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Japan's Economy: Monthly Review

Assessment of Abenomics

Japan's economy expected to continue expanding, partly supported by Abenomics

Economic Research Dept

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Summary

- **Economic outlook revised:** In light of the first preliminary Jan-Mar GDP release (Cabinet Office), we have revised our economic growth outlook. We now forecast real GDP growth of +3.1% y/y for FY13 (previous forecast: +2.7%) and +0.7% for FY14 (+0.4%). The upgrades were made taking into account such factors as the improvement in the export environment which is benefitting from ongoing depreciation of the yen accompanying the Bank of Japan (BOJ)'s monetary easing, and the increase in personal spending accompanying the ascent of share prices.

- **Assessment of Abenomics:** In this report, we provide an assessment of the economic policies of the Abe administration (so-called Abenomics). Abenomics consists of three thrusts (priority areas): (1) bold monetary policies, (2) flexible fiscal policies, and (3) growth strategies to stimulate private sector investment. We believe that Abenomics represents an appropriate set of economic policies with the potential of sparking the revival of Japan's economy. In particular, monetary policies are steadily yielding results. In this report, we examine the prospects for achieving the BOJ's inflation target of 2%. This target will be hard to achieve merely by reducing the GDP gap, and a significant increase in the expected inflation rate will be essential. A quantitative analysis of the economic impact of Abenomics based on Daiwa's short-term macroeconomic model indicates that the positive effects coming from a weaker yen and higher stock prices will not be impaired as long as the long-term interest rate does not rise substantially. Hence, current favorable economic conditions will be sustained for the time being. On the other hand, the Japanese government will need to address the medium- to long-term fiscal deficit problem with more resolve than before.

- **Main scenario for Japan's economy:** Japan's economy slipped into recession after peaking in March 2012. It now appears to have hit bottom in November 2012 and to have bottomed out. It is expected to continue expanding, supported by (1) the recovery of the US and Chinese economies, (2) the continuation of reconstruction demand and a large-scale supplementary budget, and (3) the ongoing depreciation of the yen and the ascent of stock prices accompanying the BOJ's bold monetary easing. With regard to the last, we anticipate that the yen will gradually weaken against the US dollar. Also, in comparison to the real economy, it still cannot be said that stock prices are overvalued at their current levels.

- **Risks facing Japan's economy:** Risks that will need to be borne in mind regarding Japan's economy are: (1) a reigniting of the European sovereign debt crisis, (2) the worsening of Japan-China relations, (3) the US fiscal issue, and (4) a surge in crude oil prices stemming from geopolitical risk.

1. Upward Revision to Economic Outlook

Economic outlook revised

In light of the first preliminary Jan-Mar GDP release (Cabinet Office), we have revised our economic growth outlook. We now forecast real GDP growth of +3.1% y/y for FY13 (previous forecast: +2.7%) and +0.7% for FY14 (+0.4%). The upgrades were made taking into account such factors as the improvement in the export environment which is benefitting from ongoing depreciation of the yen accompanying the Bank of Japan (BOJ)'s monetary easing, and the increase in personal spending accompanying the ascent of share prices.

Assessment of Abenomics

In this report, we provide an assessment of the economic policies of the Abe administration (so-called Abenomics). Abenomics consists of three thrusts (priority areas): (1) bold monetary policies, (2) flexible fiscal policies, and (3) growth strategies to stimulate private sector investment. We believe that Abenomics represents an appropriate set of economic policies with the potential of sparking the revival of Japan's economy. In particular, monetary policies are steadily yielding results. In this report, we examine the prospects for achieving the BOJ's inflation target of 2%. This target will be hard to achieve merely by reducing the GDP gap, and a significant increase in the expected inflation rate will be essential. A quantitative analysis of the economic impact of Abenomics based on Daiwa's short-term macroeconomic model indicates that the positive effects coming from a weaker yen and higher stock prices will not be impaired as long as the long-term interest rate does not rise substantially. Hence, current favorable economic conditions will be sustained for the time being. On the other hand, the Japanese government will need to address the medium- to long-term budget deficit problem with more resolve than before.

Main scenario for Japan's economy

Japan's economy slipped into recession after peaking in March 2012. It now appears to have hit bottom in November 2012 and to have bottomed out.

Japan's economy is expected to continue expanding, supported by (1) the recovery of the US and Chinese economies, (2) the continuation of reconstruction demand and a large-scale supplementary budget, and (3) the ongoing depreciation of the yen and the ascent of stock prices accompanying the BOJ's bold monetary easing. With regard to the last, we anticipate that the yen will gradually weaken against the US dollar. Also, in comparison to the real economy, it still cannot be said that stock prices are overvalued at their current levels.

Risks facing Japan's economy

Risks that will need to be borne in mind regarding Japan's economy are: (1) a reigniting of the European sovereign debt crisis, such as from political instability in Italy or Spain, (2) the worsening of Japan-China relations, (3) the US fiscal issue, and (4) a surge in crude oil prices stemming from geopolitical risk.

BOJ monetary policy

The BOJ has made a smooth start with the relaunch of monetary policies under the leadership of Haruhiko Kuroda, the new governor. Concerns are likely to surface, however, with the release of *Outlook for Economic Activity and Prices* in October 2013 regarding prospects for achieving the inflation target, and the BOJ will likely be compelled to ease monetary policy further, such as by actively purchasing risk assets (ETFs and other such assets).

2. Assessment of Abenomics: Will Abenomics spark the revival of Japan's economy?

2.1 Assessment of Abenomics

Abenomics represents an appropriate set of economic policies in accord with global standards

In this report, we provide an assessment of the economic policies of the Abe administration (so-called Abenomics). Abenomics consists of three thrusts (three priority areas): (1) bold monetary policies, (2) flexible fiscal policies, and (3) growth strategies to stimulate private sector investment. We have asserted from the start of the Abe administration that Abenomics has the potential of sparking the revival of Japan's economy and that its basic direction is set on the right course.

To the extent that we have exchanged views with foreign policy authorities and economists, the three thrusts of the Abe administration are regarded extremely favorably on the global stage. In a nutshell, Abenomics is being viewed by the international community as an appropriate set of economic policies in accord with global standards.

Abenomics represents policies prioritizing economic growth

Economic policies can be broadly divided into the four quadrants of supply-side policies, demand-side policies, domestic demand, and foreign demand (Chart 1).

