

**The Age of Balance Sheet Recessions:
What Post-2008 U.S., Europe and China
Can Learn from Japan 1990-2005**

Richard C. Koo

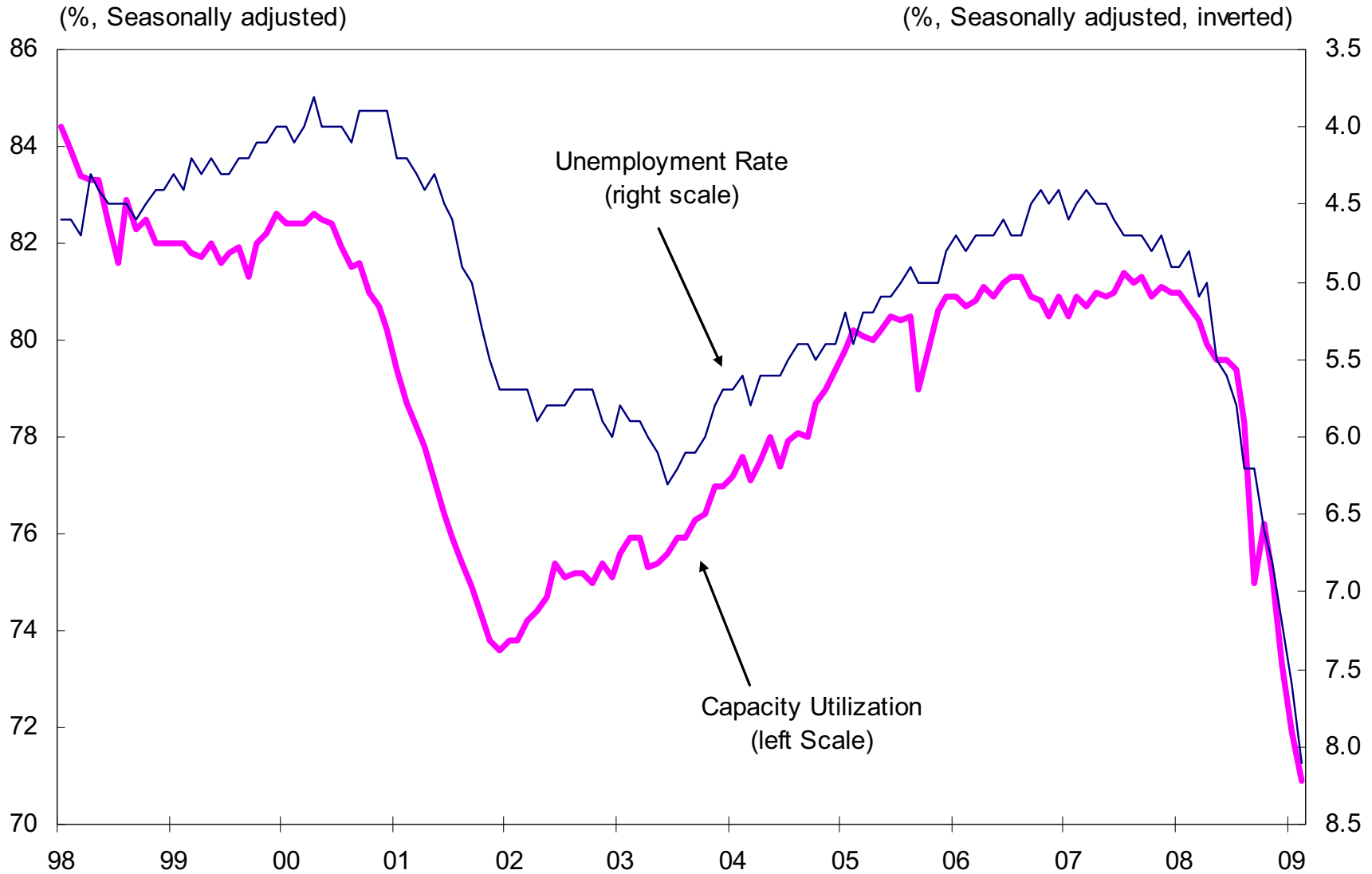
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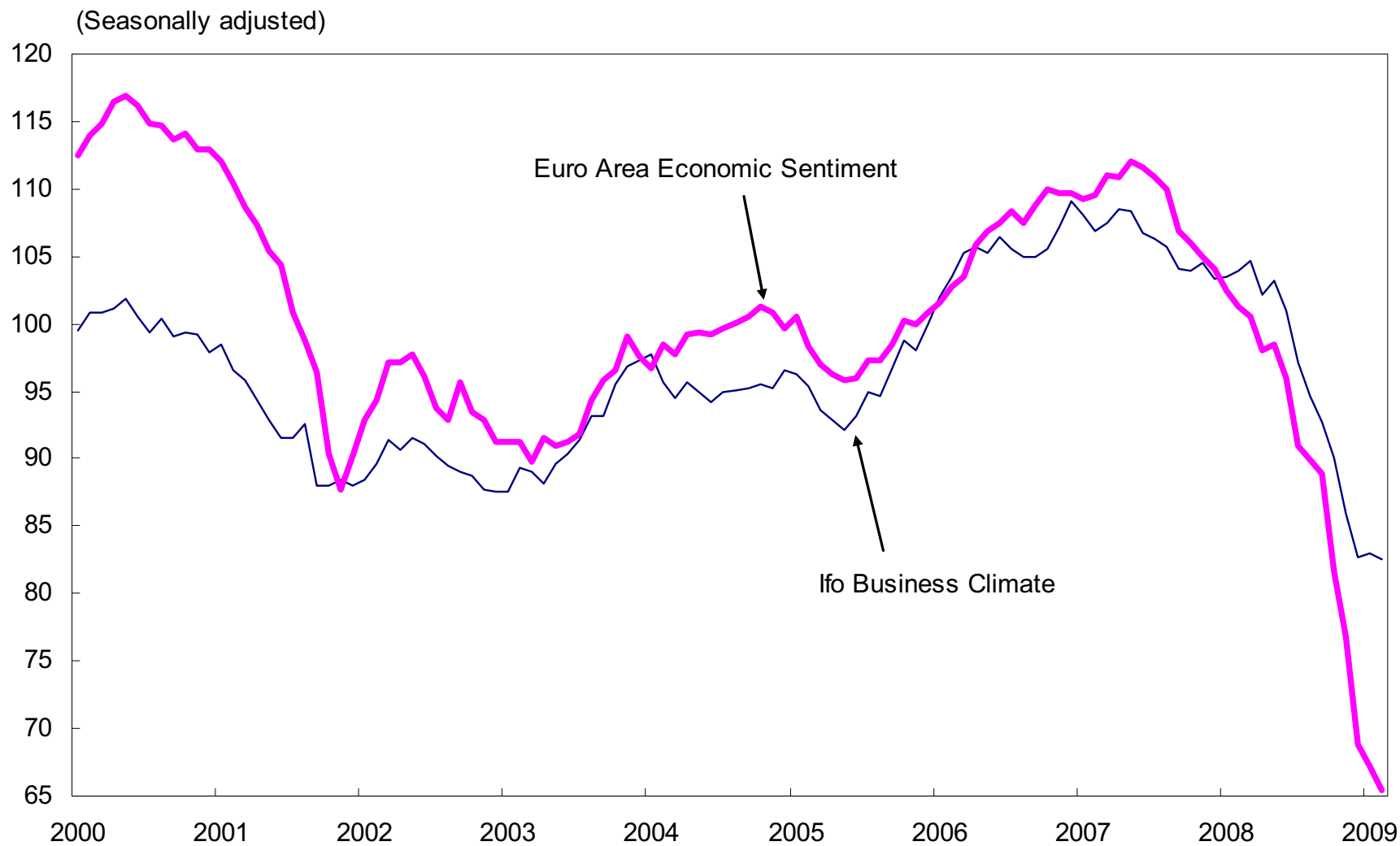
March 2009

Exhibit 1. US Economy Is Deteriorating Rapidly



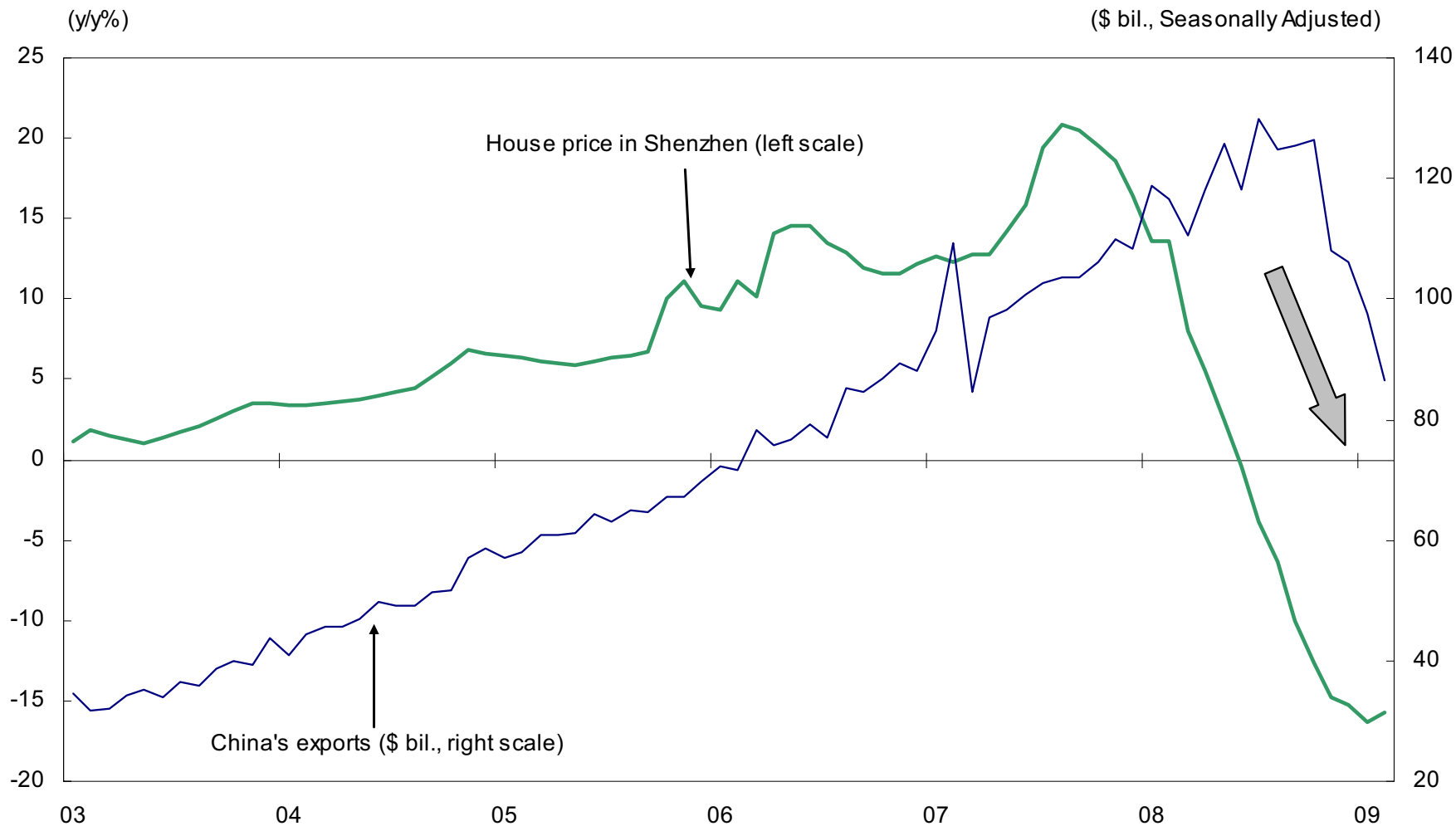
Sources: US Department of Labor, FRB

Exhibit 2. EU Economic Sentiments Are Worsening



Source: Ifo Business Survey, European Commission

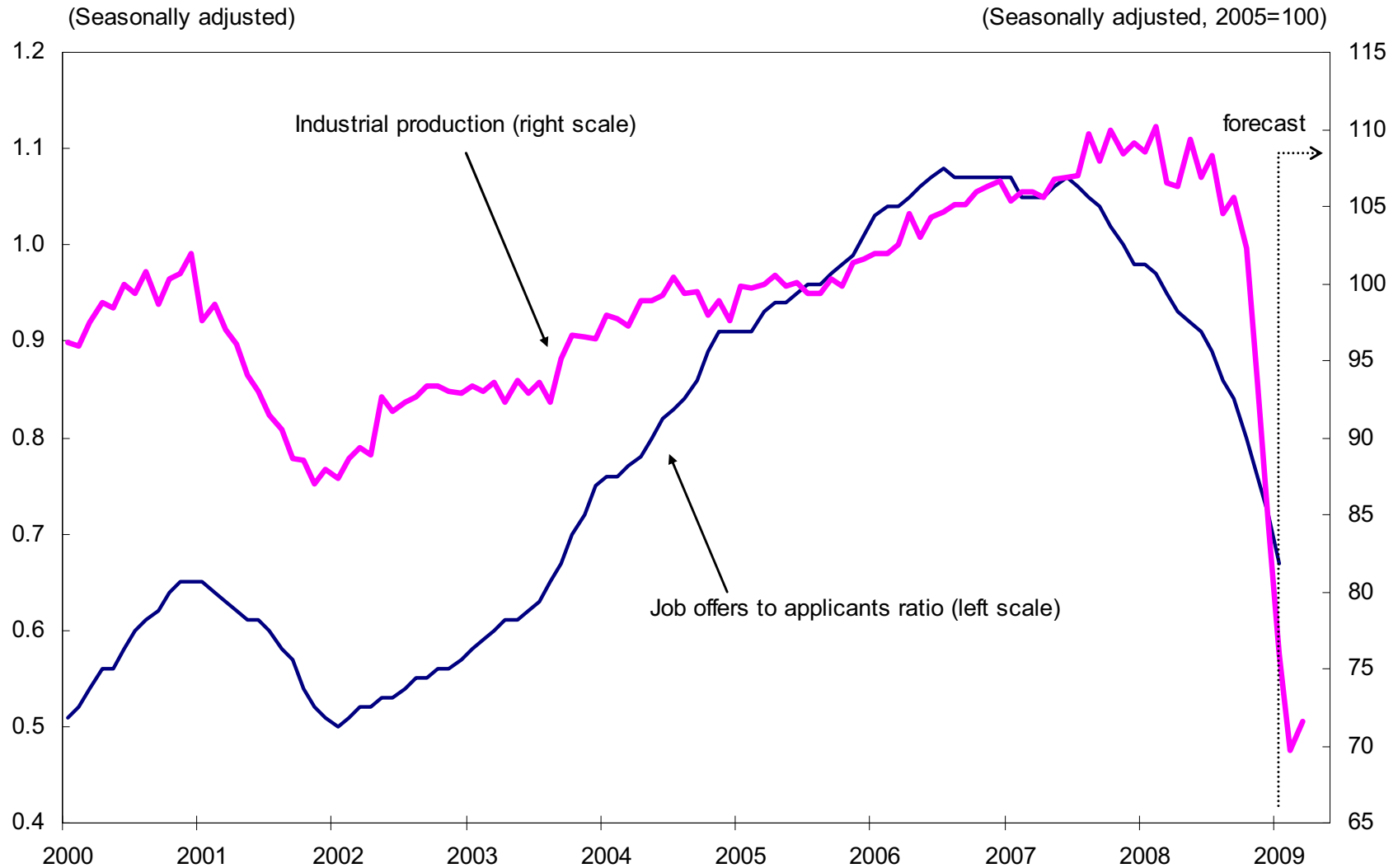
Exhibit 3. Exports and House Prices Are Falling in China



Note: Seasonal adjustment by Nomura Research Institute.

