



A Potential Bounce-Back Story From a Natural Disaster

Lessons from the Fukushima earthquake disaster in 2011.

April 2020

We have experienced a panic in global markets in recent weeks. I believe there are similarities between the situation today facing the coronavirus outbreak and Japan's situation after the Tohoku earthquake and Fukushima nuclear reactor meltdown in 2011.¹ In some respects, the latter can be thought of as a "smaller scale" version of the coronavirus shock in 2020. The earthquake and tsunami was a natural disaster associated with a lack of preparation by the Tokyo Electric Power Company (TEPCO) and the Japanese authorities for coping with such a shock, despite Japan being a country at high risk of earthquake activity. It was made much worse by a second disaster at the Fukushima nuclear power plant when the earthquake and tsunami badly damaged the reactor, causing major radiation leakage. Once the scale of this second emergency became apparent, prolonged fears of radioisotope poisoning spread over wide areas of Japan, causing panic among the Japanese population.

Investors at the time expected significant damage and disruption to domestic and global supply chains as well as a severe drop in domestic aggregate demand that would hurt Japan's gross domestic product growth and dim the macroeconomic outlook. Nevertheless, the stock market in 2011 soon rebounded.

The lesson from this is that we think stock markets today could also rebound, reflecting new fundamentals even in the midst of the coronavirus fears. The trigger could be anticipated improvements in the fundamentals of companies and industries following a strong policy response from authorities. Nobody knows the timing of the global market bottom; it could be today. Such a rebound could be quite logical in contrast to the panic of the drawdown, if the Fukushima disaster is any guide. We should focus on fundamentals rather than on price movements.

Events in 2011

The Tohoku earthquake occurred on Friday, March 11, 2011, taking Japan completely by surprise.

- There was a huge earthquake followed by massive tsunami waves after 2:46 p.m., striking the eastern coast of Honshu, the main island of Japan.
- The accompanying tsunami was so powerful that waves reached heights of over 40 meters in Iwate prefecture, traveling up to 10 kilometers inland at speeds of up to 700 kilometers per hour.
- Nuclear meltdowns at the Fukushima power plant were first reported over the weekend of March 12.

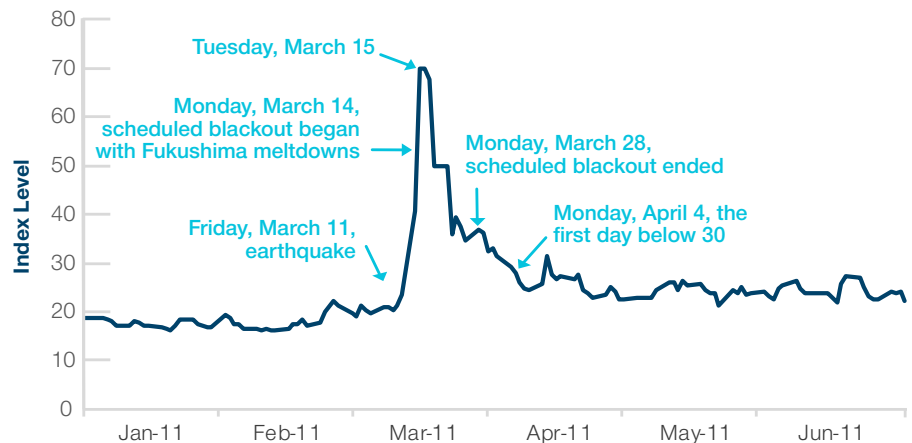


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¹ The great Tohoku earthquake in 2011 was the most powerful ever recorded in Japan, at 9.1 on the Richter scale, and the world's fourth most powerful since records began in 1900. There were 15,899 confirmed deaths, 6,157 injuries, and over 2,500 people are still reported missing.

Volatility Soared After the Fukushima Meltdown

(Fig. 1) VNKY = Nikkei Stock Average Volatility Index



Past performance is not a reliable indicator of future performance.

December 31, 2010, to June 30, 2011.

Source: Bloomberg Finance LP, as of March 13, 2020. Analysis by T. Rowe Price.

- TEPCO decided to cut all nuclear-powered electricity supplies in a scheduled rotational manner. All of Japan's nuclear plants, including Fukushima, were shut down over the course of March 14 to March 28, 2011.

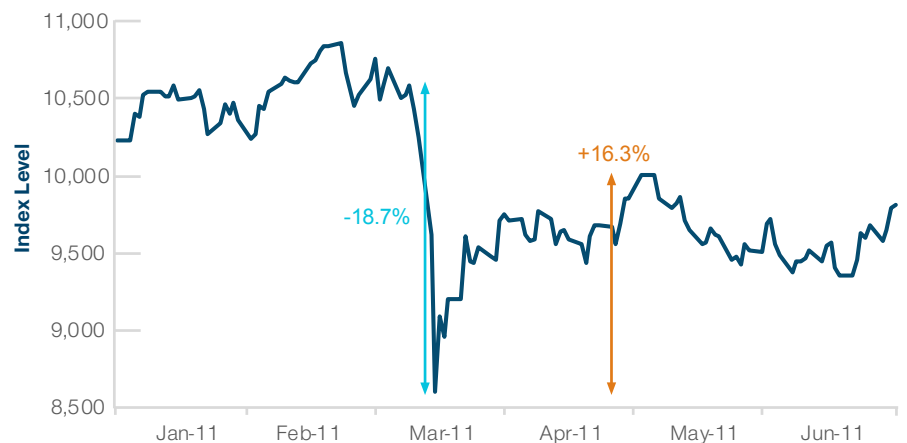
While the bottom for equities came on March 15, scheduled blackouts and economic dislocation continued long after that. There was also disruption to labor markets when many Tokyo residents decided to evacuate to western Japan to be farther away from the radiation source, even though mandatory evacuation only applied to east Fukushima. Despite these ongoing negative economic impacts and the situation at the Fukushima plant getting worse, the Japanese stock market was still able to bounce back, supported by big monetary and fiscal policy packages from the government.

