INSURANCE INFORMATION INSTITUTE

Spotlight on: Flood insurance

Catastrophes | Homeowners

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IN THIS ARTICLE

Overview

Flooding is the most common and costly natural disaster in the United States, causing billions in economic losses each year. According to the National Flood Insurance Program (NFIP), 90 percent of all natural disasters in the United States involve flooding.

There is no coverage for flooding in standard homeowners or renters policies or in most commercial property insurance policies. Coverage is available in a separate policy from the National Flood Insurance Program (NFIP) and from a few private insurers.

Recent developments

- **NFIP reauthorization:** Congress must periodically renew the NFIP's statutory authority to operate. In the unlikely event the NFIP's authorization lapses, claims would still be paid but the NFIP would stop selling and renewing policies (more details here.)

- In 2019, federal regulators announced a rule requiring regulated lending institutions to accept private flood insurance policies comparable to the National Flood Insurance Program. The rule took effect July 1, 2019. (See Private flood insurance below.) In June 2014 Florida enacted a law that encourages private companies to offer flood insurance. The legislation permits four types of flood coverage – a standard policy, which resembles National Flood Insurance Program coverage, and three enhanced policies.

- **Hurricane Harvey:** Hurricane Harvey made landfall in Texas as a Category 4 storm on August 25, 2017 and then turned into the single biggest rain event in U.S. history. Harvey's floodwaters have caused multiple deaths and billions of dollars in property damage in Texas. Harvey made a second landfall in Louisiana on August 30th. As of July 31, 2018, $8.8 billion in closed claims have been paid out to Texas and Louisiana flood insurance policyholders, according to FEMA.

- **NFIP Reinsurance:** In September 2016, the NFIP began a reinsurance program to put it in a better position to manage losses incurred from major events by transferring exposure to reinsurers. The NFIP renewed its programs through 2020, arranging for $1.33 billion in coverage for 2020, slightly more than in 2019, receiving the funds from 27 private reinsurers. In 2020 coverage will be 10.25 percent of NFIP losses between $4 billion and $6 billion; 34.68 percent of losses between $6 billion and $8 billion; and 21.8 percent of losses between $8 billion and $10 billion. These changes, as well as higher pricing, increased the cost of reinsurance coverage to $205 million in 2020 from $186 million in 2019.

- **NFIP Catastrophe bonds:** In August 2018, FEMA launched its first catastrophe bond to transfer risk from the NFIP to the capital markets, as reported by Artemis. It was the first catastrophe bond to solely provide reinsurance coverage for flood risks. In February 2020 FEMA secured $400 million in reinsurance backed by catastrophe bonds from the FloodSmart Re Ltd. (Series 2020-1). According to Artemis, FEMA's reinsurance program protection for the NFIP is now $2.53 billion, combining traditional reinsurance and its catastrophe bond program, continuing its plan, begun in 2017, to reduce taxpayers' burden of paying NFIP's losses.

- **NFIP policies, premiums and payments:** The number of policies in force has been declining from the high point of 5.7 million in 2009 to 5.22 million in 2018. NFIP earned premiums rose 0.6 percent in 2018 after falling 0.7 percent in 2017. Flood loss payments totaled $1.4 billion in 2018, well below the $8.7 billion paid in 2017. Flood loss payments totaled $9.5 billion in 2012, the year of superstorm Sandy. In 2005 loss payments totaled $17.8 billion, the highest amount on record, including losses from Hurricanes Katrina, Rita and Wilma.

- **Private flood insurance:** Flood insurance had long been considered an untouchable risk by private insurers because they did not have a reliable way of measuring flood risk. In recent years insurers have become increasingly comfortable with using sophisticated models to underwrite insurance risk, and modeling firms are getting better at predicting flood risk.

- In 2019 net premiums written for private flood insurance plummeted to $287 million, down 46.9 percent from $541 million in 2018, according to S&P Global Market Intelligence. There were 140 private companies writing flood insurance in 2019, compared with 116 in 2018, according to NAIC data compiled by S&P Global Market Intelligence.

- **Low flood insurance take-up rates:** The 2018 Insurance Information Institute *Pulse* survey found that 15 percent of American homeowners had a flood insurance policy, up from 12 percent who had the coverage in 2016. A McKinsey & Co. analysis of take up rates for flood insurance in areas most affected by the three Category 4 hurricanes that recently made landfall in the United States — Harvey, Irma and Maria — found that as many as 80 percent of Texas, 60 percent of Florida and 99 percent of Puerto Rico homeowners lacked flood insurance. Some of the reasons cited for lack of coverage is that it is too expensive, that homeowners are not aware they don't have it; and that people underestimate the risk of flooding.

