade deficit would fall by a corresponding amount. Other foreigners would still be free to lend to the United States, which could cause its other bilateral trade deficits to widen. Thus, it is not clear that a "fair share" of a reduction in the U.S. trade deficit can be apportioned to China. And even if China's overall trade surplus were eliminated, it might still run a bilateral trade surplus with the United States. Even countries with overall trade deficits, including the United States, have some trading partners with whom they run surpluses and some with whom they run deficits.

Does international experience suggest what the Chinese current account balance would be in equilibrium? The closest comparison is probably to other East Asian countries, which also grew rapidly and maintained high saving rates in recent decades. The experience of these countries is mixed. From 1980 to 1997, Korea, Malaysia, Philippines, Indonesia, and Thailand typically ran current account deficits, while Hong Kong, Singapore, Taiwan, and Japan (which had already industrialized) typically ran current account surpluses. Since the Asian financial crisis in 1997, all of these countries have run large current account surpluses. This may suggest that the current economic environment is not conducive to developing world borrowing.

As seen in **Table 2**, the same combination of large foreign exchange reserves and a large current account surplus can be seen in several other countries in the region, even though these countries range in their exchange rate regimes from a float (Japan and South Korea) to a currency board (Hong Kong). Compared with its neighbors, China's current account balance does not look unusual.

Table 2. Foreign Exchange Reserves and Current Account Balance in Selected Asian Countries, 2006

	Foreign Exchange Reserves		Current Account Surplus	
	Billions of $	% of GDP	Billions of $	% of GDP
Japan	895.3	20.5%	185.8	4.3%
China	**1,066.3**	**39.8%**	**207.9**	**7.8%**
Taiwan	266.2	75.2%	21.3	6.0%
South Korea	237.0	26.4%	3.4	0.4%
Hong Kong	134.0	71.7%	18.6	9.9%

Source: Economist Intelligence Unit estimates.

[37] Sensible rules of thumb for long-term sustainability, such as estimating the current account deficit that would keep U.S. assets a constant share of foreign investment portfolios, need not hold in the short run. For instance, after a change in fundamentals, current account deficits may persist for several years as the United States transitions to a new steady state.

Estimates Based on Purchasing Power Parity. There are other estimates of the yuan's undervaluation based on the theory of purchasing power parity (PPP) — the theory that the same good should have the same price in two different countries. If it did not, then arbitrageurs could buy it in the cheaper country and sell it in the more expensive country until the price disparity disappeared.

One of the simplest estimates based on PPP is the *Economist* magazine's Big Mac Index, which estimated that China's currency was undervalued by 56% in February 2007.[38] The *Economist* portrays the Big Mac Index as a "light hearted guide" to exchange rates, and there are important drawbacks to relying too heavily on it. The Big Mac Index compares the price of a McDonald's Big Mac in China and the United States. Since a Big Mac in China was 56% cheaper than in the United States, the index concludes that the yuan is undervalued by that much. But purchasing power parity only applies to tradeable goods, and a Big Mac is not tradeable. In fact, Li Ong estimates that 94% of the value of a Big Mac comes not from the hamburger itself, but the services associated with the hamburger.[39] These include the wages of employees serving the Big Mac and the rent of the restaurant in which it is eaten, both of which are determined by local factors. Since the hamburger itself is the only tradeable portion of the Big Mac, only a small fraction of the Big Mac's value should be determined by purchasing power parity. As a result, a Big Mac in New York City is more expensive than a Big Mac purchased in the U.S. rural south. Taken literally, the Big Mac Index would imply that a dollar in the rural south is undervalued compared to a dollar in New York City.

While PPP is a simple idea that is powerful in theory, it has been proven to be unreliable in reality: prices are consistently lower in developing countries than industrialized countries. Some economists have tried to estimate what the yuan's value would be by attempting to control for predictable divergences from PPP. Still, these estimates should be considered with caution — even when sophisticated modifications have been made, PPP has been shown to help predict exchange rates only over the long run. Estimates based on PPP would identify any country's currency as overvalued or undervalued.

Economist Jeffrey Frankel argues that income level can be regressed on the exchange rate using a cross-sample of countries to find a predictable relationship between a country's income level and its equilibrium exchange rate based on PPP. By this measure, he estimates that China's exchange rate was undervalued by 36% in 2000.[40] He speculates that, if anything, the undervaluation has increased since then. Coudert and Couharde make a similar calculation for 2003 and estimate the yuan to be undervalued by 41%-51%, depending on what countries are included in

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[38] "The Big Mac Index," *Economist*, February 1, 2007.

[39] Li Ong, "Burgernomics: The Economics of the Big Mac Standard," *Journal of International Money and Finance*, vol. 16, no. 6 (December 1997), p. 865.

[40] Bosworth points out that, by this measure, the Indian rupee is even more undervalued, yet few people make that argument. Bosworth, *Op Cit.*

their sample.[41] Frankel acknowledges a number of caveats to this analysis. First, PPP only holds over the long run, at best, and financial flows can cause even market-determined exchange rates to significantly diverge from PPP for several years. Second, the regression does not control for other factors and only explains 57% of the variation in the data. Third, he argues that any adjustment in the exchange rate should be gradual so as not to be economically disruptive. He also warns that "It is not even true that an appreciation of the renminbi against the dollar would have an immediately noticeable effect on the overall U.S. trade deficit or employment..."[42]

There should be some theoretical rationale for linking income levels to exchange rate values; otherwise, the results may represent nothing more than spurious correlation. One rationale is called the "Balassa-Samuelson" effect: as countries get richer, their exchange rates are predicted to appreciate because productivity growth will be more rapid for tradeable goods than non-tradeable goods. Since these differences in productivity growth cannot easily be measured directly, income levels can be used as a proxy. But if the proxy is not an accurate one, then neither will be the results. Another proxy is the ratio of the consumer price index to the producer price index. When Coudert and Couharde used this proxy over time with a smaller sample, they estimated that the yuan was 18% undervalued in 2003. Benassy-Quere et al. regressed this proxy and net foreign assets on a panel of the G20 countries and found the yuan to be undervalued by 47% in 2003.[43] Wang also uses this proxy (for China only), as well as net foreign assets and openness to trade, in a regression, and finds evidence that the yuan was only modestly undervalued in 2003.[44] However, the authors cautioned that the price index proxy could be inaccurate for China since many consumer prices are not market determined. In addition, they observed that restrictions on the mobility of labor and capital in China may interfere with the Balassa-Samuelson effect.[45]

Cheung et al. are able to replicate others' results that the yuan is significantly undervalued, but point out that these estimates do not meet generally accepted standards of statistical inference. Specifically, the undervaluation estimates are not statistically significant, which means that the results are not robust enough to be sure that the yuan is undervalued at all. Moreover, when they adjust their specification to take into account serial correlation (the fact that this year's exchange rate is

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[41] Coudert and Couharde, *Op Cit.*

[42] Jeffrey Frankel, "On the Renminbi: The Choice Between Adjustment Under a Fixed Exchange Rate and Adjustment Under a Flexible Exchange Rate," National Bureau of Economic Research, working paper 11274, April 2005, p. 3.

[43] A. Benassy-Quere et al., "Burden Sharing and Exchange-Rate Misalignments with the Group of 20," Centre d'Etudes Prospectives et d'Informations Internationales, working paper 2004-13, September 2004. They find the dollar to be overvalued by 14% overall in 2001.

[44] Wang, *Op Cit*.

[45] For a survey of valuation estimates and an overview of methodological considerations, see Steven Dunaway and Xiangming Li, "Estimating China's "Equilibrium" Real Exchange Rate," International Monetary Fund, working paper 05/202, October 2005.

influenced by last year's), the estimated undervaluation becomes much smaller.[46] Dunaway et al. demonstrate that when additional explanatory variables are added to the PPP model, such as openness to trade, the estimated undervaluation becomes much smaller. They also show that the estimate changes greatly when seemingly insignificant changes are made to the model, such as changing the time period or omitting one country from the sample.[47]

Treasury Department Assessment of Economic Models. The Treasury Department's December 2006 report on exchange rates discusses the use of economic models and methodology to estimate a currency's "misalignment" or what the fair market rate exchange rate should be. The report noted that there is no single model that accurately explains exchange rate movements, that such models rarely, if ever, incorporate financial market flows, and that their conclusions can vary considerably, based on the variables used. However, Treasury stated that examining such models can produce useful information in understanding exchange rate movements if they: focus only on serious misalignments; use real effective, not bilateral, exchange rates; utilize several different models, recognizing that no one model will provide precise answers; focus only on protracted misalignments where currency adjustments are not taking place; supplement judgments about misalignment with analysis of empirical data, indicators, policies and institutional factors; and verify whether there are any market-based reasons for a currency's misalignment. Treasury points out that most models (including the two classes analyzed above) estimate equilibrium exchange rates in terms of trade flows, while in reality trade flows are swamped by financial flows.[48]

Trends and Factors in the U.S.-China Trade Deficit

Critics of China's currency peg often point to the large and growing U.S.-China trade imbalance as proof that the yuan is significantly undervalued and constitutes an attempt to gain an unfair competitive advantage over the United States in trade. However, bilateral trade balances reflect structural causes as well as exchange rate effects. There are a number of other factors at work that are also important to consider when analyzing the bilateral trade deficit.

