

22 March 2011 (No. of pages: 13)

# Japan's Economy: Monthly Review

## *Provisional Analysis of the Tohoku-Kanto Earthquake Impact*

**Short-term economic downturn likely due to (1) lost production from scheduled power outages and (2) worsening of consumer confidence**

Japanese report: 17 Mar 11

Economic Research Dept  
**Mitsumaru Kumagai**  
**Hiroshi Watanabe**  
**Keiji Kanda**  
**Satoshi Osanai**  
**Ryohei Kasahara**

**We offer our heartfelt condolences to all affected by the 11 March Tohoku-Kanto earthquake.**

### Summary

- **Provisional analysis of the Tohoku-Kanto earthquake impact:** Japan sustained an unprecedented blow from the Tohoku-Kanto Earthquake on 11 March. In this report, we provide an analysis of how Japan's economy could be affected by this massive disaster. It goes without saying that the results of our analysis are provisional since the extent of damage is still unknown at the present. Given the risk that the adverse impact of the nuclear accident will increase, we do not rule out the possibility of Japan's economy worsening beyond our assumptions for the time being.
- **Five factors to place downward pressure on real GDP in FY11:** The current disaster is likely to place downward pressure on real GDP in five ways in FY11. The effects of (1) sluggish economic activity in the Tohoku region (provisional estimate of impact on FY11 real GDP: drag of 0.2%) and (2) the loss of production from scheduled power outages (drag of 0.2%) can be forecast to some degree. However, (3) the downswing of consumer spending resulting from the worsening of consumer confidence (drag of 0.2) is associated with many uncertainties, raising concern about an even greater downswing. Also, (4) a yen appreciation of Y5 against the dollar would reduce real GDP by nearly 0.1% in FY11 and 0.3% in FY12. Moreover, (5) the impact of further escalation of damage from the nuclear accident is beyond forecasting at the present moment. The combined total of (1) to (4) already suggests Japan's real GDP could shrink by 0.7% or more in FY11. Depending on the degree of (5), Japan's economy could worsen even further.

- **Reconstruction demand to support real GDP:** In Jul-Sep 2011 and beyond, reconstruction demand is expected to support real GDP. At present, we anticipate reconstruction demand to boost real GDP 0.5% per year from FY11 to FY13. As a result, should the downside factors 1-5 discussed above intensify no further, the net impact on real GDP may turn out to be relatively small (drag of around 0.2%) for the full year of FY11.
- **The direction of the nuclear accident deserves careful attention:** The analysis offered in this report is provisional. We will continue to monitor developments of the nuclear accident as we endeavor to carefully ascertain the economic impact of this disaster.

## 1. Provisional Analysis of the Impact of the Tohoku-Kanto Earthquake

### *Summary of past major disasters*

Japan sustained an unprecedented blow from the Tohoku-Kanto earthquake on 11 March. In this report, we provide an analysis of how Japan's economy could be affected by this massive disaster. Chart 1 provides a summary of the aftermath of major disasters in the past. If we assume the damage caused by the Tohoku-Kanto earthquake will exceed that by the 1995 Great Hanshin Earthquake (3% of GDP), the cost of the damage will surpass Y14 trillion. It goes without saying that the results of our analysis are provisional since the extent of damage is still unknown at the present moment. Given the risk that the adverse impact of the nuclear accident will increase, we do not rule out the possibility that Japan's economy will worsen beyond our assumptions.

Damage from Tohoku-Kanto Earthquake and Other Natural Disasters in Japan				
Chart 1				
	Year	Damage (Y bil)	% of GDP	At 2005 prices (Y bil)
Great Kanto Earthquake	1923	5.6	37.50	
Typhoon Vera (Isewan typhoon)	1959	303.5	2.30	1,289.7
Niigata Earthquake	1964	267.4	0.90	987.5
Great Hanshin Earthquake	1995	9,926.8	2.03	9,581.9
Tohoku-Kanto Earthquake (assuming 3% of GDP)	2011	(14,375.4)	(3.00)	(16,188.5)

Source: Compiled by DIR.

Note: Damage estimates by DIR, except for Great Hanshin Earthquake, which are based on calculations by Toshihiko Hayashi, Professor of Doshisha University Graduate School of Policy and Management, et al.

### *Five potential sources of downward pressure on FY11 real GDP*

As indicated in Chart 2, the current disaster is likely to place downward pressure on real GDP in five ways in FY11. The effects of (1) sluggish economic activity in the Tohoku region (provisional estimate of impact on FY11 real GDP: drag of 0.2%) and (2) the loss of production from scheduled power outages (drag of 0.2%) can be forecast to some degree. However, (3) the downswing of consumer spending resulting from the worsening of consumer confidence (drag of 0.2%) is associated with many uncertainties, raising concern about an even greater downswing. Also, (4) a yen appreciation of Y5 against the dollar would reduce real GDP nearly 0.1% in FY11 and 0.3% in FY12. Moreover, (5) the impact of damage from the nuclear accident potentially escalating further is beyond forecasting at the moment. The combined total of (1) to (4) already suggests Japan's real GDP could shrink 0.7% or more in FY11. Since these adverse effects are likely to impair Japan's economy for the time being, we expect the timing for the economy ending

its consolidation phase to be delayed from our previous outlook of Jan-Mar 2011 to Jul-Sep 2011 or later. Depending on developments regarding (5), Japan's economy could worsen even further, a situation that will need careful monitoring.

**Reconstruction demand to support real GDP from Jul-Sep 2011**

From Jul-Sep 2011, reconstruction demand is expected to support real GDP. At the present, we anticipate reconstruction demand will boost real GDP 0.5% per year in FY11-13. As a result, should the downside factors (1 to 5 above) intensify no further, net impact on real GDP may turn out to be relatively small (drag of around 0.2%) for full-FY11.

**Developments in nuclear accident deserve careful attention**

The analysis offered in this report is provisional. We will continue to monitor developments in the nuclear accident while carefully ascertaining the impact of this disaster on Japan's economy.

