

Kikuo Iwata: Quantitative and qualitative monetary easing and its transmission mechanism – logic behind the first arrow

Speech by Mr Kikuo Iwata, Deputy Governor of the Bank of Japan, at a meeting held by the Kyoto Chamber of Commerce and Industry (KCCI), Tokyo, 28 August 2013.

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Introduction

It is a great honor to appear in front of distinguished members and guests of the Kyoto Chamber of Commerce and Industry, and to have this opportunity to address you today.

I have been told that this chamber was founded in 1882, and thus celebrated its 130th anniversary last year. Incidentally, the Bank of Japan was also founded in the same year. This means that our organizations have followed the same history over the years.

In the old days, I understand that the business community in Kyoto made efforts to start new businesses, such as electricity generation, host an exposition, and establish this chamber, in an attempt to regenerate the vigor that had been lost in the aftermath of the capital's relocation to Tokyo. At that time, Japan as a nation faced a need to found a central bank in order to collect the large amount of banknotes issued by the Meiji Government after the Seinan War in 1877. The fact that this chamber and the Bank were founded in the same year may not be a matter of coincidence, as these organizations respectively played crucial roles in helping with the initial footsteps for Kyoto toward becoming a modern city and Japan toward evolving into a modern nation.

Kyoto is a city that enjoys more than 1,200 years of history. It is also called the city of innovation, where creative ideas have flourished for many years. Most recently, we have been reminded of this attractive quality of Kyoto in the person of Professor Yamanaka of Kyoto University, who received the Nobel Prize. In my view, the reason Kyoto excels in creating innovation owes much to the accumulation of knowledge over the years and the city's culture of freedom and creativity being respected.

Indeed, looking at the number of university students per population in each prefecture, Kyoto is ranked first, ahead of Tokyo, suggesting that it is the city of academics in Japan. For my part, as I had been in academia for a number of years before joining the Bank, I am particularly interested in how the interaction between the university – a place for education and research – and the industry – a place for businesses – can contribute to the development of Kyoto. I will keep my attention on this interaction with great interest.

I. Three arrows

Today, I would like to explain the monetary easing that the Bank has been conducting.

As you know, the Japanese government has already fired “three arrows”; namely, bold monetary easing, flexible fiscal policy, and a growth strategy to encourage private investment. By combining these arrows, it aims to overcome deflation and address the challenges faced by Japan's economy. Before discussing the main theme of my talk, let me elaborate on the respective roles that these play (Slide 1).

The first arrow is bold monetary easing, with which the Bank is making progress. In a nutshell, the Bank conducts aggressive monetary easing with a view to achieving the price stability target of 2 percent. The intention is to close the negative output gap and put Japan's economy back on track to a sustainable growth path, or potential growth path. I will explain my own thinking about the first arrow's transmission mechanism and its effects on economy activity as plainly as possible.

The second arrow is flexible fiscal policy. While the first arrow is an extremely powerful policy measure, it takes some time until favorable effects from this permeate the economy. It is for this reason that flexible fiscal stimulus by the government is necessary at an initial stage of the policy package in order to underpin economic activity from the demand side. At present, public investment has been increasing mainly on the back of the emergency economic measures that were based on the supplementary budget for fiscal 2012 enacted in February 2013.

The third arrow is a growth strategy to encourage private investment. This is aimed at raising the sustainable growth path itself and enhancing the room for Japan's economy to grow, whereas both the first arrow of monetary policy and the second arrow of fiscal policy are aimed at returning Japan's economy to the sustainable growth path by expanding the size of the aggregate demand. While I will not go into the details of the third arrow today, we expect that the government will steadily implement various measures including those of the "Japan Revitalization Strategy," released in June, under the leadership of Prime Minister Abe.

The respective roles of the three arrows that I just explained can be summarized as in my presentation slide (Slide 2). The real GDP growth rate – which represents the vigor in economic activity – is plotted on the vertical axis, while the horizontal axis represents the time horizon and the bold line shows the growth trajectory of Japan's economy. At present, the economy is below the dotted line that represents the potential growth path it is supposed to follow. This owes to the fact that it is in a vicious cycle under which a decline in aggregate demand on the back of a continued fall in prices – that is, a state of deflation – leads to a further fall in prices.

In order to revitalize the economy, which has fallen into this vicious cycle of deflation and a decline in aggregate demand, bold monetary easing – the first arrow – is effective and imperative as a means of stopping the continued fall in prices and bringing economic activity to the level that should have been achieved. This represents the thinking behind the Bank's current monetary easing policy. It is exactly what I have been emphasizing as a researcher for a number of years.

As I said before, it will take some time until the effects of the first arrow (monetary policy) permeate the economy. It is for this reason that the effects of the second arrow (fiscal policy) will first materialize, and as the effects of monetary easing strengthen, the actual economic growth path will approach the potential growth path shown as the dotted line in Slide 2.

In contrast, the third arrow (growth strategy) plays a role of raising the potential growth path depicted by the dotted line. In other words, while monetary policy and fiscal policy are the policies to restore economic strength from its temporary decline to being in a sound state, the growth strategy is meant to raise the capabilities of the economy itself. For Japan's economy to achieve long-term growth, this growth strategy is a key to success.

II. What is "quantitative and qualitative monetary easing"?

Now, I would like to focus my speech on today's main theme: the first arrow, which is the monetary easing policy the Bank has been conducting.

On January 22, 2013, the Bank newly 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, the Bank decided on April 4 to enter a new phase of monetary easing both in terms of quantity and quality in order to achieve that target at the earliest possible time, with a time horizon of about two years. This is the bold monetary easing policy called "quantitative and qualitative monetary easing" (hereafter QQE).

I would now like to explain, as plainly as possible, the key features of the monetary easing that the Bank has been conducting. However, given that my speech is on monetary policy, it will indeed involve technical terms to some degree, and I would like to ask you to bear with me in that regard.

First, the Bank has made a clear commitment to achieving the price stability target of 2 percent at the earliest possible time, with a time horizon of about two years. As concrete measures toward achieving that commitment, the Bank has implemented a new phase of monetary easing – the QQE (Slide 3).

For the monetary easing measure to actually exert effects, it is vital that the central bank express its strong intention – in other words, a commitment – that it is responsible for achieving the price stability target of 2 percent, and that this is accompanied by concrete measures underpinning such a commitment. When the central bank commits itself to achieving the inflation target and implements bold monetary easing measures toward achieving the target, people's expectations change from deflationary to inflationary, their behaviors change, and developments in the economy as a whole start to change. This is a major key to achieving policy effects.

The second feature of the QQE is that the Bank's main operating target for money market operations has been changed from the money market rates to an indicator called the monetary base. The monetary base is the total of banknotes and coins in circulation – in other words, the total amount of cash – and the amount outstanding of financial institutions' current accounts held at the Bank; or, simply put, the amount equivalent to the money the Bank has supplied to the economy.

We have decided to conduct money market operations so that the monetary base will increase at an annual pace of about 60–70 trillion yen. As a result, the amount outstanding of the monetary base is expected to almost double in two years, from 138 trillion yen at end-2012 to 270 trillion yen at end-2014. This corresponds to the quantitative aspect of the QQE.

