

Seven Reflections on Japan's Economy, Monetary Policy, and the Bank of Japan

*Speech at the Center on Japanese Economy and Business,
Columbia University in New York*

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Seven Reflections

#1: It is all about teamwork

#2: Expect and prepare for the unexpected, but do not expect perfect foresight

#3: Maintain focus, but adapt to changes

#4: Research is essential, and economics is essential to research, but that is
not the whole story

#5: Japan offers exciting research topics

#6: Communication is absolutely necessary, extremely important, but really
difficult

#7: Learn from the past, and prepare for the future

Reflection #1:

It is all about teamwork

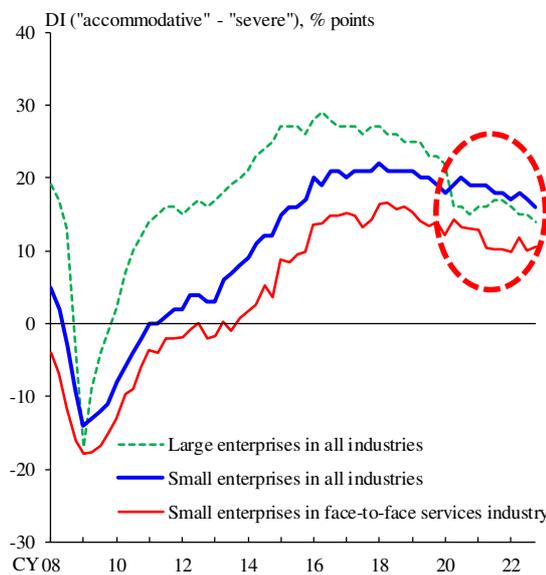
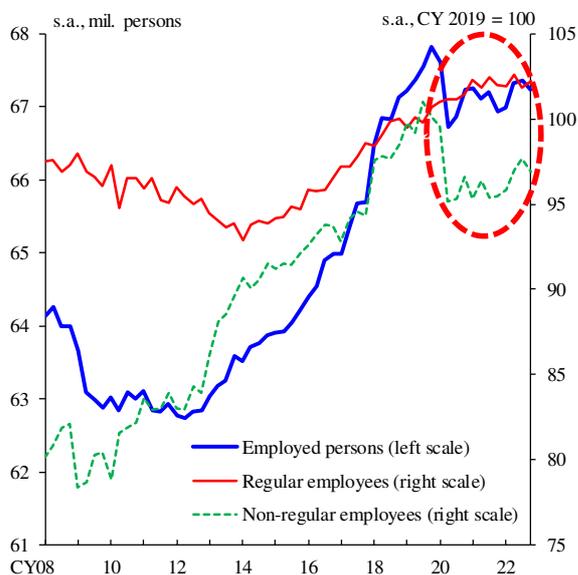
Reflection #2:

Expect and prepare for the unexpected,
but do not expect perfect foresight

Employment Situation and Financial Conditions

Number of Employed Persons

Lending Attitudes of Financial Institutions



Notes: 1. In the left-hand chart, figures for regular employees and non-regular employees prior to 2013 are based on the "detailed tabulation" in the *Labour Force Survey*.
 2. Figures for small enterprises in the face-to-face services industry are the weighted averages of the DIs for retailing, transport & postal activities, services for individuals, and accommodations, eating & drinking services.
 Sources: Ministry of Internal Affairs and Communications; Bank of Japan.

Reflection #3:

Maintain focus, but adapt to changes

Reflection #4:

Research is essential, and economics is essential to research, but that is not the whole story

Chart 2

BOJ's Research Examples since 2018 (1)

Alternative Data Analysis on Real Economy

Year	Research Papers
2022	<ul style="list-style-type: none">✓ Furukawa, K., and Hisano, R., "A Nowcasting Model of Exports Using Maritime Big Data," <i>Bank of Japan Working Paper Series</i>, no. 22-E-19.✓ Furukawa, K. et al., "A Nowcasting Model of Industrial Production Using Alternative Data and Machine Learning Approaches," <i>Bank of Japan Working Paper Series</i>, no. 22-E-16.✓ Nakajima, J., Takahashi, M., and Yagi, T., "An Assessment of Online Consumption Trends in Japan during the COVID-19 Pandemic," <i>Bank of Japan Working Paper Series</i>, no. 22-E-11.✓ Nakazawa, T., "Constructing GDP Nowcasting Models Using Alternative Data," <i>Bank of Japan Working Paper Series</i>, no. 22-E-9.✓ Okubo, T. et al., "Development of 'Alternative Data Consumption Index': Nowcasting Private Consumption Using Alternative Data," <i>Bank of Japan Working Paper Series</i>, no. 22-E-8.
2021	<ul style="list-style-type: none">✓ Mikami, T., Yamagata, H., and Nakajima, J., "Using Text Analysis to Gauge the Reasons for Respondents' Assessment in the Economy Watchers Survey," <i>Bank of Japan Research Laboratory Series</i>, no. 21-E-2.✓ Nakajima, J. et al., "Extracting Firms' Short-Term Inflation Expectations from the Economy Watchers Survey Using Text Analysis," <i>Bank of Japan Working Paper Series</i>, no. 21-E-12.✓ Matsuura, K. et al., "Nowcasting Economic Activity with Mobility Data," <i>Bank of Japan Working Paper Series</i>, no. 21-E-2.
2020	<ul style="list-style-type: none">✓ Oh, Y., and Takahashi, K., "R&D and Innovation: Evidence from Patent Data," <i>Bank of Japan Working Paper Series</i>, no. 20-E-7.✓ Kobayashi, S. et al., "The Impact of COVID-19 on US Consumer Spending: Quantitative Analysis Using High-Frequency State-Level Data," <i>Bank of Japan Review Series</i>, no. 2020-E-7.✓ Miyakawa, D., and Shintani, K., "Disagreement between Human and Machine Predictions," <i>IMES Discussion Paper Series</i>, no. 2020-E-11.
2018	<ul style="list-style-type: none">✓ Abe, N., and Shinozaki, K., "Compilation of Experimental Price Indices Using Big Data and Machine Learning: A Comparative Analysis and Validity Verification of Quality Adjustments," <i>Bank of Japan Working Paper Series</i>, no. 18-E-13.

