

Why China Should Keep its Exchange Rate Pegged to the Dollar: A Historical Perspective from Japan

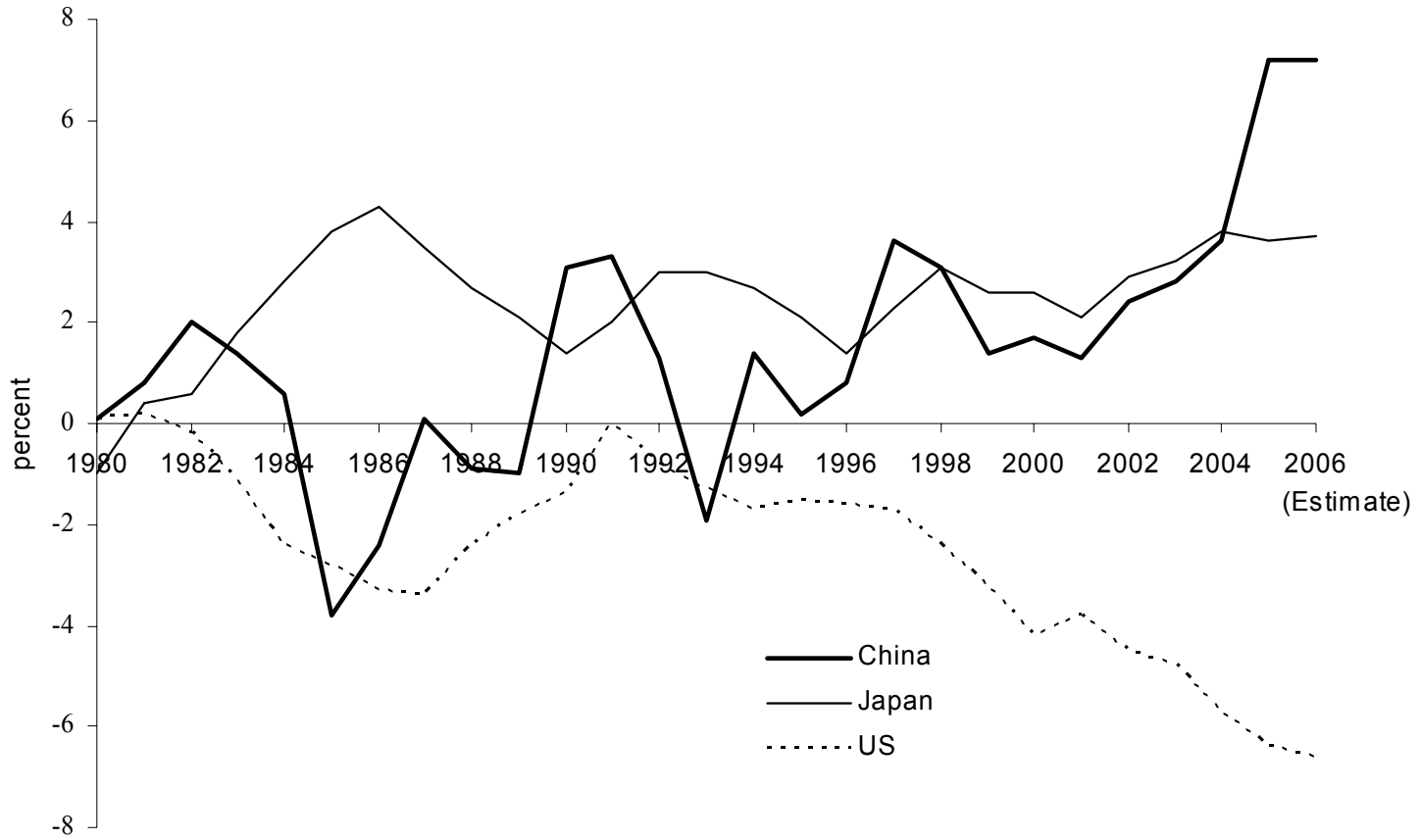
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March 1, 2007
ADB Institute, Tokyo

Thesis

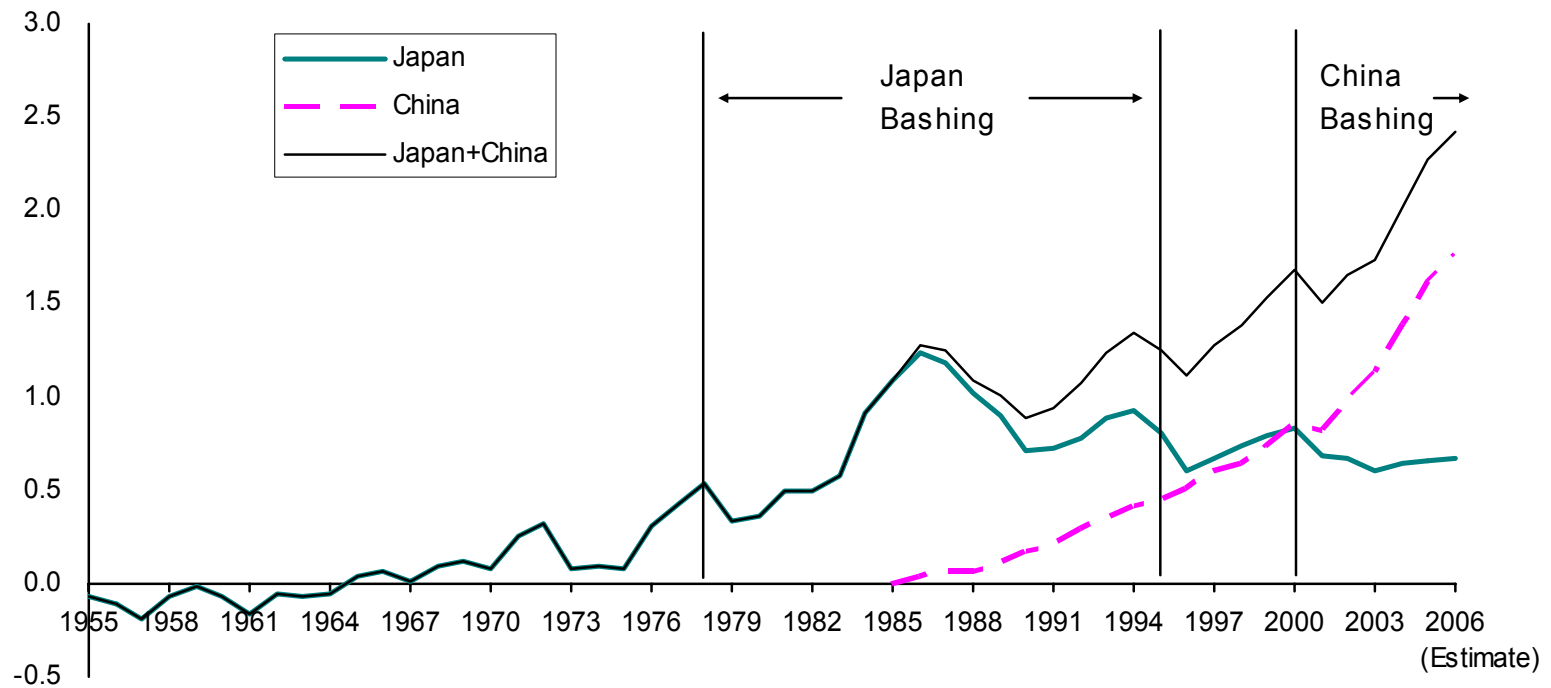
- For creditor countries on the periphery of the dollar standard such as China with current account surpluses, foreign mercantile pressure to appreciate their currencies or move toward more flexible exchange rates is misplaced.
- As with Japan's earlier experience, exchange rate appreciation, or the threat of it, causes macroeconomic distress without having any predictable effect on the trade surpluses of creditor economies.