**Impact of Tohoku-Kanto Earthquake on Japanese Economy (FY11) Chart 2**

**(1) Factors to drag real GDP: total potential negative of at least 0.7%**

- (a) 25% decline in economic activity in three Tohoku prefectures (Iwate, Miyagi, Fukushima) for three months from Mar 2011 ⇒ 0.2% drag,
- (b) Lower industrial production stemming from planned power outages through end-April 2011 ⇒ 0.2% drag
- (c) Drop in consumer spending due to deterioration in consumer sentiment ⇒ 0.2% drag
- (d) Further Y5 appreciation of the yen against the dollar ⇒ Nearly 0.1% drag (0.3% drag in FY12)
- (e) Escalation of damage from Fukushima nuclear power plant crisis ⇒ Unpredictable

**(2) Factors to boost real GDP: total potential positive of around 0.5%**

- Reconstruction getting into full swing  
⇒ 0.5% boost assuming lost tangible fixed assets are recovered within three years
- (a) Housing investment of Y300 bil per year
  - (b) Non-housing investment of Y2.1 tril per year
- (a) and (b) include public investment of combined Y1.5 tril per year

**(3) Potential net impact on real GDP: negative 0.2% or more**

Source: Compiled by DIR.

**Industrial structure of three Tohoku prefectures: high weightings of agriculture, forestry & fisheries and electric power, gas & waterworks**

**2. Five Adverse Effects on Japanese Economy**

**1: Sluggish economic activity in the Tohoku region**

We expect the current disaster to place downward pressure on FY11 real GDP in five ways. The first is sluggish economic activity in the Tohoku region. Charts 3.1 and 3.2 compare the industrial structures of the three prefectures of the Tohoku region (Iwate, Miyagi, and Fukushima), where the damage has been particularly great, with that of Hyogo Prefecture as of FY95, when the Great Hanshin Earthquake hit. While the proportional shares of construction, mining, and manufacturing are relatively high in Hyogo Prefecture, such shares are high for agriculture, forestry & fisheries and electric power, gas & waterworks in the three Tohoku prefectures. Among the manufacturing industries in the Tohoku region, IT companies have a somewhat high proportional share, a situation that warrants caution. However, the proportional shares of manufacturing industries with large ripple effects (multipliers) on other industries are relatively low. This may serve to curb the adverse impact on the entire Japanese economy.

**Sluggish economic activity in the Tohoku region may reduce FY11 real GDP by 0.2%**

If we assume economic activity in the three Tohoku prefectures will contract 25% in March-May 2011, real GDP should be reduced about 0.2% in FY11, based on the following calculation: -25% (annualized contraction of production in the three Tohoku prefectures) x 1/4 (effect adjusted to one quarter) x 9/12 (adjusted to

exclude three weeks from March) x 0.0402 (three Tohoku prefectures' share of nominal GDP) = -0.2. This figure, however, does not factor in the potential ripple effect that diminished production at companies with production sites in the Tohoku region may exert through the supply chains of major industries. Hence, it is possible that downside pressure on Japan's economy will be even larger.

**FY07 Industrial Structure of Three Tohoku Prefectures in (Iwate, Fukushima, Miyagi) Chart 3.1**

	Total amount (Y bil)	Weighting (%)	Nationwide GDP share (%)
Overall production	20,713	-	4.0
Agriculture, forestry & fisheries	463	2.5	6.3
Mining	13	0.1	3.9
Manufacturing	4,217	22.8	3.9
Export-oriented	1,810	9.8	3.7
Construction	1,030	5.6	3.3
Electric power, gas, waterworks	933	5.1	9.1
Wholesale & retail	2,312	12.5	3.3
Finance, insurance	966	5.2	2.8
Real estate	2,593	14	4.2
Transportation/telecommunications	1,462	7.9	4.3
Services	4,477	24.2	3.9

Source: Cabinet Office; compiled by DIR.

Notes: 1) CY figures used for national figures and FY figures for prefectural figures due to data constraints.

2) Export-oriented industries = transportation equipment, general machinery, electrical machinery, precision instruments.

**FY95 Industrial Structure of Hyogo Prefecture (Site of Great Hanshin Earthquake) Chart 3.2**

	Total amount (Y bil)	Weighting (%)	Nationwide GDP share (%)
Overall production	20,649	-	4.2
Agriculture, forestry & fisheries	175	0.9	1.9
Mining	45	0.2	5.2
Manufacturing	5,888	30.2	5.1
Export-oriented	2,296	11.8	5.3
Construction	2,558	13.1	6.3
Electric power, gas, waterworks	614	3.1	4.6
Wholesale & retail	2,230	11.4	2.9
Finance, insurance	943	4.8	3
Real estate	2,483	12.7	4.6
Transportation/telecommunications	1,562	8	4.4
Services	3,018	15.5	3.4

Source: Cabinet Office; compiled by DIR.

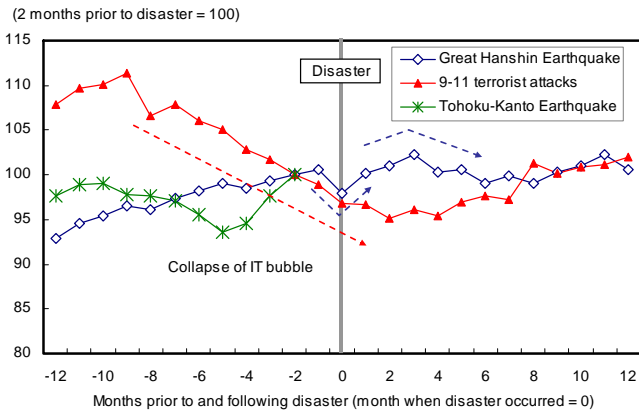
Notes: 1) CY figures used for national figures and FY figures for prefectural figures due to data constraints.

2) Export-oriented industries = transportation equipment, general machinery, electrical machinery, precision instruments.