Conceptual Image of Economic Policies **Chart 1**

<table>
<tr><th></th><th>Domestic demand</th><th>Foreign demand</th></tr>
<tr><td rowspan="2">Supply side</td><td>● Ease regulations</td><td>● Conclude Trans-Pacific Partnership Agreement (TPP) so that Japan will be able to align with economic growth in East Asia
● Prevent sharp appreciation of yen</td></tr>
<tr><td colspan="2">● Implement growth strategy, such as promoting advancement of science and technology, etc.</td></tr>
<tr><td>Demand side</td><td>● Implement measures to counter low birth rate, such as child stipend
● Implement job-creating measures
● Reform pension and social security system</td><td>Conditions surrounding foreign demand dependent on overseas economic development</td></tr>
<tr><td>Growth fields</td><td colspan="2">Medical/nursing care Environment</td></tr>
</table>

Source: Compiled by DIR.

The Democratic Party of Japan (DPJ) administration inaugurated in 2009, in part as an antithesis to the Liberal Democratic Party (LDP) that gave some thought to the supply side and foreign demand, placed considerable weight on demand-side and domestic-demand policies. As a result, many foreign investors, key players in Japan's stock market, came to view the former DPJ administration as not being well balanced and as being tilted toward the demand side of domestic demand centered on the child support subsidy—in other words, with an interest in only one quarter of the economy. At the Inward Investment Promotion Round-Table (Chair: Minister of Economy, Trade and Industry; held under the direction of Prime Minister Naoto Kan), Japanese business leaders identified five factors that were "evicting" Japanese companies from Japan and that were abetting the hollowing out of the economy. The so-called five "eviction factors" were (1) a strong yen, (2) slowness in concluding EPAs, (3) environmental regulations, (4) labor regulations, and (5) a heavy corporate tax rate. By ignoring these issues, the DPJ administration was roundly criticized as being anti-business.

Unlike the anti-business stance of the former DPJ administration, the clear pro-business stance of Abenomics can be highly commended.

Bold monetary policies steadily yielding results

Of the three thrusts of the Abe administration, it is the first, bold monetary policies, that has made a smooth start in particular.

Haruhiko Kuroda, the new governor of the BOJ, made a dramatic debut by focusing his monetary policies on an entirely new dimension. Based on the penetrating views of Koichi Hamada, professor emeritus of Yale University and a potential candidate for the Nobel Prize in Economics, Prime Minister Shinzo Abe pressed the BOJ to break from its traditional approach to monetary policy. This judgment by Abe can be highly rated.

On 4 April, the BOJ announced introduction of quantitative and qualitative monetary easing to achieve a price stability target of 2% in terms of year-on-year change in CPI as early as possible with a time horizon of about two years. To this end, the bank changed the main operating target for money market operations from the uncollateralized overnight call rate to the monetary base and announced it would double the monetary base within two years. Also, the bank will prolong the average remaining maturity of JGB purchases and increase outstanding amounts of JGBs as well as ETFs. These moves will expand BOJ's balance sheet at end-2014 to Y290 trillion (59% of GDP), or twice the current asset size.

Kuroda's decision could mark a decisive break from the past. Previously, foreign investors thought BOJ's monetary easing measures were quite insufficient. While criticism of Kuroda is heard among those supporting the policies of the previous BOJ regime, it rings hollow in the face of the major shift already seen toward a weaker yen and higher stock prices.

The aggregate market value of listed stocks has increased by about Y180 trillion since the dissolution of the House of Representatives was virtually decided in mid-November 2012. In other words, wealth twice the annual state budget (Y90 trillion on an initial budget basis) was created accompanying the change in administration.

The yen has depreciated by about Y20 against the dollar over the same period. According to Daiwa's short-term macroeconomic model, a Y10 rise against the dollar boosts Japan's real GDP by roughly 0.3-0.5% (Y1.5-2.5 tril). Simply stated, the shift to a weaker yen accompanying change in the administration has pushed up real GDP by about Y3-5 trillion.

Three issues regarding Abenomics

Now that Kuroda's magic ball has been passed to the government, and Abenomics has got off to a flying start, there are three issues that the Abe administration should work on.

The first is to maintain fiscal discipline. Loss of fiscal discipline combined with bold monetary easing could lead to debt monetization. This could lead to a plunge in JGB prices (a boost in long-term interest rates), which might result in vicious yen depreciation, higher import prices, and then stagflation (rising prices during an economic downturn).

The second issue is to thoroughly improve Japan's economic foundation. Currently, Abenomics mainly consists of stimulus measures like public works spending and monetary policies. However, if the capacity for economic growth is to be strengthened in the medium to long term, efforts toward strengthening the third thrust—structural reform such as deregulation and participation in the Trans Pacific Partnership Agreement (TPP)—will be necessary. Other essential steps will be reducing the corporate tax, tax breaks for investing in growth sectors, and establishing an environment that promotes entrepreneurship. If Japan's economic foundations are not improved through such measures, there is concern that the ascent of share prices and depreciation of the yen will come to be just passing phenomena.

The third issue is to increase employee income. An examination of the historical record discloses the existence in Japan of a cycle where an increase in sales is followed by higher wages and higher prices. In other words, about six to 12 months after sales increase, wages rise, followed by CPI after another six months. Some concern, however, is raised by sales losing some of their leading character relative to wages since the 2000s with the progress of globalization. From such a perspective, there is no doubting the need in policy terms to strengthen a transmission mechanism that will enable higher sales to propagate appropriately to wage increases.

Following the flying start we have so far seen, we anticipate that the Abe administration will move to address them.

(1) Bold monetary policy: Already yielding results

(2) Flexible fiscal policy: Uncertainty remains

Issue: Maintaining fiscal discipline

—Strengthening resilience of nation's infrastructure: Risk of bloated public spending under guise of protecting lives and assets of citizens

—Risk of expanding budget deficit leading to triple weakness in the form of JGBs plunging (rise in long-term interest rate), weaker yen, and lower stock prices

(3) Growth strategy: Not underway yet

Issue: Improving/restructuring economic structure over medium/long term

Need to tackle issues like joining TPP, deregulation, and lowering effective tax rate for corporations

