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Bank of Japan

Japan's Economy and Monetary Policy

*Speech at the 2014 Autumn Annual Meeting of
the Japan Society of Monetary Economics*

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(English translation based on the Japanese original)

Introduction

It is a great honor to be invited to the 2014 Autumn Annual Meeting of the Japan Society of Monetary Economics. Both the Bank of Japan and I have been deeply indebted to the Society over the years.

In the four and a half years since I took office as a Policy Board member of the Bank -- how time flies -- the global economy has faced strong headwinds caused mainly by the sovereign debt crisis in Europe, the fiscal cliff in the United States, and the Great East Japan Earthquake in Japan. Central banks in advanced countries have adopted their own unconventional monetary policy, stepping further into uncharted territory. The Bank of Japan, for its part, introduced quantitative and qualitative monetary easing (QQE) in April 2013 and has been conducting further aggressive monetary easing.

I am aware that there are various views and opinions in academia about the initiatives by the Bank and other major central banks. Discussions and research have been actively underway. As a central banker who came from academia, I too have been asking myself the following questions.

First, economic recovery has been driven by consumption in Japan for about the past two years. Why consumption, and why now? What is the driving force behind this? Can such recovery be sustained? Second, contrary to what many people had expected, the rate of increase in the consumer price index (CPI) has been rising steadily since 2013. What is the driving force for that? Firms increasingly have been passing on costs to sales prices, but why is this happening now? Third, views are divided among those in academia with regard to the effects of the unconventional monetary policy, such as the purchases of Japanese government bonds (JGBs). How should we respond to skeptical views about the policy effects, stating, for example, that (1) the policy by itself does not produce any effects in ordinary times, but it appears effective only because some market participants believe so; and (2) such policy will only cause a temporary asset price bubble, and thus make the economy unstable?

In finding my own answers to these questions, I realized that such answers critically depend on an assessment of the potential strength of the supply side of the economy; namely, its growth potential, profitability, and capacity to generate income. Needless to say, it is essential to accurately gauge the situation on the supply side of the economy in discussing the mechanism of economic recovery and its sustainability, as well as the effects and challenges of monetary policy.

Bearing that in mind, I have emphasized in my past speeches that the main feature of the current economic recovery in Japan is that it has been primarily driven not by exports, like in typical recovery phases in the past, but by consumption and nonmanufacturing activities, and that the driving force has been the heightened strength of the supply side from the standpoint of several aspects.¹ Specifically, in the corporate sector, various positive efforts have been made in and outside Japan, and these have bolstered nonmanufacturers' profitability as well as manufacturers' ability to make profits through globalization; firms' demand for labor has generally risen and the employment and income situation has continued to improve; and the household labor supply has been increasing, with voluntary labor force participation by women and the elderly.

The Bank has been conducting QQE, in order to achieve the price stability target of 2 percent. As I will address in detail later, if the potential strength of the economy heightens, the 2 percent price stability target will be achieved more smoothly in a well-balanced manner, with a sustainable economic recovery, and price stability will be maintained. Moreover, with the heightened strength of the economy, monetary policy will be more effective while potential negative side effects -- such as financial imbalances -- will likely be suppressed. If the decisive measures promote further effects, a virtuous cycle may start to operate that encourages positive efforts of firms and households as well as a structural transformation in the economy, which would further heighten the strength of the economy.

Today, I would like to reexamine the improvements on the supply side of Japan's economy. Based on that, I will then address some issues regarding monetary policy. At the end of

¹ For details, see, for example, Ryuzo Miyao, "Economic Activity and Prices in Japan and Monetary Policy," Speech at a Meeting with Business Leaders in Okayama, Bank of Japan, April 10, 2014.

my speech, I will touch upon points to keep in mind regarding Japan's economic and price developments.

I. Recent Developments in Economic Activity and Prices and Improvements on the Supply Side

A. Continued Moderate Recovery in Japan's Economy

Japan's economy has continued to recover moderately as a trend, although some weakness, particularly on the production side, has been observed, due mainly to the effects of the subsequent decline in demand following the front-loaded increase prior to the consumption tax hike. Real GDP for the April-June quarter of 2014 fell substantially at a rate of 7.1 percent on an annualized quarter-on-quarter basis. However, this decline followed the front-loading of demand in the January-March quarter, for which real GDP had grown significantly at a rate of 6.0 percent (Chart 1). To exclude such fluctuations, when we compare real GDP for the January-June period of 2014 with that for the July-December period of 2013, the annualized growth rate was 1.0 percent. Therefore, on average, Japan's economy has continued to grow at a pace above its potential and the recovery trend has been maintained.

Japan's output gap has continued to improve as a trend. The Bank's estimated figures for the output gap turned positive in the January-March quarter of 2014 and were close to 0 percent in the April-June quarter. Thus, the output gap has generally disappeared. The weighted average of the production capacity DI and employment conditions DI in the September 2014 *Tankan* (Short-Term Economic Survey of Enterprises in Japan) also confirms this improvement (Chart 2).

Next, I will move on to price developments. The year-on-year rate of increase in the CPI (all items less fresh food, excluding the direct effects of the consumption tax hike) has strengthened its uptrend from 2013 and has improved to around 1¼ percent recently. This uptrend can also be confirmed by the CPI figures for all items excluding food and energy (Chart 3). These developments reflect the improving trend in the output gap mentioned earlier and a rise in inflation expectations. The medium- to long-term inflation

expectations according to Consensus Forecast, for example, have turned to a rising trend from 2013 (Chart 4).

The main feature of the recent economic recovery is that it is driven by consumption and nonmanufacturing activities, and this trend can still be observed (Chart 5). The typical pattern of past recovery phases, driven by exports, can be clearly observed in the expansionary phase of 2002 to 2008, but exports have subsequently been more or less flat in the longer run. Business fixed investment has been increasing moderately, albeit with fluctuations, but the pace has been gradual in comparison with the expansionary phase in the mid-2000s. In contrast, consumption has consistently followed an increasing trend, albeit with various effects, and has posted even higher growth since the start of 2012. Consumption expenditure for the April-June quarter of 2014 saw a large drop of 19 percent on an annualized quarter-on-quarter basis, reflecting the effects of the decline in demand following the front-loaded increase prior to the consumption tax hike; however, after smoothing out the fluctuations, consumption expenditure for the period of January-June 2014 compared with that of July-December 2013 declined by a much slower pace of 0.8 percent. Private consumption has remained resilient as a trend with the employment and income situation improving steadily, and the effects of the decline in demand following the front-loaded increase have been waning on the whole, albeit unevenly. It deserves special mention that consumption -- which has been posting increasingly higher growth -- has been the driving force of economic recovery over the past two years or so without being accompanied by notable increases in exports and business fixed investment, which had previously been the driving factors of economic recovery.

