Daiwa Institute of Research

27 November 2012 (No. of pages: 53)

Japanese report: 15 Nov 12

Japan's Economic Outlook No. 175

Exploring a Recovery Scenario: How should Chinese and world economies be understood?

Japan to see real GDP growth of +0.7% in FY12 and +0.9% in FY13, nominal GDP growth of –0.0% and +0.5%

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Main Points

- **Economic outlook revised sharply downward:** In light of the first preliminary Jul-Sep 2012 GDP report (Cabinet Office), we have revised our economic growth outlook sharply downward. We now forecast real GDP growth of +0.7% y/y for FY12 (previous forecast: +1.8%) and +0.9% for FY13 (+1.2%).

- **What will prompt economic recovery in Japan?:** With the worsening of foreign economies, it is highly probable that Japan's economy peaked in March 2012 and has slipped into recession. In our current outlook, we examine past recoveries of the Japanese economy to elucidate conditions for a future recovery. A review of past periods when Japan's economy recovered reveals that since the 1990s the driving force of recoveries has clearly shifted from fiscal and monetary measures to exports. In the current downturn, it is highly probable that the growth of exports, such as through the recovery of foreign economies, will trigger the bottoming out of Japan's economy. Despite the existence of downside risks, as our main scenario we believe that Japan's economy will follow a path of gradual recovery in 2013 and beyond, supported by three factors: (1) pickup of the US and Chinese economies, (2) reconstruction demand related to the Great East Japan Earthquake, and (3) further monetary easing by the Bank of Japan (BOJ).

- **How should the future direction of the world economy be understood?:** The key to anticipating the direction of the world economy is the degree to which sluggish domestic demand in Europe, the US, and other advanced economies will be offset by the policy responses of emerging economies. We therefore undertook a quantitative simulation of the world economy with (1) domestic demand in advanced economies and (2) the policy responses of emerging economies serving as exogenous variables. Our simulation indicates that emerging economies aggressively implementing fiscal and monetary measures has the

potential of offsetting to some degree sluggish domestic demand in advanced economies. However, should multiple risk factors materialize at the same time, such as further deepening of the European sovereign debt crisis and the US fiscal cliff, the policy responses of emerging economies alone would not be sufficient to support the world economy.

- **Will China's economy face a hard landing?:** We also simulated the effect that worsening relations between Japan and China would have on Japan's economy. Worsening relations between Japan and China are estimated to place downward pressure of about 0.1% to 0.4% on Japan's GDP for FY12 and FY13 combined. We anticipate that effects of fiscal and monetary measures in China will enable the Chinese economy to gradually improve for the time being. In the medium to long term, however, there is a risk that China will face the massive adjustment of capital stock. The possibility should be entertained of the potential growth rate of China's economy slowing significantly to the 5% level toward 2030.

- **Risks facing Japan's economy:** Risks that will need to be borne in mind for Japan's economy are: (1) any deepening of the European sovereign debt crisis, (2) worsening of Japan-China relations, (3) the US fiscal cliff, (4) a surge in crude oil prices stemming from geopolitical risk, and (5) further appreciation of the yen.

- **Policy responses required of the government and BOJ:** The policy authorities will need to firmly pursue economic policies to restore the economy centering on four points: (1) there should be consistent policies based on a firm vision (national vision and philosophy) of the top leaders, (2) instead of focusing only on domestic demand and the demand side, economic policies should be implemented that are well balanced and that embrace foreign demand and the supply side, (3) government finances should be rebuilt by raising the consumption tax and reducing expenditures centering on social security costs, and (4) the government and the BOJ should work together more closely. Regarding the last, based on an analysis using the Granger causality test, a weaker yen and higher stock prices ensuing from further monetary easing by the BOJ would be effective in ending deflation.

Our assumptions

- Public works spending will grow +8.7% in FY12, and -6.4% in FY13; the consumption tax rate will be increased in April 2014

- Average exchange rate of Y79.7/$ in FY12 and Y80.0/$ in FY13

- US real GDP growth of +2.1% in CY12 and +1.8% in CY13

Main Economic Indicators and Real GDP Components

	FY11 (Actual)	FY12 (Estimate)	FY13 (Estimate)	CY11 (Actual)	CY12 (Estimate)	CY13 (Estimate)
1. Main economic indicators						
Nominal GDP (y/y %)	-2.0	-0.0	0.5	-2.8	0.7	-0.4
Real GDP (chained [2005]; y/y %)	-0.0	0.7	0.9	-0.7	1.6	0.1
Domestic demand (contribution, % pt)	1.0	1.6	0.9	0.1	2.5	0.6
Foreign demand (contribution, % pt)	-1.0	-0.8	-0.2	-0.9	-0.9	-0.5
GDP deflator (y/y %)	-1.9	-0.7	-0.4	-2.1	-0.8	-0.5
Index of All-industry Activity (y/y %)*	0.2	-0.0	0.3	-0.5	0.7	-0.4
Index of Industrial Production (y/y %)	-1.0	-4.3	0.1	-2.4	-1.4	-3.1
Index of Tertiary Industry Activity (y/y %)	0.7	0.5	0.1	0.0	1.0	-0.3
Corporate Goods Price Index (y/y %)	1.3	-1.0	0.3	1.5	-0.8	0.0
Consumer Price Index (excl. fresh food; y/y %)	-0.0	-0.1	-0.1	-0.3	-0.0	-0.1
Unemployment rate (%)	4.5	4.3	4.3	4.6	4.4	4.3
Government bond yield (10 year; %)	0.99	0.82	0.99	0.98	0.85	0.94
Money stock; M2 (end-period; y/y %)	2.9	2.3	1.7	2.7	2.5	1.8
Balance of payments						
Trade balance (Y tril)	-3.5	-6.4	-6.3	-1.6	-5.7	-6.4
Current balance ($100 mil)	964	536	560	1,197	602	525
Current balance (Y tril)	7.6	4.3	4.5	9.6	4.8	4.2
(% of nominal GDP)	1.6	0.9	0.9	2.1	1.0	0.9
2. Real GDP components (Chained [2005]; y/y %; figures in parentheses: contribution, % pt)						
Private final consumption	1.2 (0.7)	0.9 (0.5)	0.8 (0.5)	0.1 (0.1)	2.1 (1.2)	-0.1 (-0.1)
Private housing investment	3.8 (0.1)	3.1 (0.1)	5.8 (0.2)	5.7 (0.2)	2.0 (0.1)	5.2 (0.2)
Private fixed investment	1.1 (0.1)	-0.0 (-0.0)	1.3 (0.2)	1.3 (0.2)	1.2 (0.2)	0.0 (0.0)
Government final consumption	1.9 (0.4)	2.0 (0.4)	1.0 (0.2)	2.0 (0.4)	2.2 (0.5)	1.0 (0.2)
Public fixed investment	2.9 (0.1)	9.1 (0.4)	-7.1 (-0.3)	-3.5 (-0.2)	9.4 (0.4)	-1.2 (-0.1)
Exports of goods and services	-1.4 (-0.2)	-1.1 (-0.2)	0.5 (0.1)	-0.1 (-0.0)	0.5 (0.1)	-1.8 (-0.3)
Imports of goods and services	5.6 (-0.8)	4.7 (-0.6)	1.7 (-0.2)	6.3 (-0.9)	5.9 (-1.0)	1.4 (-0.2)
Major assumptions:						
1. World economy						
Economic growth of major trading partners	3.4	3.0	3.4	3.8	3.0	3.2
Crude oil price (WTI futures; $/bbl)	97.2	93.9	95.0	95.1	95.9	95.0
2. US economy						
US real GDP (chained [2005]; y/y %)	2.0	1.9	1.9	1.8	2.1	1.8
US Consumer Price Index (y/y %)	3.3	1.8	2.1	3.2	2.1	2.0
3. Japanese economy						
Nominal public fixed investment (y/y %)	3.7	8.7	-6.4	-2.8	9.2	-0.8
Exchange rate (Y/$)	79.0	79.7	80.0	79.8	79.5	80.0
(Y/€)	109.6	99.8	100.0	111.4	101.4	100.0
Call rate (end-period; %)	0.10	0.10	0.10	0.10	0.10	0.10

Source: Compiled by DIR.
Note: Due to rounding, actual figures may differ from those released by the government.
* Excl. agriculture, forestry, and fisheries.
Estimate: DIR estimate.

Comparison with Previous Outlook

	Current outlook (Outlook 175)		Previous outlook (Outlook 174 Update)		Difference between previous and current outlooks	
	FY12	FY13	FY12	FY13	FY12	FY13
1. Main economic indicators						
Nominal GDP (y/y %)	-0.0	0.5	1.0	0.9	-1.0	-0.4
Real GDP (chained [2005]; y/y %)	0.7	0.9	1.8	1.2	-1.1	-0.4
Domestic demand (contribution, % pt)	1.6	0.9	2.0	1.0	-0.4	-0.1
Foreign demand (contribution, % pt)	-0.8	-0.2	-0.1	0.2	-0.8	-0.3
GDP deflator (y/y %)	-0.7	-0.4	-0.8	-0.3	0.1	-0.1
Index of All-industry Activity (y/y %)*	-0.0	0.3	0.4	0.9	-0.4	-0.6
Index of Industrial Production (y/y %)	-4.3	0.1	1.2	3.3	-5.5	-3.2
Index of Tertiary Industry Activity (y/y %)	0.5	0.1	0.4	0.3	0.1	-0.2
Corporate Goods Price Index (y/y %)	-1.0	0.3	-0.4	0.3	-0.6	-0.0
Consumer Price Index (excl. fresh food; y/y %)	-0.1	-0.1	0.0	0.1	-0.1	-0.2
Unemployment rate (%)	4.3	4.3	4.3	4.1	0.0	0.2
Government bond yield (10 year; %)	0.82	0.99	0.85	1.08	-0.03	-0.09
Money stock; M2 (end-period; y/y %)	2.3	1.7	2.1	1.4	0.2	0.2
Balance of payments						
Trade balance (Y tril)	-6.4	-6.3	-4.4	-3.4	-2.0	-2.9
Current balance ($100 mil)	536	560	737	879	-201	-319
Current balance (Y tril)	4.3	4.5	5.8	6.9	-1.6	-2.5
(% of nominal GDP)	0.9	0.9	1.2	1.4	-0.3	-0.5
2. Real GDP components (chained [2005]; y/y %)						
Private final consumption	0.9	0.8	1.2	0.7	-0.3	0.2
Private housing investment	3.1	5.8	2.1	6.4	1.0	-0.6
Private fixed investment	-0.0	1.3	3.3	2.1	-3.3	-0.8
Government final consumption	2.0	1.0	1.6	0.9	0.4	0.0
Public fixed investment	9.1	-7.1	6.5	-6.0	2.6	-1.1
Exports of goods and services	-1.1	0.5	4.3	3.6	-5.4	-3.0
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US real GDP (chained [2005]; y/y %)	1.9	1.9	2.2	2.3	-0.2	-0.4
US Consumer Price Index (y/y %)	1.8	2.1	1.7	2.1	0.1	0.0
3. Japanese economy						
Nominal public fixed investment (y/y %)	8.7	-6.4	6.6	-5.2	2.1	-1.2
Exchange rate (Y/$)	79.7	80.0	79.3	79.0	0.4	1.0
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Source: Compiled by DIR.
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Contents

Summary

Economic outlook revised sharply downward

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Jul-Sep real GDP contracted an annualized 3.5% q/q in the first preliminary estimate, the first decrease in three quarters

Jul-Sep real GDP contracted 0.9% q/q, annualized at 3.5%, in the first preliminary estimate, the first decrease in three quarters. This outcome corresponded to the market consensus (-0.9% q/q, annualized at -3.6%). The contribution of private demand to q/q GDP growth fell 0.4 percentage points from the previous quarter. Principal factors responsible for the slide were personal consumption retreating (down 0.5% q/q) for the second consecutive quarter due to sluggish automobile sales impacted by the expiry of eco-car subsidies and capex declining (down 3.2% q/q) for the first time in two quarters. Foreign demand (net exports) made a negative contribution (-0.7 points) for the second consecutive quarter, as exports plunged 5.0% q/q due to the worsening of foreign economies, centering on Europe. Public works spending grew for the third quarter in a row and climbed 4.0% q/q, benefiting from reconstruction demand taking hold in 2012. Public demand, including government consumption, made a positive contribution (0.3 points) for the fourth quarter in a row. While such demand provided some support to the economy, it was not enough to offset the faltering of private-sector demand and foreign demand, and both domestic and foreign demand shrank in the Jul-Sep quarter. Deflationary tendencies persisted with the GDP deflator declining slightly q/q (less than 0.0%) for the second consecutive quarter and sliding 0.7% y/y, the 12th quarterly slide in a row. Nominal GDP decreased for the second consecutive quarter, falling 0.9% q/q (annualized at -3.6%).

What will prompt economic recovery in Japan?

With the worsening of foreign economies, it is highly probable that Japan's economy peaked in March 2012 and has slipped into recession. In our current outlook, we examine past recoveries of the Japanese economy to elucidate conditions for a future recovery. A review of past periods when Japan's economy recovered reveals that since the 1990s the driving force of recoveries has clearly shifted from fiscal and monetary measures to exports. In the current downturn, it is highly probable that the growth of exports, such as through the recovery of foreign economies, will trigger the bottoming out of Japan's economy. Despite the existence of downside risks, as our main scenario we believe that Japan's economy will follow a path of gradual recovery in 2013 and beyond, supported by three factors: (1) pickup of the US and Chinese economies, (2) reconstruction demand related to the Great East Japan Earthquake, and (3) further monetary easing by the Bank of Japan (BOJ).

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Risks facing Japan's economy

Risks that will need to be borne in mind for Japan's economy are: (1) any deepening of the European sovereign debt crisis, (2) worsening of Japan-China relations, (3) the US fiscal cliff, (4) a surge in crude oil prices stemming from geopolitical risk, and (5) further appreciation of the yen.

Policy responses required of the government and BOJ:

The policy authorities will need to firmly pursue economic policies to restore the economy centering on four points: (1) there should be consistent policies based on a firm vision (national vision and philosophy) of the top leaders, (2) instead of focusing only on domestic demand and the demand side, economic policies should be implemented that are well balanced and that embrace foreign demand and the supply side, (3) government finances should be rebuilt by raising the consumption tax and reducing expenditures centering on social security costs, and (4) the government and the BOJ should work together more closely. Regarding the last, based on an analysis using the Granger causality test, a weaker yen and higher stock prices ensuing from further monetary easing by the BOJ would be effective in ending deflation.

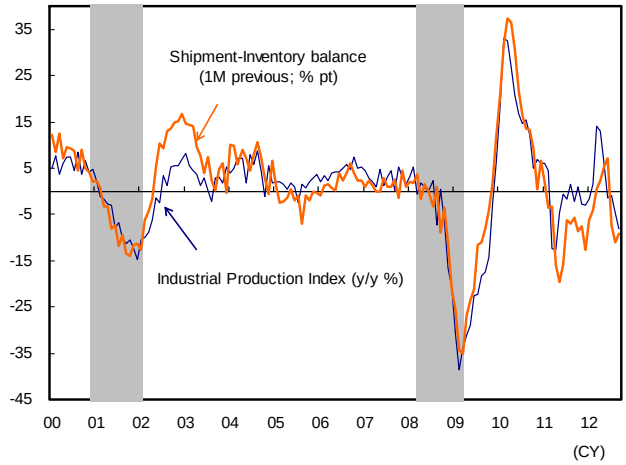
1. What Will Prompt Economic Recovery in Japan?

1.1 Strong possibility that Japan's economy has slipped into recession

Japan's economy rapidly worsening

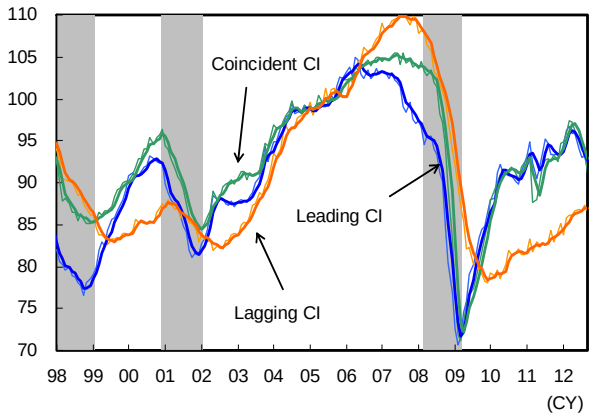
There is a strong likelihood that Japan's economy peaked in March 2012 and has slipped into recession. The Japanese economy is worsening rapidly on account of the sluggishness of foreign economies. In the September Index of Business Conditions that the Cabinet Office published on 6 November 2012, the basic assessment of the economy was revised downward to "signaling a possible turning point." The Cabinet Office is expected to further downgrade the assessment to "worsening" in December. In Chart 1.1, we can see that the shipment-inventory balance has fallen sharply, an indicator that leads the Industrial Production Index by one month. As depicted in Chart 1.2, the Index of Business Conditions is also trending downward. Also, Chart 1.3 shows that the Economy Watchers Survey, a measure to see region-by-region and sector-by-sector economic trends, has clearly worsened.

Production and Shipment-Inventory Balance Chart 1.1



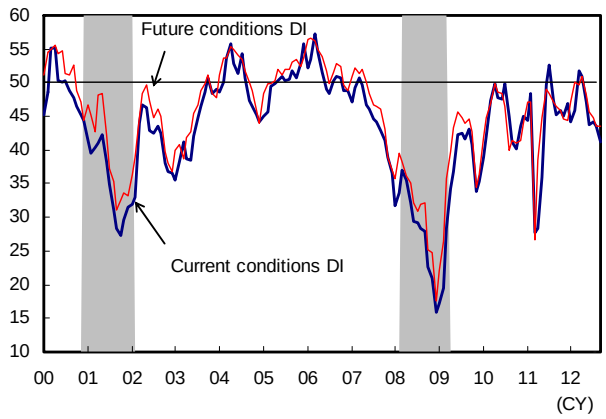
Source: Ministry of Economy, Trade and Industry; compiled by DIR.
Note: Shaded areas denote economic downturn.

Index of Business Conditions (CY05 = 100) Chart 1.2



Source: Cabinet Office; compiled by DIR.
Note: Shaded areas denote economic downturn; thick lines 3M MAs.

Economy Watchers Survey (% pt) Chart 1.3



Source: Cabinet Office; compiled by DIR.
Note: Shaded areas denote economic downturn.

Industrial production has retreated after peaking in August 2011 when the effect of the transportation equipment industry is excluded

Chart 2 indicates that industrial production overall peaked in March 2012. However, when the effect of the transportation equipment industry is excluded, we learn that industrial production actually peaked in August 2011. In other words, production activity from 2H11 to 1H12 was supported by the transportation equipment industry, particularly the production of automobiles.

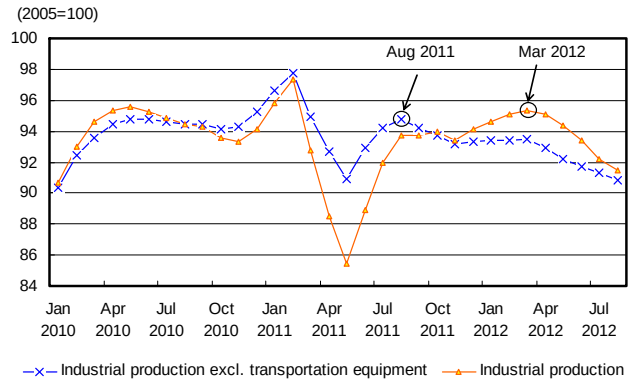
Between 2H11 and 1H12, with the revival of eco-car subsidies made possible by the fourth supplementary budget for FY11, domestic shipments of automobiles grew. Automakers also increased foreign shipments to augment foreign inventories that had declined from effects of the Great East Japan Earthquake and floods in Thailand.

The increase in domestic automobile shipments from eco-car subsidies, however, peaked out even before these subsidies ran out, and domestic shipments plunged in summer. Also, the buildup of foreign inventories by automakers came to an end in spring 2012, and foreign shipments have continued to decline since summer.

Industrial production tends to contract rapidly during economic downturns in Japan

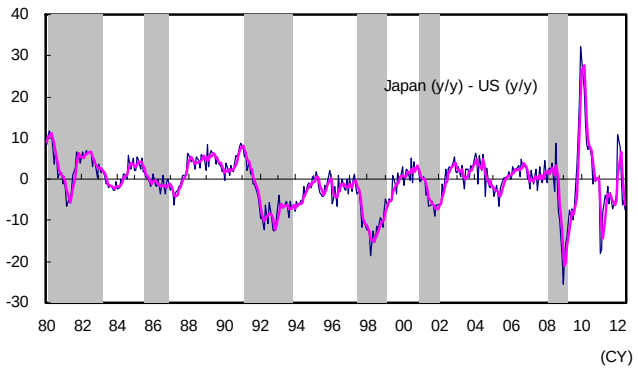
Chart 3 illustrates the trend of the difference in Japan-US industrial production (industrial production in Japan [y/y] minus industrial production in the US [y/y]). The chart reveals a tendency for industrial production to contract rapidly during economic downturns in Japan. As the world economy worsens, industrial production in Japan has slowed dramatically compared to that in the US, suggesting that Japan's economy has slipped into recession.

Industrial Production Excl Transport Equipment
Chart 2



Source: Ministry of Economy, Trade and Industry; compiled by DIR.
Note: SA; 3M MA.

Japan-US Industrial Production Balance (% pt)
Chart 3

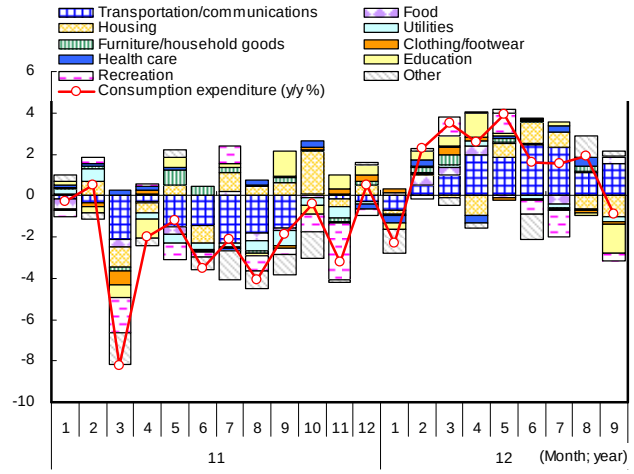


Source: Ministry of Economy, Trade and Industry; Federal Reserve Board; Haver Analytics; compiled by DIR.
Note: Shaded areas denote economic downturn; thick line 3M MA.