The third feature of the QQE is that the Bank has expanded its purchases of Japanese government bonds (JGBs) as a measure to increase the monetary base (Slide 4). Specifically, the Bank purchases JGBs through financial markets so that their amount outstanding will increase at an annual pace of about 50 trillion yen. Consequently, the amount outstanding of the Bank's JGB holdings is expected to more than double in two years, from 89 trillion yen at end-2012 to 190 trillion yen at end-2014.

Furthermore, maturities of government bonds range from those with a short-term of few months to those with super-long maturities of 40 years. Upon making JGBs with all maturities eligible for purchases, the Bank has decided to extend the average remaining maturity of the Bank's JGB purchases from slightly less than three years to about seven years, which is roughly equivalent to the average maturity of the amount outstanding of JGBs issued. In general, the longer the period until maturity, the higher the risk of volatility in prices of JGBs. Therefore, by extending the maturity of its JGB purchases, the Bank is thus taking higher risk. This increase in JGB purchases and their maturity extension represent monetary easing both in terms of quantity and quality.

The fourth feature is that, aside from the aforementioned purchases of JGBs, the Bank has decided to expand purchases of other assets with higher risk; namely, exchange-traded funds (ETFs) and Japan real estate investment trusts (J-REITs). ETFs are investment trusts that are designed so that prices are linked to stock indices such as the Nikkei 225 Stock Average and TOPIX, and they are traded in stock exchanges. For example, purchasing stock index ETFs would be the same as indirectly buying stocks. By contrast, J-REITs are investment trusts that invest in multiple real estate such as office buildings and commercial facilities. In other words, purchasing J-REITs would mean indirectly investing in real estate.

The Bank will increase the amount outstanding of its holdings of ETFs and J-REITs at an annual pace of about 1 trillion yen and about 30 billion yen, respectively. We expect that the Bank's purchases of such assets with relatively high risk – or put differently, the conduct of monetary easing from the qualitative aspect – will encourage risk taking activities in the real economy.

The fifth feature of the QQE is that the Bank aims to achieve the 2 percent “price stability target” and will continue with the QQE as long as it is necessary for maintaining that target in a stable manner (Slide 5). The first feature I mentioned earlier is a commitment to definitely achieving the target, while the fifth is a commitment regarding the continuation of the QQE, such that the Bank will continue with the QQE for as long as it is necessary to achieve the target. These two types of commitments – accompanied with responsibility – will increase public confidence in the Bank’s policies and are an important key to ultimately achieving the policy effects.

The last feature I would like to point out is that the Bank attaches great importance to its communication with market participants. As I have explained, the Bank’s monetary policy is conducted mainly through transactions with market participants in the money market; in other words, through its money market operations. As the Bank embarks on monetary easing of an unprecedented scale, its counterparty financial institutions will also face situations not experienced before. Therefore, we consider it crucial to hold an enhanced dialogue with market participants pertaining to money market operations and market transactions more generally, and to seek a reasonable way forward.

III. Transmission mechanism of the QQE

So far, I have explained the details of the Bank’s monetary easing policy, including those of a technical nature. The next question is: How does it affect people’s daily lives? I gather that participants today are most interested in this question. I will explain my own thinking on the QQE’s transmission mechanism and its effects permeating the economy.

Slide 6, while somewhat technical, displays the major components of the transmission mechanism of the monetary easing policy. Please bear with me as I explain this slide by item. As I have already explained, there are two pillars, listed on the top of the slide, to the Bank’s monetary easing policy. The first is the commitment to achieving the price stability target of 2 percent. In other words, the Bank is committed to its responsibility to achieve “the price stability target of 2 percent in terms of the year-on-year rate of change in the CPI at the earliest possible time, with a time horizon of about two years.” The second pillar is the QQE that underpins this commitment, and here it is described as an increase in the monetary base.

These two pillars – the introduction of the price stability target and the accompanying bold monetary easing – will lead to a rise in the expected rates of inflation – that is, the course of inflation that the public expects to take place in the future. As inflation expectations rise, the expected real interest rates — the real burden incorporating the price rises — will fall.

Let me elaborate on what I mean by this, as it is somewhat difficult to understand. Suppose you borrow money at the rate of 3 percent. If inflation goes up by 2 percent per year, the value of the money you will pay back will decrease by 2 percent. Thus, even if the nominal interest rate is 3 percent, the real interest rate will become 1 percent, subtracting the rate of inflation (2 percent) from the nominal interest rate (3 percent). In mathematical terms, this can be written as follows: (expected real interest rates) = (nominal interest rates) – (inflation expectations). Therefore, if inflation expectations rise while nominal interest rates remain constant, real interest rates are expected to decline accordingly. Alternatively, even if nominal interest rates rise, real interest rates are still expected to decline as long as nominal rates do not go up by as much as the rise in inflation expectations.

This may sound less than convincing, considering that you have gone through prolonged periods of mild deflation. Looking back at the end of the 1990s, the 10-year JGB yields were around 6.5 percent when inflation rates stayed at around 3 percent. While nominal rates were around 6.5 percent, the expected real rates were around 3.5 percent, if inflation rates were expected to stay at around 3 percent. If inflation rates were higher, the real rates could have been lower.

A decline in the expected real interest rates through a rise in inflation expectations will feed into the economy by increasing demand through various channels.

First, a decline in the expected real interest rates will lower the real cost of borrowing, thus stimulating business fixed investment and housing investment. In addition, it will become a factor in raising the prices of assets such as equities, homes, and land. Those who experienced a rise in the value of their own assets are likely to spend and consume more than before. This is called the wealth effect. Moreover, a rise in equity and land prices will improve the financial conditions of households and businesses; hence, it becomes easier for them to borrow money, and it is more likely that businesses will increase business fixed investment and households will increase housing investment.

Furthermore, if the real interest rates of the yen become lower than those of other currencies, exchange rates are likely to move in the direction of the yen's depreciation. Correction in the appreciation of the yen will become a factor in boosting exports and increasing business fixed investment through a rise in corporate profits. Tourist destinations like Kyoto can attract more foreign tourists who benefit from the yen's depreciation. On top of that, the value of overseas assets, if revalued in yen, will rise, which could feed into an increase in consumption due to the wealth effect.

As stated above, the decline in the expected real interest rates caused by the first arrow will lead to an increase in three demand components – consumption, investment, and exports. Coupled with an increase in government outlays by the second arrow, the aggregate demand of goods and services will gradually increase. In Slide 6, this is described as closing the negative output gap, as the aggregate demand catches up with the capacity to supply.

The increase in the aggregate demand of goods and services will ignite production activity and increase the labor demand. This will lead to an increase in the workforce and eventually a rise in wages per person. As a result, the income of the workforce as a whole will increase and invigorate consumption.

As consumption increases, business fixed investment and housing investment will rise accordingly. An increase in exports on the back of the yen's depreciation will also lead to a pick-up in investment to increase production capacity. This vigor in consumption and investment will contribute to a further narrowing of the output gap, which will lead to an increase in production; hence, the virtuous cycle prevails.

In the initial stage of this whole process, the important key is for the public to expect that prices will go up. Going through this process, demand will increase and prices will start to rise in reality toward the price stability target of 2 percent. This in turn will reinforce the public's expectations that prices will rise stably in the future, thus contributing to low and stable expected real interest rates.

As I have explained, Japan's economy, which had fallen into the vicious cycle of deflation and shrinking demand, is indeed on the verge of entering the virtuous cycle of moderate and stable inflation as well as increasing demand.

