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Bank of Japan

**Quantitative and Qualitative Monetary Easing:
Theory and Practice**

Speech at the Foreign Correspondents' Club of Japan

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Introduction

It is my great honor to have the opportunity to speak today at the Foreign Correspondents' Club of Japan.

With the European Central Bank (ECB) having started its asset purchase program, most of the major central banks, including the Federal Reserve and the Bank of England (BOE), now have adopted quantitative easing (QE). If I may borrow the words of Professor Takatoshi Ito, a friend and someone I greatly respect, "we are all QE-sians now." That being said, the economic and price situation against which QE has been introduced, as well as the policy transmission mechanism assumed, differ among countries and regions. Today, I would like to clarify the characteristics of the Bank of Japan's current quantitative and qualitative monetary easing (QQE) by focusing on similarities to and differences with the QE introduced by other central banks. I will further explain how QQE has been producing the intended effects.

I. The Theory behind QQE

Similarities and Differences between QE and QQE

I just mentioned that "we are all QE-sians now." What brought us into this situation is the global financial crisis in 2008. The U.S. and European economies deteriorated considerably due to the global financial crisis and unemployment increased substantially, so that central banks had to stimulate the economy through monetary easing. Initially, central banks in Europe and the United States responded to the crisis by using the traditional policy tool of lowering short-term interest rates, but since the economies deteriorated quite significantly, those rates soon approached the zero lower bound (Chart 1). Facing the zero lower bound on short-term nominal interest rates, central banks were therefore confronted with the question of how to proceed with further monetary easing. The Federal Reserve's and the BOE's answer was to introduce QE. QE mainly aims at stimulating the economy by lowering long-term interest rates, which still had room to fall, through massive purchases of government and other bonds by the central bank.

The Bank's QQE is similar to QE in that it aims to encourage long-term interest rates to decline through massive purchases of government bonds. QQE, however, has another

element: to drastically change the deflationary mindset that had taken hold amid the prolonged deflation. In order to understand this point, it is necessary to correctly diagnose the problems ailing Japan's economy and identify appropriate remedies.

Japan's economy had been suffering from deflation since the mid-1990s, with the year-on-year rate of change in the consumer price index (CPI) being about zero or slightly negative. A key feature of deflation in Japan was that it was mild but persistent: the average of the year-on-year rates of change in the CPI from fiscal 1998 to fiscal 2012 was only minus 0.3 percent, but the deflationary situation lasted for a decade and a half (Chart 2). Japan got mired in deflation due to a variety of factors, including balance sheet adjustments by firms and financial institutions following the bursting of the asset price bubble, the inflow of low-priced goods from emerging economies, and the excessive appreciation of the yen. Whatever the reasons may be, a key problem that arose is that, as prices continued to fall due to these factors for a prolonged period, a deflationary mindset took hold among the public -- that is, the belief became entrenched that prices would not increase but continue to steadily decline. Once this deflationary mindset had taken hold, people engaged in economic activity assuming that deflation would continue. As a result, the economy fell into a vicious cycle of a decline in prices, a decline in sales and profits, stagnant wages and consumption, and a further decline in prices. Moreover, under deflation, the real value of cash and deposits increases with the decline in prices. Therefore, hoarding cash and deposits becomes a relatively better investment strategy than actual investment, discouraging firms from taking risks and investing in business facilities and in research and development to launch new businesses. In this way, deflation in Japan perpetuated itself in a self-fulfilling manner and the growth potential continued to decline.

In order to overcome this situation, it is necessary to change the entrenched view that "prices will not rise" and achieve a state in which firms and households act based on the assumption that "prices will rise moderately every year." In the economic jargon, people's view on how prices will develop in the future is called inflation expectations. And although inflation rates tend to fluctuate -- reflecting not only the business cycle but also temporary factors such as changes in commodity prices -- they are likely to do so at around

the level of inflation expectations on average, if medium- to long-term inflation expectations are anchored at a certain level.

A numerical definition of what central banks consider as price stability based on a specific price index is about 2 percent in terms of the year-on-year rate of change in the CPI; this has become the global standard in recent years. While I will not go into detail due to time constraints, this figure -- 2 percent -- takes into account the upward bias in the CPI, that is, the tendency of the index to overstate inflation, and provides a buffer allowing to sufficiently lower real interest rates should the economy deteriorate.

For Japan's economy to overcome deflation, it was necessary to dispel the deflationary mindset and raise inflation expectations -- which had declined to about 0 percent -- to about 2 percent and re-anchor expectations at that level. Changing people's expectations is the main aim of QQE.

The Theory behind QQE

Attempting to change people's mindset and perceptions through monetary policy is not without historical precedent. For example, while the direction of desired change was the opposite of that in Japan, the Federal Reserve under Chairman Paul Volcker was successful in the late 1970s to early 1980s in substantially lowering inflation expectations, which had been ratcheting upward, through powerful monetary tightening (Chart 3). Since both unemployment and inflation were surging at the time, such stringent monetary tightening created both political and social challenges. Despite such difficulties, however, it was quite clear to Chairman Volcker what policy steps he had to take to lower inflation expectations: he had to pursue strong monetary tightening by substantially raising short-term interest rates to contain inflation. On the other hand, while QQE would not aggravate unemployment, it faced another problem, namely that the tools for monetary easing were limited, given that short-term interest rates were close to the zero lower bound.