Personal consumption loses momentum

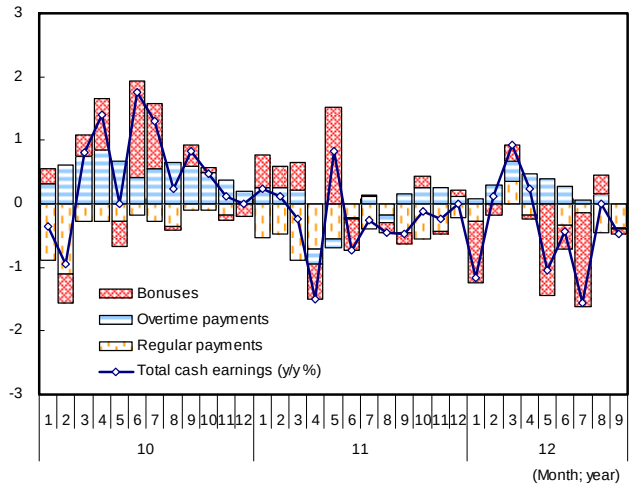
In Jul-Sep GDP statistics, real private consumption contracted for the second consecutive quarter due to sluggish auto sales occasioned by the expiry of eco-car subsidies. Chart 4 provides a breakdown of real consumption expenditures (all households). Here we see that expenditures on education and housing have fallen sharply. Examining the income environment in Chart 5, we can see that the sluggishness of both regular payments and bonuses has become an adverse factor.

Breakdown of Real Household Consumption
(all households; % pt) **Chart 4**



Source: Ministry of Internal Affairs and Communications; compiled by DIR.

Breakdown of Labor Cash Earnings
(% pt) **Chart 5**

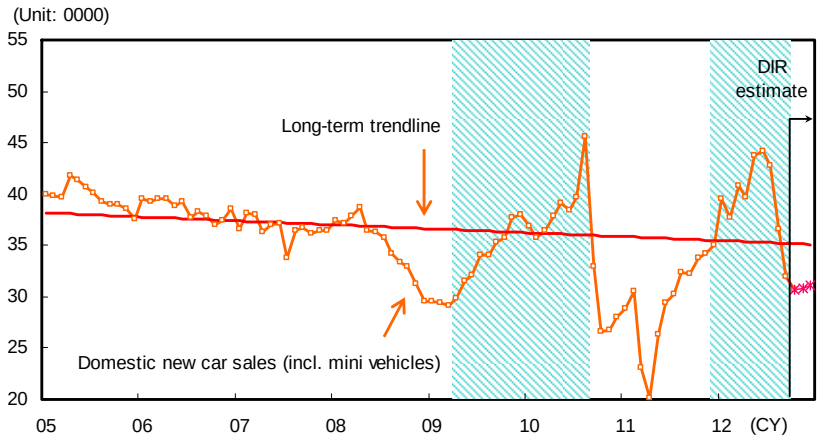


Source: Ministry of Health, Labour and Welfare; compiled by DIR.

Adverse impact of end to eco-car subsidies will continue in Oct-Dec 2012

The adverse impact of eco-car subsidies coming to an end is expected to continue in Oct-Dec 2012. As indicated in Chart 6, the sluggishness of domestic new car sales accompanying the expiry of eco-car subsidies is foreseen to continue. The decrease in domestic new car sales from the expiry of such subsidies is anticipated to place downward pressure of 0.57% q/q on real private consumption in Oct-Dec 2012 and downward pressure of around 0.34% q/q on real GDP over the same period.

Impact of Eco-car Subsidies **Chart 6**



Source: Japan Automobile Dealers Association, Japan Mini Vehicles Association; compiled by DIR.
Notes: 1) SA by DIR.
2) Shaded areas denote periods when eco-car subsidy programs available.

Impact of Eco-car Subsidies *(Deviation from no subsidy case; %)*

	2012			
	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec
Personal consumption	0.49	0.27	-0.43	-0.57
GDP	0.30	0.16	-0.26	-0.34

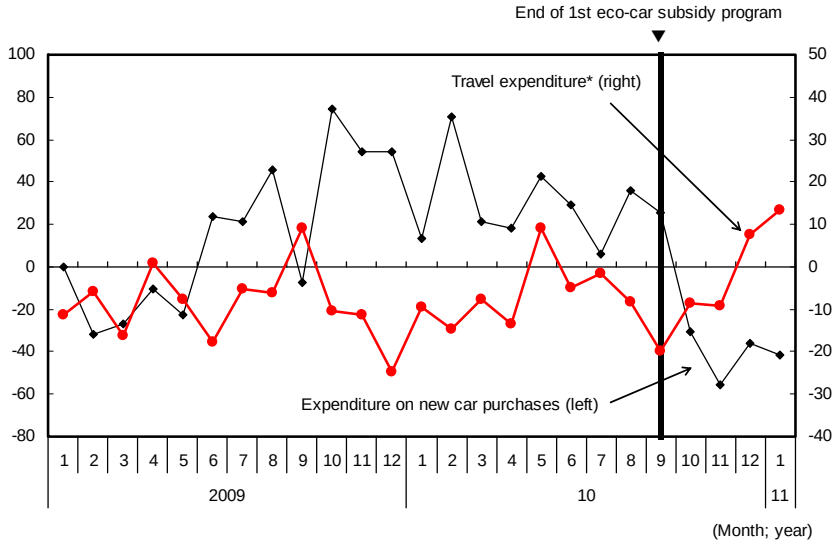
Source: Cabinet Office; compiled by DIR.

Travel and other leisure consumption expected to trend firmly for the time being

On the other hand, with eco-car subsidies coming to an end, travel and other leisure consumption is expected to trend firmly for the time being. Chart 7 portrays the trend of personal consumption in the period before and after the end of first eco-car subsidies in September 2010. When such subsidies came to an end, spending on travel and other leisure-related consumption began to increase. Thus, spending on domestic and foreign travel and on theme parks is expected to be robust going into 2013. Domestic travel is also benefiting from the effect of the opening of Tokyo Skytree, Tokyo's new broadcasting tower, and travel to the Kanto region where Tokyo is located has grown. With respect to foreign travel, the strong yen and lower fuel costs are positive developments, and travel to such nearby destinations as Guam, Saipan, Thailand, and Hawaii are strong.

Such trends, however, only manifest the substitution of one consumption component for another. At the macroeconomic level, as the income environment worsens from sluggish foreign economies, personal consumption is likely to remain soft for the time being.

Household Consumption Expenditure Before/After End of 1st Eco-car Subsidy Program (y/y %)
Chart 7



Source: Ministry of Internal Affairs and Communications; compiled by DIR.
Note: Expenditure per household.
*Flights, accommodation, domestic and overseas package tours.

1.2 What will prompt economic recovery in Japan?

A review of past periods when Japan's economy recovered

In this section, we examine past recoveries of the Japanese economy to elucidate the conditions for a future recovery. A review of past periods when Japan's economy recovered reveals that since the 1990s the driving force of recoveries has clearly shifted from fiscal and monetary measures to exports. In the current downturn, it is highly probable that growth of exports, such as through the recovery of foreign economies, will trigger the bottoming out of Japan's economy.

Fiscal and monetary measures drove economic recoveries to the 1980s

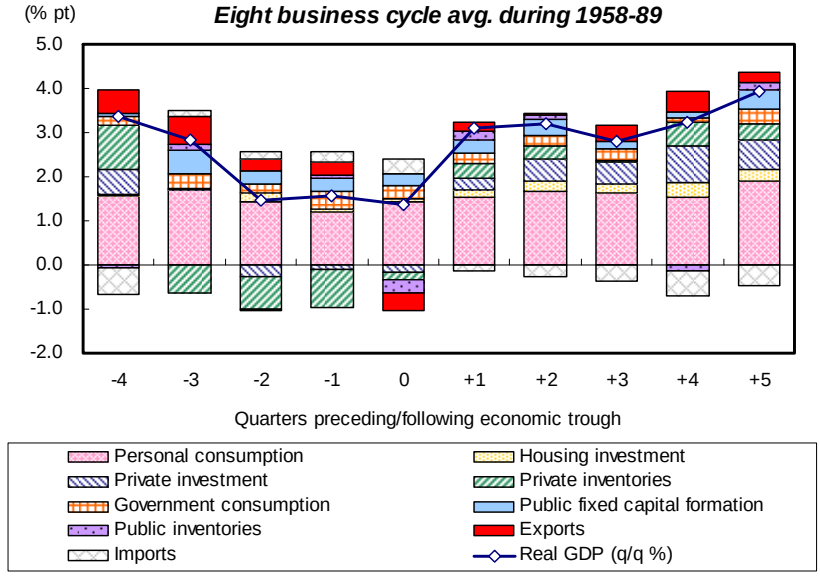
Chart 8 presents an average pattern of eight recoveries Japan experienced to the 1980s (1958 to 1989). Features shared by these recoveries are (1) inventory investments turning to increase, (2) lower interest rates giving way to higher housing investments and capex, and (3) ongoing support of the economy

through public works spending. In other words, fiscal and monetary measures were the locomotive of economic recoveries in Japan in historical terms. While personal consumption's contribution to real GDP growth is substantial, its marginal effect on economic growth has been limited during recovery periods. The momentum of exports in driving the economy was not strong compared to recent recovery phases.

Features of Recovery Phases During Eight Business Cycles (1958-89) **Chart 8**

(1) Inventory investment began to pick up following the end of inventory adjustments.
(2) Housing investment and capital investment began to pick up reflecting lower interest rates.
(3) The economy was supported by continuous public investment.
(4) Personal consumption made a substantial contribution to real GDP growth but its marginal effect in boosting the economy was limited.
(5) The momentum of exports in driving the economy was not strong compared to recent recovery phases.

Japan: Breakdown of GDP Growth in Recovery Phases



Source: Cabinet Office; compiled by DIR.

Exports have driven economic recoveries since the 1990s

Chart 9 presents an average pattern of four recoveries Japan experienced since the 1990s. These recent recoveries share three features. First, the driving force of recoveries has clearly shifted from fiscal and monetary measures to exports. Second, a few quarters after the trough of the business cycle, capex and inventories clearly increase. The lead actor in the rise of capex is assembly industries being stimulated by foreign demand. Third, the upside effect on the economy of personal consumption, public works spending, and housing investment has greatly diminished compared to the past.

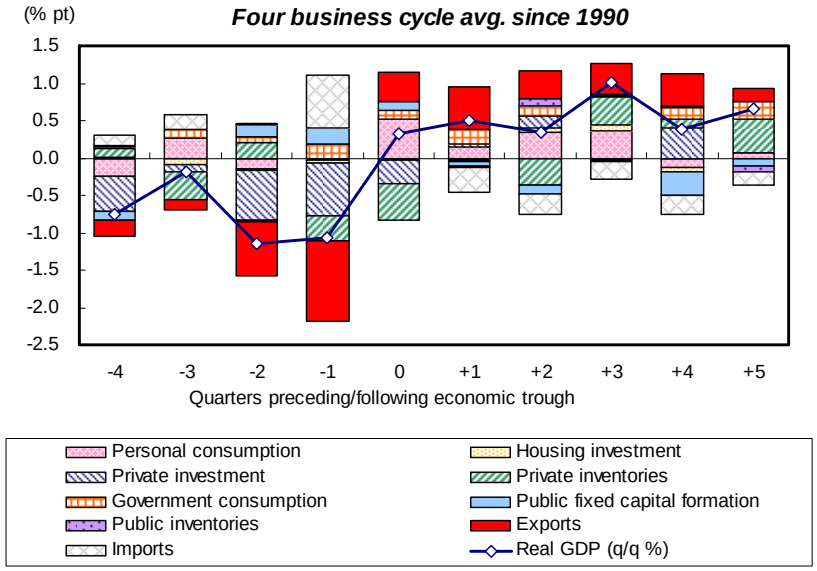
Reasons why the effect of fiscal and monetary measures has greatly decreased

Several reasons can be cited for why the effect of fiscal and monetary measures has greatly decreased since the 1990s. With respect to fiscal measures, as the budget deficit rapidly expands, the effectiveness of fiscal measures in supporting the economy is reaching a limit. In the case of monetary measures, factors that can be noted are (1) the growing trend among companies to hold capex within the scope of cash flow, (2) the shift from indirect to direct financing in fund raising, and (3) the substantial decline, particularly since the 2000s, in the latitude for further monetary easing.

Features of Recovery Phases during Four Business Cycles Since 1990 **Chart 9**

(1) Exports drove recovery, especially in the last two recovery phases (2002 and 2009).
(2) Capital investment and inventory investment clearly picked up two-to-three quarters following an economic trough, especially for export-driven assembly industries.
(3) However, effects of personal consumption, public investment, and housing investment in boosting the economy were weak compared to recovery phases up to 1989.

Japan: Breakdown of GDP Growth in Recovery Phases



Source: Cabinet Office; compiled by DIR.

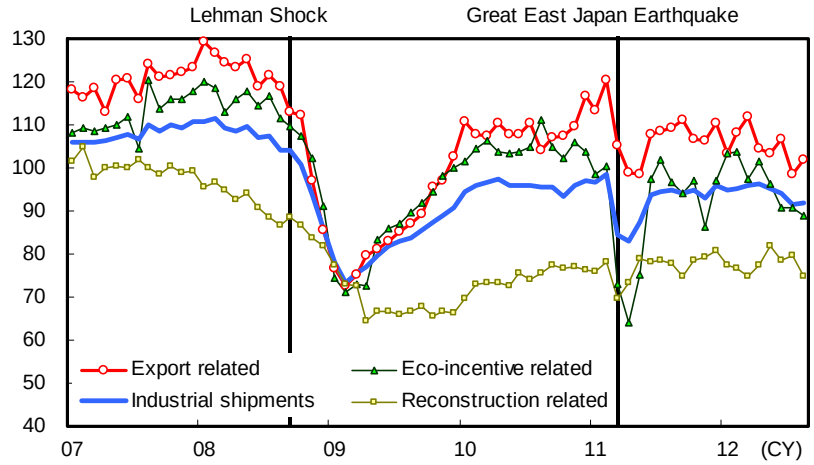
Exports will hold the key to future recoveries

Given the weakness of the autonomous recovery mechanism led by domestic demand, the Japanese economy is likely to depend on exports in future recoveries. The economy has grown more dependent on exports in recent years, and a close relationship has developed between the export volume index and industrial shipments. In the current downturn, it is highly probable that growth of exports, such as through the recovery of foreign economies, will trigger the bottoming out of Japan's economy.

Breakdown of industrial shipments in Japan

Chart 10 provides a breakdown of industrial shipments in Japan. Eco-incentive-related shipments, defined as domestic consumer durables that are eligible for eco-car tax breaks and the eco-point program, have slowed. Export-related shipments appear to be stalling on account of the sluggishness of foreign economies centering on Europe. In contrast, reconstruction-related shipments, such as construction materials and capital goods (excl. transportation equipment) are trending firmly for the most part. Thus, it appears that reconstruction demand is currently the sole source of support for Japan's economy. Based on such analysis, if Japan's economy is to rebound, a key issue will be whether foreign economies will recover and export-related shipments will turn upward.

Breakdown of Industrial Shipments (2005 = 100) **Chart 10**



Source: Ministry of Economy, Trade and Industry; compiled by DIR.
Notes: 1) Eco-incentive related: Durable goods for the domestic market that are eligible for eco-car subsidies/tax breaks and eco-point programs.
2) Reconstruction related: Construction materials and capital goods (excl. transportation equipment).

1.3 Three positives supporting the recovery of Japan's economy

Despite the existence of downside risks, as our main scenario we believe that Japan's economy will follow a path of gradual recovery in 2013 and beyond, supported by three factors: (1) pickup of the US and Chinese economies, (2) reconstruction demand related to the Great East Japan Earthquake, and (3) further monetary easing by the BOJ.

Positive 1: Pickup of the US and Chinese economies

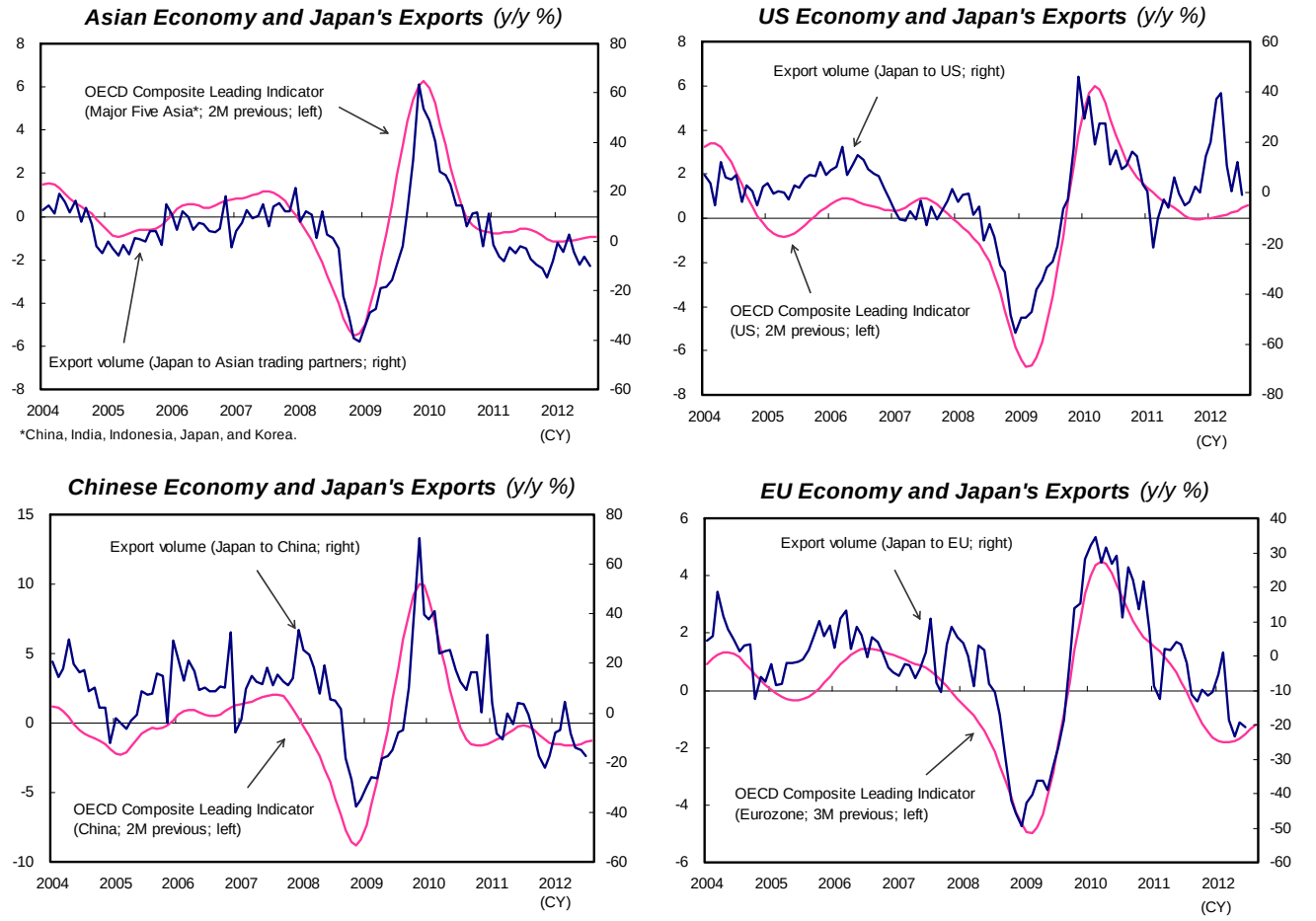
Signs that foreign economies are gradually bottoming out

The first factor that will support Japan's economy going forward is prospects that foreign economies will recover centering on the US and China.

Chart 11 illustrates the trend of Japanese exports by trading partner. OECD Composite Leading Indicators for geographic regions tend to lead the volume of Japanese exports to the corresponding region by two to three months. Since OECD CLIs of major regions are showing signs of gradually bottoming out, this can be called a positive shaft of light for Japanese exports.

Regarding the direction of the world economy, which forms the premise of our current forecast, we assume that (1) eurozone economies will retreat due to the sovereign debt crisis, (2) the US economy will slowly recover, and (3) China's economy will gradually improve for the time being, supported by the effects of fiscal and monetary measures. In this section, our discussion will be limited to the US economy, and we will examine the Chinese economy in a later section.

Japan's Exports by Trading Partner — Chart 11



Source: OECD, Ministry of Finance; compiled by DIR.

Three conditions determining long-term structural recession—possibility of the US experiencing so-called Japanization limited

First of all, we would like to emphasize that the US is not slipping into a long-term structural recession similar to the Great Depression of the 1930s or Japan's Heisei recession. Chart 12 offers a comparison of the Great Depression, Japan's Heisei recession, and the current situation of the US and Europe. Currently in the US, (1) policy responses have been rapid, (2) the labor market is flexible, and (3) financial system uncertainties have abated. Hence, the three basic conditions determining a long-term structural recession shared by the Great Depression and Japan's Heisei recession are not presently seen in the US. Therefore, assuming that the US does not rush to implement fiscal and monetary exit strategies (the risk of the so-called "fiscal cliff"), we believe in our main scenario that the US will avoid a long-term structural recession accompanied by a deflationary spiral (so-called Japanization). In the case of European nations, since (1) policy responses have been slow, (2) labor markets are rigid, and (3) financial system uncertainties remain, some attention should be given to the risk that Europe will slip into a long-term structural recession.

Conditions Determining Protracted Structural Recession **Chart 12**

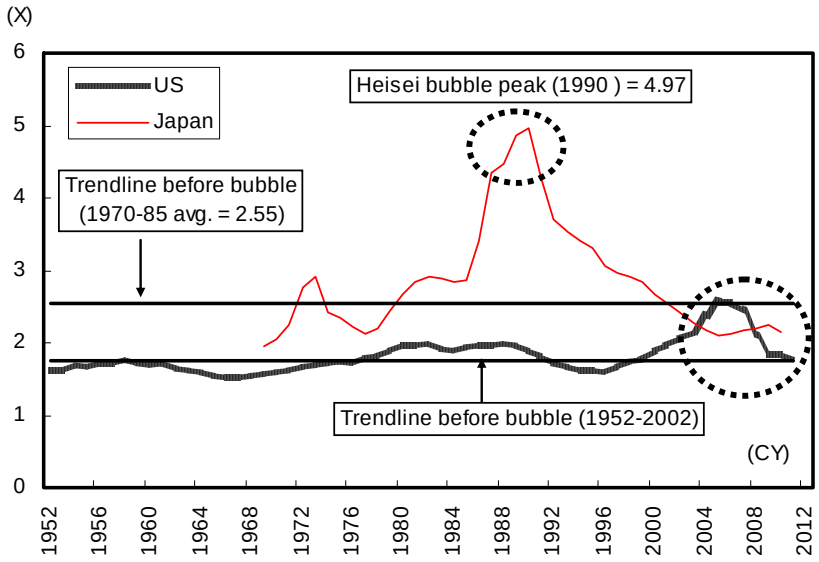
	Great Depression	Heisei Recession	Current status of US economy	Current status of European economy
① Failure of policy responses	✓	✓	X	0
② Real wages remaining high resulting in prolonged stagnation of capex	✓	✓	X	0
③ Impairment of financial system	✓	✓	X	0

Source: Compiled by DIR.
✓=Yes, 0=to some degree, and X=No.

Adjustment of US housing prices enters final stage

Chart 13 depicts the trend of the ratio of the total market value of real estate to nominal GDP for Japan and the US. In the US, the ratio has declined to a level approaching its average preceding the housing bubble (average for 1952 to 2002). This makes it reasonable to conclude that US housing prices have at the very least moved past a period of persistent adjustment.

Ratio of Aggregate Market Value of Properties to Nominal GDP: Japan vs. US **Chart 13**



Source: Federal Reserve Board, US Department of Commerce, Cabinet Office; compiled by DIR.
Note: Aggregate market value of land for Japan and that of real estate for the US.

