

## **THE IMPACT OF THE JAPANESE CATASTROPHE ON VARIOUS SECTORS OF THE GLOBAL ECONOMY**

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A 9-magnitude undersea earthquake struck Japan on Friday, 11 March 2011, causing a 10-meter high tsunami that slammed the northeast coast of the country. The world economy is in expectation of serious consequences as the matter seems to be worse than the experts supposed. Japan not only lost its nuclear power plant and producing capacity, but also half of its infrastructure, banking system and insurance market. The aftermath of the catastrophe in the third-largest economy is able to induce harm to the world economy integrally.

### **Estimated losses**

Prior to the earthquake, Japan was already facing some major structural pressures. Its workforce was shrinking, due to an aging population and the absence of long-term immigration of workers. Workforce growth is a key component of economic growth, so Japan was facing a future with slowing underlying economic growth potential. It also has the heaviest public debt burden in the industrial world, at over 200 per cent of GDP, due to misapplication of fiscal policy through chronic structural fiscal deficits, part of an effort to revive its slowing economy. The immediate severe damage to Japan's nuclear plants, transportation system and infrastructure will disrupt the flow of water, oil and gasoline and other inputs into the production process. This will cripple economic activity across a broad range of industries in both the manufacturing and service sectors.

The World Bank reported on the 21 March 2011 that the real loss from the disaster is estimated to be U.S. \$ 235 billion while the experts anticipate that it will take 5 years for Japan to restore its economy. A couple days later, the Cabinet Office of Japan calculated the losses from the total devastation of the infrastructure, residential buildings, and offices and released the report on 23 March 2011. According to it the losses could reach U.S. \$ 309 billion and the damage from the earthquake and tsunami could form about 8% from the gross domestic product. Obviously, such huge damage will cause recession in Japanese economy, indeed the human losses are enormous. The earthquake has already taken away lives of 10.000 people and more than 14.000 are still missing.

### **The impact on the energy market**

Japan has an interesting energy mix: about 30% of its power needs are met by nuclear capacity, but it also has gas-fired, coal-fired and oil-fired power generating installations. Japan is only one of a few countries with the oil-fired variety. Increase in LNG (liquefied natural gas) demand is also anticipated. Japan imported about 80% of its primary energy requirement in 2008. It is the world's largest importer of both coal and LNG as well as the third-largest net importer of crude oil. Market response has ranged from initial stock-selling frenzies to re-evaluation of the nuclear power option. Oil and gas supply-demand re-balancing, even if on a regional basis, is also expected. While long-term outcomes may be currently unclear, certain trends are indicated. With a significant proportion of its nuclear as well as some gas-fired installations offline, it is expected that fuel oil and crude oil will be in greater demand. The immediate effect of the earthquake has been a decline in oil prices, since

the country will need less oil as a result of the halt in production for many Japanese manufacturers. However, this effect should prove to be temporary. The destruction of nuclear reactors at the Fukushima power station represents a loss of 8 per cent of Japan's electricity generation that will eventually have to be offset by thermal power plants that rely on imports of coal, natural gas and oil from abroad. It has been estimated that replacing all of Japan's nuclear capacity with oil would require importing close to 380,000 more barrels per day, in addition to the normal demand of 4.3 million barrels per day. LNG and oil makes up approximately 45% of the country's total energy consumption, 25% of Japan's refining capacity is shut in or damaged and this could put upward pressure on global gasoline and diesel prices. According to the Energy Information Administration (EIA), Japan is the third largest producer in the world of nuclear power at 10 GW. A significant portion of Japan's nuclear production, as well as several GW of base load thermal and hydro have been shut down following the quake. Depending on the extent of the damages and recovery construction planning, there could be a stimulus boost to the Japanese economy or long term demand destruction could put downward pressure on commodity prices.

