



Lessons of Japan: Focusing on Issues regarding Long-Term Inflation Expectations

Speech at Yale University in New Haven

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Bank of Japan

Today's Topics

Introduction

I. Lessons of Japan

- 1. Determinants of Long-Term Inflation Expectations**
- 2. Negative Effects of Excessively Low Long-Term Inflation Expectations**

II. Issues regarding Long-Term Inflation Expectations

1. Formation Mechanism
2. Reasons for Low Expectations in Japan
3. Relationship with Japan's Financial Crisis
4. Relationship with Labor Market Reform

III. Addendum: Recent Discussion on Fiscal Policy Measures

Concluding Remarks

Statement on Longer-Run Goals and Monetary Policy Strategy

Board of Governors of the Federal Reserve System
Adopted effective January 24, 2012; as amended effective January 26, 2016

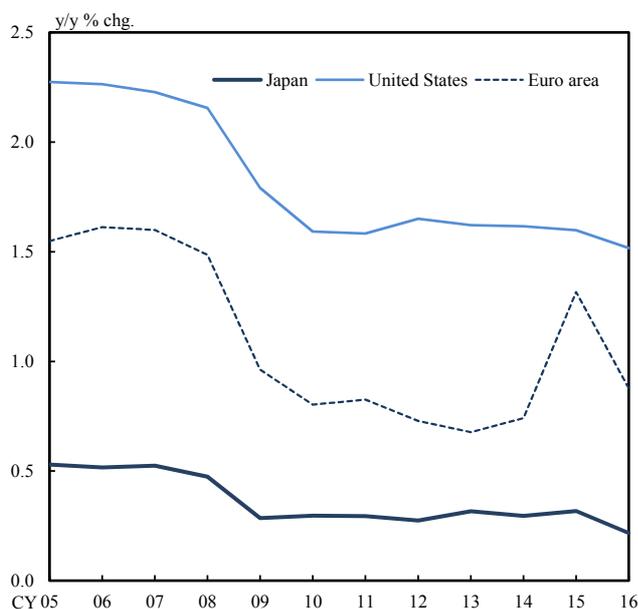
"The inflation rate over the longer run is primarily determined by monetary policy, and hence the Committee has the ability to specify a longer-run goal for inflation."

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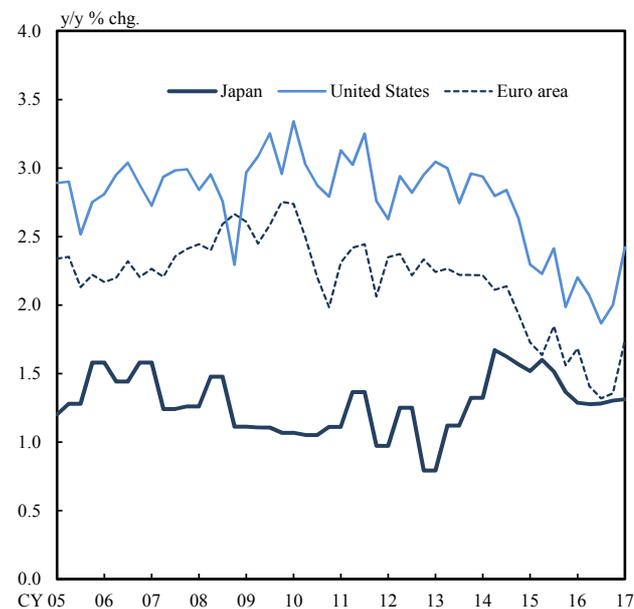
Chart 2

Potential Growth Rate and Inflation Expectations in Advanced Economies

(1) Potential Growth Rate



(2) Inflation Expectations



Note: As for inflation expectations, figures for Japan are the expectations for the CPI 6-10 years ahead and are based on the "Consensus Forecasts." Those for the United States and euro area are 5-year, 5-year forward inflation swap rates.
Sources: OECD; Bloomberg; Consensus Economics Inc., "Consensus Forecasts."