Positive 2: Reconstruction demand

Public works spending related to reconstruction projects materializing moderately in 2012

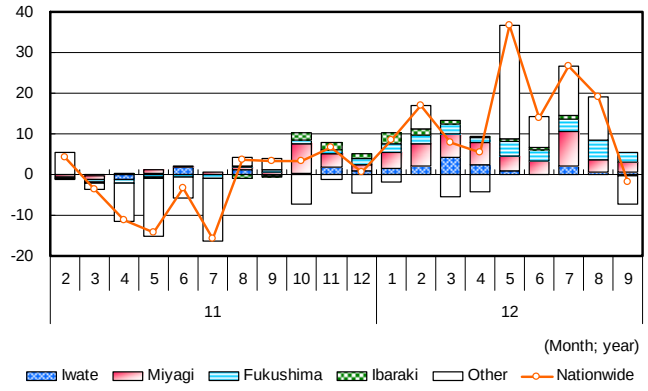
The second factor that will support Japan's economy is the materialization of reconstruction demand related to the Great East Japan Earthquake. As shown in Chart 14, the yen amount of prepayment guarantees for public works projects has steadily increased in 2012, centering on disaster-affected Miyagi and Fukushima prefectures. Also, as shown in Chart 15, new housing starts are growing firmly for the most part, centering on disaster-affected areas.

Impact of public works spending related to reconstruction projects and tax reform

Chart 16 provides an estimation of the effect on Japan's economy of public works spending related to reconstruction demand stemming from the Great East Japan Earthquake, and tax reform. When such

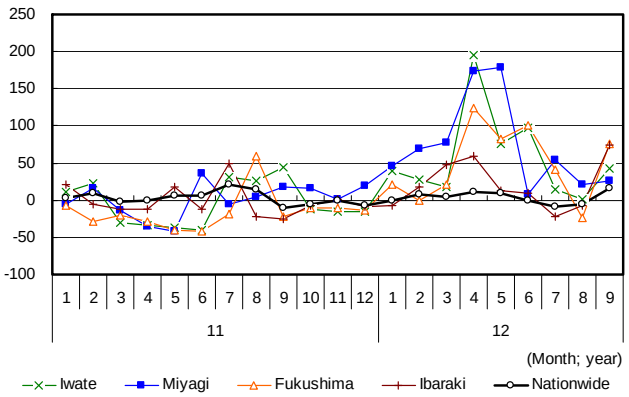
changes as higher public works spending, a higher income tax burden, and a return to a more stringent child subsidy are taken as a whole, real GDP is expected to increase an additional 0.98% in FY12. This upside effect, however, will gradually weaken to 0.94% in FY13 and 0.66% in FY14. We assume that real public capital formation (public works spending) will peak in Jan-Mar 2013 in terms of real GDP.

Prepayment Guarantee for Public Works by Prefecture (y/y %) **Chart 14**



Source: East Japan Construction Surety, West Japan Construction Surety, Hokkaido Construction Surety; compiled by DIR.

New Housing Starts by Prefecture (y/y %) **Chart 15**



Source: Ministry of Land, Infrastructure, Transport and Tourism; compiled by DIR.

Estimation Results of Reconstruction Demand and Change in Taxation
(Deviation from DIR standard scenario; 2000 benchmark) **Chart 16**

	GDP	Personal consumption	Capex	Housing investment	Public investment	Government consumption	Exports	Imports
FY12	0.98%	0.1%	-0.7%	0.1%	21.7%	0.1%	0.0%	1.0%
FY13	0.94%	0.3%	-0.9%	0.5%	22.5%	0.4%	-0.2%	1.4%
FY14	0.66%	0.1%	-1.5%	0.7%	23.5%	0.8%	-0.4%	1.4%

Source: Cabinet Office, media reports; compiled by DIR.
Note: DIR estimate based on Cabinet Office short-term macroeconomic model with data available as of 15 Nov 2012.
Assumptions: 1) Public investment up Y4.8 tril a year over estimation period.
2) Income tax up 2.1%-pt over 25 years from Jan 2013.
3) Inhabitants tax up Y1,000/person from Jun 2014.
4) 10% inhabitants tax reduction for those receiving retirement benefit to be abolished from Jan 2013.
5) Due to return to stricter child care allowance system (revival of income threshold for receiving allowance, etc.), aggregate income (incl. child care allowance) down Y0.5 tril a year from FY12.

Positive 3: BOJ will ease monetary policy further

BOJ will probably ease monetary policy further

The third factor that will support Japan's economy is an expectation that the BOJ will ease its monetary policy further. The BOJ is foreseen to leave its policy interest rate unchanged at least through FY14. Should further appreciation of the yen or other factors intensify anxiety regarding a possible economic downturn, the BOJ may decide on further easing.

Pressure on BOJ intensifying

Pressure on the BOJ from the government, ruling parties, and opposition parties has intensified recently. On 14 February, the BOJ introduced *de facto* inflation targeting, deciding that "the price stability goal in the medium to long term" would be +1% for the time being, which is easy to

understand compared with “understanding of medium- to long-term price stability” in previous statements.

The BOJ decided to implement monetary easing measures for the second consecutive month in October. At the same time, the bank decided to establish a framework for fund-provisioning measures to stimulate bank lending (Stimulating Bank Lending Facility), and released “Measures Aimed at Overcoming Deflation” with the government,

Three tasks for BOJ

While the BOJ’s recent easing stance was looked upon very favorably, the BOJ will be pressed to deal with the following three tasks:

(1) Improve skills in communicating with the market

We often hear foreign investors making comments such as “the BOJ always takes a hawkish position,” or “the BOJ always worries about inflation despite the fact that the economy is experiencing deflation.” Such remarks are sometimes because of miscommunication. If asked, the BOJ would likely reply that such views were a misunderstanding. However, the BOJ is responsible for making its monetary policy stance clear to all, including investors overseas. There is thus considerable room for improvement in the way the BOJ provides information to foreign investors.

(2) Raise price stability goal to +2% growth

The second task is to raise the price stability goal from growth of 1% to 2%. The latter figure is on par with the US monetary policy goal. Japan’s price figures are often said to have an upward bias of about 1%. The market sometimes points out that actual price growth could be lower than statistical figures by 1 percentage point or so. Taking this bias into account, it is perhaps worth considering raising the price stability goal to growth of +2%.

(3) Change policy wording from “goal” to “target”

In Japan, it would perhaps be feasible to oblige the BOJ to also meet a given inflation target within a certain period of time as is the case in the UK.

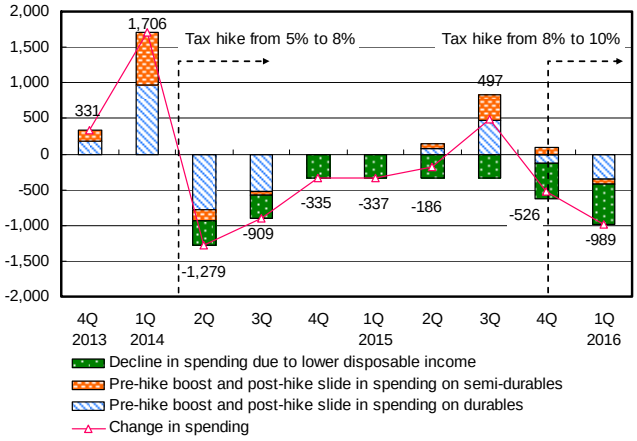
1.4 Impact of consumption tax hikes

Impact of consumption tax hikes on real GDP

To conclude this section, we examine the impact of a higher consumption tax on Japan’s economy. As portrayed in Chart 17, we believe the consumption tax hikes (deviation from the case without such hikes) will boost real GDP 0.92 percentage points in FY13, reduce it 0.86 points in FY14, and lower it 0.71 points in FY15.

Impact of Consumption Tax Hike (Y bil) **Chart 17**

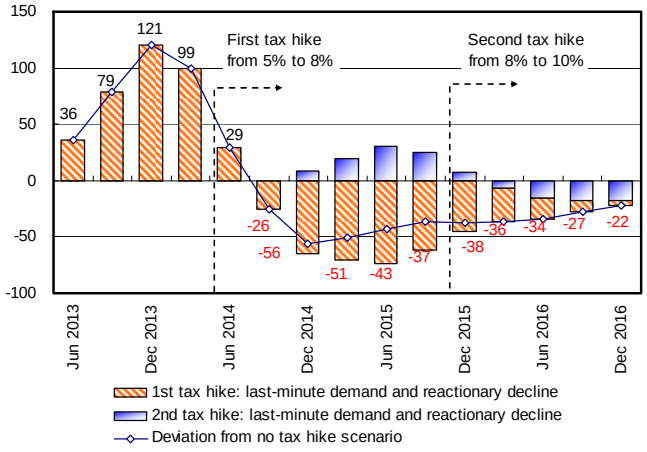
Impact on Personal Consumption



Source: Cabinet Office; compiled by DIR.
Note: DIR estimate based on following equation, factoring in a change in spending before and after 1997 consumption tax hike, provided consumption tax will be raised to 8% in Apr 2014 and to 10% in Oct 2015, and assuming a 1%-pt tax hike to lower household disposable income by Y2.5 tril a year:

Log (real consumption) = -1.8 + 0.44 x log (per employee compensation) + 0.30 x log (no. of employees) + 0.04 x log (net household financial assets) + 0.23 x log (avg. household size) + 0.02 x log (Consumer Confidence Index) + 0.67 x log (real consumption [-1]), where significance of explanatory variables is 1%.

Impact on Housing Investment



Source: Cabinet Office; compiled by DIR.
Assumption: Consumption tax will be raised to 8% in Apr 2014 and to 10% in Oct 2015.

Impact of Consumption Tax Hike *(Deviation from no tax hike scenario; %)*

	FY13	FY14	FY15
GDP	0.92	-0.86	-0.71
Personal consumption	0.73	-1.06	-0.44
Capex	0.00	-0.24	-1.04
Housing investment	19.95	-8.40	-13.11

Source: Compiled by DIR based on various reports.

Increasing consumption tax is also inevitable in view of the global tide of tax reform

As Japanese society ages and budget deficits accumulate, we believe raising the consumption tax is also an urgent issue in view of the global tide of tax reform. The consumption tax is associated with such positive features as (1) offering lateral fairness and the correction of inter-generational inequality, (2) not greatly distorting economic activity, and (3) being a stable source of tax revenues in an aging society (a high collection rate). Frequently mentioned disadvantages of the consumption tax are its regressive character and the problem of tax profiteering (businesses exempted from paying the consumption tax collecting and pocketing the tax), but neither of these are decisive in nature.

However, successful cases of rebuilding government finances overseas imply that increasing the consumption tax alone will be insufficient to achieve sound government finances in Japan and that the substantial reduction of social security costs will be essential. Meanwhile, should the future uncertainties of citizens be alleviated such as through fundamental reform of the social security system, this can be anticipated to have a positive effect (reverse Keynes effect) on Japan's economy in the medium to long term by revitalizing personal consumption.

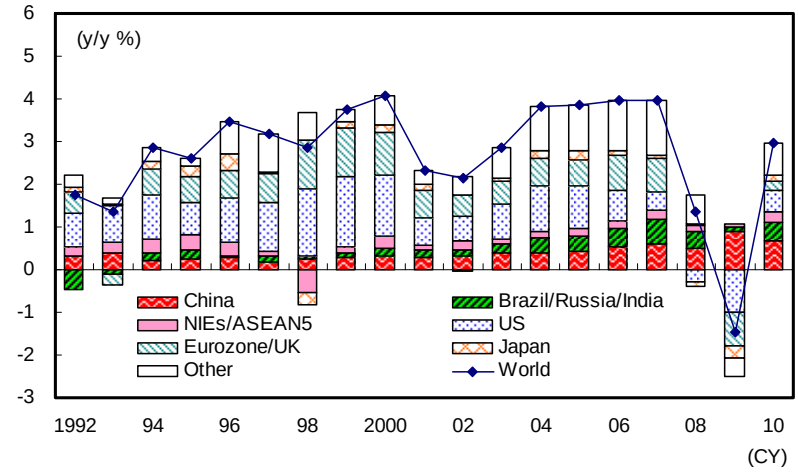
2. How Should the Future Direction of the World Economy Be Understood?

2.1 Sluggish domestic demand in advanced economies spreads to emerging economies

Cautious outlooks intensify regarding the world economy

In this section, we examine from a broad perspective the direction of the world economy, which holds the key to the recovery of Japan's economy. Cautious outlooks are intensifying in global financial markets regarding the world economy and, in October 2012, the IMF revised downward its outlook for the world economy. The reasons it offered for this downgrade were (1) the faltering of the European economy from the sovereign debt crisis and (2) the slowing of advanced economies (centering on Europe) spreading to emerging economies centering on China. Chart 18 illustrates the growth rate of real final consumption and fixed capital formation for the world economy. It is evident from the chart that the world economy is being supported by emerging economies. Chart 19 portrays DIR's estimate of BRICs' real GDP (excl. personal consumption). In recent years, exports have become a drag on their economies, suggesting the possibility that the sluggishness of domestic demand in advanced economies is spreading to emerging economies.

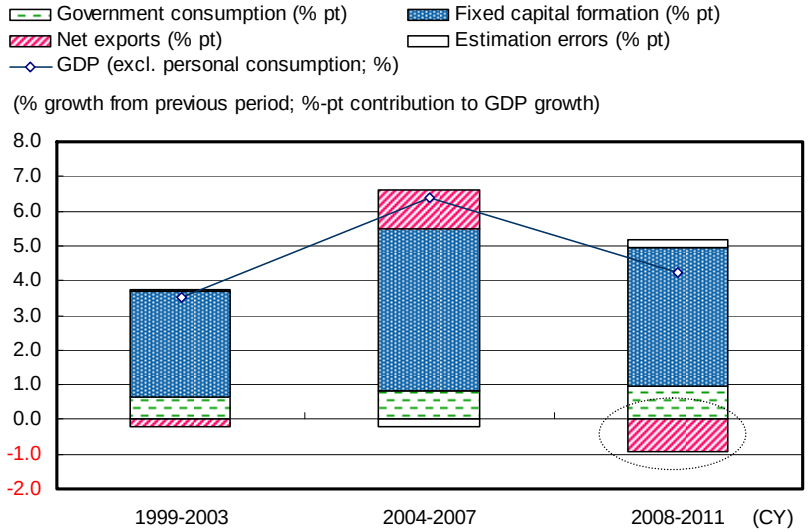
Real Final Consumption/Fixed Capital Formation **Chart 18**



Source: United Nations; compiled by DIR.
Notes: 1) Real term (2005 benchmark); US dollar basis.
2) Taiwan included in China but not in NIEs.

DIR Estimate of BRICs' Real GDP* (excl. personal consumption)

Chart 19



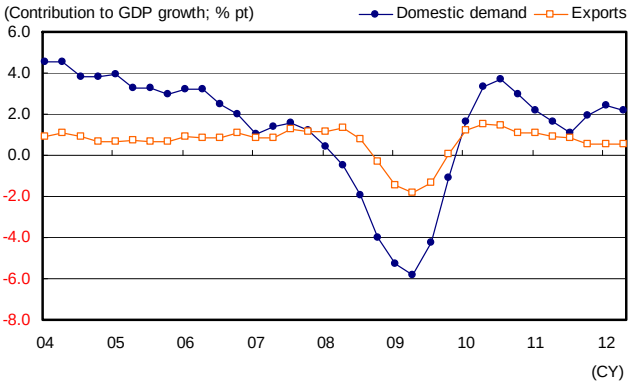
Source: IMF, National Bureau of Statistics of China, Instituto Brasileiro de Geografia e Estatística, Russian Federation Federal State Statistics (GKS), Central Statistical Organization (India), Haver Analytics; compiled by DIR.

*Comprising real GDP of Brazil, Russia, India, and China based on purchasing power parity of 2000 benchmark.

Domestic Demand and Exports Moving in Tandem in Advanced Economies

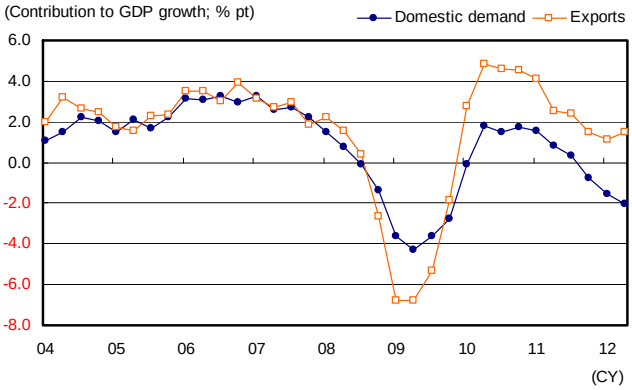
Chart 20

US: Domestic demand and exports



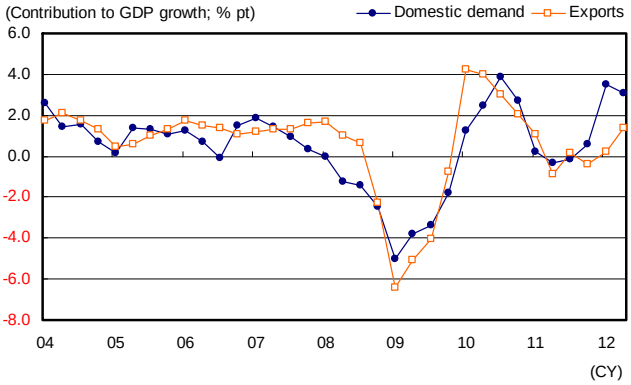
Source: OECD; compiled by DIR.

EU: Domestic demand and exports



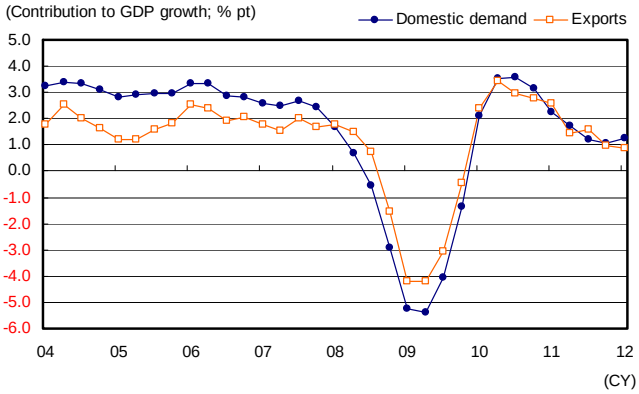
Source: OECD; compiled by DIR.

Japan: Domestic demand and exports



Source: OECD; compiled by DIR.

OECD Member Nations: Domestic demand and exports



Source: OECD; compiled by DIR.

Domestic demand and exports closely related in advanced economies

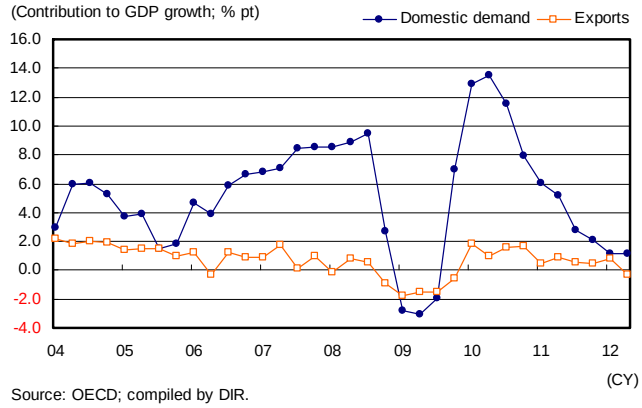
To what extent are domestic demand and exports related in advanced economies? Chart 20 examines the relationship between domestic demand and exports in advanced economies using data from the US, EU, Japan, and OECD. Broadly speaking, we can conclude that domestic demand and exports are closely related in advanced economies. The exception is the US, where domestic demand, such as robust personal consumption, tends to drive economic growth, and the relationship between domestic demand and exports is not that strong in relative terms. In contrast, Japan has a typical export-led economic structure, and domestic demand and exports are closely linked.

Relationship between domestic demand and exports weak for emerging economies

In the case of emerging economies, the relationship between domestic demand and exports is relatively weak. Chart 21 illustrates the relationship between them for such emerging economies as Brazil, Russia, India, and China. Contrasting with advanced economies, it is difficult to say that they are closely linked in emerging economies. A matter of profound interest is their slight inverse correlation in China. As highlighted by the phrase "*bao ba*" (ensure eight [percent growth]), often repeated by Chinese officials, when foreign economies worsen and exports slow, China unleashes aggressive fiscal and monetary measures to maintain an economic growth rate above a certain level. In the current deceleration of the world economy, China has resorted to fiscal and monetary measures, and we believe that an economic relapse will be avoided.

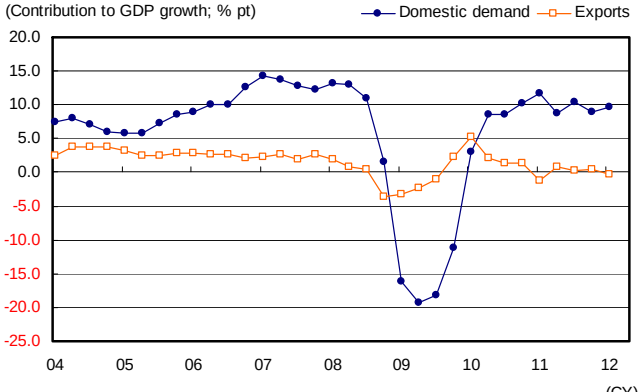
Domestic Demand and Exports Moving Independently in Emerging Economies **Chart 21**

Brazil: Domestic demand and exports



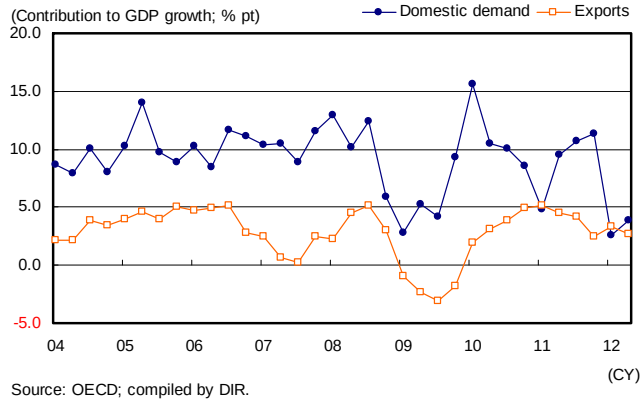
Source: OECD; compiled by DIR.

Russia: Domestic demand and exports



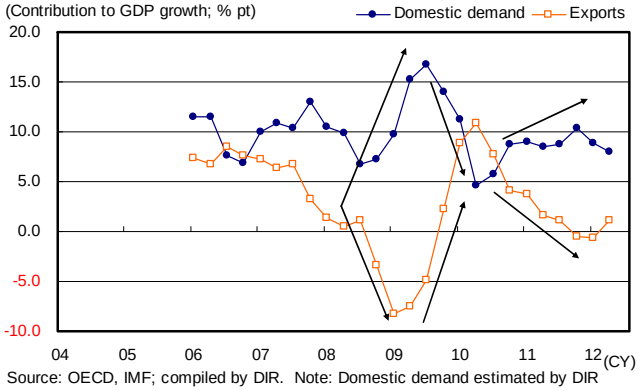
Source: OECD; compiled by DIR.

