



# **Bridging Japan's Economy to Sustained Growth:**

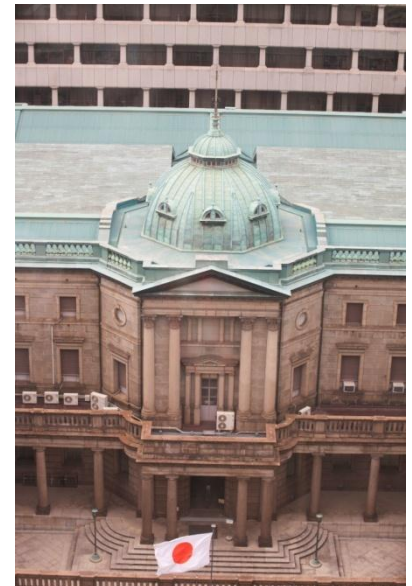
Track Record of the Central Bank, Which is Tasked With  
Achieving Price Stability and Financial Stability

*Lecture at the University of Tokyo*

May 12, 2017

Hiroshi Nakaso

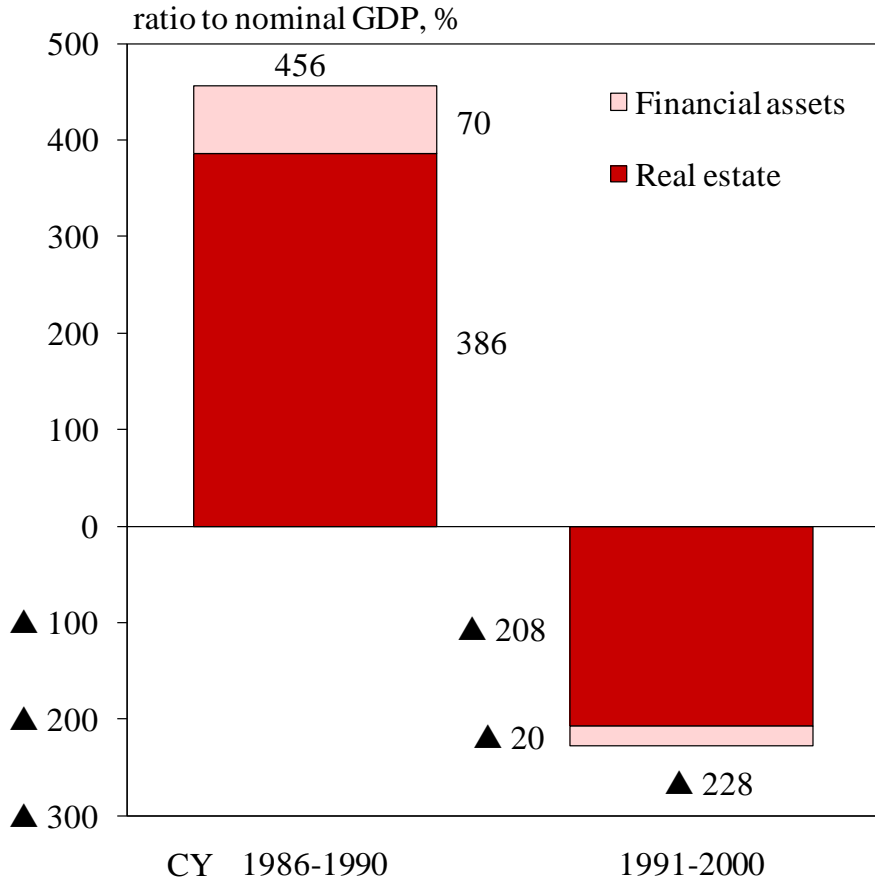
*Deputy Governor of the Bank of Japan*



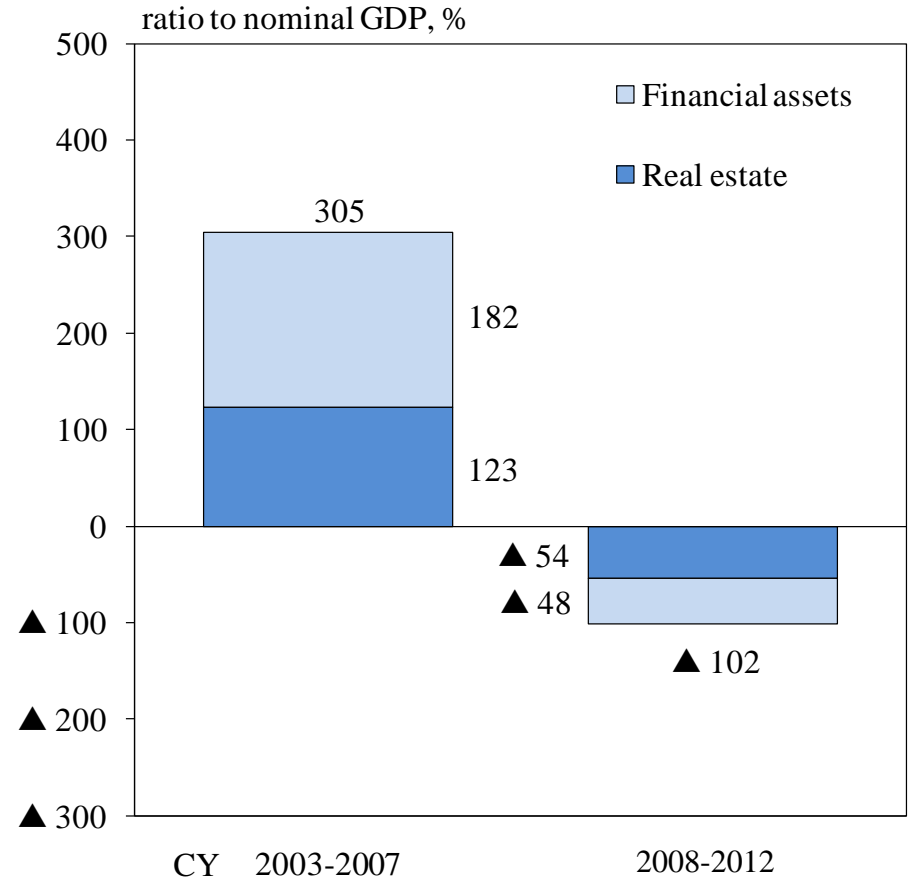
# Financial Crisis and Role of the Central Bank

# Scale of Asset Price Bubbles

## Japan

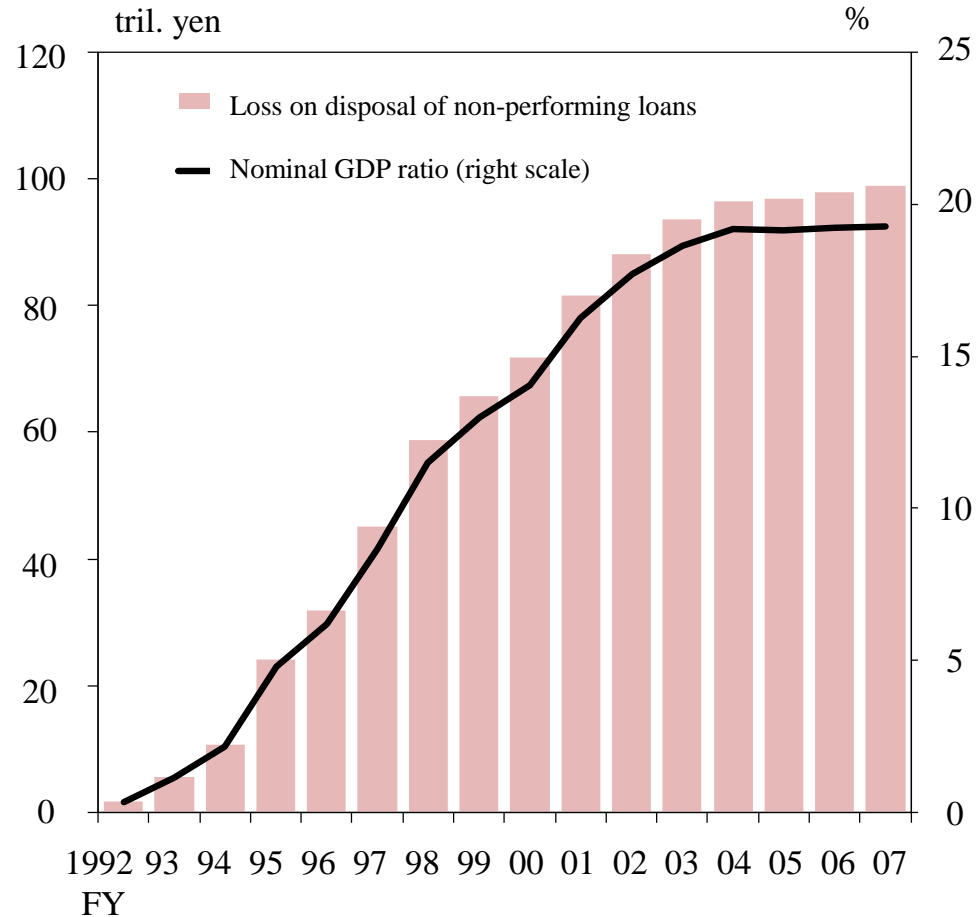


## United States



Note: Ratios are derived from the cumulative sum of capital gains and losses from each year.  
Sources: Cabinet Office; FRB; BEA.

# Loss on Disposal of Non-performing Loans Among Japanese Financial Institutions



An excerpt from the speech by the former Governor of the Bank of Japan, Yasushi Mieno, on October 31, 1994, titled "*The Maintenance of Financial System Stability and the Role of the Bank of Japan*"

- *"It is not the business of the central bank to save all financial institutions from failure."*
- *"On the contrary, failure of an institution that has reasons to fail is even necessary from the viewpoint of nurturing a sound financial system built on competitive mechanisms."*

# Failures of Depository Institutions in Japan

Number of Failed Depository Institutions  
(FY 1992 – FY 2004)

<b>Banks</b>	<b>20</b>
<b>Credit unions</b>	<b>27</b>
<b>Credit-cooperatives</b>	<b>134</b>
<b>TOTAL</b>	<b>181</b>

# Chronology of Japan's Financial Crisis

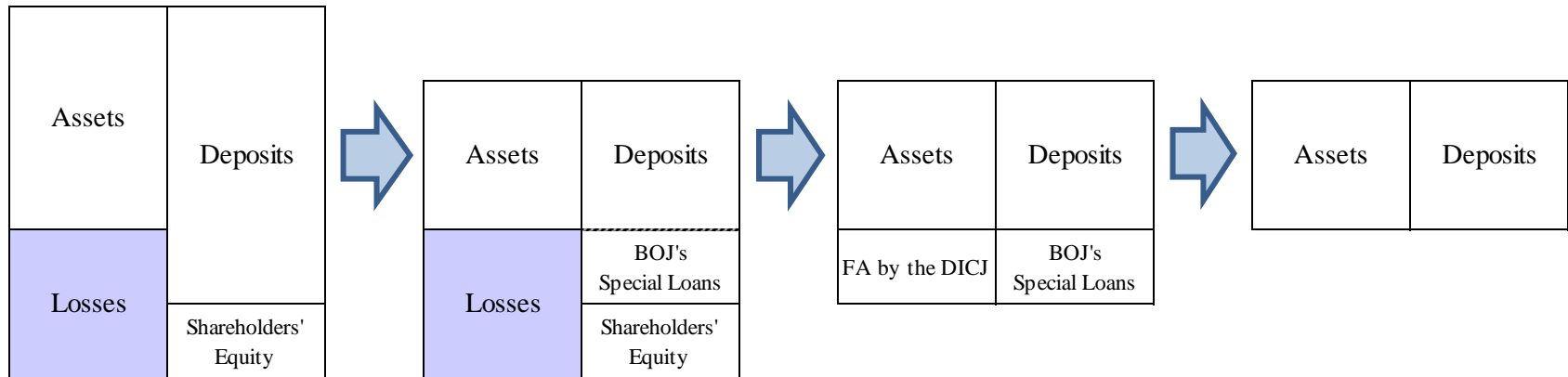
Dec. 1994	Failure of <i>Tokyo Kyowa</i> and <i>Anzen Credit Union</i>
Jul. 1995	Failure of <i>Cosmo Credit Union</i>
Aug. 1995	Failure of <i>Kizu Credit Union</i>
Aug. 1995	Failure of <i>Hyogo Bank</i>
Dec. 1995	Cabinet decides on concrete measures to address the <i>jusen</i> problem
Oct. 1997	Failure of <i>Kyoto Kyoei Bank</i>
Nov. 1997	Failure of <i>Sanyo Securities</i>
Nov. 1997	Failure of <i>Hokkaido Takushoku Bank</i>
Nov. 1997	Failure of <i>Yamaichi Securities</i>
Nov. 1997	Failure of <i>Tokuyo City Bank</i>

Feb. 1998	Bill concerning financial system stabilisation (Emergency Measures for Financial Functions Stabilisation Law) passed
Mar. 1998	Capital injection (JPY1.8 trillion)
Oct. 1998	"Financial Reconstruction Law" and "Financial Functions Early Strengthening Law" become effective
Oct. 1998	Failure of <i>Long-Term Credit Bank of Japan</i> (Temporary nationalized)
Dec. 1998	Failure of <i>Nippon Credit Bank</i> (Temporary nationalized)
Mar. 1999	Capital injection (JPY7.5 trillion)
May 2000	"Revised Deposit Insurance Act" becomes effective
May 2003	Bailout of <i>Resona Bank</i>

# Bank of Japan's Lender of Last Resort Function and Financial Assistance by Deposit Insurance Corporation of Japan (DICJ)

Failed Bank

Succeeding Bank



◆ Announcement of the failure.

◆ Provision of BOJ's special loans.  
◆ Refund of the deposits.

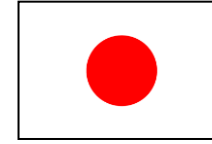
◆ Transfer to the succeeding bank.  
◆ Making up the losses of failed bank by the shareholders' equity.  
◆ Financial assistance by the DICJ.

◆ Repayment of BOJ's special loans by the financial assistance.

Note: B/S of the succeeding bank shows only the change of the assets/losses of the failed bank.