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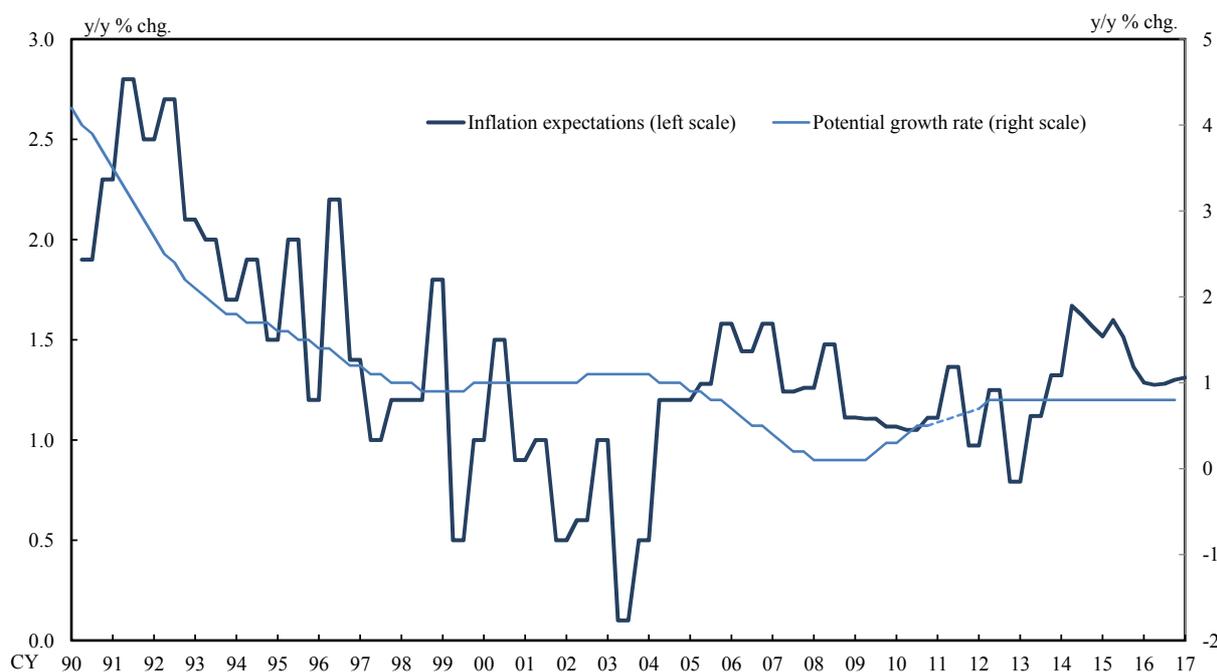
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Chart 3

Japan's Inflation Expectations and Potential Growth Rates

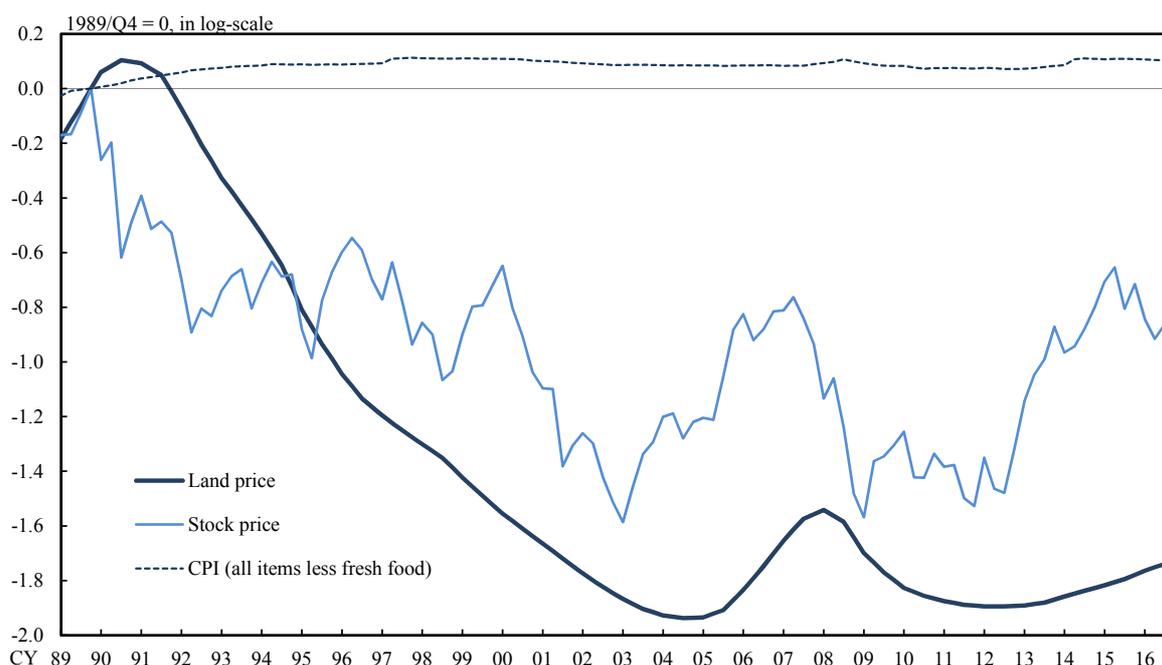


Note: Figures for inflation expectations are the expectations for the CPI 6-10 years ahead and are based on the "Consensus Forecasts."
Figures for potential growth rate do not include those of 2011, in which the Great East Japan Earthquake occurred.

Sources: Cabinet Office; Consensus Economics Inc., "Consensus Forecasts."