First, although China had (according to U.S. statistics) had a $233 billion merchandise trade surplus with the United States in 2006, its overall trade surplus was $178 billion (Chinese data), indicating that China had a trade deficit of $55 billion in its trade with the world excluding the United States; it had a $100 billion

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[46] Yin-Wong Cheung, Menzie Chinn, and Eiji Fujii, "The Overvaluation of Renminbi Undervaluation," National Bureau of Economic Research, working paper 12850, January 2007.

[47] Steven Dunaway et al, "How Robust are Estimates of Equilibrium Real Exchange Rates: The Case of China," IMF working paper 06/220, October 2006.

[48] U.S. Treasury Department, *Report on International Economic and Exchange Rate Policies*, December 2006, Appendix II.

deficit in 2005 (see **Table 3**).[49] If the yuan is undervalued against the dollar, it should also be undervalued against the other currencies, yet China runs trade deficits against some of those countries. For example, according to Chinese data, it had a $66.4 billion trade deficit with Taiwan and a $45.3 billion deficit with South Korea.

Table 3. China's Merchandise Trade Balance: 2002-2006

(+surplus/-deficit) ($billions)

	2002	2003	2004	2005	2006
China's merchandise trade balance (Chinese data)	30.4	25.6	32.0	101.9	177.6
China's merchandise trade balance with the United States (U.S. data)	103.1	124.0	162.0	201.6	232.2
China merchandise trade balance with the rest of the world (U.S. & Chinese data)	-72.7	-98.4	-130.0	-99.7	-54.6

Sources: Global Trade Atlas.

Note: Trade balance with the rest of the world equals Chinese data on global trade balance minus U.S. data on imports from China

Second, the sharp rise in the U.S. trade deficit with China diverts attention from the fact that, while U.S. imports from China have been rising rapidly, U.S. exports to China have been increasing sharply as well. **Table 4** lists U.S. exports to its top 10 major export markets in 2006. These data indicate that U.S. exports to China have risen significantly faster than both total U.S. exports to the world and any other top 10 U.S. trading partners. In 2006, total U.S. exports rose by 14.7%, while those to China rose by 32.0%. From 2001 to 2006, total U.S. exports to China rose by 187.5%. China ranked as the 4th largest export market in 2006 and it will likely replace Japan as 3rd in 2007.

Third, productivity gains in Chinese exporting firms have increased rapidly in the past few years, a boost to exports that is unrelated to the fixed exchange rate. For example, Chinese export prices have fallen by a cumulative 27% since 1995 in Chinese prices.

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[49] U.S. and Chinese data on their bilateral trade differ substantially, due mainly to how each side counts Chinese exports and imports that are transshipped through Hong Kong. China counts most of its exports that go to Hong Kong but are later re-exported to the United States as Chinese exports to Hong Kong. As a result, Chinese statistics state that it had a $144.3 billion trade surplus with the United States in 2006. The United States counts imports from Hong Kong that originated from China as imports from China, but it often fails to attribute exports to China that pass through Hong Kong as exports to China. As a result, the United States and China cannot agree on the actual size of the U.S.-China trade imbalance. See Robert Feenstra et al., "The U.S.-China Bilateral Trade Balance: Its Size and Determinants," NBER Working Paper 6598 (June 1998).

Table 4. U.S. Merchandise Exports to Major Trading Partners in 2001 and 2006

	2001 ($billions)	2006 ($billions)	Percent Change 2005-2006	Percent Change 2001-2006
Canada	163.7	230.3	8.9	40.7
Mexico	101.5	134.2	11.8	32.2
Japan	57.6	59.6	7.7	3.5
China	**19.2**	**55.2**	**32.0**	**187.5**
United Kingdom	40.8	45.4	17.5	11.3
Germany	30.1	41.3	21.0	37.2
South Korea	22.2	32.5	32.5	46.4
Netherlands	19.5	31.1	17.4	59.5
Singapore	17.7	24.7	19.6	39.5
France	19.9	24.2	8.1	21.6
World	731.0	1,037.3	14.7	41.9

Source: USITC DataWeb.

Note: Ranked by top 10 U.S. export markets in 2006.

Finally, there is strong evidence to suggest that a significant share of the growing level of imports (and hence U.S. trade deficit) from China is coming from export-oriented multinational companies, especially from East Asia, that have moved their production facilities to China to take advantage of China's abundant low-cost labor (among other factors). Chinese data indicate that the share of China's exports produced by foreign-invested enterprises (FIEs) in China has risen dramatically over the past several years. As indicated in **Table 5**, in 1986, only 1.9% of China's exports were from FIEs, but by 1996, this share had risen to 40.7%, and by 2006 it had risen to 58.2% A similar pattern can be seen with imports: FIEs accounted for only 5.6% of China's imports in 1986, rose to 47.9% by 2000, and to 59.7% in 2006. FIEs import raw materials and components (much of which come from East Asia) for assembly in China, after which point, much of the final product is exported. As a result, China tends to run trade deficits with East Asian countries and trade surpluses with countries with high consumer demand, such as the United States. These factors have led many analysts to conclude that much of the increase in U.S. imports (and hence, the rising U.S. trade deficit with China) is a result of China becoming a production platform for many foreign companies (who are the largest beneficiaries

from this arrangement), rather than unfair Chinese trade policies.[50] The rising importance of FIEs may represent a fundamental change in trade between China and the United States that could affect the bilateral trade deficit independently of the exchange rate regime.

Table 5. Exports and Imports by Foreign-Invested Enterprises in China: 1986-2006

Year	FDI in China	Exports by FIE		Imports by FIEs		U.S. Trade Deficit with China ($ billions)
	$ billions	$ billions	As a % of Total Chinese Exports	$ billions	As a % of Total Chinese Imports	
1986	1.9	$0.6	1.9%	$2.4	5.6%	-1.7
1990	3.5	7.8	12.6	12.3	23.1	-10.4
1995	37.5	46.9	31.5	62.9	47.7	-33.8
2000	40.7	119.4	47.9	117.2	52.1	-83.8
2001	46.9	133.2	50.0	125.8	51.6	-83.1
2002	52.7	169.9	52.2	160.3	54.3	-103.1
2003	53.5	240.3	54.8	231.9	56.0	-124.0
2004	60.6	338.2	57.0	305.6	58.0	-162.0
2005	60.3	444.2	58.3	387.5	57.7	-201.6
2006	63.0	563.8	58.2	472.6	59.7	-232.2

Source: China's Customs Statistics and U.S. International Trade Commission *Dataweb*.

The sharp rise in the share of China's trade by FIEs appears to be strongly linked to the rapid growth in foreign direct investment (FDI) in China, which grew from $1.9 billion in 1986 to $63.0 billion in 2006, much of which went to export-oriented manufacturing, a large share of which was exported to the United States. **Table 5** indicates that the U.S. trade deficit with China began to increase rapidly beginning in the early 1990s; a significant rise in FDI and exports by FIEs in China occurred at roughly the same time. By comparing exports and imports in Table 5, one can see

[50] One analyst has estimated that the domestic value-added content of Chinese exports to the United States by foreign-invested firms in China to be about 20%, while 80% comes from the value of imported parts that come into China for assembly. As a result, an appreciation of China's currency would likely have only a minor effect on China's exports to the United States (since the cost of imported inputs would fall as a result). See Testimony of Professor Lawrence J. Lau before the Congressional-Executive Commission on China, *Is China Playing by the Rules? Free Trade, Fair Trade, and WTO Compliance*, hearing, September 24, 2003.

that FIEs have little effect on China's overall trade balance, since the FIEs import roughly 88% as much as they export.

