

## **Yutaka Harada: Economic activity and prices in Japan and monetary policy**

Speech by Mr Yutaka Harada, Member of the Policy Board of the Bank of Japan, at a meeting with business leaders, Tochigi, 11 November 2015.

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### **Introduction**

This will be my first speech to deliver as a Policy Board member of the Bank of Japan. Before starting, I would like to extend my sincere condolences for the lives lost and to the people who have suffered from the heavy rains that devastated areas including Tochigi Prefecture in September.

Thank you for giving me this opportunity to exchange views with people representing Tochigi, who have taken time to be here despite their busy schedules. It is indeed a great honor to be here today. Please allow me to express my gratitude for your great cooperation with the activities of the Bank's Research and Statistics Department on the economy of Tochigi, and also with those of the Bank's other departments.

Around two and a half years have passed since the Bank introduced quantitative and qualitative monetary easing (QQE) in April 2013. Today, I would like to offer my assessment of QQE and then discuss the Bank's outlook for economic activity and prices through fiscal 2017 indicated in its report, the *Outlook for Economic Activity and Prices* (hereafter the Outlook Report), which was released at the end of October this year. Following my speech, I look forward to hearing your views on the actual situation for Tochigi's economy, and to your candid opinions.

### **I. Major shift in monetary policy**

The current QQE was adopted following a major shift from the previous monetary policy regime. In January 2013, the Bank introduced the price stability target of 2 percent in terms of the year-on-year rate of change in the consumer price index (CPI). Furthermore, in March that year, Mr. Haruhiko Kuroda was appointed as Governor of the Bank, and in April, the Bank introduced QQE in order to achieve the price stability target at the earliest possible time, with a time horizon of about two years.

QQE consists of a strong commitment to achieving 2 percent inflation in terms of the year-on-year rate of change in the CPI and bold monetary easing measures to underpin such a commitment. At the Monetary Policy Meeting held on April 3 and 4, 2013, the Bank decided on the following specific measures. First, it decided to change the main operating target for money market operations from the interest rate – namely, the uncollateralized overnight call rate – to the monetary base, and to conduct money market operations so that the monetary base would increase at an annual pace of about 60–70 trillion yen, doubling in two years, from 138 trillion yen at the end of 2012 to 270 trillion yen at the end of 2014. Second, in terms of the qualitative aspect, with a view to encouraging a further decline in interest rates across the yield curve, the Bank decided to purchase Japanese government bonds (JGBs), so that the amount outstanding of its holdings would increase at an annual pace of about 50 trillion yen, similarly doubling in two years, from 89 trillion yen at the end of 2012 to 190 trillion yen at the end of 2014. In addition, the Bank decided to extend the average remaining maturity of its JGB purchases from slightly less than three years to about seven years. Third, with a view to lowering the risk premia of asset prices, the Bank decided to purchase exchange-traded funds (ETFs) and Japan real estate investment trusts (J-REITs) so that their amounts outstanding would increase at an annual pace of 1 trillion yen and 30 billion yen, respectively. And fourth, the Bank committed to continuing with QQE, aiming

to achieve the price stability target of 2 percent, as long as it was necessary for maintaining that target in a stable manner.

Furthermore, the Bank decided to expand QQE in October 2014 to prevent a risk that conversion of the deflationary mindset would be delayed because, after the consumption tax hike in April that year, it became clear that the negative effects of the hike on economic activity and prices would persist, and also because of the drop in crude oil prices – a factor that would be desirable in the longer term but exert downward pressure on prices in the short term. Specifically, the Bank decided to accelerate the annual pace of increase in the monetary base from 60–70 trillion yen to 80 trillion yen, and to increase purchases of JGBs so that the amount outstanding of its holdings would be increased from an annual pace of 50 trillion yen to 80 trillion yen. The average remaining maturity of the Bank's JGB purchases would be extended from about seven years to a range of seven to ten years. In addition, the Bank decided to accelerate the annual paces of increase in the amounts outstanding of its holdings of ETFs and J-REITs from 1 trillion yen and 30 billion yen, respectively, to 3 trillion yen and 90 billion yen.

Next, I will explain what has occurred as a result of these monetary easing measures, as well as the problems with them.

## **II. Consequences of the monetary policy shift**

### ***Trends in production, consumption, and investment***

First, I will talk about trends in production, consumption, and investment over the period of around two and a half years since the introduction of QQE. Chart 1 shows that, excluding the negative effects of the consumption tax hike in April 2014, investment, in terms of domestic shipments and imports of capital goods, has been expanding as a trend, although it has shown weakness very recently. On the other hand, production and consumption have been stagnant. Even excluding such factors as the effects of the front-loaded increase in demand prior to the consumption tax hike and the subsequent decline, it is difficult to say that production and consumption have been recovering steadily.

The effects of the consumption tax hike have been particularly large on consumption. The Synthetic Consumption Index – which is a combination of supply-side and demand-side statistics and shows similar movements to consumption on a GDP basis – has not yet surpassed the peak before the front-loaded increase in demand. However, it is natural that a consumption tax hike leads to a decrease in consumption because the hike reduces households' real income. What is important is whether real consumption is increasing as a trend despite this phenomenon. The Bank's baseline scenario is that consumption has been resilient, but I think that there have been some worrisome developments in consumption very recently, as in production.

### ***Steady growth in employment***

In contrast, employment has grown steadily since the shift to QQE. As shown in Chart 2, the numbers of both part-time and full-time employees have continued rising. The unemployment rate has been declining steadily.

The active job openings-to-applicants ratio, as shown in Chart 3, was 1.24 times in September 2015, marking its highest since January 1992.

Improvement in employment is spreading across Japan, although we have heard voices of concern that the economic recovery has only been observed in major cities. As shown in Chart 3, the active job openings-to-applicants ratio has risen in all regions, although it had temporarily declined following the consumption tax hike. It rose to 0.99 times in September 2015 in Hokkaido, where the ratio has been the lowest in Japan.

## ***Increase in wages***

It has been said that wages have not increased despite the rise in employment. However, as shown in Chart 4, employee income – that is, wages multiplied by the number of employees – has increased. Real employment income has also increased, when excluding the effects of the April 2014 tax hike. Since April 2015 – when the effects of the tax hike dissipated – the uptrend in employee income has become clearer.

Here, I would like to note that, according to the *Monthly Labour Survey*, employment income fell sharply in June and did not rebound much in July. However, the results seem odd given that all surveys concerning the outcome of summer bonus payments in 2015 indicated a year-on-year increase.<sup>1</sup> I personally think that there was a sample bias in the *Monthly Labour Survey*.

