Ann E. Misback
Secretary, Board of Governors of the Federal Reserve System
Constitution Ave NW & 20th St NW
Washington, DC 20551

February 6, 2023

Re: Statement of Principles for Climate-Related Financial Risk Management for Large Financial Institutions, Docket No. OP-1793

Dear Ms. Misback,

On behalf of Public Citizen, a national public interest advocacy group, and more than 500,000 members and supporters, we welcome the opportunity to comment on the Statement of Principles for Climate-Related Financial Risk Management for Large Financial Institutions published by the Board of Governors of the Federal Reserve System (FRB).[1] We support this important step toward advancing financial institutions' efforts to assess and address climate-related risk, and we urge the FRB to strengthen and finalize the draft as soon as possible.

Climate change poses significant risks to the safety and soundness of financial institutions, the financial system, and communities. Even since the Federal Deposit Insurance Corporation (FDIC) issued its own draft climate risk management principles in early 2022, the level of physical and transition risk that banks face has only increased. In September 2022, Hurricane Ian became perhaps the costliest storm to ever strike Florida. The exposure of banks to this storm was exacerbated by the wave of insurance cancellations that preceded landfall, a source of risk recently acknowledged by the Financial Stability Oversight Council. Meanwhile, the passage of the Inflation Reduction Act in August 2022, viewed alongside a subsequent package

[1] Board of Governors of the Federal Reserve System, Principles for Climate Related Financial Risk Management for Large Financial Institutions, (Principles) (December 8, 2022).

of California policies designed to phase out internal combustion engines and increase the adoption of renewable energy, represent perhaps the most significant regulatory policies and investments in the energy transition that any jurisdiction has made to date. These policies show how quickly the policy landscape can shift, and they are projected to catalyze rapid growth in the adoption of renewable energy. These investments are likely to trigger economic and technological changes that further exacerbate transition risk.

Such developments make strengthening and finalizing the Statement imperative. The Statement appropriately expects large financial institutions to take a whole-of-business approach to mitigating climate-related financial risks, to consider longer time horizons for assessing and addressing climate-related financial risk, to recognize that climate change poses unique financial risks, and to develop climate-related data and scenario analysis modeling. It provides welcome attention to important measures not included in the Office of the Comptroller of the Currency (OCC) and FDIC proposals: the need for compensation policies to be aligned to climate-related financial risks and the need for financial institutions to assess the climate-related financial risks associated with individual customer relationships and their ability to manage these risks. The FRB also appropriately acknowledges climate-related financial risks to the U.S. financial system and threats to financial stability,[2] although the FRB should recognize, as the FDIC proposal does, that these threats are significant and near-term.[3] The Statement also importantly directs financial institutions to monitor alignment of their internal strategies with their public climate commitments and to consider the fair lending implications of their risk-management measures and their adverse effects on low-income and other disadvantaged households and communities.

The Statement could be further strengthened in ways that we recommended to the FDIC in response to its proposal (Public Citizen's comments to the FDIC are included in Appendix I to these comments).[4] This includes indicating that climate change threatens not only large US financial institutions but also smaller financial institutions—including, for example, state member banks regulated by the FRB—with implications for access to finance by low- and moderate-income (LMI) and other vulnerable communities. The Statement should also recognize that large financial institutions fuel climate-related financial risks through their financing of greenhouse gas (GHG) emitting activities. This recognition will lay the groundwork for the FRB to work with other federal banking regulators to protect the safety and soundness

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[2] *Id.* at 75267.

[3] Federal Deposit Insurance Corporation, Principles for Climate Related Financial Risk Management for Large Financial Institutions at 19509.

[4] Public Citizen, Public Citizen Comment on FDIC Principles for Climate Related Financial Risk Management (June 2022).

of all entities and the banking system.

The FRB should treat this Statement as a first step in a broader regulatory program of protecting financial institutions and the financial system from climate-related financial risks. It should be followed by interagency guidance from all federal banking regulators indicating how banks can implement the expectations they contain. Key areas of focus for both this Statement and follow-up work should include (1) explaining in greater detail how financial institutions should account for the unique aspects of climate-related financial risks and integrate those risks into broader risk management structures; (2) acknowledging limitations of scenario analysis while supporting such analysis for limited objectives; (3) detailing measures needed to address risks to the safety and soundness of smaller financial institutions; (4) providing clarity around what it means for large financial institutions to align their climate commitments to their internal strategies and additional detail on the risk management benefits of credible net zero transition plans; and (5) bringing U.S. climate-related financial risk supervision and regulation practices in line with those at peer central banks. Regulators should also explore ways to incorporate climate-related risks into risk-weighted capital requirements and consider additional measures to address the financial stability implications highlighted in the Statement, such as a climate-related financial risk capital surcharge for the largest financial institutions and concentration and portfolio limits for the riskiest assets.

I. Large financial institutions need more detailed direction on how to address the unique characteristics of climate-related risks and integrate them into existing risk management processes.

The Statement reinforces that weaknesses in how financial institutions identify, measure, monitor and control potential climate-related financial risk can threaten financial institution safety and soundness.[5] To assure the safety and soundness of financial institutions under its jurisdiction, Congress charged the FRB with prescribing standards relating to internal controls, loan documentation, credit underwriting, and other operational and managerial standards, as well as for asset quality. 12 U.S.C. § 1831p-1. Such standards may be prescribed by either regulation or guideline. To appropriately set financial institution expectations, we encourage the FRB to clarify that it is issuing the statement as a guideline under 12 U.S.C. § 1831p-1.

Overall, the Statement provides an important foundation for appropriately integrating climate-related financial risk into a large financial institution's broader risk management structures. The Statement makes clear that financial institutions must address climate-related financial risks

[5] Principles at 75267.

management at every level of their business, from the board on down. This approach reflects international best practices, as well as the magnitude of the threat that climate-related financial risks pose. The Statement also appropriately directs financial institutions not to silo climate-related financial risks, but to make them a part of broader internal controls, including the financial institution's credit risk appetite and lending limits. This approach helps make sure that the breadth of potential climate-related financial risks impacts is incorporated into a financial institution's operations, instead of being siloed in a separate climate-related financial risk function with limited influence on risk taking.

The Statement also starts to recognize the ways that climate-related financial risk differs from other forms of risk that financial institutions ordinarily seek to manage. As other regulators have discussed, the effects of climate-related financial risk will manifest in uncertain ways over a long time horizon.[6] The Statement reflects this by encouraging financial institutions to assess climate-related financial risks over a time horizon that may extend beyond a financial institution's typical strategic planning horizon, and by recommending scenario analysis and other tools for measuring such uncertain exposures.[7] Climate-related financial risks are also highly correlated in ways that may make traditional hedging and insurance approaches to risk management ineffective.[8] The Statement recognizes this by recommending that management assess potential changes in correlations across exposures or asset classes, and set credit risk appetite and lending limits in ways that reflect those potential correlations.[9]

The Statement also offers attention to measures not addressed by the OCC and FDIC, including alignment of compensation policies to climate-related financial risks[10], and efforts by financial institutions to take a risk-based approach to the climate-related financial risks associated with individual customer relationships.[11] Compensation policies to date largely incentivize behaviors that promote fossil fuel-related activities, increasing risks for individual banks and the financial system. New compensation policies with incentives aligned to the need to reduce climate-related financial risks are urgently needed. A risk-based approach to the climate-related financial risks of individual customers should prompt banks to engage more robustly with customers to identify, measure, evaluate, and address these risks, and to modify customer relationships when bank capacity to deal with these risks is challenged.

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[6] Bank of England, Prudential Regulation Authority, Supervisory Statement SS3/19, Enhancing banks' and insurers' approaches to managing the financial risks from climate change, (April 2019).
[7] Principles at 75269.
[8] New York Department of Financial Services, Guidance for New York Domestic Insurers on Managing the Financial Risks from Climate Change at 15.
[9] Principles at 75270.
[10] Principles at 75269.
[11] Principles at 75269.