Reflection #5:

Japan offers exciting research topics

Chart 3

BOJ's Research Examples since 2018 (2)

Formation of Inflation Expectations

Year	Research Papers
2022	<ul style="list-style-type: none"> ✓ Ikeda, S. et al., "Inflation in Japan: Changes during the Pandemic and Issues for the Future," <i>Bank of Japan Working Paper Series</i>, no. 22-E-18. ✓ Kurozumi, T., and Oishi, R., "A Comparison of Japanese and US New Keynesian Phillips Curves with Bayesian VAR-GMM," <i>Bank of Japan Working Paper Series</i>, no. 22-E-3. ✓ Takahashi, Y., and Tamanyu, Y., "Households' Perceived Inflation and CPI Inflation: the Case of Japan," <i>Bank of Japan Working Paper Series</i>, no. 22-E-1.
2021	<ul style="list-style-type: none"> ✓ Yoneyama, S., "Central Bank Transparency and Disagreement in Inflation Expectations," <i>IMES Discussion Paper Series</i>, no. 2021-E-12. ✓ Nakajima, J. et al., "Extracting Firms' Short-Term Inflation Expectations from the Economy Watchers Survey Using Text Analysis," <i>Bank of Japan Working Paper Series</i>, no. 21-E-12. ✓ Okuda, T., and Tsuruga, T., "Inflation Expectations and Central Bank Communication with Unknown Prior," <i>IMES Discussion Paper Series</i>, no. 2021-E-7.
2020	<ul style="list-style-type: none"> ✓ Hiraki, K., and Hirata, W., "Market-Based Long-Term Inflation Expectations in Japan: A Refinement on Breakeven Inflation Rates," <i>Bank of Japan Working Paper Series</i>, no. 20-E-5.
2019	<ul style="list-style-type: none"> ✓ Kitamura, T., and Tanaka, M., "Firms' Inflation Expectations under Rational Inattention and Sticky Information: An Analysis with a Small-Scale Macroeconomic Model," <i>Bank of Japan Working Paper Series</i>, no. 19-E-16. ✓ Inatsugu, H., Kitamura, T., and Matsuda, T., "The Formation of Firms' Inflation Expectations: A Survey Data Analysis," <i>Bank of Japan Working Paper Series</i>, no. 19-E-15. ✓ Ichiue, H. et al., "Households' Liquidity Constraint, Optimal Attention Allocation, and Inflation Expectations," <i>Bank of Japan Working Paper Series</i>, no. 19-E-8. ✓ Maruyama, T., and Suganuma, K., "Inflation Expectations Curve in Japan," <i>Bank of Japan Working Paper Series</i>, no. 19-E-6.
2018	<ul style="list-style-type: none"> ✓ Uno, Y., Naganuma, S., and Hara, N., "New Facts about Firms' Inflation Expectations: Short- versus Long-Term Inflation Expectations," <i>Bank of Japan Working Paper Series</i>, no. 18-E-15. ✓ Uno, Y., Naganuma, S., and Hara, N., "New Facts about Firms' Inflation Expectations: Simple Tests for a Sticky Information Model," <i>Bank of Japan Working Paper Series</i>, no. 18-E-14. ✓ Hogen, Y., and Okuma, R., "The Anchoring of Inflation Expectations in Japan: A Learning-Approach Perspective," <i>Bank of Japan Working Paper Series</i>, no. 18-E-8.

