

March 27, 2023

Joseph T. Connor, Acting Director
Office of Secondary Market Oversight
Farm Credit Administration
1501 Farm Credit Drive
McLean, VA 22102
Via email: reg-comm@fca.gov

Re: RIN 3052-AD51 – Response to ANPRM: Farmer Mac Risk-Based Capital Requirements

Dear Acting Director Connor:

We thank the Farm Credit Administration (FCA) for the opportunity to submit comments on behalf of [Ceres](#) and the [Ceres Accelerator](#) for Sustainable Capital Markets. Ceres is a nonprofit organization with over 30 years of experience working on climate change with the world's leading investors and companies to drive sustainability in the bottom line and through ambitious federal and state climate and clean energy policy. The Ceres Accelerator works to transform the practices and policies that govern capital markets in order to reduce the worst financial impacts of the climate crisis. It spurs capital market influencers to act on climate change as a systemic financial risk, driving the large-scale behavior and systems change needed to achieve a just and sustainable future and a net zero emissions economy.

Ceres works with leading global investors and companies. Our Investor Network is currently over 220 investors that collectively manage over \$60 trillion in assets. Ceres is also a founding partner of the [Net Zero Asset Managers Initiative](#) and the [Paris Aligned Investor Initiative](#), which includes investors focused on sustainable investments within their portfolios and other assets. Our Company Network includes approximately 60 of the largest global companies and banks with whom we work on an in-depth basis on climate strategy and disclosure, among other issues.

I. INTRODUCTION

Farmer Mac is an integral part of U.S. agricultural credit markets. The program has provided valuable service for over 30 years, but in light of the continually changing landscape of agricultural finance, the Farmer Mac capital framework needs to be updated to account for the increasing risks posed by climate change. The impact of climate risk on the agricultural sector is wide-ranging, with potential implications that include reduced crop yields, increased costs of production, and

changes in consumer demand. These climate-related risks have a major impact on the financial institutions, insurance companies, and utilities that Farmer Mac serves.¹

Climate-related financial risks are the potential financial losses associated with physical and transition risks resulting from climate change. Physical risks include direct losses from weather-related events, as well as indirect losses from the effects of climate change on assets, businesses, and industries.² Farmers are particularly vulnerable to changes in climate patterns such as extreme storms, temperature changes, sea-level rise, wildfire, floods, and droughts. Changes in climate patterns can lead to reduced crop/livestock yield and prices, water shortages and increased irrigation costs, and decreased land values which may affect the marketability of collateral used for loans associated with agricultural activities, reducing the ability to refinance and increasing credit risk.

Farmer Mac's secondary market business model is especially vulnerable to the impacts of climate-related financial risks because it relies on the long-term profitability of the agricultural industry in order to maintain the value of its investments. Disruptions in production can also have ripple

¹ In its own filings, Farmer Mac acknowledges its potential exposure to climate events: "In addition to the general risks posed by adverse weather conditions, Farmer Mac's exposure to credit risk and the market value of loan collateral is potentially subject to risks associated with the long-term effects of climate change, as farmers and ranchers face increasing, as well as increasingly-severe, weather incidents. The U.S. experienced 18 separate billion-dollar weather disasters in 2022, tied for the third-highest level in the 40 years tracked by the National Oceanic and Atmospheric Administration behind only 2020 (22) and 2021 (20). Many climatologists predict increases in average temperatures, more extreme temperatures, and increases in volatile weather over time. These physical changes may prompt changes in regulations or consumer preferences, which in turn could have negative consequences for the business models of borrowers, such as increasing costs, reducing the value of assets, and increasing operating expenses. For example, in 2022, "exceptional drought" or "extreme drought" conditions, the two most severe drought classifications, covered significant areas of the western and midwestern states, and more than half of the continental United States experienced abnormally dry conditions or worse. The effects of climate change could make some agricultural properties less suitable for farming or for other alternative uses. Extended periods of drought and dryness can reduce agricultural productivity, cause lasting damage to permanent crops like fruit and tree nuts, and result in producers leaving some fields fallow due to lack of water. These and other effects of climate change could have an adverse impact on farming operations and the value of loan collateral, which could have a material adverse effect on Farmer Mac's business, operating results, or financial condition." See 2022 Form 10-K, FARMER MAC (Feb. 2023), <https://www.sec.gov/Archives/edgar/data/845877/000084587723000026/agm-20221231.htm>.

² See, e.g., ACTION PLAN FOR CLIMATE ADAPTATION AND RESILIENCE, U.S. DEP'T OF AG. (Aug. 2021), <https://www.sustainability.gov/pdfs/usda-2021-cap.pdf#page=3>; CLIMATE RISK EXPOSURE: AN ASSESSMENT OF THE FEDERAL GOVERNMENT'S FINANCIAL RISKS TO CLIMATE CHANGE, OFF. OF MGMT. & BUDGET (Apr. 2022), https://www.whitehouse.gov/wp-content/uploads/2022/04/OMB_Climate_Risk_Exposure_2022.pdf#page=11; FOURTH NATIONAL CLIMATE ASSESSMENT: VOL. II: IMPACTS, RISK, AND ADAPTATION IN THE UNITED STATES, U.S. GLOBAL CHANGE RESEARCH PROGRAM (2018), https://nca2018.globalchange.gov/downloads/NCA4_2018_FullReport.pdf#page=392; Georgina Gustin, *As Extreme Weather Batters America's Farm Country, Costing Billions, Banks Ignore the Financial Risks of Climate Change*, INSIDE CLIMATE NEWS (May 2, 2021), <https://insideclimatenews.org/news/02052021/extreme-weather-agricultural-financial-risks-climate-change/>; Avery Ellfeldt, *Climate Change is Hitting Farmers Hard*, SCIENTIFIC AMERICAN (Aug. 6, 2021), <https://www.scientificamerican.com/article/climate-change-is-hitting-farmers-hard/>.

effects throughout entire food chains, leading to empty shelves seen at grocery stores across America. Extreme weather events such as floods, drought, and extreme temperatures as well as shifting consumer preferences can lead to changes in commodity prices, which can lead to higher input costs for farmers and decreased demand for certain commodities. Changes in climate patterns can also cause crop and livestock losses as well as impacts on the availability and cost of insurance premiums for farmers.