Figure 1: Current Accounts of China, Japan, and U.S., 1980 – 2006 (percent of GDP)



Source: IMF

Figure 2: Bilateral Trade Surpluses of Japan and China with the U.S., 1955-2006 (percent of U.S. GDP)



Source: Kenichi Ohno, BEA

U.S Mercantile Pressure, I.

- Acute Japan Bashing, 1978 to 1995
 - Episodic trade disputes steel, autos, color televisions, machine tools, semi conductors
 - Resolution: Japan imposes “voluntary” export restraints and allows yen appreciation
 - Yen/dollar rate appreciates episodically from 360 in August 1971 to peak at 80 in April 1995, when U.S. announced a strong dollar policy
- Japan financial system destabilized: bubble economy 1987-90 followed by a deflationary slump and low interest liquidity trap in 1990s (McKinnon-Ohno, 1997)

U.S. Mercantile Pressure, II.

- China Bashing: 2000 to ?
 - China surpasses Japan in 2000 as having the biggest bilateral trade surplus with the U.S
 - Unlike Japan, export surge is “across the board” in low value added manufactures.
- Focus is primarily on appreciating the Renminbi:
 - Schumer-Graham bill of March 2005 for a 27.5% tariff on U.S. imports from China unless RMB appreciates (withdrawn October 2006 but future threat)
 - Section 3004 of U.S. Public Law 100-418: U.S. Secretary of Treasury must report twice a year on whether countries with trade surpluses are “manipulating” their currencies
- RMB rises by 2.1% on July 21 2005, and begins slow upward crawl

The Exchange Rate and the Trade Balance

- Political populism in the United States
- The elasticities approach to the exchange rate: emphasizes changes in “real” relative prices from appreciating the renminbi
- But short and medium run spending offsets to a discrete appreciation by a creditor country
 - Contraction in tradables sector—particularly in agriculture
 - Fall in Investment
 - Negative wealth effect for holders of dollar assets.
- Long run internal deflation tends to restore initial real exchange rate: appreciation washes out

A Creditor Country's Appreciation against the Dollar: Ambiguous Effect on the Trade Balance

	Wealth Effect	Investment Effect	Domestic Absorption	Import	Export	Trade Balance
Creditor	↓	↓	↓	↓	↓	?
US	-	↑	↑	↑	↑	?
RoW						?

Conflicted virtue (McKinnon 2005)

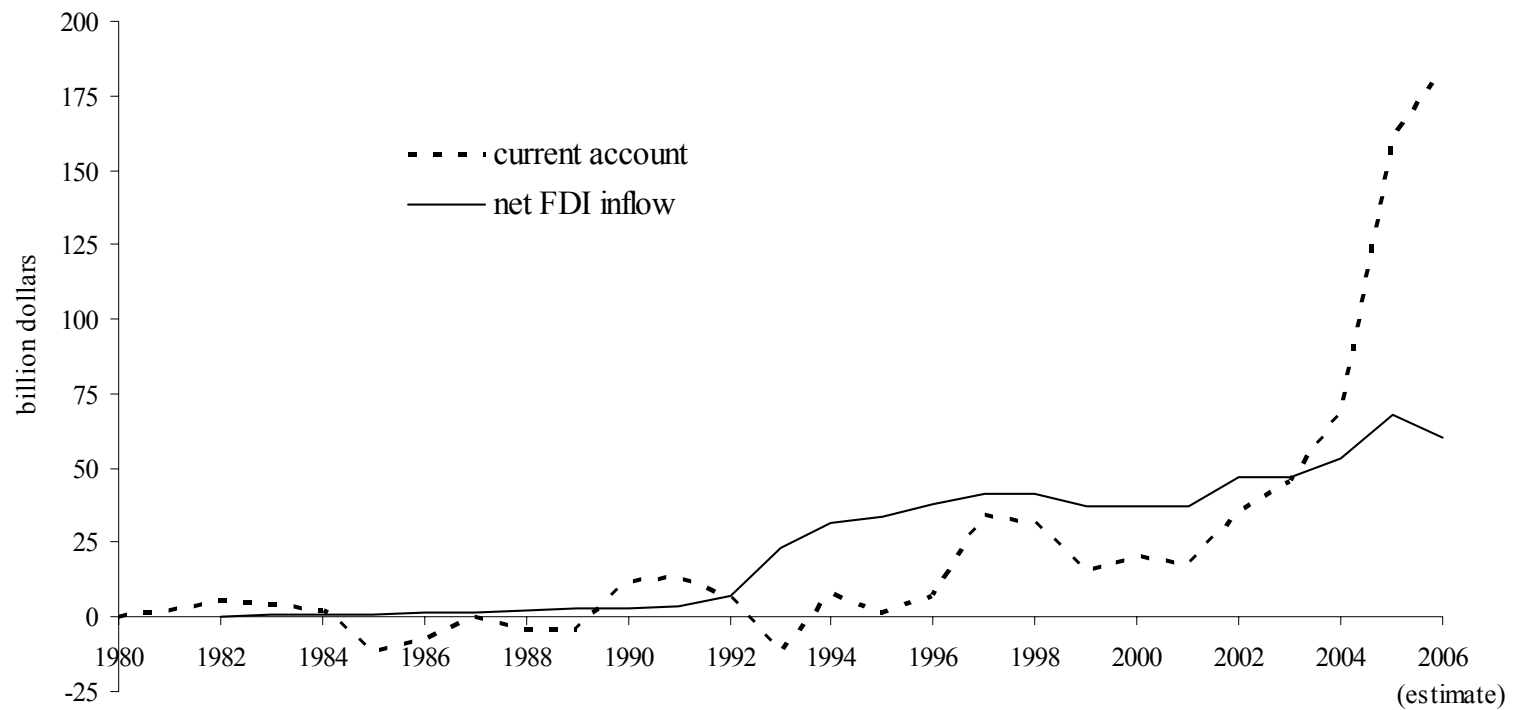
- High-saving countries transfer their surpluses to foreigners by running current account surpluses. However, in Asia, they don't lend much in their own currencies but rather build up their stocks of dollar claims.
- As these claims accumulate, foreigners start complaining that the country's ongoing flow of trade surpluses is unfair and the result of having an undervalued currency.
- Private domestic holders of dollar assets worry more about a self-sustaining run into the domestic currency forcing an appreciation and dishoard.
- Official exchange reserves increase rapidly as the private sector retreats from international financial intermediation

Conflicted virtue: To appreciate or not to appreciate



- As runs into the domestic currency out of dollars begin, the government is “conflicted” because (repetitive) appreciation could set in train serious deflation ending with a zero interest liquidity trap (Japan)
- But failure to appreciate could elicit trade sanctions from foreigners.
- A “free” float becomes an indefinite upward spiral with no reduction in trade surplus