One reason wages are not rising is that the commonly used data on wages are the monthly average of wages for all employees. During the early stage of an economic recovery, firms try to meet increases in labor demand by hiring non-regular employees. This is because they are not sure whether such demand will grow continuously. As a result, during this stage of economic recovery, the number of employees increases for those with low hourly wages and short monthly working hours. Statistically, this appears as a decline in the monthly average wages for all employees. If economic recovery continues, firms will start to hire regular employees, but it takes time before they do so.

Chart 5 shows nominal hourly wages for full-time and part-time employees. As wages for full-time employees include bonuses, their wage level fluctuates widely even after making seasonal adjustments, and therefore it is difficult to find a clear trend. However, the wage level for part-time employees has been rising in a stable manner. Wages for both full-time and part-time employees are likely to increase in a sustainable manner as the economic recovery continues, enabling us to confirm an uptrend in wages. As for the rate of increase in wages between April 2013 – when QQE was introduced – and September 2015 – the latest month for which the data are available – the rate for part-time employees was 3.8 percent, which is higher than the rate for full-time employees of 1.2 percent.

## ***Sluggish growth in exports***

There has been criticism that exports have not grown even after the introduction of QQE. On the other hand, those who have opposed monetary easing have argued that this policy would create a serious problem by causing exports to surge, which would reignite trade frictions. However, the economy is improving and exports have not grown much, as shown in Chart 6, and I believe this is a rather desirable situation on balance. I will refer to the outlook for exports later.

There is a strong perception that exports have been the main driving force of Japan's economic recovery. However, past experience shows that exports have not necessarily acted as such during economic recovery phases.<sup>2</sup> Chart 6 shows the real export index, the real import index, and the difference between the two; that is, the real trade balance. Here, only the upward/downward movement of the real trade balance, and not the absolute level, is meaningful. Japan's economy has experienced five recovery phases since 1990, from the troughs of October 1993, January 1999, January 2002, March 2009, and November 2012. However, exports and the trade balance increased simultaneously only in two phases, in

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<sup>1</sup> According to the *Monthly Labour Survey*, summer bonus payments in 2015 (special cash earnings for the June-August period) were minus 3.3 percent on a year-on-year basis. Surveys conducted by the Japan Business Federation (Keidanren), Nikkei Inc., the Institute of Labour Administration, and the Ministry of Health, Labour and Welfare indicated increases of 2.8 percent, 2.1 percent, 3.0 percent, and 4.0 percent, respectively.

<sup>2</sup> This is when “export-driven” growth is defined as the growth in net exports, which in turn contributes directly to GDP growth.

2002 and 2009. Moreover, in the 2002 phase, the trade balance started to increase after more than three years had passed since the trough. In the 2009 phase, the trade balance increased at first but decreased thereafter.

These findings indicate that the monetary easing policy can achieve economic recovery without causing such problems as trade frictions.

### ***Decline in crude oil prices has been weighing on price increases***

We cannot rule out the risk of a pause in economic recovery, and yet, as I have explained, the economy thus far has continued to recover, albeit at a moderate pace. In particular, employment has been improving continuously. Even so, some people may criticize the Bank for not being able to achieve the price stability target of a year-on-year rate of increase in the CPI of 2 percent. As shown in Chart 7, prices do not appear to be rising, as the year-on-year rate of change in the CPI (all items less fresh food) was negative for September, registering minus 0.1 percent<sup>3</sup>. However, this was caused by a decline in energy prices due to the fall in crude oil prices worldwide, and prices in terms of the CPI for all items less fresh food and energy show a steady increase. As energy prices will not continue falling forever, I am confident that the CPI for all items, including energy, will start to rise as the effects of the fall in energy prices dissipate over time.

### ***Monetary policy and price movements***

Chart 8 shows the correlation between the monetary policy and price movements since 2012. This chart indicates the actual inflation rates in terms of the CPI and inflation expectations; namely, the breakeven inflation (BEI) rates, which are calculated from the price of inflation-indexed JGBs.<sup>4</sup> Both the BEI rates and the CPI started to rise after the introduction of QQE in April 2013 that followed the inauguration of the second Abe Cabinet in December 2012. However, after entering fiscal 2014, increases in the CPI excluding the effects of the consumption tax hike, the CPI for all items less fresh food, the CPI for all items less fresh food and energy, and also the BEI rates became stagnant. To resolve this situation, the Bank expanded QQE in October 2014, and the BEI rate and the CPI for all items less fresh food and energy started rising again. In light of this result, the introduction and expansion of QQE have been effective in pushing up the inflation rate, as recent price developments show.

Here, I would like to note that the consumption tax hike has a negative impact on economic activity, and that this works to push down the inflation rate. The hike reduces consumer demand by exerting downward pressure on households' real income, which then lowers the inflation rate. I feel that, in many cases, this is a point that is forgotten in discussions on prices.

### ***The reasons why the bank had not implemented monetary easing***

Japan's economy has been recovering and moving toward overcoming deflation as a result of QQE. Until this bold measure was taken under Governor Kuroda's leadership, there had been criticism that the Bank had not been implementing sufficient monetary easing. The following arguments have been pointed out as reasons behind the Bank's hesitation at that time. The Bank was not able to implement monetary easing given that interest rates were at

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<sup>3</sup> While the Bank has adopted the CPI for all items including fresh food as its price target, to determine the underlying trend in prices, it makes forecasts for the CPI for all items less fresh food, for which prices fluctuate significantly.

<sup>4</sup> The Bank makes an assessment of inflation expectations by taking into account indicators based on surveys conducted of firms, households, and economists, in addition to those calculated from market data, e.g., the BEI based on transaction prices of inflation-indexed JGBs shown in Chart 8.

zero. Even if quantitative easing were to be implemented, this would only increase the outstanding balance of private banks' current accounts held at the Bank and would not stimulate lending. Under zero interest rates, quantitative easing would not affect the yen's exchange rates against other currencies. Should the yen depreciate, there would be a serious problem of invoking competition among countries to devalue their currencies. In reality, the Bank has managed to implement effective monetary easing both in terms of quantity and quality. Bank lending has been increasing, and, as I discussed earlier, the yen has depreciated without causing competition among countries with regard to devaluing their currencies.<sup>5,6</sup> Another argument that has been pointed out is concern about the risk that monetary easing would lead to higher interest rates in the long term and cause some banks that are holding a large amount of JGBs to be saddled with massive unrealized capital losses on their JGB holdings. A rise in interest rates is naturally a positive factor for banks' business conditions in the long term, but it is likely to temporarily increase their losses before getting to that stage. However, I believe that, even if there was indeed such a risk, the Bank should not have put off monetary easing. This is because, if deflation is allowed to continue, banks will have no option but to increase their holdings of JGBs in the absence of borrowers.