Transition risks are the economic and financial risks associated with the transition to a low-carbon economy. These risks include regulatory and technological risks, as well as market risks. These can include shifts in consumer demand for certain crops or livestock, changes in government policies or regulations, shifts in market and commodity prices for agricultural products, additional procurement standards for commodities related to downstream corporate buyers, and changes in energy costs. Both physical and transition risks can lead to a decrease in farmers' ability to repay loans, the inability to take out new loans, and even the ability to remain in the farming business.

Related to both physical and transition risk, socioeconomic risk refers to financial loss as a result of climate impacts on physical assets, food systems, productivity/workability, infrastructure services, and natural capital. These impacts are likely to worsen and compound as climate change progresses, substantially disrupting global markets and financial systems. Socioeconomic climate risk also disproportionately impacts low-income communities and communities of color.³ Due to decades of systemic discrimination, socially disadvantaged farmers and ranchers (SDFRs) – including black, indigenous, and people of color (BIPOC) – disproportionately bear the economic burdens of climate impacts on agriculture.⁴

Part of this disparate impact may be due to the fact that SDFRs are more likely to operate smaller farms that generate lower revenue, meaning they may not be eligible for as much credit as lenders may perceive this as a financial risk for repayment.⁵ Advocates have also noted that SDFRs have been required “to pledge potentially excessive collateral for loans, such as the borrower’s home in addition to the farm land,” accept unfavorable loan terms including higher interest rates and fees, and “that loan servicers moved more quickly to foreclose on SDFR borrowers who were behind

³ See, e.g., REPORT ON CLIMATE-RELATED FINANCIAL RISK, FIN. STABILITY OVERSIGHT CNCL. (Oct. 2021), <https://home.treasury.gov/system/files/261/FSOC-Climate-Report.pdf#page=24>.

⁴ See, e.g., FINANCING RESILIENT AGRICULTURE: HOW AGRICULTURAL LENDERS CAN REDUCE CLIMATE RISK AND HELP FARMERS BUILD RESILIENCE, ENVT'L DEF. FUND (Sept. 2020), https://www.edf.org/sites/default/files/content/Financing_Resilient_Agriculture_Report.pdf#page=16.

⁵ See, e.g., AGRICULTURAL LENDING: INFORMATION ON CREDIT AND OUTREACH TO SOCIALLY DISADVANTAGED FARMERS AND RANCHERS IS LIMITED, GOV'T ACCOUNTABILITY OFF. (July 2019), <https://www.gao.gov/assets/gao-19-539.pdf>.

on loan payments.”⁶ Moreover, many BIPOC farmers do not have clear title to their land, which can make it difficult to qualify for or even be completely ineligible for certain agricultural loans.⁷ Without the financing necessary to run a farming operation, these farmers are forced into foreclosure. BIPOC farmers “have lost 90% of their land over the past century”⁸ and continue to face additional hardships in obtaining agricultural credit,⁹ especially when compared to their white counterparts.¹⁰

As the effects of climate change become more severe, the potential for financial loss due to climate-related events increases.¹¹ Farmer Mac could face significant losses due to increasing

⁶ See, e.g., AGRICULTURAL LENDING: INFORMATION ON CREDIT AND OUTREACH TO SOCIALLY DISADVANTAGED FARMERS AND RANCHERS IS LIMITED, GOV’T ACCOUNTABILITY OFF. (July 2019), <https://www.gao.gov/assets/gao-19-539.pdf#page=8>.

⁷ See, e.g., *Resources for Underserved Communities: Highlight on Heirs Property and Estate Planning*, THE NAT’L AG. LAW CNTR. (Nov. 12, 2021), <https://nationalaglawcenter.org/resources-for-underserved-communities-highlight-on-heirs-property-and-estate-planning/>.

⁸ See DIVERSITY AND RACIAL EQUITY WORKING GROUP REPORT, NY STATE DEP’T OF AG. & MARKETS (Aug. 2021), https://agriculture.ny.gov/system/files/documents/2021/08/diversityracialequityreport_1.pdf.

⁹ See, e.g., FINANCING RESILIENT AGRICULTURE: HOW AGRICULTURAL LENDERS CAN REDUCE CLIMATE RISK AND HELP FARMERS BUILD RESILIENCE, ENV’T L DEF. FUND (Sept. 2020), https://www.edf.org/sites/default/files/content/Financing_Resilient_Agriculture_Report.pdf#page=16; see also *Pigford v. Glickman*, 182 F.R.D. 82 (D.D.C. 1998) (class action ending in settlement against USDA on behalf of black farmers whose farms were foreclosed as a result of discriminatory lending practices by farmer- and rancher-appointed county commissions and USDA’s failure to investigate or properly respond to complaints); *Keepseagle v. Vilsack*, No. 14-5223 (D.C. Cir. 2016) (class action ending in settlement against USDA on behalf of Native American farmers who failed to receive an FSA response to investigative reports); *Garcia v. Vilsack*, No. 00-2445 (D.D.C. filed Oct. 13, 2000) (class action against USDA on behalf of Hispanic farmers and ranchers who faced discriminatory implementation of program eligibility criteria at local USDA offices).

