Federal Housing Finance Agency
Office of Inspector General

Disaster Risk for Enterprise Single-Family Mortgages

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Executive Summary

Fannie Mae and Freddie Mac (the Enterprises) recognize that they may be exposed to the risk of losses on mortgages they own or guarantee from disasters such as floods, earthquakes, and wildfires. According to the Enterprises, natural disasters have not resulted historically in significant losses for them. However, they recognize that a number of factors, such as the growing risk of floods or fires in many parts of the country, and climate change may cause disaster risk to increase.

Other market participants bear some of the disaster risk associated with Enterprise mortgages. For mortgages to be eligible for purchase by the Enterprises, both Enterprises require the borrowers to have property insurance that protects against certain natural perils, such as wind and fire, and flood insurance is required for homes in certain high-risk areas. In addition, the Enterprises transfer part of the credit risk for a portion of their mortgages to investors in credit-risk transfer (CRT) transactions.

We prepared this white paper to provide information about how the Federal Housing Finance Agency (FHFA or Agency) and the Enterprises view disaster risk for Enterprise single-family mortgages and to describe the ways in which other market participants bear some of this risk.

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ABBREVIATIONS

CRT	Credit-Risk Transfer
Enterprises	Fannie Mae and Freddie Mac
FEMA	Federal Emergency Management Agency
FHFA or Agency	Federal Housing Finance Agency
OIG	Federal Housing Finance Agency Office of Inspector General

BACKGROUND

Fannie Mae and Freddie Mac recognize that they may be exposed to the risk of losses on mortgages they own or guarantee from disasters such as floods, earthquakes, and wildfires.[1] In its 2020 10-K, Fannie Mae reported that a single natural disaster of significant scope or intensity could have a material impact on its financial condition. Similarly, Freddie Mac, in its 2020 10-K, noted its possible exposure to increased credit losses in the event of a major natural disaster or significant climate change effects.

FHFA also has recognized risks that disasters pose to the Enterprises. FHFA has called risks relating to uninsured or underinsured losses from flooding, earthquakes, and other natural disasters "material" risks to the Enterprises. The Agency is seeking public input on the potential risks to the housing finance system from natural disasters.

DEFINITION OF DISASTER RISK

Neither FHFA nor Fannie Mae have adopted formal definitions of natural disaster risk. Freddie Mac defines natural disaster risk as the credit loss to Freddie Mac that can occur due to natural perils that cause a borrower to default. It observes that these perils are typically low probability events that are difficult to predict and measure.

Fannie Mae and Freddie Mac refer to disasters in their guides for mortgage servicers, such as to specify assistance that must be provided to borrowers in the event of a disaster. Both Enterprises list earthquakes, floods, and hurricanes as examples of natural disasters. According to FHFA, the loss mitigation options offered to borrowers in disaster-impacted areas help borrowers recover from disasters, thereby reducing potential losses to the Enterprises.

[1] The Enterprises also face the risk that natural disasters may pose to their employees, facilities, systems, and counterparties. For more information about Enterprise business resiliency and disaster recovery, see OIG, *Enterprise Business Resiliency: Risk Mitigation and Plan Development* (March 22, 2021) (WPR-2021-003) (online at www.fhfaoig.gov/sites/default/files/WPR-2021-003.pdf) and OIG, *For Nine Years, FHFA Has Failed to Take Timely and Decisive Supervisory Action to Bring Fannie Mae into Compliance with its Prudential Standard to Ensure Business Resiliency* (March 22, 2021) (EVL-2021-002) (online at www.fhfaoig.gov/sites/default/files/EVL-2021-002_(Redacted).pdf).

THE ENTERPRISES PROJECT DISASTER RISK MAY INCREASE……

According to the Enterprises, natural disasters have not resulted historically in significant losses for them. They view their loss exposure as reduced by geographic diversity, insurance coverage, and CRT transactions, among other factors. According to Fannie Mae, natural disasters do not directly result in credit losses; various steps determine whether a credit loss will be incurred. Freddie Mac has noted that the ultimate loss impact from natural disasters can often take years to realize.