The thinking behind QQE is as follows. First of all, as I discussed earlier, given that short-term interest rates had declined to zero, the Bank, like the Federal Reserve and the

BOE, decided to put downward pressure on long-term interest rates through massive purchases of government bonds.

The Bank then focused on the fact that what influences economic activity is not nominal but real interest rates, that is, the interest rate level obtained by subtracting inflation expectations from nominal interest rates. In this regard, the fact that inflation expectations in Japan were well below the price stability target of 2 percent provided a way to break through the deflationary mindset: if the Bank could raise inflation expectations, real interest rates would fall, stimulating economic activity by firms and households. In this sense, raising inflation expectations is both an objective of QQE and, at the same time, the key to implementing the QQE transmission mechanism to overcome deflation.

This raises the question of how people's deflationary mindset can be changed and inflation expectations can be raised. For firms and households with a deflationary mindset to start thinking that "from now, we will act based on the assumption that prices will rise by about 2 percent every year," it is necessary above all that the central bank fully commits itself to achieving 2 percent inflation. Based on these considerations, the Bank committed itself to achieving the price stability target of 2 percent at the earliest possible time, with a time horizon of about two years, and to maintaining the target in a stable manner. And as a means to this end, the Bank introduced large-scale monetary easing in the form of QQE.

A decline in real interest rates can be expected to stimulate private demand such as business fixed investment, private consumption, and housing investment. Such an increase in private demand in turn reduces the output gap, that is, the amount of slack in the economy as a whole, thereby putting upward pressure on prices. And once people actually experience inflation, this will boost their confidence in the Bank's commitment, leading to a further rise in inflation expectations and reinforcing the aforementioned processes, forming a virtuous cycle. This is the mechanism through which QQE aims at raising inflation and inflation expectations to 2 percent.

II. The Practice of QQE

Effects of QQE

So far, I have talked about the theory of QQE, but to what extent has this policy actually been exerting any effects?

First of all, as a result of the Bank's massive purchases of Japanese government bonds (JGBs), long-term interest rates have further declined. Ten-year JGB yields have recently been around 0.4 percent (Chart 4). Moreover, the average interest rate on new loans has declined to historic lows of about 0.9 percent.

In addition, people's perception of inflation has clearly changed. Various indicators of medium- to long-term inflation expectations show clear increases since the introduction of QQE. For example, the figure presented in the *Consensus Forecast* was 0.8 percent in October 2012 but has risen to 1.5 percent of late. Therefore, real interest rates, including longer-term ones, have become clearly negative.

Also, people and businesses feel that, in their daily life, the inflation environment has been changing substantially. Let me cite two noteworthy examples. First, the year-on-year rate of change in the CPI has been positive for 20 months since June 2013. This is the first time since 1998 that people have experienced inflation for such a long period. It means that this is the first time ever for people in their 20s or younger to experience rising prices. Second, since last year, nominal wages have been rising. Of particular note is that during the annual wage negotiations last spring, the so-called spring offensive, base pay rose for the first time in about 20 years, and rising base pay is likely to be seen in increasingly many firms this year.

Both examples represent landmark changes for Japan, which has experienced deflation for such a long period. While the word "deflation" -- *defure* in Japanese -- had become part of everyday conversation, recently the term can rarely be heard.

Furthermore, this momentum toward overcoming the deflationary mindset has continued even amid the decline in CPI inflation reflecting the effects of falling crude oil prices.

Looking at indicators of inflation expectations, while market-based indicators such as the break-even inflation rate -- as in Europe and the United States -- have declined, various surveys of economists and households suggest that medium- to long-term inflation expectations continue to be on an upward trend. We believe this is because the Bank's expansion of QQE last October -- undertaken as a preemptive response to the risk that falling crude oil prices could affect wage negotiations and price-setting by lowering inflation expectations -- has been effective.

As I have explained, QQE has been exerting its intended effects and it seems safe to say that QQE works both in theory and practice. The Bank believes that it can achieve the price stability target of 2 percent by continuing to steadily pursue QQE going forward.

In the following, I will offer my view on the economic and price situation in more detail, and explain why I think that QQE will lead to the realization of the price stability target of 2 percent.

Economic and Price Situation

Let me start with economic activity. The corporate sector is buoyant. Profits have continued to improve and have reached new peaks (Chart 5). The decline in crude oil prices will further benefit the sector by reducing costs. In addition, exports and production have been picking up. In this situation, firms have maintained their positive investment stance and their demand for labor has remained strong.

Against the backdrop of the strong demand for labor in the corporate sector, labor market conditions remain tight and Japan is close to full employment. Specifically, the unemployment rate has declined to around 3.5 percent, which is roughly the same level as the structural unemployment rate (Chart 6). The tightness in labor market conditions has been exerting upward pressure on nominal wages, which are expected to continue rising. Against the backdrop of this steady improvement in the employment and income situation, private consumption as a whole has been firm. In this situation, downward pressure stemming from the decline in demand following the consumption tax hike has been waning. The decline in crude oil prices will also have a favorable effect on private consumption.

