

The Case for Factoring Climate Vulnerability into CRA Regulations

Summary

Congress originally intended for the CRA to help redress harms caused by redlining, but severe racial disparities still exist and current CRA criteria are not optimal for targeting BIPOC communities and households most in need. A climate vulnerability lens and appropriate incentives would improve CRA efficacy. The three regulatory agencies should detail in the final rule the significant overlap between formerly redlined communities in need of reinvestment and areas most vulnerable to climate change and environmental risks,¹ encourage the use of climate vulnerability in tandem with traditional economic indicators to better target resources, encourage and reward investment in communities where climate vulnerability is high, and appropriately harmonize and coordinate with related efforts on climate risk and other federal climate investment initiatives

Background

Climate change is a risk multiplier that exacerbates racial and economic inequality, and it is progressing at an alarming rate.² Both acute yet increasingly frequent climate-related disasters, such as wildfires and hurricanes, as well as chronic issues such as heat stress, sea level rise, and drought, disproportionately impact LMI communities and communities of color.³

Black communities, in particular, are more vulnerable to climate-related impacts as a result of racist housing policies and lending practices and resultant environmental injustices.⁴ Among these practices include “redlining” where access to capital was restricted from neighborhoods, deeming the “hazardous” to property values due to a high percentage of Black residents.⁵ These same communities have experienced continued decades of disinvestment in critical infrastructure, including a lack of dedicated greenspaces, trees, and flood control mechanisms,

¹ “Community Reinvestment Act of 1977,” *Federal Reserve History*. <https://www.federalreservehistory.org/essays/community-reinvestment-act>

² United Nations High Commissioner for Refugees. “Climate Change and Disaster Displacement.” 2020. <https://www.unhcr.org/en-us/climate-change-and-disasters.html>

³ EPA. “Climate Change and Social Vulnerability in the United States: A Focus on Six Impacts. U.S. Environmental Protection Agency.” EPA 430-R-21-003. 2021. <https://www.epa.gov/cira/social-vulnerability-report>

⁴ Zonta, Michela and Caius Z. Willingham. “A CRA To Meet the Challenge of Climate Change,” *Center for American Progress*. December 2020. <https://www.americanprogress.org/article/cra-meet-challenge-climate-change/>; “The Link Between Historic Redlining And Current Climate Risks.” *Enterprise Community Partners*. August 2021. <https://www.enterprisecommunity.org/blog/link-between-historic-redlining-and-current-climate-risks>

⁵ Badger, Emily. “How Redlining’s Racist Effects Lasted for Decades.” *New York Times*. August 2017. <https://www.nytimes.com/2017/08/24/upshot/how-redlinings-racist-effects-lasting-for-decades.html>

along with the citing of environmentally-toxic land uses, that now heighten the physical risks these communities face from climate change.⁶

According to a study from the Federal Reserve Bank of New York, low-income communities and communities of color in the United States have challenges related to access to both insurance and credit, both critical financial tools for resilience.⁷ Further, higher levels of poverty, unemployment, and debt, and the lowest rates of homeownership – the largest source of wealth for families – challenge these communities’ financial capacity to withstand and adapt to these risks. Even if given the opportunity to own a home, Black homeowners find their homes to be undervalued by approximately \$48,000 per home, further limiting the ability to financially withstand climate disasters.⁸ Finally, population loss related to climate migration decreases community coherence to respond.⁹

Given the throughline between race, redlining, and climate vulnerability, the final CRA regulatory rule should support and incentivize banks to build relationships with and drive investments to LMI communities that are also most climate vulnerable.

Recommendations for the Final CRA Rule

1. Provide a definition for “climate vulnerable” communities and individuals.
2. Outline publicly available data tools that banks should use to identify climate vulnerable communities, and encourage banks to build relationships with and drive investment to those communities.
3. Consider options for allocating additional points on CRA exams when banks demonstrate significant investment in climate vulnerable communities.
4. Work collaboratively across the three regulatory agencies to harmonize CRA regulations with climate risk supervisory guidance.
5. Proactively follow and coordinate investment incentives with other federal initiatives related to climate, including Justice40, the Greenhouse Gas Reduction Fund, and the Environmental Infrastructure Reinvestment Program.