Loans account for a large portion of banks' assets. An interest rate rise of 1 percentage point would reduce the total value of bonds held by the entire banking sector by 7.5 trillion yen, compared with the total assets outstanding of nearly 1,200 trillion yen.<sup>7</sup> If deflation is overcome and interest rates rise as a result of economic recovery, the business conditions of banks' borrowers will improve, enhancing the soundness of loan assets. In other words, the business conditions of banks will improve when interest rates rise as a result of economic recovery.

In a newspaper opinion page, Professor Paul Krugman of Princeton University, a Nobel economic sciences laureate, cited "the Fed's strange, destructive turn away from expansionary policy in 1932" in the midst of the Great Depression, arguing that "a key factor [behind the decision] was the complaints of commercial banks that low interest rates on government securities were squeezing their profits."<sup>8</sup> Given that the monetary tightening led to a further deepening of the depression and deterioration of banks' business conditions, the tightening clearly was a misjudged action that focused on narrow and fleeting interests.

### III. Transmission mechanism of QQE for economic recovery

Thus far, I have shown that QQE has helped Japan's economy recover, albeit at a moderate pace. Now, I would like to discuss the mechanism through which this has been achieved.

QQE has been effective in reducing real interest rates by lowering long-term interest rates and raising inflation expectations. The Bank has committed to increasing the monetary base in order to raise inflation expectations, and the increase in the monetary base has had

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<sup>5</sup> In the current phase of economic recovery, bank lending has been increasing, but there were many cases in the past where the economy recovered as a result of monetary easing without an increase in bank lending. For details, see Yutaka Harada, "Nihon wo Sukutta Rifure-ha Keizaigaku (Reflationist Economics that Saved Japan)," Nikkei Publishing Inc., November 2014, pp.49–50 (available only in Japanese).

<sup>6</sup> For details on foreign exchange rates mentioned in the arguments, see Ai Nakagawa and Yutaka Harada, "Kinyu Kanwa Seisaku, Tsuka Sensou, Koueki Joken (Monetary Easing Policy, Competitive Devaluation, and Terms of Trade)," *The Keizai Seminar*, December 2015-January 2016, Nippon Hyoron Sha Co. Ltd. (forthcoming; available only in Japanese).

<sup>7</sup> Bank of Japan, *Financial System Report*, October 2015, charts III-1–29 and IV-2–2.

<sup>8</sup> Paul Krugman, "Rate Rage in 1932," *The New York Times*, September 22, 2015.

portfolio rebalancing effects in the broad sense of the term; namely, the effects of boosting stock prices and weakening the yen.<sup>9</sup>

Chart 9 shows the BEI rates, which are calculated from the price of inflation-indexed JGBs, and real interest rates. From the chart, we can see that inflation expectations in terms of the BEI rate started to rise following the introduction of QQE. This will reduce real interest rates, leading to a rise in asset prices, a decrease in the yen's exchange rate, and an expansion in employment and production through an increase in business fixed investment and consumption of durable goods, and consequently economic recovery.

#### **IV. My views on criticisms against QQE**

As I have explained, QQE has somehow managed to support economic recovery. There is a theoretical basis for this, but even so, criticism against this policy has not subsided.

Let me first introduce a general criticism.

(1) Many people do not feel that the economy is recovering. Indeed, only about 10 percent of respondents answered that economic conditions have improved in the Bank's survey. Chart 10 shows the trend in responses to the question: "How do you think economic conditions have changed compared with one year ago?" Here, 10 percent is by no means low. Even at its peak before the Lehman shock, the ratio was only at around 20 percent. Considering the effects of the consumption tax hike in fiscal 2014, it will take time before people begin to feel more strongly that economic conditions are improving.

Criticisms against monetary policy are as follows.

(2) Exports have not grown even after the introduction of QQE. It is true that exports had been sluggish at the time of the introduction. However, this was due to the shift of Japanese firms' production sites to overseas that was brought about by the fact that no measures were taken to deal with the appreciation of the yen after the Lehman shock. Even though the yen has depreciated, it takes time to shift production sites back to Japan. If a monetary easing policy like the one that is now in place had been adopted immediately following the Lehman shock, I think that this situation could have been avoided.

Meanwhile, revenue from inbound tourism, which is part of service exports, has grown by a considerable degree. Such revenue, which was 1.2 trillion yen in 2012, rose to 1.5 trillion yen in 2013 and nearly 2.0 trillion yen in 2014, and already has exceeded 2.0 trillion yen in the January-August period of 2015. It takes time to shift production sites back to Japan, but tourism is apparently an industry that can respond quickly. However, it is necessary to make additional investment, such as in hotels, in order to continue attracting international tourists, as the lack of hotels has become conspicuous.

Since the beginning of 2015, exports have been declining again, but this has been caused by a temporary pause in the U.S. economic recovery and the slowdown in growth in emerging economies, including China.

(3) Another criticism concerning monetary policy is that QQE will weaken fiscal discipline by making it easier for the government to issue JGBs. Needless to say, the objective of monetary policy is to dispel the deflationary mindset and achieve the price stability target of 2 percent, thereby improving and stabilizing economic activity.

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<sup>9</sup> Monetary Affairs Department, "Quantitative and Qualitative Monetary Easing: Assessment of Its Effects in the Two Years since Its Introduction," *Bank of Japan Review Series*, 2015-E-3, May 2015; Kikuo Iwata and Yutaka Harada, "Kinyu Seisaku to Seisan: Yoso Infureritsu no Keiro (Monetary Policy and Production: A Channel of Expected Inflation Rate)," *Waseda Institute of Political Economy Working Paper*, No.1202, March 2013 (available only in Japanese).

If fiscal discipline weakens due to monetary policy, the same is true in the case of a tax hike. If the government squanders revenues because it is easy to issue JGBs, I believe that it will also squander additional revenues gained from a tax hike. The government and the parliament are responsible for maintaining fiscal discipline, and monetary policy should be independent.

(4) Another line of criticism is that QQE is a failure because prices are not rising. QQE would be criticized as a serious failure if prices rose without employment growth. In my opinion, growing employment means that this policy has been very successful. Prices will rise in due course in line with the narrowing of the output gap and a decline in the unemployment rate, both of which follow expansion in employment; thus, there is no cause for concern.

(5) The last example pertains to future concerns: a serious problem will come up sooner or later even though the current situation may be favorable. For example, people making such a criticism argue that QQE eventually will lead to hyperinflation despite the lack of an increase in prices so far, a surge in interest rates, or a loss of confidence in the currency due to impairment of the Bank's balance sheet. I think that these arguments are merely pointing to what could occur in the future, whereas the present situation has proved to be favorable.

