Dollar-Yen Relationship
&
Currency crisis in Japan

International Financial Economics
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- **Introduction**
- **..\My Documents\debt1.pdf**
- **..\My Documents\debt2.pdf**
- **From Bubble to Stagnation**
- **Why does yen keep rising?**
- **The liquidity trap of Japan**
- **What is to be done?**

From Bubble to Stagnation

Bubble Economy

- Roughly covers period 1985 to 1990.
- Chief characteristic was a rapid rise in asset prices (land, equities, golf memberships, collectibles).
- Period of great optimism and overseas expansion.
- Strong, investment-led growth.

Figure1 : Asset Price

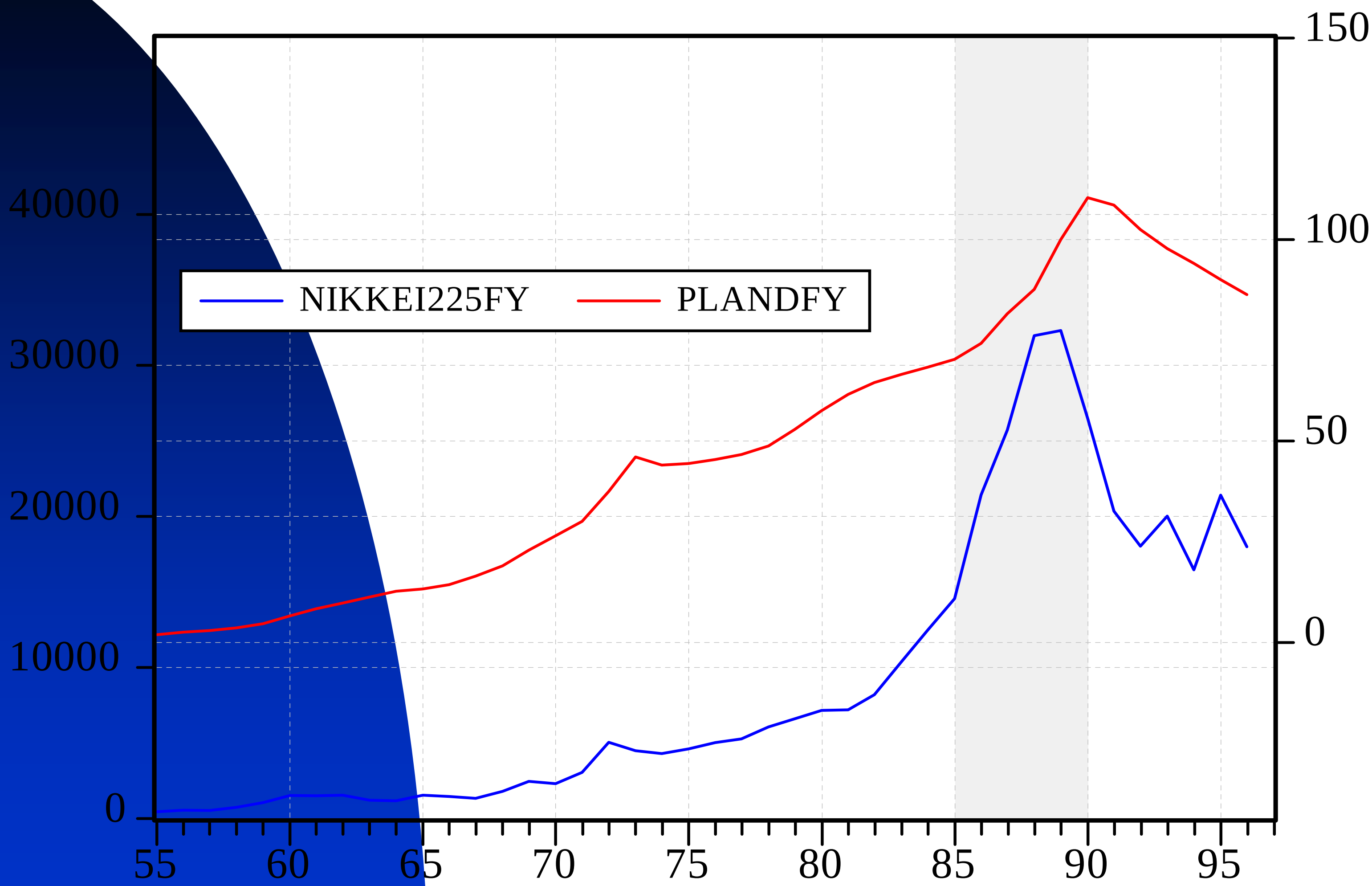

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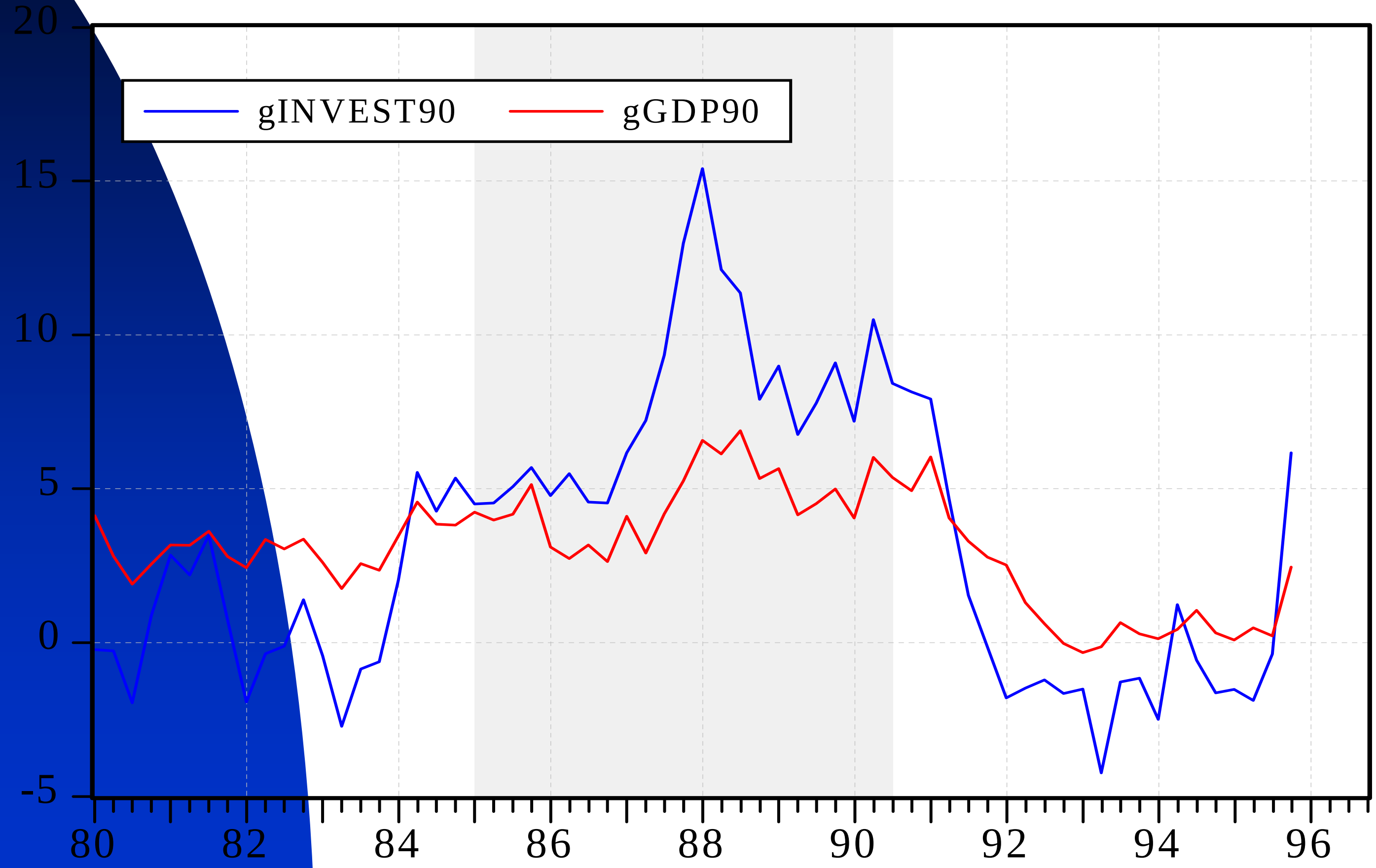
Figure2: Growth Rates of Investment and GDP