# Chronological Comparison



Aug. 2007 Onset of the subprime mortgage problems

— Suspension of the mutual fund under *BNP Paribas*

Mar. 2008 Bailout of *Bear Stearns*

Sep. 2008 Conservatorship of *GSEs*

Failure of *Lehman Brothers*

Bailout of *AIG*

Oct. 2008 Capital injection under TARP

Dec. 1994 Failure of *Tokyo Kyowa* and *Anzen Credit Union*

Nov. 1997 Dark November

Mar. 1998 Capital injection (JPY1.8 trillion)

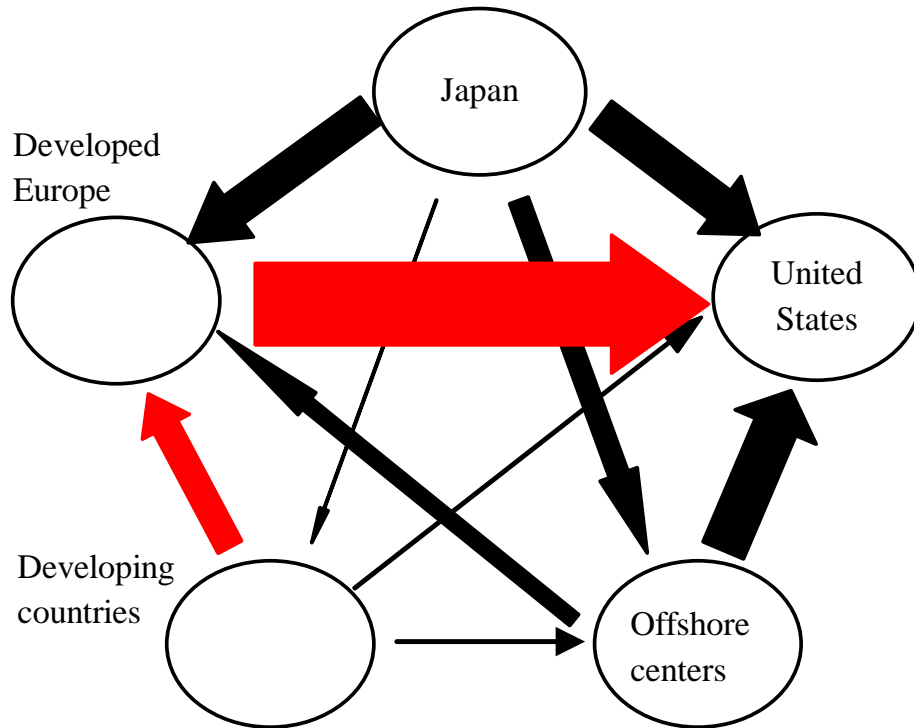
Oct. 1998 Failure of *Long-Term Credit Bank of Japan*

Jan. 1999 Rigorous assessment of asset quality

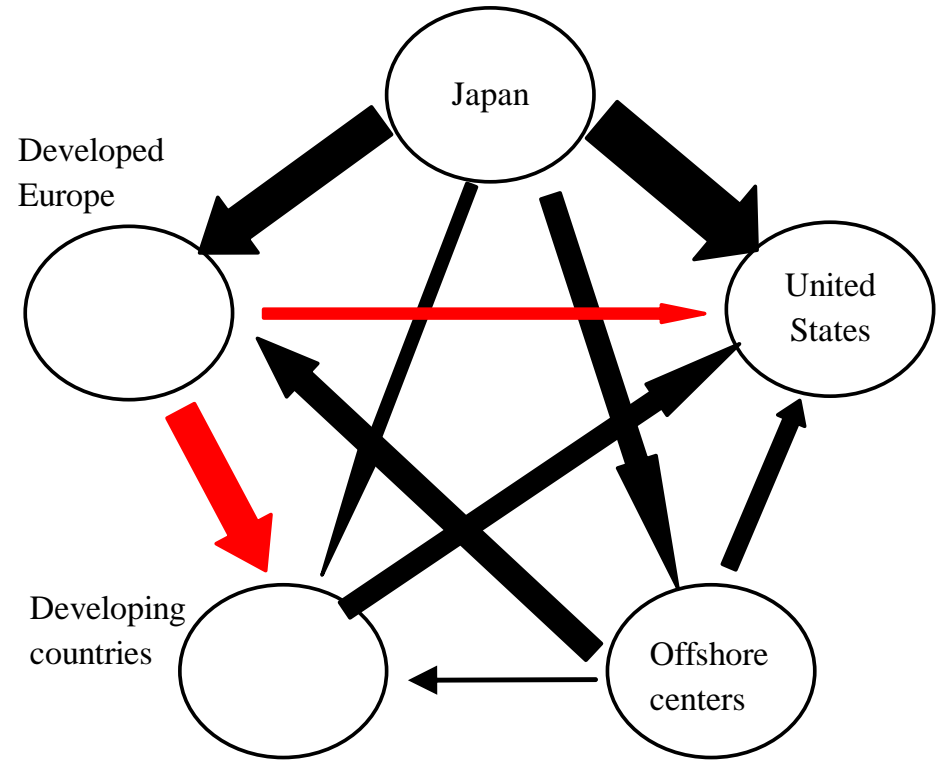
Mar. 1999 Capital injection (JPY7.5 trillion)

# Net External Claims Through International Banking System

End-December 2006



End-December 2009

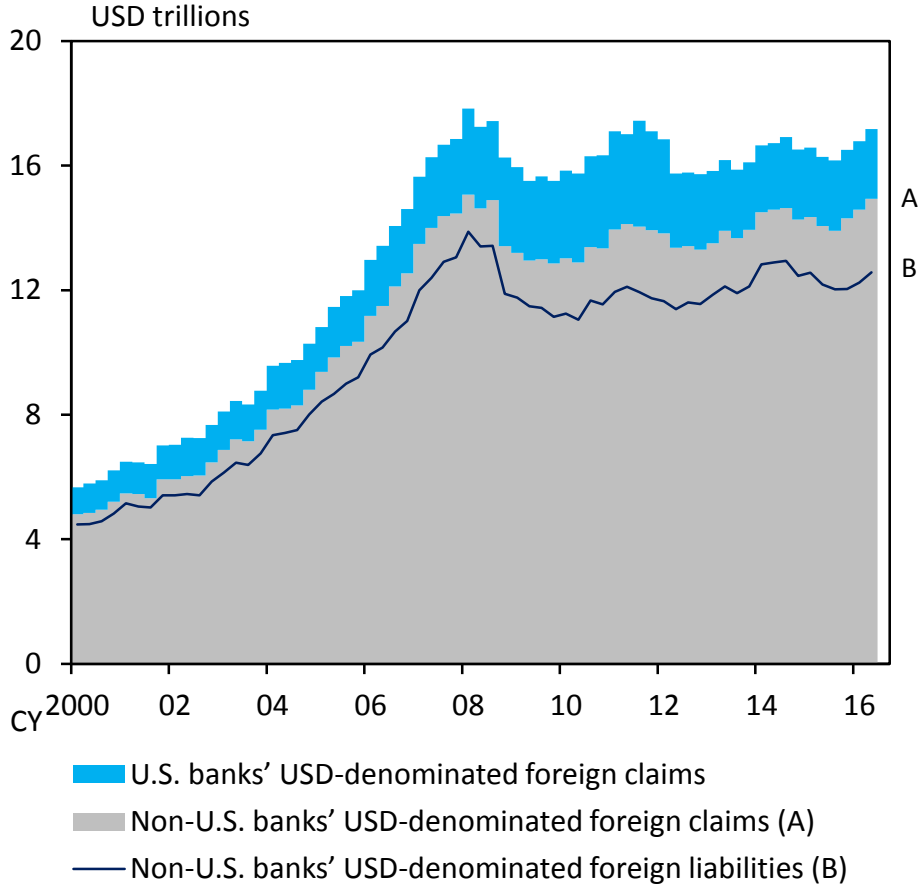


Note: The width of each arrow indicates the net amount.

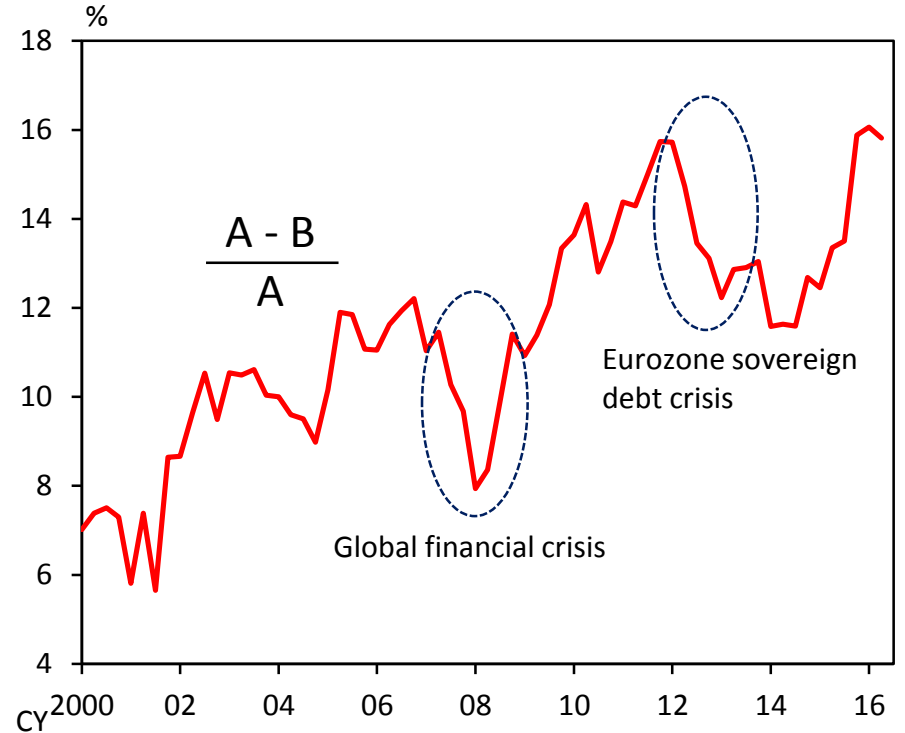
Source: Bank for International Settlements, "Locational International Banking Statistics."

# USD-Denominated Foreign Positions of Banks

*U.S. and non-U.S. banks' USD-denominated foreign claims*



*Non-U.S. banks' cross-currency funding ratio*



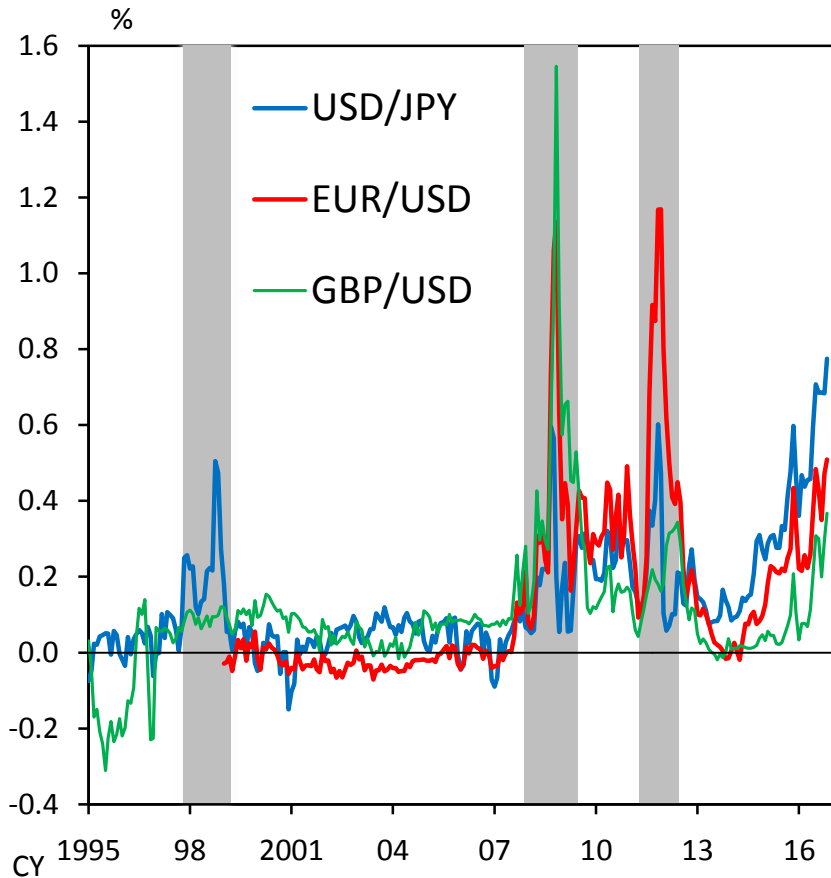
Notes: 1. Latest data as at end-June 2016.

2. "Non-U.S. banks' USD-denominated foreign claims" and "Non-U.S. banks' USD-denominated foreign liabilities" are calculated as USD-denominated foreign claims and liabilities of all reporting countries after excluding those of U.S. banks, respectively.
3. "Non-U.S. banks' cross-currency funding ratio" is calculated as "Non-U.S. banks' USD-denominated foreign claims" less "Non-U.S. banks' USD-denominated foreign liabilities," divided by "Non-U.S. banks' USD-denominated foreign claims."