India: Domestic demand and exports



Source: OECD; compiled by DIR.

China: Domestic demand and exports

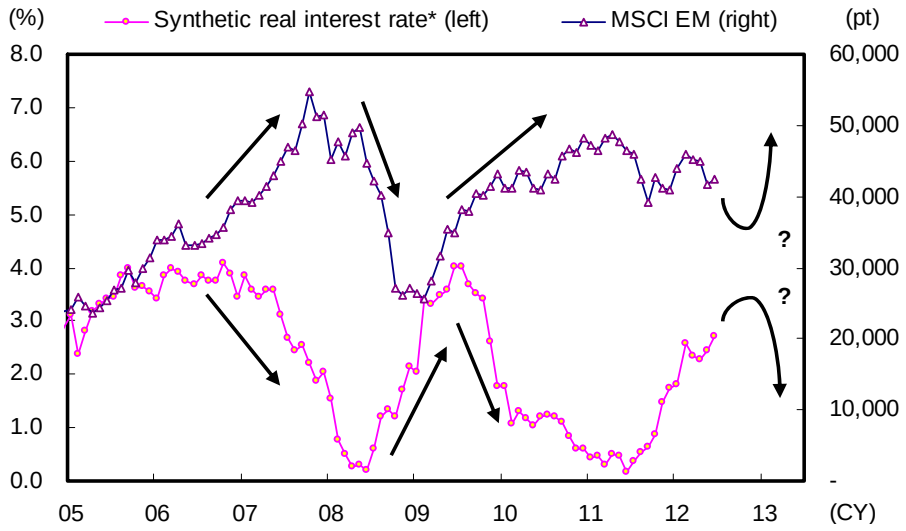


Source: OECD, IMF; compiled by DIR. Note: Domestic demand estimated by DIR based on real GDP (OECD) and balance of payments (IMF).

Emerging economies likely to avoid sharp decline in stock prices through monetary easing

As concerns intensify in regard to the slowing of the world economy, emerging economies are foreseen to strengthen their stance toward monetary easing. Helped in part by the effect of looser monetary policies, stock prices are expected to avoid plunging in emerging economies. Chart 22 illustrates the relationship between stock prices and real interest rates in emerging economies, which shows a weak inverse correlation. Going forward, given that emerging economies are expected to strengthen their stance toward monetary easing, it is not unreasonable to think that stock prices in emerging economies will trend firmly for the most part.

Emerging Economies: Stock Prices vs. Interest Rate **Chart 22**



Source: MSCI, Haver Analytics; compiled by DIR.
*DIR estimate based on policy interest rates, which we deflated by prices and weighted by the real GDPs of ten emerging economies—Brazil, Korea, Taiwan, and Thailand (deflated by core CPI), Russia, China, Hong Kong, Indonesia, Singapore (overall CPI), and India (overall WPI).
Note: MSCI EM=MSCI Emerging Markets Index (home currency basis).

2.2 Simulation of the future direction of the world economy

Will policy responses of emerging economies be able to offset sluggish domestic demand of advanced economies?

Finally, to summarize the discussion of this section, we present a quantitative simulation of the world economy with (1) domestic demand in advanced economies and (2) the policy responses of emerging economies serving as exogenous variables.

Risk for advanced economies

A major risk for advanced economies is the further slowing of the European and US economies.

With respect to Europe, should the financial stabilization mechanism currently being implemented falter, such as the unification of financial regulations and the support framework for countries with fiscal problems, the financial crisis has the potential of widening further. In the *Global Financial Stability Report* (GFSR) published in October 2012, the IMF estimates that, in the worst case, the 58 banks in the eurozone would need to deleverage by $4.5 trillion. Such deleveraging would lead to the calling in of loans and to decreased lending and would have a significant impact on the real economy. The IMF estimates that Europe's GDP would be reduced by 1.4 percentage points.

The impending fiscal cliff in the US that is drawing international attention is also a serious issue. This term describes a situation where the end to tax cuts and the mandatory reduction of government expenditures occur at the same time. The fiscal cliff would expose the US economy to an added burden of around 4% of nominal GDP. Various views have been voiced regarding the fiscal cliff. The Congressional Budget Office (CBO) has estimated that, should it prove to be unavoidable, real GDP would experience downward pressure of 2.2 points compared to the situation where it is avoided.

Forecasting model overview

What sort of impact would the slowing of advanced economies have on the Japanese and world economies? To examine this question, we developed a simple model taking into account the trade structure of the world economy. The structure of the model we employed in our current forecast is as depicted in Chart 23.

Advanced economies we included in our analysis were Japan, the US, UK, and eurozone, and the emerging economies we included were Brazil, Russia, India, and China. The forecasting model variables we chose were, in the case of advanced and emerging economies, real GDP, real imports and exports, domestic demand, real effective exchange rates, nominal export values, and, in the case of emerging economies, fiscal expenditures, policy interest rates, and inflation rates. The forecasting model is composed of 21 equations and 16 identities, and uses 121 variables.

The forecasting model assumes that domestic demand of advanced economies (excl. Japan) and the economic policies of emerging economies (fiscal expenditures and policy interest rates) are determined by exogenous factors. The model also assumes that domestic demand of emerging economies is determined by economic policies and exports and that domestic demand of Japan is determined by real exports.

Using this model, we applied a shock to domestic demand of advanced economies to analyze the effects of the European financial crisis and the US fiscal cliff.

Simulation results

In Chart 23, the top horizontal boxes give the impact of risk scenarios for advanced economies. In the simulation, we assumed that the worsening of the financial crisis in Europe and the US fiscal cliff would reduce domestic demand by a similar amount to the impact estimated by the IMF and CBO.

Should the worsening of the financial crisis in Europe and the fiscal cliff in the US occur at the same time (Scenario a & b), Japan's economy has the potential of experiencing downward pressure of 1.7%. The slowing of advanced economies would, through the route of international trade, undermine emerging economies, and world GDP would shrink around 1.2%.

China and other emerging economies, however, have more latitude to expand fiscal measures, and those nations free from inflationary worries can be expected to loosen monetary policy. Thus, concerns that the world economy would slow from the shortfall of domestic demand in advanced economies should be mitigated to some degree by emerging economies.

In Chart 23, left vertical boxes give the impact of policy responses by emerging economies. Here we see that the stepping up of fiscal measures and monetary easing (Response 1 & 2) have the potential of augmenting growth of the world economy by 0.5% and the Japanese economy by 0.9%.

Even if the financial crisis deepens further in Europe (Scenario a), if emerging economies freely implement policy measures (Response 1 & 2), world GDP would remain flat and Japan's GDP would

increase 0.4%. Similarly, should the fiscal cliff materialize in the US (Scenario b), downward pressure on the world economy and the Japanese economy would respectively be limited to 0.3%.

Summarizing the above, emerging economies aggressively implementing fiscal and monetary policy measures has the potential of offsetting to some extent sluggish domestic demand in advanced economies. However, should multiple risk factors materialize at the same time, such as the deepening of the European sovereign debt crisis and the US fiscal cliff, the policy responses of emerging economies alone will be insufficient to support the world economy.

Domestic Demand Shock in Advanced Economies vs. Policy Responses in Emerging Economies: Impact on GDP of World and Japan (% deviation from base scenario) **Chart 23**

		Domestic demand shock in advanced economies			
		Base scenario	**Scenario (a) EU demand to shrink1.4% (Financial crisis to deepen)**	**Scenario (b) US demand to shrink 2.2% (Fiscal cliff)**	**Scenario (a & b)**
Policy responses in emerging economies	**Base scenario**	World GDP: +0.0% Japan's GDP: +0.0%	World GDP: -0.5% Japan's GDP: -0.5%	World GDP: -0.8% Japan's GDP: -1.2%	World GDP: -1.2% Japan's GDP: -1.7%
	Response (1) Boost government spending by 5% of nominal GDP	World GDP: +0.3% Japan's GDP: +0.5%	World GDP: -0.1% Japan's GDP: -0.0%	World GDP: -0.5% Japan's GDP: -0.7%	World GDP: -0.9% Japan's GDP: -1.2%
	Response (2) Cut policy interest rate by 2% pts	World GDP: +0.2% Japan's GDP: +0.4%	World GDP: -0.3% Japan's GDP: -0.1%	World GDP: -0.6% Japan's GDP: -0.8%	World GDP: -1.1% Japan's GDP: -1.3%
	Response (1 & 2)	World GDP: +0.5% Japan's GDP: +0.9%	World GDP: +0.0% Japan's GDP: +0.4%	World GDP: -0.3% Japan's GDP: -0.3%	World GDP: -0.7% Japan's GDP: -0.8%

Source: Compiled by DIR based on various statistics.
Notes: 1) Policy interest rate deflated by inflation rate.
2) "Scenario (a): EU demand to shrink 1.4% (Financial crisis to deepen)" based on *Oct 2012 Global Financial Stability Report* by IMF.
3) "Scenario (b) US demand to shrink 2.2% (Fiscal cliff)" based on outlook by the US Congressional Budget Office.

Model description

Estimation model	Simple model composed of 21 equations and 16 identities
Variables (a)	Real GDP, real exports and imports, domestic demand, real effective exchange rates, and nominal export values (advanced and emerging economies)
Variables (b)	Fiscal expenditures, policy interest rates, and inflation rates (emerging economies)
Assumption (1)	Domestic demand of advanced economies (excl. Japan) to be determined exogenously; that of emerging economies by monetary and fiscal policies and real exports; and that of Japan by real exports; economic policies of emerging economies (fiscal expenditures and policy interest rates) to be determined exogenously
Assumption (2)	Real imports and exports of a given economy to be determined by other economies' domestic demand weighted by nominal export values
Advanced economies	Japan, US, UK, Eurozone
Emerging economies	Brazil, Russia, India, and China

3. Will China Face a Hard Landing?

3.1 Impact on Japan's economy of worsening Japan-China relations

For this report, we ran a simulation on the impact of deterioration in Japan-China relations. As shown in Chart 24.1, any deterioration in Japan-China relations would have adverse effects on Japan's economy through three channels. The assumptions for the case of exports to China stagnating for six months (first column) are given in the footnote to Chart 24.2.

Impact on Japan's Economy of Deterioration in Japan-China Relations **Chart 24.1**

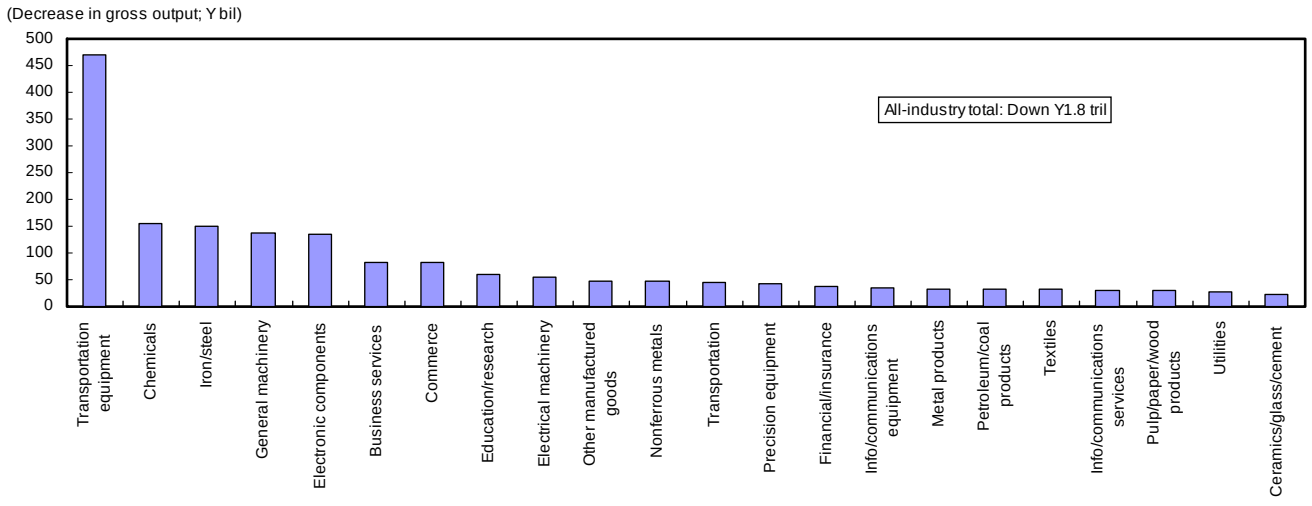
(1) Exports from Japan to China	(2) Sales of Japanese manufacturers incorporated in China	(3) No. of Chinese tourists visiting Japan
Y12 tril/year (19% of Japan's exports)	Y20 tril/year (5% of manufacturers' sales in Japan)	1.41 mil tourists/year (16% of tourists visiting Japan)
If exports to China stagnate for six months	**If business in China declines by 10% for one year**	**If Chinese tourists decline by 40% for one year**
Domestic production would decline by Y1.8 tril GDP would shrink by Y620 bil	Japanese corporate sales would decline by Y2.0 tril Recurring profit would decline by Y144 bil	Domestic production would decline by Y185 bil GDP would shrink by Y94 bil

Source: Ministry of Finance; Ministry of Internal Affairs and Communications; Ministry of Economy, Trade, and Industry; Japan National Tourism Organization; compiled by DIR.

Impact on domestic production if exports to China stagnate for six months

We have estimated the impact on domestic production of exports to China stagnating for six months based on *2005 Input-Output Tables for Japan* (Ministry of Internal Affairs and Communications). In this case, as shown in Chart 24.2, domestic production would shrink by Y1.8 trillion on an all-industry basis and a wide range of industries would be impacted, including transportation equipment, chemicals, iron/steel, general machinery, and electronic components.

Impact on Industries if Exports to China Stagnate for Six Months **Chart 24.2**



Source: Ministry of Finance, Ministry of Internal Affairs and Communications; compiled by DIR.
Assumptions: Export values to China will decline 40% for automobiles, 30% for auto parts, and 10% for other sectors for six months from Oct 2012.

In our main scenario, the slide in exports from deteriorating Japan-China relations is foreseen to place downward pressure of about 0.1% on Japan's GDP in FY12

Chart 25 shows results of estimating how Japan's GDP would be affected by the decrease in exports ensuing from deteriorating relations between Japan and China. In this process, we first sought to determine the effect that can actually be verified with currently available statistics and established a number of assumptions and conditions before proceeding with our estimation. We estimated the direct impact of production contracting from lower exports and the impact including the knock-on effect of lower production in a given industry spreading to other industries using inter-industry input-output tables. Estimation results indicate the downward pressure that would arise in comparison to the case where Japan-China relations do not worsen (base scenario). Hence, our estimation does not include such economic factors as the decrease in exports resulting from the slowing of China's economy.

First, in Scenario 1, the effect of worsening Japan-China relations is assumed to end in the short term and play out in three months. In this scenario, while FY12 GDP would shrink by Y372.7 billion (0.08% of nominal GDP), FY13 GDP would not be affected.

In Scenario 2, the slide of exports is the same as in Scenario 1, but the effect is assumed to last for six months (from Oct 2012). In this scenario, FY12 GDP would shrink by Y540.4 billion (0.11% of nominal GDP) and FY13 GDP would slow by Y83.9 billion (0.02% of nominal GDP). We have chosen Scenario 2 as our main scenario and have included it in Chart 24.1 (Case 1: "If exports to China stagnate for six months", GDP would shrink by Y620 bil for FY12 and FY13 combined).

In Scenario 3, we assumed that the effect of worsening Japan-China relations would deepen beyond what can be currently verified and that this effect would last for a long time (12 months). In this scenario, FY12 GDP would shrink by Y921.6 billion (0.20% of nominal GDP) and FY13 GDP would slow by Y1,031.7 billion (0.22% of nominal GDP).

Summarizing the above, worsening Japan-China relations are estimated to place downward pressure of about 0.1% to 0.4% on Japan's GDP in total for FY12 and FY13. While the automobile industry is continuing to experience sluggish sales in China from a movement to boycott Japanese products, since exports to China account for only a small share of Japan's automobile exports, the impact on GDP of the decrease in auto exports to China is not all that significant.

Impact on Japan's GDP of Lower Exports Due to Deterioration in Japan-China Relations **Chart 25**

		Scenario 1	Scenario 2	Scenario 3
Decline in GDP due to lower exports to China	FY12 (Y100 mil)	3,727	5,404	9,216
	(% of GDP)	(0.08)	(0.11)	(0.20)
	FY13 (Y100 mil)	0	839	10,317
	(% of GDP)	(0.00)	(0.02)	(0.22)
Decline in GDP due to lower exports of automobiles and auto parts	FY12 (Y100 mil)	1,299	1,871	2,366
	(% of GDP)	(0.03)	(0.04)	(0.05)
	FY13 (Y100 mil)	0	286	2,578
	(% of GDP)	(0.00)	(0.01)	(0.05)

Source: Ministry of Finance, Ministry of Internal Affairs and Communications, Cabinet Office; compiled by DIR.

Note: % of GDP=% of FY11 nominal GDP.

Assumptions: 1) Scenario 1: Exports to China will decline for three months from Oct 2012 by 40% for automobiles, 30% for auto parts, and 10% for all other items.

2) Scenario 2: Exports to China to decline for six months from Oct 2012 by the same degree as in Scenario 1.

3) Scenario 3: Exports to China to decline for 12 months from Oct 2012 by 50% for automobiles, 40% for auto parts, and 20% for all other items.

3.2 Chinese economy anticipated to gradually improve for the time being

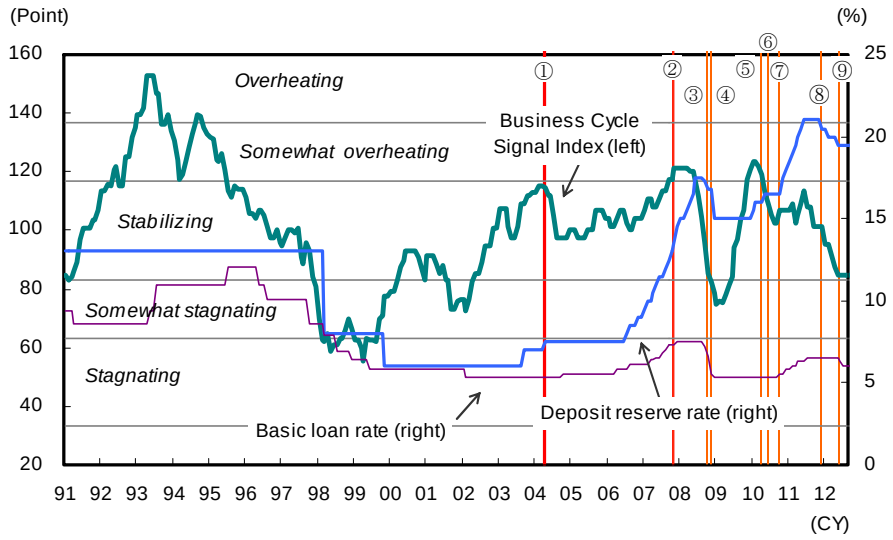
China's economy about to bottom out

Next, we examine the future direction of China's economy. Supported by macroeconomic stimulus measures and regional public works spending, China's economy is foreseen to gradually improve for the time being. We believe that China's real GDP will increase 7.8% in 2012 and 8.5% in 2013.

Business Cycle Signal Index suggests possibility of further implementation of policy measures

Chart 26 presents the Business Cycle Signal Index for China. According to this index, China's economy has slowed significantly. After peaking at 123.3 in February 2010, the index has fallen to 84.7 as of September 2012, which is the latest figure available. This means that the index has sunk to the low side of the stable zone between 83.33 and 116.66. As can be ascertained from previous cases when an overheated economy has cooled to this extent, a turning to full-fledged macroeconomic stimulus measures should come into view.

China: Business Cycle Signal Index **Chart 26**



1. Apr 2004: Restrictions on aggregate loans strengthened
2. Oct 2007: Restrictions on aggregate loans strengthened
3. Oct 2008: Restrictions on aggregate loans eased
4. Nov 2008: Stimulus package of 4 tril yuan announced
5. Apr 2010: Real estate regulations strengthened
6. Jun 2010: More flexible regime for control of yuan exchange rate
7. Oct 2010-Jul 2011: Period of loan rate hikes
8. From Dec 2011: A series of deposit reserve rate lowering moves began
9. From Jun 2012: A series of loan rate cuts began

Source: National Bureau of Statistics of China, People's Bank of China, CEIC Data; compiled by DIR.

Key phrases are "socialist market economy", "collective leadership", and "gradualism"

China being a socialist market economy rather than a pure capitalist economy may become a factor offering economic support for the time being. In the change in political leadership that occurs once every 10 years, it is natural for desires to come into play to circumvent as much as possible the rapid deceleration of the economy. There is no question that China is burdened with many medium- to long-term challenges. However, since its economy is not a pure capitalist system, problems can always be deferred for at least one or two more years one way or another. Politically speaking, collective

leadership and a policy of gradualism should also be factors that will preclude a short-term relapse of the Chinese economy.

3.3 Will major adjustments of the Chinese economy be unavoidable in the medium to long term?

Long-term development path of the Chinese economy

In bringing this section to an end, we examine the risk factors for China's economy in the medium to long term.

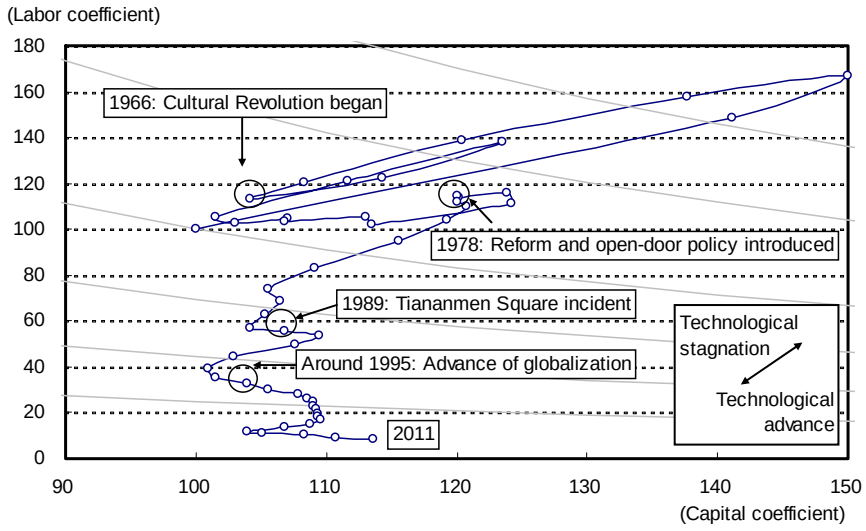
First, when we view China in macroeconomic terms, what path has it taken in its economic development? Chart 27 considers the course of China's economic development since 1960. In this chart, the vertical axis indicates the labor coefficient (labor input / real GDP) and the horizontal axis the capital coefficient (capital stock / real GDP).

Labor and capital coefficients are measures of the efficiency of capital and labor, important factors for economic growth. Since the labor coefficient is labor input divided by GDP, the numerical value increasing and the graph moving upward indicates that labor efficiency has worsened. Since the capital coefficient is capital stock divided by GDP, the numerical value increasing and the graph moving to the right indicates that capital efficiency has worsened. In contrast, the numerical value lessening and the graph moving to the left indicates that capital efficiency has improved.