From this foundation, the Principles can be strengthened or followed up on by providing more detailed expectations for how financial institutions address the risks of climate change. These additional expectations fall into two categories: additional guidance for how financial institutions should account for the unique aspects of climate-related financial risks, and additional detail on how to integrate those risks into broader risk management structures.

The paper *Looking Over the Horizon: The Case for Prioritizing Climate-related Risk Supervision of Banks*[12], provides detailed recommendations on how to incorporate climate-related financial risks into the FRB's existing risk management frameworks (*Looking Over the Horizon: The Case for Prioritizing Climate-related Risk Supervision of Banks* is included in Appendix II to these comments). Specifically, additional guidance should encourage banks to adopt a precautionary approach to managing the uncertainty and complexity of climate-related financial risks and further explain the importance of mitigating risks that will manifest over a long time horizon. It should also provide specifics on how the bank should incorporate climate-related financial risks into its governance, strategic planning, and risk management framework, including specific risk stripes, such as credit risk, liquidity risk, and operational risk.

II. Financial institutions should recognize the significant limitations of existing approaches to scenario analysis, and they should consider alternatives that help align them to their net-zero commitments.

The Statement rightly calls on financial institutions to use scenario analysis to better understand ways climate change could impact them; these institutions must attempt to orient to and address these risks as quickly as possible. Nevertheless, the Statement does not recognize the significant limitations associated with scenario analysis as conducted to date or what these limitations imply for banks using it to understand and manage climate-related financial risk. The Financial Stability Board (FSB) and Network for Greening of the Financial System (NGFS) recently determined that scenario analysis exercises conducted to date likely significantly understate risks.[13] Many of the limitations they identified—as well as others identified by Reclaim Finance[14] and leading economists[15]—are not referenced in the Statement but are present in the FRB's current pilot scenario exercise.

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[12] Yevgeny Shrago and David Arkush, Looking Over the Horizon: The Case for Prioritizing Climate-related Risk Supervision of Banks, (April 2022).
[13] Financial Stability Board and Network for Greening of the Financial System, Climate Scenario Analysis by Jurisdictions: Initial findings and lessons, (November 2022).
[14] Reclaim Finance, NGFS Climate Scenarios: pushing financial players into taking a risky gamble, (July 2021).
[15] Nicholas Stern, Charlotte Taylor, and Joseph Stiglitz, The economics of immense risk, urgent action and radical change: towards new approaches to the economics of climate change, (February 2022).

Among the many limitations include the failure of scenario analyses to reflect that financial institutions likely face much greater difficulties managing climate-related tail risks as compared to more traditional financial tail risks. Scenario analyses that assume comparable difficulties managing risks will underestimate climate risks. Another is the assumption that carbon dioxide removal technologies will effectively mitigate transition risks within needed timeframes—an assertion that flatly contradicts technological realities. A recent study by the Institute for Energy Economics and Financial Analysis (IEEFA),[16] for example, reviewed the capacity and performance of 13 flagship carbon capture projects and found that ten of the 13 failed or underperformed against their designed capacities, and most by large margins. European science academies have warned that expectations for these technologies are 'seriously over-optimistic.'[17]

Finally, economists, including Nicholas Stern, Charlotte Taylor and Joseph Stiglitz, have described the integrated assessment models (IAMs) underpinning the NGFS scenarios as "fundamentally flawed" because they both assume away catastrophic risks and focus on trade-offs between environmental benefits at some time in the future versus sacrifices we make today.[18]

The Statement should acknowledge the limitations of scenario analysis as currently conducted and, as an initial remedy, require that banks incorporate a precautionary approach into their analyses. Doing so would be consistent with the Basel Committee on Banking Supervision's recent suggestion that banks "add a margin of conservatism" when estimating possible exposures, given poor data quality, scarce climate-related data, and other sources of additional uncertainties.[19] The Statement could also encourage financial institutions to consider how their risks would change under various pathways to net-zero emissions, supporting financial institutions' efforts to develop credible net-zero plans.

III. Smaller financial institutions need US regulator attention to their safety and soundness.

The FRB is mandated to ensure the safety and soundness of not only large financial institutions, but also numerous regional and community banking organizations that are critically important

[16] Institute for Energy Economics and Financial Analysis The Carbon Capture Crux, (September 2022).
[17] European Academies Science Advisory Council, Negative emission technologies: What role in meeting Paris Agreement targets? (February 2018).
[18] Stern et al, *supra* at 15.
[19] Basel Committee on Banking Supervision, Frequently Asked Questions on Climate-related Financial Risks, (December 2022).

for LMI communities in the US, as well as the stability of the entire financial system. Indeed, these banks constitute the largest number of banking organizations supervised by the FRB.[20]

The Principles' focus on climate-related financial risk exposures of large financial institutions—those with over $100 billion in total consolidated assets—only tangentially addresses threats to the safety and soundness of smaller financial institutions, and, in turn, to fair access by marginalized communities to financial services these smaller institutions provide.

Climate change is increasingly and often permanently impacting homeowners, businesses, and infrastructure within certain geographies, causing escalating economic and financial losses. As borrowers and taxpayers struggle or fail to pay their bills, community banks and savings associations tied to those geographies face heightened safety and soundness concerns not faced by larger, geographically diversified financial institutions.

As explained in a recent Ceres report:

> Based on their local expertise, community banks tend to focus on a few key sectors, such as residential mortgages, commercial real estate (CRE), small business financing, and agricultural sector loans. Given this focus, community bank loan portfolios are more exposed to the physical risks of climate change considering the vulnerability of these sectors to acute weather events in the near term and transition risks in the medium to long term.[21]

The report observes there "are already examples of climate-related disasters that have fundamentally impacted the safety and soundness of community banks and credit unions."[22] Hibernia Bank in Louisiana, for example, experienced $175 million in losses from Hurricane Katrina. A more recent analysis targeting credit unions reflects the same concerns.[23]

These concerns have only been heightened by the departure of insurers and reinsurers from climate-vulnerable areas. Nearly two dozen insurers have left Louisiana, and an even larger remaining number are no longer insuring in Louisiana's hotspot areas.[24] Insurers are similarly fleeing from Florida and other coastal states.[25] The implications likely are profound for smaller

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[20] Federal Reserve Board, Supervisory Guidance and Policy Topics (December 2022).
[21] Ceres, Financing a Net Zero Economy: The Consequences of Physical Climate Risk for Banks, (Sept. 8, 2021).
[22] *Id.*
[23] Ceres, The Changing Climate for Credit Unions, (May 10, 2022).
[24] Rebekah Castor, More insurance companies pull out of Louisiana: 'We are in a crisis.' (January 2023).
[25] Mel Duval, Home insurers are leaving Florida: Here's what you need to know, (December 2022).

financial institutions supervised by the FRB that lend for home mortgages and commercial real estate in coastal states, including, for example, Alabama-based Regions Bank.

A 2020 report by the Climate-Related Market Risk Subcommittee of the U.S. Commodity Futures Trading Commission (CFTC report) describes such repeated "sub-systemic" shocks as initiating "*a systemic crisis in slow motion* (emphasis added)."[26]

Threats to the safety and soundness of regional and community banks raise novel challenges for developing effective risk management measures. Unlike large financial institutions, these banks cannot easily move or significantly shift portfolios; they exist primarily to serve local community needs. And even where they can, taking such measures would only further disadvantage the local communities that rely on them. The FRB cannot simply ignore these risks.