Background

The National Flood Insurance Program: Before Congress passed the National Flood Insurance Act in 1968, the national response to flood disasters had been to build dams, levees and other structures to hold back flood waters, a policy that may have encouraged building in flood zones.

The National Flood Insurance Act created the National Flood Insurance Program (NFIP), which was designed to stem the rising cost of taxpayer funded relief for flood victims and the increasing amount of damage caused by floods. The NFIP has three components: to provide flood insurance, floodplain management and flood hazard mapping. Federal flood insurance is only available where local governments have adopted adequate floodplain management regulations for their floodplain areas as set out by NFIP. More than 20,000 communities across the country participate in the program. NFIP coverage is also available outside of the high-hazard areas.

The law was amended in 1969 to provide coverage for mud flows and again in 1973. Until then, the purchase of flood insurance had been voluntary, with only about one million policies in force. The 1973 amendment put constraints on the use of federal funds in high-risk floodplains, a measure that was expected to lead to almost universal flood coverage in these zones. The law prohibits lenders that are federally regulated, supervised or insured by federal agencies from lending money on a property in a floodplain when a community is participating in the NFIP, unless the property is covered by flood insurance. The requirement for flood insurance also applies to buildings that receive financial assistance from federal agencies such as the Veterans Administration. However, because the initial mortgage on the property is frequently sold by the originating bank to another entity, enforcement of this law has been poor.

Legislation was enacted in 1994 to tighten enforcement. Regulators can now fine banks that consistently fail to enforce the law, and lenders can purchase flood insurance on behalf of homeowners who fail to buy it themselves, then bill them for coverage. The law includes a provision that denies federal disaster aid to people who have been flooded twice and have failed to purchase insurance after the first flood.

Buildings constructed in a floodplain after a community has met regulations must conform to elevation requirements. When repair, reconstruction or improvement to an older building equals or exceeds 50 percent of its market value, the structure must be updated to conform to current building codes. A 2007 NFIP study on the benefits of elevating buildings showed that due to significantly lower premiums, homeowners can usually recover the higher construction costs in less than five years for homes built in a “velocity” zone, where the structure is likely to be subject to wave damage, and in five to 15 years in a standard flood zone. The Federal Emergency Management Agency (FEMA) estimates that buildings constructed to NFIP standards suffer about 80 percent less damage annually that those not built in compliance.

How it works: The NFIP is administered by FEMA, part of the Department of Homeland Security. Flood insurance was initially only available through insurance agents who dealt directly with the federal program. The direct policy program has been supplemented since 1983 with a private/public cooperative arrangement, known as "Write Your Own," through which a pool of insurance companies issue policies and adjust flood claims on behalf of the federal government under their own names, charging the same premium as the direct program. Participating insurers receive an expense allowance for policies written and claims processed. The federal government retains responsibility for underwriting losses. Today, most policies are issued through the Write-Your-Own program but some non-federally backed coverage is available from the private market.

The NFIP is expected to be self-supporting in an average loss year, as reflected in past experience. In an extraordinary year, as Hurricane Katrina demonstrated, losses can greatly exceed premiums, leaving the NFIP with a huge debt to the U.S. Treasury that it is unlikely to pay back. Hurricane Katrina losses and the percentage of flood damage that was uninsured led to calls for a revamping of the entire flood program.

Flood adjusters must be trained and certified to work on NFIP claims. NFIP general adjusters typically re-examine a sample of flood settlements. Insurers that fail to meet NFIP requirements must correct problems; otherwise they can be dropped from the program.

What's in a typical policy: Flood insurance covers direct physical losses by flood and losses resulting from flood-related erosion caused by heavy or prolonged rain, coastal storm surge, snow melt, blocked storm drainage systems, levee dam failure or other similar causes. To be considered a flood, waters must cover at least two acres or affect two properties. Homes are covered for up to $250,000 on a replacement cost basis and the contents for up to $100,000 on an actual cash value basis. Replacement cost coverage pays to rebuild the structure as it was before the damage. Actual cash value is replacement cost minus the depreciation in value that occurs over time. (Excess flood insurance is available in all risk zones from some private insurers for NFIP policyholders who want additional coverage or where the homeowner's community does not participate in the NFIP.) Coverage for the contents of basements is limited. Coverage limits for commercial property are $500,000 for the structure and another $500,000 for its contents.

