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Japan's Medium-term Economic Outlook
—*February 2013*—

Ability of Japan's economy to ramp up growth capacity to be tested

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Summary

- We have revised our July 2012 medium-term outlook for Japan's economy. The biggest change in the past half year has been the debut of the Abe administration which is promoting a so-called "Abenomics" agenda, consisting of such policies as bold monetary easing, flexible fiscal expenditures, and growth strategies. Whether these policies will prove effective, however, will greatly depend on the direction of the world economy. For our current outlook, we assumed a more conservative view of the world economy. As a result, we now forecast that Japan's economy will increase 1.5% (real) and 2.1% (nominal) over the next 10 years (annualized average rates).

- While the Bank of Japan (BOJ) has adopted a "price stability target", this does not necessarily mean a change in its monetary policy framework. Since the price stability target is not the ultimate goal, the key issue will be how the government and the BOJ will work together to achieve it. If structural factors relating to deflation are examined in terms of unit labor cost, to put an end to deflation it will be essential that companies strengthen their profit foundations in the context of easy monetary policy and that a safety net enabling the smooth rehabilitation of companies and the reemployment of workers is established. The yen depreciating against the dollar does little in the short term to increase prices. Even if depreciation continues over the long term, a good amount of time will be needed before prices start to rise. What should be done is to view a weaker yen as an opportunity for revising regulations and promoting institutional reform. In the process, medium- to long-term growth capacity rather than the short-term growth rate should be emphasized.

- Higher energy prices, such as for electricity, will risk becoming a major impediment for the growth of Japan's economy if they are left unaddressed. However, the government designing appropriate energy policies using the price mechanism can be expected to provide corporate incentives to link the issue of energy efficiency and diversification with economic growth.

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Forecast Tables

Medium-term Outlook for Japan's Economy (as of Feb 2013)

	Actual		DIR estimates		
	FY2003-07	FY2008-12	FY2013-22	FY2013-17	FY2018-22
Real GDP (y/y %)	1.4	-0.3	1.5	1.5	1.4
Private final consumption	0.9	0.7	0.8	0.8	0.7
Private capital investment	3.6	-2.4	3.7	4.2	3.2
Private housing investment	-2.9	-2.5	-1.8	-2.3	-1.2
Public fixed capital formation	-6.0	1.1	0.0	-1.8	1.8
Government final consumption	0.6	1.9	1.7	1.7	1.7
Export of goods and services	7.5	-1.7	4.9	4.9	4.9
Import of goods and services	3.7	1.6	3.6	3.3	3.8
Nominal GDP (y/y %)	0.3	-1.4	2.1	2.0	2.2
GDP deflator (y/y %)	-1.4	-1.4	0.7	0.6	0.8
Corporate Goods Price Index (y/y %)	0.6	0.4	1.2	1.1	1.3
Consumer Price Index (y/y %)	-0.2	-0.2	1.3	1.2	1.3
O/N call rate (%)	0.1	0.1	0.0	0.0	0.0
Yield on 10-yr JGBs (%)	1.5	1.2	1.9	1.6	2.1
Exchange rate (Y/$)	113.0	88.0	80.2	80.7	79.6
Current balance (% of nominal GDP)	4.0	2.2	1.3	1.2	1.4
Nominal employee compensation (y/y %)	-0.8	-0.8	1.1	0.5	1.7
Unemployment rate (%)	4.4	4.6	3.3	3.7	3.0
Labor's share (ratio of employee compensation to national income)	67.9	70.1	65.4	66.2	64.7
Central & local government balance (% of nominal GDP)					
Fiscal balance	-4.6	-7.8	-5.8	-6.5	-5.2
Primary balance	-3.0	-6.0	-4.1	-4.8	-3.5
Central & local government debt (% of nominal GDP)	177.1	213.5	240.3	239.0	241.4

Source: Compiled by DIR.
Notes: 1) Period avg.
2) Some FY11 and FY12 figures: DIR estimates.
3) Fiscal balance: excl. ad-hoc factors.

Main Economic Indicators

(FY)	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Nominal GDP (Y tril)	513.0	489.5	473.9	480.1	473.3	476.1	483.7	497.1	510.2	523.5	533.4	544.5	556.0	569.1	583.1	599.0
(Y/y %)	0.8	-4.6	-3.2	1.3	-1.4	0.6	1.6	2.8	2.6	2.6	1.9	2.1	2.1	2.3	2.5	2.7
Nominal GNI (Y tril)	530.8	504.8	487.0	493.4	488.1	490.2	498.6	513.2	527.0	540.7	550.9	562.1	574.3	587.4	601.4	617.3
(Y/y %)	1.2	-4.9	-3.5	1.3	-1.1	0.4	1.7	2.9	2.7	2.6	1.9	2.0	2.2	2.3	2.4	2.6
Real GDP (chained [2005]; Y tril)	525.5	505.8	495.6	512.3	513.7	518.7	529.5	535.1	544.9	553.0	560.2	568.0	575.6	583.9	592.1	601.4
(Y/y %)	1.8	-3.7	-2.0	3.4	0.3	1.0	2.1	1.1	1.8	1.5	1.3	1.4	1.3	1.4	1.4	1.6
Domestic demand (contribution to real GDP growth; % pt)	0.6	-2.7	-2.2	2.6	1.3	2.4	2.3	-0.1	1.8	1.5	1.4	1.5	1.2	1.2	1.2	1.4
Foreign demand (contribution to real GDP growth; % pt)	1.2	-1.1	0.2	0.8	-1.0	-1.5	-0.2	1.1	0.1	-0.1	-0.1	-0.1	0.1	0.2	0.2	0.1
Per capita real GDP (chained [2005]; Y mil)	4.1	4.0	3.9	4.0	4.0	4.1	4.2	4.2	4.3	4.4	4.4	4.5	4.6	4.7	4.8	4.9
(Y/y %)	1.8	-3.7	-1.9	2.9	0.5	1.2	2.2	1.2	2.0	1.7	1.6	1.7	1.7	1.8	1.8	2.0
Real GDI (chained [2005]; Y tril)	514.4	491.8	488.4	500.0	495.2	501.4	511.7	516.0	524.0	530.7	536.2	542.5	548.7	555.7	562.6	570.6
(Y/y %)	0.8	-4.4	-0.7	2.4	-1.0	1.3	2.0	0.8	1.6	1.3	1.0	1.2	1.2	1.3	1.3	1.4
Index of Industrial Production (2005 = 100)	108.1	94.4	86.1	94.1	93.2	93.9	96.8	97.8	100.3	102.2	103.6	105.4	107.0	108.9	110.7	113.0
(Y/y %)	2.7	-12.6	-8.8	9.4	-1.0	0.8	3.1	0.9	2.6	1.9	1.4	1.7	1.5	1.8	1.7	2.1
Corporate Goods Price Index (2010 = 100)	102.0	105.2	99.8	100.2	101.6	100.9	101.4	104.3	105.5	107.4	108.6	109.9	111.4	112.9	114.5	116.2
(Y/y %)	2.3	3.2	-5.1	0.4	1.3	-0.6	0.5	2.8	1.2	1.8	1.1	1.3	1.3	1.4	1.5	1.4
Consumer Price Index (2010 = 100)	101.0	102.1	100.4	99.9	99.8	99.7	99.9	102.6	104.3	106.2	107.5	108.8	110.2	111.7	113.3	115.0
(Y/y %)	0.4	1.1	-1.7	-0.4	-0.1	-0.2	0.1	2.8	1.6	1.8	1.2	1.2	1.3	1.4	1.4	1.5
O/N call rate (%)	0.5	0.4	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yield on 10-yr JGBs (%)	1.6	1.5	1.4	1.1	1.0	0.8	1.0	1.2	1.8	2.0	2.0	2.0	2.1	2.2	2.2	2.2
Y/$	114	100	93	86	79	82	85	81	78	79	80	80	80	80	80	78
Y/EUR	162	143	131	113	109	113	117	110	105	105	106	105	105	104	103	101
Current balance (Y tril)	24.5	12.3	15.8	16.1	7.1	1.8	1.7	7.4	7.8	7.3	6.7	6.1	6.9	7.8	8.9	9.8
(% of nominal GDP)	4.8	2.5	3.3	3.4	1.5	0.4	0.3	1.5	1.5	1.4	1.2	1.1	1.2	1.4	1.5	1.6
Labor force (0000)	6,686	6,674	6,643	6,630	6,578	6,547	6,517	6,487	6,467	6,452	6,422	6,391	6,360	6,333	6,310	6,288
(Y/y %)	0.2	-0.2	-0.5	-0.2	-0.8	-0.5	-0.5	-0.5	-0.3	-0.2	-0.5	-0.5	-0.5	-0.4	-0.4	-0.3
No. employed (0000)	6,431	6,399	6,301	6,301	6,280	6,262	6,252	6,237	6,231	6,227	6,207	6,186	6,164	6,145	6,129	6,114
(Y/y %)	0.5	-0.5	-1.5	0.0	-0.3	-0.3	-0.2	-0.2	-0.1	-0.1	-0.3	-0.3	-0.4	-0.3	-0.3	-0.2
No. of employees (0000)	5,539	5,544	5,488	5,508	5,501	5,509	5,516	5,519	5,529	5,542	5,539	5,535	5,530	5,528	5,528	5,529
(Y/y %)	0.8	0.1	-1.0	0.4	-0.1	0.1	0.1	0.1	0.2	0.2	0.0	-0.1	-0.1	0.0	0.0	0.0
No. unemployed (0000)	255	275	343	328	298	285	265	250	236	225	215	205	196	188	181	174
Unemployment rate (%)	3.8	4.1	5.2	5.0	4.5	4.3	4.1	3.9	3.7	3.5	3.3	3.2	3.1	3.0	2.9	2.8
Nominal employee compensation (Y tril)	256	254	243	244	245	241	240	243	247	252	256	260	264	269	274	281
(Y/y %)	0.0	-0.5	-4.4	0.4	0.6	-1.9	-0.2	1.0	1.9	1.9	1.6	1.4	1.6	1.9	2.1	2.4
Nominal household disposable income (Y tril)	291	288	288	287	286	282	280	285	291	297	303	307	311	317	323	329
(Y/y %)	-0.4	-0.9	-0.2	-0.2	-0.3	-1.4	-0.7	1.5	2.3	2.1	1.9	1.4	1.4	1.9	1.8	1.7
Labor's share (%)	67.1	71.6	70.6	69.2	70.7	68.5	66.8	66.4	66.0	66.0	65.7	65.2	64.8	64.6	64.5	64.3
Household savings rate (%)	0.3	1.5	2.6	2.4	1.3	-0.6	-2.0	-2.9	-3.0	-3.3	-3.2	-3.4	-3.5	-3.3	-3.4	-3.7
Central & local government																
Fiscal balance (Y tril)	-12.5	-21.8	-44.1	-40.0	-38.4	-41.3	-41.6	-33.7	-32.0	-29.0	-28.7	-29.0	-29.1	-29.5	-29.5	-29.9
(% of nominal GDP)	-2.4	-4.5	-9.3	-8.3	-8.1	-8.7	-8.6	-6.8	-6.3	-5.5	-5.4	-5.3	-5.2	-5.2	-5.1	-5.0
Primary balance (% of nominal GDP)	-1.1	-2.9	-7.6	-6.6	-6.3	-6.9	-6.9	-5.1	-4.7	-3.9	-3.8	-3.7	-3.6	-3.5	-3.3	-3.2
Central & local government debt (Y tril)	929	933	979	1,025	1,065	1,108	1,151	1,186	1,220	1,251	1,282	1,313	1,345	1,377	1,409	1,441
(% of nominal GDP)	181.2	190.7	206.6	213.5	224.9	232.6	237.9	238.6	239.1	239.0	240.3	241.2	241.8	241.9	241.6	240.6

Source: Compiled by DIR.
Notes: 1) Through FY11: actual; some FY11 figures: DIR estimates.
2) Fiscal balance: excl. ad-hoc factors.

Nominal Gross Domestic Expenditure (Y tril)

(FY)	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Nominal GDP	513.0	489.5	473.9	480.1	473.3	476.1	483.7	497.1	510.2	523.5	533.4	544.5	556.0	569.1	583.1	599.0
(Y/y %)	0.8	-4.6	-3.2	1.3	-1.4	0.6	1.6	2.8	2.6	2.6	1.9	2.1	2.1	2.3	2.5	2.7
Domestic demand	505.0	491.1	469.6	475.8	479.6	487.7	496.3	504.7	518.2	532.4	543.3	555.0	566.4	578.6	591.4	606.4
(Y/y %)	0.6	-2.7	-4.4	1.3	0.8	1.7	1.8	1.7	2.7	2.7	2.0	2.2	2.0	2.2	2.2	2.5
Private final consumption	294.7	288.1	284.2	284.7	287.3	288.6	290.7	297.5	304.8	312.3	317.6	322.7	327.8	333.5	339.6	346.5
(Y/y %)	0.5	-2.2	-1.4	0.2	0.9	0.5	0.7	2.3	2.5	2.4	1.7	1.6	1.6	1.7	1.8	2.0
Private housing investment	16.4	16.5	12.6	12.9	13.5	14.2	14.6	14.5	14.1	13.8	13.6	13.6	13.5	13.6	13.6	13.6
(Y/y %)	-12.9	1.1	-23.5	2.3	4.2	5.3	2.7	-0.6	-2.7	-2.0	-1.4	-0.5	-0.1	0.4	0.1	0.0
Private capital investment	76.8	71.0	60.7	61.9	63.8	63.6	65.9	68.7	71.4	74.8	78.0	81.6	84.7	87.8	91.1	94.9
(Y/y %)	2.9	-7.6	-14.5	1.9	3.1	-0.4	3.7	4.2	4.0	4.8	4.3	4.6	3.8	3.6	3.8	4.2
Change in private inventories	1.7	1.3	-5.0	-0.5	-2.8	-1.1	-0.8	0.1	-0.2	1.3	1.0	0.9	1.2	1.2	1.6	1.8
Government final consumption	93.3	92.9	94.2	95.6	96.8	99.2	100.3	102.4	105.9	107.9	110.0	112.7	114.7	117.3	119.4	122.6
(Y/y %)	1.4	-0.4	1.4	1.4	1.3	2.5	1.1	2.2	3.4	1.8	2.0	2.4	1.8	2.3	1.7	2.7
Public fixed capital formation	22.1	21.2	22.8	21.3	21.0	23.1	25.6	21.5	22.0	22.2	22.9	23.5	24.3	25.1	26.0	27.0
(Y/y %)	-3.0	-4.0	7.7	-6.5	-1.6	10.1	10.6	-16.0	2.3	1.1	2.8	2.8	3.2	3.4	3.7	3.6
Change in public inventories	0.1	0.1	0.0	-0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Export of goods and services	92.4	78.6	64.5	73.8	70.9	70.3	73.5	76.5	79.2	82.6	87.5	92.2	96.5	101.0	106.1	111.6
(Y/y %)	10.0	-15.0	-17.9	14.4	-3.9	-0.8	4.4	4.1	3.5	4.3	6.0	5.4	4.6	4.7	5.1	5.2
Import of goods and services	84.4	80.2	60.2	69.5	77.3	81.9	86.1	84.1	87.2	91.4	97.3	102.8	106.8	110.6	114.4	119.0
(Y/y %)	9.7	-4.9	-25.0	15.5	11.2	6.0	5.0	-2.2	3.6	4.8	6.4	5.6	4.0	3.5	3.5	4.0

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

(FY)	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Real GDP	525.5	505.8	495.6	512.3	513.7	518.7	529.5	535.1	544.9	553.0	560.2	568.0	575.6	583.9	592.1	601.4
(Y/y %)	1.8	-3.7	-2.0	3.4	0.3	1.0	2.1	1.1	1.8	1.5	1.3	1.4	1.3	1.4	1.4	1.6
Domestic demand	506.9	493.1	482.2	494.9	501.4	513.2	524.7	524.2	533.3	541.4	548.7	556.6	563.3	570.2	576.7	584.8
(Y/y %)	0.6	-2.7	-2.2	2.6	1.3	2.4	2.2	-0.1	1.7	1.5	1.3	1.4	1.2	1.2	1.1	1.4
Private final consumption	297.4	291.4	295.1	300.0	304.7	307.3	310.3	310.5	314.8	317.8	320.5	322.7	324.7	326.9	329.0	331.8
(Y/y %)	0.8	-2.0	1.2	1.7	1.6	0.9	1.0	0.1	1.4	1.0	0.9	0.7	0.6	0.7	0.7	0.9
Private housing investment	15.7	15.5	12.3	12.5	13.0	13.8	14.2	13.7	13.1	12.6	12.3	12.1	11.9	11.8	11.7	11.5
(Y/y %)	-14.5	-1.1	-21.0	2.2	3.7	6.2	2.8	-3.8	-4.3	-3.9	-2.4	-1.5	-1.2	-0.8	-1.3	-1.4
Private capital investment	77.0	71.1	62.5	64.8	67.4	68.2	71.5	74.4	77.2	80.5	83.6	87.0	89.9	92.4	94.9	97.7
(Y/y %)	3.0	-7.7	-12.0	3.6	4.1	1.1	4.9	4.1	3.7	4.3	3.9	4.1	3.2	2.8	2.7	2.9
Change in private inventories	1.8	1.8	-5.0	-0.3	-2.7	-1.0	-0.8	0.2	-0.1	1.2	1.0	0.9	1.1	1.2	1.5	1.6
Government final consumption	93.8	93.4	96.0	97.9	99.3	102.9	104.8	106.0	109.0	110.2	112.1	114.5	116.1	118.1	119.4	121.8
(Y/y %)	1.2	-0.4	2.7	2.0	1.5	3.6	1.8	1.1	2.8	1.1	1.7	2.2	1.4	1.7	1.1	2.0
Public fixed capital formation	21.3	19.8	22.1	20.7	20.2	22.4	24.8	20.2	20.3	20.1	20.5	20.8	21.1	21.5	22.0	22.4
(Y/y %)	-4.9	-6.7	11.5	-6.4	-2.3	10.7	10.8	-18.8	0.7	-0.9	1.6	1.5	1.8	1.8	2.0	1.9
Change in public inventories	0.0	0.0	0.0	-0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Export of goods and services	88.4	79.0	71.3	83.7	82.3	81.3	84.0	89.6	94.3	98.1	103.2	108.6	113.3	118.5	124.3	130.8
(Y/y %)	9.4	-10.6	-9.7	17.3	-1.7	-1.3	3.4	6.6	5.3	4.0	5.2	5.2	4.3	4.6	4.9	5.3
Import of goods and services	70.1	66.8	59.6	66.8	70.3	75.9	79.1	78.5	81.9	85.1	89.5	94.0	97.1	100.1	103.4	107.7
(Y/y %)	2.4	-4.7	-10.7	12.1	5.2	8.0	4.1	-0.8	4.3	4.0	5.2	5.0	3.3	3.1	3.3	4.2

Deflator (chained [2005])

(FY)	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
GDP deflator	97.6	96.8	95.6	93.7	92.1	91.8	91.3	92.9	93.6	94.7	95.2	95.9	96.6	97.5	98.5	99.6
(Y/y %)	-1.0	-0.9	-1.2	-2.0	-1.7	-0.3	-0.5	1.7	0.8	1.1	0.6	0.7	0.8	0.9	1.1	1.1
Domestic demand	99.6	99.6	97.4	96.1	95.7	95.0	94.6	96.3	97.2	98.3	99.0	99.7	100.5	101.5	102.6	103.7
(Y/y %)	-0.1	0.0	-2.2	-1.3	-0.5	-0.7	-0.5	1.8	0.9	1.2	0.7	0.7	0.8	0.9	1.1	1.1
Private final consumption	99.1	98.9	96.3	94.9	94.3	93.9	93.7	95.8	96.8	98.3	99.1	100.0	101.0	102.0	103.2	104.4
(Y/y %)	-0.4	-0.2	-2.6	-1.5	-0.6	-0.4	-0.3	2.3	1.1	1.5	0.8	0.9	1.0	1.1	1.2	1.2
Private housing investment	104.2	106.5	103.1	103.2	103.7	102.7	102.6	106.0	107.8	110.0	111.1	112.2	113.5	114.9	116.5	118.2
(Y/y %)	1.8	2.2	-3.2	0.2	0.5	-1.0	-0.1	3.3	1.7	2.0	1.0	1.0	1.1	1.3	1.4	1.4
Private capital investment	99.8	99.9	97.1	95.5	94.6	93.2	92.2	92.2	92.5	93.0	93.3	93.7	94.3	95.0	96.0	97.2
(Y/y %)	-0.1	0.2	-2.8	-1.7	-0.9	-1.4	-1.2	0.1	0.3	0.5	0.4	0.4	0.6	0.8	1.0	1.2
Government final consumption	99.4	99.4	98.2	97.6	97.4	96.3	95.6	96.6	97.2	97.9	98.2	98.5	98.9	99.4	100.0	100.6
(Y/y %)	0.2	0.0	-1.2	-0.6	-0.2	-1.1	-0.7	1.0	0.6	0.7	0.3	0.3	0.4	0.5	0.6	0.7
Public fixed capital formation	103.9	106.8	103.2	103.1	103.8	103.2	103.0	106.6	108.2	110.4	111.7	113.2	114.8	116.5	118.5	120.5
(Y/y %)	2.0	2.9	-3.4	-0.1	0.7	-0.5	-0.2	3.4	1.6	2.0	1.2	1.3	1.4	1.5	1.7	1.7
Export of goods and services	104.6	99.5	90.4	88.2	86.2	86.6	87.4	85.4	84.0	84.2	84.7	84.9	85.1	85.3	85.4	85.3
(Y/y %)	0.5	-4.9	-9.1	-2.5	-2.3	0.4	1.0	-2.3	-1.7	0.2	0.7	0.2	0.3	0.1	0.1	-0.1
Import of goods and services	120.4	120.2	101.0	104.0	109.9	107.9	108.8	107.2	106.5	107.4	108.7	109.3	110.0	110.4	110.6	110.4
(Y/y %)	7.1	-0.2	-16.0	3.0	5.7	-1.9	0.9	-1.5	-0.7	0.8	1.2	0.6	0.6	0.4	0.2	-0.2

Source: Compiled by DIR.
Note: Through FY11: actual.