China's Current Account and Net FDI Inflows 1980-2006



Source: IMF, EIU. Net FDI Inflows = Gross FDI Inflows – Gross FDI Outflows

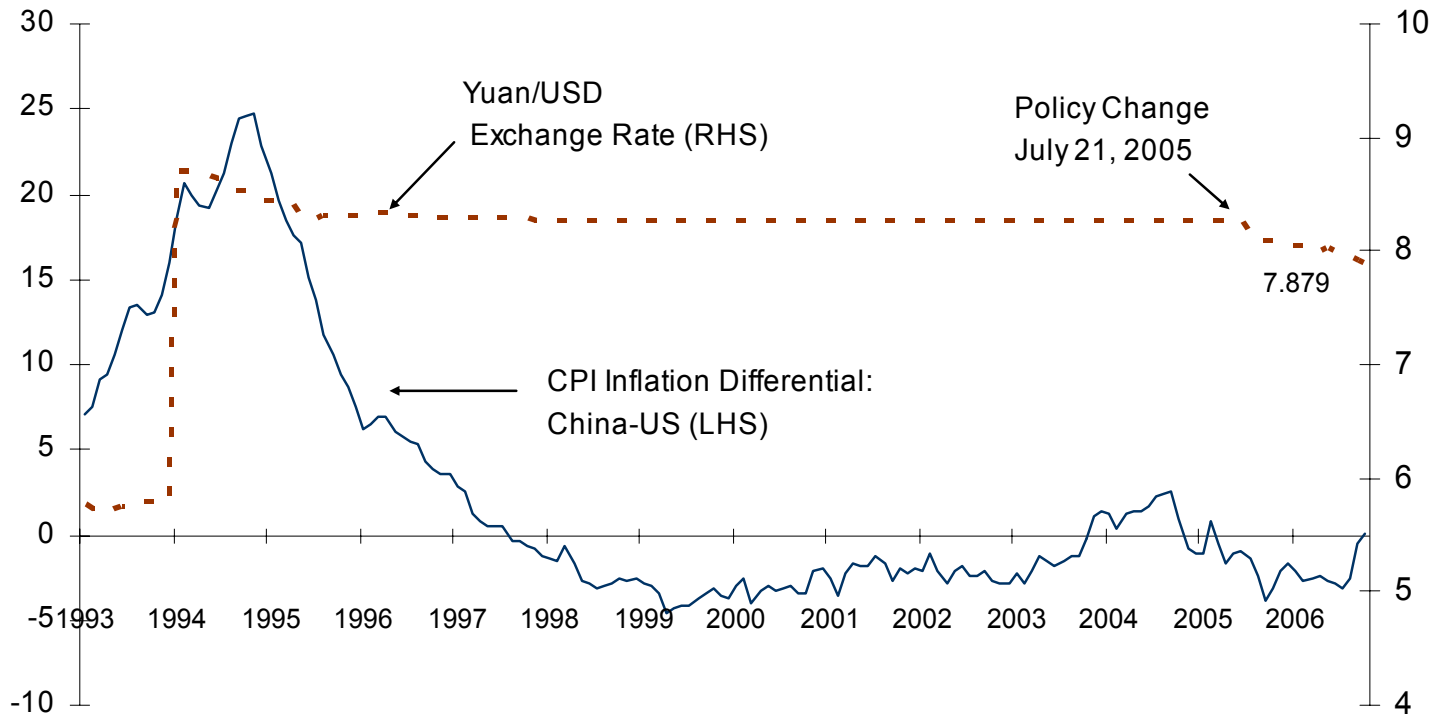
China's Exchange Rate as an Instrument of Monetary Policy

- Jettison the idea of manipulating the real exchange rate to control the trade balance
- Jettison the idea that a free float is possible in the face of a large dollar overhang

The Monetary Approach

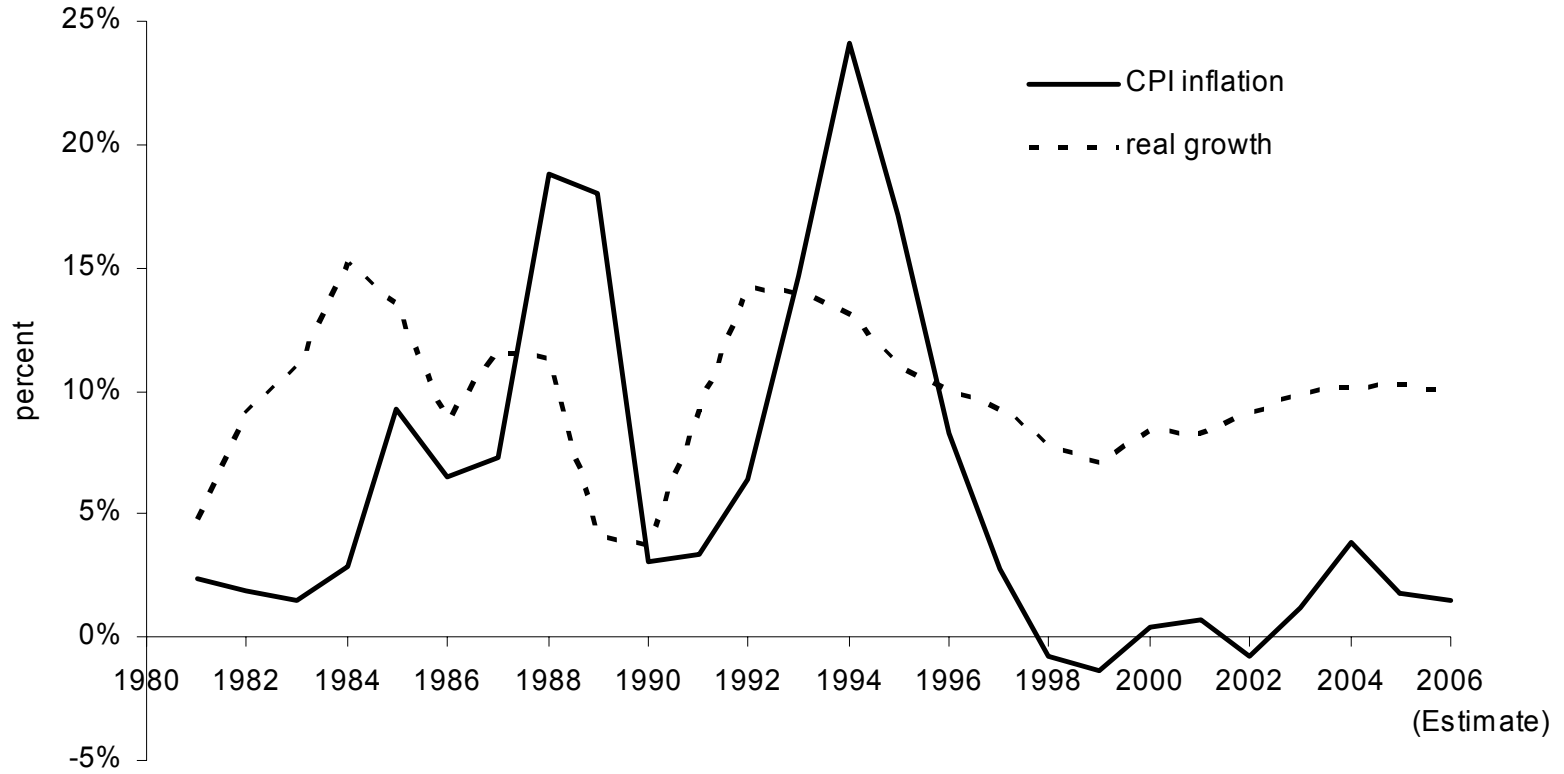
- A controlled nominal exchange rate can still be a useful anchor for monetary policy when domestic capital markets are under developed