You may have an impression that my belief in the need to exert an effect on the public's expectations sounds as though it is taken from a fairy tale. Intrinsically, monetary policy can elicit its effects through the public's expectations.

In my view, the most important point of our current conduct of monetary easing policy is to dispel the deflationary expectations that had been firmly embedded after nearly 15 years of deflation, and to generate mild and stable inflationary expectations.

IV. Economic activity

So far, with the help of the flow chart, I have explained how the Bank's monetary easing policy works on economic activity. In the remainder of my speech, I would like to briefly review how economic activity has been developing, based on statistical evidence.

First and foremost, there is a need to dispel the deflationary expectations firmly embedded in the public's mind and to generate inflation expectations (Slide 7). In this regard, the most important initial step for the Bank is to set the price stability target of 2 percent in terms of the year-on-year rate of change in the CPI and make a strong commitment to achieving that target at the earliest possible time, with a time horizon of about two years. Once the effects of the policy start to materialize and the actual rate of inflation stays stably around the price stability target, inflation expectations will be anchored. The question is: What do actual inflation expectations look like?

While it is difficult to gauge how the public formulates inflation expectations, it appears that they are gradually picking up as the QQE progresses, as evidenced by inflation expectations derived from the yield spread between fixed-rate coupon-bearing JGBs and inflation-index JGBs, or from the surveys collected from the bond market participants in securities and institutional investment companies.

In addition, according to the most recent result in the Opinion Survey on the General Public's Views and Behavior conducted by the Bank, the share of respondents who expected that prices will go up one year from now – excluding the effects of the consumption tax hike – reached 80 percent. This suggests that the inflation expectations of households are picking up.

As I said at the outset, a rise in inflation expectations will lead to a decline in the expected real interest rates, which can be derived by subtracting inflation expectations from nominal interest rates. Looking at the actual interest rates observed in financial markets, the inflation expectations of market participants have been on a rising trend and the expected real interest rates have been on a declining trend since the beginning of 2013 (Slide 8).

Next, let us review the effects of such a decline in the expected real interest rates on economic activity, based on historical data. Looking at the relationship between the expected real interest rates and business fixed investment, there is a tendency for the latter to expand when the expected rates are low (Slide 9).

Moreover, a decline in the expected real interest rates will bring about a rise in asset prices. The movement between the Nikkei stock average and the expected real interest rates shows that they are inversely correlated to each other (Slide 10). A rise in asset prices will lead to an improvement in the financial positions of businesses and households, thereby generating an increase in investment. The movement between the Nikkei stock average and business fixed investment shows that investment is likely to increase as a trend when stock prices are high (Slide 11).

How should we assess the effect of the correction in the yen's appreciation that has resulted from monetary easing? The relationship between exchange rates and exports indicates that exports are likely to increase as a trend when the yen depreciates (Slide 12). Recent movements in exports ensure that exports are actually picking up during the process of adjusting the yen's appreciation (Slide 13).

In addition, consumption is on a rising trend, and an increase in aggregate demand – which is comprised of consumption, investment, exports, and government spending – feeds into an increase in production (Slides 14 and 15).

The increase in production will generate a rise in employment. Recent indicators of employment, such as a decline in the unemployment rate and an improvement in the active job openings-to-applicants ratio, suggest that there is a clear sign that the labor market is improving (Slide 16). This will further contribute to an increase in total earnings by employees (Slide 17). This betterment of the labor market will stimulate consumption, and that will lead to an improvement in employment; hence, the virtuous cycle prevails (Slide 18).

Lastly, as for prices, the year-on-year rate of change in the CPI (all items excluding fresh food) turned positive in June 2013, for the first time in 14 months. Looking in detail, though the CPI has been pushed up partly due to a rise in energy-related goods such as petroleum

products and electricity costs, improvements across a wide range of goods on the back of resilient consumption have also contributed to a rise in the CPI. The widespread improvement can also be evidenced from the fact that the year-on-year rate of decline has slowed in the CPI for all items excluding food and energy. Such a moderate rise in prices will change the expectations of the people – who were somewhat sceptical about the feasibility of overcoming deflation – and raise inflation expectations further. This is expected to amplify the process of buoying the economy, which was triggered by a decline in the expected real interest rates, and lead the actual rates of inflation close to the price stability target of 2 percent (Slide 19).

Concluding remarks

In my remarks today, I have explained the transmission mechanism of the QQE and showed that economic activity has been moving in line with the developments envisaged under this mechanism. Before closing, I wish to point out several issues that require attention.

First, the QQE is intended to generate a decline in the expected real interest rates by lifting the inflation expectations of the public – particularly those of investors in asset markets. This decline in the expected real interest rates is a trigger for changes in asset prices of government bonds, stocks, and foreign exchange. Such changes in asset prices will take place through investors' portfolio rebalancing and are expected to start shortly after the QQE's implementation.

These changes in asset prices will increase aggregate demand including consumption, investment in fixed assets – that is, business fixed investment and housing investment – and exports, and this increase in aggregate demand will lead to a pickup in production and employment. All these changes in economic activity, however, require some time before they gather momentum.

That is because it takes some time for households as well as domestic and overseas businesses to ascertain whether or not changes in asset markets are merely a temporary phenomenon. Once they feel confident that these changes are of a somewhat long-term nature, businesses will decide whether to expand their fixed investment and households will decide whether to increase spending and housing investment. Likewise, overseas businesses will determine whether to increase their imports from Japan.

It has been less than 5 months since the Bank introduced the QQE. It will take some more time before we start seeing persistent and steady pickups in prices and wages as a result of an increase in demand for goods and services, and of a rise in employment. While it will take some time, Japan's economy will improve, prices and wages will rise, and incomes for many households will increase for as long as the Bank strenuously continues with the QQE.

I would remind everyone that the QQE is a new phase of monetary easing that we have just entered. Therefore I hope you will not jump to conclusions by saying that the recent pickup in prices attributes to a rise in energy prices on the back of the yen's weakening – a typical story associated with "bad inflation" – or by grumbling about stagnant wages. Again, the QQE is still in its early stages, and I hope you will be patient enough to see its effects permeate the economy.

Thank you.

