

## Background Note regarding the Bank's Thinking on Price Stability (Charts)

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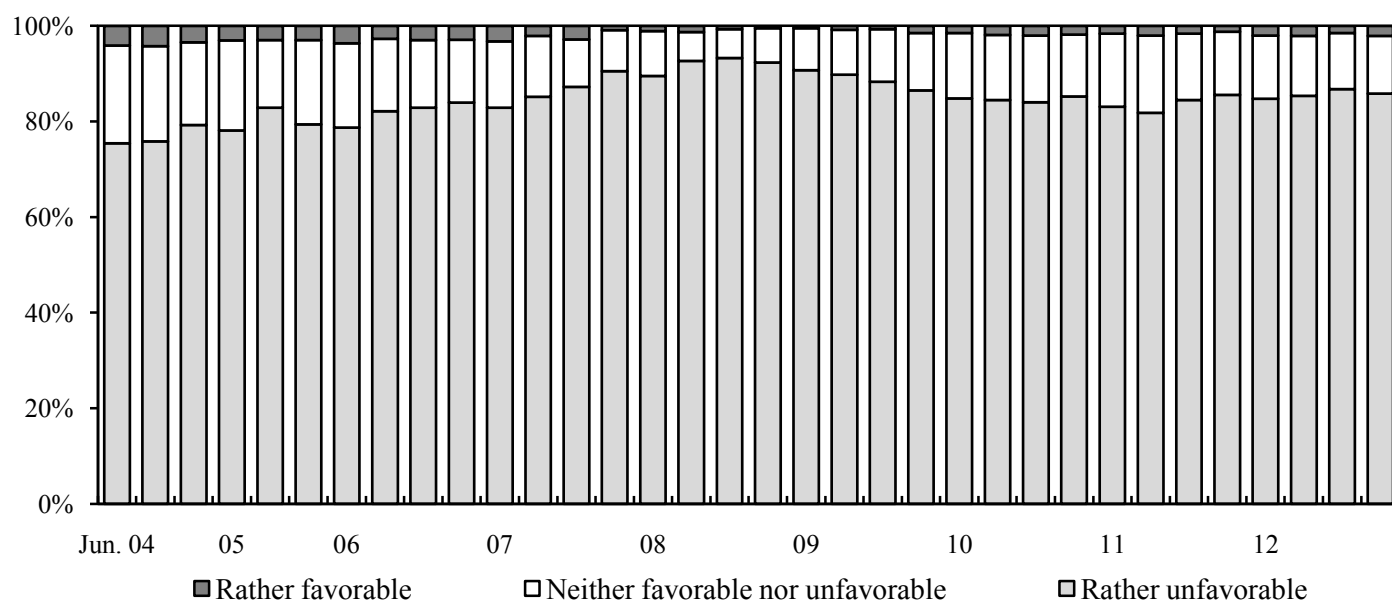
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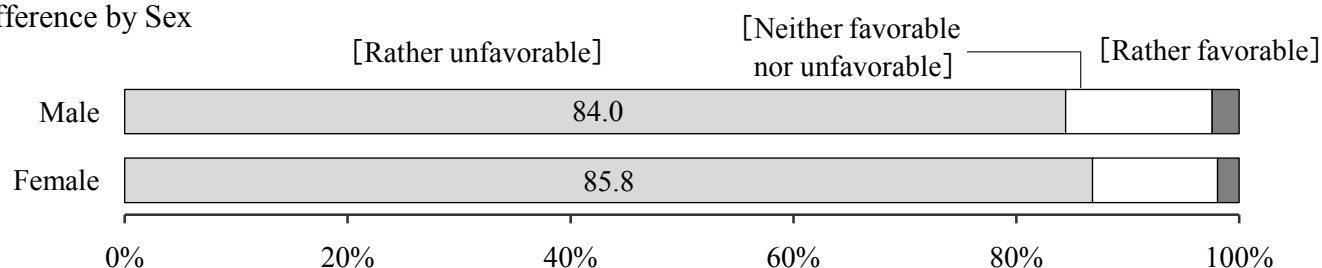
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## Comments of Households on the Price Rise

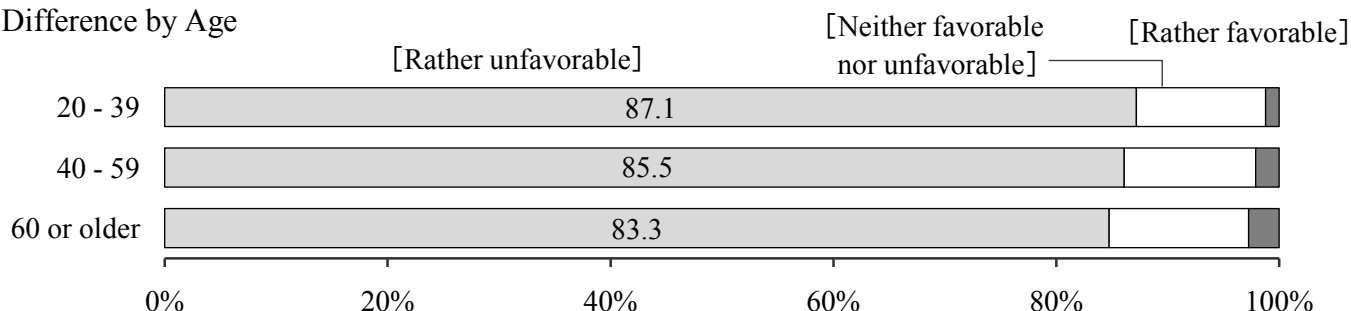
### (1) Survey Results



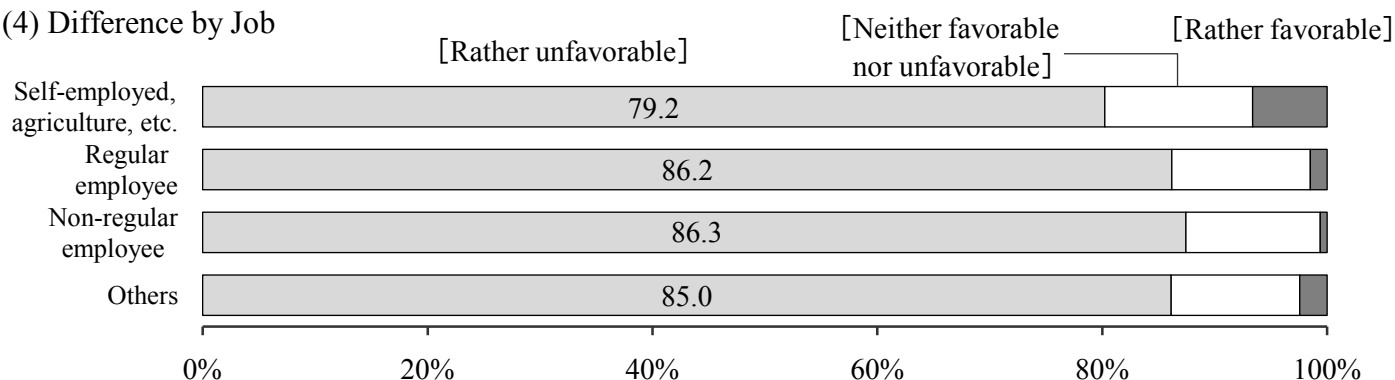
### (2) Difference by Sex



### (3) Difference by Age



### (4) Difference by Job



Notes: 1. In 2005 surveys were conducted in March, September, and December, and thereafter in March, June, September, and December. Results of the questionnaires were obtained via the in-home survey method through June 2006, thereafter via the mail survey method.

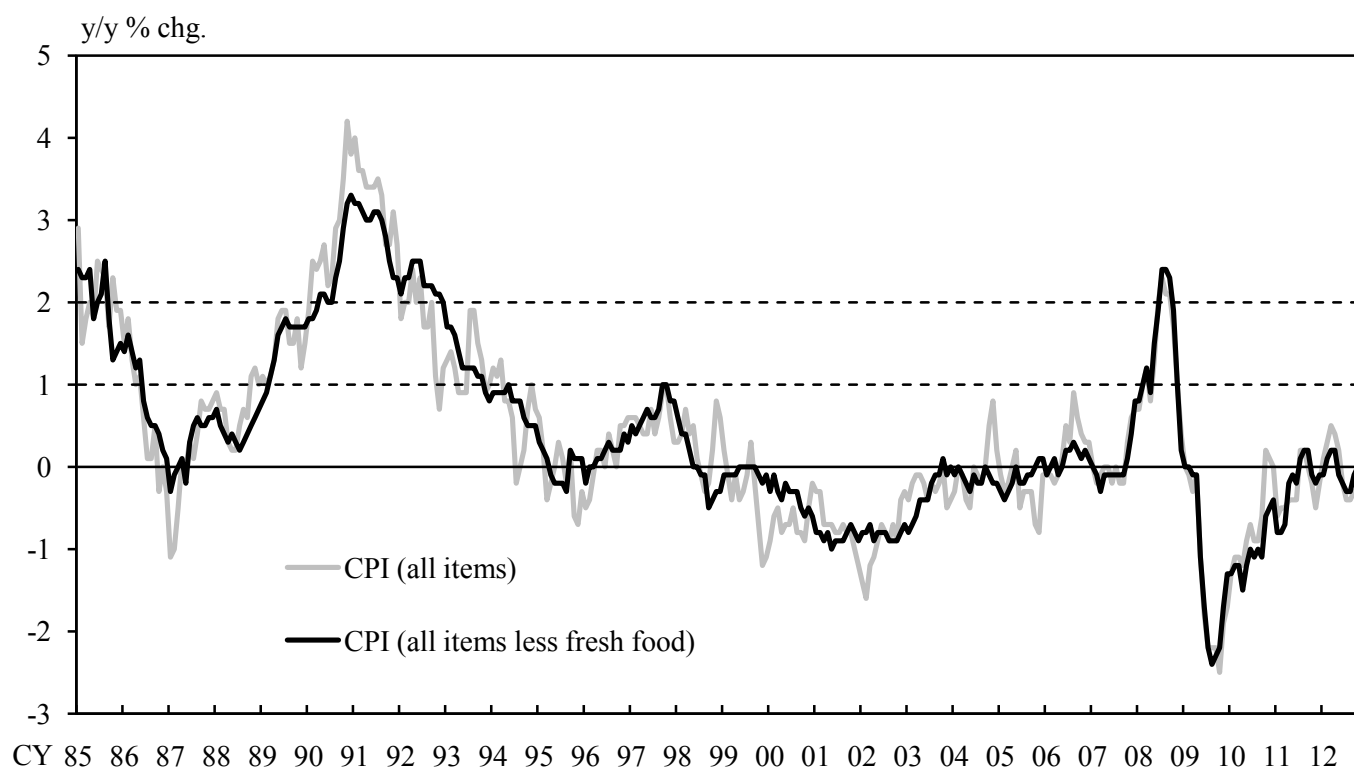
2. Figures for (2), (3) and (4) are newly calculated using raw data of the December 2012 survey.

3. In (4) "Self-employed, agriculture, etc." includes agriculture, forestry, fisheries, self-employed, working for a family business, and professional worker. "Others" includes full-time homemaker, student, unemployed, etc.

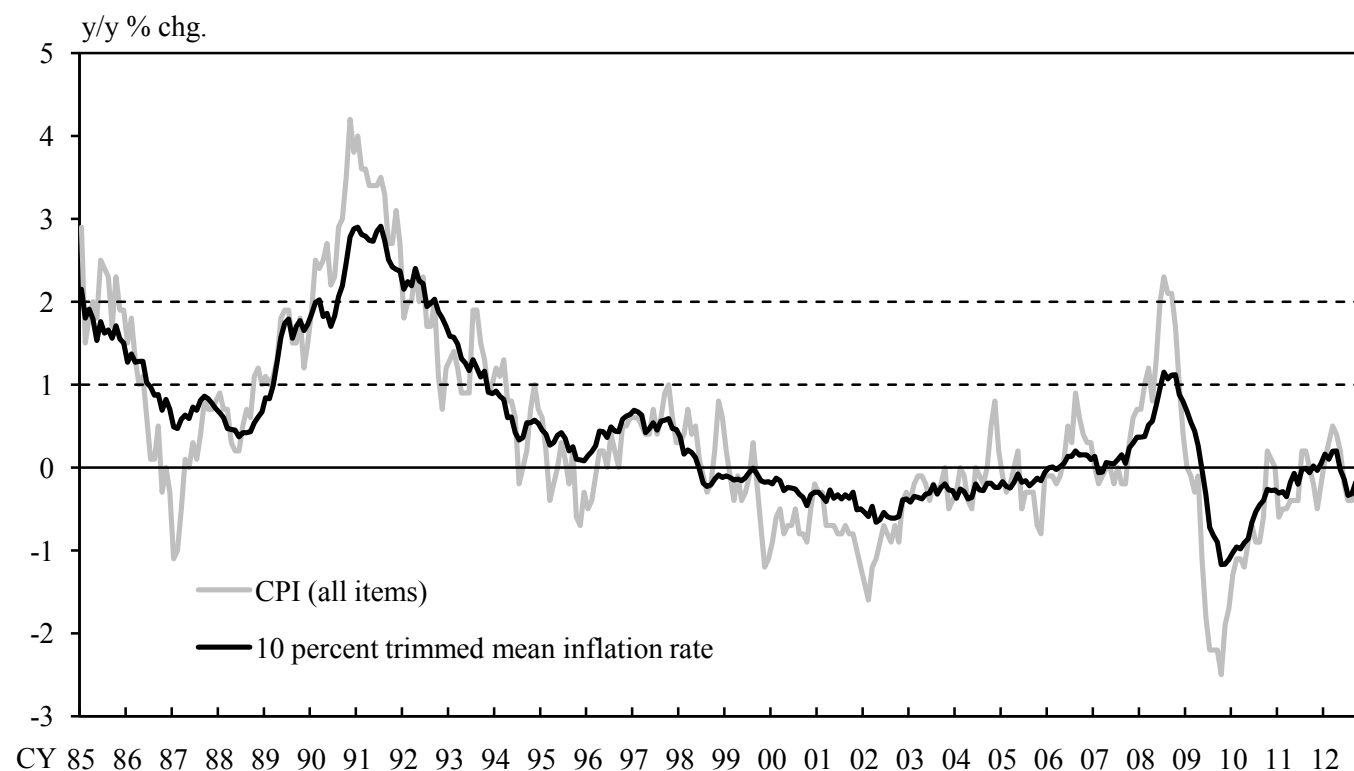
Source: Bank of Japan, "Opinion Survey on the General Public's Views and Behavior."