⁶ Mitchell, Bruce and Juan Franco. “HOLC ‘Redlining’ Maps: The Persistent Structure Of Segregation And Economic Inequality.” National Community Reinvestment Coalition. March 2018. <https://ncrc.org/holc/>; Moran, Barbara. “Mapping Project Explores Links Between Historic Redlining And Future Climate Vulnerability.” *WBUR*. March 2021. <https://www.wbur.org/news/2021/03/05/haverill-merrimack-climate-redlining-maps>

⁷ Avatar, Ruchi, et al. “Understanding the Linkages between Climate Change and Inequality in the United States.” *Federal Reserve Bank of New York*. November 2021. https://www.newyorkfed.org/medialibrary/media/research/staff_reports/sr991.pdf

⁸ Perry, Andre M., Jonathan Rothwell and David Harshbarger. “The devaluation of assets in Black neighborhoods.” *Brookings*. November 2018. <https://www.brookings.edu/research/devaluation-of-assets-in-black-neighborhoods/>

⁹ Zonta, Michela and Caius Z. Willingham. “A CRA To Meet the Challenge of Climate Change.” *Center for American Progress*. December 2020. <https://www.americanprogress.org/article/cra-meet-challenge-climate-change/>; “The latest on homeownership: race and region,” *FRED Economic Data from the St. Louis Fed*. April 25, 2022. https://fredblog.stlouisfed.org/2022/04/the-latest-on-homeownership-race-and-region/?utm_source=series_page&utm_medium=related_content&utm_term=related_resources&utm_campaign=fredblog; Kudlowitz, Mark, “Wealth-building and Homeownership: New Federal Policies Could Help Drive Equity and Opportunity,” *Local Initiatives Support Corporation*. June 24, 2021. <https://www.lisc.org/our-stories/story/wealth-building-and-homeownership-new-federal-policies-could-help-drive-equity-and-opportunity/>

Defining Climate Vulnerability

By incorporating a definition of climate vulnerability into the final CRA rule, the agencies would be clearly outlining the connection between redlining, the need for reinvestment, environmental burden, and continuing climate impacts. Such a definition is helpful for educating banks on these linkages and encouraging them to think more intersectionally about their CRA-related outreach and subsequent investments.

We propose the following definition for climate vulnerable, based on existing definitions:¹⁰
Individuals and communities which experience heightened risk and increased sensitivity to climate change and have less capacity and fewer resources to cope with, adapt to, or recover from climate impacts. These disproportionate effects are caused by physical (built and environmental), social, political, and/ or economic factor(s), which are exacerbated by climate impacts.

In the absence of an established federal definition of climate vulnerability, the agencies should propose the above definition as part of the final CRA rule, and ultimately adopt any subsequent definition put forth by agencies such as FEMA or the EPA.

Outline Data Tools to Identify Climate Vulnerable Communities

As part of the implementation of President Biden’s Executive Order establishing the Justice40 Initiative, interim guidance from the Office of Management and Budget (OMB) defines “disadvantaged communities” as a combination of variables that include low-income and/or persistent poverty, racial and ethnic residential segregation, distressed neighborhoods, and disproportionate impacts from climate change.¹¹

Utilizing tools that identify climate vulnerability can simultaneously help direct funds to communities most in need of CRA-related investment, and ensure communities of color most impacted by historic discrimination are primary beneficiaries.