Capital and labor gaining in efficiency means that technological progress is occurring within a nation's economy. Thus, by measuring the capital and labor coefficients over the long term, we can quantitatively ascertain the development path followed by that nation.

The curved lines drawn from the upper left to lower right are known as unit-value isoquants. They have the following significance: (1) points on the same isoquant signify an identical macro technological level for China, (2) the graphed line shifting to the lower left toward the origin signifies an advance in China's technological level, and (3) the graphed line shifting to the upper right away from the origin signifies a stagnation in technological level.

China: Labor and Capital Coefficients (1960 = 100) **Chart 27**



Source: CEIC Data, World Bank; compiled by DIR.
Note: Labor coefficient = labor input / real GDP; capital coefficient = real capital stock / real GDP.

China's macro technological level has clearly stagnated in recent years

We can confirm from this graph that, since the adoption of reform and open-door policy in 1978, China's macro technological level has risen mainly due to a falling labor coefficient (increased labor efficiency). In recent years, however, China's macro technological level has clearly stagnated, a situation that will need to be monitored with care. As excess capital stock accumulates in China, a worrisome dark cloud is being cast over the future direction of its economy.

Capital stock adjustments likely in China

It should be borne in mind that there is a possibility of capital stock adjustments sometime in the future in China.

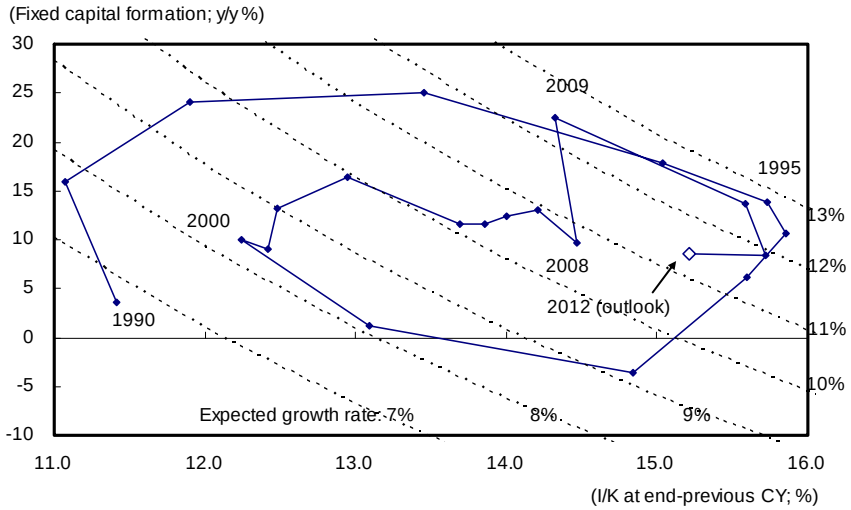
Chart 28 shows the capital stock cycle in China, which rotates clockwise. The vertical axis represents "y/y growth of fixed capital formation (flow data)" and the horizontal one the "ratio of fixed capital formation to capital stock at the end of the previous calendar year." Hyperbolic curves represent expected growth rates for the economy. The relationship between the capital stock cycle and hyperbolic curves suggests the environment surrounding capital investment.

The chart shows that when investment was made in 2012, the expected growth rate was still high at +11% y/y, while going forward the expected growth rate is projected to decelerate to around +7%. Thus, there is risk of substantial adjustments in capital stock (the capital stock cycle graph will move toward the lower left).

Indeed, in 2015 automobile production capacity in China is expected to be in excess by around 40% and it is said applications for new production facilities are not being approved easily.

China is a socialist market economy, and thus it could put the problem off for one to two years through monetary and fiscal policies. However, it should be borne in mind that China could see the adjustment of excess capital stock over a three- to five-year time span.

China: Capital Stock Cycle **Chart 28**



Source: National Bureau of Statistics of China, CEIC Data, Haver Analytics, World Bank; Compiled by DIR.

Will China's potential growth rate fall sharply?

The possibility should be entertained of the potential growth rate of China's economy slowing significantly to the 5% level toward 2030.

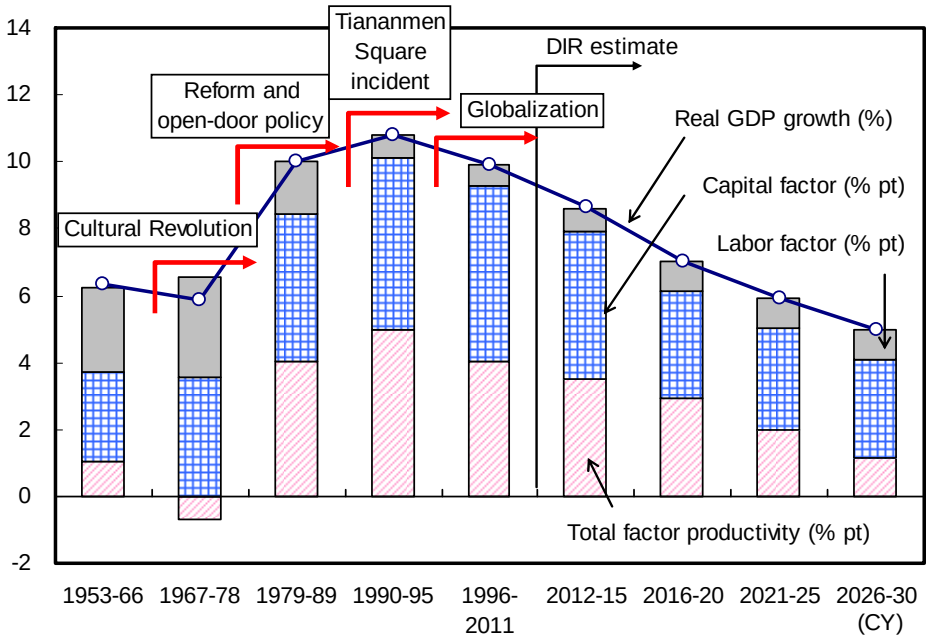
Economics teaches us that a nation's economic growth derives from three factors: (1) growth of capital stock, (2) growth of labor input, and (3) technological progress.

In Chart 29, we developed a Cobb-Douglas production function to examine the real growth rate of China's GDP according to the three factors of (1) capital, (2) labor, and (3) technological progress. The principal reason for China's high growth is the increase in capital stock (capital factor) ensuing from vigorous direct investments in China. It is also evident in the chart that the contribution of macro technological progress (technological progress factor) has risen substantially following the reforms and open-door policy that began in 1978. In other words, while the main factor for China's rapid growth since 1978 may have been the increase in capex for the purpose of maintaining economic momentum, the economy was also supported by a certain degree of technological progress.

In recent years, however, the faltering of (3) the technological progress factor has become pronounced in China. Technological progress has not occurred in China, which is intensifying concerns that China's potential growth rate will decline in the future.

To conclude, the possibility should be entertained of the potential growth rate of China's economy slowing significantly to the 5% level toward 2030. Even if the worsening of Japan-China relations sparked by a territorial dispute over the Senkaku Islands diminishes, there will be an ongoing need to monitor the medium- to long-term direction of China's economy.

China: Factors Contributing to Real GDP Growth (annualized) **Chart 29**



Source: CEIC Data, World Bank; compiled by DIR.
Note: The Cultural Revolution occurred in 1966, reform and open-door policy in 1978, the Tiananmen Square incident in 1989, and globalization began to advance around 1995.

4. Risks Facing Japan's Economy

In this section, we examine five risk factors facing Japan's economy: (1) any deepening of the European sovereign debt crisis, (2) worsening of Japan-China relations, (3) the US fiscal cliff, (4) a surge in crude oil prices stemming from geopolitical risk, and (5) further appreciation of the yen.

Risk 1: Any deepening of the European sovereign debt crisis

In the worst case, an impact comparable to the Lehman shock

Of risks (1) to (5) above, there is no question that the greatest tail risk is (1). Chart 30 depicts the results of simulating the impact of the European sovereign debt crisis on Japan's economy. It should be noted that in this section we have effected simulation based on the worst case (greatest tail risk), which is different from "Scenario (a) EU demand to shrink 1.4% due to deepening of financial crisis," an estimation in the IMF *Oct 2012 Global Financial Stability Report*, in Chart 23.

Specifically, we established three scenarios for the size of the haircuts given to the sovereign debt of European nations and calculated the core capital shortfall that major European banks would face in each scenario. We then estimated how the resulting credit crunch would influence the world economy, factored in yen appreciation because of less alternative currency selection, and calculated how Japan's real GDP would be affected. In the worst case (Case 3), Japan's real GDP has the potential of experiencing downward pressure of more than 4%. It goes without saying that calculation results will need to be viewed with considerable latitude. Even so, should the European sovereign debt crisis see any worsening, such as by Greece leaving the euro, there is risk that Japan would sustain a blow comparable in size to the Lehman Shock.

Impact of European Sovereign Debt Crisis on Japanese Economy **Chart 30**

	% discount of respective nation's sovereign bonds						European banks		Impact		
	Belgium	Greece	Ireland	Italy	Portugal	Spain	Tier 1 capital shortfall (€ 100 mil)	Risk asset write-off matching half capital shortfall (% of overall risk assets)	Bank loans worldwide ($)	Nominal GDP worldwide ($)	Japan's real GDP (yen)
Case 1	0%	60%	40%	10%	40%	10%	**1,274**	**7.0%**	-1.7%	-1.6%	**-0.6%**
Case 2	15%	80%	50%	30%	50%	30%	**2,233**	**13.9%**	-3.4%	-3.2%	**-2.2%**
Case 3	30%	100%	60%	50%	60%	50%	**3,240**	**24.9%**	-6.0%	-5.7%	**-4.1%**

Source: World Bank, European Banking Authority, Cabinet Office; compiled by DIR.
Assumptions: 1) Ratio of risk asset write-off to overall risk assets corresponds to that of loan cutbacks to overall loans.
2) Case 1: the yen remains flat; Case 2: 5% appreciation; Case 3: 10% appreciation; all against the dollar.
Note: Estimated based on elasticity approach, which warrants some latitude.

Risk 2: Worsening of Japan-China relations

Effect on Japan's economy of the worsening of Japan-China relations

The second risk for Japan's economy is the deterioration of Japan-China relations. As discussed in "3.1 Impact on Japan's economy of worsening Japan-China relations," concerns are raised by prospects that the worsening of Japan-China relations will place downward pressure of about 0.1% to 0.4% on Japan's GDP for FY12 and FY13 combined.

Risk 3: Fiscal cliff in the US

Should the fiscal cliff materialize in the US, Japan's GDP would shrink by 0.8% to 1.2%

The third risk is the US fiscal cliff. Should it materialize, Japan's GDP would shrink by 0.8% to 1.2%. First, according to estimation results shown in Chart 23, the fiscal cliff would depress Japan's GDP by around 1.2%.

To carefully measure the impact of this risk scenario, we present another estimation. Chart 31 illustrates the effect on national and regional GDPs of fiscal expenditures being curtailed by 1% of GDP. Should the US fiscal cliff materialize, fiscal expenditures would be cut by about 4 percentage points of GDP. In such a case (which corresponds to the top panel), Japan's GDP would shrink by around 0.8% (0.2% x 4).

Impact on GDP from Sustained Fiscal Spending Cutbacks of 1% of GDP **Chart 31**

		Year 1	Year 2	Year 3	Year 4	Year 5
Cutback in US	US	-0.9	-1.0	-0.6	0.0	0.5
	Japan	-0.2	-0.2	-0.1	0.0	0.1
	Eurozone	-0.1	-0.1	-0.1	-0.1	0.0
	Total OECD	-0.4	-0.5	-0.3	0.0	0.2
	Total non-OECD	-0.2	-0.1	0.1	0.1	0.1
	World	-0.4	-0.4	-0.3	0.0	0.2

		Year 1	Year 2	Year 3	Year 4	Year 5
Cutback in Japan	US	0.0	-0.1	0.0	0.0	0.0
	Japan	-0.8	-0.9	-1.1	-0.9	-0.7
	Eurozone	0.0	0.0	0.0	0.0	-0.1
	Total OECD	-0.2	-0.2	-0.2	-0.2	-0.2
	Total non-OECD	-0.1	0.0	0.0	0.0	0.0
	World	-0.2	-0.2	-0.2	-0.2	-0.1

		Year 1	Year 2	Year 3	Year 4	Year 5
Cutback in eurozone	US	-0.1	-0.1	0.0	0.0	0.1
	Japan	-0.1	-0.1	-0.1	0.0	0.0
	Eurozone	-0.8	-0.8	-0.5	-0.3	-0.1
	Total OECD	-0.3	-0.3	-0.2	-0.1	0.0
	Total non-OECD	-0.1	-0.1	0.1	0.1	0.1
	World	-0.2	-0.2	-0.1	0.0	0.0

Source: OECD; compiled by DIR.
Note: Percentage deviation from OECD's baseline scenario.

Risk 4: Surge in crude oil prices stemming from geopolitical risk

Impact of higher crude oil prices on Japan's economy

The fourth risk is a surge in crude oil prices in the context of geopolitical risk ushering in stagflation (rising prices during an economic downturn) in Japan.

An analysis using our macroeconomic forecasting model indicates that crude oil prices rising by $10/bbl would reduce Japan's real GDP 0.0% in the first year and 0.2% in the second.

Crude oil prices increasing by 10% would reduce macro earnings around 5%

Chart 32 illustrates the results of simulating the impact on macro earnings of a 10% increase in crude oil prices. Stated simply, two factors determine the impact of higher crude oil prices on corporate earnings: (1) change in input prices and (2) pass-through to output prices. The first is the percentage by which overall input prices (raw material prices) rise for the corporate sector when crude oil prices increase. The second is the degree to which companies are able to pass through the increase in raw material prices to selling prices. Three scenarios were established for each of these factors, and results were calculated for a total of nine cases (= 3 x 3).

With regard to (1), or the percentage by which overall input prices (raw material prices) rise for the corporate sector when crude oil prices increase, we have assumed in our main scenario that crude oil prices rising 10% would increase input prices by 1.3%.

With regard to (2), or the degree to which companies are able to pass through the increase in raw material prices to selling prices, given the recent disinflation of output prices, we believe it is realistic to assume that crude oil prices rising by 10% would cause corporate earnings to contract about 5%, which can be viewed as an intermediate scenario between (1) zero pass-through and (2) actual pass-through.

Impact of 10% Rise in Crude Prices on Profits **Chart 32**

			Change in input prices		
			+0.3%	+1.3%	+2.6%
Pass-through to output prices	1. Zero pass-through	0%	**-1.7%**	**-7.3%**	**-14.6%**
	2. Actual pass-through	41%	**-0.7%**	**-2.9%**	**-5.7%**
	3. Optimum pass-through	71%	**0.0%**	**0.0%**	**0.0%**

Source: Bank of Japan, Ministry of Internal Affairs and Communications, Ministry of Finance; compiled by DIR.
Notes: 1) Actual pass-through rate: average pass-through rate from 2005 to 2H 2007, when the rate was stable.
2) Optimum pass-through rate: one which offsets the effects of higher input prices.
3) Ratio of crude oil to intermediate input is 3%. Thus, theoretically, a 10% rise in crude prices will boost input prices by 0.3%. However, in actuality, a 10% rise in crude prices will boost other commodity prices, boosting input prices by 1.3%.

Risk 5: Further appreciation of the yen

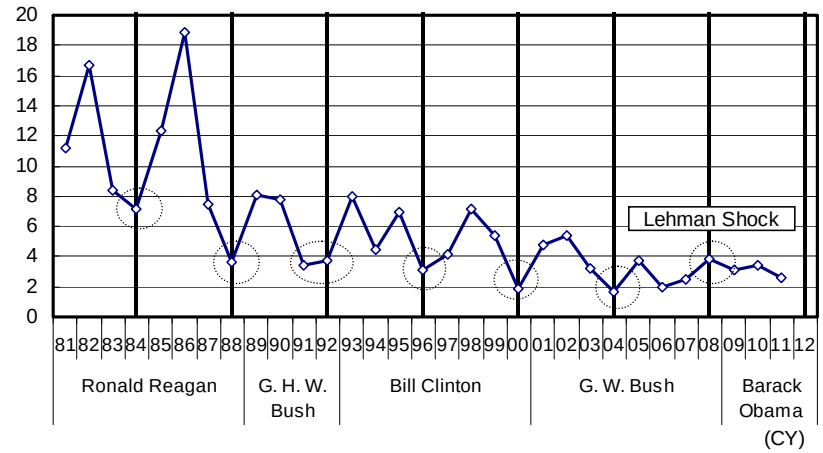
The yen appreciating Y10 against the dollar would reduce real GDP 0.6% in FY13

The fifth risk for Japan's economy is further appreciation of the yen. According to our quantitative analysis, should the yen appreciate Y10 against the dollar compared to our standard scenario, this would reduce Japan's real GDP 0.0% in FY12 and 0.6% in FY13.

Volatility in yen-dollar market tends to decline in years when the US holds a presidential election

The yen has traded in a relatively narrow range to the dollar in 2012. As shown in Chart 33, volatility in the yen-dollar market tends to decline in years when the US holds a presidential election. With 2012 being such a year, such factors as political pressure from the labor unions of large manufacturers have likely restrained the dollar's appreciation and also restrained the dollar depreciating sharply and giving way to the triple blow of a falling dollar, falling bond prices, and falling stock prices.

Yen-dollar Exchange Rate Volatility Chart 33



Source: Bloomberg; compiled by DIR.
Note: Volatility based on monthly figures for a year starting from November in one year and ending October the following year.

Yen-dollar rate will remain flat in general

Given that short-term interest rates have fallen to nearly zero in both Japan and the US, we believe in our main scenario that the yen-dollar rate will be generally unchanged. Basically, prospects that (1) the BOJ will ease monetary policy further and that (2) Japan's current account surplus will shrink will be factors for the yen depreciating against the dollar. Thus, we assume that the yen will not persist in strengthening against the dollar. However, should any deepening of the European sovereign debt crisis accelerate the flight to quality, there is some risk that the yen will appreciate on its own against other currencies.

5. Policy Responses Required of the Government and BOJ

5.1 Four policies Japan should espouse

Prescriptions for rehabilitating Japan's economy

Japan's policy authorities should firmly implement economic policies to restore the economy centering on four points: (1) consistent policies based on a firm vision (national vision and philosophy) of top leaders, (2) instead of focusing only on domestic demand and the demand side, economic policies should be implemented that are well balanced and that embrace foreign demand and the supply side, (3) government finances should be rebuilt by raising the consumption tax and reducing expenditures centering on social security costs, and (4) the government and the BOJ should work together more closely. Regarding the last point, based on an analysis using the Granger causality test, a weaker yen and higher stock prices ensuing from further monetary easing by the BOJ would be effective in ending deflation.

Prescription 1: Consistent policies based on firm vision of top leaders

First, it will be of utmost importance to implement consistent policies backed by a firm vision (national vision and philosophy).

The reasoning process can take either a deductive or inductive approach. In the deductive method, logical reasoning is used to derive individual conclusions from general and universal principles. Contrasting with this, the inductive approach begins with individual cases to develop general and universal principles. It goes without saying that a nation's policies should be developed through

deductive reasoning. A sound approach is to start from the general principles of a firm national vision to develop individual policies to put into practice. Based on such thinking, the Japanese government would be well advised to specify a work schedule of new policies backed by a clear vision.

Prescription 2: Well-balanced economic policies that also embrace foreign demand and the supply side

Second, the key to rehabilitating Japan's economy is implementing well-balanced economic policies that not only focus on domestic demand and the demand side but also embrace foreign demand and the supply side.

Economic policies can be broadly divided into the four quadrants of supply-side policies, demand-side policies, domestic demand, and foreign demand. The Democratic Party of Japan (DPJ) administration, in part as an antithesis to the Liberal Democratic Party that gave some thought to the supply side and foreign demand, placed considerable weight on demand-side and domestic-demand policies. In the DPJ manifesto for the House of Representatives election of 2009, payment of a child support subsidy to address a declining birth rate, employment measures, and reform of the pension and social security systems were positioned as major policies. In reality, reform of the pension and social security systems, the most important of these policies, is flagging, and policies centering on the child support subsidy have been made the centerpiece of the administration (to be eligible for the subsidy a household income threshold was reintroduced in FY12).

As a result, many foreign investors, key players in Japan's stock market, have come to view the 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 government-sponsored round table meetings on promoting domestic investment held four times from September to November 2010, Japanese business leaders identified five factors that are "evicting" Japanese companies from Japan and that are abetting the hollowing out of the economy. The so-called five "eviction factors" are a strong yen, slowness in concluding EPAs, environmental regulations, labor regulations, and a heavy corporate tax rate. By ignoring these issues, the DPJ administration has been roundly criticized as being an anti-business administration.

Clearly, we must go beyond the pointless contest between supply side and demand side and implement policies that are balanced between the two.

There would be no better way to stimulate the economy than to have the Japanese government forsake its anti-business stance and to clearly adopt a pro-business stance. Specifically, it will be of utmost importance to focus on both domestic and foreign demand and to strengthen such policies as practical growth strategies, deregulation, reduction of the corporate tax, promotion of the Trans-Pacific Strategic Economic Partnership Agreement, promotion of free trade agreements and economic partnership agreements, adjustment of the industrial structure, and government and industry working together to win major foreign contracts (expressways, water and sewerage facilities, next-generation transmission grids, water treatment plants, etc.).

Prescription 3: Restoring government finances to health

The third issue the Japanese government must address is without question the restoration of government finances.

Maintaining that there are things to do before raising taxes might seem like a sound argument (economic growth and cutting expenditures should come first). However, ever since then Prime Minister Ohira at the time failed in his attempt to introduce a general consumption tax in the 1970s, the same point has been repeated for more than 30 years. In other words, to argue that there are things to

do before raising taxes is just an attempt to delay by diffusing the discussion. When facing the three political issues of economic growth, reducing expenditures (rationalizing social security), and increasing the consumption tax, claiming that there is absolutely no alternative to pursuing all three at the same time will, in practical terms, mean that government finances can never be rebuilt. The repeated delays caused by such discussions have endowed Japan with the world's worst fiscal deficit.

What will be important for Japan going forward is to begin a national debate in the 18 months before the consumption tax is raised in April 2014 on how to promote economic growth and reduce expenditures (rationalization of social security) in a resolute manner.

Prescription 4: Closer coordination between the government and BOJ

The fourth issue for Japan is to have the government and the BOJ work more closely together. This issue will be discussed in greater detail below along with the results of a quantitative analysis.

5.2 A weaker yen and higher stock prices ensuing from further monetary easing by BOJ will be effective in ending deflation

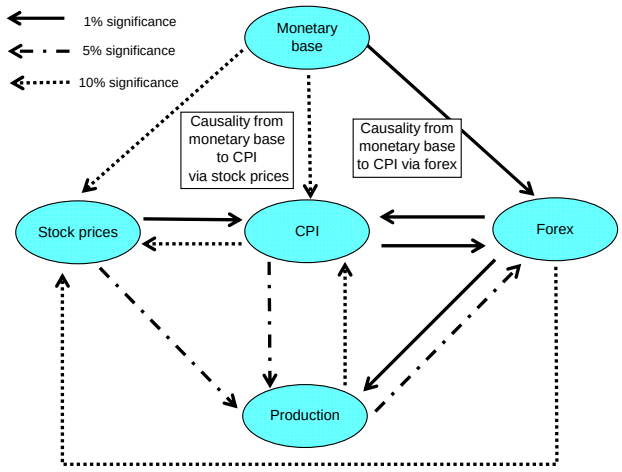
Importance of BOJ aiming to influence stock prices and exchange rates

Based on an analysis using the Granger causality test, we believe a weaker yen and higher stock prices ensuing from further monetary easing by the BOJ will be effective in ending deflation.