Assets and Labor and Capital Supply

(FY)	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Potential GDP (real GDP chained [2005]; Y tril)	522.3	516.5	520.3	527.4	526.5	528.2	533.0	536.1	541.8	547.3	551.9	557.0	562.2	568.2	574.5	581.5
Hourly labor productivity (yen)	4,409	4,359	4,407	4,521	4,531	4,575	4,668	4,729	4,813	4,885	4,956	5,030	5,104	5,180	5,254	5,335
(Y/y %)	2.0	-1.1	1.1	2.6	0.2	1.0	2.0	1.3	1.8	1.5	1.5	1.5	1.5	1.5	1.4	1.5
Hours worked per annum and per capita	1,803	1,768	1,741	1,757	1,762	1,761	1,764	1,763	1,765	1,766	1,768	1,771	1,774	1,778	1,781	1,785
(Y/y %)	-0.5	-2.0	-1.5	0.9	0.3	-0.1	0.2	-0.1	0.1	0.0	0.1	0.2	0.2	0.2	0.2	0.2
Labor participation rate (%)	60.4	60.2	59.9	59.7	59.2	59.0	58.7	58.5	58.3	58.3	58.1	57.9	57.8	57.7	57.6	57.6
Net corporate sector capital stock (2000 prices; Y tril)	1,042	1,045	1,040	1,036	1,032	1,029	1,028	1,030	1,035	1,041	1,049	1,059	1,070	1,083	1,096	1,110
(Y/y %)	0.8	0.4	-0.5	-0.3	-0.3	-0.4	-0.1	0.2	0.4	0.6	0.8	1.0	1.1	1.1	1.2	1.3
Household financial assets (Y tril)	1,520	1,469	1,493	1,501	1,494	1,494	1,493	1,494	1,496	1,501	1,506	1,512	1,519	1,529	1,541	1,553
(% of nominal GDP)	296.3	300.1	315.0	312.7	315.7	313.9	308.7	300.5	293.3	286.7	282.2	277.6	273.2	268.7	264.2	259.3
External assets (Y tril)	623	573	595	606	625	634	641	643	643	651	660	663	668	673	679	682
(% of nominal GDP)	121.5	117.0	125.5	126.3	132.1	133.2	132.5	129.3	126.1	124.4	123.7	121.8	120.2	118.3	116.4	113.9
Net external assets (Y tril)	244	236	263	252	253	260	264	258	256	262	268	270	274	277	281	283
(% of nominal GDP)	47.6	48.1	55.4	52.5	53.5	54.6	54.7	52.0	50.2	50.0	50.2	49.6	49.2	48.7	48.2	47.3
Stock prices (TOPIX)	1,556	1,057	904	885	792	797	838	872	947	1,027	1,090	1,164	1,244	1,339	1,446	1,574
(Y/y %)	-5.4	-32.0	-14.5	-2.2	-10.5	0.7	5.2	4.0	8.5	8.5	6.1	6.7	6.9	7.6	8.0	8.8
Land Price Index (nationwide; all purposes; 2000 = 100	64.2	62.9	59.9	57.3	55.1	54.9	57.3	57.3	58.5	58.5	58.1	59.3	60.9	62.5	63.9	65.3
(Y/y %)	-0.9	-2.0	-4.8	-4.3	-3.8	-0.4	4.4	0.0	2.1	-0.1	-0.6	2.1	2.6	2.7	2.3	2.0

Assumptions

(FY)	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
World economic growth (PPP; y/y %)	4.7	1.9	0.8	4.8	3.7	3.3	3.5	3.7	3.7	3.7	3.8	3.7	3.6	3.6	3.7	3.8
Oil price (WTI; $/bbl)	82.2	85.9	70.7	83.4	97.3	91.0	96.0	102.9	106.3	108.7	111.0	113.4	115.7	118.1	119.9	121.8
(Y/y %)	26.7	4.5	-17.7	17.9	16.7	-6.5	5.5	7.2	3.3	2.2	2.2	2.1	2.1	2.0	1.6	1.5
Population (mil)	127.8	127.7	127.5	128.1	127.8	127.5	127.3	127.1	126.9	126.6	126.2	125.8	125.3	124.9	124.3	123.8
(Y/y %)	0.0	-0.1	-0.1	0.4	-0.2	-0.2	-0.1	-0.2	-0.2	-0.2	-0.3	-0.3	-0.4	-0.4	-0.4	-0.4
Population 15-64 (mil)	83.1	82.5	81.9	81.6	81.2	80.3	79.1	77.9	76.9	76.0	75.3	74.6	74.0	73.4	72.8	72.4
Population over-65 (mil)	27.5	28.3	29.1	29.5	29.8	30.7	31.9	33.1	34.0	34.7	35.3	35.8	36.1	36.4	36.6	36.7
Ratio of those over 65 to overall population (%)	21.5	22.2	22.8	23.0	23.3	24.1	25.0	26.0	26.8	27.4	28.0	28.4	28.8	29.2	29.4	29.7
Consumption tax rate (%)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	8.0	9.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Effective corporation tax rate (%)	39.5	39.5	39.5	39.5	39.5	39.5	39.5	39.5	34.5	34.5	34.5	34.5	34.5	34.5	34.5	34.5
Employees' pension contribution rate (%)	15.7	16.1	16.4	16.8	17.1	17.5	17.8	18.2	18.3	18.3	18.3	18.3	18.3	18.3	18.3	18.3

Source: Compiled by DIR.
Note: Through FY11: actual; some FY11 figures: DIR estimates.

Introduction

We have revised our previous medium-term forecast, *Japan's Medium-term Economic Outlook: July 2012* (Japanese original: 27 July 2012; English translation: 21 Aug 2012). Our current outlook factors in changes in domestic and foreign conditions that have occurred in the past half year. The biggest event of the period was the change in political administration (after three years and three months) following House of Representatives elections in December 2012. Interest is growing in the so-called "Abenomics" agenda, consisting of such policies as bold monetary easing, flexible fiscal expenditures, and growth strategies that are being pursued by the new Abe administration. As such, our report also focuses on monetary policy facing a turning point and the yen trending weaker.

In 2012, Japan's trade deficit ballooned to Y6.9 trillion, an all-time high surpassing that of 1980 when the second oil crisis caused crude oil prices to spike upward. Though Japan has grown as an exporting nation in the 30 years since 1981, a trade deficit is now expected to continue for the time being. With few natural resources within its borders, Japan has no recourse but to rely on foreign sources for energy supplies it cannot provide domestically. As a result of nuclear power generation problems brought to the fore following the Great East Japan Earthquake, energy has become an even more pressing issue for Japan. In our current forecast, we examine electric power and energy issues whose solutions still remain distant and analyze energy policies from the perspective of growth strategies, one of the three priority areas of "Abenomics".

With respect to the world economy, the situation surrounding the sovereign debt crisis in Europe, and also that behind previous intensifying indications of faltering in emerging-market economies, have changed since our previous forecast. In Europe, although Spain was drawn into the vortex of the sovereign debt crisis, the ECB announced a new sovereign debt purchase program in September 2012, and financial markets have begun to settle down. Moderate recessionary conditions, however, persist in Europe due to the extended application of fiscal austerity, and the European economy depends to a great extent on the recoveries of such foreign economies as the US and China. In 2012, China's economy grew at its lowest rate seen in the last 13 years. However, such policy responses as monetary easing are gradually having an effect, and signs are appearing that the economy is bottoming out and stabilizing. While China is expected to grow faster in 2013 than in the previous year, the country's new leadership will need to implement balanced policies with such objectives as eliminating the gap between rich and poor. Thus, it will be difficult to maintain high growth that is overly dependent on investments as before. China's situation, however, is relatively upbeat among emerging economies. The Indian economy, which has slipped to a lower growth rate, shows little prospect that it will bottom out. A guarded outlook will be necessary regarding the question of whether emerging economies can safely break through walls to growth in the medium to long term. The US economy is recovering at a gradual pace. The approach of a fiscal cliff had been a matter of concern, but which was avoided at the last minute, giving the appearance that factors behind uncertainty have been dispelled. However, with some fiscal problems merely being deferred to the future, newly reelected President Obama must negotiate with a divided Congress as he endeavors to achieve serious reforms. In our current forecast, we have revised our assumptions for the world economy downward and adopted a more cautious outlook. Meanwhile, Japan's economy recovered gradually to summer 2012, supported by reconstruction demand. Thereafter, the economy trended weakly on account of the slowing of the world economy, a downward reaction to the end of eco-car subsidies, and the falloff of exports reflecting worsening relations with China. While there are some signs that the economy is bottoming, hopes are being placed in Japan as in Europe on the improvement of external conditions.

This report is structured as follows. In Section 1, we present our outlook for the world economy and Japan's economy for the next 10 years. In Section 2, we analyze the effects that monetary policy facing a turning point and the yen depreciating will have on prices while presenting simulation results.

In Section 3, we indicate the possibility that, if the government pursues appropriate energy policies, the greater efficiency and diversification of energy will help advance growth strategies. Finally, in Section 4, we use our medium-term macroeconomic forecasting model to simulate the degree to which Japan's economy will be affected by four alternative scenarios including a higher consumption tax and a stronger yen.

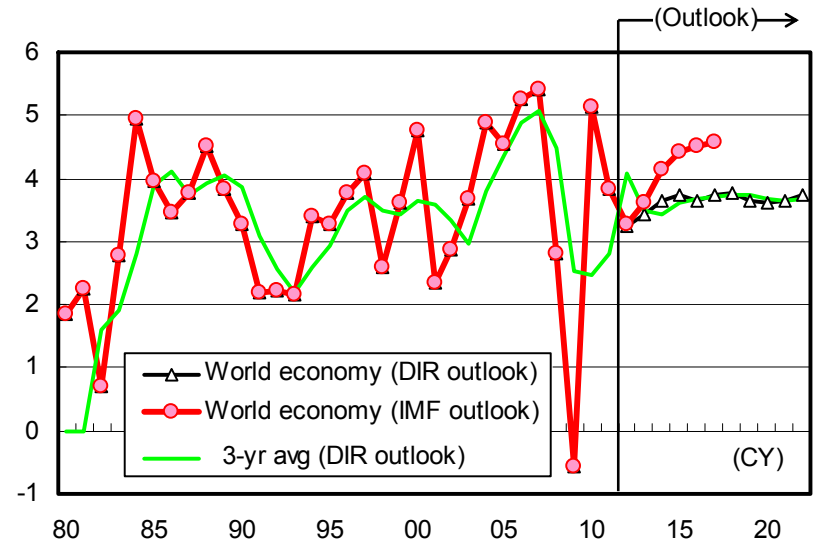
1. World Economy and Japan's Economy over Next 10 Years

1.1 Assumptions for world economy and their effect on Japan

1.1.1 Assumptions for world economy: Substantial downward revision from our previous forecast

In our current medium-term outlook, we assume that the world economy will grow an annualized 3.7% over the next 10 years (2013-22; Chart 1.1). Growth will average 3.6% in the first half and a slightly higher 3.7% in the second. While this is far below the average of 4.8% recorded in the period before the financial crisis (2003-07), the economy is still foreseen to grow firmly. However, compared to our July 2012 outlook (an annualized 4.2%), we have downgraded our forecast by 0.5 percentage points. With respect to 2013 and 2014, for which forecasting probability is high, we lowered it from 3.9% to 3.5%. For the remaining eight years, we reduced it from an annualized 4.2% to 3.7%. A key point of our current outlook is the significant downgrade of the growth rate of the world economy, both the current rate and the rate over the entire forecast period.

World Economic Outlook (y/y %) **Chart 1.1**



Source: IMF, *World Economic Outlook*, Oct 2012; compiled by DIR.
Note: Purchasing power parity basis.

Difference with the IMF outlook

In the IMF's *World Economic Outlook* revised in October 2012, the world economy is predicted to achieve average growth of 4.25% between 2013 and 2017, a figure that is 0.6 percentage points higher than our forecast.[1] Since the IMF assumes that the world economy will gradually accelerate, the longer the forecast period, the wider the difference between our outlook and the IMF outlook.

What explains the difference between our guarded outlook and the IMF's more optimistic outlook? While the IMF assumes somewhat higher growth for the eurozone as well as the UK and other European economies, when adjusted by economic weightings this difference explains less than 10% of the entire difference between two outlooks. In the case of the US economy, while the IMF forecasts 3.0% growth, we predict considerably lower growth of 2.4%. As such, about 20% of the difference in the two outlooks is explained by a divergent outlook for the US economy. As a result, advanced economies as a whole account for about one-third of the difference between the two outlooks and emerging market and developing economies ("emerging economies" hereafter) two-thirds. Given that the former will likely have a 47.5% share of the world economy on a purchasing power parity (PPP) basis and the latter 52.5%, it is possible to say that we have assumed a more guarded outlook for the growth rate of emerging economies. China, whose share of the world economy will stand roughly on par with that of the US, constitutes about 0.2 percentage points of the difference in the two outlooks, with the remainder being explained by Latin America and emerging Asian economies including ASEAN and India (excluding China).

IMF figures show that emerging economies' share of the world economy (PPP basis) was largely flat through the 1990s. This share then began to gradually expand in the 2000s and as of 2012 such economies accounted for nearly half of the world economy (Chart 1.2). It is possible to say that over the last 10 years or so the performance of emerging economies has exceeded (their growth rates have been higher) that of advanced economies. At the time of the financial crisis, this difference in performance widened, and the significance of China and other emerging economies increased further. The IMF estimates that the uptrend of emerging economies will continue and that their share of the world economy will be 4 percentage points higher in 2017. A key point going forward will be whether emerging economies can maintain their current momentum.

Emerging economies face wall to growth

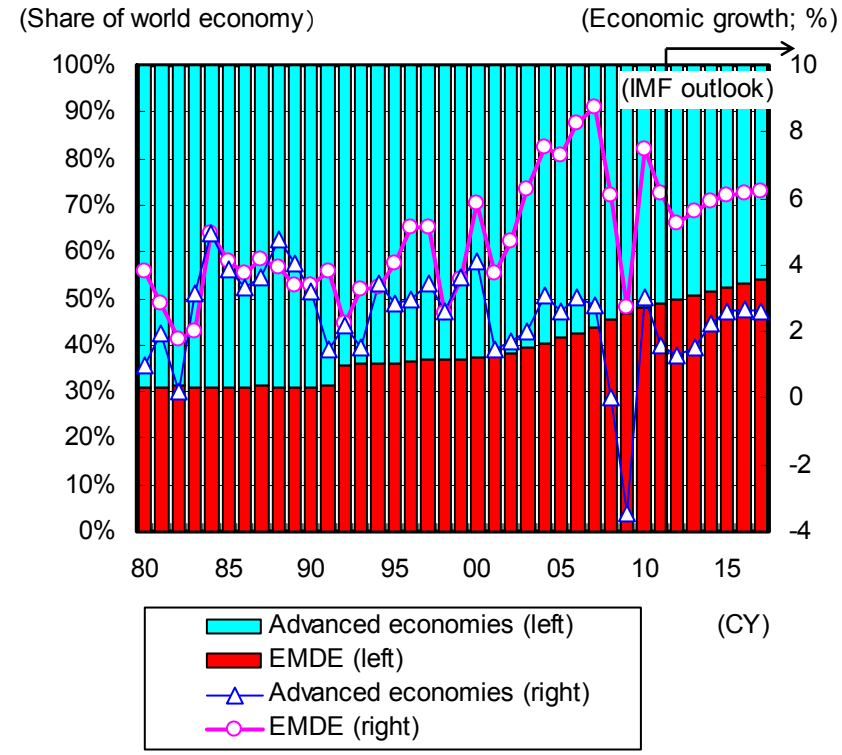
While we have reduced our assumptions, our forecast still assumes that risks of a sort that would upend our portrayal of the world economy will not materialize. Emerging economies have achieved investment-driven growth, and the flow of capital into such economies is foreseen to continue even if slowing somewhat. Certainly, if risk tolerance decreases and if not only hot money but direct investments are withdrawn, emerging economies can no longer be expected to serve as the locomotive of the world economy. However, unlike their situation at the time of the Asian currency crisis, emerging economies have succeeded in accumulating a substantial amount of foreign currency reserves in the last 10 years, providing them with a buffer to withstand economic shocks. Also, according to the IMF, while direct investments in emerging economies fell y/y in 2012 for the first time in three years, they are expected to bottom out and remain at a high level in 2013.

Major advanced economies like Europe, the US, and Japan will need to maintain fiscal discipline and work at reducing debt levels over the medium to long term. For some emerging economies, with the development of their economies, wages are increasing at an accelerated pace, and they are apt to

1. Since the IMF provides forecasts only to 2017, our comparison with the IMF is basically for the years between 2013 and 2017. Also, in January 2013, the IMF adjusted its growth rates for the world economy for 2013 and 2014 based on the latest available data, revising its forecasts slightly downward compared to October 2012. Specifically, its forecast for 2012 was revised downward 0.1 percentage point from 3.6% in October 2012 to 3.5%, and its forecast for 2013 similarly from 4.1% to 4.1% (figures do not agree because of rounding).

encounter before long the limits of relying on labor-intensive manufacturing to achieve economic growth as they have in the past. When living standards (per capita GDP) reach a certain level, emerging economies are confronted with a wall to growth where factors like wage inflation make further growth difficult, despite having caught up in terms of production technology. They may also find further growth hard to achieve if they do not address the problems created by inequality. Emerging economies will have to transform their industrial structures and enhance creativity if they are to break through walls obstructing growth. Our concern that such a transition will not necessarily go smoothly explains why we have assumed a somewhat lower growth rate for emerging economies as a whole. Thus, our current outlook for the entire world economy is more conservative than in our previous outlook.

Is High Growth Rate Sustainable For Emerging Market/Developing Economies? **Chart 1.2**



Source: IMF, *World Economic Outlook*, Oct 2012; compiled by DIR.
Note: Purchasing power parity basis.
EMDE: Emerging market and developing economies.

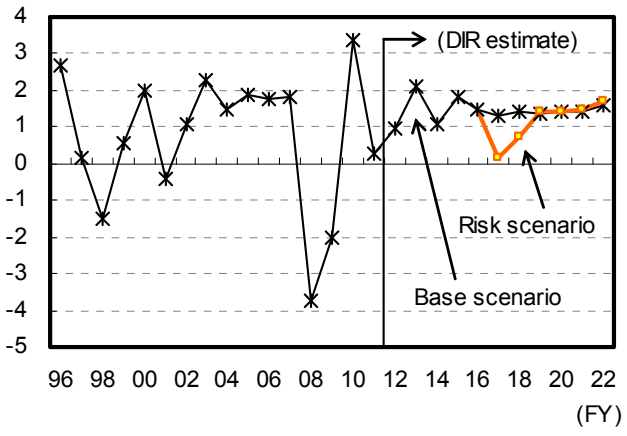
1.1.2 Impact on Japan of substantial slowdown in world economy

A review of the historical record discloses that the world economy achieved growth exceeding 3.5% in the second half of the 1980s, in the second half of the 1990s, and in the 2000s but that growth at such a pace was sustained at most for six consecutive years. Hence, it may be unrealistic to assume that the world economy will grow steadily at such a tempo for nearly 10 years as in our current forecast.

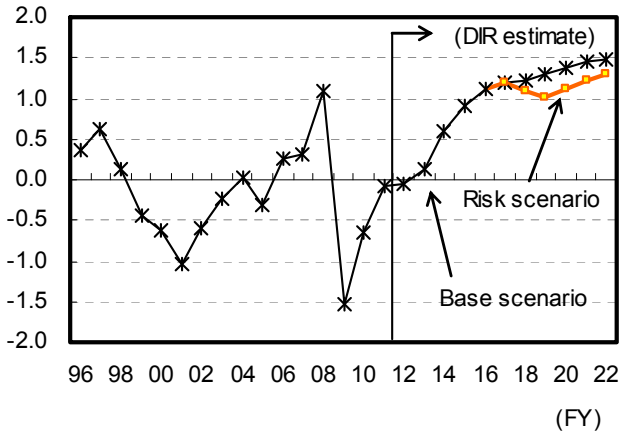
We therefore used our medium-term macroeconomic forecasting model to simulate the degree to which Japan's economy would worsen if the world economy rapidly slowed. Depending on where this slowdown originates, the yen would appreciate as market participants endeavor to avoid risk as was the case during the Lehman crisis and the European sovereign debt crisis. To specify the premises of our risk scenario, we assumed that the growth rate of the world economy would slow from 3.7% in the previous year to 2.5% in FY17 (3.8% in our base scenario) and that it would take two years for the

growth rate to return to the base scenario. We also assumed that the slowing of the world economy would cause the yen to appreciate Y10 (relative to the US dollar) compared to the base scenario and that it would depreciate back toward the base scenario over a similar period of time. Our simulation indicated that, as the sharp decline in exports propagates to capex and personal consumption, Japan's growth rate in FY17 would contract more than 1 percentage point from the base scenario to about 0% and that it would not reach 1% in FY18 (Chart 1.3). The growth rate of CPI would also decline about 0.3 points from the base scenario (Chart 1.4). Thus, a risk that should be kept in mind is Japan's economy readily retreating to zero or negative growth.