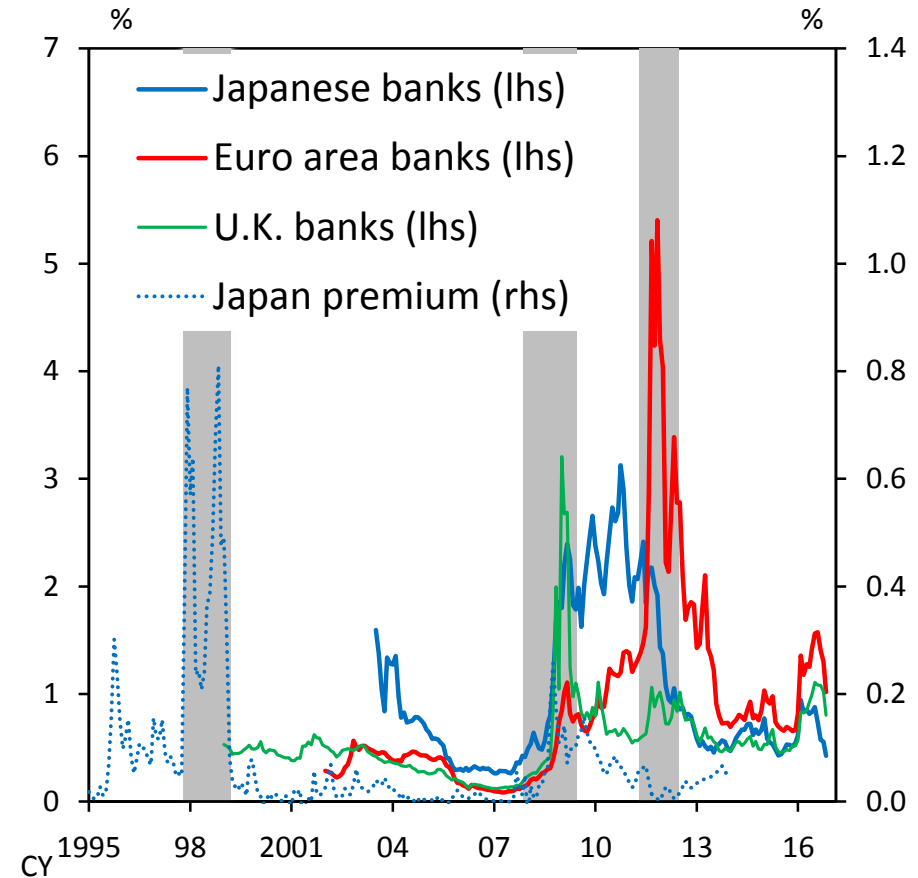
Source: BIS.

# FX Swap Implied USD Funding Rates and Banks' Creditworthiness

*FX swap implied USD funding rates  
(Deviation from USD LIBOR)*



*Non-U.S. banks' default probability  
(Expected Default Frequency)*



Notes: 1. Latest data as of November 2016.

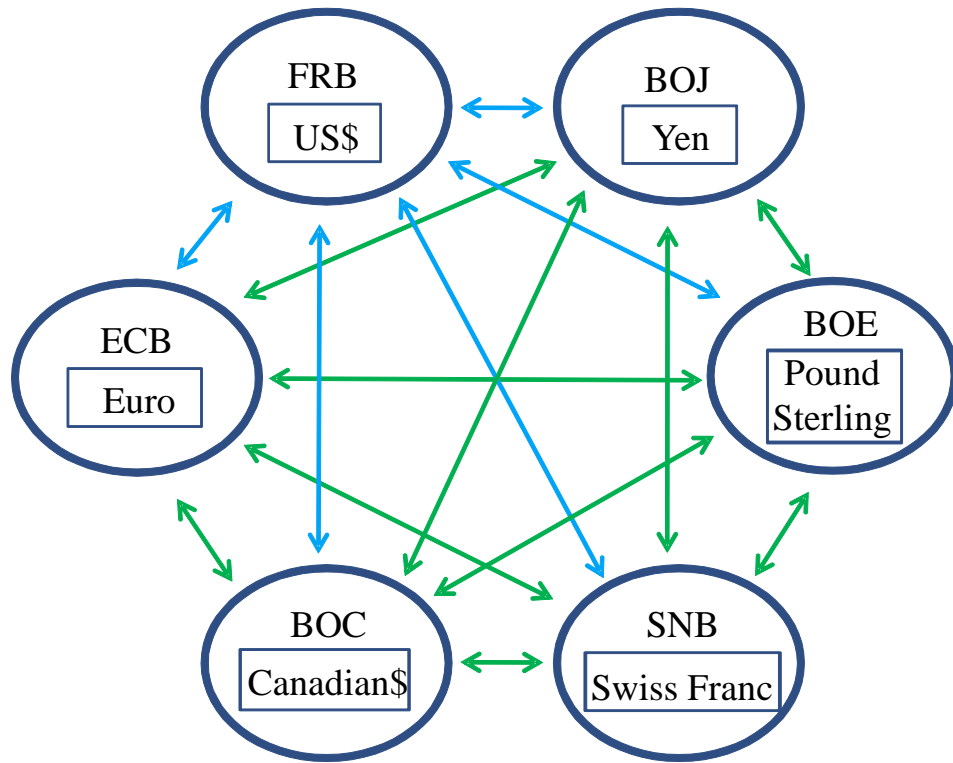
2. The shaded areas correspond to Japan's financial crisis (November 1997 through March 1999), the global financial crisis (December 2007 through June 2009), and the Eurozone sovereign debt crisis (May 2011 through June 2012).

3. Non-U.S. banks' default probability is the average of the EDF (Expected Default Frequency) of G-SIBs that are headquartered in each jurisdiction. "Japan Premium" is calculated as 3-month USD TIBOR less 3-month USD LIBOR.

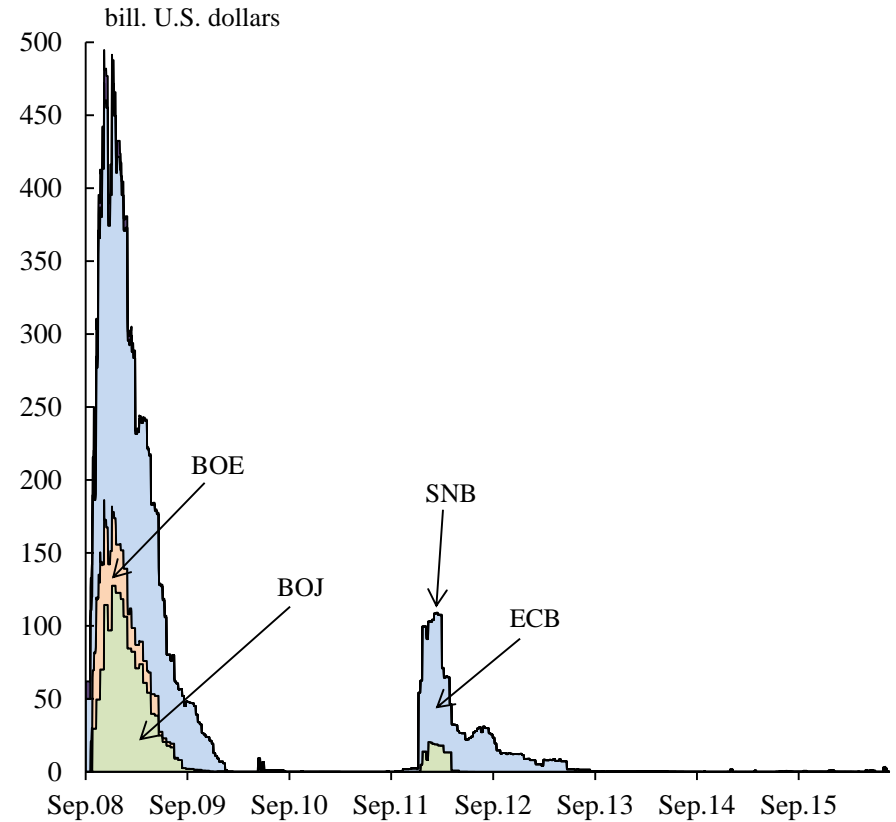
Sources: Bloomberg; Moody's; BOJ.

# Network of Central Banks Swap Lines

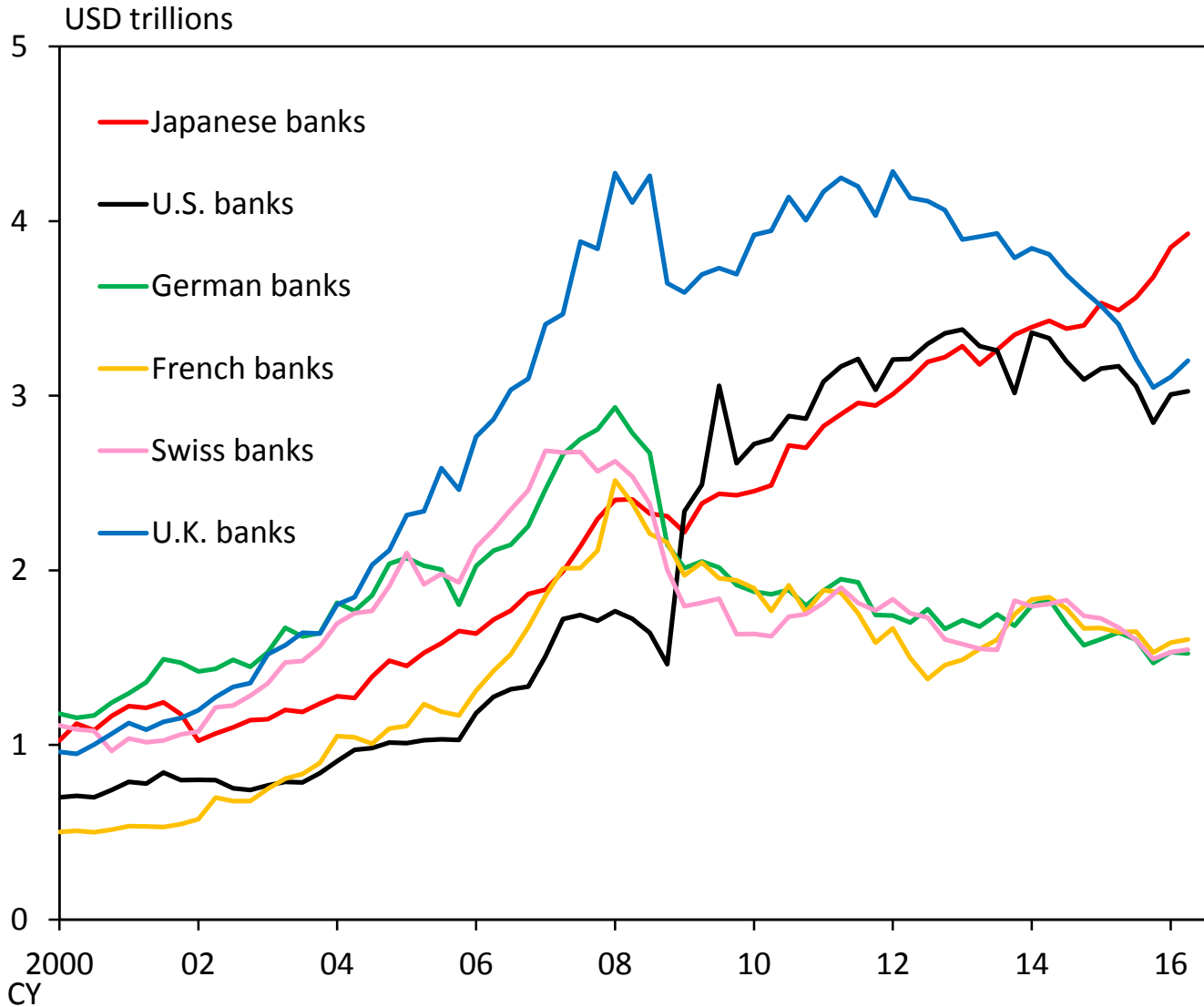
*Central Banks Swap Lines*



*Outstanding Amount of US\$ Funds Supplying Operation*



# Foreign Claims by Bank Nationality

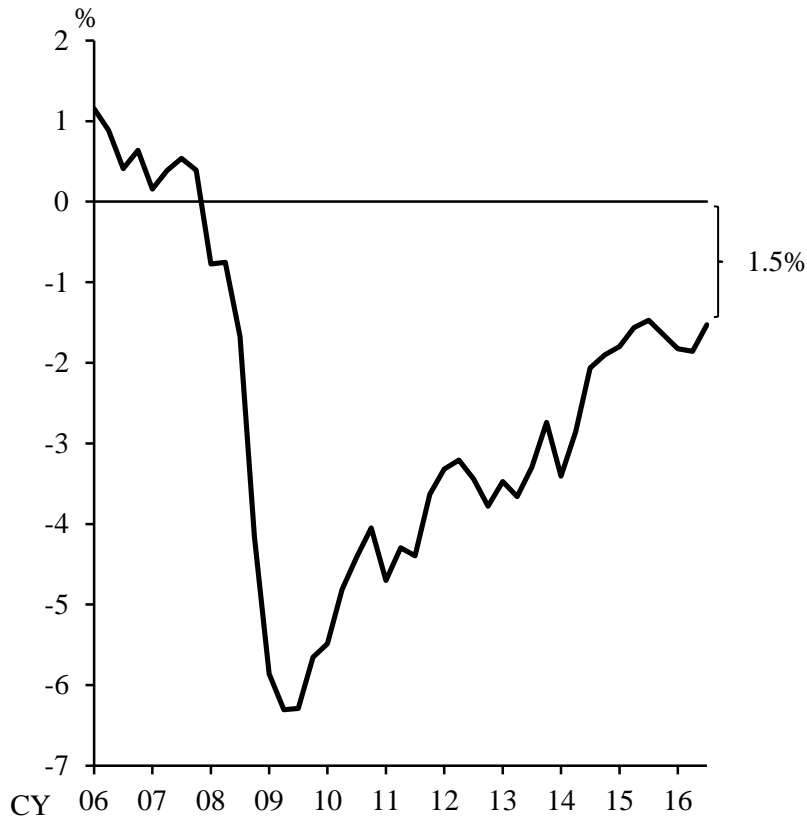


Notes: 1. Latest data as at end-June 2016.  
 2. Euro area claims for German and French banks are excluded.  
 Source: BIS.