## Underlying CPI

### (1) CPI (All Items Less Fresh Food)



### (2) Trimmed Mean Inflation Rate of CPI



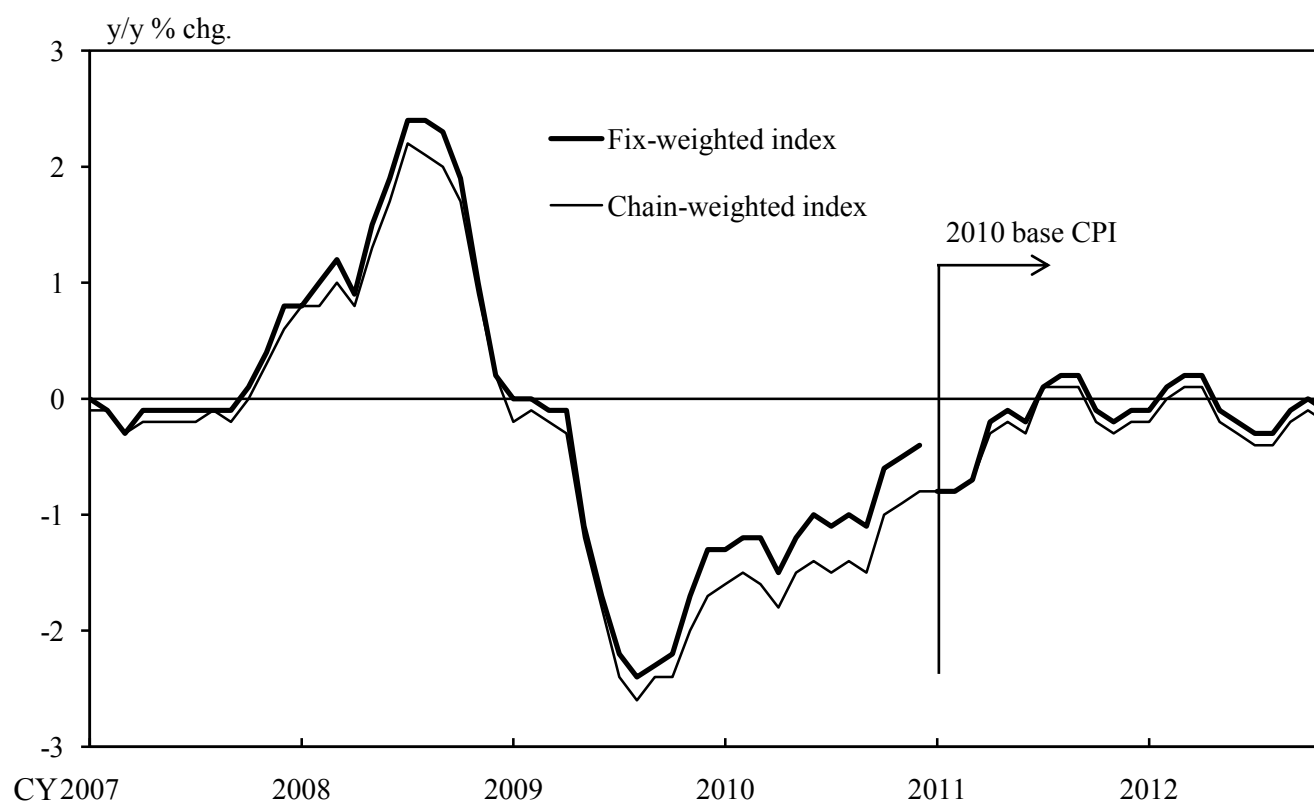
Notes: 1. Figures for the 10 percent trimmed mean are weighted averages of items; these items are obtained by rearranging year-on-year rates of change in ascending/descending order and then excluding items in both the upper and lower 10 percent tails by weight.

2. Figures for the CPI are adjusted to exclude the effects of the consumption tax introduction in 1989 (3 percent) and the consumption tax hike in 1997 (from 3 to 5 percent).

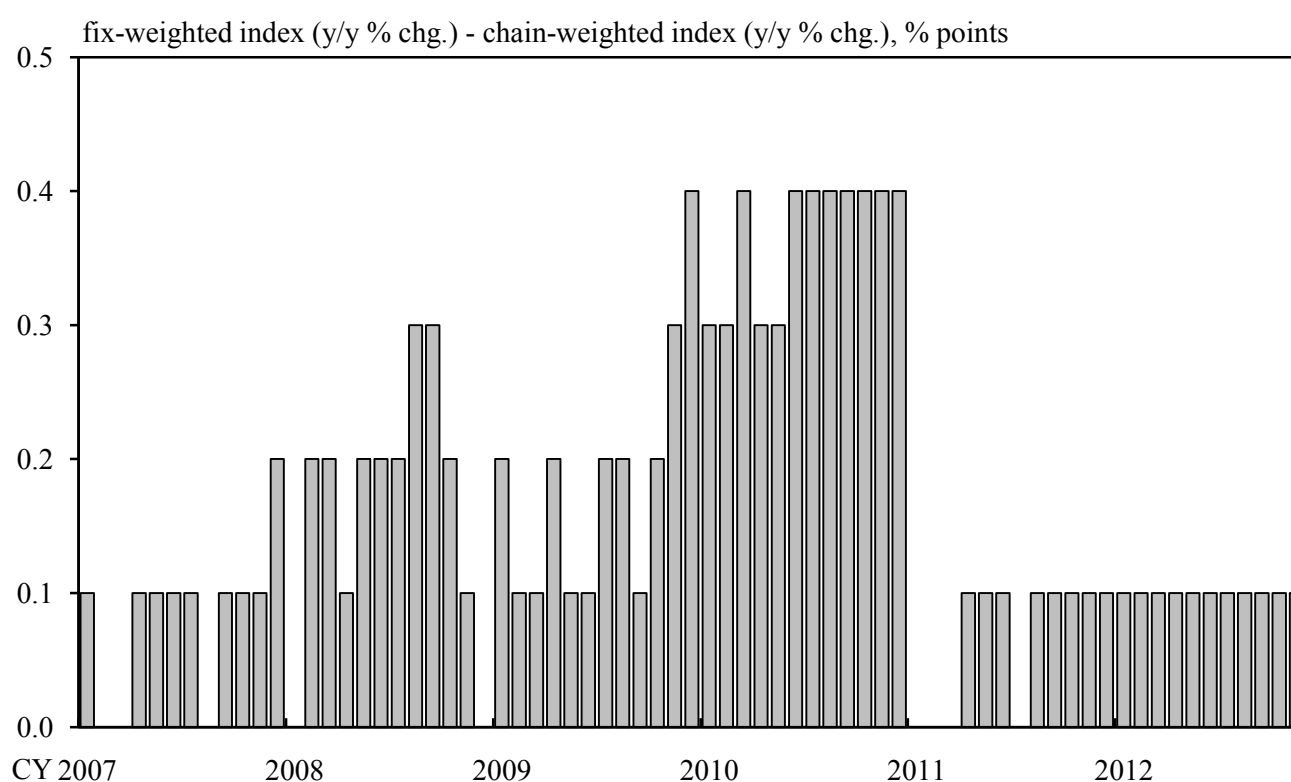
Source: Ministry of Internal Affairs and Communications, "Consumer Price Index."

## Laspeyres Bias in CPI

### (1) Fix-Weighted and Chain-Weighted Indices (All Items Less Fresh Food)



### (2) Spreads between Fix-Weighted and Chain-Weighted Indices

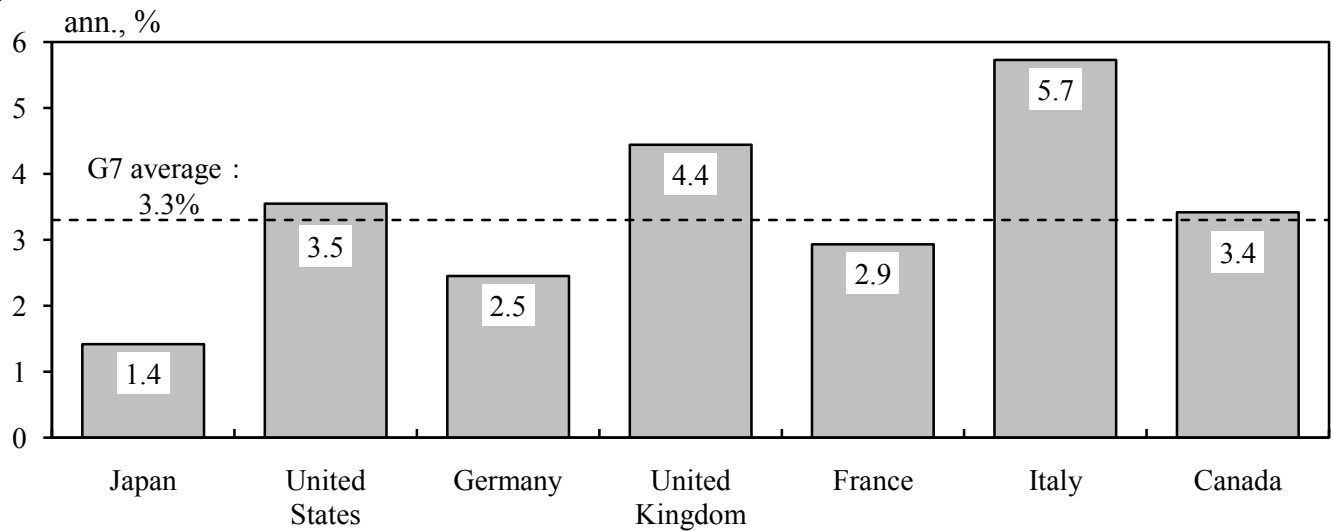


Note: The chain-weighted index is compiled by updating the weights of items and resetting the index level of each item to 100 every year so as to reflect changes in the consumption basket more rapidly.

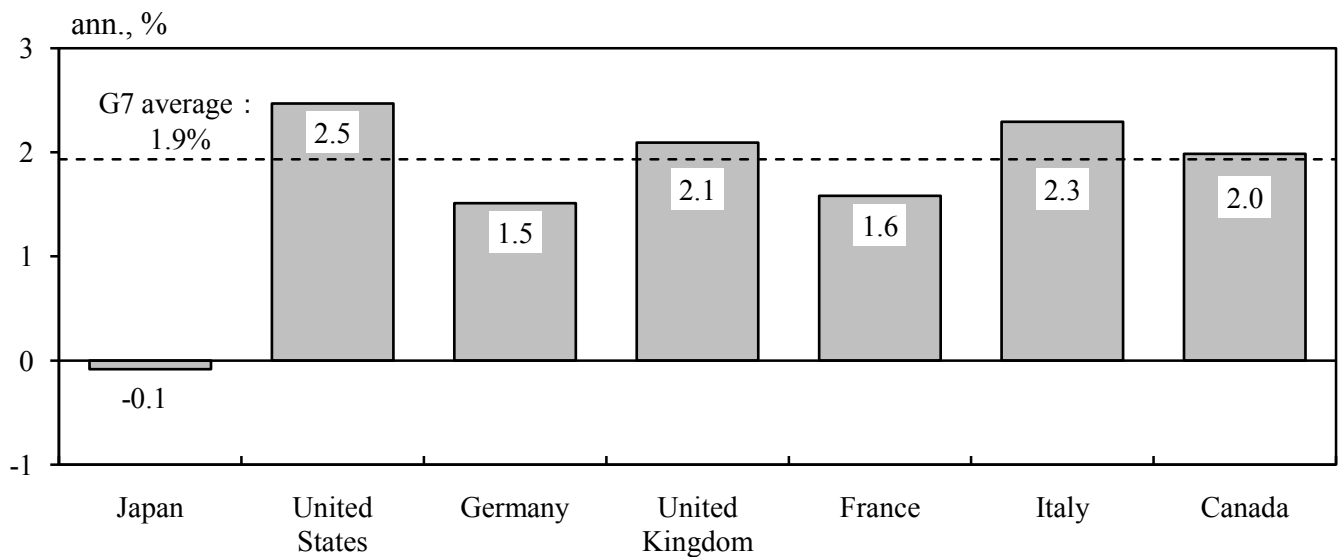
Source: Ministry of Internal Affairs and Communications, "Consumer Price Index."

## CPI in Advanced Economies

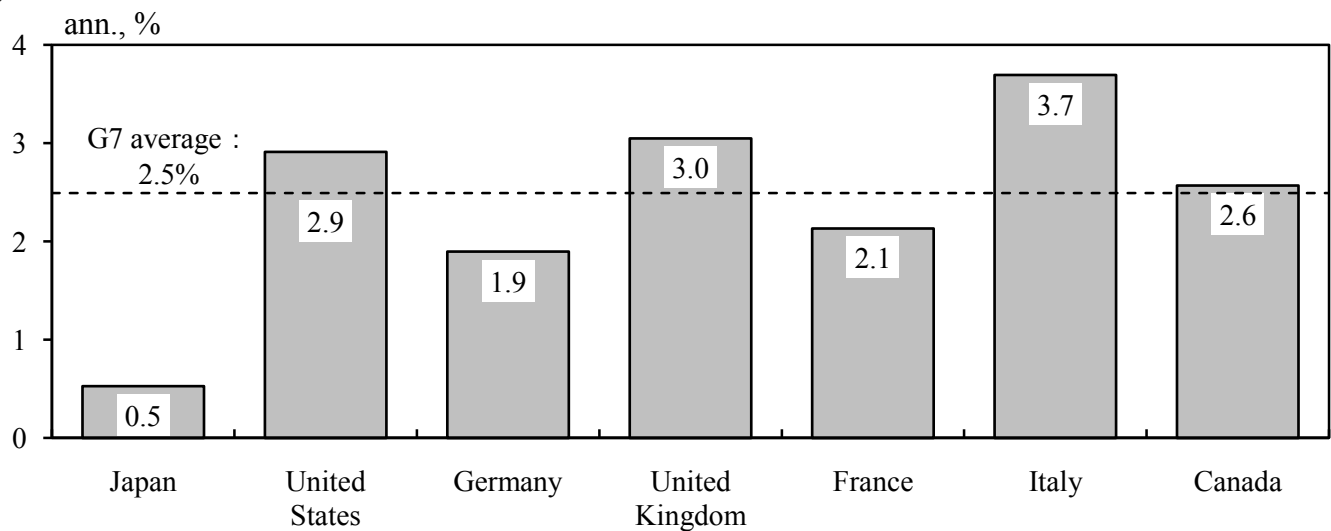
(1) 1985-1995



(2) 1996-2011



(3) 1985-2011



Notes: 1. Figures are the averages of the year-on-year rates of change in the CPI (all items) during the specified periods.

2. Figures for Germany prior to 1991 are those for the former West Germany.

Source: OECD.

## Giving Flexibility to Monetary Policy Frameworks in Considering Financial Systems

### [Federal Reserve Board]

"Inflation, employment, and long-term interest rates fluctuate over time in response to economic and financial disturbances. Moreover, monetary policy actions tend to influence economic activity and prices with a lag. Therefore, the Committee's policy decisions reflect its longer-run goals, its medium-term outlook, and its assessments of the balance of risks, including risks to the financial system that could impede the attainment of the Committee's goals."

("Longer-Run Goals and Policy Strategy", 25 January 2012)

### [Reserve Bank of Australia]

"This statement also records our common understanding of the Reserve Bank's longstanding responsibility for financial system stability...Without compromising the price stability objective, the Reserve Bank seeks to use its powers where appropriate to promote the stability of the Australian financial system."

("Statement on the Conduct of Monetary Policy", 30 September 2010)

### [Bank of Canada]

"At the time of the last renewal of the inflation-targeting agreement, however, the Bank recognized that because the effects of financial imbalances on output and inflation could manifest themselves over a long period of time, some flexibility might be needed with regard to the time horizon over which inflation should be expected to return to target. While this flexibility might involve sacrificing some inflation performance over the usual policy horizon, it would lead to greater financial, economic and, ultimately, price stability over a somewhat longer horizon."

