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Bubbles and Balance Sheet Recessions in the Global Economy

Richard C. Koo

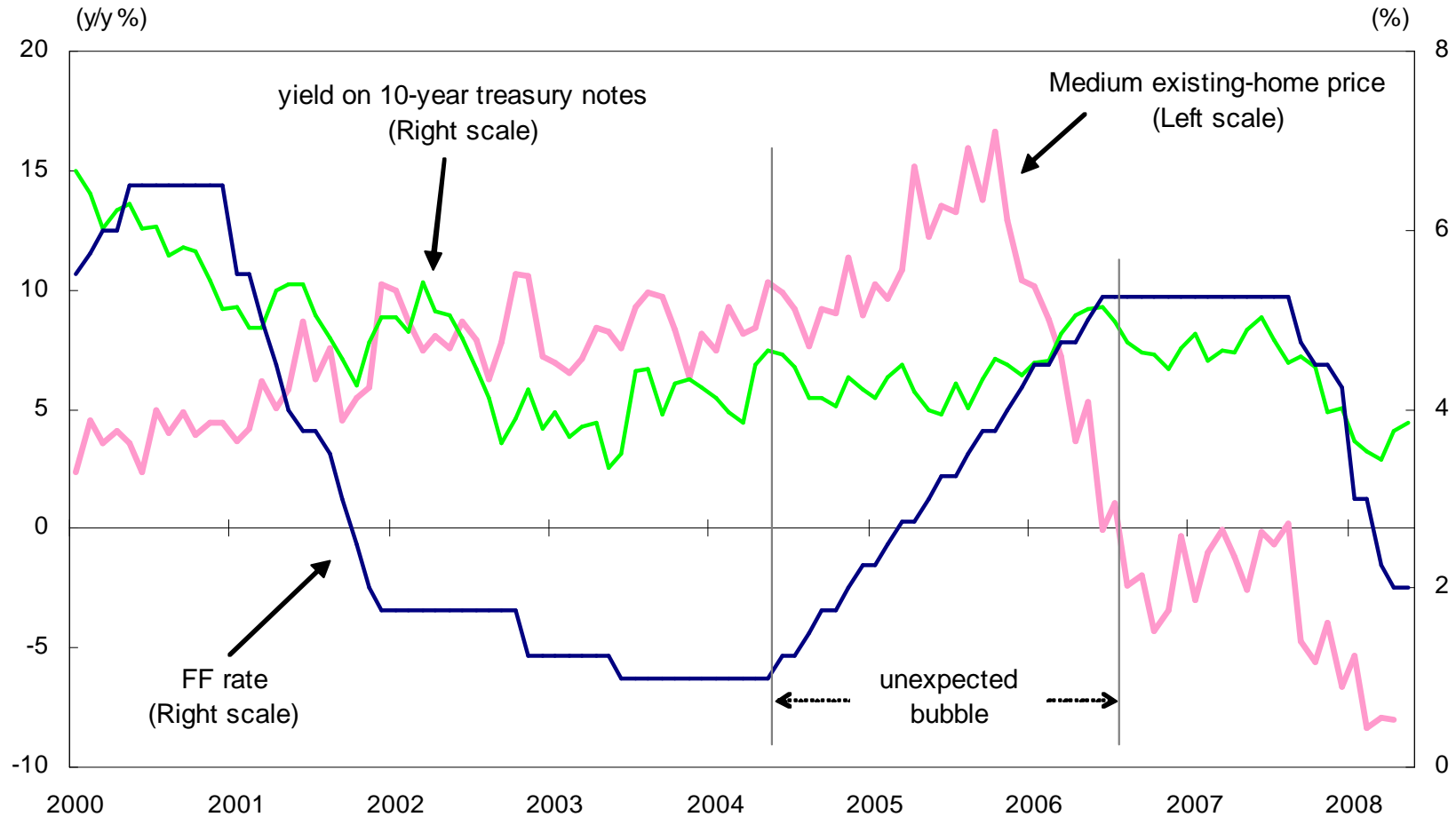
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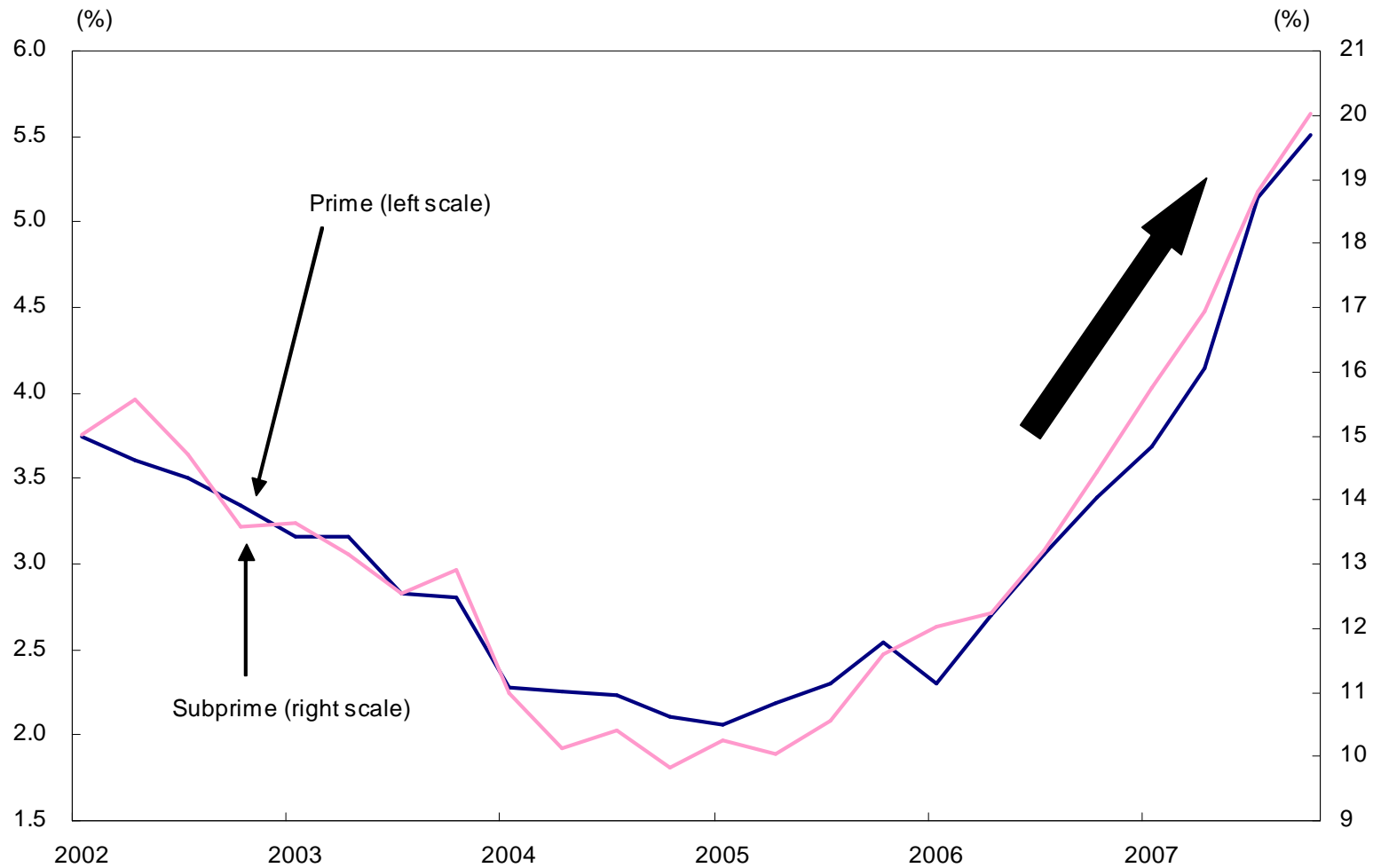
May 2008

Exhibit 1. US Housing Bubble Lasted Two Years Longer than Greenspan Expected



Sources: FRB, National Association of Realtors

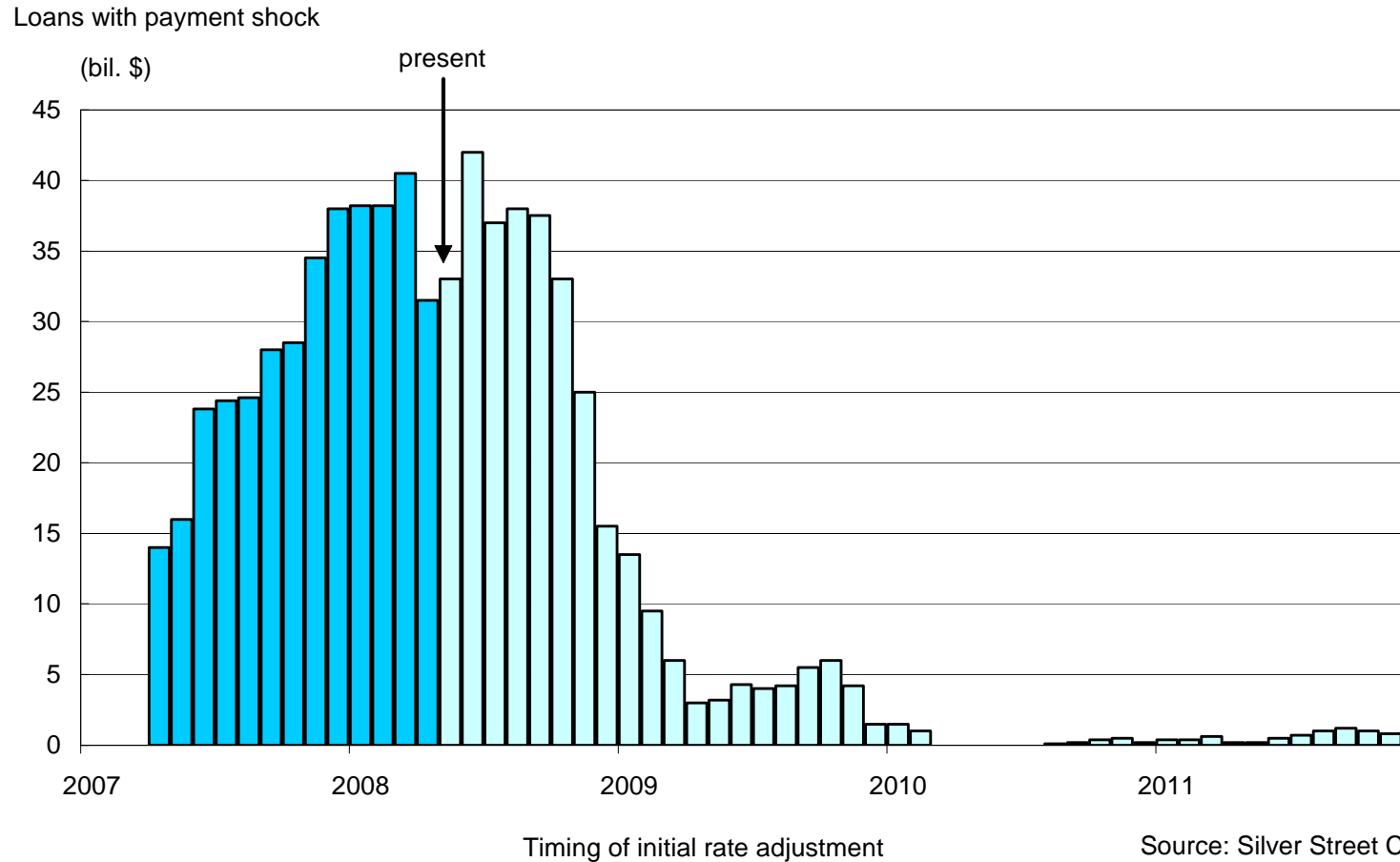
Exhibit 2. Delinquency Rates on Adjustable Rate Mortgages Are Rising Sharply



Sources: MBA, Bloomberg

Exhibit 3. Turmoil Seen So far Is Just Half the Story

The Amount of ARMs Facing Interest Rate Reset



Source: Financial Times Weekly Review of the Fund Management Industry Aug. 6, 2007. "Watch out for another wobble"

Exhibit 4. Four Kinds of Banking Crises and Their Remedies

		<i>Yang</i> Normal demand for funds	<i>Yin</i> Weak or non-existent demand for funds
		Banking Crisis	Localized
Systemic	(II) Slow NPL disposal Fat spread		(IV) Slow NPL disposal Capital injection