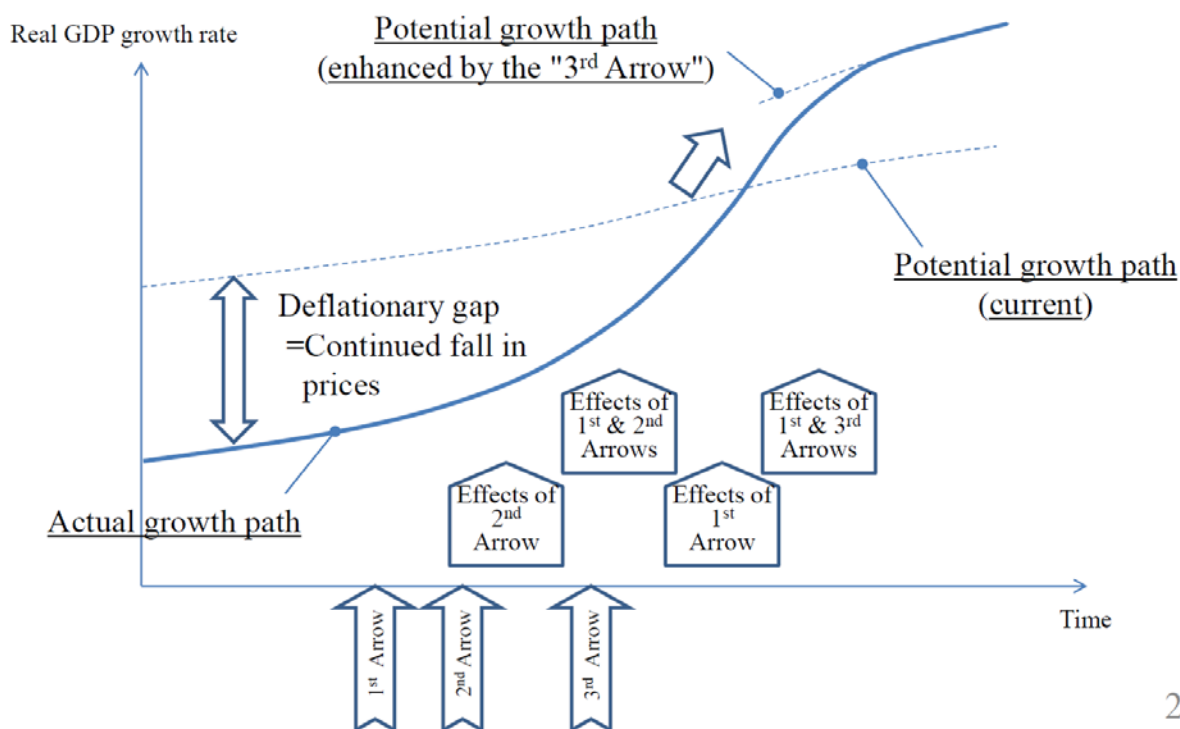
Components of the "Three Arrows"

- "1st Arrow": Bold Monetary Easing
 - ✓ Close the negative output gap and put Japan's economy back on track to a sustainable growth path through achieving the price stability target of 2%.
- "2nd Arrow": Flexible Fiscal Policy
 - ✓ Underpin economic activity from the demand side until favorable effects from monetary easing permeate the economy.
- "3rd Arrow": Growth Strategy to Encourage Private Investment
 - ✓ Raising the potential growth path itself.

1

Respective Roles of the "Three Arrows"

∇ Complementary Relationship among the "Three Arrows"



2

Key Features of the QQE (1)

① Commitment to the Price Stability Target of 2%

- ✓ The Bank will achieve the "price stability target" of 2% in terms of the year-on-year rate of change in the consumer price index (CPI) at the earliest possible time, with a time horizon of about 2 years.

② Monetary Easing in Terms of Quantity

- ✓ Change the main operating target for money market operations from the uncollateralized overnight call rate to the monetary base.
- ✓ Conduct money market operations so that the monetary base will increase at an annual pace of about 60-70 tril. yen.
⇒ The monetary base is expected to double in 2 years.
(138 tril. yen <end-2012> → 270 tril. yen <end-2014>)

3

Key Features of the QQE (2)

③ Monetary Easing in Terms of Quantity and Quality

- ✓ Amount outstanding of JGB holdings: Annual increase of about 50 tril. yen.
(Net: about 4.2 tril. yen <Gross: more than 7 tril. yen>/month)
⇒ Amount outstanding of Bank's JGB holdings: More than double in 2 years.
(89 tril. yen <end-2012> → 190 tril. yen <end-2014>)
⇒ Average remaining maturity of JGB purchases:
slightly less than 3 years → around 7 (6 to 8) years.

④ Monetary Easing in Terms of Quality

- ✓ Amount outstanding of ETF holdings: Annual increase of about 1 tril. yen.
(1.5 tril. yen <end-2012> → 3.5 tril. yen <end-2014>) •••2.3 times in 2 years
- ✓ Amount outstanding of J-REIT holdings: Annual increase of about 30 bil. yen.
(0.11 tril. yen <end-2012> → 0.17 tril. yen <end-2014>)

4

Key Features of the QQE (3)

⑤ Commitment regarding the Continuation of the QQE

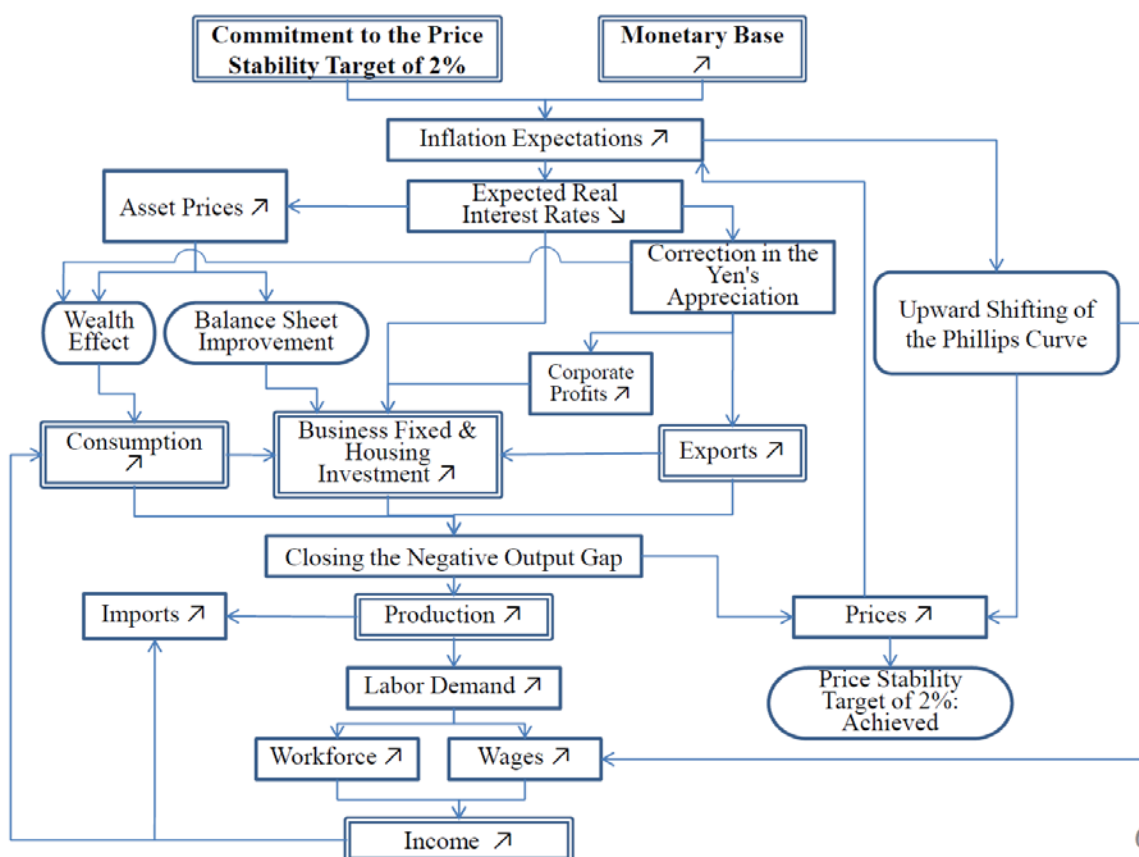
- ✓ The Bank will continue with the QQE, aiming to achieve the "price stability target" of 2%, as long as it is necessary for maintaining that target in a stable manner.

