What could private flood insurance look like in New Jersey and New York?

Across each state, over 90% of homes could see cheaper premiums in a private market

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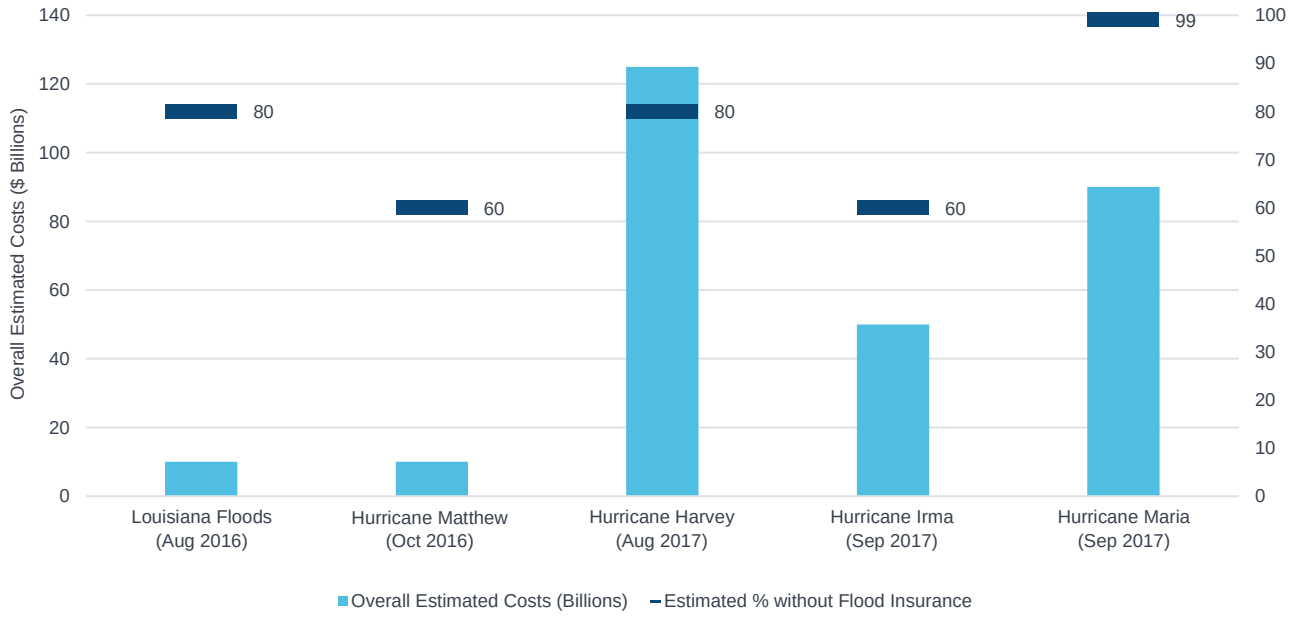
With the deadline to reauthorize the National Flood Insurance Program (NFIP) approaching on July 31, Congress is once again debating the future of flood insurance in the U.S. The NFIP, which insures approximately 5 million homes nationwide, has been operating on a temporary extension since March 23, 2018. As part of the reauthorization discussion, specific legislation has been proposed to lower entry barriers for private flood insurers. But the role of a private flood insurance market remains a key question for some policymakers.

An emotional backdrop to the debate is the widespread devastation experienced last year from a trio of costly and destructive hurricanes. The successive impacts in 2017 of hurricanes Harvey, Irma, and Maria generated over $9 billion of new NFIP claims[1], and highlighted the fact that the majority of consumers affected by major floods in recent years did not have any form of flood insurance as shown below.

This mirrors the experience of consumers in New Jersey and New York after Superstorm Sandy. In New York City, for instance, data shows the NFIP's "take-up rate," or ratio of active flood insurance policies to properties eligible for flood insurance, was only 55% for one- to four-family homes in high-risk Special Flood Hazard Areas (SFHAs), even though approximately 75% faced a mandatory purchase requirement in order to get a federally backed mortgage. Outside the SFHA, the take-up rate among homes was only about 20%.[2] After catastrophic storms,

FIGURE 1: MAJORITY OF CONSUMERS UNINSURED DURING RECENT LOSS EVENTS

Between 60% and 99% of those affected by five recent catastrophes did not have flood insurance



Source: www.artemis.com, www.claimsjournal.com, www.usatoday.com, www.wsj.com, NOA National Centers for Environmental Information (NCEI) U.S. Billion-dollar Weather and Climate Disasters (2018). www.ncdc.noaa.gov/billions

[1] "Significant Flood Events." Retrieved on July 18, 2018, from https://www.fema.gov/significant-flood-events.