This approach is similar to that utilized in California to direct climate investments utilizing the CalEnviroScreen tool. This tool utilizes environmental, health, and socioeconomic information to calculate a score for every census tract in California. This is done by compiling data on 21

¹⁰ “Defining Vulnerable Communities in the Context of Climate Adaptation.” *California Governor’s Office of Planning and Research*. July 2018. https://opr.ca.gov/docs/20200720-Vulnerable_Communities.pdf; “Climate Change and Social Vulnerability in the United States,” *EPA’s Office of Atmospheric Programs*. September 2021. https://www.epa.gov/system/files/documents/2021-09/climate-vulnerability_september-2021_508.pdf

¹¹ “Interim Implementation Guidance for the Justice40 Initiative.” *Office of Management and Budget Executive Office of the President*. July 2021. <https://www.whitehouse.gov/wp-content/uploads/2021/07/M-21-28.pdf>

different indicators across the following categories: (1) Exposure; (2) Environmental Effect; (3) Sensitive Population; and (4) Socioeconomic Factors. The scores take into account the critical component of the “cumulative impact” that communities face.¹²

While CalEnviroScreen does not explicitly factor in race, an analysis from the California Office of Environmental Health Hazard Assessment (OEHHA) highlights the disproportionate environmental impact faced by communities of color.¹³ A notable finding in the analysis shows that the 10% of census tracts that scored the lowest on CalEnviroScreen (i.e. least impacted by environmental and socioeconomic burden), were 33% people of color and 67% white. Alternatively, the census tracts scoring in the top 10% of the tool (i.e. most impacted by environmental and socioeconomic burden) were 91% people of color and only 9% white. Overall, the analysis found that Latinos and African Americans disproportionately resided in highly impacted communities. This analysis clearly demonstrates what we know to be true – when taking an intersectional and cumulative approach to defining climate vulnerability, even if race is not an explicit factor or indicator, communities of color stand out as disproportionately impacted.

Unfortunately, at present there is not a singular federal tool to help identify climate vulnerability in a consistent manner across the country. There are, however, a number of tools that the agencies should share with financial institutions to inform their CRA activities. Key resources include:

1. White House Council on Environmental Quality’s **Climate and Economic Justice Screening Tool (CEJST)**¹⁴;
 - Georgetown University’s Massive Data Institute is developing the **Environmental Impact Data Collaborative (EIDC)** that allows for race to be easily overlaid to the CEJST¹⁵;
2. Environmental Protection Agency’s (EPA’s) **Environmental Justice Screening and Mapping Tool (EJScreen)** which has recently released an updated 2.0 version¹⁶;
3. Department of Energy’s **Energy Justice Mapping Tool**¹⁷;

¹² “About CalEnviroScreen.” *California Office of Environmental Health Hazard Assessment*. <https://oehha.ca.gov/calenviroscreen/about-calenviroscreen>

¹³ “Analysis of Race/Ethnicity and CalEnviroScreen 4.0 Scores.” *California Office of Environmental Health Hazard Assessment. California Environmental Protection Agency*. October 2021. <https://oehha.ca.gov/media/downloads/calenviroscreen/document/calenviroscreen40raceanalysisf2021.pdf>

¹⁴ “Climate and Economy Justice Screening Tool.” *White House Council on Environmental Quality*. <https://screeningtool.geoplatform.gov/en/#3/33.47/-97.5>

¹⁵ Burnley, Benjamin. “Expanding the Climate and Economic Justice Screening Tool to better understand Justice40’s impact.” *Georgetown University Massive Data Institute*. <https://mdi.georgetown.edu/featured-research/expanding-the-climate-and-economic-justice-screening-tool-to-better-understand-justice40s-impact/>

¹⁶ “EJScreen: Environmental Justice Screening and Mapping Tool.” *Environmental Protection Agency*. <https://www.epa.gov/ejscreen>

¹⁷ “Energy Justice Mapping Tool - Disadvantaged Communities Reporter.” *Department of Energy*. <https://energyjustice.egs.anl.gov/>

4. Department of Health and Human Services' Office of Environmental Justice alongside the Centers for Disease Control and Prevention (CDC) and Agency for Toxic Substances and Disease Registry's (ATSDR) **Environmental Justice Index**,¹⁸
5. Environmental Protection Agency's (EPA's) **Cumulative Resilience Screening Index (CRSI)**;¹⁹
6. **Climate Vulnerability Metric** prepared by researchers at UC Santa Barbara and the Rhodium Group²⁰ which is specific to California at the moment, but will be applied nationally in the future, and the
7. **US Climate Resilience Toolkit**, which lists a number of tools that are more local and specific in nature.²¹