("Renewal of the Inflation-Control Target Background Information", 9 November 2011)

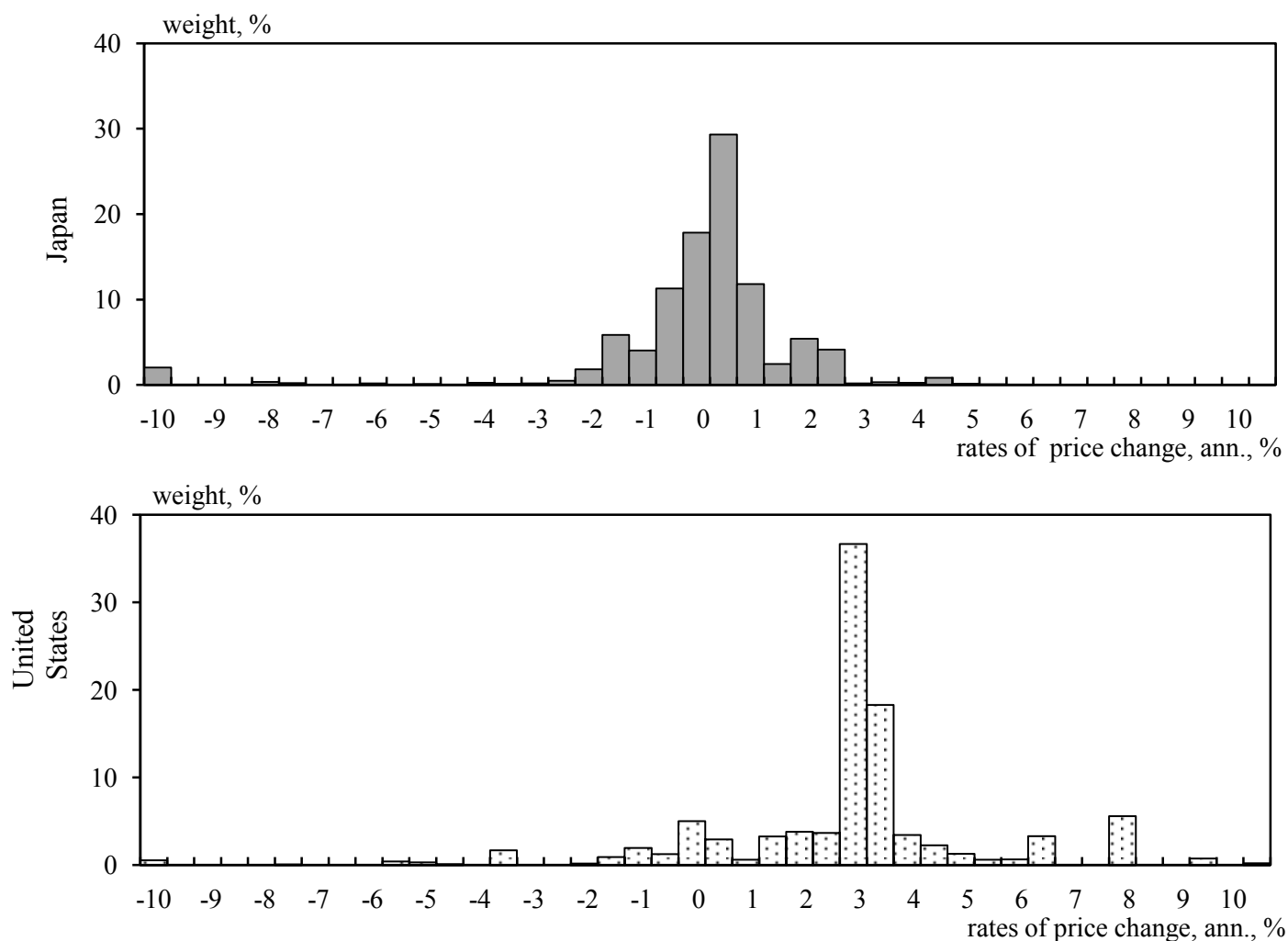
### [Reserve Bank of New Zealand]

"The PTA also includes a stronger focus on financial stability, by including asset prices in the range of indicators the Bank monitors, and requiring the Bank to have regard to the soundness and efficiency of the financial system in setting monetary policy. 'I believe that the existing policy targets agreement has served New Zealand well and there are benefits in maintaining consistency in the agreement,' Mr English says. 'Therefore, I did not feel that any major changes were required.' However, the Global Financial Crisis has focused some attention on monetary policy frameworks, and I want to ensure the PTA continues to reflect best international practice."

("New Policy Targets Agreement signed today", 20 September 2012)

## Distribution of Rates of Price Change of Items in CPI

(1) Weighted Histogram of Rates of Price Change of Items (Annual Average from 1997 to 2011)<sup>1</sup>



(2) Contribution of Each Group of Items to CPI (All Items, Annual Average from 1997 to 2011)

ann., %, %points

	Japan		United States		Japan - U.S. Difference in Contribution
	Rates of change	Contribution	Rates of change	Contribution	
Durables <sup>2</sup>	-4.5	-0.3	-0.9	-0.1	-0.2
Nondurables <sup>3</sup>	0.1	0.1	3.0	0.9	-0.8
Rent <sup>4</sup>	0.0	0.0	2.6	0.8	-0.8
Services less rent <sup>5</sup>	0.0	0.0	3.2	0.9	-0.9
Total	-0.2		2.4		-2.6

Notes: 1. The histograms are calculated with the CPI weights of items.

2. For Japan, "durable goods."

3. For Japan, "goods" minus "durable goods."

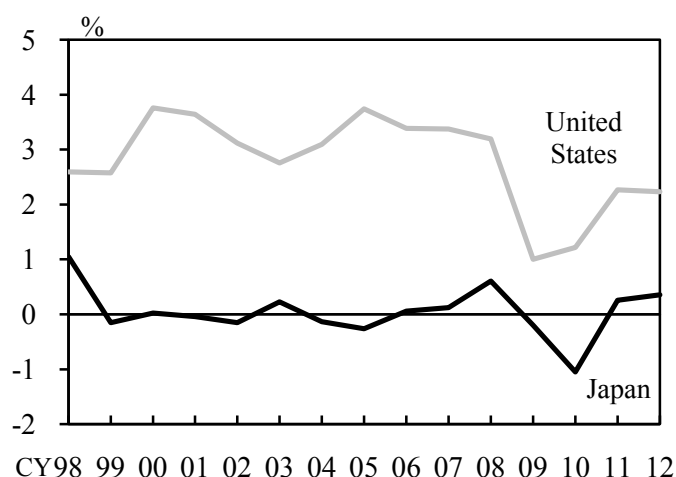
4. For the United States, "rent of shelter."

5. For the United States, "services less rent of shelter."

Sources: Ministry of Internal Affairs and Communications, "Consumer Price Index"; BLS.

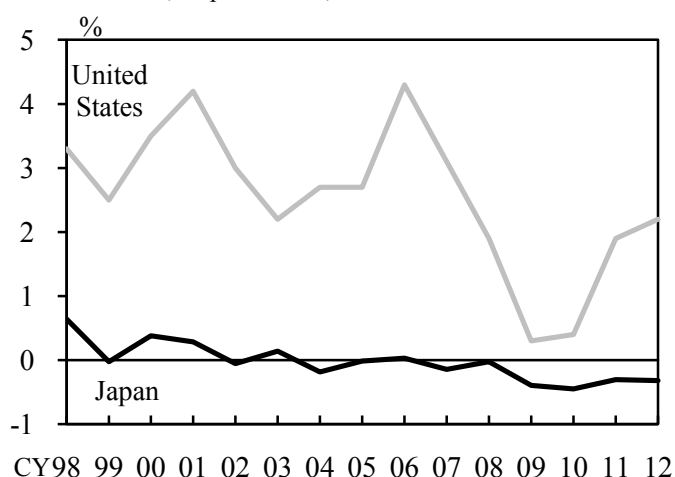
# Comparison of "Services" in CPI between Japan and the United States

(1) Services (Japan: 55.8%, U.S.: 65.6%)



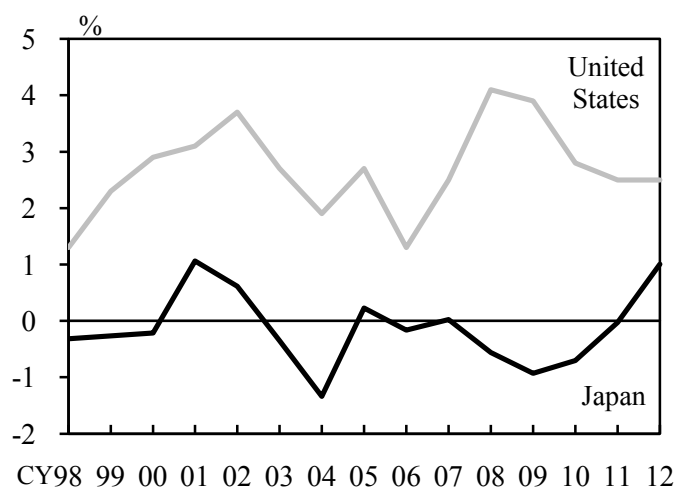
(2) Rent (Japan: 18.6%, U.S.: 31.9%)

-- House Rent, Imputed Rent, etc.



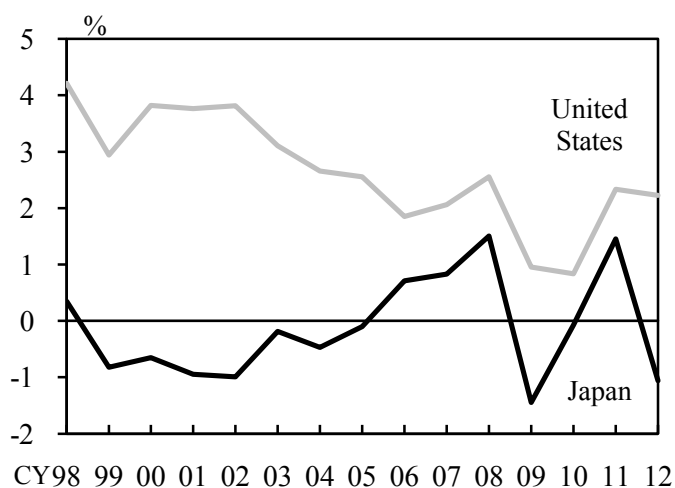
(3) Transportation (Japan: 5.7%, U.S.: 5.7%)

-- Public Transportation Fares, Motor Vehicle Maintenance and Repair, Motor Vehicle Insurance, etc.



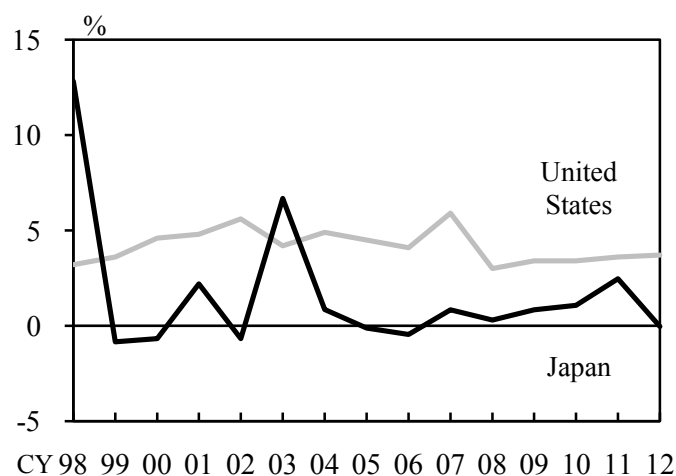
(4) Recreation (Japan: 5.0%, U.S.: 3.5%)

-- Charges for TV License, Internet Connection Charges, Package Tours, etc.



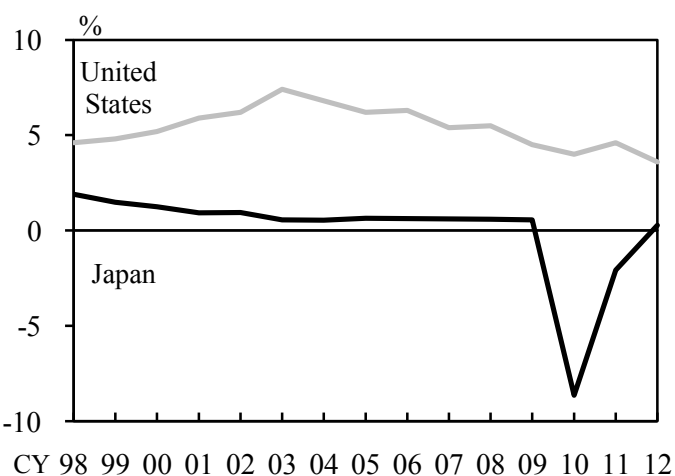
(5) Medical Care and Insurance (Japan: 3.9%, U.S.: 4.8%)

-- Medical Treatment, Charges for Accident Insurance, etc.



(6) Education (Japan: 4.0%, U.S.: 2.8%)

-- School Fees, Nursery School Fees, etc.



Notes: 1. Shares of each type of services (in CPI for all items) in 2005 are shown in parentheses.

2. Grouping is adjusted for comparison between Japan and the United States.

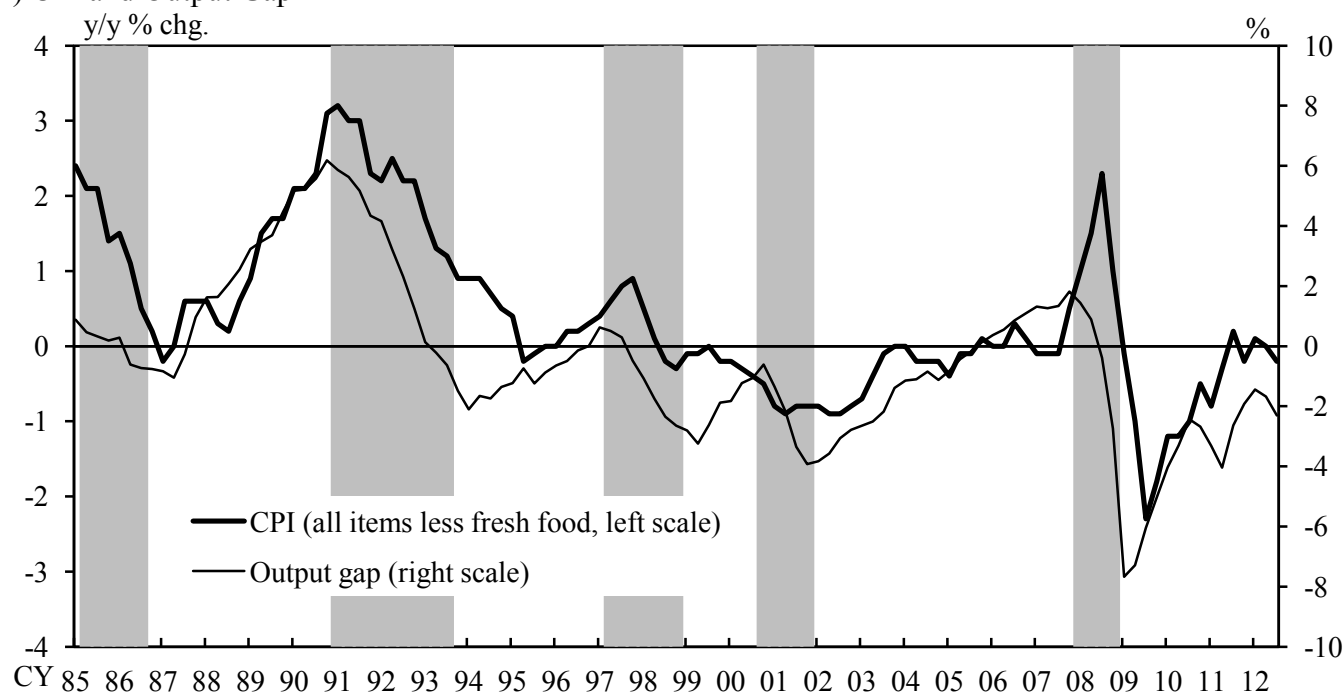
3. Recreation for the United States does not include package tours.

Sources: Ministry of Internal Affairs and Communications, "Consumer Price Index"; BLS.

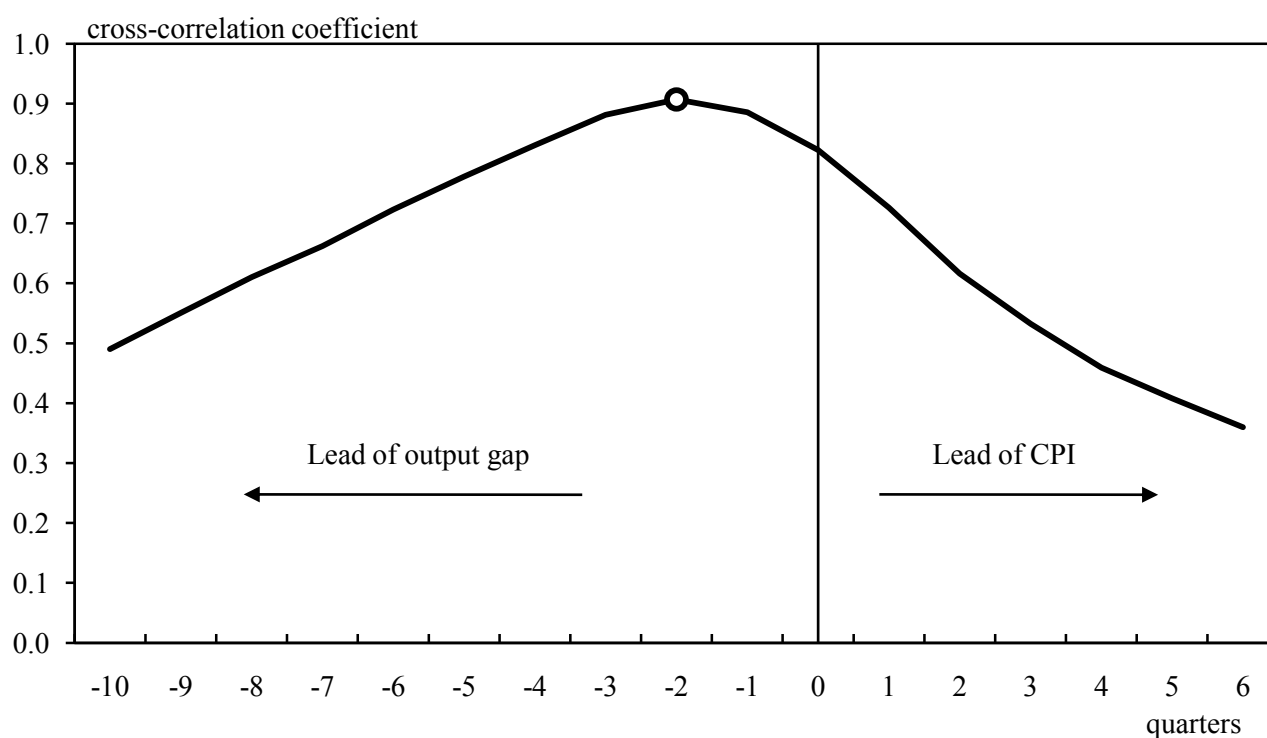


## CPI and Output Gap

## (1) CPI and Output Gap



## (2) Cross Correlation between Output Gap and CPI



Notes: 1. Figures for the CPI are adjusted to exclude the effects of the consumption tax introduction in 1989 (3 percent) and the consumption tax hike in 1997 (from 3 to 5 percent).