Sources: Nomura Research Institute, based on National Bureau of Statistics of China, National Development and Reform Commission (NDRC), People's Republic of China, and Bloomberg.

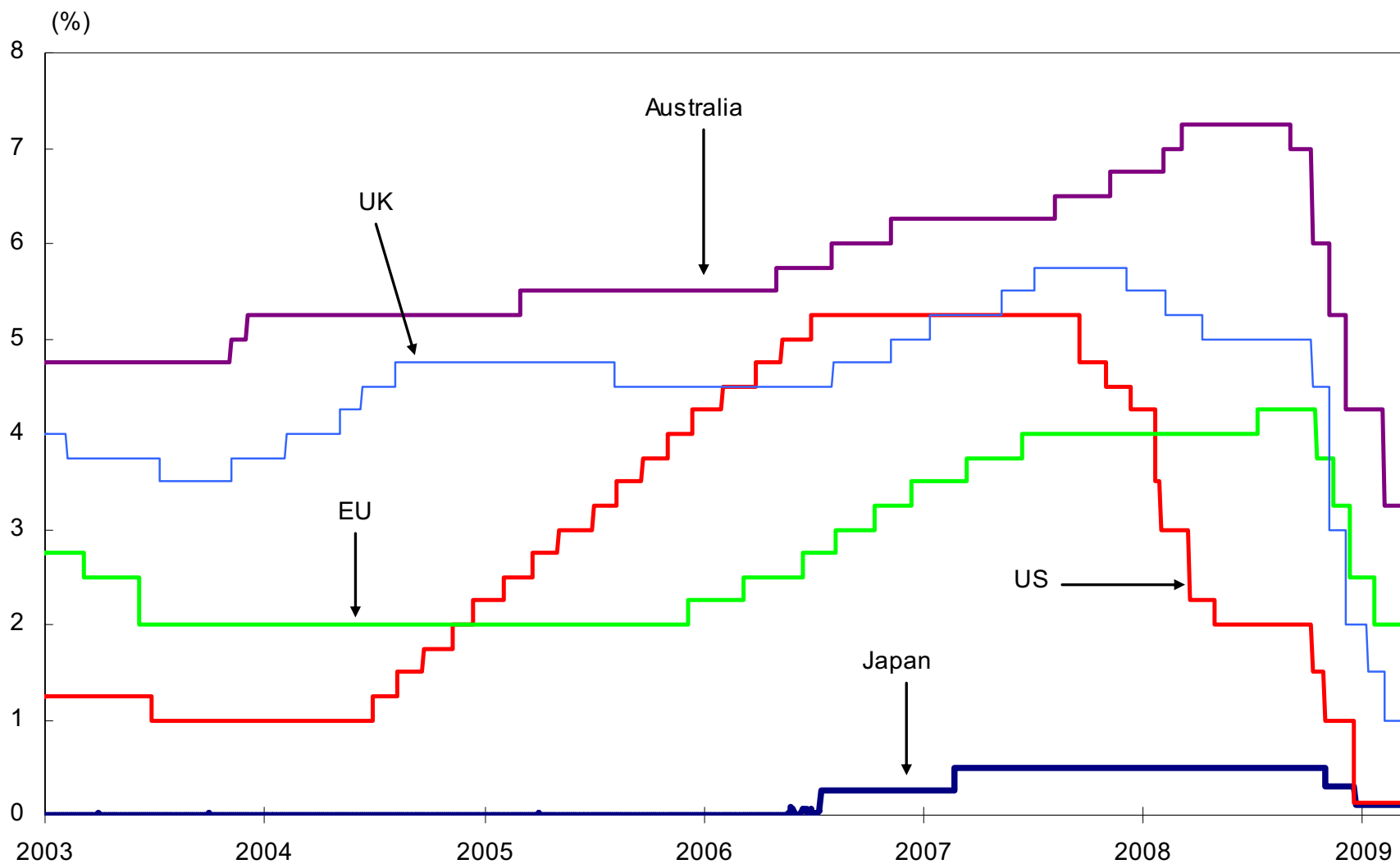
Exhibit 4. Japan's Industrial Production and Employments Are also Weakening



Note: The forecasts are calculated from METI's survey on planned production.

Sources: Ministry of Economy, Trade and Industry (METI), and Ministry of Health, Labour and Welfare

Exhibit 5. Low Interest Rates Have Failed to Revive Economies or Asset Prices

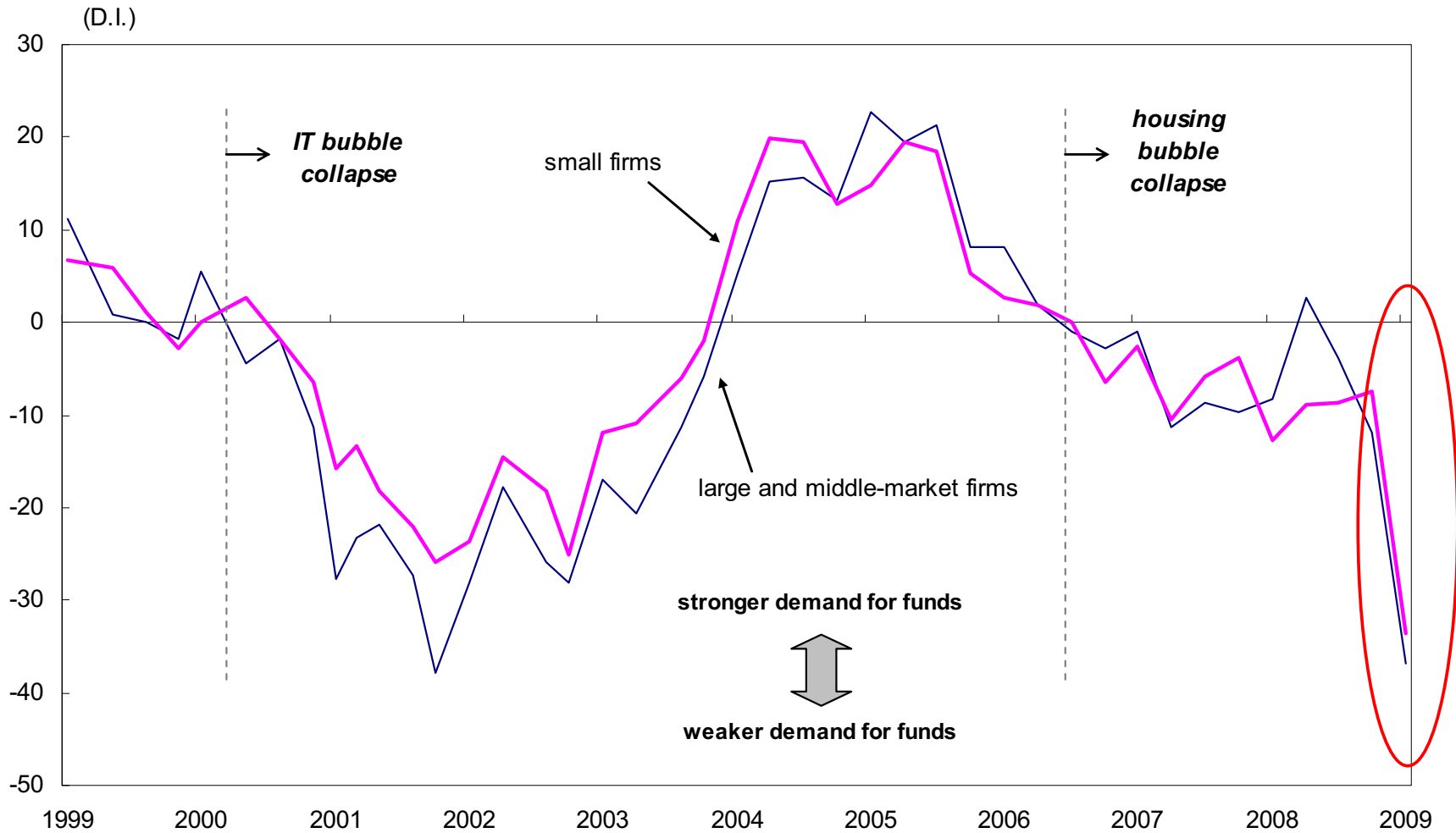


Sources: BOJ, FRB, ECB, BOE and RMB Australia. As of Mar. 18, 2009.

Exhibit 6. Features of Balance Sheet Recession

- **A balance sheet recession emerges after the bursting of a nationwide asset price bubble that leaves a large number of private-sector balance sheets with more liabilities than assets.**
- **In order to repair their balance sheets, private sector moves away from profit maximization to debt minimization.**
- **With the private sector de-leveraging, even at zero interest rates, newly generated savings and debt repayments enter the banking system but cannot leave the system due to the lack of borrowers. The sum of savings and debt repayments end up becoming the leakage to the income stream.**
- **The deflationary gap created by the above leakage will continue to push the economy toward a contractionary equilibrium until the private sector is too impoverished to save any money (=depression).**
- **In this type of recession, the economy will not enter self-sustaining growth until private sector balance sheets are repaired.**

Exhibit 7. US Demand for Funds Is Falling Sharply

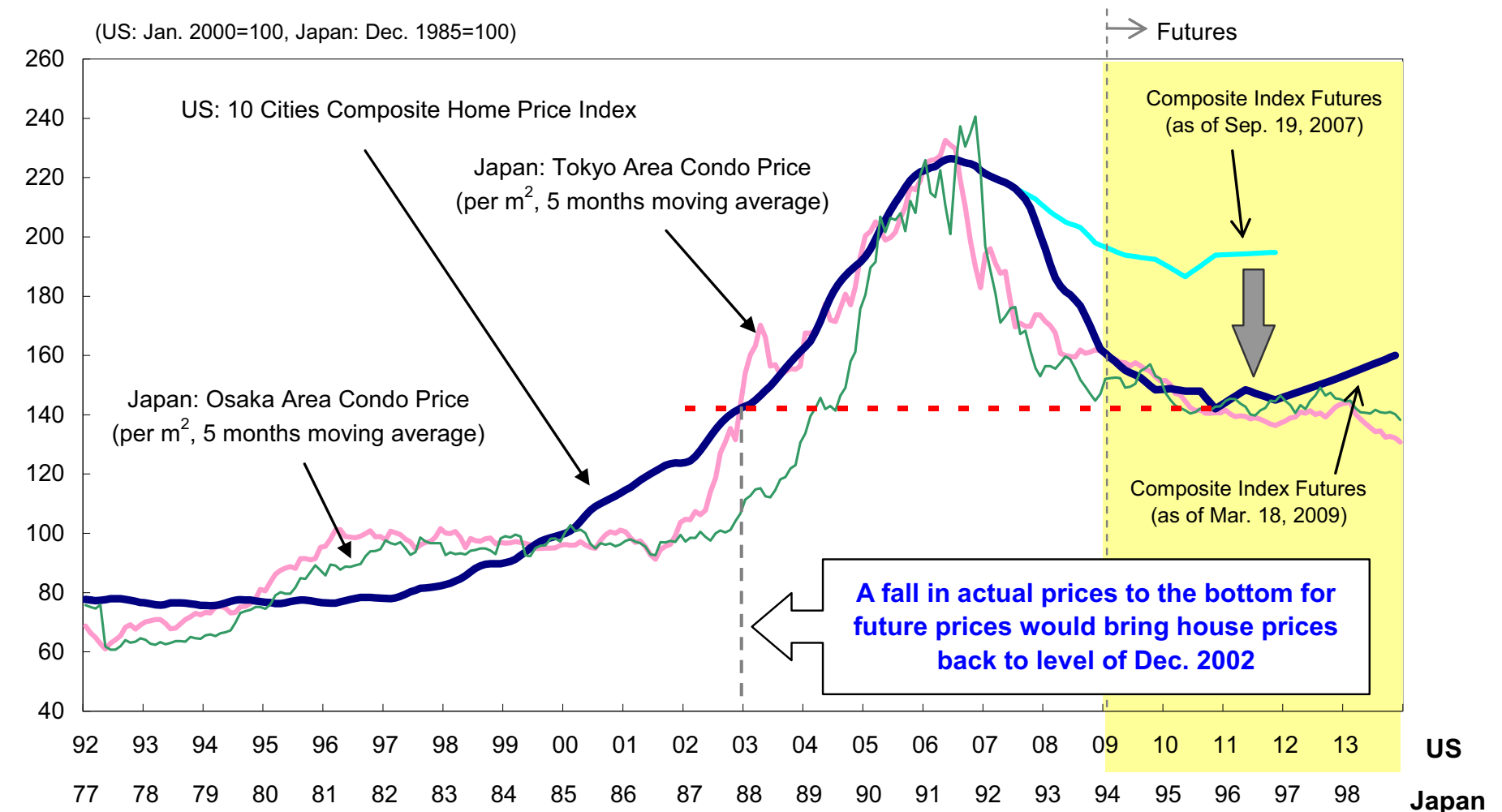


Source: Nomura Research Institute, based on FRB, *Senior Loan Officer Opinion Survey on Bank Lending Practices*.

Note: D.I. are calculated from the answers to the question, "Apart from normal seasonal variation, how has demand for C&I loans changed over the past three months?"

