

Japan's Crisis

# Cascading Effect

**While the crisis is a big blow to Japan's already fragile economy, its effect is being felt around the world. The main reason is that Japan is a source of key components for many of the world's manufacturing industries. *The Analyst* invited experts Jay Rajasekera, Ben Senauer and Andrew K P Leung to discuss the Japan crisis and its impact on world economy.**

A massive earthquake, a tsunami, and the resulting explosions of a nuclear plant sent crippling shock waves across Japan on March 11, 2011. In the words of Japan's Prime Minister, it is the biggest calamity to hit Japan since the World War II. The human suffering and damage to the basic infrastructure are beyond anything Japan had seen in recent memory.

Within days, the 'triple-blow' inflicted a 10% plunge in Tokyo Stock Exchange, taking down with it the shares of Japan's global giants such as Toyota, Nissan, Sony, and Panasonic. In the currency markets, the fear that overseas subsidiaries of Japanese companies may sell assets to bring back yen to help finance repairs to their damaged factories and infrastructure had sent yen hit-

**Jay Rajasekera, PhD,**

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ting to record highs against US dollar.

While the economists estimate the damage from the whole crisis created by the quake to be about \$200 bn or about 3% of Japan's GDP, its cascading impact can be much severe. To see the point, one can just look at the impact in Tokyo, which relied heavily on the power supply from the crippled nuclear plant. The city of 18 million now is partitioned into five regions and has rolling 3-hour power cuts, which itself had caused

many companies to cut down business hours, further damaging the economic life. Further, the fear of nuclear meltdown has caused a global humanitarian crisis where many foreign nationals, including many Indians working in IT industry in Tokyo, are being hastily airlifted out of Japan by respective governments.

While the crisis is a big blow to Japan's already fragile economy, its effect is being felt around the world. The main reason is that Japan is a source of key components for many of the world's manufacturing industries. Though the affected region is not the most industrialized area of Japan, it still is a base for key components used in automotive and electronic industries. Specific cases of impact due to the crisis include a Hitachi factory which produces about 100,000 lithium battery units for hybrid cars made by General Motors, in the US, six factories of Renesas Electronics which accounts for 60% of world automotive microcontrollers that are used in car navigation systems, and some factories of Toshiba which provides special type of flash-memory for Apple's iPhone and iPad.

To see the impact further, take China, which recently jumped over Japan to become the world's second largest economy. But China runs on Japanese machinery and parts. Thirteen per cent of China's imports come from Japan. Its largest import items include electric machinery and equipment and key electronic components and plastic

materials that are all supplied by Japanese companies.