¹⁰ See, e.g., POLICY BRIEF – LEVELING THE FIELDS: CREATING FARMING OPPORTUNITIES FOR BLACK PEOPLE, INDIGENOUS PEOPLE, AND OTHER PEOPLE OF COLOR, UNION OF CONCERNED SCIENTISTS (June 2020), <https://www.ucsusa.org/sites/default/files/2020-06/leveling-the-fields.pdf#page=3>; see also Debbie Weingarten, *It’s not fair, not right’: how America treats its black farmers*, THE GUARDIAN (Oct. 30, 2018), <https://www.theguardian.com/world/2018/oct/30/america-black-farmers-louisiana-sugarcane>; Alan Rappeport, *Biden Administration Ramps Up Debt Relief Program to Help Black Farmers*, THE N.Y. TIMES (Mar. 25, 2021), <https://www.nytimes.com/2021/03/25/us/politics/biden-debt-relief-black-farmers.html>.

¹¹ See, e.g., MANAGING CLIMATE RISK IN THE U.S. FINANCIAL SYSTEM, COMMODITY FUTURES TRADING COMM’N (Sept. 2020), <https://www.cftc.gov/sites/default/files/2020-09/9-9-20%20Report%20of%20the%20Subcommittee%20on%20Climate-Related%20Market%20Risk%20-%20Managing%20Climate%20Risk%20in%20the%20U.S.%20Financial%20System%20for%20posting.pdf> (“Sub-systemic shocks related to climate change can undermine the financial health of ... agricultural banks ... leaving ... farmers ... without access to critical financial services. This is particularly damaging in areas that are already underserved by the financial system, which includes low-to-moderate income communities and historically marginalized communities... Should agricultural banks become credit-stressed, farmers could lose access to affordable credit, making it more difficult for them to recover from climate-related shocks... Relevant federal regulators should assess the exposure and implications of climate-related risks for the portfolios and balance sheets

credit risk and decreasing value of the loans it purchases and guarantees, as well as a decrease in demand for its services as farmers struggle to stay afloat.¹² Greater vulnerability of an area to climate events may discourage new agricultural activity, decrease mortgage originations, negatively influence property values, increase loan defaults, and decrease lending capacity as Farmer Mac customers become more risk averse when issuing new or reissuing existing loans. Investors and insurers may take these impacts into account when making asset and coverage decisions, which could further impact Farmer Mac’s ability to transfer risk. Ultimately, these risks could have a material adverse effect on Farmer Mac’s business, operational results, financial condition, and long-term stability.

One way for Farmer Mac to mitigate its exposure to climate-related financial risks is by making sure that their loan portfolio is diversified across different types of borrowers located across various geographic regions so that if one region or industry is affected adversely by climate events, the impact would be minimized due to diversification across other regions or industries that are less affected by a given climate event. Additionally, it should consider expanding insurance programs and incentivizing climate resiliency practices¹³ so that borrowers – particularly young, beginning, and small (YBS) farmers and farmers of color – are better prepared for any potential adverse impacts of extreme weather events and retain the ability to repay their loans on time.¹⁴

of the government sponsored enterprises (GSEs) and strongly encourage the GSEs to adopt and implement strategies to monitor and manage those risks.”).

¹² See, e.g., Maggie Monast, *Climate Risk Threatens Agricultural Profitability, But Lenders Can Help*, FORBES (Sept. 2, 2020), <https://www.forbes.com/sites/edfenergyexchange/2020/09/02/climate-risk-threatens-agricultural-profitability-but-lenders-can-help/?sh=144a53a5e581>; Release: *Farmers and Advocates Rally and March for a Climate-Focused Farm Bill*, NAT’L SUSTAINABLE AG. COAL. (Mar. 7, 2023), <https://sustainableagriculture.net/blog/release-farmers-and-advocates-rally-and-march-for-a-climate-focused-farm-bill/>; Roger Johnson, *Opinion: Climate change is our cross to bear*, AGRI-PULSE (Dec. 10, 2018), <https://www.agri-pulse.com/articles/11723-opinion-climate-change-is-our-cross-to-bear>.

¹³ See, e.g., *Climate-Smart Agriculture and Forestry*, U.S. DEP’T OF AG., <https://www.farmers.gov/conservation/climate-smart>; *Cover Cropping to Improve Climate Resilience*, U.S. DEP’T OF AG., <https://www.climatehubs.usda.gov/hubs/northeast/topic/cover-cropping-improve-climate-resilience>; Alan Guebert, *Farm & Food File: Managing climate risk is good business and good for the future*, AGRINEWS (May 3, 2021), <https://www.agrinews-pubs.com/opinion/columnists/2021/05/03/farm-food-file-managing-climate-risk-is-good-business-and-good-for-the-future/>; *Climate Change: A Challenge – And Opportunity – for Agriculture*, FARM CREDIT COUNCIL (2020), <https://farmcredit.com/blog/climate-change-challenge-and-opportunity-agriculture>; *BETTER MANAGEMENT OF EXPOSURE TO POTENTIAL FUTURE LOSSES IS NEEDED FOR FEDERAL FLOOD AND CROP INSURANCE*, U.S. GOV’T ACCOUNTABILITY OFF. (Oct. 2014), <https://www.gao.gov/assets/gao-15-28.pdf>; *REGIONAL CONSERVATION PARTNERSHIP PROGRAM: FISCAL YEAR 2018 PROJECTS BY STATE*, U.S. DEP’T OF AG. (Dec. 2017), https://sustainableagriculture.net/wp-content/uploads/2018/02/List_of_FY2018_Projects_-_Final_12202017-3.pdf.