Table 6 provides an illustration of how foreign multinational companies have shifted a significant level of production from other (mainly) East Asian countries to China in one industry. The table lists data on U.S. imports of computer equipment and parts from its major suppliers for 2000-2006. In 2000, Japan was the largest foreign supplier of U.S. computer equipment (with a 19.6% share of total shipments), while China ranked 4th (with a 12.1% share). In just six years, Japan's ranking fell to 4th, the value of its shipments dropped by over half, and its share of shipments declined to 7.5% (2006). China was by far the largest foreign supplier of computer equipment in 2006 with a 47.8% share of total U.S. imports. While U.S. imports of computer equipment from China rose by 382% over the past six years, the total value of U.S. imports from the world of these commodities rose by only 22%. Many analysts contend that a large share of the increase in Chinese computer production has come from foreign computer companies that have manufacturing facilities in China.

Table 6. Major Foreign Suppliers of U.S. Computer Equipment Imports: 2000-2006
($ in billions)

	2000	2001	2002	2003	2004	2005	2006	2000-2006 % change
Total	68.5	59.0	62.3	64.0	73.9	78.4	83.8	22.3%
China	8.3	8.2	12.0	18.7	29.5	35.5	40.0	381.9
Malaysia	4.9	5.0	7.1	8.0	8.7	9.9	11.1	126.5
Mexico	6.9	8.5	7.9	7.0	7.4	6.7	6.6	-4.3
Japan	13.4	9.5	8.1	6.3	6.3	6.1	6.3	-53.0
Singapore	8.7	7.1	7.1	6.9	6.6	5.9	5.6	-35.6

Source: U.S. International Trade Commission Trade Data Web.

Note: Ranked according to top 6 suppliers in 2006.

Economic Consequences of China's Currency Policy

If the yuan is undervalued against the dollar, as many critics charge, then there are benefits and costs of this policy for the economies of both China and the United States.

Implications for China's Economy

If the yuan is undervalued, then Chinese exports to the United States are likely cheaper than they would be if the currency were freely traded, providing a boost to China's export industries (which employ millions of workers and are a major source of China's productivity gains). An undervalued currency also increases the attractiveness of China as a destination for foreign investment in export-oriented production facilities, much of which comes from U.S. firms. Foreign investment is an important source of technology transfers, which contribute to economic development. However, an undervalued currency makes imports more expensive, hurting Chinese consumers and Chinese firms that import parts, machinery, and raw materials. Such a policy, in effect, benefits Chinese exporting firms (many of which are owned by foreign multinational corporations) at the expense of non-exporting Chinese firms, especially those that rely on imported goods. This may impede the most efficient allocation of resources in the Chinese economy in the long run.

In the short run, a revaluation of the yuan could reduce aggregate spending in China by raising imports and reducing exports. Whether this would be desirable depends on the current state of the Chinese economy. Some observers argue that the Chinese economy is currently overheating, and revaluation would help place it on a more sustainable path and prevent inflation from rising. Others argue that there is a large pool of underemployed labor in rural China that the undervalued yuan is helping to absorb. In this view, revaluation could be economically and socially disruptive.

Many economists note that China's currency policy essentially denies the government the ability to use monetary policy (such as interest rates) to promote stable economic growth (e.g., fighting inflation). Secondly, they contend that the currency policy has skewed the economy into becoming overly dependent on fixed investment and net exports for economic growth, which, in the long run can not be sustained. Thirdly, they maintain that China's currency policy may actually be undermining the financial viability of the banking system by expanding the level of easy credit, which has made the banks more prone to extend loans to risky and/or speculative ventures, and thus may increase the level of bank-held non-performing loans. In addition, the policy has contributed to an inflow of "hot money" into short-term speculative ventures (such as real estate and the stock market) by investors hoping to cash in on future appreciation of the currency. Banks are restricted from using interest rate policies to better regulate investment decisions because raising interest rates beyond a certain level could increase flows of foreign capital into the country. Keeping interest rates low in a booming economy may prevent the most efficient allocation of capital and could lead to overproduction in some sectors.[51]

The accumulation of large foreign exchange reserves by China may make it easier for Chinese officials to move more quickly toward adopting a fully convertible currency (if the government feels the reserves could defend the currency against speculative pressures). However, the accumulation of large foreign exchange

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[51] For the most part, the Chinese government has tried to use administrative action to slow credit and investment growth with mixed success.

reserves also entails opportunity costs for China: such funds could be used to fund China's massive development needs (such as infrastructure improvements and pollution control), improvements to China's education system and social safety net, and recapitalization of financially shaky banks. These alternatives may have higher rates of return to the economy than U.S. Treasuries or Chinese bonds held by banks to sterilize the effects of exchange rate intervention.[52]

Implications for the U.S. Economy

Effect on Exporters and Import-Competitors. When a foreign reserve accumulation causes the yuan to be less expensive than it would be if it were determined by market forces, it causes Chinese exports to the United States to be relatively inexpensive and U.S. exports to China to be relatively expensive. As a result, U.S. exports and the production of U.S. goods and services that compete with Chinese imports fall, in the short run.[53] Many of the affected firms are in the manufacturing sector, as will be discussed below. This causes the U.S. trade deficit to rise and reduces aggregate demand in the short run, all else equal.

China has become the United States's second largest supplier of imports (2006 data). A large share of China's exports to the United States are labor-intensive consumer goods, such as toys and games, textiles and apparel, shoes, and consumer electronics. Many of these products do not compete directly with U.S. domestic producers — the manufacture of many such products shifted overseas several years ago. However, there are a number of U.S. industries (many of which are small and medium-sized firms), including makers of machine tools, hardware, plastics, furniture, and tool and die that are expressing concern over the growing competitive challenge posed by China.[54] An undervalued Chinese currency may contribute to a reduction in the output of such industries.

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[52] This generally refers to those reserves that are sterilized (such as through the issuance of government bonds and the expansion of bank reserve requirements). According to the IMF, in 2005, about half of China's new foreign exchange reserves were sterilized, while the rest were added to the money supply.

[53] Putting exchange rate issues aside, most economists maintain that trade is a win-win situation for the economy as a whole, but produces losers within the economy. This view derives from the principle of comparative advantage, which states that trade shifts production to the goods a country is relatively talented at producing from goods it is relatively less talented at producing. As trade expands, production of goods with a comparative disadvantage will decline in the United States, to the detriment of workers and investors in those sectors (offset by higher employment and profits in sectors with a comparative advantage). Economists generally argue that free trade should be pursued because the gains from trade are large enough that the losers from trade can be compensated by the winners, and the winners will still be better off. Critics argue that the losses from free trade are not acceptable as long as the political system fails to compensate the losers fairly. See CRS Report RL32059, *Trade, Trade Barriers, and Trade Deficits: Implications for U.S. Economic Welfare*, by Craig K. Elwell.

[54] Testimony of Franklin J. Vargo, National Association of Manufacturers, before the House Committee on Financial Services, Subcommittee on Domestic and International Monetary, Trade, and Technology Policy hearing, *China's Exchange Rate Regime and Its Effects on the U.S. Economy*, October 1, 2003.

On the other hand, U.S. producers also import capital equipment and inputs to final products from China. For example, U.S. computer firms use a significant level of imported computer parts in their production, and China was the largest foreign supplier of computer equipment to the United States in 2006. An undervalued yuan lowers the price of these U.S. products, increasing their output and competitiveness in world markets. And many imports from China are produced by U.S.-invested enterprises (as discussed above), which benefit from an undervalued exchange rate.

Effect on U.S. Borrowers. An undervalued yuan also has an effect on U.S. borrowers. When the United States runs a current account deficit with China, an equivalent amount of capital flows from China to the United States, as can be seen in the U.S. balance of payments accounts. This occurs because the Chinese central bank or private Chinese citizens are investing in U.S. assets, which allows more U.S. capital investment in plant and equipment to take place than would otherwise occur. Capital investment increases because the greater demand for U.S. assets puts downward pressure on U.S. interest rates, and firms are now willing to make investments that were previously unprofitable. This increases aggregate spending in the short run, all else equal, and also increases the size of the economy in the long run by increasing the capital stock.

Private firms are not the only beneficiaries of the lower interest rates caused by the capital inflow (trade deficit) from China. Interest-sensitive household spending, on goods such as consumer durables and housing, is also higher than it would be if capital from China did not flow into the United States. In addition, a large proportion of the U.S. assets bought by the Chinese, particularly by the central bank, are U.S. Treasury securities, which fund U.S. federal budget deficits. According to the U.S. Treasury Department, China held $414 billion in U.S. Treasury securities (as of April 2007), making it the second largest foreign holder of such securities (after Japan).[55] From June 2006 to April 2007, China's Treasury security holdings increased by nearly $42 billion. If the U.S. trade deficit with China were eliminated, Chinese capital would no longer flow into this country on net, and the U.S. government would have to find other buyers of its U.S. Treasuries at higher interest rates. This would increase the government's interest payments, increasing the budget deficit, all else equal.