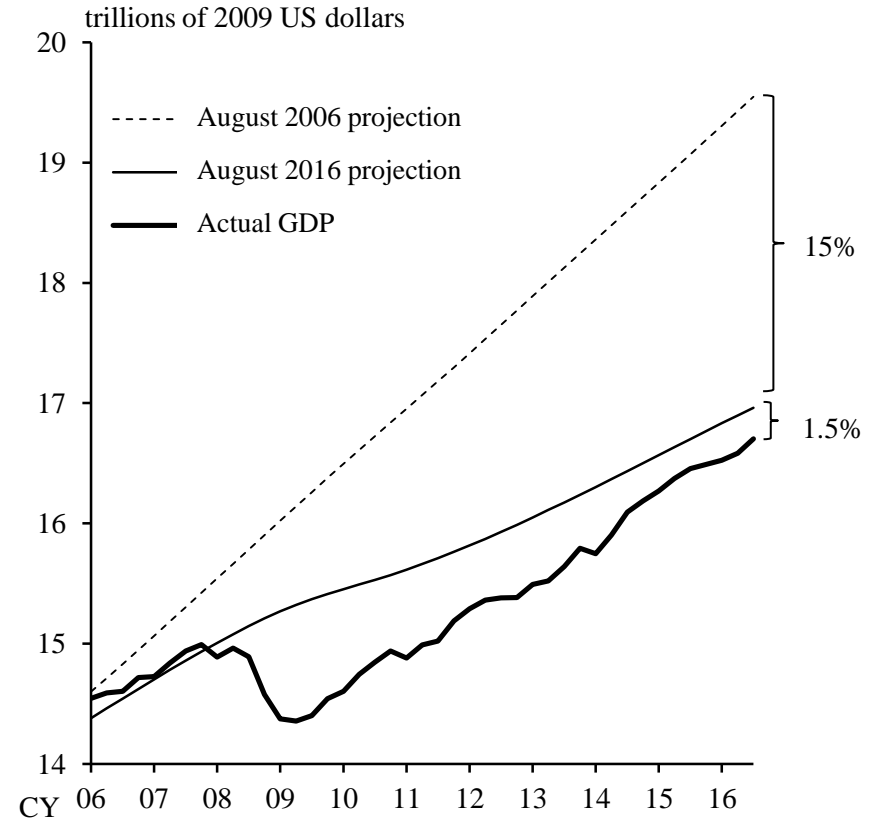
# Impact on the Real Economy

# Decline in U.S. Potential GDP

(1) Output Gap



(2) Potential GDP



Note: The output gap equals the difference between actual GDP and CBO's estimate of potential GDP. The output gap is expressed as a percentage of potential GDP.

Sources: BEA; CBO.



# Cause of Hysteresis Effect: Decline in R&D Investment

## (1) Decline in R&D Investment

- ✓ 『Experience suggests that the most forward-looking expenditures of firms on R&D and investment are also the most cyclical expenditures of firms.』

Summers [2016]

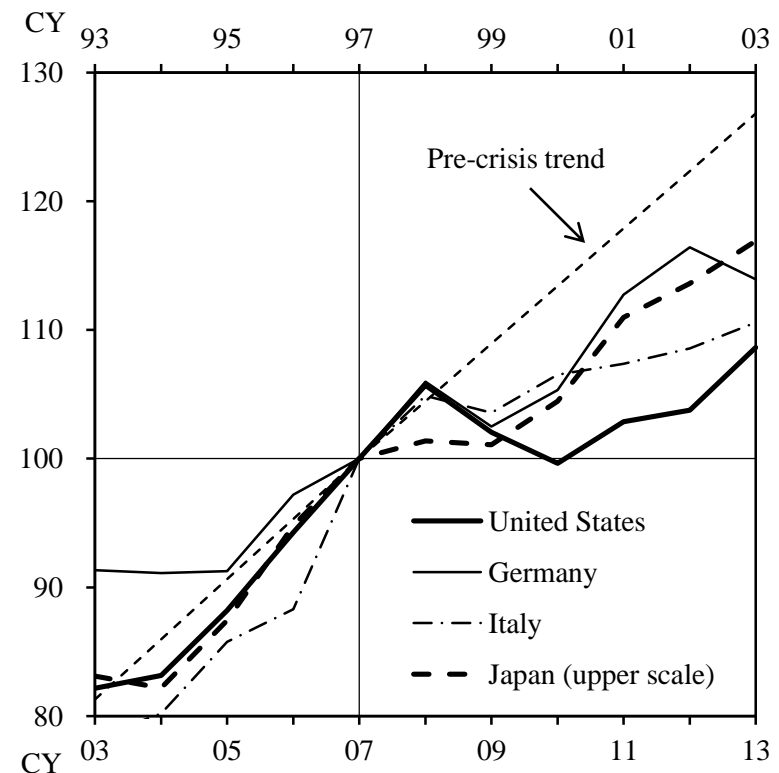
- ✓ 『[A]lbeit more speculatively, strong demand could potentially yield significant productivity gains by, among other things, prompting higher levels of research and development spending and increasing the incentives to start new, innovative businesses.』

Yellen [2016]

- ✓ 『[A] tightening in firms' financing induces a recession while also causing a reduction in investment for technology adoption and R&D arising from a decline in firms' demand for new technology, ....』

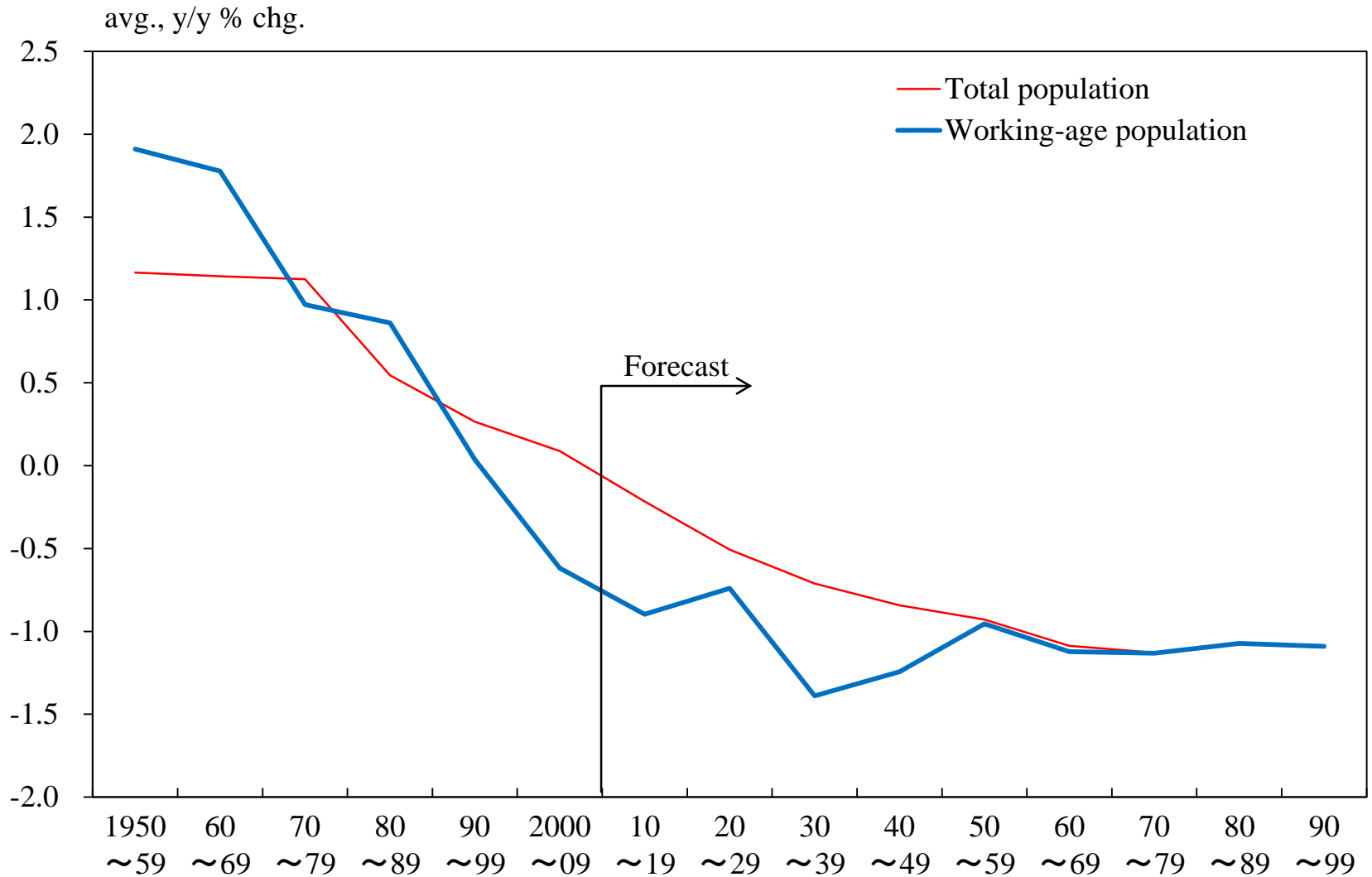
Ikeda and Kurozumi [2015]

## (2) Developments in R&D Investment Around Recent Financial Crises



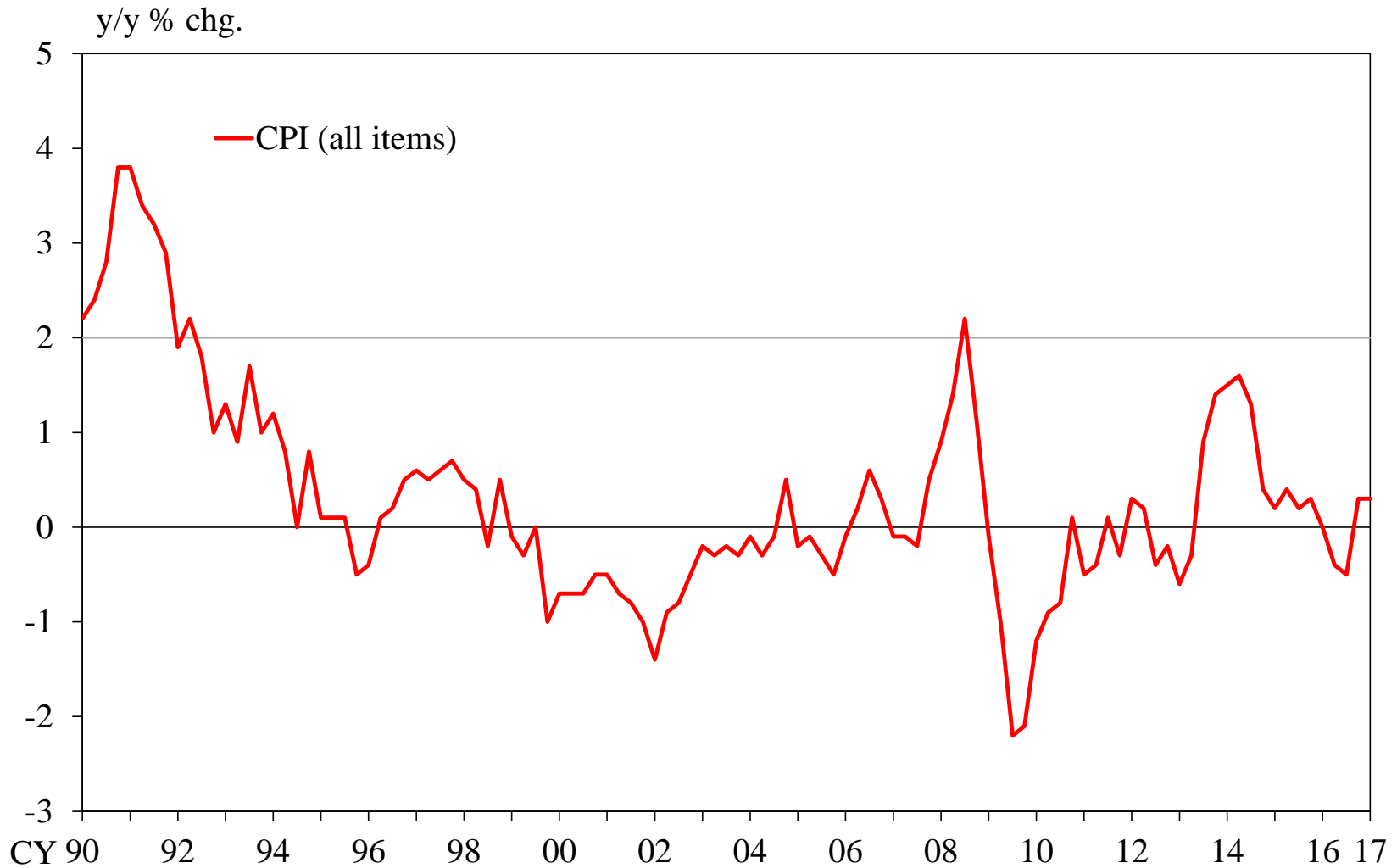
Note: In the figure, the level of R&D investment is represented in terms of its logarithm. The 1997 level and the 2007 level are set at 100 for Japan and for Germany, Italy, and the United States, respectively. The scale of years at the top is for Japan only, while that at the bottom is for the other three countries. The pre-crisis trend is given by an average over the four countries during the five years up to each crisis.

# Demographic Problem



Note: Figures after the 2010s are calculated using projected population with medium-fertility and medium-mortality assumption.  
Source: National Institute of Population and Social Security Research

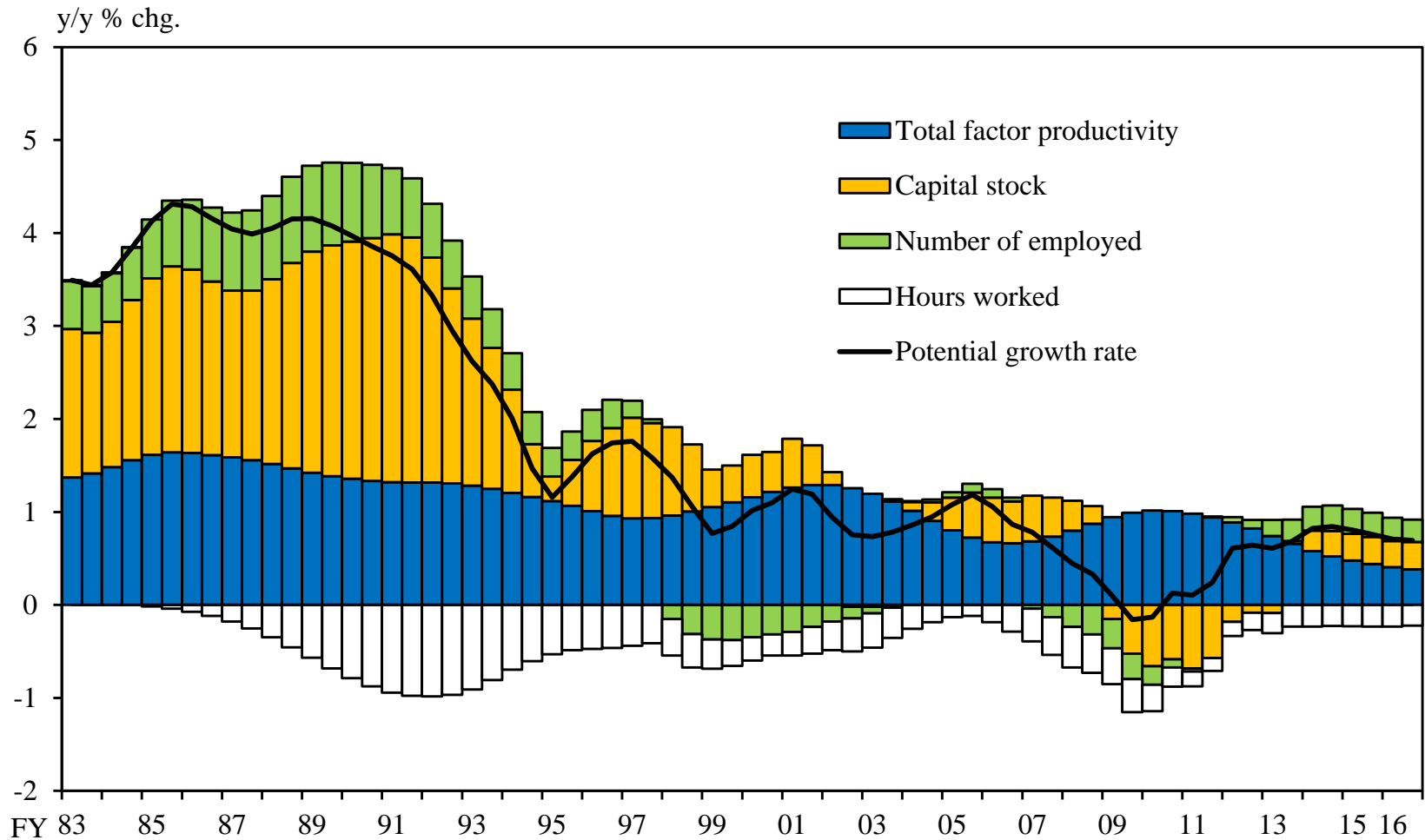
# Consumer Prices



Note: Figures for the CPI are adjusted to exclude the estimated effects of changes in the consumption tax rate.

