

## **Sayuri Shirai: Japan's economic and price developments and monetary policy – overview of the two-year period after adopting QQE**

Speech by Ms Sayuri Shirai, Member of the Policy Board of the Bank of Japan, at a meeting with business leaders, Mie, 3 June 2015.

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*Accompanying charts can be found at the end of the speech.*

### **I. Introduction**

Good morning. I feel honored to have an opportunity to meet with the local business representatives here today. Let me also express my sincere gratitude for your kind cooperation with the activities of the Bank of Japan's Nagoya Branch. More than two years have passed since adopting quantitative and qualitative monetary easing (QQE) policy in April 2013. So I would like first to review Japan's economic and price performance over the two years and present my own assessment on the effectiveness of QQE. After that, I will touch on the Bank's outlook for economic activity and prices for fiscal 2015 through fiscal 2017, as described in the April 2015 *Outlook for Economic Activity and Prices* (hereafter, the Outlook Report).

### **II. Economic and price performance after adopting QQE**

Let me now proceed with the actual performance of economic activity during the past two years, followed by that of prices.

#### **A. Economic performance in fiscal 2013 and 2014**

Let us first look at the performance of real GDP. Chart 1 indicates the amounts as well as the year-on-year rates of change in real GDP for fiscal 2013 and 2014 together with those for fiscal 2012 (a year before the introduction of QQE) as a reference. After having risen by about 5.1 trillion yen in fiscal 2012, the amount of increase in real GDP almost doubled to around 11 trillion in fiscal 2013, but it subsequently dropped by about 5.6 trillion yen in fiscal 2014. The net increase in real GDP over the period of fiscal 2013–14 was around 5.2 trillion yen – roughly the same amount of increase as in fiscal 2012. The year-on-year rate of change in real GDP doubled from about 1 percent in fiscal 2012 to about 2 percent in fiscal 2013, but it then recorded somewhat large negative growth of minus 1 percent in fiscal 2014.

#### ***Positive growth for two consecutive years without the tax hike effects***

The consumption tax hike in April 2014 from 5 percent to 8 percent exerted large adverse impacts on Japan's economy. So, in assessing the effectiveness of QQE, it is important to look at the economic performance by excluding the estimated impacts of the tax hike. Chart 1 shows the estimated amounts and the rates of change in real GDP excluding the tax hike impacts; those impacts are estimated by the Bank to be an increase of around 0.5 percentage point for fiscal 2013 and a decrease of around 1.2 percentage points for fiscal 2014.

Please note that the purpose of this estimation is simply to try to examine the effectiveness of monetary easing: judgment about the tax hike is decided purely by the government. For its estimates, the Bank took into account the impacts of the tax increase on household spending (private consumption and housing investment), business fixed investment, and other factors. The impact on business fixed investment was considered because some entities, such as firms eligible for the simplified tax system and tax exemption, appear to have front-loaded an increase in business fixed investment prior to the tax hike. In fiscal 2013, upward pressure on real GDP was propelled by front-loaded increases in private consumption, housing

investment, and business fixed investment – as against downward pressure on real GDP created by a decline in inventory investment and a rise in imports. The net impact of the tax hike was positive (an increase of 0.5 percentage point). By contrast, the net impact for fiscal 2014 turned negative (a decline of 1.2 percentage points); this was because all the forces that emerged in fiscal 2013 now worked in the opposite direction and also because additional adverse impacts on private consumption and housing investment appeared as a result of a decline in real (disposable) income. I would note that these estimates are subject to a considerable margin of error because it is difficult to quantify the exact effects of the tax hike.

Chart 1 indicates that real GDP, after excluding the effects of the tax hike, increased by 8.1 trillion yen in fiscal 2013 – a decline of 2.7 trillion yen, which represents the net positive impact of the front-loaded increase in expenditure. Yet the rate of real GDP growth maintained a fairly high positive rate of around 1.6 percent. The noticeable change is observed in fiscal 2014, when real GDP growth turned to a positive increase of 0.8 trillion yen rather than a decrease of 5.6 trillion yen. This means that a positive growth rate of around 0.2 percent would have been achieved in fiscal 2014 if there had been no consumption tax hike, which had an estimated net negative impact of around 6.4 trillion yen.

### ***My Views regarding the effectiveness of QQE on economic activity***

Real GDP growth rates during the two years after the introduction of QQE were around 1.6 percent in fiscal 2013 (excluding the effects of the tax hike), which significantly exceeded the potential growth rate (the Bank's estimate of about 0.5 percent or lower), and around 0.2 percent in fiscal 2014, which was roughly equivalent to the potential growth rate. This positive performance reflects both the fiscal stimulus measures and the impact of monetary easing. Let me briefly summarize the transmission mechanism of QQE on economic growth. The Bank estimates that large-scale asset purchases under QQE succeeded in lowering long-term real interest rates by around 0.7 to 0.9 percentage point – or slightly less than 1 percentage point – cumulatively over the past two years. This decline in real interest rates encouraged private consumption and business fixed investment, and was also associated with a depreciation of the yen and a stock price rise – resulting in favorable corporate profits and an increase in nominal compensation of employees.

Given the expected effect of the unusually large-scale monetary easing, some of you may consider that, excluding the impacts of the tax hike, real GDP should have expanded more impressively over the past two years. In this regard, I view that a further expansion of **private consumption** was constrained to some extent by the following: (1) dissolution of the special level of pension benefits from the second half of fiscal 2013; (2) a cut in real pension benefits and a decline in real wages (both owing to moderate inflation excluding the direct impact of the tax hike); and (3) the severe weather around the summer of 2014. As for **business fixed investment**, the increase was less than initially expected owing to cautious investment behavior of firms, mainly domestic demand-oriented firms, due in part to sluggish domestic sales. **Exports** has picked up from the second half of fiscal 2014, mainly to the United States. However, they did not increase as much as initially projected owing in part to a shift of production sites overseas, a decline in international competitiveness in some industries, sluggish recovery in overseas economies, and the J-curve effect. In addition, the effects of expanding domestic demand induced by front-loaded consumption and business fixed investment were somewhat diminished since a sustained rise in inflation expectations was not observed (as described later). These factors are considered to have partly offset the effectiveness of monetary easing and resulted in lower real GDP growth rates for fiscal 2013 and 2014 than those initially forecasted by the Policy Board members (Chart 2-1).

Over the period of fiscal 2013–14, **the output gap** improved by around 1.5 percentage points in fiscal 2013 – from around minus 2.2 percent in fiscal 2012 to minus 0.7 percent (Chart 1). It further improved by 0.5 percentage point to minus 0.2 percent in fiscal 2014. The net 2-percentage-point improvement in the output gap seems remarkable (Chart 3). That said, the scale of improvement in fiscal 2014 was rather limited and largely underperformed

the Bank's initial forecast in April 2013. Although the sluggish improvement in the output gap in fiscal 2014 was mainly due to the greater-than-anticipated impact of the consumption tax hike, the other aforementioned demand-suppressing factors also played a role as "headwinds." Conversely, it may be concluded that the output gap of nearly 0 percent in fiscal 2014 was actually not so bad given the sharp deterioration of the real GDP growth rate of minus 1 percent. Indeed, my evaluation is that QQE and its expansion supported the economy and prevented actual performance from deteriorating further, and therefore the effectiveness of QQE should not be denied.

Here, I should point out that the 2-percentage-point improvement in the output gap was not attributable only to monetary and fiscal policies. It was also affected by a structural factor; for example, of an increasing sense of labor shortage caused by the declining trend in the working-age population, together with the recent retirement of the baby-boomer generation. In addition, a decline in the potential growth rate (caused by sluggish growth in total factor productivity and in capital stock) may have had an effect (Chart 3).

In sum, despite the various headwinds, it is evident that QQE pushed up real GDP by lowering real interest rates and contributed to improving the output gap to the 0-percent level from negative territory. Business and household sentiment has been recovering owing to steady improvements in corporate profits and employment, and the economic recovery after the consumption tax hike has now become solid.

#### ***On economic activity: The outlook report's "Assessment of the Effects of QQE"***

Now, let me provide some additional explanation from my perspective about ***the Bank's assessment of the effects of QQE***, which appeared in the background section of the Outlook Report.<sup>1</sup> In the report, economic outcome was first estimated using a macroeconomic model – based on a real interest rate channel – by exogenously plugging in a decline of minus 0.8 percent to long-term real interest rates (which were close to the estimated actual figure). Subsequently, this estimated value was compared with the actual value. If the actual value exceeds the estimated value, this implies that there are some positive effects other than the real interest rate channel. The result was mixed. Although the estimated value exceeded the actual value in terms of the real GDP growth rate, the actual value exceeded the estimated value in terms of the output gap. This can be interpreted as follows: real GDP did not improve as much as its estimated value owing to the aforementioned headwinds; however, the output gap exceeded its estimated value because of labor shortages as well as a decline in the potential growth rate. Taking into consideration the various headwinds, I believe that real interest rates would have been lower if the sustained rise in inflation expectations had been realized. This would have exerted further upward pressure on the real GDP growth rate, thereby further improving the output gap.