Effect on U.S. Consumers. A society's economic well-being is usually measured not by how much it can produce, but how much it can consume. An undervalued yuan that lowers the price of imports from China allows the United States to increase its consumption of both imported and domestically produced goods through an improvement in the terms-of-trade. The terms-of-trade measures the terms on which U.S. labor and capital can be exchanged for foreign labor and capital. Since changes in aggregate spending are only temporary, from a long-term perspective the lasting effect of an undervalued yuan is to increase the purchasing power of U.S. consumers.[56]

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[55] Chinese Treasury security holdings constitute about 19.1% of total foreign holdings of such securities.

[56] Some commentators have compared the undervalued exchange rate to a Chinese tariff on (continued...)

U.S.-China Trade and Manufacturing Jobs. Critics of China's currency policy argue that the low value of the yuan has had a significant effect on the U.S. manufacturing sector, where 2.7 million factory jobs have been lost since July 2000. While job losses in the U.S. manufacturing sector have been significant in recent years, there is no clear link between job losses and imports from China. First, only some manufacturers export to China or compete with Chinese imports. Second, the economic recession and subsequent "jobless recovery" that ended in August 2003 reduced employment across the entire economy. Since then, manufacturing output has reached an all-time high; manufacturing employment has fallen over this time because of productivity growth, not a decline in output. Third, the growing trade deficit has not been limited to China; the overall trade deficit is still increasing.

Finally, there is a long-run trend that is moving U.S. production away from manufacturing and toward the service sector.[57] U.S. employment in manufacturing as a share of total nonagricultural employment has fallen from 31.8% in 1960 to 22.4% in 1980, to 10.7% in 2005, to 10.5% in 2006.[58] This trend is much larger than the Chinese currency issue, and is caused by changing technology (which requires fewer workers to produce the same number of goods) and comparative advantage. With enhanced globalization, comparative advantage predicts the United States will produce knowledge- and technology-intensive goods that it is best at producing for trade with countries, such as China, who are better at producing labor-intensive goods. Since the production of some manufactured goods is labor-intensive and some services cannot be traded, trade leads to more manufacturing abroad, and less in the United States.[59] Over time, it is likely that the trend shifting manufacturing abroad will continue regardless of China's currency policy.

The decline in manufacturing employment is not unique to the United States. According to a study by Alliance Capital Management, employment in manufacturing among the world's 20 largest economies declined by 22 million jobs between 1995 and 2002. At the same time, the study estimated that total manufacturing production among these economies increased by more than 30% (due

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[56] (...continued)
U.S. imports. One major difference between a tariff and the peg is that a tariff does not result in any benefit to U.S. consumers, as the peg does. A more appropriate comparison might be an export subsidy, which benefits consumers who purchase the subsidized product at a lower cost, but may harm some domestic firms that must compete against the subsidized product.

[57] See CRS Report RL32350, *Deindustrialization of the U.S. Economy*, by Craig Elwell. A thorough analysis of the trend can also be found in Robert Rowthorn and Ramana Rasmaswamy, *Deindustrialization: Its Causes and Implications*, Economic Issues 10 (Washington, DC: International Monetary Fund, 1997).

[58] Council of Economic Advisers, *2007 Economic Report of the President*.

[59] Lower wages alone do not give China a price advantage relative to the United States. U.S. workers are much more productive than Chinese workers, and this primarily accounts for their higher wages. Lower unit labor costs (wages divided by productivity) determine which country has a price advantage. In labor-intensive industries, China is likely to have lower unit labor costs; in knowledge-intensive industries, the United States is likely to have lower unit labor costs.

largely to increases in productivity). As indicated in **Table 7**, while the number of manufacturing jobs in the United States declined by 1.9 million (or 11.3%) during this period, they declined in many other industrial countries as well, including Japan (2.3 million or 16.1%), Germany (476,000 or 10.1%), the United Kingdom (446,000 or 10.3%), and South Korea (555,000 or 11.6%). The study further estimated employment in manufacturing in China during this period declined by 15 million workers (from 96 million workers in 1995 to 83 million in 2002), a 15.3% reduction.[60] In the United States and United Kingdom, the employment decline began in 1999; in the other countries in Table 6, the decline began earlier. In 2004, the industrialized countries experienced a loss of 865,000 more manufacturing jobs, and a cumulative 6.3 million manufacturing job losses over the previous five years.[61]

Table 7. Manufacturing Employment in Selected Countries: 1995 and 2002

(in thousands and percent change)

	Manufacturing Employment (thousands)		Change in Manufacturing Employment: 1995/2002	
	1995	2002	Total Change (thousands)	Percent Change
United States	17,251	15,304	-1,947	-11.3
Japan	14,570	12,230	-2,340	-16.1
Germany	8,439	7,963	-476	-10.1
United Kingdom	4,402	3,956	-446	-10.3
South Korea	4,796	4,241	-555	-11.6
China	98,030	83,080	-14,950	-15.3

Source: Alliance Capital Management L.P., Alliance Bernstein, *Manufacturing Payrolls Declining Globally: The Untold Story*, U.S. Weekly Economic Update, October 10, 2003.

The sharp increases in U.S. imports of manufactured products from China over the past several years do not necessarily correlate with subsequent production and job losses in the manufacturing sector. Alan Greenspan, former Chairman of the Federal Reserve, testified in 2005 that "I am aware of no credible evidence that ... a marked

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[60] Alliance Capital, Management L.P., Alliance Bernstein, U.S. Weekly Economic Update, *Manufacturing Payrolls Declining Globally: The Untold Story*, by Joseph Carson, October 10, 2003. Note that the study attributes most of the job reductions in China in the manufacturing sector to increased productivity in China. However, it is likely that the Chinese government's restructuring of inefficient state-owned enterprises, and consequent large-scale layoffs by such firms, was also a major factor.

[61] Alliance Capital, Management L.P., Alliance Bernstein, U.S. Weekly Economic Update, *Manufacturing Jobs Still Declining in Industrialized Economies*, by Joseph Carson, February 18, 2005.

increase in the exchange value of the Chinese renminbi relative to the dollar would significantly increase manufacturing activity and jobs in the United States."[62] A study by the Federal Reserve Bank of Chicago estimated that import penetration by Chinese manufactured products (i.e., the ratio of imported manufactured Chinese goods to total manufactured goods consumed domestically) was only 2.7% in 2001.[63] The study acknowledged that, while China on average is a small-to-moderate player in most manufacturing sector markets in the United States, it has shown a high growth in import penetration over the past few years, growing by nearly 60% between 1997-2001 (from 1.7% to 2.7%). However, the study concluded that "the bulk of the current U.S. manufacturing weakness cannot be attributed to rising imports and outsourcing," but rather is largely the result of the economic slowdown in the United States and among several major U.S. export markets.[64]

Net Effect on the U.S. Economy. In the medium run, an undervalued yuan neither increases nor decreases aggregate demand in the United States. Rather, it leads to a compositional shift in U.S. production, away from U.S. exporters and import-competing firms toward the firms that benefit from the lower interest rates caused by Chinese capital inflows. In particular, capital-intensive firms and firms that produce consumer durables would be expected to benefit from lower interest rates. Thus, it is expected to have no medium- or long-run effect on aggregate U.S. employment or unemployment. As evidence, one can consider that while the trade deficit with China (and overall) has widened, the overall unemployment rate has fallen from 6.3% in 2003 to 4.5% in February 2007. However, the gains and losses in employment and production caused by the trade deficit will not be dispersed evenly across regions and sectors of the economy: on balance, some areas will gain while others will lose.

Although the compositional shift in output has no negative effect on aggregate U.S. output and employment in the long-run, there may be adverse short-run consequences. If output in the trade sector falls more quickly than the output of U.S. recipients of Chinese capital rises, aggregate spending and employment could temporarily fall. If this occurs, then there is likely to be a decline in the inflation rate as well (which could be beneficial or harmful, depending if inflation is high or low at the time). A fall in aggregate spending is more likely to be a concern if the economy is already sluggish than if it is at full employment. Otherwise, it is likely that government macroeconomic policy adjustment and market forces can quickly compensate for any decline of output in the trade sector by expanding other elements of aggregate demand.

By shifting the composition of U.S. output to a higher capital base, the size of the economy would be larger in the long run as a result of the capital inflow/trade deficit. U.S. citizens would not enjoy the returns to Chinese-owned capital in the

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[62] Testimony of Chairman Alan Greenspan before the Senate Finance Committee, June 23, 2005.

[63] Federal Reserve Bank of Chicago, *Chicago Fed Letter*, November 2003.

[64] According to the study, U.S. manufactured domestic exports declined by 7.5% in 2001 and by 5.6% in 2002.

