# Testimony of 

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In 2006, China’s central bank will likely need to buy between $\$ 250$ and $\$ 300$ billion dollars in the foreign exchange market to keep the renminbi (RMB) from appreciating. Sustained intervention in the foreign exchange market will lead China's reserves to top $\$ 1$ trillion by the end of September. The scale of intervention required to keep the RMB from appreciating against the dollar has risen steadily since 2002. During this period of heavy intervention, the dollar depreciated significantly against many other currencies driving down the renminbi's value against many other currencies as well. China's policy of resisting pressure for appreciation against the dollar even as the dollar depreciated has contributed to a phenomenal surge in Chinese exports. In 2002, China exported around $\$ 325$ billion in goods. In 2006, China is on pace to export $\$ 950$ billion - an extraordinary increase in a short time-period. China’s expected 2006 current account surplus of $\$ 220$ billion will be a global counterpart to about $1 / 4$ of the United States’ roughly $\$ 900$ billion current account deficit. ${ }^{1}$

China's de facto peg to the dollar consequently has profound implications for the Chinese economy, for the US economy and for the global economy.

China's de facto peg has favored China's export sector - including the operations of foreign multinationals that have invested in China - over other sectors. Strong export growth is one reason that Chinese growth has been exceptionally strong. However, the surge in China's exports since 2002 also carries with it profound risks. China's exports traditionally have been assembled from imported parts, offsetting some of China's exposure to the global economic cycle. But as exports rise as a share of Chinese GDP and as more and more components are produced inside China, China's own exposure to the global economic cycle is increasing rapidly. China's dependence on exports is more typical of a small open economy than a large continental economy.

Perhaps even more importantly, China's central bank has kept domestic Chinese interest rates (notably deposit rates) below US rates in order to discourage capital inflows and reduce the pace of Chinese reserve growth. There is now a growing risk that China's efforts to defend an undervalued exchange rate have led it to set domestic interest rates at a level that are too low for its own rapidly growing economy.

Preventing the ongoing increase in China’s reserves from leading to faster-than-desired money and lending growth has been a constant challenge for China’s central bank. The People's Bank of China has withdrawn many of the RMB it sells for dollars in the foreign exchange market from circulation by selling sterilization bills. But China's central bank has not fully sterilized recent reserve growth. Keeping the banks from lending their rapidly growing deposit base out and fueling even-more rapid investment growth has required the growing use of administrative controls.

[^0]China's de facto peg to the dollar also has had profound impacts on the US economy. China's policy of intervening heavily to resist market pressure for RMB appreciation has favored interest-sensitive sectors of the US economy over sectors that compete with Chinese goods - or that potentially could export more to China if a stronger RMB increased Chinese purchasing power. The rapid growth of Chinese reserves has led to an enormous increase in Chinese holdings of US securities. I estimate that China now holds close to $\$ 700 \mathrm{~b}$ in US debt - counting mortgage-backed securities and agency bonds as well as Treasury bonds. ${ }^{2}$ China's purchases of US securities have kept US interest rates lower than they otherwise would have been, and are one reason why job growth during the recent recovery has been concentrated in sectors tied to the housing market.

Finally, China's de facto peg complicates the process of global adjustment. China now has one of the world's largest current account surpluses. Its surplus has increased from around $\$ 35$ b in 2002 to an estimated $\$ 220$ b in 2006. However, China's currency is tightly tied to the currency of the country with the largest current account deficit. Reducing the US current account deficit requires dollar depreciation. Reducing China’s current account surplus requires RMB appreciation. Yet so long as the RMB is tied to the dollar, dollar depreciation implies RMB depreciation.

One of the surprising facts about the contemporary world economy is that China's current account surplus has increased in line with the current account surpluses of the world's oil exporters. This has meant that Asia's overall current account surplus has not fallen even as the oil exporters' surpluses have soared. In equilibrium, a rising surplus in oil exporters and a constant to rising surplus in oil-importing Asia requires that the other oil importing regions - the US and Europe - run larger current account deficits. Until very recently, almost all the offset growth in the deficit of deficit countries came from the US.