At the same time, it is evident that the current economic recovery has also been driven by nonmanufacturing activities (Chart 6). Looking at economic developments since 2012 -- when the effects of the earthquake disaster mostly dissipated -- the level of nonmanufacturing activities has continued to increase, while that of manufacturing activities has turned to a pick-up after having dropped. Although the decline in demand following the front-loaded increase prior to the consumption tax hike has recently been somewhat large, it seems the improvement in nonmanufacturing activities is being maintained as a trend.

B. Improvements on the Supply Side

The fact that the economy has continued to recover, mainly in consumer demand, reflects improvements in the various aspects of the supply side; in other words, the potential strength of the economy.

In the corporate sector, various positive efforts have progressed at home and abroad and firms' profitability has increased further (Chart 7). Manufacturing firms are further accelerating their efforts toward optimizing their global-based activities, such as through increasing their production, procurement, and fixed investment as well as hiring local management and staff in overseas countries where there is demand. Efforts to stimulate potential demand have been spreading to a wider range of nonmanufacturing sectors. In Japan, these efforts range from the building of new advanced distribution centers, expansion of home-delivery service and online shopping, to active openings of new convenience stores and shopping malls. There also have been active moves to strengthen the economy's growth potential by capturing local demand overseas, such as development of overseas business in the retail, wholesale, and service industries as well as acquisition of firms.

Labor and employment conditions have also continued to improve as a trend. On the back of proceeding with their positive efforts, firms are increasing their demand for labor and their stance on employment is becoming active (Chart 8). Looking back on the past year, a sense of labor shortage among nonmanufacturing firms has heightened further, and labor supply and demand conditions at manufacturing firms have also tightened, recently turning to a state of labor shortage. In terms of the quality of employment, firms have gradually been making a shift to hiring part-time workers as full-time, regular workers, mainly based on the need to secure competent human resources (Chart 9). As for wage developments, the year-on-year rate of change in scheduled cash earnings has turned positive due to a rise in base pay at many firms, and special cash earnings have also steadily increased, due mainly to a rise in summer bonus payments. As a result, employee income -- that is, wages per employee multiplied by the number of employees -- has been increasing by about 2 percent year on year (Chart 10).

With regard to labor supply conditions, the labor force participation rate that had been on a declining trend, mainly due to the demographic situation, bottomed out in 2012 and is moving toward a pick-up (Chart 11). Breaking down the labor force participation rate by gender and age, the rising trend in the participation rate of women is particularly prominent, and an increasing trend is also becoming evident in recent years for men, especially in the age category of 65-74 years (Chart 12). This seems to reflect initiatives taken by firms amid a general sense of labor shortage to encourage the participation of female workers by introducing flexible working systems such as shorter working hours, and also to promote the employment of the elderly in order to pass on their skills and knowledge to younger workers.

However, it will be necessary to wait for data to accumulate for some time before making a judgment on whether such improvements in the labor force participation rate are mainly temporary and cyclical ones, brought about by the economic recovery, or due to sustainable and structural changes. If the latter is the case to some degree, then the amount of potential labor input is expected to bottom out and the potential growth rate to turn upward, accordingly.

Many researchers would agree that estimation of the potential growth rate entails technical difficulties.² In many economic analyses, trend components, which are extracted from the actual economic data using methods such as the Hodrick-Prescott (HP) filter, are often used as proxies for the potential series of economic variables. However, it is difficult to estimate the recent figures for these potential series, particularly those toward the end of the sample period, on a real-time basis. Let us now take a look at Chart 11. It shows that the trend estimates of the labor force participation rate have declined over the past year or two. However, it should be noted that, if the recent increase in labor force participation that I explained earlier is sustainable and structural, we should be able in the future to look back and confirm that the actual trend in the labor force participation rate has already stopped

² For the estimation approaches of the potential growth rate and related issues, see, for example, "Developments in the Aggregate Supply and Demand" on pages 36 and 37 of the April 2014 issue of the *Outlook for Economic Activity and Prices* released by the Bank.

declining; as a result, it is quite conceivable that the potential growth rate will be revised upward. Thus, careful monitoring of such a possibility is required.³

I have so far examined improvements on the supply side of the economy from the standpoint of aspects such as corporate profits, demand for labor, employment and wages, and labor supply. In all of these aspects, it is commonly observed that improvements became distinct from around 2012. That is to say, against the background of positive efforts by firms and households, it has become evident that the economy's capacity to generate income -- as represented by corporate profits, employee income, and labor force participation -- has increased on the whole. This supports the view that, as a result, expectations for permanent income in the economy as a whole have improved and, in addition, anxiety and uncertainty regarding future employment conditions have decreased considerably, which has led to economic recovery driven by consumption. In other words, it can be explained that, from around 2012, the improvement in the potential strength of the supply side of the economy has been the driving force of the sustainable recovery in domestic demand, particularly consumer demand.

Given these factors, let us now take a look at the estimates of the potential growth rate of Japan's economy (Chart 13). The potential growth rate per capita seems to have stopped declining in around 2010, and has been more or less flat thereafter. Although estimates of the potential growth rate should be judged with some latitude, at least the observations so far suggest that the potential growth rate over the past year or two may be revised upward in a few years' time. I consider that, in order to assess the supply conditions of the economy, particularly the recent ones, it is important not to solely rely on the estimates of the potential growth rate, but to make a comprehensive assessment taking into consideration the actual situation of firms and households.

³ Normally, an upward revision of the potential growth rate or potential GDP figures will exacerbate the output gap. However, with improvements on the supply side of the economy, the output gap may improve and upward pressure on prices may heighten if demand increases in the somewhat longer term at a pace exceeding growth in supply capacity. I will elaborate on this point in section I.C.

C. Increasing Upward Pressure on Prices

When improvements on the supply side of the economy lead to a sustainable increase in domestic demand, particularly consumer demand, upward pressure on prices is likely to increase. Let me explain this from a theoretical viewpoint.