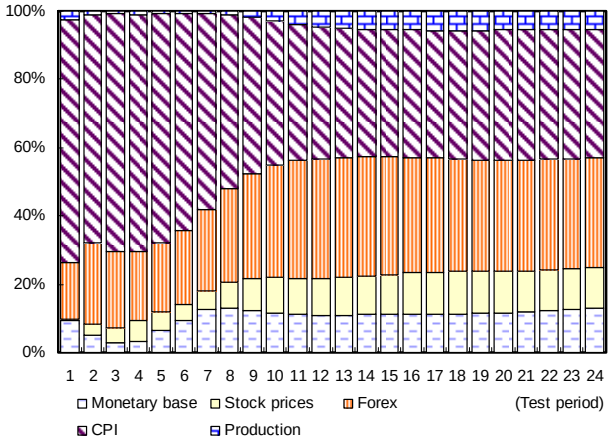
Chart 34 presents a five-variable-model Granger causality test. To define Granger causality, variable X is viewed as Granger-causing Y when past information about variable X is useful in improving the forecast of variable Y. The analysis we performed suggests the possibility that expansion of the monetary base influences CPI through stock prices and forex. Also, a variance analysis of CPI points to the possibility of forex having a certain effect on prices.

Granger Causality (y/y %) **Chart 34**

Conceptual image of five variable causality



Variance decomposition of CPI



Model description

Sampling period		Mar 2006-Feb 2011
Lag		Quartic lag based on Akaike information criterion
Variables	Monetary base	Avg outstanding balance, adjusted for reserve requirement ratio, seasonally adjusted
	Stock prices	Nikkei 225 (monthly avg)
	Forex	Nominal effective exchange rate (2010 benchmark; BIS regulation basis)
	Production	All-industry Activity Index (excl agriculture/forestry/fisheries & public service; 2005 benchmark; seasonally adjusted)
	CPI	Major category items (excl. fresh food; nationwide; 2010 benchmark)

Source: Bank of Japan, Ministry of Finance, Ministry of Internal Affairs and Communications, Ministry of Economy, Trade and Industry, *Nikkei*; compiled by DIR.

6. Supplement: Alternative scenarios

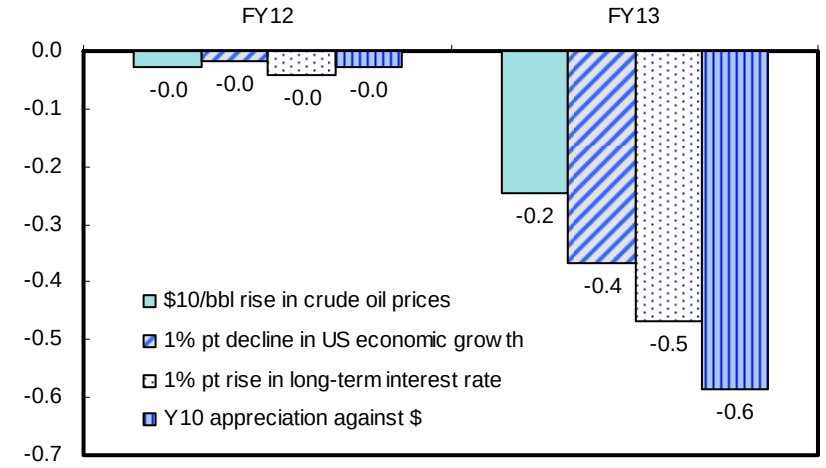
Here, we estimate likely economic effects from changes in our assumptions. The assumptions and effects of alternative scenarios are shown in the two charts below. We assumed alternative scenarios would emerge from Jan-Mar 2013.

Standard and Alternative Scenario Assumptions **Chart 35**

	Standard		Alternative (in each quarter in both years)
Case 1: Forex rate	Y79.7/$ in FY12 and Y80.0/$ in FY13	→	Y10 appreciation against $
Case 2: Crude oil prices (WTI futures)	$93.9/bbl in FY12 and $95.0/bbl in FY13		$10/bbl rise
Case 3: US economic growth	+2.1% in CY12 and +1.8% in CY13		1% pt decline
Case 4: Long-term interest rate	0.82% in FY12 and 0.99% in FY13		1% pt rise

Source: Compiled by DIR.

Effects on Real GDP
(percentage-point change from standard scenario) **Chart 36**



Source: Compiled by DIR.

Case 1: Yen appreciation

Appreciation of the yen could result in a decline in exports via weakened price competitiveness, which in turn would curb the production of export industries (electrical machinery, transportation equipment) and operations of related non-manufacturing industries (transportation, electric utilities, commerce), resulting in lower sales and profits, reducing cash flow and depressing the expected economic growth rate. Thus, capex would be restricted. Meanwhile, lower import prices (reflecting a stronger yen) would reduce general domestic prices, meaning lower prices of corporate and consumer goods. Thus, although the real purchasing power of households would increase, a stronger yen could adversely affect consumption because the decline in corporate profits could impact households through deterioration in the employment and income environment. However, considering the long time lag before effects on consumption are felt, the likely impact within our simulation period would be minimal. If the yen appreciates as indicated in our alternative scenario, real GDP is forecast to shrink 0.0 and 0.6 points in FY12 and FY13, respectively, compared to our standard scenario.

Case 2: Surge in crude oil prices

If crude oil prices rise by $10/bbl above our standard scenario, real GDP is forecast to shrink 0.0 and 0.2 points in FY12 and FY13, respectively, compared to our standard scenario.

Higher crude oil prices would increase the import deflator, which would increase nominal import value, a drag on net export value. This would lower nominal GDP. At the same time, higher oil prices would increase energy prices and push up the prices of final goods through higher material prices. This would lower the real purchasing power of the household sector and depress personal spending.

Higher material costs would lower corporate profits, leading to a slowdown in capex. Weakened business sentiment would negatively affect capex the following year. Meanwhile, lower corporate profits would worsen employment and income conditions, dampening consumer sentiment. This would also depress personal spending.

Case 3: Slowdown in US economic growth

If the US economy shrinks 1 point from our standard scenario, Japan's real GDP would shrink 0.0 and 0.4 points in FY12 and FY13, respectively, compared to our standard scenario.

A slowdown in the US economy would directly and indirectly reduce exports from Japan. Japan ships a substantial portion of its production to Asian trading partners, where imported parts/devices are assembled for export, centering on the US. Accordingly, a US economic slowdown would adversely affect exports to the US from Asia and production for export in Asia, which would in turn dampen exports to Asian trading partners from Japan. As a result, Japan's exports as a whole would lose considerable momentum, which would curb industrial production and capex in Japan. By the time such adverse effects of a US economic slowdown were felt in Japan, imports would have also declined.

Case 4: Higher interest rates

If long-term interest rates rise 1 point above our standard scenario, real GDP would contract 0.0 and 0.5 points in FY12 and FY13, respectively, compared to our standard scenario. Increased fund-raising costs due to higher interest rates would curb capex and housing investment. Such an adverse impact would accelerate once it took hold.

The direct impact on companies and households would depend on the amount of net interest-bearing liabilities. In the case of households, interest-bearing assets have exceeded interest-bearing liabilities. Consequently, higher interest rates would likely mean an increase in household income, which in turn would increase household consumption, assuming the propensity to consume remains unchanged.

As in the other cases, we did not allow for changes in the external environment when estimating the impact of higher interest rates. Interest rates do not usually rise independently, but increase in response to economic recovery or a shift to a positive economic outlook. In such instances, the expected rate of inflation also increases, which restricts the rise of real interest rates. As a result, the marginal return on investment (difference between return on investment and real interest rates) remains unchanged, which is not particularly negative for capex. It is therefore possible that our simulation overemphasizes the adverse effects of higher interest rates.

However, increases in long-term interest rates due to worsening of the fiscal balance (owing to economic stimulus measures and other fiscal commitments to spending) translate into crowding out of capex and housing investment. Thus, the impact of higher interest rates on the economy would likely be similar to that of our simulation.

Simulation Results — Chart 37

	Standard Scenario		Case 1 Y10 appreciation against $				Case 2 $10/bbl rise in crude oil prices			
	FY12	FY13	FY12		FY13		FY12		FY13	
Nominal GDP (Y/y %)	-0.0	0.5	0.0	(0.0)	0.1	(-0.4)	-0.1	(-0.1)	-0.1	(-0.5)
Real GDP (Chained [2005]; y/y %)	**0.7**	**0.9**	**0.7**	**(-0.0)**	**0.3**	**(-0.6)**	**0.7**	**(-0.0)**	**0.6**	**(-0.2)**
GDP deflator (Y/y %)	-0.7	-0.4	-0.6	(0.0)	-0.2	(0.2)	-0.7	(-0.1)	-0.7	(-0.3)
All-industry Activity Index (Y/y %)	-0.0	0.3	-0.0	(-0.0)	-0.1	(-0.3)	-0.0	(-0.0)	0.1	(-0.1)
Industrial Production Index (Y/y %)	-4.3	0.1	-4.4	(-0.1)	-1.0	(-1.1)	-4.3	(-0.0)	-0.2	(-0.3)
Tertiary Industry Activity Index (Y/y %)	0.5	0.1	0.5	(0.0)	-0.1	(-0.2)	0.4	(-0.0)	-0.1	(-0.2)
Corporate Goods Price Index (Y/y %)	-1.0	0.3	-1.1	(-0.0)	0.1	(-0.2)	-1.0	(0.0)	0.4	(0.0)
Consumer Price Index (Y/y %)	-0.1	-0.1	-0.1	(-0.0)	-0.2	(-0.1)	-0.1	(0.0)	-0.0	(0.0)
Unemployment rate (%)	4.3	4.3	4.3	(0.0)	4.3	(0.1)	4.3	(0.0)	4.3	(0.0)
Trade balance (Y tril)	-6.4	-6.3	-6.3	(0.1)	-6.6	(-0.3)	-6.5	(-0.2)	-7.0	(-0.8)
Current balance (US$100 mil)	536.0	560.4	536.8	(0.1)	560.7	(0.1)	534.5	(-0.2)	553.7	(-1.0)
Current balance (Y tril)	4.3	4.5	4.3	(0.0)	4.5	(0.0)	4.2	(-0.0)	4.3	(-0.2)
Real GDP components (Chained [2005]; y/y %)										
Private consumption	0.9	0.8	0.9	(0.0)	0.7	(-0.1)	0.9	(-0.0)	0.7	(-0.2)
Private housing investment	3.1	5.8	3.1	(0.0)	5.9	(0.1)	3.1	(-0.0)	5.6	(-0.1)
Private non-housing investment	-0.0	1.3	-0.0	(-0.0)	-0.1	(-1.3)	-0.2	(-0.1)	-0.1	(-1.3)
Government final consumption	2.0	1.0	1.9	(-0.0)	0.9	(-0.1)	2.0	(0.0)	1.1	(0.2)
Public fixed investment	9.1	-7.1	9.1	(0.0)	-7.1	(0.0)	9.1	(-0.0)	-7.2	(-0.1)
Exports of goods and services	-1.1	0.5	-1.3	(-0.2)	-1.6	(-2.1)	-1.1	(0.0)	0.5	(0.0)
Imports of goods and services	4.7	1.7	4.6	(-0.1)	0.7	(-1.0)	4.6	(-0.1)	0.7	(-1.0)

	Case 3 1% pt decline in US economy				Case 4 1% pt rise in 10-yr JGB yield				(Reference) Y5 depreciation and $10/bbl rise in crude oil prices			
	FY12		FY13		FY12		FY13		FY12		FY13	
Nominal GDP (Y/y %)	-0.0	(-0.0)	0.1	(-0.3)	-0.0	(-0.0)	0.1	(-0.4)	-0.1	(-0.1)	0.1	(-0.3)
Real GDP (Chained [2005]; y/y %)	**0.7**	**(-0.0)**	**0.5**	**(-0.4)**	**0.6**	**(-0.0)**	**0.4**	**(-0.5)**	**0.7**	**(-0.0)**	**0.9**	**(0.0)**
GDP deflator (Y/y %)	-0.7	(0.0)	-0.3	(0.0)	-0.7	(0.0)	-0.3	(0.1)	-0.8	(-0.1)	-0.7	(-0.4)
All-industry Activity Index (Y/y %)	-0.0	(-0.0)	0.1	(-0.2)	-0.0	(-0.0)	0.2	(-0.1)	-0.0	(-0.0)	0.3	(0.0)
Industrial Production Index (Y/y %)	-4.4	(-0.0)	-0.6	(-0.6)	-4.4	(-0.1)	-0.7	(-0.8)	-4.3	(-0.0)	0.3	(0.3)
Tertiary Industry Activity Index (Y/y %)	0.5	(-0.0)	-0.1	(-0.1)	0.5	(0.0)	0.1	(-0.0)	0.4	(-0.0)	-0.0	(-0.1)
Corporate Goods Price Index (Y/y %)	-1.0	(-0.0)	0.3	(-0.1)	-1.0	(-0.0)	0.3	(-0.0)	-1.0	(0.0)	0.5	(0.1)
Consumer Price Index (Y/y %)	-0.1	(-0.0)	-0.1	(-0.0)	-0.1	(-0.0)	-0.1	(-0.0)	-0.1	(0.0)	0.0	(0.1)
Unemployment rate (%)	4.3	(0.0)	4.3	(0.0)	4.3	(0.0)	4.3	(0.0)	4.3	(0.0)	4.2	(-0.0)
Trade balance (Y tril)	-6.4	(-0.0)	-6.5	(-0.2)	-6.3	(0.0)	-5.8	(0.5)	-6.6	(-0.2)	-6.8	(-0.6)
Current balance (US$100 mil)	535.9	(-0.0)	559.2	(-0.2)	536.4	(0.1)	565.1	(0.7)	534.1	(-0.3)	553.5	(-1.0)
Current balance (Y tril)	4.3	(-0.0)	4.5	(-0.0)	4.3	(0.0)	4.6	(0.2)	4.2	(-0.1)	4.3	(-0.2)
Real GDP components (Chained [2005]; y/y %)												
Private consumption	0.9	(-0.0)	0.7	(-0.1)	0.9	(0.0)	0.9	(0.1)	0.9	(-0.0)	0.7	(-0.1)
Private housing investment	3.1	(-0.0)	5.7	(-0.0)	3.0	(-0.1)	4.5	(-1.2)	3.0	(-0.0)	5.6	(-0.2)
Private non-housing investment	-0.1	(-0.0)	0.1	(-1.1)	-0.3	(-0.3)	-1.6	(-2.9)	-0.1	(-0.1)	0.6	(-0.6)
Government final consumption	2.0	(-0.0)	0.9	(-0.0)	2.0	(-0.0)	0.9	(-0.1)	2.0	(0.0)	1.2	(0.2)
Public fixed investment	9.1	(-0.0)	-7.1	(-0.1)	9.1	(-0.0)	-7.2	(-0.1)	9.1	(-0.0)	-7.2	(-0.1)
Exports of goods and services	-1.2	(-0.1)	-0.5	(-1.1)	-1.1	(0.0)	0.5	(0.0)	-1.0	(0.1)	1.6	(1.1)
Imports of goods and services	4.6	(-0.1)	0.7	(-1.0)	4.6	(-0.1)	0.4	(-1.3)	4.6	(-0.0)	1.2	(-0.5)

Source: Compiled by DIR.
Note: Figures in parentheses indicate changes from those under standard scenario. Due to rounding, they do not necessarily conform to calculations based on figures shown.

7. Quarterly Forecast Tables

1.1 Selected Economic Indicators

	2010			2011				2012	FY		CY	
	4-6	7-9	10-12	1-3	4-6	7-9	10-12	1-3	2010	2011	2010	2011
Nominal GDP (SAAR; Y tril)	482.6	484.9	481.0	469.4	462.6	472.1	469.2	475.6	479.4	470.0	481.8	468.2
Q/q %	0.7	0.5	-0.8	-2.4	-1.4	2.1	-0.6	1.4				
Q/q %, SAAR	3.0	1.9	-3.1	-9.3	-5.6	8.5	-2.4	5.6				
Y/y %	2.2	3.4	1.1	-2.1	-4.1	-2.7	-2.4	1.5	1.2	-2.0	2.3	-2.8
Real GDP (chained [2005]; SAAR; Y tril)	510.8	516.6	515.2	504.6	502.0	513.5	512.0	518.5	511.7	511.6	511.8	508.0
Q/q %	1.2	1.1	-0.3	-2.1	-0.5	2.3	-0.3	1.3				
Q/q %, SAAR	5.1	4.7	-1.1	-8.0	-2.1	9.5	-1.2	5.2				
Y/y %	4.5	5.6	3.2	-0.0	-1.8	-0.6	-0.7	2.9	3.3	-0.0	4.5	-0.7
Contribution to GDP growth (% pt)												
Domestic demand	1.1	1.1	-0.1	-1.8	0.4	1.5	0.5	1.1	2.5	1.0	2.8	0.1
Foreign demand	0.1	0.0	-0.2	-0.3	-0.9	0.8	-0.8	0.1	0.8	-1.0	1.7	-0.9
GDP deflator (y/y %)	-2.2	-2.1	-2.0	-2.0	-2.4	-2.1	-1.8	-1.3	-2.1	-1.9	-2.2	-2.1
Index of All-Industry Activity (2005=100)	95.9	96.6	96.4	95.1	94.2	96.2	96.7	96.6	95.8	96.0	96.0	95.4
Q/q %; y/y %	0.8	0.8	-0.2	-1.3	-1.0	2.2	0.6	-0.1	2.1	0.2	3.2	-0.5
Index of Industrial Production (2005=100)	95.3	94.3	94.2	92.8	88.9	93.7	94.1	95.3	94.1	93.2	94.4	92.2
Q/q %; y/y %	0.7	-1.0	-0.1	-1.5	-4.2	5.4	0.4	1.2	9.4	-1.0	16.5	-2.4
Index of Tertiary Industry Activity (2005=100)	97.6	98.2	98.5	97.5	97.0	98.5	99.0	99.0	97.8	98.5	97.8	97.9
Q/q %; y/y %	0.5	0.6	0.3	-1.0	-0.5	1.5	0.5	0.0	1.1	0.7	1.4	0.0
Corporate Goods Price Index components (2010=100)												
Domestic Company Goods Price Index	100.2	99.9	99.9	100.9	102.0	102.1	101.0	101.2	100.2	101.6	100.0	101.5
Y/y %	0.3	-0.0	0.6	0.9	1.8	2.1	1.1	0.3	0.4	1.3	-0.1	1.5
CPI (excl. fresh food; 2010=100)	100.2	99.7	99.8	99.5	100.0	99.9	99.7	99.6	99.8	99.8	100.0	99.8
Y/y %	-1.0	-1.1	-0.8	-0.8	-0.3	0.2	-0.2	0.1	-0.9	-0.0	-1.0	-0.3
Unemployment rate (%)	5.1	5.0	5.0	4.8	4.7	4.4	4.5	4.5	5.0	4.5	5.1	4.6
Call rate (end-period; %)	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Government bond yield (10 year; %)	1.09	0.93	1.11	1.26	1.13	1.02	0.98	0.99	1.26	0.99	1.11	0.98
Money stock; M2 (y/y %)	3.0	2.8	2.6	2.4	2.8	2.8	3.0	3.0	2.7	2.9	2.8	2.7
Trade balance (SAAR; Y tril)	7.8	7.5	6.9	3.6	-4.4	-1.0	-4.7	-4.5	6.5	-3.5	8.0	-1.6
Current balance (SAAR; $100 mil)	1,800	2,064	2,181	1,694	924	1,310	870	749	1,944	964	2,038	1,197
Current balance (SAAR; Y tril)	16.6	17.7	18.0	13.9	7.5	10.2	6.7	5.9	16.7	7.6	17.9	9.6
(% of nominal GDP)	3.4	3.7	3.7	3.0	1.6	2.2	1.4	1.2	3.5	1.6	3.7	2.1
Exchange rate (Y/$)	92.0	85.8	82.5	82.3	81.7	77.8	77.3	79.3	85.7	79.0	87.8	79.8
(Y/Euro)	114.8	111.5	110.4	113.8	118.3	108.7	104.9	106.3	112.6	109.6	115.1	111.4

Source: Compiled by DIR.
Notes: 1) Quarterly figures (excl. y/y %) seasonally adjusted, other unadjusted.
2) Index of All-Industry Activity Index: excl. agriculture, forestry, and fisheries.
3) Due to rounding, figures may differ from those released by the government.