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Background of Bubble

- Large trade surplus in 1980s.
- U.S. pressure to liberalize trade and financial sectors.
- Plaza Accord of September 1985 sought appreciation of yen.
- Louvre Agreement of February 1987 sought to stem rise in yen (fall in dollar).

Cause of Bubble

- Large trade surplus led to pressure for Japan to stimulate aggregate demand.
- Expansionary monetary policy adopted-to boost the domestic demand due to the appreciation of the yen

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Bubble Bursts 1990-1991

- The equity market began to break (the Iraqi invasion of Kuwait in Aug. 2,1990)
- Interest rates began to rise quickly

The Aftermath 1991-1996

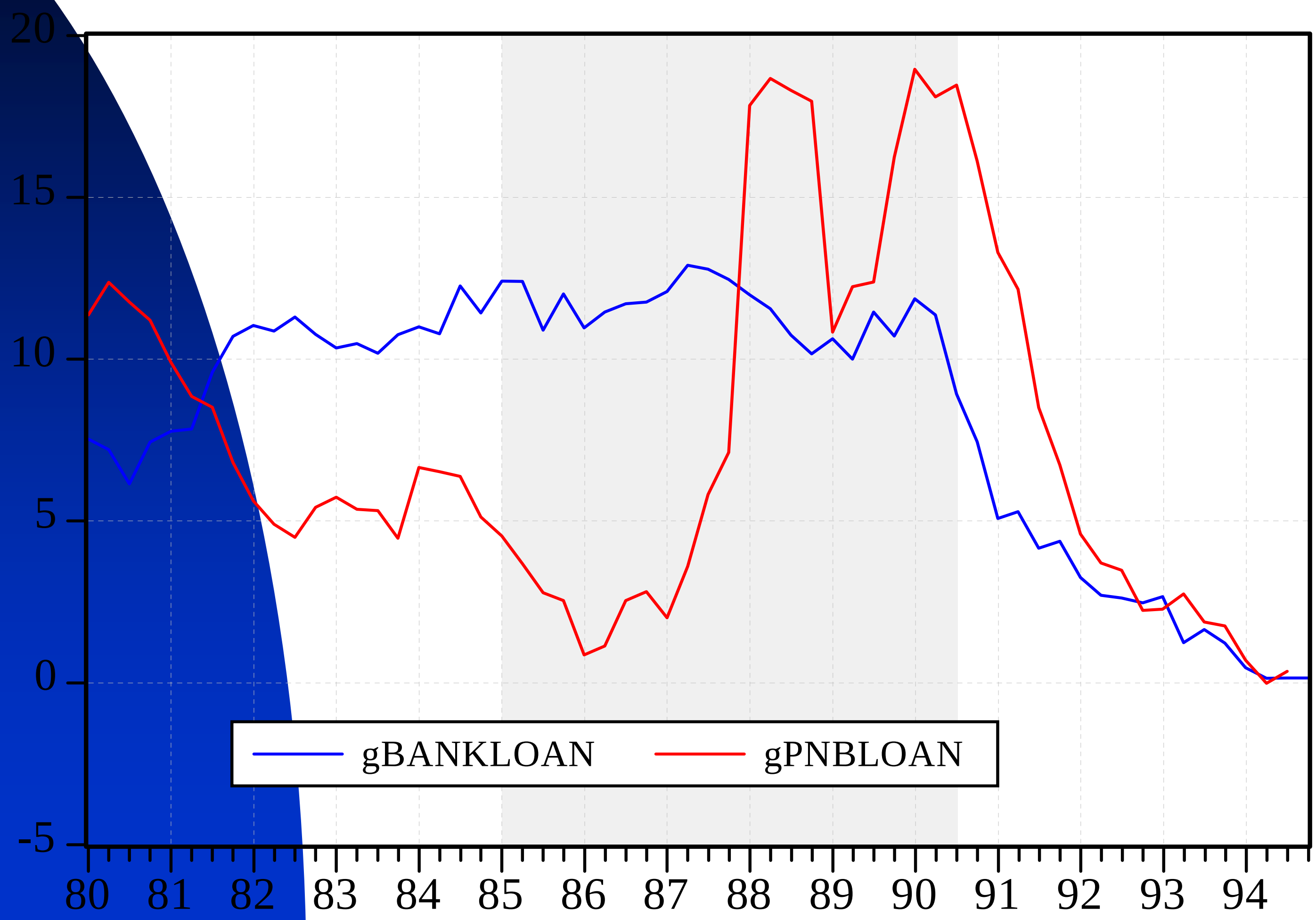
- Yen rises to the sky, early 1995 but unilateral decline, autumn 1995

  (its peak of 80:1against the dollar)
- The problems in the banking industry.

The Aftermath 1991-1996

- loosened monetary policy in the early Summer, 1991
- A wealth effect also aggravated the downturn