Source: Ministry of Internal Affairs and Communications.

# Potential Growth Rate



Note: The potential growth rate is estimated by the Research and Statistics Department, Bank of Japan.

Sources: Cabinet Office; Bank of Japan; Ministry of Internal Affairs and Communications; Ministry of Health, Labour and Welfare; Ministry of Economy, Trade and Industry; Research Institute of Economy, Trade and Industry.

# Policy Responses

# Three Arrows of "Abenomics"

- **The First Arrow:**  
Bold Monetary Policy -----

Terminate Deflation  
Inflation Expectations 

- **The Second Arrow:**  
Flexible Fiscal Policy -----

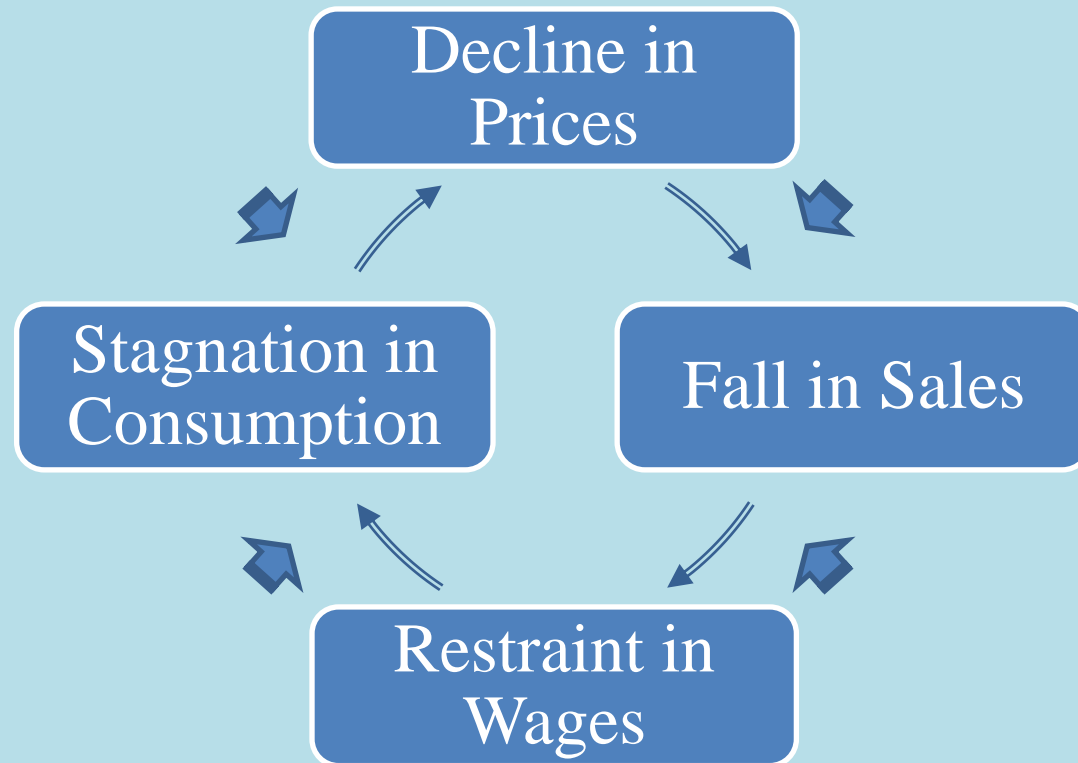
Support Growth  
Sustainable Fiscal Structure

- **The Third Arrow:**  
Growth Strategy to Induce  
Private-sector Investments -----

Potential Growth Rate 

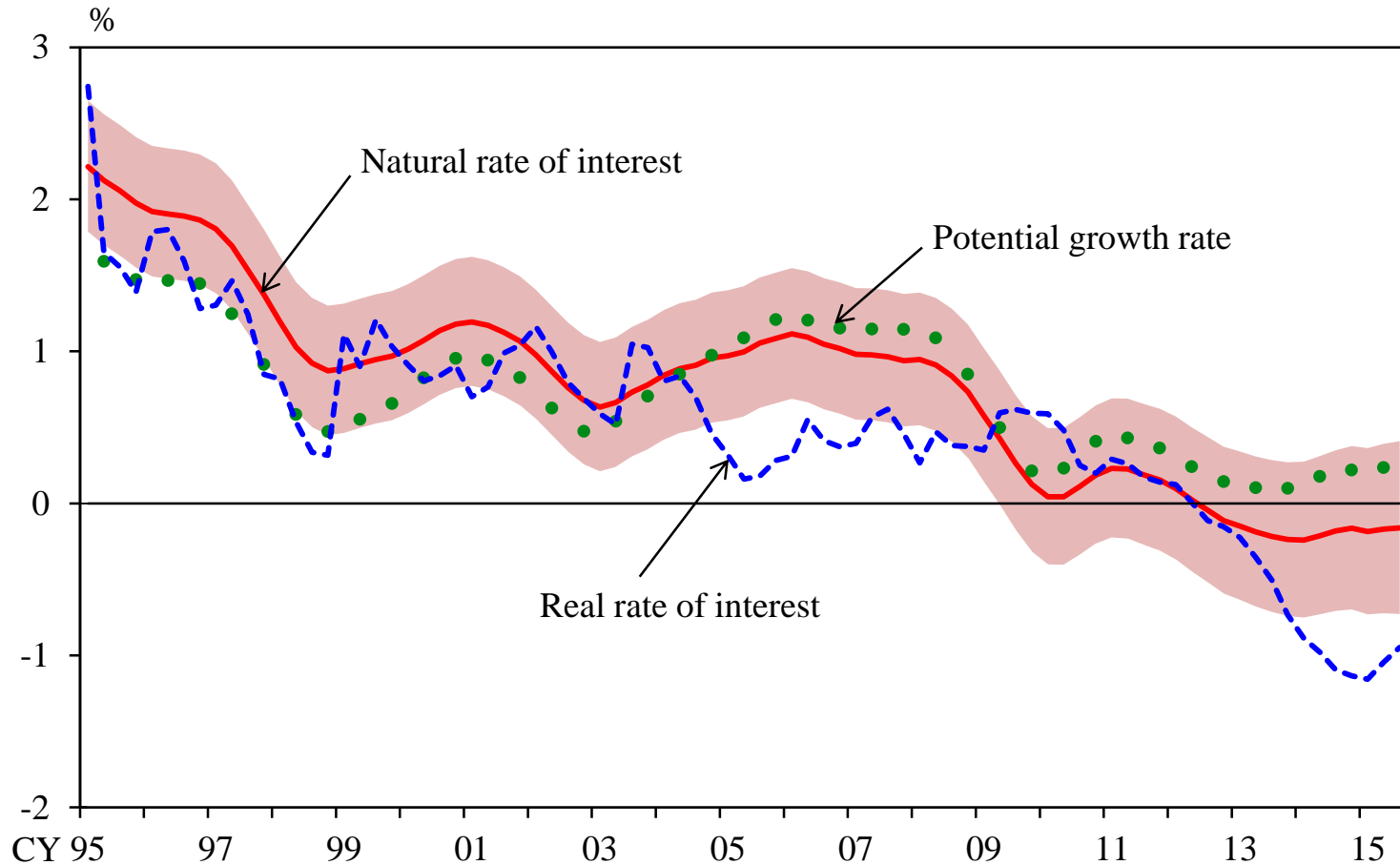
# Why Deflation Is Bad

## *Vicious Cycle of Deflation*



**➔** "Deflationary mindset" has to be changed!

# Natural Rate of Interest and Potential Growth Rate

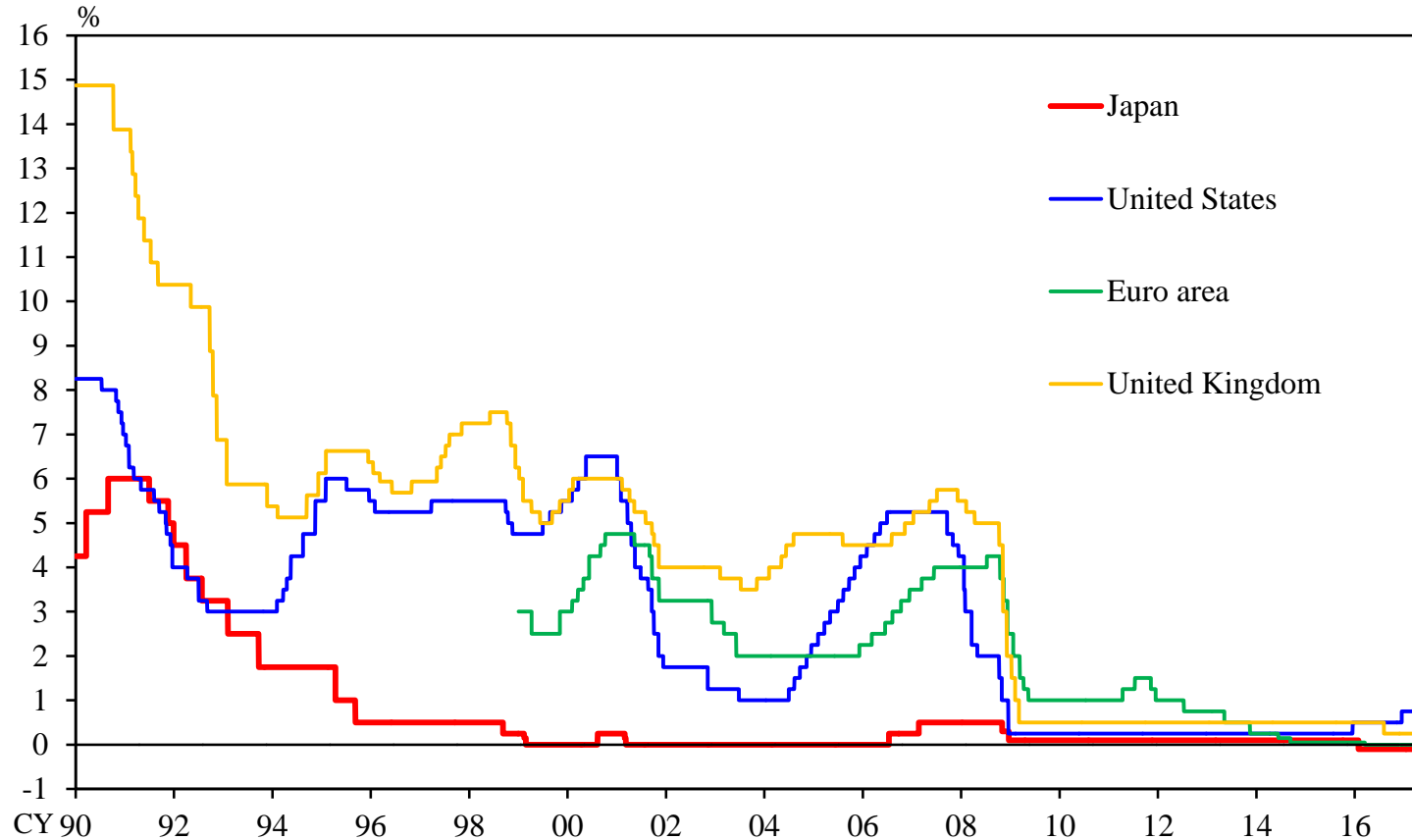


- Notes: 1. The natural and real rates of interest are calculated based on 10-year government bond yields.  
 2. The shaded area indicates the 95 percent confidence interval for the natural rate of interest.  
 3. For details of the estimation procedures, see Imakubo *et al.* (2015), "The Natural Yield Curve: Its Concept and Measurement," Bank of Japan Working Paper Series, 15-E-5.