First, given the standard analysis based on aggregate supply and demand curves, improvement on the supply side shifts the aggregate supply curve (or the Phillips curve) to the right. In this case, economic activity improves while upward pressure on prices weakens. However, if, at the same time, aggregate demand increases in a sustainable manner, the aggregate demand curve shifts to the right, thereby increasing upward pressure on prices. It is purely an empirical question as to which of the two factors -- the shift of the supply curve or of the demand curve -- outweighs the other. An empirical analysis using Japan's data that examined the effects of an increase in total factor productivity (productivity shock) showed that the effects of an increase in upward pressure on prices caused by the increase in demand outweigh those of an increase in supply; thus, an improvement on the supply side leads to an improvement in the output gap and causes a modest increase in prices.⁴

Second, when sales of goods and services increase sustainably in line with firms' strategy of creating differentiated products and higher value-added, their price-setting behavior might become more active. In other words, in a situation where demand is expected to increase sustainably, firms will be able to charge higher markups (profit margins) or pass production costs more directly on to sales prices. If these developments are structural, this will steepen the Phillips curve, which will also increase upward pressure on prices.

Third, it is likely that a mechanism will operate through which improvements on the supply side increase people's medium- to long-term inflation expectations. If people expect that economic activity and sales will continue to improve, their inflation expectations will increase -- considering, for example, the Phillips curve relation in the future. This

⁴ See Ryuzo Miyao, *Makuro Kinyu-Seisaku no Jikeiretsu Bunseki* (Time-Series Analysis of Macroeconomic Monetary Policy), Chapter 8, Nikkei Inc., 2006, pp. 209-245 (available in Japanese).

mechanism is called forward-looking expectation formation of the New Keynesian Phillips curve. Improvements on the supply side thus increase people's somewhat long-term inflation expectations, and in turn shift up the intercept of the Phillips curve.

In fact, medium- to long-term inflation expectations have been increasing gradually (Chart 4). Developments in medium- to long-term inflation expectations seem to largely correlate with those in the potential growth rate per capita that I explained earlier, with the exception of the most recent period (Chart 13).

In a situation where these mechanisms work in combination, it is possible to say, as suggested from Chart 3, that upward pressure on the consumer price inflation rate has been increasing. In other words, mechanisms such as (1) sustainable improvement in the output gap and increasing expectations for future improvement, (2) firms' increased ability to pass costs on to sales prices, and (3) a rise in medium- to long-term inflation expectations have all contributed to heightening upward pressure on overall prices.

I should note that, as a different kind of logic to explain the recent rise in prices in Japan, some argue that prices have risen due to the constraint of sluggish supply. How should we explain this argument? I consider the key to be whether the supply capacity of the economy is actually increasing. Price rises that are not accompanied by improvements on the supply side will restrain growth in demand and thus prevent economic activity from expanding. Looking at the recent situation in Japan, however, improvements on the supply side have become clear over the past year or two; in fact, demand has been increasing sustainably. Specifically, (1) demand for goods and services and for labor has been increasing sustainably at a pace exceeding growth in supply capacity; (2) production of goods and services has been increasing, and the employment situation has been improving; and (3) prices as well as wages have been rising moderately. Given these observations, I think that it is difficult to attribute the recent price rises to sluggish supply or supply constraints.

II. Conduct of Monetary Policy

The recent macroeconomic performance that I have described so far will also create a desirable situation with regard to conducting unconventional monetary policy. As I will explain, if the potential strength of the economy heightens, the 2 percent price stability target will be achieved more smoothly in a well-balanced manner, with a sustainable economic recovery, and price stability will be maintained. Moreover, with the heightened strength of the economy, greater policy effects will be produced while potential negative side effects -- such as financial imbalances -- will likely be suppressed.

A. The 2 Percent Price Stability Target

In January 2013, the Bank released a joint statement with the government and introduced a price stability target of 2 percent in terms of the year-on-year inflation rate of the CPI, making a clear commitment to achieving this target at the earliest possible time.

Looking back at the situation around that time, some notable progress was made in terms of external factors: downside risks to the global economy caused by the extremely strong headwinds -- such as the sovereign debt crisis in Europe and the fiscal cliff in the United States -- had subsided in the latter half of 2012, and thus uncertainties had diminished to a considerable degree. Given these developments, the Bank showed its determination to attain sustainable economic growth in Japan in coordination with the government, aiming to overcome deflation and dispel deflationary sentiment at the earliest possible time.

The Japanese people expect to have price stability that is achieved not by a mere price hike, but by a moderate rise in prices brought about by balanced and sustainable economic growth together with improvements in employment, wages, and corporate profits. The Bank set the price stability target at 2 percent in terms of the year-on-year rate of change in the CPI based on the recognition that the inflation rate consistent with price stability on a sustainable basis would rise as efforts by a wide range of entities toward strengthening growth potential and competitiveness of the economy made progress.

In fact, steady progress has been made in a variety of initiatives toward strengthening growth potential and improving the supply side, with strong support from the financial side

through QQE. Japan's economy has continued to recover in a well-balanced manner as employment, wages, and corporate profits have improved in a sustainable manner, and the year-on-year rate of change in the CPI has been increasing gradually toward the 2 percent price stability target.

B. The Role of QQE

In April 2013, the Bank introduced QQE to achieve the 2 percent price stability target at the earliest possible time, with a time horizon of about two years. With the aim of achieving the target, the Bank decided to continue with QQE, as long as it was necessary for maintaining that target in a stable manner.

QQE is mainly composed of three important components: a large expansion of the monetary base (at an annual pace of about 60-70 trillion yen); large-scale purchases of JGBs (at an annual pace of about 50 trillion yen) with an extension of the average remaining maturity (to about seven years); and an increase in the purchase of risk assets. It also incorporates elements of an open-ended framework that links the continuation of such large-scale monetary easing with its policy target. That is, the Bank has committed to continuing with QQE "as long as it is necessary for maintaining the 2 percent price stability target in a stable manner" without restricting the time frame or the total amount in advance. This commitment seems to have helped create further accommodative financial conditions by exerting a strong influence on market expectations about future monetary policy.

The effects of QQE are more likely to materialize if the potential strength of the economy heightens. Specifically, given an increase in firms' profitability, extremely accommodative financial conditions will drive their positive efforts and risk-taking activities, thereby further heightening economic stimulus effects. Large-scale purchases of JGBs can exert downward pressure on longer-term interest rates and upward pressure on asset prices. If fundamentals such as corporate profits improve at the same time, asset price rises will become more sustainable and justified. As a result, potential negative side effects -- such as heightened financial imbalances -- will likely be suppressed.

