Institute for Agriculture & Trade Policy

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12 CFR Part 615
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Advanced Notice of Proposed Rulemaking (ANPR): Bank Liquidity Reserve[1]

Submitted electronically to http://www.fca.gov

Dear Director Kramp,

The Institute for Agriculture and Trade Policy (IATP)[2] appreciates this opportunity to comment on the above captioned ANPR. Our comment urges the Farm Credit Administration (FCA) to adapt its existing liquidity framework to include climate change related risks to agricultural finance, including the ability of the Farm Credit System (FCS) to sell its long-term debt securities in climate stressed capital markets. IATP believes widening the aperture of the FCA liquidity risk reserve rulemaking should not be delayed. As one USDA scientist told Politico for its investigation of 45 Agricultural Research Service climate change studies that USDA political appointees in the previous administration had refused to publicize, "You can only postpone reality for so long."[3] Likewise, the FCA should not postpone the reality of incorporating climate financial risk analysis in its bank liquidity reserve rulemaking.

IATP congratulates FCA for announcing, approximately coeval with the release of this ANPR, the formation of a task force to study "any potential risk that climate poses to the Farm Credit System through possible impacts on land values, crop productivity, animal health, and rural economies."[4] Our comment makes the case that the task force should also study the impact of climate change on capital markets and the FCS access to long-termed debt securities that finance FCS lending. IATP urges the FCA to issue a Request for Information for task force related research with at least a 90-day comment period, so that FCA and FCS can benefit from climate related financial risk management research in general, as well as that related to agriculture, including research from outside the United States.

Climate change is "politically charged," as FCA Board Member Jeffrey Hall noted in announcing the task force. However, political tactics and ideology must not prevent the FCA and FCS from using the best available climate science and economics to help System banks and lending associations comply with the "safety and soundness" requirements of

the Farm Credit Act. Climate change is now recognized by the intergovernmental Financial Stability Board (the Federal Reserve System, the Commodity Futures Trading Commission and the Securities and Exchange Commission are members) as a systemic financial risk to soundness and safety.[5]

Introduction

The following comment answers the last of 34 questions in the ANPR: "What other approaches or methodologies to measuring and regulating liquidity not discussed above should FCA consider and why?" (Federal Register (FR), June 30, 2021, p. 34653) We address the ANPR's "Other Relevant Issues" to consider in revising the FCA's approach to measuring and regulating FCS liquidity. With public input gathered from the ANPR, FCA hopes to "Ensure that each FCS bank operates under a comprehensive liquidity framework, so it consistently maintains adequate liquidity to cover all of its potential obligations, including unfunded commitments and other material contingent liabilities, under stressful conditions." (FR, p. 34645) IATP does not believe it is possible for the FCA to achieve this objective unless climate related financial risk is included as a factor in the FCA's comprehensive liquidity framework. The adequacy of liquidity concerns not only a quantitative liquidity reserve and a line of credit that FCA can draw on during stressful conditions, but also the ability of debt securities that fund the FCS to compete for investors in capital markets under stressful conditions.

Although the word "climate" is not included among the examples of market stressors that have prompted this ANPR, it is certain that the financial impact of climate change on FCS banks will be of longer duration, and perhaps more severe, especially if the onset of irreversible climate tipping points is reached[6], than the COVID-19 shocks. IATP cannot provide FCA with quantitative answers to the critical questions in the ANPR about how to revise the Contingency Funding Plan. But we can provide some qualitative answers by drawing on the initiatives by other prudential regulators to measure and manage their climate related exposures. Further informing a bank liquidity reserve rulemaking are historical and econometric studies of the impact of climate change on U.S. agricultural productivity, prices and costs affecting FCS borrowers.

As the APNR notes, the Farm Credit System is "different from other lenders." (FR, 34646) Because the FCS lends primarily for agricultural and rural development purposes, analyzing future FCS bank liquidity structure entails researching the likely future impact of climate change on agricultural productivity, including that of FCS borrowers. That impact is projected to be geographically variable and perhaps severely so by as early as 2030.[7] The geographical scope of climate impacts, and consequently the economic impact on all FCS regions likely will be widespread. The recent history of climate impacts on U.S. agriculture suggest as much.

The *Fourth National Climate Assessment* in 2018 reported that the 2012 drought affected two-thirds of U.S. counties and resulted in $14.5 billion in production loss payments from

the federal crop insurance program.[8] Production loss and FCS borrower losses can be reduced by such practices as cover cropping, greater crop diversification and rotation, and rotational grazing. However, under current Business As Usual agricultural policy, the adaptation of U.S. agriculture to climate change is not widespread nor well-integrated. The *Assessment* states, "In the late 1990s, U.S. agriculture started to develop significant capacities for adaptation to climate change, driven largely by public-sector investment in agricultural research and extension" but warned that "these approaches have limits under severe climate change impacts."[9]

For example, the *Assessment* gives a somber account of the Ogallala Aquifer Region (OAR) that produces about one-fifth of U.S. corn, wheat, and cotton and about one-third of its beef cattle, all dependent on irrigation:

> Climate change is projected to further increase the duration and intensity of drought over much of the OAR in the next 50 years. Recent advances in precision irrigation technologies, improved understanding of the impacts of different dryland and irrigation management strategies on crop productivity, and the adoption of weather-based irrigation scheduling tools as well as drought-tolerant crop varieties have increased the ability to cope with projected heat stress and drought conditions under climate change. However, current extraction for irrigation far exceeds recharge in this aquifer, and climate change places additional pressure on this critical water resource.[10]

Data from reports such as this one, on the physical risks to U.S. agriculture of climate change, can be incorporated into FCA scenario analysis for estimating shorter and longer-term climate related financial risks in the FCS, including liquidity risk. Such analysis would enhance current FCS risk analysis capabilities.

FCA should use USDA research to estimate the extent to which taxpayer funded programs will mitigate losses of FCA borrowers whose agricultural production is affected by climate change. One study estimating the increase in crop insurance premia under three different climate scenarios states, "All climate scenarios considered suggest that climate change would lower domestic production of corn, soybeans, and wheat relative to a future scenario with climate identical to that of the past three decades. All else equal, this implies that prices would be higher than they would otherwise, which implies higher premiums and, consequently, higher subsidies."[11] Econometric scenarios necessarily require fixed "all else equal" factors to apply computable general equilibrium methodology.