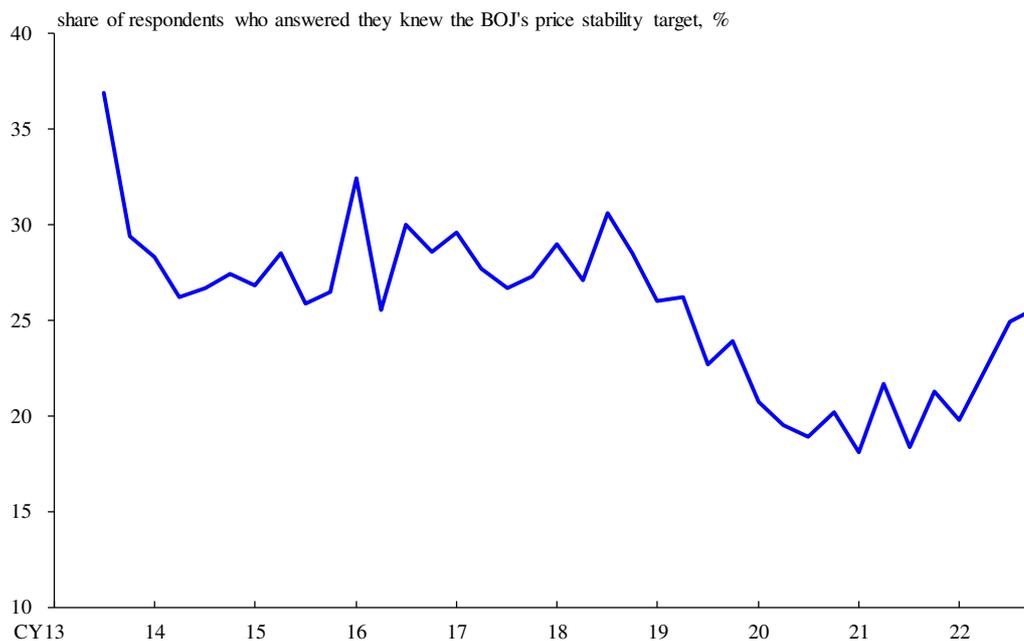
Note: All papers are available at the Bank of Japan's website (https://www.boj.or.jp/en/research/rs_all/index.htm).

Reflection #6:

Communication is absolutely necessary,
extremely important, but really difficult

Chart 4

Public Recognition of the BOJ's Price Stability Target



Note: The survey asks respondents the question "Do you know that the Bank has set the price stability target at 2 percent in terms of the year-on-year rate of change in the consumer price index (CPI)?"
Source: Bank of Japan.

Highlights of the January 2023 Outlook Report

(1) Japan's economy is likely to recover.



(2) Inflation is likely to be relatively high in the short run and then decelerate.



(3) There are high uncertainties, including developments in overseas economic activity and prices, and market developments warrant attention.



(4) The Bank will continue with powerful monetary easing.



Reflection #7:

Learn from the past, and prepare for the future

Is This the End of the Mild-Inflation Regime?