Given the various tailwinds to economic activity, the Bank expects Japan's real GDP growth in fiscal 2015 to be about 2 percent. In the Bank's January interim assessment of the October 2014 *Outlook Report for Economic Activity and Prices*, the real GDP growth rate was projected to be 2.1 percent in fiscal 2015 and 1.6 percent in fiscal 2016 (Chart 7).

In the current improving economic situation, the output gap has improved substantially mainly due to the tightening of the labor market. It has become about 0 percent, that is, close to the long-term average. Going forward, with Japan's economy continuing to grow above its potential growth rate, which is estimated to be around 0.5 percent or lower, the output gap is expected to further improve. In addition, as mentioned earlier, medium- to long-term inflation expectations have remained on an uptrend. The underlying trend in inflation has been increasing as its two determinants, namely, the output gap and medium- to long-term inflation expectations, are improving.

However, in terms of the year-on-year rate of increase in the CPI excluding fresh food stripping out the direct effects of the consumption tax hike, inflation has slowed since last summer due mainly to the substantial decline in crude oil prices and registered 0.2 percent in January (Chart 8). Going forward, the rate of increase is expected to be about 0 percent due to the effects of the decline in energy prices and is likely to remain at that level for the time being. However, the underlying trend in inflation is expected to continue to steadily increase in the future. Therefore, as the effects of falling crude oil prices on the year-on-year rate of change, that is, the base effect, dissipate, CPI inflation will accelerate and achieving 2 percent CPI inflation will come in sight. Based on the assumption that crude oil prices will rise moderately from their recent levels, CPI inflation is expected to reach 2 percent in or around fiscal 2015 (Chart 7). The timing of this could be somewhat sooner or later than envisaged depending on developments in crude oil prices. However, if it is clear that the timing in which the 2 percent target will be achieved depends mainly on fluctuations in energy prices, market participants will not draw any unwarranted conclusions with regard to monetary policy, as they know that the base effect caused by changes in energy prices will eventually disappear.

Needless to say, the Bank maintains its policy stance that it will make adjustments as necessary without hesitation, when there are changes in the underlying trend in inflation, especially in developments in inflation expectations, in order to achieve the price stability target at the earliest possible time.

III. The Government's Growth Strategy and the Bank's Monetary Policy

To conclude my speech, I would like to talk about strengthening the growth potential of Japan's economy. Japan's potential growth rate has been on a declining trend since the 1990s (Chart 9). Reasons include demographic trends such as the decline in the working-age population as well as regulatory and institutional factors that have hindered corporate activities and impeded competition. In order to raise the growth potential, it is necessary to remove such factors that hamper private entities' proactive economic activities. Consequently, it is encouraging that various regulatory and institutional reforms have steadily been implemented through the government's growth strategy.

In this context, I would like to highlight that overcoming deflation itself will contribute to raising Japan's growth potential. Investment and innovation in the private sector are key to economic growth, and the role of the government's growth strategy is to create an environment in which firms can thoroughly pursue business opportunities. In addition, overcoming deflation and achieving an economy and society in which economic entities take action on the assumption of 2 percent inflation will revive firms' and households' animal spirits. If that happens, people will start to take more risks and invest in new ventures, which in turn is likely to give rise to innovations. With firms and households becoming more proactive, it will become even clearer which regulatory and institutional aspects have hampered growth. I think one of the reasons why only some progress has been made in regulatory and institutional reforms is that the momentum toward reforms was lacking as private entities were not sufficiently proactive. The emergence of real needs for reforms will be a major driving force to push ahead with regulatory and institutional reforms.

Under QQE, the deflationary mindset is steadily being dispelled. The Bank aims to contribute to strengthening the growth potential of Japan's economy through its continued

efforts through QQE and by achieving the price stability target of 2 percent at the earliest possible time.

Concluding Remarks

Today, I have talked about the challenges facing Japan's economy and the characteristics of QQE as a remedy for those challenges. The greatest lesson from Japan's experience is that the best is not to fall into deflation in the first place, since there is the danger that, once the economy has fallen into it, deflation becomes protracted. If there is a risk of deflation, policy authorities should make every effort to prevent the economy from falling into it.

Having said that, even if the economy becomes trapped in deflation, it is possible to overcome deflation through innovative monetary policy. By succeeding in getting the economy out of deflation through QQE, the Bank hopes to provide a case in point.

If the Bank can show that even if the economy falls into deflation, there are policy measures to escape from it, this will strengthen confidence in central banks' ability to achieve their price stability targets, which reinforces their ability to anchor inflation expectations. Well-anchored inflation expectations, in turn, help to prevent the economy from falling into and becoming trapped in deflation in the first place. In this regard, success of the Bank's QQE has important implications not only for Japan's economy but also for monetary policy around the globe.

Thank you very much for your attention.