2. The output gap is estimated by the Research and Statistics Department, Bank of Japan. For the estimation procedures, see "The New Estimates of Output Gap and Potential Growth Rate," Bank of Japan Review Series, 2006-E-3.

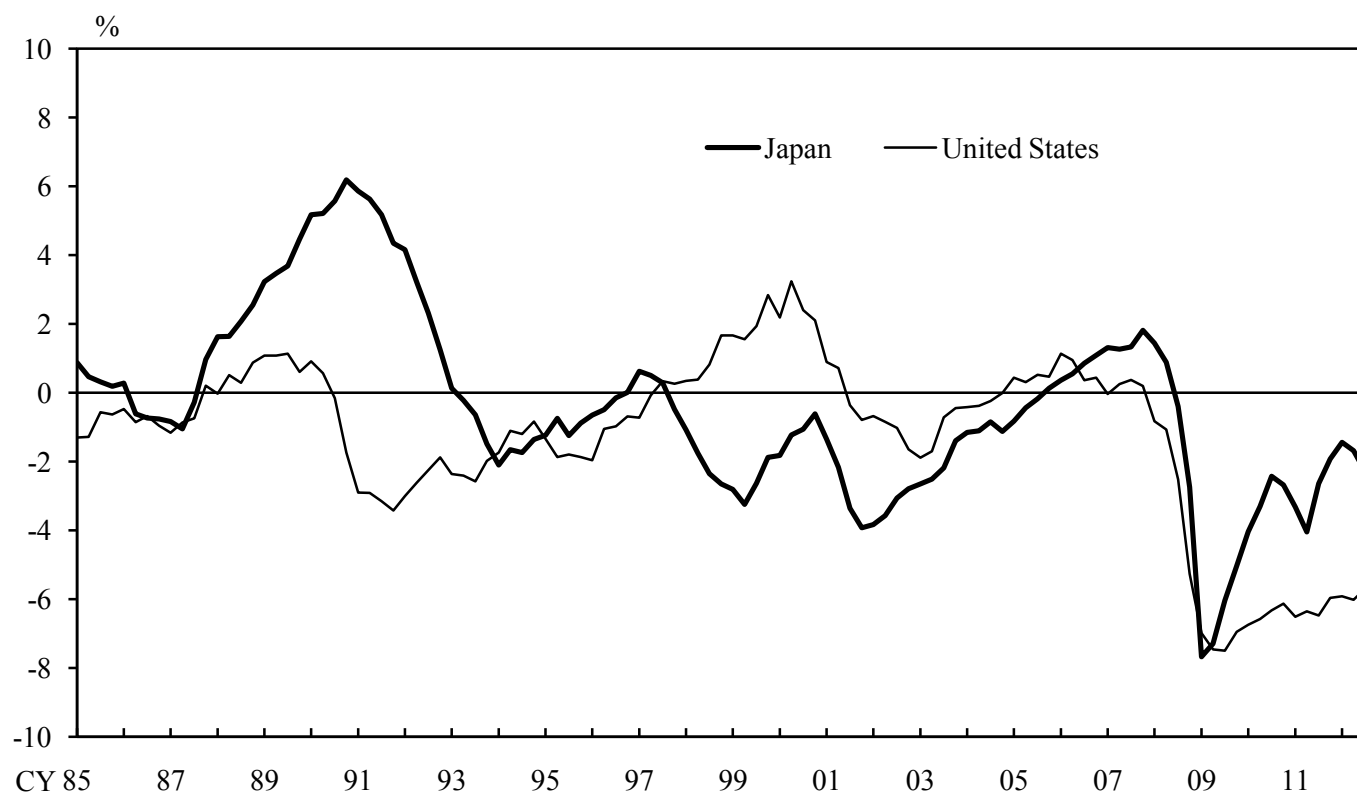
3. Shaded areas indicate recession periods.

4. Figures for the cross correlation are calculated using data between 1990/Q1 and 2012/Q3.

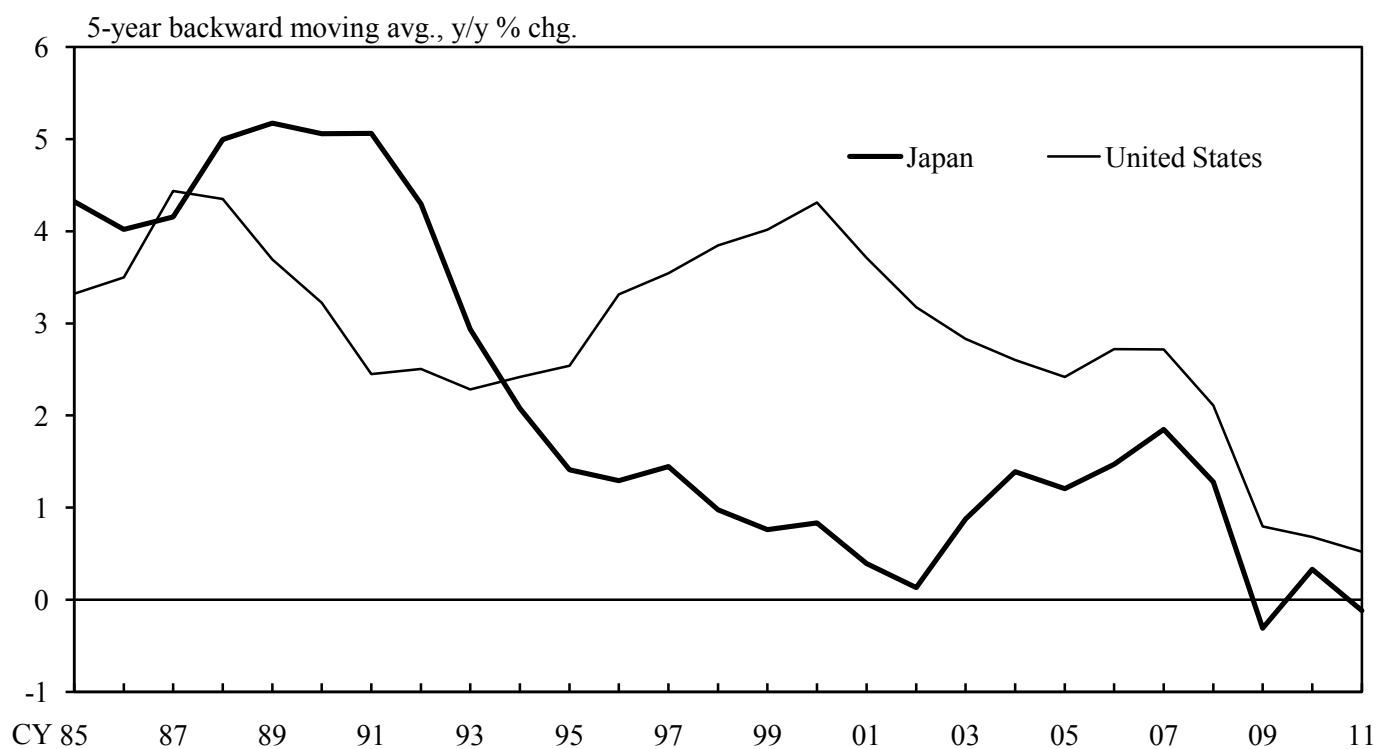
Sources: Ministry of Internal Affairs and Communications, "Consumer Price Index"; Cabinet Office, "National Accounts," etc.

## Output Gap and Real GDP Growth

### (1) Output Gap



### (2) Real GDP Growth



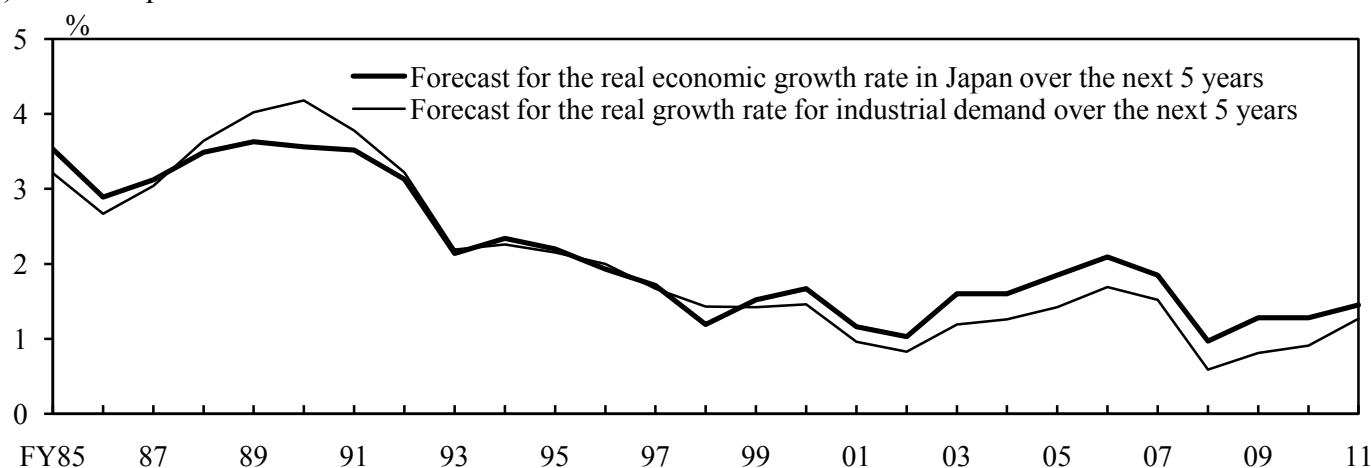
Notes: 1. Japan's output gap is estimated by the Research and Statistics Department, Bank of Japan.

2. The output gap for the United States is estimated by the CBO.

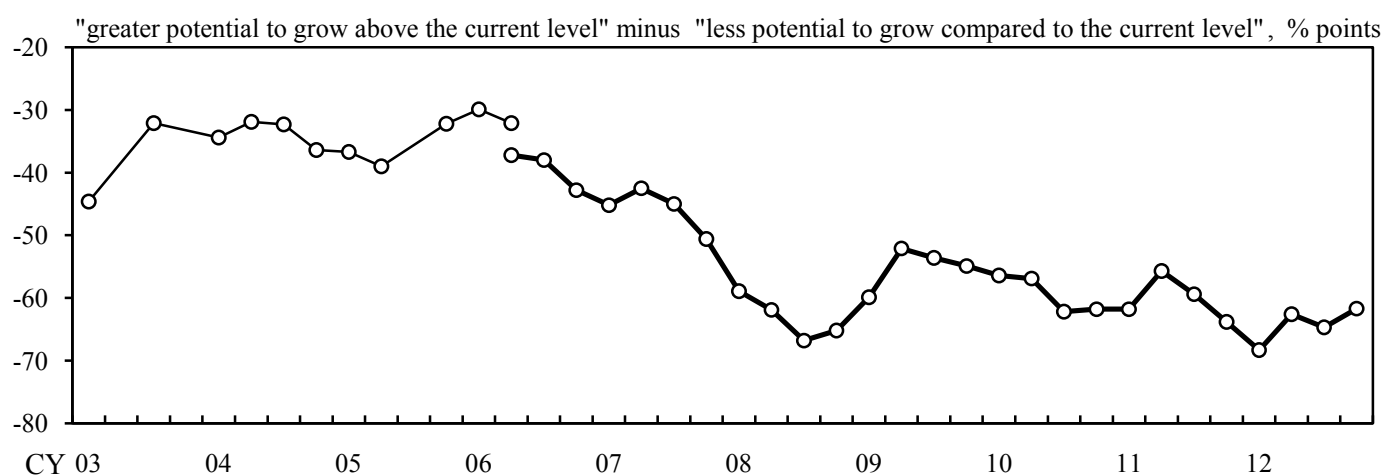
Sources: Cabinet Office, "National Accounts"; BEA; CBO, etc.