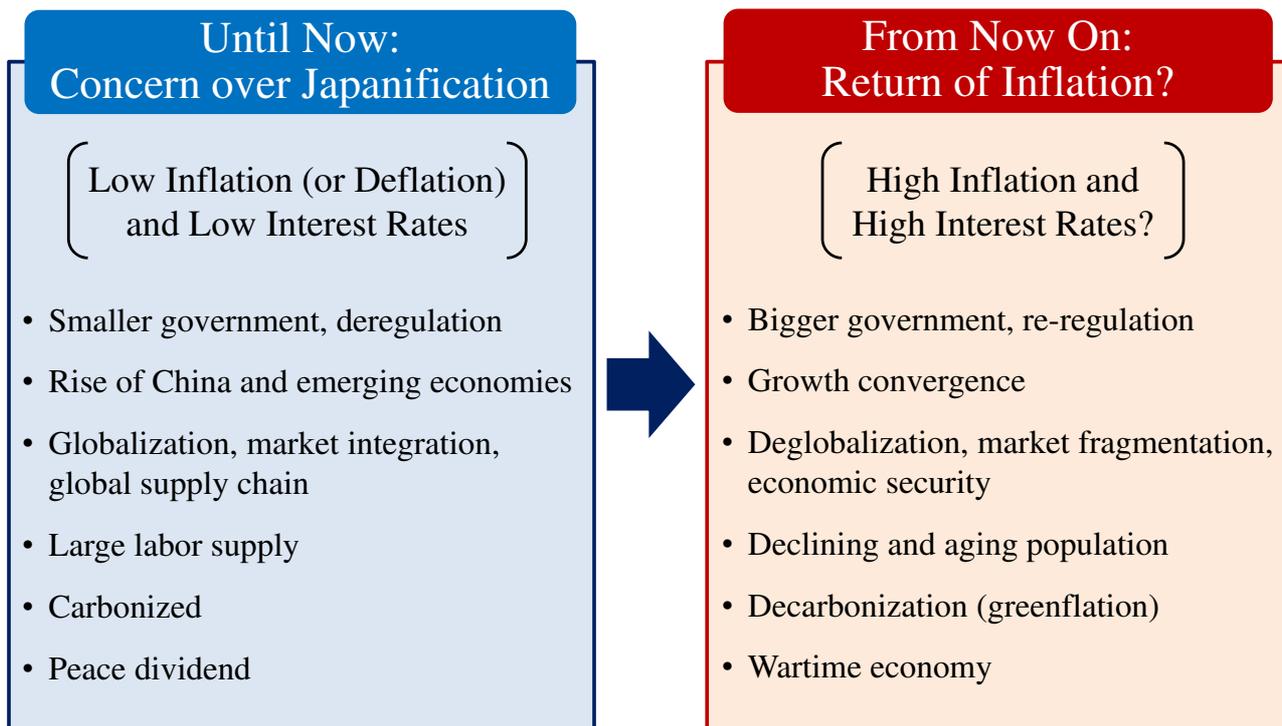
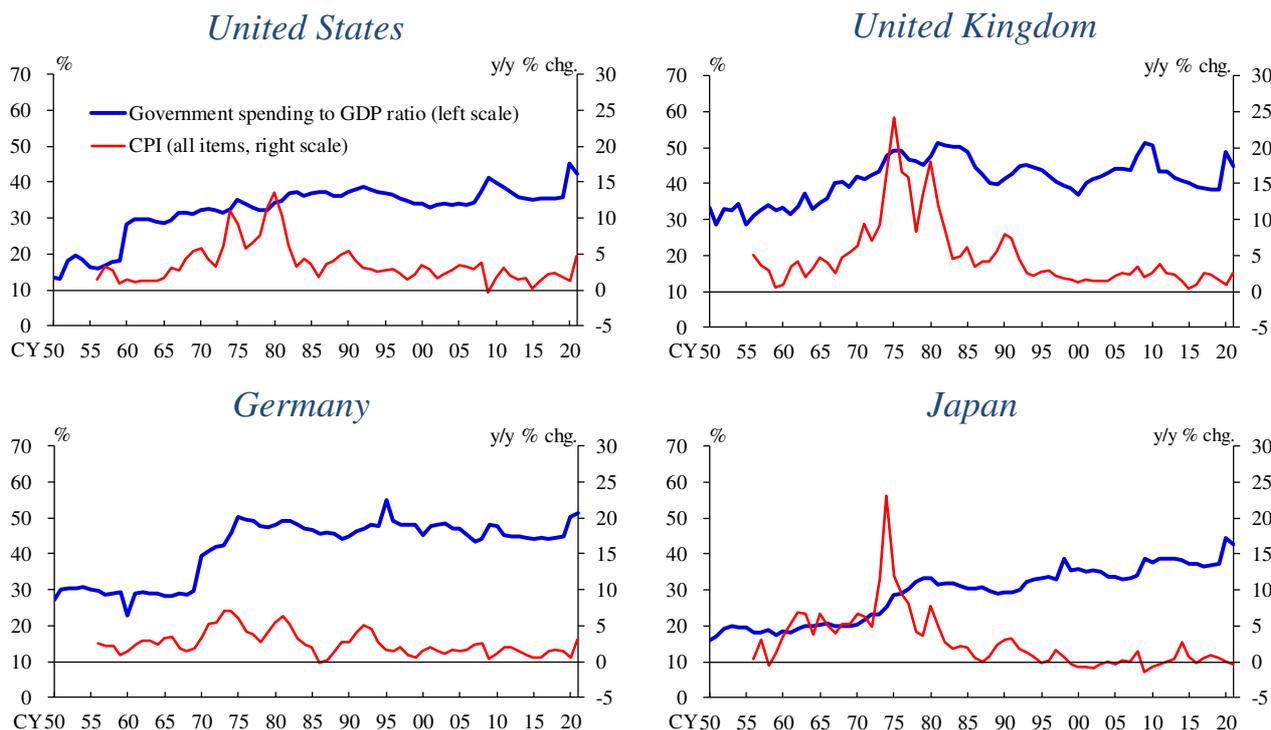