In addition, if some decisive measures produce further positive effects in a situation where the potential strength of the economy heightens, positive efforts of firms and households, business fixed investment, and a structural transformation in the economy will be stimulated further. This may then accelerate a virtuous cycle that further bolsters the potential strength of the economy and the effectiveness of the policy measures. The economic recovery in Japan seems to have strengthened its sustainability, as corporate profits have been on an improving trend and potential strength has heightened further through the implementation of the measures in 2013. An improvement in corporate profits can be seen in Japan and in the United States while aggressive monetary easing continues and stock prices remain on a rising trend in both countries. It is likely that firms' positive efforts to improve profits have been encouraged further by the extremely accommodative financial conditions (Chart 14).

Concluding Remarks

Let me conclude by touching on the outlook for the economy and price developments in Japan.

Japan's economy is expected to continue on its moderate recovery trend, and the effects of factors such as the decline in demand following the front-loaded increase prior to the consumption tax hike are expected to wane gradually. Supported by the accommodative financial conditions, improvements on the supply side and the sustainable recovery trend of the economy, as well as the moderate improving trend in inflation expectations, are likely to continue. The economy is therefore expected to follow a path toward achieving the 2 percent price stability target in a balanced manner, accompanied by improvements such as in employment, wages, and corporate profits.

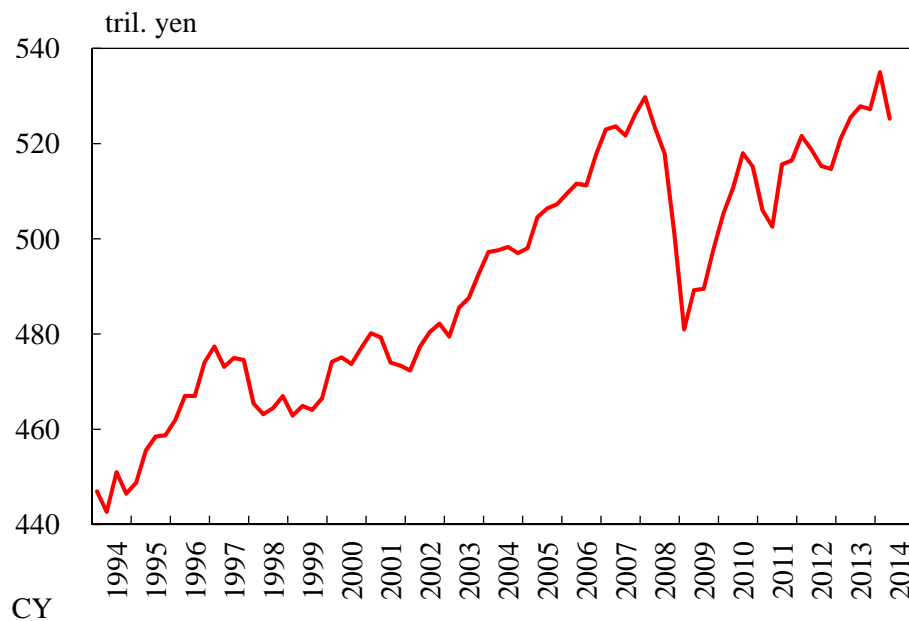
On the other hand, as for private consumption, the effects of factors such as the decline in demand following the front-loaded increase have somewhat lingered in terms of the consumption of durable goods, and therefore the pace of recovery warrants a certain degree of attention. In order for the improvements in economic activity and prices to continue in a wide range of areas, it is important that the positive effects of the increase in corporate profits spread throughout the economy -- including households and small and medium-sized

firms -- by way of increases in wages and employment, a raise in delivery prices paid to suppliers, or other channels.

The Bank has committed to continuing with its aggressive monetary easing, as long as it is necessary for maintaining the 2 percent price stability target in a stable manner. It also will continue to examine both upside and downside risks to economic activity and prices, and make adjustments as appropriate to achieve the price stability target. In standing by its commitment and clarifying its policy stance, the Bank will further encourage positive initiatives taken by a wide-range of economic entities from the financial side. The Bank is therefore determined to fulfill its responsibility toward achieving sustainable economic growth through price stability.

Chart 1

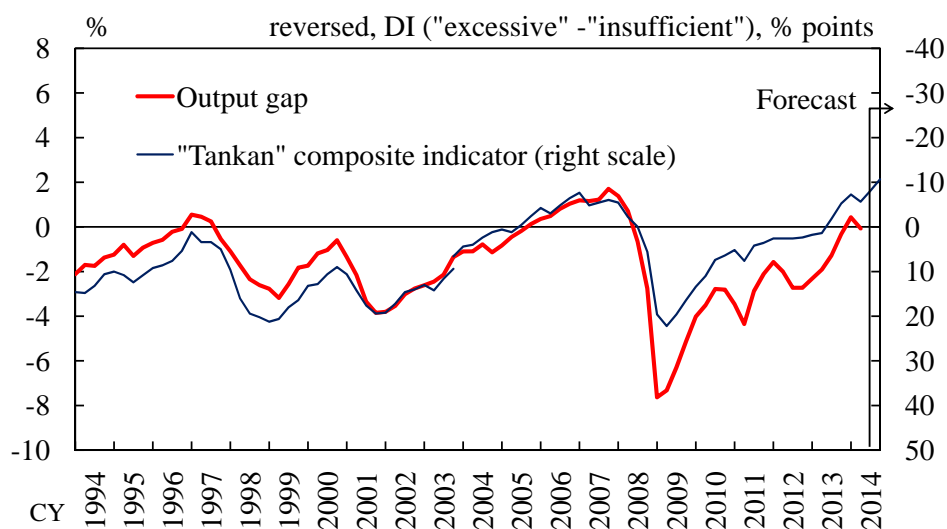
Japan's Real GDP



Source: Cabinet Office, "National Accounts."