¹⁴ See, e.g., *FINANCING RESILIENT AGRICULTURE: HOW AGRICULTURAL LENDERS CAN REDUCE CLIMATE RISK AND HELP FARMERS BUILD RESILIENCE*, ENVT’L DEF. FUND (Sept. 2020), https://www.edf.org/sites/default/files/content/Financing_Resilient_Agriculture_Report.pdf; Malika Anand, *Can*

Moreover, the FCA can ensure the safety and soundness of the Farmer Mac program by updating its capital regulations to disclose and account for these risks. The inclusion of climate-related financial risk in Farmer Mac’s capital framework will provide a more comprehensive assessment of the financial risks that Farmer Mac and the markets it serves are exposed to. This will ensure that Farmer Mac is adequately prepared for and can withstand any potential losses due to climate-related events, allowing it to continue to provide financing to the agricultural and rural utility markets it serves.

II. RESPONSE TO REQUEST FOR COMMENTS

A. Question 6: Farmer Mac Should Make Climate-Related Financial Risk Disclosures

Disclosures are an important aspect of Farmer Mac’s capital framework because they help ensure transparency and accountability. Disclosure helps keep markets informed about changes in Farmer Mac’s risk profile, enabling shareholders and stakeholders to better assess Farmer Mac’s financial health and make more informed decisions while helping build confidence and credibility with its customers. Disclosure also allows the entity to discuss its progress on key objectives such as capital raising activities, operational performance, and financial stability.

Climate-related disclosures are an important aspect of Farmer Mac’s capital framework because they provide stakeholders with a better understanding of the entity’s risk management strategies and progress on long-term goals.¹⁵ Climate-related disclosures enable stakeholders to gain a better understanding of how Farmer Mac is addressing issues related to climate-related financial risks – such as resource scarcity, extreme weather events, and increased financial volatility – and help them make more informed decisions. By incorporating climate-related disclosures, Farmer Mac can demonstrate to stakeholders that it is taking steps to ensure its long-term success in spite of increasing climate events.

1. Implement Climate Risk-Related Disclosures in the Long-Term

The FCA should develop disclosure requirements to ensure Farmer Mac is transparent about its climate-related financial risks and is able to provide stakeholders with information about the potential impacts of climate change on the company. Disclosures should include:

inclusive fintech be the answer to climate resilience for underserved populations?, BFA GLOBAL (Apr. 20, 2021), <https://bfaglobal.com/insights/can-inclusive-fintech-be-the-answer-to-climate-resilience-for-underserved-populations/>.

¹⁵ While we acknowledge that Farmer Mac may also be required to make such disclosures under the SEC’s [proposed climate-related disclosure rule](#), the following recommendations are distinct from and/or in parallel to the final rule.

- Impacts on loan purchases, investments, and other activities that are exposed to climate-related risks (e.g., impacts on food and fiber from extreme weather or water events);
- Efforts in loan purchasing, investment, and other activities to incentivize reduce water-use intensity, including crop nutrient processes, livestock management processes, erosion, tillage practices, watershed practices, and forest management;
- Efforts in loan purchasing, investment, and other activities to improve sustainability and resiliency through better recycling of outputs and residual waste (e.g., wood products, food waste, and animal byproducts); and
- Opportunities in loan purchasing, investment, and other activities that capture shifts in business and consumer trends toward food/fiber products and resiliency measures that maintain adequate food security (e.g., improving access and utilization of technology; incentivizing use of drought-resistant hybrids, nutrient management practices, soil conservation, water management, and waste reduction practices).¹⁶

These disclosures would enable stakeholders, Farmer Mac, and the FCA to gain a better understanding of how Farmer Mac manages these risks and what impact they may have on the entity's financial performance.

First, Farmer Mac should disclose aggregate information in its regulatory filings and other public documents about its direct exposure to climate-related risks. This should include details on how its products and services are affected by climate-related events, as well as how Farmer Mac prepares for and responds to those events. This would provide a clear understanding of what steps Farmer Mac is taking to manage climate-related risk and ensure that it is able to meet its regulatory capital requirements.

Second, Farmer Mac should be required to disclose aggregate information about the indirect exposure it has to climate-related risks through its investments or other activities. This information should include details on any third-party investments that have a direct exposure to climate-related risks, such as those in the energy sector. It should also provide details on any investments that may be indirectly impacted by climate change, such as agricultural or food production businesses or those located in an area prone to extreme weather conditions. regardless

Third, Farmer Mac should be required to make disclosures about the impact of climate risk on its operational strategies and activities. This should include details on how the entity has adjusted its

¹⁶ See, e.g., *Implementing the Recommendations of the Task Force on Climate-Related Financial Disclosures*, TASK FORCE ON CLIMATE-RELATED FIN. DISCL. (Oct. 2021), https://assets.bbhub.io/company/sites/60/2021/07/2021-TCFD-Implementing_Guidance.pdf#page=68.

business model or strategies in order to better address climate-related risks and opportunities. By disclosing this information, stakeholders would have a more comprehensive understanding of Farmer Mac's capital framework and its ability to withstand potential losses from climate-related events.