However, such "all else equal" econometric modeling will be challenged by the data volatility and variability of the accelerating momentum of climate change. The Sixth Assessment report of the International Panel on Climate Change — characterized by the United Nations Secretary General as a "Code Red for humanity"[12] — will require policymakers to take precautionary measures, such as expanding the current FCS bank

liquidity reserve, in the face of great economic and climate data uncertainty, under data informed assumptions of what the late economist Frank Ackerman called "worst case economics."[13] Establishing, implementing and enforcing an expanded liquidity reserve framework for FCS banks and lending associations may be politically unpopular among majority owners of some FCS lending associations, since liquidity held in reserve cannot be made available for borrowing. Communicating about the imperative for a liquidity rulemaking to enable expansion of the reserve during stressed capital markets will be critical not only to the rule's political acceptance, but to the viability of FCS to finance U.S. agriculture and the rural economy.

Climate risk to FCS funding

The Commodity Futures Trading Commission's sponsored report, *Managing Climate Risk in the U.S. Financial System*, begins, "The central message of this report is that U.S. financial regulators must recognize that climate change poses serious emerging risks to the U.S. financial system, and they should move urgently and decisively to measure, understand, and address these risks. Achieving this goal calls for strengthening regulators' capabilities, expertise, and data and tools to better monitor, analyze, and quantify climate risks."[14] Among the report's findings are those climate related physical and transition risks that may not have financial system-wide impacts but nevertheless will impact the clients and rural communities served by FCA and FCS: "Sub-systemic shocks related to climate change can undermine the financial health of community banks, agricultural banks, or local insurance markets, leaving small businesses, farmers, and households 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."[15]

The report's 34 authors recommend what Government Sponsored Enterprises, such as FCS, should do manage their climate-related financial risks — e.g., the impact of prolonged drought on agricultural equity and debt — that are inherent to FCS financial services, client base and regulatory obligations. For example, Recommendation 4.4 states, "Relevant federal regulators should assess the exposure and implications of climate-related risks for the portfolios and balance sheets of the government sponsored enterprises (GSEs) and strongly encourage the GSEs to adopt and implement strategies to monitor and manage those risks."[16] The report's 34 authors characterized repeated sub-systemic shocks as "a systemic crisis in slow motion."[17] Will the FCA bank liquidity reserve rule enable the FCS to enhance its climate scenario risk analysis and use that analysis to structure an adequate liquidity framework to meet FCS needs during the agricultural and rural economic shocks to come?

As noted in the ANPR, the FCS is also different from other lenders because it is funded primarily by sales of FCS debt securities. If the FCS is unable to sell longer-term debt securities in capital markets, then it must rely on more volatile short term debt securities products, as it did during the 2007-2009 universal bank and "shadow bank" (nearly unregulated bank-like financial intermediation) financial crisis.[18] If we assume that the

scale, duration and frequency of climate related shocks will result in cash outflows from System banks, a revised liquidity rule should follow the practice of both the Basel III Framework and the Federal bank regulatory agencies (FBRA) in applying a multiplier ("factor") to the gross notional amount of unfunded commitments to establish a climate resilient liquidity reserve. The ANPR anticipates that both FCS lending associations and other financial institutions likely will draw on their lines of credit just when FCS access to bond markets is impeded by the shocks described in footnote 31. (FR, 34648) In addition to those shocks, FCA should anticipate climate related shocks to FCS borrowers and to the System's financing agencies that require an expanded bank liquidity reserve framework.

The Financial Stability Board describes this liquidity constrained situation with respect to climate related financial risks: "The widespread nature of climate-related risks could also trigger self-reinforcing feedback loops to arise whereby losses suffered by the financial system cause a reduction in the financing of the real economy."[19] The FCA should not count on universal banks, much less private equity and hedge funds, to be market makers during a climate change triggered financial crisis affecting the marketability of FCS debt.[20] Those banks failed to be the market makers of "free market" theory during the COVID-19 related liquidity crisis of 2020,[21] despite having been recapitalized, i.e., bailed out, with $29 trillion from the Federal Reserve Banks emergency ultra-low interest rate loan facilities during the 2007-2010 financial crisis.[22] Nor it is certain that the Fed can or should again rescue universal banks and "shadow banks"[23] that are unable or unwilling to internalize their climate related risks on their balance sheets, and develop products and service to mitigate those risks.[24] The factor the FCA should apply to the gross notional amount of its unfunded commitments should exceed Basel III and FBRA factors to establish an adequate liquidity reserve for frequent and often severe climate related financial market disruptions.

FCA banking supervision guidance is already structured to incorporate climate financial risk into its evaluation of System risks

This ANPR concerns FCS liquidity risk and liquidity reserve requirements. However, as FCA supervisory guidance describes, liquidity risks are connected to other financial risks. This interconnectivity also applies to climate related financial risk. As a recent Federal Reserve Bank of Chicago research note states, "It is difficult to anticipate cases in which climate change risk causes liquidity risk without first causing market, credit, or operational risk, because typically climate change risk is unlikely to make an asset less liquid without making the asset lose value, making a borrower insolvent, or disrupting financial infrastructure."[25] Although the ANPR and this comment focus on liquidity risk, we urge the FCA to consider issuing subsequent ANPRs on credit, market and operational risk under stressful conditions, including those of climate change, to consider how to strengthen the FCS banks' and lending associations' overall risk management capacity.

