



Promoting Climate-Resilient Agricultural and Rural Credit

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Introduction and summary

The agricultural sector is heading toward a climate reckoning. Policy experts are beginning to uncover the true scale of climate risk to the financial sector, and agricultural lenders are not immune. Extreme weather events such as the August 2020 derecho—whose 700-mile trail of destruction cut through Nebraska, Iowa, and Illinois, with winds reaching 100 mph—have increasingly battered America’s farmland, costing the U.S. agriculture sector billions of dollars each year.¹ The climate crisis poses extreme risks to farmers and ranchers, from emerging pests and diseases to changing weather patterns. If left unchecked, climate change will likely devastate the agricultural economy, with dire implications for farmers and ranchers as well as their communities.

Policymakers must ensure that agricultural lenders put in place proper safeguards to adapt to the increased risks posed by climate change. If the agricultural finance sector is not adequately protected in the event of a climate-induced farm crisis, agricultural banks will be hit hard, affecting the long-term availability of credit to rural communities. To that end, regulators should ensure that agricultural finance institutions are properly analyzing and disclosing their risks and that they are adjusting their capital reserves accordingly.²

Even before the pandemic began sweeping across the country, extreme weather events, along with trade disruptions, had upturned the agriculture sector, prompting large payouts from the Commodity Credit Corporation to stabilize the industry.³ To sustain and reinforce the stability of the agricultural sector, agricultural producers and policymakers must act now in anticipation of the climate crisis. Public policy must ensure that agricultural producers are able to adopt practices that will help their operations become more resilient to a changing climate. In order to transition to a greener economy, farmers and ranchers must have access to affordable credit, which is contingent on a stable and healthy agricultural finance sector.

Farming is an inherently risky undertaking, making it difficult for farmers and ranchers to find affordable credit without public policy intervention. Varying weather patterns, the threat of pests, and other natural elements have always posed a hazard to farms, making them relatively unattractive customers in the eyes of banks.⁴ Recognizing the necessity of a robust, well-financed agricultural sector, the federal government has long subsidized the supply of credit to farms and, in many cases, supplied it directly.

The banking system is fundamentally a public-private partnership. The federal government grants charters to banks, provides deposit insurance, and backs them with the Federal Reserve. Perhaps nowhere is the public role in banking clearer than in the case of agricultural finance. In addition to the backing of farms by loan guarantees, direct loans, and crop insurance subsidies, one of the largest lenders in agricultural banking is the government-sponsored enterprise the Farm Credit System (FCS), established to meet the credit needs of farmers and ranchers. Even beyond the U.S. Department of Agriculture (USDA) and the FCS, farms are eligible for programs such as loan guarantees from the Small Business Administration's 7(a) loan program.⁵

Given the public stake in the agricultural banking system, farm lenders and financial companies have a responsibility to take measures to mitigate climate risk and ensure that they can continue to serve rural communities into the future. Regulators and policymakers should take action to tackle the climate threat to America's agricultural finance sector by:⁶

- Bolstering agribusiness climate risk disclosure requirements at the U.S. Securities Exchange Commission (SEC)
- Mandating climate resilience analysis of the FCS by the Farm Credit Administration (FCA)
- Increasing capital reserve requirements for the FCS
- Expanding programs to finance sustainable farming practices
- Tackling systemic climate financial risk created by the largest financial institutions

The cost of climate change to the agriculture sector

Many farmers and ranchers in the United States are barely hanging on, battered by suppressed commodity prices, a chaotic trade environment, and the ever-growing dominance of agribusiness monopolies. In this context, few farmers are equipped to survive the impending climate crisis. In fact, it has already hit home for U.S. farmers and ranchers, the majority of whom believe that climate change is happening—in part because they are on the front lines of the crisis.⁷