#### ***B. Price performance in fiscal 2013 and 2014***

Next, I will focus on price performance. Let us start with developments in the GDP deflator. The year-on-year rates of change in the GDP deflator increased from minus 0.9 percent in fiscal 2012 to minus 0.3 percent in fiscal 2013. Then, a positive level of 2.5 percent (1.1 percent excluding the direct impact of the consumption tax hike of around 1.4 percent) was reached in fiscal 2014 (Chart 1).

#### ***Inflation rates turned positive: CPI in fiscal 2013 and GDP deflator in fiscal 2014***

In particular, it should be noted that the year-on-year rate of change in the private consumption deflator finally turned positive in fiscal 2013 after having remained consistently negative since fiscal 1998. Also, the rate of change in the business fixed investment deflator

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<sup>1</sup> See Boxes 2 and 3 in the April 2015 Outlook Report.

turned positive in fiscal 2013 after having been on a declining trend since the early 1990s owing to quality adjustment as well as a decreasing trend in the prices of IT-related products. The housing investment deflator likewise rose in fiscal 2013 reflecting front-loaded construction activities, and it is still rising owing to labor shortages as well as the increased cost of construction materials.

The year-on-year rate of change in the consumer price index (CPI, all items less fresh food) shifted from minus 0.2 percent in fiscal 2012 to plus 0.8 percent in fiscal 2013 and then to 2.8 percent (around 0.8 percent excluding the direct impact of the consumption tax hike) in fiscal 2014 (Chart 1). GDP deflator-based inflation turned positive one year after the CPI inflation, mainly due to a deterioration in the terms of trade in fiscal 2013. An increase in import prices caused by high crude oil prices and the yen's depreciation led to an increase in the CPI, but it depressed the GDP deflator because it worked as a subtraction item.

### ***Inflation expectations rose by 0.7 percentage point at most***

Inflation expectations (excluding the direct impact of the consumption tax hike) are assessed based on various indicators. Over the period of fiscal 2013 to 2014, medium- to long-term inflation expectations (usually more than one year) of economists and market participants rose by around 0.3 to 0.7 percentage point; most of that increase was concentrated in fiscal 2013 (Charts 4-1 and 4-2). Meanwhile, an increase in inflation expectations reflected in market-based indicators (such as the inflation swap rates) remained in the range of around 0.0–0.5 percent over the same period. Expectations of households and firms do not seem to have changed much. The faster change in such expectations of economists and market participants may reflect that they tend to make forecasts based on macroeconomic data and are thus more responsive to the Bank's monetary policy actions. It should be noted that market-based indicators also incorporate the liquidity risk of the relevant market.

### ***On prices: the Outlook report's "Assessment of the Effects of QQE" and my views***

Overall, I consider that QQE has mitigated deflationary pressure, caused by the excessive appreciation of the yen and fierce discount-based competition in the distribution sector, and has provided an incentive for firms to explore potential demand by urging them to produce innovative goods and services and to set fair prices. The CPI-based inflation was positive for two consecutive years, but the inflation rate was just around 0.8 percent (excluding the direct impact of the consumption tax hike) in fiscal 2014. This rate was about the same as that in fiscal 2013 and much lower than had been initially projected in April 2013 (Chart 2-1).

In this regard, I would like to provide my personal views on the "**Assessment of the Effects of QQE**" on prices described in the aforementioned Outlook Report as an additional explanation. In my view, the actual CPI rise of "plus 1 percentage point" over the past two years exceeded the estimated value from the macroeconomic model because the actual degree of improvement in the output gap was better than the estimated value. Nonetheless, the 2 percent target is yet to be achieved, mainly because of the rapid decline in crude oil prices, but another important factor is the slow pace of the rise in medium- to long-term inflation expectations, which have remained at around plus 0.7 percentage point at most.

Regarding **developments in medium- to long-term inflation expectations**, a number of indicators have deteriorated since the summer of 2014. This deterioration seems to have been affected by the decline in the CPI caused by weakness in domestic demand and the decline in crude oil prices. In October 2014, there were growing concerns that a continuous fall in inflation expectations, partly driven by weak demand, could undermine positive developments in wage negotiations and firms' price-setting behavior. To prevent those concerns from materializing, the Bank decided to expand QQE. This preemptive, prompt policy action, together with the stability in crude oil prices, helped halt the fall in inflation expectations, and thereafter inflation expectations have become largely constant. Moreover, the recovery in domestic demand became gradually more evident toward the end of fiscal

2014, and the output gap is turning positive. For these reasons, I believe that the underlying trend in prices has been maintained.

Having said that, the year-on-year rate of increase in the CPI is currently about 0 percent, and the 2 percent target is still quite distant. The challenge for the Bank over the next few years is whether medium- to long-term inflation expectations will begin to rise steadily. The Outlook Report stipulates that a further rise in inflation expectations is necessary to achieve the 2 percent target in a stable manner. This judgment is consistent with my repeated remarks over recent years. I personally hold the view that inflation expectations of economists and market participants are useful in evaluating the consistency of the Bank's outlook and its practicality, and they may also gradually affect the inflation expectations of households and firms. However, in ultimately assessing price stability, I consider that greater attention should be paid to households' price perceptions and their inflation expectations together with firms' price-setting behavior, as I will now explain.

### ***Understanding the movements of households' and firms' inflation expectations***

In terms of achieving the 2 percent price stability target, I believe that important consideration should be placed on ***households' inflation expectations*** and related expenditure behavior. This may appear self-evident because the price stability target – adopted by the Bank and other major central banks – is the CPI, for which prices refer to the consumption basket of households. In other words, central banks attempt to stabilize the cost of households' living expenses. However, the use of households' inflation expectations may give rise to ***an upward-bias problem*** – an issue that is often pointed out by other central banks. In Japan, households always tend to expect that prices will rise even during a phase of deflation (Chart 5). The upward bias appears to be generated because households' inflation expectations are heavily affected by price movements – for example, daily necessities and gasoline.

Of course, it is also important to consider ***firms' inflation expectations*** because they ultimately set their own sales prices and wages. However, to maintain their profit margins, firms are unable to continue raising sales prices at the expense of suppressing demand for their goods and services. Therefore, I think that the most important determinant of the CPI is likely to be ***households'*** perception of prices and their inflation expectations. In a speech I gave in Europe in March 2015, I discussed households' and firms' inflation expectations in detail. And I would now like to share with you some of those findings.<sup>2</sup> Since the amount of data acquired is not yet sufficient with regard to firms' inflation expectations, some caution is required in interpreting the results.

1. Households' inflation expectations tend to be higher than those of firms. One of the reasons may be because firms and households envisage different prices when responding to a survey questionnaire. Households are asked to respond about overall prices of goods and services they purchase, whereas firms are asked to respond about general prices measured by the CPI. The reason households are asked in this manner is that some respondents are unfamiliar with the CPI, which makes it difficult to form an outlook based upon it.
2. Another reason may be because households tend to perceive and expect higher price levels as a corollary of long-standing mild deflation and sluggish income growth, resulting in an anticipated tightening of household budgets. By contrast, firms tend to form inflation expectations based on the macroeconomic environment and information obtained from transactions with other firms. As a result, their

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<sup>2</sup> See Sayuri Shirai, "Shifting toward a Moderately Inflationary Economy in Japan – Overview of Firms' and Households' Inflation Expectations," Speeches at Bruegel (March 4), the European Central Bank (March 6), and the Bank of England (March 10), Bank of Japan, 2015.

inflation expectations are likely to be more cautious than those of households and more closely approximate the actual rate of CPI inflation.

3. In addition, households tend to regard a price rise as unfavorable because it is associated with a tightening of household budgets (Chart 6-1). Households' poor tolerance of price rises is reflected in their continuous perception that their present income level has declined compared with one year earlier and also that their income level one year ahead will not increase much (Chart 6-2).
4. Partly reflecting such limited tolerance for price rises by households, large firms in particular may tend to project a relatively conservative, lower increase in sales prices than small firms. Large firms are likely to face a greater degree of uncertainty in their outlooks regarding their sales prices; thus, the number of "Don't know" responses tends to increase over a longer projection period – probably because of the direct exposure to fierce global and domestic competition in final-product markets. By contrast, small firms seem to tend to expect higher sales prices through labor shortages and high input costs because of their labor intensity and relatively low profit margins (Chart 7).
5. Given that large firms project more conservative, lower sales prices than small firms, this may in turn affect the sales prices of small firms through transactional relationships. As a result, some small firms may find it difficult to pass their rising production costs on to their sales prices according to their forecasts, thereby squeezing their margins. This suggests that small firms are more likely to find it necessary to improve productivity and shift to higher value-added business models in the near future.