Japan's GDP Growth Rate (%) **Chart 1.3**



Japan's CPI Growth Rate (%) **Chart 1.4**



Source: Compiled by DIR based on various statistics.
Notes: 1) Risk scenario assumes simultaneous occurrence of a decline in world economic growth to +2.5% (base scenario: +3.8%) and Y10 rise against the dollar in FY17 compared to base scenario.
2) CPI excl. effects of consumption tax hikes.

1.2 Japan's economy over the next 10 years

1.2.1 Outlook for Japan's economy

Forecast results factoring in our outlook for the world economy are shown in the tables at the start of our report (pages 3 to 6). We predict that Japan's economy will grow 2.1% (nominal) and 1.5% (real) over the next 10 years (annualized average rates; Chart 1.5). We also forecast that per capita real GDP, a measure of average living standards, will grow at 1.8%. Besides the macro growth rate, per capita GDP is an important indicator for a society with a declining population. If we divide our forecast period into two halves (FY13-17 and FY18-22), real GDP will increase by an average rate of 1.5% in the first half and by a somewhat slower 1.4% in the second (annualized average rates; the same in principle hereafter). The characteristics of such growth will differ somewhat when examined by demand component, and it is not necessarily the case that the economy will slow in the second half.

Volatility will mark the first half of our forecast period

In the first half, public works projects (incl. reconstruction-related projects) and renewable energy investments will increase, which will be made a part of the FY13 budget as well as the FY12 supplementary budget based on *Emergency Economic Measures for the Revitalization of the Japanese Economy* that took shape under the new Abe administration. Exports will expand as the yen continues to depreciate and growth of the world economy accelerates. The first half will also experience a range of economic shocks, such as price increases as higher fuel costs for thermal power generation are

passed through to electricity prices and as the consumption tax rate is raised between FY14 and FY16.[2] Since these shocks will increase the volatility of the economy, it will not be easy to discern economic trends in the first half.

Before raising the consumption tax, the government must first determine whether economic criteria outlined in tax reform proposals (legislation relating to the comprehensive reform of social security and taxation systems approved Aug 2012) have been met. Specifically, whether or not to increase the tax will be determined by verifying a range of economic indicators, such as the nominal and real growth rates of the economy and price trends, and by taking a broad account of economic conditions and other factors. The choice between implementing or shelving the tax increase is not up for debate, and the standard approach should be to raise the consumption tax as scheduled (the increase in the tax rate cannot be postponed unless conditions are exceptional). But, if the exceptional does come to pass and the hike is postponed, new legislation would likely be required. Economic criteria for raising the consumption tax, however, leave room for discretion in their interpretation to the person/entity that will make the decision. There will thus be a need to deepen the discussion of rules that will be acceptable to most citizens and market participants regarding which economic indicators will be emphasized and regarding what procedures will be followed.

We anticipate that real GDP will increase 2.1% in FY13 (1.6% on a nominal basis). In FY14, downward pressure on the economy ensuing from a higher consumption tax will be mitigated by upside pressure from foreign demand, and the economy will be able to maintain positive growth. We forecast that CPI will increase 0.1% y/y in FY13. If the effect of higher electricity prices is excluded, CPI will be flat and/or deflation will continue. The government and the Liberal Democratic Party appear somewhat reluctant to raise the consumption tax under deflationary conditions. With tangible inflation still out of sight, the possibility of deferring the consumption tax rate hike cannot be ruled out.

In *Economic and Fiscal Projections for Medium- to Long-Term Analysis* that the government released on 31 August 2012, the primary deficit incorporating a higher consumption tax is estimated to be 1.4% of GDP in FY20 in the optimistic growth strategy scenario (3.5% of GDP in our outlook). If the government is slow to raise the consumption tax while being unable to achieve the goal of a primary surplus by FY20, the path to restoring public finances to health will become all the more rocky. Given how European sovereign risk continues to demand attention, we believe that the scenario with a high probability is one where the government takes further steps to curb social security benefits and where the consumption tax is steadily increased.

In the second half, with the world economy growing stably and the yen trending flat, the growth rate of exports will be flat from the first half due to a lack of factors accelerating or braking exports. Public works spending that will be negative in the first half will turn positive in the second half. We do not foresee additional measures for public works spending in the second half but assume that spending of a certain size will be allocated (a real amount of Y20-22 trillion annually; a growth rate less than 2%). The first half will be influenced by such technical factors as sizable downward pressure materializing in FY14 in reaction to the massive increase in public works spending in FY12-13 related to reconstruction and emergency measures as well as the division of forecast periods shifting forward by a year (the first half of FY12-16 in the previous outlook and FY13-17 in the current outlook).

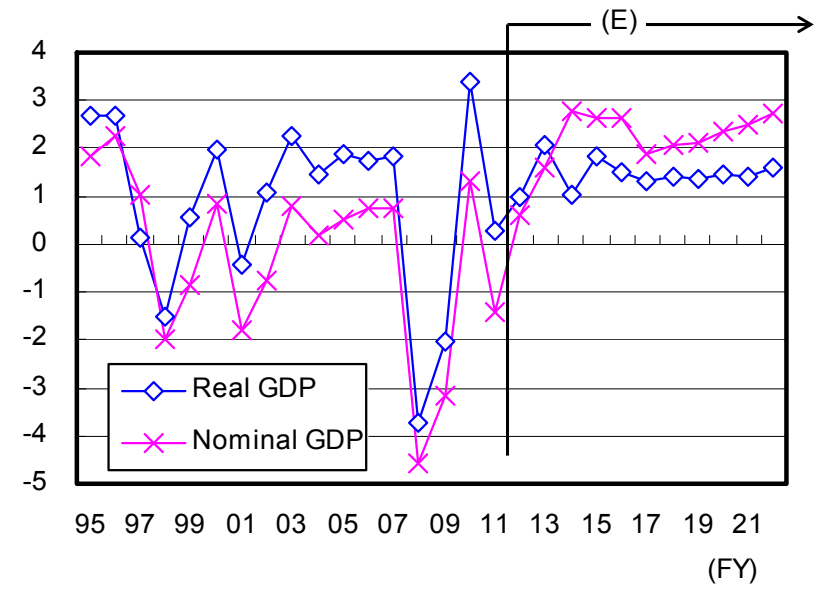
Extension of zero interest rates

A key point in our current outlook is the incorporation to some degree of the policies being pursued by the new Abe administration that recently took power. The maintenance of aggressive monetary easing

2. We assumed that the consumption tax (including the local consumption tax) would increase from 5% to 8% in April 2014 and to 10% in October 2015. Since our current forecast is on a fiscal year basis, in our forecasting model the consumption tax will increase 3 percentage points in FY14 and 1 point each in FY15 and FY16.

by the Bank of Japan (BOJ), including the adoption of an inflation target, is one example, and we have revised our forecast to assume a more accommodative monetary policy than in our previous forecast. The terms of office of the BOJ governor and two deputy governors will expire in spring 2013. Since those appointed to replace them are expected to be in alignment with the views of the Abe administration, it is reasonable to think that an accommodative monetary stance will be maintained over the long term. Also, as the normalization of prices proceeds, we believe the economy will expand stably, albeit at a gradual pace.

Economic Growth Outlook (y/y %) **Chart 1.5**



Source: Cabinet Office; compiled by DIR.
E: DIR estimates.

The growth rate of nominal GDP will accelerate from 2.0% in the first half of our forecast period to 2.2% in the second. In FY22, the final year of our forecast period, nominal GDP will grow 2.7%, the highest figure since 1995 once we exclude the effect of the consumption tax hike. Despite inflation targeting of 2% coming into view, the Consumer Price Index (CPI) will not increase in the same degree (about 1.5% in FY22). We therefore assume that moves to normalize the policy interest rate will not occur in our forecast period. In our previous outlook, we predicted that the short-term interest rate would begin to ascend in FY17-18 toward the end of our forecast period. With a zero interest rate policy being maintained over a prolonged period, we have moderated our outlook for the long-term interest rate. We now believe it will be 2.2% in FY21, 0.7 percentage points less than our previous forecast of 2.9%.

Compared to our previous outlook, our current outlook for the growth rate of real GDP as a 10-year average is nearly unchanged, having only been revised upward 0.1 percentage point. Comparing FY13-21, which are the years shared by both our previous and current outlooks, the growth rate of real GDP has been revised upward from an average of 1.2% to 1.5%. In our previous outlook, we assumed that, once the consumption tax was increased twice, the growth rate of real GDP would be less than 1.0% in FY16-17. In our current outlook, we anticipate that the slowing of the overall economy will be limited since personal consumption and capex will be firm. While we have greatly curtailed the growth of public works spending compared to our previous outlook, we also believe that economic conditions will not be such that would require the deployment of public works spending as a stabilizer of the economy.

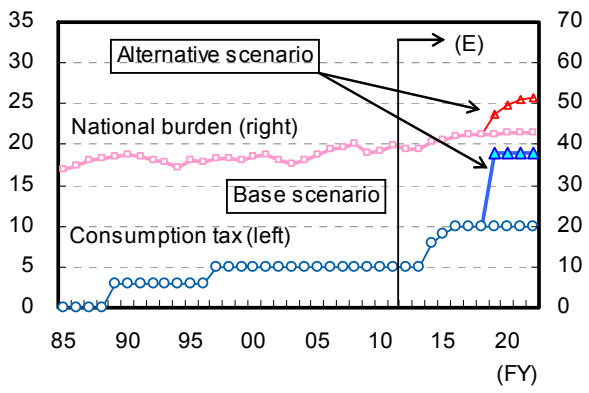
The downward revision of our outlook for foreign economies will be a factor curbing the growth of exports. On the other hand, the yen's current weakening trend together with the yen/dollar rate as a 10-year average being revised from Y76.8/$ in our previous outlook to Y80.2/$ will be a factor supporting exports (the yen/euro rate was revised from Y101/€ to Y106/€). With positive and negative factors offsetting each other, the growth of exports will be largely the same as in our previous outlook.

1.2.2 Difficult path to a budget surplus: The need to increase the consumption tax

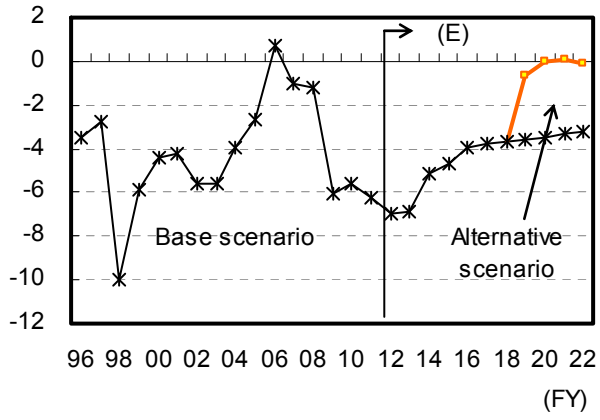
In our current outlook, we assume that GDP will grow at about the same pace as in our previous outlook. Background differences since our previous outlook that we have taken into account include the fiscal stimulus measures beginning to be implemented following a change in administration, the BOJ's aggressive stance toward monetary easing, and the yen's current weakening. Our basic view of Japan's economy, however, has not been revised. That is to say, as efforts are made to increase productivity while the population shrinks and as such issues as post-earthquake reconstruction, a declining birth rate and aging population, and the rebuilding of government finances are addressed, we believe that GDP growth in the mid-1% range will be achieved. However, since we foresee a primary deficit of 3.5% of GDP in FY20, the government target of achieving a primary surplus by FY20 at the latest is unlikely to be met (Chart 1.6). We estimate that the consumption tax would soar from 10% to 19% in FY19 if the government is to attain its target of a primary surplus in FY20 (Chart 1.7). Even under the current plan to raise the consumption tax from 5% to 10%, there are demands for the application of reduced rates to certain areas. Naturally, revenues would not come up to expectation if reduced rates were allowed when the consumption tax saw a sudden jump from 10%, meaning that the tax rate on areas not subject to reduction would have to be increased by an even greater amount to achieve a surplus.

Hence, to restore government finances to health, raising taxes and reducing expenditures further will be unavoidable. Another approach that could be taken is to increase tax revenues by expanding the economy through higher government expenditures and lower taxes. However, in view of the outcome of expansionary fiscal policies of the 1990s and the current state of southern European nations, expenditures should be curtailed and the taxpayer burden increased, even if at a gradual pace, to steadily rebuild government finances.

Consumption Tax and National Burden (%) **Chart 1.6**



Primary Balance (% of GDP) **Chart 1.7**



Source: Compiled by DIR based on various statistics.
Notes: 1) National burden=Total taxes and social security as a percentage of national income.
2) The alternative scenario is that the primary balance will turn to a surplus following a consumption tax hike to 19% in FY19.
E: DIR estimate.

Impact of electricity problems

In the first half of our forecast period, we anticipate that expenditures related to reconstruction and renewable energy will initially increase and that, starting from around FY14, the economy will expand driven by the growing momentum of exports as the world economy recovers. We assume that reconstruction demand will peak in FY12 and that the benefits provided by such demand will be small during our forecast period.

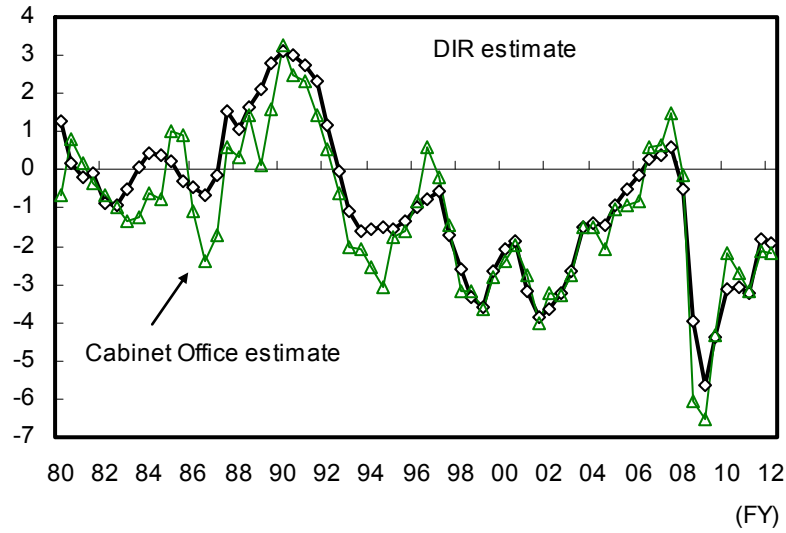
Depending on how far fuel costs rise for thermal power generation, they have the potential of impeding the healthy economic activity of households and companies through higher electricity prices. In our current outlook, we anticipate that nuclear power plants will be decommissioned in succession starting with those that have already operated for 40 years and that nuclear power plants satisfying safety standards will be gradually restarted. Also, electricity shortages resulting from the halting of nuclear power plants will be mainly met by increasing the operating rate of thermal power plants. Hence, we believe that the fuel costs of thermal power generation will increase and that electricity prices will rise in FY13 when the electricity produced by nuclear power and renewable power generation is limited.

The proportion of electricity prices (weighted by consumption value) in CPI (base year of 2010) is 3.17%. Simply stated, electricity prices rising 10% for households would push up CPI by more than 0.3 percentage points (10% x 0.0317). Even if knock-on effects are ignored, this is a sizable increase for Japan, a nation experiencing mild deflation. In the service area of Tokyo Electric Power, electricity prices for households were increased 8.46% on 1 September 2012. Kansai Electric Power has submitted an application to the government to raise electricity prices by 11.88% in April 2013 and Kyushu Electric Power has applied to raise electricity prices by 8.51%. There are also reports that Tohoku Electric Power and Shikoku Electric Power are intending to raise electricity prices in early FY13, and Hokkaido Electric Power is giving consideration to higher electricity prices. Should many electric power companies raise electricity prices, the upside impact on prices would not be small. Such cost-push inflation that is not associated with higher income will reduce the purchasing power of households and place downward pressure on consumption through decreases in real income. Going forward, should dependence on thermal power generation rise further while crude oil prices remain high, the adverse impact on the real economy will grow, a situation that will need to be monitored.

GDP gap will steadily shrink

We anticipate that the macroeconomic supply-demand balance will tighten with the expansion of the economy and that deflationary pressure brought to bear by the GDP gap will gradually weaken. Chart 1.8 illustrates the trend of the GDP gap (rate of deviation between actual and potential GDP) over the past 20 years. Expansionary fiscal policies and monetary easing were deployed in the 1990s to stimulate Japan's economy following the collapse of the asset bubble, but such measures failed to increase demand more than supply capacity on account of the appreciation of the yen and the Asian currency crisis. As a result, deflationary pressure ensuing from the shortfall of demand continued to bear down on the real economy. Then, in the longest expansionary period of the postwar period, which lasted from the start of 2002 to end-2007, the GDP gap rapidly narrowed and improved temporarily to the point where demand exceeded supply capacity. However, the sharp contraction of demand in the wake of the Lehman crisis in September 2008 widened the GDP gap to -5.6%. In FY12, the GDP gap improved to nearly -2.0%.

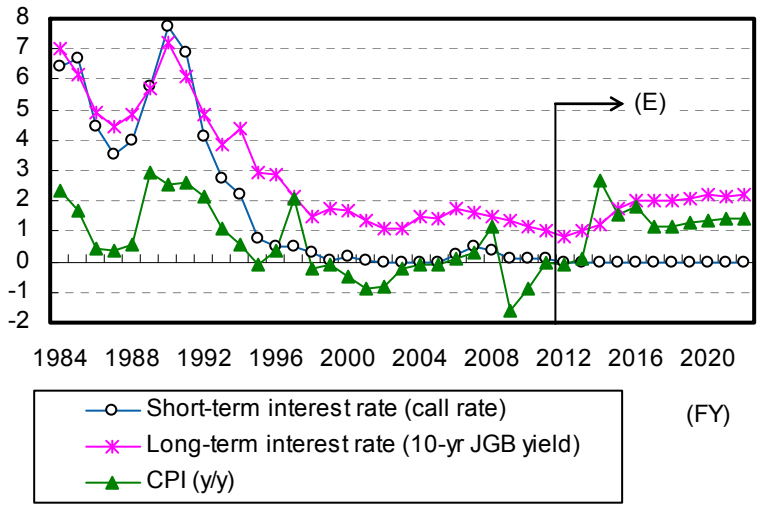
GDP Gap (Semi-annual basis; %) **Chart 1.8**



Source: Cabinet Office, Bank of Japan, Ministry of Internal Affairs and Communications, Ministry of Health, Labour and Welfare; compiled by DIR.

In our current outlook, we anticipate that the GDP gap will improve, particularly in the first half of our forecast period. This will mainly be the outcome of the growth rate of the economy viewed from the demand side exceeding its potential growth rate of around 0.5% on average. On the supply side, the baby boomer generation (born in 1947-49) will reach retirement age and begin leaving the labor market. This decrease in potential labor input will serve to suppress the potential growth rate. It is usually the case that, when the macroeconomic supply-demand balance improves and inflationary pressure is brought to bear by the real economy, central banks will tighten monetary policy to quell future inflation. Japan, however, has not been able to break free from deflation for a protracted period, and there is concern that a higher consumption tax will begin to affect the economy adversely in FY14. For this reason, the BOJ is expected to maintain its zero interest rate policy for the time being and to support the economy from the monetary side (Chart 1.9).

Outlook for Prices and Interest Rates (%) **Chart 1.9**



Source: Compiled by DIR based on various statistics.
E: DIR estimates.
CPI: Consumer Price Index.

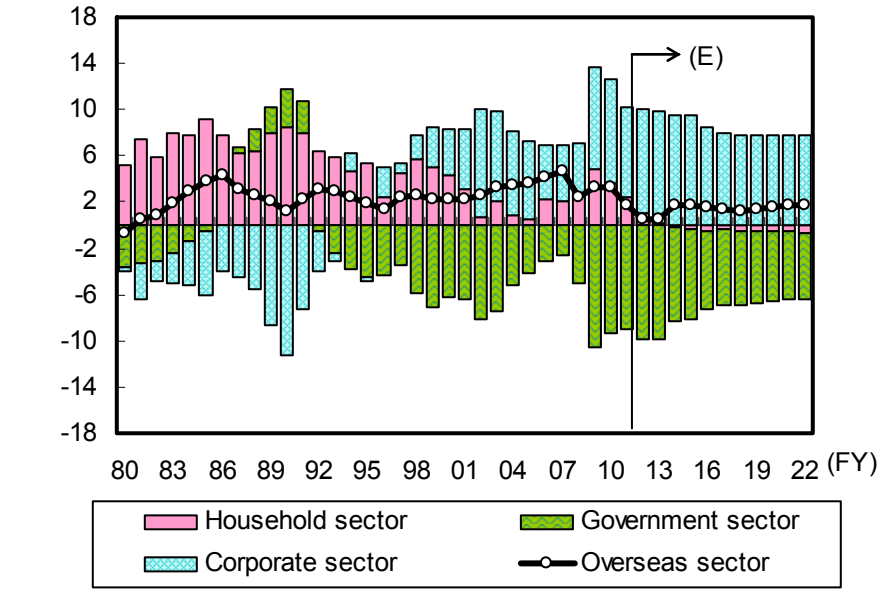
CPI growth will not reach 2%

In the second half of our forecast period, we anticipate that the impact of a higher consumption tax on the economy will run its course. This, combined with likely expansion of the world economy and likely depreciation of the yen reflecting a wider interest rate spread with other nations (interest rates in Japan are slow to rise compared to other countries), will enable Japan's economy to grow stably from both the domestic and foreign demand sides. We anticipate CPI will increase 1.3% on average in the second half, a somewhat higher figure than that predicted for the first half (up 1.2%). However, since the figure for the first half includes the effect of a consumption tax hike, the figure for the second half can be said to represent a considerably more normalized condition (steady move away from deflation). The decline in labor's share, reflecting the ascent of the proportion of non-regular employees and the restraint of wage hikes in the first half, will moderate in the second half as the easing of monetary policy leads to an optimal part-time employee ratio. Even so, CPI will grow only 1.5% in FY22, falling short of the BOJ's price stability target of 2%. Hence, it should be borne in mind that the worsening of the external environment will be accompanied by the risk of inflation subsiding again.