Chart 2

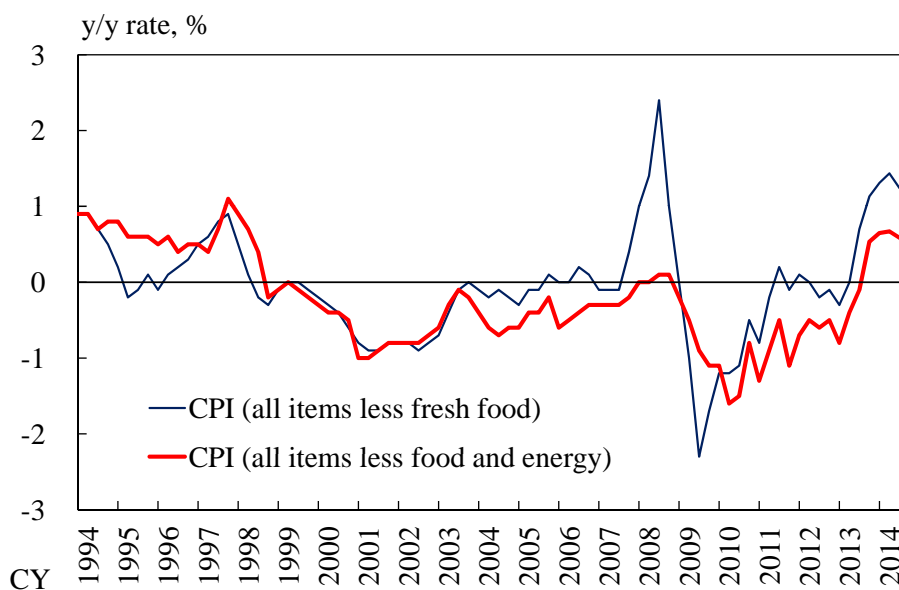
The Output Gap and the *Tankan* Composite Indicator



Note: The output gap is estimated by the Research and Statistics Department of the Bank of Japan. Figures for the *Tankan* composite indicator are weighted averages of the production capacity DI and employment conditions DI. The fiscal 1990-2012 averages of capital and labor shares in "National Accounts" are used as the weight.

Sources: Cabinet Office, "National Accounts"; Bank of Japan, "*Tankan*, Short-Term Economic Survey of Enterprises in Japan," etc.

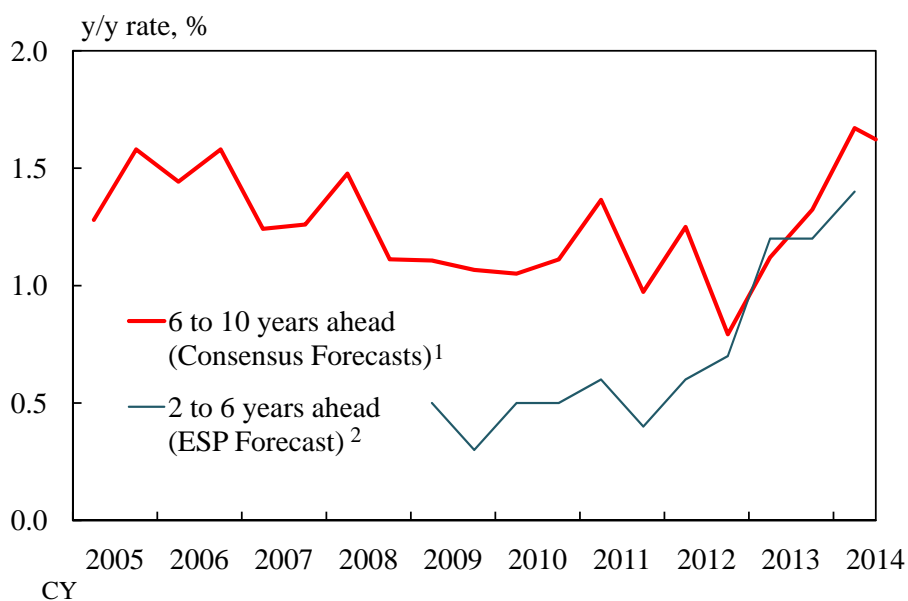
Consumer Price Index



Note: Excluding the effects of the consumption tax hike. Figures for 2014/Q3 are those of July-August averages.

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

Medium- to Long-Term Inflation Expectations



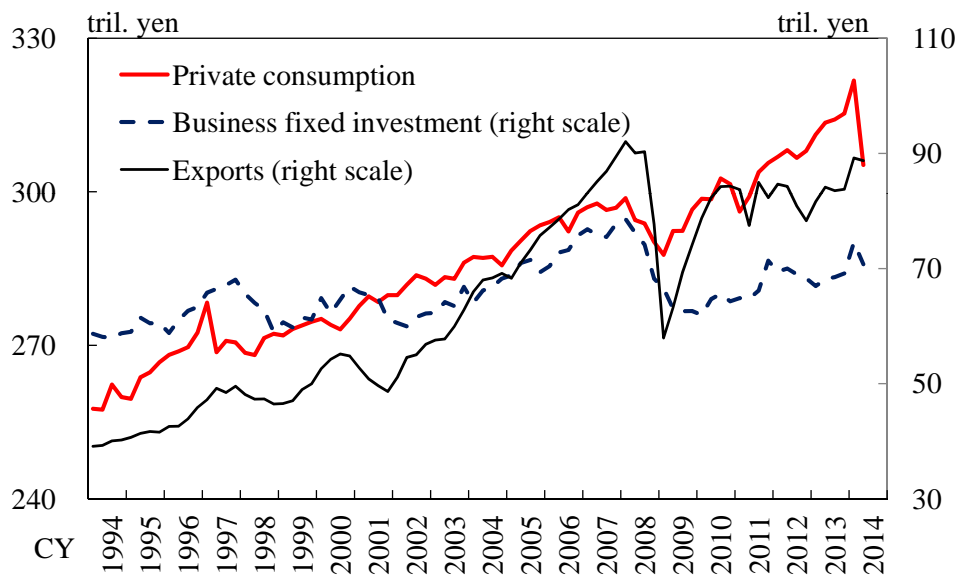
Notes: 1. Figures are forecasts made every January, April, July, and October. Those up through April 2014 are forecasts made every April and October.

2. Figures are forecasts made every June and December. The effects of the consumption tax hikes are excluded.

Sources: Consensus Economics Inc., "Consensus Forecasts"; Japan Center for Economic Research, "ESP Forecast."