The Stock Market After Fukushima

The Nikkei stock market index fell sharply, down 18.7% by March 15 with an intraday low of over 21%. From this point, the market started to bounce back and by April 28 had risen more than 16%. Most of the recovery rally came in the four business days after the trough.

Japan's Stock Market Recovered Quickly

(Fig. 2) Nikkei 225 Index



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If we examine sector performance during the rebound period, it was industries associated with strong reconstruction demand—such as basic materials, apparel, machinery, retail, and wholesalers—that rose the most (Fig. 3). On the other hand, industries that suffered structural damage or disruption from the earthquake and meltdown, such as air and marine transport and electronic games (part of Other Industries in Fig. 4), as well as electricity and gas, did not rebound quickly.

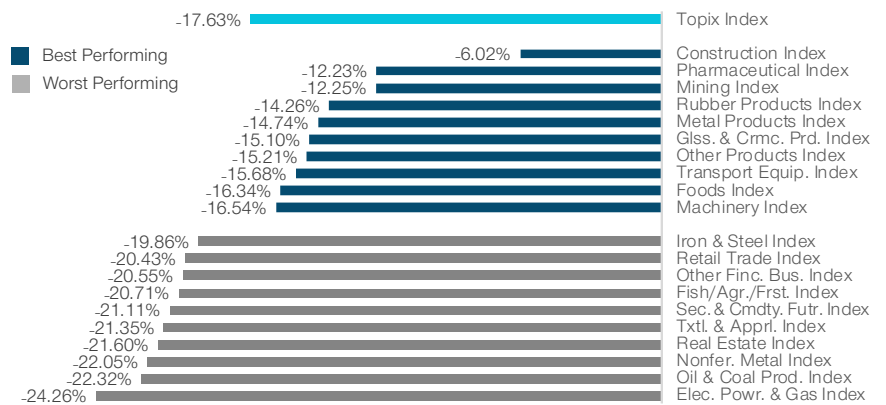
Potential for Markets to Bounce Back From the Coronavirus

Japan's experience of a major disaster and crisis in 2011 suggests to us that, while markets tend to

panic initially as investors fear the worst-case scenario, share prices as forward-looking instruments have the ability to rebound in anticipation of an economic and social recovery back to normality. Once panic among consumers, businesses, and investors has peaked, we see the stock market beginning to work quite logically from the bottom. It has the ability to respond positively to new information or to a change in future expectations, even though many investors still harbor significant doubts and fears. It is very difficult to get the timing of the market rebound right. A logical approach based on longer-term fundamental analysis remains the best way forward, in our view.

Sector Performance in the Fukushima Correction

(Fig. 3) Price return ranking of Topix sectors (March 10 to 15, 2011)



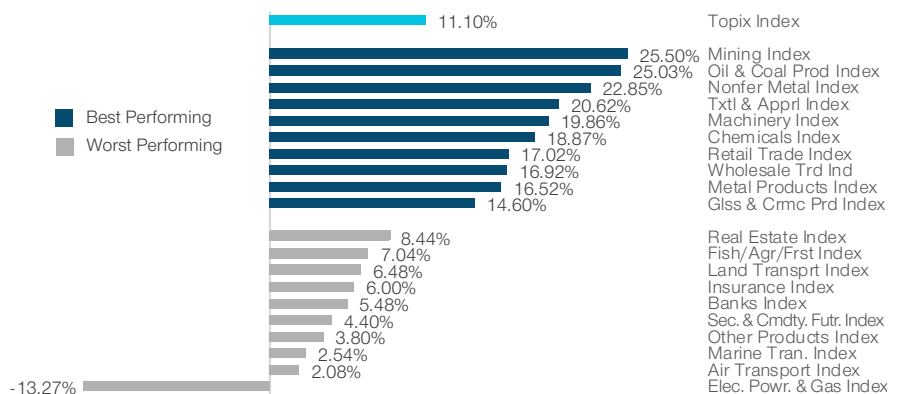
Past performance is not a reliable indicator of future performance.

March 10, 2011, to March 15, 2011.

Source: Bloomberg Finance LP, as of March 13, 2020. Analysis by T. Rowe Price.

Sector Performance in the Market Recovery

(Fig. 4) Price return ranking of Topix sectors (March 15 to April 28, 2011)



Past performance is not a reliable indicator of future performance.

March 15, 2011, to April 28, 2011.

Source: Bloomberg Finance LP, as of March 13, 2020. Analysis by T. Rowe Price.

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