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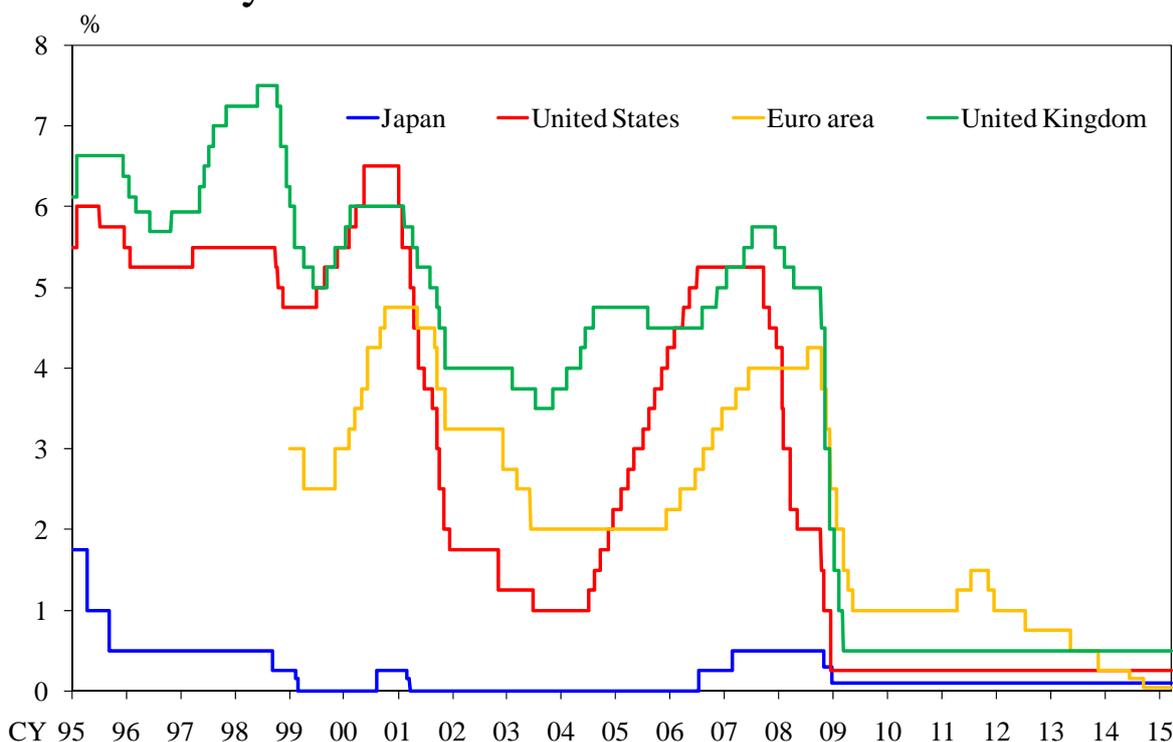
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Chart 1