Chart 5

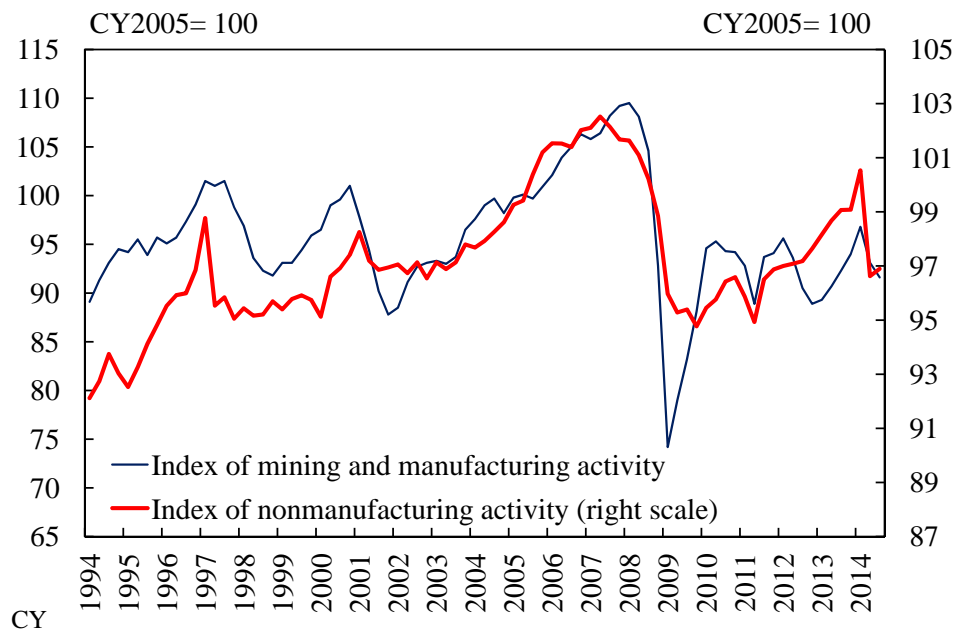
Private Consumption, Exports, and Business Fixed Investment



Source: Cabinet Office, "National Accounts."

Chart 6

Economic Activity of Manufacturing and Nonmanufacturing Firms

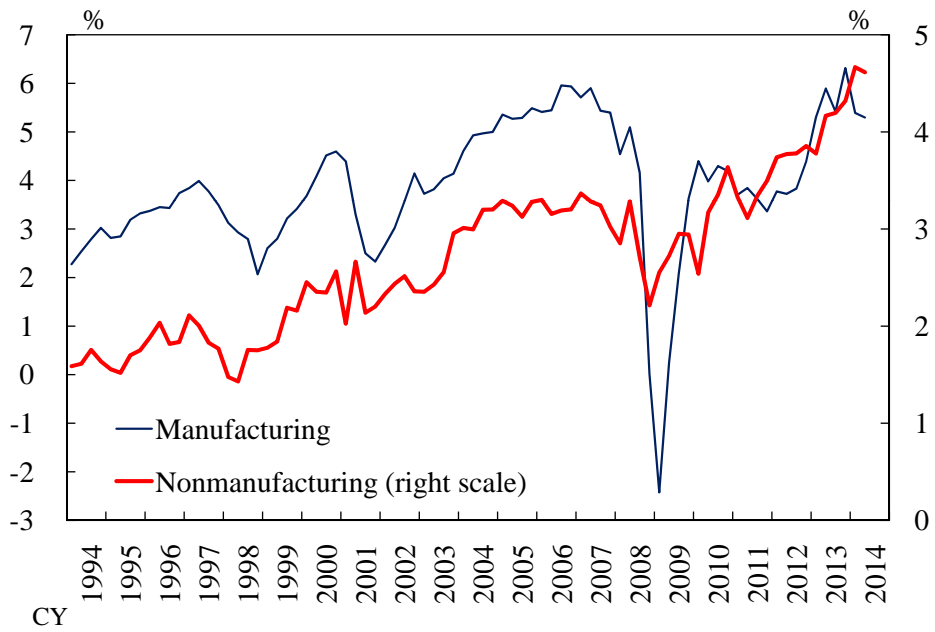


Note: The index of nonmanufacturing activity is calculated as the weighted average of the index of tertiary industry activity and the index of construction industry activity. Figures for 2014/Q3 are those for July.

Source: Ministry of Economy, Trade and Industry, "Indices of All Industry Activity."

Chart 7

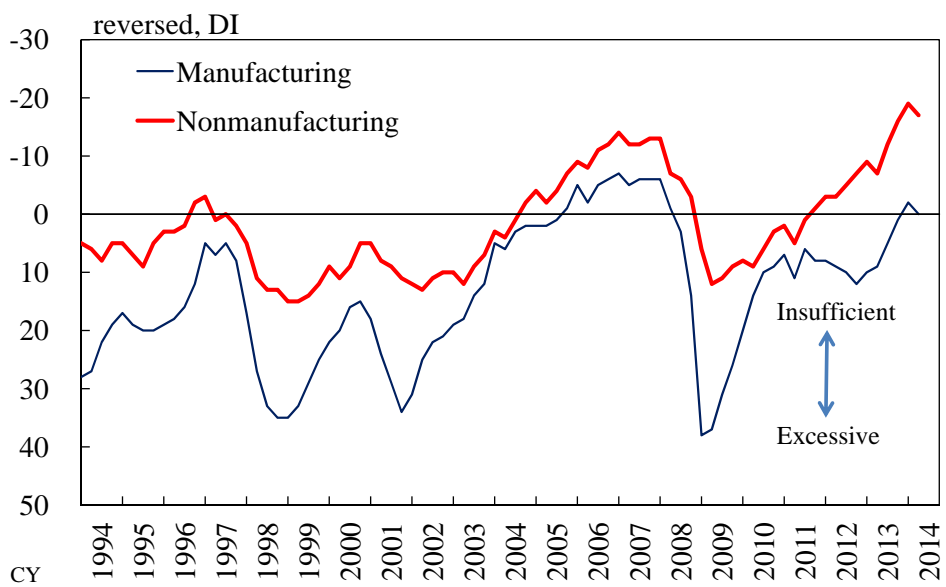
Ratios of Current Profits to Sales of Manufacturing and Nonmanufacturing Firms



Source: Ministry of Finance, "Financial Statements Statistics of Corporations by Industry."