2.2 Examination of monetary policy: Will an inflation target of 2% be achieved?

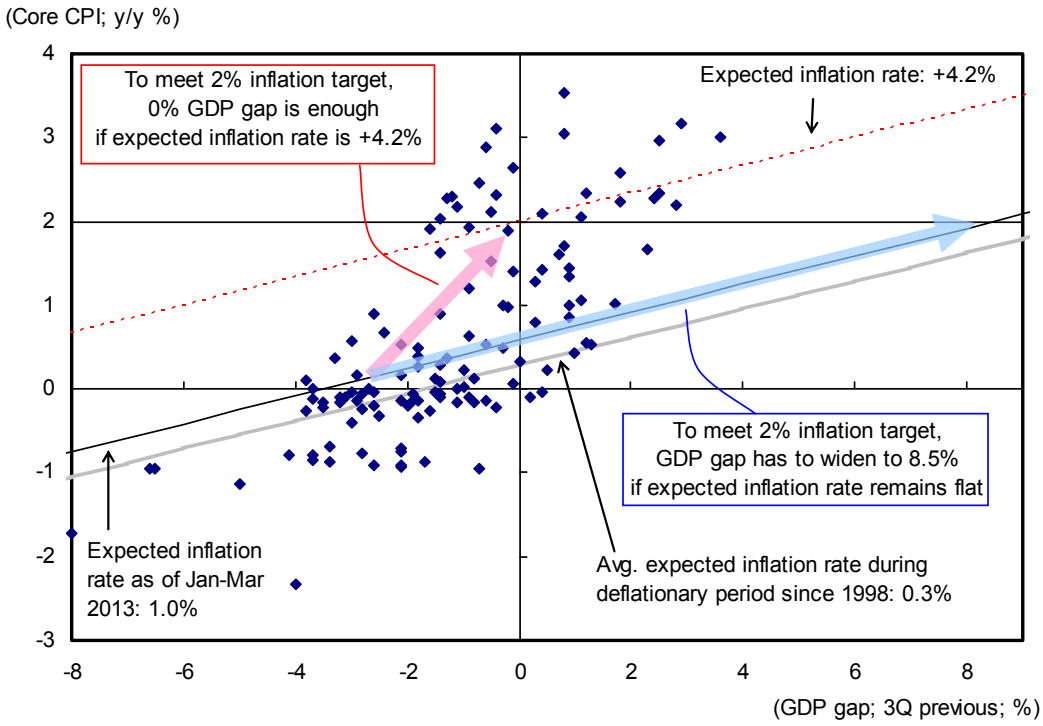
For CPI to rise steadily at 2%, a higher expected inflation rate will be essential

Currently, the greatest interest of participants in Japan's financial market is whether the BOJ can achieve an inflation target of 2%.

The growth rate of CPI is closely correlated with the GDP gap, a relationship that is expressed by the Phillips curve. CPI's growth rate, however, is not simply determined by the GDP gap alone but is influenced by a range of factors. We therefore estimated a Phillips curve that factors in the expected inflation rate.

Chart 2 illustrates the Phillips curve factoring in the expected inflation rate, where the GDP gap is plotted along the horizontal axis and the year-on-year change in core CPI along the vertical axis. The standard Phillips curve is the approximate curve between these two variables. When the expected inflation rate is factored in, changes in it will be expressed as a shift in the level of the Phillips curve (change in the intercept). In other words, when the expected inflation rate increases (decreases), the Phillips curve will shift upward (downward).

Phillips Curve Adjusted for Expected Inflation Rate **Chart 2**



Source: Cabinet Office, Ministry of Internal Affairs and Communications; compiled by DIR.
Equation: CPI = 0.15 + 0.44 x INFEX + 0.17 x GDP gap (-3),
where CPI=y/y CPI excl. fresh food (adjusted for consumption tax hikes), INFEX=expected inflation rate, and the figure in parentheses=quarterly lag; adjusted R2=0.84.
Estimation period: Oct-Dec 1980 to Jan-Mar 2013.
Expected inflation rate through Jan-Mar 2004 based on Carlson-Parkin method; thereafter weighted average of expected inflation rate (Cabinet Office survey) adjusted for discontinuity.

The chart indicates that, should the currently observed expected inflation rate (+1.0% in Jan-Mar 2013) remain flat, the GDP gap would have to rise to +8.5% for the CPI growth rate to meet the BOJ's inflation target of 2%. Since the GDP gap is currently around –3%, GDP would have to increase by more than 10% to meet the inflation target, an extremely high hurdle to surmount in short order. Also, since maintaining a significant wider positive margin in the GDP gap is unrealistic, it is difficult to imagine an inflation rate of 2% being sustained.

In a case where the expected inflation rate rises, should the rate increase to +4.2%, the GDP gap needed to meet the CPI growth rate of 2% would narrow to 0%.

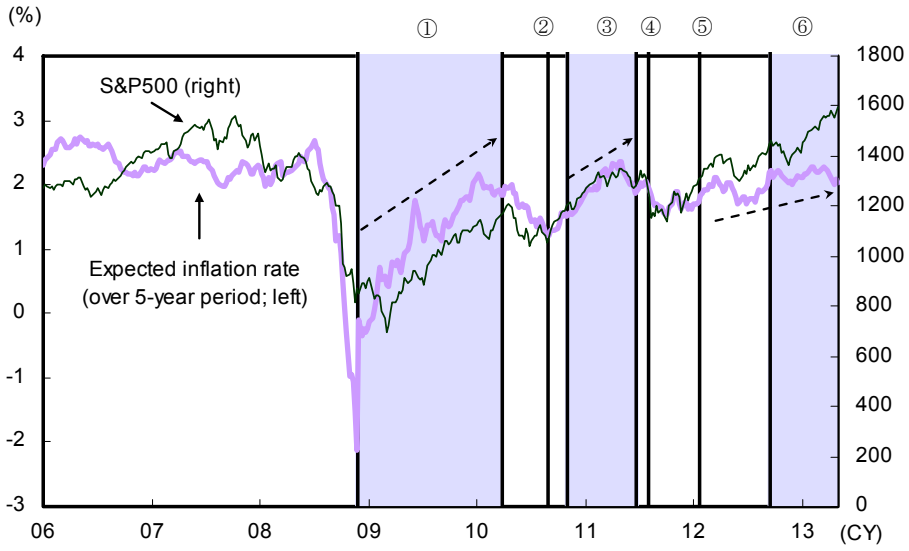
The above analysis underscores that it will be essential as a practical matter not only to break out of the negative GDP gap but to see an increase in the expected inflation rate if CPI is to steadily grow at 2%. Should we assume an expected inflation rate of +2% and +3%, the GDP gap needed to achieve a CPI growth rate of 2% would respectively be +5.8% and +3.1%.

Expected inflation rate has increased in the US through bold monetary easing

Whether the expected inflation rate will increase in Japan can be viewed as a large-scale social experiment. The expected inflation rate, however, has increased in the US through the bold monetary easing of the Fed. As depicted in Chart 3, it is possible to infer that such bold monetary easing has had a certain effect on the expected inflation rate, such as through higher stock prices.

In Japan as well, raising the expected inflation rate of the financial market and ordinary citizens through such measures as the BOJ continuing to demonstrate its firm resolve toward achieving its inflation target and the government strengthening its growth strategies will remain an important pursuit.