Type (I): the 1989 S&L crisis

Type (II): the Latin America debt crisis of 1982, the nationwide credit crunch in the US between 1991 and 1993, and the Nordic banking crisis in the early 1990s

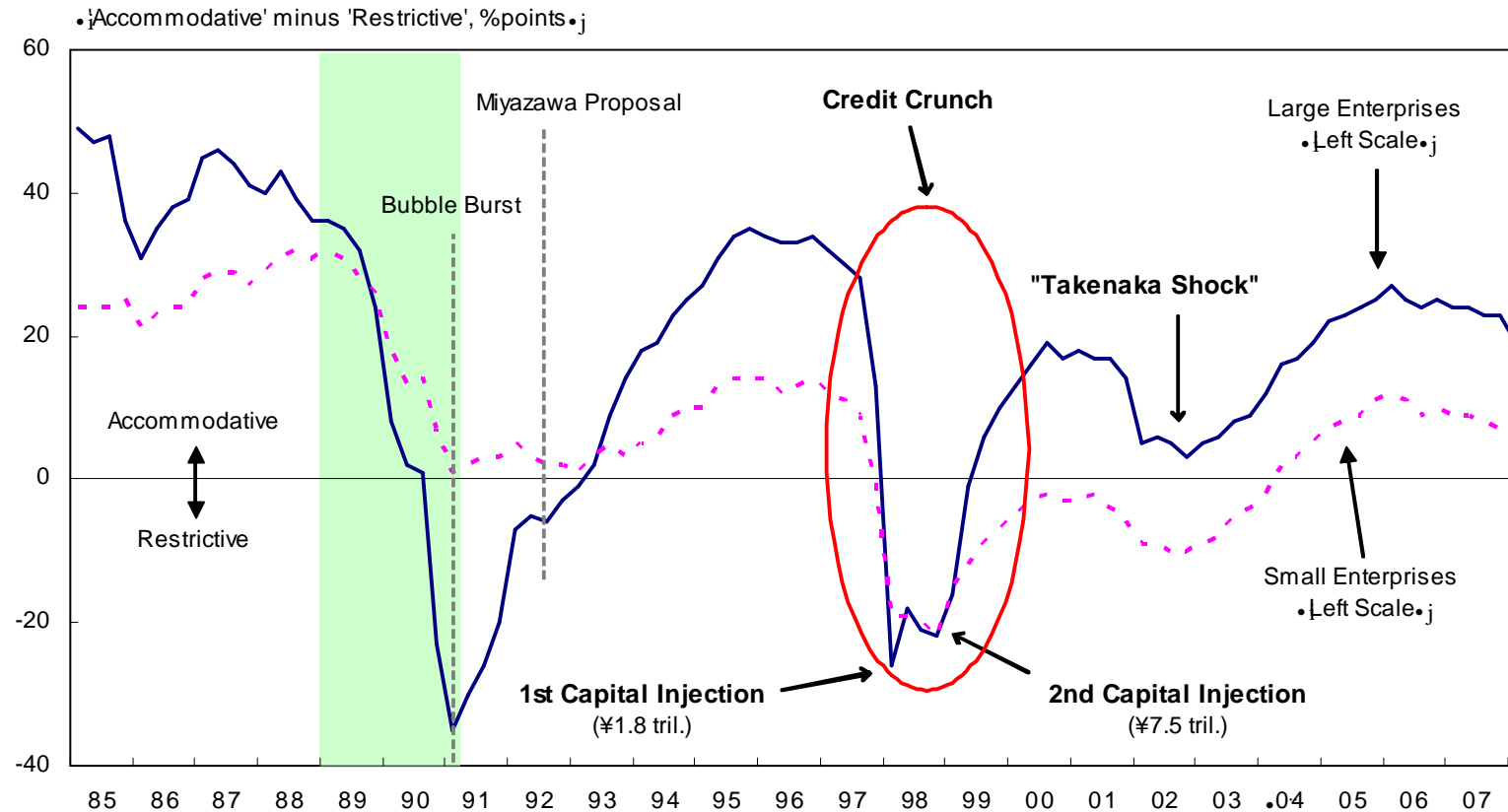
Type (III): Japan prior to 1995 (for example, problems at two credit cooperatives)

Type (IV): Japan since 1996, Taiwan since 2000, the US Great Depression of the 1930s, and US and UK subprime crisis since 2007

Source: Richard Koo, *The Holy Grail of Macroeconomics: Lessons from Japan's Great Recession*, John Wiley & Sons, Singapore, April 2008 (forthcoming).

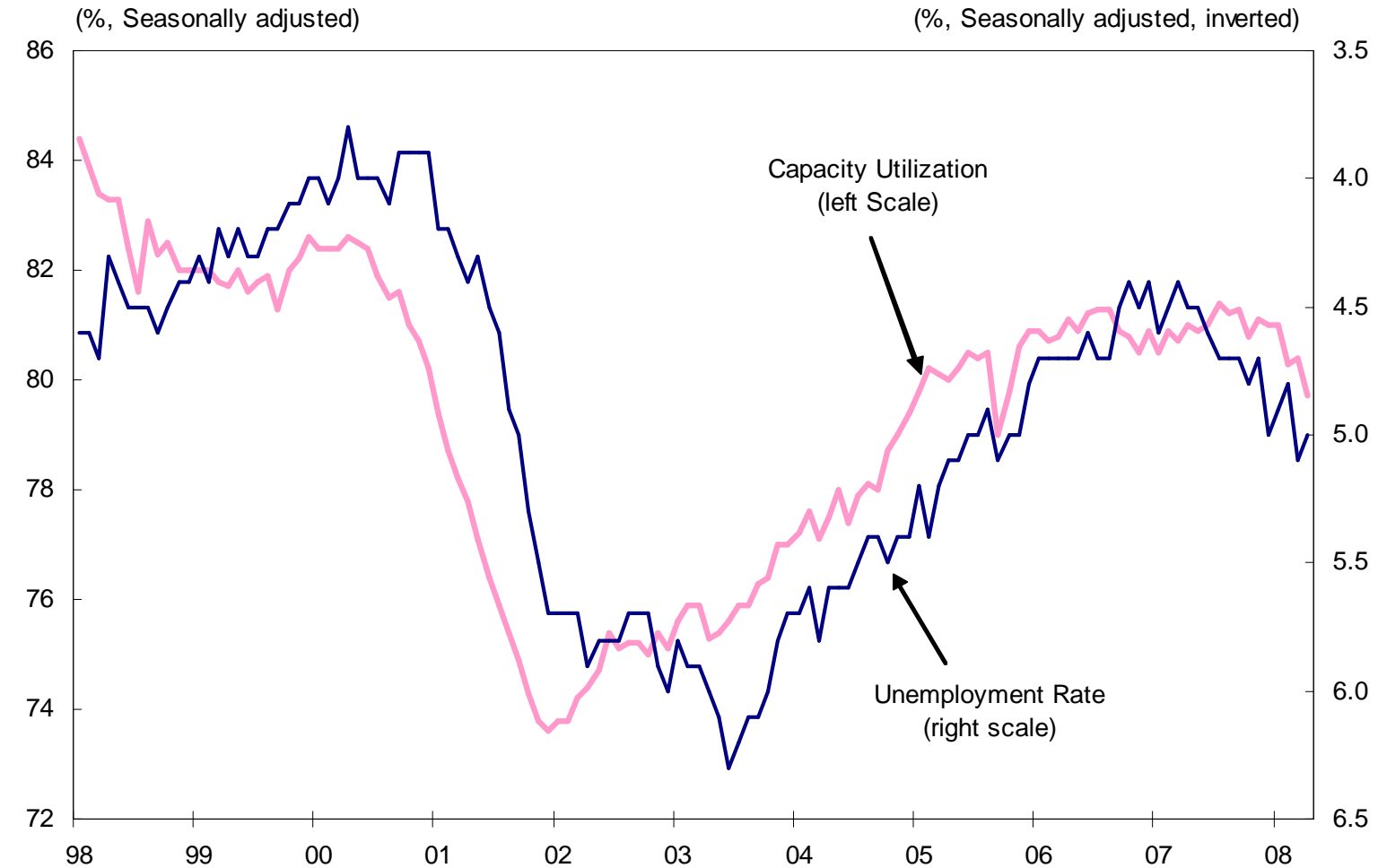
Exhibit 5. Two Capital Injections Ended the Credit Crunch in Japan

Bankers' Willingness to Lend as Seen by the Borrowers, and the Actual Credit Extended by the Banks



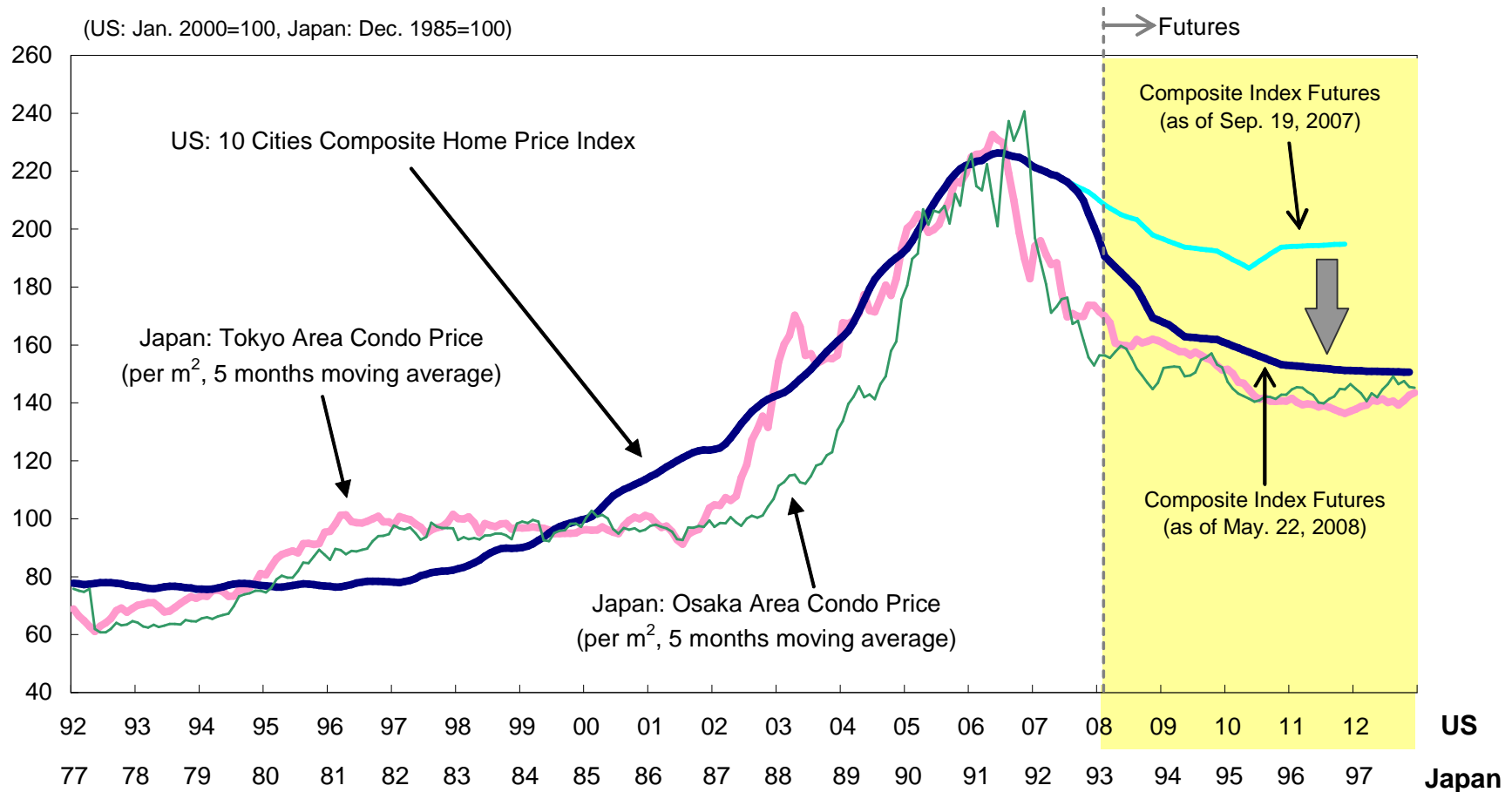
• Shaded areas indicate periods of BOJ monetary tightening •
 Source: Bank of Japan, "Tankan".