# Policy Rates

## *Policy Rates in Advanced Economies*

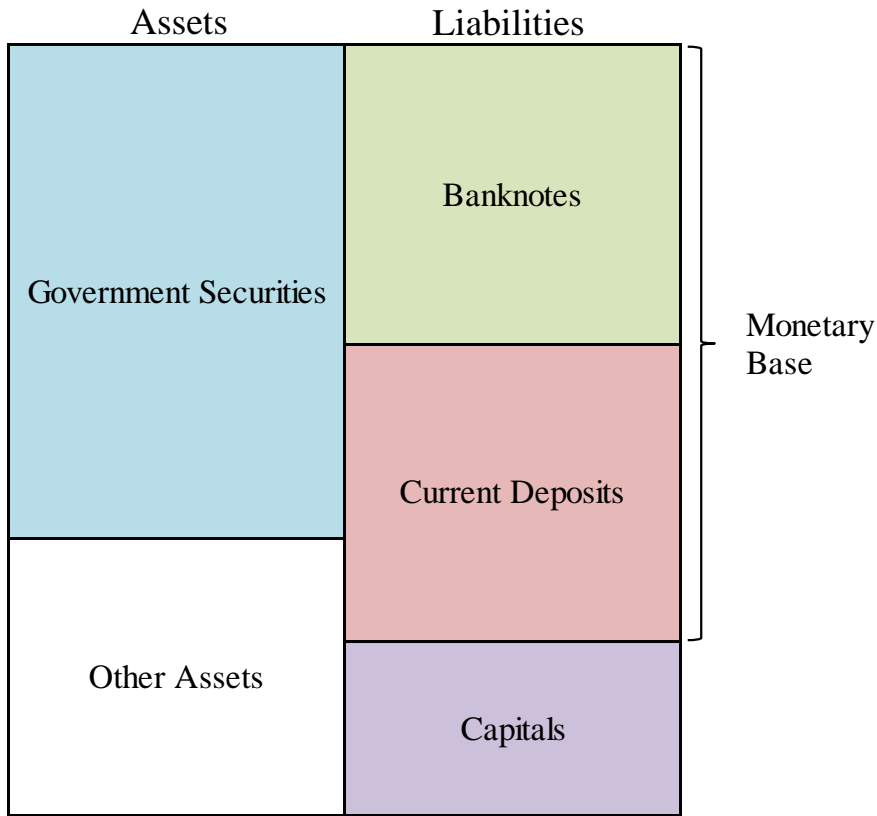


Note: In Japan, the policy rate was zero percent during the period of "Quantitative Easing" (March 19, 2001-March 8, 2006), 0.1 percent (the interest rate applied to the complementary deposit facility) during the period of "Comprehensive Monetary Easing" (October 5, 2010-April 3, 2013) and "Quantitative and Qualitative Monetary Easing" (April 4, 2013-January 28, 2016), and -0.1% (the interest rate applied to the Policy-Rate Balance in the current accounts) after the introduction of "Quantitative and Qualitative Monetary Easing with a Negative Interest Rate." Rates for other countries are the following: the federal funds rate for the United States; the interest rate on the main refinancing operations for the euro area; and the bank rate for the United Kingdom.

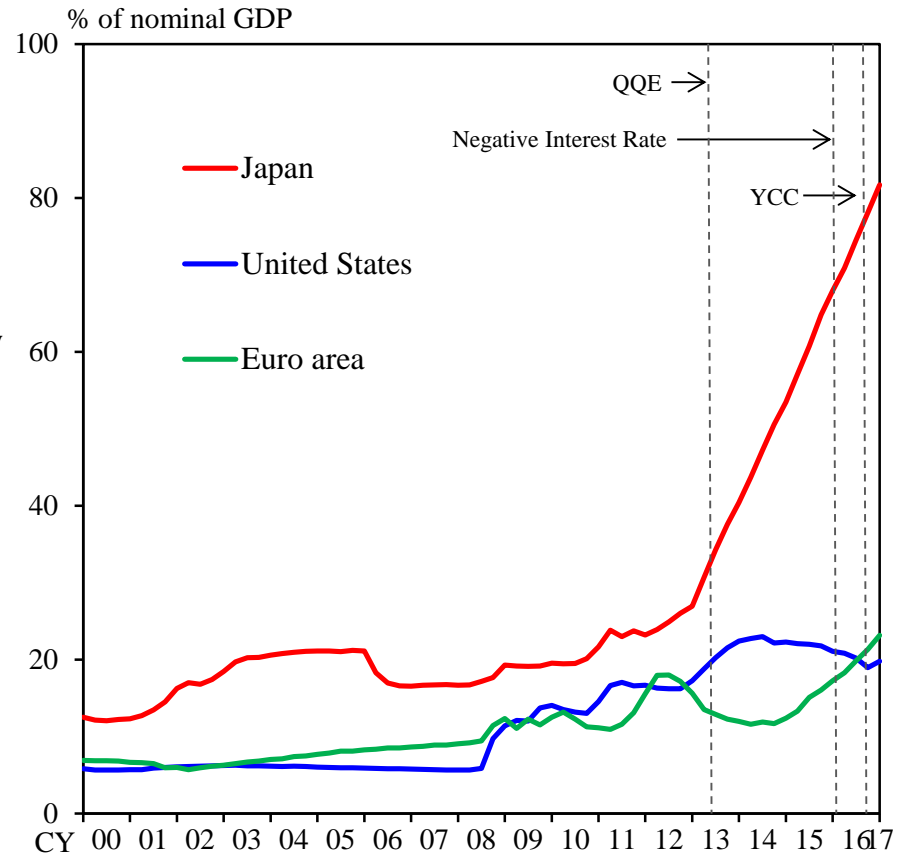
Sources: Bank of Japan; Federal Reserve; European Central Bank; Bank of England.