Figure 3: Growth Rates of Bank and Non-Bank Loan



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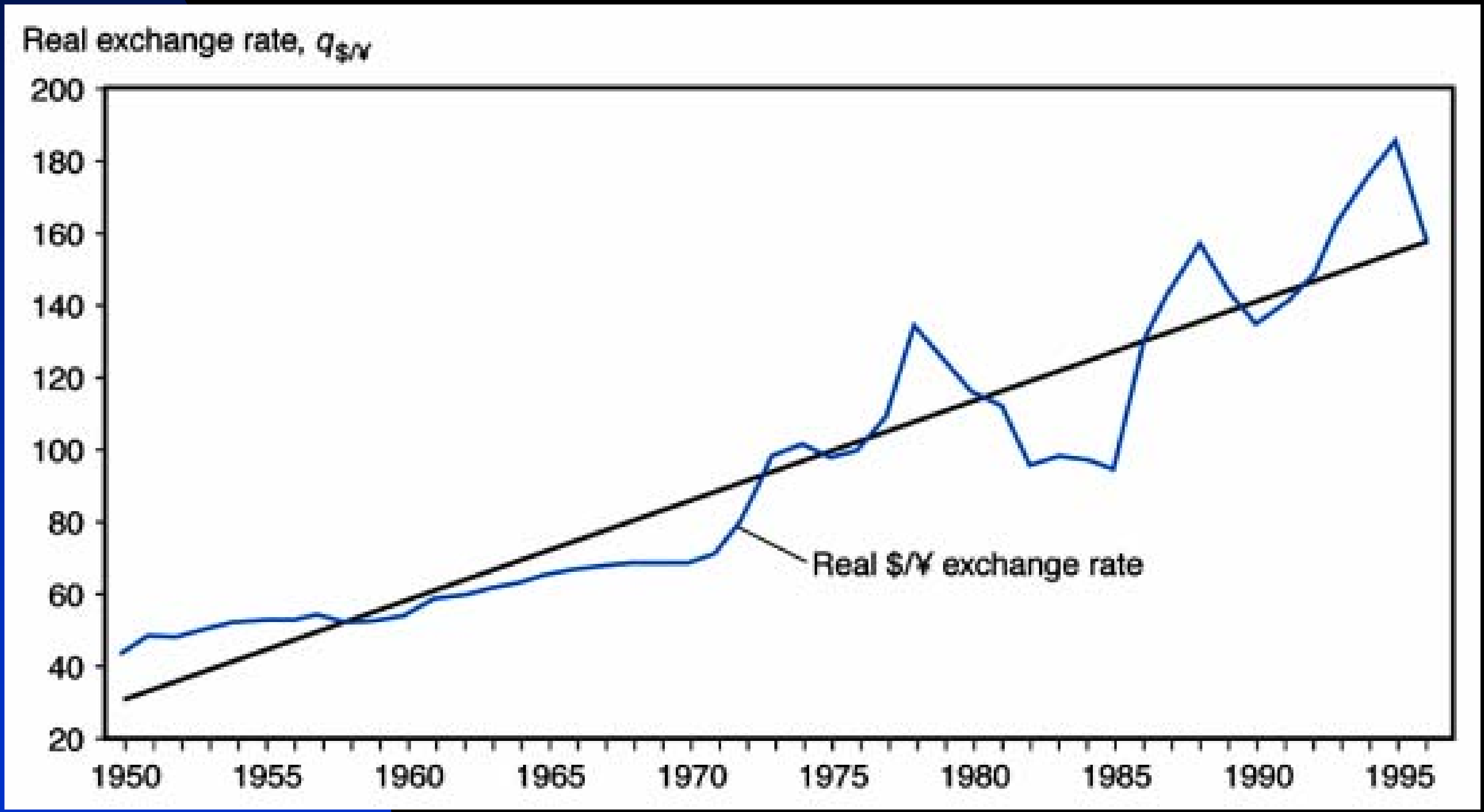
Why does Yen Keep Rising?

Yen Keep Rising?



Does Japan want Yen to Keep Rising?

- No, Japan want their currency(¥) to be cheap for its export reason. (Especially for theU.S.)
- ¥120 to $1 is the exchange rate that BOJ trying to achieve these day (close to today's PPP)

What if Yen gets stronger?

Honda Accord $22,000 & BMW 3-Series $30,000

- **Assume ¥120 to $1**
- **¥ appreciated to ¥80 to $1 (1995)**
- **Honda Accord cost $33,000 (Not Possible!)**
- **Which one would you buy?**
- **Hope you say BMW.**

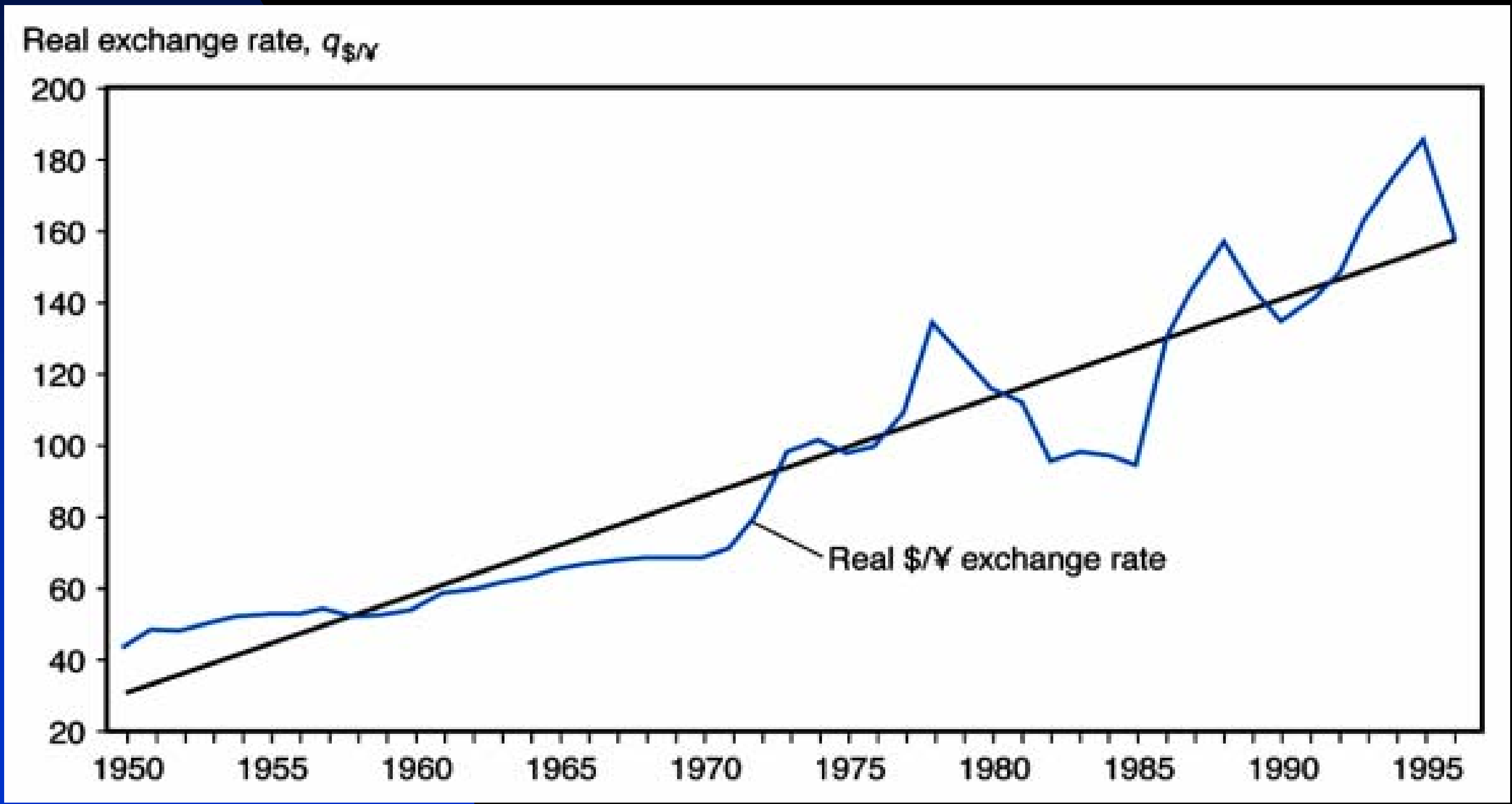
OUTLINE

- If the ¥ gets Appreciate, then Japan loses their export market power.
- Hence, Monetary Expansion to depreciate Japanese currency.
- IS-LM Model:Monetary Expansion will lower the interest.
- Now, interest rate in Japan is ‘0’, that is Japan lost their monetary controls

Flexible Exchange Rate System :Japan

- ‘Currency Crisis’ is in the country with Fixed exchange rate system.
- Japan has a Floating Exchange Rate system.
- Does appreciation matter in Japan?
- Theoretically, No : Practically, Yes.