### ***Industrial production did not decrease greatly in past cases***

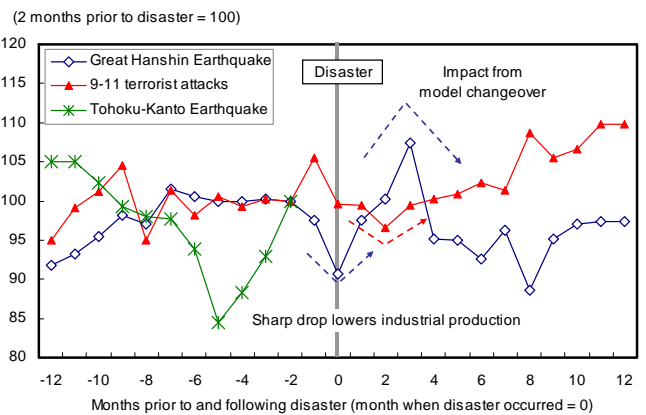
As a point of reference, we examined the direction of industrial production in past disasters (Great Hanshin Earthquake in 1995 and 9-11 terrorist attacks in 2001). In the case of the Great Hanshin Earthquake, the damage borne by steel mills undercut steel production (Chart 4.4). However, the decline in production was temporary and a steady recovery took hold one quarter later (charts 4.1-4.4). Also, as shown in Chart 5, industrial production in the Kinki region (includes Kyoto, Osaka, Hyogo Prefectures) after the Great Hanshin Earthquake in 1995 trended firmly for the most part, partly supported by reconstruction demand.

**Impact of Disasters on Industrial Production**  
Chart 4.1



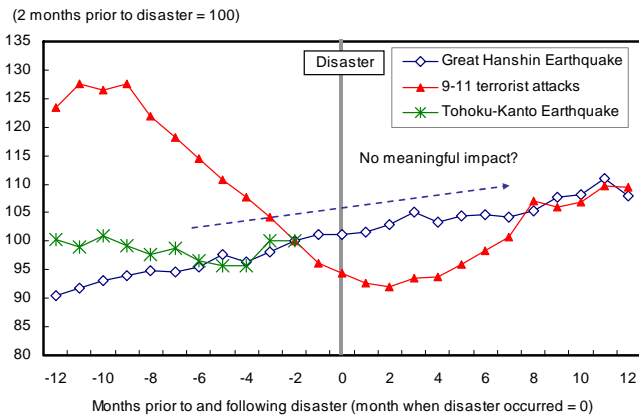
Source: Ministry of Economy, Trade and Industry; compiled by DIR.

**Impact of Disasters on Transportation Equipment Production**  
Chart 4.2



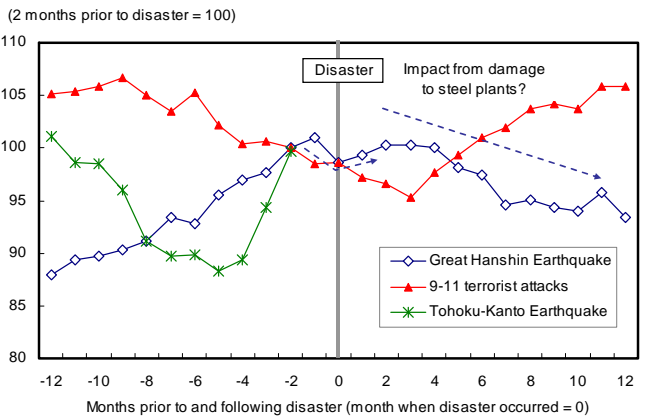
Source: Ministry of Economy, Trade and Industry; compiled by DIR.

**Impact of Disasters on Electrical Machinery Production (previous criteria)**  
Chart 4.3



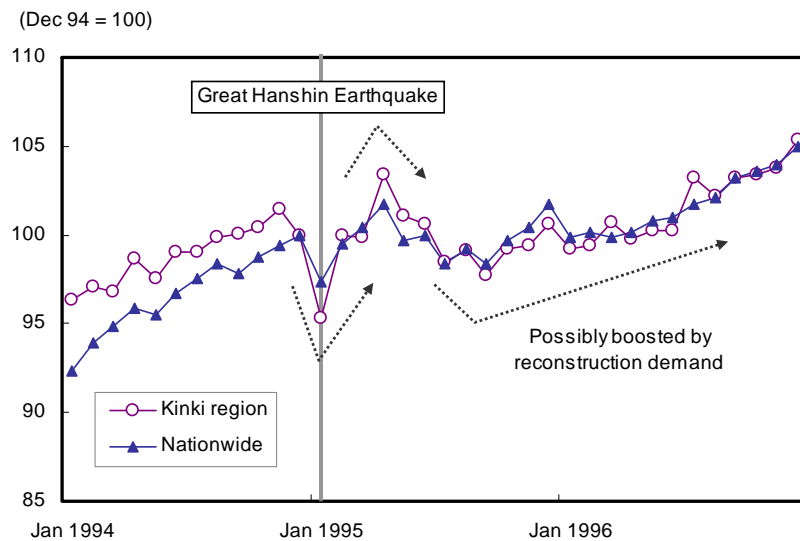
Source: Ministry of Economy, Trade and Industry; compiled by DIR.

**Impact of Disasters on Steel Production**  
Chart 4.4



Source: Ministry of Economy, Trade and Industry; compiled by DIR.