## **V. The October 2015 outlook report**

I have basically talked about the past thus far, but would now like to discuss the outlook for Japan's economy in and after fiscal 2015, based on the recently released October 2015 Outlook Report.

The Bank's baseline scenario of the outlook for economic activity – that is, the median of the Policy Board members' forecasts of the real GDP growth rate – as in Chart 11, was 1.2 percent for fiscal 2015, 1.4 percent for fiscal 2016, and 0.3 percent for fiscal 2017.

The forecast of the real GDP growth rate for fiscal 2017 is low because consumption obviously is likely to be restrained as the result of another consumption tax hike scheduled to take place in April 2017. To respond to this situation, I believe that various approaches are expected to be taken under the government's strategic framework of Abenomics as well as the promotion of dynamic engagement of all Japanese citizens.

The Bank's baseline scenario of the outlook for prices – that is, the median of the Policy Board members' forecasts of the year-on-year rate of increase in the CPI (all items less fresh food) – was 0.1 percent for fiscal 2015, 1.4 percent for fiscal 2016, and 3.1 percent for fiscal 2017 on a basis including the effects of the scheduled consumption tax hike, and 1.8 percent on a basis excluding such effects. The forecast for fiscal 2017 is lower than that for fiscal 2016 because the negative impact of the scheduled consumption tax hike on the economy will exert downward pressure on prices as well.

I have explained the Bank's baseline scenario so far. My outlook for economic activity and prices is only slightly weaker, and I do not feel it is necessary to explain it in detail.

### ***Risk of economic deceleration***

In terms of economic activity and prices, there are indeed many risks that deviate from projections. Here, I will discuss solely the Chinese economy, over which uncertainty has been spreading since this summer. There is a criticism that data on the Chinese economy released by the Chinese statistics office are unreliable. I admit that these data may be questionable. But I do not think that the economic activity indicated by these data has diverged widely upward from the actual situation.

How can we confirm whether the recent economic activity in China indicated by the official statistics – for example, production – diverges widely from the actual situation? On this point, rather than looking at statistics with a high degree of processing, such as those for

production and GDP, I think we should examine economic data with a relatively low degree of processing – for example, real exports and imports, as well as the Purchasing Managers' Index (PMI) for manufacturing activity that consists of an indicator compiled by the Chinese government and one by a private-sector organization called Markit – or data for economies that are closely connected with production in China, such as production in Taiwan and South Korea. All of these data showed movements corresponding to the official statistics on Chinese production. Recently, however, the figures estimated by the regression between these data and the official statistics have shown higher growth rates than the official statistics. Among them, I have shown only the results calculated using data on Taiwan and South Korea in Chart 12. The results indicate that the official statistics on Chinese production have not been overly assessed upward.

Japan's exports to China may face stagnation due to the economic slowdown in China, and this eventually may lead to deceleration in Japan's economy. In fact, Japan's exports to China have already been decreasing. However, I do not think that they will see a significant further decrease. Meanwhile, the possibility cannot be ruled out that, if such a decrease in exports becomes large, this will lead to a decline in production, and further to a deterioration in employment.

### **Concluding remarks**

As I mentioned, QQE has been exerting its intended effects. Despite the negative impact of the April 2014 consumption tax hike, employment has continued to recover. The active job openings-to-applicants ratio has risen in all regions, although it had been said that Abenomics would not benefit local economies. It also has been said that wages have not increased despite the rise in employment, but hourly wages have been rising. Employee income – that is, wages multiplied by the number of employees – also has increased in real terms. Corporate profits have been increasing as well, and thus so has income. If these developments lead to positive movements in spending, such as consumption and investment, production will recover. Unfortunately, however, recoveries in consumption and investment remain weak despite the continued rise in income.

Prices have not risen as much as initially had been expected, but I think that QQE would be criticized as a serious failure if prices rose without employment growth. Prices eventually will start rising as the output gap in the overall economy tightens. We will be able to confirm by the end of fiscal 2015 that the year-on-year rate of increase in the CPI is accelerating toward 2 percent.

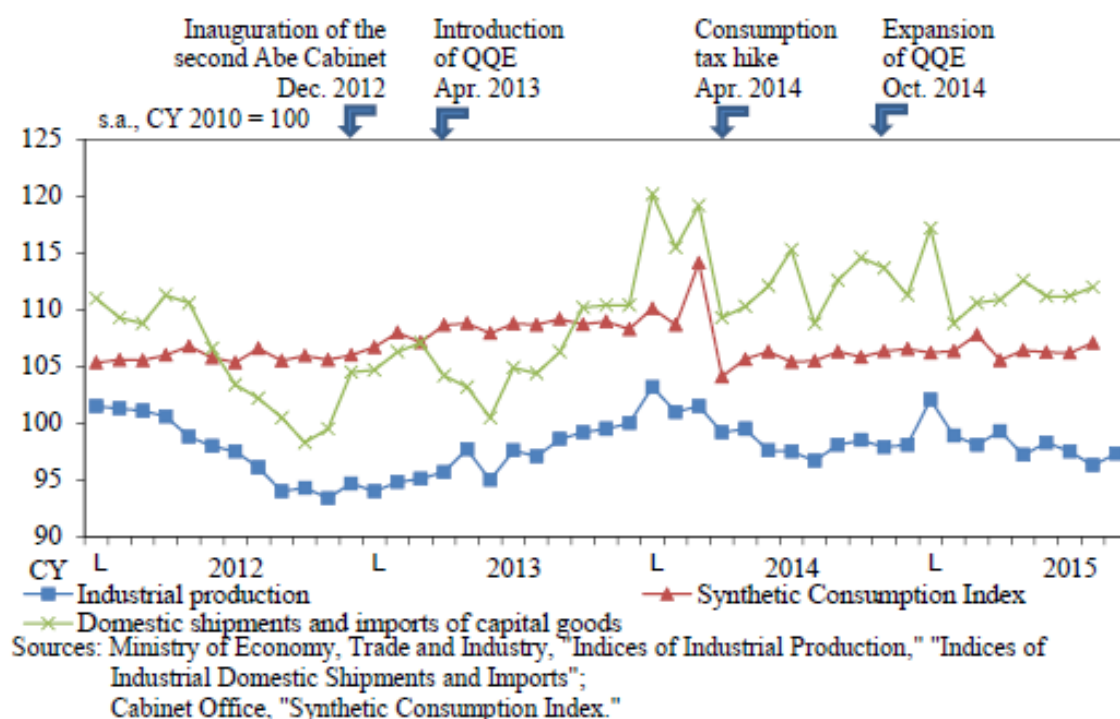
However, there are still risks of economic deceleration in Japan, caused by factors such as (1) a further slowdown in emerging economies, particularly China; (2) the possibility of an unexpected shock stemming from an interest rate hike in the United States; and (3) a resurgence of the European sovereign debt crisis. If the virtuous cycle of income to spending ceases to operate, with employment deteriorating, consequently undermining the mechanism through which prices trend upward, I think that the Bank should implement additional monetary easing without any hesitation. Particular attention also should be paid to the fact that indicators of employment are lagging those of economic activity.