Nor does it have to. The FRB should consider how individual institutions are facilitating risks to the broader economy through their support for greenhouse gas (GHG) emitting activities. When individual institutions finance GHG emissions, they contribute to the increasing severity of global warming, fueling the economic damage described above. As small banks cannot always manage climate-related risks without risking severe damage to their communities, the FRB should assess how working with all financial institutions to manage their contribution to climate change can better mitigate those same risks (these points are outlined in the *Trickle-down Climate Risk Regulation* editorial included in Appendix III to these comments).[27]

Such an approach is in line with the broader mandate the FRB has to protect the stability of the financial system. The Principles acknowledge a relationship between climate change and financial stability concerns, noting that climate risks may be propagated throughout the economy and financial system. Indeed, the Principles rightly define climate-related financial risks as a risk to the U.S. financial system and a threat to safe and sound banking and financial stability. As discussed above, in the context of climate-related financial risks, contagion can occur not only through a failure of large financial institutions and their links to other financial entities, but also through the interconnectedness of the environmental and financial systems and sub-systemic shocks related to this interconnectedness.

When financial institutions finance and facilitate fossil fuel-related activities and high-emitting projects, they heighten the creation of financial risks and resulting economic harms caused

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[26] Commodity Futures Trading Commission, Climate-Related Market Risk Advisory Subcommittee, Managing Risk in the U.S. Financial System, (Sept. 2020).
[27] Anne Perrault and Gael Giraud, Trickle-down Climate Risk Regulation. (September 2022).

through connections between the environmental and financial systems. This is exactly what many large US financial institutions are doing. The Banking on Climate Chaos report and other studies have demonstrated that large US financial institutions, through their financing and facilitating of fossil fuel-related activities and other high-emitting projects, contribute significantly to GHG emissions and, in turn, exacerbate climate-related risks.[28] Similar to financial institutions' actions during the subprime mortgage crisis, those supporting fossil fuel-related activities are creating risks that other entities are left to deal with. The Principles should recognize that orderly reductions in such financing and support would meaningfully reduce threats to safety and soundness for all financial institutions — large and small — as well as the risks of impaired access to financial services for all communities and risks to the financial system.[29] The FRB should promote interagency action on these concerns.

IV. To be aligned with their public climate commitments, financial institutions' internal management strategies must follow climate science.

The Statement appropriately aligns the FRB with the OCC and the FDIC in recognizing the importance of financial institutions aligning their public climate commitments with their internal strategies. As detailed in a recent paper, *Supervising the Transition: How Banking Regulators Can Address the Coming Shift to Net-Zero Emissions,* transition plans and climate commitments are within the purview of bank regulation, and scrutiny of voluntary climate commitments detailed in the Statement is an important first step (*Supervising the Transition: How Banking Regulators Can Address the Coming Shift to Net-Zero Emissions* is included in Appendix IV to these comments).[30] Climate commitments and transition plans can illuminate how well bank management understands climate-related financial risks and how effectively this group can implement a plan for handling such risk. To that end, the Statement is a welcome and needed start. But the FRB must complement this short pronouncement with more detailed guidance, as it falls far short of providing sufficient guidance for banks or examiners to assess whether a bank's commitments and internal strategies are aligned, or what risks are revealed by any misalignment. Given the wide adoption of net-zero commitments and the lagging development of transition plans, the FRB should provide detailed guidance on how it will assess alignment and how failure to achieve alignment raises concerns about a bank's management and asset quality.

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[28] Rainforest Action Network, et al., Banking on Climate Chaos, (2022).
[29] David Arkush, Unsafe At Any Charge: Why Financial Regulators Should Actively Mitigate Climate-Related Risk, (May 26 2021).
[30] Yevgeny Shrago and David Arkush, Supervising the Transition: How Banking Regulators Can Address the Coming Shift to Net-Zero Emissions, (February 2023).

The FRB should also not rely on banks meeting their voluntary commitments to manage transition risk. The passage of the Inflation Reduction Act (IRA), along with a package of California legislative and regulatory enactments in August 2022, constitutes a major government effort to reshape the economy, and will hasten the clean energy transition. Modeling from the Princeton Net Zero Lab's REPEAT Project predicts that the IRA will significantly reduce emissions by 2030.[31] Coupled with state level policies, the IRA is likely to reshape the economic landscape for energy producers and consumers in the US, which is the type of transition risk that both banks' net-zero commitments and regulatory climate-related risk guidance are meant to address. The FRB should make sure banks are preparing for future disruptions instead of taking unnecessary risks for short-term gains.

Given the unpredictability and complexity of climate-related risk, the FRB can use well-settled authorities to encourage or require transition plans as a tool for minimizing the risks banks can control, and to create resilience for the risks they cannot anticipate. At the same time, the FRB and the FSOC have a financial stability mandate under the Dodd-Frank Act, and they have already recognized that climate change poses an emerging threat to financial stability. Transition plans can help address that mandate.

Further detail on how the FRB should implement its principle relating to the alignment of climate commitments and internal strategies is contained in the *Supervising the Transition: How Banking Regulators Can Address the Coming Shift to Net-Zero Emissions* paper, included in Appendix IV.

V. The FRB should continue seeking alignment with global standards and best practices.

We encourage the FRB to use efforts by other central banks and by international standard setting entities as a guidepost for near-future action. Of particular importance are guidance and recommendations issued recently by the Basel Committee on Banking Supervision and the European Central Bank (ECB).

In December, the Basel Committee issued guidance clarifying how to incorporate climate-related financial risks into the existing Basel Framework on capital.[32] The guidance sets out

[31] Jenkins et. al, Preliminary Report: The Climate and Energy Impacts of the Inflation Reduction Act of 2022. (August 2022).
[32] Basel Committee on Banking Supervision *supra* at 19.

standards for how regulators should incorporate climate-related financial risks into the existing Basel standards on prudential regulation. There are two key takeaways for the FRB.[33]

1. Large banks should incorporate climate-related risk into their capital adequacy assessments and stress testing.
2. Banks should incorporate a margin of conservatism when assessing their exposure to climate-related risks, consistent with a precautionary approach.

The Basel Committee's role is to identify and recommend ways to address threats to bank safety and soundness and financial stability, mandates shared by the FRB. The committee has concluded that this should require banks to incorporate climate-related risk into their capital adequacy assessments and use a precautionary approach in assessing those risks. The FRB should follow suit.

The importance of these recommendations is further highlighted by the ECB's November 2022 conclusion that most banks are still far from meeting its climate-related risk management expectations.[34] In particular, the ECB found that most banks continue to underestimate the breadth and magnitude of the climate-related financial risks they face, and most have blind spots in identifying them. To address the lag by European banks, the ECB announced a set of staggered deadlines, culminating in an expectation of full compliance with its expectations by the end of 2024, four years after the ECB initially issued them. These expectations include full integration by banks of climate-related financial risks into their internal capital adequacy assessment process and stress testing, in line with the Basel Committee recommendations.

Unless the FRB has strong reason to believe otherwise, these findings from Europe should raise alarm bells about the risks faced by U.S. financial institutions, and the speed at which the FRB and other U.S. banking regulators are moving to address them. Despite almost two years of detailed supervisory expectations, European banks are still not adequately managing climate-related financial risks. U.S. banks have not even received this level of supervisory guidance, and there is no reason to assume their starting position is better than that of European banks. To defuse this ongoing threat to bank safety and soundness, it is imperative for the FRB to finalize the Statement and then quickly move to the more comprehensive plan for climate-related financial risk management described above.

These draft principles are much delayed compared to the efforts by the OCC and the FDIC, and they are much vaguer than the detailed expectations laid out by global peers and the Basel

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[33] Yevgeny Shrago, Climate, Capital and Caution, (February 2023).
[34] European Central Bank Press Release, ECB Sets Deadlines for Banks to Deal with Climate Risks. (November 2022).

Committee on Banking Supervision.[35] Keeping in step with these domestic and international developments will promote financial stability by preventing regulatory arbitrage. The FRB should finalize these principles quickly and follow them with additional guidance and regulatory measures that detail a full set of expectations and rules for all banks on identifying and mitigating climate-related financial risk.

We look forward to continuing to engage with you on these issues.