⑥ Enhanced Dialogue with Market Participants

- ✓ The Bank will set forums for enhanced dialogue with market participants in order to exchange views pertaining to money market operations and market transactions more generally.

5

Transmission Channels of the QQE



6

Transmission Channels of the QQE (cont.)

(1) Deflationary Expectations

⇒ Inflationary Expectations

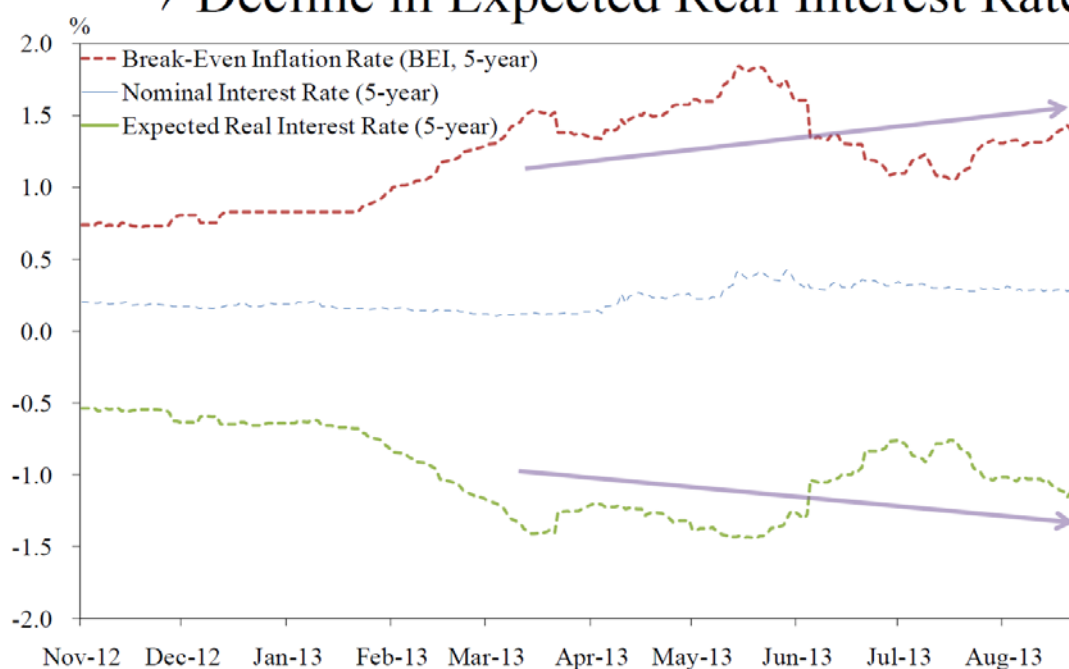
- Price Stability Target: 2%.
- Time Horizon: At the earliest possible time, with a time horizon of about 2 years.
- Stabilizing the actual inflation rate around the target.

7

Transmission Channels of the QQE (cont.)

(2) Rise in Inflation Expectations

⇒ Decline in Expected Real Interest Rates



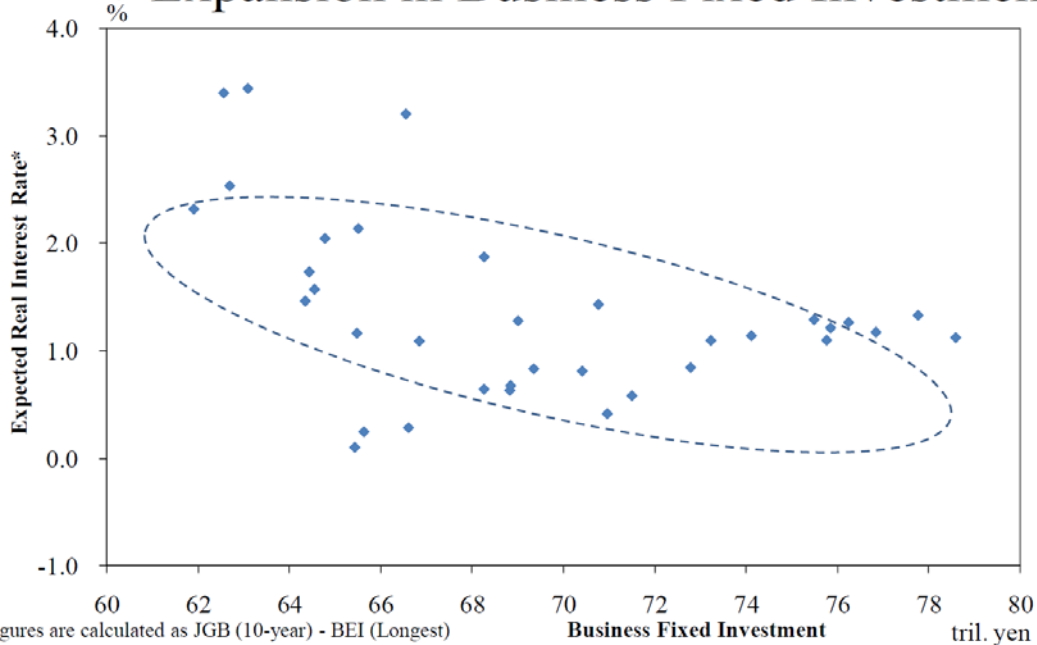
Source: Bloomberg.

8

Transmission Channels of the QQE (cont.)

(3) Decline in Expected Real Interest Rates

⇒ Expansion in Business Fixed Investment



*Figures are calculated as JGB (10-year) - BEI (Longest) at the end of the previous quarter.

Data: 2004/2Q-2013/2Q.

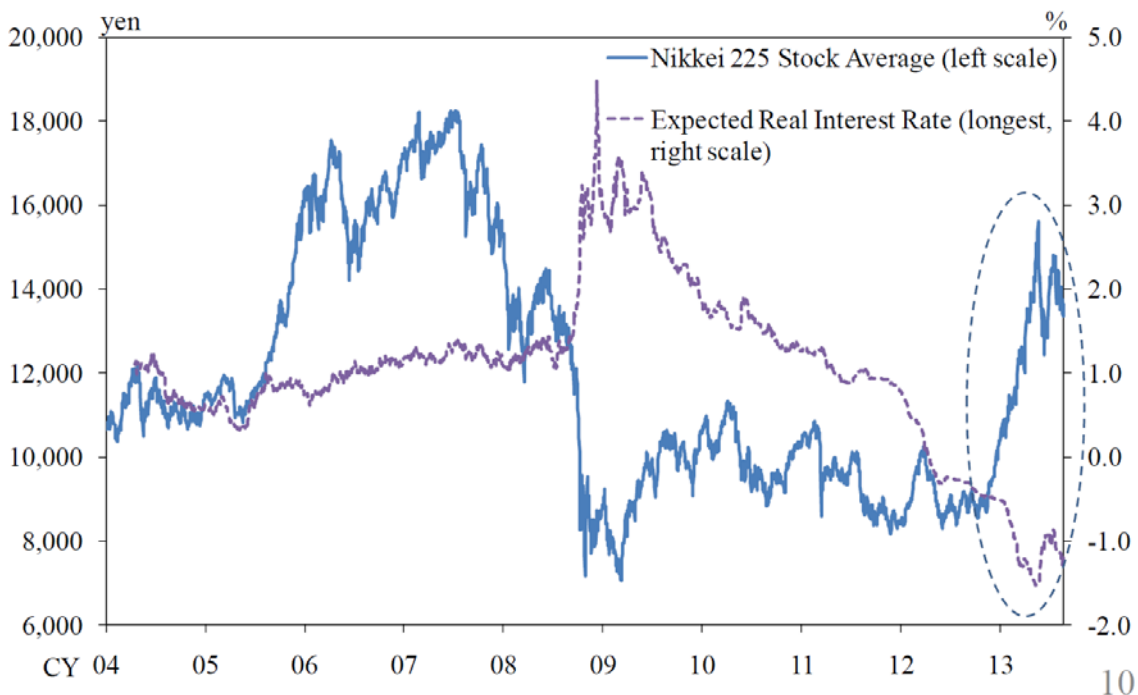
Sources: Cabinet Office, "National Accounts"; Bloomberg.