Figure 3: Yuan/Dollar Exchange Rate and CPI inflation Differential, 1993-2006



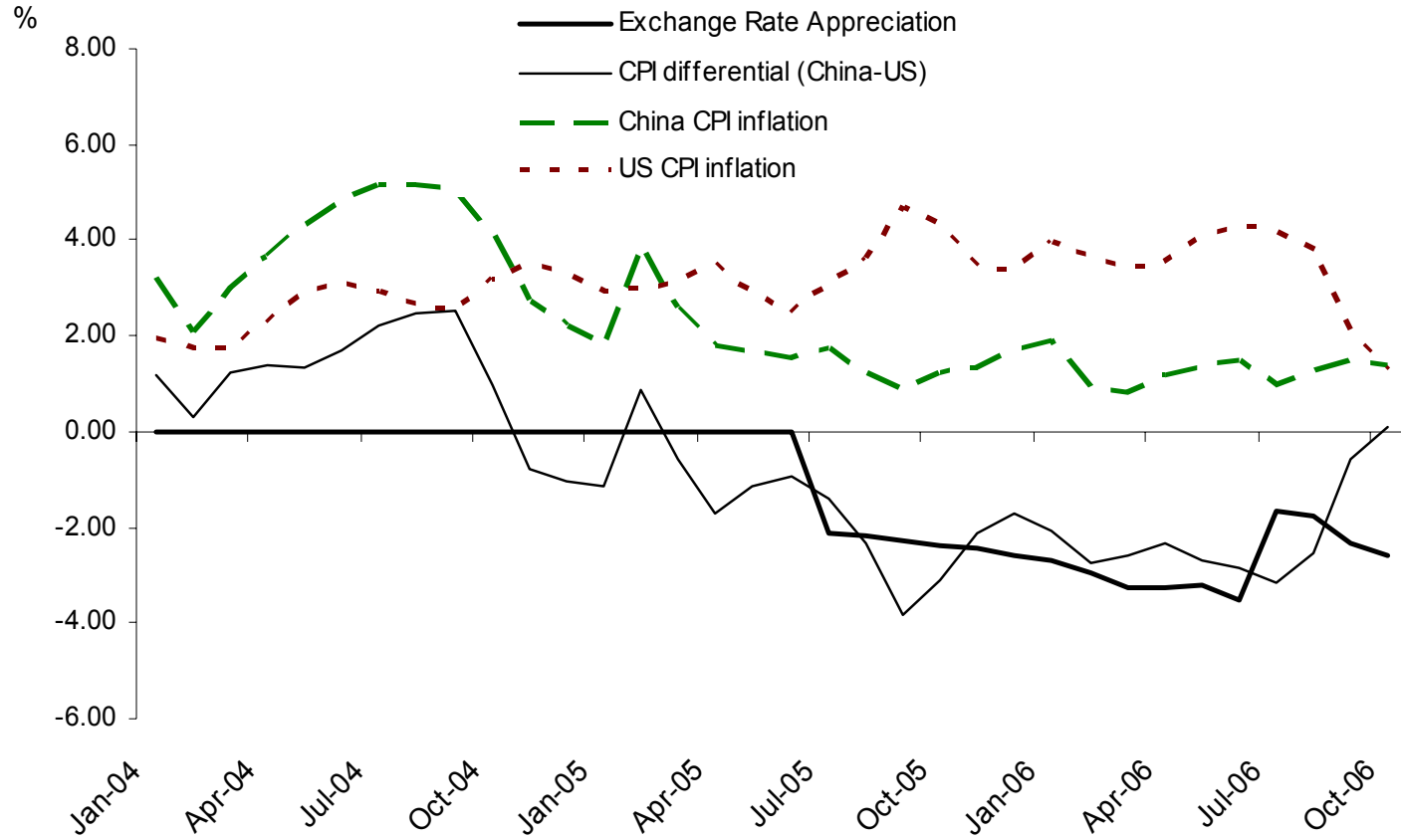
Source: EIU

Figure 4: Real Growth and Inflation in China, 1980-2006



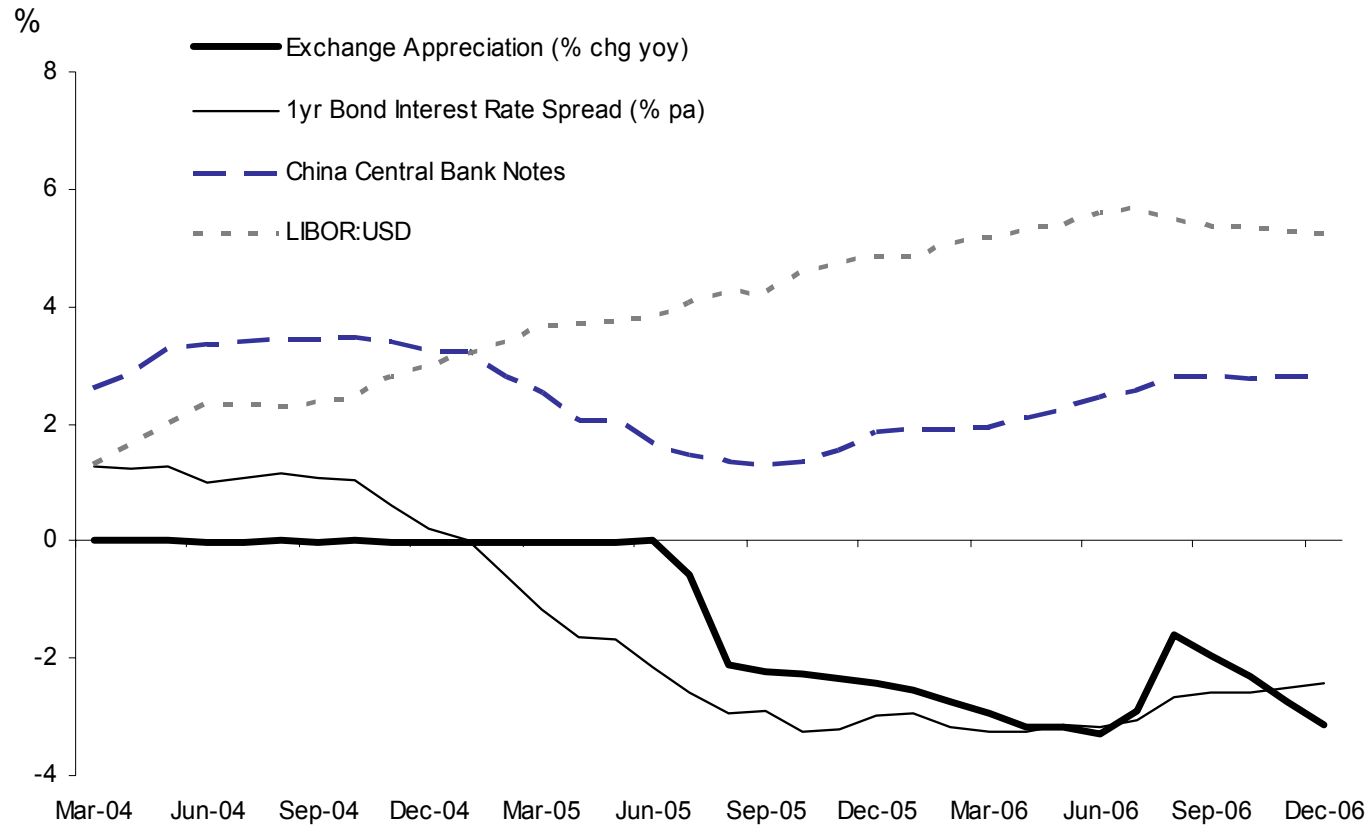
Source: IMF

Figure 5: Inflation of China and the United States, and Yuan/Dollar Exchange Appreciation, 2004-06