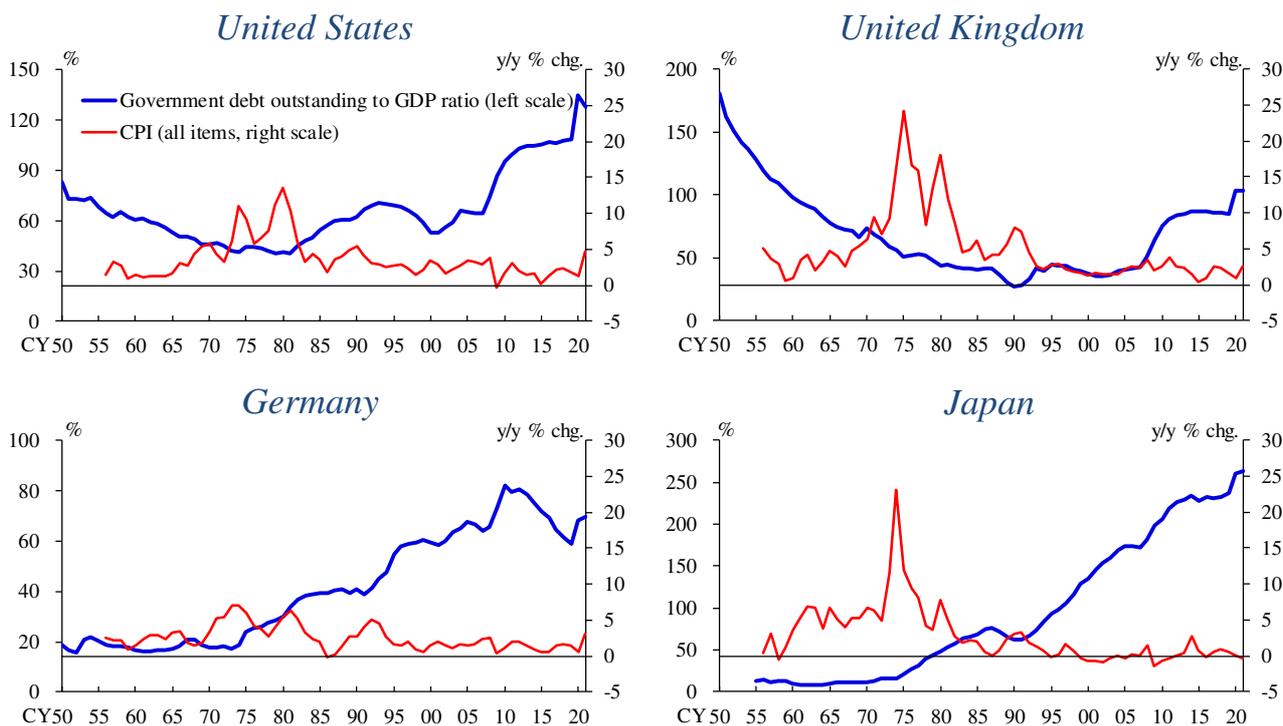
Chart 7

Government Spending and Inflation Rates: No Clear Relationship



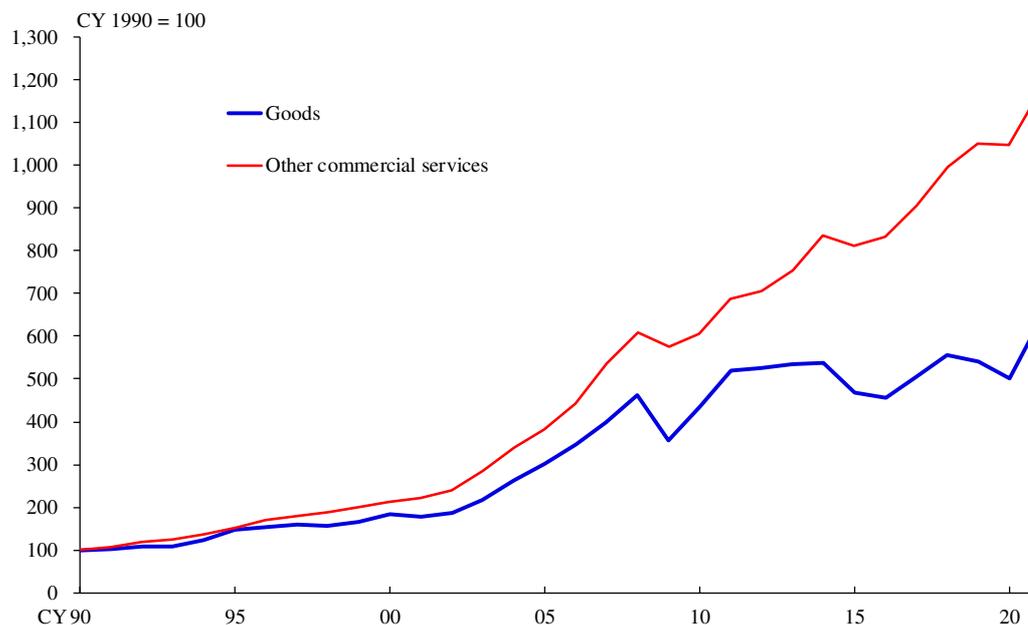
Note: Figures for Germany prior to 1991 are those for West Germany.
Sources: IMF; OECD.