Incorporate Climate Vulnerability as a Factor in CRA Exams

Using one of the above mentioned tools and the proposed definition of climate vulnerability, regulators should consider the following options to reward banks for their proactive investment in climate vulnerable communities. While these options do not penalize banks in any way, they offer important incentives to increase relationships and business in communities most likely to face climate impacts and in need of resources.

Option 1: Whole-Portfolio Baseline and Evaluation

As part of their next CRA exam, evaluate a bank's entire portfolio of CRA-eligible investments and develop a baseline metric for how much of the bank's portfolio is benefitting climate vulnerable communities. Reward points if at least 40% of the totality of investments is flowing to climate vulnerable communities. At the subsequent CRA exam, evaluate the bank's CRA-eligible investments against the established baseline of funds going to climate vulnerable communities, and reward points for any demonstrated increase in investment.

Option 2: Tie Disaster Preparedness and Climate Resilience Investments to Climate Vulnerable Communities

Reward points if the bank is able to demonstrate that 100% of their investments eligible under the new proposed disaster preparedness and climate resilience definition are located in and benefit climate vulnerable communities. For a bank's first CRA exam

¹⁸ "Environmental Justice Index." *Agency for Toxic Substances and Disease Registry*. <https://www.atsdr.cdc.gov/placeandhealth/eji/index.html>

¹⁹ "Development of a Cumulative Resilience Screening Index (CRSI) for Natural Hazards: An Assessment of Resilience to Acute Meteorological Events and Selected Natural Hazards." *Environmental Protection Agency*. August 2020. https://cfpub.epa.gov/si/si_public_record_Report.cfm?dirEntryId=350154&Lab=CEMM

²⁰ "Unequal climate impacts to the State of California: Developing a Climate Vulnerability Metric." *Environmental Markets Lab UCSB, Rhodium Group*. <https://emlab.ucsb.edu/projects/unequal-climate-impacts-state-california-developing-climate-vulnerability-metric>

²¹ "Tools." *US Climate Resilience Toolkit*. <https://toolkit.climate.gov/tools>

post-adoption of updated CRA regulations, only consider investments made since the adoption of new CRA regulations.

Harmonize CRA Regulations with Climate Risk Supervisory Guidance

As banks begin to manage their own climate-related risks by reducing lending in areas most susceptible to chronic or acute climate disasters, such as in flood- or wildfire- prone areas, this so-called “bluelining” is leaving communities with even fewer resources to meet the ever-worsening impacts of climate change.²² The closing of banking branches in low or moderate income census tracts, as well as in middle and upper income tracts that are adjacent and may serve those communities, is one element evaluated under the CRA exam process.²³ CRA examiners should be required to record when bank branch closures are at least in part due to climate-related impacts, and to report that information to their respective agency’s office of climate risk, climate committees, or the Financial Stability Oversight Council’s Climate-Related Financial Risk Advisory Committee.²⁴

The CRA is intended to be consistent with safe and sound banking operations and does not encourage the extension of unsafe or unsound credit.²⁵ **This is precisely why regulators need to align final CRA regulations with supervision and guidance efforts to mitigate climate risk,** which can mitigate such concerns by banks ahead of their perceived need to withdraw services or otherwise make access to fair credit and services unattainable through higher costs. Already there are signs of credit rationing in areas where climate change is exacerbating flood risk, and notably, mortgage availability is shifting towards wealthier borrowers.²⁶ Climate vulnerabilities will continue to expand in scope and severity with time, causing a shift in the kinds of investments and financial services communities need in order to be prepared and protected. With this reality in mind, the banking system must meet the changing credit needs of LMI communities and communities of color, rather than withdrawing, so that those most vulnerable to the impacts of climate change can access necessary, fair, and affordable capital and services to meet their financial needs.