9

Transmission Channels of the QQE (cont.)

(4) Decline in Expected Real Interest Rates

⇒ Rise in Asset Prices



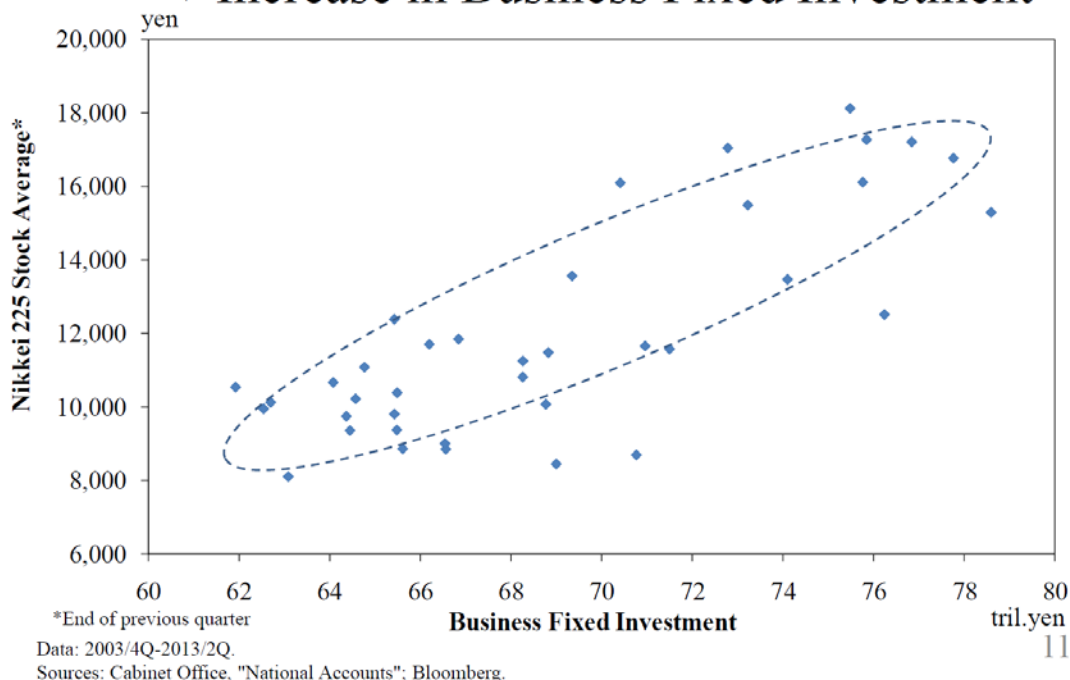
Source: Bloomberg.

10

Transmission Channels of the QQE (cont.)

(5) Rise in Asset Prices

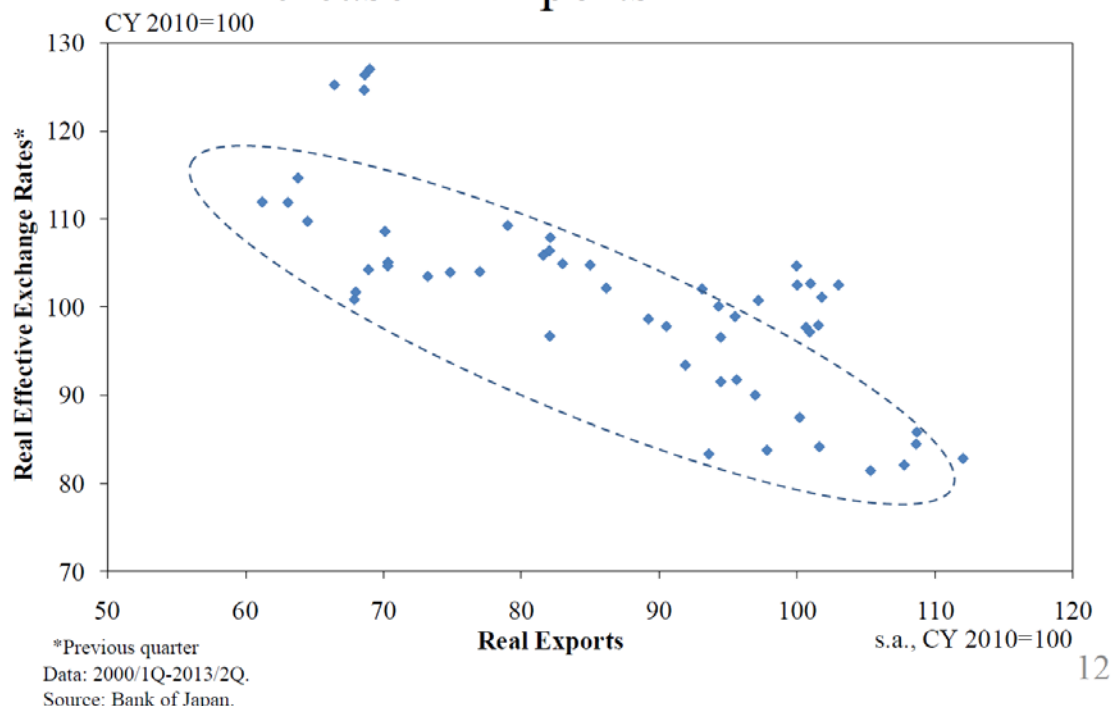
⇒ Increase in Business Fixed Investment



Transmission Channels of the QQE (cont.)

