



The National Flood Insurance Program (NFIP), Reinsurance, and Catastrophe Bonds

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April 17, 2018

Insurance generally serves to transfer risk from one entity who does not want to bear that risk to another entity that does. An initial insurance purchase, such as homeowners buying a policy to cover damage to their home, however, is often only the first transfer of that risk. The initial (or *primary*) insurer may then transfer (or *cede*) some or all of this risk to another company or investor, such as a *reinsurer*. Such risk transfers are, on the whole, a net cost for primary insurers, just as purchasing insurance is a net cost for homeowners.

The Homeowner Flood Insurance Affordability Act of 2014 (P.L. 113-89) revised the authority of the National Flood Insurance Program (NFIP) to secure reinsurance from “private reinsurance and capital markets.” Risk transfer from the private market could reduce the likelihood of the Federal Emergency Management Agency (FEMA) needing to borrow from the Treasury to pay claims. In addition, this could allow the NFIP to recognize some of its flood risk up front through the premiums it pays for risk transfers rather than after the fact borrowing from the Treasury. Using reinsurance to cover losses that occur in the more extreme years could help the NFIP to reduce the volatility of its losses over time. However, because reinsurers understandably charge the NFIP premiums to compensate for the assumed risk as well as the reinsurers’ costs and profit margins, the primary benefit of reinsurance is to manage risk, not to reduce the NFIP’s long-term fiscal exposure.

Congressional Research Service

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IN10887

Reinsurance

The most common form of risk transfer is for a primary insurer to purchase a policy covering its risks from another (re)insurer. The primary insurer would typically continue to service the policy, while the reinsurer operates in the background. Reinsurance is particularly important to smaller insurers, who may not be large enough to spread local risks that are geographically correlated, such as a storm hitting a particular area. Reinsurers, however, often have the scope to diversify their risks on a global scale. It is also not uncommon for reinsurers to transfer (or *retrocede*) risks to other reinsurers.

National Flood Insurance Program (NFIP) Purchase of Reinsurance

Begun in September 2016 with a small amount to test the market, larger reinsurance purchases began in January 2017, as FEMA purchased \$1.042 billion of reinsurance for an annual premium of \$150 million. The reinsurance covered 26% of losses between \$4 billion and \$8 billion arising from a single flooding event. FEMA has so far paid over \$8.6 billion in claims for Hurricane Harvey, triggering a full claim on the 2017 reinsurance.

FEMA purchased \$1.46 billion of reinsurance in January 2018, for a premium of \$235 million. The agreement is structured to cover losses in 2018 above \$4 billion for a single flooding event, covering 18.6% of losses between \$4 billion and \$6 billion, and 54.3% of losses between \$6 billion and \$8 billion.

Catastrophe Bonds

In addition to reinsurance, new forms of “alternative” risk transfer have also been developed. One category of alternative risk transfer instruments are known as insurance linked securities (ILS)—financial instruments whose values are driven by insurance loss events. The most common form of ILS are catastrophe bonds (or cat bonds), which are structured somewhat like other bonds, but whose payout is dependent on the occurrence of a particular catastrophe, like a hurricane or earthquake of a particular strength.

Catastrophe bonds were first used in the private sector in the mid-1990s following Hurricane Andrew and the Northridge earthquake. Catastrophe bonds transfer major natural disaster risks to capital market investors. Such bonds are tradable and access global capital markets more directly than reinsurance, where a reinsurer acts as an intermediary. Catastrophe bonds are structured so that payment depends on the occurrence of an event of a defined magnitude or that causes an aggregate insurance loss in excess of a stipulated amount. Only when these specific triggering conditions are met do investors begin to lose their investment. There are three main types of triggers

- *Indemnity*—bonds triggered by the actual losses experienced by the sponsoring insurer following the occurrence of a specified event; e.g., a bond triggered if an insurer’s residential property losses from a hurricane in Florida exceeded \$25 million in 2018;
- *Industry Loss*—bonds triggered by a predetermined threshold of industry-wide losses following the occurrence of a specified event; e.g., a bond triggered if a total of all insurers’ residential property losses from floods in 2018 exceeded \$20 billion; or
- *Parametric*—bonds triggered by the actual physical conditions occurring during a disaster such as wind speed or earthquake size; e.g., a bond triggered by an eight-meter storm surge hitting New Orleans in 2018.

The public sector has become increasingly interested in the use of bonds. In 2009, Mexico became the first sovereign to issue cat bonds and the World Bank is now one of the largest participants in the catastrophe bond market. The New York City Metropolitan Transit Authority issued catastrophe bonds to

protect against storm surge. According to the insurer Swiss Re, more than \$10.5 billion in catastrophe bonds were issued in 2017, with the overall amount outstanding at \$278.0 billion.

NFIP and Catastrophe Bonds

In April 2018, FEMA announced that it would seek to transfer NFIP risk to private markets through an ILS transaction. According to the notice of procurement, this would happen through a reinsurance procurement in which the reinsurer acts as a transformer to transfer NFIP-insured flood risk through the issuance of a catastrophe bond, to be effective for a term of “likely” three years. The notice also indicates that proceeds from the issuance of the catastrophe bond would be transferred into a reinsurance trust account, with FEMA as the sole beneficiary, for satisfying claims under the reinsurance agreement between FEMA and the transforming reinsurer. Thus, apparently, the catastrophe bonds would not be issued by the United States as a sovereign entity, but instead would be issued by the private reinsurer. The amount of the cat bond and the precise design are not yet known.

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