²² Jacobson, Lindsey. “Banks consider climate risk for home loans, a process called ‘underwaterwriting’ or ‘blue-lining’.” *CNBC*. September 2021. <https://www.cnbc.com/2021/09/20/blue-lining-and-underwaterwriting-banks-consider-climate-change-risk.html>

²³ “FAQs About CRA Exams and Ratings,” *New York State Department of Financial Services*. https://www.dfs.ny.gov/apps_and_licensing/banks_and_trusts/cra_faqs

²⁴ “Office of Climate Risk,” *Office of the Comptroller of the Currency*. [https://www.occ.gov/about/who-we-are/organizations/office-of-climate-risk/index-office-of-climate-risk.html#:~:text=The%20Office%20of%20Climate%20Risk,management%20frameworks%20addressing%20this%20risk](https://www.occ.gov/about/who-we-are/organizations/office-of-climate-risk/index-office-of-climate-risk.html#:~:text=The%20Office%20of%20Climate%20Risk,management%20frameworks%20addressing%20this%20risk;); “Press Release: Statement of Chair Jerome H. Powell on the Financial Stability Oversight Council’s (FSOC) Report on Climate-Related Financial Risk,” *Board of Governors of the Federal Reserve System*. October 21, 2021. <https://www.federalreserve.gov/newsevents/pressreleases/other20211021c.htm>; “Climate-Related Financial Risk Advisory Committee (CFRAC),” *U.S. Department of the Treasury*. <https://home.treasury.gov/policy-issues/financial-markets-financial-institutions-and-fiscal-service/fsoc/advisory-committees>

²⁵ “Community Reinvestment Act,” *FDIC Division of Depositor and Consumer Protection*. <https://www.fdic.gov/regulations/resources/director/presentations/cra.pdf>;

²⁶ Sastry, Parinitha. “Who Bears Flood Risk? Evidence from Mortgage Markets in Florida.” *MIT Sloan School of Management*. November 2021. https://psastry89.github.io/website/psastry_JMP.pdf

Coordinate with Critical Federal Initiatives on Climate and Finance

The agencies should align efforts related to assuring benefits and access to capital to climate vulnerable communities with other key federal initiatives. These include the White House Council on Environmental Quality and their oversight of the **Justice40 Initiative**, which aims to invest 40% of certain Federal infrastructure dollars into disadvantaged communities²⁷, as well as the Environmental Protection Agency’s implementation of various Inflation Reduction Act programs, most notably the **Greenhouse Gas Reduction Fund**²⁸, and the Department of Energy’s implementation of the **Energy Infrastructure Reinvestment Program**²⁹. Banks have a crucial role to play in providing necessary capital and financial services to ensure infrastructure projects are successful, and aligning climate-related efforts in the CRA regulations with the above mentioned programs will facilitate smoother financing of critical resilience projects. Agency staff should closely follow the implementation of these new climate initiatives and offer insight and expertise related to how financial institutions can be aligned and supportive.

Conclusion

It is critical that in revising the CRA regulations, the agencies better address the challenges of communities of color, in addition to LMI communities, as originally intended under the CRA. As these communities are also more likely to be climate vulnerable, they should have access to safe and affordable investments in climate resilience as they are most likely to be impacted by the ongoing climate crisis. The agencies should take deliberate steps to incentivize banks to proactively invest in these communities and participate in broader, whole-of-government efforts to do the same.

²⁷ “Justice40 A Whole-Of-Government Initiative.” *The White House*.

<https://www.whitehouse.gov/environmentaljustice/justice40/>

²⁸ “Greenhouse Gas Reduction Fund.” *Environmental Protection Agency*. <https://www.epa.gov/inflation-reduction-act/greenhouse-gas-reduction-fund>

²⁹ “Energy Infrastructure Reinvestment Program.” *Department of Energy Loans Program Office*. <https://www.energy.gov/lpo/energy-infrastructure-reinvestment>

Resources

Mapping Racial Segregation in the U.S.