For questions, please contact Anne Perrault, at aperrault@citizen.org and Yevgeny Shrago, at yshrago@citizen.org.

Attachments:
Appendix I— *Public Citizen Comment on FDIC Principles for Climate Related Financial Risk Management*
Appendix II—*Looking Over the Horizon: The Case for Prioritizing Climate-related Risk Supervision of Banks*
Appendix III—*Trickle-down Financial Regulation, Science Editorial*
Appendix IV—*Supervising the Transition: How Banking Regulators Can Address the Coming Shift to Net-Zero Emissions*

[35] Bank of England Prudential, Regulation Authority, Climate-related financial risk management and the role of capital requirements, Climate Change Adaptation Report, (October 2021).

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June 3, 2022

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Principles for Climate-Related Financial Risk Management for Large Financial Institutions / RIN 3064– ZA32

Dear Acting Chair Gruenberg,

On behalf of Public Citizen, a national public interest advocacy group, and more than 500,000 members and supporters, we welcome the opportunity to comment on the Federal Deposit Insurance Corporation's (FDIC's) Statement of Principles for Climate-Related Financial Risk Management for Large Financial Institutions (the Principles). Providing supervisory expectations for financial institutions is a critical first step to advancing financial institution efforts to assess and address these risks, and we appreciate the similar OCC and FDIC efforts to date to define these expectations.

These Principles, similar to the earlier OCC Principles, provide a strong foundation for protecting large financial institution safety and soundness. They identify unique characteristics of climate-related risks while also insisting that financial institutions incorporate climate risk into their existing risk management plans. Building on the OCC Principles, the FDIC Principles more clearly acknowledge that climate-related financial risks pose clear and significant risks to the U.S. financial system and a near-term threat to safe and sound banking and financial stability.

We appreciate that the Principles recognize how climate risk management decisions have implications for a financial institution's broader community impacts. First, the Principles highlight how a financial institution's decisions to manage climate risk by increasing credit costs or decreasing credit availability have the potential to disparately harm communities of color and low-income communities. Second, they draw connections between a financial institution's publicly stated climate commitments, its internal management strategies, and its safety and soundness. In both of these areas, financial institutions are already acting in ways that raise concerns.

The Principles could be strengthened, however, by (1) acknowledging and addressing risks to community banks and savings associations; (2) providing additional guidance on how financial institutions should account for the unique aspects of climate-related financial risks, and additional detail on how to integrate those risks into broader risk management structures; (3) indicating ways to ensure that financial institutions' internal strategies align with their public commitments; and (4) ensuring fair access to financial services.

The Principles should be a first step in a broader regulatory program of protecting financial institutions and the financial system from climate-related risks. The Principles should be followed by interagency guidance from all federal banking regulators detailing and addressing risks posed to community banks, savings associations, and credit unions. This guidance should also explore additional ways to make the banking system more resilient to the risks of climate change, including through developing robust scenarios for scenario analysis at the insured depository level, and incorporating climate-related risks into risk-weighted capital requirements for large financial institutions. Interagency guidance should also consider measures to address the financial stability implications highlighted in the Principles, such as a climate risk capital surcharge for the largest financial institutions, concentration and portfolio limits for the riskiest assets, and transition plans to reduce contribution to climate risk via emissions financing.

To protect both financial institution safety and soundness and the communities those financial institutions are supposed to serve, we encourage you to quickly finalize these Principles as guidelines for safety and soundness under 12 U.S.C. § 1831p-1. Once finalized, these guidelines should serve as a basis for the additional, detailed guidance.

I. Smaller financial institutions need US regulator attention to their safety and soundness.

The FDIC is the primary regulator for only a handful of large financial institutions targeted by these Principles. The FDIC must also ensure the safety and soundness of approximately 4000 community banks and savings associations in the US, many of which are critically important for low and moderate income communities.[1] One in five counties exclusively depends on local financial institutions like these for access to a physical bank branch.

The Principles' focus on climate risk-related exposures of large financial institutions—financial institution entities with over $100 billion in total consolidated assets—only tangentially addresses the immediate and longer-term threats to the safety and soundness of these smaller financial institutions, and, in turn, to fair access by marginalized communities to financial services these smaller institutions provide.

[1] FDIC, FDIC Community Banking Study, (December 2020).

Climate change is directly, increasingly, repeatedly, simultaneously, and often permanently impacting homeowners, businesses, and infrastructure within certain geographies, causing escalating economic and financial losses. As borrowers and taxpayers struggle or fail to pay their bills, community banks and savings associations tied to those geographies face heightened safety and soundness concerns not faced by larger, geographically diversified financial institutions.

As explained in a report by nonprofit Ceres:

> Based on their local expertise, community banks tend to focus on a few key sectors, such as residential mortgages, commercial real estate (CRE), small business financing, and agricultural sector loans. Given this focus, community bank loan portfolios are more exposed to the physical risks of climate change considering the vulnerability of these sectors to acute weather events in the near term and transition risks in the medium to long term.[2]

The report observes there "are already examples of climate-related disasters that have fundamentally impacted the safety and soundness of community banks and credit unions."[3] Hibernia Bank in Louisiana, for example, experienced $175 million in losses from Hurricane Katrina. A more recent analysis targeting credit unions reflects the same concerns.[4]

A 2020 report by the Climate-Related Market Risk Subcommittee of the U.S. Commodity Futures Trading Commission (CFTC report), describes such repeated 'sub-systemic' shocks as initiating "*a systemic crisis in slow motion* (emphasis)."[5]

Threats to the safety and soundness of community banks and savings associations raise novel challenges for developing effective risk management measures. Unlike large financial institutions, community banks and savings associations cannot easily move or significantly shift portfolios; they exist primarily to serve local community needs. And even where they can, taking such measures would only further disadvantage the local communities that rely on them. The FDIC cannot simply ignore these risks.

Nor does it have to. The Principles recognize that part of the FDIC's mandate is to consider and address the impact of financial institution activities on the economy. The FDIC states, "the manner in which financial institutions manage climate-related financial risks to address safety and soundness concerns should also seek to reduce or mitigate the impact that *management of these risks*

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[2] *Id.*
[3] Ceres, Financing a Net Zero Economy: The Consequences of Physical Climate Risk for Banks, (Sept. 8, 2021).
[4] Ceres, The Changing Climate for Credit Unions, (May 10, 2022).
[5] Climate-Related Market Risk Advisory Subcommittee, Managing Risk in the U.S. Financial System, Commodity Futures Trading Commission (Sept. 2020).

(emphasis added) may have on broader aspects of the economy." The FDIC should consider not only the implications of risk management, but also how individual institutions are facilitating risks to the broader economy through their support for greenhouse gas (GHG) emitting activities. When individual institutions finance GHG emissions, they contribute to the increasing severity of global warming, fueling the economic damage described above. As small banks cannot manage climate-related risks without risking severe damage to their communities, the FDIC should assess how working with all financial institutions to manage their contribution to climate change can better mitigate those same risks.

Such an approach is in line with the broader mandate the FDIC has to protect the stability of the financial system. The Principles acknowledge a relationship between climate change and financial stability concerns, including the possibility of contagion from climate-related risks. Indeed, the Principles rightly define climate-related financial risks as a clear and significant risk to the U.S. financial system and a near-term threat to safe and sound banking and financial stability. As discussed above, in the context of climate risk, contagion can occur not only through a failure of large financial institutions and their links to other financial entities, but also through the interconnectedness of the environmental and financial systems and sub-systemic shocks related to this interconnectedness.