Finally, Farmer Mac should be required to disclose information about any potential impacts of climate risks on its credit ratings. This could include details about changes in credit ratings resulting from changes in weather patterns or other climate-related events that can affect financial performance. Such disclosures would enable stakeholders to assess the creditworthiness of Farmer Mac's investments and operations in order to make more informed decisions.

2. Support and Encourage Climate Risk-Related Disclosures in the Short-Term

We also understand that requiring and developing climate-related disclosures is a time-consuming and complex task. The FCA could therefore begin by encouraging Farmer Mac to explore its climate-related financial risks, and providing infrastructural and educational support.

Importantly, the FCA's [climate risk task force](#) should work closely with Farmer Mac. While the task force was created to evaluate potential risks to the Farm Credit System (FCS), its findings will still be relevant and beneficial to Farmer Mac. The task force is exploring potential safety and soundness risks to the FCS portfolio and is expected to collect useful work that has already been completed, identify reliable data that has already been collected, identify partnerships where it can collaborate, and if necessary, propose tools to manage, stress test, and hedge the risk of climate-related losses. Information and data collected and analyzed by the task force would give Farmer Mac a head start in assessing its own climate-related financial risks.

The FCA should publish climate risk disclosure guidelines to assist Farmer Mac in targeting the information and data it needs to assess its risks. This document could outline standards and recommended data collection (including issuing a call for data from relevant U.S. federal agencies), disclosure categories (such as physical, transition, and socioeconomic risk to various portfolios, assets, and geographies), and describe how Farmer Mac should initiate this process. Additionally, non-governmental organizations such as the [Task Force on Climate-Related Financial Disclosures](#) (TCFD), the [Carbon Disclosure Project](#) (CDP), and Ceres (Working Groups on [Land Use and Climate](#) and [Climate-Smart Agriculture and Healthy Soil](#)) work with companies across sectors to develop climate-related disclosure frameworks that could be used by Farmer Mac when assessing its own exposure to climate-related financial risks.

Additionally, the FCA should consider introducing new governance guidelines to ensure that Farmer Mac has adequate oversight of climate-related risk assessment and disclosures. This could include the establishment of a climate-related risk committee responsible for monitoring and managing climate-related risks, and ensuring the board and senior management have access to

accurate information about the impact of climate-related risks on Farmer Mac’s operations. In particular, FCA should provide guidance on how Farmer Mac can effectively manage its exposure to climate-related risks. This includes assessing the adequacy and effectiveness of the entity’s governance and risk management policies and procedures for addressing climate-related risks, as well as whether it has adequate expertise and resources for managing these risks.

B. Questions 3, 5, 8: Climate-Related Financial Risks Should Be Incorporated into Farmer Mac’s Capital Requirements

Capital adequacy and risk-based capital requirements are imperative to Farmer Mac’s safety and soundness, ensuring it has enough capital on hand to sustain operating losses while maintaining a safe and efficient market and protecting its investors, customers, and the agricultural sector as a whole. As discussed above, climate events dramatically increase Farmer Mac’s risk exposure, but these risks are currently not reflected in its capital requirements.

1. Climate Risk Management Methods

The increasing frequency and intensity of climate events necessitates FCA action to address any material gaps in Farmer Mac’s capital framework. However, as noted by the European Central Bank in a 2021 [Macprudential Bulletin](#), both Basel’s standardized approach (SA) and internal ratings-based approach (IRB) that the FCA is contemplating in this ANPRM “may fail to capture future developments from the climate risk perspective” for several reasons:

- “The SA approach uses risk weights set by the regulator for broad asset classes and based on predefined drivers ... [that] have not been defined with climate risks in mind and can only indirectly capture climate risk features... While external credit risk agencies are already trying to incorporate climate risks in their ratings, more work may be needed to adequately reflect these risks in the current ratings... Furthermore, fixed risk weights may account for unknown future risks, but it is unlikely that these reflect specificities of climate risks such as expected geographical heterogeneity or concentrations.”
- “When modelling [unexpected losses], the Basel approach relies on some theoretical assumptions, which may not hold if climate risk is introduced and should at least be thoroughly revised. Given that the IRB is based on historical data and uses a long-term [probability of default (PD)] over a business cycle to produce one-year estimates, it may fail to capture future developments from the climate risk perspective. The assessment of climate-related financial risks requires the ability to identify future patterns and model their potential magnitude. Significant innovation in forward-looking modelling may therefore be needed to address the unprecedented nature of climate risks and their non-linear features.”

- “IRB models ... are not sufficiently versatile to capture the complexities of climate risks... The derivation of risk-weighted assets (RWAs) using the IRB approach is dependent on estimates of the PD, [loss given default], and [exposure at default] and does not explicitly consider interactions or interdependencies of these input factors. However, climate-related financial risks can be amplified through interactions and interdependencies between climate risk drivers. Furthermore, the IRB approach relies on a strong assumption of portfolio invariance, whereby the capital required for any given loan depends on the risk of that loan, regardless of the portfolio it is added to. This assumption ... means that the uneven vulnerability to climate risk across EU regions, sectors and financial institutions is likely not tackled within the IRB standard.”
- “[C]urrent capital buffers do not capture climate-related financial risks owing to underlying risk weights that do not yet, reflect climate-related risks to the full extent. Denominators of the capital buffers use RWAs, meaning that climate-related risks will not be captured within the buffers’ standards in case other Basel framework standards do not adequately address these risks... Moreover, ... it is questionable whether adjustments to the RWAs would materially capture all aspects of these risks, such as sectoral and geographical risk concentrations.”