Money Market Rates in Advanced Economies

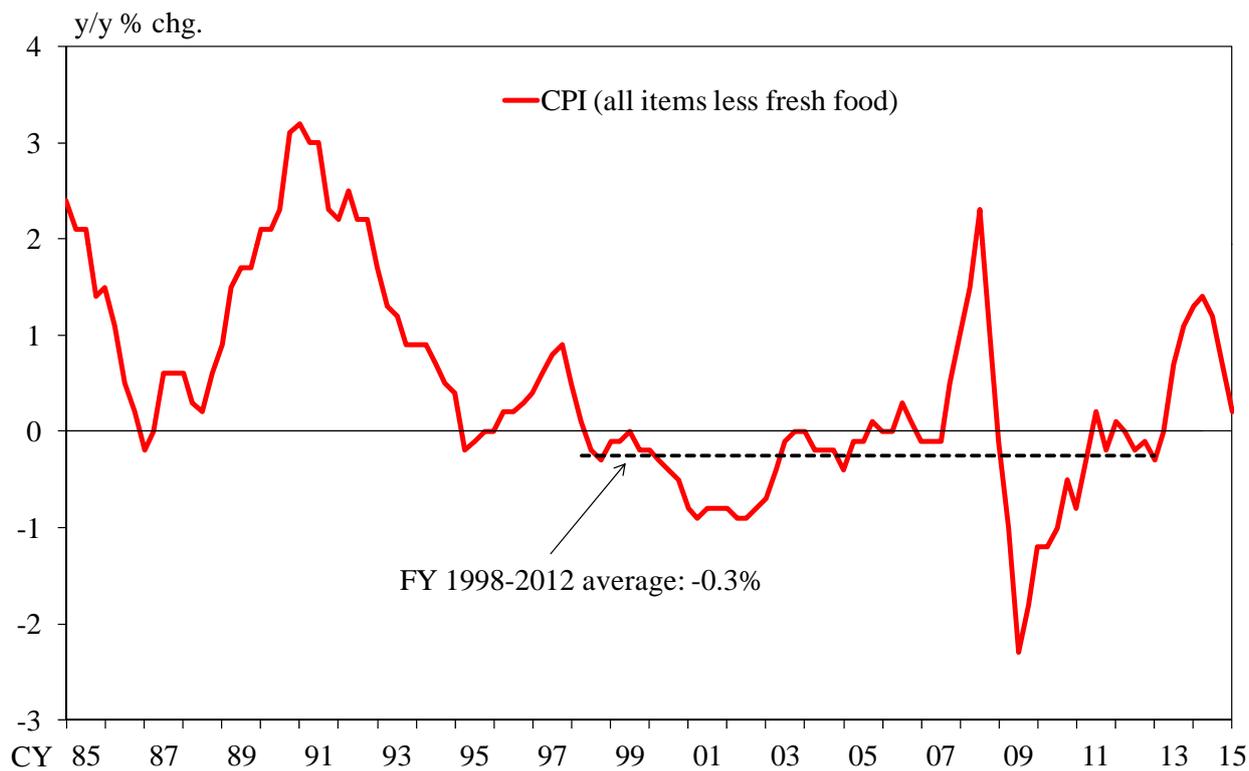


Notes: 1. In the United States, the target range for the federal funds rate has been 0 to 0.25 percent since December 16, 2008.

2. In Japan, the money market rate was zero percent during the period of "Quantitative Easing" (March 19, 2001-March 8, 2006), and 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" (since April 4, 2013).

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

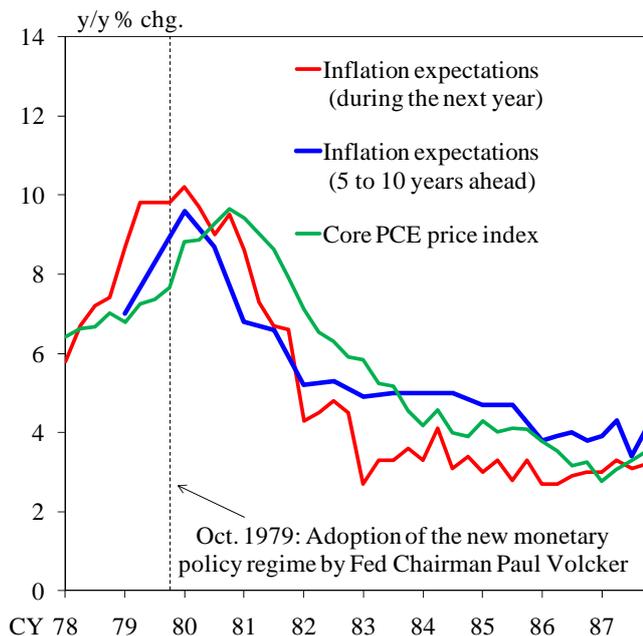
Deflation in Japan



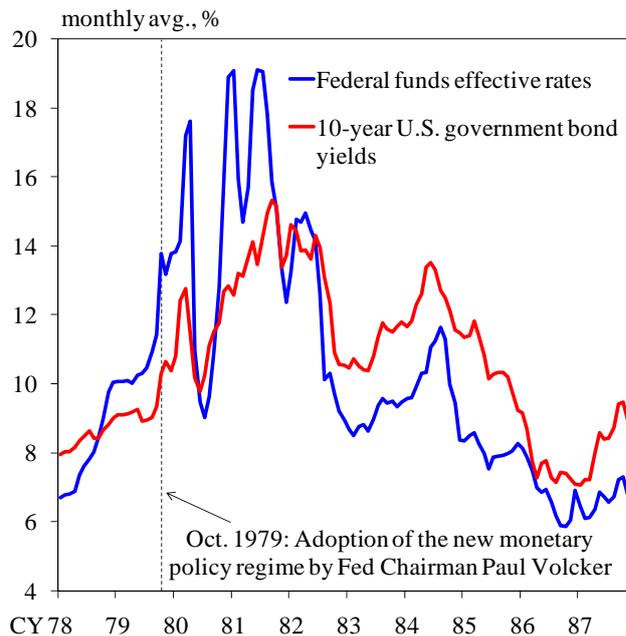
Note: Figures are adjusted to exclude the effect of changes in the consumption tax rate.
 Source: Ministry of Internal Affairs and Communications.