When financial institutions finance and facilitate fossil fuel-related activities and high-emitting projects, they heighten the creation of financial risks and resulting economic harms caused through connections between the environmental and financial systems. This is exactly what many large US financial institutions are doing. The Banking on Climate Chaos report and other studies have demonstrated that large US financial institutions, through their financing and facilitating of fossil fuel-related activities and other high-emitting projects, contribute significantly to GHG emissions and, in turn, exacerbate climate-related risks.[6] Similar to financial institution action during the subprime mortgage crisis, financial institutions supporting fossil fuel-related activities are creating risks that other entities are left to deal with. The Principles should recognize that orderly reductions in such financing and support would meaningfully reduce threats to safety and soundness for all financial institutions — large and small — as well as the risks of impaired access to financial services for all communities and risks to the financial system.[7] Because few of the financial institutions that must make these reductions are under the FDIC's primary jurisdiction, the FDIC should promote interagency action on these concerns.

II. Large financial institutions need more detailed direction on how to address the unique characteristics of climate-related

[6] Rainforest Action Network, et al., Banking on Climate Chaos (2022).
[7] D. Arkush, Unsafe At Any Charge: Why Financial Regulators Should Actively Mitigate Climate-Related Risk (May 26 2021).

risks and integrate them into existing risk management processes.

The Principles reinforce that weaknesses in how financial institutions identify, measure, monitor and control potential climate-related financial risk can threaten financial institution safety and soundness.[8] To assure the safety and soundness of financial institutions under its jurisdiction,[9] the FDIC can prescribe standards relating to internal controls, loan documentation, credit underwriting, and other operational and managerial standards, as well as for asset quality.[10] Such standards may be prescribed by either regulation or guideline.[11] To appropriately set financial institution expectations and act in accordance with its mandate, we encourage the FDIC to clarify that it is issuing these principles as a guideline under 12 U.S.C. § 1831p-1.

Overall, the Principles provide an important foundation for appropriately integrating climate-related financial risk into a large financial institution's broader risk management structures. The Principles make clear that financial institutions must address climate risk management at every level of their business, from the board level on down. This approach reflects international best practices, as well as the magnitude of the threat that climate risk poses. The Principles also appropriately direct financial institutions not to silo climate-related financial risks, but to make them a part of broader internal controls, including the financial institution's credit risk appetite and lending limits. This approach helps make sure that the breadth of potential climate risk impacts is incorporated into a financial institution's operations, instead of being siloed in a separate climate risk function with limited influence on risk taking.

The Principles also start to recognize the ways that climate-related financial risk differs from the other forms of risk that financial institutions ordinarily seek to manage. As other regulators have discussed, the effects of climate-related financial risk will manifest in uncertain ways over a long time horizon.[12] The Principles reflect this by encouraging financial institutions to assess climate risk over a time horizon that may extend beyond a financial institution's typical strategic planning horizon, and by recommending scenario analysis and other tools for measuring such uncertain exposures.[13] Climate-related financial risks are also highly correlated, in ways that may make traditional hedging and insurance approaches to risk management ineffective.[14] The Principles recognize

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[8] FDIC, Principles for Climate Related Financial Risk Management for Financial Institutions (Principles), 1 (April 2022).
[9] 12 U.S.C. §1.
[10] 12 U.S.C. §1831p-1.
[11] Id.
[12] *See, e.g.*, Bank of England Prudential Regulation Authority, "Enhancing banks' and insurers' approaches to managing the financial risks from climate change," Supervisory Statement, (April 2019).
[13] Principles at 2
[14] New York Department of Financial Services, Guidance for New York Domestic Insurers on Managing the Financial Risks from Climate Change at 15.

this by recommending that management assess potential changes in correlations across exposures or asset classes, and set credit risk appetite and lending limits in ways that reflect those potential correlations.[15]

From this foundation, the Principles can be strengthened by providing more detailed expectations for how financial institutions address climate change. These additional expectations fall into two categories: additional guidance for how financial institutions should account for the unique aspects of climate-related financial risks, and additional detail on how to integrate those risks into broader risk management structures.

A. *Financial institutions need more guidance on managing the unique characteristics of climate-related risks.*

1. Financial institutions must follow a precautionary approach rather than relying solely on hedging, insurance, and diversification.

A lesson of the 2008 financial crisis is that even large and sophisticated financial institutions like Lehman Brothers or Wachovia could not engineer away threats that were too uncertain, too correlated, or too profitable. Hedging and insurance are always susceptible to tail risks and unexpected developments. Particularly for longer-term scenarios where global temperatures exceed 1.5°C, relying on these solutions may introduce new risks instead of mitigating first-order ones. Climate change will continue generating new and unpredictable risks that may turn diversification into correlation. Similar to risks that were originated and distributed through mortgages and mortgage-backed securities during the 2008 crisis, climate risks originated through financing of fossil assets and distributed but unaccounted for now could lead to the kind of contagion and financial instability that the Principles discuss.

A financial institution's response cannot be to ignore uncertain or unpredictable risks until they can be appropriately modeled. Rather, the FDIC should encourage financial institutions to adopt a precautionary approach to climate-related financial risk. This is the approach to general climate risk favored by experts like the United Nations Framework Convention on Climate Change and the Intergovernmental Panel on Climate Change. It has also been endorsed as part of the White House's climate financial risk roadmap.[16] It would be reasonable for the FDIC to follow the lead of climate scientists and experts who have concluded that action cannot rely on precise quantification and assessment of the risks posed by climate change.

A precautionary approach means prioritizing reducing risk even where there is not full certainty about its magnitude or probability and in the absence of perfect scientific or economic data. Implementing this approach could mean taking on

[15] Principles at 4
[16] "A Roadmap to Build a Climate Resilient Economy", The White House, October 14, 2021 at 17.

less risk than what models suggest is acceptable, on the assumption that those models do not accurately quantify the likelihood or magnitude of all relevant risk factors, and showing greater sensitivity to high-magnitude risks even when models suggest they are remote. This latter strategy is particularly apt in the climate context. Climate models themselves under-forecast harms, largely because significant aspects of climate change cannot be modeled yet. The science is being updated constantly, and most updates darken the outlook. One way to address this challenge is to 'backtest' scenario analysis models, similar to use of backtesting in other contexts.[17] Backtesting involves determining the extent to which a model accurately predicts events that have already occurred, to understand the extent to which model assumptions are robust. If backtesting a model reflects a wide gap between expectations and reality, the model is less likely to predict future scenarios accurately. If scenario analysis models cannot accurately predict the last few years of climate impacts based on historical data, then banks cannot use them to conclude that they are adequately accounting for future climate risks.

When developing risk management procedures, precautionary approaches also entail not just avoiding unacceptable harms, but also planning for resilience to inevitable failures. And they counsel financial institutions to assume every part of the business is subject to climate risk, even in seemingly implausible lines of business. Global warming is still increasing and, even if it weren't, scientific knowledge is still developing.

2. Financial institutions should reduce risks now, even if they are unlikely to manifest for many years.

A related challenge is the long time horizon under which many climate-related risks may manifest. As the FDIC recognizes in the Principles, typical financial institution strategic plans consider the risks and opportunities of the next three to five years and may not be well suited for identifying or avoiding risks that may take 30 or 40 years to fully manifest. As the time horizon lengthens, it becomes more difficult to project how a financial institution's operations and the broader economic context will develop.

The FDIC recommends that financial institutions use scenario analysis to better assess risks outside of the standard time horizons. But improved assessment will help mitigate risk only if financial institutions embed the findings into their risk models and management tools today. The uncertain and non-linear nature of climate harms means that adverse outcomes projected to occur in 20 or 30 years based on the best current climate science could manifest much sooner, or with much greater severity. In addition, long duration assets that appear entirely safe in a three to five year horizon may become extremely risky over two or three

[17] Marie-Noëlle Woillez, Economic impacts of a glacial period: a thought experiment to assess the disconnect between econometrics and climate sciences, (2020).

decades. Finally, financial institution assets can become path dependent, as even short-duration assets are typically refreshed with substantially similar ones. A failure to start reducing foreseeable risks now means that necessary future readjustments may be far sharper and more disruptive to a financial institution's business and to its customers. To better manage these risks, financial institutions should be taking steps now to mitigate risks that they believe will not manifest for years instead of assuming that they can mitigate those risks in the future.