The Real Dollar/Yen Exchange Rate, 1950-1996

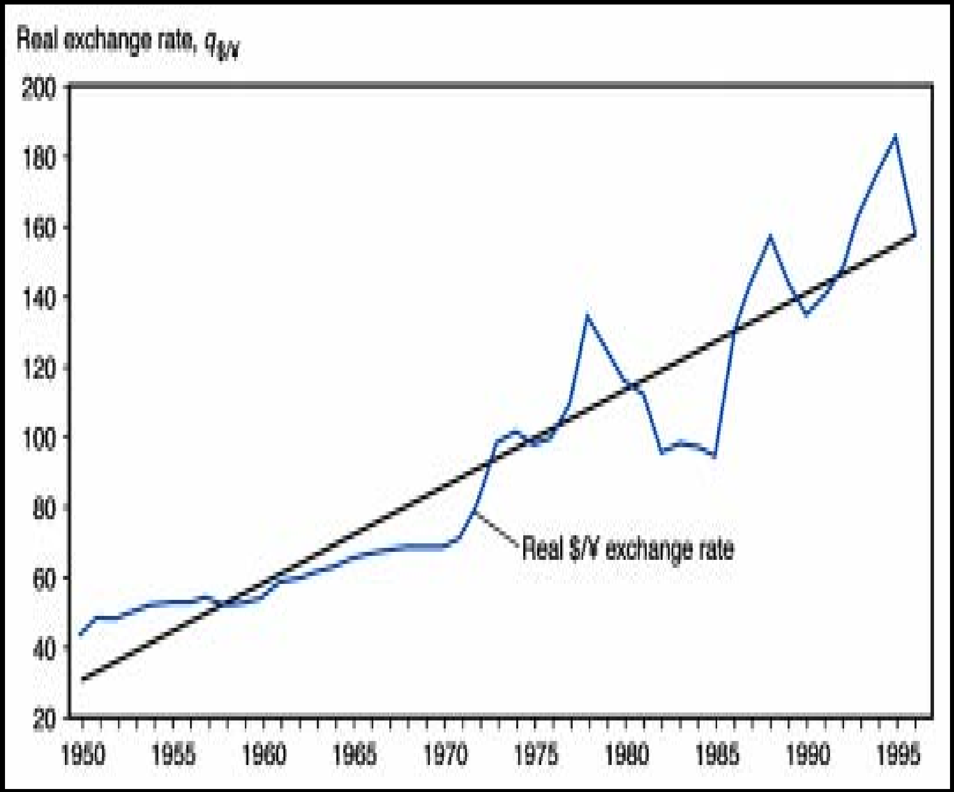


Dollar's depreciation in real terms against Yen(¥)

- 1950-1971 : Fixed Exchange System.
- From 1971, Flexible Exchange rate (change in response to market force)
- Japan: need to depreciate Yen against dollar
- In 1999, approximately ¥120 per dollar.
- In 25 years, the dollars has lost two-third of its foreign exchange value against Yen. (Dollar's depreciation or Yen's appreciation)

Dollar's depreciation in real terms against Yen(¥)

- **Why ¥ Appreciating?**
- **Even with BOJ's Monetary Expansion.**



Why Real Exchange Rate Rise?

- Definition: Real Exchange rate (s)

$$s(\$/¥) = \frac{[S(\$/¥) \times P(Japan)]}{P(US)}$$

- s: Real, S: Nominal, P: Price Level

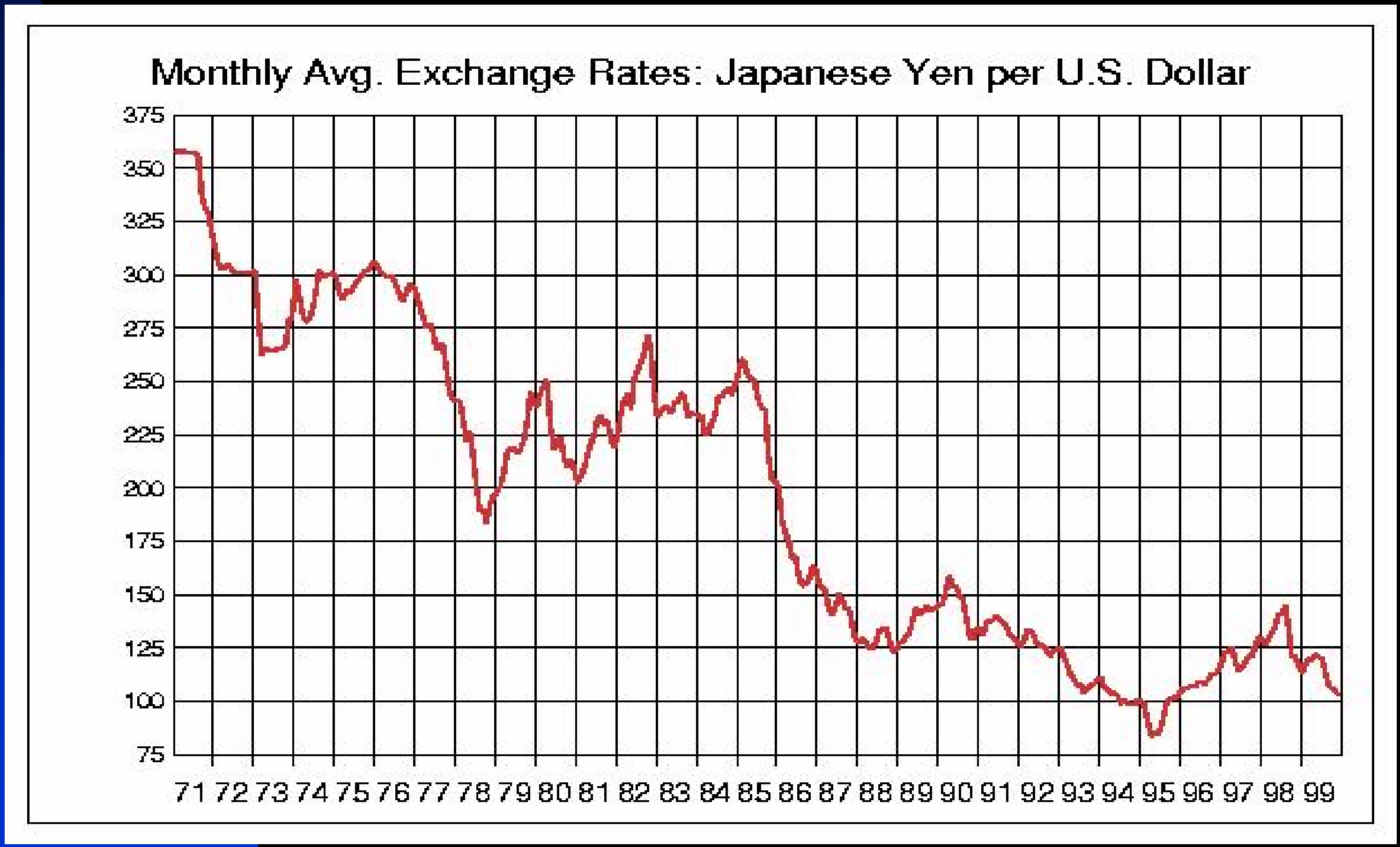
Why Real Exchange Rate Rise?

- $$s(\$/¥) = \frac{S(\$/¥) \times P(Japan)}{P(US)}$$
- 1950-1971: Fixed Exchange Rate System.
- Avg. Price change: US 2.6%, Japan: 5.3%
- Result: Even in Fixed System Real Exchange Rate rose

Why Real Exchange Rate Rise?

- $s(\$/¥) = \dfrac{S(\$/¥) \times P(\text{Japan})}{P(\text{US})}$
- 1973-1993: Flexible Exchange Rate System. Low Inflation In Japan.
- Avg. Price Change: US: 4.6%, Japan: 2.3%
- Nominal Exchange Rate rises even more than Real.

Nominal exchange rate



What are the Factors Causing Yen's Appreciation?

