

# Capital and finance: Jelly for Virginia

Hurricane Irene grabbed the headlines, but savvy insurers know that the earthquake that struck Richmond Virginia was the true risk event.

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## Political pundits

The Republican tea party had much fun in associating the spate of natural disasters that impacted the East Coast of the USA in the vicinity of the White House with some kind of divine malfeasance following the actions of the current incumbent. The BRAVE Partners even had a certain amount of amusement in suggesting that the disasters were linked to the poor attendance record at places of worship of our more atheist friends in the region. However the plague of locusts that the Republicans predicted has not yet materialised and the events have faded from memory.

The Piedmont region earthquake was notable for the distances at which damage was reported from a magnitude 5.8 quake.

## Partial recall

Out of what did materialise, hurricane Irene remains in the news. It caused more damage than the earthquake. Moreover, the spector of a big hurricane hit in the US North East is cocktail party conversation for reinsurance geeks, which includes us at BRAVE Partners. Irene adds a data point and is therefore worthy of endless analysis. The earthquake is an addendum to a bad week for Virginia.

## The force be with you

The outstanding publication, The Economist, however has picked up on the Richmond, Virginia earthquake as being the more significant event. The real difference between the Virginia earthquake and others was that for a relatively small shake, magnitude 5.8 (probably a monthly occurrence in and around Japan), the destruction and force of it were felt over a vast region. The quake put cracks into the Washington Monument and was felt as far away as Montreal in Canada, managing to clock up some damage in Brooklyn on the way. A similar quake in California would hardly be noticed.

## Jelly party in California

The reason for the difference lies in the rocks. To the west of the Rocky Mountains, the Pacific landmass is considerably younger rock than the crustal rocks that formed the Appalachian and Allegheny Mountains. The difference in age is hundreds of millions of years. The important difference is that the younger rocks tend not to transmit the destructive sheer forces from earthquakes as efficiently as the older rocks.

### Rigidity comes with age

Younger rock is hotter and hot rock is more fluid. Fluid does not shear as easily as solids, it compresses and flows to absorb the force.

The older rocks on to the east of the Rockies therefore transmit earthquakes far further and more efficiently than the younger rocks to the west. It is the difference between hitting a steel girder with a hammer and hitting a jelly with a hammer.

### New risk zone

Much has been made of the potential risks of a hurricane hit in the North East of the USA. Whilst so far activity has been far smaller scale and far less frequent than California, or even the New Madrid area – the recent quake shows that the East Coast also has the potential for a highly destructive, widespread earthquake.

### Nuclear threat

What is more concerning is that there are still nuclear power plants on the US East Coast. Fukushima has shown what can happen when an earthquake damages the control mechanisms for a nuclear plant beyond the point at which it can be controlled effectively.

There is the potential for a real nasty shake up.

### BRAVE Partners services

BRAVE Partners can advise insurers and reinsurers on the capital markets' appetite for insurance risks. The firm can arrange and place such transactions, as well as provide mentoring and advice on establishing the infrastructure and a presence in the market. Such advice can include the key terms of a cat bond and the major negotiating points to consider for each.

### Interaction

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- The recent earthquake in Virginia has been overshadowed by Hurricane Irene.
- However, close analysis suggests that the earthquake was the more significant event as it demonstrated the destructive power of a small event in that region.
- The USA therefore potentially has another peak zone risk – West coast quake.
- Peak zone risk often needs to be placed into the Capital Markets.
- BRAVE Partners can:
  - Advise on the business strategy for a cat bond, or other capital markets placement of the risk.
  - Arrange a cat bond, or other capital markets transaction.

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