Volcker Disinflation

Inflation Indicators

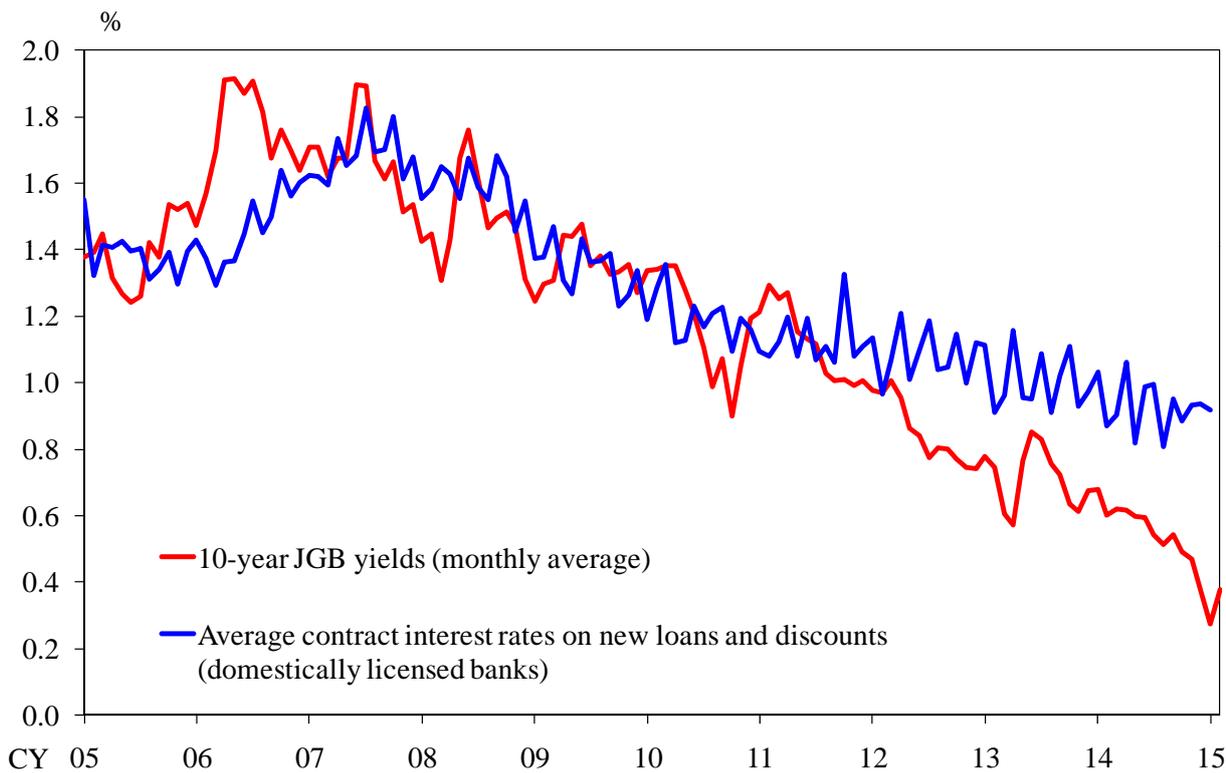


Interest Rate Indicators



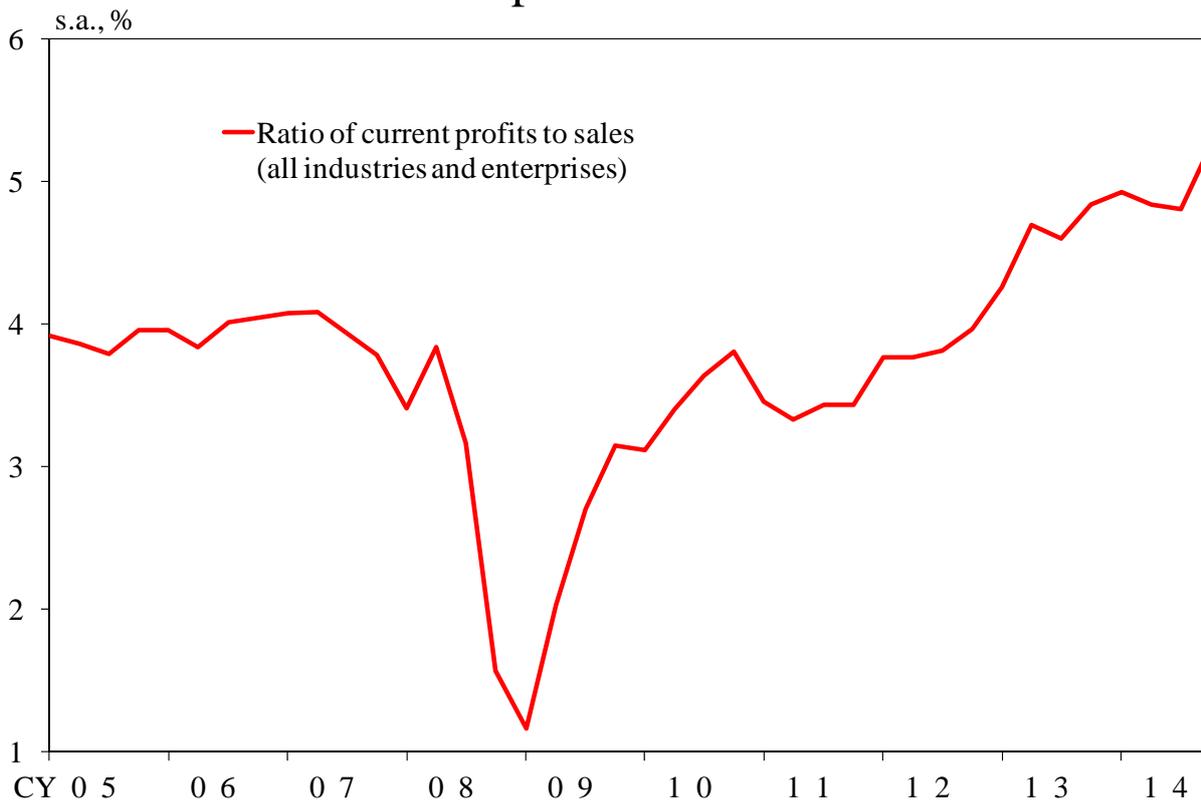
Note: Figures for inflation expectations are taken from the "Surveys of Consumers" conducted by the Michigan University.
 Missing values are linearly interpolated.
 Sources: BEA; Michigan University; Bloomberg.