Exhibit 6. Capital Injection Is Politically Difficult when the US Economy Is Doing Well



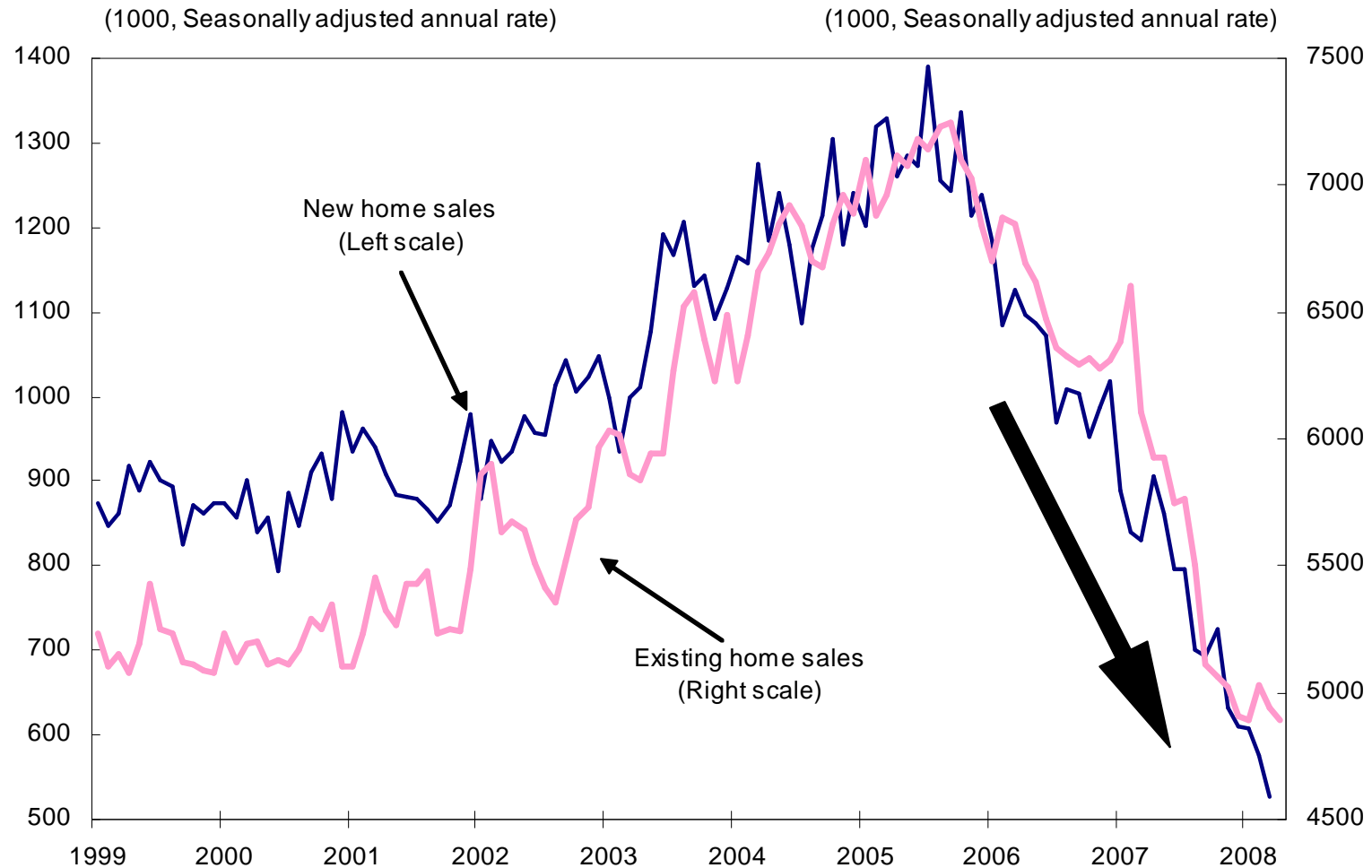
Sources: US Department of Labor, FRB

Exhibit 7. US Housing Price Futures Moving Closer to the Japanese Experience



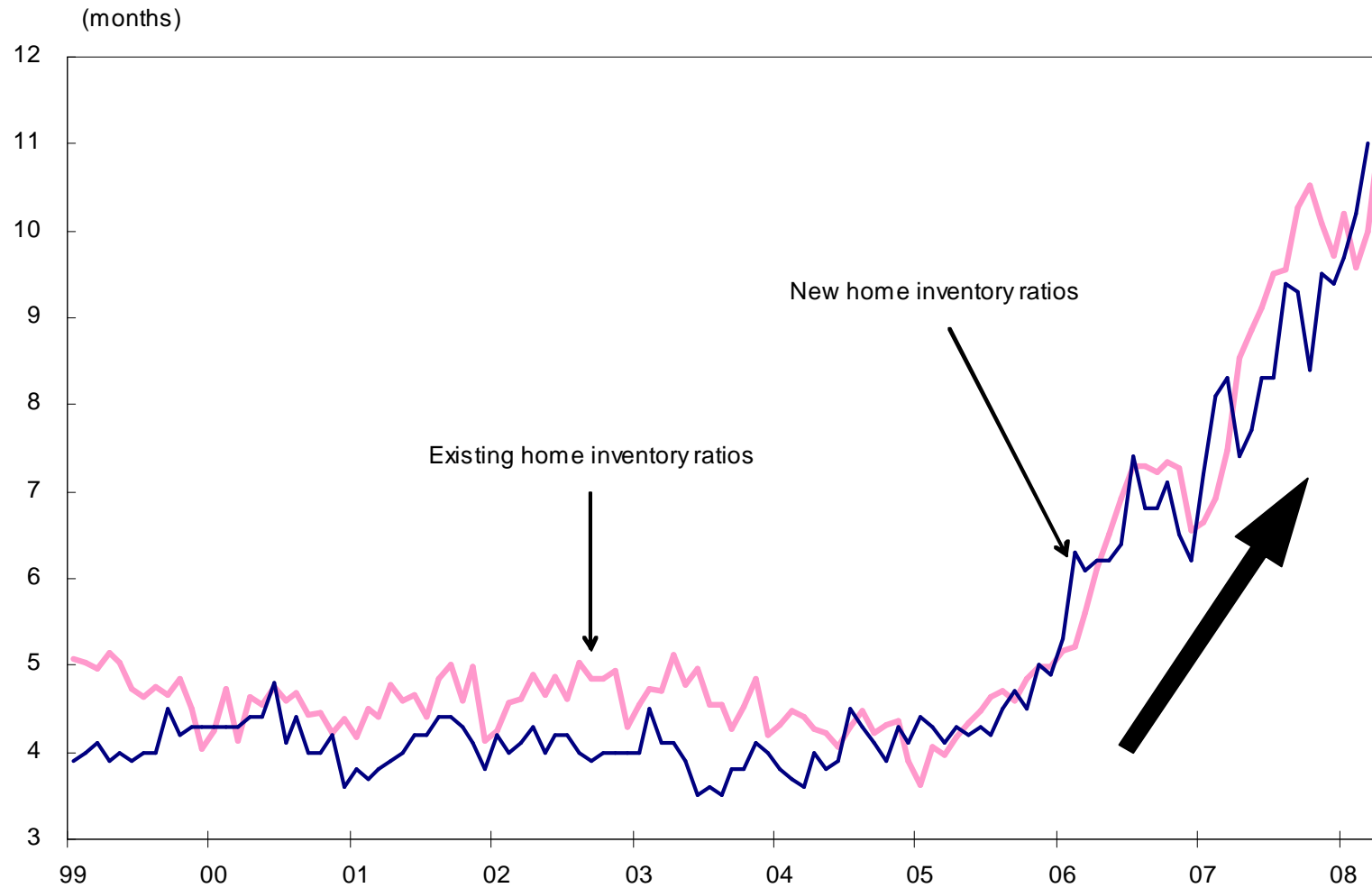
Sources: Bloomberg, Real Estate Economic Institute, Japan, S&P "S&P/Case-Shiller® Home Price Indices", as of May. 22, 2008.

Exhibit 8. US Housing Sales Are Collapsing



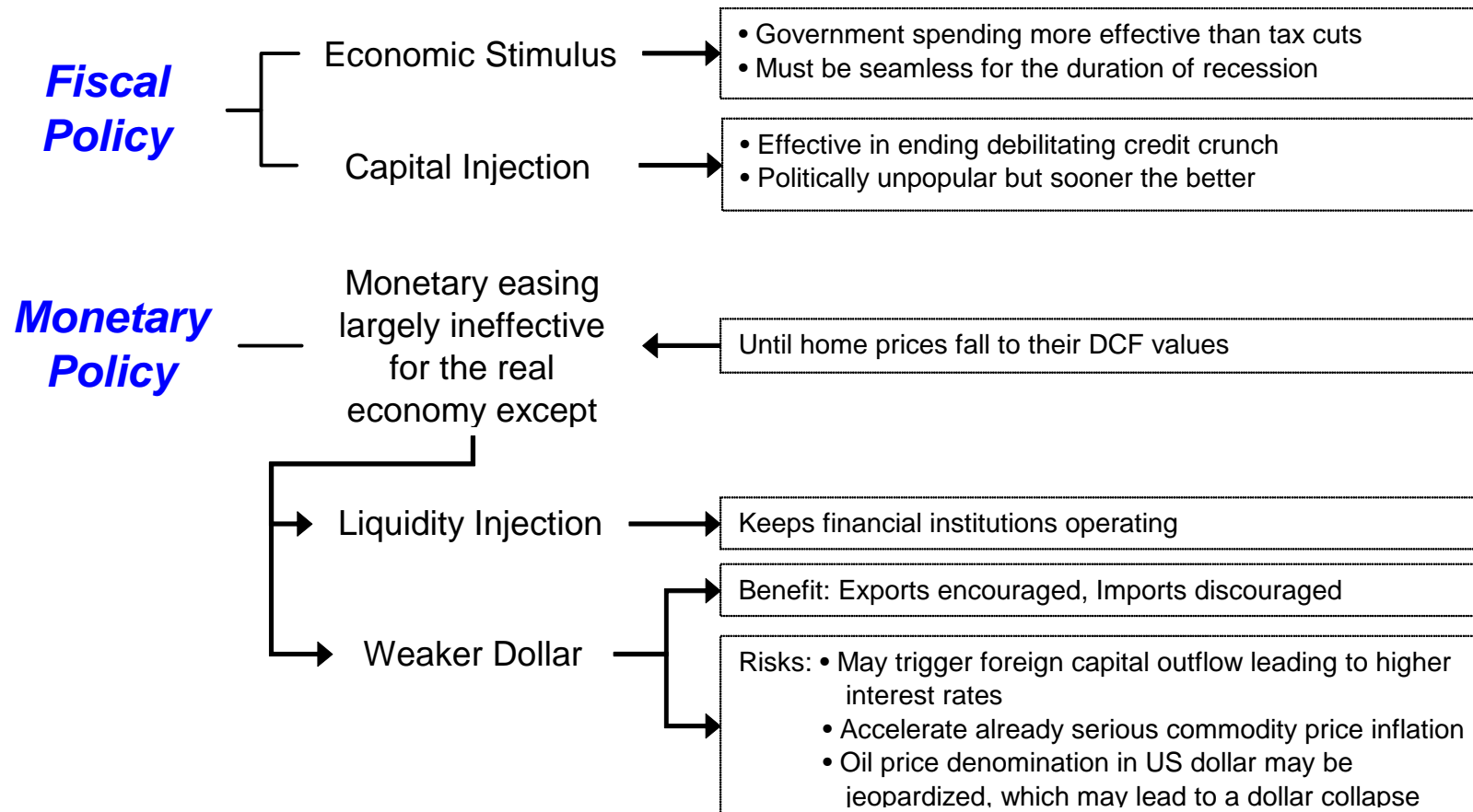
Sources: Bloomberg, National Association of Realtors, US Department of Commerce