According to Fannie Mae, flooding currently poses the most pertinent disaster risk to its portfolio, and the risk is growing. Fannie Mae reported in its 2020 10-K that there are concerns that the frequency and intensity of major weather-related events indicate the impact of climate change and that this change will persist. The Enterprise added that more people are living in high-risk areas, such as coastal areas that are vulnerable to severe storms and flooding. Fannie Mae noted that the risk of significant flooding is expected to increase in places outside of areas where flood insurance is currently required. In October 2020, Fannie Mae's CEO said, during an earnings call, that tackling the growing risk of floods and fires in many parts of the country was part of the "new normal" for the Enterprise's business. Freddie Mac has noted that climate change could create additional risk due to significant long-term changes to the environment, such as increased frequency and severity of adverse weather events and rising sea levels.

WHO BEARS DISASTER RISK ON ENTERPRISE MORTGAGES……

Mortgage Insurance

Under their charters, the Enterprises may only purchase conventional single-family mortgages with loan-to-value ratios greater than 80% if the mortgages are supported by one of three types of credit enhancements. Mortgage insurance is the credit enhancement used for the vast majority of these Enterprise purchases. Mortgage insurance transfers a portion of the risk arising from default of a mortgage to an insurer.[2] However, according to FHFA, mortgage insurance does not cover defaults where the principal cause of default is physical damage due to natural disasters (unless the property is restored to its original condition).

[2] For more information about mortgage insurance for Enterprise loans, see OIG, *Update on Mortgage Insurers as Enterprise Counterparties* (March 8, 2021) (WPR-2021-001) (online at www.fhfaoig.gov/sites/default/files/WPR-2021-001.pdf).

Property Insurance

For mortgages to be eligible for purchase, both Enterprises require the borrowers to have property insurance that protects against certain natural perils, such as wind and fire.[3] FHFA told us that property insurance covers most causes of damage except for flood and earthquake risk. Figure 1 provides examples of Enterprise insurance requirements by type of disaster.

FIGURE 1. EXAMPLES OF ENTERPRISE INSURANCE REQUIREMENTS

Type of Disaster	Enterprise Insurance Requirement
Wind	Required
Fire	Required
Flood	Required only in special flood hazard areas
Earthquake	Not required

Flood Insurance

In keeping with federal law, both Enterprises require homes located in special flood hazard areas, as designated by the Federal Emergency Management Agency (FEMA), to be covered by flood insurance in order for the mortgages on those homes to be eligible for purchase by the Enterprises. The Enterprises could expand their requirements beyond the FEMA-designated flood zones to include more geographic area, but have not as of this writing. Borrowers typically obtain flood insurance through the National Flood Insurance Program managed by FEMA but can also obtain such coverage from a private insurer (if certain conditions are met). Fannie Mae reported that, as of December 31, 2020, 3.4% of its single-family mortgages were located in special flood hazard areas. Approximately 4% of Freddie Mac's portfolio had flood insurance at origination as of December 2020, according to the Enterprise.

According to Fannie Mae, many homeowners may be uninsured or underinsured for flood risk. Fannie Mae notes that inadequate insurance coverage contributes to defaults after flooding and to credit expenses for the Enterprises. As Fannie Mae reported to FHFA, flood events frequently occur outside of special flood hazard areas, potentially causing significant losses for homeowners. Similarly, Freddie Mac told FHFA that FEMA's flood maps frequently vary from areas that are actually inundated. According to Freddie Mac, approximately 83% of homes affected by 2017 hurricanes were not required to have flood insurance. First Street Foundation, which models flood risk, reported in February 2021 that 2.7 million properties at risk of structural damage were located in areas having substantial flood risk but were outside of designated special flood hazard areas.[4] Even homes with flood insurance can be underinsured because coverage through the National Flood Insurance

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[3] Often the Enterprises' disaster losses come from their real-estate owned (foreclosed properties), which the Enterprises self-insure according to FHFA.

[4] See First Street Foundation, *The Cost of Climate: America's Growing Flood Risk* (February 2021) (online at https://assets.firststreet.org/uploads/2021/02/The_Cost_of_Climate_FSF20210219-1.pdf).

Program has a $250,000 limit for the structure. FHFA explained that borrowers generally do not purchase additional coverage outside of the National Flood Insurance Program.

Fannie Mae reported in its 2020 10-K that the Enterprise was exploring the role that it, along with FHFA and others, could play in helping to address some of the risks associated with natural disasters. In particular, Fannie Mae said that it was examining flood risk and insurance beyond its current requirements. Fannie Mae added that developing solutions was complicated by factors such as the range of affected stakeholders, the possible need for legislative or regulatory action, industry insurance capacity, and affordability.