Thank you for your attention.



## Production, Consumption, and Investment

Chart 1



## Number of Employees and the Unemployment Rate

Chart 2

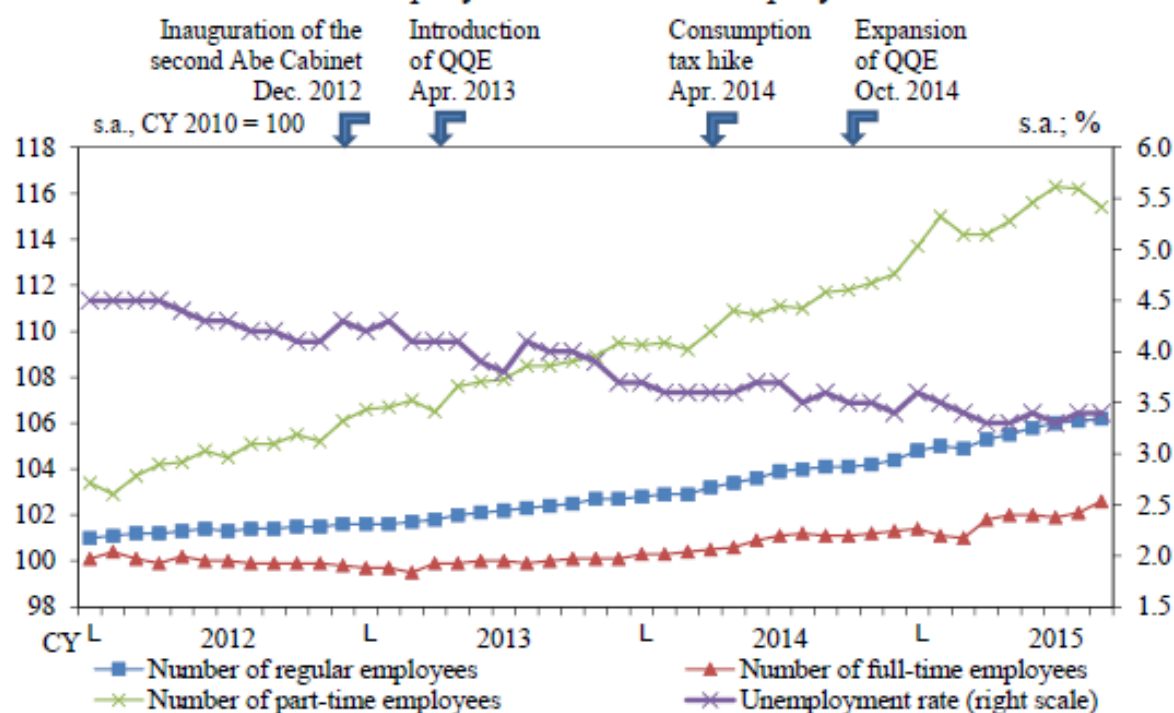
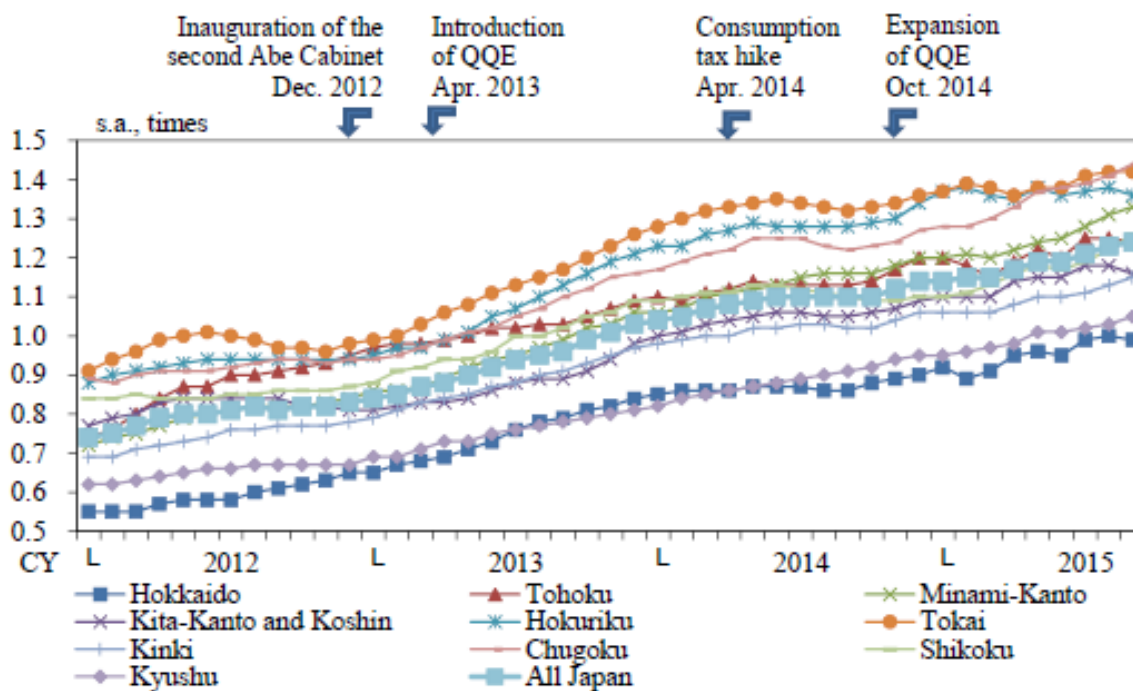