To prevent people from putting off the purchase of coverage until waters are rising and flooding is inevitable, policyholders must wait 30 days before their policy takes effect. In 1993, 7,800 policies purchased at the last minute resulted in $48 million in claims against only $625,000 in premiums.

Flood Risk: As with other types of insurance, rates for flood insurance are based on the degree of risk. FEMA assesses flood risk for all the participating communities, resulting in the publication of thousands of individual flood rate maps. High-risk areas are known as Special Flood Hazard Areas or SFHAs.

Flood plain maps are redrawn periodically, removing some properties previously designated as high hazard and adding new ones. New technology enables flood mitigation programs to more accurately pinpoint areas vulnerable to flooding. As development in and around flood plains increases, run off patterns can change, causing flooding in areas that were formerly not considered high risk and vice versa.

People tend to underestimate the risk of flooding. The highest-risk areas (Zone A) have an annual flood risk of 1 percent and a 26 percent chance of flooding over the lifetime of a 30-year mortgage, compared with a 9 percent risk of fire over the same period. In addition, people who live in areas adjacent to high-risk zones may still be exposed to floods on occasion. Since the inception of the federal program, some 25 to 30 percent of all paid losses were for damage in areas not officially designated at the time of loss as SFHAs. NFIP coverage is available outside high-risk zones at a lower premium.

National Flood Insurance Reform

NFIP risk rating reform: On March 18, 2019 the Trump administration announced plans to reform the NFIP with a shift to fully risk based pricing of flood insurance. FEMA said the program would begin to assess properties individually, using several variables such as hurricane rainfall, coastal surges and proximity to bodies of water, rather than applying a single formula for an entire flood zone. FEMA's current system calculates rates based on whether a home falls in a designated flood zone, and since higher-valued properties are more likely to hit the $250,000 insurance cap, lower-value homes are paying proportionately more than higher-value homes. The reformed system would change that as well as potentially drive more flood risk into private reinsurance and risk markets. FEMA will implement the new system on October 1, 2021.

In 2012 the Biggert-Waters Flood Insurance Reform Act was passed in an attempt to make the federal flood insurance program more financially self-sufficient by eliminating rate subsidies that many property owners in high-risk areas receive.

But in March 2014 Congress rescinded many of the rate increases called for by the Biggert-Waters Act. The new law reduced some rate increases already implemented, prevented some future increases and put a surcharge on all policyholders. The measure also authorized funds for the National Academy of Sciences to complete an affordability study.

The 2014 law prevents any policyholder from seeing an annual rate increase exceeding 18 percent. It calls on the flood program's administrator, the Federal Emergency Management Agency (FEMA), to "strive" to prevent coverage from costing more than 1 percent of the amount covered. In other words, if the policy offered $100,000 of coverage, the premium would not exceed $1,000.

The 18 percent cap will result in refunds in some cases. Refunds began in October 2014. FEMA has a fact sheet on who is eligible for refunds.

The law also reinstates a practice known as grandfathering, meaning that properties re-categorized as being at a higher risk of flooding under FEMA's revised maps would not be subject to large increases.

It also ends a provision in Biggert-Waters that removed a subsidy once a home was sold. People who purchased homes after Biggert-Waters became law will receive a refund. Many lawmakers in coastal states were concerned that the higher cost of flood insurance would have a negative impact on the real estate industry. The subsidy will now be covered by a $25 surcharge on homeowners flood policies and a $250 surcharge on insurance for nonresidential properties and secondary (vacation) homes.

According to data from FEMA, most current flood insurance policyholders (81 percent, or 4.5 million) pay rates based on the true risk of flood damage and so were not affected by Biggert-Waters or the subsequent rollback. Properties most affected by the rate hikes were in high-risk flood zones; were built before communities adopted their first Flood Insurance Rate Map; were second homes; or are second homes that have not been elevated. Others affected include businesses and those who live in homes that have been repeatedly flooded.