Climate change poses both short- and long-term risks to the agriculture sector, already dealing billions of dollars in damage annually. The most immediate and visible impacts of climate change are the natural disasters that have slammed farm country with increasing frequency. From 2014 to 2019, the United States experienced, on average, 12.6 major extreme weather events—defined as causing more than \$1 billion in damage—each year, compared with 6.3 extreme weather events per year from 1980 to 2018.⁸ 2019 was particularly destructive, with record floods in Iowa, Nebraska, and Minnesota that wiped out livestock and left 19 million acres too sodden for planting.⁹ On the other end of the spectrum, historic heat waves, wildfires, and droughts can be just as costly.¹⁰ Heat stress can cause more than a billion dollars in annual losses for livestock producers in the form of heat deaths and reduced quality and productivity.¹¹

Headline-grabbing disasters aside, even slightly warmer temperatures and elevated greenhouse gas (GHG) levels can take a big bite out of food production. For example, in 2012, premature budding during an unseasonably warm winter led to a \$220 million loss of cherries in Michigan.¹² Over time, hotter average temperatures will result in lower crop yields for commodities such as corn and soy.¹³ One Economic Research Service study estimates that by 2080, increased risk and reduced yield due to severe climate change will increase the cost of crop insurance programs by 11 percent in the case of corn and 65 percent in the case of soy.¹⁴ Moreover, increasing levels of carbon dioxide (CO₂) in the air can adversely affect the nutritional value of a crop, reducing its quality and potentially its price.¹⁵

In the long term, American agriculture is going to undergo a major geographic transformation. Analysis by the Environmental Protection Agency concludes: “Climate change will alter the spatial and temporal distribution of temperature and precipitation as well as the frequency and severity of extreme events, such as flooding and drought,” which will result in a transformation of where and how different goods are produced.¹⁶ For example, regions able to grow corn and soy are likely to shift north as the average temperature rises. One study estimates that in order to maximize production, more than half of the United States will have to switch crops by 2070. However, even if the agriculture sector effectively switches crops, production losses are inevitable and at least 5 percent of U.S. farmland will be rendered completely unproductive by 2070.¹⁷ The result will be a decrease in farmland value in coming years.¹⁸ Because farmland value is the primary form of collateral for agricultural loans, this outcome would devastate many farmers and ranchers.

Worst-case climate scenarios would have grave consequences for the solvency of farms and could potentially instigate a full-on farm crisis, driving producers into bankruptcy at rates not seen since the 1980s. An agricultural depression of this scale poses serious risk to agricultural lenders, and the insolvency of these banks and financial firms would have long-term consequences for credit access in rural communities, which already face a pervasive shortage of investment and capital.