**Impact of Great Hanshin Earthquake on Industrial Production Nationwide and in Kinki Region**  
Chart 5

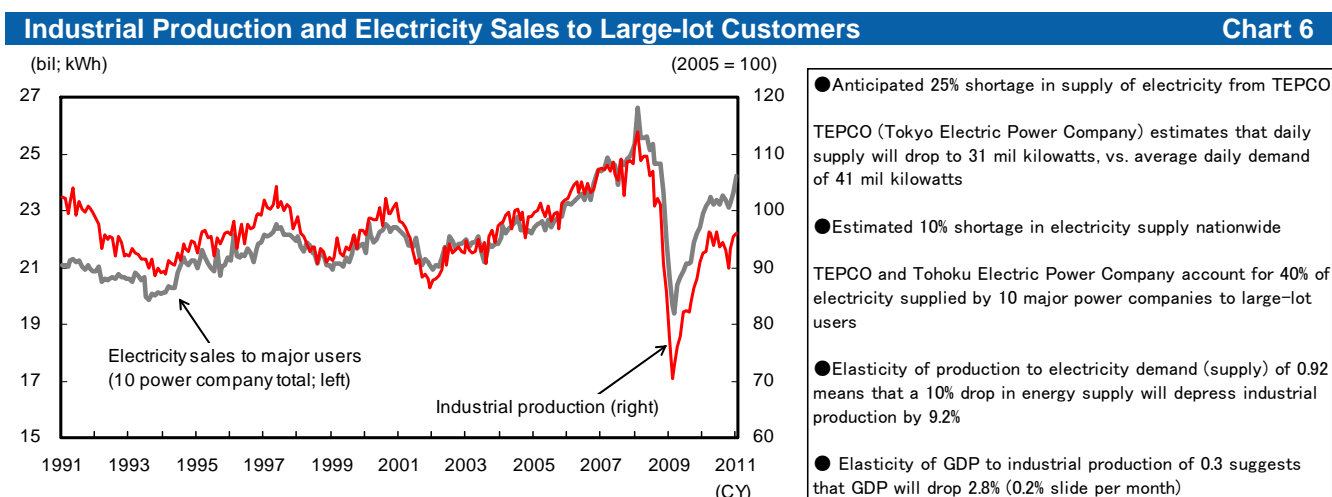


Source: Ministry of Economy, Trade and Industry (METI); Kinki Bureau of Economy, Trade and Industry (one of eight regional METI bureaus); compiled by DIR.  
Note: Kinki region includes Osaka, Kyoto, and Hyogo prefectures.

## 2: Lost production from scheduled power outages through end-April

***If scheduled power outages last through end-April, FY11 GDP will be reduced around 0.2%***

The second negative is a loss of production from scheduled power outages. Chart 6 illustrates the relationship between industrial production and electricity sales volume to large-lot industrial users. According to TEPCO (Tokyo Electric Power Company), daily demand for electricity is 41 million kilowatts on weekdays, but supply will dwindle to 31 million kilowatts under scheduled power outages. Thus, the supply of electricity is expected to fall short by 25%. Since TEPCO and Tohoku Electric Power Company provide 40% of aggregate large-scale industrial electricity generated by Japan's 10 major electric power companies, electricity supply will fall short by 10% for Japan as a whole. Given that the elasticity of production with respect to electricity demand (supply) is 0.92, should electricity supply decrease 10%, industrial production will contract 9.2%. The elasticity of GDP with respect to industrial production is around 0.3. Thus, should the current scheduled power outages last for one year, Japan's GDP will drop 2.8% (monthly average of 0.2%). Should these power outages continue to the end of April, drag on FY11 GDP would be around -0.2% (= -2.8% x 1/12). We have heard directly from manufacturers that power outages of three hours per day would greatly reduce productivity on factory floors. Thus, there is risk that Japan's economy will swing further downward than indicated by an estimate derived from mechanically performed calculations.



Source: Federation of Electric Power Companies of Japan; Ministry of Economy, Trade and Industry; compiled by DIR.  
Note: SA by DIR.

## 3: Downswing of consumer spending resulting from worsened consumer confidence

***Based on past cases, downswing in consumer spending should be temporary***

The third negative is a downswing in consumer spending resulting from the worsened consumer confidence. When we examine consumer spending trends in past cases (Great Hanshin Earthquake in 1995 and 9-11 terrorist attacks in 2001) in charts 7.1 and 7.2, it is plain to see that the downswing in consumption was temporary and that consumption began a steady recovery one quarter later.

***Risk that consumer spending will fall further than in past cases***

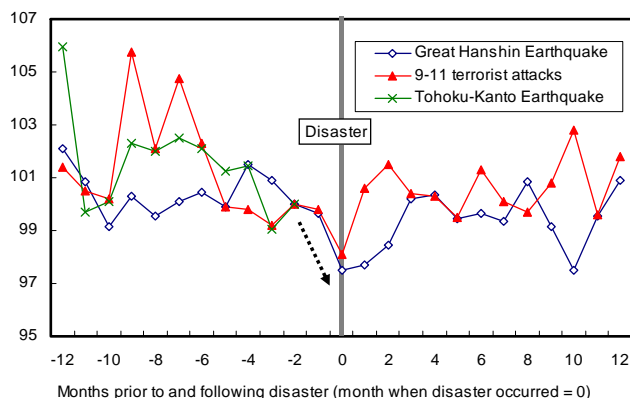
It is quite possible, however, that the current disaster will impose far greater psychological damage on Japanese citizens than in past cases. The sharp decline in Japanese stocks and the appreciation of the yen are factors that could dent consumer confidence. While demand for daily necessities may increase momentarily as reports on the terrible damage inflicted by the earthquake and tsunami increase, there is risk that consumption will fall significantly even for



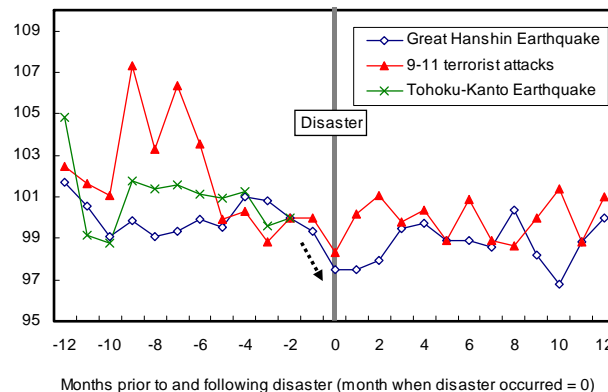
citizens in Tokyo and surrounding prefectures. We provisionally assume in this report that the downswing in consumer spending resulting from worsening consumer confidence will reduce FY11 real GDP by around 0.2%. However, should the damage of the nuclear accident escalate, there is risk that consumer spending will drop further.

**Real Consumer Spending Chart 7.1**      **Nominal Consumer Spending Chart 7.2**

(2 months prior to disaster = 100)



(2 months prior to disaster = 100)



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

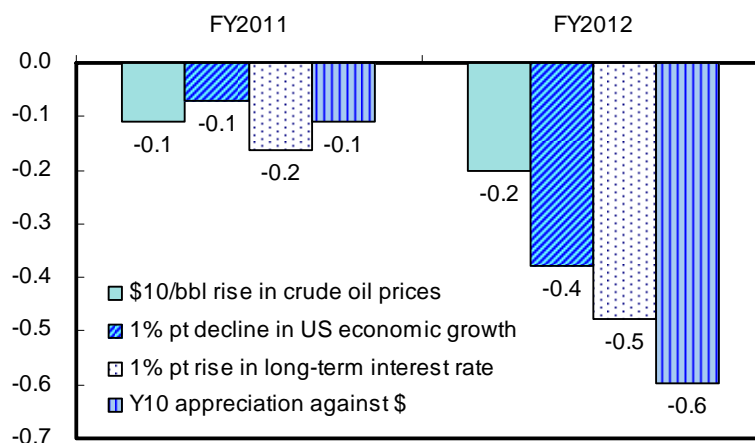
Source: Ministry of Internal Affairs and Communications; compiled by DIR.