United States. U.S. workers employing that Chinese-owned capital would enjoy higher productivity, however, and correspondingly higher wages.

The U.S.-China Trade Deficit in the Context of the Overall U.S. Trade Deficit. While China is a large trading partner, it accounted for only about 15.5% of U.S. imports in 2006 and 26.0% of the sum of the bilateral trade deficits. Over a span of several years, a country with a floating exchange rate can run an ongoing overall trade deficit for only one reason: a domestic imbalance between saving and investment. This has been the case for the United States over the past two decades, where saving as a share of gross domestic product (GDP) has been in gradual decline.[65] On the one hand, the United States has high rates of productivity growth and strong economic fundamentals that are conducive to high rates of capital investment. On the other hand, it has a chronically low household saving rate, and recently a negative government saving rate as a result of the budget deficit. As long as Americans save little, foreigners will use their saving to finance profitable investment opportunities in the United States; the trade deficit is the result.[66] The returns to foreign-owned capital will flow to foreigners instead of Americans, but the returns to U.S. labor utilizing foreign-owned capital will flow to U.S. labor.

China's situation is very different. As **Table 8** shows, China's gross national saving as a percent of GDP (51.3%) is nearly five times greater than the U.S. level (13.5%).[67] Conversely, the rate of private consumption as a percent of GDP is significantly higher in the United States (70%) than it is in China (36.8%). China maintains a higher rate of gross fixed investment as a percent of GDP than does the United States (42.8% versus 20.0%). Finally, China's gross national saving as a percent of its gross national investment is equal to 118% versus 68% in the United States. Thus, the United States must borrow from abroad to fund its investment needs while China has excess saving that it can invest overseas. The net result of these differences can be seen in the data on current account balances as a percent of GDP: 7.7% for China compared with -6.5% for the United States. These data imply that both China and the United States would need to make fundamental changes to

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[65] See Congressional Budget Office, *Causes and Consequences of the Trade Deficit*, March 2000.

[66] Nations that fail to save enough to meet their investment needs must obtain savings from other countries with high savings rates. By obtaining resources from foreign investors for its investment needs, the United States is able to enjoy a higher rate of consumption than it would if investment were funded by domestic savings alone (although many analysts warn that America's low savings rate could be risky to the U.S. economy in the long run). The inflow of foreign capital to the United States is equivalent to the United States borrowing from the rest of the world. The only way the United States can borrow from the rest of the world is by importing more than it exports (running a trade deficit).

[67] The rate of U.S. saving is among the lowest by industrialized nations. China on the other hand has one of the world's highest saving rates. China's extraordinarily high saving rate is largely the result of China's undeveloped health care system, pension system, and social safety net. For example, many Chinese individuals believe they will need to draw on personal savings to pay for health care if they or a family member had a serious illness. In addition, an underdeveloped financial system prevents most people from being able to borrow money for large purchases (such as a car or home), forcing people to rely on savings.

their saving/investment patterns to reduce the overall U.S. trade deficit and China's overall trade surplus in the long run.

Table 8. Comparisons of Savings, Investment, and Consumption as a Percent of GDP Between the United States and China, 2006

	China	United States
Gross savings as a % of GDP	51.3	13.5
Private consumption as a % of GDP	36.8	70.0
Gross fixed investment as a % of GDP	42.8	20.0
Gross national savings as a % of gross national investment	117.8	67.5
Current account balance as a % of GDP	7.7	-6.5

Source: BEA and EIU.

Some analysts contend that China is moving in this direction, based on a number of statements by high level officials that China plans to boost consumer spending. The Treasury Department's November 2005 report on *International Economic and Exchange Rate Policies* stated that a key factor in Treasury's decision not to designate China as a country that manipulates its currency was "China's commitment to put greater emphasis on sustainable domestic sources of growth, including by modernizing the financial sector...." However, others contend that it will take several years for China to switch its reliance on exports and domestic investment to consumption for much of its GDP growth.

Economists generally are more concerned with the overall trade deficit than bilateral trade balances. Because of comparative advantage, it is natural that a country will have some trading partners from which it imports more, and some trading partners to which it exports more. For example, the United States has a trade deficit with Austria and a trade surplus with the Netherlands even though both countries use the euro, which floats against the dollar. Of concern to the United States from an economic perspective is that its low saving rate makes it so reliant on foreigners to finance its investment opportunities, and not the fact that much of the capital comes from China.[68] If the United States did not borrow heavily from China, it would still have to borrow from other countries.[69]

[68] From a foreign policy perspective, some U.S. policymakers have expressed concern over the high level of U.S. government debt owed to the Chinese government.

[69] For more information, see CRS Report RL30534, *America's Growing Current Account Deficit: Its Cause and What It Means for the Economy*, by Marc Labonte and Gail Makinen.

Policy Options for Dealing with China's Currency Policy

The United States could utilize a number of options to try to put more pressure on China to make further reforms to its exchange rate policy if U.S. policymakers desired. Options for currency reform include making the yuan fully convertible, allowing the currency to appreciate by a certain amount (immediately or gradually), lessening China's intervention in currency markets, widening the band in which the currency is allowed to fluctuate, and furthering reforms to the financial sector to enable greater currency flexibility.[70]

Options to induce China to reform its exchange rate regime include the following:

Tighten Requirements on Treasury Department's Report on Currency. Several Members of Congress have expressed frustration over the Treasury Department's failure to designate China as a currency manipulator (since 1994) in its semi-annual exchange rate policies report. They contend that such a designation would itself increase pressure on China to reform its currency.[71] According to the Treasury Departments's November 2005 currency report: "Reaching judgments about countries' currency practices and their relationships to the terms of the Act (i.e. currency manipulation) for the purpose of designation is inherently complex, and there is no formulaic procedure that accomplishes this objective." H.R. 782 and S. 1607 (110th Congress) would require Treasury to identify "fundamentally misaligned currencies" rather than manipulated currencies. S. 1677 would require to Treasury to cite a country for currency manipulation regardless of their intent. These bills would increase the likelihood that China would be designated, which, some observers claim, would increase pressure on Treasury to make greater efforts to induce China to reform its currency and might make China more willing to boost reform efforts to avoid being designated.[72]

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[70] Morris Goldstein and Nicholas Lardy (Institute for International Economics) have proposed a two-stage solution. During the first stage, the yuan would be appreciated by 15%-25%, the currency band expanded to between 5% and 7%, and the yuan would be pegged to a basket of major foreign currencies (the dollar, the yen, and the euro). In the second stage, China would, once it reformed its financial sector, adopt a managed floating exchange system. See "Two-Stage Currency Reform for China," *Wall Street Journal*, September 12, 2003.

[71] From a practical perspective, such a designation would require Treasury to negotiate with China to end such practices, something Treasury is already doing.

[72] Treasury appears to believe that under current U.S. law, there has to be *intent* to prevent an effective balance of payments or to seek an unfair competitive advantage, before a country can be designated as a currency manipulator. Sponsors of legislation to replace the term currency manipulation with fundamental currency misalignment appear to be attempting to force Treasury to make a designation when countries with large trade surpluses make large scale interventions in currency markets to keep the value of their currencies low, regardless of whether or not they do so for balance of payments or competitive reasons.

Intensify Diplomatic Efforts. The U.S. government could attempt to persuade China through direct negotiations to change or reform its exchange rate policy. President Bush and Administration officials have contended that China's currency policy is bad for China's economy, as well as that of its trading partners and world growth as a whole. The United States has attempted to assist China in reforming its financial sector to provide a foundation for further currency reforms. In addition, the United States has sought to utilize high level talks, such as the Strategic Economic Dialogue and the U.S.-China Trade Promotion Coordinating Committee to encourage (and assist) China to adopt policies to promote greater domestic consumption and lessen its dependence on exports and fixed investment.

In recognition of its growing importance as a major world economy, China (since 2004) has been invited to attend G-7 (group of seven largest economies) finance meetings.[73] China's currency policy has been a major topic in these discussions, and the United States has sought to use the forum to bring pressure on China to quicken steps to make the currency more flexible. A February 10, 2007 joint statement of G-7 finance ministers and central bank governors stated that "In emerging economies with large and growing current account surpluses, especially China, it is desirable that their effective exchange rates move so that necessary adjustments will occur."[74] The United States could attempt to build a greater consensus within the G-7 to put more pressure on China to reform its currency policy, including by linking China's possible future membership in the G-7 to such reforms.[75]

Alternatively, the United States could attempt to persuade China to participate in talks with other East Asian economies (that are viewed as intervening in currency markets) in order to reach a consensus on exchange rate policy.[76] Proponents of this approach argue that, because of China's size, other East Asian countries are afraid that their exports would be uncompetitive if they made any unilateral change in their currency's value that was not matched by a similar change by China. Finally, the United States could press the International Monetary Fund to become more active in working with China to help it understand the long-term economic risks of over-relying on exports and domestic investment for much of its growth, and promote the development of policy tools that lead to more balanced economic growth (such as

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[73] G-7 members include the United States, Japan, Canada, the United Kingdom, France, Germany, and Italy. China has also participated in G-8 meetings, which includes G-7 members plus Russia.