US Expected Inflation Rate and Stock Prices **Chart 3**



1	QE1	25 Nov 2008 to end-Mar 2010
2	Fed Chairman Ben S. Bernanke's speech at Jackson Hole	27 Aug 2011
3	QE2	3 Nov 2010 to end-Jun 2011
4	Downgrade of US Treasury ratings	05 Aug 2011
5	Fed sets inflation goal	25 Jan 2012
6	QE3	Started 15 Sep 2012

Source: Federal Reserve Board, Standard & Poor's Ratings Services, Haver Analytics; compiled by DIR.
Note: Expected inflation rate=Breakeven inflation rate (BEI) based on Treasury Inflation-Protected Securities (TIPS).

2.3 Quantitative analysis of Abenomics: Where is Japan's economy heading?

Quantitative analysis of Abenomics based on Daiwa's short-term macroeconomic model

Where is Japan's economy about to head through Abenomics? Chart 4 provides an estimation based on Daiwa's short-term macroeconomic model of how Japan's economy would be affected by a weaker yen, higher stock prices, and a higher long-term interest rate.

The yen depreciating by 10% would boost GDP by about 0.3-0.5%, reflecting higher exports

Should the yen depreciate, the export environment would turn upward, and corporate profits would improve, such as through higher sales. With the growth of sales and improved profits, companies would increase capex. Also, since a weaker yen would increase import prices, CPI would rise about 0.2 percentage points in the first year. The improvement in corporate profits would translate into higher wages, and higher stock prices would create a wealth effect. Personal consumption would therefore rise. Through such a route, the yen depreciating by 10% is estimated to boost GDP by about 0.3% to 0.5% compared to our base scenario.

TOPIX increasing 100 points would lift GDP nearly 0.1%, such as through higher consumption stemming from the wealth effect

Should TOPIX increase 100 points, personal consumption would rise more than 0.1% from our base scenario through the wealth effect. This in turn would stimulate the economy as a whole. Moreover, higher stock prices would increase the market capitalization of companies and reduce the relative value of fixed assets. Thus, higher stock prices would also increase capex by a slight amount. Also, with the increase in consumption, imports would grow. As a result, TOPIX increasing by 100 points is estimated to lift GDP nearly 0.1% in the final analysis.

Long-term interest rate rising by 1% point would reduce GDP by about 0.2%

When interest on funding is too high compared to the expected rate of return, companies will refrain from expanding production capacity, or they will consider substitute measures, such as making direct foreign investments. According to Daiwa's short-term macroeconomic model, should the long-term interest rate rise by 1 percentage point, capex would decrease around 1.5%. As a result, the long-term interest rate rising by 1 percentage point is believed to have the effect of reducing GDP by about 0.2% compared to our base scenario.

Impact of Weaker Yen, Higher Stock Prices, Higher Long-term Interest Rate
(% deviation from base scenario) **Chart 4**

		GDP	Personal consumption	Capex	Exports	Imports	CPI (y/y)
10% depreciation of yen against dollar	1st-yr	0.30	0.08	1.13	0.51	0.26	0.21
	2nd-yr	0.48	0.09	1.31	0.91	-0.46	0.04
	3rd-yr	0.40	0.03	1.39	0.85	-0.61	0.08
100pt rise in TOPIX	1st-yr	0.09	0.13	0.00	0.00	0.06	0.00
	2nd-yr	0.09	0.13	0.03	0.00	0.29	0.01
	3rd-yr	0.08	0.12	0.04	0.00	0.27	0.01
1% pt rise in interest rate	1st-yr	-0.21	-0.04	-1.39	-0.01	-0.48	-0.00
	2nd-yr	-0.22	-0.03	-1.58	-0.01	-0.53	-0.03
	3rd-yr	-0.18	0.00	-1.58	-0.00	-0.45	-0.04

Source: Compiled by DIR.

Weaker yen/higher stock prices likely pushed up GDP by around Y2 trillion in Jan-Mar 2013

Since mid-November 2012, when the dissolution of the House of Representatives became all but certain, the yen has depreciated around Y20 (from about Y80/$ to Y100/$), and stock prices have risen 400 points in terms of TOPIX.

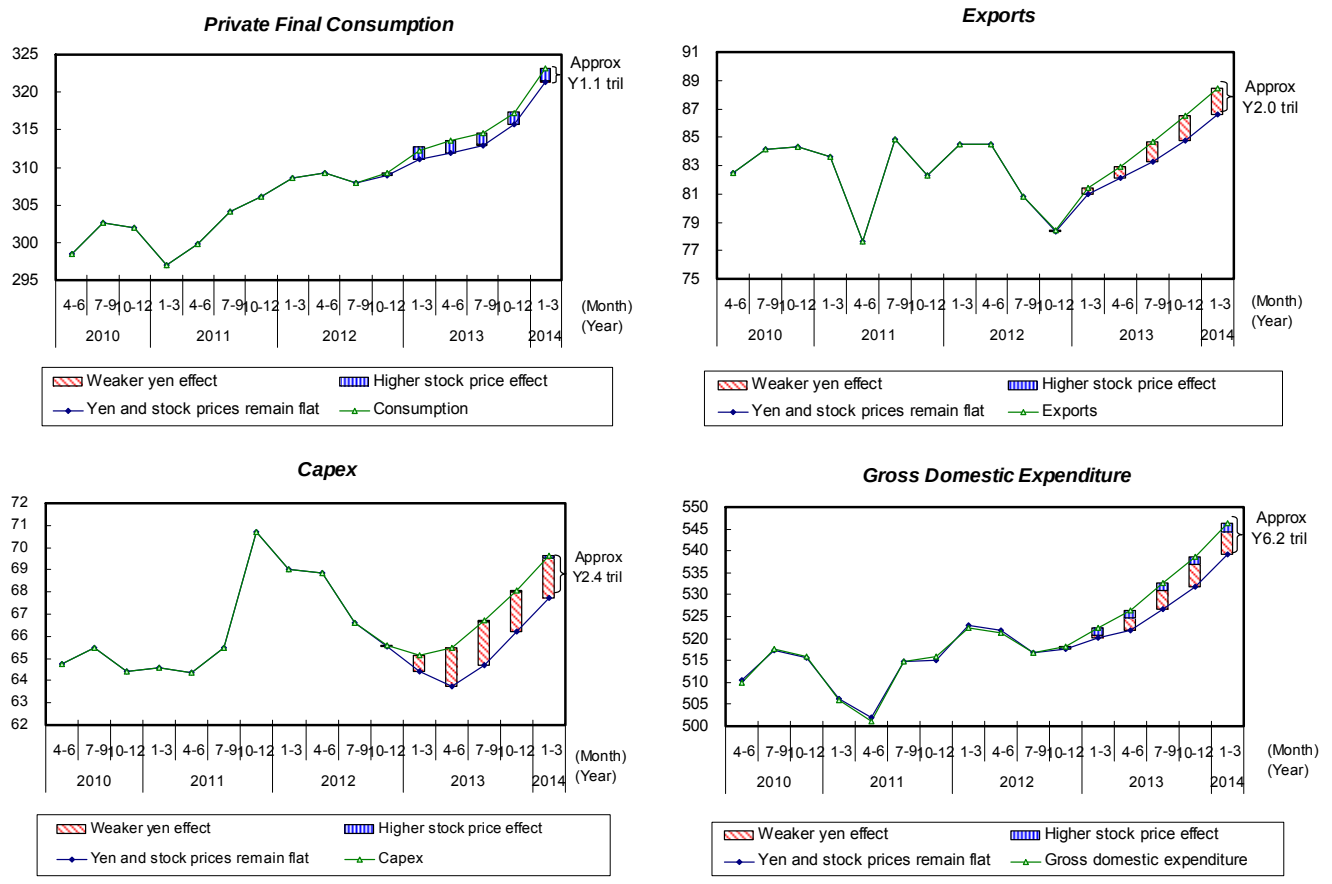
Chart 5 uses the simulation results of Chart 4 to compare the difference between the current base scenario and the case where the depreciation of the yen and the ascent of stock prices did not occur.