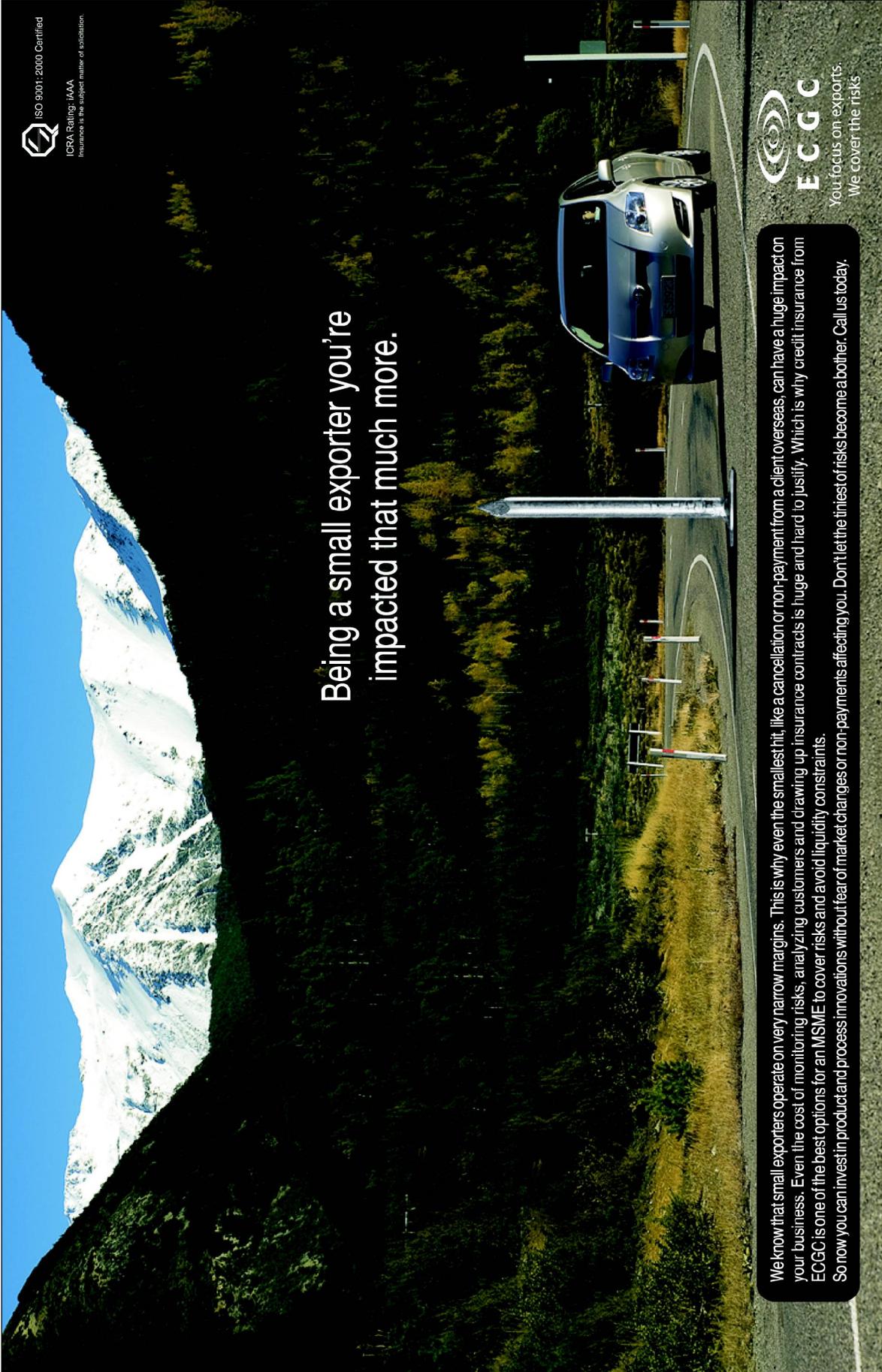
Though automotive and electronic industries may be the most affected, globally, the crisis in Japan, the third biggest player in the world economy, may have much severe long-term effects. The present crisis could further damage the already fragile world economy.

Japan has also hinted that its Official Development Assistance (ODA) may get affected as well. At present, most of Japan's ODA is directed at the developing countries in Asia—such as Cambodia, Indonesia, Laos, the Philippines, and Sri Lanka—and they could also feel the impact of the triple-blow.

Taking a comprehensive look, it is clear that the calamity and the shock waves created as a consequence of Japan's strongest ever earthquake are not just limited to the damaged region. It has already shaken Japan physically and hurting its economy. It is bound to have more crippling global implications for some foreseeable future.

**Fueling the Future, the Japanese Nuclear Power Catastrophe, and Black Swan Events**

Nuclear power, which emits no carbon dioxide or other Greenhouse Gases (GHGs) during operation, was increasingly being considered part of the mix of energy sources that would fuel the future. The United States that has not built a new nuclear power facility in decades has begun the approval process



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for building new plants. The still unfolding nuclear disaster at the Fukushima nuclear power plant in Japan is an example of what has come to be referred to as a 'black swan event'. Because black swans are so rare, the term 'black swan' has become popular to connote very low probability events with extreme consequences, if they ever do occur. The disaster in Japan has raised the question for many as to whether nuclear power can ever be safe enough. Given the need to move away from the reliance on GHG-emitting fossil fuels, what are the implications for fueling the future?