Exhibit 9. US Home Inventory and Inventory Ratios Are at Record Levels



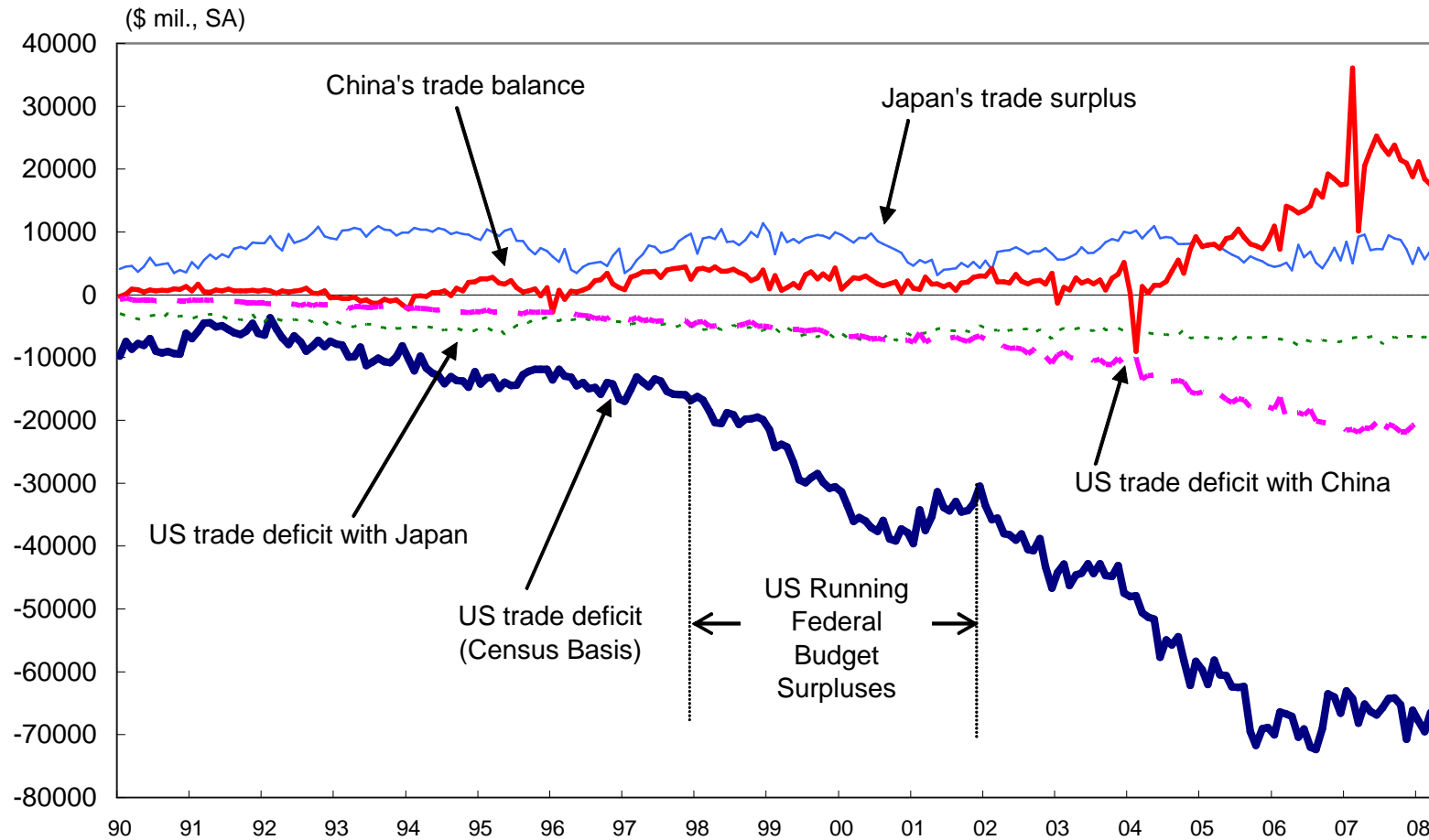
Sources: National Association of Realtors, Bloomberg

Exhibit 10. Summary of US Policy Options Based on Japan's Experience



Source: Nomura Research Institute

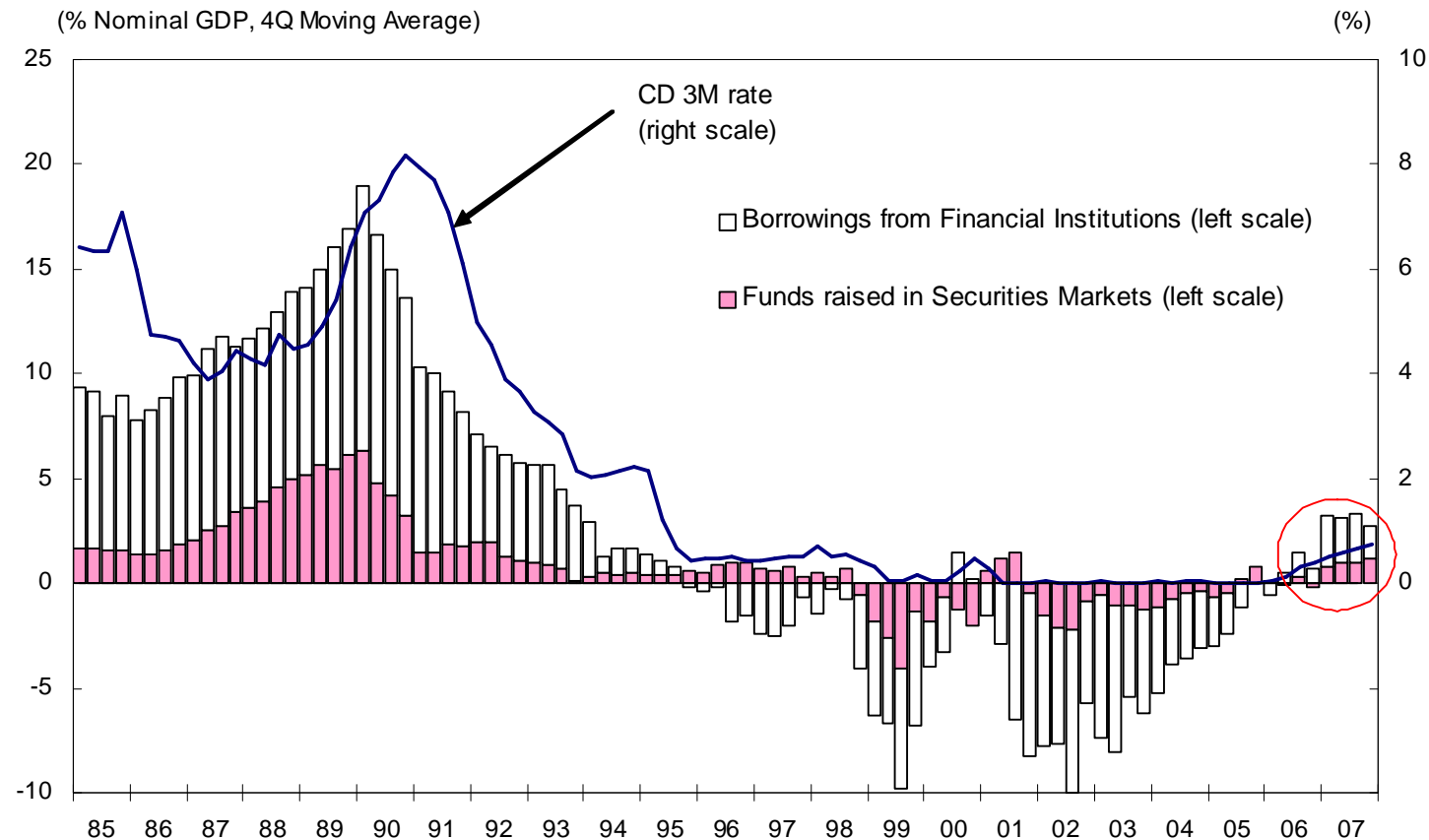
Exhibit 11. US Trade Deficit Is Still Enormous



Sources: US Department of Commerce, US Department of Treasury, Ministry of Finance Japan
 National Bureau of Statistics of China
 These data are seasonally adjusted by Nomura Research Institute.

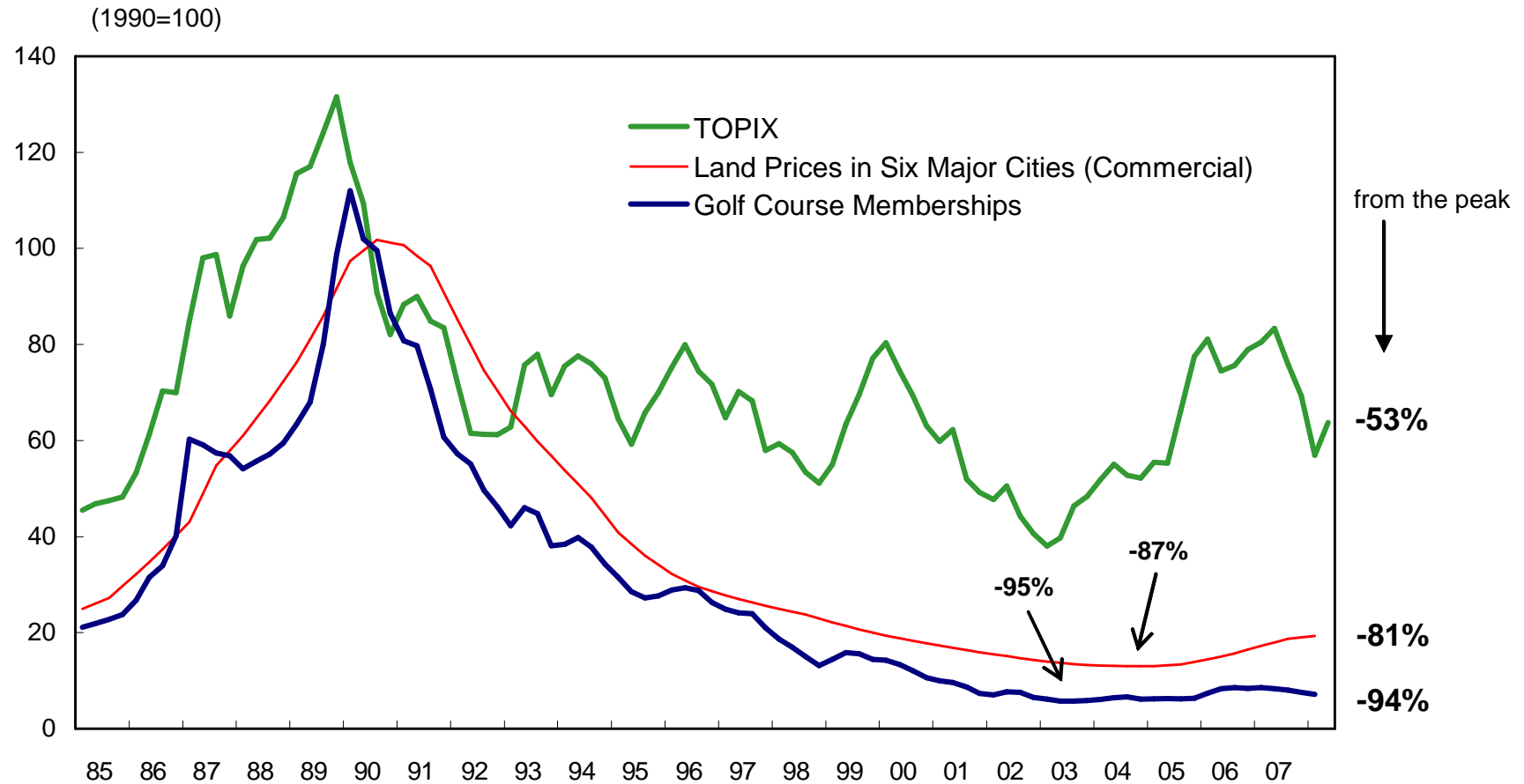
Exhibit 12. Japanese Companies Had Been Paying Down Debt even with Zero Interest Rates