Of the depreciation of the yen and the ascent of stock prices to date, it is mainly higher stock prices that have augmented personal consumption by about Y1 trillion as of Jan-Mar 2013. Also, exports are beginning to rise through the depreciation of the yen, and capex is being supported by the improvement of corporate earnings and the upturn of business sentiment. Thus, we estimate that, compared to the case where the depreciation of the yen and the ascent of stock prices did not occur, GDP (here shown as gross domestic expenditure) grew around Y2 trillion in Jan-Mar 2013.

Effect of weaker yen/higher stock prices to grow further, pushing up the economy by around Y6 trillion as of end-FY13

The effect of a weaker yen in increasing exports will gradually increase going forward. Since this will amplify capex, the effect of a weaker yen and higher stock prices will grow further. We estimate that, as of end-FY13, the depreciation of the yen and the ascent of stock prices will serve to boost GDP by around Y6 trillion.

Impact of Weaker Yen and Higher Stock Prices (deviation from base scenario; Y tril) **Chart 5**



Source: Cabinet Office; compiled by DIR.
Note: Deviation estimated by DIR based on Daiwa short-term macroeconomic model when the yen depreciates from Y80/$ (base scenario) to Y100/$. Here, higher stock price effect corresponds to that accompanying yen depreciation.

Will positive effect of weaker yen/higher stock prices be offset by higher long-term interest rate?

Instability has recently overtaken the JGB market. Despite the BOJ's increased purchases, JGB prices have become quite volatile. Should the long-term interest rate rise sharply and adversely impact Japan's economy, to what degree would this offset the positive effects of a weaker yen and higher stock prices?

Chart 6 shows the impact of changes in the yen exchange rate, stock prices, and the long-term interest rate on Japan's economy as annual averages. Our estimation indicates that the impact of the yen depreciating by 10% and TOPIX rising by 200 points would nearly be offset by the impact of the long-term interest rate increasing by 2 percentage points.

In other words, in terms of its impact on the economy for at least the next year or so, the likelihood is strong that the adverse effect of a higher long-term interest rate will be less than the positive effect of higher stock prices and a weaker yen. Should the yen and stock prices remain at their current levels (roughly corresponding to the scenario of 20% depreciation of the yen against the dollar and 400-point rise in TOPIX from the base scenario in the chart), the impact on Japan's economy will continue to be positive as long as the long-term interest rate does not rise around 4 percentage points.

Adverse impact of higher long-term interest rate over the medium-/long-term warrants attention

Our estimation above, however, indicates the average impact the economy would sustain in one year after the occurrence of the shock. Over the medium to long term, the contraction of capex accompanying a higher long-term interest rate would give way to the retrenchment of domestic production sites, raising concern that the hollowing out of Japan's economy would accelerate further. It is also worth recalling that, in the wake of the European sovereign debt crisis, financial markets and the real economy suffered adverse and discontinuous blows from plunging bond prices.

To conclude, while the adverse impact of a higher long-term interest rate on Japan's economy will be limited for the time being, the possibility should be entertained that, in the medium to long term, it will have a larger adverse impact than estimation results based on our short-term macroeconomic model.

Impact of Further Depreciation of Yen and Rise in Long-term Interest Rate
(% pt deviation from base scenario of *Japan's Economic Outlook No. 177*) **Chart 6**

GDP	Base scenario	Long-term interest rate to rise by			
		1% pt	2% pt	3% pt	4% pt
Base scenario	0.00	-0.21	-0.42	-0.63	-0.84
10% depreciation of yen against dollar + 200pt rise in TOPIX	0.38	0.17	-0.04	-0.25	-0.46
20% depreciation of yen against dollar + 400pt rise in TOPIX	0.76	0.55	0.34	0.13	-0.08
30% depreciation of yen against dollar + 600pt rise in TOPIX	1.15	0.94	0.73	0.51	0.30

Capex	Base scenario	Long-term interest rate to rise by			
		1% pt	2% pt	3% pt	4% pt
Base scenario	0.00	-1.39	-2.79	-4.18	-5.57
10% depreciation of yen against dollar + 200pt rise in TOPIX	1.13	-0.26	-1.65	-3.04	-4.44
20% depreciation of yen against dollar + 400pt rise in TOPIX	2.27	0.87	-0.52	-1.91	-3.30
30% depreciation of yen against dollar + 600pt rise in TOPIX	3.40	2.01	0.61	-0.78	-2.17

Personal consumption	Base scenario	Long-term interest rate to rise by			
		1% pt	2% pt	3% pt	4% pt
Base scenario	0.00	-0.04	-0.09	-0.13	-0.18
10% depreciation of yen against dollar + 200pt rise in TOPIX	0.20	0.16	0.12	0.07	0.03
20% depreciation of yen against dollar + 400pt rise in TOPIX	0.41	0.36	0.32	0.28	0.23
30% depreciation of yen against dollar + 600pt rise in TOPIX	0.61	0.57	0.52	0.48	0.44