- Price differences between traded and non-traded.
- BOJ's Expansionary Monetary Policy.

Price Differences Between Traded Goods and Non-Traded Goods.

- **Analysis with Balassa–Samuelson**
- **High rate of productivity growth in Traded Good.**
- **Low growth rate in Non-Traded Good (i.e. service).**
- **High growth in traded goods productivity & huge trade surplus in Japan**

Price Differences Between Traded Goods and Non-Traded Goods.

- **Raised the WAGE in Japan's whole economy (Trade sector & Non-Trade sector!).**
- **Wage in both traded and non-traded now high.**

Price Differences Between Traded Goods and Non-Traded Goods.

- **How can producers afford paying higher wage in nontraded sector (services)?**
- **Raising nontraded product’s price!!**
- **Analysis with Balassa–Samuelson ends**

Price Differences Between Traded Goods and Non-Traded Goods.

- **Result:**

  Relative price for non-traded goods in terms of traded goods has risen over time in Japan (much faster than U.S.)

Why does price difference matter?

- **Relative price for non-traded goods in terms of traded goods has risen.**
- **Univ. Of Penn. economist Richard C. Marston also found that 12.4% in US 56.9% in Japan (1973-1983)**
- **s($/¥) = [S($/¥) x P(Japan)] / P(US)**
- **Let's look at with real data…**

Prices, Money Wage & Exchange Rate: Japan and U.S.

Year	Traded good Price US	Traded good Price Japan	Money Wage US	Money Wage Japan	Consumer Price US	Consumer Price Japan	S(¥/$)
1951-71	25.1%	15.9%	128%	331%	56.0%	137%	-3%
Annual	1.1%	0.7%	4.2%	7.6%	2.2%	4.4%	
1972-92	194%	84.2%	2.2%	285%	235%	173%	-58.1%
Annual	5.5%	3.1%	5.7%	7.0%	6.2%	5.1%	-4.3%
1982-92	17.2%	-13.7%	35.1%	35.4%	45.4%	19.3%	-51.0%
Annual	1.6%	-1.4%	3.1%	3.1%	3.8%	1.8%	-6.5%
1992-3	1.5%	-3.8%	2.6%	2.0%	3.0%	1.2%	-12.6%

Yen is Rising: Appreciation

Year	Traded Good Price		Money Wage		Consumer Price		S(¥/$)
	US	Japan	US	Japan	US	Japan	
1951-71	25.1%	15.9%	128 %	331%	56.0%	137%	-3%
Annual	1.1%	0.7%	4.2%	7.6%	2.2%	4.4%	

- **Even if wages were high in Japan, price of export good remained lower than the U.S.**

Yen is Rising: Appreciation

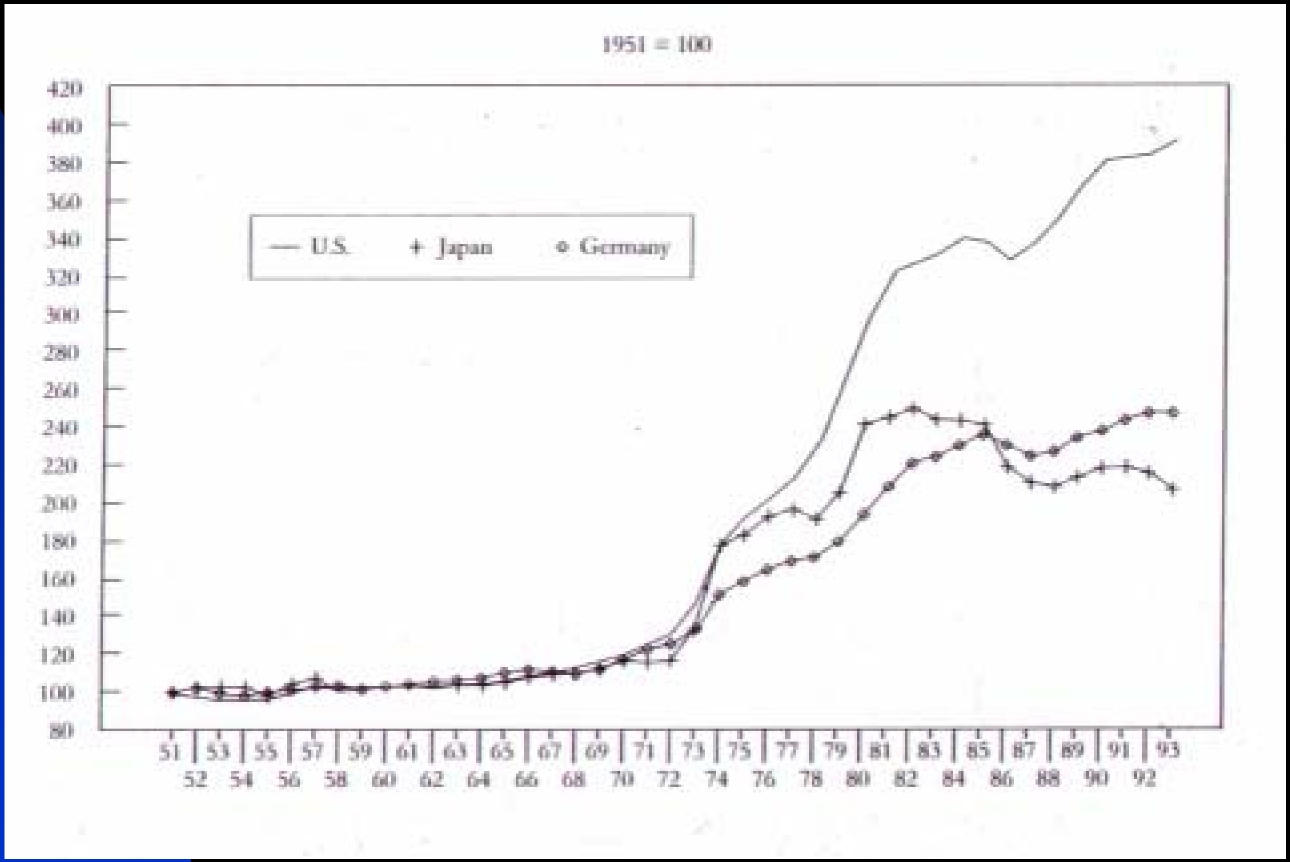
Year	Traded Good Price US	Japan	Money Wage US	Japan	Consumer Price US	Japan	S(¥/$)
1972-92 Annual	194% 5.5%	84.2% 3.1%	2.2% 5.7%	285% 7.0%	235% 6.2%	173% 5.1%	-58.1% -4.3%
1982-92 Annual	17.2% 1.6%	-13.7% -1.4%	35.1% 3.1%	35.4% 3.1%	45.4% 3.8%	19.3% 1.8%	-51.0% -6.5%
1992-3	1.5%	-3.8%	2.6%	2.0%	3.0%	1.2%	-12.6%

- **U.S. Inflation**
- **Japan's deflation relative to the U.S.**

Which Exchange Rate System Does Japan Really have: Fixed or Floating?

- **As we have seen Yen's(¥) appreciation, it is floating.**
- **However, BOJ injecting money into the market to depreciate it's exchange rate to dollar.**
- **For export purpose!!!**

Which Exchange Rate System Does Japan Really have: Fixed or Floating?



Monetary policy in Japan.

- Traded good price are almost aligned by the fixed exchange rate with the U.S.
- From 1951 to 1971, CPI increased: Japan:137 % US: 56%.

What if Japanese monetary policy had focused on stabilizing the CPI?