## Expected Growth Rates and Decomposition of Real GDP Growth

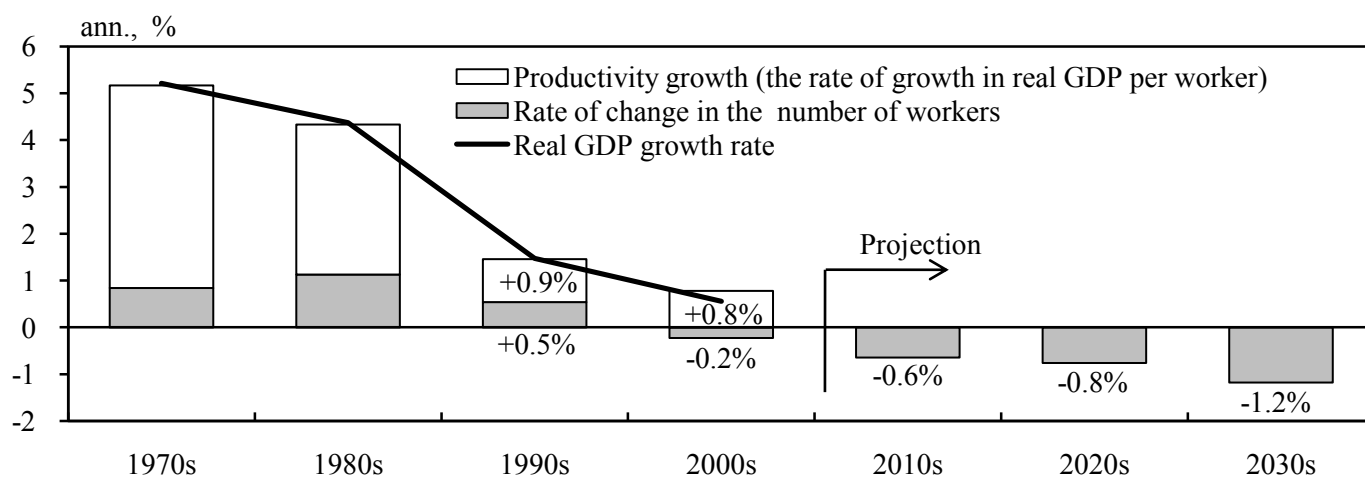
### (1) Firms' Expected Growth Rates



### (2) Household's Perception of the Japanese Economy's Growth Potential<sup>1</sup>



### (3) Decomposition of Real GDP Growth in Japan<sup>2</sup>



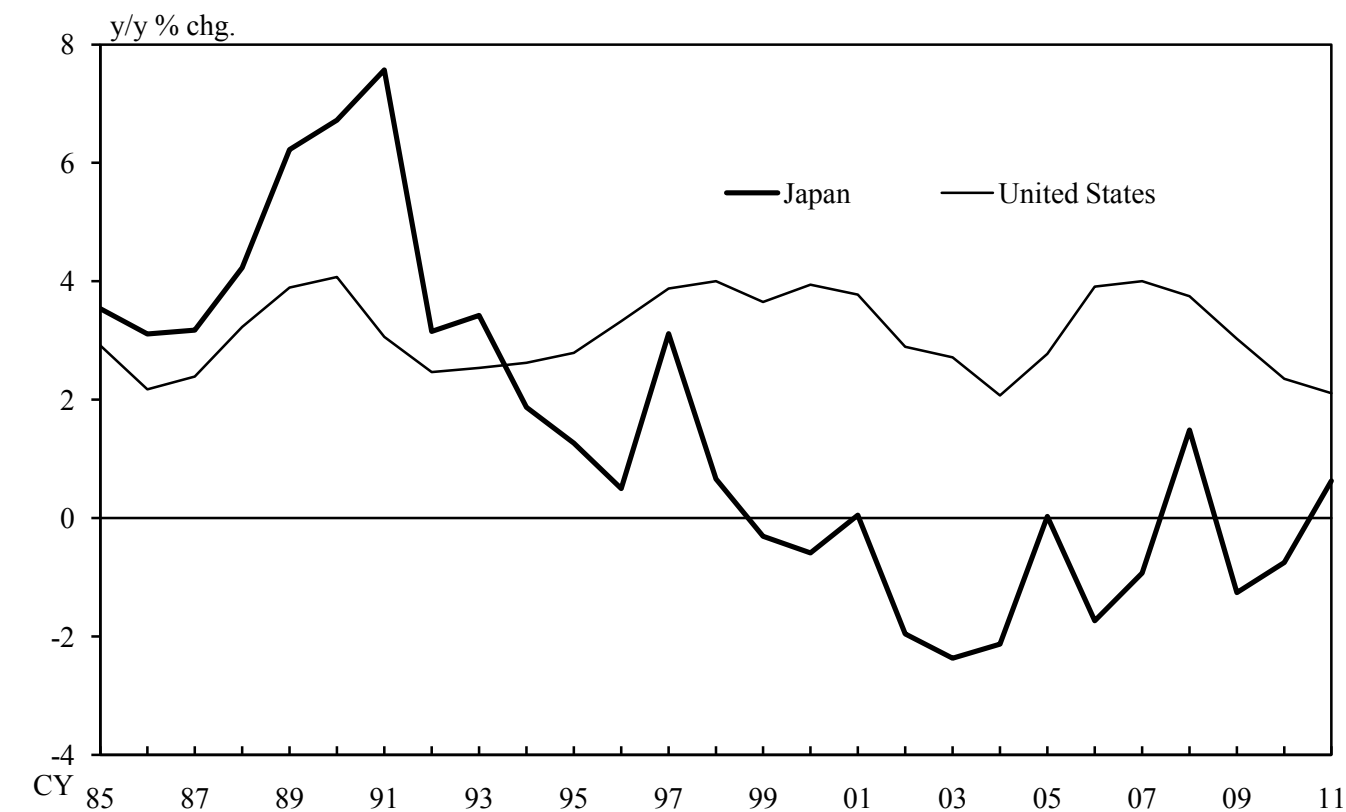
Notes: 1. The "Opinion Survey on the General Public's Views and Behavior" was revised from the June 2006 survey. Results of the questionnaires were obtained via the in-home survey method through June 2006, thereafter via the mail survey method.

2. The rates of change in the number of workers from fiscal 2011 onward are calculated using the projected future population (medium variant) and the projected labor force participation rates (assuming that the labor force participation rates in each age/sex group remain the same as those in 2010).

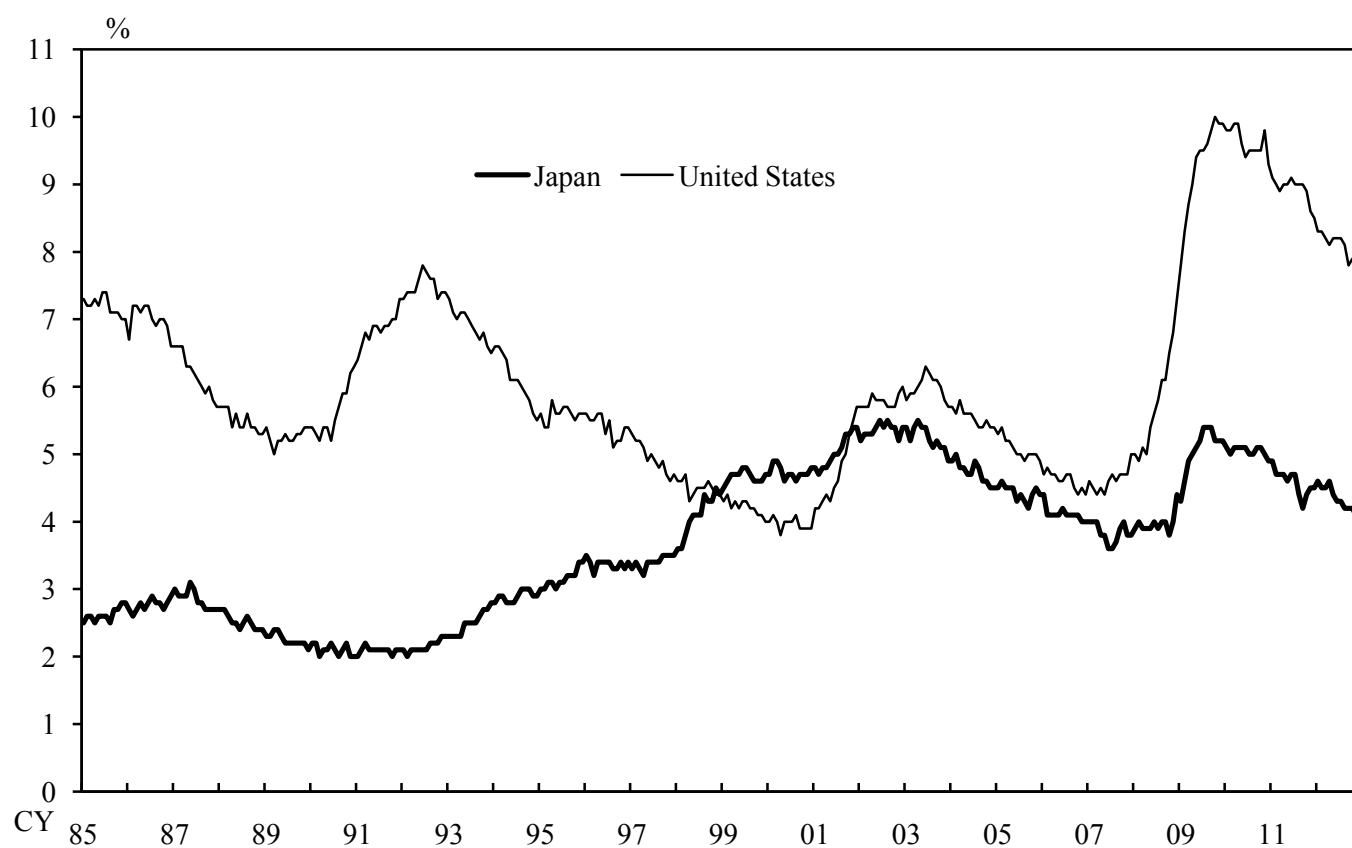
Sources: Cabinet Office, "National Accounts," "Annual Survey of Corporate Behavior"; Bank of Japan, "Opinion Survey on the General Public's Views and Behavior"; Ministry of Internal Affairs and Communications, "Labour Force Survey"; National Institute of Population and Social Security Research.

# Hourly Wage and Unemployment Rate

## (1) Hourly Wage



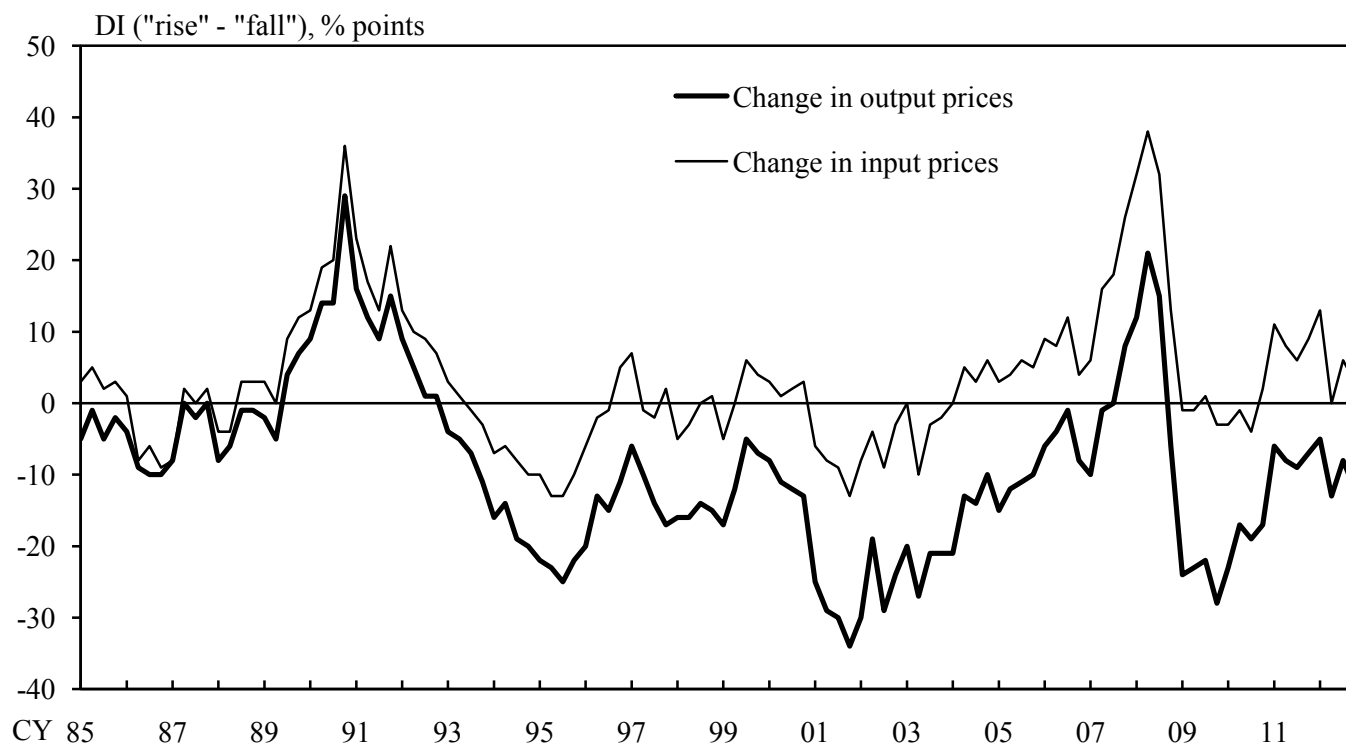
## (2) Unemployment Rate



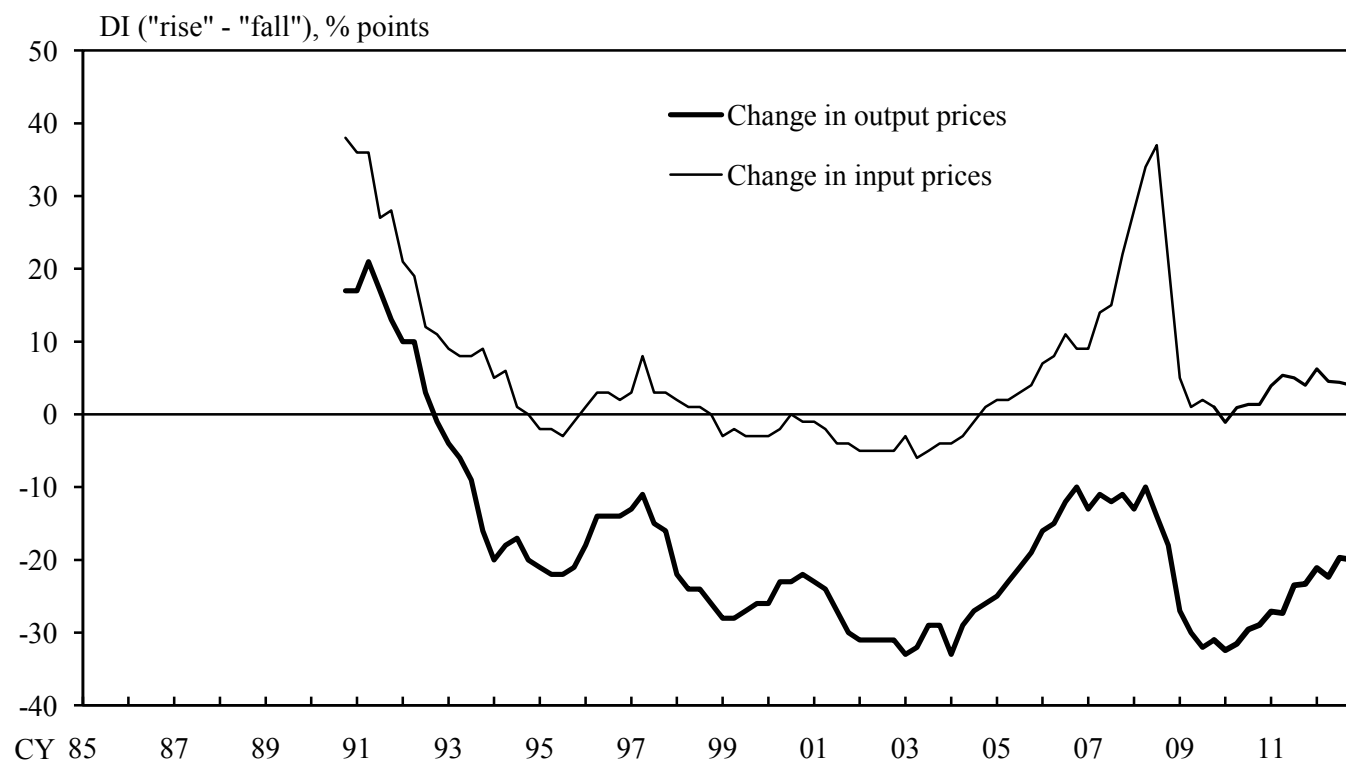
Sources: Ministry of Internal Affairs and Communications, "Labour Force Survey";  
Cabinet Office, "National Accounts"; BLS.

## Pricing Power of Firms

### (1) Retailing (All-Sized Enterprises)



### (2) Services for Businesses and Individuals (All-Sized Enterprises)

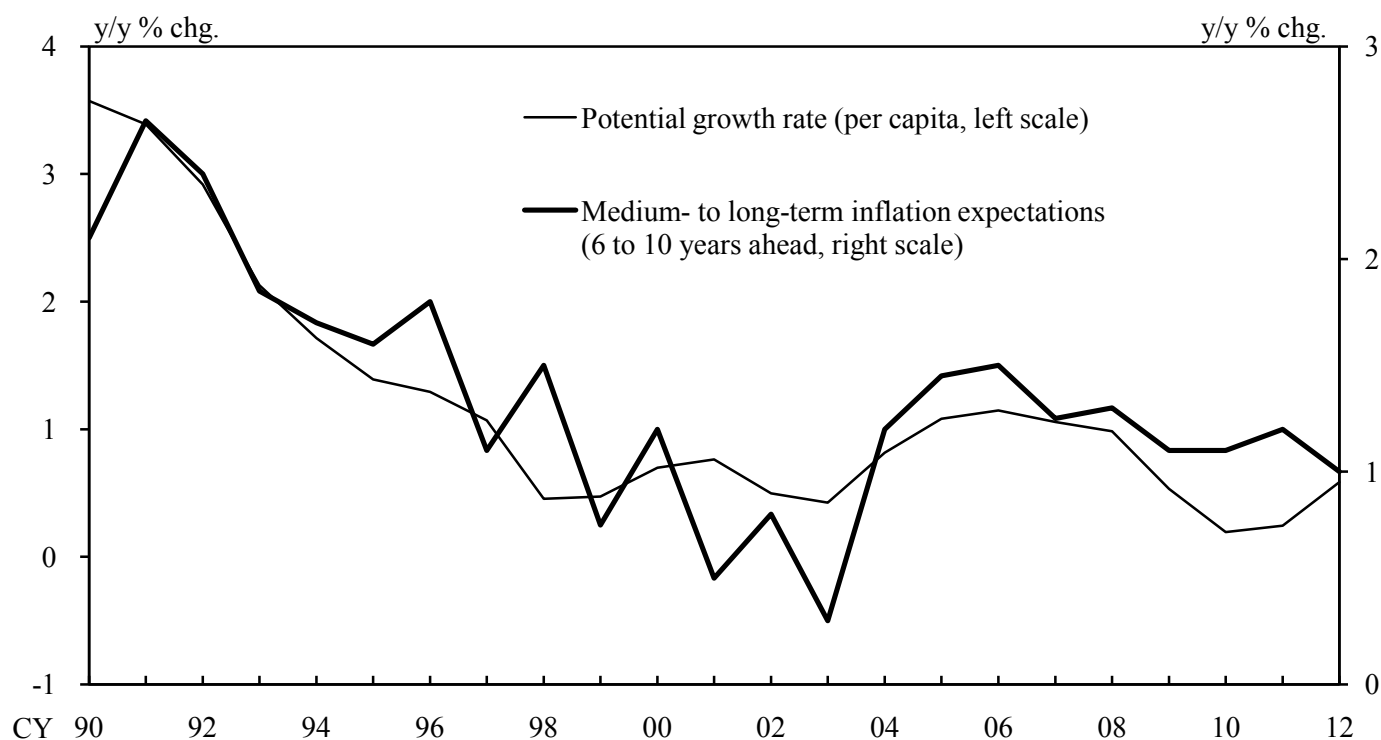


Note: Figures for 2010 onward are weighted averages of the services for businesses and individuals by number of reporting companies.