CPI (y/y)	Base scenario	Long-term interest rate to rise by			
		1% pt	2% pt	3% pt	4% pt
Base scenario	0.00	-0.00	-0.00	-0.01	-0.01
10% depreciation of yen against dollar + 200pt rise in TOPIX	0.21	0.21	0.21	0.21	0.20
20% depreciation of yen against dollar + 400pt rise in TOPIX	0.43	0.43	0.42	0.42	0.42
30% depreciation of yen against dollar + 600pt rise in TOPIX	0.64	0.64	0.64	0.64	0.63

Nominal employee compensation	Base scenario	Long-term interest rate to rise by			
		1% pt	2% pt	3% pt	4% pt
Base scenario	0.00	-0.08	-0.16	-0.25	-0.33
10% depreciation of yen against dollar + 200pt rise in TOPIX	0.36	0.28	0.20	0.12	0.03
20% depreciation of yen against dollar + 400pt rise in TOPIX	0.72	0.64	0.56	0.48	0.40
30% depreciation of yen against dollar + 600pt rise in TOPIX	1.09	1.00	0.92	0.84	0.76

Corporate earnings	Base scenario	Long-term interest rate to rise by			
		1% pt	2% pt	3% pt	4% pt
Base scenario	0.00	-2.05	-4.10	-6.14	-8.19
10% depreciation of yen against dollar + 200pt rise in TOPIX	6.45	4.41	2.36	0.31	-1.74
20% depreciation of yen against dollar + 400pt rise in TOPIX	12.91	10.86	8.81	6.76	4.71
30% depreciation of yen against dollar + 600pt rise in TOPIX	19.36	17.31	15.26	13.22	11.17

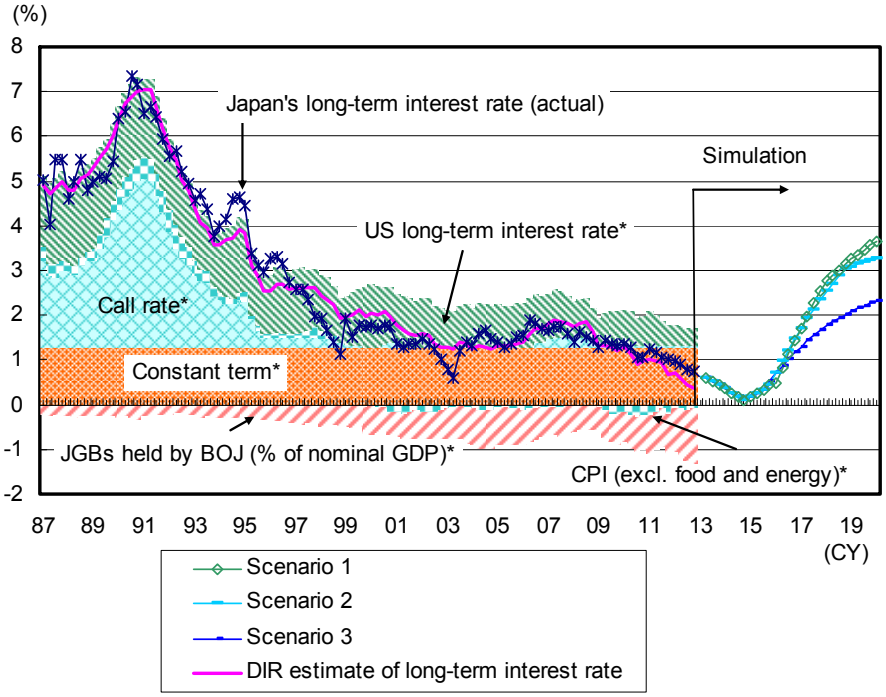
Source: Compiled by DIR.

Simulation of long-term interest rate trend

While there is risk that Japan's long-term interest rate will rise sharply in the future, since the BOJ will maintain its aggressive stance toward JGB purchases, we believe that the upside risk for the long-term interest rate is limited for the time being.

Chart 7 provides an estimation of the long-term interest rate going forward. Our simulation is based on the scenarios assumed by the government and the BOJ. With the BOJ making massive purchases of long-term JGBs, the long-term interest rate is expected to trend at a low level for the time being. For at least while quantitative and qualitative monetary easing is in place, downside pressure on the long-term interest rate from such monetary easing is estimated to be larger than upside pressure arising from the recovery of the economy and/or higher inflation.

Outlook for Japan's Long-term Interest Rate **Chart 7**



Source: Bank of Japan (BOJ), Ministry of Internal Affairs and Communications, Cabinet Office, Bloomberg; compiled by DIR.

*Factors contributing to change in DIR estimate of Japan's long-term interest rate (% pt).
Note: Long-term JGBs held by BOJ through April 2001 estimated based on JGBs held by BOJ.

Estimation equations:
Yield on 10-yr JGBs = 1.29 + 0.46 x call rate + 0.18 x y/y CPI (excl. food and energy) - 0.06 x long-term JGBs held by BOJ (% of GDP) + 0.21 x yield on 10-yr US Treasuries; estimation period: Jul-Sep 1986 to Oct-Dec 2012.

Call rate = 0.89 x call rate (-1) + 0.11 x ([potential GDP growth rate + 2] +1.05 x GDP gap + 1.00 x [y/y CPI excl. food and energy -2]); estimation period: Jan-Mar 1985 to Oct-Dec 1995.

Assumptions for all scenarios:
1) CPI (excl. food and energy) to grow 2% y/y at end-2015 and remain flat thereafter.
2) Nominal and real GDP to grow through Jan-Mar 2015 on par with base scenario of *Japan's Economic Outlook No. 177*; thereafter the former to grow an annualized 3% and the latter an annualized 2%.
3) Call rate from Jan-Mar 2013 on par with the estimation result by the above call rate equation.
4) Call rate assumed to be 0.1% when CPI (excl. food and energy) growth rate falling short of 2% y/y.
5) Banknotes in circulation extended by trend.
6) Call rate to be flat at 0.1% before BOJ starts scaling down of its balance sheet.

Assumptions by scenario:
Scenario 1: BOJ will begin to implement exit measures in Jan-Mar 2016. The amount of long-term JGBs held by BOJ will match banknotes in circulation by Jan-Mar 2018. Then, BOJ will reduce such JGBs to the amount equivalent to half banknotes in circulation.
Scenario 2: The amount of long-term JGBs held by BOJ will match banknotes in circulation by Oct-Dec 2018. BOJ will hold the same amount of JGBs as banknotes in circulation.
Scenario 3: BOJ will reduce its holdings of long-term JGBs by 1% a quarter from Jan-Mar 2017.