Earthquake Insurance

According to the Enterprises, they do not currently require homes to have earthquake insurance in order for the mortgages to be eligible for purchase, including homes in earthquake-prone areas.[5] FHFA reports that damage caused by earthquakes is not covered in the vast majority of single-family homeowner insurance policies in vulnerable areas, and very few homeowners carry separate earthquake insurance. It explained, in 2018, to Congress that the cost of earthquake insurance was prohibitive and, in its view, a viable market for earthquake insurance did not exist for the single-family mortgage market. FHFA further reported that, for those homeowners who obtained earthquake coverage, that coverage generally was not sufficient to cover the damage to the property.

According to Fannie Mae's 10-K, earthquakes are one of the two most likely scenarios where property damage may result in default not covered by property insurance (with the other being flooding outside of special flood hazard areas). Analysis conducted for Freddie Mac projected that a single earthquake could result in large potential losses.

Credit-Risk Transfer

Fannie Mae and Freddie Mac have CRT programs that transfer part of the risk of default for a portion of their single-family mortgages to investors. The Enterprises use transactions including security issuances and reinsurance transactions to transfer the risk. FHFA has noted that CRT is intended to cover losses to the Enterprises above what is covered by property, flood, or earthquake insurance. According to Fannie Mae, for loans covered by CRT, CRT would cover all weather and disaster-related losses except the amount of loss exposure retained by the Enterprise. Freddie Mac has explained that there are no "carve-outs" in issued

[5] Fannie Mae had required earthquake insurance for mortgages for properties in Puerto Rico and Guam but has dropped those requirements. California historically has been at risk for earthquakes. However, Fannie Mae indicates that, under California law, if the Enterprises were to require earthquake insurance for detached single-family homes in the state, then the state-established earthquake insurer (which is unique to California) would have to suspend insuring additional homes.

CRT transactions for natural disaster risk. However, FHFA has reported that some Enterprise mortgages might not be covered by CRT, including those that experience a disaster prior to being included in a CRT transaction. An industry observer recently noted that natural disasters remain a risk for CRT.

According to the Enterprises, their single-family CRT issuances were disrupted as a result of the pandemic. Fannie Mae reported that it did not enter into new transactions in the second quarter of 2020, and it remained out of the market after market conditions improved.[6] Freddie Mac reported that its single-family CRT issuances declined significantly during the second quarter of 2020, with no issues of its standard CRT transactions.[7] The Enterprise executed new transactions beginning in the third quarter, but cautioned that the pandemic could continue to adversely affect its CRT transactions.

CONCLUSION

Fannie Mae and Freddie Mac recognize that they may be exposed to the risk of losses on mortgages they own or guarantee from disasters such as floods, earthquakes, and wildfires. According to the Enterprises, natural disasters have not resulted historically in significant losses for them. However, they recognize that a number of factors, such as the growing risk of floods or fires in many parts of the country, and climate change may cause disaster risk to increase.

Other market participants bear some of the disaster risk associated with Enterprise mortgages. The homeowner's property insurance covers some risks, for example, and flood insurance is required for homes in certain high-risk areas. Fannie Mae has reported that the two most likely scenarios where property damage may result in default not covered by property insurance are flooding outside of special flood hazard areas and earthquakes. The Enterprises transfer part of the credit risk for a portion of their mortgages to investors in their CRT transactions. According to the Enterprises, their single-family CRT issuances were disrupted as a result of the pandemic.

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[6] The Enterprise said that it was evaluating the costs and benefits of CRT, including the capital relief provided under FHFA's regulatory capital framework. Fannie Mae reported that, as a result of not resuming CRT, the portion of its single-family business protected by credit enhancement fell from 53% in 2019 to 42% at year-end 2020.

[7] Freddie Mac reported that, driven by lower CRT issuance, credit enhancement coverage of its single-family portfolio fell to 54% in the second quarter of 2020 from 58% in the first quarter.

OBJECTIVE, SCOPE, AND METHODOLOGY ....

The objective of this white paper was to provide information about how FHFA and the Enterprises view disaster risk for Enterprise single-family mortgages and about who bears this risk. The focus was credit losses from physical disasters such as floods, earthquakes, and wildfires. To achieve this objective, we reviewed FHFA and Enterprise documents as well as publicly available documents. We also interviewed FHFA and Enterprise officials.

We provided FHFA with the opportunity to respond to a draft of this white paper. We appreciate the cooperation of FHFA staff, as well as the assistance of all those who contributed to the preparation of this white paper.

ADDITIONAL INFORMATION AND COPIES ....

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