Government Debt Outstanding and Inflation Rates: No Clear Relationship



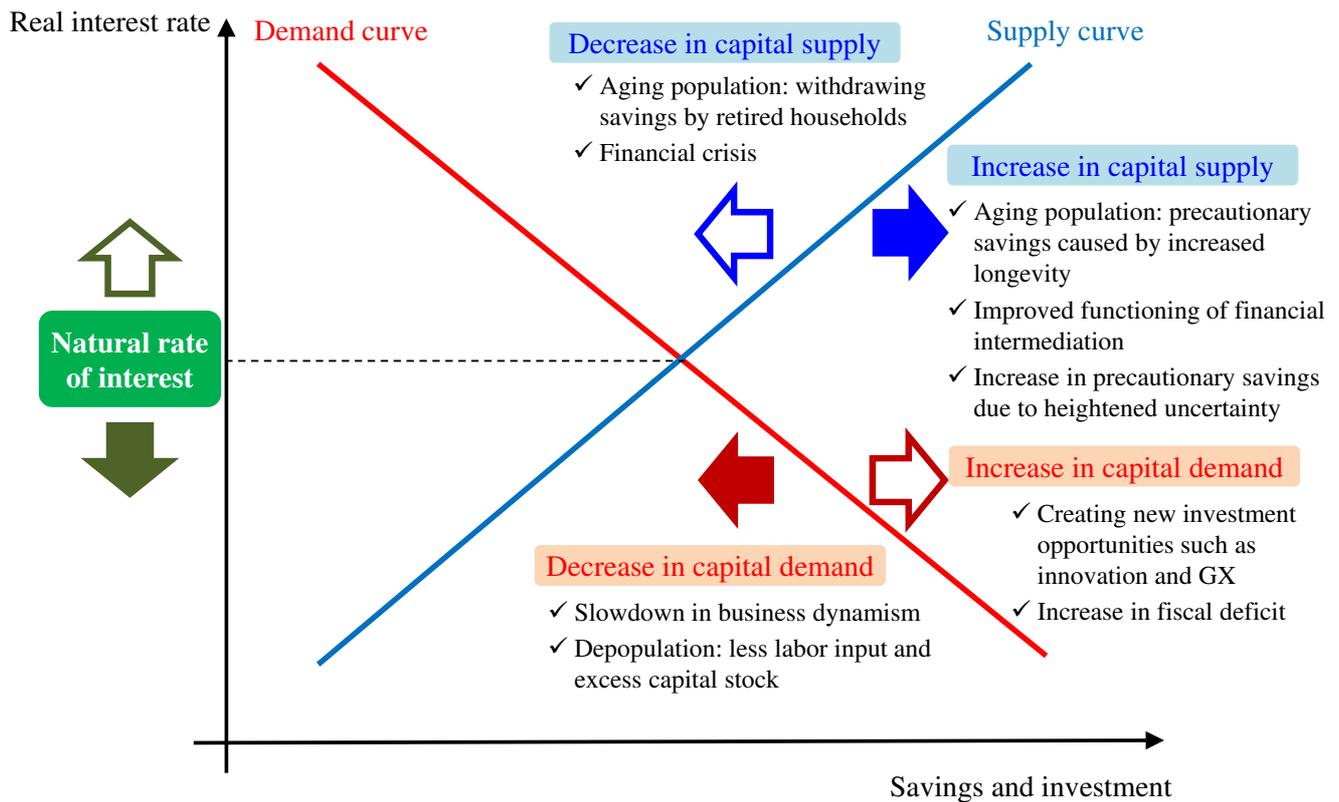
Note: Figures for Germany prior to 1991 are those for West Germany.
Sources: IMF; OECD.

World Trade: Stagnant Goods, Growing Services



Note: Figures are the sum of exports and imports on a U.S. dollar basis. Those for other commercial services exclude travel and transport.
Sources: WTO; Baldwin, R., "Globoitics and Macroeconomics: Globalisation and Automation of the Service Sector," *CEPR Press Discussion Paper*, no. 17530 (2022).

Determinants of the Natural Rate of Interest



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Looking Ahead: Lessons from History

➤ Jordà et al. (2019):

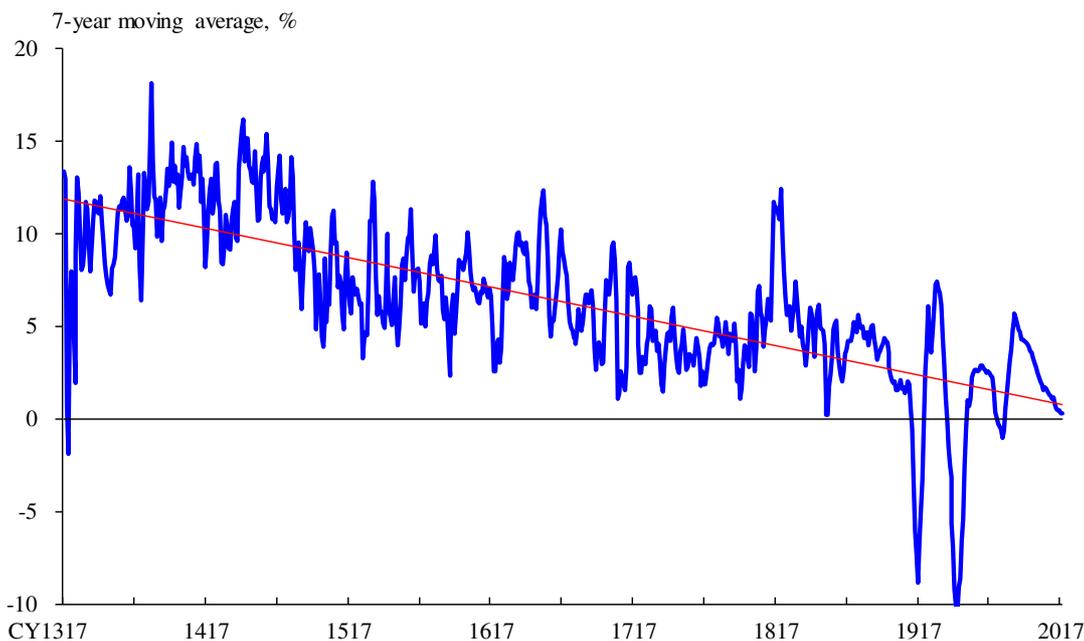
$$r^{\text{safe}} < g < r^{\text{wealth}}$$