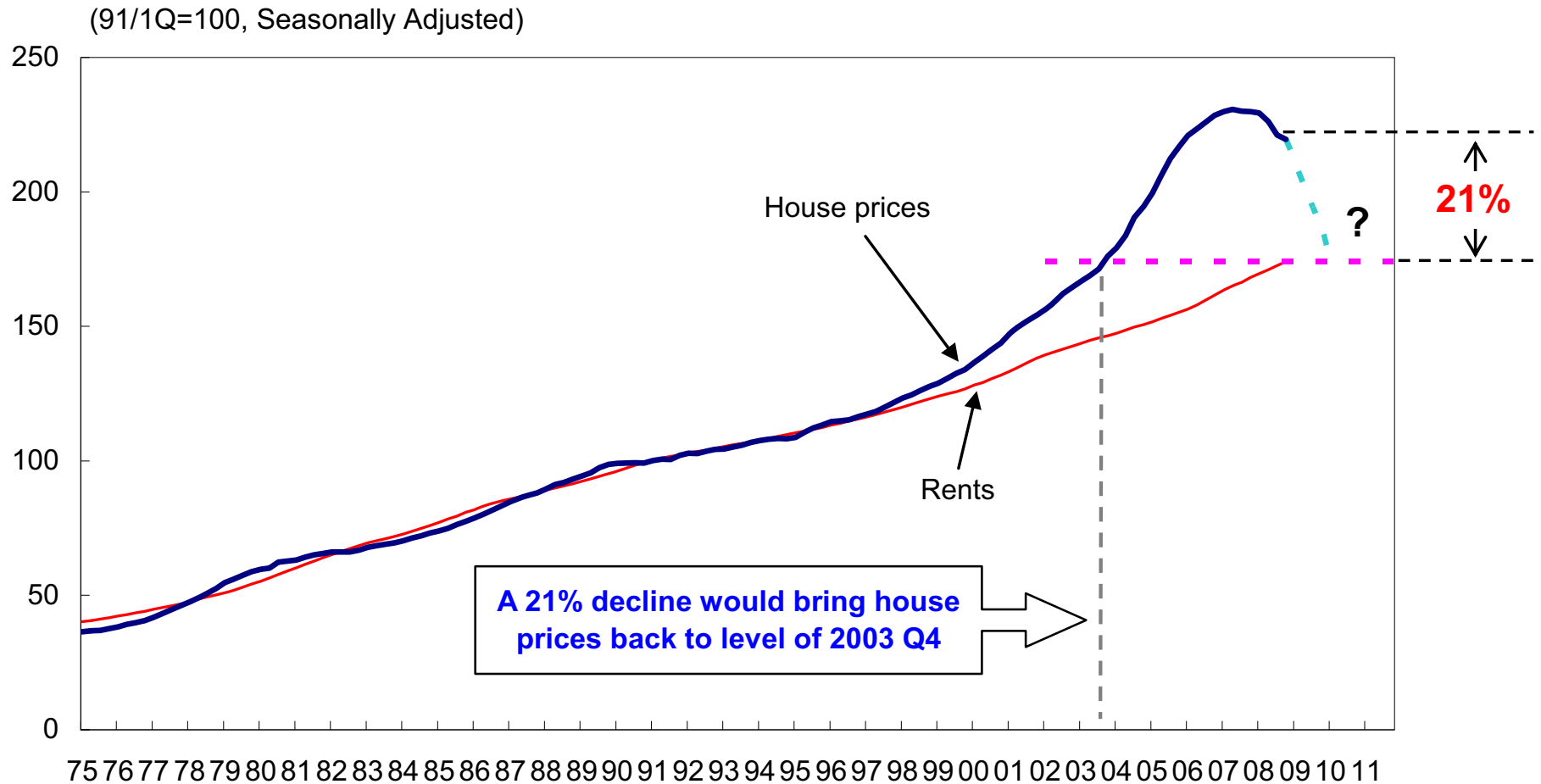
D.I. = ("Substantially stronger" + "Moderately stronger"×0.5) - ("Moderately weaker"×0.5 + "Substantially weaker")

Exhibit 8. 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 Mar. 18, 2009.

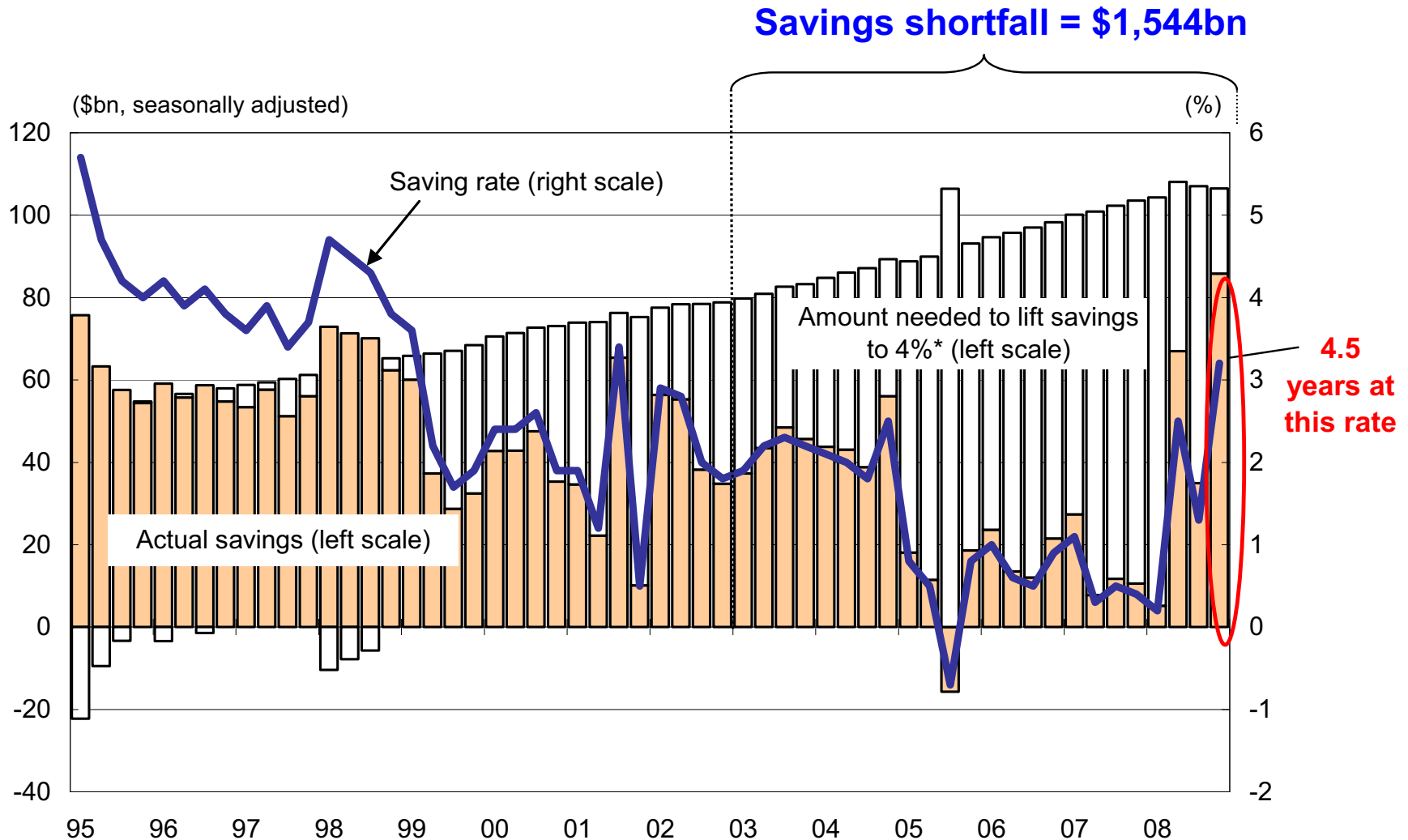
Exhibit 9. House Prices and Rents Diverged substantially during Housing Bubble



Note: Seasonal adjustment by Nomura Research Institute.

Source: Nomura Research Institute, based on Office of Federal Housing Enterprise Oversight (OFHEO) house price index and US Department of Labor CPI.

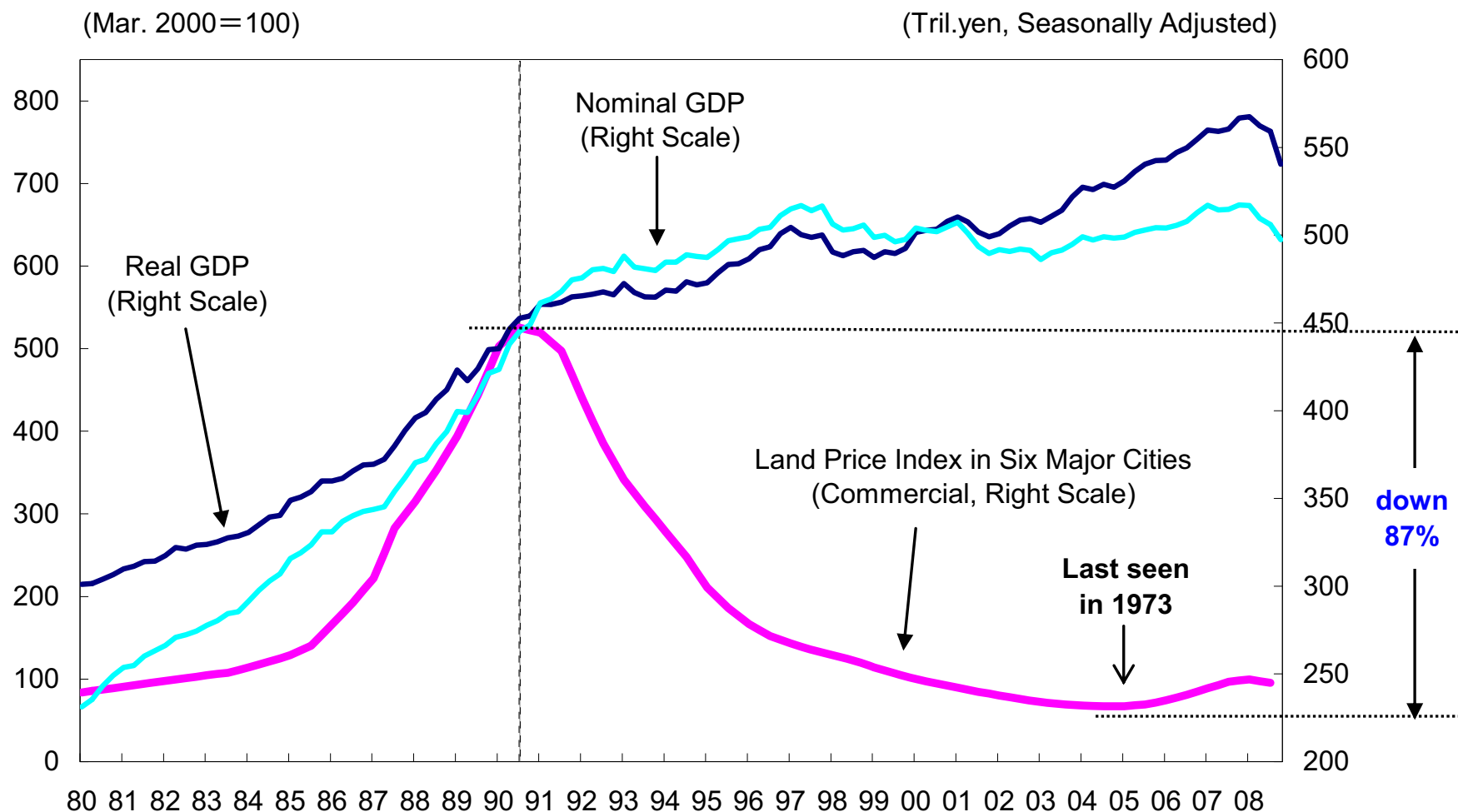
Exhibit 10. Americans Spent \$1.5trn that Should Have Been Saved



Note: Average savings rate for US households in 1997-98.

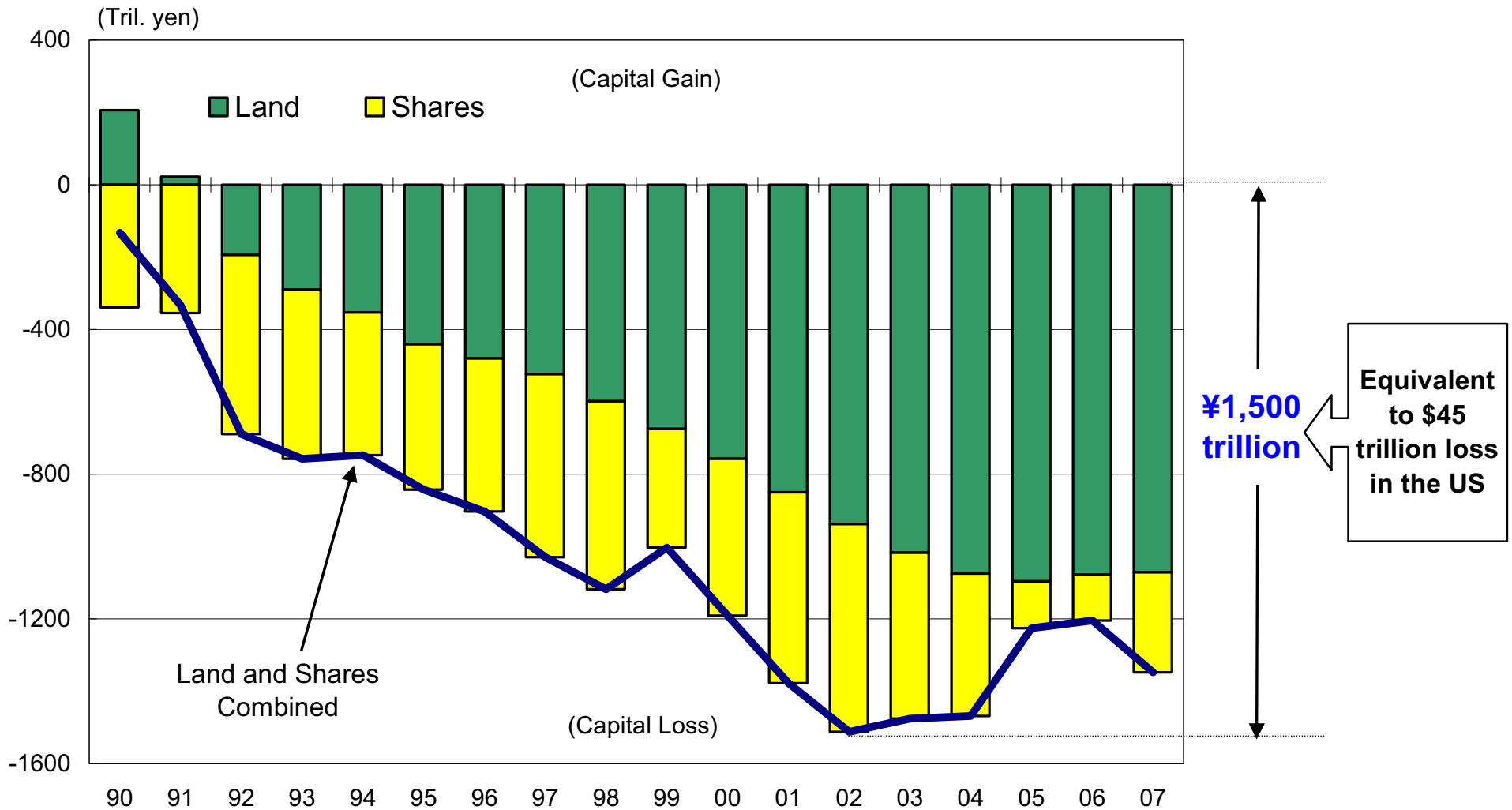
Source: Nomura Research Institute, based on US Department of Commerce data.