The household savings rate derived from disposable income and private consumption is expected to trend negatively during our forecast period. While the decline in the savings rate will gradually widen in the first half, it will trend flat in the second, which differs from a projection based on the life cycle theory. The long-term equilibrium formula of our current outlook, however, does factor in a downward trend over the very long term for Japan's household savings rate due to the aging of society. The plunge in the savings rate since the mid-1990s is thought to be a result of the complex interaction of many factors, such as the sharp decline in asset income received by households due to ultra-low interest rates, an increase in asset value in terms of real worth due to deflation, the ratchet effect accompanying stagnant wages, and, more broadly, distortions in the income distribution structure between the household and corporate sectors. While we anticipate that the household savings rate will decrease over the very long term, in the medium term of the next 10 years or so we believe it will see an upward correction from having fallen too far.

When viewed in terms of the I-S balance, a turn to excess investment is foreseen for the household sector. However, the margin of such excess will be very limited because of a lower investment rate due to decreasing housing investments occasioned by a declining birth rate and an aging society. Also, the excess savings of the corporate sector will not readily decline if capex is made at around the level of our current outlook. In contrast to the excess savings of the private sector going forward, ongoing fiscal deficits will continue. This situation will improve somewhat with the increase in the consumption tax rate, and fiscal deficits are expected to trend at around 6% of GDP in FY14-16. The difference between excess savings and fiscal deficits will balance out at the macroeconomic level as current account surpluses. During our forecast period, we believe that the current account surplus will trend between 0% and 2% as a percentage of GDP (Chart 1.10).

Savings-Investment Balance (% of nominal GDP) **Chart 1.10**



Source: Cabinet Office; compiled by DIR.
Notes: 1) Adjusted for one-off factors.
2) Reversed plus and minus signs for overseas balance.
E: DIR estimates.

Free trade will boost the effects of growth strategies

Our current outlook does not factor in the expansion of free trade, such as through the Trans-Pacific Partnership Agreement (TPP) or a free trade agreement (FTA) between Japan, China, and South Korea. The debate regarding TPP and FTAs is progressing around the world. Should it become possible to anticipate the promotion of free trade leading to the growth of trade volume, yielding such benefits as higher capex, the expansion of employment, and the invigoration of domestic industries, the drawbacks of Japan not participating in such debate or not participating in free trade itself will magnify with the passage of time. Strong voices of opposition, however, are heard in Japan, and, given that a House of Councilors election is pending in July 2013, it is difficult to imagine domestic debate being resolved at an early date. This issue, however, is one that cannot be avoided if the growth strategies advocated by the Abe administration are to be effectively promoted. Thus, our current forecast that does not factor in the expansion of free trade can be viewed as one having a conservative outlook (with upside prospects) in that degree.

1.3 Assumptions of our forecast

1.3.1 Energy policies

In developing our assumptions for energy policies, we made reference to a draft proposal on energy mix choices (published 19 June 2012; “government proposal” hereafter) and factored in subsequent developments.

Specifically, in view of the new safety standards that the Nuclear Regulation Authority will be releasing in July 2013, we assumed that, following careful inspections lasting about six to 12 months, a considerable amount of time will be needed to restart nuclear plants, including that to complete the construction of new facilities. In the longer term, we assumed that nuclear power plants that have operated for 40 years will be decommissioned and that such nuclear power plants as the Fukushima Daiichi and Fukushima Daini will not be brought back on line even in the medium term (Chart 1.11).

However, we also assumed that two nuclear plants whose construction has been suspended will be newly brought on line.

We have assumed that power generation from renewable energy will increase, supported by related investment, accompanying the promotion of the feed-in tariff system launched on 1 July 2012. However, we also assumed a smaller installed base of solar and wind power than the government proposal. This is because the massive installation of generation capacity for renewable energy, the supply of which is unstable, will be accompanied by transmission grid issues and considerable costs related to installing storage batteries and backup power sources (construction of new thermal and other power generation facilities that will be needed to take the place of renewable power generation when that is not available). For this reason, we have assumed that renewable energy will account for a 25% share of power generation in FY30, the lower limit of the government proposal. In FY22, the final year of our forecast period, we anticipate that the proportion of power generation coming from renewable energy will be about 20% and that installed capacity will be 1.9 times the level of FY10, a more cautious outlook than the government proposal.

The government proposal also assumes that electricity demand will fall substantially in the future compared to FY10. In our forecast of electricity demand, given the strong correlation between such demand and economic growth, we have assumed that electricity demand will continue to rise in accordance with the economic growth forecast based on our medium-term macroeconomic forecasting model. However, given the prospects for a broad range of nationwide efforts to conserve electricity, we anticipate that electricity demand will be 6% less in FY22 compared to a situation where no conservation is seen.

Based on the above, our forecast assumes that the restart of nuclear power plants and the installation of renewable energy capacity will occur at a relatively gradual pace and that electricity demand will also increase. Thus, thermal power generation will surge for the time being, and fuel costs will rise. As a result, during the first half of our forecast period, pressure to increase electricity prices can be expected to mount (Chart 1.12). Then, in the second half, the electricity surcharge of the feed-in tariff system will have a noticeable impact, and electricity prices that fell accompanying the restart of nuclear power plants will turn to rise again.

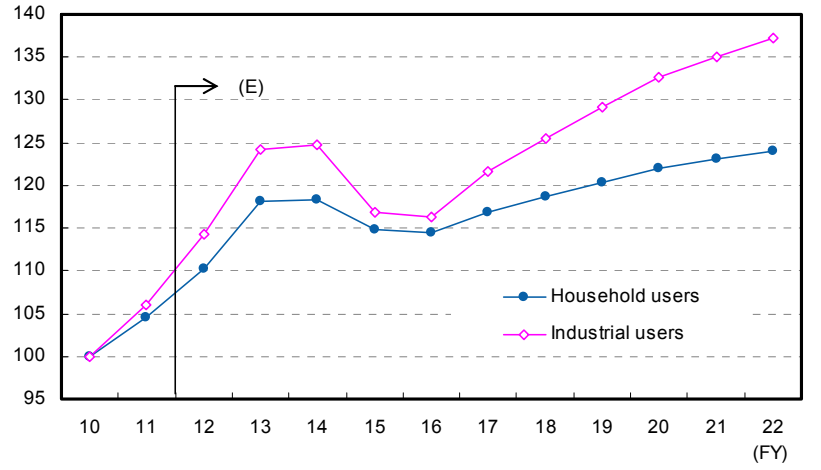
It should be kept in mind, however, that these premises have the potential of changing greatly in response to political circumstances or the management of electric utilities.

Energy Policy Assumptions **Chart 1.11**

	Assumptions
Nuclear power	* The Fukushima Daiichi, Daini, and other dysfunctional plants will not resume operation. * Reactors will be decommissioned 40 years after start of operation. * No new nuclear power facilities will be built, excluding the third reactor at the Shimane plant (Chugoku Electric Power) and the first reactor at the Ohma plant (J-Power). * Facilities determined to be relatively safe following the completion of previous stress tests will be restarted in turn. * We assume the cost of nuclear power generation to be Y10.2/kWh, based on the government's scenario, which estimates Fukushima Daiichi Power Plant incident-related expenditures at Y20 trillion.
Thermal power	* To meet demand for power, operating rates will be boosted significantly. * Based on the government estimate (19 Dec 2011 report by a committee commissioned with making electricity generation cost projections), we assume power generation costs for crude oil, LNG, and coal to move depending on utilization rate.
Cogeneration	* We assume power generated will increase at a fixed rate annually in order to meet the government plan (=cogenerated power to account for 15% of overall power in FY30).
Renewable energy	* We assume power generated from these sources will account for 20% of overall power in FY22 (25% in FY30), a conservative view compared to the government plan. * The feed-in tariff (cost) of solar power will decline to about 70% of the current rate by FY22 thanks to technological innovation and upscaling.
Power demand	* We assume demand to increase in line with economic growth estimated based on our medium-term macroeconomic model. Meanwhile, thanks to energy-saving technology and efforts, demand growth will be gradually restrained. In FY22, demand will be 6% less compared to the case where no energy-saving efforts are seen.

Source: Compiled by DIR.

Outlook for Electricity Prices (FY10=100) **Chart 1.12**



Source: National Policy Unit (19 Dec 2011 report by a committee commissioned with making electricity generation cost projections); compiled by DIR.
Notes: 1) Actual electricity demand for FY10 and FY11 vs. DIR estimates thereafter.
2) FY30 power source share assumed to be 25% for renewable energy, 15% for nuclear power (incl facilities under construction), 21% for coal, and 35-36% for LNG (incl. 16% share for cogeneration systems).
E: DIR estimates.

1.3.2 Reconstruction, social security, and taxes

We have assumed that reconstruction demand related to the Great East Japan Earthquake will be about Y22 trillion for the public sector and about Y5 trillion for the private sector. We also assumed that reconstruction projects will primarily occur in a five-year period from 2H FY11 and that demand will mostly materialize in the first half of our forecast period. We have assumed that most public sector reconstruction projects will be executed in FY12. In practice, public works projects worth about Y10 trillion will be included in the supplementary budget for FY12 by way of emergency economic measures as well as in the FY13 budget, and thus, government expenditures should decline sharply in FY14.

Similar to our previous outlook, we have assumed that taxes will be increased by an amount totaling Y10.5 trillion to cover reconstruction costs. Specifically, plans to reduce the effective rate of the corporation tax by 5% will be deferred three years from FY12, a special reconstruction surtax of 2.1% will be applied to income tax for 25 years from January 2013, and a surtax of Y1,000 per person will be added to local residence taxes for a period of 10 years from June 2014. With respect to social security, *Outline of Comprehensive Social Security and Tax Reform* approved by the cabinet on 17 February 2012 and the three-party agreement that followed have been factored into our forecast.

2. Monetary Policy at a Turning Point and Effects of a Weaker Yen on Prices

The Liberal Democratic Party achieved a major victory in the House of Representatives election held in December 2012, and political power shifted to a new administration after four years. In stock and foreign exchange markets, expectations for a political transition caused the yen to depreciate and stock prices to rise from mid-November, and the yen depreciated to the Y90 level against the dollar. In terms of economic fundamentals, the European crisis in remission and Japan's trade balance turning negative were developments favoring yen depreciation. It is possible to say that the Abe administration took advantage of these trends and that its call for bold monetary easing accelerated the yen's depreciation.

2.1 Overview of inflation targeting and structural deflationary factors

2.1.1 Aspects of inflation targeting

At its Policy Board meeting of 21-22 January 2013, the Bank of Japan (BOJ) established a CPI growth rate of 2% as its inflation target and decided to engage in unlimited asset purchases starting in 2014 (until the end of 2013, asset purchases "shall be conducted up to the maximum outstanding amounts" specified in Principal Terms and Conditions for the Asset Purchase Program). Noteworthy is that the BOJ released a joint statement with the government that specified the objectives of overcoming deflation and achieving sustainable economic growth. A joint statement released in October 2012 merely bore the names of the BOJ Governor, the Minister of State for Economic and Fiscal Policy, and the Minister of Finance, and hence the joint statement of January 2013 clearly represents a stronger institutional commitment to policy coordination.

It does not appear, however, that the BOJ has actually changed its framework for implementing monetary policy following the Policy Board meeting. Strengthening the competitiveness and growth capacity of Japan's economy is regarded as a condition to be met in relation to overcoming deflation and increasing the inflation rate, and it would not necessarily be correct to say that the BOJ has changed its stance to overcoming deflation through its monetary policies. In *Background Note Regarding the Bank's Thinking on Price Stability* released by the BOJ on 23 January, the current monetary environment is considered to be extremely accommodative.

Question is what steps the government and the BOJ will take to achieve the target

While the BOJ has adopted 2% as its price stability target, this does not necessarily mean that the central bank has changed its framework for monetary policy since it has already been operating under a flexible inflation targeting policy. Even so, the release of a joint statement with the government and the disappearance of "1% for the time being" as the goal for inflation do signal a turning point. At the Council on Economic and Fiscal Policy, of which the BOJ Governor is also a member, monetary policy and price conditions are likely to be debated with greater intensity than before.

In the process of overcoming deflation, what will be desirable is the deepening of debate on how a price stability target should be understood with respect to such issues as the time lag of policy effects, the fostering of inflationary expectations, and the relationship between wages and prices—and this should be accompanied by a growing understanding among the public that monetary policy for ending deflation, although shadowed by certain issues, is slowly making progress. Moreover, there will be a need to clarify even more than before the roles and responsibilities of the government and the BOJ. To overcome deflation and achieve the inflation target, it will be important for the BOJ to strengthen its asset purchases under certain circumstances, but these are not objectives that can be met through monetary policy alone. As specified in the joint statement, the government should take steps that "include all possible decisive policy actions for reforming the economic structure, such as

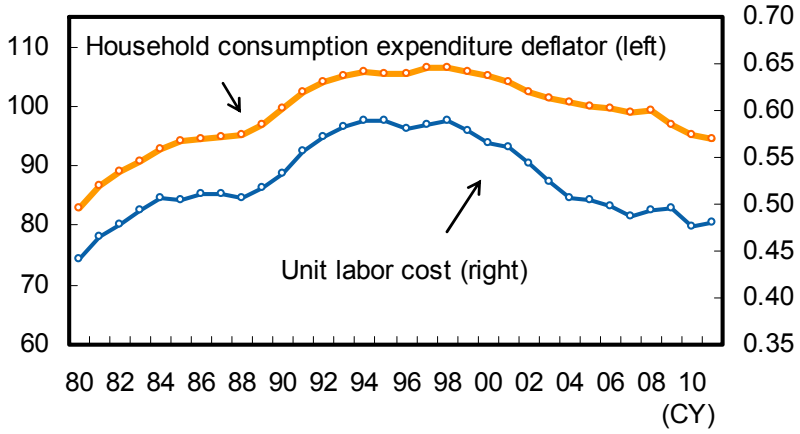
concentrating resources on innovative research and development, strengthening the foundation for innovation, carrying out bold regulatory and institutional reforms and better utilizing the tax system." Since the real economy and finance are two sides of the same coin, the government has the same level of responsibility for achieving these objectives. If the government foists the responsibility for deflation on monetary policy, there is no reason to think that expected inflation will steadily increase. The question is not establishment of an inflation target itself but what steps the government and the BOJ will take to achieve this target.

2.1.2 Backdrop to long-term deflation from the perspective of unit labor cost

How should deflationary factors be understood, and how should they be dealt with? If deflation consists of prices declining in the short term, this can be addressed through normal fiscal and monetary policies. This is because such deflation will have resulted from the easing of the macro supply-demand balance due to a worsening economy or from a financial shock like plunging asset prices. Deflation, however, has persisted in Japan for nearly 15 years. During this period, Japan experienced its longest postwar expansion, and successive administrations and the BOJ have implemented a multitude of policies to end deflation. Given this history, persistent deflation is clearly not a problem that can be solved through a single policy. Rather, it will need to be addressed in a comprehensive manner as a complex structural problem.

If deflation is understood to be a structural problem, investigating the background to unit labor cost (ULC) will prove to be effective, given that ULC determines the long-term trend of prices. ULC expresses labor cost per unit of production, and it is derived by dividing nominal employee compensation by real GDP.[3] Chart 2.1 presents the trend of the deflator for household consumption expenditures, corresponding to CPI on a GDP basis, and the trend of ULC. While these two indicators do not always move together in the short term, it should be evident from the chart that their long-term trends coincide.

ULC vs. Household Consumption Expenditure Deflator
(2005 = 100) **Chart 2.1**



Source: Cabinet Office; compiled by DIR.
Note: ULC (unit labor cost) = nominal employee compensation / real GDP.

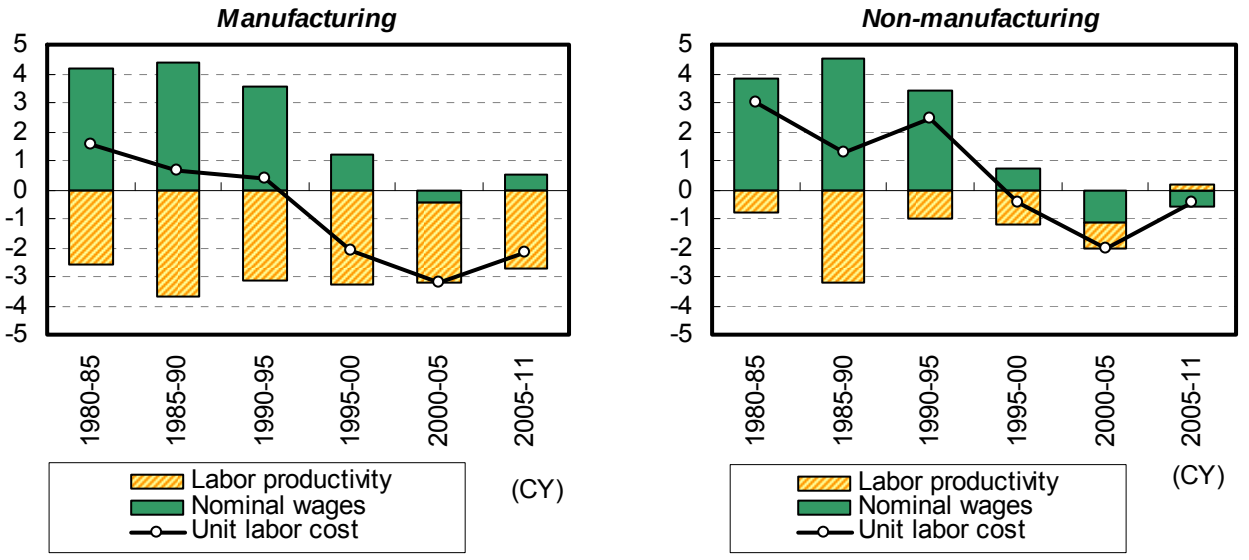
3. If we posit a Cobb-Douglas production function for the first postulate of classical economics (marginal product of labor equals real wages), the marginal product of labor will be proportional to labor productivity, and the following substitution can be made:
$(w - p) = (y - l) \Leftrightarrow (w + l) - y = p$ (all are logarithmic expressions; labor's share excluded; w: nominal hourly wages; p: prices; y: real GDP; l: total hours worked).
This means the growth of ULC and the growth of prices will equalize over the long term.

ULC is determined by nominal wages and labor productivity. That is to say, higher nominal wages will increase ULC, and higher productivity will reduce ULC. In relation to prices, higher nominal wages will increase prices, and higher labor productivity will reduce prices. Thus, to understand the trend of prices, it will be important to monitor the direction of nominal wages and labor productivity.

Factor analysis of ULC

Chart 2.2 portrays the results of dividing ULC shown in Chart 2.1 into that for manufacturers and non-manufacturers and comparing how these two ULCs change every five years from 1980 to 2011. To generalize, many manufacturing industries are capital intensive while many non-manufacturing industries are labor intensive. Thus, labor productivity tends to be higher in the former than in the latter. In fact, the labor productivity of manufacturing industries rose by an average 3% over the last 30 years, more than four times the 0.7% recorded by non-manufacturing industries when the asset bubble period is excluded. Compared to manufacturing industries, higher nominal wages easily results in a higher ULC for non-manufacturing industries to the extent that the growth rate of its productivity is low. Moreover, while the level of nominal wages may differ for manufacturers and non-manufacturers, since the domestic labor market is unified, they tend to change in the same direction as they influence each other. For example, when wages increase in manufacturing industries, non-manufacturing industries will also raise wages to secure labor. Since non-manufacturing industries will be unable to absorb increases in labor costs through higher productivity, it will transfer the increases to sales prices, causing CPI to rise. Services account for 50.7% of CPI (base year of 2010), underscoring that changes in non-manufacturing industries' ULC have a larger impact than those of manufacturing industries.

Breakdown of Unit Labor Cost of Manufacturing and Non-manufacturing Industries (y/y %) **Chart 2.2**



Source: Cabinet Office; compiled by DIR.
Note: Nominal wages=man-hour basis.

Productivity has been stable over the last 30 years, and nominal wages have tended to set the pace for ULC and prices. Before Japan's economy was overtaken by deflation (1980-95), nominal wages grew at an average rate of around 4% for both manufacturing and non-manufacturing industries. Since this was higher than the growth rate of productivity, ULC and prices rose. Once deflation took hold (1995 and beyond), however, the growth rate of nominal wages rapidly slowed, and it remained low without returning to its former level. As a result, ULC has continued to trend downward.[4] As this should

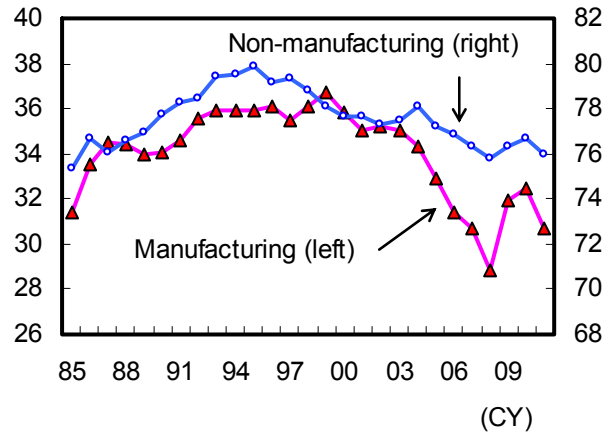
4. For Japan as a whole, nominal hourly wages increased an average 0.9% from 1995 to 2000 and then trended downward in the 2000s, declining an average 1.0% from 2000 to 2005 and then an average 0.4% from 2005 to 2011.

indicate, nominal wages represent an important key for analyzing structural problems of deflation. In the paragraphs to follow, we examine reasons why the growth of nominal wages has slowed compared to the years before deflation.