**4: Yen appreciation against the dollar**

*Yen appreciating Y5 against dollar would reduce real GDP nearly 0.1% in FY11 and 0.3% in FY12*

The fourth negative is yen appreciation against the dollar. Yen appreciation of Y5 against the dollar from the current level is likely to reduce real GDP nearly 0.1% in FY11 and 0.3% in FY12. In our economic forecast (Japan's Economic Outlook No. 168 [Revised], 11 Mar 2011), we have assumed a rate of Y82/\$ for FY11 and FY12. Chart 8 provides a simulation of how Japan's economy would be affected should the yen appreciate Y10 against the dollar on a fiscal year basis relative to our forecast.

**Effects on Real GDP (% change from standard scenario) Chart 8**



Source: Compiled by DIR.

*JGBs likely to rise, stocks fall, and yen strengthen for time being*

Chart 9 illustrates market trends at the time of the Great Hanshin Earthquake in 1995. Such post-quake developments in 1995 suggest the Tohoku-Kanto earthquake may also cause JGBs to rise, stocks to fall, and the yen to strengthen for the time being. Regarding the JGB market, there are views that bond prices will pull back, given (1) anticipation that insurance companies will cash in their JGB holdings and (2) expectations that a growing budget deficit will worsen the supply-

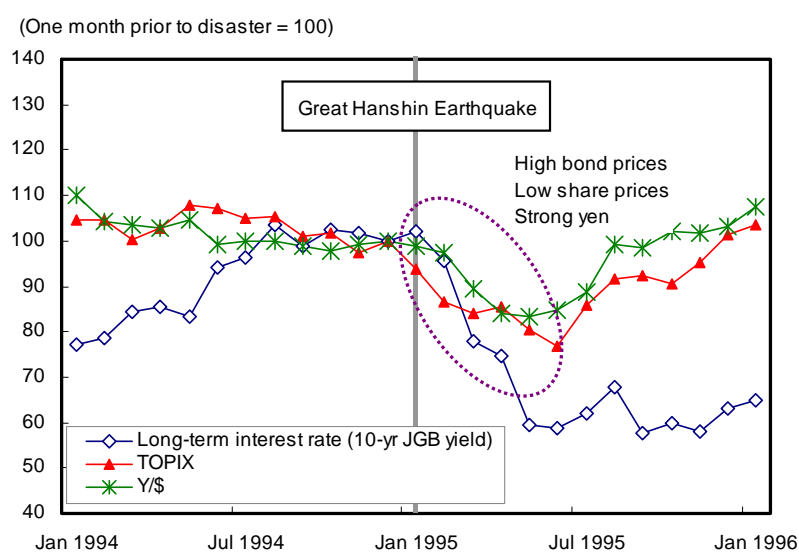
demand balance of JGBs. In our main scenario, however, we anticipate JGBs will rise for the time being amid intensifying concerns that Japan's economy will swing downward. Regarding the yen-dollar rate, (1) speculation that insurance companies and industrial companies will accelerate repatriation of overseas financial assets and (2) the view that the stock market setback will make domestic investors less willing to take risks have increased the possibility of the yen temporarily surging against the dollar.

*In addition to further BOJ monetary easing, Ministry of Finance should explore coordinated intervention*

From the perspective of supporting the recovery of Japan's economy, a sharp yen appreciation against the dollar needs to be avoided by any means possible. The Bank of Japan should take bold steps toward further monetary easing as necessary, going so far as to consider establishing an inflation target. The Ministry of Finance should urgently consider coordinated intervention to sell the yen by working together with the monetary authorities of Europe and the US.

### Impact of Great Hanshin Earthquake on Long-term Interest Rate, Share Prices, Y/\$ Rate

Chart 9



Source: Bloomberg, Tokyo Stock Exchange, Bank of Japan; compiled by DIR.

*Risk of escalating damage from nuclear accident needs careful monitoring*

*Timing for the economy ending its consolidation phase unlikely before Jul-Sep 2011*

### 5: Impact of further escalation of damage from nuclear accident

The fifth negative, the adverse impact of further escalation of damage from the nuclear accident, is beyond forecasting at the present moment. We sincerely hope that this problem will not escalate further and that Japanese citizens will be able to return to living safe and peaceful lives.

The combined total of (1) sluggish economic activity in the Tohoku region (provisional estimate of impact on FY11 real GDP: drag of 0.2%), (2) the loss of production from scheduled power outages to end-April (drag of 0.2%), (3) the downswing of consumer spending resulting from the worsening of consumer confidence (drag of 0.2%), and (4) the yen appreciating Y5 against the dollar (drag of nearly 0.1%) already suggest a drag of 0.7% or more on Japan's FY11 real GDP. Since these adverse effects will impair Japan's economy for the time being, the timing for the economy ending its consolidation phase could be delayed from Jan-Mar 2011 as we previously forecast to Jul-Sep 2011 or later. Furthermore, depending on the extent of the damage from the nuclear accident, Japan's economy could worsen even further, a situation that will need careful monitoring.



### 3. Estimation of Reconstruction Demand

#### *Reconstruction demand to support real GDP from Jul-Sep 2011*

From Jul-Sep 2011, we expect reconstruction demand to support real GDP. At the present moment, we anticipate that reconstruction demand will boost real GDP by 0.5% per year from FY11 to FY13. As a result, should the downside factors discussed above intensify no further, net negative impact on real GDP may turn out to be relatively small (drag of around 0.2%) for the full year of FY11.

#### *Basis for calculating reconstruction demand*

Our basis for calculating reconstruction demand in this provisional outlook is as follows. Chart 10 shows our estimation of the value of fixed assets in the three Tohoku prefectures (Iwate, Miyagi, and Fukushima). First, we estimate lost housing assets to amount to around Y1 trillion, assuming that 10% of housing assets as of end-2009 were destroyed. If this loss is restored over a three-year period, annual investments of around Y300 billion will be needed. Second, as for assets other than housing, about Y29 trillion in infrastructures (roads, bridges, etc.) and about Y19 trillion in other assets existed as of end-2009. Assuming that 15% of the former and 10% of the latter were lost, this would total around Y6 trillion. Rebuilding these assets over a three-year period would require annual investments of around Y2.1 trillion.