Once quantitative and qualitative monetary easing comes to an end, however, upside pressure on the long-term interest rate has the potential of intensifying. With the achievement of its inflation target, the BOJ will switch to an exit strategy from quantitative and qualitative easing, and the balance of long-term JGBs held by the central bank will decrease sharply. Thus, the pace by which the long-term interest rate rises will be determined by the BOJ's exit strategy. Chart 7 simulates the BOJ's exit strategy according to three scenarios. Even with the relatively gradual Scenario 3, the long-term interest rate has the potential of greatly surpassing 2% in the future.

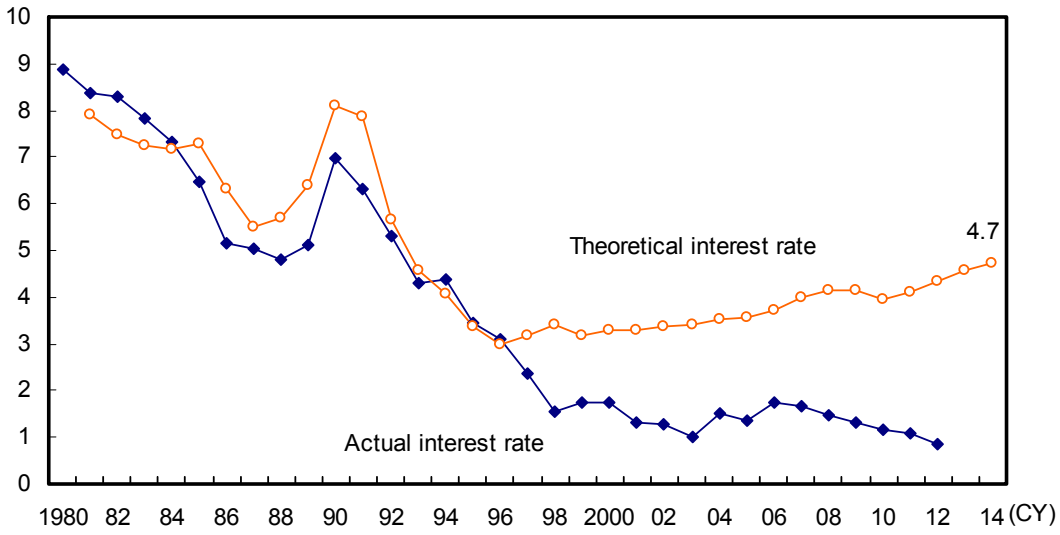
Risk that the long-term interest rate will approach 5% in the future

In this section, we examine the level of the future long-term interest rate from a different angle.

Chart 8 presents an estimate of Japan's long-term interest rate obtained by extrapolating Japanese data by means of a long-term interest rate function derived from data for 21 member nations of the OECD excluding Japan. Stated another way, we sought to estimate Japan's long-term interest rate when the explanatory variable of the long-term interest rate and the long-term interest rate that is explained are similar in their relationship as that for other OECD nations. Our estimation uses the three variables of short-term interest, the ratio of general government debt to nominal GDP, and the GDP deflator.

The estimated long-term interest rate began to deviate from the actual rate from around 1997, and this deviation has tended to widen. The estimated rate is trending gradually upward and is figured to be 4.7% in 2014. In contrast, the actual rate has been about 1% since the second half of the 1990s. If the long-term interest rate in Japan is determined in a similar manner to the corresponding rate in OECD nations, we should constantly bear in mind that, given the massive level of government debt, the long-term interest rate has the potential of rising to nearly 5% in Japan. It is an undeniable fact, however, that low interest rates in Japan cannot be fully explained by the explanatory variables (short-term interest rate, general government debt, and the GDP deflator) that have a certain explanatory power for OECD nations. The estimation results should therefore be viewed with a certain amount of latitude.

Japan's Theoretical Long-term Interest Rate Implied by Other Nations' Interest Rate (%) **Chart 8**



Source: OECD; compiled by DIR.
Estimating equation for theoretical interest rate:
Long-term interest rate = 1.24 + 0.75 x short-term interest rate + 0.01 x outstanding balance of general government debt (% of nominal GDP) + 0.06 x GDP deflator (y/y).
Estimation period 1981-2011.
Significance of coefficients: 5%.
Coefficients derived from estimation results of long-term interest rates of 21 OECD nations (excl. Japan).

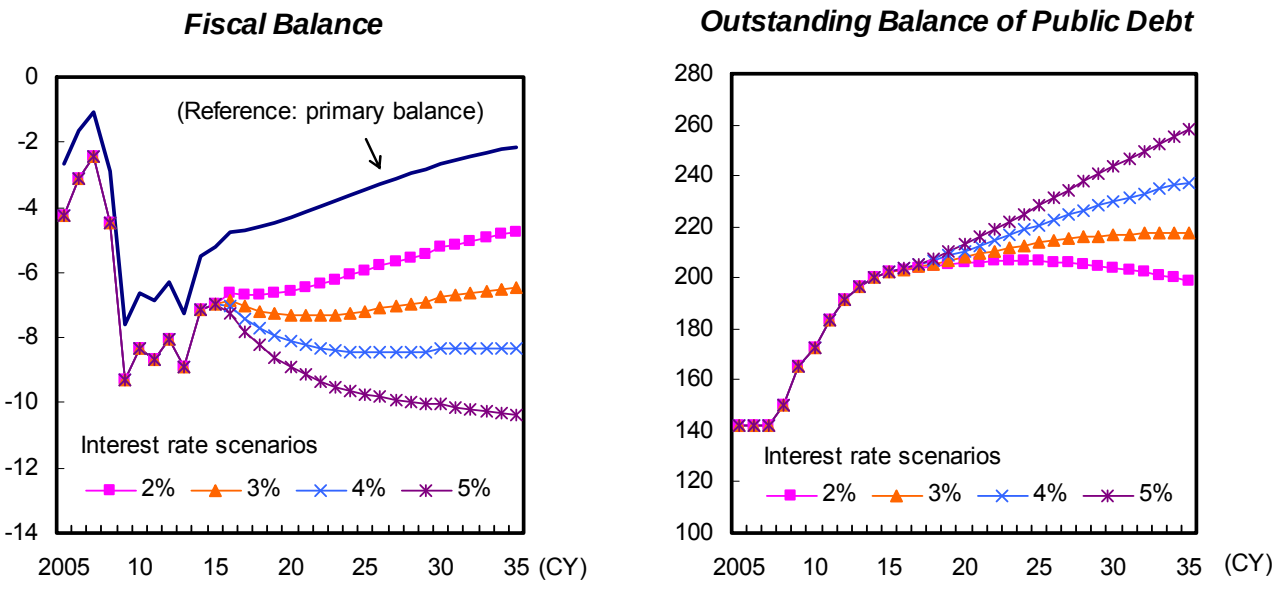
Higher long-term interest rate will have a profound adverse impact on government finances

As noted above, the adverse effect of a higher long-term interest rate on Japan's economy will be limited for the time being. Should the long-term interest rate rise sharply, however, this will risk having a profound adverse impact on government finances in Japan.