Comments received to this and related ANPRs could help the FCA revise the guidance for bank examination and supervisory duties it already carries out and to incorporate Climate

Value at Risk (CVaR) into its wholistic framework for FCS bank supervision and examination. (CVaR is an analytic tool used by institutional investors to estimate climate related risks (and opportunities) of companies along their value chains.[26]) IATP believes that CVaR can be applied at least to the physical risks of climate change for agricultural assets.) The FCA bank examination manual on liquidity risk advises,

> A general understanding of the bank's overall condition and risk profile is necessary to evaluate liquidity risk and determine if liquidity is threatened. Risks in any area of operations (e.g., credit, interest rate, operations, strategic, reputation, and compliance risks) could pose a threat to liquidity and access to funding. Credit risk is particularly important because asset quality deterioration is the most common precursor to liquidity problems. For example, asset quality deterioration can result in increased reputation risk, restricted access to capital markets, higher credit spreads on debt issuances, and lower debt marketability. Access to funding is also affected by the overall district and System's condition and risk profile, as well as macroeconomic conditions and the general market environment.[27]

FCA already has a supervisory structure that can and should incorporate CVaR into its current risk management framework. Furthermore, FCA can avail itself of the work of and cooperate with other financial regulators, including the Office of the Comptroller of the Currency (OCC).[28] The OCC will revise its handbook for agricultural lending consistent with its prioritization of climate change in its "Fiscal Year 2022 Bank Supervision Operating Plan."[29] Although congressional agricultural committees oversee FCA and FCS, while other financial regulators are overseen by congressional banking and finance committees, the Biden administration's whole of government approach to climate related financial regulation supports a cooperative approach among financial regulators, particularly prudential regulators, such as the FCA.[30]

Adopt and adapt the Basel III Liquidity Framework for the Farm Credit System?

The ANPR requests comment related to the Basel III Liquidity Framework issued by the Basel Committee on Banking Supervision (BCBS) and whether "regulations of the Federal banking regulatory agencies (FRBAs) implementing this framework for banking organizations should influence revisions to FCA's existing liquidity framework." (FR, p. 34645) IATP does not have the capacity to review the 34 standards comprising the Basel III Framework, and then evaluate how each has been implemented by FRBAs, before judging how that implementation might be applied to FCA's current liquidity framework. Adding incorporation of climate related liquidity risk to a revised FCA liquidity framework may be considered an undue regulatory burden by climate financial skeptics. But those skeptics do not include the BCBS, which published its "Principles for the effective management and supervision of climate related financial risks" consultation paper" on November 16.[31] (Interested parties have until February 16, 2022 to submit comments.)

The Fed has lagged beyond other central banks in initiating climate related financial risk research and policy, but the Fed is beginning to move to catch up. By 2023, the Fed may have done sufficient research to release a formal analysis of the capacity of the largest U.S. headquartered banks to remain liquid and prevent insolvency under several climate scenarios.[32] FRBAs and other financial regulators are in the early stages of adapting their rules, data requirements and assessment methodologies to respond to climate change impacts. For example, the Federal Reserve Board "is establishing a Financial Stability Climate Committee (FSCC) to identify, assess, and address climate-related risks to financial stability." According to Board Governor Lael Brainerd, "From a macroprudential perspective, our *Financial Stability Report* outlines how climate change could increase financial shocks and financial system vulnerabilities that could further amplify shocks."[33] Although the ANPR concerns only liquidity risks and possible adjustments to FCS liquidity rules and measurements, the FCA should review Fed research on climate related risk to financial stability and adapt that research to FCS agricultural, agribusiness and rural development finance. The FCA has bank supervisory and regulatory duties very similar to those of the Fed Board of Governors and now faces the challenge of how to exercise those duties under the physical and transition risks of climate change to the FCS and its investors and borrowers.

The ANPR mentions stress testing as one feature of each FCS bank and lending association's Contingency Funding Plans (CFP): "FCA's framework adopted core concepts of the FBRA's rules, including the supplemental liquidity buffer, specific policies and internal controls that combat liquidity risk, and CFPs based in part on the results of liquidity stress tests." (FR, 34646) In 2012, the Farm Credit System Insurance Corporation commissioned a paper that provided sound analysis and recommendations about stress testing. Two recommendations stood out to us that are relevant to incorporating climate financial risk into the FCA liquidity risk framework. The first concerns the particularity of the stress test design for each FCS bank:

> At a minimum the Banks under the direction of the FCA need to engage in a thorough analysis of how large any such draws [on FCS commitments to provide credit on demand] might be under various circumstances, how those circumstances might coincide with other market disruptions, and the potential liquidity implications of draws on unfunded commitments in the midst of other adverse market events. The results will vary among individual Banks and each should be able to cope with a liquidity stress arising from its particular circumstances—the stress tests should be individually tailored under the direction of the FCA.[34]

Because climate change will impact FCS borrowers differently, e.g., according to the crops and livestock that predominate in a FCS region, the current design of FCS stress tests for individual banks will be able to adapt to including climate factors in those stress tests, assuming the FCA followed this recommendation.

The second recommendation is perhaps more difficult to implement because of the asset size and interconnectivity of the two largest FCS banks, which are systematically important financial institutions (SIFIs).

> Although CoBank and AgriBank have over $50 billion in assets, they are not subject to the SIFI rules of the Dodd-Frank Act. Nonetheless, we believe stress tests and the resulting liquidity requirement should incorporate interconnections and make allowance for the systemic importance of institutions—the macro-prudential overlay—as well as the particular risk profile of each individual institution.[35]

It is particularly important that these two SIFIs have robust climate related stress tests because of their interconnectivity to all parts of the FCS and to the broader economy through their non-agricultural lending. If climate shocks resulted in severe constraints financing the FCS, these two banks would be the first and most effective shock absorbers, if equipped with a liquidity risk framework informed by climate related stress tests.

The ANPR does not request comment on liquidity stress testing, but the adaptation of current stress testing methods to incorporate climate financial risk merits further comment. The FCA has "Stress Testing Expectations" about how FCS banks and lending associations are to perform stress tests,[36] but there is no mention in the ANPR of "potential areas of improvement" for stress testing nor of how stress testing results are used in FCS CFPs. A Bank for International Settlements' paper that compares current climate related stress testing practices begins,

> Traditional stress tests were designed to study the impact of external shocks on the solvency of banks. Assessing climate-related impacts requires some fundamental changes. For instance, the risks are expected to materialise over much longer time horizons than those used in respect of traditional banking sector risks. In addition, data covering future climate patterns may be unavailable or unreliable, given the changes in climate patterns that are underway. Moreover, measuring the impact of climate risk requires granular exposure data, ideally by sector and region, in order to differentiate and assess risks along these dimensions. However, these data may not currently be available.[37]

However, the data availability and reliability problems that affect countries in BIS central banks is not as severe in the United States. FCS has access to a great deal of climate financial risk relevant granular data from the U.S. Department of Agriculture's National Agricultural Statistics Service and Natural Resource Conservation Service and from other federal agencies that is collected and aggregated by sector and region. Furthermore, as the USDA Economic Research Service rebuilds its staff and research capacity, ERS will be well positioned to provide studies of that data for FCA and FCS.