Chart 3

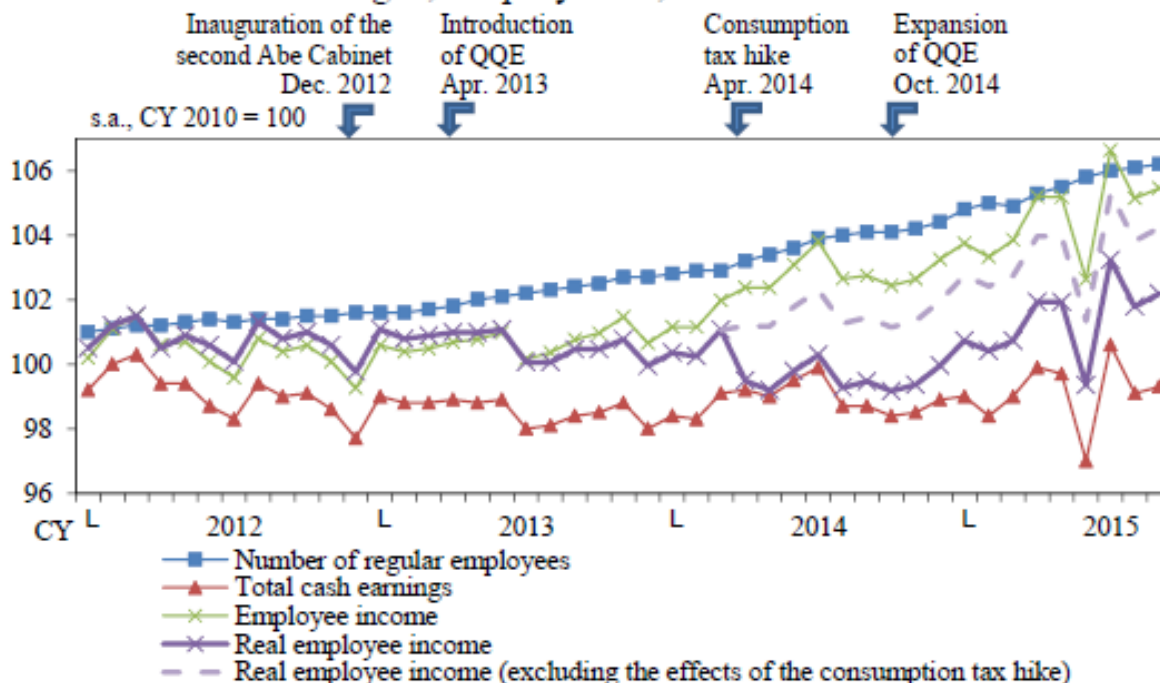
### Regional Active Job Openings-to-Applicants Ratio



Source: Ministry of Health, Labour and Welfare, "Employment Referrals for General Workers."

Chart 4

### Wages, Employment, and Income



Note: Employee income is calculated as the "number of regular employees" × "total cash earnings."

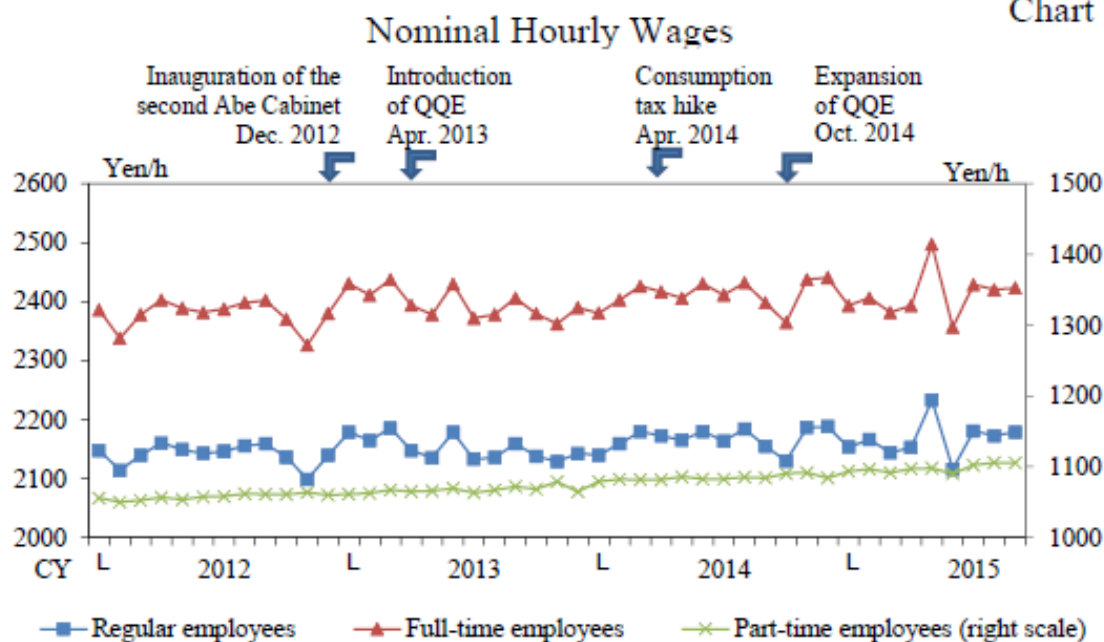
Real employee income is deflated by the CPI (all items less fresh food).

Sources: Ministry of Health, Labour and Welfare, "Monthly Labour Survey";

Ministry of Internal Affairs and Communications, "Consumer Price Index,"

"Family Income and Expenditure Survey."

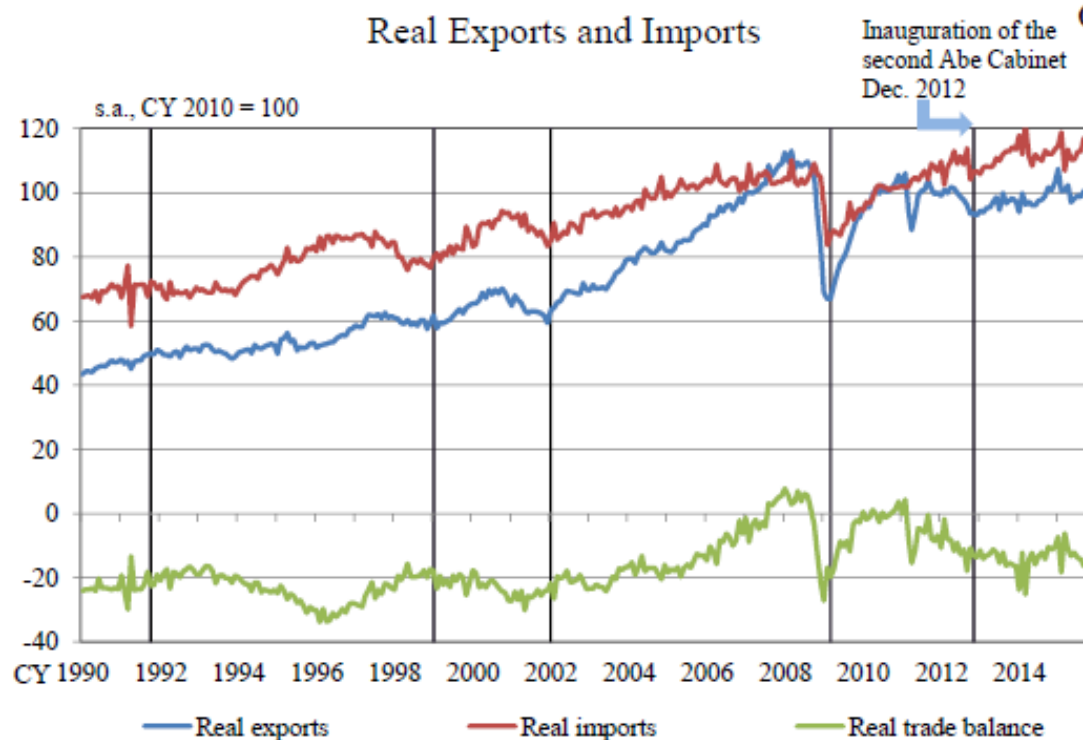
Chart 5



Note: Calculated as the nominal wages per person divided by the hours worked. Seasonally adjusted by X-11.