B. Financial institutions should better integrate climate-related financial risk into existing structures

1. The FDIC should add standards for assessing asset quality to its guidance.

The FDIC's mandate to prescribe standards for safety and soundness includes standards relating to asset quality.[18] The FSOC's Report on Climate-Related Financial Risk repeatedly highlights the way that both the physical harms of climate change and the ongoing transition toward clean energy and away from greenhouse gas emissions may lead to sharp changes in the values of certain assets.[19] Because of this risk, financial institutions will need to incorporate climate-related risks into their assessment of numerous affected asset classes.

The Principles should provide some initial expectations for how financial institutions will undertake such assessments. This would be in keeping with standard practice, as the FDIC provides guidance on assessing asset quality as part of a safety and soundness exam. Along with the overall guidance in its Risk Management Manual, the FDIC has issued Financial Institution Letters (FILs), on asset classes that are subject to both physical and transition risks, including for example an FIL on Prudent Risk Management of Oil and Gas Exposures and an FIL on Prudent Management of Agricultural Lending During Economic Cycles.

The FDIC should immediately highlight that these and other asset classes are susceptible to climate-related risk and that climate risk is another vector for cross-asset class risks. As an example, reserve-based lending to oil and gas exploration companies is based on assumptions about the value of proven producing reserves, subject to semi-annual borrowing base redeterminations. The FDIC should explicitly state that financial institutions need to take transition risk into account in valuing those reserves and in making assumptions about how quickly the value of a producer's borrowing base may decline. It should recommend that financial institutions incorporate similar climate considerations into their asset quality assessments across the board. The FDIC should also announce its intention to revise FILs to reflect the specific approaches needed to manage climate-related risk.

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[18] 12 USC §1831p-1.
[19] Financial Stability Oversight Council, Report on Climate-Related Financial Risk, 2021.

2. The FDIC should monitor climate-related risk data used for decisionmaking.

The Principles direct financial institutions to consider climate-related financial risks as part of their underwriting and monitoring of portfolios.[20] For financial institutions to do this effectively, they must require useful climate-related risk information from potential clients and have the capacity to assess that information's veracity and completeness. At a minimum, the information financial institutions need should include information compliant with the Task Force on Climate-Related Financial Disclosures recommendations, including a company's metrics, targets, and transition plans.[21] For instance, for underwriting credit, financial institutions should review the direct and indirect emissions attributable to a company at present, as well as projections of how an extension of credit would affect those emissions. This will help a financial institution assess the transition risk it assumes from extending credit. Financial institutions should also ask for a company's own transition plans and understand how it is preparing for a coming net zero transition. That will help the financial institution better understand a potential client's vulnerability to transition risk.

Financial institutions may find it difficult to obtain such information from some clients and resist such a process. But a company's failure to generate this information is itself a red flag about its ability to effectively manage climate risk, and should raise concerns about the safety and soundness of a loan. If financial institutions feel that the current state of available information is insufficient to appropriately assess climate-related risk, then they should work with the Securities and Exchange Commission to develop and adopt disclosure and audit rules that standardize and improve the transparency of such information for reporting companies, as well as to broaden the scope of companies that must report such information.

To help it assess how effectively financial institutions are managing these risks, the FDIC should also work with the Federal Financial Institutions Examination Council (FFIEC) to require disclosure of relevant climate risk-related information in the Reports of Condition and Income, colloquially known as "call reports," that financial institutions periodically file. Call reports today capture certain climate-related risk data, such as agricultural, automobile, and real estate assets, but they do not provide details on the geographic distribution of loans or exposure to the fossil fuel industry. The report should add a series of line items to each applicable schedule about loans for fossil fuel exploration, production and fossil electricity generation, as well as securities backed by these assets and derivatives referencing them. As with real estate lending on the current call report, these loans should be broken out by duration, with detailed information about

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[20] Principles at 4.
[21] Task Force on Climate-Related Financial Disclosures, Guidance on Metrics, Targets, and Transition Plans, 2021.

allowances for losses on loans with terms of three or more years, which are particularly exposed to transition risk. The call reports should also add additional information about exposure of existing loan types to physical risks, such as separate line items for loans and asset-backed securities secured by real estate in flood zones or high wildfire risk areas.

It should not be any additional burden on financial institutions to disclose this information, even if it does not align precisely with other reporting frameworks, such as the one proposed by the Securities and Exchange Commission. Information about financial institution exposures to high-risk assets should already be part of management information systems and risk monitoring reports. If financial institutions struggle to gather this information, then the FDIC should be deeply concerned. It is likely that these financial institutions will also struggle to monitor and mitigate risks properly.

III. To be aligned with common types of public climate commitments, financial institutions' internal management strategies must follow climate science.

We applaud the Principles for addressing financial institutions' climate commitments. As we observe earlier, while the FDIC regulates only a small number of institutions that have made commitments to "net-zero" emissions, the FDIC has a strong interest in working with the OCC and the Fed to ensure that all banks making such commitments align their strategies to climate science.

A number of watchdog groups have raised questions about the sincerity of bank commitments to net zero, pointing out that financial institutions with insured depositories are large fossil fuel funders.[22] This disconnect should raise serious concerns for financial institution regulators. It suggests that public management statements about a financial institution's strategic direction are not reflected in its operational decision-making and internal controls. If the failure occurs in such a public, high stakes arena, it should create doubts about how effectively management can transmit other strategic direction and risk management initiatives throughout the business. Such doubts indicate serious risks to a financial institution's safety and soundness.

The Principles' direction that financial institutions must align their internal management strategies and public climate commitments demonstrates the FDIC's understanding of this connection. Along with positive reputational benefits, transitioning from financed emissions is a way to manage climate risk.[23] Where financial institutions cannot or do not bring their internal practices in line with their commitments, that failure should serve as an early warning sign that the financial institution may not be able to implement other climate risk management imperatives into its operations. Like climate risk management,

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[22] Rainforest Action Network et al., Banking on Climate Chaos: Fossil Fuel Finance Report 2021.
[23] NYDFS Guidance, *supra* note 10.

climate commitments are a developing field. Although a number of standard setters like the Net Zero Banking Alliance are working to align criteria across financial institutions, there is still no single definition or standard for what a commitment means. To help financial institutions understand how banking regulators will evaluate the alignment of their public commitments and internal management strategies, the FDIC should work with the OCC and the Federal Reserve to quickly follow these Principles with additional guidance on this topic. Among the most significant questions this guidance should address are (1) reliance on offsets; (2) limits on new fossil fuel development and phasing out of fossil fuels; and (3) measurable near-term targets.

1. *Financial institutions should not rely on offsets to achieve their net zero commitments.*

Some financial institution climate commitments rely, either implicitly or explicitly, on financing reductions of carbon in the atmosphere in addition to reducing the level of emissions financed by the financial institution.[24] As implemented, these reductions are intended to cancel out existing emissions instead of ending them. This is the "net" in net zero commitments. Such approaches are referred to as offsets.

Significant concerns exist about the efficacy of relying on nature-based offsets, such as forests and wetlands, as sinks of greenhouse gasses. These include the exaggeration of the level of additional carbon emissions actually avoided for preservation of existing forests, the limits on the level of emissions that can reasonably be sequestered via the creation of new natural carbon sinks, and the challenges of protecting natural sinks from human and natural impacts in ways that keep the emissions from being returned to the atmosphere at a later date.