The BCBS is considering how to incorporate climate risk into the Basel Framework and has published two papers on climate related financial methodologies and risk

management.[38] The FCA should consider whether and how the methodology of this research might be applied to the FCA liquidity framework. The authors of one BCBS paper write,

> The lack of research on banks' climate-related financial risks partially arises from a lack of data availability. Researchers interested in quantifying the impacts of climate change may not have access to the exposure data needed to assess these risks. The emergence of national climate-related stress testing exercises may partially address this information gap, but more could potentially be done to create opportunities for collaboration between climate and finance experts.[39]

National climate stress testing may not effectively serve the CFP needs of banks and lending associations in FCS regions. The lack of data problem to develop FCS relevant climate stress testing may be addressed by a special call for climate financial exposure data specific to each FSC region. The Federal Reserve System's regional surveys of rural bankers might furnish information useful for FCS regional climate stress testing if those surveys featured a supplement on climate related financial risk to agriculture and the rural economy in those regions. FCA and FCS can use Federal Reserve Bank regional research on climate change impacts on agricultural productivity and the rural economy to estimate both general and crop specific agricultural productivity to write a climate resilient liquidity rule that incorporates climate related financial costs and risks to FCS banks.[40] For example, the trends of prolonged drought and high temperatures likely will make even some irrigated agricultural land unproductive, perhaps already in 2030. A sample question that FCS banks may already be considering: how will the value of land underlying FCS credit policy and bank liquidity requirements be affected by persistent and prolonged extreme heat that decrease yields or even renders land unproductive, notwithstanding irrigation? Such scenario analysis will be challenging, but no less urgent, for FCS.

The design of climate related FCS stress tests and the policy use of stress test results should be assigned to different research teams to prevent design bias. FCA will have to consider whether to adapt current stress testing software to FCS needs or whether to build that software in-house, a longer, more expensive but possibly more effective and relevant tool. The Network for Greening the Financial System has published 50 scenarios for use by central banks and supervisors.[41] The FCA may find that some of these scenarios can be starting points for designing scenario analysis for use by FCS supervisors.

The ANPR poses a question that may result in responses of opposition to adoption of the Basel III Liquidity Framework, to say nothing of following the BCBS example of recognizing climate change as a systemic financial risk and taking steps to prevent that unmanaged risk from undermining the viability of the global financial system. Question 22 is, "What core principles would be most important in FCA's consideration of the Basel III Liquidity Framework? How relevant is the Basel III Liquidity Framework to the cooperative and nondepository structure of the FCS?" (FR, 34652) The ANPR does not

identify the principles, but IATP assumes they are the seven cooperative principles that FCA characterizes as "The Cooperative Way."[42]

One of these principles is "**Cooperation among cooperatives.** Cooperatives serve their members most effectively and strengthen the cooperative movement by working together through local, regional, national, and international structures." If the FCA follows that principle in a bank liquidity reserve rulemaking, it should be possible for FCA to persuade even the most politically conservative lending associations that adapting the Basil III Liquid Framework will help serve their liquidity needs and those of the System.

Another principle is: "**Concern for community.** While focusing on member needs, cooperatives work for the sustainable development of communities through policies and programs accepted by the members." If the FCA follows the BCBS and U.S. federal financial regulators in expanding liquidity frameworks to incorporate climate related financial risk, they should be able to persuade their lending associations of the coherence of this expansion with the "concern for community" principle. IATP has worked with the Jefferson Center on community led Rural Climate Dialogues in Minnesota since 2014. An IATP blog publicizing a RCD report stated, "The RCDs empowered communities to develop their own approach to addressing climate impacts in a way that boosted resilience and maximized other community benefits. Community-driven climate action has real benefits over top-down approaches, and these lessons should be noted by policymakers and integrated into any future state and federal climate action."[43]

It would be tragic for the System and for lending association members if they regard the Basel III Liquidity Framework and climate financial risk management as irrelevant to the "cooperative and non-depository structure of the FCS." The FCA board policy statement of October 2010,[44] affirming the principles of "user-ownership, user-control, and user-benefits" may be the only metrics by which FCS banks and the lending associations measure the utility of adapting the Basel III Liquidity Framework to FCS needs, including managing FCS climate related financial risks. It would be a huge strategic error for FCA to ignore the Seven Cooperative Principles and propose a liquidity bank reserve rule that divorced the interests of lending association members not only from their local communities but from the public interests of a nation that has generously subsidized their enterprise and that of the agribusinesses that use the raw materials farmers and ranchers produce. Indeed, according to the October 2021 "National Intelligence Estimate" and reports by several intelligence agencies, climate change is not a hypothesis — much less a "hoax" concocted by China — but a grave threat to U.S. national security.[45] Making the bank liquidity reserve rule climate change informed and resilient will contribute to the cooperative U.S. federal agency initiatives mitigate that threat.

Planning for the possibility of a climate related agricultural liquidity crisis

IATP believes it would be a mistake for FCA to assume that government backstops to the financial system and to the private sector will work for climate related liquidity stress as

they have for COVID-19 related financial stress. The ANPR notes, "FCS banks withstood the recent economic and financial turmoil from COVID–19 with their liquidity intact. However, both the FCA and FCS continue to gain insights into the effects that sudden and severe stress have on liquidity at individual FCS institutions and in the entire financial system." (FR, p. 34651)

Solutions to past FCS liquidity provision and constraints may not serve future liquidity needs. The authors of the 2012 paper commissioned by the Farm Credit System Insurance Corporation (FCSIC) wrote that during the global financial services crisis of 2007-2010, "The disruption of the long-term funding market for FCS obligations was temporary and the consequences were not serious. But, in the view of FCSIC management, that relatively benign outcome was partly due to several favorable circumstances that might not be repeated in a similar future event."46 Among these circumstances was the Renewable Fuel Blending standard that created a market for one-third of U.S. corn production, driving high corn farmgate prices, relative to production costs, and much higher corn futures prices. The FCS strategy of bypassing long term funding market constraints by providing FCS banks with liquidity through short-term (less than one-year maturity) debt instruments was further enabled by numerous Farm Bill program payments that helped to keep most FCS loans performing, so that accumulated and anticipated credits risks did not exacerbate liquidity needs.