[2] Dixon, L. et al. "Flood Insurance in New York City Following Hurricane Sandy," RAND Corporation. (2013). Retrieved on July 18, 2018, from https://www.rand.org/pubs/research_reports/RR328.html.

many residents find out the hard way that floods can occur outside the lines of federal maps, which are designed to fulfill specific requirements of the NFIP but are insufficient to reflect all the complexities of flood risk.

To inform the debate, Milliman has recently collaborated with Risk Management Solutions, Inc. (RMS) to model a potential private flood insurance market in New Jersey and New York, with emphasis on investigating the issue of "cherry-picking." "Cherry-picking" in this context is the concern that private insurers would target only attractive risks for removal from the NFIP, which could leave the remaining NFIP population biased toward high-risk homes and therefore underfunded.

Our independent study–similar to Milliman research on Texas, Florida, and Louisiana released last year[3]–is based on an analysis of single-family homes in New Jersey and New York, supplemented with highly granular geographic data about flood risk, the latest inland flood and storm surge models from RMS, and our actuarial analysis of private flood insurance cost structures and policy terms. Our study represents the entire market of owner-occupied single-family homes, not only those currently insured by the NFIP, as the NFIP does not release detailed data on policy locations.

This paper compares potential private insurance premiums to our estimates of the current NFIP premiums, though we explain later that NFIP rates may change significantly in the next few years. We also include an analysis of the potential effects of a private market on consumers in New Jersey and New York.

How could premiums and take-up rates change?

Our analysis found that, across each state, approximately 94% of homes in New Jersey and 96% of homes in New York could see cheaper premiums with private insurance than with the current NFIP premium structure, given similar coverage to the NFIP. In fact, of the vast majority of homes that are located outside NFIP's high-risk areas, approximately 94% (New Jersey) and 95% (New York) could be offered a private flood insurance policy for a target premium of just $250. The $250 minimum value was selected by judgment, but it is consistent with minimum premiums used in some private flood programs in other states.

Even inside high-risk areas, where flood insurance is mandatory for homes with federally backed mortgages, our study found that more homes in New Jersey and New York could be offered lower premiums if private insurance were widely available. In New Jersey's high-risk zones, 85% of homes could see premium rates cheaper than those of the NFIP, while in New York, 72% of homes could see premium reductions.

[3] Watkins, N. "Could private flood insurance be cheaper than the NFIP?" (July 10, 2017). Retrieved on July 18, 2018, from http://us.milliman.com/insight/2017/Could-private-flood-insurance-be-cheaper-than-the-NFIP/.

When savings are possible, they tend to be big: in the high-risk areas, the estimated average annual savings among the homes seeing lower premiums is over $4,800 in New Jersey and $4,700 in New York.

FIGURE 2: POTENTIAL NEW PRIVATE MARKET POLICIES

	NEW POLICY CONVERSION	NEW POLICY COUNT	
		NEW JERSEY	NEW YORK
Inside SFHA	25%	9,000	5,000
Outside SFHA	10%	152,000	216,000
Total		161,000	221,000

Of New Jersey's approximately 1.8 million single-family homes, only about 125,000 have flood insurance policies through the NFIP; in New York, the figures are around 125,000 out of approximately 3 million homes. A private market could increase the take-up rate–or percentage of homes with flood insurance–in both low- and high-risk areas, improving the resilience, rebuilding, and recovery process of the affected communities after another storm like Sandy.

The majority of dwellings in both states are outside high-risk zones, and our analysis indicates that only 2% to 3% of these homes are insured by the NFIP. Even if only 10% of uninsured homes outside high-risk zones that were offered a cheaper private flood policy purchased it, approximately 152,000 additional homes would be covered for flood damage in New Jersey and 216,000 in New York, based on our demographic data.