- The Othering and Belonging Institute's [Segregation Mapping Tool](#) and [tutorial](#)

Redlining and Climate-Related Impacts

- Redlining and Air Pollution
 - March 2022 UC Berkeley study on redlining and air pollution disparities: [Historical Redlining Is Associated with Present-Day Air Pollution Disparities in U.S. Cities](#)
 - *Communities of color in the United States are systematically exposed to higher levels of air pollution.* This study explores how redlining, a discriminatory mortgage appraisal practice from the 1930s by the federal Home Owners' Loan Corporation (HOLC), relates to present-day intraurban air pollution disparities in 202 U.S. cities.
- Redlining and Extreme Heat
 - 2020 study on redlining and extreme heat in urban areas: [The Effects of Historical Housing Policies on Resident Exposure to Intra-Urban Heat: A Study of 108 US Urban Areas](#)
 - Researchers explore the relationship between “redlining”, or the historical practice of refusing home loans or insurance to whole neighborhoods based on a racially motivated perception of safety for investment, with present-day summertime intra-urban land surface temperature anomalies. *Nationally, land surface temperatures in redlined areas are approximately 2.6 °C warmer than in non-redlined areas.*
 - [How Decades of Racist Housing Policy Left Neighborhoods Sweltering](#)
 - [Unequal Burden of Urban Heat](#)
 - [Heat Wave, by Eric Klinenberg](#)
- Redlining and Flooding
 - "[Assessing Disparities of Urban Flood Risk for Households of Color in Chicago](#)"
 - This article explores the disproportionate impact of urban flooding in communities of color, much of it occurring outside the floodplains delineated in the Federal Emergency Management Agency's flood risk maps.
 - [Flood exposure and social vulnerability in the United States](#)
 - [Maps reveal redlined areas face higher flood risks](#)

- Maps of historic housing discrimination show how neighborhoods that suffered redlining in the 1930s face a far higher risk of flooding today.
- [A Racist Past, a Flooded Future: Formerly Redlined Areas Have \\$107 Billion Worth of Homes Facing High Flood Risk—25% More Than Non-Redlined Areas](#)
 - *In dozens of American cities including Sacramento and Chicago, formerly redlined neighborhoods have a larger share of homes endangered by flooding than neighborhoods that weren't targeted by the racist 1930s housing policy. Many of these at-risk neighborhoods remain predominantly nonwhite.*
- [Insuring Catastrophe](#) by the Center for Public Integrity
 - The need for FEMA reform beyond raising rates to unaffordable levels
- [Underwater: Resilience, racialized housing, and the national flood insurance program in Canarsie, Brooklyn](#)
 - Uses a case study in Canarsie, Brooklyn that the National Flood Insurance Program, by governing through the mechanism of household finances, stands to reproduce and accelerate existing racial inequalities in the housing market.
- [Climate Change escalates flood risk in redlined communities by 25%](#)
 - “Compounded by years of underdevelopment and underfunding, redlined areas still contain 58.1% Black, Indigenous, People of Color occupants compared to 40.4% in places deemed desirable by lenders. *Among 38 of the largest metro areas analyzed, \$107 billion worth of redlined housing stock faces high flood risk versus \$85 billion worth of greenlined — a 25% difference. Because Black and Hispanic homeowners have less equity built up on average, they're twice as likely to become delinquent on their mortgages due to storm damage as white borrowers.*”
- [Racist Zoning Practices Are So Prevalent, 'You Can Even See It in the Flood Data'](#)
 - A recent study used a socio-hydrological model, plugging in local data from each region on highest yearly streamflow (the peak speed at which water moves through rivers and streams), flood insurance loss claims, active insurance policy records, and population density. Knighton and the team aren't sure exactly what historical factors have resulted in more people of color residing near erratic bodies of water, or how to separate hydrology and the socioeconomic trappings of race. *In other words, it's not clear how much risk comes from the rivers themselves, and how much of it comes from the fact that neighborhoods of color are less likely to have access to flood-protection infrastructure, personal funds for buying insurance, and information about the threat of flooding.* “It is very

difficult to tease apart the two factors,” he said. “My guess is that socioeconomics dominate flood preparedness. If populations have limited ability to leverage federal programs for flood relief, then they are limited in how they can prepare for future floods. If communities have ample resources, then it becomes a risk-based choice.”