Chart 9 estimates how changes in the long-term interest rate according to certain assumptions would influence the fiscal balance and the outstanding balance of government debt in Japan over the long term. Higher interest rates would worsen the fiscal balance through the ascent of interest paid. As a result, the fiscal balance would deteriorate the higher the interest rates rise, serving to increase the outstanding balance of government debt. The relationship between interest rates and government finances is frequently discussed in terms of the Domar condition (if the growth rate of nominal GDP is larger than the nominal long-term interest rate, government finances will remain at a sustainable level). In our calculations below, nominal GDP is assumed to grow at 3% over the long term. If the long-term interest rate is 3%, the fiscal balance is found to trend largely flat, a situation that is generally consistent with the Domar condition. Should the long-term interest rate trend at 3%, public finances would worsen gradually, and the ratio of public debt to nominal GDP would be 217% in 2035. However, if the long-term interest rate is 4% or 5%, government debt would accumulate, and the ratio of public debt to nominal GDP would respectively rise to 237% and 258%.

Chart 9 is based on a calculation that does not factor in systemic or other changes. In addition, it does not consider how economic variables like the economic growth rate and interest rates interact with each other. Accordingly, calculation results will need to be viewed with a certain amount of latitude.

Impact of Change in Long-term Interest Rate on Fiscal Balance and Public Debt (% of nominal GDP)
Chart 9



Source: Cabinet Office, National Institute of Population and Social Security Research (NIPSSR); compiled by DIR.
Assumptions:
1) Nominal and real GDP to grow on par with base scenario of *Japan's Economic Outlook No. 177* for FY12-14; thereafter the former to grow an annualized 3% and the latter an annualized 2%.
2) Elasticity of tax revenue vs. GDP assumed to be 1.1; revenue other than tax extended by nominal GDP growth rate.
3) Debt servicing = outstanding balance of public debt x weighted avg of long-term interest rate and effective interest rate (previous fiscal year).
4) Per-retiree social security expenditure to increase by half per-capita real GDP for working generation.
5) Population grows on par with the medium-fertility and medium-mortality case projection in *Population Projections for Japan, January 2012*, NIPSSR.
6) Expenditure other than debt servicing and social security extended by nominal GDP growth rate.

Effect of higher interest rates on the financial system will be limited

There is also concern that higher interest rates will adversely affect Japan's financial system.

The *Financial System Report* (April 2013 issue; BOJ) considers the impact of changes in interest rates on financial institutions. The report considers two cases, the steepening scenario (10-yr interest rates shift upward) and the parallel scenario (interest rates on all maturities shift upward) (Chart 10). Of these two, the parallel scenario brought larger capital losses on bond holdings to financial institutions, as they have larger holdings of JGBs with short maturities—the margin of rise in short-term interest rates (the margin of slide in JGB prices) is large for the parallel scenario compared to the steepening scenario.

Meanwhile, the net interest income of financial institutions will improve in both cases. Since the yield on investments will respond to a greater degree to changes in market interest rates than the yield on funding, financial institutions will benefit from higher interest rates. In this regard, there is little difference between two scenarios.

Given the above analysis, the BOJ concludes that, should the steepening scenario materialize, the impact on financial institutions will be slight. In the case of the parallel scenario, if interest rates rise by around 1 percentage point (in other words, the yield curve shifts upward by 1 point), capital losses on bond holdings resulting from lower bond prices will be offset by higher net interest income. In contrast, if the yield curve shifts upward by 2 points or more, capital losses will be larger than net interest income. However, even if the yield curve shifts upward by around 3 points, capital adequacy will still exceed the regulatory level in terms of the Tier 1 ratio, and the effect on the financial system will be limited on the whole.

Impact of Rises in Interest Rate on Banks (Y tril) **Chart 10**

		Capital losses on bond holdings			Net interest income		
	Pattern of interest rate rise	1%pt	2%pt	3%pt	1%pt	2%pt	3%pt
Internationally active banks	Steepening scenario	-1.7	-2.1	-3.6	3.9	4.0	4.2
	Parallel scenario	-3.2	-6.2	-8.0	3.9	4.1	4.5
Domestic banks	Steepening scenario	-1.9	-2.8	-4.2	3.5	3.6	3.7
	Parallel scenario	-3.4	-6.3	-8.6	3.4	3.4	3.6

Source: Bank of Japan; compiled by DIR.
Notes: 1) Steepening scenario: 10-yr interest rates shift upward.
2) Parallel scenario: Interest rates on all maturities shift upward.

Summary: Favorable economic conditions will be sustained for the time being, but there will be a need to address the budget deficit problem

Finally, we present a summary of our preceding discussion. A quantitative analysis of the economic impact of Abenomics based on Daiwa's short-term macroeconomic model indicates that the positive effects coming from a weaker yen and higher stock prices will not be offset as long as the long-term interest rate does not rise substantially. Hence, current favorable economic conditions will be sustained for the time being. On the other hand, the Japanese government will need to address the medium- to long-term fiscal deficit problem with more resolve than before.

Outlook for Japanese Economy, Interest Rates — Chart 11

Indicator	2012	2013				2014	FY11	FY12	FY13	FY14
	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar				
	Actual		DIR estimates				Actual		DIR estimates	
Real GDP										
Q/q %, annualized	1.0	3.5	3.0	4.9	4.4	5.9				
Y/y %	0.5	0.2	1.0	3.1	3.9	4.4	0.2	1.2	3.1	0.7
Current account balance SAAR (Y tril)	4.3	2.9	4.4	5.2	5.8	6.6	7.6	4.3	5.5	12.2
Unemployment rate (%)	4.2	4.2	4.2	4.1	4.0	4.0	4.5	4.3	4.1	3.9
CPI (excl. fresh foods; 2010 prices; y/y %)	-0.1	-0.3	-0.1	0.3	0.5	0.6	-0.0	-0.2	0.3	2.9
Unsecured overnight call rate (period end; %)	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100
10-year JGB yield (period average; %)	0.76	0.66	0.90	0.90	1.00	1.00	1.05	0.76	0.95	1.05

Source: Compiled by DIR.
Note: Estimates taken from DIR's *Japan's Economic Outlook No. 177*.