Lastly, let me touch on the issue of how monetary policy has affected **households' medium- to long-term inflation expectations**. According to a question in the *Opinion Survey on the General Public's Views and Behavior* conducted by the Bank about the sources of information used in forming medium- to long-term inflation expectations, responses referring to the Bank's monetary policy (one of the multiple choices) accounted for only around 10 percent. Therefore, it might appear at first glance that the effects of the Bank's monetary policy have been limited. After taking upward and other biases into account, however, the adjusted and smoothed distribution of households' inflation expectations indicates that the spike at around 2 percent became sharper in 2013, which shows that households' inflation expectations are concentrated at around 2 percent (Chart 8). This may suggest that the change in the Bank's monetary policy in 2013 has positively affected households' inflation expectations to some extent, leading to a greater concentration of responses of around 2 percent.

To summarize, developments in **households' inflation expectations** should be assessed, not only on the basis of the average and/or median of the responses but also on the adjusted and smoothed distribution of those expectations, taking the upward bias into account. Moreover, to achieve the 2 percent price stability target with a sustainable increase in household spending, an improvement in current income conditions as well as an increase in expectations for future income growth is essential. In addition, households' recognition of the 2 percent target and monetary policy remains low; this points to the need for the Bank to improve its external communication policy toward promoting public understanding of its intentions. Regarding **firms' inflation expectations**, I pay close attention to the average value for "all firms, all industries," particularly the average value of "large nonmanufacturing" firms. This is because the labor productivity of large nonmanufacturing firms is generally lower than that of manufacturing firms, and thus their ability to pass input costs on to their output prices directly affects their profit margins.

### III. Outlook for economic activity and prices and risk assessment

I will now focus on the Bank's baseline scenario of the outlook for real GDP and the CPI for the next three fiscal years. My personal view regarding such a scenario will also be provided.

#### A. *Medium-term outlook for economic activity*

According to *the Bank's baseline scenario of the outlook for economic activity*, Japan's economy is likely to continue growing at a pace above its potential growth rate from fiscal 2015 through fiscal 2016 (Chart 2-2). As domestic demand is likely to be firm and exports are expected to increase moderately, a virtuous cycle from income to spending is likely to be maintained in the household and corporate sectors. Firms' and households' growth expectations are also likely to rise moderately in line with continued accommodative financial conditions. In fiscal 2017, the pace of economic growth is likely to decline to around a level below the potential growth rate – mainly due to the effects of the planned next consumption tax hike and cyclical deceleration – although the positive rate of growth is still likely to be maintained.

My outlook for real GDP growth is in the range of around 1.5–2.0 percent for fiscal 2015, around 1.5 percent for fiscal 2016, and slightly above 0 percent for fiscal 2017. My projection for fiscal 2015 is somewhat lower than the median of the Policy Board members' forecasts, perhaps because of differences in the projected pace of wage increases. Because labor productivity growth in the nonmanufacturing sector has hardly improved over recent years, I project that the pace of increase in wages – and hence that in consumption – is likely to be moderate up through fiscal 2017.

#### B. *Medium-term outlook for prices*

According to *the Bank's baseline scenario of the outlook for prices*, the year-on-year rate of increase in the CPI is likely to be about 0 percent for the time being. The rate of increase is projected to accelerate from around the second half of fiscal 2015 and reach about 2 percent around the first half of fiscal 2016 (Chart 2-2). The output gap is projected to expand within positive territory. It is also likely that medium- to long-term inflation expectations will follow an increasing trend and gradually converge to around 2 percent.

Regarding my outlook for prices, although the mechanism of price increase is the same with the Bank's baseline scenario, I project that the rate of increase in the CPI is likely to rise closer to around 2 percent toward the end of fiscal 2016; thereafter, it will remain somewhat lower than 2 percent in fiscal 2017. The average rate of increase for fiscal 2015 is projected to be around 0.5 percent; this is lower than the median of the Policy Board members' forecasts – perhaps due to the cautious view that the pace of increase in firms' sales prices will be moderate. According to various corporate surveys (including the Bank's *Tankan* – Short-Term Economic Survey of Enterprises in Japan), recent price-setting behavior of some firms has revealed moderation in the rising trend in their sales prices as a result of the decline in their input prices. Given that the rate of increase in the CPI is likely to be about 0 percent for the time being, I believe this tendency will prevail for some time. My outlook for fiscal 2016 is that the average rate of CPI inflation will reach around 1.5 percent and thus be lower than the median. This is because I project that it will take some time before households' income grows steadily, thereby improving their tolerance of price rises as well as firms' price-setting ability, and medium- to long-term inflation expectations will gradually converge to around 2 percent.

In the baseline scenario, the Bank postponed *the timing of reaching around 2 percent inflation* by one to two quarters: this was reflected in changing the expression “in or around fiscal 2015” to “around the first half of fiscal 2016.” This postponement is consistent with my own repeated claims in the past. However, I submitted a proposal at the Monetary Policy Meeting against the expression “around the first half of fiscal 2016” being used for the baseline scenario and replacing it instead with the expression “in or around fiscal 2016.” I

considered my suggested expression to be more appropriate for two reasons. First, given that the Bank assesses that risks to prices are skewed to the downside, a wider time span to reach around 2 percent seemed appropriate. Second, the Bank reduced the time span significantly – from one year or more to around six months. This is more likely to reduce the flexibility of monetary policy.

Here, I would like to make it clear that since the introduction of QQE, I have made all efforts toward achieving the target of around 2 percent at the earliest possible time, without imposing an excessive burden on households and firms. My aforementioned proposal is not in any way contrary to those efforts. It is natural for a central bank to revise its forecasts and delay (or advance) the timing to achieve the price stability target in the face of constantly changing domestic and external conditions. It is important that the Bank endeavors to realize an economy with around 2 percent inflation by taking into account the sustainability perspective, while revising forecasts with updated information and indicating the timing of achieving the target as a reference. This framework embodies the essence of the “flexible inflation targeting” practically adopted by the Bank and other major central banks, which I have been emphasizing since the introduction of QQE. Moreover, I would like to add that my aforementioned forecasts for prices do not rule out the possibility of achieving the target of around 2 percent over the projection period. Thus, my suggested expression was broadly in line with my own forecasts.

### **C. *Upside and downside risks to economic activity and prices***

With regard to ***upside and downside risks to the Bank’s baseline scenario***, the Bank believes that risks are being balanced for economic activity and that risks are skewed to the downside for prices.

Regarding ***my overall risk assessment related to economic activity***, the upside and downside risks are likely to remain balanced through fiscal 2016. This is because I take into account upside risks to the European economy and downside risks to emerging economies. By contrast, risks for fiscal 2017 are tilted downward, mainly because of the impact of the next consumption tax hike in April 2017. ***My assessment of risks to prices*** is that risks remain tilted to the downside. In particular, if a deviation of the actual inflation rate from the 2 percent target is sustained over a long period, the public and the market may begin to believe that achieving the target will be difficult. This may make it harder for medium- to long-term inflation expectations to rise further and steadily.

Lastly, I would like to touch upon ***monetary policy conduct***. Based on my current projection, I believe that the status quo regarding the amount of the Bank’s asset purchases should be maintained for the time being because the underlying trend in inflation is expected to rise steadily in the near future. If downside risks materialize and are likely to significantly weaken the underlying trend in inflation, I would not hesitate to consider some monetary policy actions. At present, however, I view such a possibility to be low.

That brings me to the end of my speech.

Thank you very much indeed for your kind attention.