Japan was one of the countries committed to nuclear power as a major source for its electricity generation. Given that Japan is the only nation to ever suffer the terrible impact of nuclear weapons in a war and the nuclear catastrophe at Chernobyl in 1986 in the former Soviet Union, enormous efforts were made to make their nuclear power plants safe. The Fukushima plant was built to withstand major earthquakes and even a large tsunami since it was on the coast. Because nuclear reactors must be continually cooled, there were backup diesel generators to run the

pumps to circulate the cooling water, if the plant was shut down and outside electric power was ever lost. A massive seawall was built to protect these generators from tsunamis. An additional battery system was in place to operate the cooling water pumps for a short period. Then the massive earthquake and tsunami on March 11 showed that fail-safe nuclear power is probably not possible and that the extremely rare chance of 'black swan events' must not be overlooked.

The catastrophe at Fukushima can be expected to slow the growth of nuclear power. Although wind and solar power are growing rapidly in many

countries, given their dependence on the weather, they are not a source of reliable base-load electric power. Unfortunately, many more, heavily polluting coal-fired power plants are likely to be built now. Natural gas will be more extensively used to fuel future power plants, especially in those countries with an abundance of that resource. Natural gas is a much cleaner fuel source than coal, and although it emits far less than coal, it is still a source of GHGs. An electric-powered vehicle recharged with electricity from coal is much less advantageous than if the power is from an alternative, non-GHG producing source.

A more positive response to the Japanese disaster would be to redouble the commitment to overcoming the major technological barriers to an alternative energy future. These roadblocks include a means to efficiently store the energy produced by wind and solar for later use, and to capture and store, or utilize the carbon dioxide from coal-fueled plants. Given the sharp increase in food prices in 2008 and recently, one must question the use of food crops for biofuels, which are currently produced primarily from the starch in corn (maize) in the US and the sugar from sugarcane in Brazil. If biofuels are to be an important component of the future energy mix, biomass that does not compete with food production must become a viable feedstock. Another possibility is a genetically-engineered algae or bacteria which directly yields bio-diesel or hydrocarbon. Hopefully, Fukushima will encourage the enhanced effort and investment necessary for the breakthroughs to cleanly and safely fuel the future.

### Japanese 'Apocalypse Now'

An MIT expert panel assessment of the Fukushima Daiichi nuclear power plant situation as of 16 March may be viewed at "What we know, and don't know, about Japan's reactors". Subject to a great deal of uncertainties still unfolding, the following is an updated version of my contribution to the ATCA 24/7 Expert Roundtable discourse on the possibility of global fi-

nancial market meltdown following the Japanese apocalypse and turmoil in the Middle East:

### Is the Japan catastrophe—earthquake, tsunami, cascading nuclear accident, land-sea-air radioactive contamination and volcano—likely to cause a global financial meltdown?

It is only likely if further nuclear meltdowns threaten and plutonium fears spread beyond Japan while foreign nationals flee, turning risk aversion into panic. This is because:

- (a) Japan's domestic high-end components activities vulnerable to these apocalyptic disruptions are at the heart of much of the global production chain. This could cause a chain reaction of panic flight in global markets;
- (b) Japan may have to liquidate a significant amount of its large US Treasuries to help fund emergency payments and reconstruction on a massive scale. This could accelerate further Treasuries selloffs in the wake of PIMCO's prescient pre-Japan-crisis sell-out;
- (c) The margin for further national debt and purchase by its distressed citizens is not unlimited without affecting Japan's risk ratings;
- (d) This chaos may fuel a 'dynamic disequilibrium' amongst investors, including hedge funds. George Soros' Theory of Reflexivity may well start to apply.

### Will the unrest in the Middle East and North Africa, the Japan catastrophe, and global climate chaos deeply affect the fragile global economic recovery as well as the global capital and commodity markets?

Yes, all these uncertainties will add to market nervousness which could dampen global recovery. In particular, the scenario in Libya, a major oil supplier, remains unsettled and Saudi Arabia, provider of over a third of the world's oil supply, is beginning to feel the heat from Bahrain's unrest. Post-apocalypse Japan will need to import more oil and gas to fuel her reconstruction. The resultant high oil prices would be bad news for global economic recovery.