Exhibit 11. Japan's GDP Grew even after Massive Loss of Wealth and Private Sector Rushing to Pay Down Debt



Sources: Cabinet Office, Japan Real Estate Institute

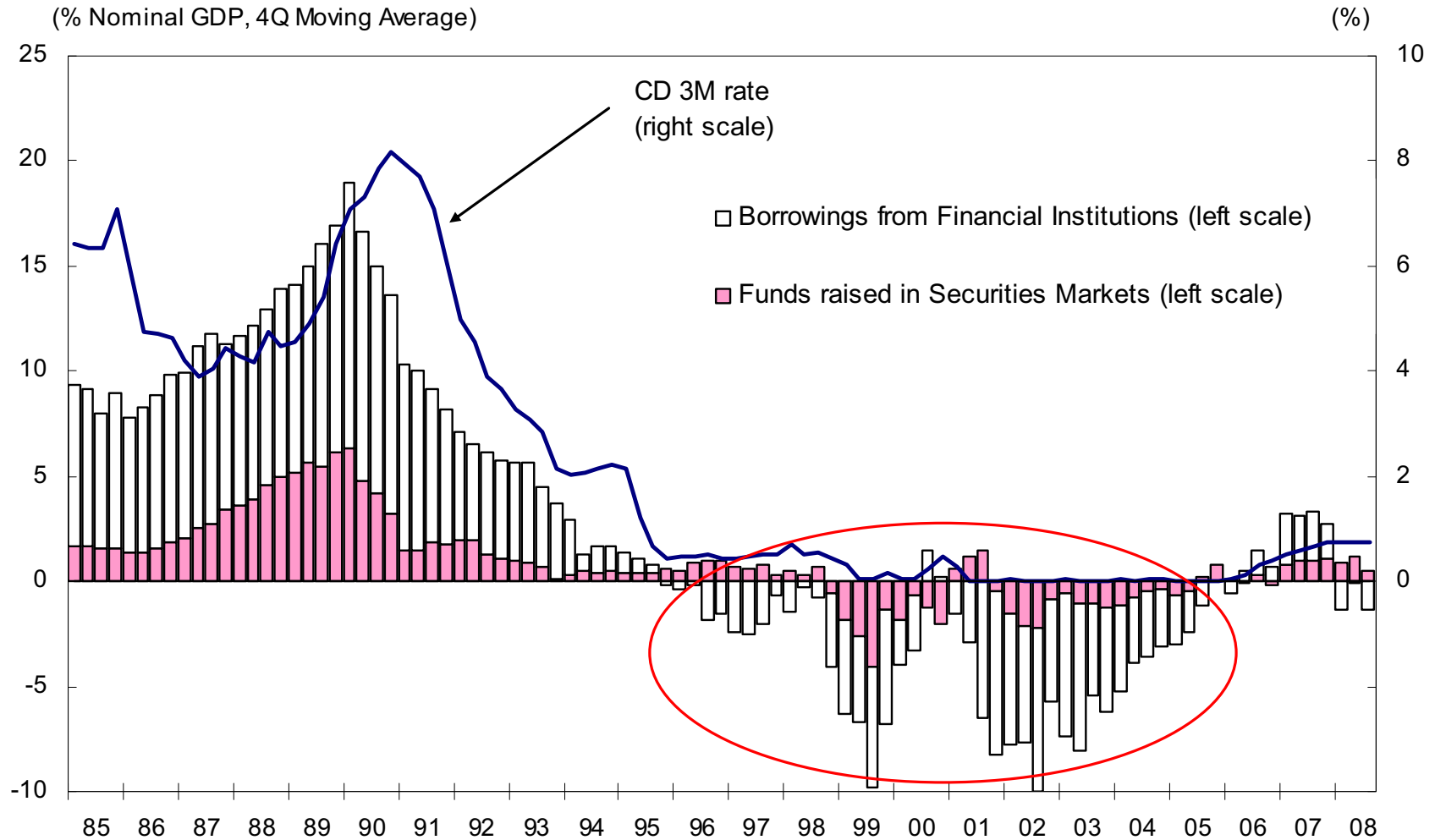
Exhibit 12. Cumulative Capital Losses on Shares and Land since 1990 Reached \$15 Trillion or 3 Years Worth of Japan's GDP



Source: Cabinet Office, Japan "National Accounts"

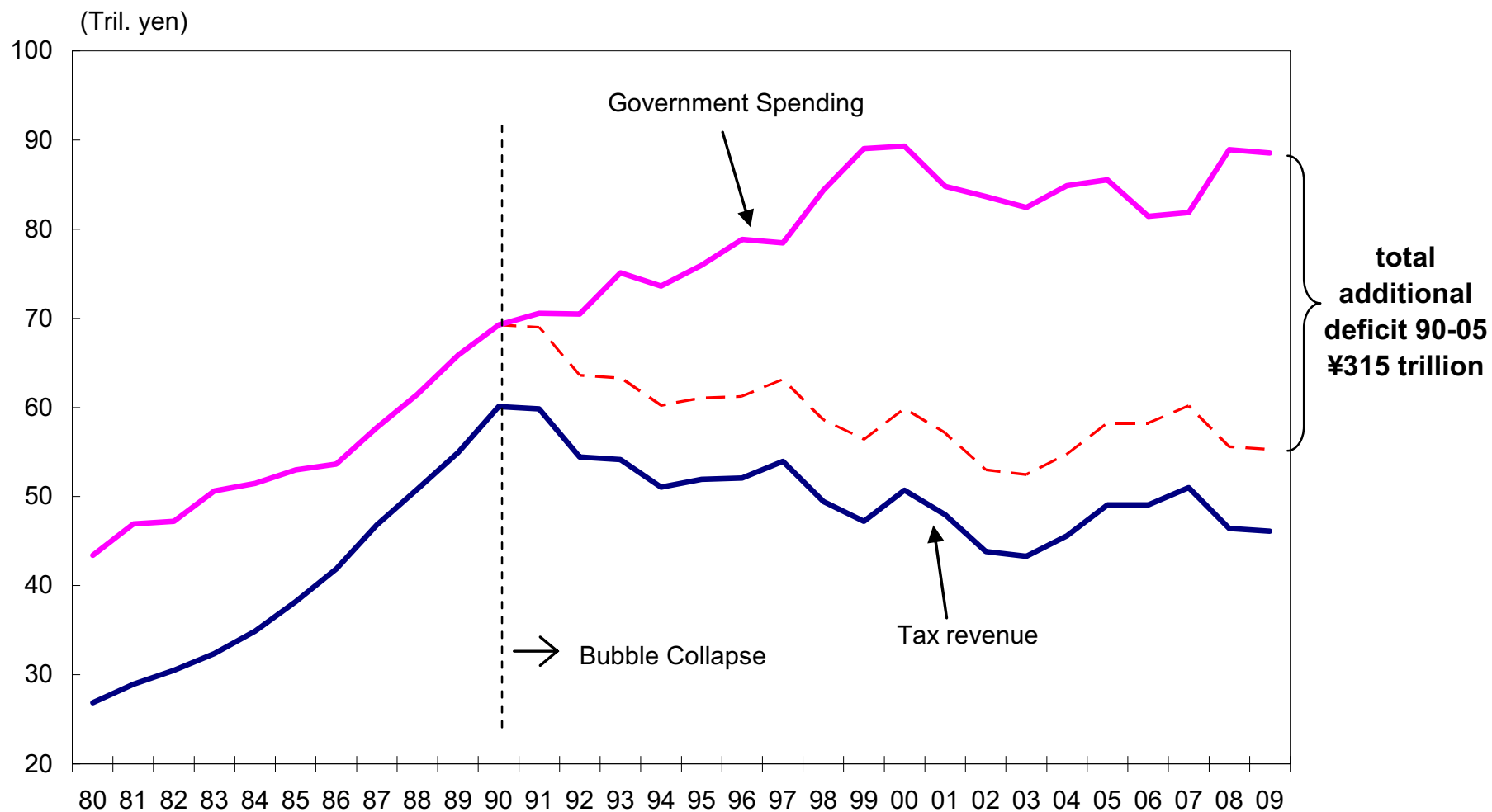
Exhibit 13. Balance Sheet Problems Forced Japanese Businesses to Pay Down Debt even with Zero Interest Rates

Funds Raised by Non-Financial Corporate Sector



Sources: Bank of Japan, Cabinet Office, Japan

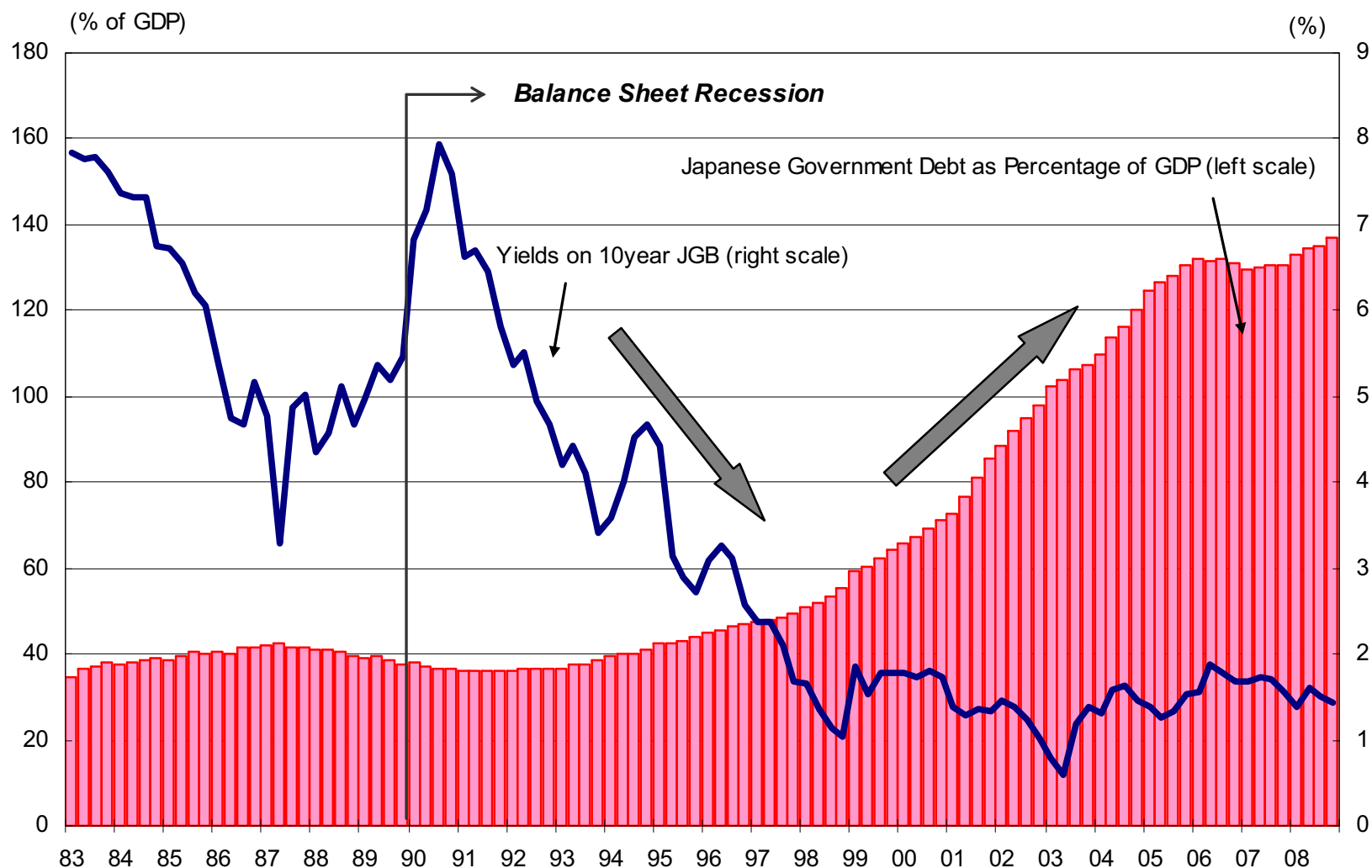
Exhibit 14. Japanese Government Borrowed and Spent the Excess Savings of the Private Sector to Sustain GDP



Source: Ministry of Finance, Japan

Note: FY 2008 includes supplementary budget, and FY 2009 is just initial budget.

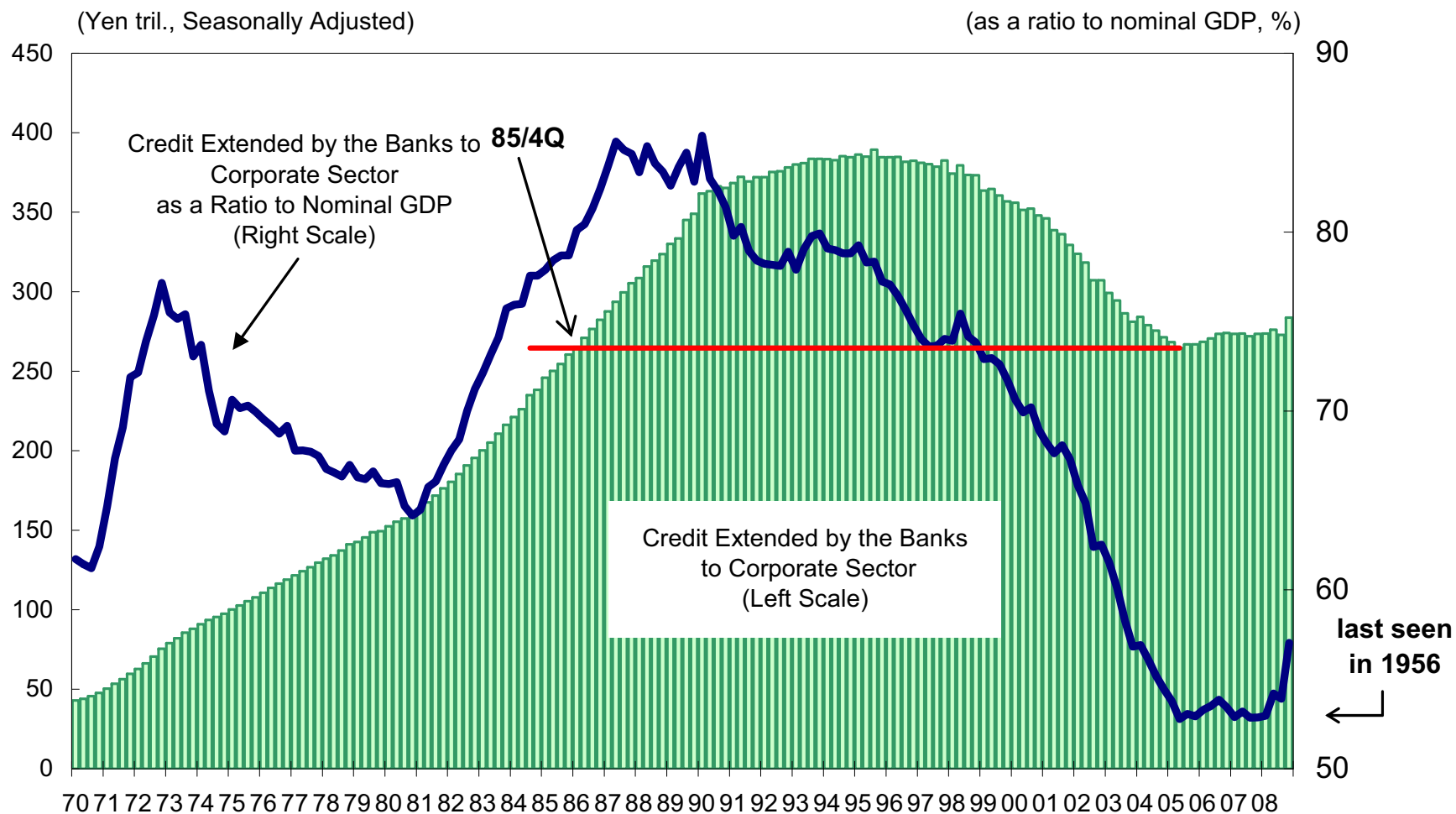
Exhibit 15. With Government Borrowing and Spending the Increase in Private Sector Savings*, Large Deficit Does Not Mean Higher Interest Rates