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

Chart 6

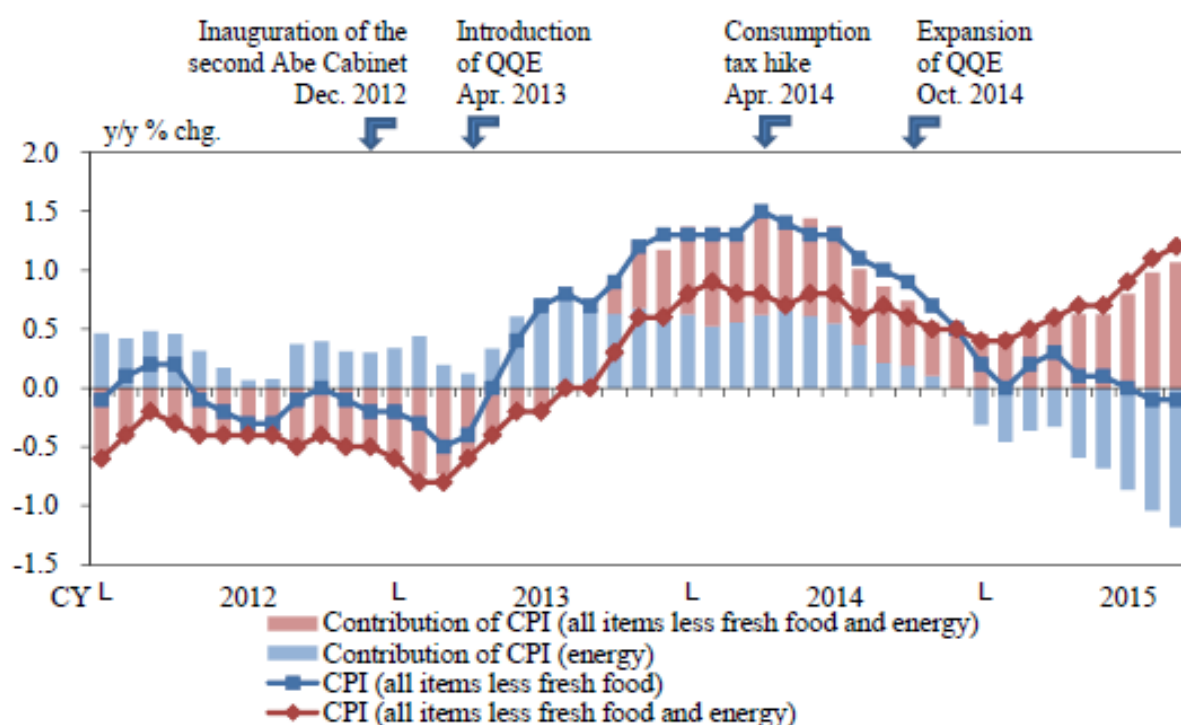


Note: Real trade balance is calculated as the difference between the real export index and the real import index. The vertical lines indicate the bottoms of the recession.

Source: Bank of Japan, "Real Exports and Real Imports."