However, consider a possible scenario for a sustained FCS liquidity crisis event without the favorable financial and policy circumstances for agriculture that obtained during the Great Recession. President Joe Biden's target, supported by most U.S. automobile manufacturers, to increase electric vehicle production to up to 50% of the U.S. fleet by 2030,[47] likely will greatly reduce ethanol demand, the price of corn and the value of corn-ready agricultural land that is the largest source of collateral for FCS lending.[48] Archer Daniels Midland's 2019 spinoff of its ethanol assets gives credence to that possibility.[49] ADM's October 2021 announcement that it might produce "low-carbon" jet fuel from former ethanol facilities depends, as usual, on government policy and taxpayer subsidies to create market demand.[50] Given the increasing unilateral radicalization of Congress, majority support for those policies and subsidies is far from a sure bet.

A change in administrations or in the majority party in Congress could make it politically difficult to justify continued heavy subsidizing of a crop — even if used to make jet fuel — which accelerates the water cycle's depletion and dependency on increased use of synthetic nitrogen fertilizer, emitting the most potent greenhouse gas.[51] As Alan Guebert summarized, "So, sooner or later, ever-greening American taxpayers will want to know why the nation continues to use ever-dwindling, irreplaceable natural resources to grow a federally-subsidized feedstock for a federally-mandated biofuel market that--mandate or not--is likely to shrink by at least one-third in the coming decade."[52] The answer to that question may not come from Congress, as much from the agricultural natural resource impacts and climate financial impacts of the vast mono-cropping of corn year in and year out.

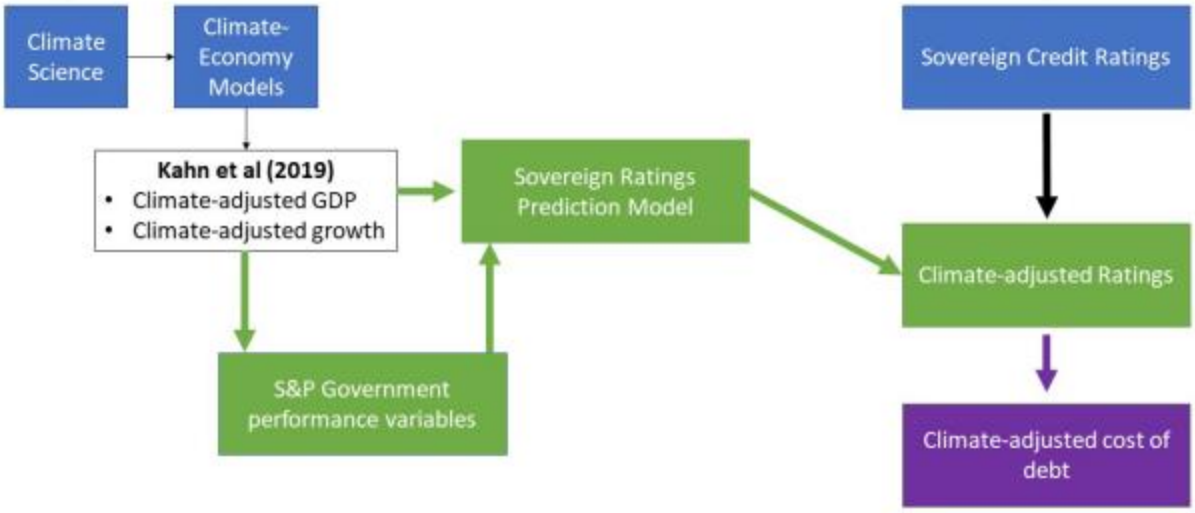
Given the current high price of U.S. agricultural land[53], the most single important source of collateral for FCS lending, System liquidity, relative to its loan portfolio, would seem to be secure. The product, sector and geographical diversification of the FCS loan portfolio;[54] the low rate of non-performing loans; the double A or higher credit rating of 99% of FCS investment securities in the debt market; and the annually renewed $10 billion line of credit that the Farm Credit System Insurance Corporation maintains to ensure that FCS can pay its maturing obligations would all indicate that the FCS can manage both System credit and liquidity risk under stressful market conditions, at least for the 90 days of minimum liquidity FCS institutions are required to maintain.[55]

The capacity of FCS to maintain liquidity during the relatively short term of the COVID-19 triggered liquidity crisis should not be ascribed mainly to prudent FCA oversight and FCS management. The support for agriculture, some of it controversial, from the American Rescue Plan Act[56] (ARPA) was a substantial part of the taxpayer subsidies that accounted for 39% of U.S. net farm income in 2020.[57] Those subsidies played a critical role in enabling the low percentage of FCS non-performing loans that is a major selling point in presentations to investor in FSC debt securities. It is hardly controversial to assume that the extent of congressional support for subsidies for crop insurance, and indemnification for loss of building and animals resulting from chronic climate conditions or extreme weather events, may be less than support for ARPA. Traditional congressional supporters of agribusiness may not support those subsidies, if paying them is conditional upon complying with environmental performance metrics.

One structural support for FCS liquidity is the double A or higher credit rating of FCS bonds. Under what plausible scenarios might that credit rating be downgraded?[58] If credit rating agencies (CRAs) were to adjust their rating methodologies to assess credit exposures to climate events and transition risks. Currently, the CRAs claim that they do exactly that, hence, among other outcomes, FCS ratings may appear AA or higher forever. However, if market, regulatory or legal pressure obligates CRAs to do what they say (to walk their increasingly big Environmental Social Governance ratings talk), the CRAs will make their ratings methodologies increasingly more rigorous with respect to climate events and transition risks. As a result, there will be a cascade of credit downgrades in all sectors worldwide.[59] FCS bonds would not likely be immune from the downgrades.