Given these complications, the FCA should consider additional risk management methodologies within Farmer Mac’s capital framework to account for climate risk. Current approaches to climate risk modeling by large banks treat climate risk in a manner analogous to credit risk, and capital or risk limits are adjusted to account for this risk. The first step in managing any financial risk is to identify and measure that risk:

- Identify climate risks: Begin by identifying the physical and transition risks that are of particular relevance to Farmer Mac and its stakeholders. Examples of these risks include changes in temperature or precipitation patterns, extreme weather events, drought, flooding, and changes in soil fertility.
- Assess current risk exposure: Once climate risks have been identified, assess how Farmer Mac is currently exposed to those risks. Consider factors such as the geographic scope and concentration of assets and loans; diversity of commodities within a loan or portfolio; financial products offered; and utilization of sustainability and climate resiliency measures.
- Analyze historic and forecasted data: Analyze both historic and forecasted agricultural and climate data for the areas in which Farmer Mac operates or plans to operate in the future. This data should consider average temperatures and precipitation levels, extreme weather patterns, crop yields, soil moisture levels, etc.

- Review past performance: Review past performance in areas related to climate events. Evaluate how Farmer Mac responded to these shocks or disruptions to identify strengths and weaknesses in its risk management capabilities.
- Engage stakeholders: Engage stakeholders in efforts to identify and address climate risk exposure. This includes Farmer Mac customers and farmers/ranchers who took out the underlying loan as well as other organizations such as environmental and agricultural advocacy groups who may have information that could be beneficial in developing an effective risk management strategy. Include questions about specific weather- and/or climate-related events that have impacted their businesses, as well as any changes they have implemented to account for these impacts. By engaging with stakeholders early on in the process, the FCA can ensure that all parties are aware of potential risks and can work together to develop strategies that are mutually beneficial.
- Identify possible scenarios: Identify likely future scenarios that might affect Farmer Mac's operations. Examples could include a prolonged drought leading to higher costs for water or crop damage due to an unusually severe storm season.
- Estimate potential losses: Estimate potential losses associated with each scenario in terms of both financial losses and non-financial losses (e.g., damage to property or reputation).
- Review current policies: Review current Farmer Mac policies and procedures related to climate risk management, including consultation with customers, and customers' understanding of their climate risks, and insurance providers.
- Develop recommendations: Create actionable recommendations based assessment of potential losses associated with different climate-related scenarios. These should include changes to existing policies or procedures as well as investments in new products or incentives that could help mitigate climate risk. Implement processes for continuing monitoring and analysis of risks and opportunities to inform supervision. Consider implementing capital consequences to account for these risks, as well as opportunities to offset or counteract impacts of increased capital buffers or requirements.

Implementation of best practices and processes to help Farmer Mac and its customers manage climate risk exposure are important tools in guarding against climate risks in the short- and medium-term. As discussed above, disclosures that bring to light how climate risks will impact Farmer Mac and its customer's balance sheets, and how they are managing those impacts, will provide important information with which to assess Farmer Mac's safety and soundness.

Further, the FCA should consider providing guidance to assist Farmer Mac in factoring transition, physical, and socioeconomic risks into their capital, loan pricing, and credit allocation decisions.¹⁷ Farmer Mac’s board must review the robustness of its processes for assessing capital adequacy, which should include measuring and managing climate risk. To this end, the FCA should develop a comprehensive risk management strategy with Farmer Mac that incorporates climate risk into its decision-making and capital allocation processes. This could include:

- Portfolio diversification: reducing exposure risks to any one particular asset class that may be impacted by climate-related losses, such as across different crops or regions.
- Asset optimization: assessing the overall risk-return profile of Farmer Mac’s assets by analyzing climate-related agricultural losses.
- Derivatives: hedging exposure by transferring risk to another party, such as insurance companies, protecting Farmer Mac against potential loss without having to invest or disinvest in any particular asset or market.
- Financial incentives: providing financial incentives such as discounted rates to customers that incentivize borrowers through assistance programs, subsidies, special loan programs, or lower interest to adopt climate-resilient practices or technologies¹⁸ that could help protect against borrower losses, and therefore risk of default, from climate events.¹⁹
- Assistance programs: loan deferral or repayment assistance programs, waived late fees, mortgage forbearance, and suspension of negative credit reporting to help recovery after climate events could help decrease risk of default.²⁰

¹⁷ FCA guidance and Farmer Mac policies should include provisions to ensure small farmers and farmers of color are not disproportionately impacted by climate risk mitigation strategies.

¹⁸ The FCA should also consider providing clear definitions of terms related to sustainable agriculture and climate resilience so that customers and borrowers understand what constitutes a sustainable or resilient practice or technology.

¹⁹ Small farmers in particular “would benefit from programs that will provide funding up front for conservation without placing the burden of financing onto the farmers who may not have access to credit.” *See, e.g.,* Steve Davies, *Climate change hearing focuses on what farmers need*, AGRI-PULSE (Mar. 16, 2022), <https://www.agri-pulse.com/articles/17385-climate-change-hearing-focuses-on-what-farmers-need>.