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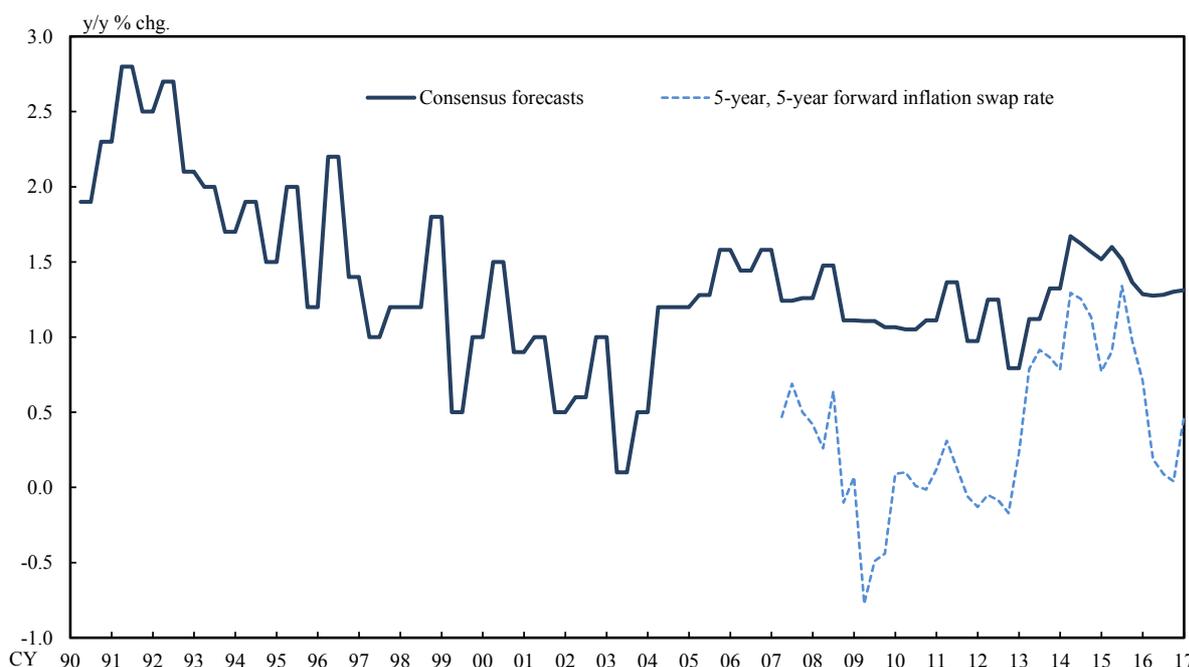
Japan's Asset Price Deflation



Note: The CPI (all items less fresh food) is seasonally adjusted by X-12-ARIMA with options of (0 1 2) (0 1 1) ARIMA model and level shifts when the consumption tax was introduced in April 1989 and subsequently raised in April 1997 and April 2014.

Sources: Okina, Kunio, and Shigenori Shiratsuka. "Asset Price Fluctuations, Structural Adjustments, and Sustained Economic Growth: Lessons from Japan's Experience since the Late 1980s." *Monetary and Economic Studies* 22, no. S-1, December 2004; Bank of Japan; Ministry of Internal Affairs and Communications; Japan Real Estate Institute.

Japan's Inflation Expectations

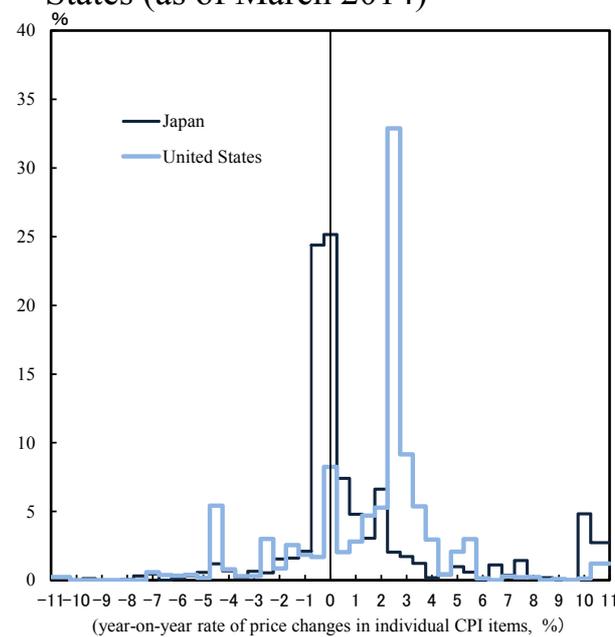
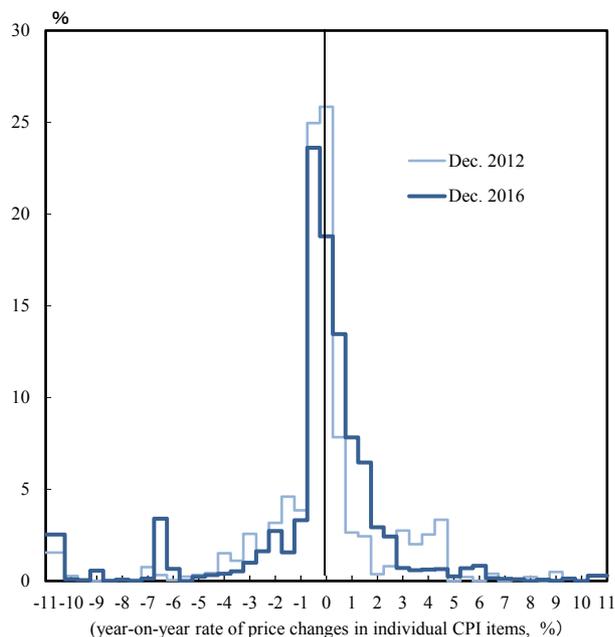