* Household savings plus corporate debt repayment

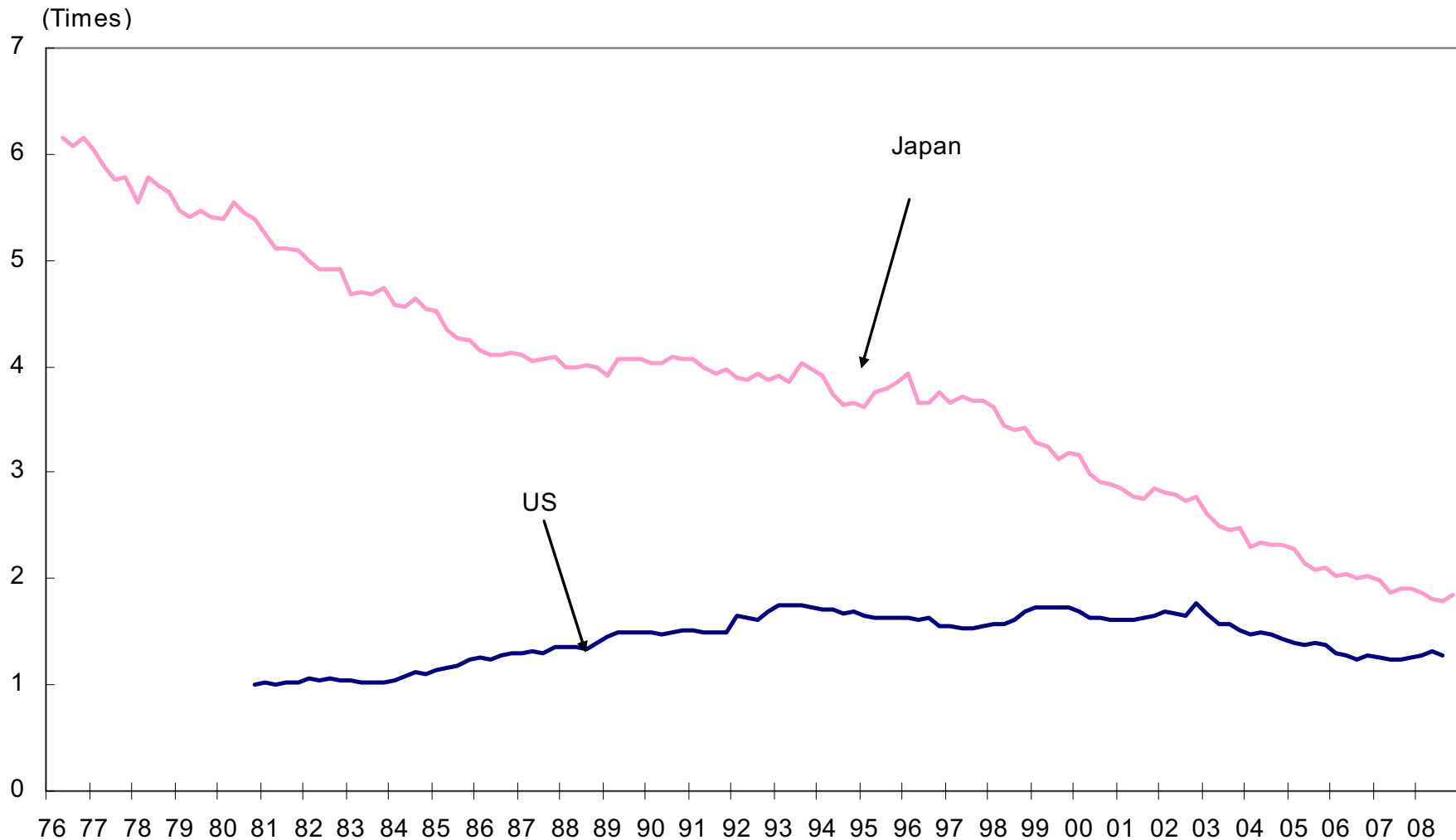
Sources: Cabinet Office, Japan, Japan Bond Trading Co., Japan Securities Dealers Association

Exhibit 16. Japanese Companies Made Huge Progress in Reducing Debt Overhang



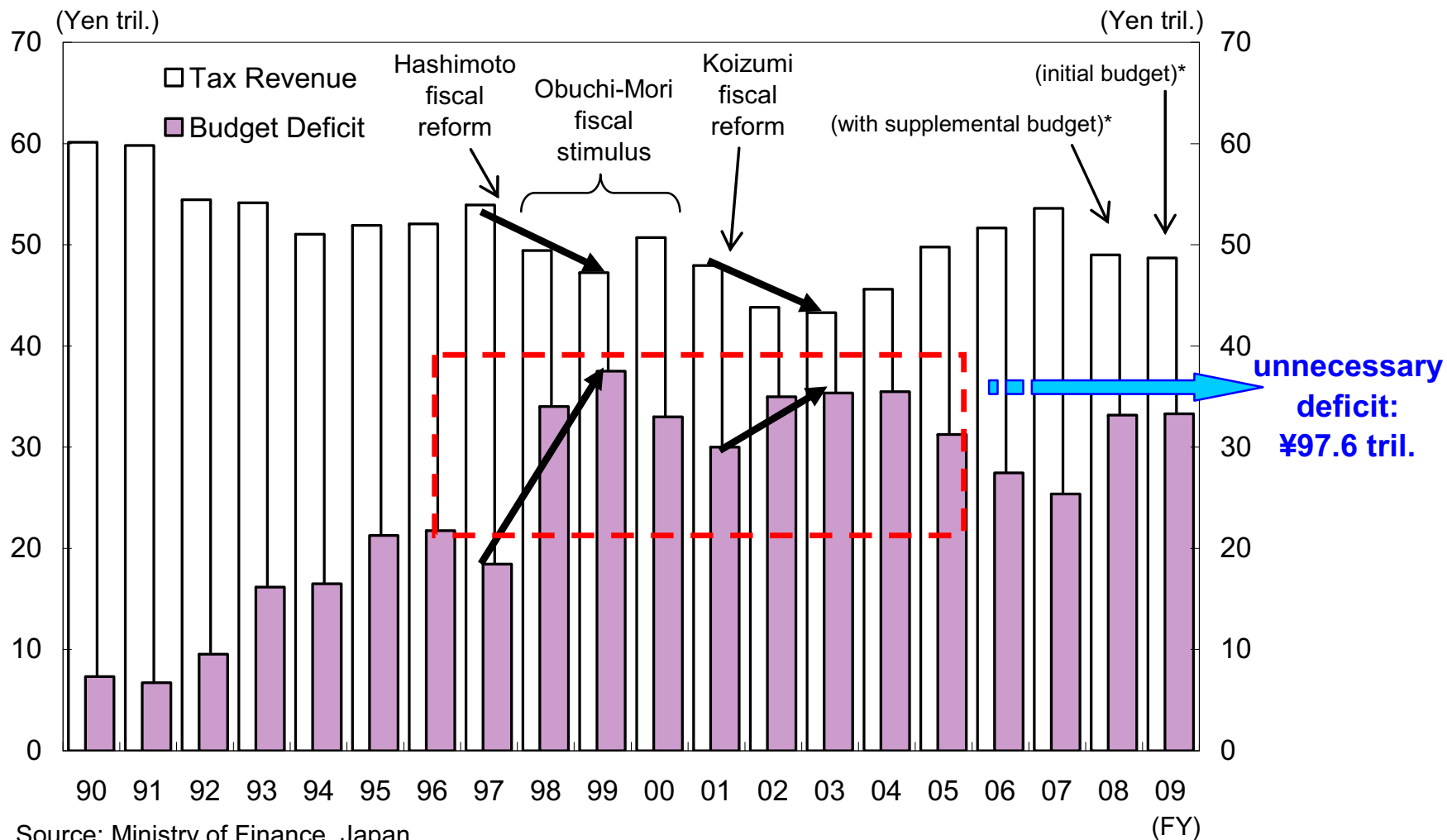
Sources : Bank of Japan, "Loans and Discounts Outstanding by Sector" "Loans to Individuals", Cabinet Office, Japan "National Accounts"
 Notes: 1. 'Credit Extended by the Banks to Corporation' is extended to 1970 by NRI after adjustment for discontinuities in statistics in 1993 and again in 1975.
 2. As a percentage of nominal GDP. For GDP statistics before 1979, 68 SNA is used.

Exhibit 17. Japanese Corporate Leverage Came Down Sharply



Sources: Ministry of Finance, Japan, US Department of Commerce

Exhibit 18. Premature Fiscal Reforms in 1997 and 2001 Weakened Economy, Reduced Tax Revenue and Increased Deficit



Source: Ministry of Finance, Japan

*: estimated by MOF

Exhibit 19. 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	(I) Quick NPL disposal Pursue accountability	(III) Normal NPL disposal Pursue accountability
	Systemic	(II) Slow NPL disposal Fat spread	(IV) Slow NPL disposal Capital injection

Type (I): 1989 S&L crisis

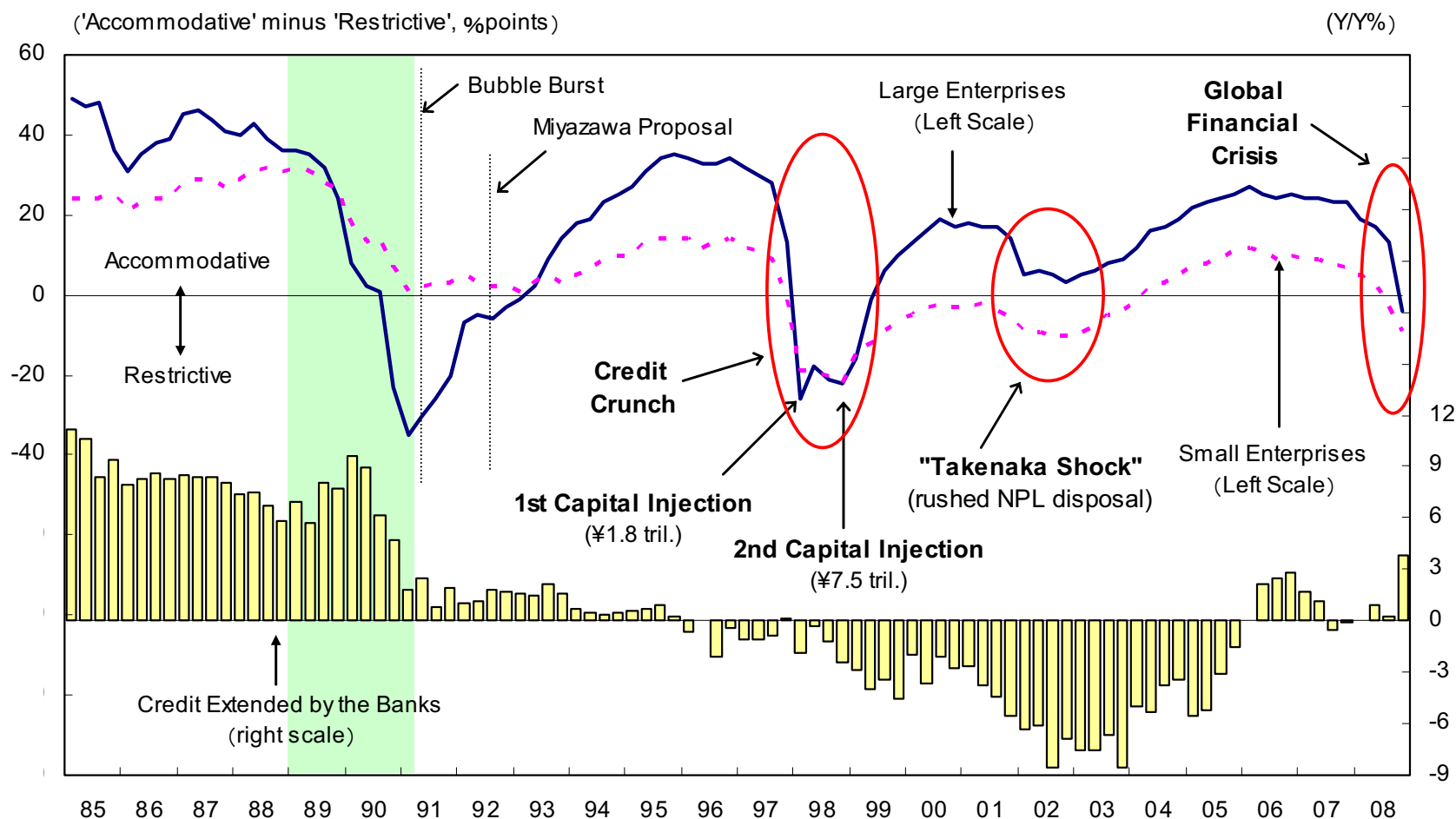
Type (II): 1982 Latin America debt crisis, nationwide credit crunch in the US between 1991 and 1993, and the Nordic banking crisis in the early 1990s

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

Exhibit 20. Two Capital Injections Ended the Credit Crunch in Japan

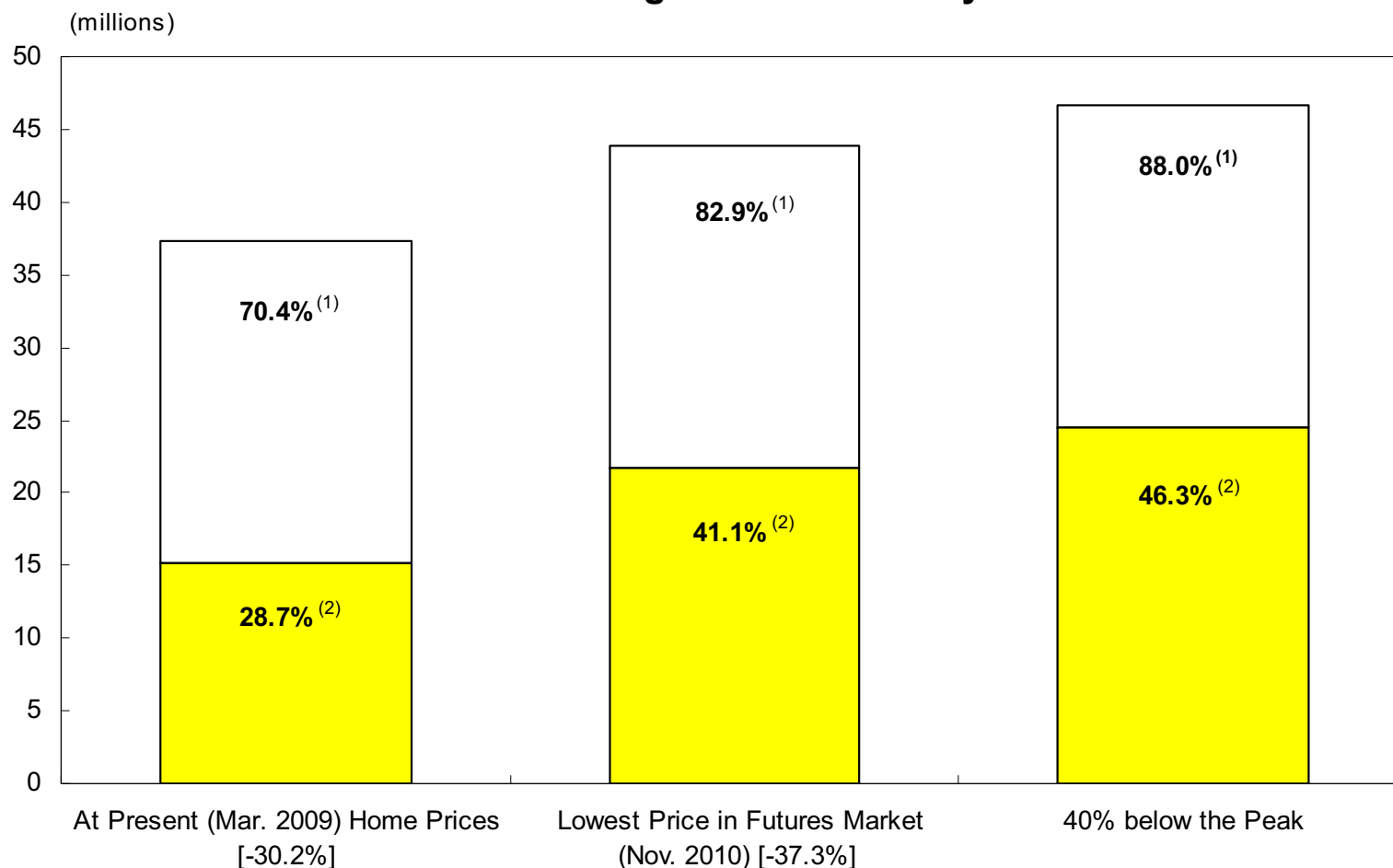
Bankers' Willingness to Lend as Seen by the Borrowers, and the Actual Credit Extended by the Banks