The tax-exempt privilege of the bonds might hold up the credit ratings when FCS climate risk not incorporated into the terms and pricing of the bond might not. The methodologies of current studies of sovereign credit risk under climate Business As Usual scenarios might be adaptable to FCS liquidity to estimate the cost of debt to the FCS and the market for that debt under various scenarios, while maintaining the tax-exempt FCS bond status. Here is how a recent paper schematized the relationship between climate science and credit ratings for sovereign debt.[60]

Figure 1. Conceptual Framework: Bridging the gap between climate science and financial indicators



One liquidity risk for FCS is that credit rating agencies (CRA) continue to issue favorable credit ratings without having assessed the climate financial risk of the debt instruments being rated. Following the myriad CRA failures during the global financial crisis, regulators around the world attempted to persuade legislatures of the urgent need for a change to the "issuer pays for ratings" business model. However, the CRA's market share concentration and corresponding lobbying power rebuffed those attempts.[61] Fines for large-scale misconduct are not an effective deterrent for the CRA's oligopolistic business model. The Securities and Exchange Commission is not likely to consider proposals to properly regulate CRAs without legislative authority to do so.[62] If investors demand CRA quantitative analysis for bonds that justifies their ratings, and CRAs fail to provide that analysis, as climate related losses on those over-rated bonds climb, perhaps private actions against CRA ratings fraud will force Congress out of its climate financial slumber.

A recent paper from the New York Federal Reserve Bank estimated the climate financial risk for 27 global banks with large fossil fuel exposures. While the quantitative measure of global bank climate risk is inapplicable to FCS liquidity, the NY Fed methodology may be of interest to the FCA. First the NY Fed authors write, "Despite the evidence that banks do price climate risks, our CRISK measures suggest that climate change could lead to a substantial increase in systemic risks when transition risks rise sharply."[63] The current failure of CRAs to issue ratings based on published quantitative analysis of climate risks — despite CRA warnings about the quality of sovereign debt[64] — should be no source of assurance to the FCS about the integrity of its debt securities ratings. The FCA should not be sanguine about its future capacity to maintain AA and higher bond ratings if it fails to develop and update a climate resilient bank liquidity reserve framework.

Conclusion: a remark on cost and benefit considerations

One of the four objectives of the ANPR is to "Determine the respective costs and benefits of updating FCA's liquidity framework for FCS banks." (FR, 34645) The ANPR does not pose any direct questions concerning costs and benefits. However, objections to the costs — both real and imagined — of establishing and implementing an enhanced bank liquidity reserve likely will be raised by commenters on a proposed bank liquidity reserve rule.

The FCA is not required by law to perform a cost-benefit analysis (CBA) of its rulemakings. Nevertheless, it will be prudent for the agency to anticipate and prepare to respond to both borrower and agribusiness lobby threats of litigation if the FCA does perform a CBA not to their liking. A recent historical example of the misuse of CBA against financial rulemakings is the financial lobby attacks on the cost of Dodd Frank authorized rulemaking, data monitoring, studies and enforcement measures. A detailed analysis of those attacks showed that costs to industry were greatly overstated while benefits to financial system entities and the public it ostensibly serves were unexamined and unstated.[65] A more recent review of court rulings and academic literature on CBA concluded,

- Cost-benefit analysis is inherently unreliable, as it depends on imprecise assumptions, predictions, and quantifications that are extremely difficult to make with accuracy. One of the most challenging variables in the exercise is trying to predict how the industry will react and adapt to a rule. That difficult assessment largely determines how costly a rule will prove to be for industry and how effective it will prove to be in conferring benefits on financial markets and investors.

- Compounding the problem, reliable data on which to base cost-benefit analysis is often accessible only to the regulated firms and not to the agency attempting to promulgate a rule. Moreover, when the regulated firms do decide to share their data with regulators, they often do so selectively, thus undermining the accuracy of any resulting analysis and skewing it in favor of the industry's perspective.[66]

Furthermore, benefits from a specific rulemaking making are harder to quantify, not only because they are prospective, but because many of them cannot be expressed in monetary terms, e.g., greater investor confidence in a climate resilient bank liquidity reserve framework.

While it is reasonable and necessary for FCA to estimate research, staffing and computer infrastructure costs of establishing and implementing a climate-resilient bank liquidity reserve, the agency is not obliged to take into account the costs to borrowers, investors, commodity groups and agribusinesses affected by the ruling. Similarly, the FCA is not required to quantify benefits in a proposed bank liquidity reserve rulemaking, though it may wish to use to estimates of climate related damage to agriculture and rural

economies in FCS regions as an indirect way of indicating the benefits of lending to mitigate those damages.

In general, IATP recommends that when considering CBA regarding the proposed rulemaking, FCA follow Frank Ackerman's four principles of climate economics.[67] Without summarizing these principles, much less the analytic work behind them, his initial 2008 observation still obtains: "As the climate science debate is reaching closure, the climate economics debate is heating up. The controversial issue now is the fear that overly ambitious climate initiatives could hurt the economy. Economists emphasizing that fear have, in effect, replaced the climate skeptics as the intellectual enablers of inaction."[68] To overcome that fear, Ackerman advises and IATP agrees that economic analysis of climate change policy must not discount the future benefits of climate financial regulatory action now: "The economics of climate change is centrally concerned with our relationship to our descendants whom we will never meet. As a bridge to that unknowable future, consider your grandchildren—the last generation that most of us will ever know."[69]

IATP hopes that these comments on the ANPR will help FCA propose a climate-resilient bank liquidity reserve rule. We look forward to commenting on the proposed rule.

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[1] https://ww3.fca.gov/readingrm/fedreg/Federal%20Register%20Documents/86%20FR%2034645.pdf

[2] The Institute for Agriculture and Trade Policy (IATP), founded in 1986, is a 501(C)3 organization, headquartered in Minneapolis, MN, with offices in Washington, DC, Hallowell, ME and Berlin, Germany. IATP is a member of Americans for Financial Reform, the Climate Financial Regulatory Working Group and the National Sustainable Agriculture Coalition's Credit Policy Working Group. Most of IATP's comments on financial rulemakings have responded to Commodity Futures Trading Commission proposals. In September 2020, we published "Agricultural Finance for Climate Resilience." https://www.iatp.org/ag-finance-climate

[3] Helena Bottemiller Evich, "Agriculture Department buries studies showing dangers of climate change," *Politico*, June 23, 2019.