Note: Figures for consensus forecasts are the expectations for the CPI 6-10 years ahead and are based on the "Consensus Forecasts."

Sources: Bloomberg; Consensus Economics Inc., "Consensus Forecasts."

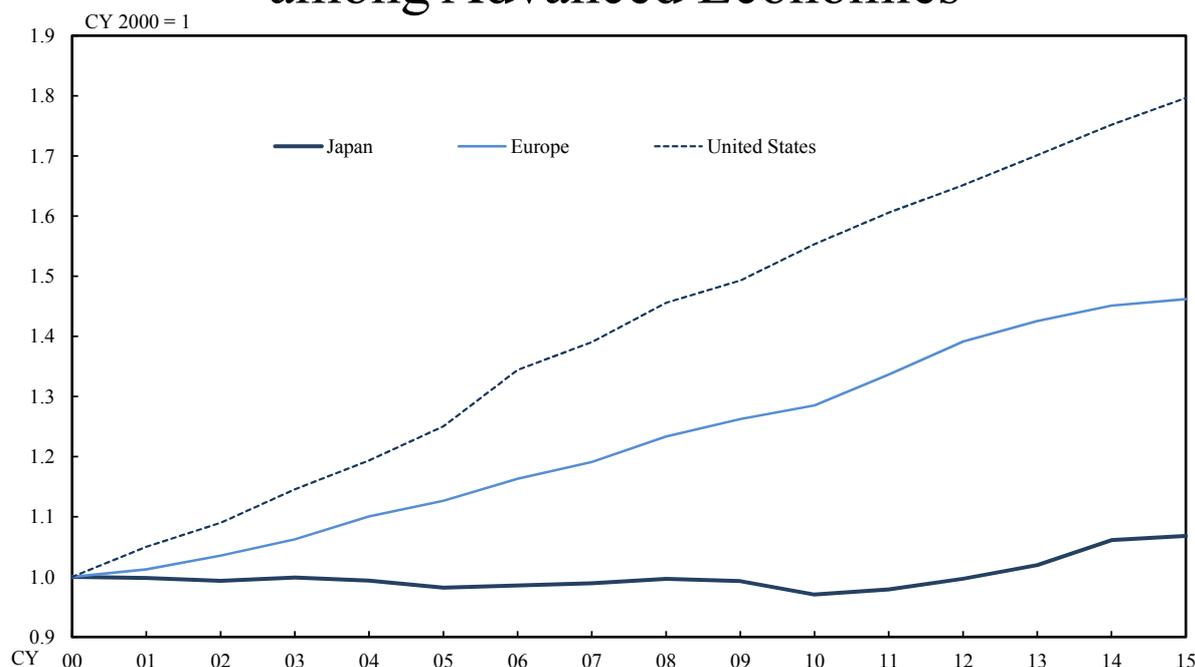
Frequency Distribution of Price Changes in Individual CPI Items

(1) Changes after the Introduction of QQE (2) Comparison of Japan and the United States (as of March 2014)



Sources: Watanabe, Tsutomu 渡辺努, and Kota Watanabe 渡辺広太. "Defure-ki ni okeru kakaku no kōchokuka: Geiin to gan'i" デフレ期における価格の硬化化：原因と含意 [Increased price rigidity during the deflationary period: Causes and implications]. *Bank of Japan Working Paper Series* 日本銀行ワーキングペーパーシリーズ, no. 16-J-2, February 2016; Ministry of Internal Affairs and Communications.