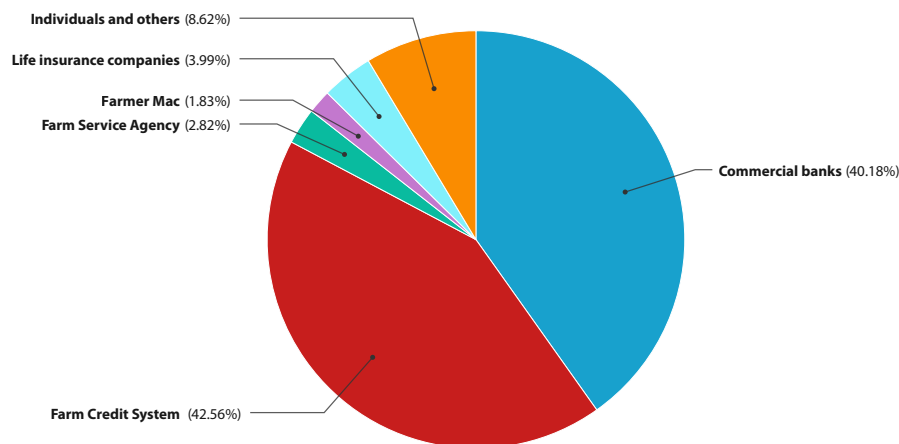
The farm credit market

Over the past century, the pressure to adopt new technologies, supersize farming operations, and expand exports has made agriculture an increasingly capital-intensive endeavor. Farm debt levels have been climbing since 1990s, reaching a total of \$419 billion in 2019.¹⁹ Over the past decade, farm debt has increased 35 percent, nearly reaching the peak in the 1980s before the farm crisis.²⁰ Fortunately, there are no signs of an immediate threat to the farm sector on the level of that which occurred in the 1980s, in part because of the strengthened lending standards put in place after the crisis. For example, the Agricultural Credit Act of 1987 established minimum capitalization requirements for the FCS to ensure that the system had an adequate buffer in the event of mass bankruptcies.²¹ However, many farm economy projections fail to account for potential effects of climate change on farm incomes and viability, exposing the farm lending system to costly risks.

The following section describes the roles of the two largest types of agricultural lenders—the Farm Credit System and Federal Deposit Insurance Corporation-insured commercial banks—as well as that of the main secondary market for farm loans: Farmer Mac.²² Other key lenders are nonbank lenders such as Rabobank, direct loans from the USDA’s Farm Service Agency, and insurance companies that provide products that allow farmers to borrow against their life insurance.²³ While nonbank lenders and the USDA also contribute to the farm credit market, their overall importance to the stability of agricultural credit is much less significant.

FIGURE 1
The Farm Credit System and commercial banks hold the vast majority of farm debt

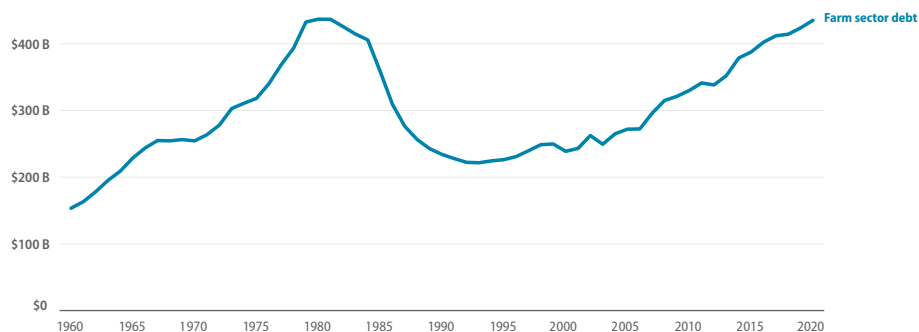
Total farm debt in 2020 U.S. dollars by lender, 2019



Source: U.S. Department of Agriculture Economic Research Service, "Farm Income and Wealth Statistics," available at <https://data.ers.usda.gov/reports.aspx?ID=17835> (last accessed December 2020).

FIGURE 2
Inflation-adjusted farm debt is nearing 1980s peak

Total farm debt in 2020 U.S. dollars, 1960–2020



Source: U.S. Department of Agriculture Economic Research Service, "Farm Income and Wealth Statistics," available at <https://data.ers.usda.gov/reports.aspx?ID=17835> (last accessed December 2020).

Farm Credit System

The centerpiece of U.S. agriculture credit policy is the Farm Credit System (FCS)—a government-sponsored enterprise (GSE) established in 1916 to expand access to affordable farm loans.²⁴ The FCS consists of 72 cooperative lending institutions financed by a central Farm Credit Banks Funding Corporation and overseen and regulated by the Farm Credit Administration.²⁵ The FCS does not

hold deposits; instead, the Farm Credit Banks Funding Corporation sells debt securities in the form of bonds to finance loans to agricultural producers and rural homebuyers. By virtue of its GSE status, the FCS receives several tax benefits, allowing it to provide agricultural credit at more affordable rates. Aside from the initial starting capital at the FCS' inception, the only instance in which it received federal funding was during the 1980s farm crisis, when the FCS took a major hit as the number of farm bankruptcies exploded.