# Monetary Base

*B/S of a Central Bank*

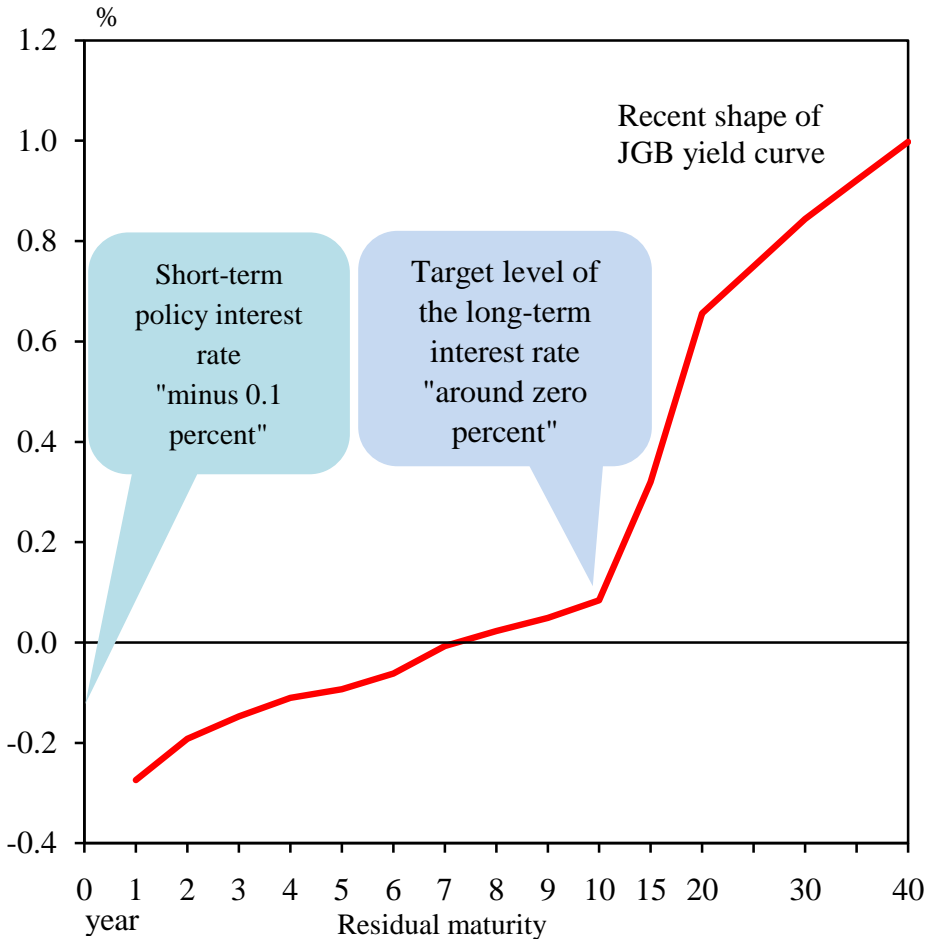


*Monetary Base in Advanced Economies*

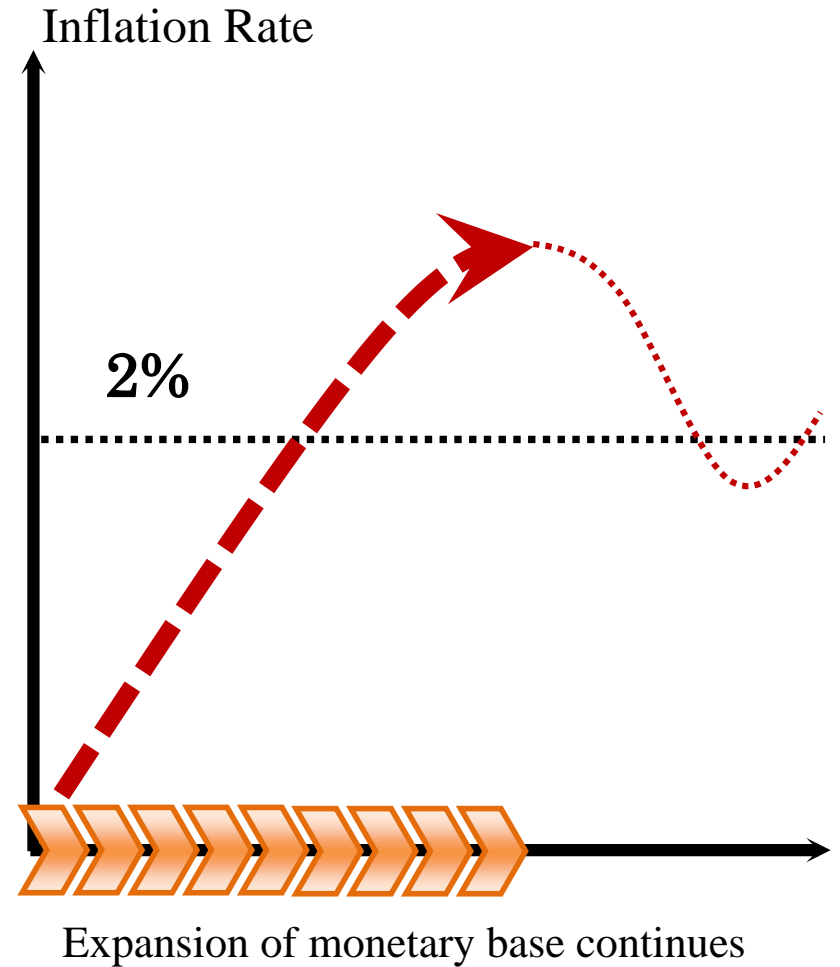


# "Quantitative and Qualitative Monetary Easing (QQE) with Yield Curve Control"

*Yield Curve Control*

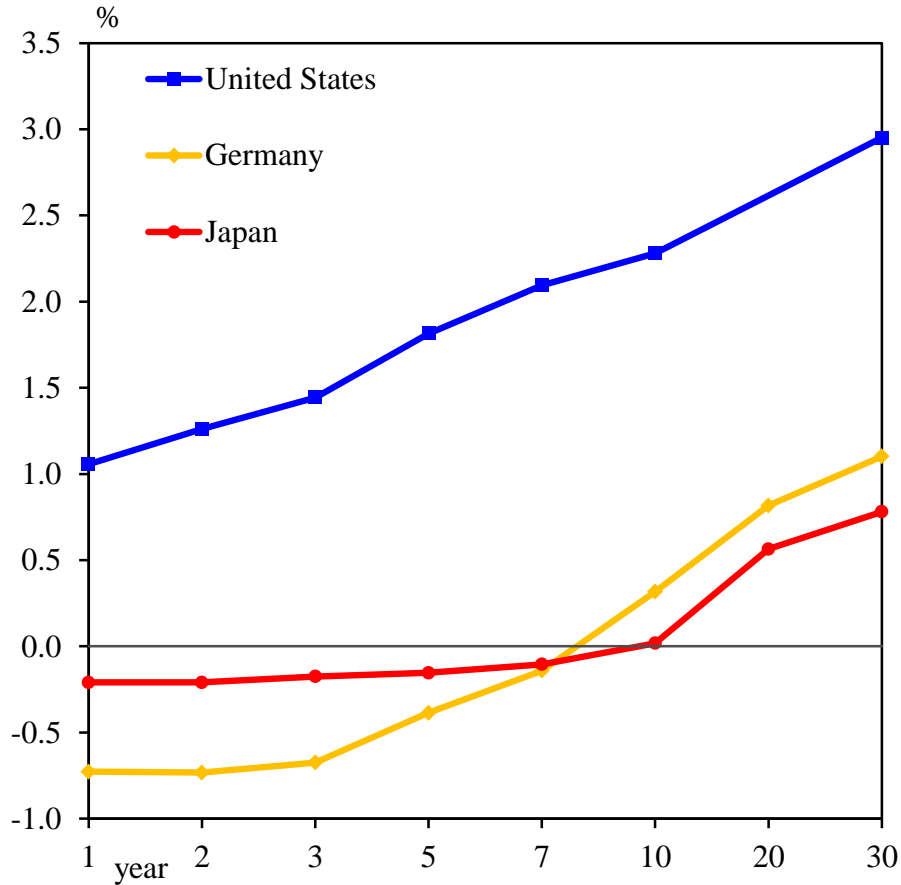


*Inflation-overshooting Commitment*

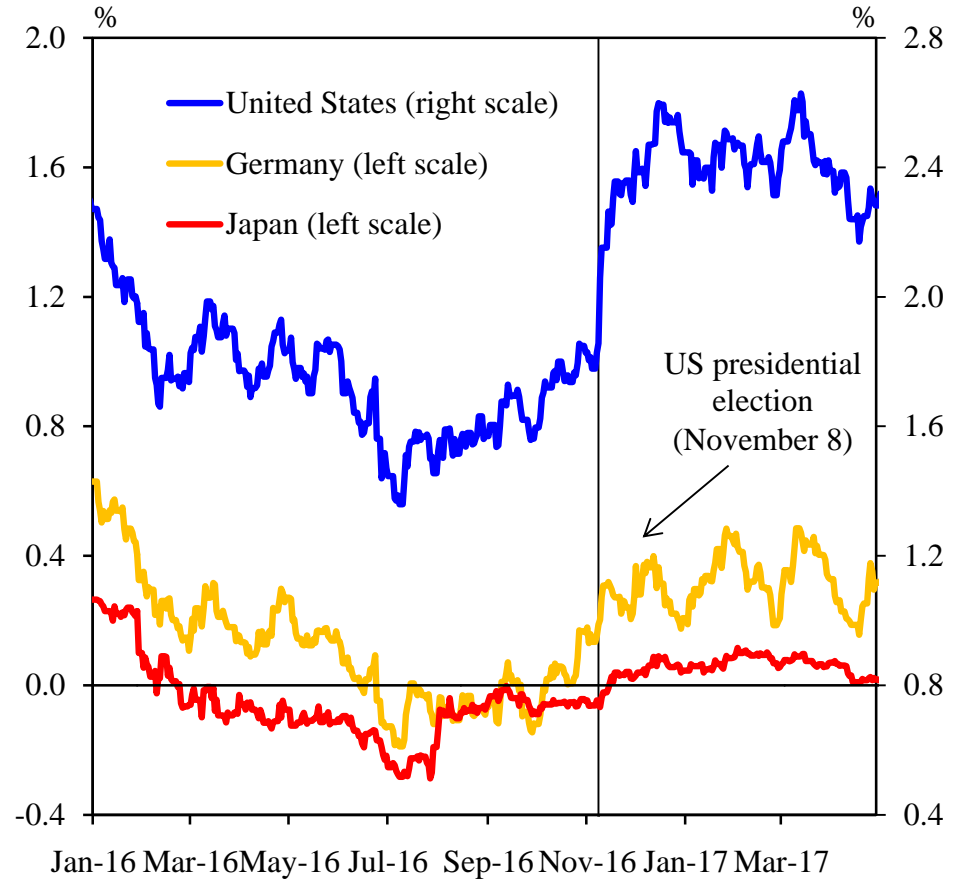


# Long-term Interest Rates of Advanced Economies

*Yield Curve*



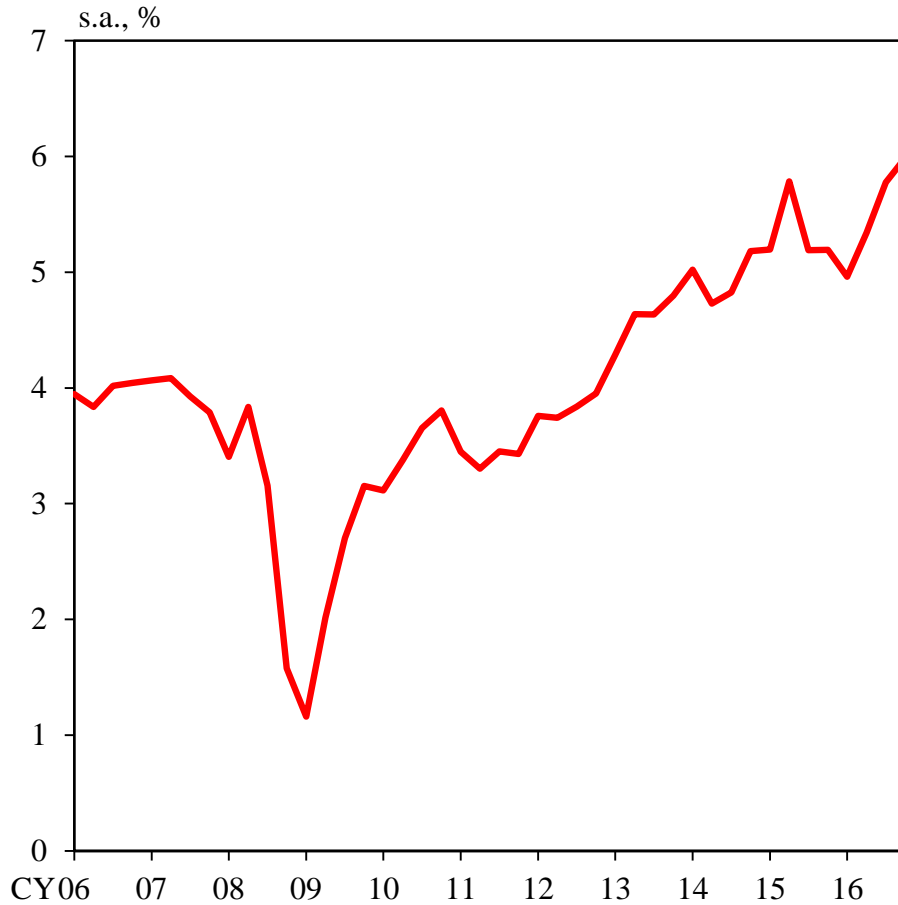
*Longer-term Interest Rates (10-year)*



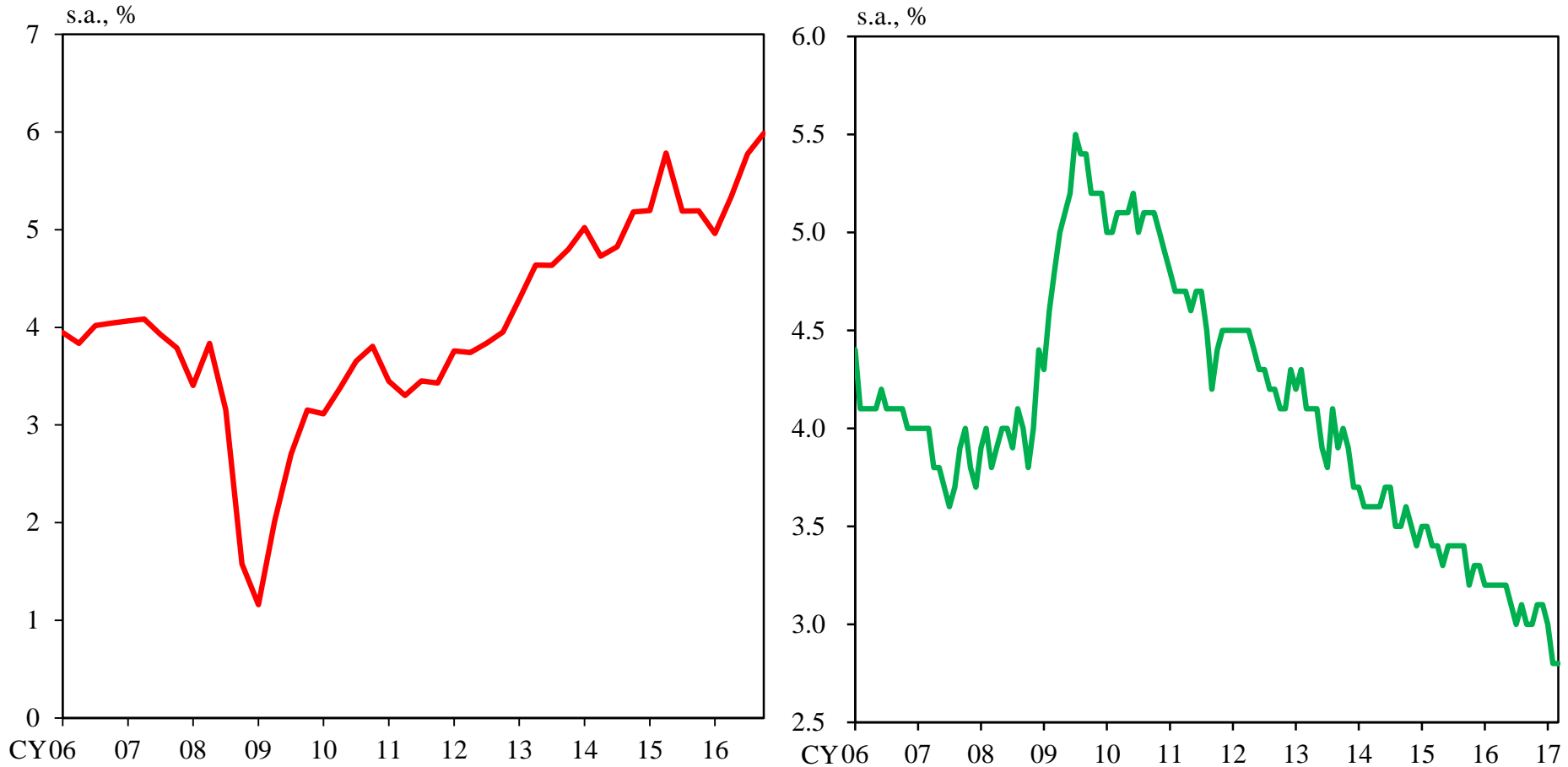
Note: Latest data as at end-April 2017.  
Source: Bloomberg.

# Corporate Profits and Labor Market Conditions

*Ratio of Current Profits to Sales*



*Unemployment Rate*



Note: Figures for the ratio of current profits to sales exclude "Finance and Insurance."

Sources: Ministry of Finance; Ministry of Internal Affairs and Communications.

# Outlook for Economic Activity and Prices (April 2017)

y/y % chg.

	Real GDP	CPI (all items less fresh food)
Fiscal 2017	+1.6	+1.4
Forecasts made in January 2017	+1.5	+1.5
Fiscal 2018	+1.3	+1.7
Forecasts made in January 2017	+1.1	+1.7
Fiscal 2019	+0.7	+1.9

Note: Figures indicate the median of the Policy Board members' forecasts (point estimates). Figures for the CPI (all items less fresh food) exclude the effects of the consumption tax hikes.

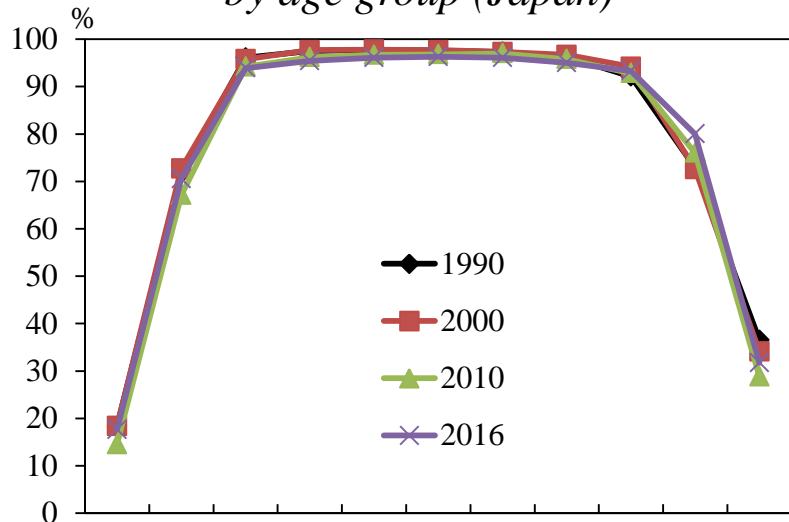
Source: Bank of Japan.

# Growth Strategy and Future Challenges for Japan

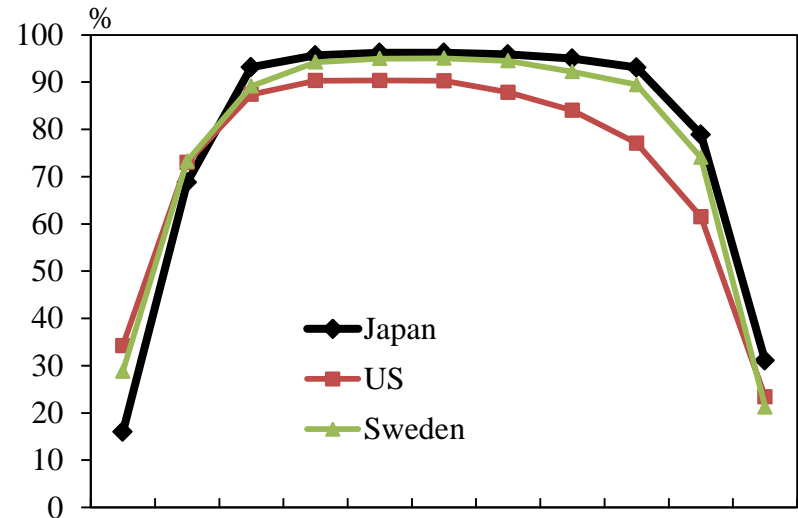
# Labor Force Participation Rate

*Labor force participation rate by age group (Japan)*

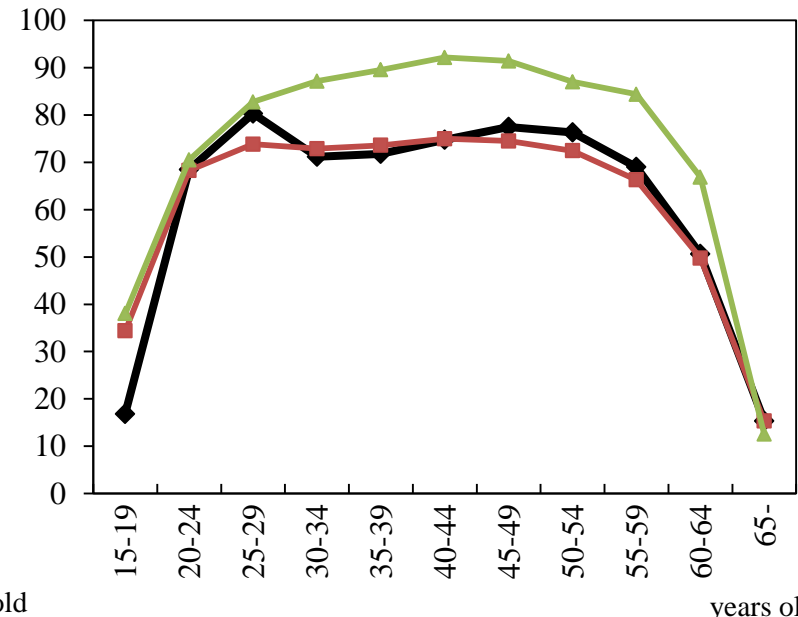
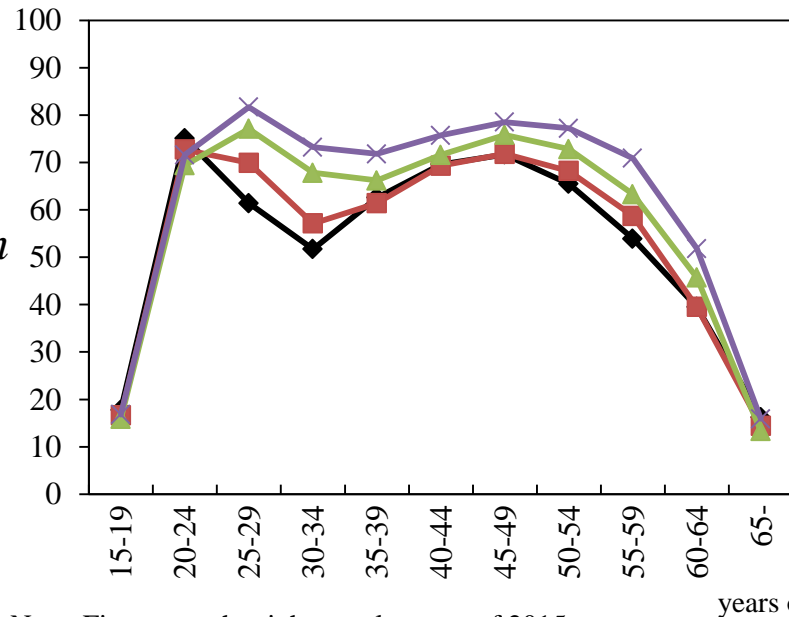
*Men*



*International Comparisons*



*Women*



Note: Figures on the right panels are as of 2015.