Private Flood Insurance

The National Flood Insurance Program, now 50 years old, compensated for coverage not available in the private market. Private insurers did not have reliable ways of measuring flood risk but technological advances now allow insurers to underwrite risk more accurately and make sounder actuarial decisions. In early 2019 federal regulators allowed mortgage lenders to accept private homeowners flood insurance if the policies abide by regulatory definitions. Also allowed are private insurance policies that do not meet regulations if insurers provide adequate protection according to general safety and soundness requirements. The effect is likely to impact homeowners in states where most of the nation's flood insurance policies are held. In 2019 net premiums written for private flood insurance plummeted to $287 million, down 46.9 percent from $541 million in 2018, according to S&P Global Market Intelligence. Premiums in 2019 were impacted by the largest writer of private flood insurance in 2018 reclassifying private flood insurance into allied lines. There were 140 private companies were writing flood insurance in 2019, compared with 116 in 2018, according to NAIC data compiled by S&P Global Market Intelligence. A.M. Best says the increase in private carriers improves competition and helps spread the economic risk that comes from flooding. Private carriers can also offer higher coverage than FEMA's National Flood Insurance Program policies, currently capped at $250,000 for residential buildings and $500,000 for non-residential buildings.

Flood Resilience

Disaster resilience refers to the ability of communities to prepare for, recover from, and adapt to adverse events.

Some of the best practices for community flood resilience recommended by the Environmental Protection Agency include: a comprehensive disaster recovery plan; green infrastructure techniques; land conservation in river corridors; restoring wetland vegetation; discouraging development in frequent flood areas; adapting flood resistant building codes; and coordinating with neighboring jurisdictions to implement a watershed-wide approach to storm-water management.

Urban planners and engineers around the world are developing innovative flood solutions such as amphibious housing, porous roads and sidewalks, and use of satellite data for more frequent flood alarms.

A 2017 National Institute of Building Sciences study found that for every dollar invested in riverine flood mitigation the return was $7 in cost savings.

Flood coverage in other countries

The system in the United States is unique in that for the most part the government underwrites the coverage and private insurers act as administrators bearing no actual flood risk.

In other developed countries, there are two basic methods of providing flood insurance. Under the first, the optional system, insurers extend their standard policy to include supplemental coverage for flood damage on payment of additional premium. The coverage tends to be expensive because only those most likely to be flooded, and therefore to file claims, purchase it, a situation known in the insurance industry as adverse selection. Among the countries with optional coverage are Germany and Italy.

The other method is "bundling." Under this system, flood coverage is combined with coverage for other perils such as fire and windstorm, thus spreading the risk of flood losses across a large geographical area and greatly increasing the percentage of the population covered for flood damage. Countries that have adopted this method include the United Kingdom, Spain and Japan. In addition, in some countries such as France and Spain there are government compensation programs for major disasters, including flooding, that take effect when the cost of a disaster reaches a certain level.

In 2014 the United Kingdom launched Flood Re, a not-for-profit reinsurance organization to take on flood risks that primary insurers do not want. If an insurer calculates that the flood risk of a particular policy exceeds the flood premium, it will cede that risk to Flood Re. The insurer will pay the claim, then seek reimbursement from Flood Re. In all likelihood, Flood Re's losses and expenses will exceed its premium. Additional funding will come from a levy raised from insurers by market share.

Charts and graphs

National Flood Insurance Program, 1980-2018 (1)

		Losses paid		
Year	Policies in force at year-end	Number	Amount ($000)	Average paid flood claim
1980	2,103,851	41,918	$230,414	$5,497
1985	2,016,785	38,676	368,239	9,521
1990	2,477,861	14,766	167,897	11,371
1995	3,476,829	62,441	1,295,578	20,749
2000	4,369,087	16,362	251,721	15,384
2005	4,962,011	213,593	17,770,443	83,198
2009	5,700,235	31,034	779,974	25,133
2010	5,645,436	29,164	773,706	26,529
2011	5,646,144	78,236	2,429,440	31,053
2012	5,620,017	151,849	9,516,995	62,674
2013	5,568,642	18,118	492,542	27,185

- As of March 21, 2019, there were more than 76,000 paid losses from Hurricane Harvey and the average paid loss was $116,800. This compares to Hurricane Katrina, which had 167,000 paid losses, at an average of $97,500 per loss.
- In 2018 the average amount of flood coverage was $257,000, and the average premium was $642.
- The average flood claim in 2018 was $42,580, down from $91,735 in 2017, the year Hurricanes Harvey, Irma and Maria struck.
- NFIP earned premiums rose 0.6 percent in 2018 after falling 0.7 percent in 2017.

Year	Policies in force at year-end	Losses paid Number	Amount ($000)	Average paid flood claim
2017	5,133,785	95,235	8,736,386	91,735
2018	5,178,978	31,801	1,354,075	42,580

(1) Data in this chart may not match similar data shown elsewhere from the same source due to the use of different exhibits.

Source: U.S. Department of Homeland Security, Federal Emergency Management Agency.