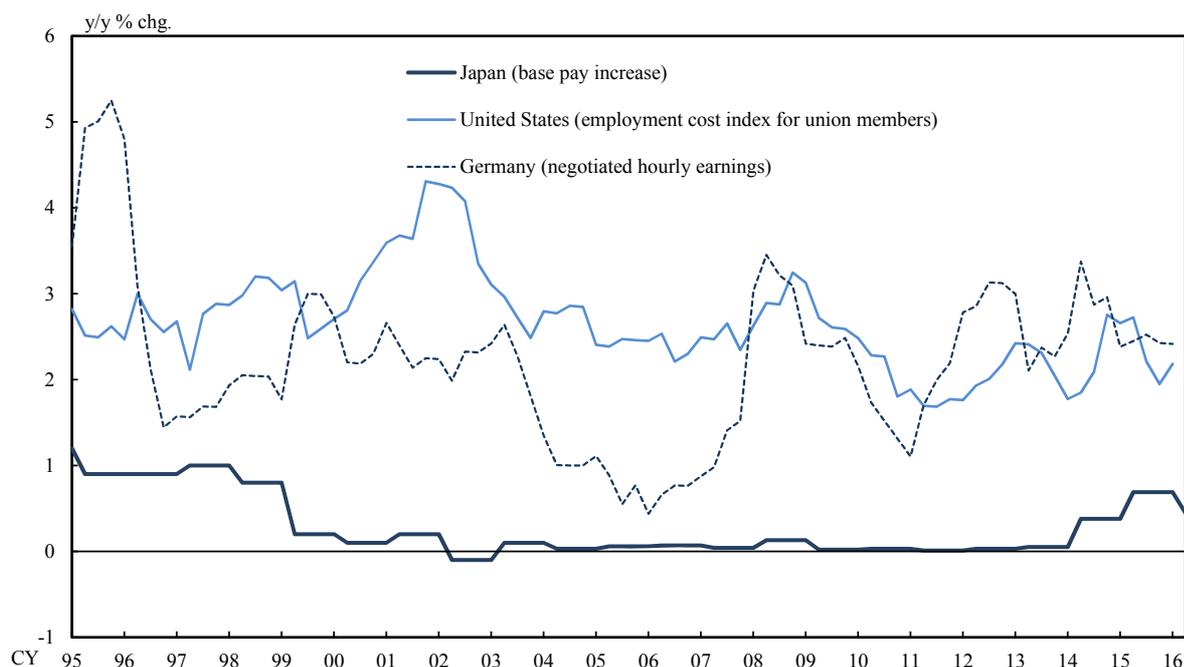
Comparison of Administered Prices among Advanced Economies



Note: Figures for Japan are aggregates of "public services" and "electricity, manufactured & piped gas & water charges" in the CPI. Figures for Europe are weighted averages of administered prices in the harmonized index of consumer prices (HICP) of OECD member countries in the EU.

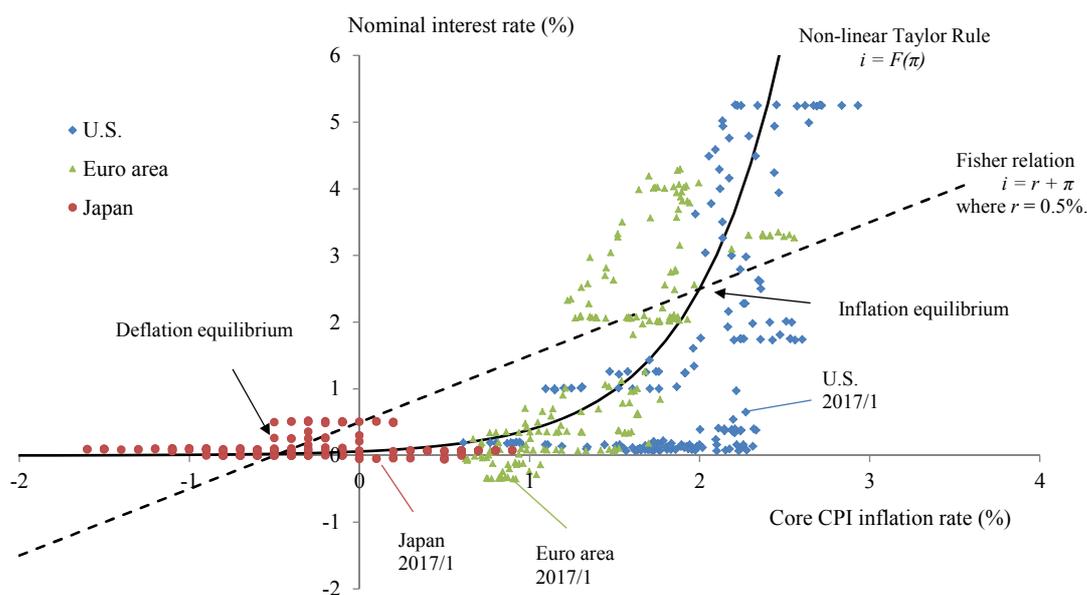
Sources: Shintani, Kohei, Yoshiyuki Kurachi, Shinichi Nishioka, and Takashi Okamoto. "Administered Prices in Japan: Institutional Comparisons with Europe and the United States." *Bank of Japan Review Series*, no. 16-E-9, July 2016; Ministry of Internal Affairs and Communications; U.S. Bureau of Labor Statistics; Eurostat.