1.2 Selected Economic Indicators

	2012			2013				2014	FY		CY	
	4-6	7-9	10-12 (E)	1-3 (E)	4-6 (E)	7-9 (E)	10-12 (E)	1-3 (E)	2012 (E)	2013 (E)	2012 (E)	2013 (E)
Nominal GDP (SAAR; Y tril)	474.1	469.8	468.1	469.2	469.5	469.3	472.2	478.0	470.0	472.1	471.7	469.9
Q/q %	-0.3	-0.9	-0.4	0.2	0.1	-0.0	0.6	1.2				
Q/q %, SAAR	-1.3	-3.6	-1.4	0.9	0.2	-0.2	2.5	5.0				
Y/y %	2.3	-0.6	-0.3	-1.5	-0.9	-0.1	0.9	1.9	-0.0	0.5	0.7	-0.4
Real GDP (chained [2005]; SAAR; Y tril)	518.9	514.3	513.1	515.1	516.2	516.2	519.7	526.1	515.1	519.5	516.0	516.7
Q/q %	0.1	-0.9	-0.2	0.4	0.2	0.0	0.7	1.2				
Q/q %, SAAR	0.3	-3.5	-0.9	1.6	0.9	0.0	2.7	5.1				
Y/y %	3.3	0.1	0.2	-0.7	-0.5	0.4	1.3	2.2	0.7	0.9	1.6	0.1
Contribution to GDP growth (% pt)												
Domestic demand	0.2	-0.2	0.1	0.4	0.1	-0.1	0.6	1.2	1.6	0.9	2.5	0.6
Foreign demand	-0.1	-0.7	-0.3	0.0	0.1	0.0	0.0	-0.0	-0.8	-0.2	-0.9	-0.5
GDP deflator (y/y %)	-0.9	-0.7	-0.5	-0.8	-0.4	-0.5	-0.4	-0.2	-0.7	-0.4	-0.8	-0.5
Index of All-Industry Activity (2005=100)	96.5	96.4	95.4	95.4	95.6	95.8	96.3	97.0	96.0	96.2	96.1	95.7
Q/q %; y/y %	-0.2	-0.1	-1.1	0.1	0.1	0.3	0.5	0.6	-0.0	0.3	0.7	-0.4
Index of Industrial Production (2005=100)	93.4	89.5	86.1	87.1	87.7	88.5	89.5	90.5	89.2	89.2	90.8	88.0
Q/q %; y/y %	-2.0	-4.2	-3.8	1.2	0.7	0.9	1.1	1.2	-4.3	0.1	-1.4	-3.1
Index of Tertiary Industry Activity (2005=100)	99.0	99.1	98.7	98.5	98.5	98.6	99.0	99.5	98.9	99.0	98.8	98.5
Q/q %; y/y %	0.0	0.1	-0.4	-0.2	0.0	0.1	0.4	0.5	0.5	0.1	1.0	-0.3
Corporate Goods Price Index components (2010=100)												
Domestic Company Goods Price Index	101.0	100.2	100.3	100.5	100.6	100.8	100.9	101.1	100.5	100.8	100.7	100.7
Y/y %	-0.9	-1.8	-0.7	-0.7	-0.4	0.6	0.6	0.6	-1.0	0.3	-0.8	0.0
CPI (excl. fresh food; 2010=100)	99.9	99.6	99.7	99.6	99.8	99.6	99.6	99.5	99.7	99.6	99.7	99.6
Y/y %	-0.0	-0.2	-0.0	-0.0	-0.1	-0.0	-0.1	-0.1	-0.1	-0.1	-0.0	-0.1
Unemployment rate (%)	4.4	4.2	4.3	4.4	4.3	4.3	4.2	4.2	4.3	4.3	4.4	4.3
Call rate (end-period; %)	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Government bond yield (10 year; %)	0.83	0.77	0.82	0.88	0.92	0.95	1.00	1.10	0.82	0.99	0.85	0.94
Money stock; M2 (y/y %)	2.4	2.4	2.3	2.1	1.8	1.8	1.6	1.5	2.3	1.7	2.5	1.8
Trade balance (SAAR; Y tril)	-4.4	-6.8	-7.0	-6.9	-6.5	-6.2	-6.0	-5.9	-6.4	-6.3	-5.7	-6.4
Current balance (SAAR; $100 mil)	756	466	450	467	520	549	577	591	536	560	602	525
Current balance (SAAR; Y tril)	6.1	3.7	3.6	3.7	4.2	4.4	4.6	4.7	4.3	4.5	4.8	4.2
(% of nominal GDP)	1.3	0.8	0.8	0.8	0.9	0.9	1.0	1.0	0.9	0.9	1.0	0.9
Exchange rate (Y/$)	80.1	78.6	80.0	80.0	80.0	80.0	80.0	80.0	79.7	80.0	79.5	80.0
(Y/Euro)	101.2	98.2	100.0	100.0	100.0	100.0	100.0	100.0	99.8	100.0	101.4	100.0

Source: Compiled by DIR.
Notes: 1) Quarterly figures (excl. y/y %) seasonally adjusted, other unadjusted.
2) Index of All-Industry Activity Index: excl. agriculture, forestry, and fisheries.
3) Due to rounding, figures may differ from those released by the government.
E: DIR estimate.

2.1 Real Gross Domestic Expenditure (chained [2005]; Y tril)

	2010			2011				2012	FY		CY	
	4-6	7-9	10-12	1-3	4-6	7-9	10-12	1-3	2010	2011	2010	2011
Gross domestic expenditure	510.8	516.6	515.2	504.6	502.0	513.5	512.0	518.5	511.7	511.6	511.8	508.0
Q/q %, SAAR	5.1	4.7	-1.1	-8.0	-2.1	9.5	-1.2	5.2				
Y/y %	4.5	5.6	3.2	-0.0	-1.8	-0.6	-0.7	2.9	3.3	-0.0	4.5	-0.7
Domestic demand	493.3	499.0	498.5	489.7	491.5	499.0	501.8	507.3	495.1	500.1	494.7	495.5
Q/q %, SAAR	4.8	4.7	-0.4	-6.9	1.5	6.2	2.2	4.4				
Y/y %	2.8	4.3	2.8	0.4	-0.4	0.1	0.6	3.7	2.6	1.0	2.8	0.2
Private demand	374.4	379.7	379.1	370.9	370.5	378.1	380.7	384.2	376.1	378.5	375.5	375.1
Q/q %, SAAR	6.2	5.8	-0.6	-8.4	-0.5	8.5	2.8	3.8				
Y/y %	2.9	5.2	3.7	0.7	-1.1	-0.4	0.4	3.8	3.1	0.6	3.1	-0.1
Final consumption	298.8	301.3	301.5	296.8	297.9	302.7	304.1	307.8	299.7	303.2	300.0	300.4
Q/q %, SAAR	0.6	3.4	0.3	-6.1	1.4	6.7	1.9	4.9				
Y/y %	2.3	2.9	1.6	-0.5	-0.3	0.5	0.9	3.7	1.6	1.2	2.6	0.1
Residential investment	12.3	12.2	12.8	13.1	12.7	13.2	13.2	13.1	12.6	13.1	12.4	13.1
Q/q %, SAAR	4.4	-0.7	19.3	8.5	-10.3	17.8	-0.4	-4.4				
Y/y %	-6.9	1.3	9.0	7.5	3.6	8.3	3.4	-0.0	2.6	3.8	-4.2	5.7
Non-residential investment	64.9	66.0	64.7	64.7	63.8	64.6	67.9	66.6	65.0	65.8	64.4	65.2
Q/q %, SAAR	18.4	7.0	-7.2	-0.5	-5.2	5.3	21.7	-7.4				
Y/y %	3.2	5.2	3.5	3.8	-1.3	-2.2	4.9	2.9	3.9	1.1	0.8	1.3
Change in inventories	-1.5	0.2	0.1	-3.6	-3.9	-2.5	-4.5	-3.2	-1.2	-3.5	-1.3	-3.7
Public demand	118.9	119.3	119.4	118.8	121.1	120.9	121.1	123.0	119.0	121.6	119.2	120.4
Q/q %, SAAR	0.3	1.1	0.3	-1.9	7.9	-0.5	0.6	6.5				
Y/y %	2.3	1.7	0.2	-0.6	1.9	1.6	1.3	3.6	0.8	2.1	1.9	1.0
Government final consumption	97.7	98.1	98.5	98.8	99.4	99.8	100.1	101.1	98.3	100.1	97.6	99.5
Q/q %, SAAR	6.7	1.7	1.6	1.3	2.4	1.4	1.3	4.3				
Y/y %	3.0	2.1	2.0	2.7	1.8	1.7	1.6	2.3	2.5	1.9	2.2	2.0
Fixed investment	21.3	21.3	20.9	20.1	21.7	21.1	21.0	21.9	20.8	21.4	21.6	20.9
Q/q %, SAAR	-22.3	0.3	-7.8	-15.1	36.0	-9.9	-2.0	17.7				
Y/y %	-1.8	0.1	-6.7	-12.1	2.1	-0.0	-0.2	8.8	-6.0	2.9	0.9	-3.5
Change in inventories	-0.1	-0.2	-0.0	-0.1	0.0	0.1	0.0	0.0	-0.1	0.0	-0.1	-0.0
Net exports of goods and services	17.3	17.6	16.7	15.3	10.4	14.9	10.5	11.7	16.8	11.9	17.0	12.8
Exports of goods and services	82.8	84.5	83.8	83.5	78.5	85.4	81.7	84.5	83.7	82.5	82.4	82.3
Q/q %, SAAR	24.7	8.6	-3.0	-1.6	-22.1	40.3	-16.1	14.1				
Y/y %	30.6	21.5	13.5	6.8	-5.2	1.0	-2.5	1.0	17.4	-1.4	24.3	-0.1
Imports of goods and services	65.5	66.9	67.2	68.2	68.1	70.5	71.2	72.8	66.9	70.7	65.4	69.5
Q/q %, SAAR	24.3	9.0	1.6	6.2	-0.6	15.3	3.8	9.2				
Y/y %	15.9	12.8	10.9	9.8	4.1	5.6	5.9	6.7	12.3	5.6	11.2	6.3
Residual	0.1	0.0	0.0	-0.4	0.0	-0.4	-0.3	-0.5	-0.1	-0.3	0.1	-0.3

Source: Compiled by DIR.
Notes: 1) Subtotals by demand (domestic demand, private demand, and public demand) are simple aggregates of respective components, which differ from figures released by the government.
2) Y/y growth rates and FY and CY figures unadjusted; other seasonally adjusted.

2.2 Real Gross Domestic Expenditure (chained [2005]; Y tril)

	2012		2013					2014	FY		CY	
	4-6	7-9	10-12 (E)	1-3 (E)	4-6 (E)	7-9 (E)	10-12 (E)	1-3 (E)	2012 (E)	2013 (E)	2012 (E)	2013 (E)
Gross domestic expenditure	518.9	514.3	513.1	515.1	516.2	516.2	519.7	526.1	515.1	519.5	516.0	516.7
Q/q %, SAAR	0.3	-3.5	-0.9	1.6	0.9	0.0	2.7	5.1				
Y/y %	3.3	0.1	0.2	-0.7	-0.5	0.4	1.3	2.2	0.7	0.9	1.6	0.1
Domestic demand	508.1	507.1	507.4	509.3	509.9	509.7	512.9	519.2	508.2	512.9	507.6	510.6
Q/q %, SAAR	0.7	-0.8	0.3	1.5	0.5	-0.2	2.5	5.0				
Y/y %	3.3	1.6	1.2	0.4	0.4	0.5	1.0	1.9	1.6	0.9	2.5	0.6
Private demand	384.0	381.7	381.7	383.3	384.3	384.5	388.2	395.1	382.7	388.1	383.0	385.1
Q/q %, SAAR	-0.3	-2.4	-0.0	1.8	1.0	0.2	3.9	7.3				
Y/y %	3.6	1.0	0.3	-0.3	0.1	0.7	1.7	3.2	1.1	1.4	2.1	0.6
Final consumption	307.5	306.1	304.7	305.2	305.5	305.5	308.3	314.4	305.9	308.5	306.6	306.2
Q/q %, SAAR	-0.4	-1.8	-1.7	0.6	0.4	0.0	3.6	8.2				
Y/y %	3.2	1.2	0.2	-0.9	-0.7	-0.2	1.2	3.0	0.9	0.8	2.1	-0.1
Residential investment	13.3	13.4	13.5	13.7	13.8	14.1	14.5	14.6	13.5	14.2	13.3	14.0
Q/q %, SAAR	6.0	3.8	3.6	4.1	4.5	7.8	12.6	3.2				
Y/y %	4.5	1.4	2.2	4.5	4.0	4.9	7.2	6.9	3.1	5.8	2.0	5.2
Non-residential investment	67.2	65.1	65.2	65.6	65.8	66.1	66.7	67.5	65.7	66.6	66.0	66.0
Q/q %, SAAR	3.8	-12.1	0.8	2.4	1.2	2.0	3.6	4.5				
Y/y %	5.6	0.5	-3.9	-1.4	-2.2	1.7	2.3	2.8	-0.0	1.3	1.2	0.0
Change in inventories	-4.0	-2.9	-1.8	-1.1	-0.8	-1.2	-1.3	-1.4	-2.5	-1.2	-3.0	-1.1
Public demand	124.1	125.4	125.8	126.0	125.6	125.2	124.7	124.1	125.5	124.8	124.6	125.4
Q/q %, SAAR	3.6	4.1	1.2	0.7	-1.0	-1.5	-1.5	-2.0				
Y/y %	2.6	3.7	4.1	2.6	1.1	-0.2	-1.1	-1.9	3.2	-0.5	3.5	0.6
Government final consumption	101.6	102.0	102.2	102.4	102.6	102.9	103.2	103.4	102.1	103.1	101.8	102.8
Q/q %, SAAR	1.9	1.4	0.8	0.8	0.8	1.2	1.2	0.8				
Y/y %	2.3	2.2	2.1	1.3	0.9	0.9	1.0	1.0	2.0	1.0	2.2	1.0
Fixed investment	22.5	23.4	23.5	23.5	23.0	22.2	21.5	20.6	23.3	21.7	22.8	22.6
Q/q %, SAAR	11.0	16.8	3.0	0.2	-8.7	-12.9	-13.2	-14.9				
Y/y %	4.0	11.4	12.3	7.7	2.2	-5.2	-9.0	-12.5	9.1	-7.1	9.4	-1.2
Change in inventories	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1
Net exports of goods and services	11.5	7.4	5.9	6.0	6.5	6.7	7.0	7.1	7.6	6.8	9.0	6.5
Exports of goods and services	85.6	81.3	79.6	80.0	80.7	81.5	82.4	83.5	81.6	82.0	82.7	81.2
Q/q %, SAAR	5.3	-18.7	-7.8	2.0	3.6	3.6	4.9	5.3				
Y/y %	9.2	-4.9	-2.6	-5.2	-5.7	0.3	3.6	4.3	-1.1	0.5	0.5	-1.8
Imports of goods and services	74.1	73.8	73.8	74.1	74.3	74.7	75.5	76.4	74.0	75.2	73.6	74.6
Q/q %, SAAR	7.3	-1.4	-0.4	1.6	1.2	2.4	4.1	4.9				
Y/y %	8.9	4.7	3.6	1.8	0.2	1.2	2.3	3.1	4.7	1.7	5.9	1.4
Residual	-0.7	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.7	-0.3	-0.6	-0.4

Source: Compiled by DIR.
Notes: 1) Subtotals by demand (domestic demand, private demand, and public demand) are simple aggregates of respective components, which differ from figures released by the government.
2) Y/y growth rates and FY and CY figures unadjusted; other seasonally adjusted.
E: DIR estimate.

3.1 Nominal Gross Domestic Expenditure (Y tril)

	2010			2011				2012	FY		CY	
	4-6	7-9	10-12	1-3	4-6	7-9	10-12	1-3	2010	2011	2010	2011
Gross domestic expenditure	482.6	484.9	481.0	469.4	462.6	472.1	469.2	475.6	479.4	470.0	481.8	468.2
Q/q %, SAAR	3.0	1.9	-3.1	-9.3	-5.6	8.5	-2.4	5.6				
Y/y %	2.2	3.4	1.1	-2.1	-4.1	-2.7	-2.4	1.5	1.2	-2.0	2.3	-2.8
Domestic demand	476.5	479.0	476.2	469.0	469.2	475.6	476.8	483.5	475.1	476.4	476.0	472.5
Q/q %, SAAR	3.2	2.1	-2.2	-5.9	0.1	5.6	1.0	5.7				
Y/y %	1.4	2.9	1.3	-0.8	-1.5	-0.7	0.0	3.4	1.2	0.3	1.4	-0.7
Private demand	359.0	361.3	359.3	352.0	349.9	356.5	358.1	362.7	357.9	356.9	358.5	354.1
Q/q %, SAAR	5.0	2.6	-2.2	-7.9	-2.4	7.8	1.8	5.3				
Y/y %	1.3	3.3	2.1	-0.7	-2.5	-1.4	-0.4	3.2	1.5	-0.3	1.4	-1.2
Final consumption	285.6	285.8	284.8	280.6	280.6	284.8	285.1	289.2	284.2	285.0	285.4	282.8
Q/q %, SAAR	-0.3	0.3	-1.4	-5.8	0.0	6.0	0.4	6.0				
Y/y %	0.7	0.9	0.0	-1.8	-1.7	-0.4	0.1	3.2	-0.0	0.3	0.9	-0.9
Residential investment	12.6	12.6	13.2	13.5	13.2	13.8	13.7	13.5	13.0	13.6	12.7	13.6
Q/q %, SAAR	4.2	-0.2	19.9	10.2	-9.2	17.9	-1.7	-5.0				
Y/y %	-7.5	1.5	9.6	8.2	4.6	9.2	3.7	-0.2	2.8	4.3	-4.7	6.4
Non-residential investment	62.4	63.0	61.5	61.3	60.4	61.1	64.0	62.9	62.0	62.1	61.7	61.7
Q/q %, SAAR	15.3	4.3	-9.2	-1.2	-6.0	4.7	20.4	-6.5				
Y/y %	1.4	3.5	1.7	1.7	-2.9	-3.3	4.1	2.6	2.1	0.2	-1.0	-0.1
Change in inventories	-1.6	-0.1	-0.2	-3.4	-4.4	-3.1	-4.7	-3.0	-1.3	-3.8	-1.5	-3.9
Public demand	117.5	117.7	116.9	117.0	119.3	119.1	118.7	120.8	117.2	119.5	117.5	118.4
Q/q %, SAAR	-2.1	0.5	-2.5	0.3	8.1	-0.8	-1.2	7.1				
Y/y %	1.7	1.5	-1.1	-1.3	1.5	1.6	1.2	3.7	0.1	2.0	1.3	0.7
Government final consumption	95.5	95.9	95.4	96.3	96.7	97.0	96.9	98.1	95.8	97.2	95.3	96.7
Q/q %, SAAR	3.7	1.4	-1.8	3.8	1.6	1.2	-0.5	5.1				
Y/y %	2.3	2.0	0.3	2.1	1.2	1.4	1.2	2.1	1.6	1.5	1.6	1.4
Fixed investment	22.0	21.9	21.5	20.7	22.6	22.0	21.8	22.7	21.4	22.2	22.3	21.7
Q/q %, SAAR	-22.7	-1.1	-7.1	-14.1	40.2	-10.2	-2.2	16.7				
Y/y %	-2.3	-0.0	-6.7	-12.0	2.8	1.1	0.8	9.3	-6.1	3.7	0.3	-2.8
Change in inventories	-0.0	-0.2	-0.1	-0.1	0.0	0.1	0.0	0.0	-0.1	0.0	-0.1	0.0
Net exports of goods and services	6.1	5.9	4.8	0.4	-6.5	-3.5	-7.6	-7.9	4.3	-6.4	5.8	-4.3
Exports of goods and services	74.4	73.9	73.6	73.3	68.2	73.9	69.8	71.7	73.8	70.9	73.2	71.3
Q/q %, SAAR	20.5	-3.1	-1.6	-1.2	-25.0	37.3	-20.1	11.3				
Y/y %	30.6	17.2	9.6	3.5	-8.1	-0.4	-5.2	-2.0	14.4	-3.9	22.3	-2.6
Imports of goods and services	68.3	68.0	68.8	73.0	74.8	77.3	77.4	79.6	69.5	77.3	67.4	75.6
Q/q %, SAAR	23.8	-2.2	5.0	26.4	10.3	14.4	0.6	11.8				
Y/y %	24.8	13.6	11.6	13.0	9.7	13.6	12.1	9.5	15.5	11.2	16.1	12.1

Source: Compiled by DIR.
Note: Y/y growth rates and FY and CY figures unadjusted; other seasonally adjusted.

3.2 Nominal Gross Domestic Expenditure (Y tril)

	2012			2013				2014	FY		CY	
	4-6	7-9	10-12 (E)	1-3 (E)	4-6 (E)	7-9 (E)	10-12 (E)	1-3 (E)	2012 (E)	2013 (E)	2012 (E)	2013 (E)
Gross domestic expenditure	474.1	469.8	468.1	469.2	469.5	469.3	472.2	478.0	470.0	472.1	471.7	469.9
Q/q %, SAAR	-1.3	-3.6	-1.4	0.9	0.2	-0.2	2.5	5.0				
Y/y %	2.3	-0.6	-0.3	-1.5	-0.9	-0.1	0.9	1.9	-0.0	0.5	0.7	-0.4
Domestic demand	482.2	479.7	479.4	480.6	480.5	480.2	483.0	488.7	480.5	483.0	481.3	481.1
Q/q %, SAAR	-1.1	-2.0	-0.3	1.0	-0.1	-0.3	2.4	4.9				
Y/y %	2.6	0.8	0.7	-0.6	-0.3	0.1	0.6	1.6	0.9	0.5	1.9	-0.0
Private demand	361.1	357.5	356.7	357.5	357.6	357.6	360.6	366.8	358.1	360.7	359.5	358.3
Q/q %, SAAR	-1.8	-3.9	-0.9	0.9	0.1	-0.0	3.5	7.0				
Y/y %	3.1	0.3	-0.3	-1.5	-0.9	0.0	1.1	2.7	0.3	0.7	1.5	-0.3
Final consumption	287.8	285.5	283.4	283.0	282.4	282.1	284.3	289.6	284.8	284.6	286.4	282.9
Q/q %, SAAR	-1.9	-3.2	-2.9	-0.6	-0.8	-0.4	3.0	7.8				
Y/y %	2.5	0.2	-0.6	-2.2	-1.9	-1.1	0.3	2.4	-0.0	-0.1	1.3	-1.2
Residential investment	13.7	13.8	13.9	14.0	14.2	14.5	14.9	15.1	13.9	14.7	13.7	14.4
Q/q %, SAAR	4.9	2.5	3.2	4.1	4.7	8.3	13.0	3.9				
Y/y %	3.8	0.2	1.4	3.8	3.6	5.0	7.4	7.3	2.2	5.9	1.3	5.0
Non-residential investment	63.6	61.2	61.3	61.7	61.9	62.2	62.8	63.5	61.9	62.6	62.3	62.1
Q/q %, SAAR	4.2	-14.0	0.4	2.4	1.2	2.2	3.9	4.9				
Y/y %	5.5	-0.0	-4.3	-2.0	-2.8	1.7	2.4	3.0	-0.4	1.2	0.9	-0.3
Change in inventories	-4.0	-3.0	-1.9	-1.1	-0.8	-1.2	-1.3	-1.4	-2.5	-1.2	-2.9	-1.1
Public demand	121.1	122.2	122.7	123.1	122.9	122.6	122.4	121.9	122.4	122.3	121.8	122.8
Q/q %, SAAR	1.1	3.6	1.7	1.2	-0.5	-1.0	-0.8	-1.4				
Y/y %	1.4	2.8	3.6	2.0	1.4	0.2	-0.5	-1.4	2.5	-0.1	2.9	0.8
Government final consumption	97.7	98.0	98.3	98.6	99.0	99.4	99.9	100.3	98.2	99.7	98.1	99.3
Q/q %, SAAR	-1.4	1.3	1.2	1.2	1.4	1.8	2.0	1.6				
Y/y %	1.0	1.1	1.7	0.4	1.3	1.4	1.5	1.8	1.1	1.5	1.5	1.2
Fixed investment	23.4	24.1	24.3	24.4	23.9	23.1	22.4	21.6	24.2	22.6	23.7	23.5
Q/q %, SAAR	12.5	13.2	3.6	1.0	-8.0	-12.0	-12.3	-13.8				
Y/y %	3.9	10.5	11.7	7.5	2.0	-4.4	-8.1	-11.6	8.7	-6.4	9.2	-0.8
Change in inventories	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Net exports of goods and services	-8.1	-10.0	-11.3	-11.4	-11.0	-10.9	-10.8	-10.8	-10.2	-10.9	-9.4	-11.0
Exports of goods and services	71.9	68.3	66.9	67.3	68.1	68.9	70.1	71.4	68.6	69.6	69.7	68.6
Q/q %, SAAR	1.2	-18.8	-7.8	2.4	4.5	5.1	7.0	7.4				
Y/y %	5.6	-7.7	-4.1	-6.2	-5.5	1.0	4.7	6.0	-3.3	1.5	-2.2	-1.6
Imports of goods and services	80.1	78.2	78.2	78.7	79.1	79.8	80.9	82.1	78.8	80.5	79.1	79.6
Q/q %, SAAR	2.2	-8.7	-0.0	2.4	2.0	3.7	5.3	6.4				
Y/y %	7.2	1.1	1.2	-1.3	-1.2	2.1	3.3	4.4	2.0	2.1	4.7	0.7

Source: Compiled by DIR.
Note: Y/y growth rates and FY and CY figures unadjusted; other seasonally adjusted.
E: DIR estimate.