#### Ben Senauer

Professor of Applied Economics  
University of Minnesota, USA

Expertise: Alternative Energy – Bio-Fuels

**Could the record-breaking rise in the value of the Japanese yen destabilize global currency markets and undermine the competitiveness of the Japanese industry?**

Now the G7 intervention has successfully curbed the dramatic surge of the yen to a post-WWII high of 76.39. Following the Japan catastrophe, a dramatic rise in the value of the yen is unlikely to drive domestic consumption, which has been driving an overwhelm-

**Andrew K P Leung**

*SBS, FRSA, International and Independent China Specialist, Chairman, Andrew Leung International Consultants Limited, Hong Kong*

ing proportion of the Japanese economy. On the contrary, it would compound the problems of Japan's economic competitiveness, while a tsunami of repatriated funds to Japan would rattle bond yields and raise the prospect of interest rate rises in Western markets.

**Given the complex global supply chains and just-in-time methodology, as well as a reliance on Japanese parts and semiconductors, will a number of industrial combines across the world lose their competitive advantage and make losses?**

What is more immediate is the massive disruption in the global production chain as mentioned above. The situation may eventually be reversed as substitute centers are found overseas and as a Japan phoenix is likely to rise from the ashes on a dynamic journey of reconstruction and renewal after the 'radioactive' dust settles.

**Will uranium miners and nuclear power plant manufacturers feel an economic impact from the disaster, with both taking heavy blows to their market capitalization and credibility?**

As China, accounting for 40% of nuclear reactors to be built around the world, has joined the world's chorus calling for a halt to reassess safety issues, this is bound to bring uranium down from its high pedestal, until the future of the world's nuclear programs becomes clear.

**What will be the effect on global capital markets of continued borrowing by the heavily indebted Japanese government?**

**What will be the crowding out effects for other sovereign governments and private borrowers elsewhere?**

The need for an already heavily-indebted Japan to borrow a massive amount is likely to accelerate the global trend where capital becomes more expensive and less plentiful ("Farewell to cheap capital?" McKinsey Global Institute, December 2010). This will also worsen the tightening capital markets after the introduction of the Dodd-Frank Act post-financial crisis.

**Could these adverse developments in Japan and the Middle East cause a double dip global recession and a severe correction in the interlinked global financial markets?**

Notwithstanding successive doses of QE's, with unemployment levels remaining uncomfortably high in the West, the original hope was that the emerging markets' increasing consumption may offer a helping hand. This hope is now shaken with the avalanche in world markets as a result of the Japanese fallout.

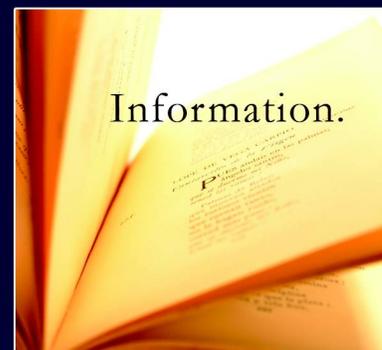
Mansoor Mohi-uddin, Managing Director of foreign exchange strategy at UBS, thinks that the yen's strength is likely to be shortlived owing to the selloff of Japanese stock by foreign investors, the jump in reliance on imported oil following the nuclear catastrophe, and the question of the long-term sustainability of Japan's finances, amongst other reasons.

At the same time, rampant demand for capital, plus rising inflation fears due to uncertainties of oil supply, may trigger a global trend of interest rate rises. However, Japan will find it difficult to follow this trend in the light of what has happened. The resultant interest rate divergence is likely to dampen the continuing rise of the Japanese yen.

Indeed, with domestic consumption further weakened, there may be a need to rely more on domestic net exports (at the high end) to boost the Japanese economy in the long-term, for which a weaker yen may be needed. ■

— Interviewed by **Amit Singh Sisodiya** and **Ramana Pemmaraju**

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