- **Japan's money wage growth would have been slower.**
- **Possible?**
- **Yen has been continuously appreciating.**
- **BOJ has been continuously injecting money to stabilizing the WPI.**

Monetary Expansion in Japan.

Year	US		Japan	
	Money	GNP	Money	GNP
1955-71	3.46	6.24	15.47	14.13
1972-82	6.33	9.62	8.85	7.48

- **GNP & Money from 1955-1993**
- **Japanese monetary policy was relatively expansionary compared to the US. (McKinnon)**

Problems in Monetary Expansion in Japan (1950-1971)

- **1950-1971: fixed the Exchange Rate**
- **BOJ preferred to keep foreign exchange reserves fairly small**
- **For example, if the current account surplus, the BOJ tended to expand domestic credit.** ******McKinnon uses Balance of payments, Wrong!!!!!*

Problems in Monetary Expansion in Japan (1972-93)

- **1972-Now: Monetary Expansionary**
- **Sharp deflation in 1986-1987**
- **BOJ reduced interest rate so sharply to stimulate economy. It fail to do so.**
- **Bubble economy: real estate and stock market price rise sharply**
- **Financial crash of 1991-1992.**

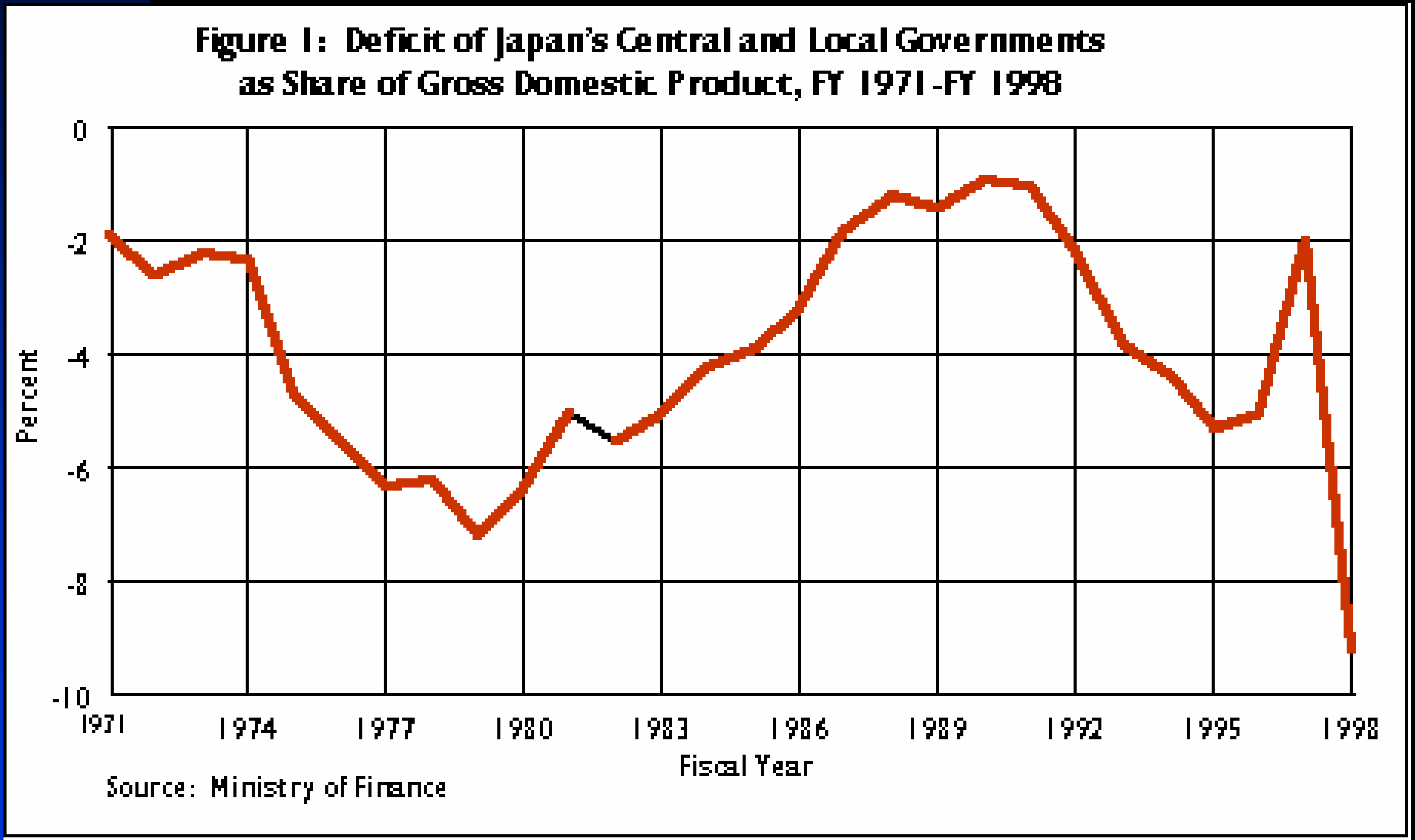
Problems in Monetary Expansion in Japan (1972-93)

- **Japan had low interest rate(3.5%)**
- **In 1995, US started lowering interest rate to stimulate its economy**
- **Beggar-Thy-Neighbor effect**
- **In 1999, Japan's interest: lower '0'**
- **they lost their monetary control.**

Next. Currency Crisis

- Japan's interest rate is already zero '0'.
- Japan lost power of monetary policy.
- Printing more money will not affect economy i.e. LIQUIDITY TRAP.
- However, they need to print money to depreciate its currency.

How about fiscal policy?



The Yen Trap

- What happened to the economy of Japan in the 1990s.
- Japan’s Trap- Liquidity trap

The Japan's Economy in the 1990s

- **Background: (**Until 1990)

  The rate of economic growth in Japan was higher in any other industrial countries. In the 1950s and 1960s, the annual growth rate in each averaged 10%. Even in the 1980s the rate of economic growth was higher than most other industrial countries, at the same time asset prices were rising sharply.
- ..\My Documents\gdp growth rate 1982-1987.pdf

The Japan's Economy in the 1990s

- **Background: (**1990s)

  There was a sharp unanticipated decline in the growth rate, with a rate of economic growth substantially below that in the United States and the industrial countries in the Western Europe.

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Japan's Monetary Policy Dilemmas