I want to emphasize four points in particular.

- The available evidence strongly suggests that the RMB is significantly undervalued.
- China both intervenes heavily in the foreign exchange market and maintains strict controls on the flow of capital. It is impossible to know for sure what would happen if China stopped intervention and eliminated all controls on capital movements (such a policy would not be wise in any case). Right now, though, more money clearly wants to get into China than wants to get out. Despite interest rates well below US interest rates, China has tightened controls on capital inflows while loosening controls on capital outflows.
- Rapid Chinese reserve growth has significant impacts on US financial markets.

[^1]- RMB appreciation is only one of several policy steps that are needed to help reduce China's current account surplus and increase China's contribution to global demand growth.

China has an important role to play in the process of global adjustment. Its policy actions influence not just the size of its own current account surplus, but the policy actions of other Asian economies. But the US current account deficit now dwarfs the combined current account surplus of China and the rest of Asia. Adjustment requires changes in both deficit and surplus countries. The US Congress has far more control over the policies adopted by the world's most important deficit country than over the policies adopted by the world's surplus countries. The credibility of the United States' demands for other countries to adjust their policies will hinge on the United States’ ability to demonstrate that it is willing to adjust its own policies.

The RMB is undervalued, particularly in the context of China's capital controls
The strongest evidence that the RMB is undervalued is simple: the size of China's current account surplus and the scale of the intervention of the People's Bank of China in the foreign exchange market.

China is on track to run a trade surplus with the world of around $\$ 150 \mathrm{~b}$ this year, and a current account surplus of $\$ 220$ ( $8 \%$ of China's GDP). This current account surplus is not a product of slow growth - far from it. Chinese growth is stronger than it has ever been. But Chinese export growth has been strong enough to push its trade surplus up even as strong investment growth has pushed up the price of many commodities and dramatically increased China's import bill.

Chinese goods exports gaining on US goods exports
(monthly totals, Chinese data is not seasonally adjusted)


In April, the IMF estimated that China's non-oil current account surplus would be $14 \%$ of China's GDP. Subsequent data suggest that this estimate will prove to be too low.

China's exchange rate with the dollar has been very stable. It has risen by a cumulative $3.5 \%$ since China abandoned its long-standing policy of pegging the RMB to the dollar at 8.28. This small rise came even as the dollar tumbled against many other currencies.


As a result, China's broad trade weighted exchange rate has not been stable. The RMB appreciated on a broad trade-weighted basis when the dollar appreciated against the euro from 1999 through early 2002. From 2002 through 2004, though, the RMB has depreciated significantly against the euro, pound, Swiss franc and Canadian dollar. As a result, the "real" value of the RMB has fallen over the past few years.

This pattern has continued in 2006. The small rise in the RMB against the dollar has been offset by the dollar's fall against the euro. China now trades as much with Europe as the US, and the RMB is now weaker against the euro than it was last July. The dollar's depreciation against the euro has effectively wiped out the broader impact of the RMB's (small) rise against the dollar this year.


I do not believe that it is an accident that Chinese export growth to Europe began to soar after both the dollar and RMB started to depreciate against the euro in 2002. The growth in Chinese exports to Europe (in dollar terms) has been faster than the growth in Chinese exports to the US even though Europe has grown more slowly than the US.

RMB depreciation $v$. euro leads to an accleration in the pace of growth in Eurozone imports from China
(CNY/euro = annual average, yly growth rate in euro-denominated imports from in China)


Chinese exports to Europe have certainly grown more rapidly than US exports to Europe over the past few years. Shift in production from the US - a high-cost producer in the dollar zone - to China - a low-cost producer in the dollar zone - may be one reason why the US trade deficit has not responded more strongly to the dollar's recent depreciation.