Base Pay Increases in Advanced Economies



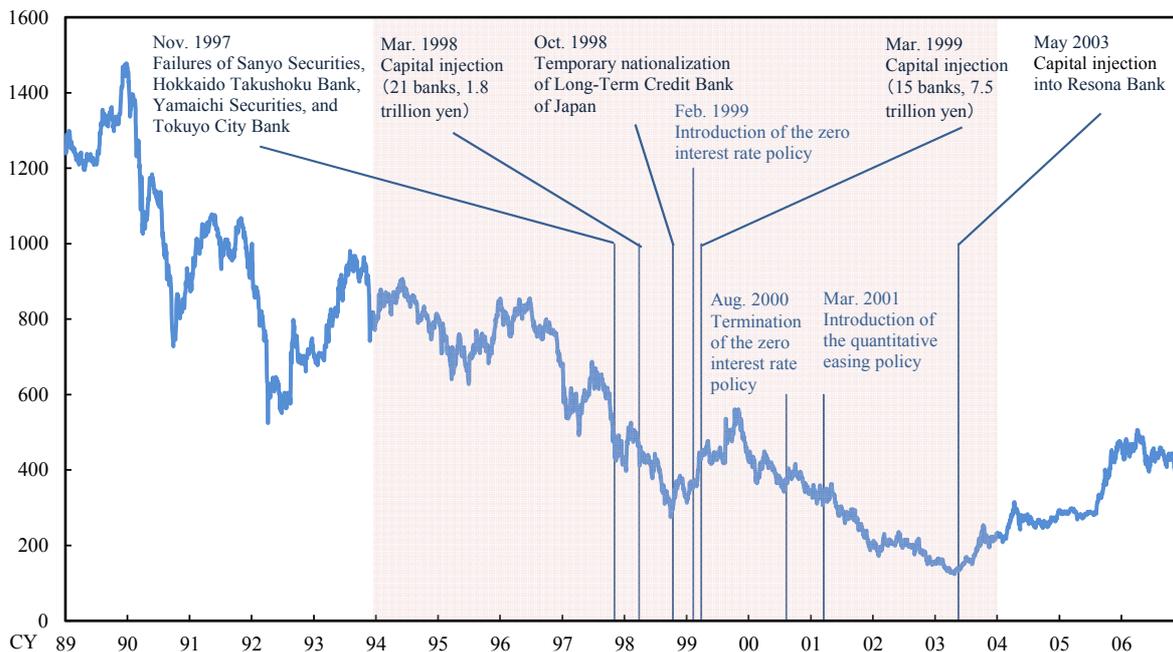
Sources: Central Labour Relations Commission; Japanese Trade Union Confederation (*Rengo*); U.S. Bureau of Labor Statistics; U.S. Congressional Budget Office; Federal Statistical Office of Germany; Deutsche Bundesbank.

Inflation and Deflation Equilibrium



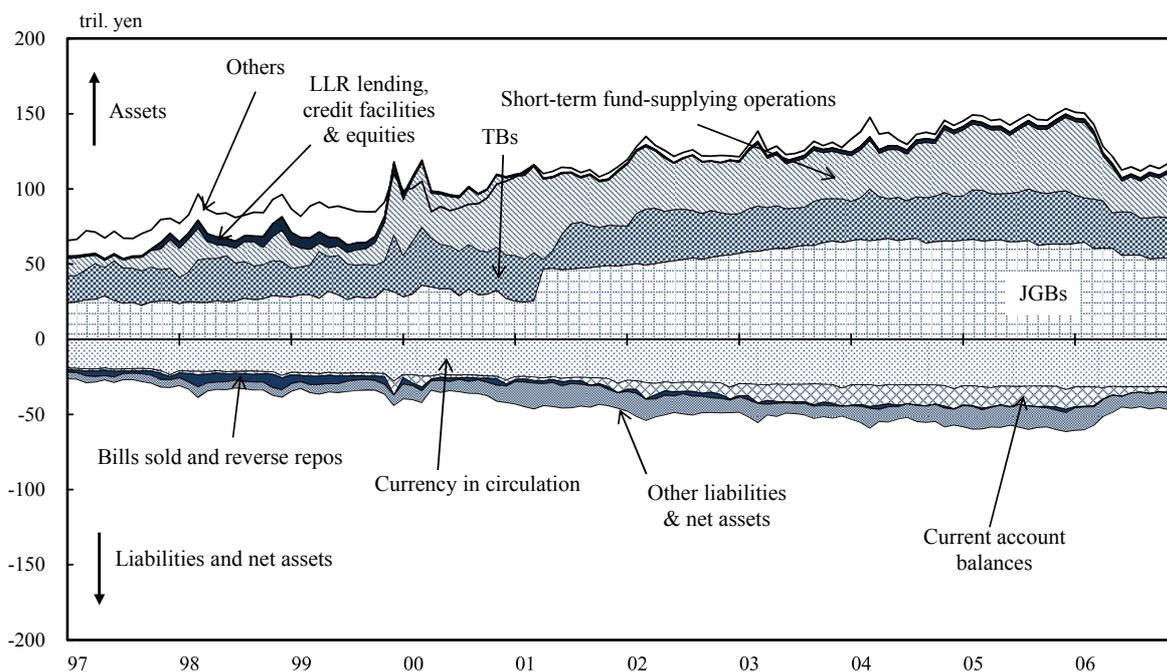
Note: Nominal interest rate and core CPI inflation rate are in terms of realized rates. Core CPI inflation rate is in terms of CPI excluding food and energy. Figures for Japan exclude effects of changes in consumption tax.
 Source: Bullard, James. "Seven Faces of 'The Peril.'" *Federal Reserve Bank of St. Louis Review* 92, no. 5 (September/October 2010): 339-52.