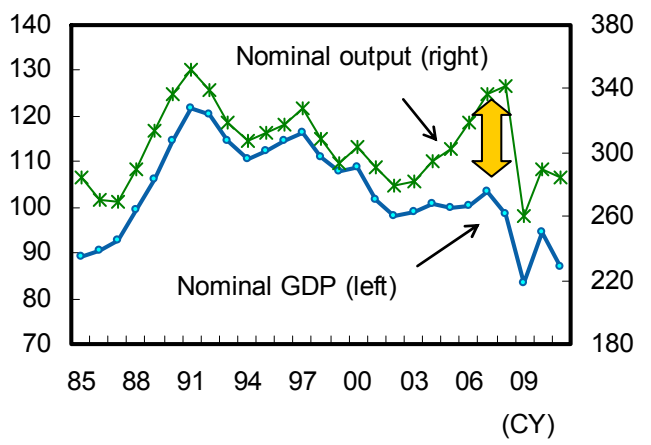
Background to nominal wage declines

The ULC of manufacturers can be understood as an indicator of international competitiveness with respect to costs. The further ULC declines, the greater their export competitiveness will be.[5] In the 1990s, the progress of globalization was accompanied by the growing presence of emerging economies, and this trend accelerated in the 2000s. Japan's export industries, in the context of high resource prices and the persistent shift to a stronger yen, maintained the competitiveness of Japanese products by refraining from transferring costs to selling prices. In short, they secured export volume by allowing the terms of trade (export prices / import prices) to worsen. Forgoing the passing through to selling prices the increase in raw material costs and/or the appreciation of the yen represents the effective reduction of prices, which companies sought to offset through labor costs. Naturally, costs can be absorbed if productivity rises, but since their productivity was increasing at a fixed pace, manufacturers reduced ULC by restraining the growth rate of nominal wages. While Japan's export volume grew at a certain rate during the longest postwar expansion that started in 2002, since wage increases were suppressed even when the yen depreciated, the wages paid by export industries did not grow as they did in the first half of the 1990s.

Macroeconomic Gross Profit Margin **Chart 2.3a**
(nominal GDP to nominal output, %)



Manufacturing Nominal Output and GDP **Chart 2.3b**
(Y tril)



Source: Cabinet Office; compiled by DIR.

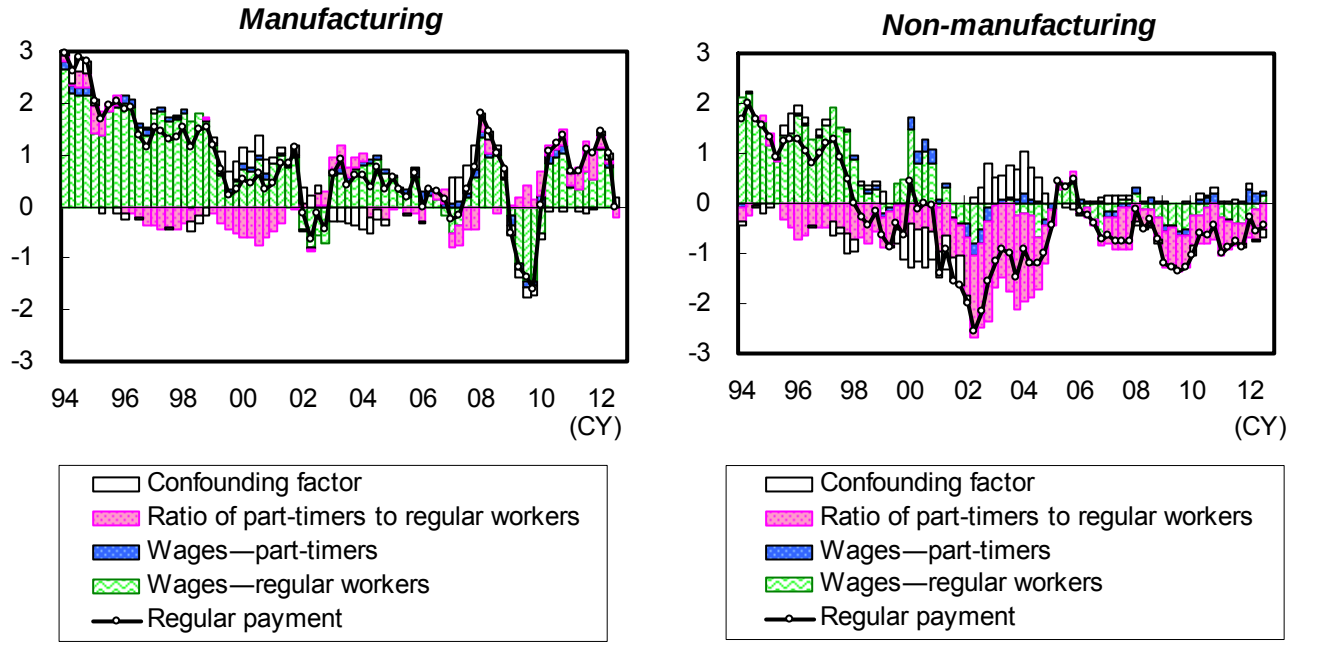
Such behavior by manufacturers took clear form as declining profitability. Chart 2.3a illustrates the trend of nominal GDP divided by nominal output value,[6] which can be understood as the macro gross profit margin. The gross profit margin of manufacturing industries fell rapidly once crude oil prices began to trend upward in 2004. It fell to 28.9% in 2008, the lowest for the 2000s and 8 percentage points below its peak since 1980 (36.7% in 1999). The nominal output value of manufacturing industries rose to Y342 trillion in 2008, a level only exceeded by the high reached in 1991 during the asset bubble period (Y352 trillion). Even so, nominal GDP in 2008 was Y23 trillion (about 20%) less than the corresponding figure for 1991 (Chart 2.3b). Although Japan's economy experienced its longest postwar expansion from 2002 to 2007, the nominal GDP of manufacturing industries was

5. Since raw materials and intermediate goods can be transferred internationally through trade, differences in manufacturing costs between nations are largely explained by differences in labor costs.
6. GDP is expressed as production value minus intermediate input value. The latter corresponds to raw material costs of companies.

largely flat during this period. Falling profitability is also applicable to non-manufacturing industries. As seen in Chart 2.3a, the gross profit margin of non-manufacturing industries has undergone a secular decline after peaking in 1995. For nominal wages to rise, the profit environment of companies must improve. Since the second half of the 1990s, however, the profitability of both manufacturers and non-manufacturers has worsened, which is thought to be one of the factors constraining nominal wages.

As depicted in Chart 2.2, nominal wages of manufacturers and non-manufacturers tend to change in the same direction. In the 2000s, however, the nominal wages of non-manufacturing industries have continued to trend downward, which is largely explained by increases in the proportion of non-regular employees. Chart 2.4 provides a factor analysis of per employee nominal regular wages. The chart reveals that non-manufacturers adjusted the average level of wages by increasing the proportion of part-time workers, whose wage level is about one third that of regular workers. Regular wages of regular workers also began to trend downward in the first half of the 2000s. These wage adjustments have been severe compared to manufacturing industries where the growth of wages was maintained for the most part even if at a low level. One of the factors behind these developments is thought to be pressure to correct the differential in domestic and foreign prices. At the start of the 1990s, an issue that came under discussion was Japan's high prices as well as the nation's high production and living costs. It was argued at that time that, since prices for the equivalent goods and services were higher in Japan than in foreign nations, the differential in domestic and foreign prices was a matter that needed addressing. What had been an industrial structure attained through high service prices and high wages where consumers shouldered a significant burden has now changed through globalization and deregulation to one where the price mechanism functions.

Breakdown of Regular Payment by Industry (Y/y %) **Chart 2.4**

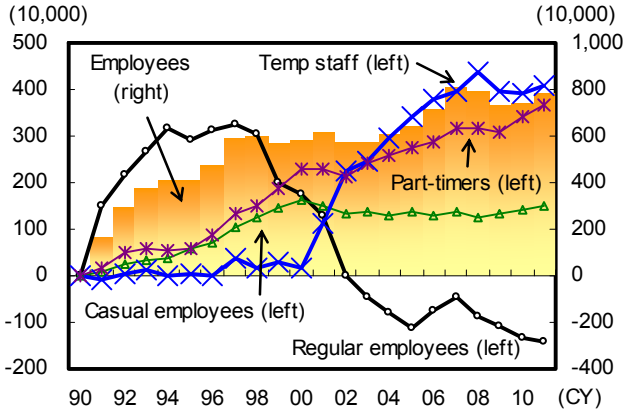


Source: Ministry of Health, Labour and Welfare; compiled by DIR.

Wage adjustments carried out from around 1998 are reflected in the sharp decline in the growth rate of nominal wages from 1995 to 2000. As can be ascertained in Chart 2.5, despite Japan's economy worsening rapidly from the collapse of an asset bubble, companies continued to hire workers centering on regular employees in the 1990s. This, combined with the introduction of two-day weekends during the same period, led to a contraction in total actual hours worked per employee. However, real wages that should have trended at a certain level in proportion to labor productivity continued to rise to the

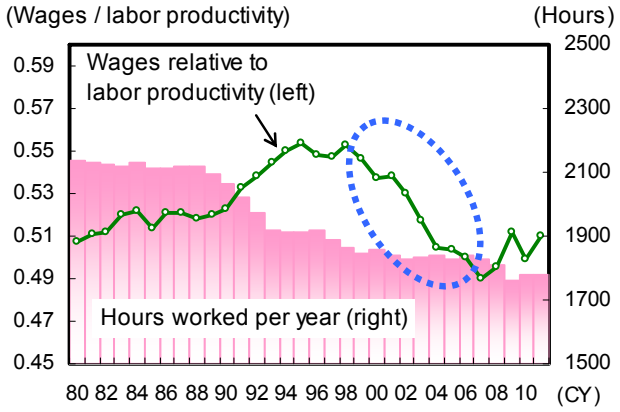
mid-1990s owing to such factors as weak company earnings, excess employment, and the downward rigidity of nominal wages (Chart 2.6). Real wages remained high to about 1998. The worsening of corporate earnings stemming from the Asian currency crisis in the summer of 1997 and financial uncertainties in autumn 1998 then gave way to the adjustment of regular employees and massive wage adjustments from 1998 to 2004. As a result, the ratio of real wages to labor productivity fell back to its level in the first half of the 1980s. With respect to employment, as portrayed in Chart 2.4, the proportion of non-regular employees increased for such non-manufacturing industries as services and wholesaling/retailing, which contributed to the retreat of average wages.

No. of Employees (Change from 1990) **Chart 2.5**



Source: Ministry of Internal Affairs and Communications; compiled by DIR.
Notes: 1) Excl. executive officers.
2) Temp staff=full-time non-regular workers with direct contracts or those dispatched from staff agency.
3) Casual employees=ad hoc workers.

Wages Relative to Hours Worked **Chart 2.6**



Source: Cabinet Office; compiled by DIR.
Note: Wages=man-hour basis; real terms.

2.1.3 Overcoming deflation requires the government to display its capacity to act

Given the problems associated with the industrial structure and labor market rigidities described above, nominal hourly wages have trended downward from around the end of the 1990s, which gave rise to deflation. Also, as noted above, even if demand is stimulated in the short term, a sustained increase in nominal wages and prices is extremely difficult to achieve. For nominal wages to grow steadily, it will be important to strengthen the profit foundations of companies in the context of monetary easing and to build a safety net that smoothly promotes the rehabilitation of companies and the reemployment of workers.

A perspective of increasing and enhancing qualitatively supply capacity will be necessary in seeking to improve the profitability of companies. This does not mean expanding the supply of goods and services that do not meet consumer needs. What will be needed is establishment of economic conditions where value-added is raised further through an unremitting process of company renewal and where new goods and services are created that improve living standards. To realize such an economy, the private sector will need to express a spirit of entrepreneurship and assume risk. For this reason, the Abe administration positioning growth strategies that encourage private-sector investments as a central pillar of its policies is clearly the right approach to take.

The Abe administration is also displaying enthusiasm for regulatory reform, which will be important in areas where demand is excessive. Whether demand exceeds supply is easy to judge by the number of people waiting in line, which is the case for day care centers, hospitals, and nursing care facilities. The number of children waiting for openings in day care centers indicates that the current supply capacity

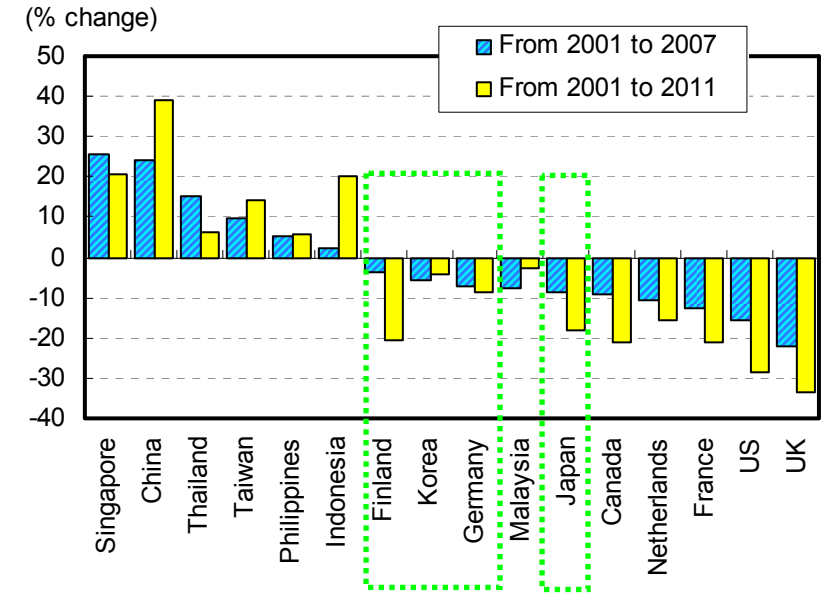
of such facilities does not match existing needs. Those sectors where consumers are at times willing to pay higher prices for medical care, nursing care, or child care are in markets that are highly regulated by the government. Carrying out regulatory reforms in such markets will strengthen the supply capacity of the economy and is certain to unleash potential demand.

Export companies have maintained earnings one way or another in the midst of worsening terms of trade. For such companies to regain their luster, the government should reduce the effective tax rate borne by corporations to a level corresponding to competitor nations and should expand foreign trade through free trade agreements and economic partnership agreements. As the expansion of the world economy progresses, a perspective of ascertaining demand on a global basis and meshing Japanese products and services with it will be indispensable. More broadly, the inbound investments of competitive foreign companies should be accepted to create jobs and to invigorate the domestic market.

In proceeding with deregulation and the liberalization of trade, the domestic industrial structure will need to smoothly change in response. In other words, it will be desirable for companies and workers in ebbing industries to smoothly transit to growth industries and for profitability and income levels to increase at both macro and micro levels.

Although some observers view the liberalization of trade negatively, since Japan engages in economic activities with other nations on a global basis, the domestic industrial structure is already changing under the influence of globalization. For example, as companies pursuing global opportunities transfer the assembly of products and other labor-intensive and low value-added work to emerging economies, related labor demand has contracted. In addition, the secular decline of employees in manufacturing industries has been observed in many advanced economies, and it is not a phenomenon that is unique to Japan. In fact, when the world economy grew strongly from 2002 to 2007, employment in manufacturing industries decreased not only in Japan and the US but also in such advanced industrial nations as Germany, Korea, and Finland (Chart 2.7).

No. Employed in Manufacturing Industry **Chart 2.7**



Source: Haver Analytics, CEIC data, Cabinet Office; compiled by DIR.

Deregulation and the liberalization of trade will cause the industrial structure to change at an even more rapid pace. For this reason, it would not be realistic to assume that all companies and workers in

ebbing industries will be able to smoothly transit to growth industries. In the short term, cases will arise where economic agents will encounter difficulties in the form of bankruptcies and frictional unemployment from their inability to adapt to changes in the economic structure. To swiftly eliminate such conditions, the government's role in providing a safety net will grow further. The purpose of a safety net is not to prevent bankruptcies and unemployment in industries in structural decline. Rather, it is to promote the launching of new businesses and the creation of jobs in growth industries. If the environment is in place for companies and people to accept challenges, companies taking risks would increase, creating value added and jobs.

Systemic reform toward the achievement of a highly flexible labor market will be a key issue in this process. As noted above, in the current labor market, regular employment is highly rigid. This situation is giving rise to such problems as non-regular employees bearing the brunt of unemployment risk, and young people being reluctantly employed in non-regular positions and finding themselves in lengthening periods of unemployment. If regulations are eased and trade liberalized without addressing these problems of the labor market, reemployment may not proceed smoothly and the unemployment rate may rise for structural reasons.

Hence, it will be important to create a system that lowers the barrier between regular and non-regular employment. What is needed is a process where the risk of unemployment is shared by society as a whole rather than having it fall exclusively on some segments of the population. How to balance a more flexible termination system for regular employees and improved compensation for non-regular employees will require a national debate. For example, the practice of downsizing employees by reducing non-regular employees should be ended so as to lessen the unemployment risk attaching to non-regular employees. Another possibility is to lower the corporate contribution to employee social insurance premiums, and, instead, to raise the tax burden to create a system where society as a whole supports the social security of workers. This would reduce the employment costs of companies, which can be expected to increase their interest in hiring regular employees.

Growth strategies are one of the three priority areas of the Abe administration. Much of what we have discussed above is reflected in these strategies of the new administration. The question is whether growth strategies will actually be implemented. The easing of regulations and liberalization of trade has both supporters and detractors, making political decisions difficult to reach. To overcome deflation that has lasted for nearly 15 years and to return to a vigorous Japanese economy with moderate inflation, the new administration will not only need to distribute policy benefits but will also need to steadily inculcate a willingness to persevere.

2.2 What effect will yen depreciation have on the economy and prices?

2.2.1 Adverse impact in the short term, positive impact as time passes

The adoption of an inflation target and other changes in monetary policy do not yet denote a major change in the framework for such policy. There is no question, however, that these changes have altered the sentiment of domestic and foreign investors, which is evidenced by the depreciation of the yen and the ascent of share prices. The yen has weakened from around Y80/$ in mid-November to a level exceeding Y90/$. Naturally, the reasons for yen depreciation are not limited to domestic factors. It is also the outcome of improvements in the external environment, such as the US and Chinese economies trending toward recovery and the headway being made in dealing with the European sovereign debt crisis. Given these developments, investors have pulled back from purchasing the yen as a safe-haven currency. In the midst of these changes, the dissolution of the House of Representatives on 16 November gave new plausibility to a change in administration, and expectations that deflation would be overcome intensified, particularly among foreign investors.

In this context, a matter of interest is how Japan's economy will be affected by yen depreciation. While the downsides of a strong yen have drawn attention to date, a weak yen also has its drawbacks. A typical example is the ascent of costs from higher import prices. About 50% of Japan's export value and about 70% of its import value is denominated in dollars. Hence, a simple calculation would indicate that the yen depreciating against the dollar would worsen the trade balance. This assumes, however, that all economic agents, whether domestic or foreign, would not change their behavior when the yen weakens. Thus, the statement that yen depreciation has an adverse impact on the economy applies only in the short term when the behavior of economic agents has not changed so much.

In reality, yen depreciation increases the international competitiveness of export industries, and export volume will grow with the passage of time. This in turn will expand production activity and increase hours worked, thereby inducing capex. It will also contribute to an improvement in corporate earnings and the employment and income environment for households. All these effects will need to be factored in to understand the actual impact of a weaker yen.

As one possible benchmark, Chart 2.8 presents an estimation of the effects of yen depreciation using our macroeconomic model. Specifically, we calculated how Japan's economy would be affected by the yen depreciating 10% against the dollar and this situation continuing for one year. Figures in the chart indicate deviation from the situation where the yen does not depreciate (base scenario). The yen depreciating 10% against the dollar would improve real GDP by around 0.2 to 0.4 percentage points from the second year forward. Deviation is the greatest in the fourth year when it reaches 0.41 points. In terms of demand components, the yen depreciating against the dollar would increase real exports with a lag, and this effect would spread primarily to capex. In addition, yen depreciation would increase import prices and reduce import demand, and real imports would decline compared to the standard scenario. While the improvement in the economy would cause the long-term interest rate to rise, the budget balance would improve as tax revenues increase from expansion of the economy.

10% Depreciation of Yen against Dollar Continues for One Year **Chart 2.8**

Deviation from absence of yen depreciation; %, %pt

	Real GDP							
		Private final consumption	Private housing investment	Private capital investment	Government final consumption	Public fixed capital formation	Exports	Imports
1st year	-0.06	0.00	0.00	-0.06	-0.10	0.10	0.00	0.17
2nd year	0.28	0.03	0.32	1.13	0.03	-0.49	2.29	1.16
3rd year	0.24	0.00	-0.34	0.19	0.03	-0.36	0.97	-0.13
4th year	0.41	0.06	-0.22	0.00	-0.01	-0.66	0.43	-1.95
5th year	0.18	0.09	-0.06	0.06	-0.10	-0.28	0.23	-0.48
	Y/$	GDP gap	Unemployment rate	CPI	Short-term interest rate	Long-term interest rate	Current balance	Fiscal balance (central & local government)
							(% of nominal GDP)	
1st year	10.00	-0.04	0.01	0.04	0.01	0.00	-0.10	-0.03
2nd year	0.00	0.18	-0.03	-0.02	0.11	0.06	0.04	0.06
3rd year	0.00	0.13	-0.05	0.02	0.08	0.05	0.08	0.05
4th year	0.00	0.24	-0.06	0.05	0.23	0.13	0.33	0.11
5th year	0.00	0.10	-0.05	0.13	0.13	0.07	0.04	0.04

Source: Compiled by DIR based on DIR's medium-term macroeconomic model.