## Japan's Economic Performance in Fiscal 2012-14

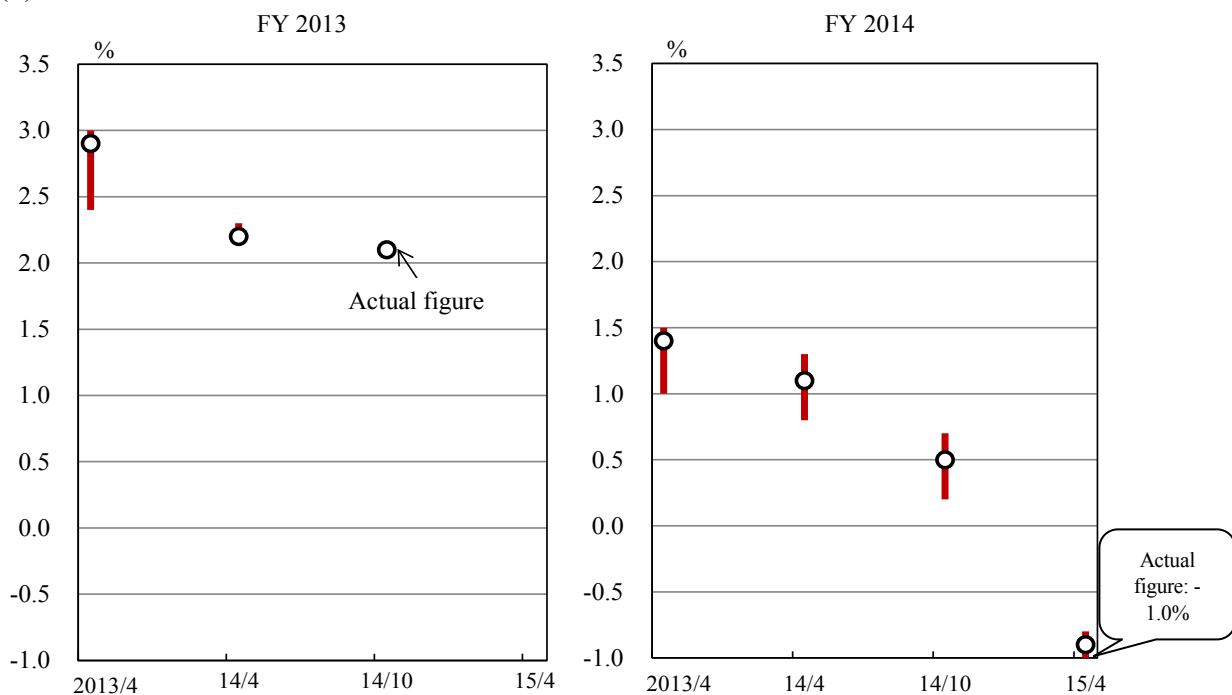
	FY 2012	FY 2013	FY 2014	Net/average change over FY 2013-14
Real GDP (yen)	+5.1 tril.	+10.8 tril.	-5.6 tril.	Net +5.2 tril.
Excluding the effects of the consumption tax hike		+8.1 tril.	+0.8 tril.	Net +8.9 tril.
Real GDP growth rate	+1.0%	+2.1%	-1.0%	Avg. +0.6%
Excluding the effects of the consumption tax hike		+1.6%	+0.2%	Avg. +0.8%
Real compensation of employees (yen)	+2.1 tril.	+0.9 tril.	-3.2 tril.	Net -2.3 tril.
(Reference) Nominal compensation of employees (yen)	+0.3 tril.	+2.4 tril.	+4.2 tril.	Net +6.6 tril.
Output gap (estimated by the Bank)	-2.2%	-0.7%	-0.2%	Avg. -0.5%
Change (% pts)	+0.2% pt	+1.5% pts	+0.5% pt	Net +2.0% pts
Rate of change in the GDP deflator	-0.9%	-0.3%	+1.1% (+2.5%)	Avg. +0.4%
Change (% pts)	+0.8% pt	+0.6% pt	+1.4 % pts (+2.8% pts)	Net +2.0% pts
Rate of change in the CPI	-0.2%	+0.8%	+0.8% (+2.8%)	Avg. +0.8%
Change (% pts)	-0.2% pt	+1.0% pt	0.0% pt (+2.0% pts)	Net +1.0% pt

Note: The output gap for fiscal 2014 is the average of 1Q-3Q. Figures in parentheses for the GDP deflator and CPI for fiscal 2014 include the direct effects of the consumption tax hike. The CPI refers to all items less fresh food.

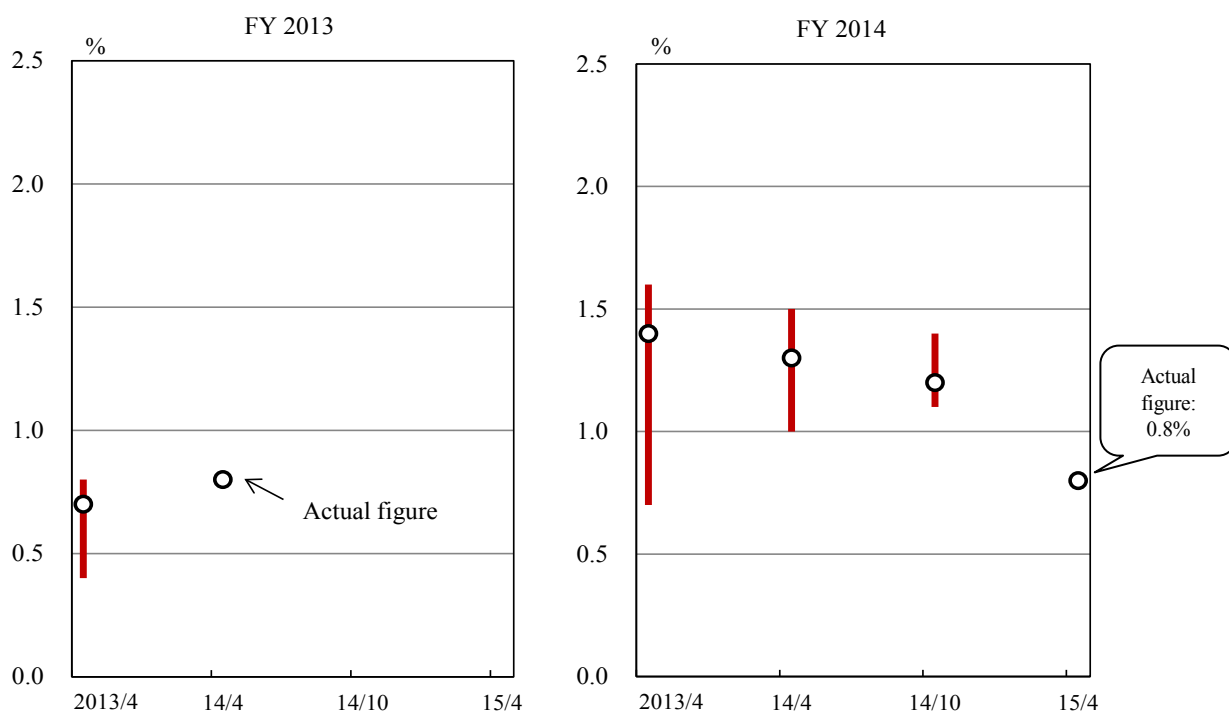
Sources: Cabinet Office; Ministry of Internal Affairs and Communications; Bank of Japan.

The Bank's Outlook for Economic Activity and Prices for Fiscal 2013-14

(1) Real GDP Growth Rate



(2) CPI Inflation Rate

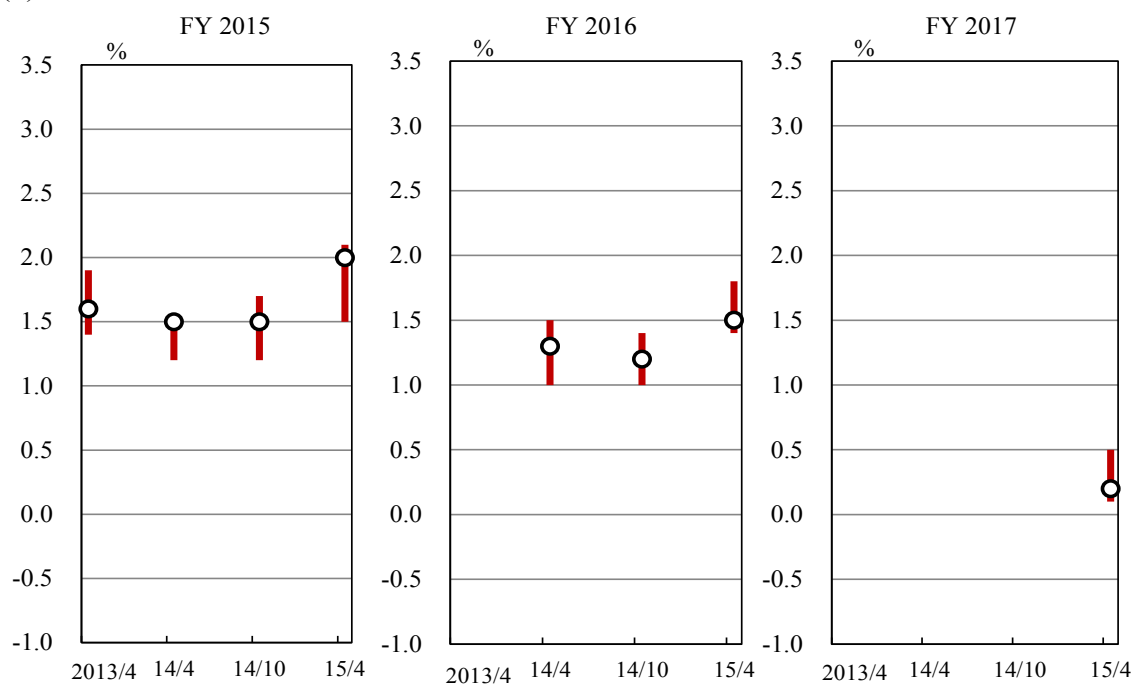


Note: The range and the median of majority forecasts of Policy Board members. Figures for fiscal 2014 exclude the direct effects of the consumption tax hike.