[74] Treasury Department Press Release, February 10, 2007.

[75] Press reports indicate that Japan has been reluctant to put pressure on China over its currency system in the G-7, in part because of criticism Japan has received over its own currency policies.

[76] Some analysts argue that China's currency policy has induced other East Asian economies, particularly Japan, Taiwan, and South Korea to intervene in currency markets to keep their currencies weak (in order to compete with Chinese exports). Thus, the United States could seek to reach a broad consensus with all the major economies in East Asia to halt or limit currency interventions.

more domestic consumption).[77] A key factor in any negotiations would be to convince China that liberalization of its exchange rate system would serve China's long term economic interests and not lead to economic instability.

Utilize Section 301 or Other Trade Sanctions. The U.S. government could attempt to pressure China by threatening to impose unilateral trade sanctions. For example, it could threaten to initiate a *Section 301* case, a provision in U.S. trade law that gives the U.S. Trade Representative authority to respond to foreign trade barriers, including violations of U.S. rights under a trade agreement, and unreasonable or discriminatory practices that burden or restrict U.S. commerce.[78] U.S. obligations in the WTO would likely require the United States to purse a Section 301 case in the WTO. If the United States failed to use the WTO dispute resolution procedures and instead imposed unilateral trade sanctions under Section 301, China might file a WTO case against the United States. On May 17, 2007, 42 House Members filed a Section 301 petition with the USTR's office over China's currency practices and requested that a trade dispute case be brought to the WTO. However, the USTR declined the petition in June.

Some Members have supported legislation, such as H.R. 1002 in the 110th Congress, that would impose additional tariffs of 27.5% on imports from China unless it appreciates its currency to fair market levels. Proponents of such legislation contend that congressional threats to sharply increase tariffs on Chinese goods were instrumental in moving China to reform and appreciate its currency policy in July 2005 and hence should be further utilized to press China for greater action to reform and appreciate its currency. Opponents of such legislation contend that imposing sanctions against China would violate WTO rules, and that threats of sanctions may backfire because Chinese officials would be less likely to reform its currency if they felt that such moves were seen as resulting from U.S. political pressure.[79] Some proposals seek to impose sanctions on currency policy that would avoid violating WTO rules. For example, S. 1607 would deny certain designated countries with misaligned policies access to U.S. government procurement, direct U.S. officials to vote against any new multilateral bank loans for such countries, and cut off any new financing by the U.S. Overseas Private Investment Corporation (OPIC).[80]

Utilize the Dispute Resolution Mechanism in the WTO. Some critics have charged that China's currency policy violates WTO rules.[81] The United States

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[77] For more information on this option, see CRS Report RL33322, *China, the United States, and the IMF: Negotiating Exchange Rate Adjustment*, by Jonathan E. Sanford.

[78] Section 301 to 309 of the 1974 Trade Act, as amended. For additional information, see CRS Report 98-454, *Section 301 of the Trade Act of 1974, as Amended: Its Operation and Issues Involving Its Use by the United States,* by Wayne Morrison.

[79] In addition, any imposed U.S. trade restrictions of Chinese goods would likely reduce overall U.S. economic welfare, because the reduction in the welfare of U.S. consumers (as import prices rise) would likely exceed the increase in welfare of U.S. producers.

[80] Note, OPIC is already barred from operating in China due to existing U.S. sanctions.

[81] For example, some analysts contend that China's currency policy violates: (1) Article XV (continued...)

could file a case before the WTO's Dispute Settlement Body (DSB) against China's currency peg.[82] If the DSB ruled in favor of the United States, it would direct China to modify its currency policy so that it complies with WTO rules. If China refused to comply, the DSB would likely authorize the United States to impose trade sanctions against China. The advantage of using the WTO to resolve the issue is that it involves a multilateral, rather than unilateral, approach, although there is no guarantee that the WTO would rule in favor of the United States.[83]

In 2004, the Bush Administration rejected two Section 301 petitions on China's exchange rate policy: one by the China Currency Coalition (a group of U.S. industrial, service, agricultural, and labor organizations) and one filed by 30 Members of Congress. Both petitions sought to have the United States bring a case before the WTO against China in the hope that the WTO would rule that China's currency peg violated WTO rules. The Bush Administration has expressed doubts that the United States could win such a case in the WTO and contends that such an approach would be "more damaging than helpful at this time."[84] H.R. 321 and S. 1607 call on the United States to file a WTO case against China over its currency policy, and H.R. 321 also calls on the United States to work within the WTO to modify and clarify rules regarding currency manipulation for trade advantage to reflect modern day monetary policy not envisioned at the time current rules were adopted in 1947. S. 1677 would authorize the Treasury Department to file a WTO case on China's exchange rate policy.

Apply U.S. Countervailing Trade Laws to Non-Market Economies. U.S. countervailing laws allow U.S. parties to seek relief (in the form of higher duties) from imported products that have been subsidized by foreign governments. For many years, the Commerce Department contended that countervailing laws could not be applied to non-market economies, such as China, because it would be nearly impossible to identify a government subsidy in an economy that was not market based. However, in November 2006, the Commerce Department decided to pursue a countervailing case against certain imported Chinese coated free sheet paper products. On March 30, 2007, the Commerce Department issued a preliminary ruling to impose countervailing duties (ranging from 11 to 20%) against the products in question. Commerce contends that, while China is still a non-market economy for the purposes of U.S. trade laws, economic reforms in China have made several

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[81] (...continued)
of the General Agreement on Tariffs and Trade (GATT) agreement dealing with exchange arrangements, (2) the WTO Agreements on Subsidies and Countervailing Measures, and/or (3) GATT Article XXIII dealing with nullification or impairment of the benefits of a trade agreement.

[82] Dispute resolution in the WTO is carried out under the Dispute Resolution Understanding (DSU). See CRS Report RS20088, *Dispute Settlement in the World Trade Organization*, by Jeanne J. Grimmett.

[83] Many trade analysts argue that countries are more likely to comply with rulings by multilateral organizations to which they are parties (and whose rules they have agreed to comply with) than accede to the wishes of another country under the threat of unilateral sanctions.

[84] USTR press release, November 12, 2004.

sectors of the economy relatively market based, and therefore it is possible to identify the level of government subsidies given to the Chinese paper firms in question.

Some Members contend that China's currency policy constitutes a form of export subsidy that should be actionable under U.S. countervailing laws. H.R. 782 and S. 364 would apply U.S. countervailing laws to non-market economies and would also specify that currency misalignment or manipulation be actionable under those laws. Several Members contend that such legislation would be consistent with WTO rules (which allows countries to utilize countervailing duty procedures). However, critics contend that it would be difficult to determine the subsidy level conveyed by China's currency, and possible U.S. countervailing measures applied against China over its currency could be challenged in the WTO.

Apply Estimates of Currency Undervaluation to U.S. Antidumping Measures. U.S. antidumping laws allow U.S. parties to seek relief (in the form of increased duties) from imports that are sold at less than fair value and injure U.S. industries. Many critics of China's currency policy contend that undervaluing the value of the yuan is a major factor affecting the price of Chinese exports to the United States and that this has harmed many U.S. industries. For example, S. 1607 would require the government to factor in the impact of certain fundamentally misaligned currencies on export prices when determining the level of antidumping duties that should be applied. Critics of this approach contend that it would be very difficult to come up with a precise figure on how much a country's currency is undervalued, and it is not clear whether such a method would be compatible with WTO rules on trade remedies.

Utilize Special Safeguard Measures. Another option might be to utilize U.S. trade remedy laws relating to special provisions that were part of China's accession to the WTO. For example, the United States could invoke safeguard provisions (under Sections 421-423 of the 1974 Trade Act, as amended) to impose restrictions on imported Chinese products that have increased in such quantities that they have caused, or threaten to cause, market disruption to U.S. domestic producers.[85] This option could be used to provide temporary relief for U.S. domestic firms that have been negatively affected by a surge in Chinese exports to the United States (regardless of its cause).[86] The sharp increase in textile and apparel imports from China over the past few years led the Bush Administration on a number of occasions to invoke the special China textile and apparel safeguard to restrict imports. Eventually, the Administration sought and obtained (in November 2005) an agreement with China to limit the level of certain textile and apparel exports to the United States through the end of 2008. However, the Bush Administration on six

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[85] See CRS Report RS20570, *Trade Remedies and the U.S.-China Bilateral WTO Accession Agreement*, by William H. Cooper.