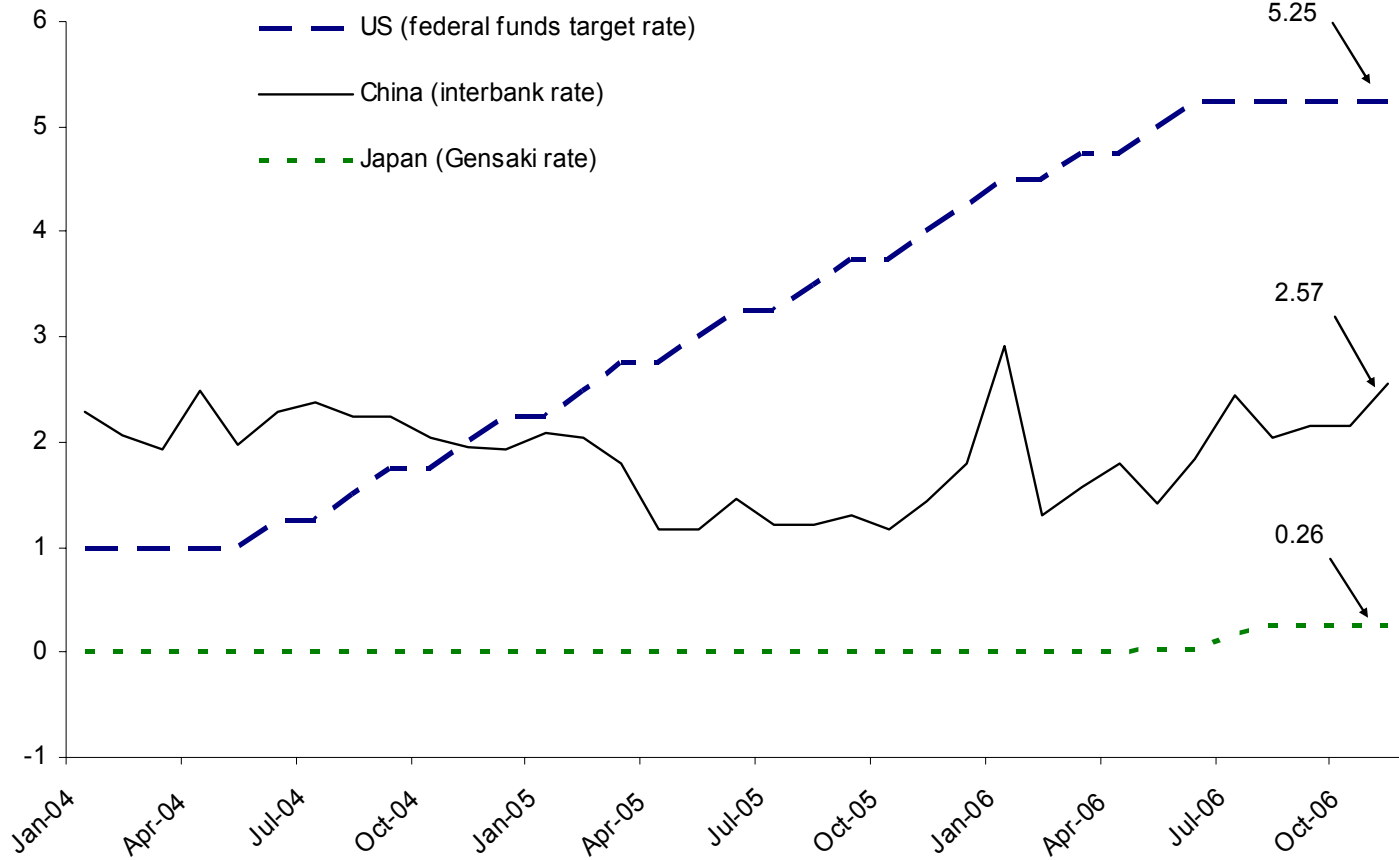
Source: EIU

Figure 6: Interest Rates of China and the U.S., and Yuan/Dollar Exchange Appreciation, 2004-06



Source: CEIC

Figure 7: Overnight Interest Rates in the U.S., China and Japan, 1990-2006



Source: Bloomberg

Interest Rates and International Arbitrage

Portfolio equilibrium without capital controls

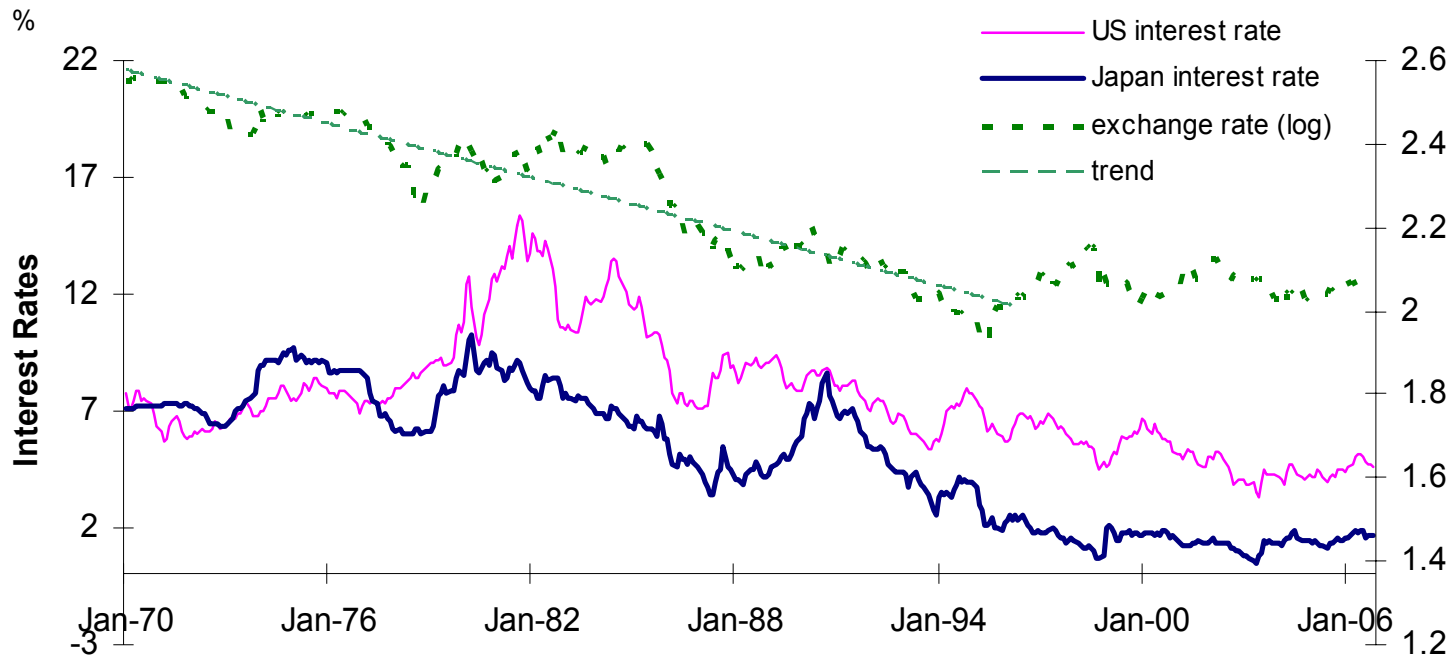
The interest differential at every term to maturity is determined by

$$i = i^* + E(\hat{e}) + \varphi$$

where i is the (endogenously determined) Chinese nominal interest rate, and i^* is the (exogenously given) U.S. nominal interest rate, and E the expectations operator. \hat{e} corresponds to the nominal percentage change of the yuan/dollar exchange rate. Thus, if the renminbi is expected to appreciate, $E(\hat{e}) < 0$, as with the familiar principle of open interest parity.

The risk premium in Chinese interest rates is denoted by φ . Insofar as China's private sector holds dollar assets net, and the yuan/dollar rate fluctuates around its mean expected value, then $\varphi < 0$, the risk premium is *negative* (Goyal and McKinnon 2003)

Figure 8: The Yen/Dollar Exchange Rate and Long-Term Interest Rates in the United States and Japan, 1990-2006. (10-year bonds)



Source: IMF

Interest Rates and International Arbitrage

Portfolio equilibrium without capital controls

The interest differential at every term to maturity is determined by

$$i = i^* + E(\hat{e}) + \varphi$$

where i is the (endogenously determined) Japanese nominal interest rate, and i^* is the (exogenously given) U.S. nominal interest rate, and E the expectations operator. \hat{e} corresponds to the nominal percentage change of the yen/dollar exchange rate. Thus, if the yen is expected to appreciate, $E(\hat{e}) < 0$, as with the familiar principle of open interest parity.