Chart 8

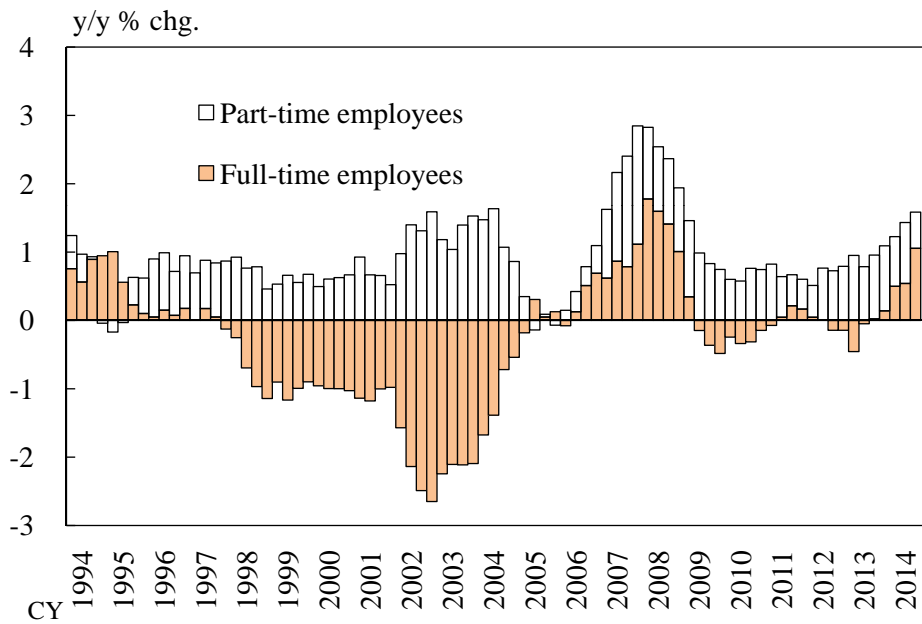
Employment Conditions DI



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

Chart 9

Breakdown of Number of Employees

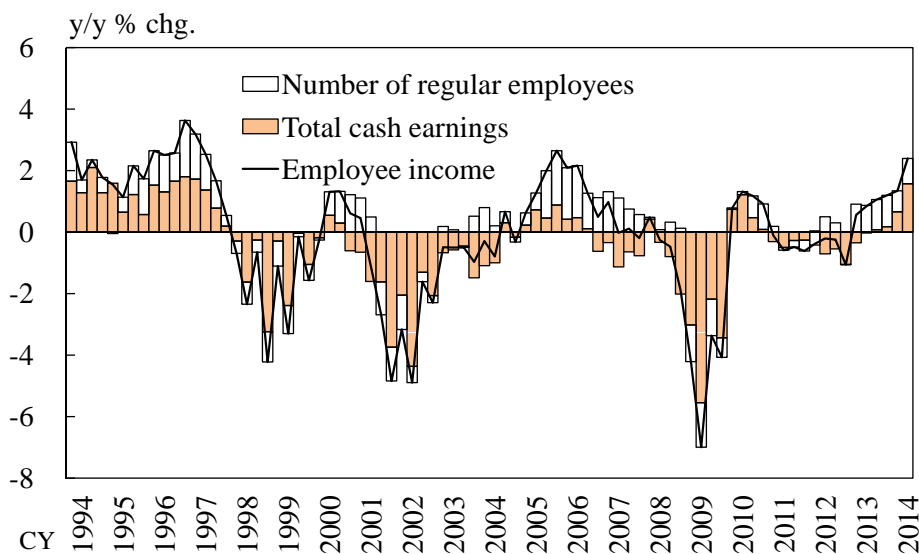


Note: Figures for 2014/Q3 are those of July-August averages.

Source: Ministry of Health, Labour and Welfare, "Monthly Labour Survey."

Chart 10

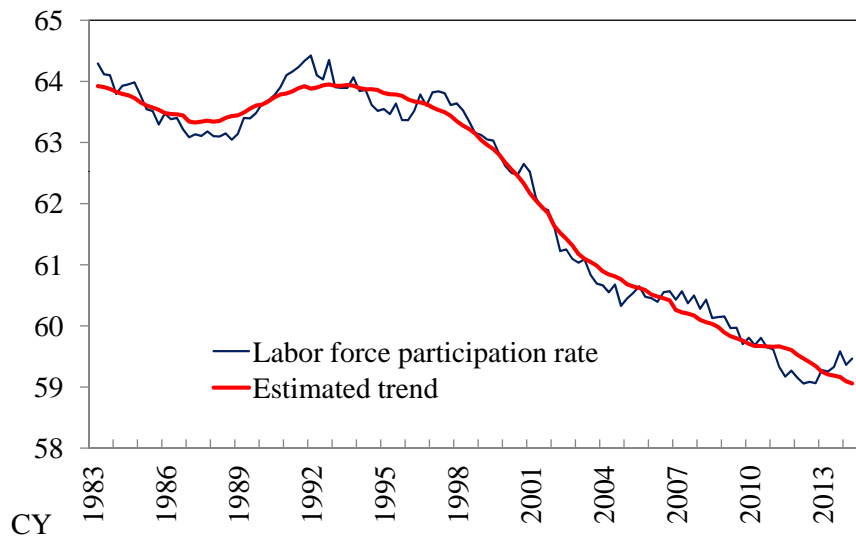
Employee Income



Note: In this chart, Q1 = March-May, Q2 = June-August, Q3 = September-November, Q4 = December-February. Employee income is calculated as the "number of employees" (Labour Force Survey) times "total cash earnings" (Monthly Labour Survey).

Sources: Ministry of Health, Labour and Welfare, "Monthly Labour Survey"; Ministry of Internal Affairs and Communications, "Labour Force Survey."