[86] The U.S. International Trade Commission is in charge of making market disruption determinations under the safeguard provisions for most products (with the exception of textiles and apparel, which are handled by the Committee for the Implementation of the Textile Agreements, an inter-agency committee chaired by the U.S. Commerce Department). Import relief is subject to presidential approval.

different occasions has chosen not to extend relief to various industries under the China-specific safeguard.

Other Bilateral Commercial Considerations

A number of policy analysts have argued against pushing China too hard on its currency policy, either because it would not serve U.S. economic interests, or because U.S. pressure would likely be ineffective as long as the Chinese government believed changing the peg would damage China's economy.[87] Such analysts argue that U.S. policymakers should address China's currency policy as part of a more comprehensive U.S. trade strategy to persuade China to accelerate economic and trade reforms and to address a wide range of U.S. complaints over China's trade practices. This appears to be the Administration's policy in the SED talks. U.S. officials have urged China to boost domestic consumption while making its currency policy more flexible as part of a long-term solution to global trade imbalances.

Some policymakers contend that the more immediate focus of U.S. trade policy should on pressing China to comply with its WTO commitments. Major WTO-related issues of concern to the United States include market access, inadequate protection of U.S. intellectual property rights (IPR), industrial policies that promote domestic content over imports, and indirect subsidization of Chinese state-owned enterprises by China's banking system. Because China's WTO commitments are clear and binding, and there is a legal process within the WTO to seek compliance with trade agreements, the United States is in a stronger position to get China to liberalize its economy and open its markets than it would be if it tried to push China to reform its currency regime (where multilateral rules and options on the issue are less clear). Finally, supporters of this policy argue that China's leaders are more likely to respond to pressures to adhere to international rules of conduct than to perceived direct U.S. pressure.[88]

Changes to the Current Currency Policy and Potential Outcomes

If the Chinese were to allow their currency to float, its value would be determined by private actors in the market based on the supply and demand for Chinese goods and assets relative to U.S. goods and assets. If the relative demand for the Chinese currency has increased since the exchange rate was fixed in 1994, then the floating currency would appreciate.[89] This would boost U.S. exports and the

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[87] It is also possible that if China made changes to its exchange rate policy (such as allowing the yuan to appreciate) in order to ease political pressure from the United States, it would expect something in return, such as U.S. pressure on China to ease on other trade issues.

[88] The United States has pending WTO dispute resolution cases against China on IPR protection and market access, trade subsidies, and discriminatory import tariffs.

[89] Another problem for China if the yuan appreciated, whether through floating or a revaluation, is that it would reduce the value of their U.S. assets. Since China held $350 billion of U.S. Treasury securities at the end of 2006 and $190 billion of U.S. agency debt

(continued...)

output of U.S. producers who compete with the Chinese. The U.S. bilateral trade deficit would likely decline (but not necessarily disappear). At the same time, the Chinese central bank would no longer purchase U.S. assets to maintain the peg. U.S. borrowers, including the federal government, would now need to find new lenders to finance their borrowing, and interest rates in the United States would rise. This would reduce spending on interest-sensitive purchases, such as capital investment, housing (residential investment), and consumer durables. The reduction in investment spending would reduce the long-run size of the U.S. economy. If the relative demand for Chinese goods and assets were to fall at some point in the future, the floating exchange rate would depreciate, and the effects would be reversed. Floating exchange rates fluctuate in value frequently and significantly.[90]

A move to a floating exchange rate is typically accompanied by the elimination of capital controls that limit a country's private citizens from freely purchasing and selling foreign currency. Capital controls exist in China today, and arguably one of the major reasons China opposes a floating exchange rate is because it fears that the removal of capital controls would lead to a large private capital outflow from China. This might occur because Chinese citizens fear that their deposits in the potentially insolvent state banking system are unsafe. If the capital outflow were large enough, it could cause the floating exchange rate to depreciate rather than appreciate.[91] If this occurred, the output of U.S. exporters and import-competing firms would be reduced below the level prevailing under the current exchange rate regime, and the U.S. bilateral trade deficit would expand. In other words, the United States would still borrow heavily from China, but it would now be private citizens buying U.S. assets instead of the Chinese central bank. China could attempt to float its exchange rate while maintaining its capital controls, at least temporarily. This solution would eliminate the possibility that the currency would depreciate because of a private capital outflow. While this would be unusual, it might be possible. It would likely

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[89] (...continued)
in June 2005 — much of it in the central bank — these capital losses could potentially be very large. Unlike a private bank, a central bank does not have to worry about insolvency as a result of capital losses since they control their liabilities (currency), but it could potentially have negative fiscal or inflationary ramifications. See "A License to Lose Money," *The Economist*, April 30, 2005, p. 74.

[90] Some economists argue that short-term movements in floating exchange rates cannot always be explained by economic fundamentals. If this were the case, then the floating exchange rate could become inexplicably overvalued (undervalued) at times, reducing (increasing) the output of U.S. exporters and U.S. firms that compete with Chinese imports. These economists often favor fixed or managed exchange rates to prevent these unexplainable fluctuations, which they argue are detrimental to U.S. economic well-being. Other economists argue that movements in floating exchange rates are rational, and therefore lead to economically efficient outcomes. They doubt that governments are better equipped to identify currency imbalances than market professionals.

[91] This argument is made in Morris Goldstein and Nicholas Lardy, "A Modest Proposal for China's Renminbi,"*Financial Times*, August 26, 2003. Alternatively, if Chinese citizens proved unconcerned about keeping their wealth in Chinese assets, the removal of capital controls could lead to a greater inflow of foreign capital since foreigners would be less concerned about being unable to access their Chinese investments. This would cause the exchange rate to appreciate.

make it more difficult to impose effective capital controls, however, since the fluctuating currency would offer a much greater profit incentive for evasion.

Another option is to maintain the status quo. Although the nominal exchange rate may change little in this case, over time the real rate would adjust as inflation rates in the two countries diverged. As the central bank exchanged newly printed yuan for U.S. assets, prices in China would rise along with the money supply until the real exchange rate was brought back into line with the market rate. This would cause the U.S. bilateral trade deficit to decline and expand the output of U.S. exporters and import-competing firms. This real exchange rate adjustment would only occur over time, however, and pressures on the U.S. trade sector would persist in the meantime.

None of the solutions guarantee that the bilateral trade deficit will be eliminated. China is a country with a high saving rate, and the United States is a country with a low saving rate; it is natural that their overall trade balances would be in surplus and deficit, respectively. At the bilateral level, it is not unusual for two countries to run persistently imbalanced trade, even with a floating exchange rate. If China can continue its combination of low-cost labor and rapid productivity gains, which have been reducing export prices in yuan terms, its exports to the United States are likely to continue to grow regardless of the exchange rate regime.

Conclusion

The current debate among U.S. policymakers over China's currency policy has been strongly linked to concerns over the growing U.S. trade deficit with China, the sharp decline in U.S. manufacturing employment over the past few years, and the rise of China as a major economic power. Most economists agree that China's currency would likely appreciate against the dollar if allowed to float (barring any disruptive financial crisis). If it did appreciate, there is considerable debate over the net effects this policy would have on the U.S. economy since it may benefit some U.S. economic sectors and harm other sectors, as well as consumers. The trade deficit with China has not prevented the United States from reaching full employment. In addition, U.S. trade with China is only one of a number of factors affecting manufacturing employment, including increased productivity growth, employment shifts to the service sector, and the overall trade deficit. It is also not clear to what extent production in certain industrial sectors has shifted to China from the United States, as opposed to shifting to China from other low-wage countries, such as Mexico, Thailand, and Indonesia.[92] The extensive involvement of foreign multilateral corporations in China's manufactured exports further complicates the issue of who

[92] Even in cases where jobs have shifted from the United States to China, there are still questions as to the net impact to the United States. If the United States is no longer internationally competitive in certain industries, it may be more economically efficient to allow market forces to direct resources away from those industries and toward economic activities where the United States has a greater comparative advantage. The challenge for policymakers is how to help displaced workers get the training they need to find well-paying jobs that are comparable to or better than the jobs they lost.

really benefits from China's trade, as well as the implications of a rising U.S. trade deficit with China (since a large share of U.S. imports are coming from foreign firms, including U.S. firms, that have shifted production from one country to China). Thus, there is considerable debate over what policy options would promote U.S. economic interests since changes to the current system would produce both winners and losers in the United States (as well as in China).