**Estimated Fixed Assets of Three Tohoku Prefectures (end-2009, Y tril)**

**Chart 10**

	Three Tohoku prefectures (Iwate, Miyagi, Fukushima)	Nationwide
Tangible fixed assets	57.0	1,183.8
Private sector	25.4	616.5
Housing	8.9	224.8
Non-housing	9.0	215.0
Machinery for export	1.1	27.2
Other	6.3	149.4
Public sector	31.7	567.2
Infrastructure (roads, bridges)	29.2	508.3
Other	2.4	59.0

Source: Cabinet Office; compiled by DIR.

Notes: Components of tangible fixed assets categorized by DIR. Nationwide tangible fixed asset total estimated by the Cabinet Office. The rest estimated by DIR. Tangible fixed assets for three prefectures estimated by calculating nationwide shares based on aggregate FY55-07 gross fixed capital formation, and then multiplying share by 2009 nationwide tangible fixed assets. (Only nationwide figures are available for tangible fixed assets.)

- (1) Assuming loss of Y1 trillion in housing assets (10% of end-2009) for three prefectures, housing investment of Y300 billion per year will be necessary to recover these assets in three years.
- (2) Assets other than housing roughly consist of infrastructure (roads, bridges; Y29 trillion) and other (Y19 trillion). Assuming losses of 15% for former and 10% for latter (roughly Y6 trillion in total), fixed capital investment of Y2.1 trillion per year will be necessary to recover these losses in three years.
- (3) Above investments to include public investment of Y1.5 trillion per year.

#### *Swift fiscal expenditures made in wake of Great Hanshin Earthquake*

The government made a swift decision to launch a fiscal spending package in the wake of the Great Hanshin Earthquake in 1995 (Chart 11). This earthquake struck on 17 January and by 24 February a second supplementary budget for FY94 was submitted. Also, on 15 May, a first supplementary budget for FY95 was submitted. We hope that the Japanese government will prepare a supplementary budget

promptly to provide relief to those areas that have been damaged by the Tohoku-Kanto earthquake.

**Fiscal Policy in the Wake of Great Hanshin Earthquake in 1995** **Chart 11**

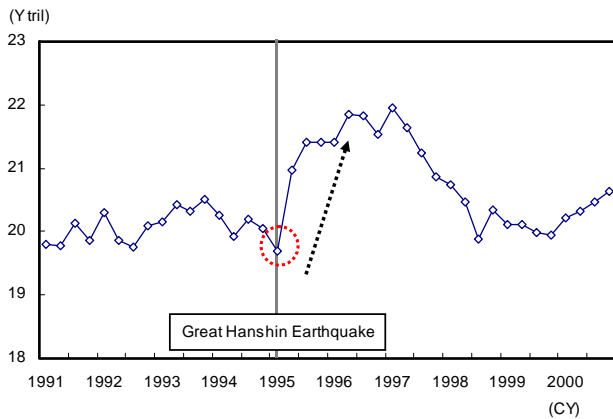
<b>17 Jan:</b>	<b>Great Hanshin Earthquake (Hyogo Prefecture)</b>
20 Jan:	Initial budget for FY95 submitted
6 Feb:	Decision to use Y14.8 bil in discretionary funds
<b>24 Feb:</b>	<b>2nd supplementary budget for FY94 submitted</b>
	Annual total expenditure of Y1,022.3 bil
28 Feb:	2nd supplementary budget for FY94 passed
22 Mar:	Initial budget for FY95 passed
<b>15 May:</b>	<b>1st supplementary budget for FY95 submitted</b>
	Annual total expenditure of Y2,726.1 bil
	Includes Y1,429.3 bil in earthquake-related spending, Y790 bil in emergency disaster prevention spending
19 May	1st supplementary budget for FY95 passed

Source: Compiled by DIR.

***Reconstruction demand lifted real GDP of Hyogo Prefecture relatively quickly***

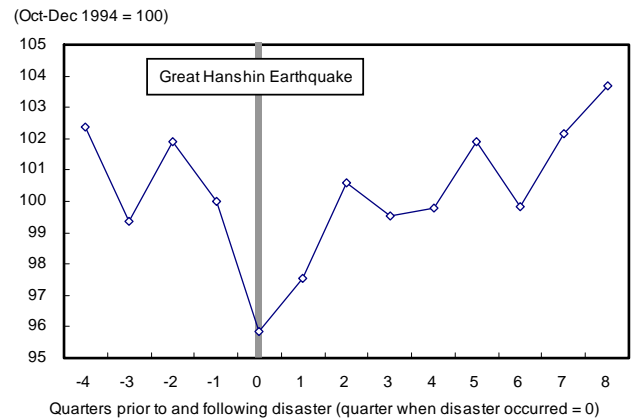
Recovery demand lifted the real GDP of Hyogo Prefecture relatively quickly after the Great Hanshin Earthquake in 1995. Charts 12.1-12.6 illustrate economic activity in Hyogo prefecture after this earthquake. The charts underscore that such major demand components as capex, public spending, housing investment, and government consumption spending turned sharply upward relatively quickly.

**Hyogo Prefecture: Real GDP (SA)**  
Chart 12.1



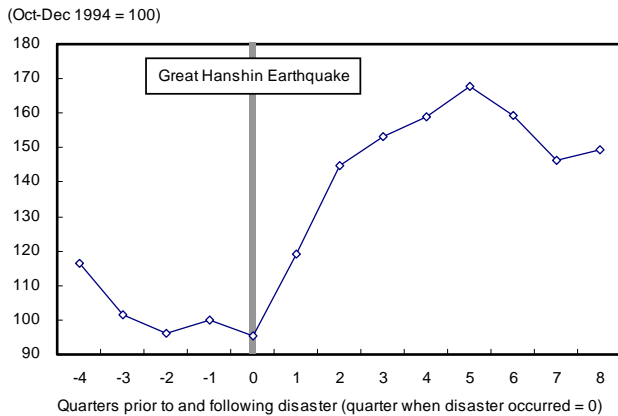
Source: Hyogo Prefecture; compiled by DIR.