Currently, the FCS holds 914,387 loans totaling \$287 billion.²⁶ Most of its loans are small—namely, real estate loans. About three-quarters of FCS borrowers have taken out loans under \$250,000 in size, making up 14 percent of the FCS' loan portfolio.²⁷ At the other end of the spectrum, the largest 1 percent of loans total 46 percent of FCS assets.²⁸ In addition to providing financing to farmers and rural homeowners, the FCS can also lend to agribusinesses. As of 2019, the FCS gross commitments to agribusiness were nearly \$17 billion, a significant but comparatively small part of its total loan portfolio.²⁹ Compared with commercial banks, a much larger portion of the FCS portfolio goes to farm land mortgages than operational loans.³⁰ Consequently, its financial stability relies on stable or increasing farmland values, which, as discussed, are imperiled by uncontrolled climate change.

Though the FCS is a GSE chartered to expand credit access, it is far from the lender of last resort and maintains strong lending standards. In fact, just 0.79 percent of its loans are nonperforming—defined as being at least 90 days past due—indicating that its assets are of high quality, even amid the current agricultural downturn.³¹

Commercial banks

Commercial banks account for about 40 percent of the value of all farm loans.³² Generally speaking, many of the loans made by commercial banks occur between small agricultural banks and small farms and ranches. Almost 70 percent of commercial farm loans originate from community banks, totaling \$127 billion.³³ Meanwhile, out of all commercial farm and ranch lending, almost half—by value—took the form of microloans and small loans in 2019.³⁴

Commercial farm loans primarily originate from the 1,400 agricultural banks in the United States.³⁵ About half of these loans are held by agricultural banks, defined as having at least a quarter of their assets in farm lending—though about 1 in 3 of these banks are “highly concentrated” in agriculture and depend almost

entirely on the farm sector.³⁶ The size and specialization of commercial agricultural banks exposes small banks, many of which primarily exist to serve farmers and ranchers, to enormous shocks resulting from climate change. These smaller community institutions are therefore much more vulnerable to commodity price volatility and agricultural downturns. Already, almost three-fourths of nonperforming farm loans in corn country are held by community banks.³⁷

Federal Agricultural Mortgage Company

The Federal Agricultural Mortgage Company, colloquially known as Farmer Mac, is a GSE analogous to Freddie Mac that guarantees loans to agricultural lenders and serves as a secondary market for agricultural mortgage-backed securities. It was created by the Agricultural Credit Act of 1987 to increase the supply of credit to the agriculture sector and provide an extra shock absorber in response to the 1980s farm crisis.

As of December 31, 2019, Farmer Mac's total assets totaled \$21.7 billion.³⁸ While it primarily lends to the FCS and commercial banks, it also issues direct loans to some large agribusinesses.³⁹ Through its loan guarantee program, Farmer Mac assumes the risk associated with lending to small family farms, increasing the availability of affordable credit to independent operations. Though the size of the loans guarantee can exceed \$25 million, 97 percent of its farm and ranch and USDA-guaranteed loans are to small and family farms.⁴⁰

By volume, however, Farmer Mac's investments are more concentrated. As of 2019, \$7.7 billion of its branded "AgVantage" securities were issued to just three institutions. In the company's 2019 10-K filing, it acknowledges that this exposes the GSE to substantial risk, writing: "A default by any of these counterparties could have a significant adverse effect on Farmer Mac's business, operating results, and financial condition."⁴¹ Missing from the disclosure to the SEC and shareholders was any analysis of the potential threats of climate change—though Farmer Mac did acknowledge that climate change, along with the tumultuous trade environment and other factors, played a role in the rocky year for agricultural producers.⁴²

The implications of a climate farm crisis on agricultural lenders

Although the ripples caused by a climate-related agricultural downturn would be widespread, any impacts would be felt most acutely by firms that specialize in agricultural lending.⁴³ Namely, community banks in farm country may be forced to fold, potentially leaving some rural communities without easily accessible credit or banking services. Similarly, if the magnitude of the climate crisis is catastrophic, the Farm Credit System could face the risk of insolvency, as was the case during the 1980s farm crisis—a prospect that would necessitate a sizable infusion of federal dollars. Policymakers should act now to prepare for the impact of climate change on agricultural lending in order to ensure that farmers and ranchers will continue to be able to access capital.