Impact of yen depreciation on CPI will be small

What deserves special attention in this chart is the impact of yen depreciation on CPI. It is natural to think that the expansion of the economy would tighten the macro supply-demand balance and give rise to inflationary pressure. However, our simulation with a macroeconomic model reflecting Japan's

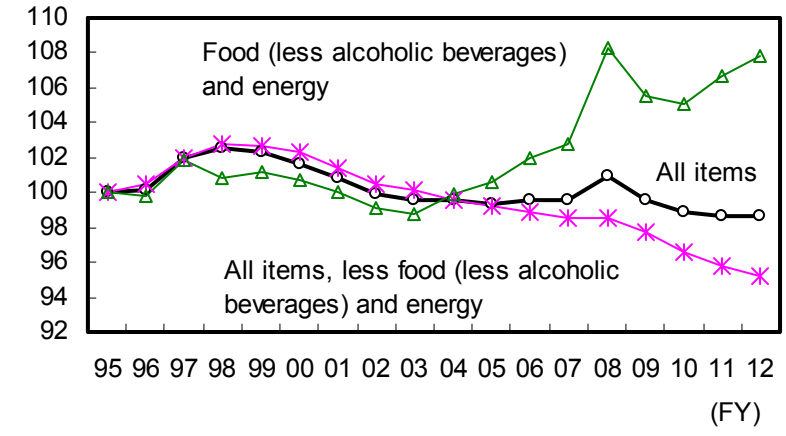
economic structure discloses that the impact on prices will be extremely small. CPI is a price index of 588 items adjusted by consumption value weightings for a given base year. Gasoline and other energy-related items that are readily influenced by exchange rates account for nearly 8% of CPI. A straightforward calculation indicates that, should the yen depreciate 10% against the dollar, energy prices would rise 5% and CPI would increase 0.4 percentage points if the prices of all other items are unchanged. In reality, since CPI components include a range of imported items like wheat and textile products, the impact of the yen depreciating against the dollar may be far higher than the results of our simulation might indicate.

An examination of past price trends, however, reveals that CPI does not necessarily increase in accordance with the increase calculated from the growth rates and weightings of its components. In other words, when the prices of daily staples and some other items rise, demand for other items will fall and their prices will decline. Hence, CPI as a whole has barely climbed.

Chart 2.9 presents the trends of CPI (all items), CPI excluding food (excl alcoholic beverages) and energy, and CPI for food (excl alcoholic beverages) and energy. Many of the items included in food and energy are strongly influenced by forex rates and commodity prices. Hence, a comparison of these three indices will enable us to infer how prices will change when the yen depreciates. The food and energy CPI, which accounts for about 30% of consumption value, has trended upward from around 2004 owing to the increase in commodity prices and depreciation of the yen. The correction of crude oil prices together with accelerating yen appreciation, however, temporarily stemmed the ascent of this index. Since 2011, the food and energy CPI has reverted to an upward trend. CPI excluding food and energy, with a 70% share of consumption value, has trended downward even in the period between 2005 and 2007. CPI (all items), a weighted average of the other two CPIs, has been on a gradual downward trend. As a result of reflecting these past price trends in our macroeconomic model, it is quite likely that the upside effect of yen depreciation on prices is understated in our estimation by a considerable degree.

Should the yen trade at 90/$ from January 2013 to the end of FY13, it would depreciate around 9% against the dollar compared to FY12, which would closely correspond to the assumption for our simulation portrayed in Chart 2.8. Thus, should the yen continue to trade at its current level for over a year, the upside impact on CPI will be quite small based on past economic trends. That said, should yen depreciation extend not for one year but over the long term, the resulting story will be quite different. Since inflationary pressure will accumulate through expansion of the economy, prices can be expected to trend gradually upward.

Consumer Price Index (1995 = 100; 2010 weightings) **Chart 2.9**



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

2.2.2 Two points at issue regarding exchange rates

Here we examine two points at issue regarding forex rates. They are (1) strong or weak forex rates and their impact on the economy and (2) the desirable level of forex rates. Following the transition to a floating exchange rate regime, Japan has achieved economic growth as a trading nation while at times being exposed to extremely volatile forex rates. This has made Japan a nation whose interest in forex rates is one of the highest in the world. Many people, such as market participants and individuals who deal with foreign currencies, have developed their own views and thinking regarding foreign exchange. For this reason, we will elucidate our perspective on foreign exchange and clarify the similarities and differences that exist with other viewpoints.

Point 1: Strong or weak exchange rates and their impact on the economy

The economic effects of a weak or strong yen are often debated in terms of a specific forex rate level. It is not appropriate, however, to debate economic effects only in such terms. When the forex rate between two nations is at a level that reflects economic fundamentals (i.e., the equilibrium exchange rate), the effect of this forex rate is neutral for both nations. When the yen's forex rate coincides with its equilibrium exchange rate, the Japanese currency cannot be called strong or weak whether its forex rate is Y50/$ or Y200/$. Since the equilibrium exchange rate is determined by the economic fundamentals of the two nations constituting the currency pair, its level is not rigid but changes gradually on a daily basis.

Forex rates have an economic impact when they deviate from equilibrium level. The size of this impact is determined by degree of deviation and rate of change. Companies generally manage production activities by considering the optimum input of people and goods in relation to economic fundamentals so as to generate as much value added as possible. Should the yen deviate from its equilibrium forex rate, they will be compelled to reallocate staff and goods and to alter contracts, and profits will be squeezed. Also, since companies will need some time to respond appropriately, should forex rates change at a faster pace than companies can respond, higher costs and other inefficiencies will be experienced, and the economy will worsen from the decline in corporate earnings and household income.

These prospects will apply whether the yen strengthens or weakens. Yen depreciation will naturally bring upside pressure to bear on the economy, as we have noted above. In the long term, however, if the yen depreciates excessively, the forex rate will eventually converge on the equilibrium exchange rate, and the forex rate will turn to appreciate at some future moment (frequently overshooting the equilibrium level). As a result, the level of capital stock and employees deemed optimal by companies will become excessive, which will require massive adjustments and will worsen earnings. This is precisely what export industries experienced in the wake of the Lehman crisis. It is not the weakest forex rate that is the most desirable. Rather, what is desired is a forex rate that changes at a pace gradual enough so economic agents can respond in conformity with economic fundamentals.

Point 2: Desirable level of forex rates

The next issue concerns the question of what forex rate corresponds to an equilibrium exchange rate. Of the various approaches for calculating an equilibrium exchange rate, purchasing power parity (PPP) is highly practical and has empirical support.

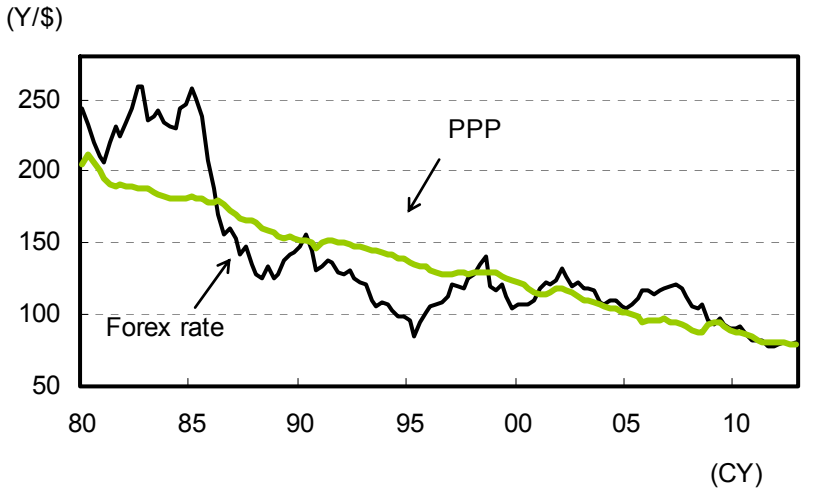
PPP assumes that exchange rates are determined so that the purchasing power of nations equalizes to realize one price for identical products in the long term. Specifically, the growth rate of PPP corresponds to the difference in the inflation rates of trade goods between respective nations (strictly speaking, our discussion concerns relative PPP since it employs growth rates rather than price levels). Two problems, however, can be mentioned. First, no trade goods price index exists that matches the

thinking behind PPP. Second, the equilibrium level will differ depending on the chosen estimation period and on the price index used as the proxy variable. Of the price indices that exist in Japan, the Domestic Corporate Goods Price Index is thought to be closest to the thinking behind PPP.

The PPP published by the OECD is sometimes used as an indicator of the desirable level of forex rates.[7] The OECD PPP was Y103.9/$ in 2012, more than Y10 weaker than the yen's recent forex rate. The OECD PPP was developed to measure the economic size (GDP) and average consumption level of nations, and it factors in relative prices between many nations for a broad range of goods and services constituting GDP. Since the OECD PPP does not express the relative price trends of trade goods, it is not a suitable indicator of whether forex rates are undervalued or overvalued.

For our purposes, we selected the Domestic Corporate Goods Price Index of Japan and the Producer Price Index of the US as proxy variables for the prices of trade goods in calculating PPP.[8] Chart 2.10 portrays this PPP and the trend of the forex rate. As discussed above, PPP calculations will need to be viewed with a certain degree of latitude. The specific level of the PPP we indicate is not that significant. The important point to note is that PPP does express the trend of forex and that theory proves to be applicable in the long term. PPP and forex rate rarely coincide, however, in the short term. For example, from the 1980s to the 1990s, the forex rate deviated from PPP significantly and over the long term. This divergence is precisely the strong or weak yen that affects the economy in a manner that cannot be explained by the basic factor of prices.

Y/$: Forex Rate and PPP **Chart 2.10**



Source: Bank of Japan, US Bureau of Labor Statistics; compiled by DIR.
Note: Purchasing power parity (PPP) estimated for the period from Jan-Mar 1980 to Oct-Dec 2012 based on the following equation:
ln (Y/$) = 5.07 + 0.99 x ln (Japan's Domestic Corporate Goods Price Index / US Producer Price Index).

When we focus on the rates of change in these two statistics, PPP is extremely stable compared to the forex rate. Factors thought to influence differences in the inflation rates of trade goods include the wage growth rate and production structure (labor input ratio, intermediate input ratio, and capital input ratio) in the trade goods industries as well as the rate of technological progress. Since these factors

7. The IMF also publishes a PPP, but since it is based on the OECD PPP, it is essentially the same statistic.
8. The PPP of the yen against the dollar is generally calculated by (1) selecting price indices for Japan and the US, (2) determining the period when yen-dollar PPP was equal to the forex rate (base year), and (3) extending the PPP forward from the base year according to the difference in inflation rates between Japan and the US. Rates of change, however, can differ between the price indices selected in (1) and the true prices of tradable goods, and the determination of (2) is somewhat arbitrary. In this report, we chose a regression equation to address these problems. With this method, nearly the same results are attained when CPI is used.

change only gradually at the macroeconomic level, the movement of relative prices is moderate. Forex rates, however, change in accordance with such indeterminate factors as the occasional news that sways forex markets, differences in nominal market interest rates, and the outlook for relative inflation rates. As a result, they can at times swing widely.

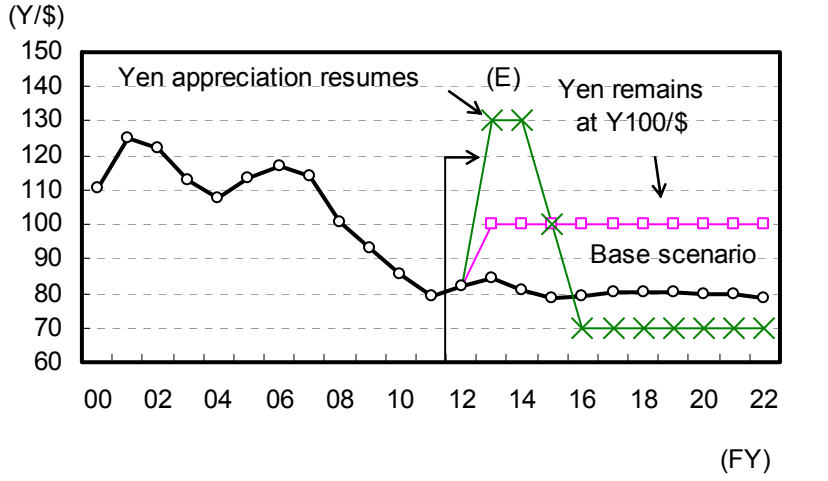
What is worth recalling at this juncture is the causal relationship between prices and exchange rates. PPP essentially determines exchange rates according to relative inflation rates. History discloses, however, that when forex rates deviate from PPP and undergo excessive shifts, such changes will alter PPP. That is to say, the relationship between PPP and forex rates goes both ways. When the yen forex rate diverges greatly from PPP and appreciates sharply as occurred after the 1985 Plaza Agreement or in 1995, the allocation of resources and income becomes distorted to the same degree, and PPP shifts. Chart 2.10 indicates that the recent forex rate is nearly the same as PPP. The crucial point here is that, if forex rate represents a strong yen, so too does PPP as a result of persistent deflation, and the divergence between the two appears to have been eliminated. In contrast, should the yen remain weaker than PPP, the expansion of the economy can be expected to shift PPP toward a weak yen.

2.2.3 What will happen to the economy and prices if the yen remains weak over the long term?

Based on the above analysis, we performed a simulation with our macroeconomic model on how the economy and prices would be affected if the yen remains weak over the long term.

First, we present our assumptions for the yen-dollar forex rate. The forex rate in our base scenario in this report is the forecast value derived endogenously from our macroeconomic model. It is estimated based on forecast values with regard to the Japan-US difference in inflation rates and in interest rates (Chart 2.11). In other words, it can be understood as representing an economically neutral level derived from the economic fundamentals of Japan and the US. Besides the base scenario, we assumed two scenarios for the yen-dollar forex rate. In the first, “Yen remains at Y100/$,” we assumed that the yen would depreciate Y20 from the base scenario starting in FY13 and would then remain at that level. In the second, “Yen appreciation resumes,” we assumed that the yen would trend at 130/$ in FY13-14, would rapidly appreciate to 70/$, and then remain at that level from FY16. In both of these scenarios, we assumed that the short-term interest rate would be 0% during the forecast period. Interest rates are not increased even if the economy overheats, which means an environment where prices will more readily rise in that degree.

Three Scenarios for Y/$ **Chart 2.11**

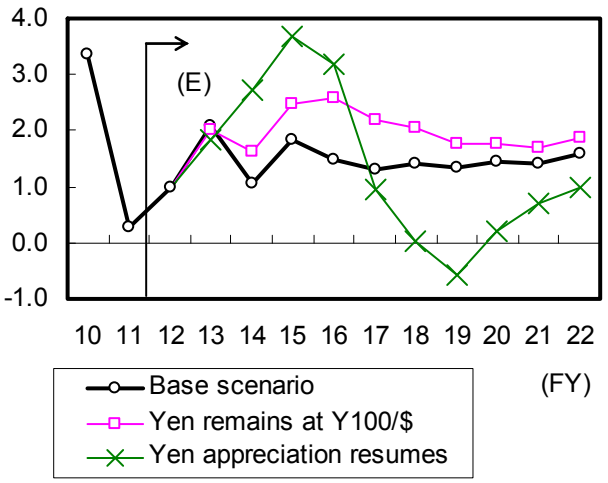


Source: Bank of Japan; compiled by DIR.

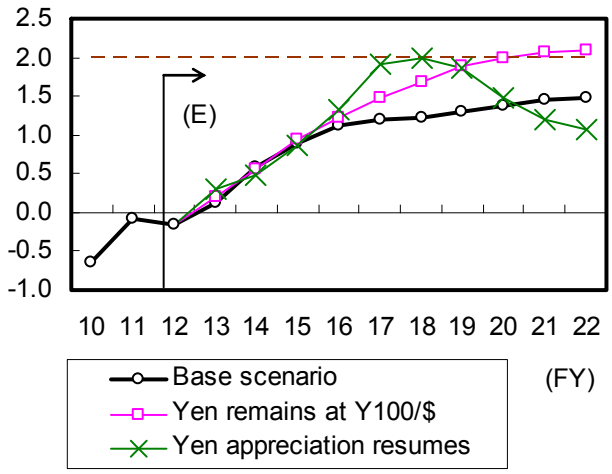
In the "Yen remains at Y100/$" scenario, the yen would be 20% to 30% weaker than the base scenario, which is the economically neutral level. This is similar to yen depreciation seen from end-2005 to the Lehman crisis. The forex rate at a stable Y100/$ would still represent depreciation beyond the level suggested by economic fundamentals. As a result, the economy would be exposed to constant stimulation, and prices would experience sustained upside pressure. While the "Yen appreciation resumes" scenario is based on a somewhat extreme assumption, its purpose is to understand the impact on prices of the yen depreciating sharply and the impact on the economy when the yen then turns to appreciate.

Simulation results are as shown in charts 2.12a and 2.12b. In the "Yen remains at Y100/$," scenario, the growth rate of real GDP increases in the context of a stable weaker yen, and it averages 0.5 percentage points more than the base scenario. Since the expansion of the economy tightens the macro supply-demand balance and places upside pressure on prices, the inflation rate gradually increases. In this scenario, inflation reaches 2% in FY20 and remains at a level above 2%. In contrast, in the "Yen appreciation resumes" scenario, the stimulative effect of a weaker yen plays out around FY16, and in subsequent years the economy experiences downward pressure from the yen's appreciation. Economic growth is less than the base scenario in FY18 and beyond, and the yen value of real GDP is less than the base scenario in FY22. With respect to the inflation rate, since the stimulus effect of the initial depreciation of the yen spreads to prices with a lag, inflation is higher than the base scenario for some time. This difference gradually diminishes, and inflation is less than the base scenario in FY21 and beyond.

Real GDP Outlook (y/y %) **Chart 2.12a**



Outlook for Inflation (y/y %) **Chart 2.12b**



Source: Compiled by DIR based on DIR's medium-term macroeconomic model.
Note: In order to clearly see the impact of changes in the yen-dollar rate, the impact of probable consumption tax hikes from FY14 is excluded in Chart 2.12b.
E: DIR estimates.

We can derive four conclusions from these results. First, prices will increase weakly. Our two scenarios assume that the yen would depreciate rapidly from FY13. In the "Yen appreciation resumes" scenario, the yen is assumed to depreciate by a considerable degree to Y130/$. The growth rate of CPI to FY16, however, is not all that different than the base scenario. CPI does not approach 2% growth until FY17 at the earliest. The government and the BOJ are aiming to achieve an inflation target of 2% as soon as possible, but this will be difficult to achieve merely through yen depreciation.

Second, the "Yen remains at Y100/$" scenario is not very realistic. In this scenario, an inflation rate of nearly 2% is achieved in FY20. Will a weaker yen, however, be sustained over such a long period in

global financial markets where massive yen-dollar transactions of around $570 billion[9] occur on a daily basis? The longest postwar expansion Japan experienced in the 2000s was the result of the expansion of the world economy in the context of quantitative monetary easing and yen depreciation driven by the yen carry trade. The yen weakened at that time in a similar degree to our simulation. In other words, the "Yen remains at Y100/$" scenario will only be achieved if the world economy gradually expands without relapsing and if the yen depreciates more than it did in the mid-2000s and sustains this magnitude of depreciation for nearly 10 years. It is safe to say that the probability of such a scenario materializing is low.

Our third conclusion concerns how prices would be affected if a weaker yen is unsustainable. Should the yen begin to appreciate sharply as in the "Yen appreciation resumes" scenario, economic volatility would increase and the achievement of the 2% inflation target would likely be delayed. As noted above, when exports expand accompanying yen depreciation and when companies respond by increasing capital stock and employee levels, earnings grow. Then, when the yen begins to appreciate, companies will be compelled to adjust capital stock and employee levels. These adjustment costs will increase the more sharply the yen depreciates, and more time will be needed to work through these adjustments at the macroeconomic level. Such adverse effects cannot be adequately mirrored in a macroeconomic model, and it is reasonable to think that the economy will worsen more than indicated by simulation results. What is needed for the sustained rise of prices is sustainable economic growth but not the yen depreciating clouded by future uncertainties.

Fourth, this is precisely why yen depreciation should be viewed as an opportunity for engaging in regulatory and institutional reform and for strengthening the economic structure. Regulatory and institutional reform is highly likely to entail bankruptcies and frictional unemployment in the short term as the economic structure undergoes rapid changes. If the economic environment is a positive one at that time, cash flow management and reemployment will be easier to achieve than when that is not the case. Despite the temptation that arises during economic expansion to postpone unpopular reforms, reforms should be steadily implemented while market expectations are high. In this process, what should be emphasized is medium- to long-term growth capacity rather than the short-term growth rate.

9. Average value of daily transactions in April 2010. BIS (2010), *Triennial Central Bank Survey Report on global foreign exchange market activity in 2010*.

3. Energy Policies and Growth Strategies

3.1 Direction of the Abe cabinet's energy policies

The Abe cabinet is in full swing. Of the three priority areas it is pursuing, following bold monetary easing and flexible fiscal expenditures, endeavors related to growth strategies are expected to accelerate going forward.

In its energy policies, the Abe cabinet is aiming to achieve a best-mix and sustainable power generation structure in the next 10 years at the latest and, as an immediate priority area, to maximize both the installation of renewable energy capacity and the promotion of energy conservation during the next three years. At the present moment, however, a detailed path forward for achieving these objectives is not apparent. The nuclear incident accompanying the Great East Japan Earthquake has presented Japan with the opportunity of developing a long-term energy strategy. Such a strategy, however, has been left vague, a situation that risks having a major impact on future growth strategies.