The risk premium in Japanese interest rates is denoted by φ . Insofar as Japan's private sector holds dollar assets net, and the yen/dollar rate fluctuates around its mean expected value, then $\varphi < 0$, the risk premium is *negative*—the more so in Japan rather than China.

Table 1: Estimates of Chinese Net Liquid International Assets, 1990-2005 (\$ U.S. billion)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Official Foreign Exchange Reserves	Net Foreign Assets of Banking Institutions	Cumulative Unrecorded Capital Outflows	Total Liquid Foreign Assets	Non-state Sector NFA as % of Total	Cumulative Current Account Surplus	Cumulative Net Inward FDI to China	Indirect Estimate of Liquid Foreign Assets
				(1)+(2)+(3)	[(2)+(3)]/(4)			(6)+(7)
1990	28.6	5.1	3.1	36.8	22.3%	12.0	2.7	14.7
1991	42.7	1.1	9.9	53.6	20.5%	25.3	6.1	31.4
1992	19.4	6.4	18.1	44.0	55.7%	31.7	13.3	44.9
1993	21.2	11.7	27.9	60.8	65.1%	19.8	36.4	56.2
1994	51.6	7.1	37.7	96.5	46.4%	27.4	68.2	95.6
1995	73.6	-3.4	55.6	125.7	41.5%	29.0	102.0	131.1
1996	105.0	-4.3	71.1	171.8	38.9%	36.3	140.1	176.4
1997	139.9	5.2	102.4	247.5	43.5%	70.7	181.8	252.5
1998	145.0	17.9	121.3	284.1	49.0%	102.7	222.9	325.2
1999	154.7	31.0	136.3	322.0	52.0%	118.3	259.9	378.1
2000	165.6	59.6	148.2	373.4	55.7%	138.8	297.3	436.1
2001	212.2	85.5	153.0	450.6	52.9%	156.2	334.7	490.9
2002	286.4	107.8	145.2	539.5	46.9%	191.6	381.5	573.1
2003	403.3	85.4	126.8	615.5	34.5%	237.5	428.7	666.2
2004	609.9	108.1	102.1	820.2	25.6%	307.5	484.3	792.0
2005	818.9	157.5	100.9	1077.2	24.0%	421.5	536.8	958.4

Source: International Financial Statistics
All values in billions of USD

Memo: Official Foreign Exchange Reserves reported to be 1009.6 billion USD as of October, 2006

Table 2: Estimates of Japanese Net Liquid International Assets, 1980-2005 (\$U.S. billion)

	Cumulative Current Account Surplus	Cumulative Net Outward FDI	Estimate of Liquid Foreign Assets	Official Foreign Exchange Reserves	Net Foreign Assets of Banking Institutions	Estimate of Non- Bank Private Foreign Assets	Private Sector NFA as % of Total
			(1)+(2)			(3)-(4)-(5)	[(3)-(4)]/(3)
1980	-10.8	-2.1	-12.9	21.6	-35.0	0.6	NM
1981	-6.0	-6.8	-12.8	24.7	-37.7	0.1	NM
1982	0.9	-10.9	-10.1	19.2	-36.5	7.2	NM
1983	21.7	-14.1	7.6	20.4	-35.1	22.3	NM
1984	56.7	-20.1	36.6	22.3	-51.1	65.4	39%
1985	107.8	-25.9	81.9	22.3	-65.2	124.8	73%
1986	193.7	-40.4	153.3	37.7	-139.9	255.5	75%
1987	278.0	-59.5	218.5	75.7	-219.1	362.0	65%
1988	357.3	-95.5	261.8	90.5	-260.5	431.8	65%
1989	420.5	-142.5	278.0	78.0	-251.4	451.4	72%
1990	464.6	-191.3	273.3	69.5	-263.5	467.3	75%
1991	532.8	-221.6	311.2	61.8	-163.0	412.5	80%
1992	645.3	-236.2	409.1	61.9	-87.0	434.3	85%
1993	777.0	-249.9	527.0	88.7	225.2	213.1	83%
1994	907.2	-267.1	640.1	115.1	267.2	257.8	82%
1995	1018.3	-289.6	728.7	172.4	366.5	189.7	76%
1996	1084.1	-312.8	771.3	207.3	224.7	339.2	73%
1997	1180.9	-335.7	845.2	207.9	301.5	335.9	75%
1998	1299.6	-357.0	942.6	203.2	220.7	518.7	78%
1999	1414.2	-367.0	1047.2	277.7	203.7	565.8	73%
2000	1533.9	-390.3	1143.6	347.2	219.1	577.3	70%
2001	1621.7	-422.6	1199.1	387.7	202.9	608.5	68%
2002	1734.1	-445.5	1288.6	451.5	187.5	649.7	65%
2003	1890.4	-468.1	1422.4	652.8	184.3	585.3	54%
2004	2062.5	-491.2	1571.3	824.3	219.0	528.0	48%
2005	2226.2	-516.2	1710.0	828.8	372.7	508.5	52%

Source: International Financial Statistics, Amar Nair (2006) Memo: Official Foreign Exchange Reserves are \$876.3 billion as of November, 2006

Inflation and Wage Growth under a Fixed Exchange Rate: The Scandinavian Model (SM)

Assumptions of SM Model:

- Relative purchasing power parity: Inflation in the tradable manufacturing sector converges to world inflation when the dollar exchange rate is fixed.
- Higher productivity growth in tradable manufacturers
- Employers, subject to the fixed exchange rate constraint, naturally bid up wages to fully reflect the higher productivity growth in manufacturing
- Labor “solidarity”: wage growth in nontradables, with lower productivity growth, follows wages in manufacturing

Result:

- International competitiveness between fast- and slow-growing economies is automatically balanced by differential growth in wages.
- The classic Balassa-Samuelson effect in domestic prices

SM Definitions

p_w = world market prices for tradables e = domestic currency/foreign currency

p = aggregate price level

p_T, p_N = domestic price level for tradables and nontradables, respectively

w_T, w_N = wage rate in the tradable and nontradable sector, respectively

q_T, q_N = labor productivity in the tradable and nontradable sector, respectively

SM Assumptions

$$\hat{p}_T = \hat{p}_w + \hat{e}$$

Relative PPP

$$\hat{w}_T = \hat{p}_T + \hat{q}_T$$

Wage bargaining in tradables:
constant factor shares

$$\hat{w}_N = \hat{w}_T$$

Labor solidarity

$$\begin{aligned}\hat{p}_N &= \hat{w}_N - \hat{q}_N \\ &= \hat{p}_w + \hat{e} + \hat{q}_T - \hat{q}_N\end{aligned}$$

Non tradables price based on
labor cost

$$\hat{p} = \alpha \cdot \hat{p}_T + (1 - \alpha) \cdot \hat{p}_N$$

General price index (CPI) with
constant weights

$$\hat{q}_T > \hat{q}_N$$

Higher productivity growth in
tradables

SM: General Supply-Side Inflation: (Balassa-Samuelson Effect)

$$\hat{p} = \left(\hat{p}_w + \hat{e} \right) + (1 - \alpha) \cdot \left(\hat{q}_T - \hat{q}_N \right)$$

Imported Inflation Exchange Rate Induced Inflation Structural Inflation

- No independent demand-side national monetary policy
- Tradable price increases are transmitted directly into domestic inflation through the foreign exchanges
- Additional general price inflation is proportional to the difference in productivity growth between the two sectors weighted by the importance of nontradables
- Even when exchange rates are fixed, inflation can differ across countries with different productivity growth.