Chinese officials have stated they plan to make the currency more flexible in the near term and to eventually adopt a floating currency in the long run, but they insist that reforms should be gradual in order to avoid disruptions to the economy. For example, they claim they need to first implement further reforms to the banking system and to reduce the level of non-performing loans. Yet the present currency policy may be undermining these efforts by expanding the money supply (as a result of contributing to foreign reserves). A rising money supply promotes easy credit policies by the banks — the source of existing non-performing loans in the first place. Efforts to limit bank loans in booming sectors of the economy have mainly been the result of government administrative directives rather than market forces, which may undermine the ability to establish a market-based financial system where monetary policy is used to halt inflation and bank loans are extended to ventures that offer the highest rate of return. In addition, China's currency policy constitutes a de facto subsidy, which, while benefitting some export industries, undermines other sectors, and prevents the most efficient distribution of resources in the economy.

While U.S. officials acknowledge China's concerns over exchange rate reforms, they contend that China's exchange rate reforms are overly cautious. They further contend that China's currency policy is preventing adjustments in global trade imbalances, especially in the United States, and that this could eventually undermine world economic growth. This would hurt China's economy, given its dependence on exports. Both U.S. and Chinese officials publicly agree that China needs to undertake major economic reforms to boost domestic consumption and to obtain more even growth, and that the United States must do more to boost its level of domestic saving. China officials have stated their intention to boost economic development in the hinterland and expand spending on social security, health care, and education. However, this will likely take many years to implement.

Appendix I. Congressional Legislation in the 110th Congress

Currency legislation in the 110th Congress on China's currency policy include the following:

- H.R. 321 (English) would require the Treasury Department to determine if China has manipulated its currency and to estimate the rate of that manipulation (if such a determination were made), which then would require the imposition of additional tariffs on Chinese products (equal to the estimated rate of manipulation). The bill also calls on the United States to file a WTO case against China over its currency policy and to work within the WTO to modify and clarify rules regarding currency manipulation.

- H.R. 782 (Tim Ryan) S. 796 (Bunning) would apply U.S. countervailing laws (dealing with government subsidies) to products imported from non-market economies (such as China) and would establish an alternative methodology for estimating the amount of government subsidy benefit provided if information is not available on the amount of subsidies given to various industries in that country. The bills also make exchange rate misalignment actionable under U.S. countervailing law, require the Treasury Department to determine whether a currency is misaligned in its semi-annual reports to Congress on exchange rates, prohibit the Department of Defense from purchasing certain products imported from China if it is determined that China's currency misalignment has disrupted U.S. defense industries, and would include currency misalignment as a factor in determining (China-specific) safeguard measures on imports of Chinese products that cause market disruption.

- H.R. 1002 (Spratt) would impose 27.5% in additional tariffs on Chinese goods unless the President certifies that China is no longer manipulating its currency.

- S. 364 (Rockefeller) would apply U.S. countervailing laws on non-market economies and would make exchange rate manipulation actionable under such laws.

- S. 1607 (Baucus) would require the Treasury Department to identify currencies that are fundamentally misaligned and to designate such currencies for priority action under certain circumstances in its semi-annual reports to Congress on exchange.[93] If after consultations the country maintaining the designated currency policy fails to adopt appropriate policies within 180 days, the U.S. would make currency

[93] A designation would occur based on such factors as protracted large-scale currency intervention, excessive reserve accumulation, restrictions on capital flows, or any other policy the Treasury Department determines that would warrant such a designation.

undervaluation a factor in determining antidumping duties, ban federal procurement of products or services from the designated country, bar financing by the U.S. Overseas Private Investment Corporation (OPIC),[94] and would require U.S. officials to oppose multilateral financing for that country. If the designated country failed to take appropriate measures, the USTR would be required to file a case in the WTO, and the Treasury Department would be directed to consider taking remedial intervention in international currency markets.

- S. 1677 (Dodd) requires the Treasury Department to identify countries that manipulate their currencies regardless of their intent and to submit an action plan for ending the manipulation; and gives Treasury the authority to file a case in the WTO.

Appendix II. Legislation in the 109th Congress

Several bills were introduced in the 109th Congress to deal with foreign exchange rate policies. The listed bills provide an overview of the multiple proposals on the issue and may be re-introduced in the 110th Congress.

Bills That Saw Legislative Action

- S.Amdt. 309 (Schumer) to S. 600 would impose a 27.5% tariff on Chinese goods if China failed to substantially appreciate its currency to market levels. On April 6, 2005, the Senate failed (by a vote of 33 to 67) to reject the amendment, In response to the vote, the Senate leadership moved to allow a vote on S. 295 (which has same language as S.Amdt. 309) no later than July 27, 2005, as long as the sponsors of the amendment agreed not to sponsor similar amendments for the duration of the 109th Congress. However, on June 30, 2005, Senator Schumer and other sponsors of S. 295 agreed to delay consideration of the bill after they received a briefing from Administration officials and were told that China was expected to make significant progress on reforming its currency over the next few months. Disappointment over China's July 2005 currency reforms led Senator Schumer to push for consideration of S. 295 (under the previous compromise). On November 16, 2005, the Senate agreed to consider the bill no later than March 31, 2006. On March 28, 2006, Senators Schumer and Graham stated that they would move to delay taking up S. 295 in the Senate, based on their assessment during a trip to China that the Chinese government was serious about reforming its currency policy. However, on September 14, 2006, Senator Schumer stated that he was disappointed with China's movement to date on currency flexibility, and requested the Senate to take up S. 295. On September 28, 2006, Senators

[94] OPIC has been banned from operating in China since 1989 under U.S. sanctions.

Schumer and Graham announced that they had been persuaded by President Bush not to pursue a vote on S. 295 in order to give Secretary of Treasury Henry Paulson more time to negotiate with China on its currency policy.

- H.R. 3283 (English) would (among other things) apply U.S. countervailing laws (dealing with foreign government subsidies) to non-market economies (such as China); and require the Treasury Department to define "currency manipulation," describe actions that would be considered to constitute manipulation, and report on China's new currency regime. The bill passed (255 to 168) on July 27, 2005. A similar bill was introduced in the Senate, S. 1421 (Collins).

Other Bills

- S. 2467 (Grassley) would require the Treasury Department to engage the International Monetary Fund and other countries to resolve major currency imbalances with the dollar and would take specific action against countries that refuse to promote the fair valuation of their currency; require the Secretary of Treasury to identify "fundamentally misaligned currencies" that adversely affect the U.S. economy; and require the USTR's office to work more closely with Congress in identifying and resolving the most serious trade and investment barriers faced by U.S. firms.

- S. 2317 (Baucus) would require the USTR to identify trade enforcement priorities and to take action with respect to priority foreign country trade practices. It also includes a sense of Congress that the President should instruct the United States Executive Director to the International Monetary Fund to request the Managing Director of the Fund to use more aggressively the Fund's power to request consultations with any member country regarding that country's exchange rate policies.

- S. 14 (Stabenow) and H.R. 1575 (Myrick) direct the Secretary of the Treasury to negotiate with China to accept a market-based system of currency valuation, and would impose an additional duty of 27.5% on Chinese goods imported into the United States unless the President submits a certification to Congress that China is no longer manipulating the rate of exchange and is complying with accepted market-based trading policies.

- H.R. 3004 (English) would require the Treasury Department to determine if China manipulated its currency and to impose additional tariffs on Chinese goods comparable to the rate of currency manipulation.

- H.R. 3157 (Dingell) and S. 377 (Lieberman) direct the President to negotiate with those countries determined to be engaged most

egregiously in currency manipulation and to seek an end to such manipulation. If an agreement is not reached, the President is directed to institute proceedings under the relevant U.S. and international trade laws (such as the WTO) and to seek appropriate damages and remedies for the U.S. manufacturers and other affected parties.

- H.R. 2208 (Manzullo), S. 984 (Snowe), and S. 1048 (Schumer) add changes to the criteria that the U.S. Treasury Department is required to consider when making a determination on currency manipulation (including a protracted large-scale intervention in one direction in the exchange markets) in its bi-annual reports on International Economic and Exchange Rate Policies.

- H.R. 2414 (Rogers, Mike) would require the Treasury Department to make a determination whether China's currency policy interferes with effective balance of payments adjustments or confers a competitive advantage in international trade that would not exist if the currency value were set by market forces. If such a determination were made, the President would be required to bring a WTO case against China to seek across-the-board tariffs on Chinese goods in order to offset the subsidy effects of undervaluation.

- H.R. 1498 (Tim Ryan) would apply U.S. countervailing laws to countries that manipulate their currencies.

- S.Res. 270 (Bayh) expresses the sense of the Senate that the International Monetary Fund should investigate whether China is manipulating its currency.