> EU- 25 imports from China and the US (Imports in euros billion; dollar/ euro is the annual average)


Chinese export growth to the US has also been strong, even though the RMB has been broadly stable against the dollar. Yet productivity differentials suggest China’s bilateral real exchange rate with the US should rise over time. That has not happened. Chinese inflation has not been consistently higher than US inflation. Indeed, Chinese inflation rates currently are lower than US inflation rates. In real terms, even with the recent nominal appreciation, China's real bilateral exchange rate with the US has been roughly constant since 2002.

Economists often look at a country's basic balance - the sum of its current account surplus and net inflows of FDI - to help assess whether a currency is undervalued or overvalued. The World Bank's most recent forecasts imply that China’s basic balance will have a surplus of around $10 \%$ of its GDP in 2006 - up a bit from 2005. Such a large surplus in the basic balance suggests that the RMB is substantially undervalued. Over time, it likely will need to appreciate at least as much against the dollar as the euro has from 2002 to 2006 (around 30\%). Indeed, stronger productivity growth in China than in Europe suggests that China’s currency needs to appreciate even more. Fred Bergsten’s colleague Morris Goldstein believes that the RMB needs to appreciate, over time, by around $40 \%$ against the dollar.

An analysis that starts not from China’s surplus, but from the United States’ deficit suggests a similar conclusion. While China's basic balance shows a large surplus, the United States ran a deficit of around 8\% of GDP in its basic balance in the first quarter of 2006. ${ }^{3}$ The IMF recently estimated that the dollar would need to fall by an additional $15-35 \%$ on a broad trade weighted basis. The size of the dollar's move against the RMB is likely to be on the upper end of this distribution. The dollar has already fallen substantially against the currency of the slow-growing euro-area. But it has hardly moved against the currency of fast growing China.

Jeffrey Frankel of Harvard used another methodology to assess the RMB's undervaluation. The nominal exchange rates of poor countries typically are well below their purchasing power parity exchange rates. The gap between a country's nominal exchange rate and its purchasing power parity exchange rate typically shrinks as a country develops. However, the gap between China’s purchasing power parity exchange rate and its nominal exchange rate is exceptionally large even compared to other poor countries. In 2000, prices in China were $23 \%$ of the level of US prices; to be consistent with the norm for countries with a comparable stage of development, they should have been closer to $36 \%$ of the level of US prices. The gap between China's actual prices and those predicted by Frankel is likely to be at least as large today.

Menzie Chinn, Yin-Wong Cheung and Eiji Fujii also looked at the relationship between a country's income levels and its real exchange rate. They note that a rise in per capita income (relative to the US) usually leads to a rise in a country's real exchange rate. However, China's real exchange rate is depreciating even as Chinese income rises. The RMB would need to appreciate by around $50 \%$ to be consistent with the average for

[^2]emerging economies with similar income levels. Their data is presented in the following graph, which shows that the RMB is weak relative to what is expected from crosscountry experience.


Chinn, Cheung and Fujii emphasize that China's exchange rate does not quite exceed one standard deviation from the mean, and thus it is not possible to use this methodology to definitely establish that China's exchange rate is outside the norm. But there is little doubt that China is on the outer edge of the distribution.

## Capital controls and the state of China's financial system

China both intervenes heavily in the foreign exchange market and maintains significant controls on cross-border capital movements. Those who argue that the RMB is not undervalued frequently emphasize that China's capital controls lock Chinese savings up in the Chinese financial system. They argue that if China loosened its capital controls, a substantial share of China's savings would likely flee to the safety of offshore international banks. If such capital flight was large enough, it could drive the RMB down even if China’s central bank stopped its intervention.

Trying to assess what the true value of the RMB would be in the absence of capital controls is a somewhat academic exercise, since China has no intention of fully dismantling its capital controls in the near-term. But China's capital controls clearly complicate any analysis of China's exchange rate.