²⁰ Program’s such as [Fannie Mae’s](#) Disaster Response & Rebuild group assists with rebuilding strategies and investments, and travels to impacted areas to help ensure lenders, homeowners, renters, property owners, and community organizations can better access mortgage relief options after a natural disaster. Freddie Mac has similar disaster relief [programs](#), and has published [research](#) on climate resiliency incentives.

- **Insurance:** increasing availability and type of insurance products to help the customer and underlying borrower recoup costs and ensure payment on the loan, such as weather derivatives and parametric insurance.²¹
- **Education:** supporting education and outreach activities to help farmers better understand climate risks and how they can access resources to reduce those risks.

Farmers face significant challenges in accessing loans for resiliency practices and technologies that are as-yet unproven or that are unlikely to increase yield and guarantee a financial return. This is especially true for YBS farmers and SDFRs.²² However, these are the very practices that the FCA should encourage as farmers need these loans to cover up-front costs to improve on-farm climate resiliency.

Farmer Mac should therefore engage its customers to understand and consider non-yield-based metrics to determine loan structures and terms, such as the likelihood of mitigating climate-related risks. This could help ease unequal climate burdens for BIPOC farmers and ranchers, while improving the financial resiliency of Farmer Mac overall. By taking steps to protect their own operations and those of their customers and ultimate borrowers from the long-term effects of climate change, Farmer Mac will be better prepared for any potential risks associated with these changes in environmental conditions.

Further, the Farmer Mac board and senior management must have a process to evaluate the solvency impact of climate-related financial risks that may materialize within its capital planning horizons. This includes incorporation of physical and transition risks that are relevant to the institution's business strategy and exposure profile, and whether the institution has begun identifying relevant climate-related risk drivers and developing risk indicators and metrics to quantify exposure.

²¹ See, e.g., INCLUSIVE INSURANCE FOR CLIMATE-RELATED DISASTERS: A ROADMAP FOR THE UNITED STATES, CERES ACCELERATOR FOR SUST. CAP. MKTS. & WHARTON'S ESG INITIATIVE (Jan. 2023), <https://www.ceres.org/sites/default/files/reports/2023-01/Inclusive%20Insurance%20Report.pdf>; INCLUSIVE INSURANCE: PROMOTING THE POST-FLOOD FINANCIAL RESILIENCE OF LOW AND MODERATE INCOME HOUSEHOLDS, ENV'T'L DEF. FUND (Mar. 2023), https://www.edf.org/inclusive-insurance?_gl=1*xalevy*_ga*NTUzMDcxNTkyLjE2NzkzNTY4NTM.*_ga_2B3856Y9QW*MTY3OTkyNTY5Ny4zLjAuMTY3OTkyNTc2MS42MC4wLjA; see also DERIVATIVES & BANK CLIMATE RISK: FINANCING A NET ZERO ECONOMY, CERES ACCELERATOR FOR SUST. CAP. MKTS. (Sept. 2022), https://www.ceres.org/sites/default/files/reports/2022-09/Ceres%20Derivatives%20and%20Bank%20Climate%20Risk%20Report%202022_0.pdf.

²² The FCA encourages strong policies and procedures to market and lend to YBS farmers and ranchers to ensure the future success of agriculture. Due to the strong overlap of YBS and SDFR populations, the FCA should consider providing the same advantages for SDFRs, including offering financial assistance to climate-affected farmers.

After determining the climate risks it is exposed to, Farmer Mac should incorporate risk mitigation strategies that address those risks, such as those described above, into its capital plan. Climate risk mitigations strategies will help ensure that Farmer Mac is adequately capitalized and has adequate loss absorbing capacity in the face of climate-related losses.

2. Conduct Scenario Analysis Exercises

Stress tests and scenario analysis conducted as part of a climate risk assessment will underpin understanding of Farmer Mac's capital adequacy and ability to withstand climate risks, and should be an essential part of its capital plan. Farmer Mac should conduct scenario analyses on its loan portfolios to assess the potential impacts and identify potential losses of climate-related financial risks over extended time periods. These exercises will help determine whether Farmer Mac and its customers (as well as the underlying borrowers) are able to identify, measure, and manage their climate risks, including their ability to manage their ability to pay back loans under increased risk levels.

Scenarios should identify a likely climate event(s) that would impact Farmer Mac's portfolio of loans and investments, such as the following:

- A prolonged drought in key regions resulting in decreased crop yields, leading to a decrease in farm income and strain on Farmer Mac's loan portfolios.
- Unusually warm temperatures causing an early spring thaw and rush of growth, resulting in an increase in pest infestations that have a damaging effect on crop yields, leading to an increase in defaults on Farmer Mac loans.
- Flooding resulting from heavy rains causing extensive damage to farms and agricultural infrastructure across certain regions served by Farmer Mac, causing loan holders to default on their debt service payments.
- An increase in extreme weather events interrupting distribution channels and supply chains, leading to shipment delays and decreased yields for farming operations served by Farmer Mac, causing borrowers to default on their loans.
- An increase in global temperatures causing extreme weather conditions including severe droughts, floods, and heat waves, making it difficult for farmers to produce large quantities of crops/livestock and preventing them from purchasing the supplies/making the investments needed to keep their businesses afloat.

- Changes in commodity prices due to a climate event, carbon tax, or consumer preferences causing a decrease in demand for agricultural products and a decrease in the ability of farmers to pay back their loans.
- An increase in interest rates after a hurricane or other large [climate-aggravated natural disaster](#) making it difficult for farmers to manage their loan payments, increasing the risk of default.