**Hyogo Prefecture: Real Consumer Spending**  
Chart 12.2



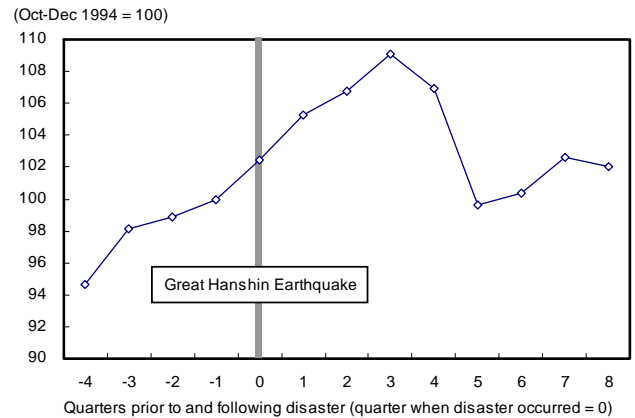
Source: Hyogo Prefecture; compiled by DIR.

**Hyogo Prefecture: Real Public Investment**  
Chart 12.3



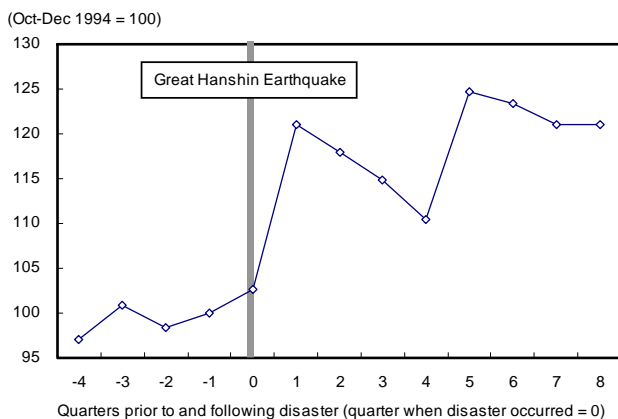
Source: Hyogo Prefecture; compiled by DIR.

**Hyogo Prefecture: Real Government Spending**  
Chart 12.4



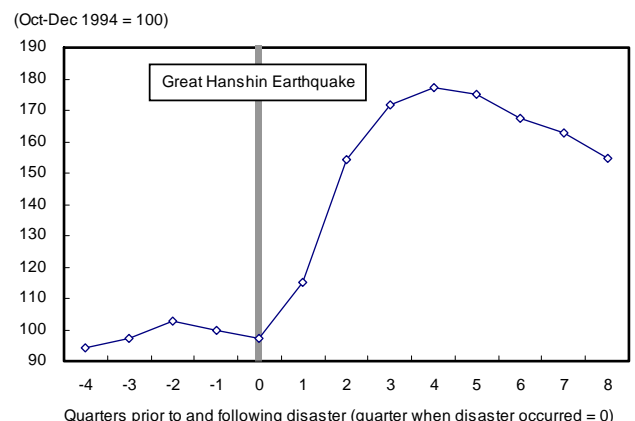
Source: Hyogo Prefecture; compiled by DIR.

**Hyogo Prefecture: Real Capex**  
Chart 12.5



Source: Hyogo Prefecture; compiled by DIR.

**Hyogo Prefecture: Real Housing Investment**  
Chart 12.6



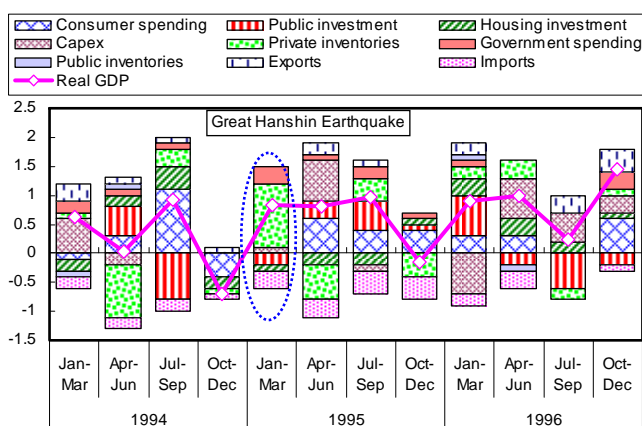
Source: Hyogo Prefecture; compiled by DIR.

### 4. Implication of Past Cases

**No record that real GDP declined on sustained basis**

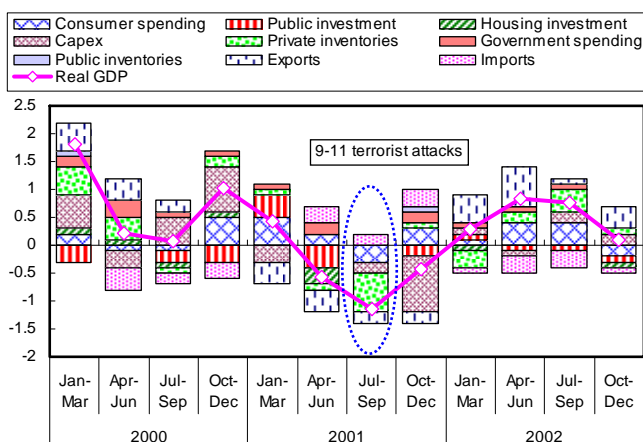
Finally, we summarize the implication of past cases. Charts 13.1-13.2 portray the trend of real GDP after the Great Hanshin Earthquake in 1995 and the 9-11 terrorist attacks in 2001. Regarding these two cases, there is no record of real GDP declining on a sustained basis owing to the damage caused by these disasters.

**Contribution to Real GDP (%; %pt): Post-Great Hanshin Earthquake** Chart 13.1



Source: Cabinet Office; compiled by DIR.