However, the available evidence underscores two points. First, the scale of capital outflows needed to offset pressures for RMB appreciation from a rising current account surplus and ongoing FDI inflows is now enormous. Second, right now, Chinese households are not fleeing from China's banking system or trying to shift their assets
from RMB to dollars. Rather, they are converting their existing offshore assets into RMB to bet on the RMB, and to bet on China's economy.

The scale of outflows from China's banking system required to offset China's surplus in its basic balance of payments is now truly enormous. China's basic balance likely will show a $\$ 280 \mathrm{~b}$ surplus in 2006 (a $\$ 220$ b current account surplus and a $\$ 60 \mathrm{~b}$ surplus from net FDI inflows). For the RMB to remain unchanged if the central bank stopped intervening, China would need to experience a net capital outflow of around \$280b, or between 10 and $11 \%$ of its GDP.

Such a capital outflow would be comparable in scale to that experienced by Argentina at the peak of its 2000 crisis. That outflow would need to be sustained over time to keep the RMB from appreciating since China is now on track to run a current account surplus of around $\$ 200$ billion a year. Indeed, at current exchange rates, that surplus could grow.

Moreover, despite the well-known weaknesses in China's banking system and domestic Chinese interest rates that are below US interest rates, right now, far more money is trying to get into China than to get out of China. By my estimates, China is on track to attract $\$ 50 \mathrm{~b}$ in hot money inflows this year. ${ }^{4}$ These inflows have come in the face of efforts to tighten controls on capital inflows while loosening controls on outflows.

China's banks are certainly not in great shape. Their NPLs are probably higher than reported. But China has made a significant effort to remove the non-performing loans from China's last lending boom off the balance sheet of three of its four large state commercial banks. These NPLs have generally been shifted to China's assetmanagement companies. These asset-management companies likely will require a bailout from China's taxpayers, but the shift nonetheless has improved the quality of the banking system. As a result, the main state commercial banks have attracted investment from the world's large commercial banks.

Increasingly, the biggest risk is facing the banking system comes not from the bad loans that they made in the past but from the possibility that a significant share of the loans that China's banks have extended in the post-2002 investment boom could go bad when China's economy eventually slows. However, an increase in NPLs is not necessarily a reason for Chinese households to flee the Chinese banking system. Even if a large share of new loans go bad, China's banks are still likely to end up in better shape than they were after the lending boom of the early 1990s. Moreover, Chinese depositors did not take losses even during the banking system's darkest days - the state made sure that the state banks honored all their contractual commitments. So long as the government of China stands behind the banking system, Chinese tax payers have far more reason to worry about bad loans than Chinese depositors.

[^3]Finally, a loosening of capital controls - particularly if combined with other reforms would likely generate new capital inflows as well as new capital outflows. Chinese households clearly have a disproportionate share of their savings not just inside China but in Chinese banks. At the same time, the rest of the world is also "underweight" in Chinese assets. Consequently, a loosening of capital controls likely would generate capital flows in both directions. Chinese savers would want to increase their holdings of non-Chinese assets and non-Chinese investors would want to increase their exposure to one of the world's fastest growing economies. Capital-account liberalization consequently does not necessarily imply that the RMB would depreciate.

The consequences of China's reserve growth
From the middle of 2004 to the middle of 2006, China added nearly $\$ 500$ billion to its reserves. Roughly $1 / 2$ of that reserve increase came from China's current account surplus, and the other $1 / 2$ came from net capital inflows. In 2004, more came from capital inflows; in 2006, more came from the current account.

Reserves and Reserves/ GDP (1998-2006)


The dollars that China buys in the foreign exchange market are then deposited in the international banking system, used to buy US securities, used to buy dollar-denominated securities issued by countries other than the US or used to buy euros, pounds, yen and other reserve currencies. Tracking the flow of Chinese reserves into international
capital markets in real time is difficult ${ }^{5}$, but there is little doubt that the flow of Chinese reserves into US financial markets is significant.