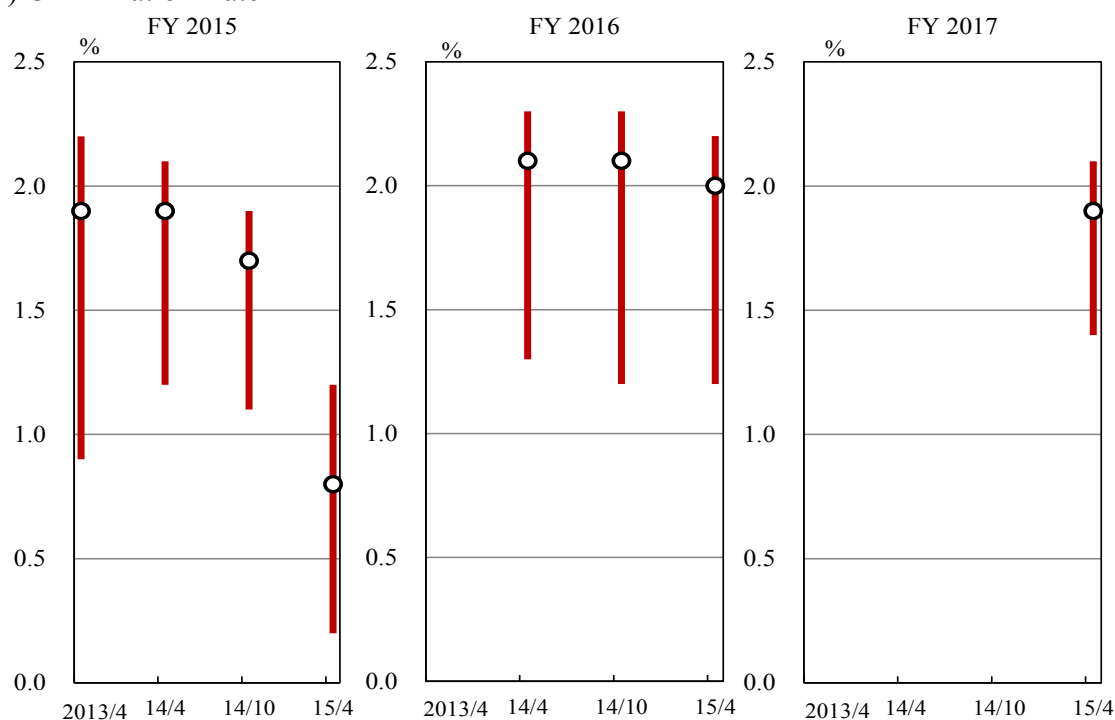
Source: Bank of Japan.

The Bank's Outlook for Economic Activity and Prices for Fiscal 2015-17

(1) Real GDP Growth Rate



(2) CPI Inflation Rate

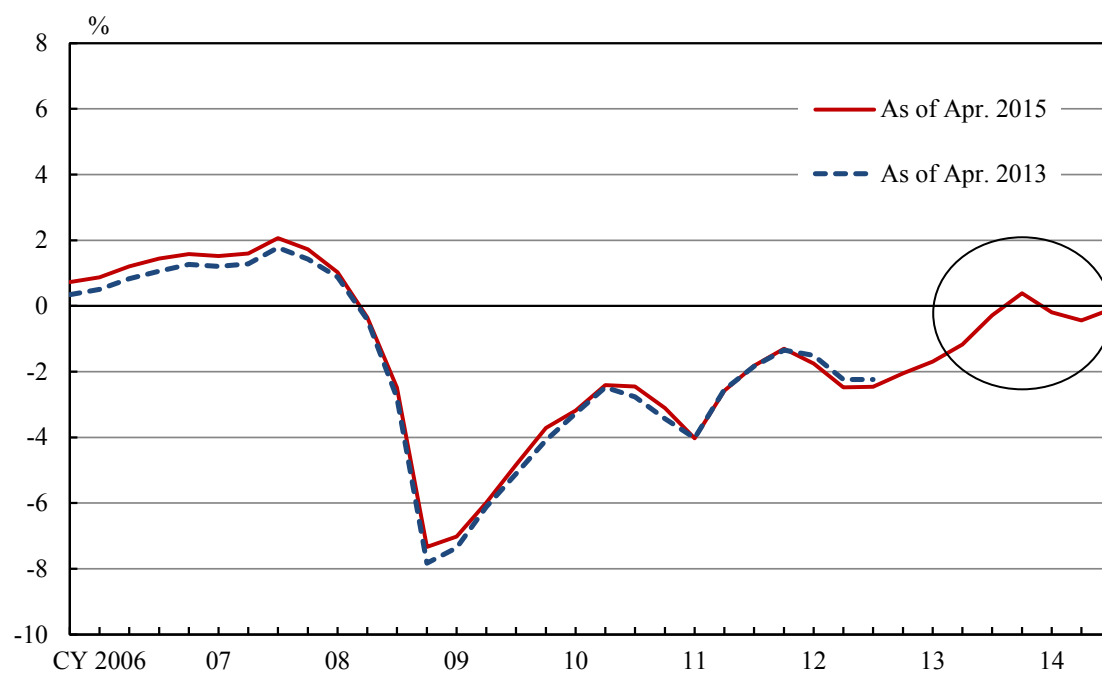


Note: The range and the median of majority forecasts of Policy Board members. Figures for fiscal 2017 exclude the direct effects of the consumption tax hike.

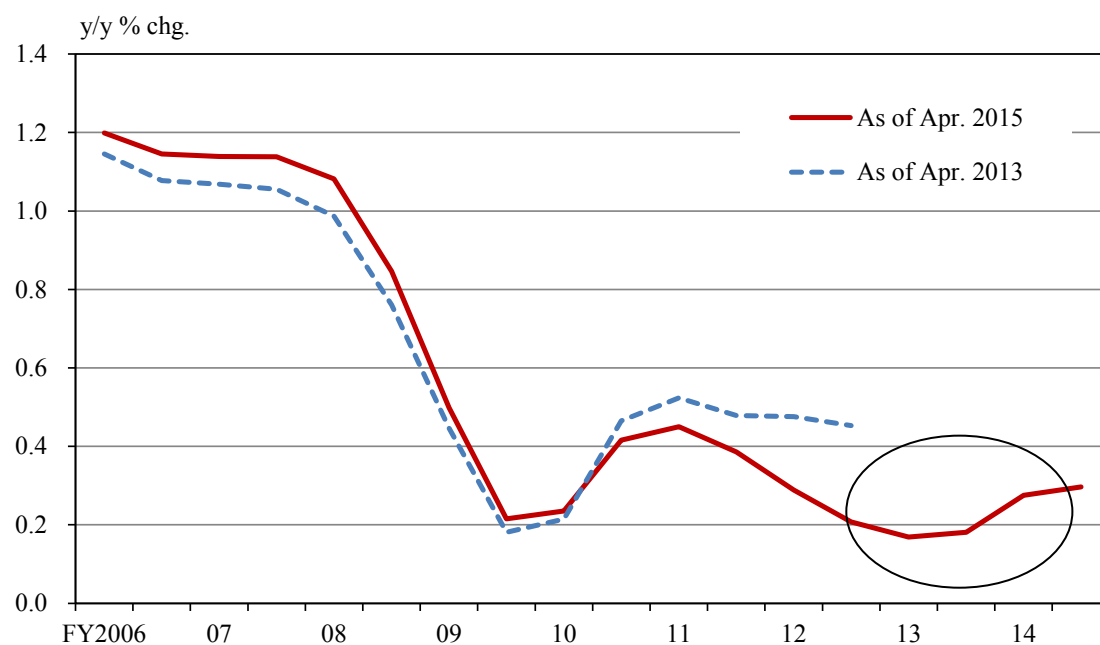
Source: Bank of Japan.

Potential Growth Rate and Output Gap Estimated by the Bank

(1) Output Gap



(2) Potential Growth Rate

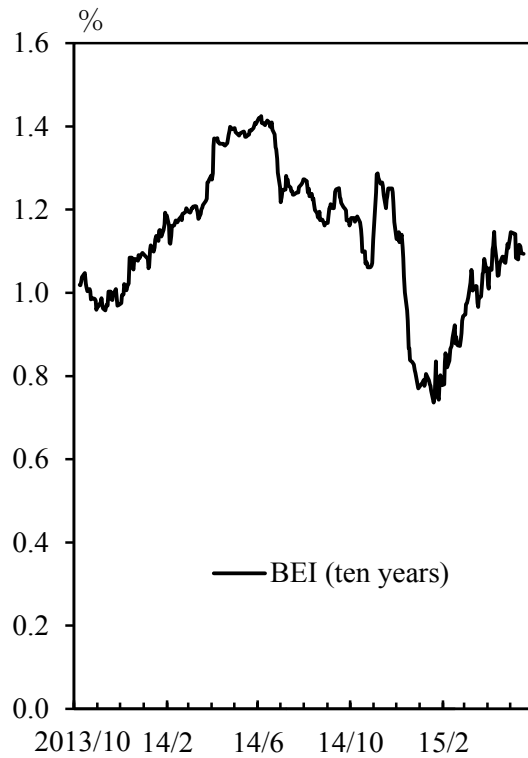


Note: The latest estimates are for the second half of fiscal 2014 for the potential growth rate and for October-December 2014 for the output gap.