Funds Raised by Non-Financial Corporate Sector



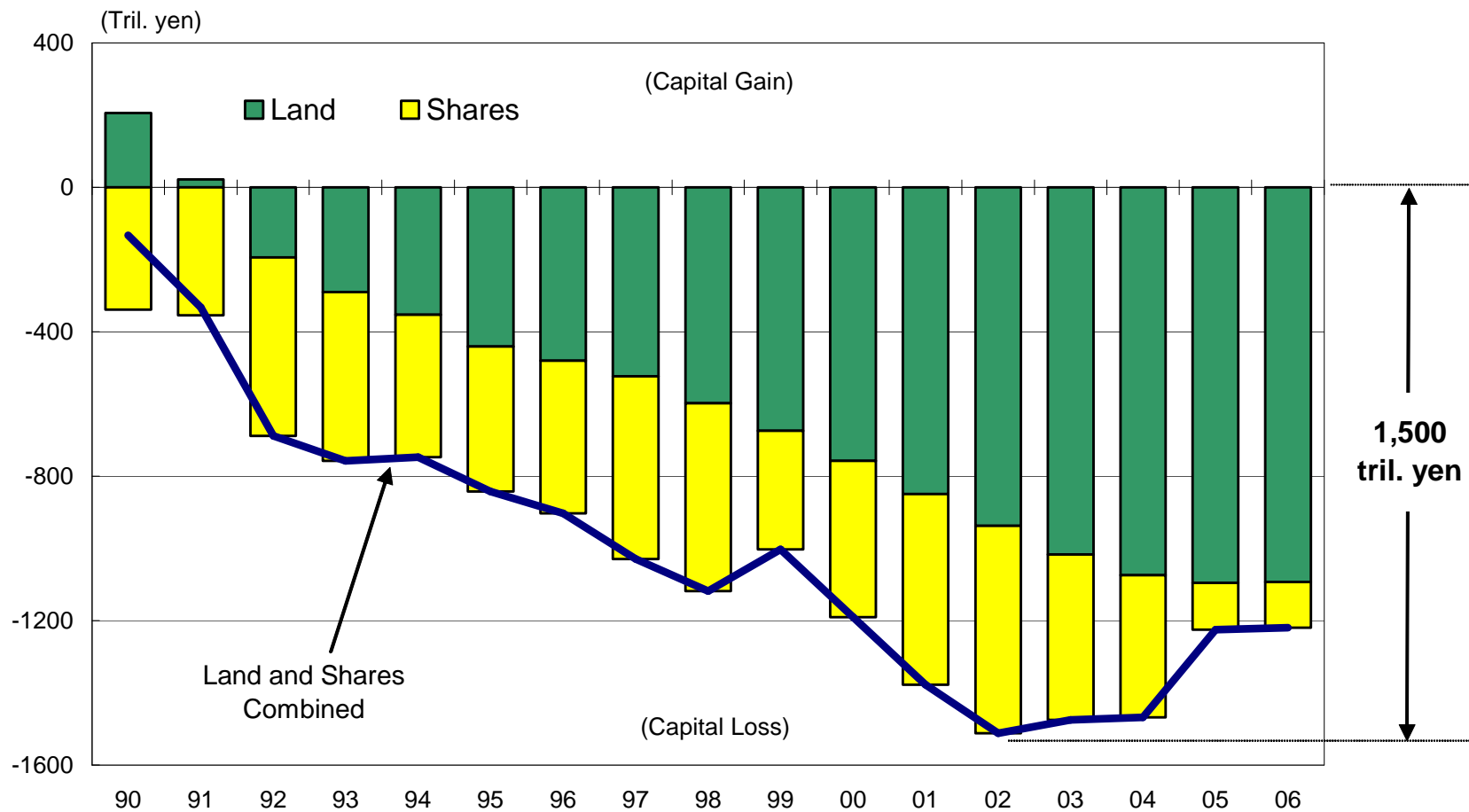
Sources: Bank of Japan, Cabinet Office, Japan

Exhibit 13. Debt Repayment Prompted by Collapse in Asset Prices



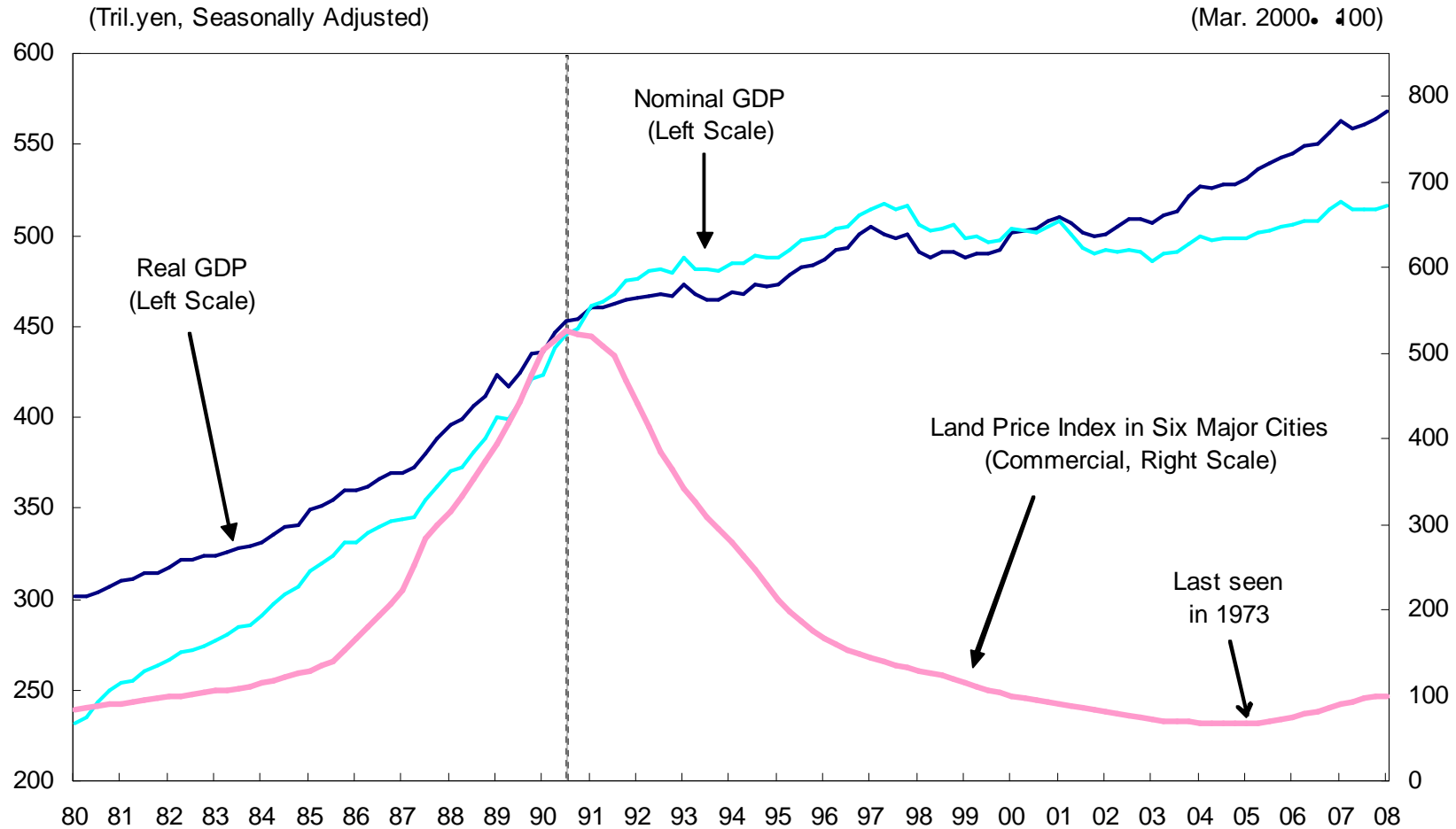
Sources: Tokyo Stock Exchange, Japan Real Estate Institute, *Nikkei Sangyo Shimbun*

Exhibit 14. Cumulative Capital Losses on Shares and Land since End-1989 Reached 1,500 Trillion Yen



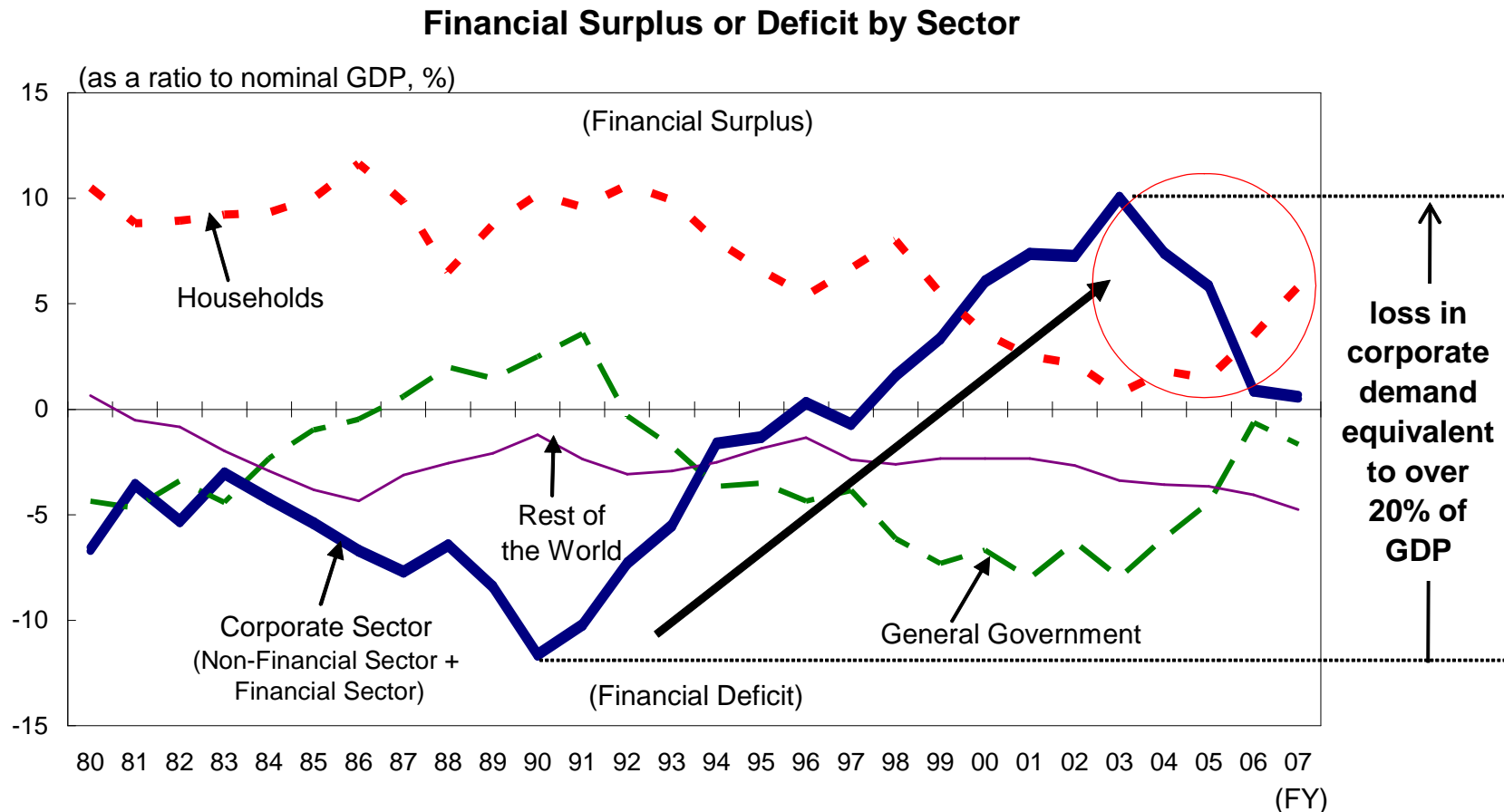
Source: Cabinet Office, Japan "National Accounts"