[4] Jeffrey Hall, "Statement on Climate Change," Farm Credit Administration Board Meeting, July 8. 2021. https://www.fca.gov/template-fca/news/Hall2021July8.pdf

[5] "The implications of climate change for financial stability," Financial Stability Board, November 23, 2020. https://www.fsb.org/2020/11/the-implications-of-climate-change-for-financial-stability/

[6] Timothy Lenten et al., "Climate tipping points—too risky to bet against," *Nature*, April 9, 2020. https://www.nature.com/articles/d41586-019-03595-0

[7] Sun Ling Wang et al, "Impacts of Climate Change and Extreme Weather on U.S. Agricultural Productivity: Evidence and Projections," National Bureau of Economic Research, NBER Working Paper No. 23533. https://www.nber.org/system/files/working_papers/w23533/w23533.pdf

[8] *Fourth National Climate Assessment*, Chapter 10: Agricultural and Rural Communities, Reduced Agricultural Productivity. 2018, at p. 399. https://nca2018.globalchange.gov/chapter/10/

[9] Chapter 10: Agricultural and Rural Communities, State of the Agriculture and Rural Communities Sector, at 399.

[10] Gowda, P., J.L. Steiner, C. Olson, M. Boggess, T. Farrigan, and M.A. Grusak, 2018: Agriculture and Rural Communities. In Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Volume II [Reidmiller, D.R., C.W. Avery, D.R. Easterling, K.E. Kunkel, K.L.M. Lewis, T.K. Maycock, and B.C. Stewart (eds.)]. U.S. Global Change Research Program, Washington, DC, USA, pp. 391–437. doi: 10.7930/NCA4. 2018. CH10, p. 402. https://nca2018.globalchange.gov/chapter/10/

[11] Andrew Crane-Droesch, Elizabeth Marshall, Stephanie Rosch, Anne Riddle, Joseph Cooper, and Steven Wallander. Climate Change and Agricultural Risk Management Into the 21st Century, ERR-266, U.S. Department of Agriculture, Economic Research Service, July 2019, at p. iv. https://www.ers.usda.gov/webdocs/publications/93547/err-266.pdf?v=8848.4

[12] Camilla Hodgson, "Global warming will hit 1.5C by 2040, warns IPCC report," *Financial Times*, August 9, 2021.

[13] Frank Ackerman, *Worst Case Economics: Extreme Events in Climate and Finance*, Anthem Press, 2018.

[14] "CFTC's Market Risk Advisory Committee subcommittee releases climate related report," September 9, 2020. https://www.cftc.gov/PressRoom/PressReleases/8234-20 Links to *Managing Climate Risk in the U.S. Financial System*, at p.ii.

[15] Ibid., p. iii.

[16] Ibid., 51.

[17] Ibid., p. 27.

[18] Natalie McGarry and Donald Kohn, "Farm Credit System Liquidity and Access to a Lender of Last Resort," The Brooking Institution, November 6, 2012. https://www.brookings.edu/research/farm-credit-system-liquidity-and-access-to-a-lender-of-last-resort/

[19] "Implications of climate change for financial stability," Financial Stability Board, November 2020, p. 20. https://www.fsb.org/wp-content/uploads/P231120.pdf

[20] P.J. Huffstutter, Jason Lange, "Wall Street banks bailing on troubled U.S. farm sector," Reuters, July 11, 2019.

[21] Arthur Wilmarth Jr. "The Pandemic Crisis Shows That the World Remains Trapped in a 'Global Doom Loop' of Financial Instability, Rising Debt Levels and Escalating Bailouts," Georgetown Law School, 40

Banking & Financial Services Policy Report No. 8 (August 2021). https://scholarship.law.gwu.edu/cgi/viewcontent.cgi?article=2814&context=faculty_publications

[22] James Felkerson, "$29,000,000,000,000: A Detailed Look at the Fed's Bailout by Funding Facility and Recipient," Levy Institute, Working Paper No. 698, December 2011. https://www.levyinstitute.org/pubs/wp_698.pdf

[23] Zoltan Poszar et al., "Shadow Banking," Federal Reserve Bank of New York , July 2010 and February 2012. https://www.newyorkfed.org/research/staff_reports/sr458.html

[24] Adam Tooze, "Why Central Banks Need to Step Up on Global Warming," *Foreign Policy*, July 20, 2019.

[25] Nahiomy Alvarez, Alessandro Cocco, Ketan B. Patel, "A New Framework for Assessing Climate Change Risk in Financial Markets," Federal Reserve Bank of Chicago, Fed Letter No. 448, November 2020, at p. 1. https://www.chicagofed.org/publications/chicago-fed-letter/2020/448

[26] E.g., "MSCI Real Estate Climate Value at Risk (Climate VaR) Methodology," MSCI, Inc., 2021. https://www.msci.com/documents/1296102/19288350/ClimateVaR_RealEstate_Methodology.pdf

[27] "FCA Examination Manual: Liquidity Risk," Farm Credit Administration, September 30, 2020, p. 6. https://ww3.fca.gov/readingrm/exammanual/New%20Exam%20Manual/51.1.pdf

[28] "Comptroller's Handbook: Agricultural Lending," Office of the Comptroller of the Currency, Version 1.4, March 30, 2020. https://www.occ.treas.gov/publications-and-resources/publications/comptrollers-handbook/files/agricultural-lending/index-agricultural-lending.html

[29] "Fiscal Year 2022 Bank Supervision Operating Plan," Office of the Comptroller of the Currency, Committee on Bank Supervision, p. 3. https://www.occ.gov/news-issuances/news-releases/2021/nr-occ-2021-106a.pdf

[30] "A Roadmap to Build a Climate Resilient Economy," The White House, October 14, p. 22. https://www.whitehouse.gov/wp-content/uploads/2021/10/Climate-Finance-Report.pdf

[31] https://www.bis.org/bcbs/publ/d530.htm

[32] Pete Schroeder, "Wall Street sees first Fed climate change review in 2023," Reuters, November 17, 2021.

[33] Lael Brainard, "Financial Stability Implications of Climate Change," Federal Reserve Board of Governors, March 23, 2021. https://www.federalreserve.gov/newsevents/speech/brainard20210323a.htm

[34] McGarry and Kohn, "Farm Credit System Liquidity and Access to a Lender of Last Resort," p. 11.