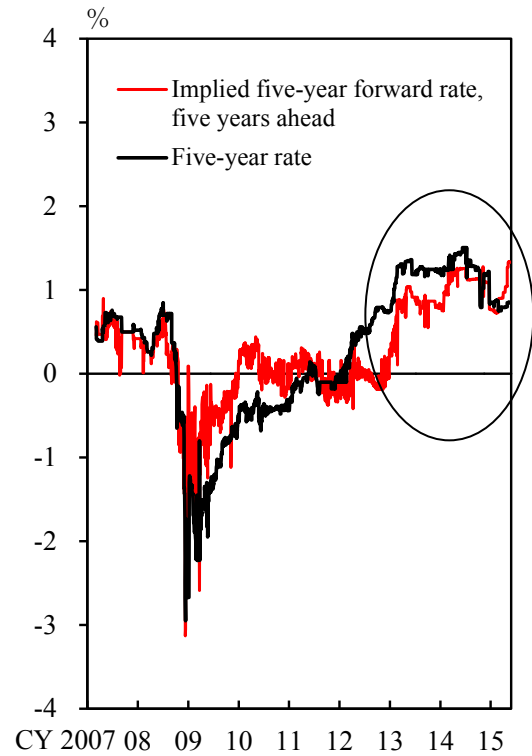
Source: Bank of Japan.

Medium- to Long-Term Inflation Expectations <1>  
(Market-Based Indicators and Market Participants' Survey)

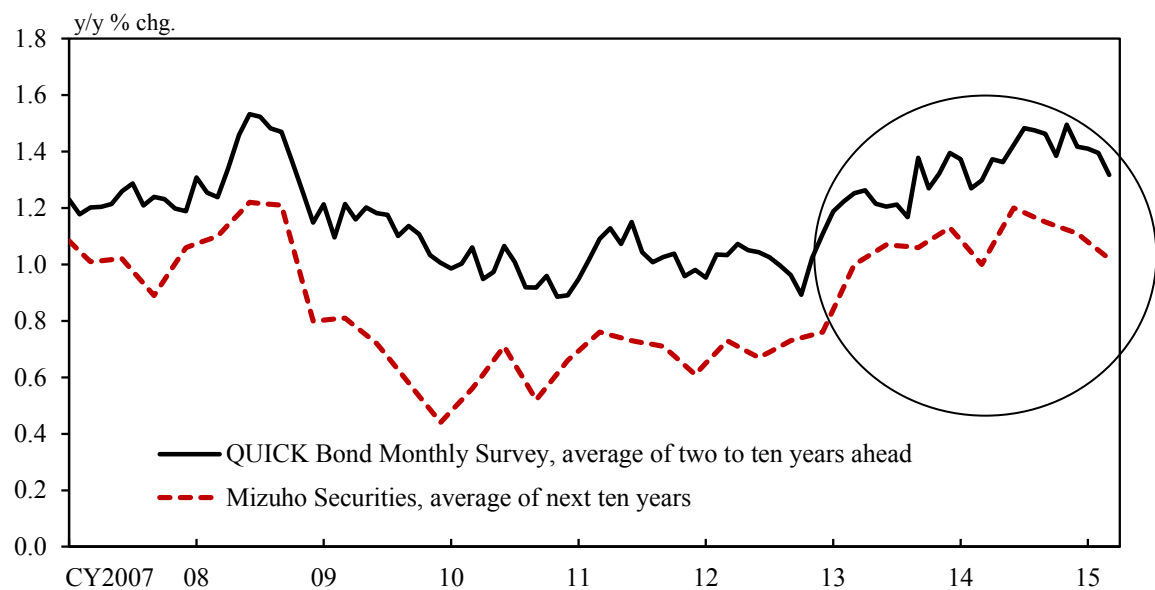
(1) Break-Even Inflation (BEI) Rate



(2) Inflation Swap Rate



(3) Bond Market Participants



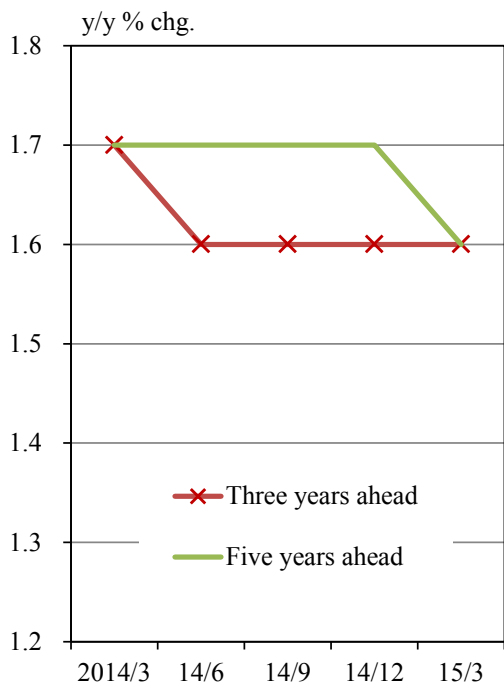
Note: The inflation swap rate is the fixed interest rate of the zero coupon inflation swap. The QUICK Bond Monthly Survey began including the effects of the consumption tax hike from the September 2013 survey. The survey by Mizuho Securities excludes the effects of the consumption tax hike.

Sources: Bloomberg; Mizuho Securities; QUICK.

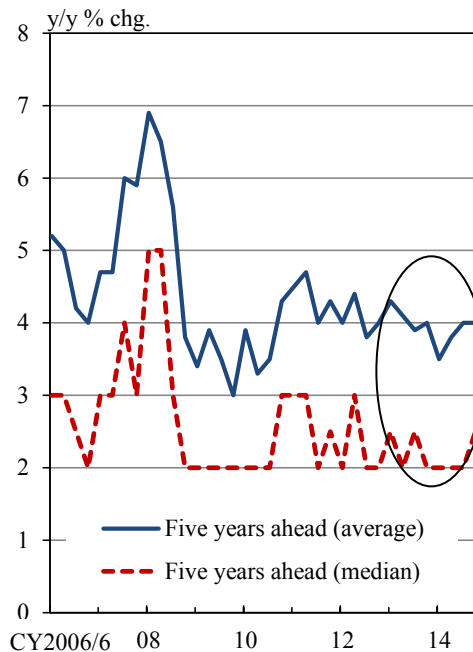
Medium- to Long-Term Inflation Expectations <2>

(Firms, Households, and Economists)

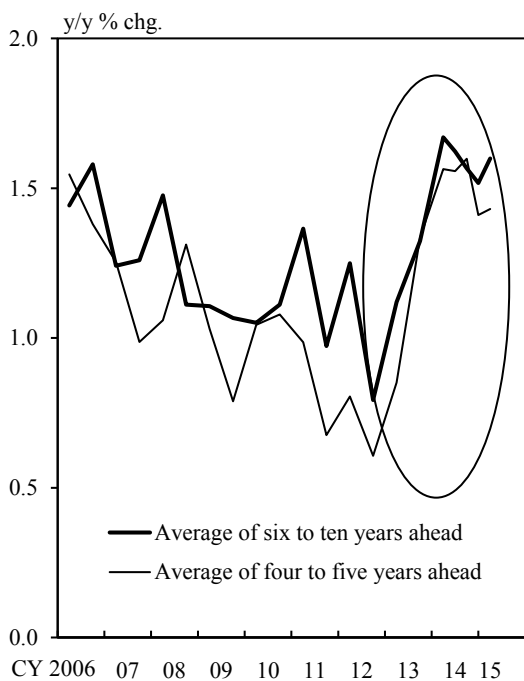
(1) Firms (*Tankan*, All Firms, All Industries)



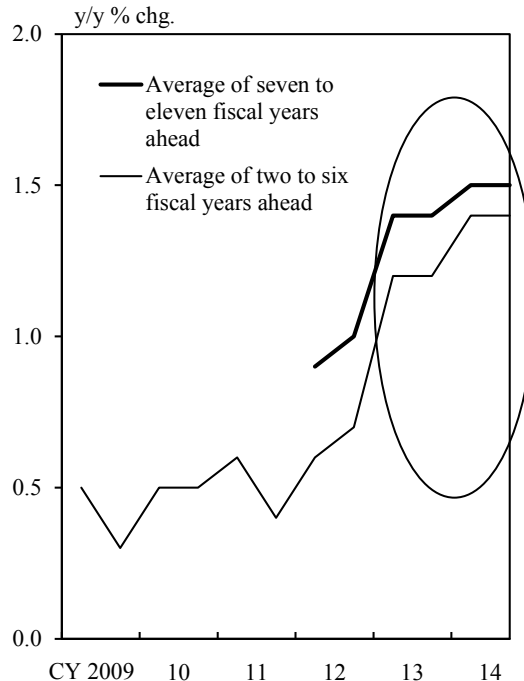
(2) Households (Opinion Survey on the General Public's Views and Behavior)