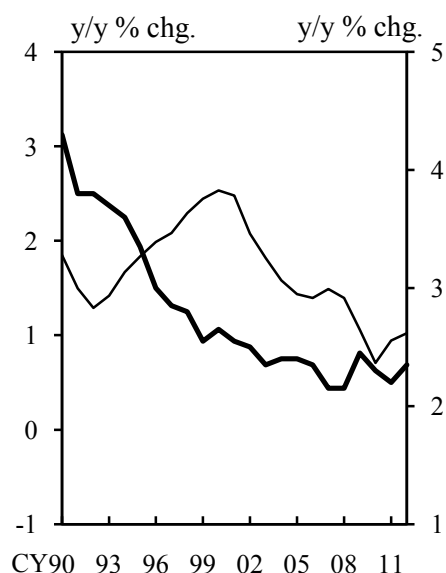
Source: Bank of Japan, "Tankan, Short-Term Economic Survey of Enterprises in Japan."

# Medium- to Long-Term Inflation Expectations and Potential Growth Rates

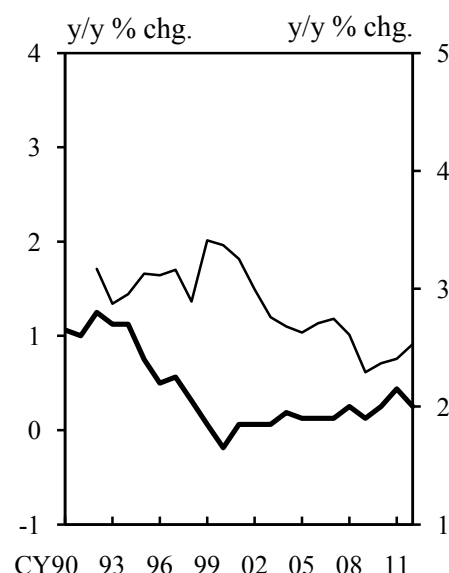
## (1) Japan



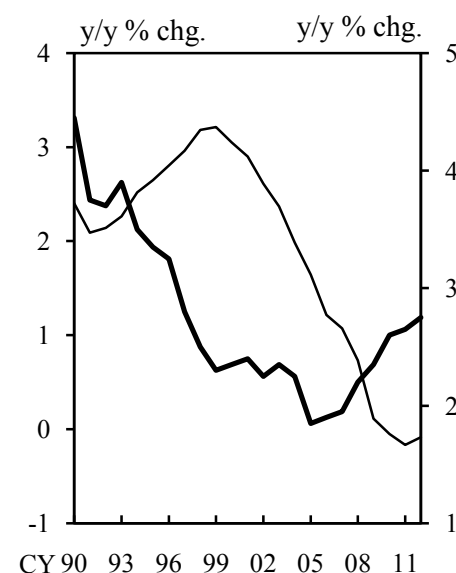
## (2) United States



## (3) Euro Area



## (4) United Kingdom



— Potential growth rate (per capita, left scale)  
 — Medium- to long-term inflation expectations (6 to 10 years ahead, right scale)

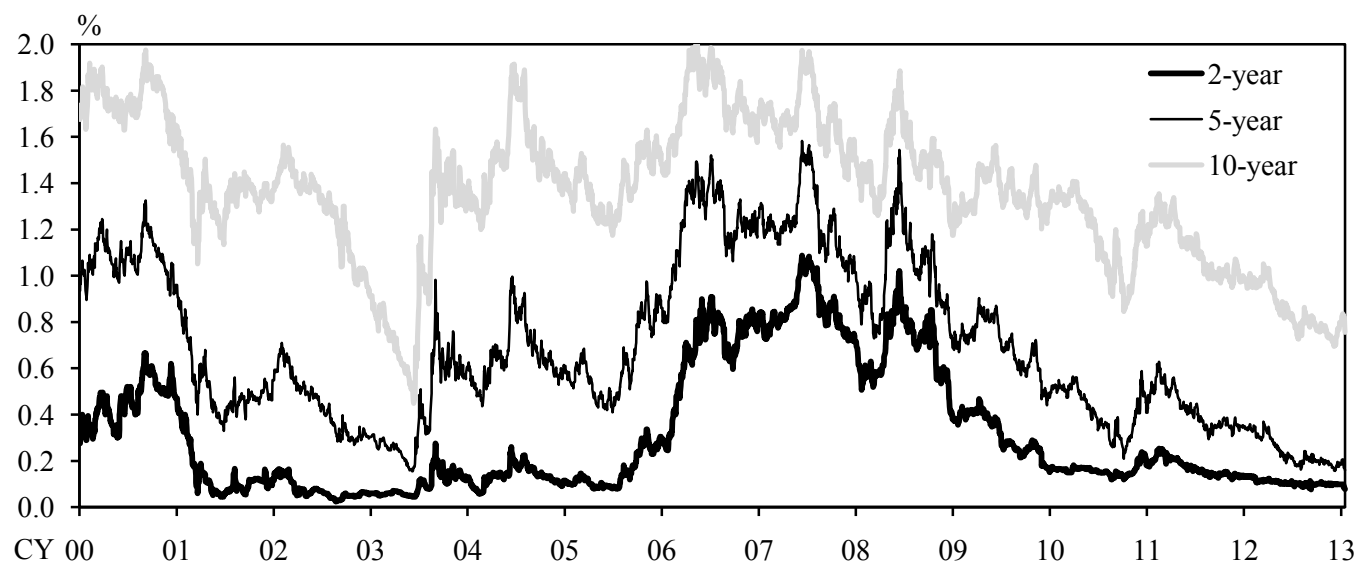
Notes: 1. Figures for inflation expectations are based on the averages of the April and October results of the Consensus Forecasts, a survey conducted on private sector forecasters. Potential growth rates are estimated by the Research and Statistics Department, Bank of Japan for Japan, the CBO for the United States, and the OECD for the euro area and the United Kingdom.

2. Figures for inflation expectations of the euro area up through 2002 are those of Germany.

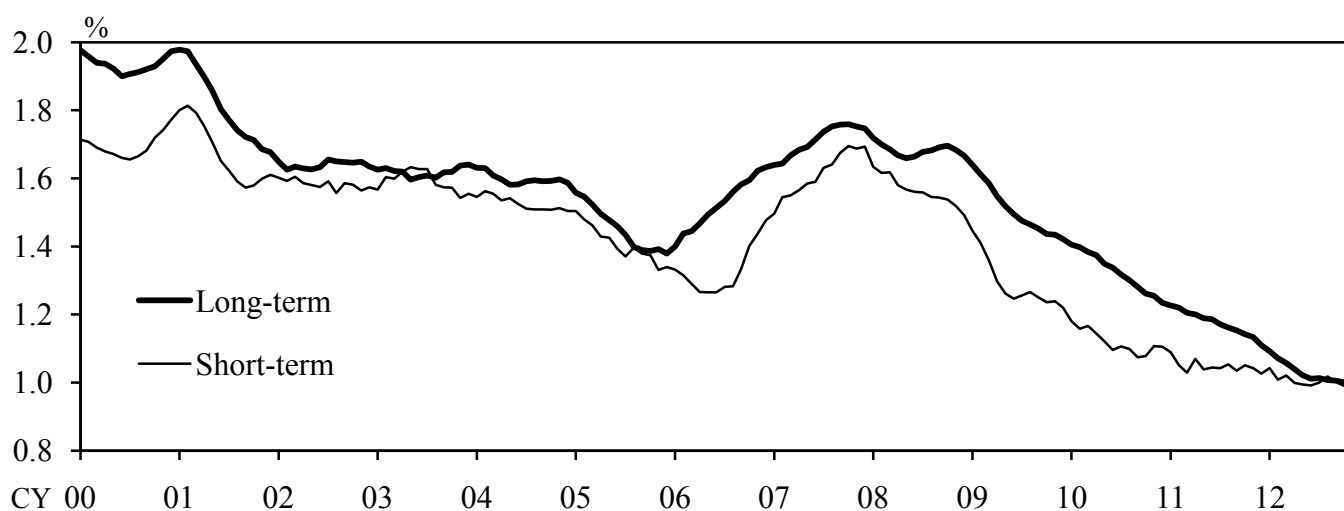
Sources: Cabinet Office, "National Accounts"; Consensus Economics Inc., "Consensus Forecasts"; CBO; OECD, etc.

## Financial Conditions

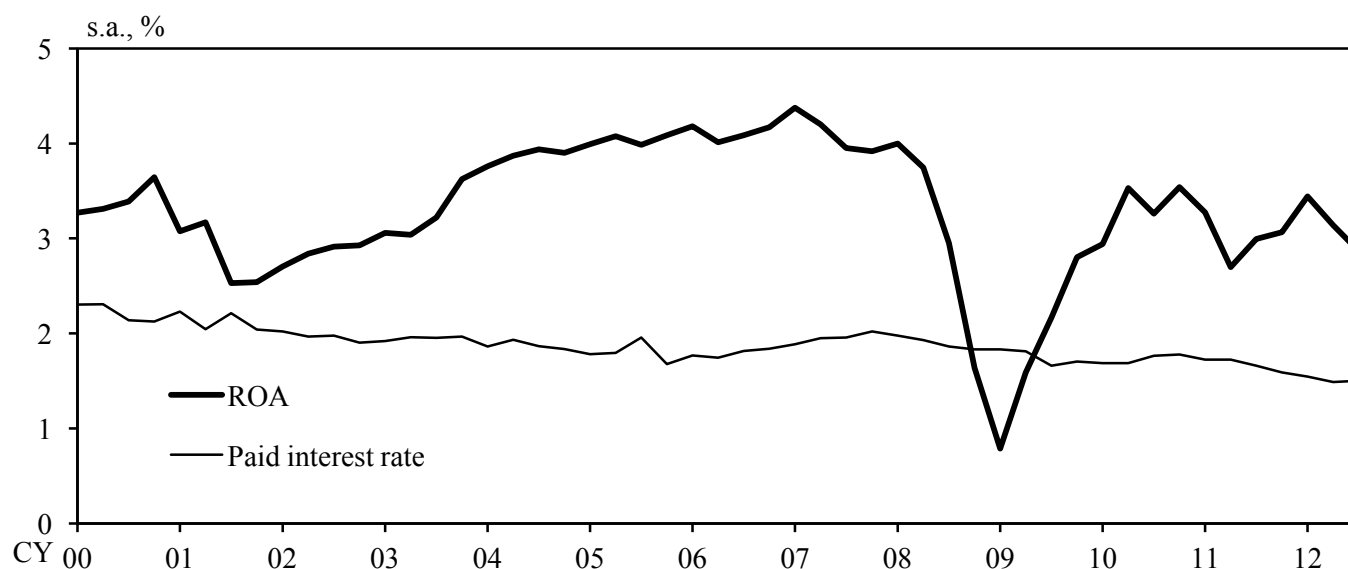
(1) Japanese Government Bond Yields



(2) Domestic Banks' Average Contracted Interest Rates on Loans and Discounts



(3) ROA and Paid Interest Rate of Japanese Firms

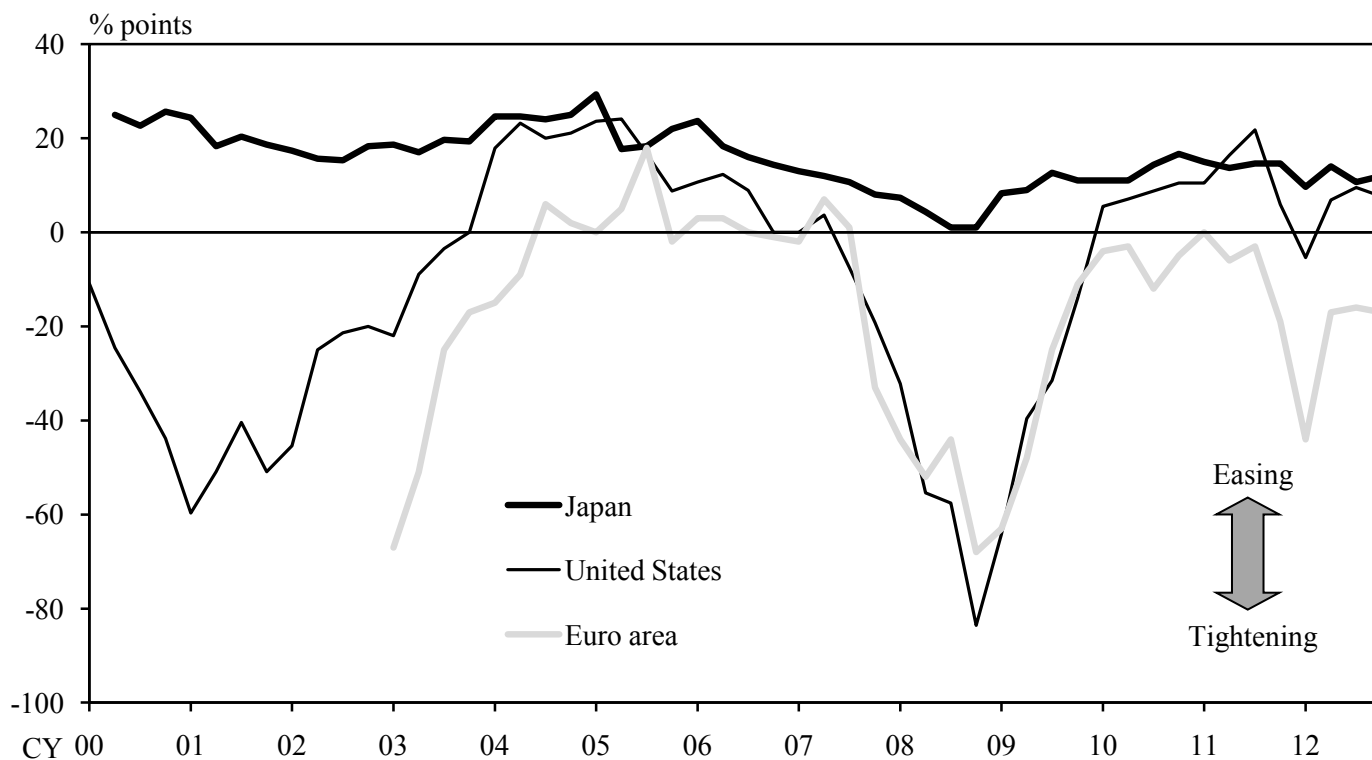


Note: Average contracted interest rates are the 6-month backward moving averages on new loans.