### Breakdown of the CPI (All Items Less Fresh Food)

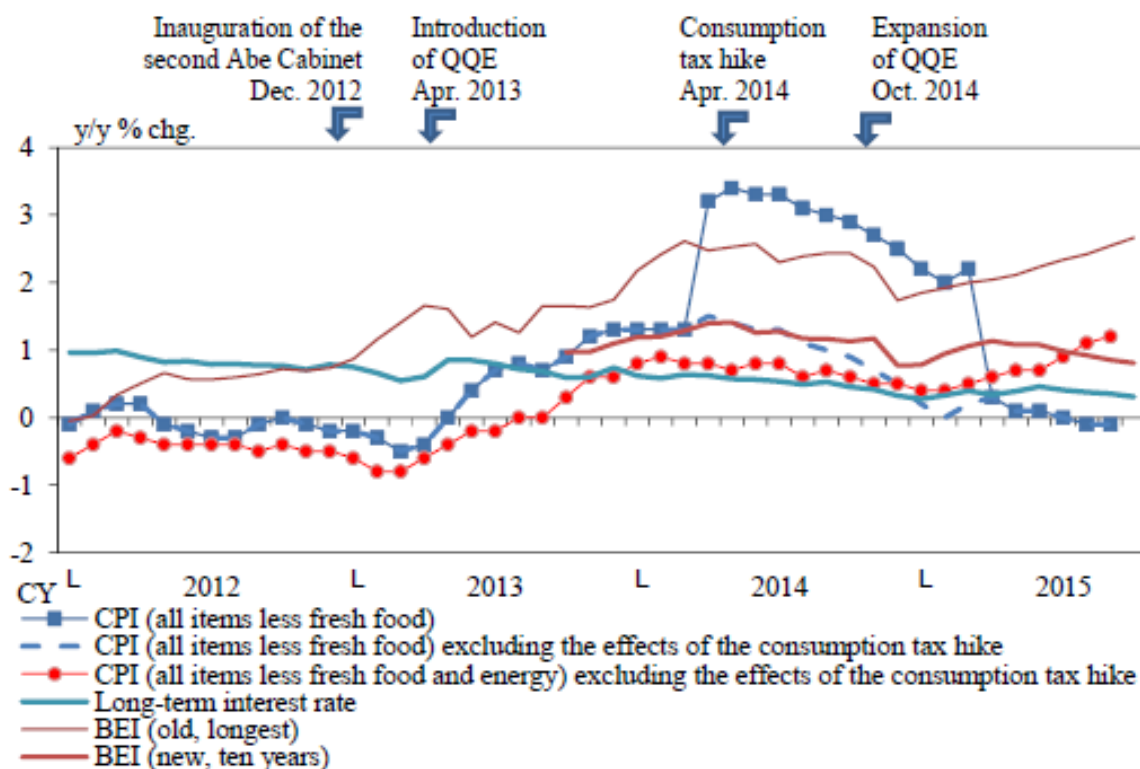
### Chart 7



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

### CPI and BEI

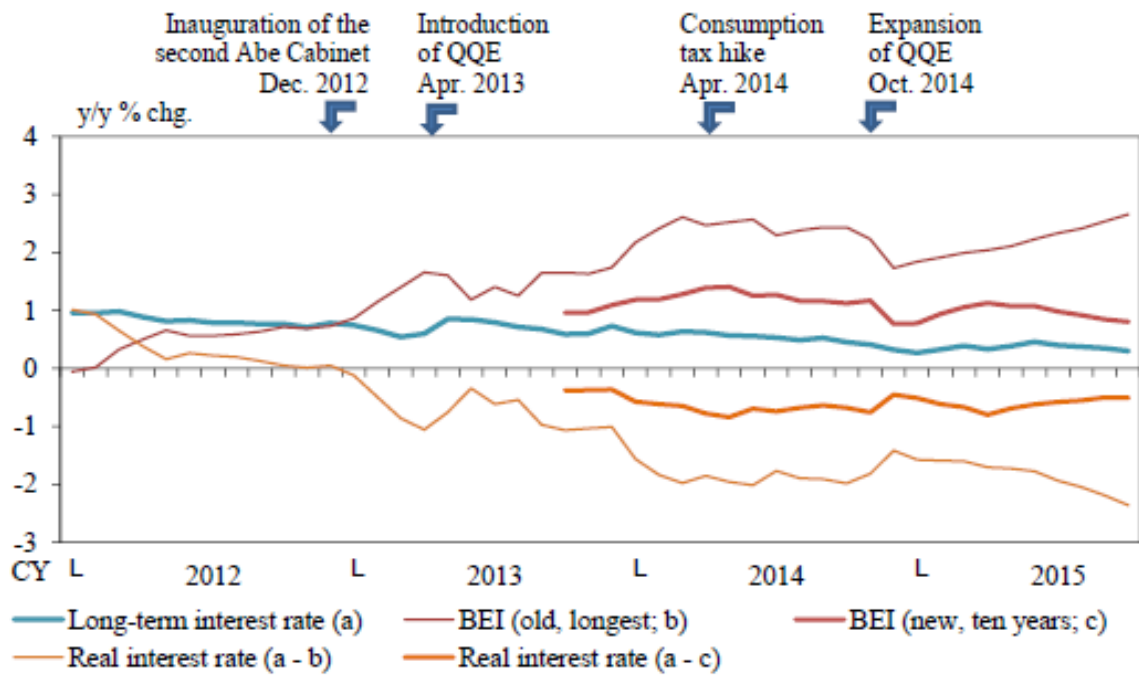
### Chart 8



Sources: Ministry of Internal Affairs and Communications, "Consumer Price Index"; Bloomberg.

## Real Interest Rates and BEI

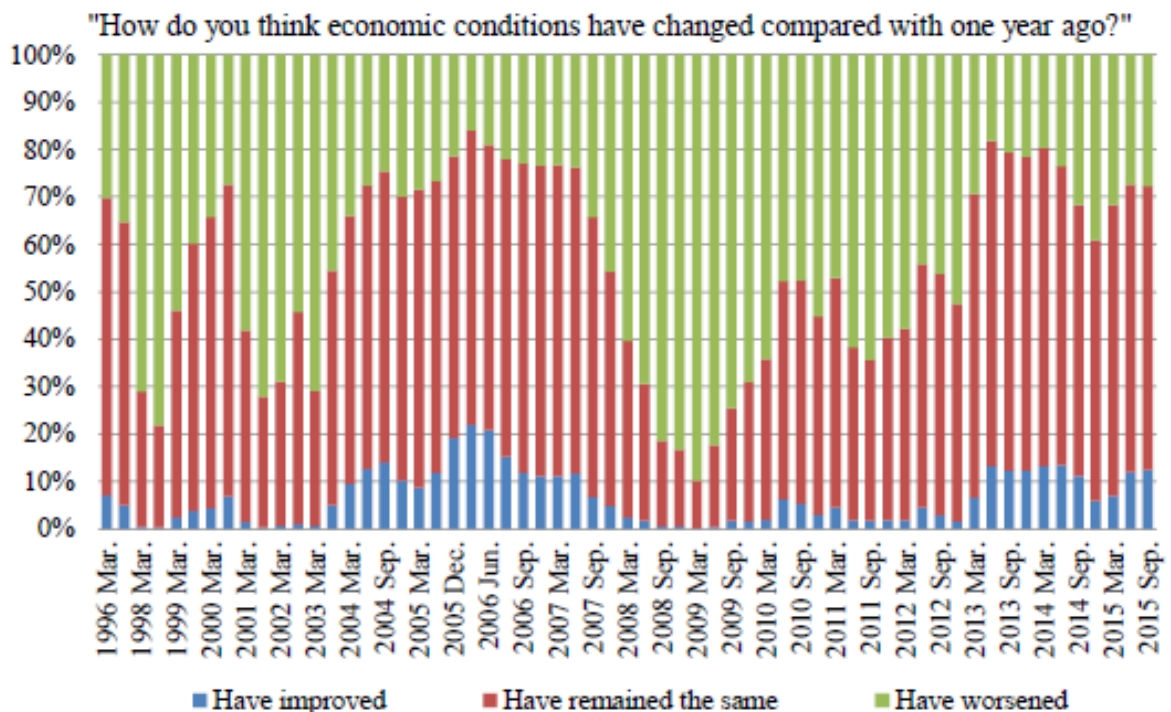
Chart 9



Sources: Ministry of Internal Affairs and Communications, "Consumer Price Index"; Bloomberg.

## Impression of Economic Conditions

Chart 10



Source: Bank of Japan, "Opinion Survey on the General Public's Views and Behavior."

Chart 11

### Outlook for Economic Activity and Prices (as of October 2015)

	Real GDP	CPI (all items less fresh food)	
			Excluding the effects of the consumption tax hike
Fiscal 2015	<u>1.2</u>	<u>0.1</u>	
Forecasts made in July 2015	1.7	0.7	
Fiscal 2016	<u>1.4</u>	<u>1.4</u>	
Forecasts made in July 2015	1.5	1.9	
Fiscal 2017	<u>0.3</u>	3.1	<u>1.8</u>
Forecasts made in July 2015	0.2	3.1	1.8

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

Chart 12

### Production in China



Note: Estimates are calculated by the regression.

$$\text{Production in China} = 15.82 + 0.21 \times \text{production in South Korea} - 0.071 \times \text{trend line}$$

(41.93) (10.78) (-14.18) adj-R2 = 0.79

$$\text{Production in China} = 17.05 + 0.13 \times \text{production in Taiwan} - 0.085 \times \text{trend line}$$

(51.74) (11.18) (-18.27) adj-R2 = 0.80

Figures in parentheses indicate t-values.

Source: CEIC.