The US conducts an annual survey of foreign holdings of US securities. The most recent survey indicates that China added $\$ 180$ b of US securities to its portfolio between the middle of 2004 and the middle of 2005. Such purchases imply that it has invested roughly $70 \%$ of its reserves (including reserves transferred to the state banks) in US securities.

The change in Chinese holdings in the annual Survey is far larger
than the sum of Chinese purchases in the monthly flow data


If Chinese purchases of US securities between the middle of 2005 and the middle of 2006 are comparable to its purchases between the middle of 2004 and the middle of 2005, China held roughly $\$ 700 \mathrm{~b}$ of US debt at the end of June. Unless something changes, China is on track to continue to add between $\$ 150 \mathrm{~b}$ and $\$ 200$ b to its portfolio of US securities every year.

[^4]
## Chinese Holdings of US Securities

Data from the Treasury's annual survey, with an estimated \$146b in additional purchases from June 2005 to June 2006


China is known to purchase a wide range of US assets; its portfolio includes substantial holdings of US agency bonds and US mortgage-backed securities as well as US treasuries. It is not an exaggeration to say that Chinese lending to US households through the mortgage market - has helped US consumers finance their purchases of Chinese goods.

Such inflows clearly tend to keep a range of US interest rates lower than they otherwise would be. However, assessing the magnitude of China’s impact on US financial markets is more difficult than assessing the direction of the impact. Indeed, assessing the impact of Chinese intervention is harder than assessing the impact of Japanese intervention. China's willingness to purchase a range of US debt securities means that its purchases influence a range of markets, not just the Treasury market. Plus, as noted earlier, the US "flow" data that is used for most statistical studies does not appear to be capturing all Chinese purchases of US debt, as there is a substantial gap between the sum of Chinese purchases in this data and the increase in Chinese holdings that is reported in the survey data. ${ }^{6}$ Francis and Veronica Warnock's analysis suggests that the 7\% of US GDP inflow from foreign investors - both public and private -- into US bonds of all kinds from May 2004 to May 2005 reduced US treasury benchmark yields by 150 bps. The Treasury survey suggests that China accounts for between a fifth and a quarter of foreign demand

[^5]for US bonds during roughly the same period, suggesting Chinese intervention has lowered US interest rates by between 30 and 40 bps.

This may underestimate the impact of Chinese intervention. In 2004, Frey and Moec (2005) of the Banque de France found that the approximately $\$ 300$ billion central bank purchases of Treasuries reduced Treasury yields by 115-125 bp in 2004. That was at a time when extensive Japanese intervention led more central bank purchases to be picked up in the US data. If Chinese purchases of a broad range of US securities have a similar impact, China’s $\$ 150 \mathrm{~b}$ (plus) in annual purchases might be lowering US bond yields by something like 60 bp .

Moreover, many market participants believe that China (and others) would step up their intervention and purchases of US debt should the dollar ever come under pressure. This expectation helps put a floor under the bond market. Reduced private demand for US debt from investors abroad would put downward pressure on the dollar - and downward pressure on the RMB. China would be required to intervene more, generating additional Chinese funds to purchase US debt. Other Asian economies also would likely intervene to avoid appreciating against the RMB, providing further support for the US bond market.

RMB appreciation is only one of many changes needed to rebalance global demand growth

RMB appreciation has an important role to play in global rebalancing. Work by Goldman Sachs indicates that a 1\% RMB appreciation (in broad trade weighted terms) would slow Chinese export growth by up to $1.5 \%$. Jaime Marquez and John Schindler of the Federal Reserve Board estimate that a ten-percent real appreciation of the renminbi would reduce China's share of world exports by a half of a percentage point.

RMB appreciation is unlikely to lead to an immediate reduction in the US bilateral trade deficit with China. A small increase in the RMB - or a series of small increases over time - will not necessarily cause TV and computer assembly to shift out of China. It will increase the price the US pays for Chinese assembly of goods produced in the US. That could increase the US bilateral deficit with China in the short-term.