**A1: Japan and the United States, 1950-1971, with the Yen
Fixed at 360 per dollar, (average percent changes)**

Wholesale prices		Money wages		Consumer prices		Industrial production	
U.S.	Japan	U.S.	Japan	U.S.	Japan	U.S.	Japan
1.63	0.69 ^a	4.52	10.00	2.53	5.01	4.40	14.56
Real GDP		Nominal GDP		Narrow money		Labor productivity	
U.S.	Japan	U.S.	Japan	U.S.	Japan	U.S.	Japan
3.84	9.45 ^a	6.79	14.52 ^a	3.94	16.10 ^b	2.55	8.92 ^c

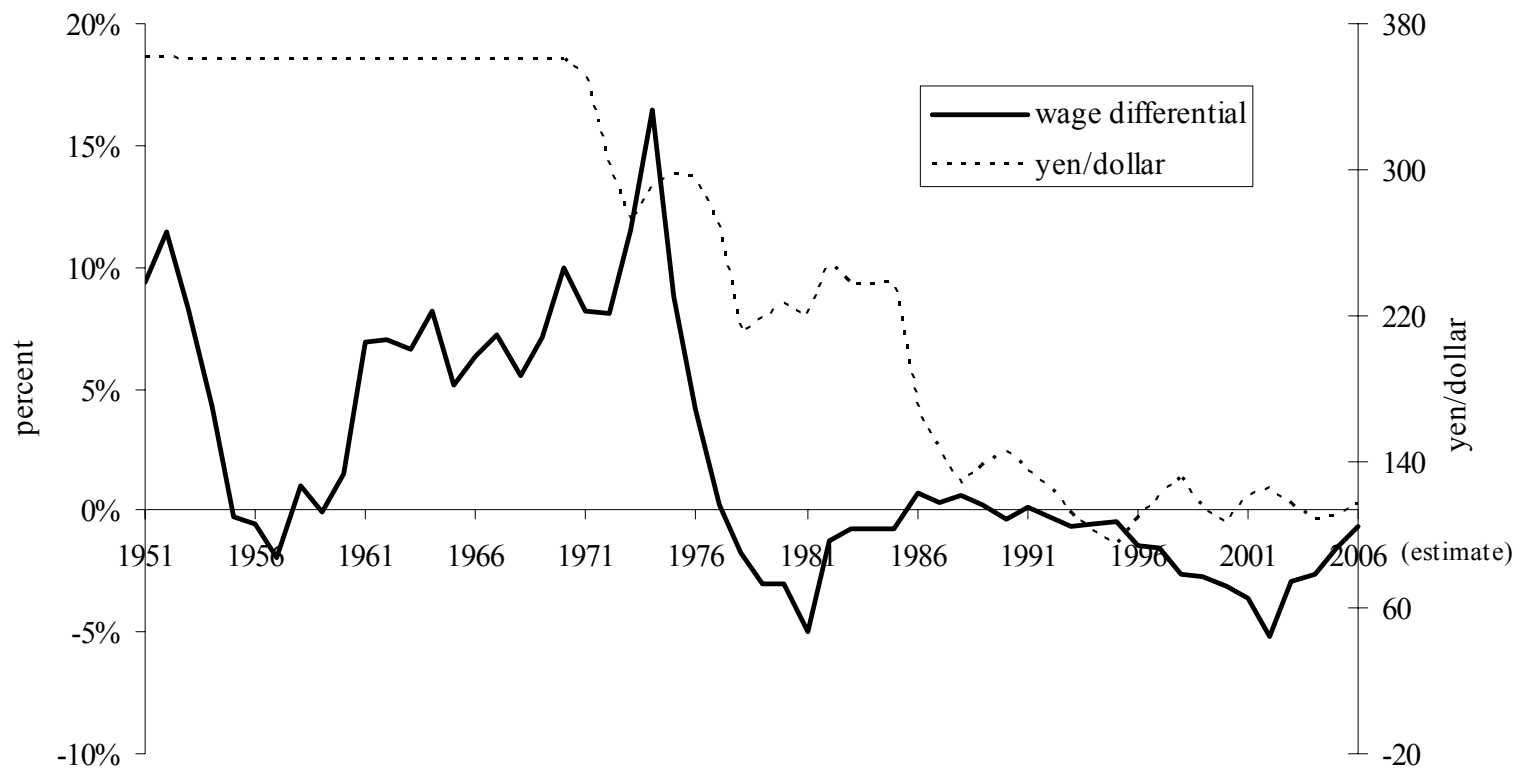
Source: IFS, Japan Economic Yearbook, Economic Survey of Japan, OECD Economic Surveys and Bureau of Labor Statistics.

a1952-1971.

b1953-1971.

c1951-1971.

The Yen/Dollar Exchange Rate and Differential Wage Growth between Japan and the U.S., 1951-2006



Source: IMF, EIU.

A2: China and the United States, 1994-2004, with the Renminbi fixed at 8.28 Yuan per dollar, 1994-2004, (average annual percent change)

Wholesale prices		Money wages (Mfg)		Consumer prices		Industrial production	
U.S.	China	U.S.	China	U.S.	China	U.S.	China
2.03	1.86 ^a	2.98	11.74	2.46	3.09	3.14	10.44 ^b 12.12 ^c
Real GDP		Nominal GDP		Narrow money		Labor productivity	
U.S.	China	U.S.	China	U.S.	China	U.S.	China
3.23	8.64	5.20	11.47	4.61	17.64	2.68	9.41 ^d

Source: IFS, China Statistical Yearbook, World Development Indicator Database and Bureau of Labor Statistics.

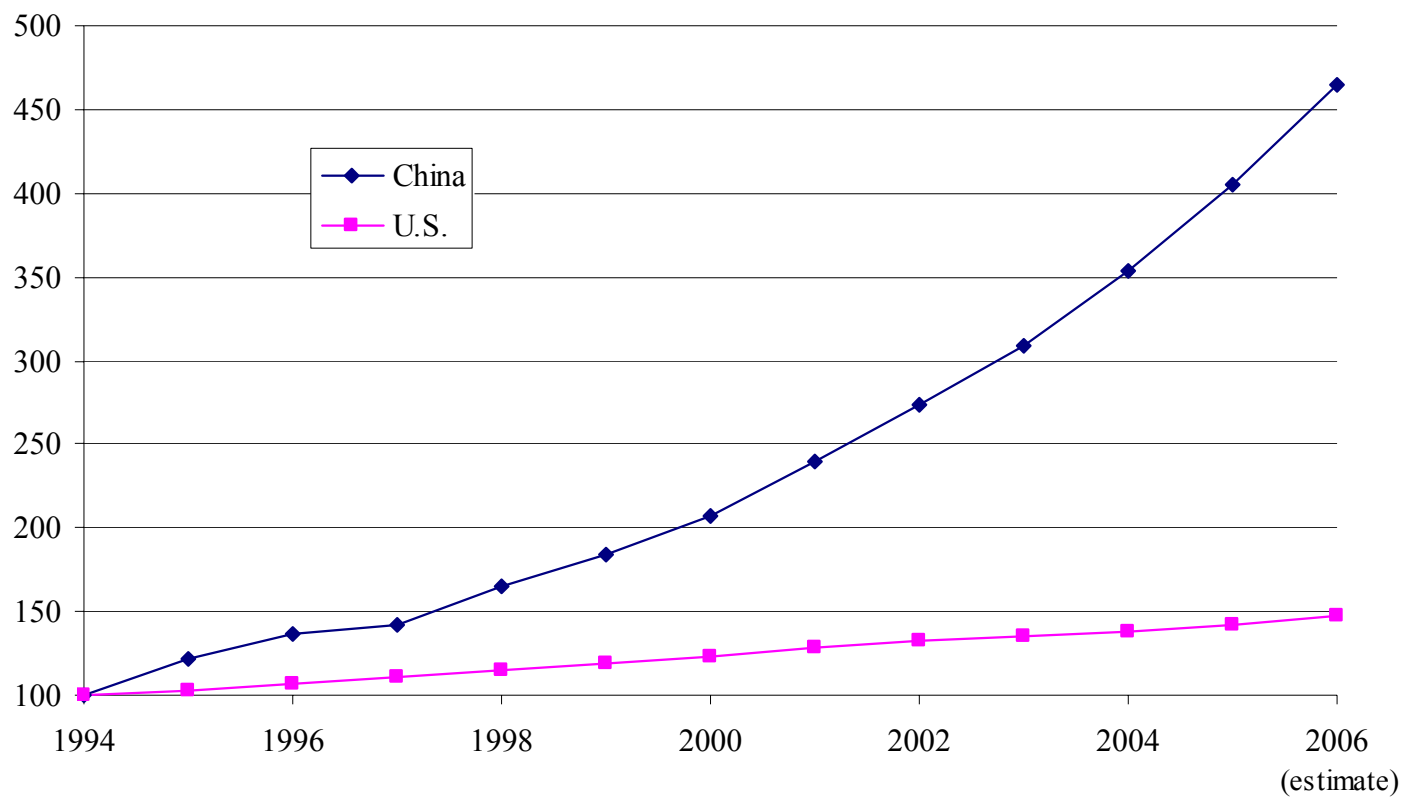
a Ex-factory price index.