### **The impact on the high-tech industry and motor industry**

Though it's unlikely there will be any immediate effect on the European supply chain, it seems likely that disruption caused by the Japanese earthquake will have a longer-term effect. Display panel manufacturers may face a shortage of materials as the earthquake has disrupted their materials suppliers. Price rises in PCs or mobile phones and a possible slowdown in production are likely. The quake disrupted transport and electricity production to Hitachi Chemical and Sony Chemical, which supply 80 to 90 percent of the products that bond integrated circuits to glass panels for consumer electronics displays. Major panel makers LG Electronics and Samsung Electronics can probably hold out on existing supplies for 40 days, after which they would face shortages if the two Japanese suppliers did not resume normal operations. Those firms make about 85 percent of the world's panel production. If faced with shortages, panel makers would probably raise prices; Apple in particular might delay shipments. Taiwan's Wintek Corp., an Apple touch screen contractor, said it had seen no effect from the quake yet but was on guard for later dips in supplies. Supplies of components for LCD panels may also be disrupted. Production of color polarizers at Fuji Film, for example, was affected and may change prices of this key component. The earthquake has also threatened supplies of raw wafers for semiconductors and jolted business for Japan's major tech firms. Sony declared that it had stopped its production in six of the company's northeastern factories (these produced Blu-ray discs, batteries and magnetic heads for hard drives). Sony didn't estimate the impact, but this could affect movies, games and even computers. Even if Panasonic and Canon were within range of the earthquake, the effect has varied. The Panasonic factories further north in Japan (in Fukushima and Miyagi) saw some damages, but it wasn't yet certain if these would be enough to stop production. Canon is confident that it could keep producing cameras, as well as other products at its factories. Nikon hadn't yet issued any statement, but one of its major factories could be affected. Nikon has a camera plant in Sendai, 111 miles west from the epicenter. Stopped production, as well as any long-term production problems may have a wave effect. Multiple computer and mobile device makers, including Dell, Apple and others, often source storage and digital imaging parts out of Japan.

However, car manufacturers have been some of the hardest hit – Nissan, Honda, Toyota and Subaru's parent Fuji Heavy Industries had to shut down four, two, three and five plants respectively. The issues with the Japanese auto industry are quite serious, and the situation is unlikely to return to normalcy any time soon. Many automakers in Japan are facing serious supply disruptions, not just to parts plants being damaged, but to rolling blackouts,

infrastructure damage, port and shipping issues, and more. With the nuclear catastrophe compounding the problems, a significant percentage of Japan's electrical generating capacity has been taken offline, and is unlikely to be restored soon. Carmakers in Japan are coping by shifting production to other plants where possible, while in North America, manufacturers are cancelling overtime or stopping production of slow-selling vehicles in order to conserve parts for repairs. General Motors, for instance, has idled a plant in Louisiana that makes small pickup trucks. Toyota Motor has warned its North American employees and dealers that production interruptions in the U.S. are likely, even as it begins to resume production at some factories in Japan. Nissan Motor, meanwhile, said it might ship engines from its plant in Tennessee to Japan to make up for lost production at a Japanese engine factory. One of the hardest-hit manufacturers is Honda Motor. The company said two of its plants would remain idle until at least April 4, after which it will decide on a production schedule based on the availability of components. Honda also said it will temporarily move some engineering work out of its research and development facilities at its Tochigi plant to other plants while it continues to assess the damage.

### **The influence on financial and currency markets**

Equity markets have been volatile and were generally heading in a downward direction following the earthquake, due to investor concerns about the impact of the disaster on the global recovery. This is not surprising since investors have already been assessing the effects of the sovereign debt crisis in Europe and the ongoing instability in the Middle East and North Africa. However, a look at the effect of past disasters of this scale reveals that equity markets generally rebound once the shock of the event begins to wane and reconstruction efforts kick into gear. Somewhat counter-intuitively, the Japanese yen has soared in value following the earthquake. This development occurred because the market anticipated that Japanese governments, firms and financial institutions will have to sell some of their overseas holdings and convert into yen in order to meet the financial demands resulting from reconstruction. For instance, Japanese insurance companies will require yen to meet the huge payouts in claims that will be processed in the months ahead. However, as should be the case with many of the developments following the earthquake, the appreciation of the yen should be temporary. The Japanese central bank will flood the financial system with liquidity because, at this delicate time, the last thing the economy needs is an appreciating currency hurting export demand. Also, central banks in the G7 plan to take steps to put the brakes on the yen's rapid appreciation. Concerns have been expressed about Japan's ability to take on more debt to finance reconstruction efforts since the country's total debt as a share of GDP is already over 200 per cent. While this is a legitimate concern, Japan's high savings and the fact that most of its debt is held domestically imply that the economy should be in a position to handle the extra debt burden required to get the economy back on its feet.

### **Conclusion**

To sum up, the world is witnessing a horrible tragedy in northern Japan, an earthquake followed by a tsunami and now the risk of a nuclear catastrophe. Even if the nuclear threat can be contained we will still see a humanitarian disaster, with more than 10,000 deaths and many more sick and injured. Many have asked how this tragedy will affect the world economy. There are serious grounds for concern. The direct effect of the disaster on the world economy is likely to be relatively limited. The region most directly affected by the earthquake and tsunami was comparatively thinly populated. Japan's industrial belt in the center and south of the country seems to have escaped largely unharmed.