(6) Correction in the Yen's Appreciation

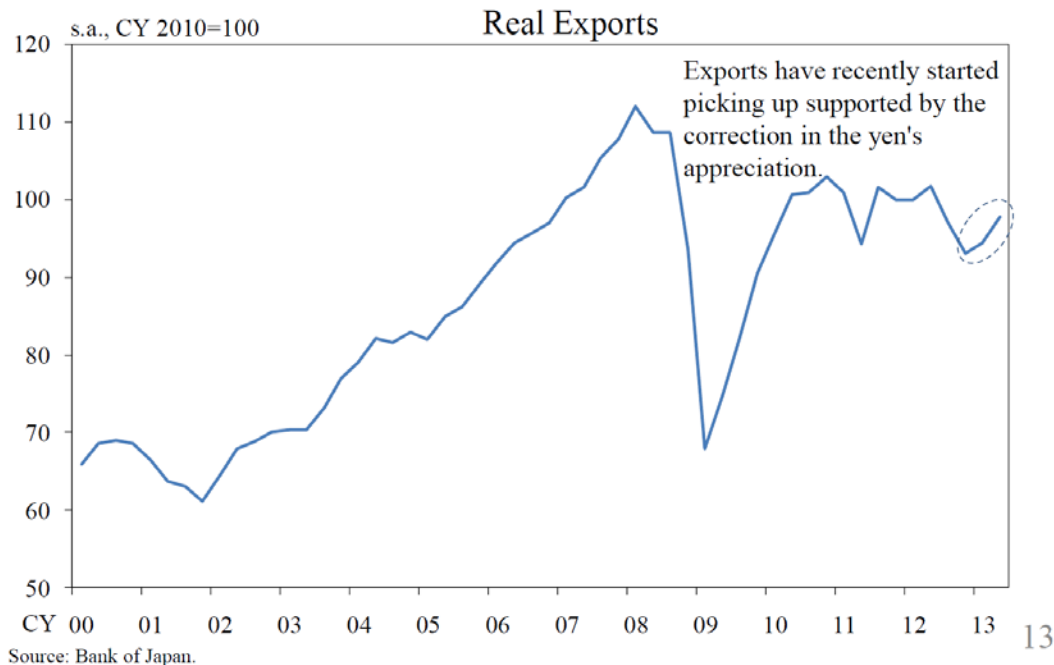
⇒ Increase in Exports



Transmission Channels of the QQE (cont.)

(6) Correction in the Yen's Appreciation

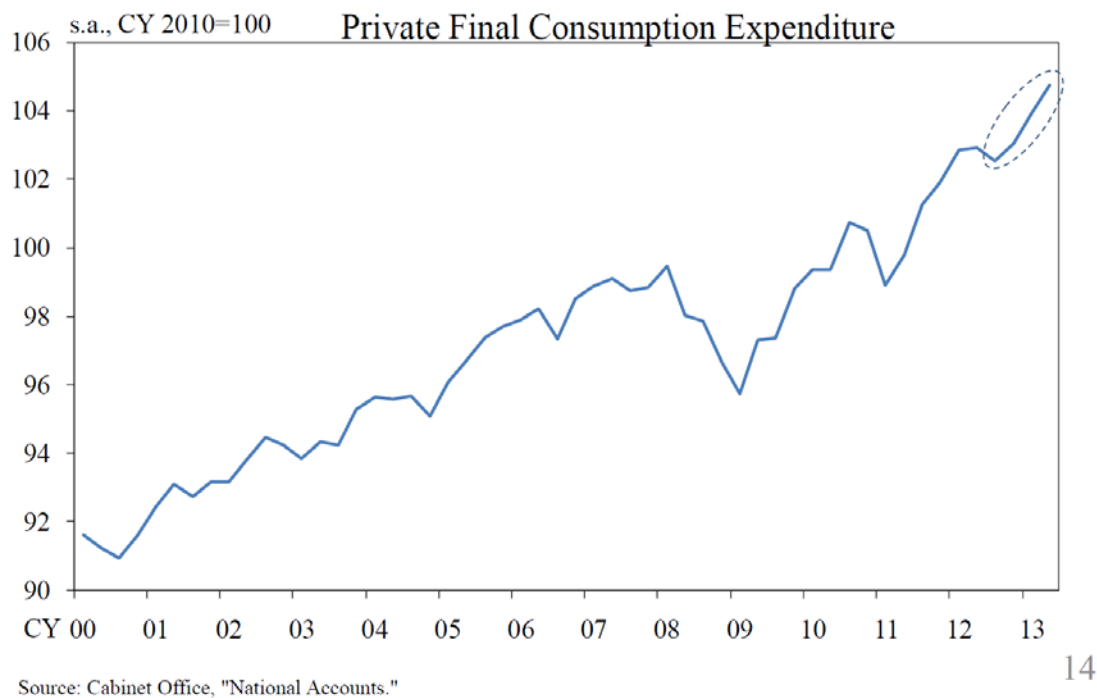
⇒ Increase in Exports



Transmission Channels of the QQE (cont.)

(7) Rise in Asset Prices

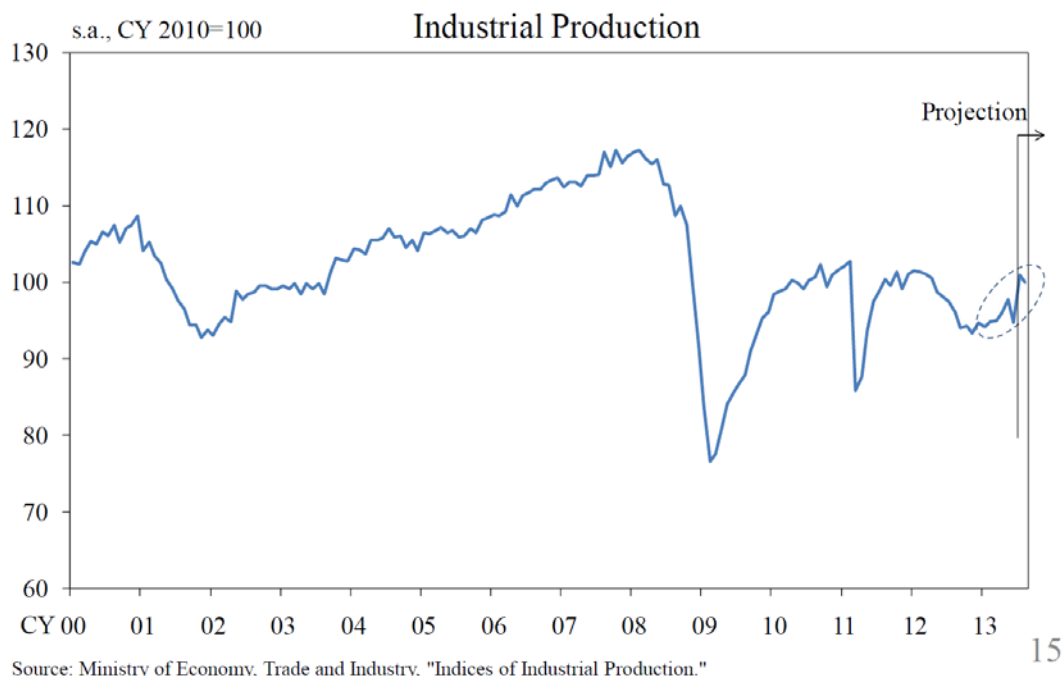
⇒ Rise in Consumption



Transmission Channels of the QQE (cont.)