A significant number of homes in high-risk areas of both states are also uninsured despite the mandatory purchase requirement. Among homes in high-risk areas, if say, 25% of uninsured homeowners opt for cheaper private insurance, our demographic data indicates that approximately 9,000 additional homes in New Jersey and 5,000 homes in New York would be insured for flood.

Our analysis indicates that expansion of private insurance outside and inside high-risk areas could more than double the number of homes insured for flood in New Jersey and almost triple the number in New York.

In addition to lower premiums for some and more consumers protected, private flood insurance may offer some coverage and

convenience benefits over NFIP policies. Though not modeled in this analysis, typical benefits of private flood policies include higher coverage limits (greater than the $250,000 maximum offered by the NFIP), additional coverage options (such as compensation for temporary relocation expenses), and flexible deductibles that offer more choice. Moreover, if flood coverage is offered in conjunction with a homeowners policy, the insured can deal with one claims adjuster and one insurance company following an event causing wind and water losses. This can significantly reduce cost, conflict, and confusion. Finally, it's worth noting that increasing flood insurance take-up rates would also better protect home mortgage lenders, reducing collateral risk and perhaps stabilizing credit availability for recovery after a large storm.

Note that, for approximately 6% of homes in New Jersey and 4% in New York, the private market premiums based on our estimates would exceed those of the NFIP, sometimes by thousands of dollars. Private insurers may altogether avoid targeting areas where their cost structures are not competitive with the NFIP. Therefore, some property owners will continue to find that the only available or affordable flood insurance is from the NFIP.

A changing NFIP

When interpreting these findings, it is also important to consider that the NFIP is not standing still. In the wake of Hurricane Sandy, the Federal Insurance and Mitigation Administration (FIMA) conducted an assessment on the NFIP to ensure that the customer's experience aligns with FIMA's goals. Out of this assessment, FIMA identified the following service gaps within the NFIP's current risk rating approach: (1) policyholders do not understand their flood risk and (2) the relationship between risk and rate are often inconsistent between structures with similar risk. Therefore, FIMA is redesigning and modernizing its risk rating approach in order to address these service gaps and improve overall customer experience.

Through a program called Risk Rating Redesign, the NFIP is modernizing its rate structure and will be rolling out new rates over the next several years, beginning in 2020. These rates will be based on multiple catastrophe models, historical NFIP data, and advanced actuarial techniques, and they will be designed to be intuitive, transparent, continuous, and aligned with policyholder risk. Although there are statutory limits on premium increases which will protect homeowners with existing NFIP policies, the full-risk rates will be known and should be a better signal of the actual flood risk.

What would "cherry-picking" look like?

Given the changing NFIP rating structure, how could a robust private market affect both the highest risk properties and the NFIP itself?

Based on our analysis, a significant amount of premium could be removed from the NFIP via the private market, although it is difficult to predict which NFIP insureds would be likely to make a switch. However, removing a material number of policies from the NFIP could also significantly reduce the expected losses and reinsurance costs for the program. With a lower potential loss in any given event, the NFIP may be less likely to deplete its reserves. Further, increasing take-up rates by promoting flood insurance through the private market could result in a decreased need for direct financial assistance from FEMA after future disasters, corresponding to a reduction in risk for taxpayers and the Treasury. As a comparison point, FEMA recently reported over $8 billion in Individual Assistance obligations for Sandy, Harvey, Irma and Maria combined.[4]

The effect on remaining NFIP policyholders is unclear in large part because of the NFIP's changing rate structure. In general, as private insurers and the NFIP move to risk-based pricing, there is likely to be a large rate increase indicated for some properties which are currently heavily subsidized. The analytical tools used to identify the properties which are currently underpriced will also help identify what investments in resilience are most effective to reduce the risk. Legislators, communities, and consumers will be able to better understand which homes need subsidization due to affordability issues and have better information for future planning and risk reduction.