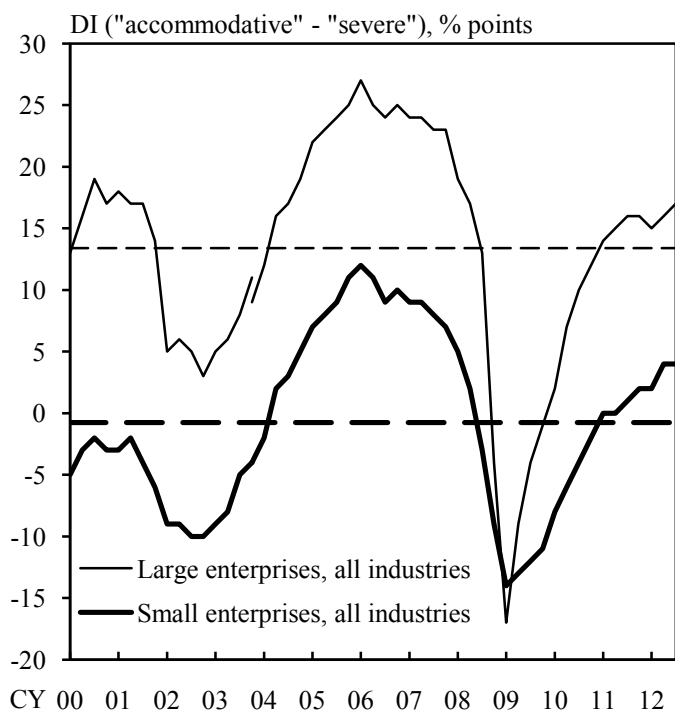
Sources: Ministry of Finance, "Financial Statements Statistics of Corporations by Industry, Quarterly"; Bank of Japan; Bloomberg.

## Bank Lending

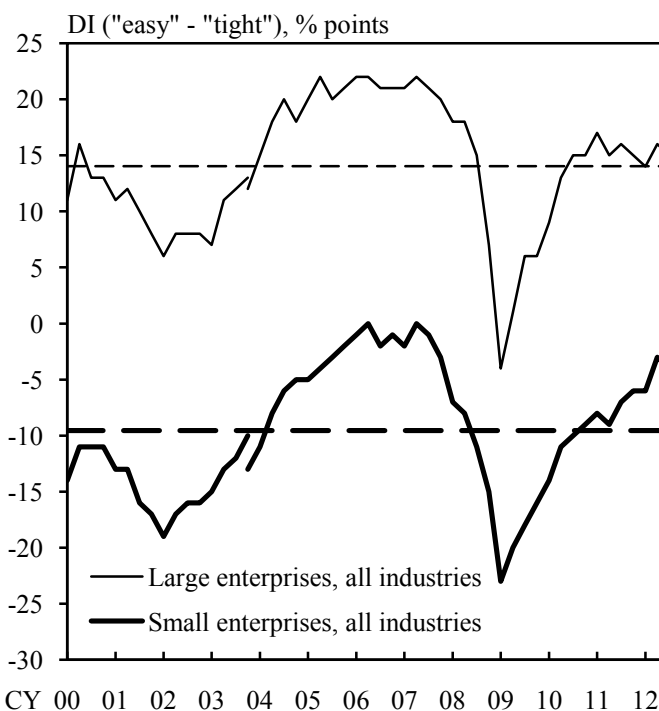
### (1) Financial Institutions' Lending Attitude



### (2) Lending Attitude of Financial Institutions as Perceived by Firms



### (3) Financial Positions



Notes: 1. Figures for the financial institutions' lending attitude are the averages of the DIs for loans to large, medium-sized, and small firms for Japan, to large and medium-sized firms for the United States, and to large firms for the euro area.

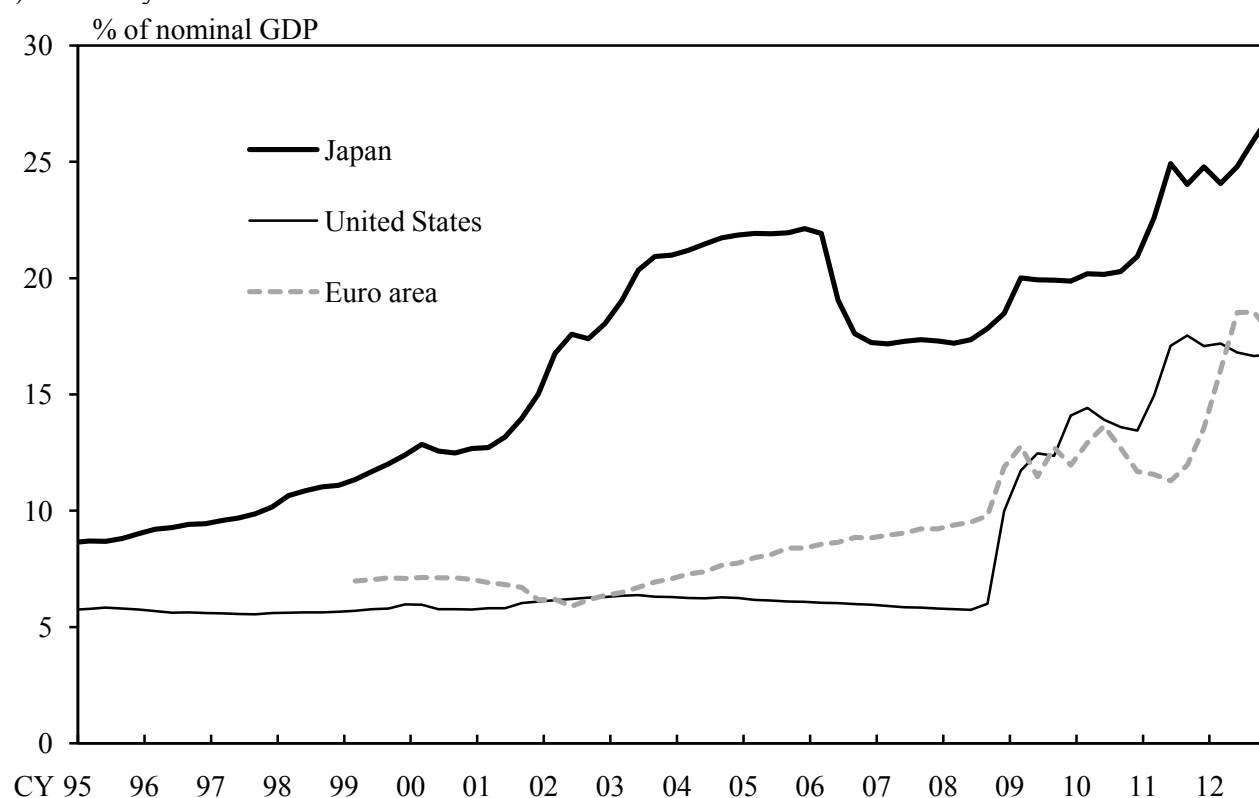
2. The "Tankan" was revised from the March 2004 survey. Figures through the December 2003 survey are based on the previous data sets. Figures from the December 2003 survey onward are on a new basis. Broken lines indicate the average since 2000.

Sources: Bank of Japan, "Senior Loan Officer Opinion Survey on Bank Lending Practices at Large Japanese Banks," "Tankan", Short-Term Economic Survey of Enterprises in Japan"; FRB; ECB.

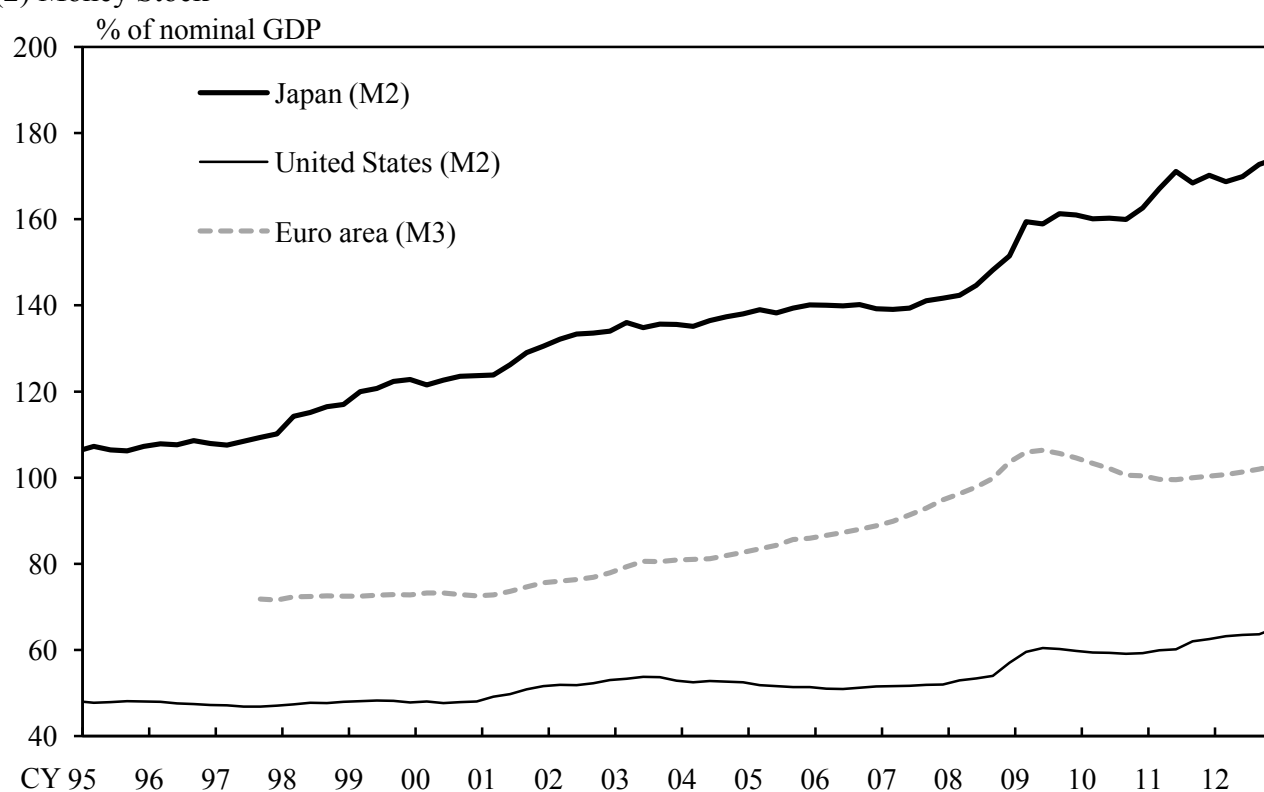


# Monetary Base and Money Stock

## (1) Monetary Base<sup>1,2</sup>



## (2) Money Stock<sup>2,3</sup>



Notes: 1. Monetary base is the sum of banknotes in circulation, coins in circulation, and current account deposits at a central bank.

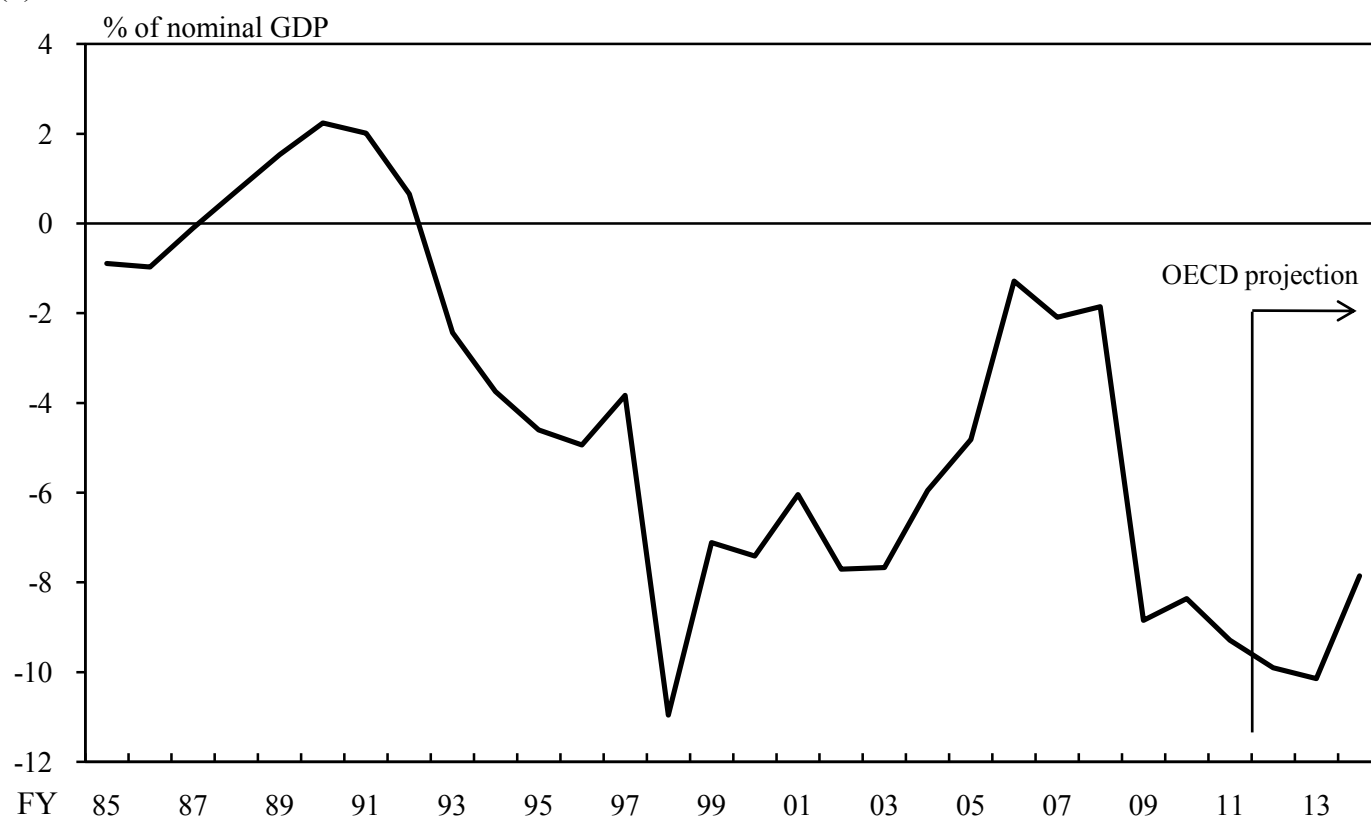
2. Figures for 2012/Q4 are calculated using their nominal GDP figures for 2012/Q3.

3. The figure for the euro area (M3) for 2012/Q4 is the October-November average.

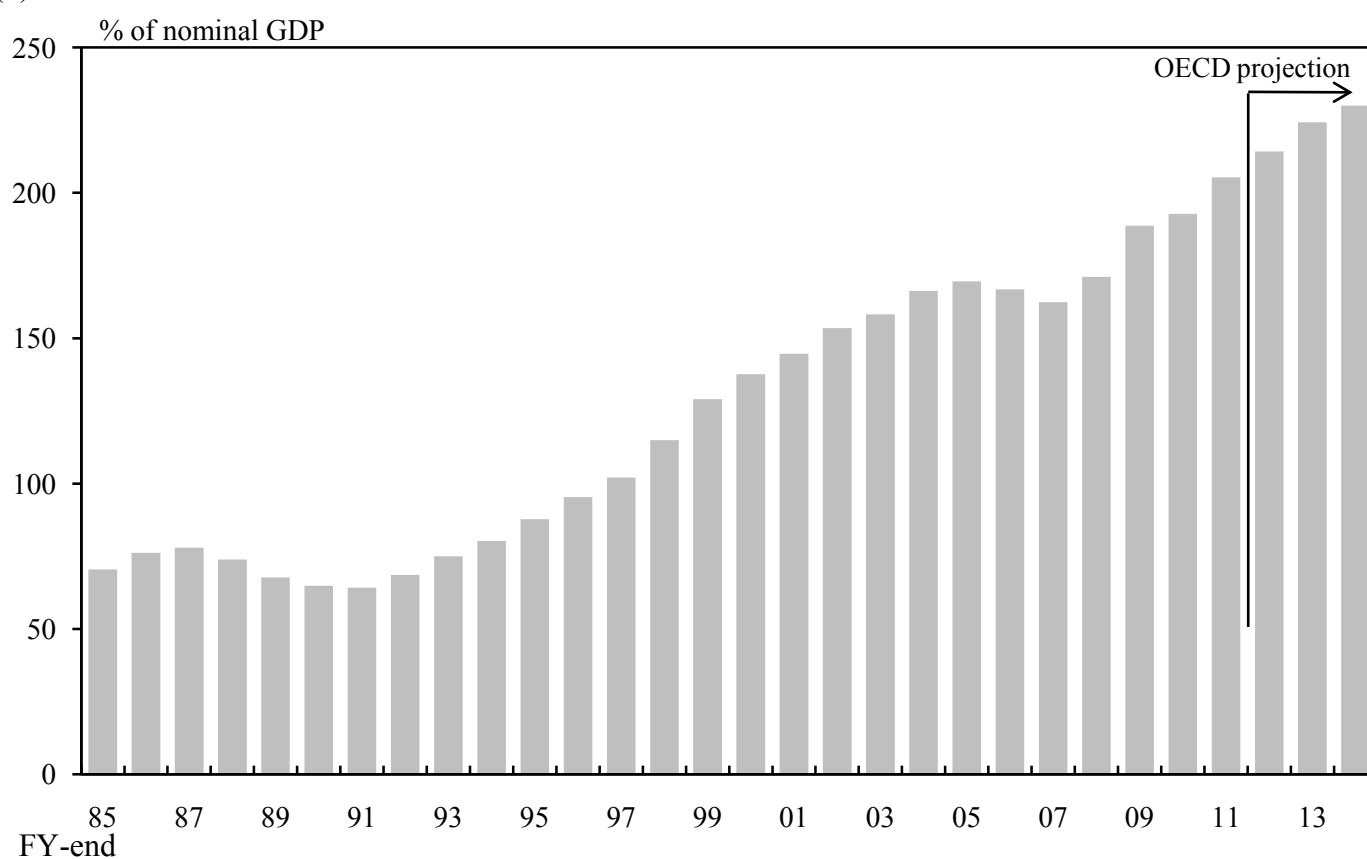
Sources: Cabinet Office; Bank of Japan; Federal Reserve Board; Bureau of Economic Analysis; European Central Bank; Eurostat.