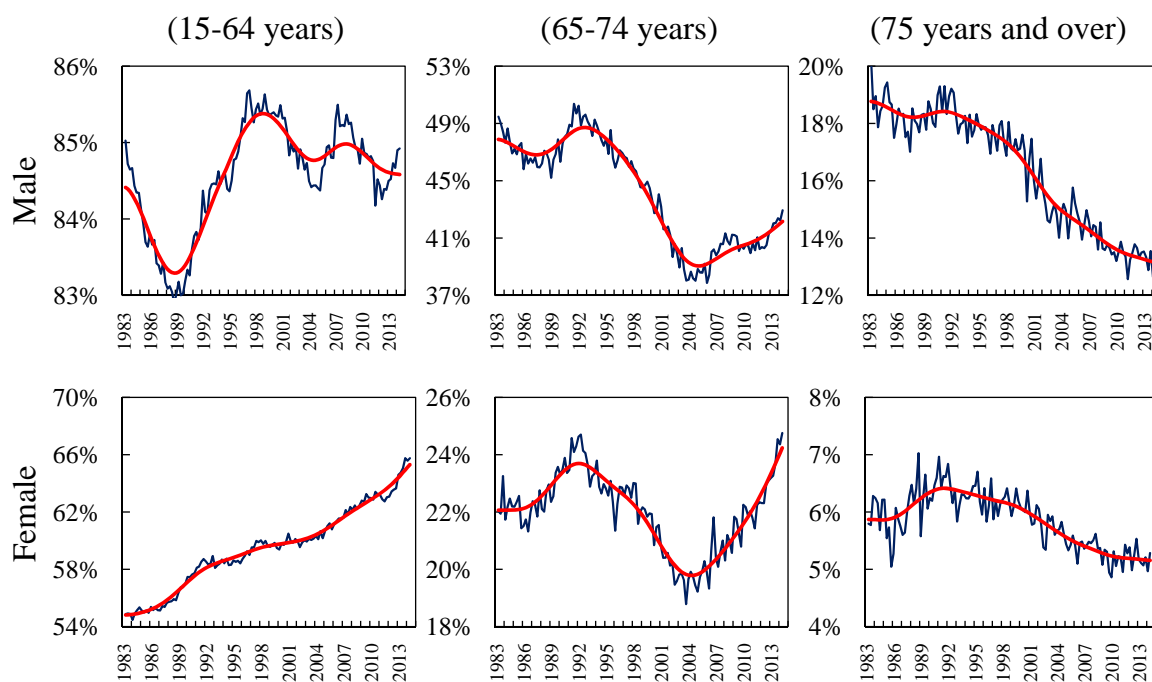
Labor Force Participation Rate



Note: The estimated trend is the weighted average of trends in labor force participation rates by gender and age in Chart 12.

Source: Ministry of Internal Affairs and Communications, "Labour Force Survey."

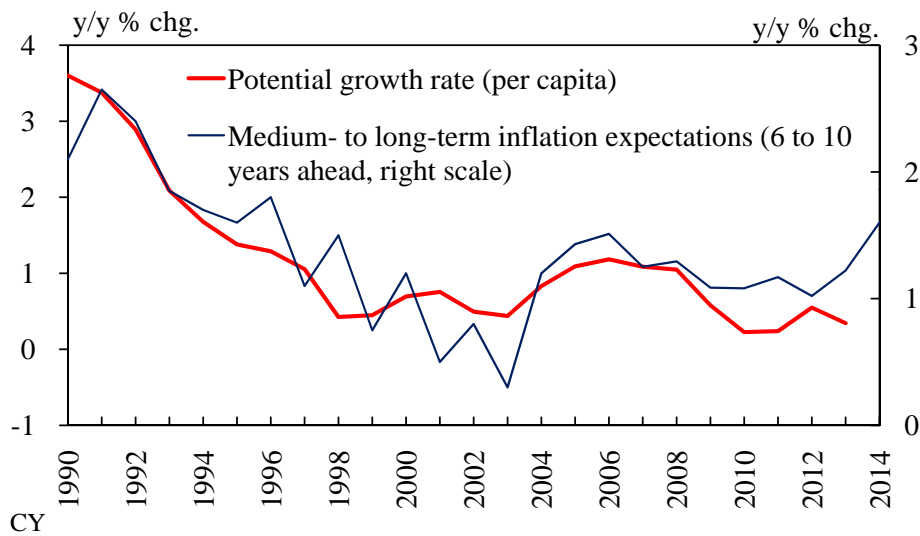
Labor Force Participation Rates by Gender and Age



Note: The blue thin lines are the labor force participation rates. The red bold lines are the trends calculated using the Hodrick-Prescott filter.

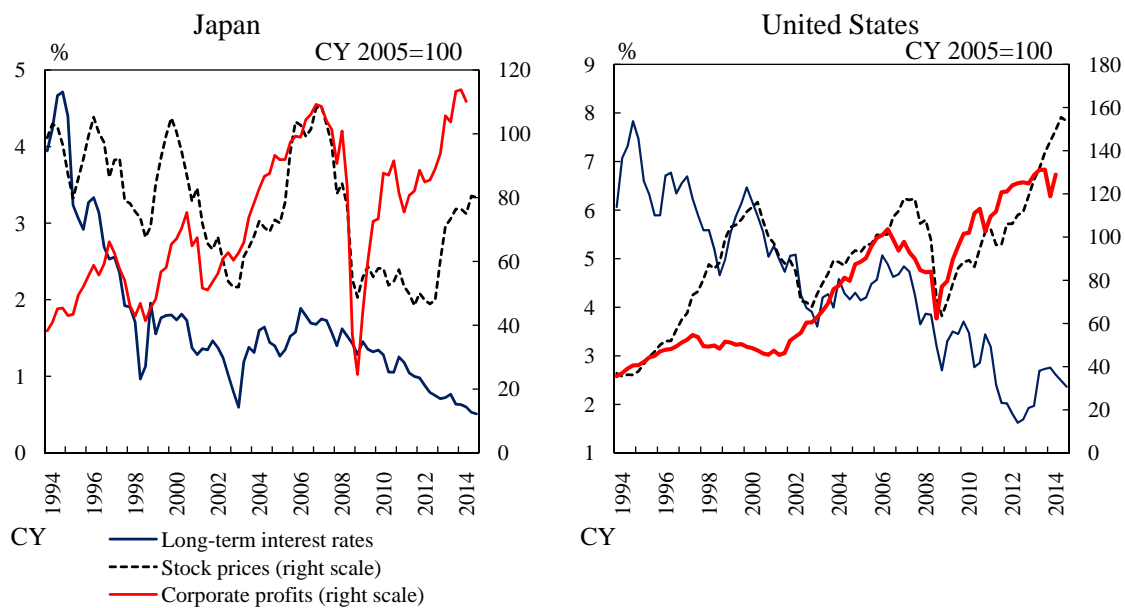
Source: Ministry of Internal Affairs and Communications, "Labour Force Survey."

Potential Growth and Medium- to Long-Term Inflation Expectations



Notes: 1. Figures for inflation expectations are based on the results of the Consensus Forecasts, a survey conducted on private sector forecasters.
 2. The potential growth rate is estimated by the Research and Statistics Department of the Bank of Japan.
 Sources: Consensus Economics Inc., "Consensus Forecasts"; Cabinet Office, "National Accounts," etc.

Long-Term Interest Rates, Stock Prices, and Corporate Profits



Note: Long-term interest rates are 10-year government bond yields. Stock prices of Japan and United States are the TOPIX and S&P500, respectively. Corporate profits of Japan are from "Financial Statements Statistics of Corporations by Industry, Quarterly," and those of United States are from SNA statistics. Market data include those up through October 10, 2014.

Sources: Ministry of Finance, "Financial Statements Statistics of Corporations by Industry, Quarterly"; U.S. Bureau of Economic Analysis, "National Income and Product Accounts"; Bloomberg.