Based on our analysis of the available data in New Jersey and New York, coupled with our experience in states like Florida with significant residual markets, we believe that the potential benefits resulting from a combination of a private market and the NFIP outweighs the potential for extreme cherry-picking. For one thing, there are many more cherries in the tree than in the NFIP's basket; that is to say, some private insurers may target the homes in New Jersey and New York that are not yet insured for flood. FEMA leaders have publicly promoted a "moonshot goal" to double the number of insured homes in the U.S. to 10 million by 2023, and stated that achievement of this goal may depend on both the NFIP and an expanded private market. Given the NFIP rate redesign, more policyholders will be set on a path to market parity, potentially making cherry-picking by private insurers more difficult to achieve.

[4] "Disaster Relief Fund: Monthly Report as of June 30, 2018." Retrieved on July 19, 2018, from https://www.fema.gov/media-library-data

For policyholders who do remain in the NFIP, there may be an additional benefit to a private market: a more agile federal response to catastrophic events. Many consumers after Sandy have been vocal about difficulties they faced obtaining claim payments after the storm. If a significant percentage of consumers were to move to a private market, having fewer NFIP claimants may enable the federal program to more easily respond to claims after a big storm.

Conversely, a smaller NFIP policy base would reduce the number of policies available to financially support the mapping and mitigation efforts of the program. It is worth noting that private insurers are able to offer cheaper policies to such a high proportion of consumers in part because they are not required to charge specific fees dedicated to reserve funding and mapping and mitigation efforts, unlike the NFIP.

Conclusion

Sandy demonstrated the devastating financial effect floods can have on one of the country's most densely populated regions, especially for homeowners and businesses that have not purchased insurance and are yet at risk of significant flood damage. The NFIP was formed to fill a gap when private insurers felt that flood risk was uninsurable. Now, with advances in catastrophe modeling, granular data, and analytical techniques, both the NFIP and the private insurance industry can do a better job of communicating, managing, and insuring flood risk. The NFIP has already begun the process of modernizing, investing in the Risk Rating Redesign program to foster innovation and learning that should assist the private flood insurance market. If legislators and regulators want to close the insurance gap, they should consider the benefits of encouraging private insurers to step up and soak up some of the risk. This would help enable the NFIP to maintain its original role of providing essential protection to U.S. property owners who are underserved by traditional markets and leading the way for understanding and mitigating against future flood risk.

Critical assumptions

A number of critical assumptions were used to complete the analysis. To perform the study, Milliman built a "market basket" containing a representative spectrum of single-family properties available to the insurance industry. While the market basket does not contain the actual inventory of homes, it reflects a carefully balanced hypothetical sample that is useful for comparative and sensitivity analysis.

Milliman collaborated with RMS to simulate flood losses from the RMS U.S. Inland Flood and North Atlantic Hurricane Storm Surge Models for New Jersey and New York. The RMS models simulate thousands of years of potential weather activity to produce an "exceedance probability loss curve" of estimated insurable flood and surge losses for each property in the market basket. The average annual loss (AAL) generated from this curve becomes the core risk measure underlying the target private flood insurance annual premium generated by Milliman. The target premium is the AAL, grossed up based on actuarial assumptions about the typical cost of reinsurance, profit, and expenses for a catastrophic peril.

The market feasibility studies also assumed a $250,000 maximum policy limit and policy coverage consistent with the NFIP, a 35% target loss ratio, and a minimum premium of $250. Milliman also selected a 10% take-up rate for previously uninsured homes in low-risk areas and a 25% rate in high-risk areas to represent consumer response to being offered cheaper private policies, for discussion in the article and based on judgment. The findings reflect one set of reasonable assumptions for all single-family homes across the two states, but the use of different data sources, catastrophe models, and target expense assumptions would produce different results.

No proprietary data from the NFIP was used in this analysis. For each state, Milliman used Census data on the number of single-family dwellings and geographic information systems to estimate the number of dwellings inside and outside the SFHAs. Actual NFIP policy counts inside and outside SFHAs in each state were obtained from FEMA's website. Note that parts of 26 counties in New York, mostly upstate, have no existing NFIP digital flood insurance rate maps (DFIRMs). As a result, demographic and policy count data for these areas was excluded from the totals and estimates in the analysis. Milliman's proprietary NFIP rating engine was used to generate estimates of current NFIP premium; assumptions were required regarding grandfathering, claims history and other rating factors, so the estimates will not exactly match actual premiums charged.

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