(3) Economists (Consensus Forecast)



(4) Economists (ESP Forecast)

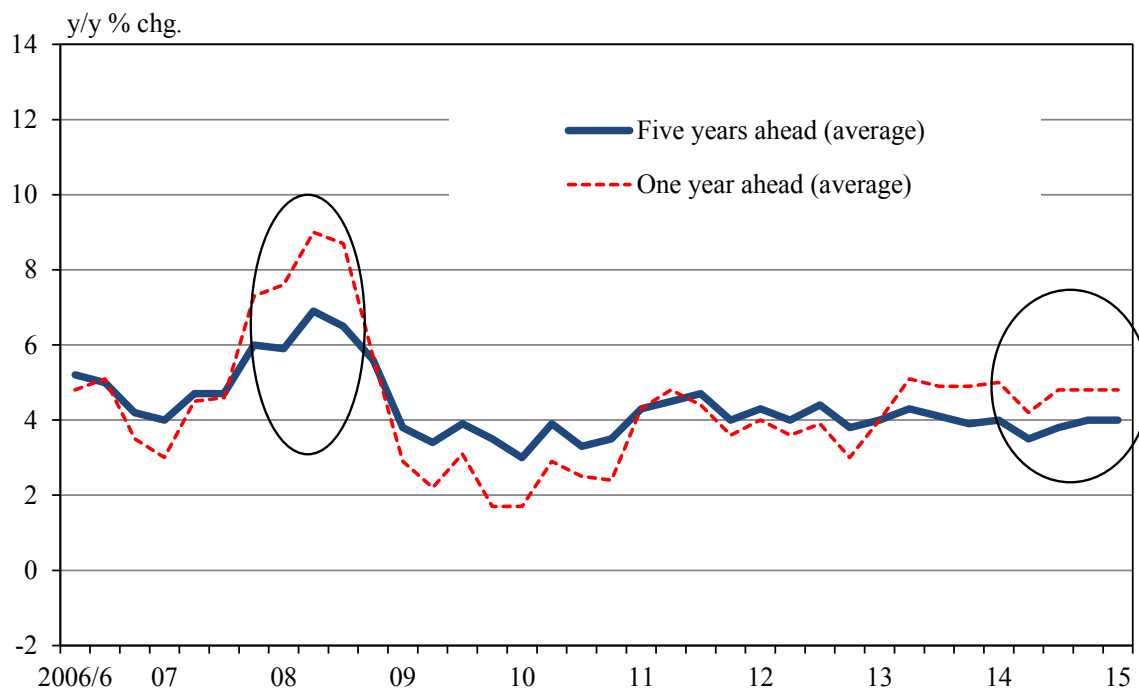


Note: Survey respondents are asked to exclude the effects of the consumption tax hike for the whole period for the *Tankan*, from the June 2013 survey for the household survey, and from the October 2013 survey for the ESP forecast. The effects are irrelevant for the Consensus Forecasts.

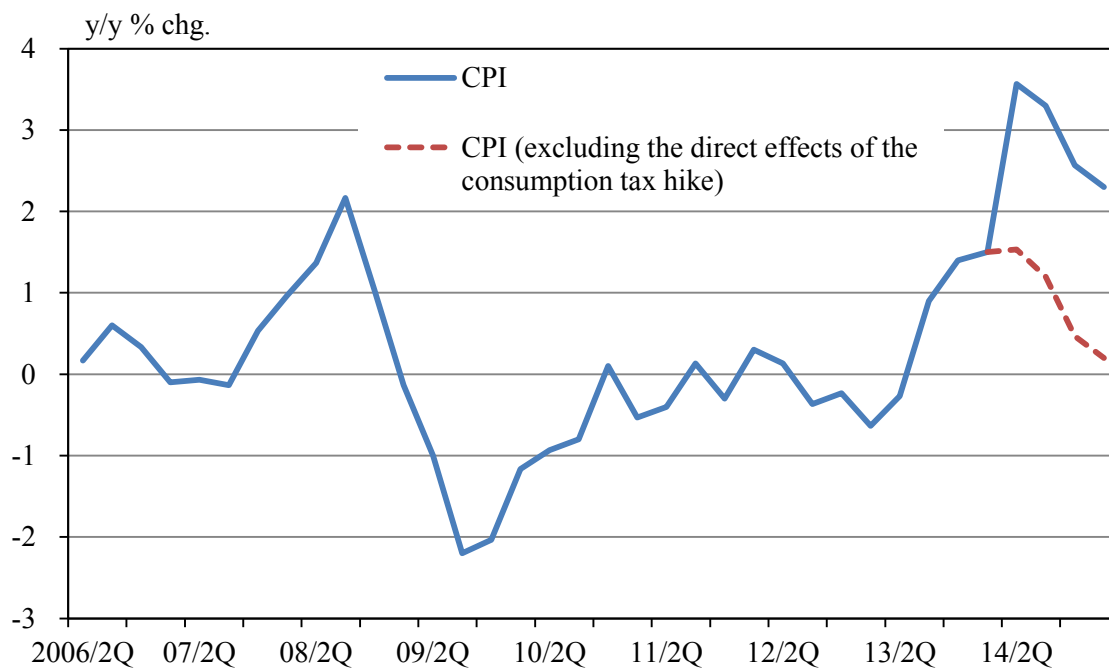
Sources: Consensus Economics Inc., "Consensus Forecasts"; Japan Center for Economic Research (JCER); Bank of Japan.

## Households' Inflation Expectations and Actual Inflation

### (1) Households' Inflation Expectations



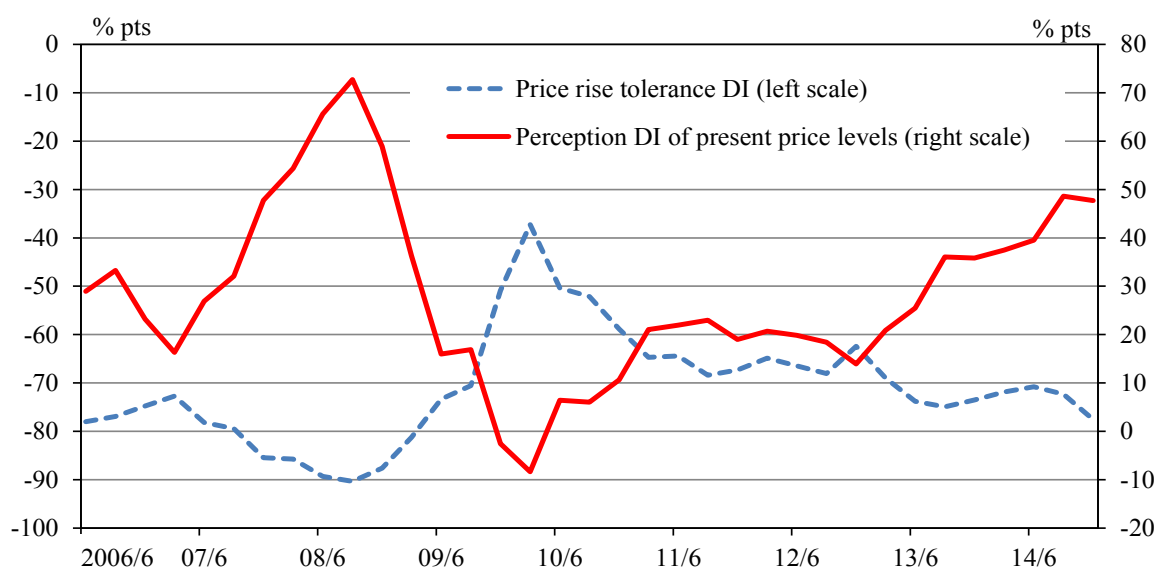
### (2) Actual Inflation



Sources: Ministry of Internal Affairs and Communications; Bank of Japan.