However, over time, RMB appreciation will have an impact on both China’s bilateral surplus with the US and its global surplus. RMB appreciation could, for example, lead textile production to shift to poorer Asian economies (Vietnam, Bangladesh, Indonesia). It could reduce the incentive to shift the production of electronic components to China. Or it could slow the shift in auto part assembly (and perhaps automobile assembly) toward China. RMB appreciation will also increase China's capacity to purchase goods from the world.

That said, there is little doubt that China's growing dependence on exports and the United States dependence on Chinese savings argue for a sustained period of relatively gradual adjustment rather than a sudden move. China's current strong growth provides more
scope for aggressive moves in the very short-term, as does the renminbi's recent depreciation against the Euro. But it would not be in either China or the world's interest for China to immediately allow its currency to appreciate to its likely equilibrium level too rapidly.

The Chinese authorities have made it quite clear that they will not allow such a rapid appreciation. What matters is establishing a clear expectation that the RMB will be allowed to appreciate over time. Such an expectation will shape decisions about investing in future Chinese export capacity - and force China to rebalance the basis of its own growth away from exports.

RMB appreciation is only one of many policy changes needed to increase China's contribution to global demand growth. Chinese savings are now exceptionally high relative to Chinese GDP, and consumption is correspondingly low as a share of Chinese GDP. Chinese household savings are higher than US households though not higher than Indian household savings. Recent work by Louis Kuijs of the World Bank’s Beijing office has demonstrated that the recent increase in overall Chinese savings has not come from a rise in the household savings rate, but rather from a surge in business and government savings. Labor's share of China's GDP is actually falling, so a constant household's savings rate implies household's contribution to national savings is falling.

Rebalancing Chinese - and global growth - requires that consumption take over from exports and investment as the driver of Chinese growth. A range of policy changes in China could help raise consumption as a share of GDP. They include:

- The development of a stronger system of social insurance inside China, which might lower household precautionary savings.
- A shift in government expenditure from investment projects toward health and education. This would help to lower government savings even as the provision of social services could contribute to lower household savings.
- More distribution of the profits of China’s state firms. Many Chinese state firms are no longer unprofitable. But they don't pay dividends either, whether to the Chinese state or to shareholders. Rather, they plough their ongoing profits into new ventures. Distribution of their profits would reduce investment, and provide an additional source of income to finance additional consumption.
- Financial sector reform, including additional efforts to remove the remaining NPLs (legacy) from the balance sheet of state banks, cleaning up the AMCs and additional steps to encourage consumer lending. Such steps would give the central bank greater leeway to use interest rates as a tool of macroeconomic control.

All these policy steps would help to shift the basis of China's growth away from exports and investment toward consumption. All also will take time to put into place.

## Conclusion

China has an important role to play in rebalancing global growth. A fall in the US current account deficit likely implies that the current account surpluses of countries with large surpluses will need to fall. Yet China’s 2006 current account surplus is only about $1 / 4$ the size of the US deficit. Other surplus countries also will need to play a role in global adjustment.

Nor is China the only country with a large current account surplus that effectively pegs to the dollar. Many of the world's largest oil exporters have a similar policy. While their pegs do not increase the competitiveness of their main export, the reduced external purchasing of the currencies of many oil states is one reason why a large share of the windfall from the recent surge in the oil prices has been saved rather than spent. ${ }^{7}$ The oilstates also have a role to play in global rebalancing. They currently have a larger current account surplus than China.

Finally, the United States’ own policies have contributed to its large current account deficit. Policy decisions here in the US created a structural gap between government revenues and government expenditures, contributing to extremely low levels of national savings. US energy policies - as Menzie Chinn emphasized in the Council on Foreign Relations Special Report on the twin deficits - have helped to sustain high levels of oil demand and thus contributed to the oil states’ surplus. Tax-incentives that favor borrowing to finance residential housing have combined with low long-term interest rates (relative to the 80s and 90s) to prompt the recent surge in investment in residential real estate.