Commercial banks

As climate change hits America's farms and deals historic damage to the agricultural economy, banks will surely feel the pain of farm bankruptcies. Though the crop insurance system will absorb some of the damage of climate destruction, only a quarter of U.S. production value is covered by crop insurance.⁴⁴ Moreover, the insurance sector itself has significant climate risk exposures as well. Agribusinesses and food processors will also likely take a hit indirectly as climate-induced disasters disrupt their supply chains, broadening the impact throughout the financial sector.

Climate change may render portions of U.S. farmland unproductive, while other U.S. farmers and ranchers are forced to quickly adapt their practices and crops to shifting climates. The current value of U.S. farmland is about \$2.5 trillion.⁴⁵ As the climate crisis drives down the productivity—and, therefore, the value—of some farmland, it may render loan exposures in the sector impaired.⁴⁶ These real estate assets will, in some sense, become an impaired or “stranded” asset—one that has lost some or all of its value. Impaired assets may need to be written down in value, which could affect the capital of the banks that made those loans. The implications

of this are grave; the 1980s farm crisis was in part instigated by a precipitous drop in farmland values.⁴⁷ Firms with large agricultural exposures, such as community banks in certain rural areas, may be especially vulnerable. About half of all farm loans are held by commercial agricultural lenders—defined as having at least 25 percent of their portfolio consist of agricultural investments.⁴⁸ These specialized banks are less likely to have a diverse enough portfolio to withstand a wave of farm bankruptcies, putting them at higher risk of insolvency in the event of a farm economy crash.

While about half of large financial institutions incorporate climate change in their risk assessments, farm lenders are much less likely to engage in this practice.⁴⁹ However, even for firms that do incorporate climate into their risk assessments, banking supervisors and market regulators have not put in place the oversight and transparency tools to give regulators and investors the insight necessary for effective risk management and, ultimately, to contribute to the reduction of climate as a systemic risk through reducing the financing of fossil fuels and carbon-intensive industrial processes. Moreover, when financial firms do incorporate climate change in their risk assessments, the factors they choose may not be sufficiently comprehensive to capture the whole picture. In contrast, the Bank of England has developed a thorough framework for evaluating the U.K. finance sector's resilience to climate change under a range of scenarios.⁵⁰

Public risks

As discussed earlier in this report, the agricultural credit system is marked by extensive government involvement in order to facilitate credit access and mitigate the risk inherent to farming. Because it lends directly to farms, guarantees loans, chartered the FCS, and established Farmer Mac, the federal government has a huge stake in promoting a resilient farm lending system. Consequently, taxpayers will be on the hook for some amount of financial stabilization if the farm economy is severely affected by the stress of climate change.

The most direct financial injury to the federal government in the event of a climate-instigated farm economy collapse would be the cost of defaults on the loans the USDA and other agencies either disbursed directly to farmers or guaranteed. The Farm Service Agency alone holds about \$11.8 billion in farm debt, not to mention the smattering of smaller loan programs throughout the USDA and beyond.⁵¹ For example, the Small Business Administration's 7(a) lending program also lends

to farming operations in significant volumes. For example, in 2019, the SBA determined that highly integrated poultry operations do not qualify as independent small businesses after an Office of Inspector General examination discovered that about \$1.8 billion in loans were made to chicken growers who were in fact affiliated with monopolistic poultry integrators rather than independent operations.⁵² Through programs such as these, the federal government assumes a significant amount of liability.