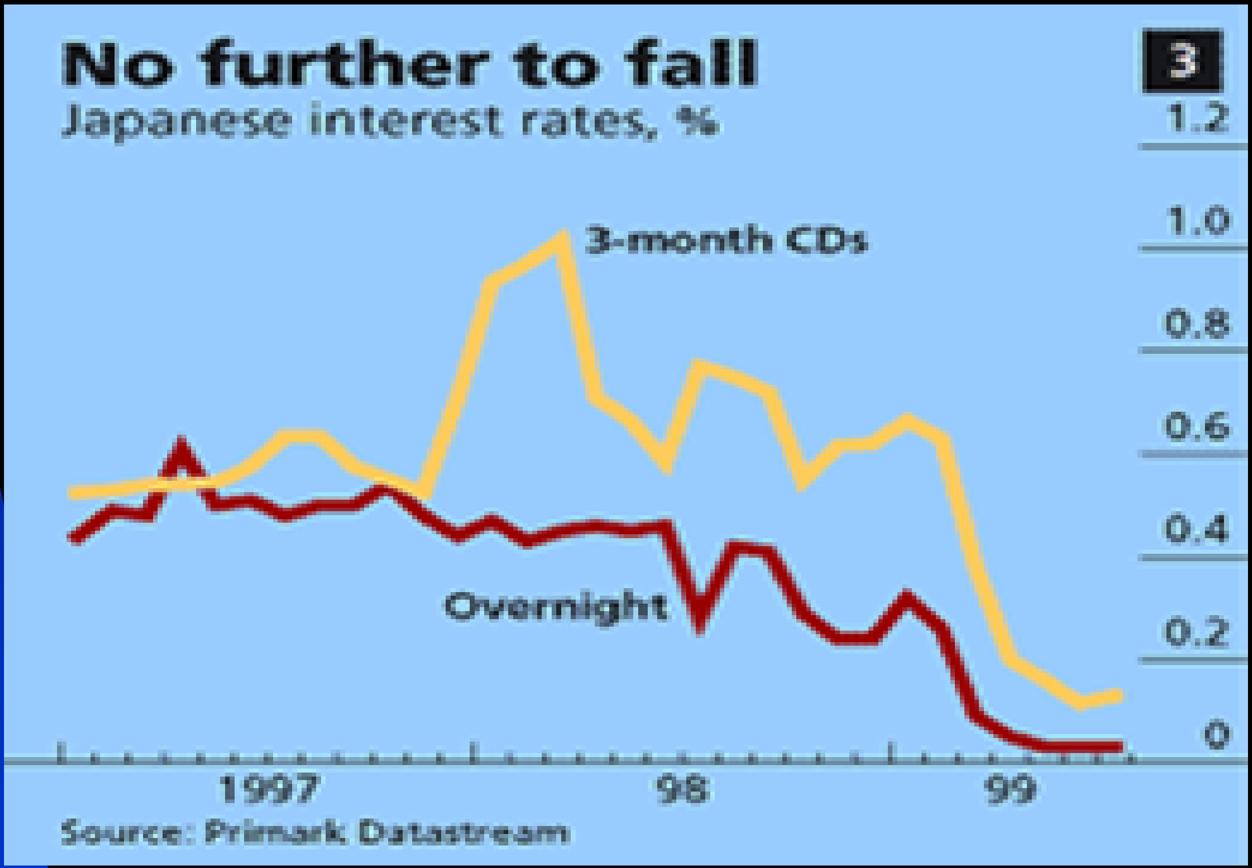
- The bank of Japan cannot use the ordinary instruments of monetary policy to reflate the economy. Nominal interest rate on yen asset cannot be reduced below zero.
- The value of the yen can not depreciate significantly in the face of Japan's large trade surplus .

Why did the Expansion Monetary Policy have no Effect on the Economy?

- **Definition of liquidity trap**:

  It is a situation in which the central bank can expand monetary base without affecting any important price in the economy.

Interbank overnight rate among Japanese commercial bank



Why did the Expansion Monetary Policy have no Effect on the Economy?

- **Causes of the Liquidity Trap:**

  As we know form the previous slide, Japanese long interest rates are close to zero. If nominal interest rates on long-term bonds become low, their market prices become extremely sensitive to tiny changes in open market interest rates.

Why did the Expansion Monetary Policy have no Effect on the Economy?

- Because of this price volatility, the perceived riskiness of holding them rises.
- In addition, a very low interest rates bounded from below by zero, people expect that bond prices are more likely to fall than rise (interest rates will rise in the future)

Why did the Expansion Monetary Policy have no Effect on the Economy?

- Because people were reluctant to hold long-term bonds

  (a) a big risk premium gets built into long-term interest rates.

  (b) the “speculative demand for money” increases. (next slide has detail description.)

Continue….

- Beyond the ordinary transactions and precautionary demands for money, people hold speculative cash balances in anticipation of the following two events.

(a) Domestic bond prices suddenly fall (domestic interest rise) and so it is a good time to buy bonds.

(b) The currency rises in the foreign exchanges and so it is a good time to buy foreign-currency bonds.

Why did the Expansion Monetary Policy have no Effect on the Economy?

- **Result:** any new injections of money base by the central bank are simply absorbed by this speculative demand with little or no effect on short or long-term interest. This is the so called liquidity trap.

Why did the Expansion Monetary Policy have no Effect on the Economy?

- **Effect on Japan's economy:**

1. The velocity of circulation of money is falling, because money expansion was much faster than nominal GDP.

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Continue….


Slowing down
Japanese velocity of money*
2
6
5
4
3
1976 78 80 82 84 86 88 90 92 94 96 9899
*Nominal GNP divided by monetary base

Why did the Expansion Monetary Policy have no Effect on the Economy?

- 2.Excess reserves of commercial banks are building up
- 3**.**When nominal interest rates are close to zero, lending margins for private commercial banks to good credit risks become unprofitable. The reluctance of commercial banks to lend at low interest further dampens aggregate demand.

Why did the Expansion Monetary Policy have no Effect on the Economy?

- 4.Low profitability in commercial lending has led a government to nationalize much of the flow of financial intermediation.

Yen Depreciation?

The reasons why a sharp depreciation of the yen below its current PPP rate would fail.

- **1.The domino effect:**

  Other Asian currencies would be forced to depreciate further.

Yen Depreciation?

- **2.Protectionist responses from other industrial countries.**

  For example, Japanese steel exports into American market. The depreciation of the yen might hurt steel industry in US.

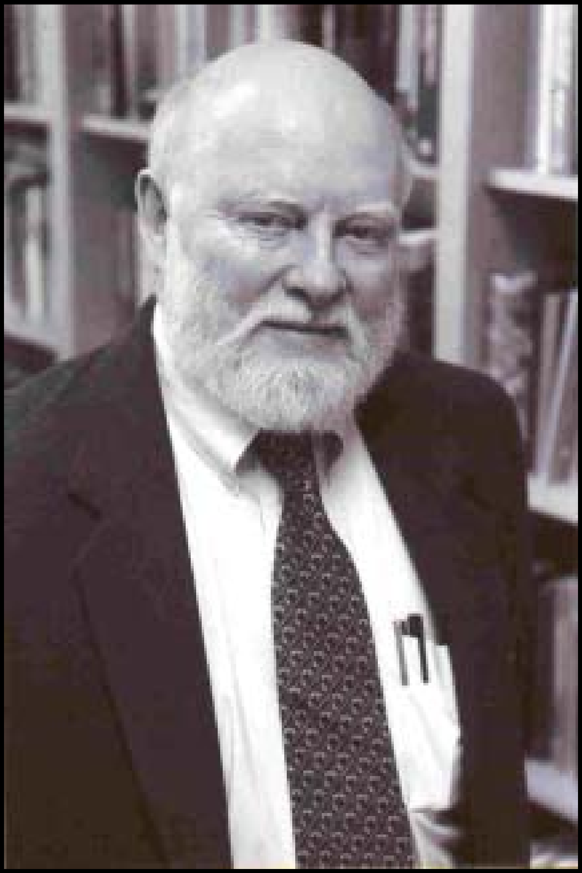
Yen Depreciation?