(Shaded areas indicate periods of BOJ monetary tightening)
 Sources : "Tankan", "Loans and Discounts Outstanding by Sector", BOJ

Exhibit 21. Percentage of House Purchases that May Lead to “Return the Key”

For Houses Bought before January 2009

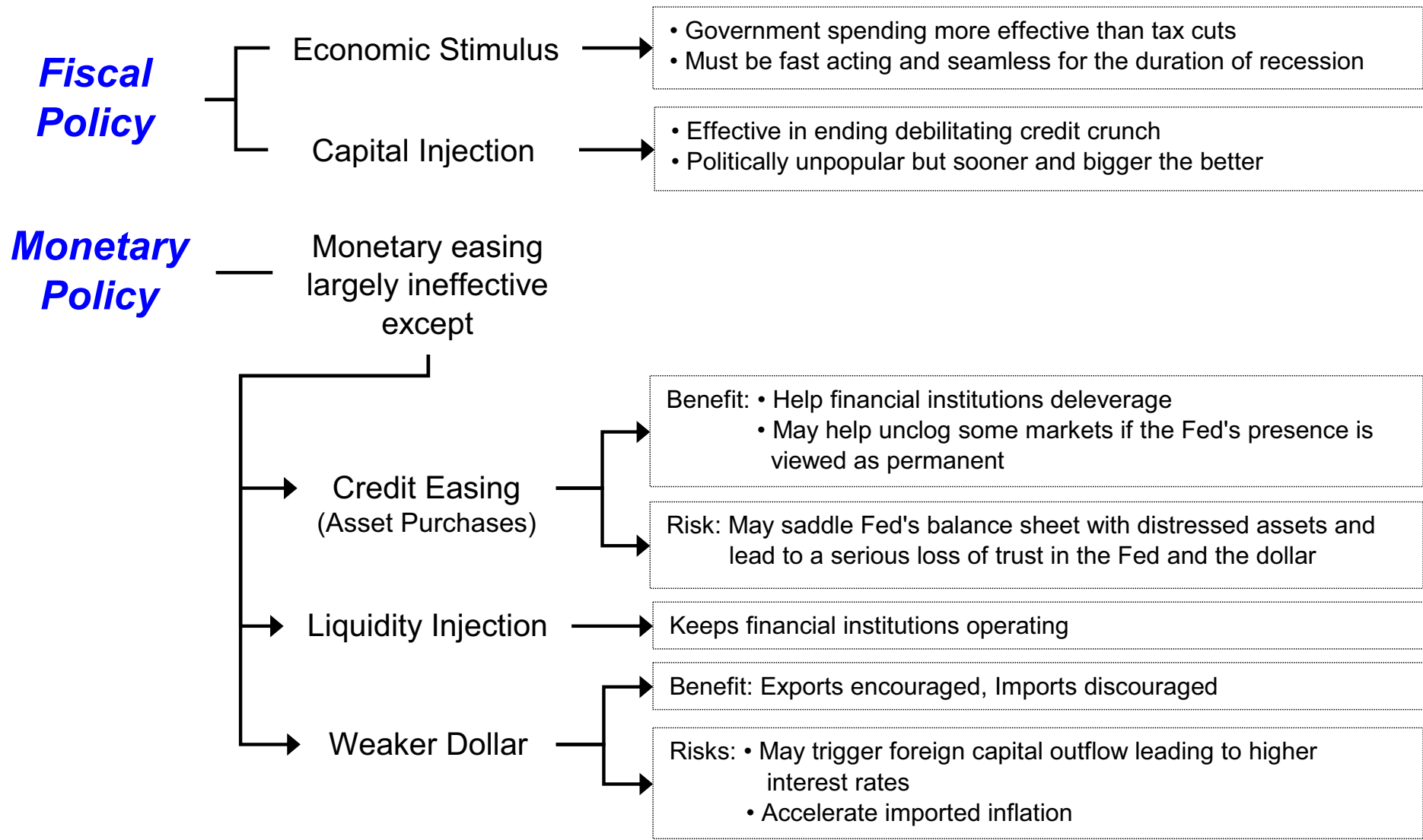


Source: Nomura Research Institute estimates from the data of US Department of Commerce, National Association of Realtors, S&P "S&P/Case-Shiller® Home Price Indices", and Bloomberg (as of Mar. 18, 2009).

Notes: (1) Maximum share of underwater mortgages assuming that the total number of mortgages is 53 million.

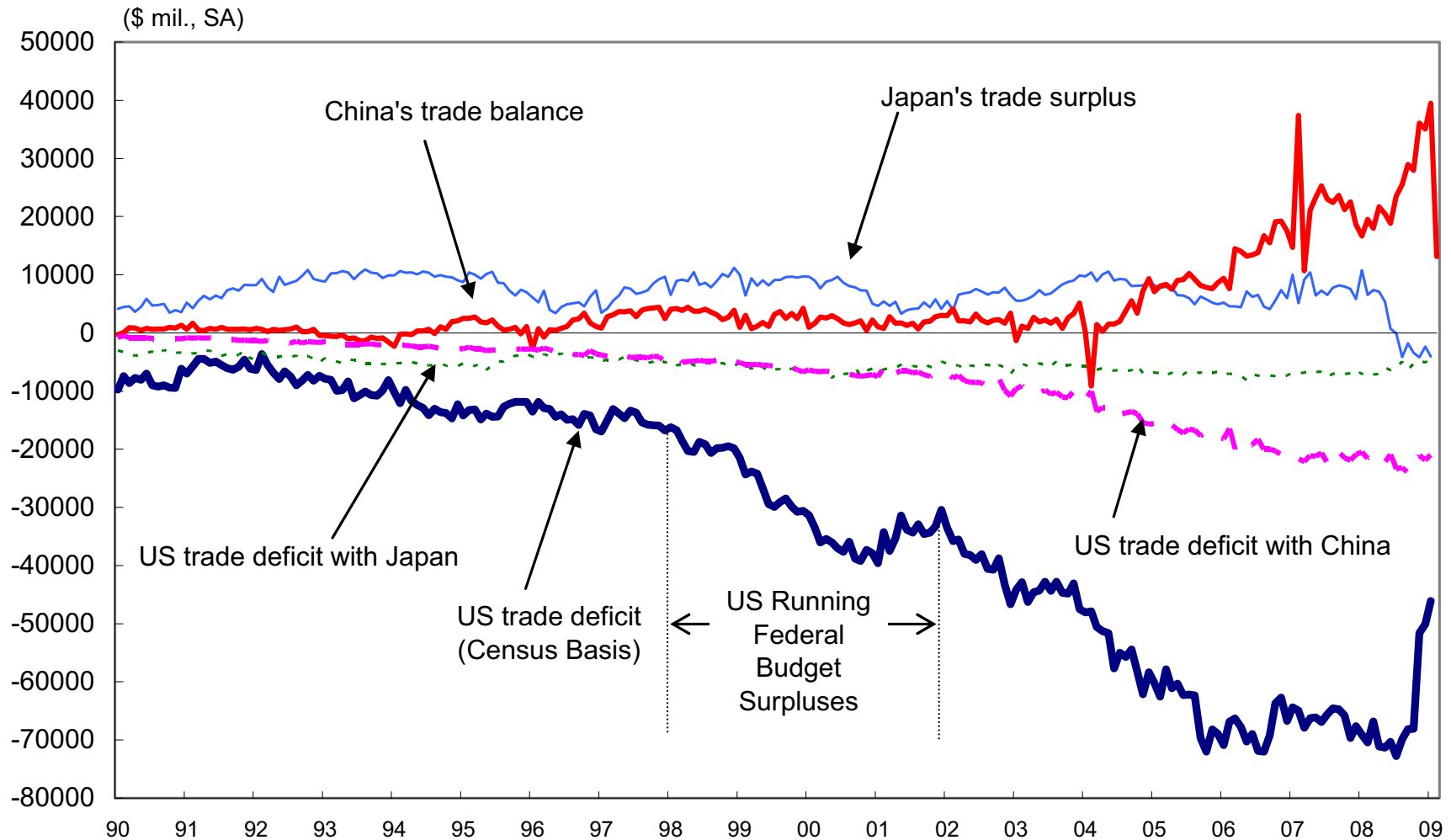
(2) As (1), but with a 10% downpayment.

Exhibit 22. Summary of US Policy Options Based on Japan's Experience



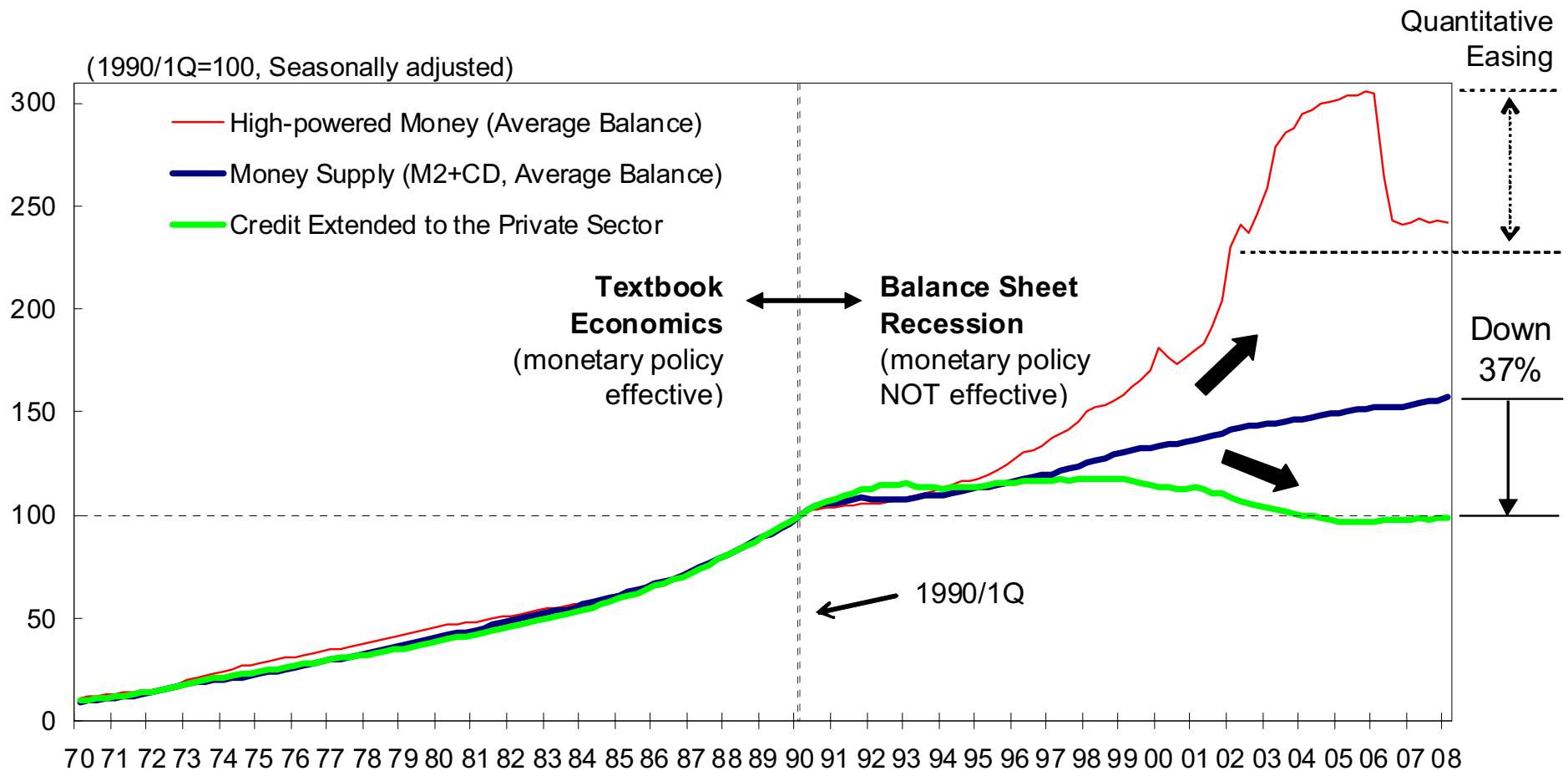
Source: Nomura Research Institute

Exhibit 23. 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.