**Contribution to Real GDP (%; %pt): Post-9-11 Terrorist Attacks** Chart 13.2

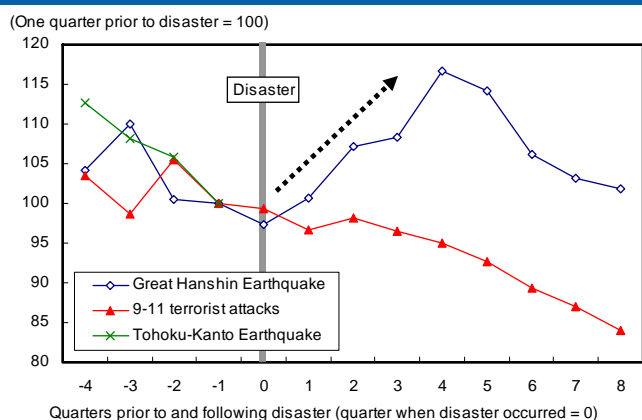


Source: Cabinet Office; compiled by DIR.

**Trend of demand components**

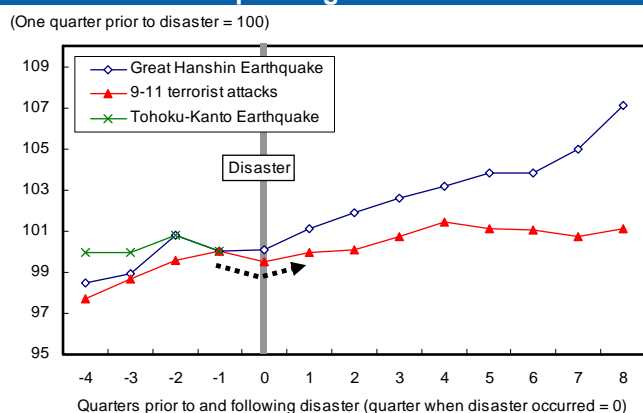
Chart 14 depicts the trend of demand components and real GDP after the Great Hanshin Earthquake in 1995 and the 9-11 terrorist attacks in 2001. In Chart 14.1, we can see that public spending was increased extremely rapidly. Chart 14.2 indicates that the downswing of consumer spending was temporary and that it began a steady recovery one quarter later. Charts 14.3 and 14.4 demonstrate that, thanks to reconstruction demand, capex and housing investment increased significantly in the medium and long term.

**Real Public Investment** Chart 14.1



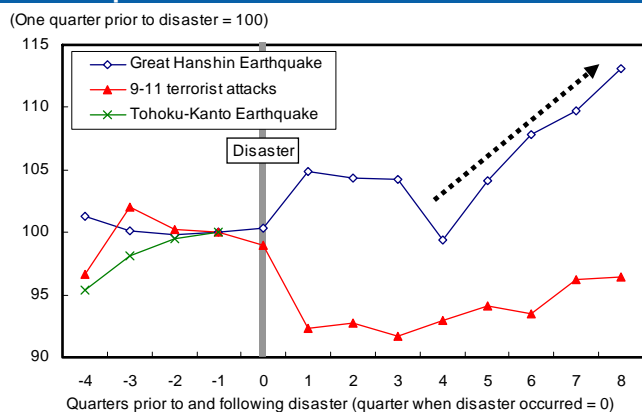
Source: Cabinet Office; compiled by DIR.

**Real Consumer Spending** Chart 14.2



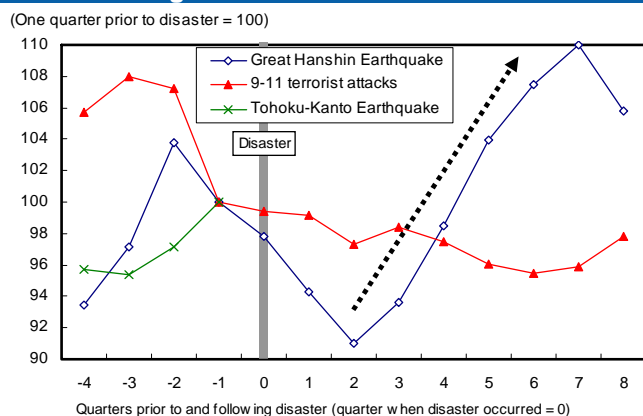
Source: Cabinet Office; compiled by DIR.

**Real Capex** Chart 14.3



Source: Cabinet Office; compiled by DIR.

**Real Housing Investment** Chart 14.4



Source: Cabinet Office; compiled by DIR.

## Conclusion

*If Japanese citizens work as one on reconstruction, Japan is certain to recover*

Finally, we hope that the areas damaged by the Tohoku-Kanto earthquake will be rebuilt as quickly as possible and that Japan will recover strongly as Japanese citizens work together. Historically, Japan has overcome many national crises by the Japanese people joining together and Japan has achieved a society renowned for its peacefulness and safety. In the current disaster, the sight of Japanese people helping each other as they maintain social order has won the praise of foreign media. Engelbert Kaempfer, a German physician and naturalist who came to Japan in 1690, remarked that there are no other people in the world as well mannered as the Japanese. Although more than 300 years have elapsed since then, this quality of the Japanese people has not changed in the least. If the government and the Bank of Japan implement appropriate policy measures and if each Japanese person commits themselves to doing what they can with critical awareness, we are certain in our conviction that Japan will recover.

Outlook for Japanese Economy, Interest Rates							Chart 15			
Indicator	2010			2011			FY09	FY10	FY11	FY12
	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep				
	Actual			DIR Estimates			Actual	DIR estimates		
<b>Real GDP</b>										
Q/q %, annualized	2.1	3.3	-1.1	1.2	1.4	1.8				
Y/y %	3.3	4.7	2.6	1.3	1.2	0.8	-2.4	3.0	1.4	2.4
<b>Current account balance</b>										
SAAR (Y tril)	15.1	17.7	16.7	19.0	20.2	21.3	15.8	17.3	21.9	25.9
<b>Unemployment rate (%)</b>	5.2	5.1	5.0	5.0	4.9	4.9	5.2	5.1	4.9	4.5
<b>CPI (excl. fresh foods; 2005 prices; y/y %)</b>	-1.2	-1.1	-0.5	-0.3	0.1	0.1	-1.6	-0.8	0.0	0.3
<b>Unsecured overnight call rate</b>										
(period end; %)	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.100	0.300
<b>10-year JGB yield</b>										
(period average; %)	1.27	1.04	1.04	1.25	1.20	1.25	1.35	1.15	1.30	1.40

Source: Various materials; compiled by DIR.

Note: Estimates taken from DIR's Japan's Economic Outlook No. 168 (Update).