(8) Increase in Aggregate Demand

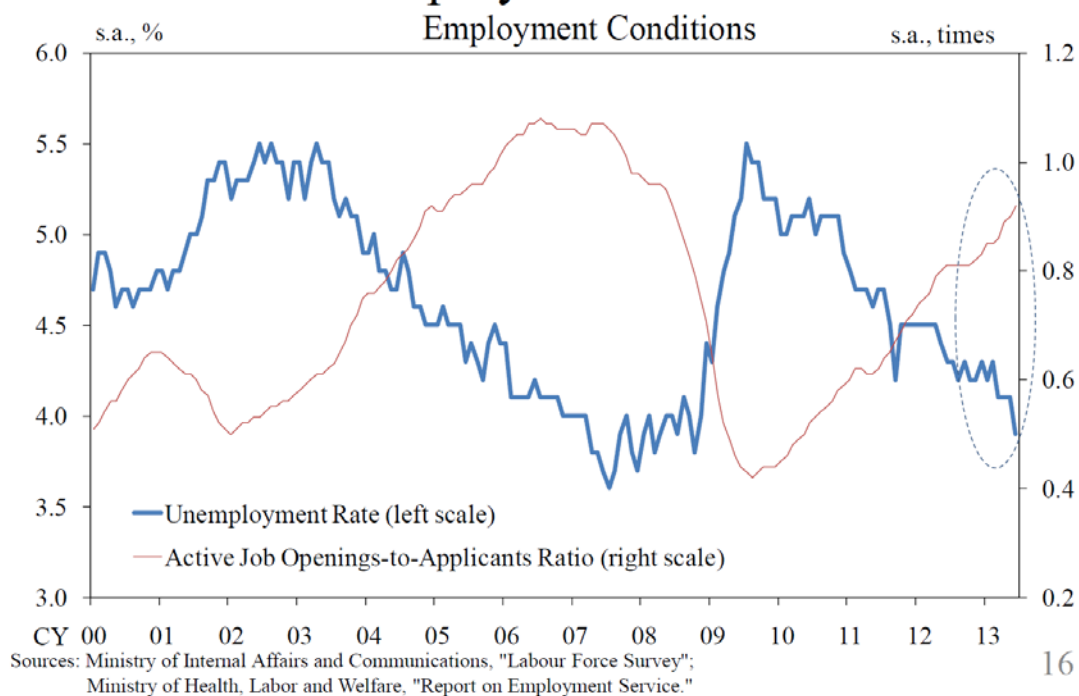
⇒ Increase in Production



Transmission Channels of the QQE (cont.)

(9) Increase in Production

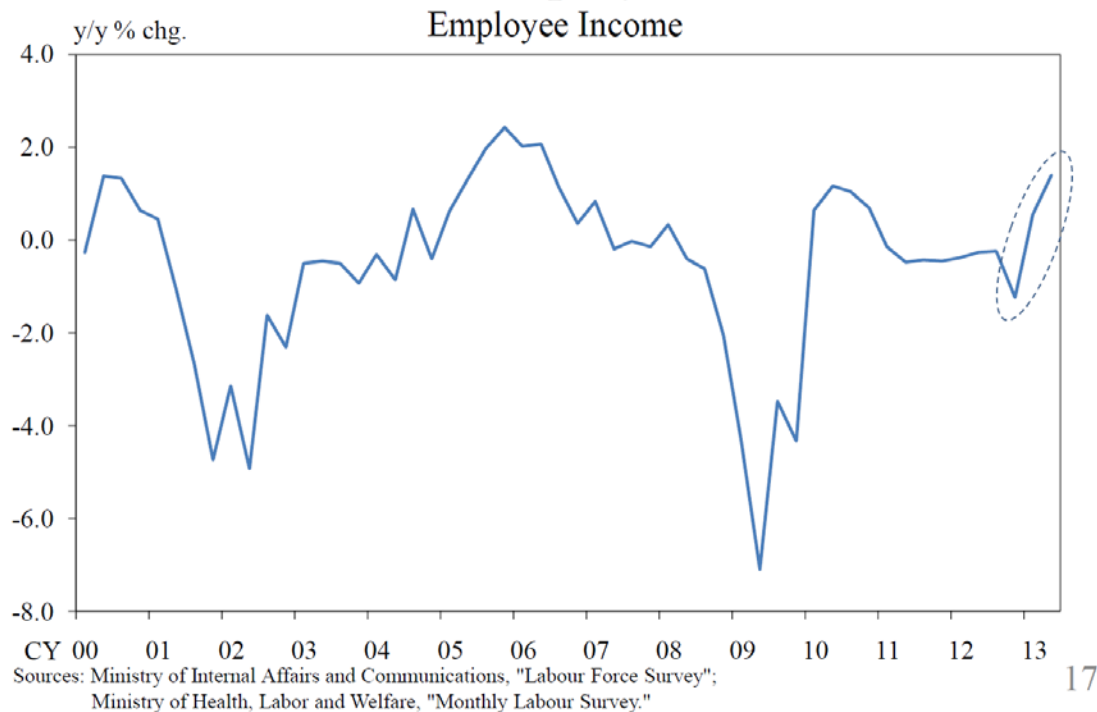
⇒ Rise in Employment



Transmission Channels of the QQE (cont.)

(10) Rise in Employment

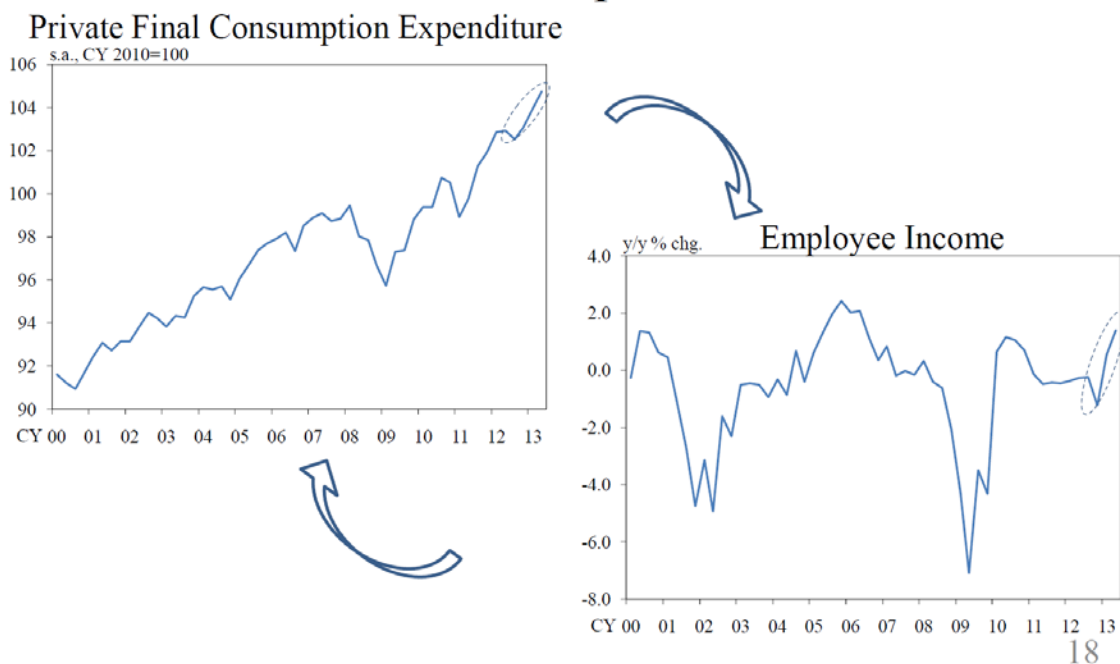
⇒ Increase in Employee Income



Transmission Channels of the QQE (cont.)

(11) Increase in Employee Income

⇒ Rise in Consumption



Transmission Channels of the QQE (cont.)

(12) Inflation Rate Starts to Rise

⇒ Rise in Inflation Expectations

- ✓ CPI (less fresh food) turned positive (+0.4%, y/y) in June 2013, for the first time in 14 months after April 2012.

(13) Rise in Inflation Expectations

⇒ Amplified Cycle

[from Channels (2) through (12)]

⇒ Actual Inflation Rates to Approach the Price Stability Target of 2%