[35] Ibid., p. 11.

[36] "Frequently Ask Questions: Stress Testing Expectations," Farm Credit Administration, August 30, 2021. https://www.fca.gov/about/faq/stress-testing-expectations

[37] Patrizia Baudino and Jean-Phillipe Svoronos, "Stress testing banks for climate change—a comparison of practices," Financial Stability Institute, Bank for International Settlements, July 2021, at p. 1. https://www.bis.org/fsi/publ/insights34.pdf

[38] Basel Committee on Banking Supervision, "Climate-related risk drivers and their transmission channels," April 2021. https://www.bis.org/bcbs/publ/d517.htm "Climate related financial risks" Measurement methodologies," April 2021, https://www.bis.org/bcbs/publ/d518.pdf

[39] "Climate-related risk drivers and their transmission channels," p. 33.

[40] E.g., Wolfram Schlenker, "Environmental Drivers of Agricultural Productivity Growth and Socioeconomic Spillovers," Federal Reserve Bank of Kansas City, https://www.kansascityfed.org/documents/7105/environmental-drivers-of-agricultural-productivity-growth-and-socioeconomic-spillovers.pdf Presented on May 11, 2021 at the Agricultural Symposium. https://www.kansascityfed.org/agriculture/ag-symposium-snapshots/environment-poses-risks-to-future-production/

[41] https://www.ngfs.net/sites/default/files/media/2021/08/27/ngfs_climate_scenarios_phase2_june2021.pdf

[42] "The Cooperative Way," Farm Credit Administration, April 5, 2021. https://www.fca.gov/bank-oversight/the-cooperative-way

[43] Tara Ritter, "The Rural Climate Dialogues: Lessons for rural climate leadership," Institute for Agriculture and Trade Policy, November 17, 2020. https://www.iatp.org/blog/202011/rural-climate-dialogues-lessons-rural-climate-leadership

[44] IATP was unable to access this FCA Board policy statement at the FCA website.

[45] Christopher Flavelle, Julian E. Barnes, Eileen Sullivan and Jennifer Steinhauer, "Climate Change Poses a Widening Threat to National Security," *The New York Times*, November 1, 2021.

[46] McGarry and Kohn, "Farm Credit System Liquidity and Access to a Lender of Last Resort," footnote 3.

[47] David Shepardson and Jeff Mason, "Biden seeks to make half of new U.S. auto fleet electric by 2030," Reuters, August 5, 2021.

[48] "Investor Presentation," Farm Credit System, April 2021, Loan Portfolio Overview, p. 4.

[49] Chris Prentice, Jarret Renshaw, P.J. Huffstutter, "ADM's move to spin off ethanol assets speaks to industry woes," Reuters, April 26, 2019.

[50] Donnelle Eller, "Cedar Rapids ethanol plant could be one of three ADM taps to make sustainable jet fuel," *Des Moines Register*, October 25, 2021.

[51] Gosia Wozniacka, "The Greenhouse Gas No One's Talking About: Nitrous Oxide on Farms, Explained," *Civil Eats*, September 19, 2019.

[52] Alan Guebert, "Ethanol's futures is running out of gas," eFarm and Food File, September 5, 2021.

[53] "Farmland Value," U.S. Department of Agriculture, Economic Research Service, November 2, 2020. https://www.ers.usda.gov/topics/farm-economy/land-use-land-value-tenure/farmland-value/

[54] "Investor Presentation," pp. 7-8.

[55] "Investor Presentation," pp. 12-13.

[56] What's in the American Rescue Plan Act of 2021 for agriculture?" American Farm Bureau, March 8, 2021.

[57] Chuck Abbott, "Record-High Ag Subsidies to Supply 39% of Farm Income," *Successful Farming*, December 3, 2020.

[58] Silvia Amara, "Climate change not priced into markets but its effects could be substantial, experts say," CNBC, February 24, 2021.

[59] Bill Harrington, "Moody's ESG overhaul won't have any actual effect on credit ratings," *Responsible Investor*, October 19, 2020. https://www.responsible-investor.com/articles/moody-s-esg-overhaul-won-t-have-any-actual-effect-on-credit-ratings and "Investors who want to fast-track sustainable fixed-income investments should inundate credit ratings agencies with methodology critiques," *Responsible Investor*, January 28, 2020.

[60] https://www.bennettinstitute.cam.ac.uk/media/uploads/files/Rising_Climate_Falling_Ratings_Working_Paper.pdf p. 3.

[61] Mischek Mutize, "Why credit rating agencies are still getting away with bad behavior," *The Conversation*, June 23, 2019.

[62] Jeff Cox, "SEC urged to end the 'issuer pays' business model tied to the financial crisis," CNBC, November 5, 2019.

[63] Hyeyoon Jung, Robert Engle, Richard Berner, "Climate Stress Testing," New York Federal Reserve Bank, Staff Report No. 977, p. 3.

[64] Bill Harrington, "IOSCO should back off ESG ratings providers," *Environmental Finance*, August 19, 2021. Jill Ward, "A Climate Reckoning is Coming for the World's Government Debt," *Bloomberg Monthly Magazine* September 23, 2021. Parker Bolstad, Sadie Frank, Eric Gesick and David Victor, "Flying Blind: What Do Investors Really Know About Climate Change Risks in U.S. Equity and Municipal Bond Markets?" Hutchins Center Working Paper No. 67, September 2020. https://www.brookings.edu/wp-content/uploads/2020/09/WP67_Victor-et-al.pdf

[65] "Setting the Record Straight on Cost-Benefit Analysis and Financial Reform at the SEC," Better Markets, Inc., July 30, 2012. https://bettermarkets.org/sites/default/files/Setting%20The%20Record%20Straight.pdf

[66] "Update: Recent Trends in the Law Governing Cost-Benefit Analysis by the Securities and Exchange Commission," Better Markets, Inc., December 29, 2017. https://bettermarkets.org/impact/update-recent-trends-law-governing-cost-benefit-analysis-securities-and-exchange/

[67] Frank Ackerman, "Climate Economics in Four Easy Pieces," *Development*, (2008) Vol. 51: 325-331.

[68] Ibid., p. 325.

[69] Ibid., p. 326.