Bank Stock Prices at around Time of Japan's Financial Crisis



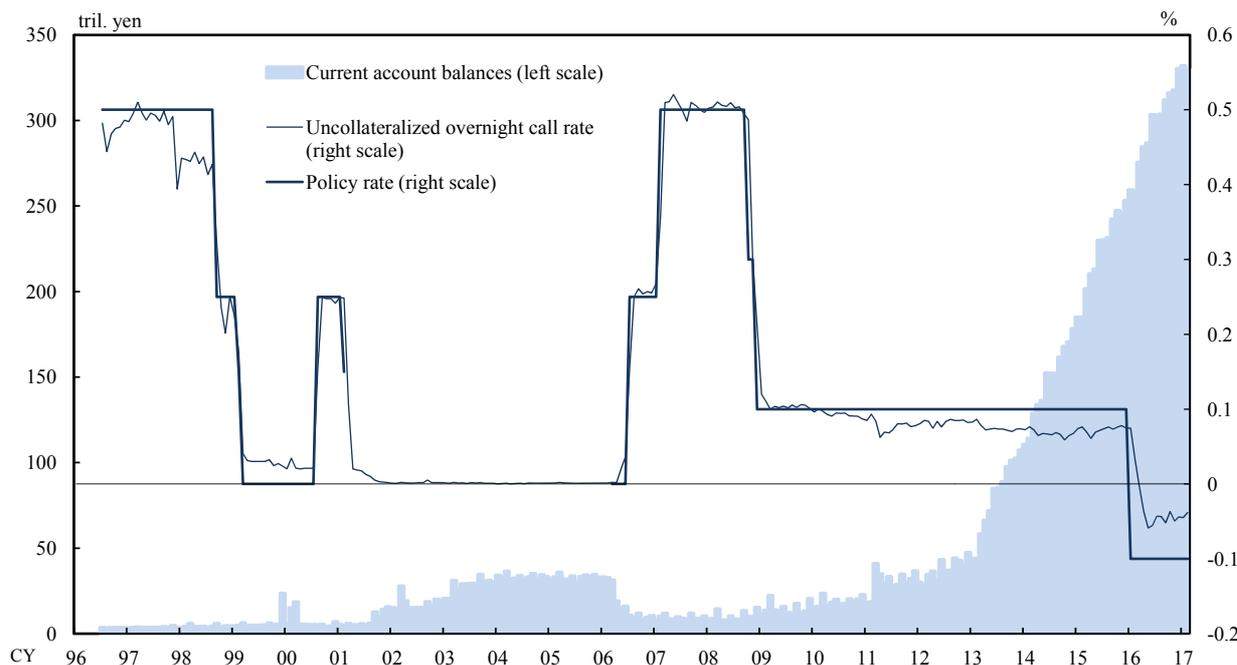
Note: TOPIX Banks Index.
Source: Bloomberg.

Balance Sheet of the Bank of Japan at around Time of Japan's Financial Crisis



Source: Bank of Japan.

Current Account Balances and Call Rate

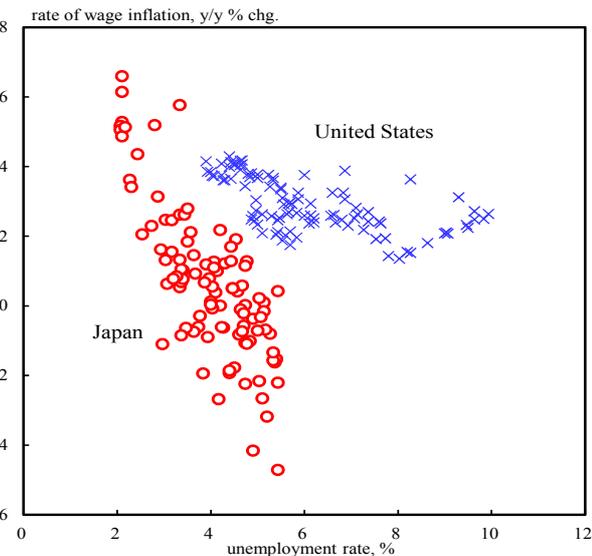
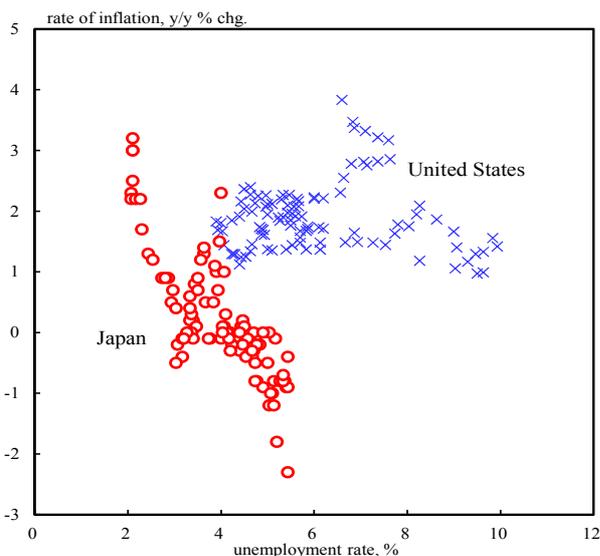