4.1 Gross Domestic Expenditure, Implicit Deflators (2005=100)

	2010			2011				2012	FY		CY	
	4-6	7-9	10-12	1-3	4-6	7-9	10-12	1-3	2010	2011	2010	2011
Gross domestic expenditure	94.5	93.8	93.4	93.0	92.2	91.9	91.7	91.7	93.7	91.9	94.1	92.2
Q/q %, SAAR	-0.5	-0.7	-0.5	-0.4	-0.9	-0.2	-0.3	0.1				
Y/y %	-2.2	-2.1	-2.0	-2.0	-2.4	-2.1	-1.8	-1.3	-2.1	-1.9	-2.2	-2.1
Private final consumption	95.6	94.8	94.4	94.5	94.2	94.1	93.7	94.0	94.8	94.0	95.1	94.1
Q/q %, SAAR	-0.2	-0.8	-0.4	0.1	-0.3	-0.1	-0.4	0.3				
Y/y %	-1.5	-1.9	-1.5	-1.3	-1.4	-0.9	-0.7	-0.5	-1.6	-0.9	-1.7	-1.1
Private residential investment	103.0	103.1	103.3	103.6	104.0	104.0	103.6	103.5	103.3	103.8	103.1	103.8
Q/q %, SAAR	-0.1	0.1	0.1	0.4	0.3	0.0	-0.3	-0.2				
Y/y %	-0.6	0.3	0.5	0.6	1.0	0.8	0.3	-0.1	0.2	0.5	-0.5	0.7
Private non-residential investment	96.2	95.6	95.0	94.9	94.7	94.5	94.3	94.5	95.4	94.5	95.9	94.6
Q/q %, SAAR	-0.7	-0.6	-0.6	-0.2	-0.2	-0.1	-0.3	0.2				
Y/y %	-1.7	-1.6	-1.8	-2.0	-1.6	-1.1	-0.8	-0.4	-1.8	-0.9	-1.8	-1.4
Government final consumption	97.8	97.7	96.9	97.5	97.3	97.3	96.8	97.0	97.4	97.1	97.6	97.1
Q/q %, SAAR	-0.7	-0.1	-0.8	0.6	-0.2	-0.1	-0.4	0.2				
Y/y %	-0.6	-0.1	-1.7	-0.6	-0.6	-0.3	-0.4	-0.2	-0.8	-0.4	-0.6	-0.5
Public fixed investment	103.2	102.8	103.0	103.3	104.1	104.0	104.0	103.7	103.1	103.9	103.0	103.8
Q/q %, SAAR	-0.1	-0.4	0.2	0.3	0.8	-0.1	-0.1	-0.2				
Y/y %	-0.5	-0.2	-0.0	0.2	0.8	1.1	1.0	0.5	-0.1	0.8	-0.6	0.7
Exports of goods and services	89.9	87.4	87.7	87.8	87.0	86.5	85.4	84.9	88.2	85.9	88.8	86.6
Q/q %, SAAR	-0.9	-2.8	0.4	0.1	-1.0	-0.6	-1.2	-0.6				
Y/y %	-0.1	-3.5	-3.4	-3.0	-3.0	-1.4	-2.7	-3.0	-2.5	-2.6	-1.6	-2.5
Imports of goods and services	104.4	101.6	102.4	107.0	109.8	109.6	108.7	109.4	103.9	109.4	103.1	108.7
Q/q %, SAAR	-0.1	-2.7	0.8	4.5	2.6	-0.2	-0.8	0.6				
Y/y %	7.7	0.7	0.6	3.0	5.4	7.6	5.9	2.6	2.9	5.3	4.4	5.5

Source: Compiled by DIR.
Note: Y/y growth rates and FY and CY figures unadjusted; other seasonally adjusted.

4.2 Gross Domestic Expenditure, Implicit Deflators (2005=100)

	2012		2013					2014	FY		CY	
	4-6	7-9	10-12 (E)	1-3 (E)	4-6 (E)	7-9 (E)	10-12 (E)	1-3 (E)	2012 (E)	2013 (E)	2012 (E)	2013 (E)
Gross domestic expenditure	91.4	91.4	91.2	91.1	91.0	90.9	90.9	90.9	91.2	90.9	91.4	90.9
Q/q %, SAAR	-0.4	-0.0	-0.1	-0.2	-0.2	-0.1	-0.0	-0.0				
Y/y %	-0.9	-0.7	-0.5	-0.8	-0.4	-0.5	-0.4	-0.2	-0.7	-0.4	-0.8	-0.5
Private final consumption	93.6	93.3	93.0	92.7	92.4	92.4	92.2	92.1	93.1	92.3	93.4	92.4
Q/q %, SAAR	-0.4	-0.4	-0.3	-0.3	-0.3	-0.1	-0.1	-0.1				
Y/y %	-0.7	-1.0	-0.8	-1.4	-1.2	-0.9	-0.8	-0.6	-0.9	-0.9	-0.7	-1.1
Private residential investment	103.2	102.9	102.8	102.8	102.8	102.9	103.0	103.2	102.9	103.0	103.1	102.9
Q/q %, SAAR	-0.2	-0.3	-0.1	0.0	0.0	0.1	0.1	0.2				
Y/y %	-0.7	-1.1	-0.8	-0.7	-0.4	0.1	0.2	0.4	-0.8	0.1	-0.7	-0.2
Private non-residential investment	94.6	94.1	94.0	94.0	94.0	94.0	94.1	94.2	94.1	94.1	94.3	94.0
Q/q %, SAAR	0.1	-0.5	-0.1	-0.0	0.0	0.1	0.1	0.1				
Y/y %	-0.1	-0.5	-0.3	-0.6	-0.6	-0.0	0.1	0.2	-0.4	-0.1	-0.3	-0.3
Government final consumption	96.2	96.1	96.2	96.3	96.5	96.6	96.8	97.0	96.2	96.7	96.4	96.5
Q/q %, SAAR	-0.8	-0.0	0.1	0.1	0.2	0.1	0.2	0.2				
Y/y %	-1.3	-1.1	-0.4	-0.8	0.4	0.5	0.5	0.8	-0.9	0.5	-0.7	0.1
Public fixed investment	104.1	103.3	103.4	103.6	103.8	104.1	104.4	104.7	103.5	104.2	103.6	103.9
Q/q %, SAAR	0.3	-0.8	0.2	0.2	0.2	0.3	0.2	0.3				
Y/y %	-0.1	-0.8	-0.5	-0.1	-0.2	0.8	0.9	1.0	-0.4	0.7	-0.2	0.4
Exports of goods and services	84.1	84.1	84.1	84.1	84.3	84.6	85.0	85.5	84.1	84.8	84.3	84.5
Q/q %, SAAR	-1.0	-0.0	0.0	0.1	0.2	0.4	0.5	0.5				
Y/y %	-3.3	-2.9	-1.6	-1.1	0.3	0.7	1.1	1.6	-2.2	0.9	-2.6	0.2
Imports of goods and services	108.0	106.0	106.1	106.3	106.5	106.8	107.1	107.5	106.6	107.0	107.4	106.7
Q/q %, SAAR	-1.2	-1.9	0.1	0.2	0.2	0.3	0.3	0.4				
Y/y %	-1.6	-3.4	-2.3	-3.0	-1.4	0.9	0.9	1.3	-2.6	0.4	-1.2	-0.7

Source: Compiled by DIR.
Note: Y/y growth rates and FY and CY figures unadjusted; other seasonally adjusted.
E: DIR estimate.

5.1 Contribution to Real GDP Growth by Component

	2010			2011				2012	FY		CY	
	4-6	7-9	10-12	1-3	4-6	7-9	10-12	1-3	2010	2011	2010	2011
1) Q/q %												
GDP growth rate	1.2	1.1	-0.3	-2.1	-0.5	2.3	-0.3	1.3	3.3	-0.0	4.5	-0.7
Domestic demand	1.1	1.1	-0.1	-1.8	0.4	1.5	0.5	1.1	2.5	1.0	2.8	0.1
Private demand	1.1	1.1	-0.1	-1.7	-0.1	1.6	0.5	0.7	2.3	0.5	2.3	-0.1
Private consumption	0.1	0.5	0.0	-0.9	0.2	1.0	0.3	0.7	0.9	0.7	1.6	0.1
Residential investment	0.0	-0.0	0.1	0.1	-0.1	0.1	-0.0	-0.0	0.1	0.1	-0.1	0.2
Private fixed investment	0.5	0.2	-0.2	-0.0	-0.2	0.2	0.6	-0.3	0.5	0.1	0.1	0.2
Change in private inventories	0.5	0.4	-0.0	-0.8	-0.1	0.3	-0.4	0.3	0.8	-0.5	0.8	-0.5
Public demand	0.0	0.1	0.0	-0.1	0.5	-0.0	0.0	0.4	0.2	0.5	0.5	0.2
Government final consumption	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.5	0.4	0.4	0.4
Public fixed investment	-0.3	0.0	-0.1	-0.2	0.3	-0.1	-0.0	0.2	-0.3	0.1	0.0	-0.2
Change in public inventories	-0.0	-0.0	0.0	-0.0	0.0	0.0	-0.0	-0.0	-0.0	0.0	-0.0	0.0
Net exports of goods and services	0.1	0.0	-0.2	-0.3	-0.9	0.8	-0.8	0.1	0.8	-1.0	1.7	-0.9
Exports of goods and services	0.8	0.3	-0.1	-0.1	-0.9	1.3	-0.7	0.5	2.3	-0.2	3.1	-0.0
Imports of goods and services	-0.7	-0.3	-0.1	-0.2	0.0	-0.5	-0.1	-0.4	-1.5	-0.8	-1.4	-0.9
2) Y/y %												
GDP growth rate	4.5	5.6	3.2	-0.0	-1.8	-0.6	-0.7	2.9	3.3	-0.0	4.5	-0.7
Domestic demand	2.8	4.4	2.8	0.3	-0.4	0.1	0.6	3.7	2.5	1.0	2.8	0.1
Private demand	2.2	4.0	2.8	0.5	-0.8	-0.3	0.2	2.8	2.3	0.5	2.3	-0.1
Private consumption	1.4	1.7	0.9	-0.3	-0.2	0.3	0.5	2.2	0.9	0.7	1.6	0.1
Residential investment	-0.2	0.0	0.2	0.2	0.1	0.2	0.1	-0.0	0.1	0.1	-0.1	0.2
Private fixed investment	0.4	0.7	0.4	0.5	-0.2	-0.3	0.6	0.4	0.5	0.1	0.1	0.2
Change in private inventories	0.7	1.5	1.1	0.1	-0.6	-0.5	-0.9	0.1	0.8	-0.5	0.8	-0.5
Public demand	0.5	0.4	0.0	-0.2	0.5	0.4	0.3	1.0	0.2	0.5	0.5	0.2
Government final consumption	0.6	0.4	0.4	0.5	0.4	0.3	0.3	0.5	0.5	0.4	0.4	0.4
Public fixed investment	-0.1	0.0	-0.4	-0.7	0.1	-0.0	-0.0	0.5	-0.3	0.1	0.0	-0.2
Change in public inventories	-0.0	-0.0	-0.0	-0.0	0.0	0.1	0.0	0.0	-0.0	0.0	-0.0	0.0
Net exports of goods and services	1.8	1.3	0.5	-0.3	-1.4	-0.6	-1.2	-0.9	0.8	-1.0	1.7	-0.9
Exports of goods and services	3.7	2.9	1.9	1.0	-0.8	0.2	-0.4	0.2	2.3	-0.2	3.1	-0.0
Imports of goods and services	-1.9	-1.6	-1.4	-1.3	-0.6	-0.8	-0.8	-1.1	-1.5	-0.8	-1.4	-0.9

Source: Compiled by DIR.
Note: Q/q growth rates seasonally adjusted; y/y growth rates and FY and CY figures unadjusted.

5.2 Contribution to Real GDP Growth by Component

	2012 4-6	7-9	10-12 (E)	2013 1-3 (E)	4-6 (E)	7-9 (E)	10-12 (E)	2014 1-3 (E)	FY 2012 (E)	FY 2013 (E)	CY 2012 (E)	CY 2013 (E)
1) Q/q %												
GDP growth rate	0.1	-0.9	-0.2	0.4	0.2	0.0	0.7	1.2	0.7	0.9	1.6	0.1
Domestic demand	0.2	-0.2	0.1	0.4	0.1	-0.1	0.6	1.2	1.6	0.9	2.5	0.6
Private demand	-0.1	-0.4	-0.0	0.3	0.2	0.1	0.7	1.4	0.8	1.1	1.6	-0.5
Private consumption	-0.1	-0.3	-0.3	0.1	0.1	0.0	0.5	1.2	0.5	0.5	1.2	-0.1
Residential investment	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.2	0.1	0.2
Private fixed investment	0.1	-0.4	0.0	0.1	0.0	0.1	0.1	0.1	-0.0	0.2	0.2	0.0
Change in private inventories	-0.2	0.2	0.2	0.1	0.1	-0.1	-0.0	-0.0	0.2	0.3	0.1	-0.6
Public demand	0.2	0.3	0.1	0.0	-0.1	-0.1	-0.1	-0.1	0.8	-0.1	0.9	1.2
Government final consumption	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.4	0.2	0.5	0.2
Public fixed investment	0.1	0.2	0.0	0.0	-0.1	-0.2	-0.2	-0.2	0.4	-0.3	0.4	-0.1
Change in public inventories	0.0	0.0	-0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.0	0.0	1.0
Net exports of goods and services	-0.1	-0.7	-0.3	0.0	0.1	0.0	0.0	-0.0	-0.8	-0.2	-0.9	-0.5
Exports of goods and services	0.2	-0.8	-0.3	0.1	0.1	0.1	0.2	0.2	-0.2	0.1	0.1	-0.3
Imports of goods and services	-0.3	0.1	0.0	-0.1	-0.1	-0.1	-0.2	-0.2	-0.6	-0.2	-1.0	-0.2
2) Y/y %												
GDP growth rate	3.3	0.1	0.2	-0.7	-0.5	0.4	1.3	2.2	0.7	0.9	1.6	0.1
Domestic demand	3.4	1.6	1.3	0.5	0.4	0.5	1.0	1.8	1.6	0.9	2.5	0.6
Private demand	2.7	0.7	0.2	-0.2	0.1	0.6	1.3	2.4	0.8	1.1	1.6	-0.5
Private consumption	2.0	0.7	0.1	-0.5	-0.4	-0.1	0.7	1.8	0.5	0.5	1.2	-0.1
Residential investment	0.1	0.0	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.2	0.1	0.2
Private fixed investment	0.7	0.1	-0.5	-0.2	-0.3	0.2	0.3	0.4	-0.0	0.2	0.2	0.0
Change in private inventories	-0.1	-0.1	0.5	0.4	0.7	0.3	0.1	-0.0	0.2	0.3	0.1	-0.6
Public demand	0.6	0.9	1.1	0.7	0.3	-0.1	-0.3	-0.6	0.8	-0.1	0.9	1.2
Government final consumption	0.5	0.4	0.4	0.3	0.2	0.2	0.2	0.2	0.4	0.2	0.5	0.2
Public fixed investment	0.2	0.5	0.6	0.4	0.1	-0.2	-0.5	-0.8	0.4	-0.3	0.4	-0.1
Change in public inventories	0.0	0.0	0.0	0.0	0.0	-0.0	-0.0	-0.0	0.0	-0.0	0.0	1.0
Net exports of goods and services	-0.1	-1.6	-1.0	-1.1	-0.9	-0.2	0.1	0.1	-0.8	-0.2	-0.9	-0.5
Exports of goods and services	1.4	-0.8	-0.4	-0.8	-0.9	0.0	0.5	0.6	-0.2	0.1	0.1	-0.3
Imports of goods and services	-1.4	-0.8	-0.6	-0.3	-0.0	-0.2	-0.4	-0.5	-0.6	-0.2	-1.0	-0.2

Source: Compiled by DIR.
Note: Q/q growth rates seasonally adjusted; y/y growth rates and FY and CY figures unadjusted.
E: DIR estimate.

6.1 Major Assumptions

	2010			2011				2012	FY		CY	
	4-6	7-9	10-12	1-3	4-6	7-9	10-12	1-3	2010	2011	2010	2011
1) World economy												
Economic growth of major trading partners												
Y/y %	6.6	5.5	5.0	4.7	3.8	3.8	2.8	2.9	5.5	3.4	6.0	3.8
Crude oil price (WTI futures; $/bbl)	78.1	76.2	85.2	94.6	102.3	89.5	94.1	103.0	83.5	97.2	79.6	95.1
Y/y %	30.6	11.7	12.0	19.9	31.1	17.5	10.3	8.9	18.0	16.4	28.2	19.5
2) US economy												
Real GDP (chained [2005]; $ bil; SAAR)	13,020	13,104	13,181	13,184	13,265	13,307	13,441	13,506	13,122	13,380	13,063	13,299
Q/q %, SAAR	2.2	2.6	2.4	0.1	2.5	1.3	4.1	2.0				
Y/y %	2.5	2.8	2.4	1.8	1.9	1.6	2.0	2.4	2.4	2.0	2.4	1.8
Consumer Price Index												
(1982-84 avg=100)	217.3	218.0	219.6	222.1	224.5	226.2	227.0	228.3	219.2	226.5	218.1	224.9
Q/q %, SAAR	-0.3	1.4	3.0	4.5	4.4	3.1	1.3	2.5				
Y/y %	1.8	1.2	1.3	2.1	3.4	3.8	3.3	2.8	1.6	3.3	1.6	3.2
Producer Price Index												
(Finished goods; 1982=100)	178.5	179.7	183.0	187.5	190.3	192.3	193.1	194.0	181.9	192.1	179.8	190.5
Q/q %, SAAR	-0.7	2.6	7.6	10.2	6.0	4.2	1.7	1.9				
Y/y %	4.4	3.8	3.8	4.9	6.9	6.9	5.4	3.4	4.2	5.6	4.2	6.0
FF rate (%)	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
(Target rate for the forecast period, end-period)												
Government bond yield (10 year; %)	3.49	2.79	2.86	3.46	3.21	2.43	2.05	2.04	3.15	2.43	3.21	2.79
3) Japanese economy												
Nominal government final consumption												
Y tril; SAAR	95.5	95.9	95.4	96.3	96.7	97.0	96.9	98.1	95.8	97.2	95.3	96.7
Q/q %, SAAR	3.7	1.4	-1.8	3.8	1.6	1.2	-0.5	5.1				
Y/y %	2.3	2.0	0.3	2.1	1.2	1.4	1.2	2.1	1.6	1.5	1.6	1.4
Nominal public fixed investment												
Y tril; SAAR	22.0	21.9	21.5	20.7	22.6	22.0	21.8	22.7	21.4	22.2	22.3	21.7
Q/q %, SAAR	-22.7	-1.1	-7.1	-14.1	40.2	-10.2	-2.2	16.7				
Y/y %	-2.3	-0.0	-6.7	-12.0	2.8	1.1	0.8	9.3	-6.1	3.7	0.3	-2.8
Exchange rate (Y/$)	92.0	85.8	82.5	82.3	81.7	77.8	77.3	79.3	85.7	79.0	87.8	79.8
(Y/€)	114.8	111.5	110.4	113.8	118.3	108.7	104.9	106.3	112.6	109.6	115.1	111.4
Call rate (end-period; %)	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10

Source: Compiled by DIR.
Note: Consumption tax hike in April 2014 assumed for Japan.

6.2 Major Assumptions

	2012			2013				2014	FY		CY	
	4-6	7-9	10-12 (E)	1-3 (E)	4-6 (E)	7-9 (E)	10-12 (E)	1-3 (E)	2012 (E)	2013 (E)	2012 (E)	2013 (E)
1) World economy												
Economic growth of major trading partners												
Y/y %	2.7	2.7	3.3	3.0	3.2	3.4	3.6	3.7	3.0	3.4	3.0	3.2
Crude oil price (WTI futures; $/bbl)	93.4	92.2	95.0	95.0	95.0	95.0	95.0	95.0	93.9	95.0	95.9	95.0
Y/y %	-8.8	3.0	1.0	-7.8	1.8	3.0	0.0	0.0	-3.4	1.2	0.8	-0.9
2) US economy												
Real GDP (chained [2005]; $ bil; SAAR)	13,549	13,616	13,665	13,715	13,783	13,856	13,937	14,021	13,636	13,899	13,584	13,823
Q/q %, SAAR	1.3	2.0	1.5	1.4	2.0	2.2	2.3	2.4				
Y/y %	2.1	2.3	1.7	1.5	1.7	1.8	2.0	2.2	1.9	1.9	2.1	1.8
Consumer Price Index												
(1982-84 avg=100)	228.8	230.1	231.2	232.3	233.5	234.8	236.1	237.4	230.6	235.4	229.6	234.1
Q/q %, SAAR	0.8	2.3	1.9	2.0	2.0	2.3	2.2	2.3				
Y/y %	1.9	1.7	1.9	1.7	2.1	2.0	2.1	2.2	1.8	2.1	2.1	2.0
Producer Price Index												
(Finished goods; 1982=100)	192.4	195.3	196.0	197.0	198.0	199.2	200.5	202.0	194.9	199.6	194.1	198.4
Q/q %, SAAR	-3.4	6.2	1.6	2.0	2.1	2.4	2.6	3.1				
Y/y %	1.1	1.5	1.5	1.5	3.0	2.0	2.3	2.5	1.4	2.4	1.9	2.2
FF rate (%)	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
(Target rate for the forecast period, end-period)												
Government bond yield (10 year; %)	1.82	2.30	1.72	1.84	1.97	2.10	2.32	2.43	1.76	2.21	1.81	2.06
3) Japanese economy												
Nominal government final consumption												
Y tril; SAAR	97.7	98.0	98.3	98.6	99.0	99.4	99.9	100.3	98.2	99.7	98.1	99.3
Q/q %, SAAR	-1.4	1.3	1.2	1.2	1.4	1.8	2.0	1.6				
Y/y %	1.0	1.1	1.7	0.4	1.3	1.4	1.5	1.8	1.1	1.5	1.5	1.2
Nominal public fixed investment												
Y tril; SAAR	23.4	24.1	24.3	24.4	23.9	23.1	22.4	21.6	24.2	22.6	23.7	23.5
Q/q %, SAAR	12.5	13.2	3.6	1.0	-8.0	-12.0	-12.3	-13.8				
Y/y %	3.9	10.5	11.7	7.5	2.0	-4.4	-8.1	-11.6	8.7	-6.4	9.2	-0.8
Exchange rate (Y/$)	80.1	78.6	80.0	80.0	80.0	80.0	80.0	80.0	79.7	80.0	79.5	80.0
(Y/€)	101.2	98.2	100.0	100.0	100.0	100.0	100.0	100.0	99.8	100.0	101.4	100.0
Call rate (end-period; %)	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10

Source: Compiled by DIR.
Note: Consumption tax hike in April 2014 assumed for Japan.
E: DIR estimate.