Further, scenarios should include science-based assumptions about physical risk as well as transition and socioeconomic risks; articulate the direct and indirect economic impacts; and consider how these factors may interact with each other and lead to cascading and compounding effects.²³ The FCA should hedge bias in scenario analysis exercises by assigning design “to a research team separate from the team that will evaluate the adequacy of ... Farmer Mac contingency plans.”²⁴ Additionally, these exercises can be used to ensure Farmer Mac is adequately capitalized to withstand any potential losses, and explore potential risk management strategies that would mitigate these impacts.

[Multiple central banks](#) have already begun conducting climate stress tests and scenario analysis, including the Federal Reserve,²⁵ the European Central Bank (ECB), the Bank of England, the Bank of Japan, and the Central Bank of Brazil. Although these exercises are being conducted for financial institutions, their methodologies and lessons are broadly applicable and can be adapted to GSEs such as Farmer Mac.

Without climate stress testing (including a comprehensive capital adequacy regime), we believe that Farmer Mac is at risk of running a higher quantum of enterprise risk than it is aware of, posing a danger to the safety and soundness of the agricultural credit system.

²³ Feedback effects have a significant impact on agriculture. As climate events increase in frequency and intensity, disasters may happen concurrently or consecutively, and it will be [more difficult](#) to recover from the impacts. Farmers may find it difficult to meet their loan obligations due to lost or damaged crops, higher input costs associated with changing seasonal patterns, or necessary mitigation or recovery efforts.

²⁴ See LETTER TO THE FCA ON ITS FY 2022-2026 STRATEGIC PLAN, INST. FOR AG. & TRADE POL. (Nov. 230, 2021), <https://www.iatp.org/sites/default/files/2021-12/FCA%20Strategic%20Plan%20IATP%2011.30.21.pdf>.

²⁵ The Fed’s [climate scenario analysis pilot](#) exercise is focused on understanding how the six largest U.S. banks are currently measuring and managing their climate risks. Ceres submitted [comments](#) to the Fed’s draft Climate Principles that included recommendations for future climate scenario analysis exercises.

The Ceres Accelerator also recently participated in the 2023 OMFIF [Sustainable Policy Institute symposium](#), where 12 central banks and over 1,000 other experts from across the financial sector examined stress tests and other actions countries are taking to reduce their climate-related financial risk.

3. Implement Climate-Adjusted Capital Requirements

Capital adequacy could be significantly affected by both transition and physical risks. Based on the outcomes of their 2022 climate scenario analysis, the ECB raised capital requirements for some banks.²⁶ In our [Transition Risk](#) and [Physical Risk](#) reports, we recommend that existing capital adequacy regimes be expanded to include climate stress testing with eventual adjustments to both bank liquidity and capital requirements.

We recommend the FCA ensure that Farmer Mac is assessing how climate-related financial risks could impact the quality of its assets, whether climate risks change the concentration of risks across its portfolio, and how climate-related risks feed into and increase its liquidity risk. Likewise, Farmer Mac must evaluate its ability to address climate-related shocks that could lead to the need for more capital. Identifying how climate-related risk drivers could impact the value of financial instruments in its portfolios, evaluating the potential risk of losses on and increased volatility of their portfolio, and establishing processes to control or mitigate the associated impacts are key, as is actively engaging and collecting data from clients to better understand transition strategies and risk profiles. Ensuring that mortgage pricing reflects climate risk would begin the process of adaptation and mitigation.

Following climate stress testing, the FCA should explore changes to Farmer Mac's capital framework to ensure the entity and its customers have sufficient capital to cover potential losses resulting from climate risks their borrowers suffer. The FCA should consider increasing Farmer Mac's minimum capital requirements based on climate stress testing results. Capital requirements could also be targeted for certain loans or investments that are exposed to climate-related losses; establishing risk-based requirements for certain types of transactions, assets, or portfolios; or implementing countercyclical buffers when risks are elevated for set geographies or customers (e.g. prior to wildfire or hurricane season). However, consideration should also be given to risk mitigation strategies of Farmer Mac and its customers as well as the underlying borrower.

While Ceres generally supports the inclusion of climate risk in capital requirements, we recommend care and deep study on strategies to address potential risks to vulnerable and underserved populations. Actions to address climate-related financial risks could disproportionately impact financially vulnerable communities through outcomes such as higher insurance or credit costs, exacerbating existing inequities. Farmer Mac should therefore assess avenues to support farmers and ranchers whose operations are suffering due to droughts or other extreme weather incidents caused by climate change, particularly those that are more vulnerable to climate risks, including SDFR, BIPOC, and YBS populations.

²⁶ See *ECB sets deadlines for banks to deal with climate risks*, EURO. CTRL. BANK (Nov. 2, 2022), <https://www.bankingsupervision.europa.eu/press/pr/date/2022/html/ssm.pr221102~2f7070c567.en.html>.

III. CONCLUSION

We thank the FCA for their work regarding potential updates to Farmer Mac's capital requirements. As climate change continues to affect the agricultural industry, Farmer Mac must take the steps necessary to protect itself and the farmers it serves. We would be pleased to discuss any questions you may have on our feedback; please contact our Manager for Banking Financial Regulation, Kelsey Condon (kcondon@ceres.org) at your convenience.

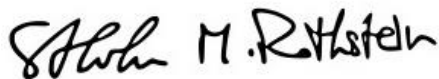
Sincerely,



Kelsey Condon
Manager, Banking Financial Regulation
Ceres Accelerator



Holly Li
Program Director, Net Zero Finance
Ceres Accelerator



Steven M. Rothstein
Managing Director
Ceres Accelerator