- *Exaggeration of additional emissions reductions*: Many carbon offset deals pay for the manager of a forest to continue what they are already doing, creating a challenge for assessing the "additionality" of an offset. For instance, in 2019, the Albany Water Board sold carbon credits generated by "preserving" forestland in the city's watersheds.[25] It calculated the purported level of avoided emissions by using as a baseline the amount of carbon that would be emitted if the land were industrially managed. But the Albany Water Board does not harvest timber, and had not previously indicated any intention of selling the land. Any emissions avoided as a result of this deal were purely hypothetical. At best, the carbon credits had no impact on emissions; at worst, they were used to justify *increased* emissions. Such baseline accounting is typical of large

[24] Anne Finucane, "Carbon Offsets Can Help in the Transition to Net Zero," Bank of America Newsroom (Jun. 8, 2021).
[25] Dr. Charles D. Canham, "Rethinking forest carbon offsets," Cary Institute of Ecosystem Studies, (May 19, 2021).

dealers in carbon offsets and acceptable to many offset standard setters.[26] Financial institutions relying on this kind of offset are performing an accounting trick, not reducing carbon emissions. These offsets should not be permitted, and a financial institution's attempt to rely on them should raise questions regarding management's competence to meet any of its commitments or, alternatively, its willingness to use other accounting tricks to create the appearance of meeting them.

- *Limits on sequestration*: Another approach to carbon offsets is afforestation or, more plainly, planting trees. This superficially appealing idea rapidly runs into challenges of scale. As of 2021, global climate pledges already set a near term goal of using afforestation to sequester 2 gigatons of CO_2 emissions annually.[27] Meeting those commitments would require ecosystem restoration of 678 million hectares—twice the land area of the country of India.[28] That level of afforestation is not plausible for one year, much less annually, and attempts to pursue it on that scale would likely trigger negative consequences for Indigenous peoples and local communities residing on the land targeted for afforestation. Reliance on afforestation for offsets at any scale is simply implausible, and should raise questions about management's ability to assess the feasibility of a project.
- *Protecting carbon sinks*: Even assuming that some nature-based projects actually sequester carbon emissions relative to a reasonable baseline, there is still a challenge of maintaining them over time. Unfortunately, the increasing physical impacts of climate change create a new set of hazards. The increasing frequency of wildfires in 2020 and 2021 has burned a number of projects designed to sequester carbon in Oregon.[29] Some offset projects have "buffer pools" of unused emissions, but the growing frequency of wildfires will only increase the risk that those pools will be exceeded, rendering their contribution to a net zero pledge null.

In addition to these nature-based offsets, there are efforts to develop or deploy carbon removal technologies, such as carbon capture, utilization and storage (CCUS), and direct air capture (DAC). Both technologies are largely unproven with existing demonstration projects exhibiting challenges. For instance, a hydrogen plant that Shell touted as using a carbon capture system actually emitted 50% more greenhouse gasses than it sequestered during the period of its

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[26] Ben Elgin, "JPMorgan, Disney, Blackrock Buy Nature Conservancy's Useless Carbon Offsets," Bloomberg, (Dec 9, 2020).
[27] Doreen Stabinsky, Chasing Carbon Unicorns: The Deception of Carbon Markets and Net Zero, Friends of the Earth International (Feb. 2021).
[28] *Id.*
[29] Debra Kahn, Wildfires rage and a tool to combat climate change goes up in smoke, POLITICO (July 27, 2021).

operation.[30] Meanwhile, the cost to capture carbon dioxide at the world's largest direct air capture plant is four to eight times higher than what is needed to turn a profit.[31] The plant's operator does not expect direct air capture to be cost competitive until the late 2030s at the earliest. Assuming for the sake of argument that this projection is accurate, the technology will be far too late to play a significant role in meeting science-based emissions targets. Given these challenges, financial institutions relying on these technologies in their net zero plans should have to demonstrate specific, committed projects that are fully proven to reduce carbon safely and permanently at scale, and appropriately incorporate the cost of both funding and adequately monitoring those commitments into their profitability forecasts. No projects currently meet these criteria, and there may be none for decades, if ever. Given the current state of development, reliance on this technology to generate meaningful emissions reductions as part of a net-zero commitment should be viewed with extreme skepticism.

As a result of these concerns, and the current scarcity of offsets that meet quality standards, offsets are becoming increasingly disfavored among those seeking to reduce emissions in the financial sector and beyond. Global Financial Alliance for Net Zero (GFANZ) Chair Mark Carney has indicated that use of such "carbon offsets" should be a "last resort" to cover residual emissions that remain at the conclusion of an extensive process to reduce absolute emissions to zero. Similarly, the European Commission and Parliament provisionally agreed on the need to prioritize emissions reductions over emissions removals. The clear global standard is that claims of alignment with science-based targets should be based almost entirely on reducing financed emissions. The OCC, FDIC and the Fed should provide guidance on how it will assess the emissions removal component of climate commitments that reflects the challenges in employing them.

2. *Any science-based climate commitment must include a bar on financing new fossil fuel projects.*

The International Energy Agency's Net Zero Emissions Scenario and related Roadmap for the Global Energy Sector say that, to limit global temperature rise to 1.5°C and meet Paris Agreement goals, new fossil fuel development cannot be permitted. But, as discussed above, U.S. financial institutions are the most significant financiers of fossil fuels globally and have continued to fund both new and existing development despite voicing their support for the Paris Agreement. Financial institutions are not aligning their management plans with their climate commitments, and cannot do so as long as they do not exclude fossil fuel expansion from their business. The FDIC should work with the OCC and the Fed to explain how it will assess the alignment of continued support for fossil fuel expansion and other high emissions sectors, with net-zero climate commitments.

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[30] Global Witness, Hydrogen's Hidden Emissions (Jan 20, 2022).
[31] *Id.*

3. *Climate commitments must include short and medium-term targets.*

Most financial institutions' climate commitments promise net-zero financed emissions by 2050. Few, however, give any intermediate timelines or metrics for how they will achieve them. Given the transition risk faced by high-emissions assets, this is not a safe and sound practice. Financial institutions that expect to do the bulk of their emissions reductions in the late 2030s and 2040s may find a limited market for those assets, especially if other financial institutions have the same idea. Such a situation could require write downs of asset values that would threaten a financial institution's solvency. Measurable, near-term, sector-specific targets for absolute financed emissions are centrally important to monitoring whether a financial institution has a credible plan to meet its climate commitments and is executing the plan effectively. The FDIC should provide guidance on what a safe and sound emissions reduction pathway looks like, and the specific milestones that will help examiners assess whether a financial institution can credibly align its business with climate commitments in a safe and sound fashion.

IV. The FDIC should work with the OCC and the Fed to issue additional guidelines to protect vulnerable communities from the disparate impact of climate-related risk management.

The guidance also addresses two key ways climate risk threatens fair access to financial services. The first threat to fair access, as described above, is through impacts to the safety and soundness of local financial institutions. As indicated above, the vast majority of financial institutions in the US are local financial institutions. They are more vulnerable to climate risk than larger financial institutions due to the financial needs they meet, but are also critically important for rural communities and marginalized communities. Along with addressing the threats that the climate crisis poses to individual financial institution safety and soundness for all financial institutions, the FDIC, in collaboration with the OCC and the Fed, could also focus on limiting financial institution mergers and strengthening the Community Reinvestment Act (rules) as tools for extending credit in underserved areas. The recent proposal to revise CRA rules is a good vehicle to implement such changes.[32]

The second threat to access is through measures taken by financial institutions to reduce their own exposures to climate-related credit and other financial risks. As the impacts of climate change become more severe, they exacerbate long-standing issues of environmental racism. Environmental racism is when communities of color suffer disproportionate exposure to toxins and other environmental threats.[33] It is the product of choices over decades by governments

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[32] Department of the Treasury, Federal Reserve System, Federal Deposit Insurance Corporation, Community Reinvestment Act, Joint Notice of Proposed Rulemaking, Request for Comment (June 3 2022).
[33] Michela Zonta and Zoe Willingham, *A CRA To Meet the Challenge of Climate Change: Advancing the Fight Against Environmental Racism*, Center for American Progress, (December

and corporations across a range of decision-making areas, from land use permissions to lax law enforcement for polluters. For similar reasons, climate change will disproportionately hurt communities of color and low-income communities. For instance, communities of color comprise a majority of the two million Americans who reside within a mile of locations vulnerable to increasing flooding.[34] Due to decades of disinvestments and the resulting low tax base, these communities lack the drainage and sewer infrastructure necessary to withstand more frequent flooding—and also lack the resources to build it. Other effects of outdated housing and infrastructure will also expose already vulnerable communities disproportionately to increasing severity and frequency of extreme weather and heat.[35]

As financial institutions recognize the negative impacts of the climate crisis on their business, these structural disadvantages are increasingly reflected in the practice of "bluelining,"[36] or identifying areas as at higher environmental risk and raising costs or avoiding underwriting in those areas. A financial institution's seemingly risk-based analysis will follow the same or similar boundaries as those established by previous redlining decisions that have created and perpetuated racial and economic inequality in the United States. This bluelining itself will further entrench inequality and racial disparities. Areas free of the negative effects of bluelining can use their existing tax base to invest in climate adaptation, which will allow them to retain access to credit, while the loss of insurance in bluelined areas will lower property values, degrade the tax base, and make it harder for those communities to invest in necessary adaptation.