r^{safe} : Real rate of return on safe assets

g : Real economic growth rate

r^{wealth} : Real rate of return on aggregate wealth

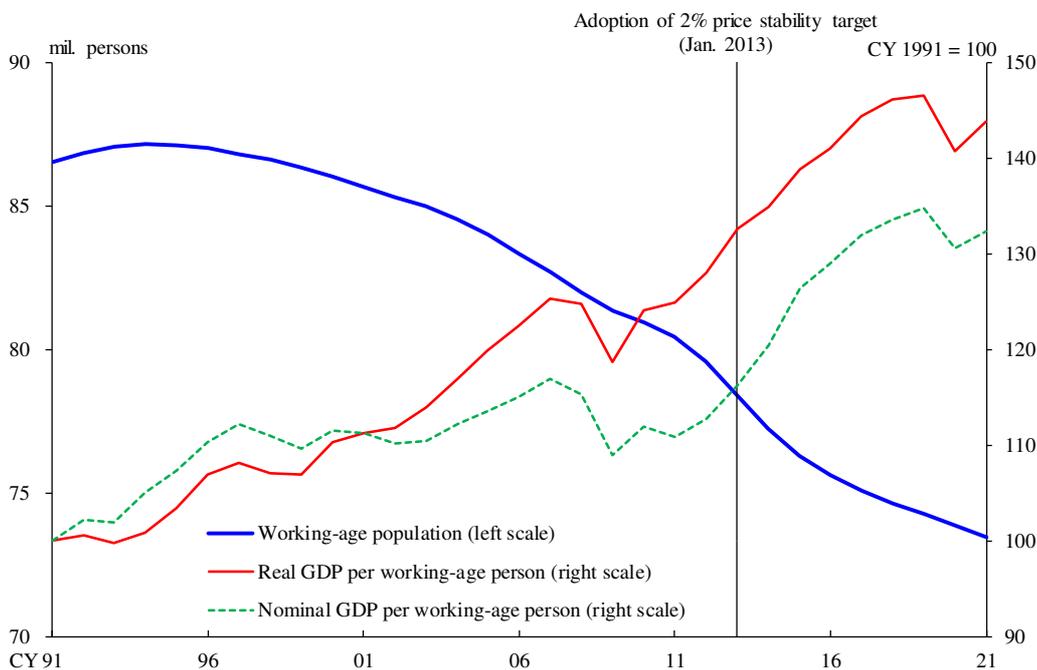
Historical Downtrend in Global Real Interest Rate



Note: Figures are calculated based on GDP-weighted nominal interest rates and inflation rates using available data for eight countries: Italy, the Netherlands, France, Spain, the United Kingdom, Germany, the United States, and Japan.
 Source: Schmelzing, P., "Eight Centuries of Global Real Interest Rates, R-G, and the 'Suprasecular' Decline, 1311-2018," *Bank of England Staff Working Paper*, no. 845 (2020).