## Government Financial Balances and Liabilities

### (1) General Government Financial Balances



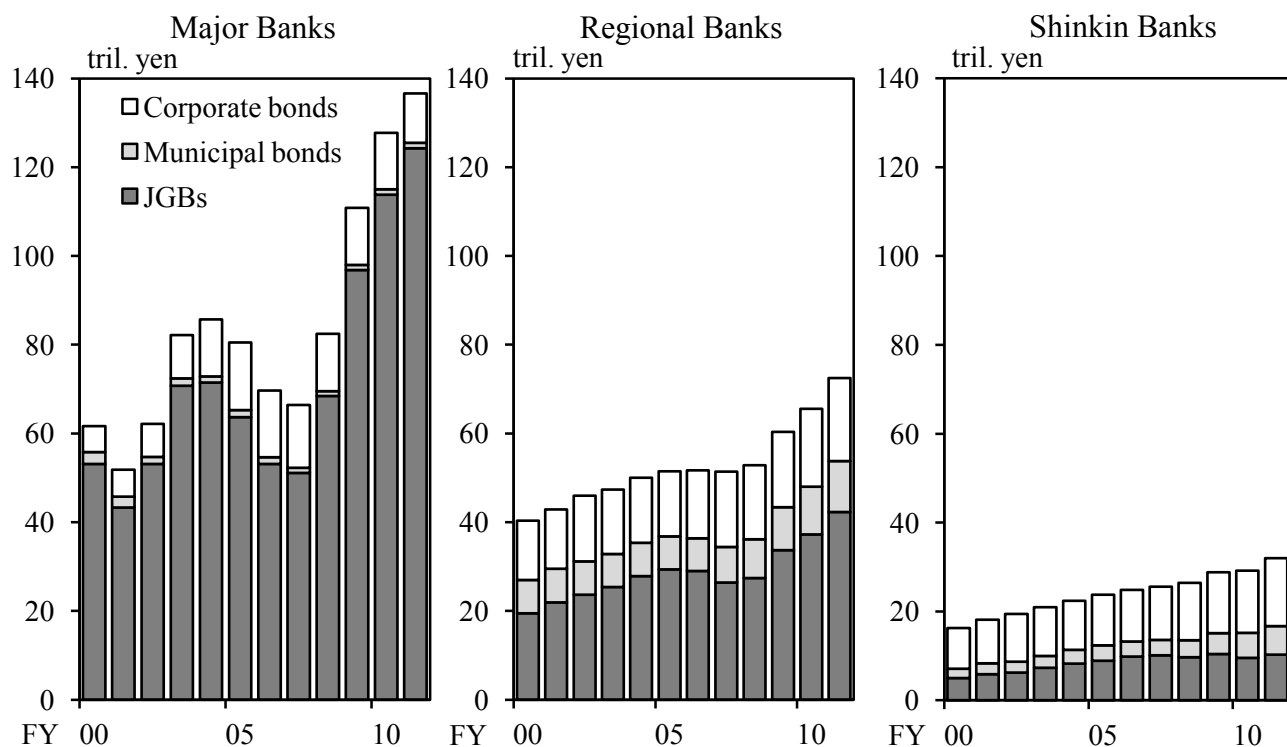
### (2) General Government Financial Gross Liabilities



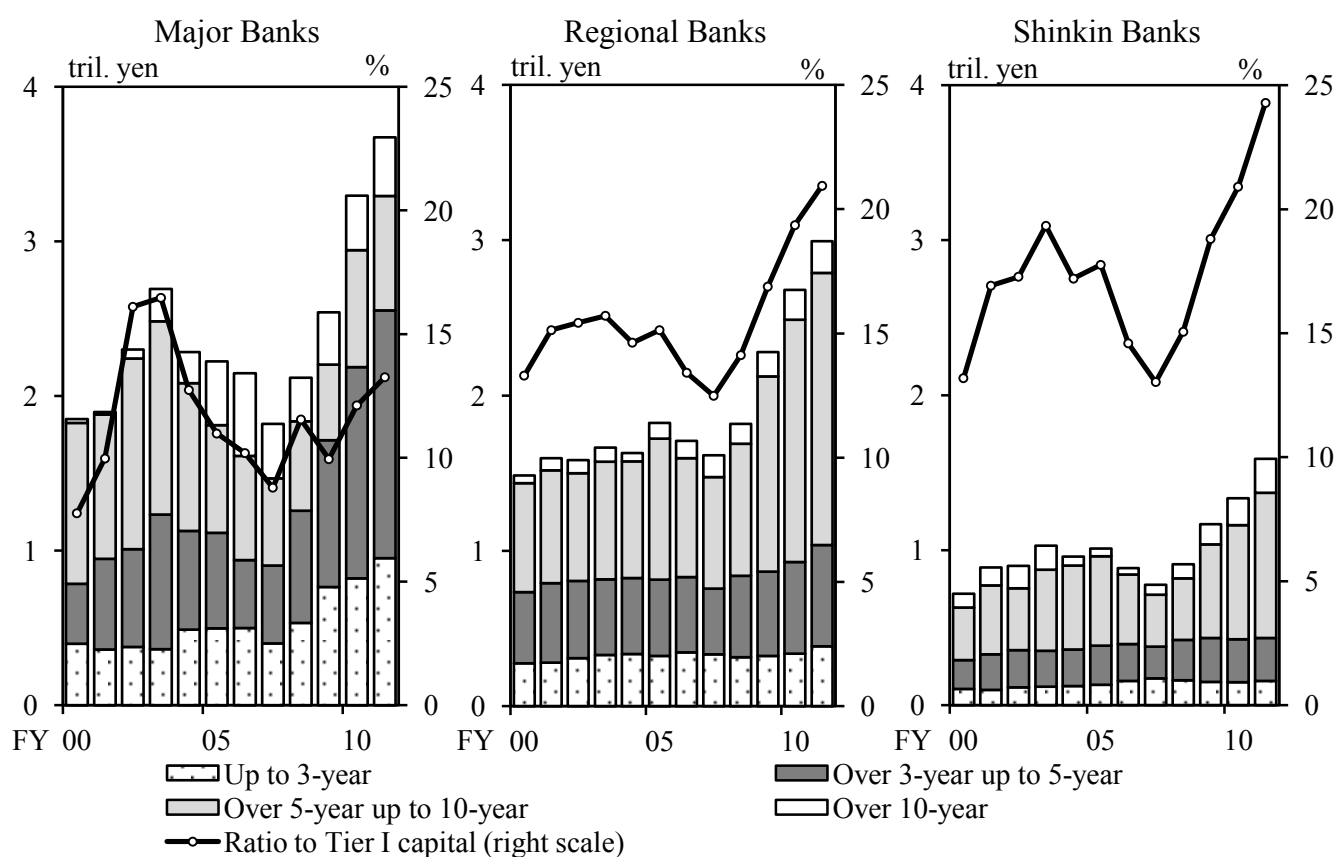
Source: OECD, "Economic Outlook, No.92, November 2012."

## Financial Institutions' Bond Holdings and Expected Loss Resulting from Rise in Interest Rates

### (1) Amount Outstanding of Domestic Bond Holdings



### (2) Expected Loss Associated with Domestic Bond Holdings Resulting from Rise in Interest Rates by 1%<sup>1</sup>

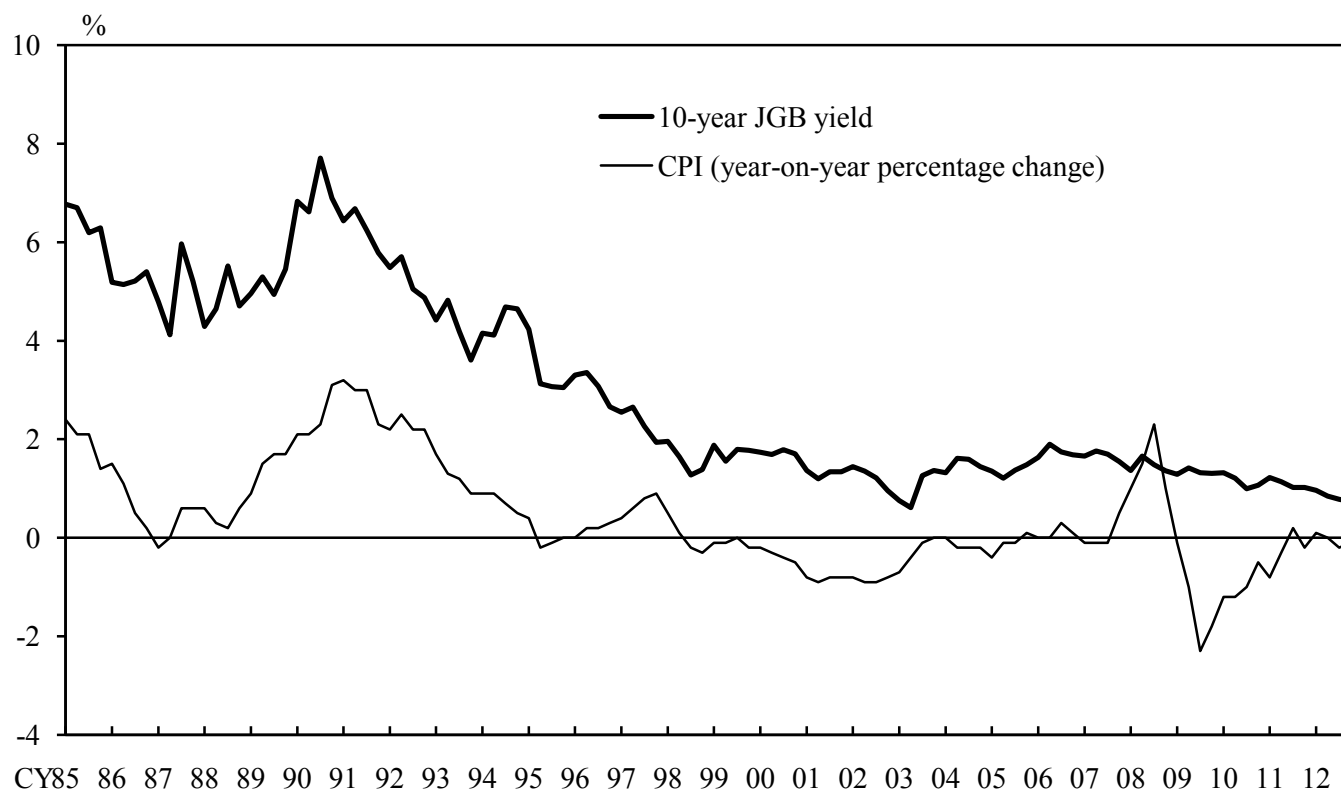


Note: 1. Figures represent expected loss through changes in the market value of domestic bonds if interest rates of each maturity group independently rise by 1 percentage point.

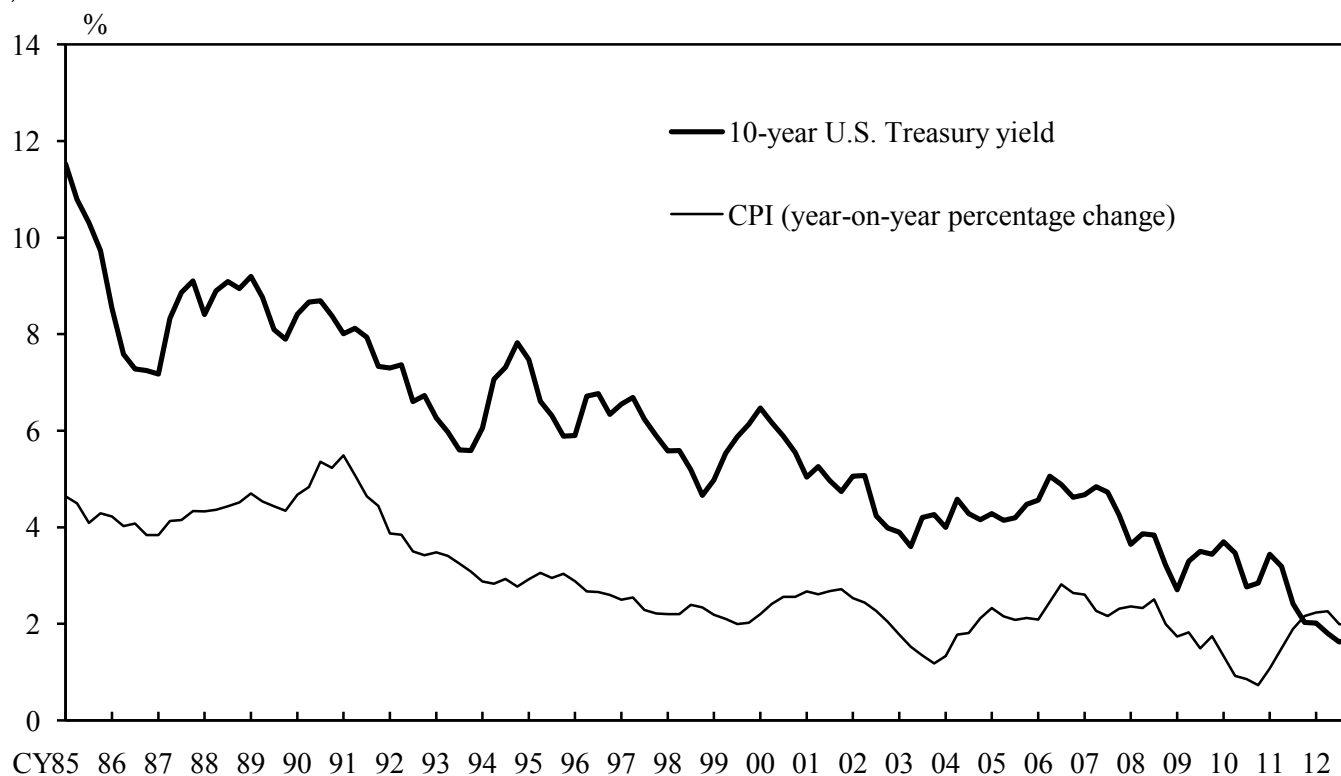
Source: Bank of Japan.

## Long-Term Interest Rates and CPI

### (1) Japan



### (2) United States



Note: Figures for Japan's CPI represent CPI for all items less fresh food. They are adjusted to exclude the effects of the consumption tax introduction in 1989 (3 percent) and the consumption tax hike in 1997 (from 3 to 5 percent). Figures for the United States' CPI represent CPI for all items less food and energy.

Sources: Japan Securities Dealers Association, "Reference Price (Yields) Table for OTC Bond Transactions"; Ministry of Internal Affairs and Communications, "Consumer Price Index"; BLS; Bloomberg.