Energy policies are expected to be promoted in a manner so as not to conflict with the basic guidelines of the Industrial Competitiveness Council (a shift from redistribution policies in the context of diminishing equilibrium to the creation of wealth through growth). The council comes under the Headquarters for Japan's Economic Revitalization and has been given responsibility for growth strategies. Thus, growth strategies are anticipated to address such issues as (1) the adoption of new targeting policies for strengthening competitiveness, (2) plans for restoring Japan's industries (restoration of manufacturing industries that are world-class competitors and the creation of high value-added service industries), and (3) international expansion strategies. More specifically, what is desired with respect to future energy policies are focused investments and systemic reforms in relation to the development of strategic industries and core technologies for realizing clean and economical energy supplies. Other desired policies are overcoming electric power and energy restrictions to restore the competitiveness of business operations in Japan, the export of leading-edge infrastructure systems related to electric power and energy, and focused investments for the development of methane hydrate and other marine resources. In short, it is reasonable to think that Japan's energy policies will be shifted toward those that strengthen, or at the very least do not impede, the growth capacity of Japan's economy.

In the following, we offer our assessment of the direction of expected energy policies in light of the immediate energy environment and factors that would promote future economic growth.

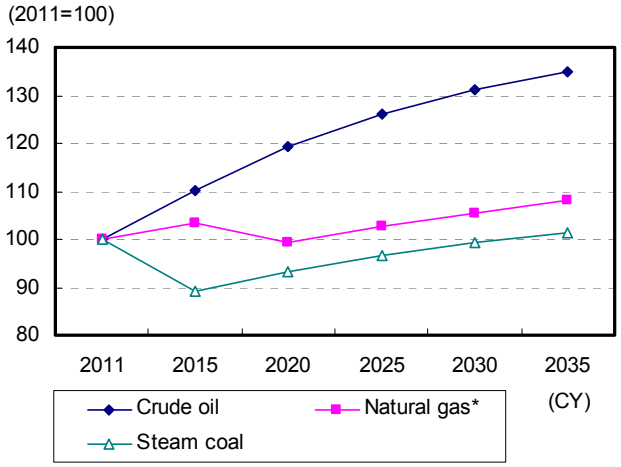
3.2 Fragility of Japan's energy situation revealed by power shortages

3.2.1 Long-term rise in energy prices and conditions for avoiding adverse impact

As revealed in Chart 3.1, there are concerns that energy prices centering on those of crude oil will rise in the medium to long term. While the price of natural gas (LNG) is expected to climb relatively slowly, the price Japan pays for natural gas is high in international terms. Japan's energy self-sufficiency rate is extremely low (Chart 3.3), meaning that it approaches negotiations over the import of fossil fuels from a weak position. Also, unlike the situation surrounding Europe and the US, where natural gas is supplied directly through pipelines, the LNG that Japan uses is associated with significant costs since it must first be liquefied, imported by tankers, and then stored in storage facilities. Thus, compared to other nations, the price Japan pays for LNG imports (dollar basis) tends to be high in structural terms, a situation that is shared by South Korea, another nation with a low energy self-sufficiency rate that depends on LNG (Chart 3.2). While the procurement cost of LNG may decline through the increased production of shale gas, demand is also foreseen to grow from

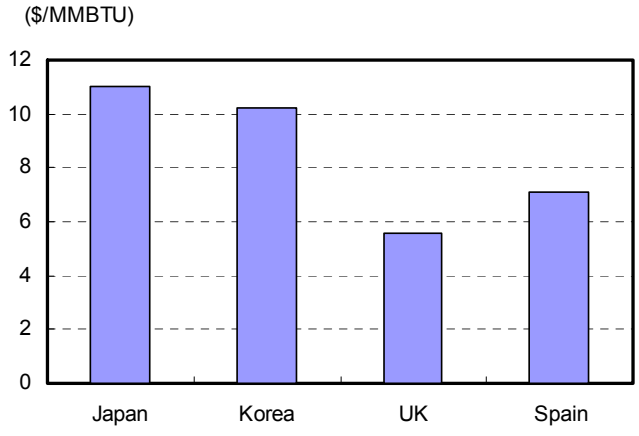
China and other emerging economies. Hence, there are uncertainties about whether LNG can actually be procured at an economical price.

Energy Prices (IEA outlook; $ basis) **Chart 3.1**



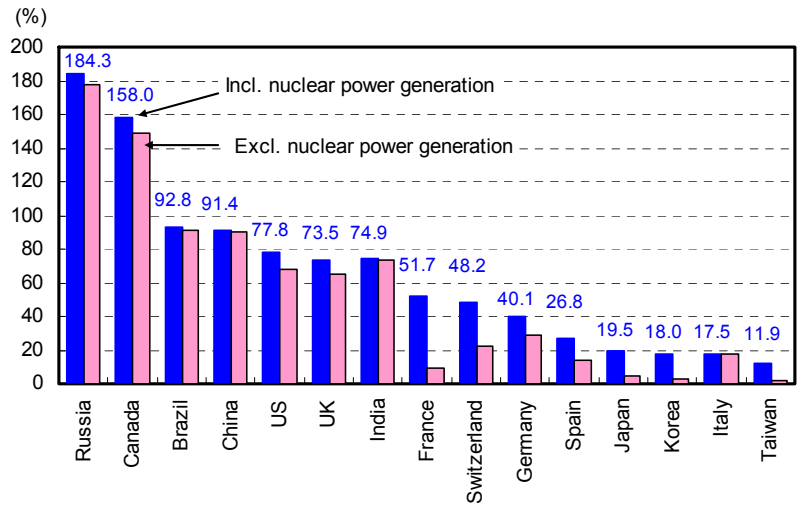
Source: IEA, *World Energy Outlook 2012*; compiled by DIR.
*Japan's LNG import price.

LNG Import Price by Nation (2010 avg) **Chart 3.2**



Source: IEA; compiled by DIR.

Energy Self-sufficiency Ratio in 2010 **Chart 3.3**



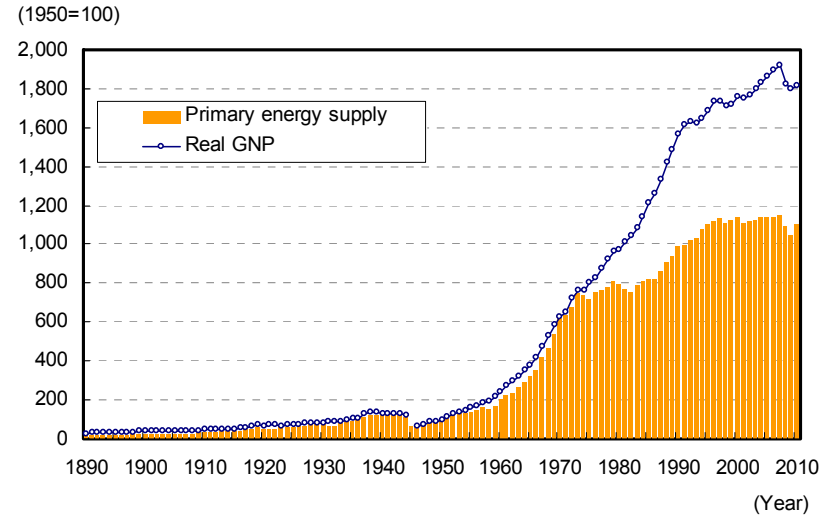
Source: IEA, *Energy Balances of OECD Countries, Energy Balances of Non-OECD Countries;* compiled by DIR.

Energy is a basic foundation that supports corporate activities and peoples' lives. As a result, higher energy prices will work to reduce corporate earnings and living standards. It will therefore be necessary to diversify the kinds of energy used, power generation methods, and fossil fuel sources to be able to utilize energy stably and economically (the achievement of energy security).

Higher energy prices, however, do not necessarily impose economic constraints. For example, higher energy prices contribute to the development and promotion of energy conservation technology and alternative energy. Such innovation has the potential of offsetting increases in energy costs. Chart 3.4 portrays Japan's real GNP and primary energy supply (energy supply before processing into such secondary energy as electricity and municipal gas) over the last 120 years. The chart reveals that, while the graphs of these two statistics moved in parallel to the first half of the 1970s, following two oil crises, Japan's real GNP continued to rise without being influenced to any great extent by constraints

in primary energy supply (higher energy costs). One reason for this outcome was the rapid spread of energy conservation efforts, which enabled energy constraints to be overcome through innovation.

Japan's Primary Energy Supply and Real GNP **Chart 3.4**



Source: Agency for Natural Resources and Energy, Institute of Energy Economics, Japan; compiled by DIR.
Notes: 1) Calendar year through 1950; fiscal year thereafter.
2) Real GNP (gross national product)=2000 prices.

In the short term, however, when innovation has yet to penetrate adequately, increases in energy costs will not be absorbed, and such increases will have a larger adverse impact. Moreover, in the medium to long term, unless a suitable economic environment for accelerating innovation has been put in place, the potential competitiveness of private-sector companies will not be fully expressed, and they may be affected by higher energy costs. Should this be the case, even if "introduction of international benchmark tests, including regulatory reforms based on international comparison," is pursued by the Abe cabinet as stated in a 25 Jan 2013 cabinet decision, high electricity prices may prevent Japan from "fostering strategic fields and enhancing" its "attractiveness" as one of the world's top investment destinations. Also, even if the creation of wealth through growth is aimed for, if increases in fossil fuel imports cause income to flow abroad more than before, this may prevent a virtuous circle of growth from materializing.

Therefore, unless the government can skillfully manage the economy, higher electricity and other energy prices may become a major impediment to the growth of Japan's economy. In contrast, if the government is able to foster a market environment and draws out the creativity of companies, higher energy prices are likely to promote innovation and contribute to economic growth.

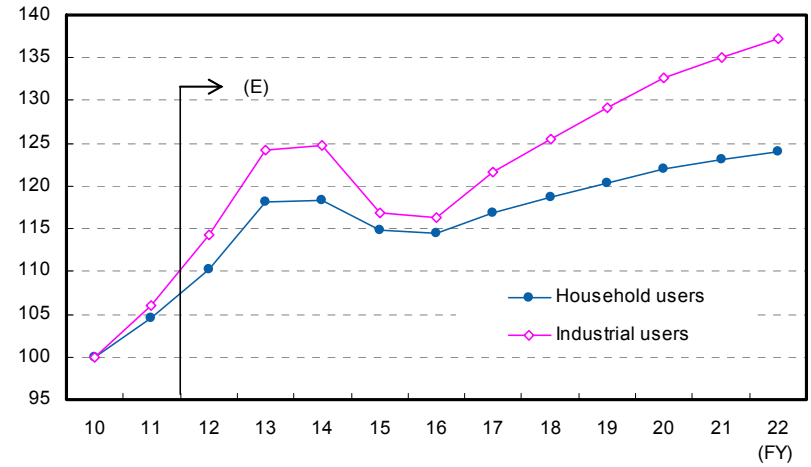
3.2.2 Key points in considering future energy policies

Short-term issues

What then should be done to avoid the short-term impact of higher energy prices (particularly electricity prices)? Currently, all nuclear power plants have been taken off line in Japan with the exception of the No. 3 and No. 4 reactors of the Oi nuclear power plant. Tokyo Electric Power has increased electricity prices within its service area, and electricity prices are scheduled to rise in Japan in April 2013, such as in the service areas of Kansai Electric Power and Kyushu Electric Power. Also, the new safety standards of the Nuclear Regulation Authority that are to take effect in July 2013 will be the basis for careful review of the safety of nuclear power plants. Thus, it is highly probable that the restart of nuclear power plants will be further delayed. A simulation of electricity prices shown in

Chart 3.5 assumes that nuclear power plants will be restarted in succession over three years from FY14. Even so, it is reasonable to assume that increases in electricity prices will accelerate nationwide for some time going forward.[10]

Outlook for Electricity Prices (FY10=100) **Chart 3.5**



Source: National Policy Unit (19 Dec 2011 report by a committee commissioned with making electricity generation cost projections); compiled by DIR.
Notes: 1) Actual electricity demand for FY10 and FY11 vs. DIR estimates thereafter.
2) FY30 power source share assumed to be 25% for renewable energy, 15% for nuclear power (incl facilities under construction), 21% for coal, and 35-36% for LNG (incl. 16% share for cogeneration systems).
E: DIR estimates.

Naturally, nuclear power plants should be restarted with due care in accordance with safety considerations. At the same time, those satisfying the new safety standards should be brought on line at an early date. Once nuclear power plants have been restarted, it will be important for the government to commit to (1) implementing at an early date bold deregulation that promotes innovation and (2) reducing the use of nuclear power when prospects are in place for eliminating power shortages through innovation. However, even if the use of nuclear power is reduced, it would not be wise in terms of energy security to lower such usage to zero. For a nation like Japan with an extremely low energy self-sufficiency rate, there is a risk that energy costs will rise unless energy sources are made as diverse as possible.

Given the above, what sorts of innovation would be effective for Japan's future energy policies? We will now examine energy policies from a medium- to long-term perspective.

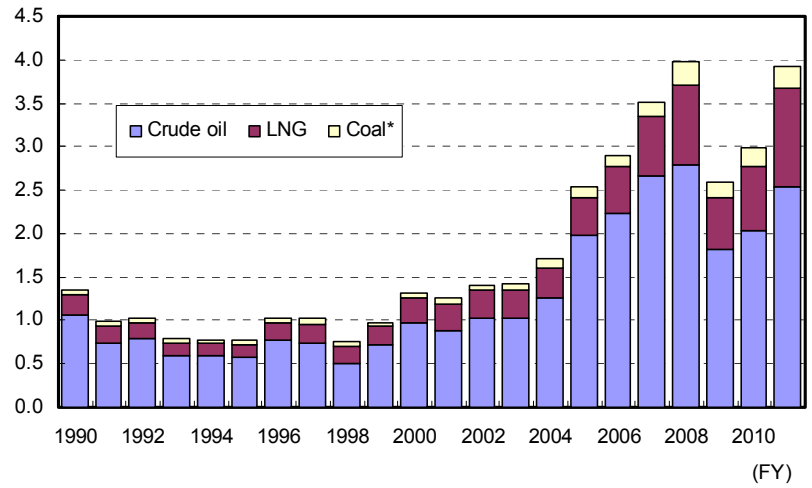
Medium- to long-term issues

Given its extremely low energy self-sufficiency rate, excessive dependence on and increased import of fossil fuels accompanying the halt of nuclear power plants after the Great East Japan Earthquake (Chart 3.6) have resulted in higher electricity prices and CO2 emissions in Japan. These developments have led to growing concerns about the stable supply of electricity. The fragility of Japan's power supply system that was revealed by the earthquake ensues from the lack of a system for adjusting the power supply-demand balance through the marketplace and the weakness of cooperation among regional power grids. This situation, however, can also be viewed as representing room for innovation.

10. See *1.3.1 Energy policies* for simulation premises.

The adjustment of power supply and demand to date has been performed on the supply side, such as by adjusting the operating rate of thermal power generation, without a place for demand adjustments, assuming demand as a given. Such a system gave rise to problems including (1) the need to have many power generation facilities on hand to meet peak demand during the day or during the year and (2) lower operating efficiency of power generation facilities due to volatility of the operating rate depending on season or time of day. Excessive facilities used inefficiently will result in higher generating costs.

Import Value of Fossil Fuel (% of nominal GDP) **Chart 3.6**



Source: Cabinet Office, Ministry of Finance; compiled by DIR.
*Steam coal for electric utility operators.

To avoid problems accompanying supply-side adjustment, it will be effective to raise electricity prices during peak demand to suppress demand and to lower electricity prices during off-peak to stimulate demand. Using the price mechanism to level out demand and to increase the operating efficiency of power generation facilities will not only restrain the construction of spare facilities but will also help curb electricity prices by boosting the operating efficiency of existing facilities. The restraint of electricity prices will reduce costs for industry and daily life and contribute positively to achieving higher productivity and living standards.

However, in order to adjust power supply and demand through the price mechanism, social infrastructure using smart meters and other information and communication technology (ICT) that provide price and power demand information in a timely and easy manner will be necessary. Also, the availability of such applications as home energy management systems (HEMS) and building energy management systems (BEMS) would help to provide electricity price information through smart meters and to automatically control electrical appliances, resulting in more effective control of power demand. Utilizing ICT and the price mechanism would usher in lower costs through more efficient power demand, and contribute to lower carbon emissions and increased energy security through the diminished use of fossil fuel. Moreover, R&D investment for building such a power supply and demand system would in itself promote technological progress.

Strengthening interconnection among regional transmission grids will be important in stabilizing the power supply system. For example, renewable energy is ample in such regions as Hokkaido, Tohoku, and Kyushu. However, since Japan's electricity market is currently divided into separate regions, there is concern that if the supply of renewable electricity in any one region exceeds demand, supply and demand adjustments there would be made more difficult. In contrast, if power demand surpasses supply, the supply-demand balance would at first be restored with such power sources as LNG- and

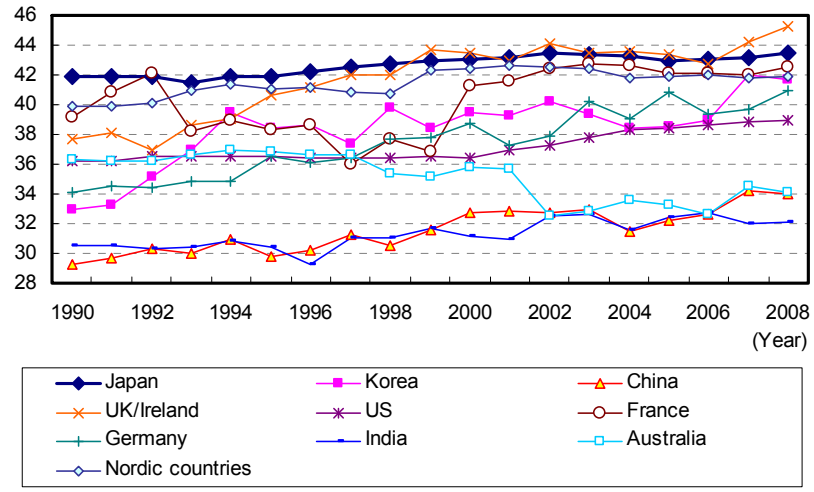
oil-fired thermal power generation, the operating rate of which is controllable. If this were not sufficient, then a limited amount of electricity would be transferred from another regional grid, or as a final measure such inefficient steps as scheduled power outages would be taken. If the price mechanism is functioning, the power supply-demand balance would be restored in theory. However, if mounting demand results in excessively high electricity prices, this would place a huge burden on the demand side.

Thus, making it easier to transfer electricity between regions by strengthening regional transmission grid interconnections would optimize power generation facilities as a whole. As a result, renewable energy generating capacity being installed in massive quantities, despite being unevenly distributed, would lead to a stable supply of electricity and effective use of power generation facilities at the national level. Thus, overall power generation costs would consequently decline. This is a similar mechanism where free trade makes possible the stable procurement of food at lower costs. Strengthening interconnection among regional transmission grids together with incorporating the price mechanism and ICT would contribute significantly to the stable supply of electricity through the workings of the marketplace.

3.2.3 Increased efficiency and diversification key for future energy policies

Among other measures for increasing the efficiency of power supply and demand, important steps to take will be to promote the use of electrical appliances with improved power conservation features and to expand the use of high-efficiency thermal power generation. In Japan, the Top Runner Program stated in the Bill to Partially Amend the Act on the Rational Use of Energy (Energy Conservation Act) mandates companies raise the energy conservation of products to the level of the highest energy conserving product within any given product category. Moreover, Japan is said to be a world leader in the technology for high-efficiency thermal power generation, which yields more power from the same amount of fossil fuel (Chart 3.7). The effective use of fossil fuel and the reduction of the environmental burden are both global issues. Promoting further innovation in this area in Japan will give rise to enormous benefits in the form of higher productivity and increased competitiveness in foreign markets.

Thermal Efficiency by Nation (%) **Chart 3.7**



Source: Ecofys Netherlands, *International Comparison of Fossil Power Efficiency and CO2 Intensity*, 2011; compiled by DIR.
Notes: 1) Gross thermal efficiency basis (average of coal, petroleum, and natural gas, weighting according to thermal efficiency).
2) Calendar year basis except for Japan.

Naturally, expanded power generation with renewable energy will be important for achieving the diversification of power sources and the reduction of carbon emissions. Japan's geographical environment differs significantly from that of European nations or the US and hence the independent development of renewable energy technologies for such power sources as geothermal power, small and micro hydropower, and wind power, all of which are well suited to Japan, will be key in promoting future technological progress.

Increased efficiency and diversification as discussed above will be key points in considering future energy policies since they will reduce the cost of energy and contribute to energy security and lower carbon emissions. In other words, here too is a source for innovation that will promote economic growth.

3.3 Factors determining economic growth

To evaluate energy policies described above from the perspective of growth strategies, we now briefly lay out factors determining economic growth. Here we take economic growth to mean ramping up the economy's basic capacity for sustainable growth over a period of 10 years or more. We do not mean increasing the economic growth rate in the short term through stimulus measures.

To ramp up economic growth, increases in capital stock, labor force, and total factor productivity (TFP) will be necessary. Higher TFP is particularly important for achieving sustainable economic growth. This is because the return on additional fixed investments (incl public works spending) gradually declines as capital stock is accumulated (the more a nation becomes an advanced economy). Moreover, since a larger labor force increases the number of people to whom income is allocated, this does not necessarily result in higher per capita income. Abundant research also indicates that more than half of the difference between nations in the level of per capita income and/or in its rate of change is explained by differences in TFP.[11] For such reasons, we now turn our attention to TFP.

TFP is broadly divided into the two factors of technological progress and efficiency. The former is not limited to technical innovation in engineering terms but also encompasses the advance of production technology in broad terms, including the reform of management methods. In the case of Japan, whose economy is said to be mature, it is necessary to establish an environment that promotes innovation through R&D investments and that brings together a broad range of ideas from domestic and foreign sources. In particular, it will be essential to make active use of a broad range of human resources, including women, young people, and foreigners with advanced levels of technical knowledge and skills.