The 1980s farm crisis forced Congress to reform the public institutions responsible for agricultural lending, putting in place regulations and structures that unquestionably provide a crucial buffer against future economic upheavals. However, the oncoming climate crisis is likely to rival even the crash of 1980 in its severity. The 1980s farm crisis and the resulting wave of bankruptcies and defaults threw the FCS off-kilter, and Congress was forced to swoop in with \$4 billion of relief to stabilize it.⁵³

Although several reforms, such as the creation of the secondary loan market through Farmer Mac, have served to bolster the integrity of the farm credit market, climate change may serve as the first real test of the efficacy of these institutions since the 1980s. Currently, the stress test Farmer Mac undergoes only requires it to use default rates on par with the worst two consecutive years in its past.⁵⁴ By definition, this stress test does not anticipate the damage that climate change might deal the financial sector in the coming years.

Recommendations

The global scientific community has made clear that unprecedented action during the next decade is essential to avoid climate catastrophe.⁵⁵ To prevent the most devastating impacts of climate change, Congress must first address the root causes of climate change systemically by investing in the clean energy economy, conserving 30 percent of natural lands by 2030, and curbing CO₂ emissions and other powerful GHG pollutants such as methane and nitrous oxide to achieve net-zero emissions by no later than 2050.⁵⁶ While agricultural lenders and community banks that serve farmers and their communities—are especially vulnerable to climate shocks, they are not the principal contributors to the carbon footprint of the financial system. The responsibility for reducing the systemic risk and the impacts on community banks and agricultural lenders that arise from climate change should fall first and foremost on the largest GHG emitters and the major banks that finance them. Since 2016, commercial banks from around the world lent about \$2.7 trillion to fossil fuel producers.⁵⁷

In order to safeguard the agricultural finance sector and the financial system at large, federal policy must integrate and phase in climate-related financial regulatory protections throughout the agricultural lending ecosystem, properly tailored to support the community lenders and farmers that depend on them. Entities that are the most vulnerable to climate risk should be adequately safeguarded while the actors responsible for contributing the bulk of GHG emissions should be held accountable for the risk that they are exposing to the system at large.

Boost agribusiness climate risk disclosure at the SEC. While climate change receives cursory acknowledgement in some agribusiness SEC risk disclosures, the hazards posed by climate change are significant, warranting more rigorous disclosure requirements. The SEC should require detailed and comprehensive disclosures of climate risks throughout a firm’s supply chain, with special attention to the risks of the agricultural sector. These requirements should be uniform across firms and include specific climate-related risks that affect both the firm itself and its suppliers and buyers. These risks can be assessed using climate indicators such as

trends in soil moisture or nighttime air temperature, as developed by the USDA in a recent report.⁵⁸ Financial institutions should also measure and disclose their carbon footprint, according to a standardized financed emissions methodology.⁵⁹

Mandatory climate resilience analysis at the FCA. In order to ensure a stable credit market for farmers, the FCA must anticipate and respond to the threat of the climate crisis. The Climate Risk Disclosure Act, introduced by Sen. Elizabeth Warren (D-MA) and Rep. Sean Casten (D-IL), provides an example of how climate risks can be integrated into financial analysis.⁶⁰ It would require the SEC to issue a climate risk report within two years of enactment and SEC-regulated entities to include climate risks in 10-K and 10-Q disclosures. The FCA could be assigned similar climate resilience analysis requirements tailored to its function. The institution's analysis could be required to include analysis of how the firm would fair in a best-case climate scenario, defined as one where firms must comply with regulations aimed at transitioning the economy to a point where warming is limited to 1.5 degrees Celsius above preindustrial levels by 2050. The analysis could also include a scenario in which firms continue with business as usual, resulting in an increase of approximately 4.5 degrees Celsius above preindustrial levels by 2050.

For that matter, Farmer Mac should also conduct climate-related stress tests to evaluate its portfolio and empower it to make the changes necessary to mitigate the chance of insolvency paralleling that of the collapse of Fannie Mae and Freddie Mac during the financial crisis.