- Redlining and Green Space
 - [Historically Redlined Neighborhoods Are More Likely to Lack Green Space Today: Study](#)

- Redlining and Local Environmental Health risks
 - [National Community Reinvestment Coalition: Redlining and Neighborhood Health](#)
 - *Greater historic redlining is related to current neighborhood characteristics, including increased minority presence, higher prevalence of poverty and greater overall social vulnerability.*
 - *There are statistically significant associations between greater redlining and general indicators of population health including increased prevalence of poor mental health and lower life expectancy at birth.*
 - *There are statistically significant associations between greater redlining and pre-existing conditions for heightened risk of morbidity in COVID-19 patients like asthma, COPD, diabetes, hypertension, high cholesterol, kidney disease, obesity and stroke.*

Rising Costs or Loss of Financial Services to Communities

- Higher Insurance and Mortgage Rates in Flood Zones
 - <https://www.rockethomes.com/blog/home-buying/what-to-keep-in-mind-before-you-buy-or-sell-a-home-in-a-flood-zone>
 - [Who Bears Flood Risk? Evidence from Mortgage Markets in Florida*](#)
 - *“...Banks manage flood risk by rationing credit through lower loan-to-value (LTV) ratios, which reduces negative borrower equity after floods. However, banks only adjust LTVs when flood insurance coverage limits bind, showing that they offload flood risk to the government flood insurer. Increased credit rationing after flood map updates shifts the composition of mortgages towards richer and higher credit quality borrowers....lenders screen for flood risk when they retain residual exposures to it, and that their credit rationing has distributional consequences for who moves into flood zones.”*
 - [The Adverse Effect of “Mandatory” Flood Insurance on Access to Credit](#)

- In our paper, we relate whether individual mortgage applications in a given census tract are accepted by a lender to changes in the degree to which the tract is covered by a flood map. We ultimately seek to quantify the reaction of banks and borrowers to suddenly being in a flood zone—and the insurance requirement that comes with this coverage. *We find that the chance of a loan application being accepted by a lender—as well as the size of loans that are accepted—are smaller in regions that experience a growth in the flood-zone coverage. Commensurate with the hypothesis that the costs of flood insurance reduce the ability of marginal households to borrow, we find that the reduction in lending is strongest for households with lower relative income and lower FICO scores, after accounting for the actual occurrences of flooding, the riskiness of a region, and borrower and bank characteristics.*

Financial Regulators on this Topic

- Federal Reserve Bank of San Francisco
 - [Community Development Innovation Review: Strategies to Address Climate Change Risk in Low- and Moderate-income Communities - Volume 14, Issue 1](#)
 - NY Times: [Bank Regulators Present a Dire Warning of Financial Risks From Climate Change](#)
 - Inman: ['Blue-lining' could be the new redlining, Fed branch warns](#)

Other Relevant Articles

- [Angela Glover Blackwell and Anita Cozart: How Smart, Targeted Infrastructure Investment Can Pave the Way for an Equitable Nation](#)
- [Environmental Racism: How Historic Redlining Continues to Affect Communities](#)
- [Redlined US homes face higher flood risks from climate change, new study finds](#)
- [Hurricane Harvey hit low-income communities hardest](#)
- [As Rising Heat Bakes U.S. Cities, The Poor Often Feel It Most](#)

Organizations and Research Groups Leading this Work

- National Consumer Law Center
- National Fair Housing Alliance
- UC Berkeley Othering & Belonging Institute
- UCLA Luskin Institute on Inequality and Democracy
- United Policyholders