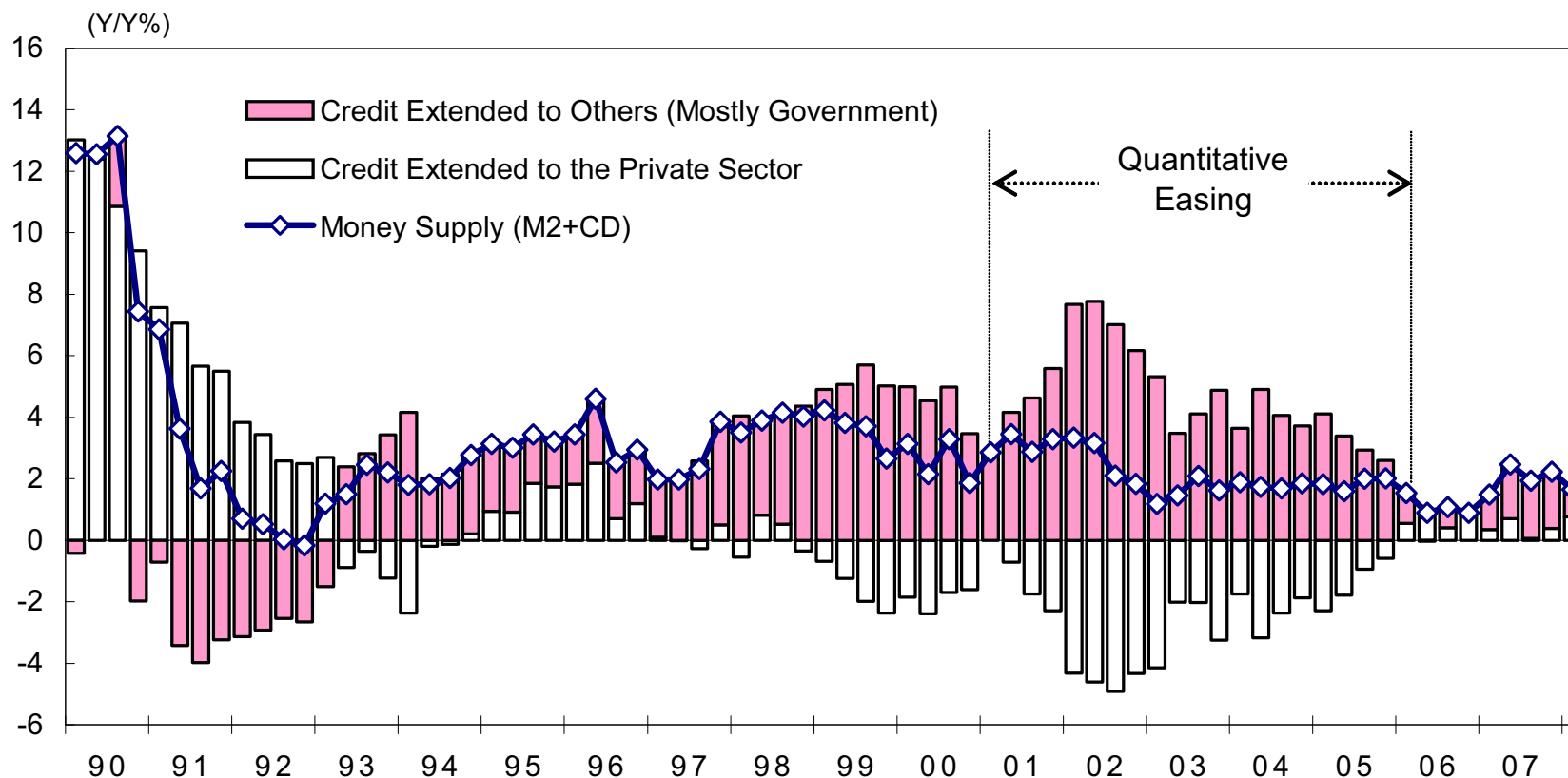
Exhibit 24. Monetary Aggregates Behave Totally Differently under Balance Sheet Recession



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. Japan's Money Supply Has Been 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.

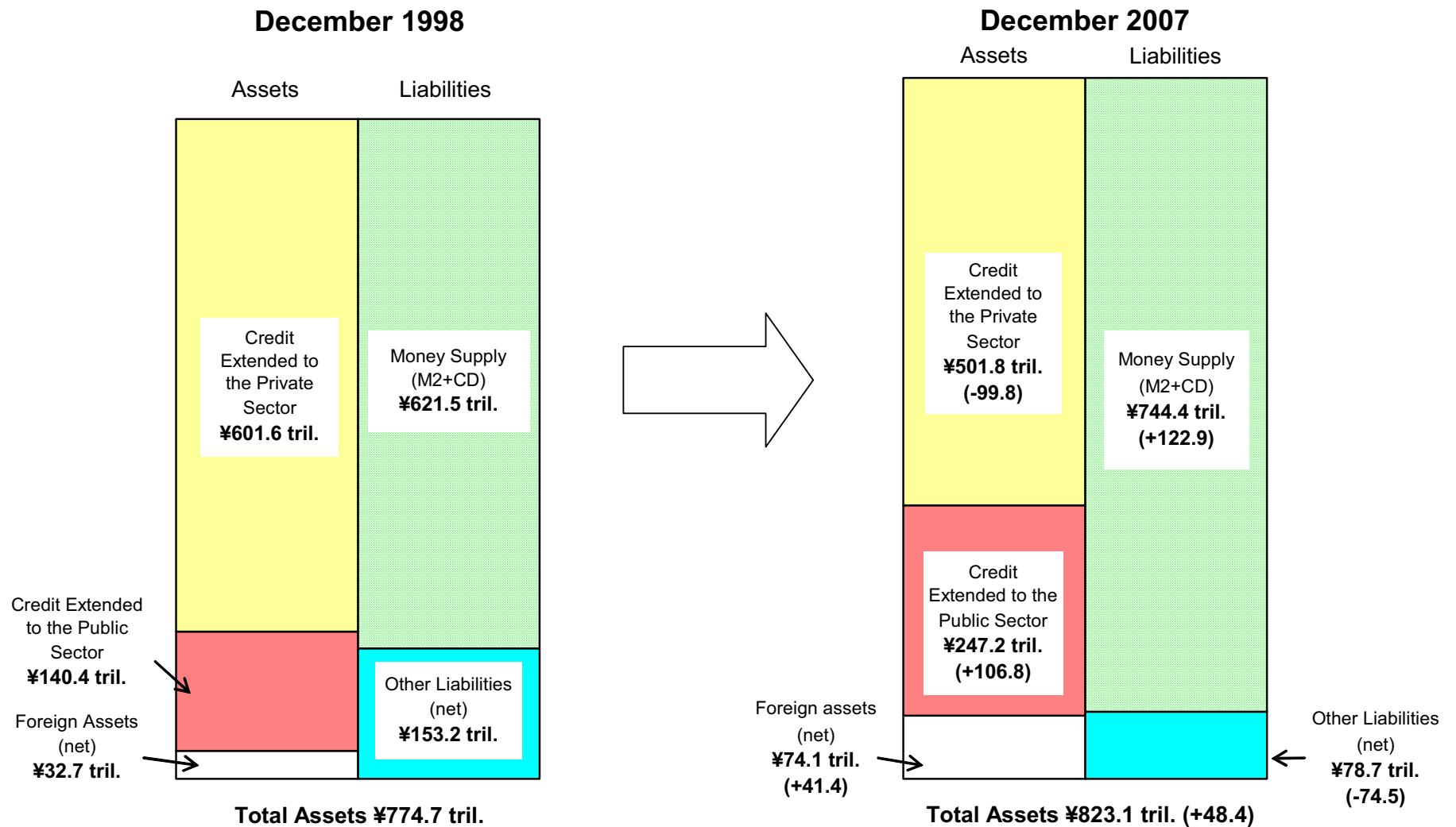
(1) Public Sector = credit to the government (net) + credit to regional public sector bodies + credit to public corporations

(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 26. Japan's Money Supply Has Been Kept Up by Government Borrowings (II)

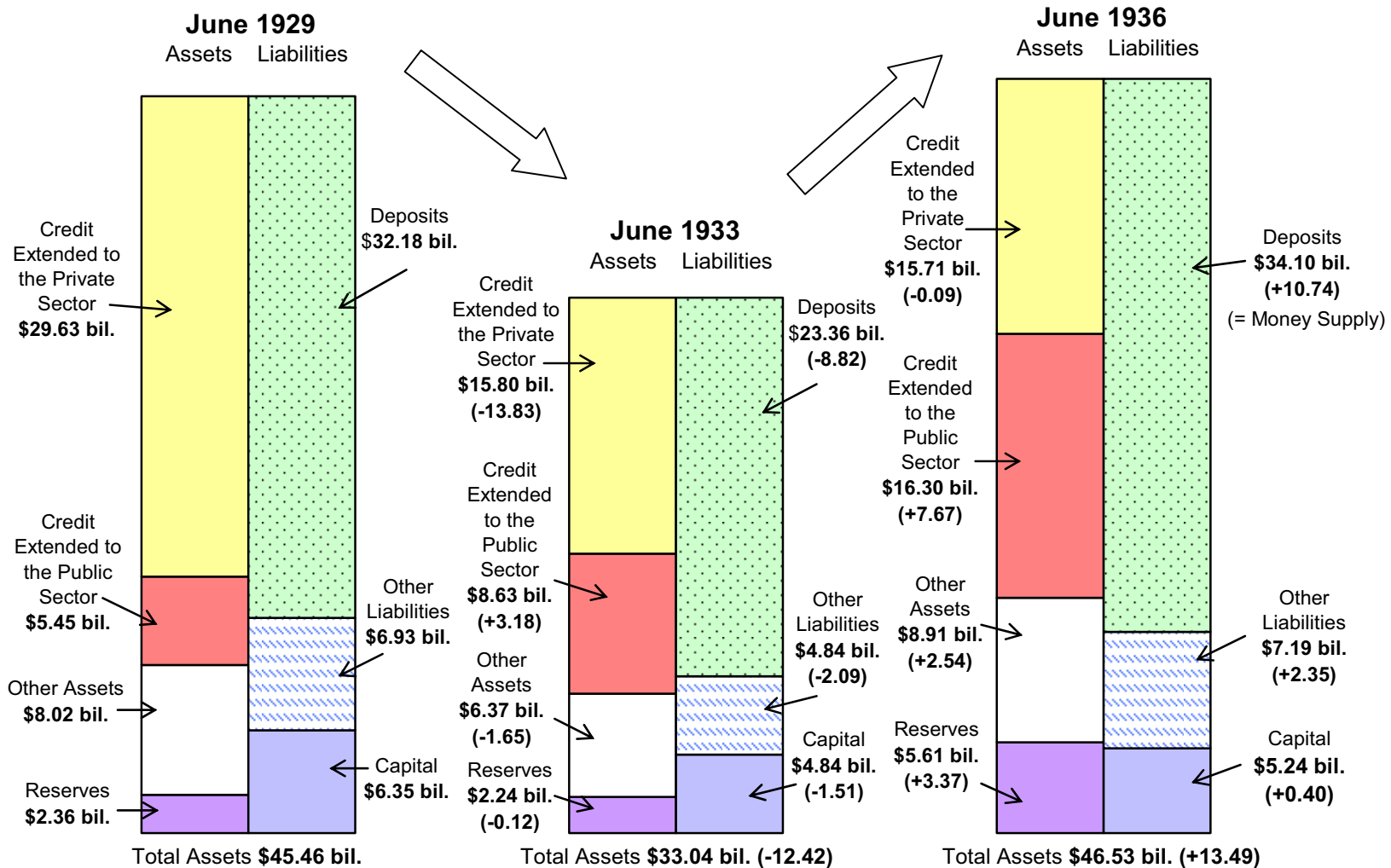
Balance Sheets of Banks in Japan



Source: Bank of Japan "Monetary Survey"

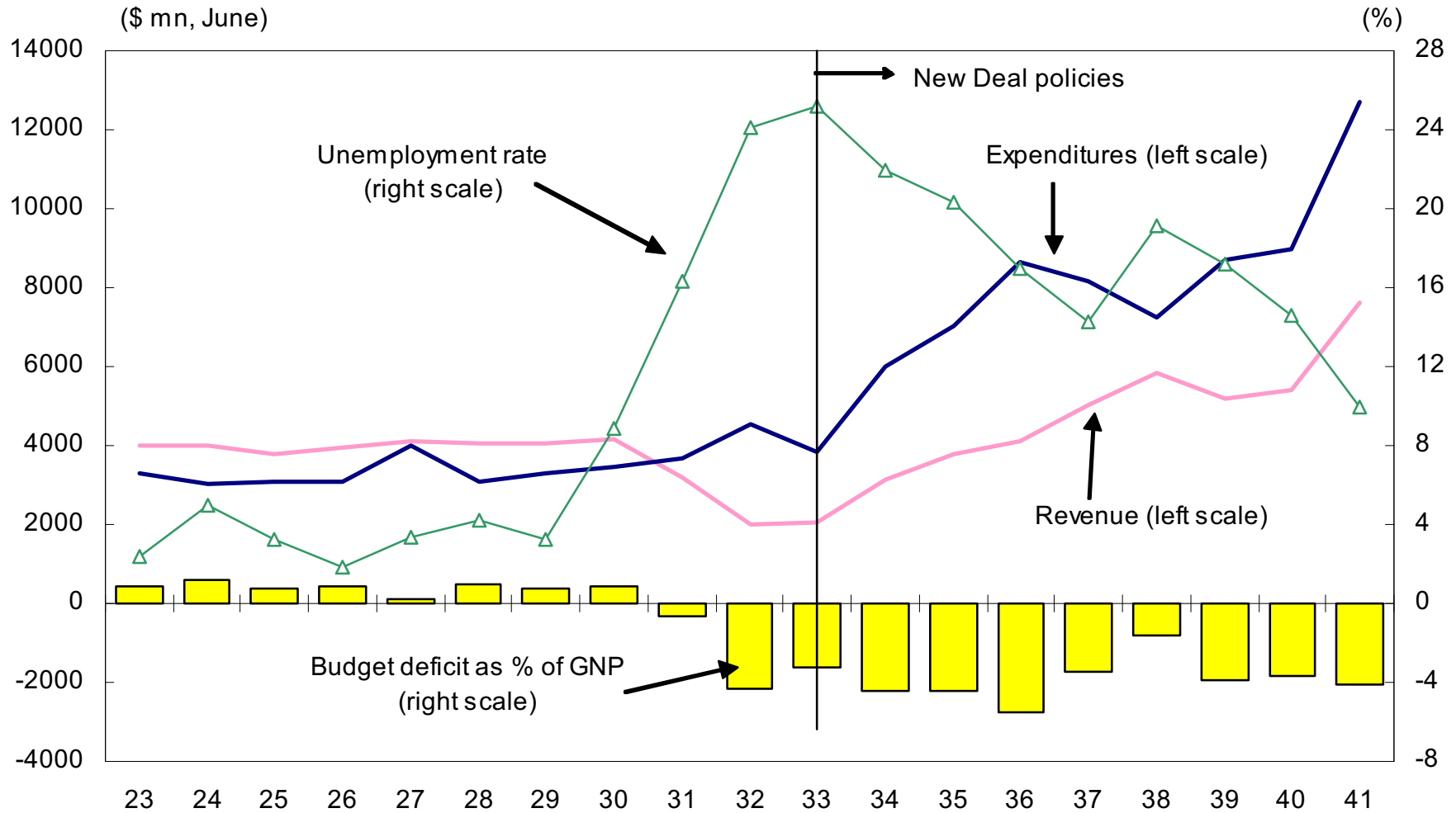
Exhibit 27. US Money Supply Growth after 1933 Was also Made Possible by Government Borrowings