Chart 6-1

### Households' Price Rise Tolerance DI



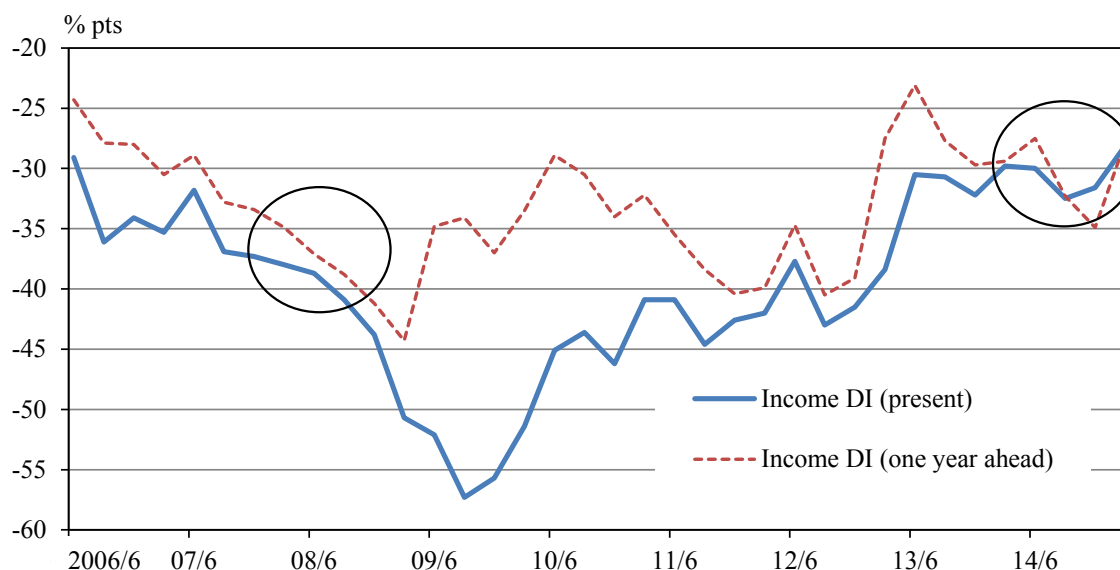
Notes: 1. Price rise tolerance DI = ("price rise is rather favorable" and "price decline is rather unfavorable" respondent ratio - "price rise is rather unfavorable" and "price decline is rather favorable" respondent ratio) / (valid respondent ratio - "have remained almost unchanged" respondent ratio).

2. Perception DI of present price levels = ("have gone up significantly" \* 1 + "have gone up slightly" \* 0.5) - ("have gone down slightly" \* 0.5 + "have gone down significantly" \* 1).

Sources: Ministry of Internal Affairs and Communications; Bank of Japan.

Chart 6-2

### Households' Income DI



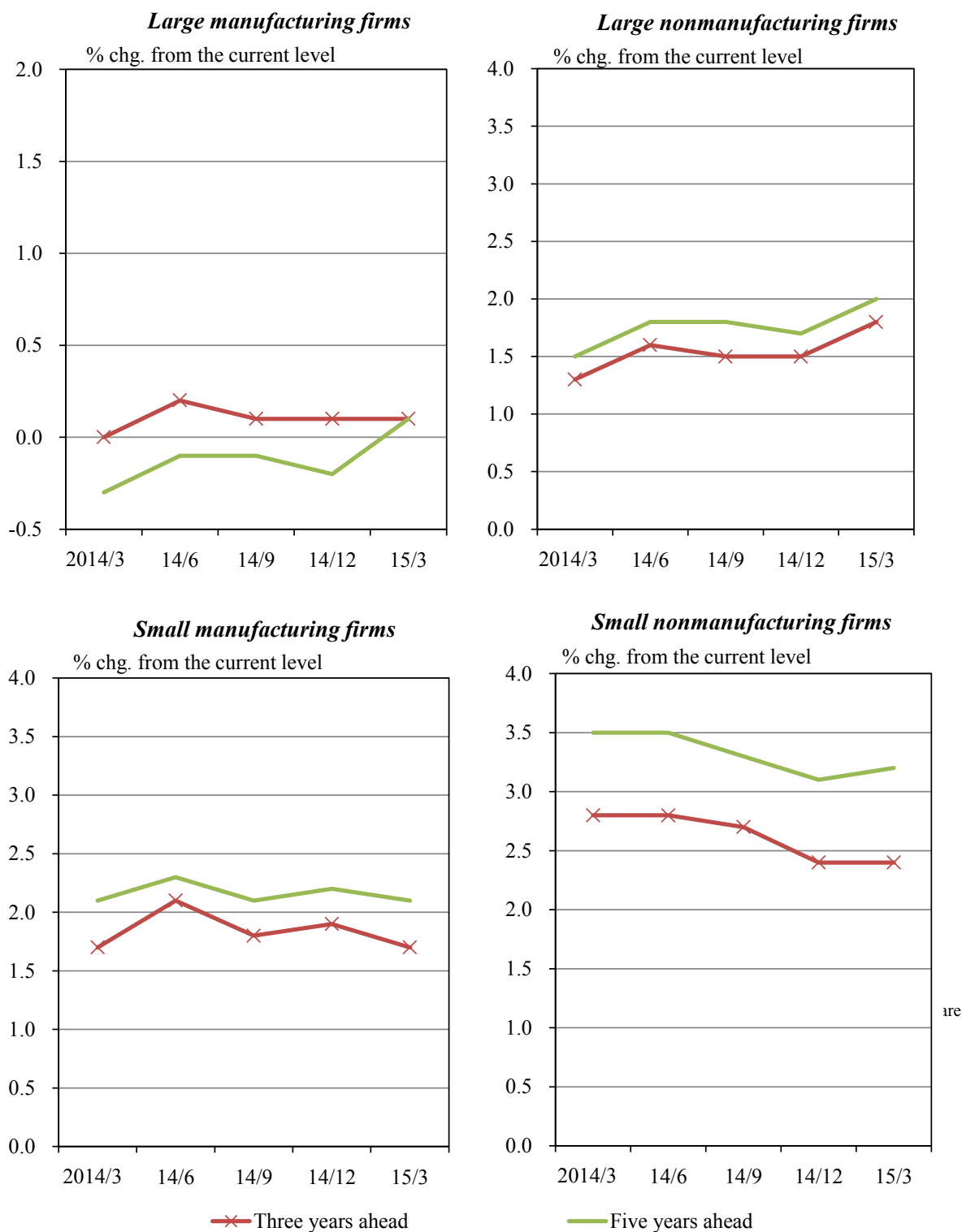
Notes: 1. Income DI = "will increase (has increased)" - "will decrease (has decreased)"

2. Income DI (present) refers to present income compared with a year ago, and income DI (one year ahead) refers to income of one year ahead compared with present income.

Source: Bank of Japan.



### Firms' Outlook for Sales Prices: Medium to Long Term (Average)

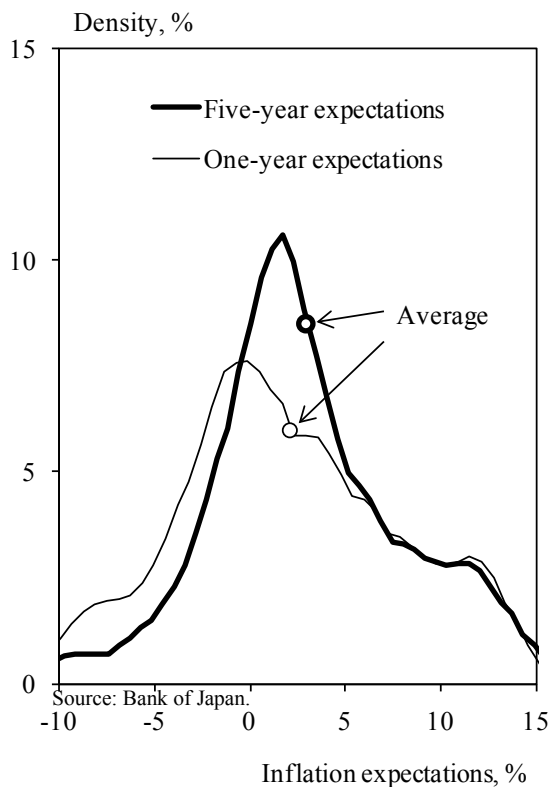


Note: The *Tankan* explicitly asks respondents to disregard the effects of the consumption tax hike. Figures for March 2015 are those based on sample firms after the March 2015 revision.

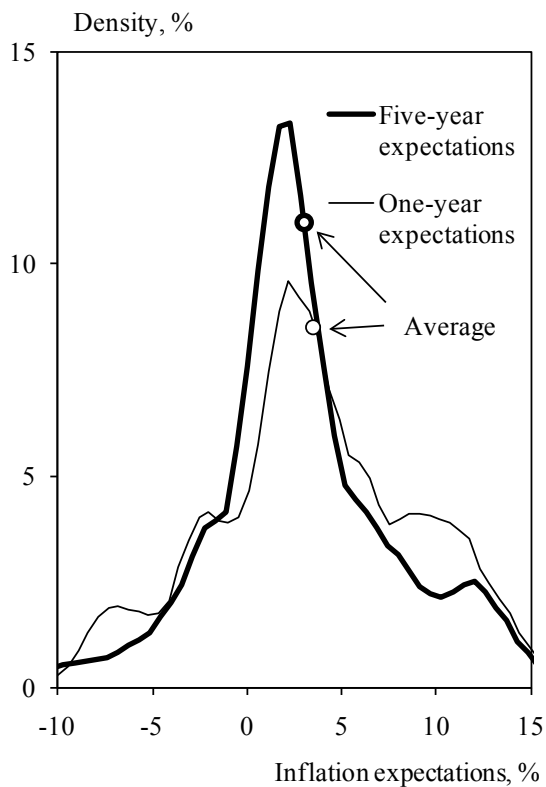
Source: Bank of Japan.

Distribution of Households' Inflation Expectations  
(After Adjusting for Reporting Biases)

(1) Distribution of Expectations in 2012



(2) Distribution of Expectations in 2013



Source: Bank of Japan.