Nominal Interest Rates



Sources: Bank of Japan; Bloomberg.

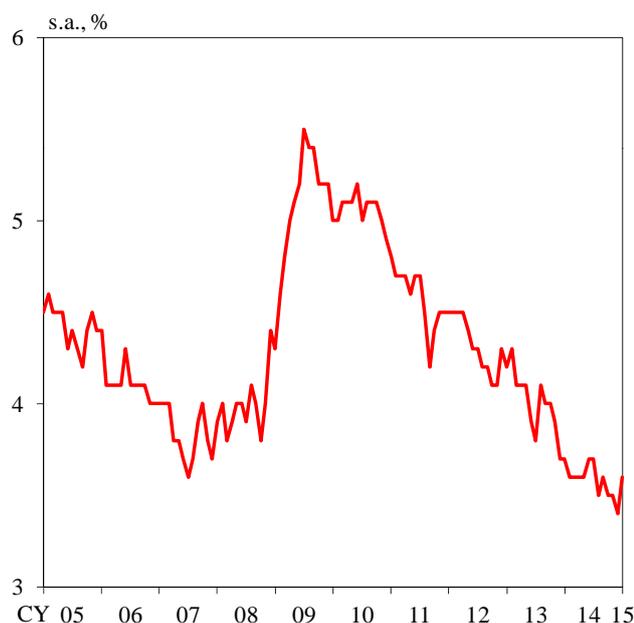
Corporate Profits



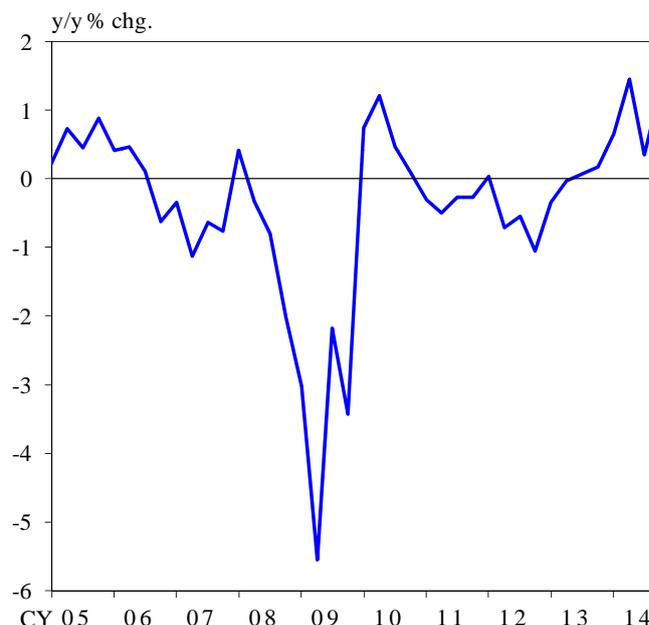
Source: Ministry of Finance.

Employment and Income Situation

Unemployment Rate



Cash Earnings



Note: The followings apply to cash earnings: Q1 = March-May, Q2 = June-August, Q3 = September-November, Q4 = December-February.
The figure for 2014/Q4 is the December-January average.

Sources: Ministry of Internal Affairs and Communications; Ministry of Health, Labour and Welfare.

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Outlook for Economic Activity and Prices (as of January 2015)

	Real GDP	CPI (all items less fresh food)	Excluding the effects of the consumption tax hikes
Fiscal 2014	-0.5	+2.9	+0.9
Fiscal 2015	+2.1	+1.0	
Fiscal 2016	+1.6	+2.2	