Exhibit 15. Japan's GDP Grew even after the Bursting of the Bubble



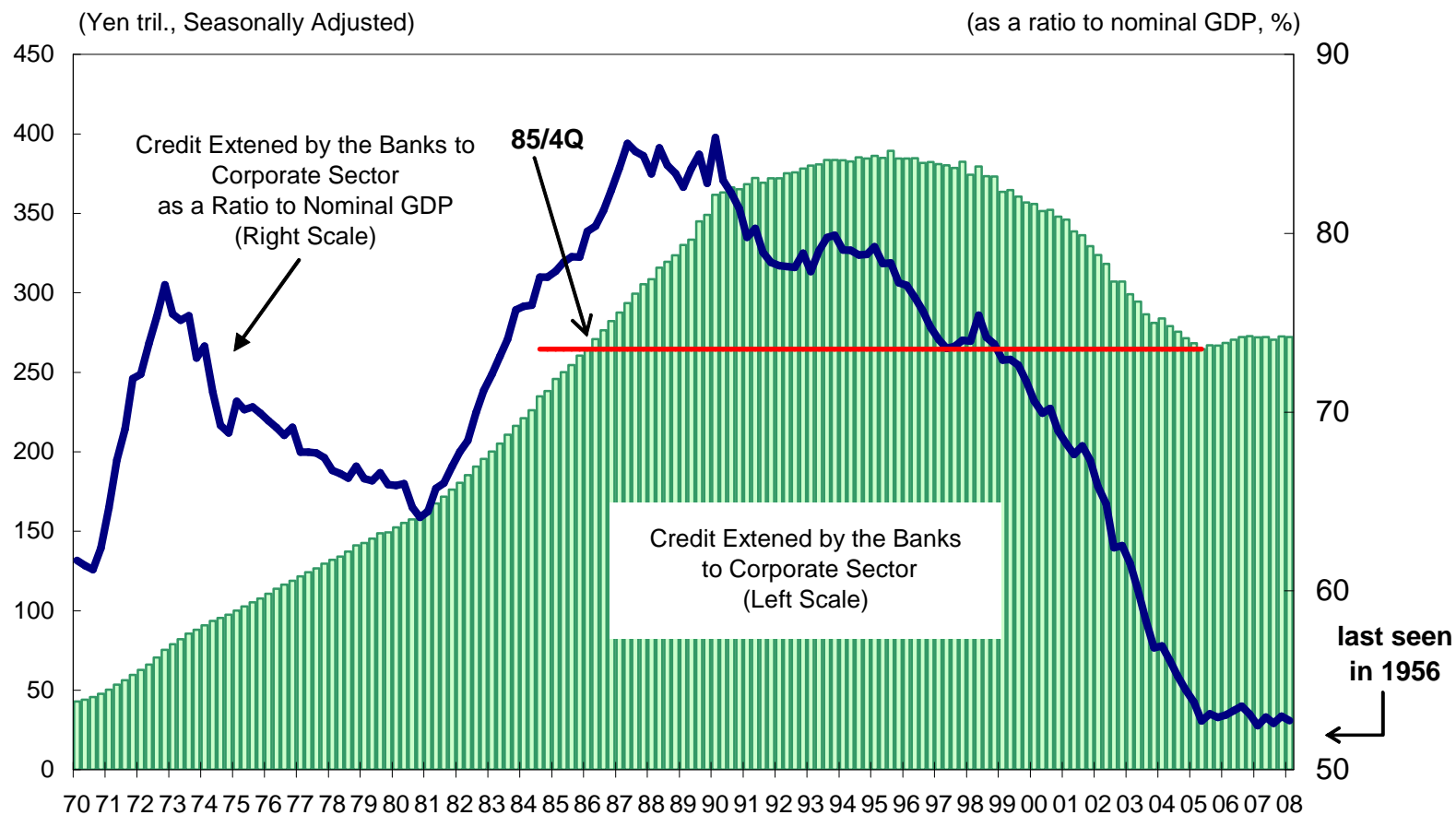
Sources: Cabinet Office, Japan Real Estate Institute

Exhibit 16. Government Fiscal Stimulus Largely Neutralized Corporate Debt Repayment



Sources: Bank of Japan, *Flow of Funds Accounts*, and Government of Japan, Cabinet Office, *National Accounts*
 Note: For fiscal 07' figures, 4 quarter averages ending with 4Q/07' are used.

Exhibit 17. Japanese Companies Made Huge Progress in Reducing Debt Overhang



Sources : Bank of Japan, "Loans and Discounts Outstanding by Sector" "Loans to Individuals", Cabinet Office, Japan "National Accounts"

Notes: 1. 'Credit Extended by the Banks to Corporation' is extended to 1970 by NRI after adjustment for discontinuities in statistics in 1993 and again in 1975.

• @@@ 2. As a percentage of nominal GDP. For GDP statistics before 1979, 68 SNA is used.

Exhibit 18. Japanese Corporate Leverage Came Down Sharply

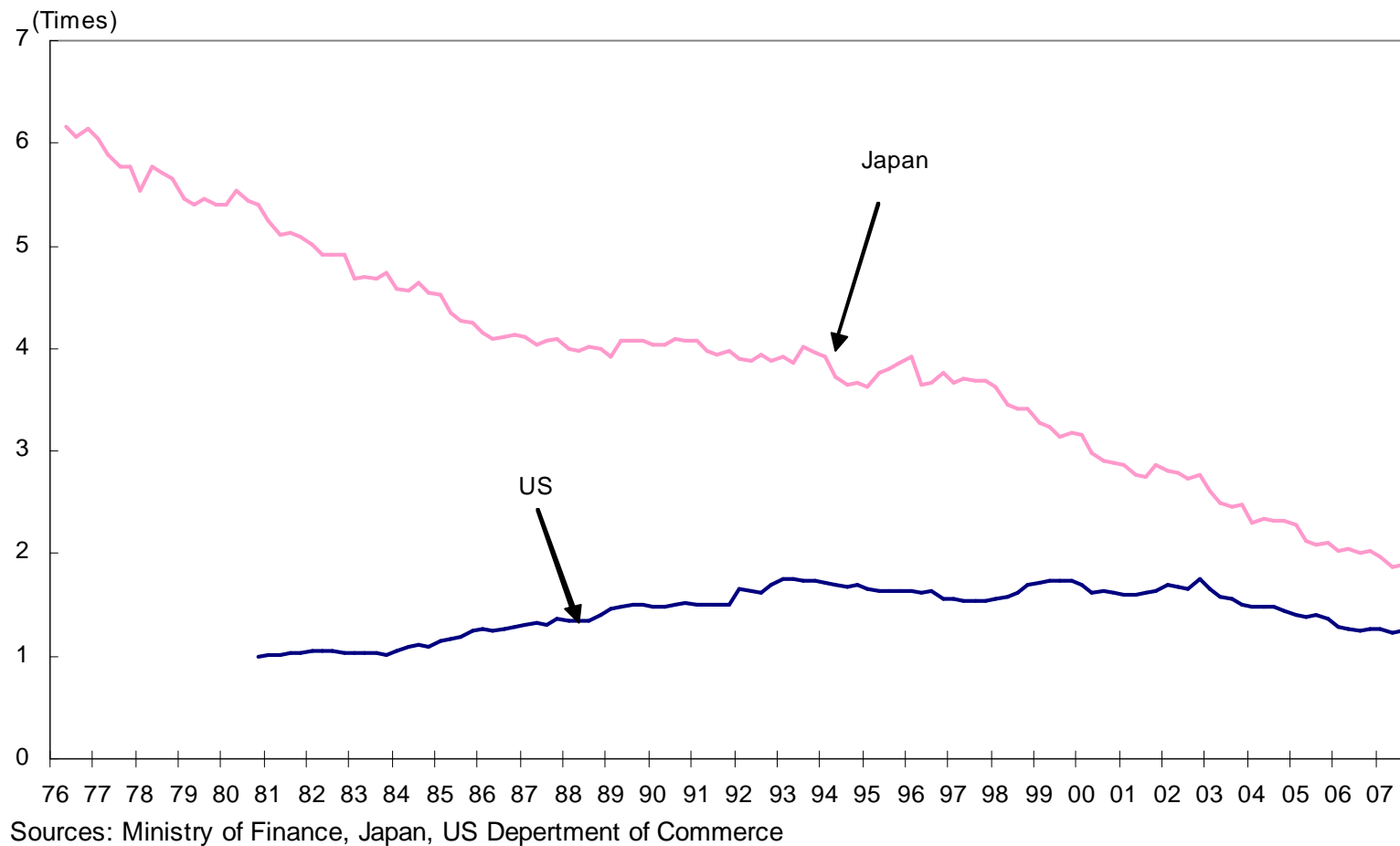
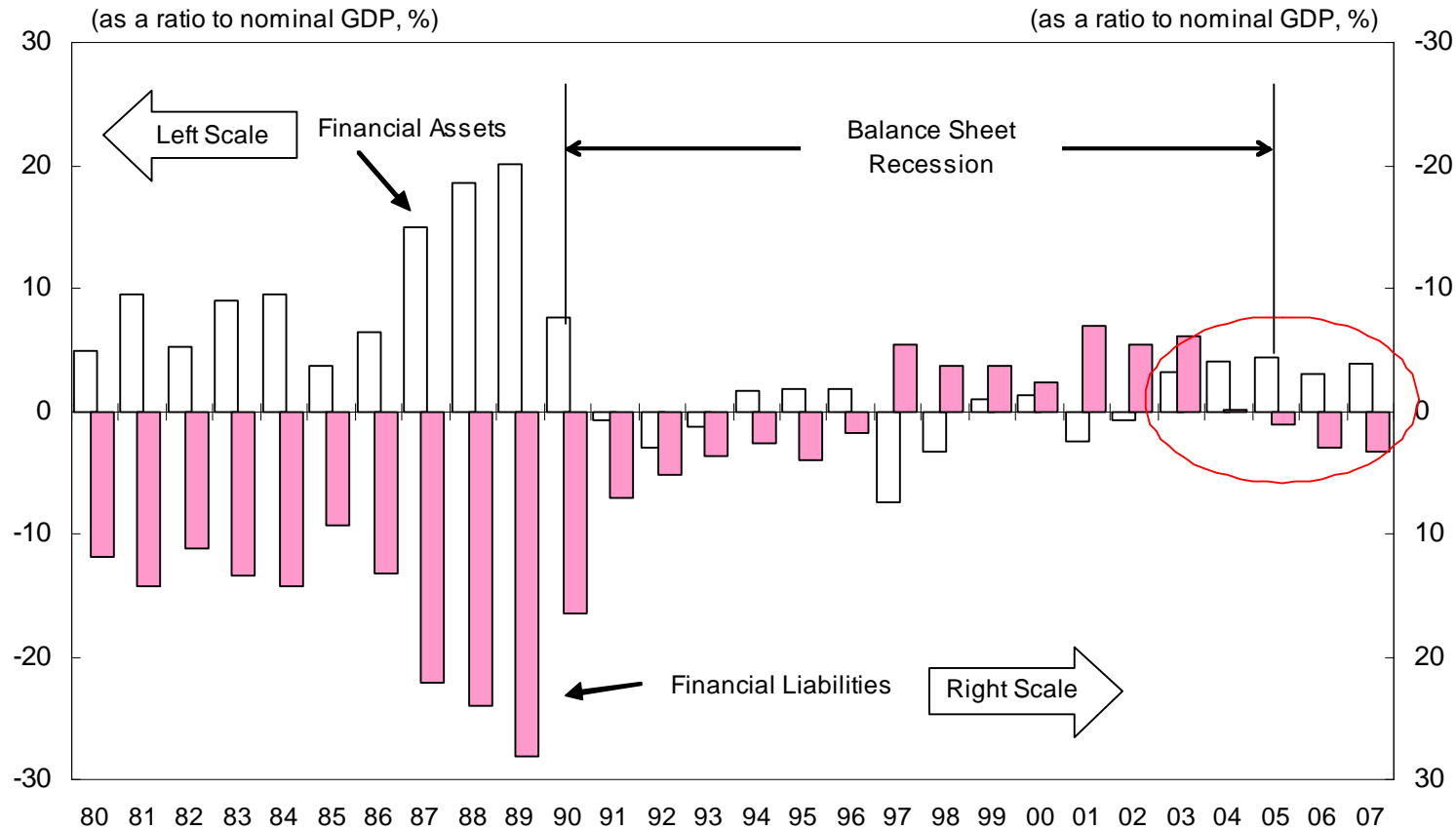
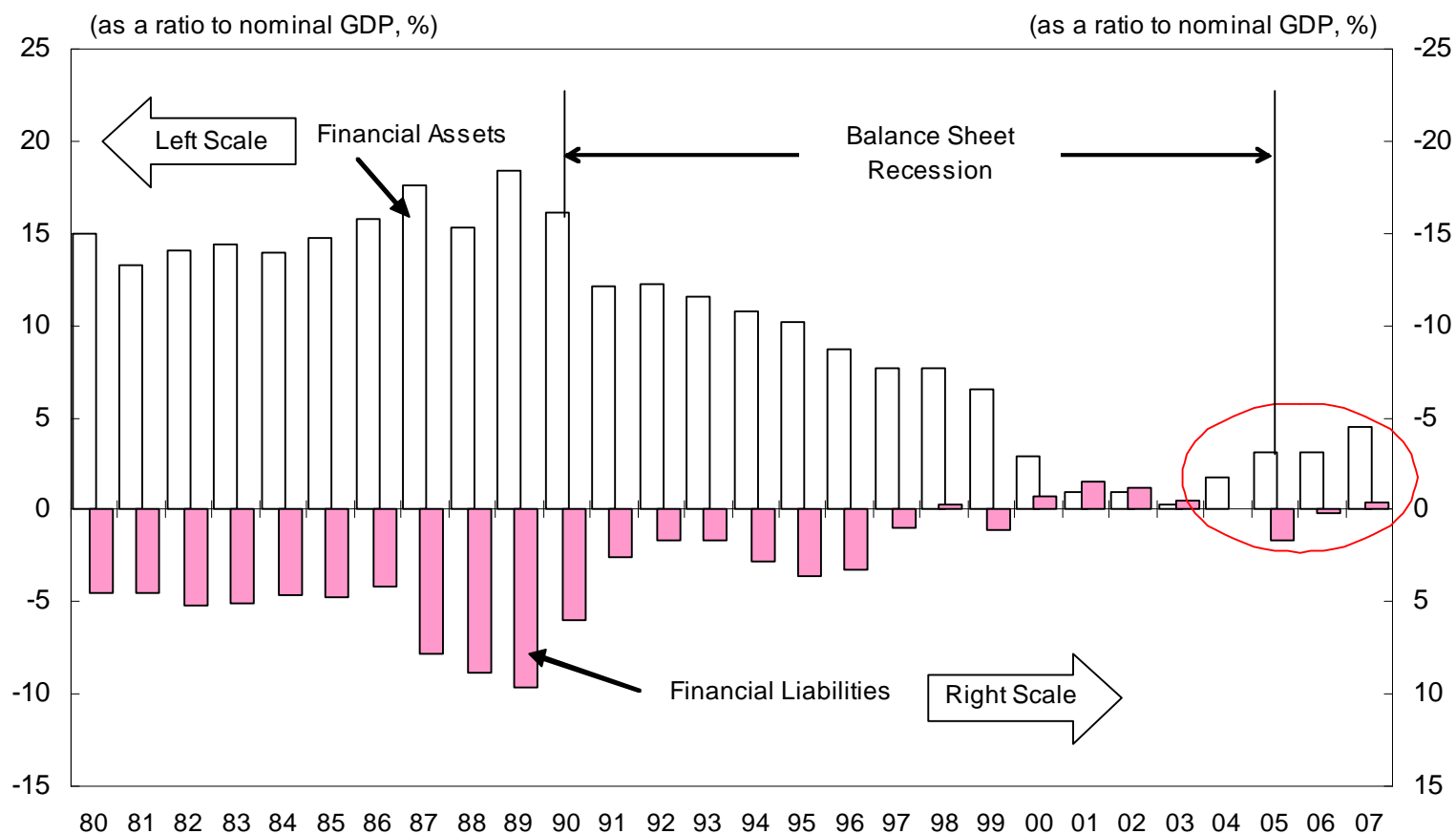