- **3.The expectations effect:**

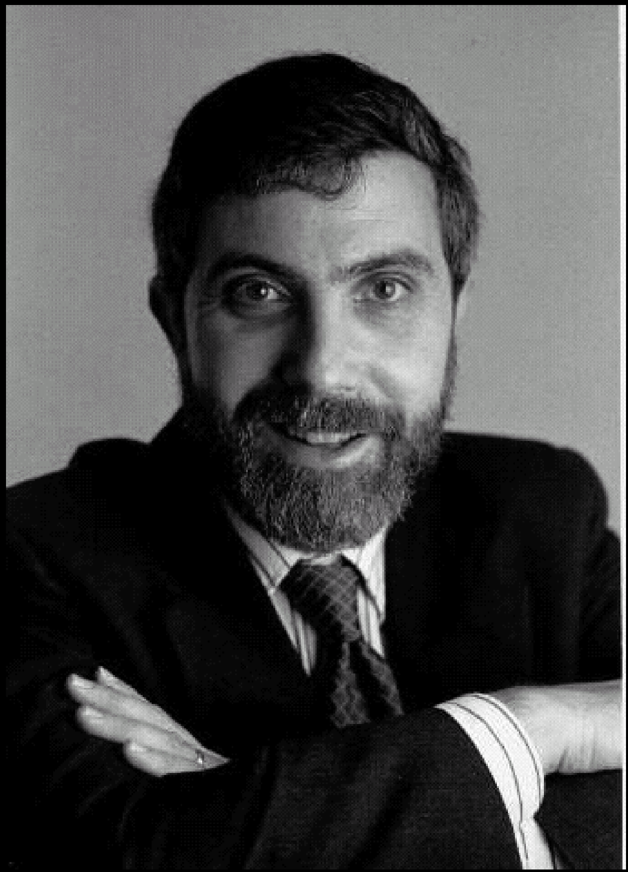
After an depreciation, the fear of future yen strength remain.

Solution : What is to be done?

Ronald McKinnon & Kenichi Ohno



Paul Krugman



Overcoming the Syndrome

- The syndrome of the ever-higher yen must be correctly diagnosed.
- Once commercial confrontations end, policy convergence to a stable yen-dollar exchange rate must be carefully orchestrated.
- There should be also a full-scale monetary accord for securing the yen-dollar rate indefinitely in a new steady-state equilibrium.

A New U.S. - Japan Compact for Commerce and trade

<u>The American Side</u>

- The U.S. should abandon any commercial use of exchange-rate policy.
- To ensure that this uncoupling takes place, the American president should forswear the use of the Super 301 amendment.

A New U.S. - Japan Compact for Commerce and trade

The Japanese Side

- Structural reform
- Example :

  (a) cleaning up its banks

  (b) deregulating / privatizing

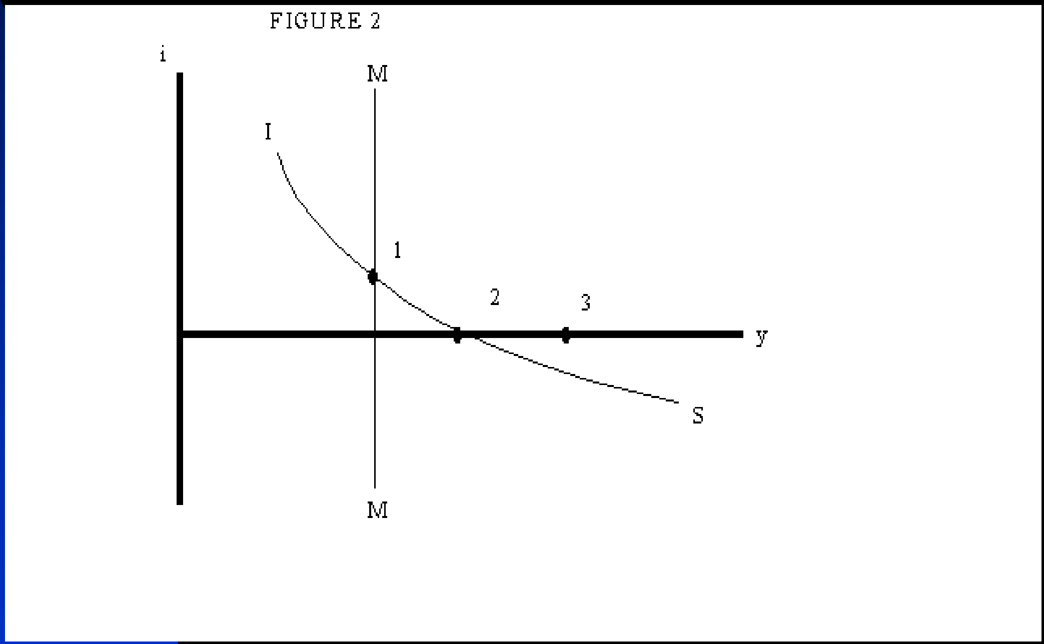
  (c) reforming its corporate accounting

Structural reform will help Japan recover?

- **McKinnon and Ohno : positive**
- **Krugman : negative**

  (If the measures that raise Japan's supply capacity but leave demand where it is will not help the situation.)

Structural reform will help Japan recover?



A New U.S. - Japan Compact for Commerce and trade

- At present, Japan wants a stable yen and the U.S. wants broader market access.
- The new U.S. – Japan commercial compact would force them to be generous to each other and would break the deadlock.
- Notice! America’s CA deficit can be reduced only by increased American savings relative to investment.

Monetary and Fiscal policy

- **McKinnon & Ohno :** Monetary harmonization is necessary and it is working under new rules of the game for the Steady State.
- **Krugman :** Fiscal and Monetary policy are ineffective.
- **Robert Dugger and Angel Ubide :** It should be used to complement w/ microeconomic reform.

McKinnon and Ohno : Monetary Accord in the Steady State

- **Why is this necessary?**

  : This keeps the rate within hard narrow band with a stable price level in common.

- However, it would likely require more time to implement.

- Nevertheless, BoJ and the Fed could begin working under new rules of the game for the Steady State.

8 Rules of the Game for the Steady State

- Announce a target zone for the yen-dollar exchange rate of ± 5 %. Base the central rate on the initial PPP rate that aligns wholesale price levels.

- Intervene in concert to reverse short-run trends in the yen-dollar exchange rate that threaten to pierce zonal boundaries.

8 Rules of the Game for the Steady State

- Practice free currency convertibility on current and capital account, and hold official exchange reserves symmetrically in each other's currencies.

- Don't fully sterilize the immediate monetary impact of interventions in the yen-dollar exchange market by the BoJ or by the Fed.

8 Rules of the Game for the Steady State

- In case of a speculative attack that would require very sharp increases in short-term interest rates to defend the exchange rate. But restore the "traditional" yen-dollar exchange parity ASAP.
- Assign domestic central bank credit to anchor the price level of tradable goods in the long run.

8 Rules of the Game for the Steady State

- Reflate or deflate gradually in subsequent periods as necessary.
- Continue to play by the rules of the Plaza – Louvre Intervention Accords for limiting major fluctuations in the dollar's and yen's exchange rate against hard European monies.

Krugman : both are ineffective (1)

- **Monetary policy :**

  A permanent monetary expansion is efficient, while a temporary one is useless.

- **How about Japan's monetary expansion?**

  : The Bank of Japan does not announce whether its changes in the monetary base are permanent or temporary. But we may argue that private actors view its actions as temporary. → Monetary policy : ineffective

Krugman : both are ineffective (2)

- **Fiscal policy :**

Gov’tal purchases could increase demand and output so it’s working in the liquidity trap problem.

- **Is it the right one for Japan?**

Japan has already engaged in extensive public works spending. Now, it’s hard to expand the gov’tal expenditure because of the gov’t fiscal constraint.

Robert Dugger and Angel Ubide : Used be cushion w/ structural reform

- **Japan's problem :** not a liquidity trap, but a structural trap.

- Monetary and Fiscal policy should be tighter.
  * Higher interest rates → It can be worsen deflation in the short-run.

- First, structural reform and then monetary and fiscal policy could be used to cushion, not prevent, the painful results.

The end