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Top 10 Most Significant Flood Events By National Flood Insurance Program Payouts (1)

Rank	Date	Event	Location	Number of paid losses	Amount p ($ million
1	Aug. 2005	Hurricane Katrina	AL, FL, GA, LA, MS, TN	166,790	$16,2
2	Sep. 2017	Hurricane Harvey	AL, AR, FL, GA, KY, LA, MS, NC, TX	76,257	8,9
3	Oct. 2012	Superstorm Sandy	CT, DC, DE, MA, MD, ME, NC, NH, NJ, NY, OH, PA, RI, VA, VT, WV	132,360	8,8
4	Sep. 2008	Hurricane Ike	AR, IL, IN, KY, LA, MO, OH, PA, TX	46,701	2,7
5	Aug. 2016	Louisiana severe storms and flooding	LA	26,976	2,4
6	Sep. 2004	Hurricane Ivan	AL, DE, FL, GA, LA, MD, MS, NJ, NY, NC, OH, PA, TN, VA, WV	28,154	1,6
7	Aug. 2011	Hurricane Irene	CT, DC, DE, MA, MD, ME, NC, NH, NJ, NY, PA, RI, VA, VT	44,314	1,3
8	Jun. 2001	Tropical Storm Allison	FL, LA, MS, NJ, PA, TX	30,671	1,
9	Sep. 2017	Hurricane Irma	FL, GA, SC	21,920	1,0
10	Oct. 2016	Hurricane Matthew	FL, GA, NC, SC, VA	16,586	6

(1) Includes events from 1978 to January 31, 2019 as of December 23, 2019. Defined by the National Flood Insurance Program as an event that produces at least 1,500 paid losses. Stated in dollars when occurred.

Source: U.S. Department of Homeland Security, Federal Emergency Management Agency; U.S. Department of Commerce, National

Oceanic and Atmospheric Administration, National Hurricane Center.

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Private Flood Insurance, 2016-2019

($000)

Year	Net premiums written (1)	Annual percent change	Combined Ratio (2)	Annual point change (3)
2016	$277,819	NA	93.8	NA
2017	470,961	69.5%	186.1	92.3 pts.
2018	540,875	14.8	55.0	-131.1
2019	287,184	-46.9	58.5	3.5

(1) After reinsurance transactions, excludes state funds and premiums written by private insurers participating in the National Flood Insurance Program's Write Your Own program.
(2) After dividends to policyholders. A drop in the combined ratio represents an improvement; an increase represents a deterioration.
(3) Calculated from unrounded numbers.

NA=Data not available.

Source: NAIC data, sourced from S&P Global Market Intelligence, Insurance Information Institute.

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Top 10 Writers Of Private Flood Insurance By Direct Premiums Written, 2019 (1)

($000)

Rank	Group/company (2)	Direct premiums written (3)	Market share (4)
1	Assurant Inc.	$94,056	16.9%
2	Zurich Insurance Group	87,613	15.7
3	Swiss Re Ltd.	73,321	13.2
4	American International Group (AIG)	56,998	10.2
5	AXA	38,702	7.0

Rank	Group/company (2)	Direct premiums written (3)	Market share (4)
6	Arch Capital Group Ltd.	37,967	6.8
7	Liberty Mutual	25,032	4.5
8	Berkshire Hathaway Inc.	24,652	4.4
9	Alleghany Corp.	21,799	3.9
10	Allianz	21,661	3.9

(1) Private flood includes both commercial and private residential coverage, primarily first-dollar standalone policies that cover the flood peril and excess flood. Excludes sewer/water backup and the crop flood peril.
(2) Does not include FM Global, which reclassified private flood insurance as part of allied lines in 2019. FM Global had $300 million in direct premiums written for private flood insurance in 2018 or 43 percent of the total U.S. private flood market.
(3) Before reinsurance transactions.
(4) Based on U.S. total, includes territories.

Source: NAIC data, sourced from S&P Global Market Intelligence, Insurance Information Institute.

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Additional resources

Federal Emergency Management Agency,"Homeowner Flood Insurance Affordability Act: Overview," March 2014

Center for Insurance Policy and Research, National Association of Insurance Commissioners."Homeowner Flood Insurance Affordability Act of 2014: Section by Section Summary," March 2014

United States Government Accounting Office, "Flood Insurance. Comprehensive Reform Could Improve Solvency and Enhance Resilience," April 2017

American Academy of Actuaries, "The National Flood Insurance Program: Challenges and Solutions," April 2017

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