Exhibit 19. Japanese Companies Have Finished Debt Repayments, and Are Now Rebuilding Financial Assets



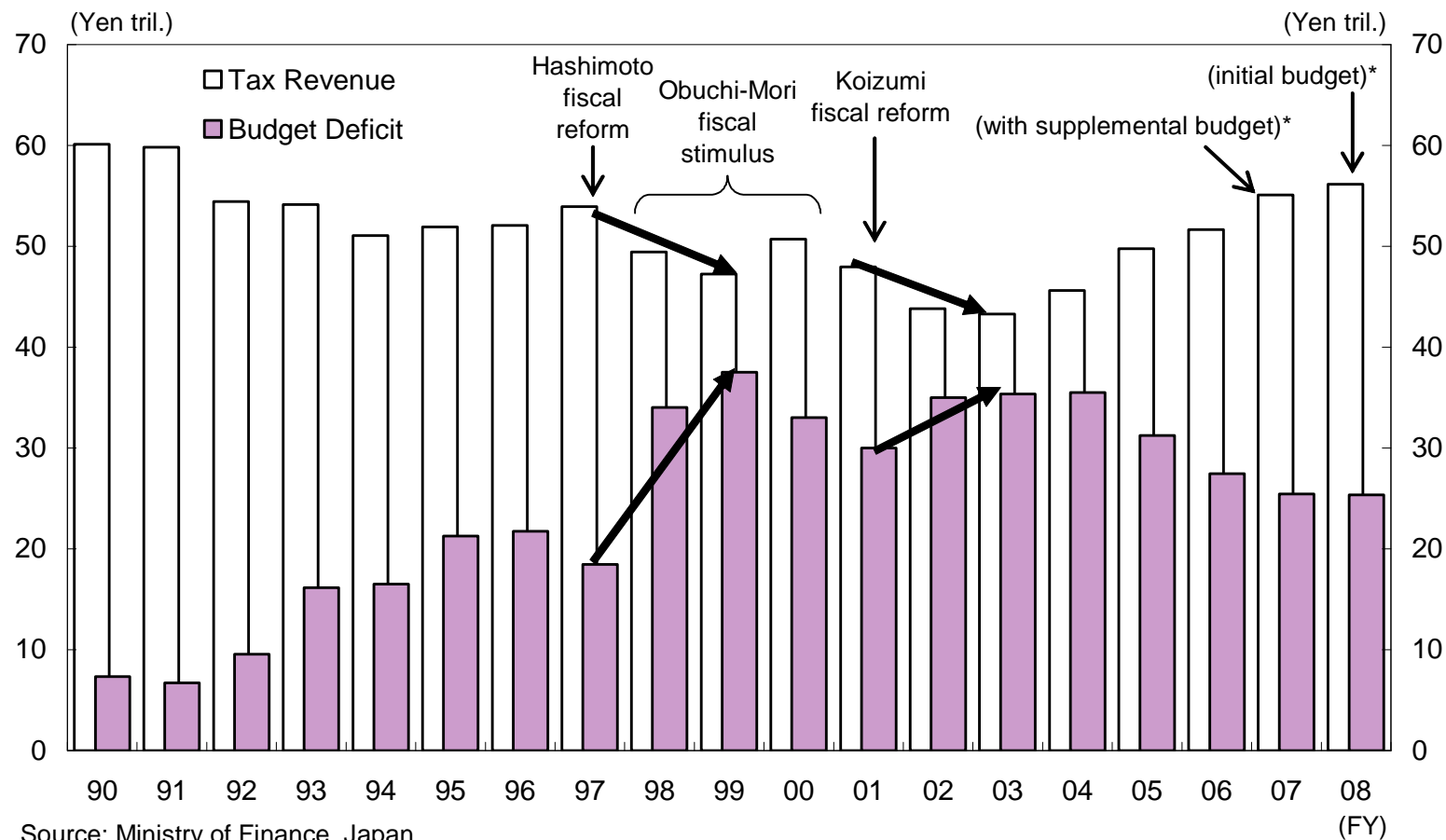
Sources: Bank of Japan, Flow of Funds Accounts, and Government of Japan, Cabinet Office, National Accounts
 Note: For fiscal 07' figures, 4 quarter averages ending with 4Q/07' are used.

Exhibit 20. Japanese Household Savings Are also Recovering



Sources: Bank of Japan, Flow of Funds Accounts, and Government of Japan, Cabinet Office, National Accounts
 Note: For fiscal 07' figures, 4 quarter averages ending with 4Q/07' are used.

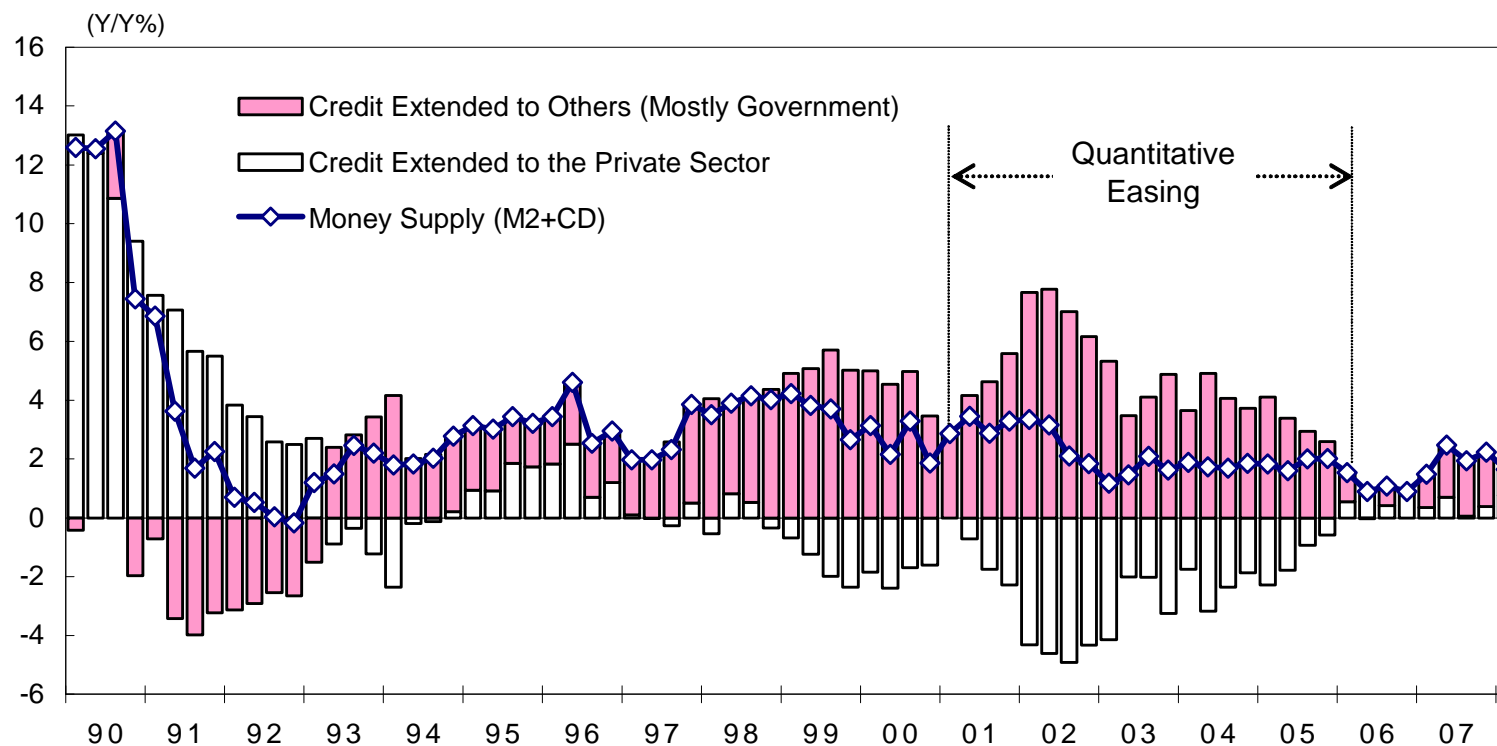
Exhibit 21. Premature Fiscal Reforms in 1997 and 2001 Actually Reduced Tax Revenue and Increased Deficit



Source: Ministry of Finance, Japan

*: estimated by MOF

Exhibit 22. Money Supply Is Kept Up by Government Borrowings (I)



Sources: Bank of Japan "Monetary Survey", "Changes in Money Stock (M2+CD), and Credit Statistics"

Notes: "Credit extended to others"= (1) public sector + (2) foreign assets (net) + (3) others.