Balance Sheets of All Member Banks



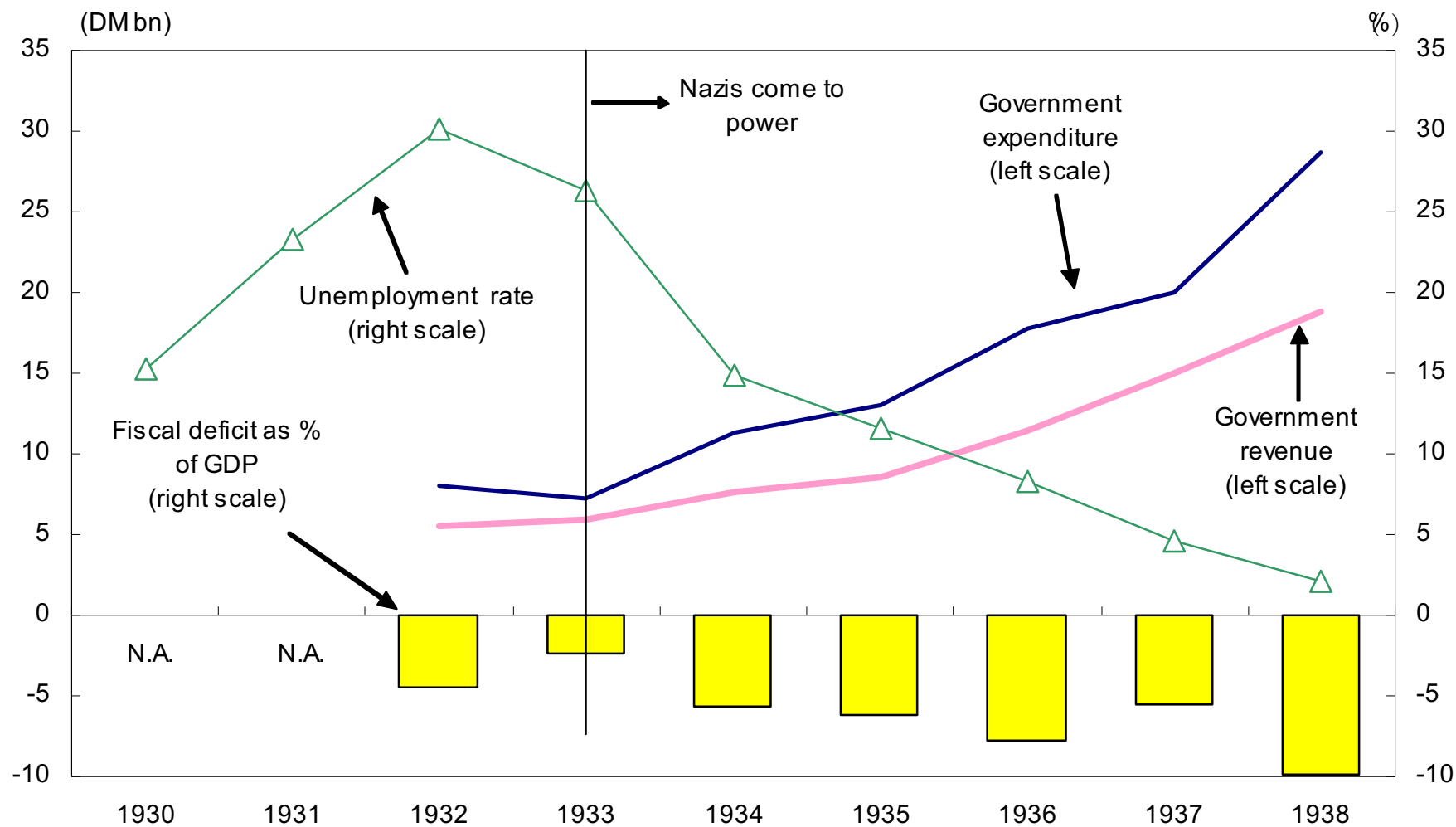
Source: Board of Governors of the Federal Reserve System (1976) *Banking and Monetary Statistics 1914-1941* pp.72-79

Exhibit 28. New Deal policies doubled fiscal expenditures without increasing the budget deficit



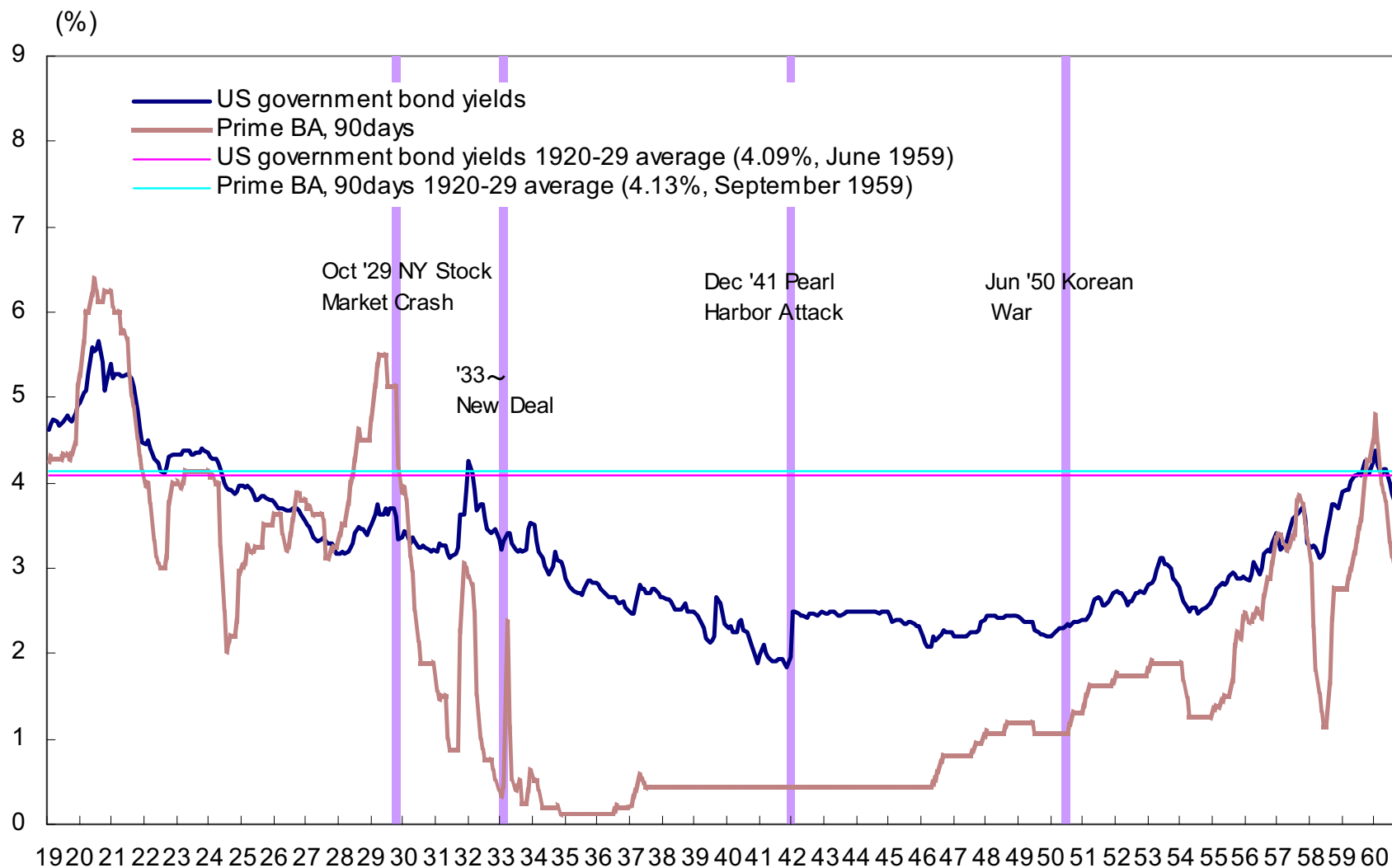
Source: Board of Governors of the Federal Reserve System (1976), Vol. 1, p. 513; US Bureau of the Census (1975), p. 229.

Exhibit 29. German fiscal stimulus reduced unemployment dramatically



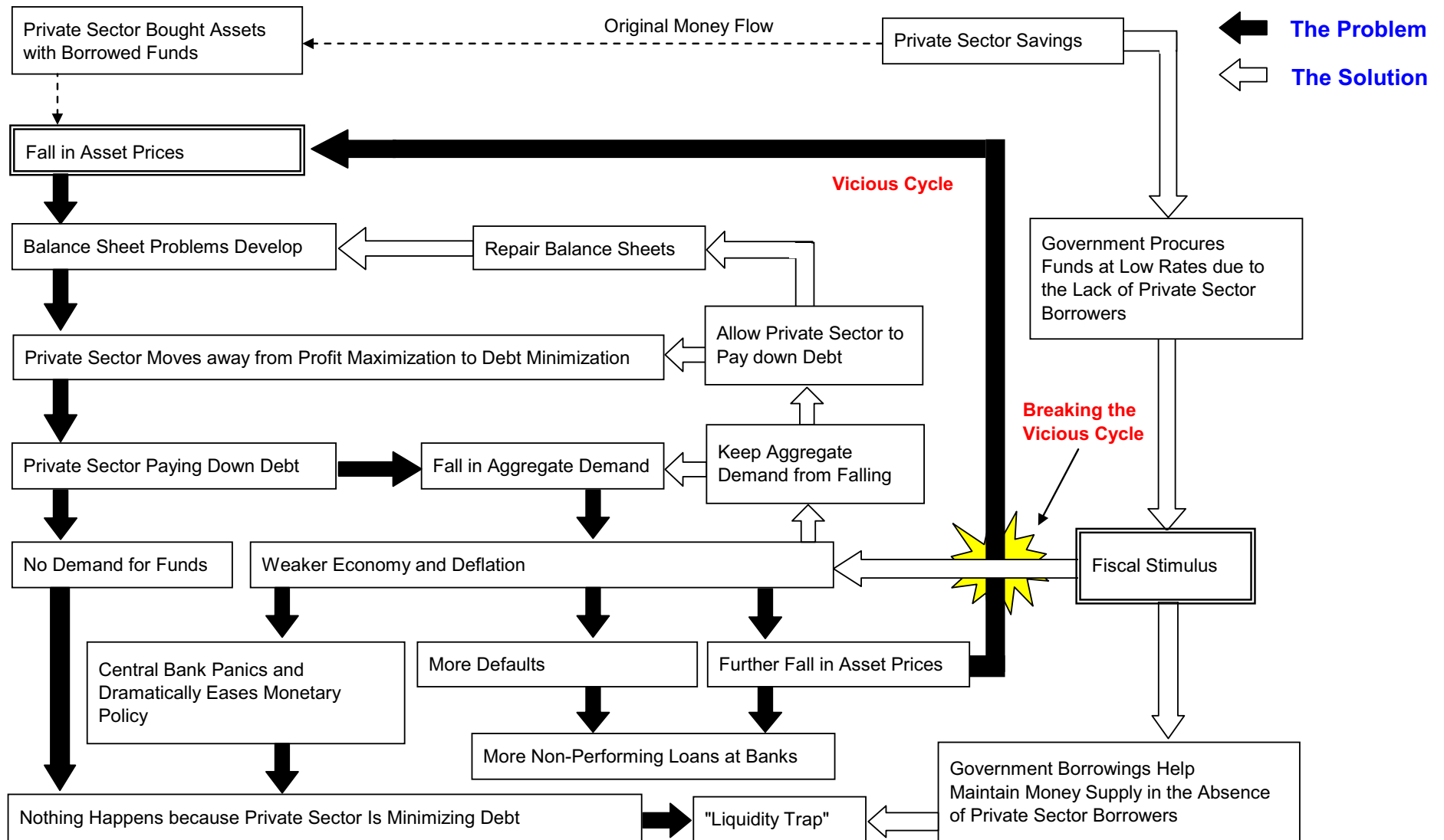
Source: Mitchell (1975), p. 170; Flora et al. (1987), p. 350; Deutsche Bundesbank (1976).

Exhibit 30. Debt Rejection Syndrome Can Last a Long Time: US Interest Rates Took 30 Years to Return to Their 1920s Level



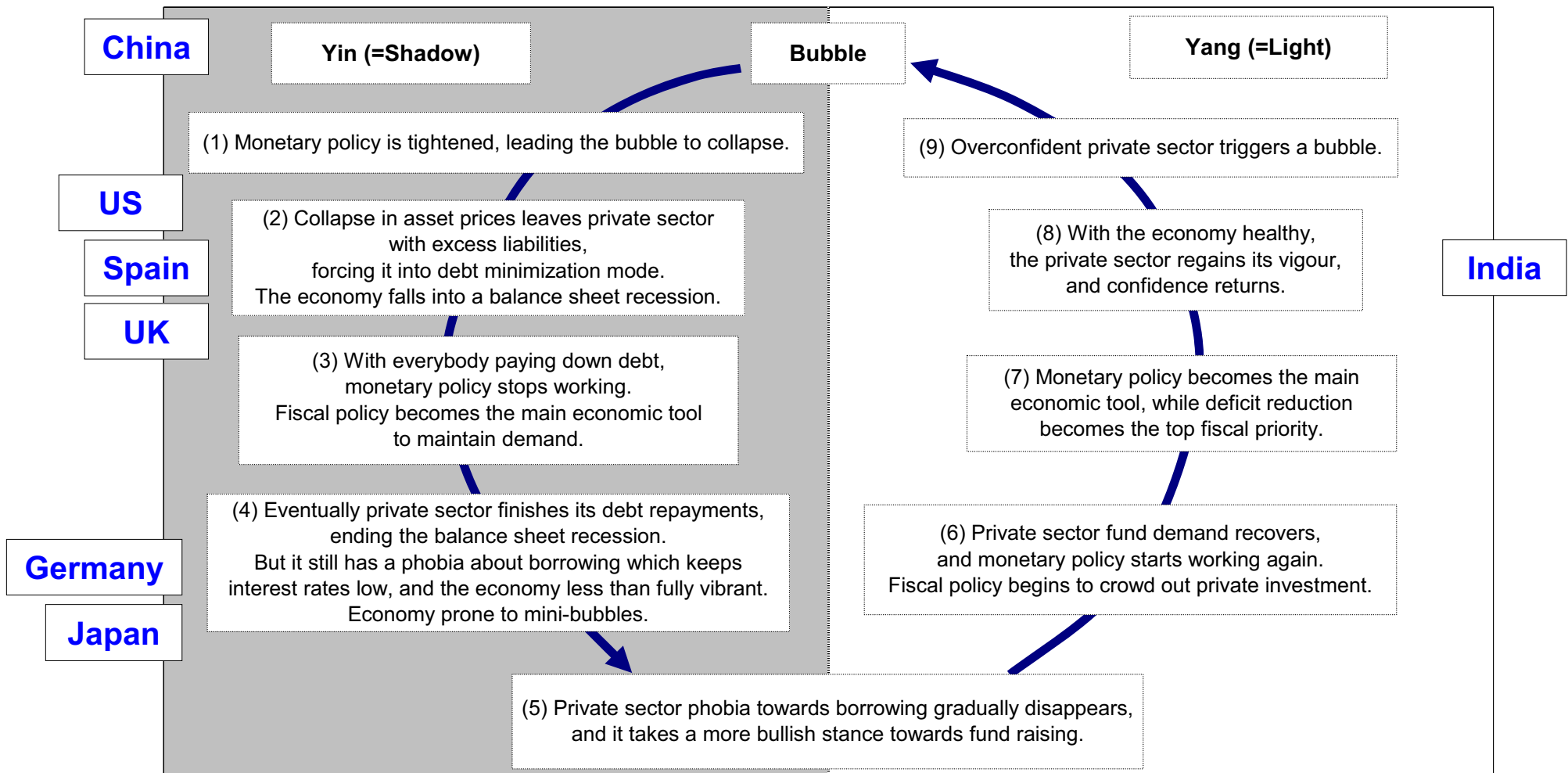
Source: FRB, *Banking and Monetary Statistics 1914-1970 Vol.1*, pp.450-451 and 468-471, *Vol.2*, pp.674-676 and 720-727

Exhibit 31. The Anatomy of Balance Sheet Recession and Its Cure



Source: Richard Koo, *Balance Sheet Recession: Japan's Struggle with Uncharted Economics and its Global Implications*, John Wiley & Sons, Singapore 2003

Exhibit 32. Yin Yang Cycle of Bubbles and Balance Sheet Recessions



Source: Richard Koo, *The Holy Grail of Macroeconomics: Lessons from Japan's Great Recession*, John Wiley & Sons, Singapore, April 2008 p.160.

Exhibit 33. 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: Richard Koo, *The Holy Grail of Macroeconomics: Lessons from Japan's Great Recession*, John Wiley & Sons, Singapore, 2008