Note: Figures for policy rate before October 2010 are targets for uncollateralized overnight call rates, those from October 2010 to January 2016 are interest rates applied to excess reserves, and those from January 2016 onward are interest rates applied to Policy-Rate Balance.
 Source: Bank of Japan.

Phillips Curve in Japan and the United States

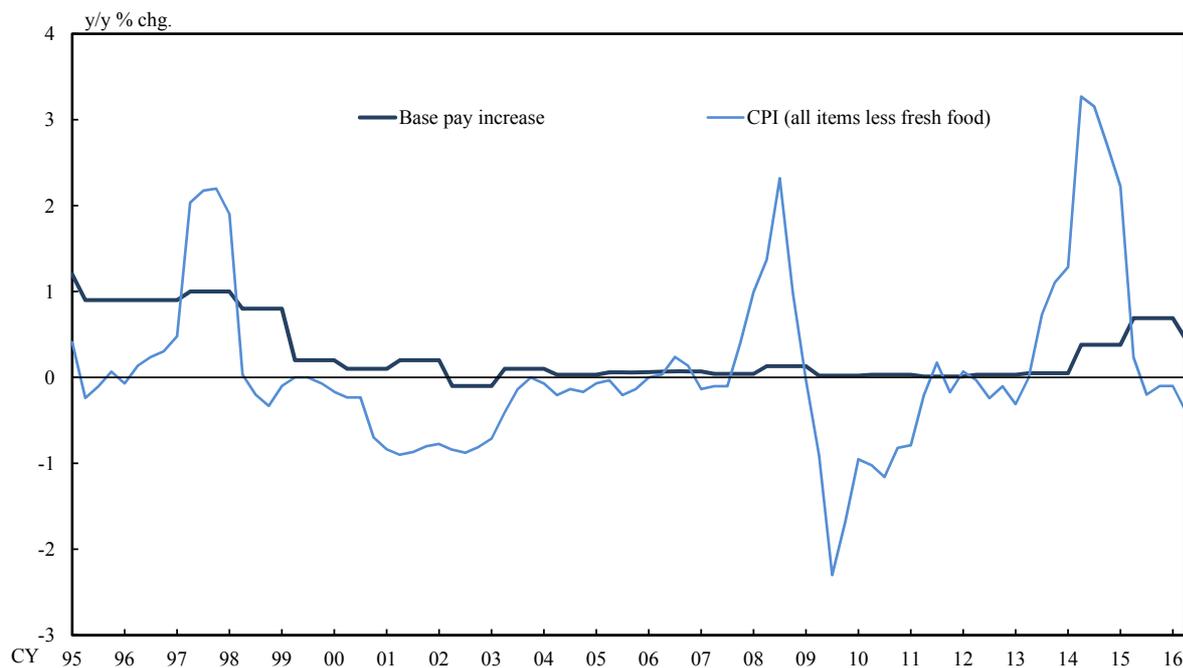
(1) Rate of Inflation and Unemployment Rate

(2) Rate of Wage Inflation and Unemployment Rate



Notes: 1. The wage is the hourly wage. Figures for wages in Japan are calculated as "total cash earnings (establishment with 30 or more employees)" divided by "total hours worked." Those in the United States are "average hourly earnings of production and nonsupervisory employees: total private."
 2. Rate of inflation for Japan is indicated in terms of the CPI for all items less fresh food and that for the United States is in terms of personal consumption expenditures excluding food and energy.
 3. The CPI in Japan is adjusted to exclude the effects of the consumption tax hikes.
 Sources: Ministry of Health and Welfare; Ministry of Internal Affairs and Communications; U.S. Bureau of Economic Analysis; U.S. Bureau of Labor Statistics, Bloomberg.

Base Pay Increase and Prices



Note: As for the CPI (all items less fresh food), effects of the consumption tax hikes are not adjusted.

Sources: Central Labour Relations Commission; Japanese Trade Union Confederation (*Rengo*); Ministry of Internal Affairs and Communications.

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Recent Discussion on Fiscal Policy Measures

- Helicopter Money
- FTPL (Fiscal Theory of the Price Level)

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