Markets will eventually demand that the US reduce its trade deficit, no matter what policies the US and its creditors adopt. No country can maintain a large and growing trade deficit, which implies both a growing current account deficit and a growing external debt to GDP ratio, forever. The process that brings about the fall in the deficit is likely to be far less disruptive if it is supported by policy changes both here in the US and abroad. The US needs to adopt policies that would increase our national savings rate. Our trading partners need to adopt policies that support global demand growth as the US contribution to global demand growth wanes. Global adjustment will certainly be far easier if those countries with the largest current account surpluses - whether manufacturing exporters like China or oil exporters in the Gulf - do not closely tie their currencies to the currency of the world's largest deficit country.

[^6]China's surplus is growing along with the Oil Surplus
Current account surplus, in \$ billion WEO data, 2006 forecast updated to reflect h1 data


US deficit balances surpluses in Asia (China, Japan, NICs) and the oil exporters
(2006 estimates)


Exchange Rates (July 18, 2005 - August 16, 2006)



[^0]:    ${ }^{1}$ I want to thank Casson Rosenblatt for her help preparing many of the graphs in this paper and Casson Rosenblatt, Menzie Chinn, Bert Hofman and Nouriel Roubini for helpful comments on an earlier draft. All errors are, of course, my own responsibility.

[^1]:    ${ }^{2}$ According to the most recent survey of foreign holdings of US debt and US equities, China held \$527 billion in US debt in the middle of 2005. The US flow data indicates that it has subsequently added $\$ 101 \mathrm{~b}$ or so to its debt, bringing total Chinese holdings up to around $\$ 628 \mathrm{~b}$. However, the flow data has tended to understate Chinese purchases. From June 2004 to June 2005, the flow data indicated that China bought around $\$ 95 \mathrm{~b}$ of US debt. The Survey data implied that China bought $\$ 185 \mathrm{~b}$ over the same time frame.

[^2]:    ${ }^{3}$ The deficit in the basic balance was a bit smaller in 2005 as the Homeland Investment Act generated net inflows of foreign direct investment

[^3]:    ${ }^{4}$ Most Chinese domestic deposits are in RMB. However, a small fraction of total deposits have traditionally been held in dollars. However, in recent years, household dollar deposits have been falling as a share of dollar deposits - as those Chinese legally able to hold dollars rather than RMB have opted to shift into RMB.

[^4]:    ${ }^{5}$ China does not report data on the currency composition of its reserves. Moreover, the monthly TIC data seems to capture a smaller share of Chinese purchases than of Japanese purchases. There was a $\$ 90 \mathrm{~b}$ gap between the cumulative Chinese purchases in the TIC data between June 2004 and June 2005 (\$97b) and the increase in Chinese holdings reported in the annual "survey" of foreign holdings of US securities (\$186b). The TIC data and the survey data are collected in different ways. The TIC data records the sale of US assets to foreigners by US residents; the survey is based of a survey of the portfolios of major investors in the US. Recorded Chinese purchases in the TIC data have typically accounted for between 30$40 \%$ of China's monthly reserve growth in 2004 and 2005, a level that it is too small to be credible for a country that is pegging to the dollar. A slightly higher fraction of Chinese reserve growth is appearing in the 2006 TIC data.

[^5]:    ${ }^{6}$ The US data does not capture purchases of US debt done by private custodians on behalf of central banks - and such indirect purchases seem to have been growing. This is a larger problem for inflows from the oil states in the Gulf than for China, but recorded inflows from China in the TIC data have been on the low side as well.

[^6]:    ${ }^{7}$ The oil states have also run large fiscal surpluses. The surge in government revenues from oil-related royalties and the profits of their national oil companies have often been sequestered in government accounts abroad rather than injected into the domestic economy.