With respect to efficiency, there is a need to address inefficiencies of resource allocation stemming from various reasons. For example, the existence of vested interests due to regulations, distortions in the allocation of labor and capital between companies and industries, and the existence of idle resources are all indications that labor and capital are not being allocated as efficiently as they might be. To achieve growth, regulatory reform is needed that will increase the flexibility of labor and capital markets.

An effective approach to sustainably elevate technological progress is to design systems that strengthen mutual reliance with other economies and that enable markets to function smoothly. In this way, Japan will be able to specialize in production areas where Japan has a competitive edge. Also, trade, direct investment, and the exchange of people will encourage innovation by bringing new ideas and competition into the domestic economy. Furthermore, as Japan's market will expand to encompass

11. For example, see Elhanan Helpman, *The Mystery of Economic Growth* (Harvard University Press, 2004).

the whole world through regulatory reform, companies will have greater incentive to innovate since their profit opportunities will increase.

Conditions for the market to function effectively include (1) the suitable protection of property rights so as to encourage investments needed for innovation and its realization, (2) a social system (information disclosure, IT facilities as social infrastructure, etc) that makes it easy to obtain information regarding increasing efficiency, (3) the promotion of competition that spurs the replacement of old companies by new ones, and (4) the maintenance of rules and commitments that enhance the trustworthiness of transactions. These conditions can be viewed as the infrastructure of economic activity, and they will require systemic support from the government. The essential condition for fostering corporate efforts and for increasing TFP so as to ramp up economic growth is the design of market systems by the government in a manner that draws out the capacities of the market to the greatest extent possible.

3.4 The government should develop an environment which promotes innovation through price incentives

As noted at the start of this section, the growth strategies of the Abe cabinet include targeting policies and deregulation, and it is highly probable that such a perspective will be reflected in energy policies.

No one can say, however, which sorts of new businesses will be promising in the energy area. The desirable policy is not one where the government, under the name of targeting policies, determines specified sectors and directly supports companies such as through subsidies. Rather, the approach should be one where the government designs a system in which price incentives ably promote innovation and where the private sector that assumes the risk of developing new markets and industries is supported not by subsidies but through systemic design.

Efforts to strengthen regional power grid interconnections, the expansion of the applicable scope of the Top Runner Program (23 products as of April 2012), and appropriate management of the feed-in tariff system for renewable electricity are examples of deregulation and systemic design promoting such innovation as energy conservation technology and alternative energy R&D.

What is desired of the Abe administration is a commitment to earnestly advance the debate of electric power policies. Under the former Democratic Party of Japan administration, basic guidelines for the reform of the electric power system announced by the government's specialist committee on the reform of the electric power system (published July 2012) presented a conceptual framework where new entrants are encouraged in the areas of power generation and retail markets and where interconnections between regional power grids are strengthened. In this process, the basic guidelines called for ensuring the neutrality and fairness of the transmission grid, which is the infrastructure for distributing electricity, as well as establishing an independent monitoring authority for electricity markets to promote healthy competition. As this should indicate, simply easing regulations is not necessarily enough. What will be important is to carefully design systems so markets and prices can function appropriately while aiming to maintain stable supply.

In the management of the feed-in tariff system, there will be a need to gradually reduce purchase prices to facilitate innovation in power generation facilities for renewable energy so as to lower generation costs.

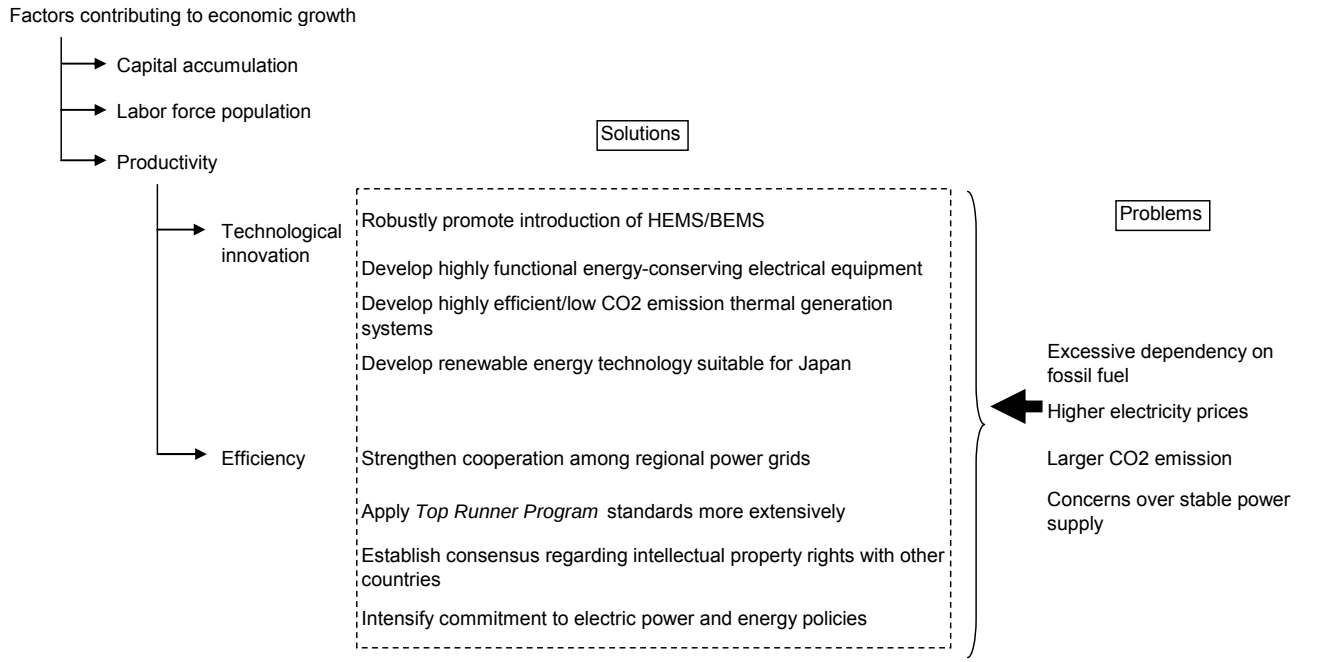
Moreover, to sell innovations related to electric power overseas, it will be important to eliminate tariffs and other trade barriers as well as to develop multilateral rules on standards for protecting intellectual property in a manner that promotes innovation. In particular, trade negotiations such as over the Trans-Pacific Strategic Economic Partnership Agreement (TPP) have the intent not only of eliminating tariffs

but also of facilitating market transactions by harmonizing national rules as much as possible. Depending on the nature of rules, Japan will find itself in an advantageous or disadvantageous position. Hence, this is work that the government should shoulder. What is desired of the government is the establishment of rules for economic transactions with the view of expanding foreign markets for electricity- and energy-related businesses (active participation in rule-making through TPP).

If confidence in the administration and its policies increase, including power demand and supply issues, companies will find it easier to engage in R&D. This being the case, the government should endeavor to reduce future uncertainties by presenting a clear vision for the future.

The energy issues Japan faces, beginning with power issues, can be a source for growth. Price mechanisms and transactions, however, must function smoothly if these issues are to lead to economic growth. It is only when the market is managed appropriately that price incentives spur the innovation of private-sector companies and a virtuous circle is generated for resolving issues in an efficient manner. The market mechanism left alone will be associated with many ill effects. The skillful design of systems by the government, however, can be expected to draw out company efforts and result in solutions to increasing the efficiency and expanding the diversity of energy contributing to economic growth.

Electricity/energy-related Issue as a Factor Contributing to Economic Growth **Chart 3.8**



Source: Compiled by DIR.
HEMS: Home energy management system.
BEMS: Business energy management system.

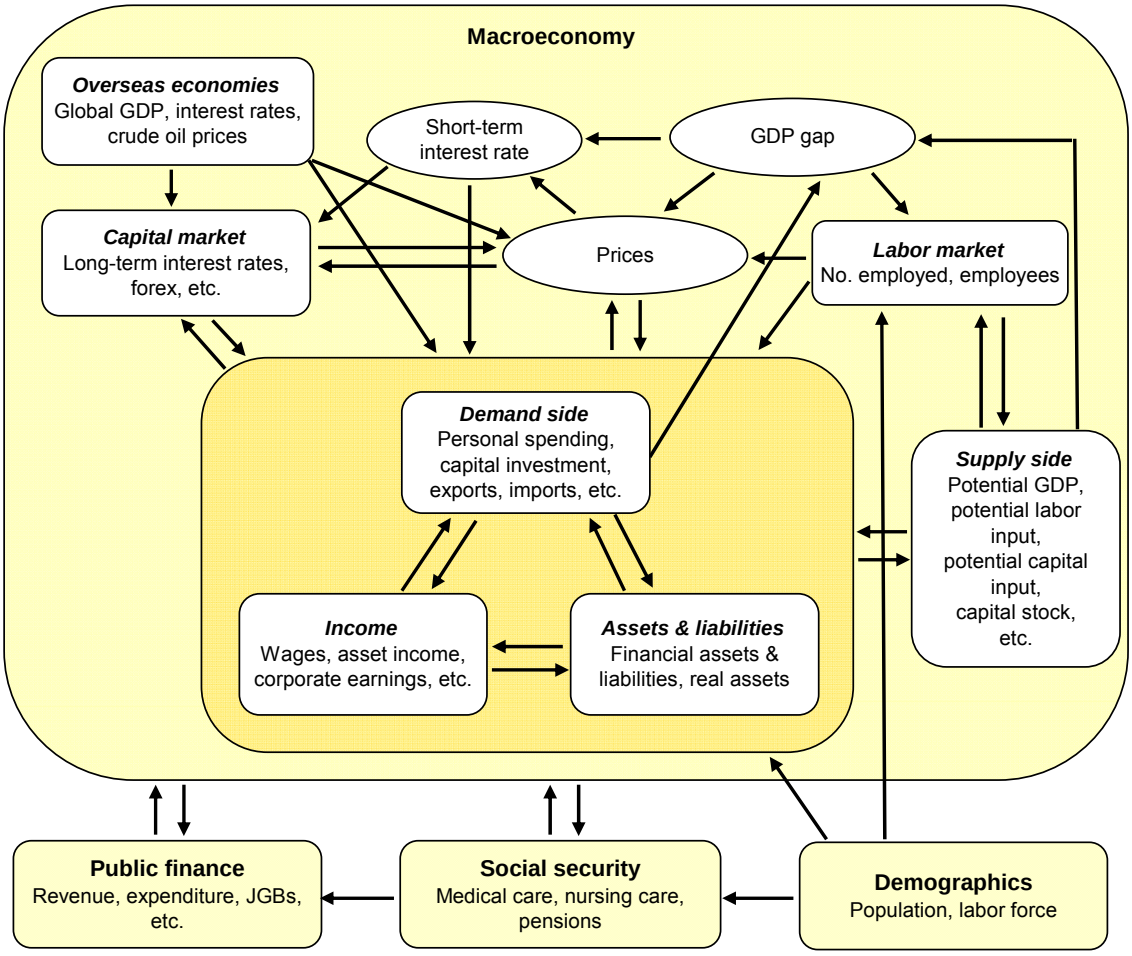
4. Overview of Model and Simulation Results

In this section, we provide an overview of DIR's medium-term macroeconomic model and discuss the effects on Japan's economy under four different scenarios, including a consumption tax hike.

The DIR medium-term macroeconomic model comprises roughly 1,700 equations (of which about 70 are estimating equations) and about 2,200 variables (of which about 500 are exogenous variables). An overview of the model is shown in Chart 4.1. If real GDP changes, the GDP gap (rate of deviation between potential GDP and actual GDP) changes, which affects prices and short-term interest rates, the effects of which will, in turn, spread to other areas, such as financial markets. Such a change in each variable occurs simultaneously and the expected value of each variable is generated by running the model. We treated foreign economic and demographic data as exogenous variables—for instance, the future values of global GDP reflect IMF and DIR forecasts. Mainly for demand components, the estimating equations incorporate not only variables that explain short-term changes (impact of employee compensation on consumer spending) but also terms that adjust deviation from long-term equilibrium based on economic theory.

In *Japan's Medium-term Economic Outlook: February 2013*, we made revisions to the model's structure and estimating equations, factoring in *National Accounts for 2011* (flow basis; Cabinet Office) and reflecting a change in the benchmark year to 2005. Regarding model structure and estimating equations for the social security sector, we have also taken account of effects of the government's Comprehensive Reform of Social Security and Taxation Systems.

Conceptual Image of Daiwa's Medium-term Macroeconomic Model **Chart 4.1**



Source: Compiled by DIR.

Using DIR's medium-term macroeconomic model, we carried out simulations to determine the effect on the real economy of four scenarios: (1) a 1%-pt hike in the consumption tax; (2) a 10% rise in the import price of crude oil; (3) a 10% appreciation of the yen against the dollar; and (4) a 1%-pt rise in the long-term interest rate. The results are shown in Chart 4.2.

There are some points to consider when interpreting simulation results. In the first scenario, a 1%-pt hike in the consumption tax continues throughout the estimation period, while other scenarios are assumed to be one-time events in the first year.

The chart shows the degree of impact on each component, which represents deviation from the standard scenario (what would have occurred in the absence of the event simulated in each scenario). For example, the chart shows that if the consumption tax is raised 1% point, the effect on real GDP is –0.23% in the first year and –0.08% in the second year. This means that real GDP will be 0.23% lower in the year when the consumption tax rate is raised than it would otherwise have been, and that there will be a 0.15%-point improvement (-0.08% compared with -0.23%) in the second year. Deviations are shown in percentages, except those for interest rates and those measured as % of nominal GDP, which are shown in percentage points.

Next, it is assumed that the short-term interest rate is in positive territory when any of the four scenarios arises. The short-term interest rate is currently zero, and if the economy is adversely impacted under such circumstances, the adverse effect would be exacerbated to the degree that the short-term interest rate does not decline. Because these simulations are performed based on the assumption that there is room for the short-term interest rate to decline, when there is a negative impact on the economy the short-term interest rate will simultaneously decline, leading to a decline in the long-term interest rate, and this will have the effect of buoying the economy through a weaker yen and increased investment.

Lastly, simply multiplying simulation results by a constant to change the alternative conditions did not yield substantially different results. For example, when we performed a simulation for a 5%-pt rise rather than a 1%-pt hike in the consumption tax, the resulting real GDP deviation was –0.36% in the second year. This is close to 5X the deviation (–0.08% x 5 = –0.42%) shown for the second year in the first scenario presented in Chart 4.2. Accordingly, by simply multiplying the simulation results by a constant that corresponds to the desired condition, it is possible, to some degree, to grasp the effect on the real economy.

Simulation Results — Chart 4.2

(1) 1%-pt hike in consumption tax rate (deviation from standard scenario; %, %pt)

	Real GDP								Nominal GDP	GDP deflator	Potential GDP	GDP gap
		Private final consumption	Private housing investment	Private capital investment	Government final consumption	Public fixed capital formation	Exports	Imports				
1st year	-0.23	-0.46	0.00	0.05	-0.39	0.39	0.00	-0.63	0.40	0.63	-0.08	-0.15
2nd year	-0.08	0.00	-0.36	-0.01	-0.03	0.15	0.01	0.18	-0.07	0.02	-0.03	-0.06
3rd year	-0.02	-0.05	-0.19	-0.20	0.16	0.04	0.05	0.15	-0.07	-0.05	-0.01	-0.01
4th year	-0.01	-0.07	-0.16	-0.11	0.03	0.02	0.09	-0.06	-0.10	-0.09	-0.01	-0.01
5th year	0.00	-0.05	-0.07	0.04	0.00	-0.02	0.09	-0.04	-0.09	-0.09	0.00	0.01

	Unemployment rate	Y/$	CPI	Short-term interest rate	Long-term interest rate	Current balance	Fiscal balance	Primary balance
							(Central & local government)	
						(% of nominal GDP)		
1st year	0.03	0.22	0.72	-0.09	-0.05	0.09	0.33	0.32
2nd year	0.03	0.25	-0.01	-0.04	-0.02	-0.02	0.11	0.11
3rd year	0.01	0.27	-0.04	-0.05	-0.03	-0.02	0.02	0.01
4th year	0.00	0.22	-0.07	-0.02	-0.01	0.02	0.00	-0.01
5th year	0.00	0.15	-0.07	-0.01	-0.01	0.02	0.01	0.00

(2) 10% rise in import prices of crude oil (deviation from standard scenario; %, %pt)

	Real GDP								Nominal GDP	GDP deflator	Potential GDP	GDP gap
		Private final consumption	Private housing investment	Private capital investment	Government final consumption	Public fixed capital formation	Exports	Imports				
1st year	-0.06	0.00	0.00	-0.15	-0.09	0.10	0.00	0.13	-0.29	-0.23	-0.02	-0.04
2nd year	-0.07	-0.08	0.30	-0.23	0.08	0.11	-0.02	-0.06	-0.11	-0.05	-0.03	-0.04
3rd year	-0.07	-0.09	-0.37	-0.13	0.07	0.11	0.02	-0.02	-0.12	-0.04	-0.03	-0.04
4th year	-0.06	-0.05	-0.25	-0.08	0.03	0.08	0.08	0.06	-0.11	-0.05	-0.03	-0.03
5th year	-0.03	-0.02	-0.06	-0.06	0.03	0.02	0.10	0.07	-0.08	-0.05	-0.02	-0.01

	Unemployment rate	Y/$	CPI	Short-term interest rate	Long-term interest rate	Current balance	Fiscal balance	Primary balance
							(Central & local government)	
						(% of nominal GDP)		
1st year	0.01	-0.01	0.04	0.00	0.00	-0.33	-0.09	-0.09
2nd year	0.01	0.13	-0.03	-0.05	-0.03	-0.04	-0.04	-0.04
3rd year	0.01	0.32	-0.06	-0.10	-0.06	0.02	-0.01	-0.01
4th year	0.01	0.30	-0.07	-0.04	-0.02	0.02	0.00	-0.01
5th year	0.01	0.20	-0.07	-0.01	-0.01	0.01	0.00	0.00

Source: Compiled by DIR based on DIR's medium-term macroeconomic model.

(3) 10% appreciation of the yen against the dollar (deviation from standard scenario; %, %pt)

	Real GDP								Nominal GDP	GDP deflator	Potential GDP	GDP gap
		Private final consumption	Private housing investment	Private capital investment	Government final consumption	Public fixed capital formation	Exports	Imports				
1st year	0.06	0.00	0.00	0.06	0.10	-0.10	0.00	-0.17	0.02	-0.04	0.02	0.04
2nd year	-0.28	-0.03	-0.32	-1.13	-0.03	0.49	-2.29	-1.16	-0.25	0.03	-0.10	-0.18
3rd year	-0.24	0.00	0.34	-0.19	-0.03	0.36	-0.97	0.13	-0.28	-0.04	-0.11	-0.13
4th year	-0.41	-0.06	0.22	0.00	0.01	0.66	-0.43	1.95	-0.49	-0.08	-0.17	-0.24
5th year	-0.18	-0.09	0.06	-0.06	0.10	0.28	-0.23	0.48	-0.35	-0.17	-0.08	-0.10

	Unemployment rate	Y/$	CPI	Short-term interest rate	Long-term interest rate	Current balance	Fiscal balance	Primary balance
							(Central & local government)	
						(% of nominal GDP)		
1st year	-0.01	-10.00	-0.04	-0.01	0.00	0.10	0.03	0.03
2nd year	0.03	0.00	0.02	-0.11	-0.06	-0.04	-0.06	-0.06
3rd year	0.05	0.00	-0.02	-0.08	-0.05	-0.08	-0.05	-0.05
4th year	0.06	0.00	-0.05	-0.23	-0.13	-0.33	-0.11	-0.11
5th year	0.05	0.00	-0.13	-0.13	-0.07	-0.04	-0.04	-0.05

(4) 1%-pt rise in long-term interest rates (deviation from standard scenario; %, %pt)

	Real GDP								Nominal GDP	GDP deflator	Potential GDP	GDP gap
		Private final consumption	Private housing investment	Private capital investment	Government final consumption	Public fixed capital formation	Exports	Imports				
1st year	-0.05	0.00	0.00	-0.62	0.00	0.09	0.00	-0.19	-0.05	0.00	-0.02	-0.03
2nd year	-0.37	-0.37	-1.70	-2.17	0.04	0.62	-0.10	-1.13	-0.37	0.00	-0.15	-0.23
3rd year	-0.38	-0.31	-1.14	-1.33	0.03	0.51	-0.08	-0.46	-0.46	-0.08	-0.19	-0.19
4th year	-0.28	-0.30	-0.54	-0.57	0.02	0.28	0.02	0.06	-0.44	-0.16	-0.18	-0.10
5th year	-0.18	-0.27	-0.30	-0.33	0.00	0.09	0.15	0.03	-0.40	-0.22	-0.15	-0.03

	Unemployment rate	Y/$	CPI	Short-term interest rate	Long-term interest rate	Current balance	Fiscal balance	Primary balance
							(Central & local government)	
						(% of nominal GDP)		
1st year	0.01	-0.43	0.00	-0.02	0.99	-0.07	-0.15	-0.14
2nd year	0.05	0.08	0.01	-0.15	-0.09	-0.06	-0.25	-0.22
3rd year	0.07	0.53	-0.06	-0.20	-0.11	0.09	-0.20	-0.14
4th year	0.04	0.83	-0.13	-0.21	-0.12	0.01	-0.16	-0.08
5th year	0.02	0.76	-0.18	-0.11	-0.06	0.04	-0.10	-0.04

Source: Compiled by DIR based on DIR's medium-term macroeconomic model.