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## The economic repercussions of the earthquake and the nuclear disaster

Japan has been struck by a gigantic natural catastrophe. Most tragic is the heavy loss of human life and livelihoods for the people in the devastated regions. Assessments of the economic consequences are currently only possible in an environment of very limited information and are thus associated with a high degree of uncertainty. In a worst case scenario, with a massive leakage of radioactivity, grave and enduring consequences for the Japanese economy loom.

As things stand, the overall economic impact of the earthquake and the nuclear disaster can only be portrayed in scenarios depending on the degree of nuclear radiation leakage. To the horror of the world at large, the latest information suggests that a large-scale contamination threatening the people of Japan has become more likely. The economic repercussions hinge on the intensity of the nuclear contamination.

Scenario 1: If the leakage of radioactivity can be broadly contained and kept away from the conurbations, the loss of output will be largely confined to the regions in the north-east of Japan directly affected by the earthquake. The three or four prefectures worst hit account for 4%-6% of Japan's overall economic output. Exacerbating the situation, however, will be the rationing of electricity and the damage to transport routes which will have a negative impact on production in other regions as well.

The inevitable disruption to economic activity in the immediate wake of a natural disaster is normally accompanied in the longer term by additional



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demand as economic assets are rebuilt. In this scenario the economy is likely to receive an appreciable boost in the second half of this year from the reconstruction work which is likely to stretch over several years. The scale of demand can be estimated by looking at the losses of real assets. The earthquake in Kobe in 1995 currently serves as a reference as this was to date the most expensive natural disaster with a (net) capital stock loss in the region of around JPY 10trn (a good 2% of GDP at the time). Figures on the damage caused to residential property by the disaster show that some 20% of houses were completely destroyed. There is much to suggest that the intensity of destruction is much greater this time, pushing up the overall cost of reconstruction (initial estimates point to 3% of GDP) even though production and real assets in the affected prefectures is likely to be lower than in the region around Kobe struck 16 years ago.

The bulk of the reconstruction costs is likely to fall to the state. But these can be covered only to a small extent from current budgetary funds for crisis events and by dipping into reserves in the so-called "Earthquake Reinsurance Special Account." Remaining insurance claims of private households in the framework of earthquake insurance, along with the reconstruction of public infrastructure will require a supplementary budget. Japan will have no choice but to delay the consolidation of its public finances, but that is currently a secondary problem.

Scenario 2: If the radioactivity spreads further across the country, this would necessitate sweeping protective measures for the population in conurbations. Uncertainty about how the contamination might unfold is great, not least because it depends on meteorological conditions. In the event of an uncontrollable meltdown in several reactors, large-scale contamination of the soil, air and water with radioactive particles would be the likely upshot. The regions around the nuclear plants would be unusable for an extended period and public and economic life in and around Tokyo could possibly grind to a halt for days or weeks, depending on the air currents.

In this event Japan would face major economic difficulties and overall output would plummet in 2011. Large swathes of national production would come to a standstill. Companies would have to cope with a corresponding slump in earnings. Exports would be emphatically weakened, with competitors capturing Japanese market shares. The loss of economic assets would be still more pronounced as even only partially damaged equipment would be unusable for a longer period. Such a scenario would be characterized by ongoing support measures from the central bank and financial assistance from the state for companies and their employees. Government debt would soar.



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Such a scenario would first and foremost damage the Japanese economy itself, but also spill over into the world economy via various channels. The risk of an extended standstill in production would send shockwaves through the financial markets, the Japanese stock market would take a particular knock. Given the slump in the economy, a rise in bond yields is not likely, even if the Japanese government slips further into debt. In view of the widespread uncertainty and risk aversion, interest rates on dollar and euro bonds could fall slightly. Given the close links between the Asian economies, international production chains would also be significantly disrupted, at least temporarily. Lingering supply problems in Japan would allow competitors on the world markets to expand their market shares at the expense of Japanese rivals. And we should also bear in mind that we could see a rethink on the energy policy front in many countries. A rejigging of the energy mix would render parts of the capital stock obsolete and generate costs. It also cannot be ruled out that the drop in oil and gas prices will be only very brief and that they will soon return to their upward trajectory as they (re-)assume an enhanced role in the production of energy.

Analysts have spent the past few months revising up global growth estimates to impressive numbers and may now start to trim them back. The Japanese disaster is the latest in a string of recent negatives: oil; Mid-East worries; emerging market inflation (especially in China) and renewed concerns about Europe although these have receded somewhat since the recent summit. In our view, these are all reasons not to get too carried away with global growth in 2011. Average growth will come in at 3.4% compared to 4.0% in 2010. If Japan enters a deep recession due to nuclear fallout, growth would be weaker, but it does not seem likely that this event could trigger a global recession. For this to happen, it would require massive oil and gas price increases, e.g. due to widespread political turmoil in the Near and Middle East.

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