b value added industrial production, WDI

c1994-2001 IFS, IMF

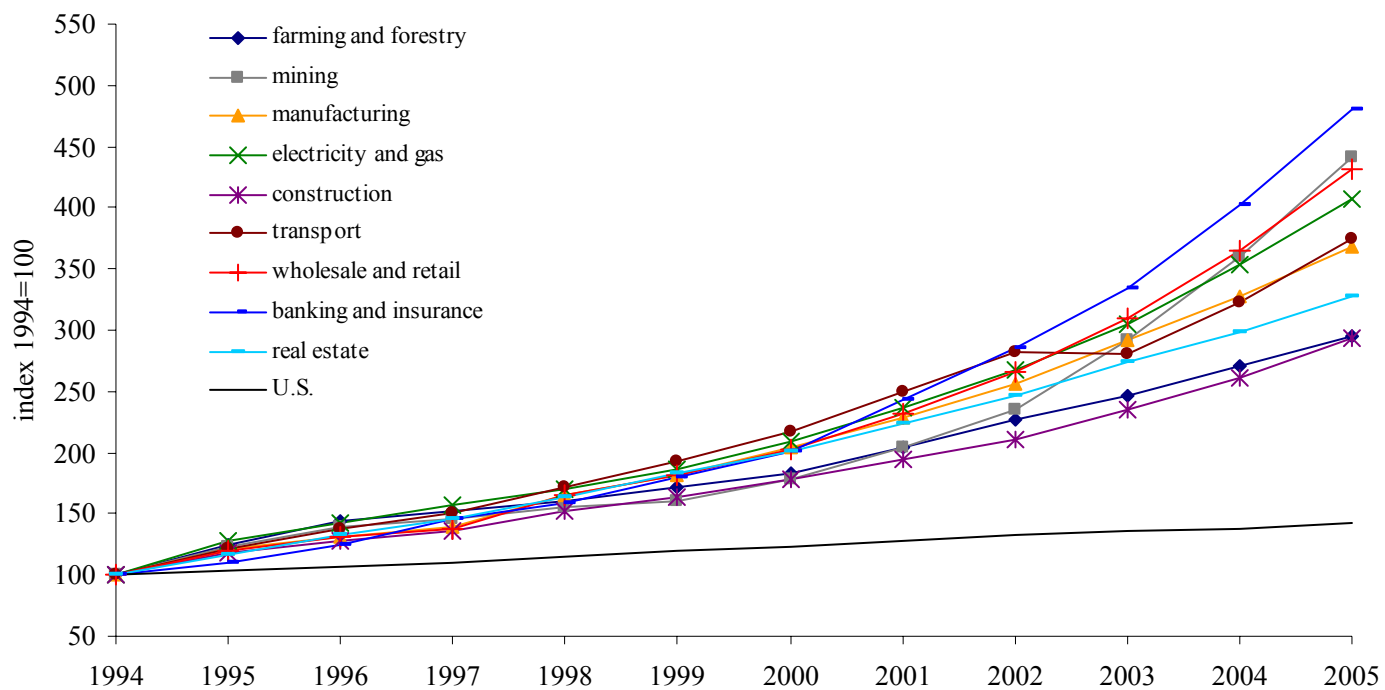
d Calculated by using value added industrial production from WDI and the employment of secondary industry from China statistics yearbook

Nominal Wages in China and the United States, 1994-2006



Source: EIU.

Figure 5: China Nominal Wage Increases across Different Sectors in Comparison to the U.S. Overall Nominal Wage Increases, 1994-2005



Source: China Statistical Yearbook, EIU.

Determinant SM Wage Bargaining with a Fixed Dollar Exchange Rate

- Dollar is the key currency: most trade is invoiced in dollars with “pricing to market”
- U.S. price level is stable with relative PPP
- Wage bargaining
 - Bidding for workers in tradables constrained by the fixed exchange rate.
 - Money wage growth reflects ongoing productivity change in the tradables sector
 - Wages then grow similarly in other sectors
- Compare Japan 1949 -1971 to China 1994 - 2005

The Shortfall in Wage Growth with the Threat of Renminbi Appreciation

Starting from a position where the domestic price level in China is stable (as was true in 2005), wages increase according to

$$\hat{w} = E(\hat{\pi}) + E(\hat{e}) + \psi$$

where w is money wages, π is labor productivity, e is yuan/dollar, and ψ is the risk premium in wage growth; \hat{x} is percentage change of x , and E is the expectations operator.

$E(\hat{e}) < 0$ reflects expected appreciation, $E(\hat{\pi}) > 0$ reflects high productivity growth, $\psi < 0$ reflects exchange rate uncertainty : the *negative risk premium*.

Wage shortfall below productivity growth is $| E(\hat{e}) + \psi |$

Reconsidering the Scandinavian Model of Wage Bargaining: A Summary

	Relative PPP (tradables)	Wage Bargaining Process	Money Wage Growth
Fixed Dollar Exchange Rate	Yes	Determinate	Reflects productivity growth in tradables
Floating with Possible Appreciation	Not Necessarily	Indeterminate	Less than growth in productivity

I. Conclusions for China

Before July 21, 2005

- Exchange rate fluctuations outside of a very narrow band disrupt international adjustment in money wage growth—as in the earlier Japanese experience. (McKinnon 2006)
- Foreign pressure on China to appreciate or float the renminbi is misguided, and would not correct international saving-investment imbalances.
- A credibly fixed central rate for the yuan/dollar balances international competitiveness by
 - anchoring China's domestic price level, and
 - inducing growth in money wages to match differential labor productivity growth between China and the U.S.
 - Keeping Chinese interest rates close to world levels and so avoiding a liquidity trap

II. Conclusions for China's Monetary cum Exchange Rate Strategy After July 21, 2005

- U.S. Inflation was more than 4 % from mid 2005 to mid 2006. Thus China's initial appreciation was warranted to better anchor its domestic price level.
- However, a smooth upward crawl should continue only if U.S. inflation exceeds the PBC's target for China. But China's internal target for CPI inflation could increase if a Balassa-Samuelson effect emerges.
- With an anticipated upward crawl of 3 % per year, interest rates on RMB assets would remain 3 percentage points less than those on dollar assets. And random exchange fluctuations from floating could reduce them further, as in Japan.
- With a longer lag, China's wage growth could slow down from continued expected appreciation as happened in Japan earlier
- The PBC should end the upward crawl once excessive U.S. inflation was eliminated and interest rates on dollar assets fell.
- With conflicted virtue, floating the RMB against the dollar would be a big mistake-leading to an upward spiral in China's exchange rate, deflation (particularly in agricultural prices), and a zero-interest liquidity trap in the Japanese mode.