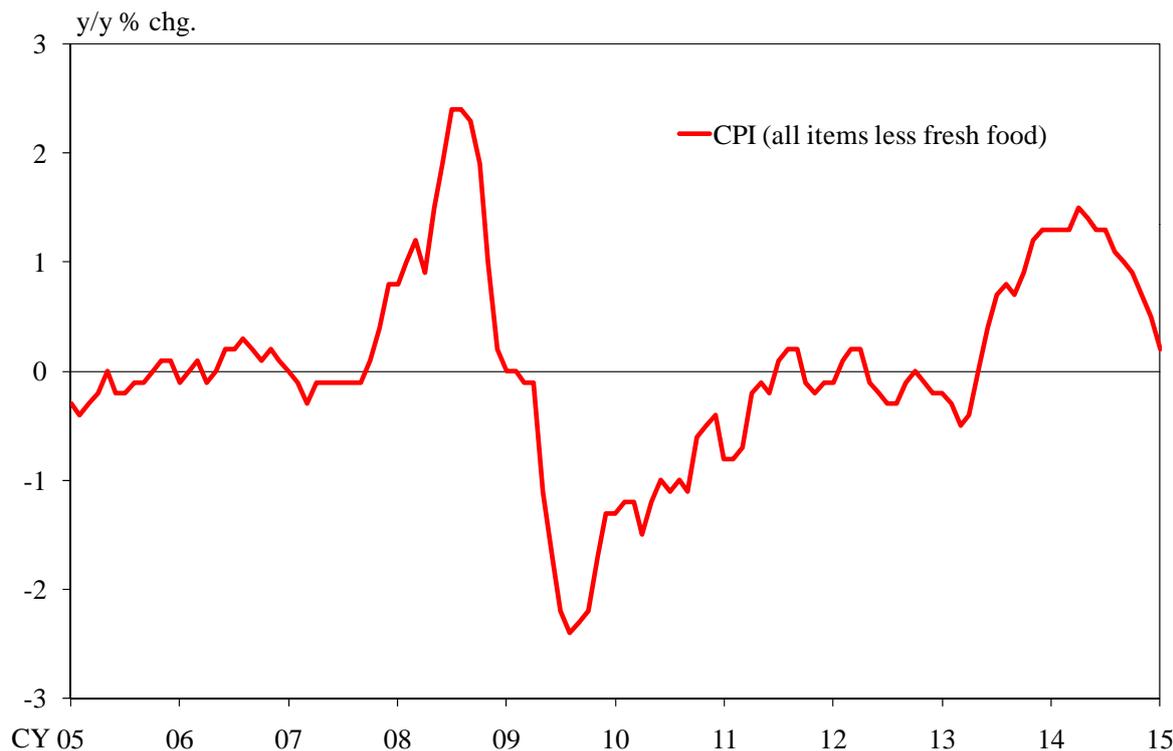
Notes: 1. Figures indicate the median of the Policy Board members' forecasts (point estimates).

2. Dubai crude oil prices are expected to rise moderately from 55 U.S. dollars per barrel to about 70 dollars per barrel toward the end of the projection period. In this case, the contribution of energy items to the CPI (all items less fresh food) is estimated to be mostly in the range of minus 0.7 to minus 0.8 percentage point for fiscal 2015, and mostly in the range of plus 0.1 to plus 0.2 percentage point for fiscal 2016.

Source: Bank of Japan.

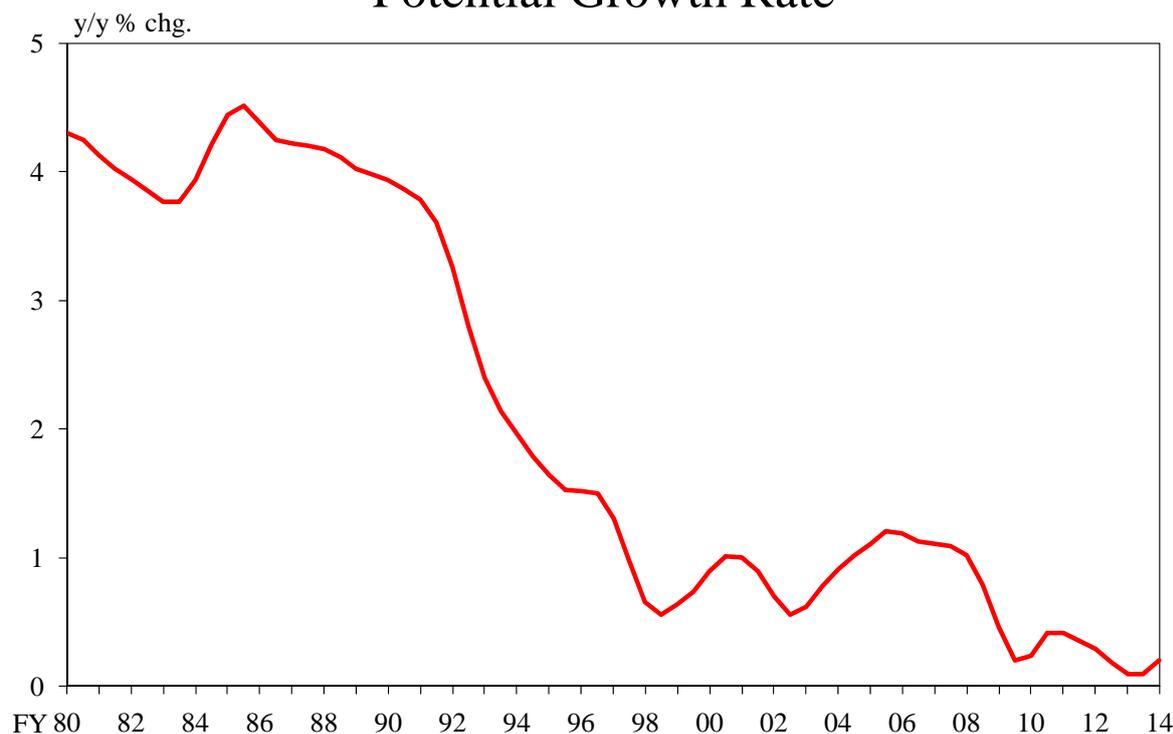
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Consumer Prices



Note: Figures from April 2014 onward are calculated to adjust the direct effects of the consumption tax hike.
 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. For the estimation procedures, see "The New Estimates of Output Gap and Potential Growth Rate," Bank of Japan Review Series, 2006-E-3. Figures for the first half of fiscal 2014 are those of 2014/Q2.

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