Increase capital reserve requirements for the FCS.⁶¹ In order to ensure that the FCS can continue to serve farmers and ranchers into the future, the capital requirements for the FCS and all other agricultural lenders must be updated to reflect increasing climate risk in the coming years. Among other things, this would necessitate adjusting capital risk weights to reflect the threat of climate change to farms, transition risks, and the stranded asset risk posed by the decreasing productivity and value of farmland. Although the FCS declared its intent to craft a strategy to account for climate risk in 2010, it has not taken any observable action to do so as of the writing of this report.⁶² The FCS should also be required to disclose the carbon footprint of its financed projects, for example, by including estimates of annual GHG emissions from concentrated animal feeding operation (CAFOs) financed by FCS loans.

Assist farmers and ranchers in the transition to a green future. Because of the long-term nature of the payoffs, the lack of knowledge about the financial benefits of sustainable practices, and the failure to internalize the broader environmental benefits of sustainable farming, lenders currently have few incentives to account for sustainable farming practices in their evaluation of a loan application.⁶³ To increase the availability of credit to farms transitioning to sustainable and climate-resilient farming, the FCS could set aside 10 percent of its credit for green investment. This could be one part of a broader USDA-wide effort to promote climate-smart agriculture practices, which should also include other initiatives such as expanding working lands programs and focusing them to prioritize climate-smart agricultural practices such as cover crops, no-till farming, alley cropping, and more.⁶⁴

Because agricultural community banks are acutely vulnerable to climate risk, Congress should seek to expand federal loan guarantees to these entities to protect them in the event of farm loan defaults—on the condition that they increase climate-friendly investment. Lawmakers may also explore the viability of a program modeled after the Small Business Lending Fund created in 2010 that would incentivize and enable community banks and credit unions to support farmer and rancher investments in sustainable agriculture and green technology in exchange for inexpensive capital. Such capital support could also help those institutions manage the wider range of adjustments needed to mitigate the climate financial risks that have principally been created by fossil fuel companies and the large banks that underwrite their financing.

Tackle systemic climate financial risk created by the largest financial institutions.

Agricultural lenders can and must do more to address climate risks to their operations as well as the broader system. Yet as noted above, community agricultural lenders and small family farmers are far from the principal contributors to climate change. To mitigate the climate unfairness that they are already experiencing and that will only further intensify, a robust agenda to tackle climate financial risk must especially focus its efforts on the contributions that the largest financers of emissions make to systemic financial risks. As CAP has previously highlighted, critical steps to rein in those risks include climate stress tests and bank capital and supervisory changes for the largest banks and insurance companies⁶⁵, mandatory disclosure and downward targeting of financed emissions by the financial sector⁶⁶, the incorporation of environmental, social, and governance factors into investment fiduciaries' policies and procedures⁶⁷, and a green finance mandate on the largest banks to complement other Community Reinvestment Act support for communities in need.⁶⁸

Conclusion

The fate of farming and the financial sector ultimately relies on the successful implementation of a comprehensive policy agenda to curb GHG emissions as quickly as possible. Even in the best-case scenario, however, farms and their lenders will be exposed to climate risks. Without a robust and stable credit market, farmers, ranchers, and their communities will struggle to adapt to climate change. Agricultural lenders need federal guidance to help them prepare for the future—anticipating risks, bolstering reserves, and investing in climate resilience.

About the author

Caius Z. Willingham is a research associate for Economic Policy at the Center for American Progress.

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As progressives, we believe America should be a land of boundless opportunity, where people can climb the ladder of economic mobility. We believe we owe it to future generations to protect the planet and promote peace and shared global prosperity.

And we believe an effective government can earn the trust of the American people, champion the common good over narrow self-interest, and harness the strength of our diversity.

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We develop new policy ideas, challenge the media to cover the issues that truly matter, and shape the national debate. With policy teams in major issue areas, American Progress can think creatively at the cross-section of traditional boundaries to develop ideas for policymakers that lead to real change. By employing an extensive communications and outreach effort that we adapt to a rapidly changing media landscape, we move our ideas aggressively in the national policy debate.