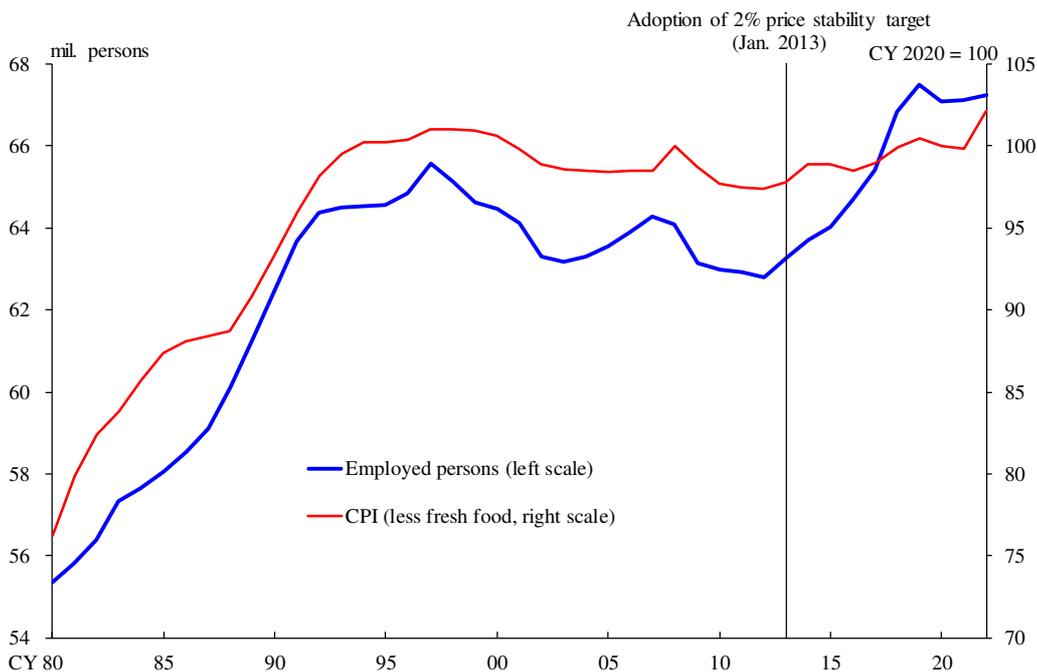
Economic Growth despite Depopulation

Working-Age Population and GDP per Working-Age Person



Source: World Bank.

Increase in Employed Persons and Prices



Note: Figures for the CPI from 1997 onward exclude the direct effects of the consumption tax hikes.
Source: Ministry of Internal Affairs and Communications.

Decomposition of Economic Growth in Japan and the United States

$$\text{GDP} = \text{Total population} \times \underbrace{\frac{\text{Employed persons}}{\text{Total population}} \times \frac{\text{Total hours worked}}{\text{Employed persons}}}_{\text{GDP per capita}} \times \frac{\text{GDP}}{\text{Total hours worked}}$$

(a) (b) (c) (d)

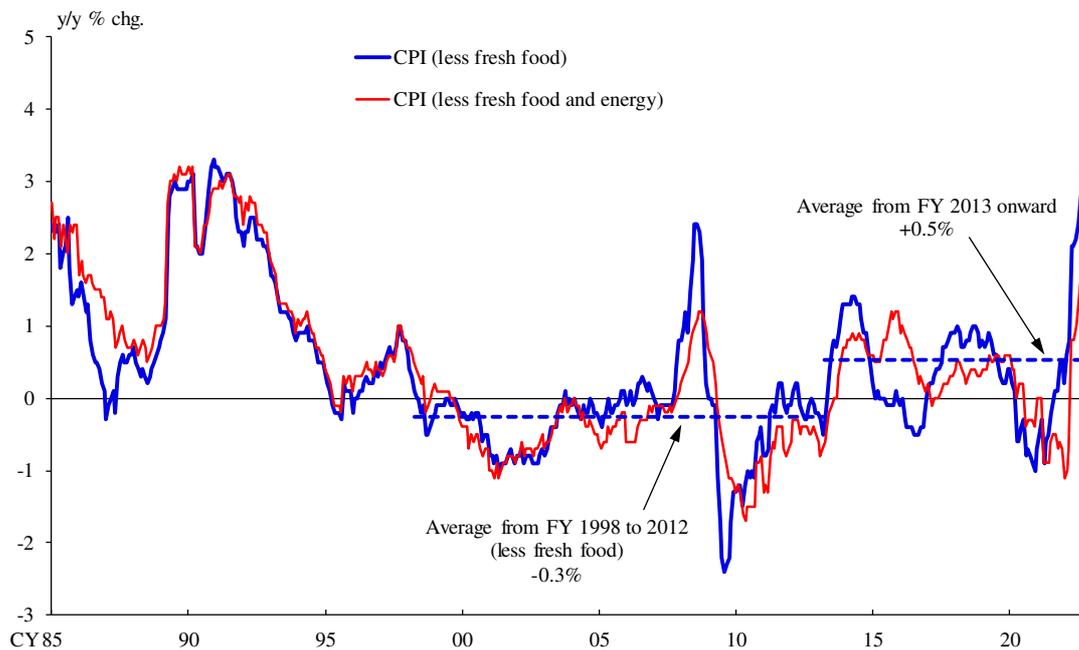
Japan

United States

	average, %							average, %					
	GDP	Total population	GDP per capita	Employed persons/ Total population	Hours worked per person	GDP per hour worked		GDP	Total population	GDP per capita	Employed persons/ Total population	Hours worked per person	GDP per hour worked
	(a)	(a)		(b)	(c)	(d)	(a)	(a)		(b)	(c)	(d)	
1990s	1.6	0.3	1.3	0.1	-1.2	2.4	1990s	3.2	1.2	2.0	0.1	-0.0	1.9
2000s	0.5	0.1	0.4	-0.2	-0.5	1.0	2000s	1.9	1.0	1.0	-0.5	-0.4	1.9
2010s	1.2	-0.1	1.3	0.6	-0.4	1.2	2010s	2.3	0.7	1.6	0.5	0.1	1.0

Source: Kuroda, H., "Japan's Inflation Dynamics and the Role of Monetary Policy," speech at Columbia University in New York, April 22, 2022.

CPI Inflation Rates: No Longer in Deflation



Note: Figures from 1997 onward exclude the direct effects of the consumption tax hikes.
 Source: Ministry of Internal Affairs and Communications.