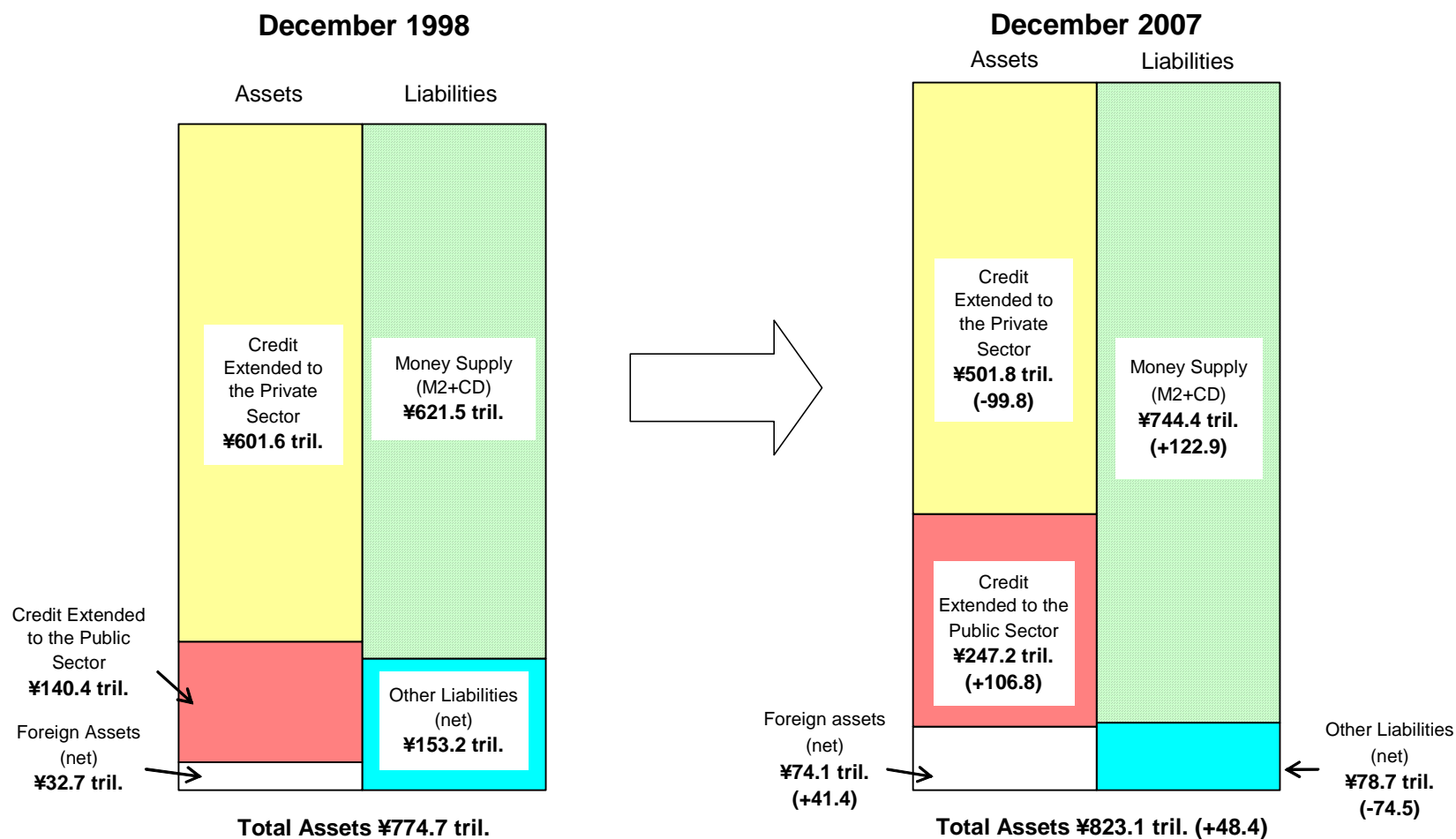
(1) Public Sector = credit to the government (net) + credit to regional public sector bodies + credit to public corporations

(3) Others= (money + quasi-money + CD) - (foreign assets (net) + domestic credit).

Therefore, increase or decrease in "Credit extended to others" will include impact of increase/decrease in public sector debt, increase/decrease in bank debentures issued by private sector banks and deposits of financial institutions, and errors in data.

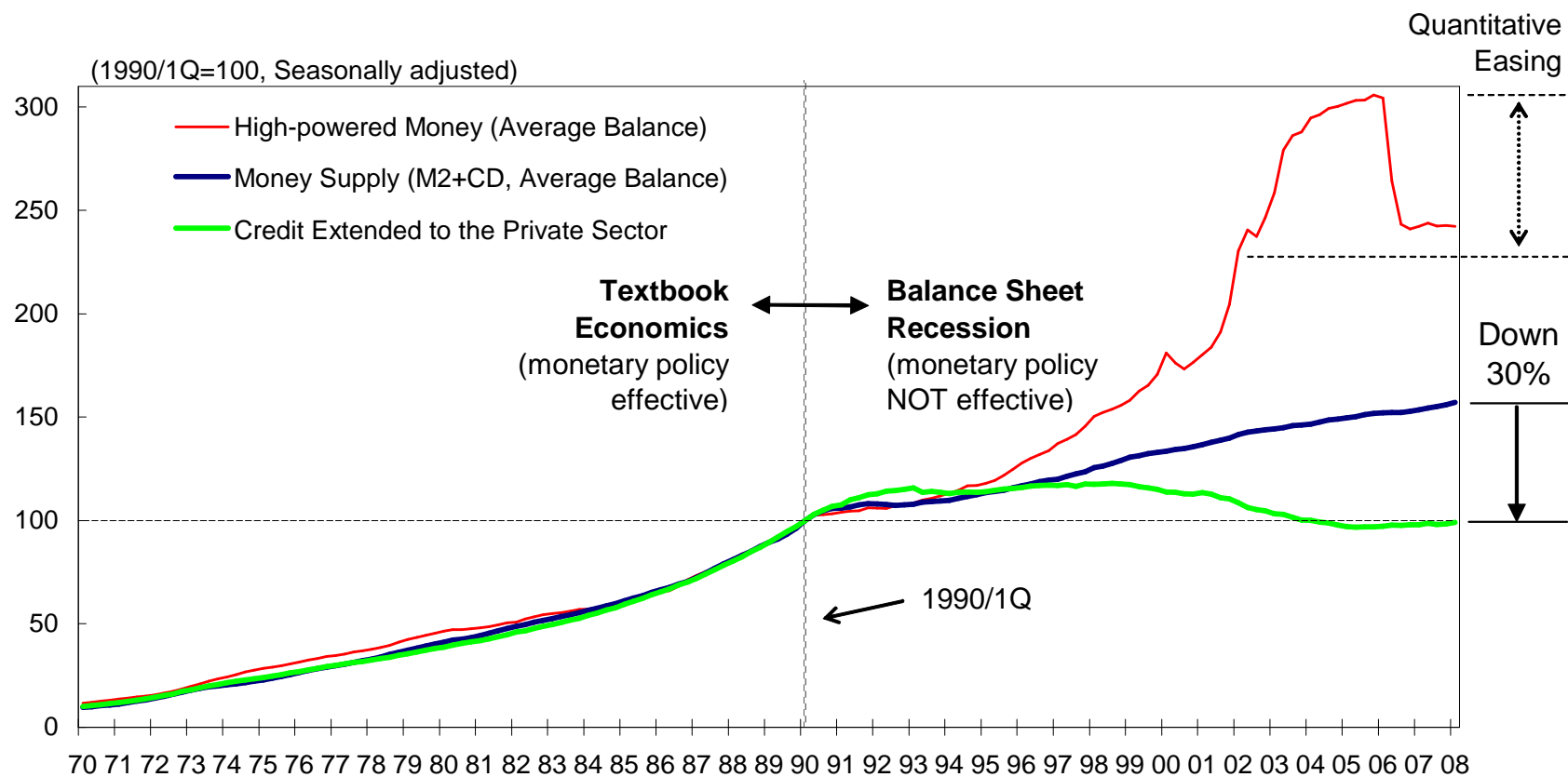
Exhibit 23. Money Supply Is Kept Up by Government Borrowings (II)

Balance Sheets of Banks in Japan



Source: Bank of Japan "Monetary Survey"

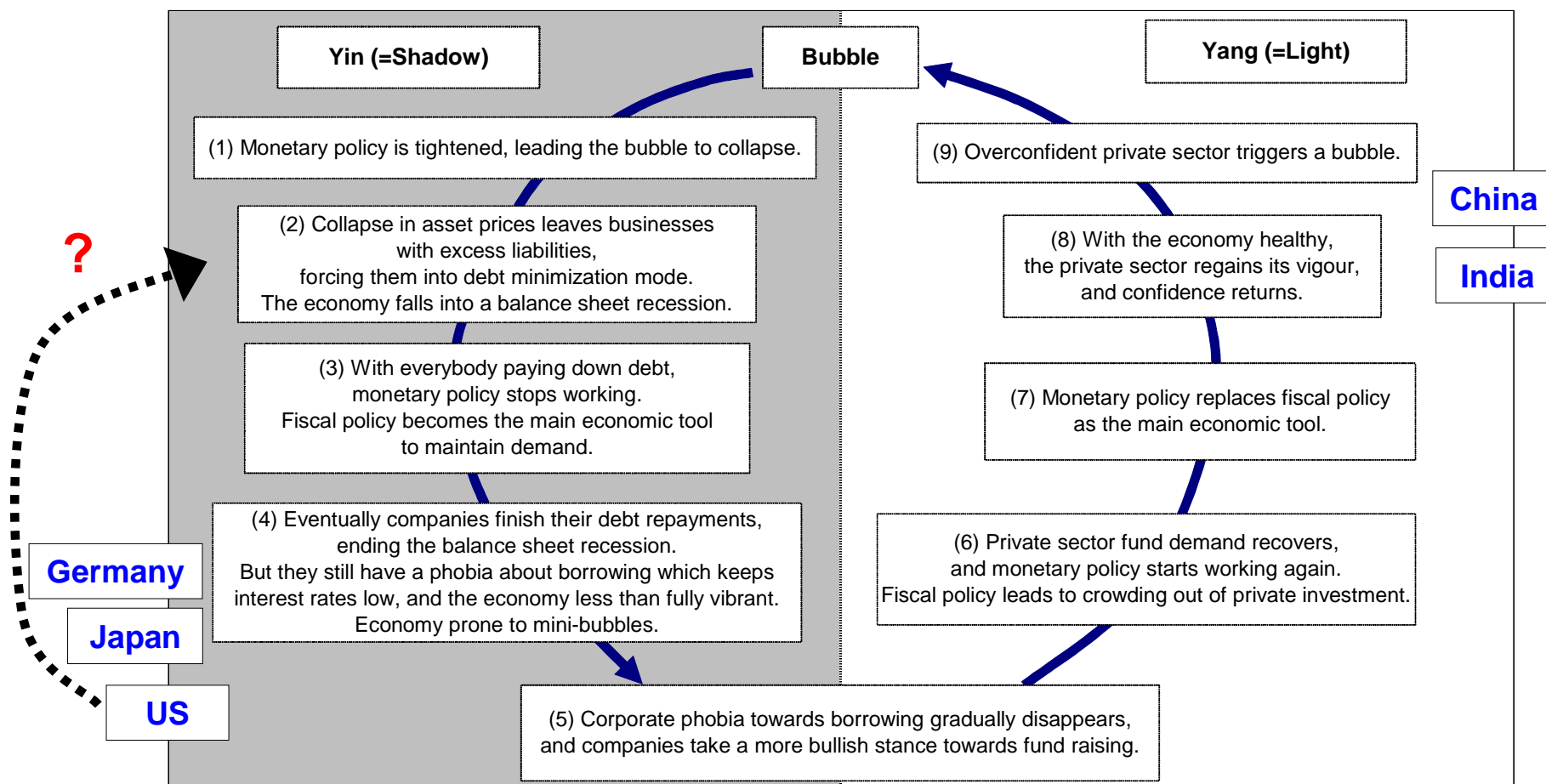
Exhibit 24. Monetary Aggregates Behave Totally Differently under Balance Sheet Recession



Note: Private sector borrowings seasonally adjusted by Nomura, adjustments made for discontinuities in line with BOJ's "Monetary Survey"

Source: Bank of Japan

Exhibit 25. Yin Yang Cycle of Bubbles and Balance Sheet Recessions



Source: Richard Koo, *The Holy Grail of Macroeconomics: Lessons from Japan's Great Recession*, op.cit.

Exhibit 26. Contrast Between Yin and Yang Phases of a Cycle

		<i>Yang</i>	<i>Yin</i>
1) Phenomenon		Textbook economy	Balance sheet recession
2) Fundamental driver		Adam Smith's "invisible hand"	Fallacy of composition
3) Corporate financial condition		Assets > Liabilities	Assets < Liabilities
4) Behavioral principle		Profit maximization	Debt minimization
5) Outcome		Greatest good for greatest number	Depression if left unattended
6) Monetary policy		Effective	Ineffective (liquidity trap)
7) Fiscal policy		Counterproductive (crowding-out)	Effective
8) Prices		Inflation	Deflation
9) Interest rates		Normal	Very low
10) Savings		Virtue	Vice (paradox of thrift)
11) Remedy for Banking Crisis	a) Localized	Quick NPL disposal Pursue accountability	Normal NPL disposal Pursue accountability
	b) Systemic	Slow NPL disposal Fat spread	Slow NPL disposal Capital injection

Source: Compiled by Nomura Research Institute based on Eizo Kinoshita,
Keizai wo shihai suru futatsu no housoku, Denki Shoin, p. 92.