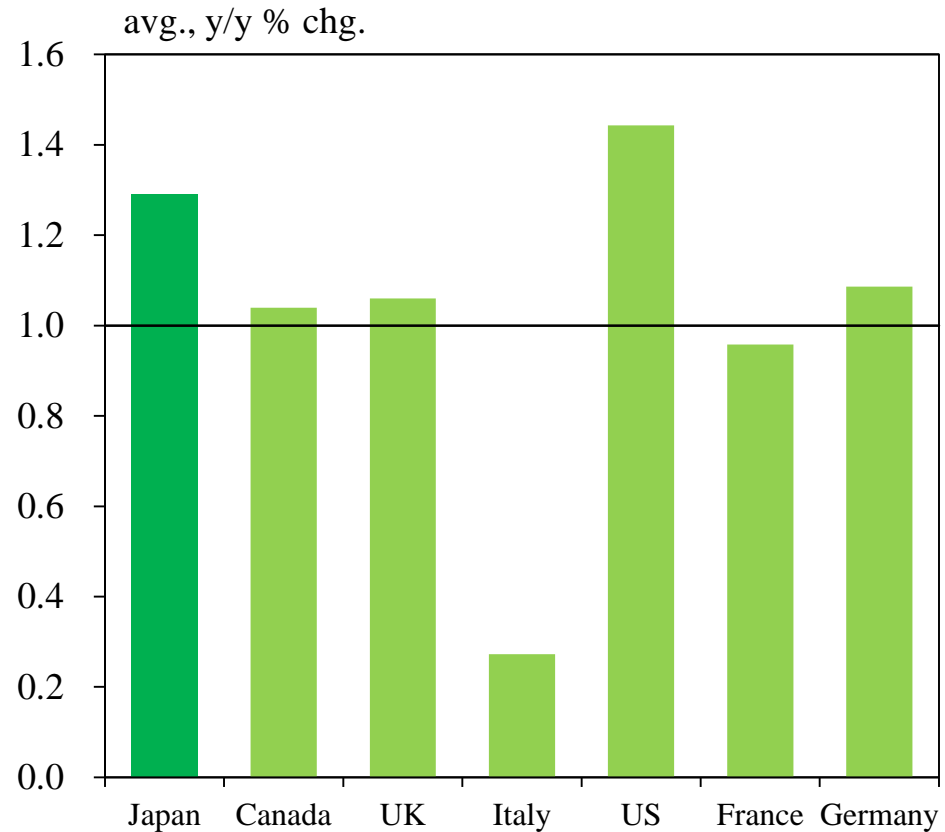
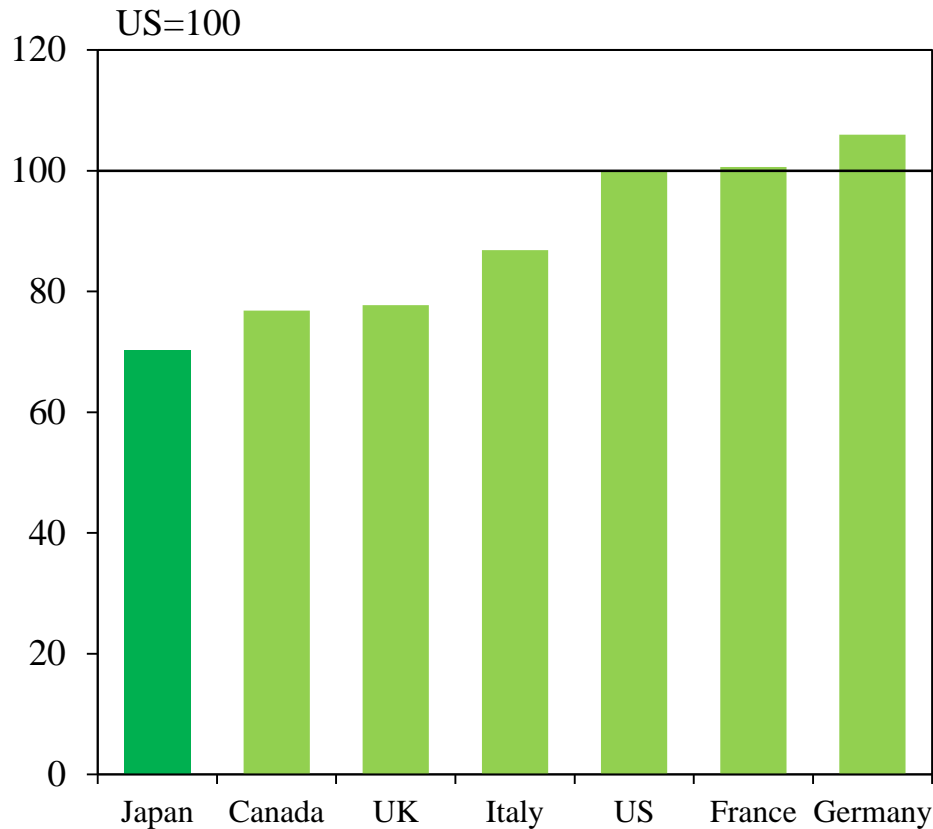
Sources: OECD; Ministry of International Affairs and Communications.



# International Comparisons of Labor Productivity

*Productivity Level*

*Productivity Growth Rate*

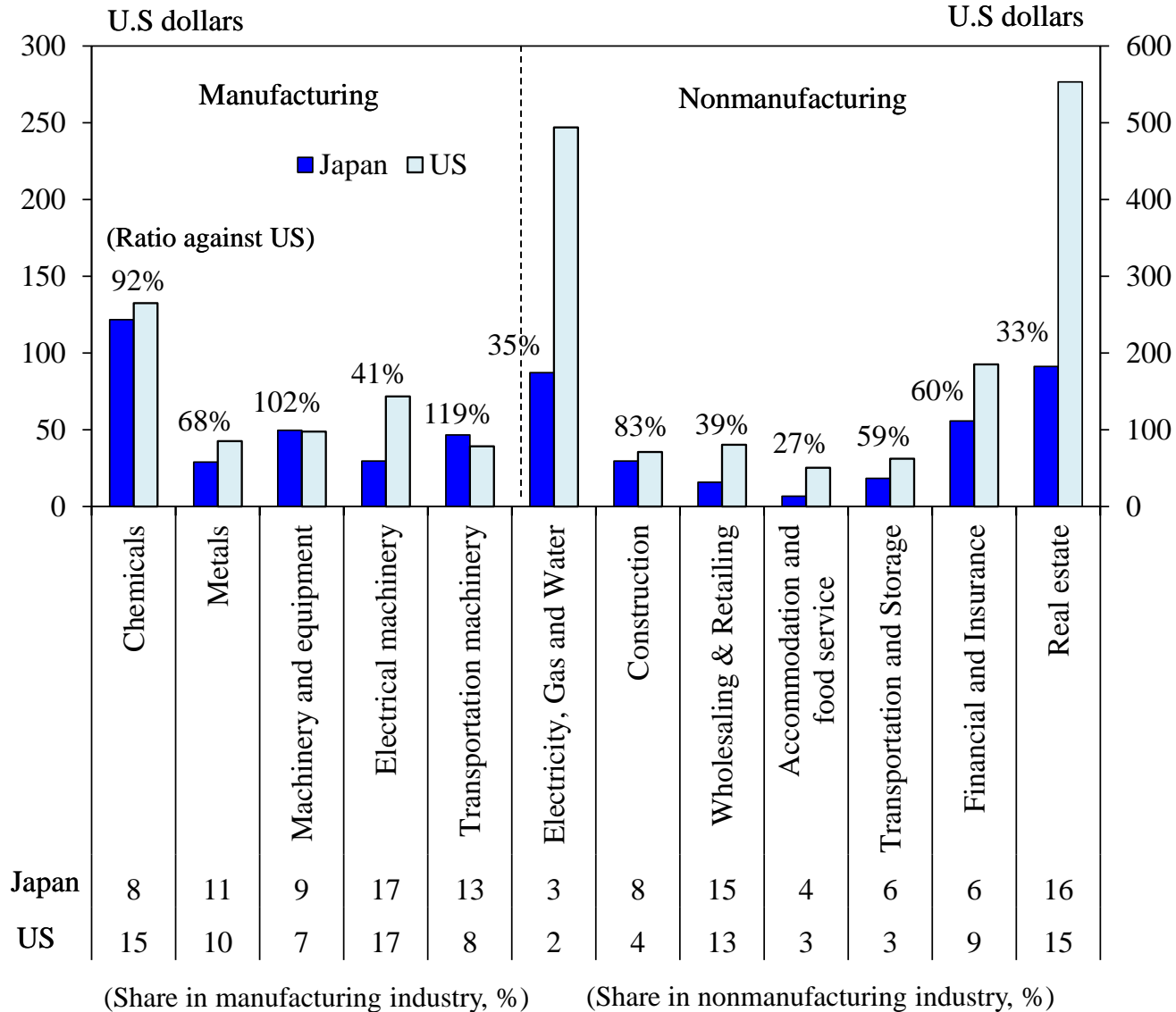


Notes: 1.The left panel shows the nominal GDP per hour worked as of 2015.

2.The right panel shows the average year-on-year rates of change in the real GDP per hour worked from 2000 to 2015.

Source: UK Office for National Statistics.

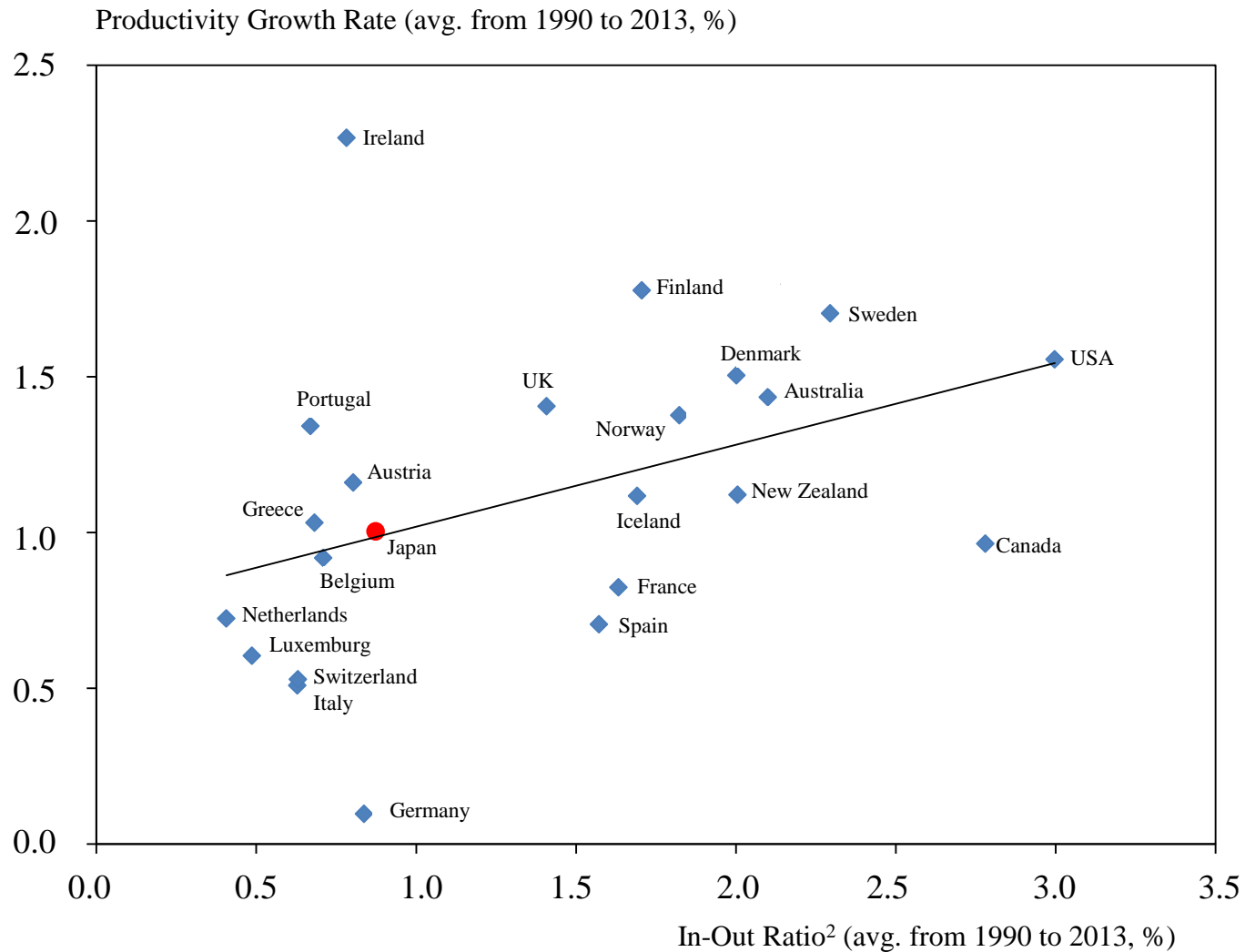
# Comparison of Labor Productivity



Note: Figure is labor productivity per hour (gross value-added, 2009).

Sources: The 2012 EU KLEMS; The 2009 EU KLEMS; GGDC Productivity Level Database 1997 benchmark.

# Mobility and Productivity of Labor Markets



Note: 1. The figure indicates the average of the 23 countries that were the member of the OECD on the year 1990 and have the data from the 1990s.

2. In-Out Ratio is calculated by  $(\text{Inflow to Unemployment} + \text{Outflow from Unemployment}) / \text{Working Age Population} \times 100$ .

Source: OECD. Stat.

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