Potentially harmful financial institution measures are likely to include closing branches in 'hot-spot' areas, increasing costs related to financing in these areas or limiting the availability of credit, and pursuing other measures that could reduce access to services. Such concerns may be particularly exacerbated in certain lines of business, like mortgage lending, if insurer withdrawals occur at the same time.[37]

The proposed guidance recognizes this threat, indicating, as part of its "Management of Risk Areas" principle, that financial institution boards and management should consider how risk mitigation measures disproportionately impact communities on the basis of race, ethnicity, or another prohibited basis.

While the guidance's attention to disproportionate impacts is welcome, financial institutions may find that it pushes them in multiple directions. That is, while the

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2020,) https://www.americanprogress.org/issues/economy/reports/2020/12/17/493886/cra-meet-challenge-climate-change

[34] *Id.*

[35] Johanna Bozuwa and Thomas Hanna, "Building Community Wealth Through Community Resilience" 14 Comm. Dev. Innov. Rev. 1, 87 (Oct. 2019)

[36] Abraham Lustgarten, "How the Climate Crisis Will Shape Migration in America," The New York Times (Sept. 15, 2021).

[37] Brainard, *supra* note XX.

guidance directs financial institutions to do what they can to reduce their exposures, it also notes that some key measures are not acceptable due to disproportionate impacts to marginalized communities. The FDIC should move quickly to issue additional guidance on how financial institutions can continue to extend credit to vulnerable communities while acting in a safe and sound manner. For instance, the FDIC could encourage financial institutions to reduce risk elsewhere, such as lending that is particularly vulnerable to transition risk, while preserving access to credit for low- and middle-income communities. This approach will allow a financial institution to manage risk and bolster its resilience without unduly restricting credit for marginalized communities.

This guidance should be particularly attentive to the needs of smaller financial institutions, who may feel that climate risk management would render large swathes of their business unsafe. The FDIC's expanded guidance on fair access should reinforce the important role that these local and community financial institutions can serve in expanding access to credit. It should explicitly tell these financial institutions how they can incorporate climate risk data into their existing local knowledge without drawing concerns about unsafe and unsound practices. And it should make it clear that examiners will assess the risk associated with lending in support of climate resilience and adaptation for underserved communities with more leniency, as long as it follows well-designed policies and procedures.

To help small financial institutions further, the FDIC should look for ways to offer standardized climate data and modeling tools to these financial institutions. With a growing attention to climate risk, providers are raising prices or increasingly being absorbed by large financial institutions.[38] The FDIC, in conjunction with the Federal Reserve Board and the OCC, could help provide needed data and modeling to financial institutions that lack the resources to develop or purchase it, helping keep them safe.

V. The FDIC should continue seeking alignment with other jurisdictions.

The Principles state that the FDIC aims to consider best practices from other jurisdictions that are advancing efforts and measures that might have significance for the US. We encourage the FDIC to use these efforts as a guidepost on where to go from here. Such efforts include, for example, plans by the European Central Bank (ECB) and European Commission to require financial institutions to develop "Paris-compatible transition plans" that will "steer their business towards a smooth transition to carbon neutrality."[39] UN Secretary-General Antonio Guterres is establishing an expert panel "to propose clear standards to measure and analyze net-zero commitments from non-state actors,"

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[38] Andrew Freedman, Why big financial firms are scooping up climate modeling companies, Axios (Jan. 7, 2022).
[39] Frank Elderson, "Overcoming the Tragedy of the Horizon: requiring banks to translate 2050 targets into milestones," Financial Markets Authority's Supervisory Conference, (Oct. 20, 2021).

as the GFANZ begins to "start moving transition plans to a rules-based (regulatory) footing."[40] Moreover, the Bank of England, the ECB, China's central bank, and other central banks are actively exploring the need for other supervisory measures to respond to climate risk, including the need for increased attention to capital requirements.[41]

Conclusion

The Principles are an important step in protecting the safety and soundness of the American banking system from the threat of climate change. But they can have this effect only if they are quickly finalized as guidelines, and used as a departure point for issuing more detailed, tailored guidance applicable to all of the financial institutions under the FDIC's jurisdiction. We look forward to working with you on these next steps.

For questions, please contact Yevgeny Shrago at yshrago@citizen.org, Anne Perrault at aperrault@citizen.org, and David Arkush at darkush@citizen.org.

Thank you,
Public Citizen

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[40] Antonio Guterres, Statement at COP 26. (Nov. 1, 2021).
[41] Frances Schwartzkopff, A Warming Planet is About to Revolutionize How Banks Define Risk, Bloomberg (May 27, 2021).

LOOKING OVER THE HORIZON:

The Case for Prioritizing Climate-Related Risk Supervision of Banks

REPORT BY **YEVGENY SHRAGO**
AND **DAVID ARKUSH**
JUNE 2022

ROOSEVELT INSTITUTE

PUBLIC CITIZEN 50 YEARS

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INTRODUCTION

The climate crisis is creating financial risks that banks and their regulators must address. The most direct of these risks is the increasing frequency and severity of climate-related disasters like extreme heat, wildfires, and hurricanes, as well as the climate crisis causing increasingly severe droughts, altering agricultural patterns, and spurring mass human migration. These "physical risks" are already threatening asset values, loan collateral, and bank operations. If emissions are not brought under control, these effects will only worsen.

The solutions to climate change, however, also pose risks to financial systems if not managed carefully. If the world aligns emissions with science-based climate targets in the "critical decade" of the 2020s, the rapid transition threatens the massive investments banks are still making in oil wells and gas pipelines (Kirsch et al. 2021). These "transition risks" could trigger the collapsing value of bank investments and mass defaults on "stranded" asset classes that cannot generate the returns needed to pay back those investments. The transition will pose a significant threat to bank solvency—often known as safety and soundness.

European and Asian banking regulators have recognized these risks and moved to address them (Barnes and Livingstone 2021), but US federal banking regulators have lagged behind. In October 2021, the Financial Stability Oversight Council (FSOC) Climate Risk report's summary of actions by banking regulators to date showed limited progress: a few speeches and reports, some new committees, but no concrete action to change bank behavior (Financial Stability Oversight Council 2021b). The report, though limited in its recommendations, may have helped break this logjam. In December 2021, the Office of the Comptroller of the Currency (OCC) issued draft guidelines for how it expects banks to address climate-related financial risk, and the Federal Deposit Insurance Corporation (FDIC) followed with a similar proposal in March. Once finalized, these guidelines will provide large banks with the first explicit guidance for expectations around mitigating climate risk.

Supervisory oversight of a bank's safety and soundness is a tool flexible enough to help guard against emerging risks like climate change. Regulators typically issue supervisory guidance laying out risk management expectations for banks and then use supervisory examinations to informally review a bank's policies and data, assessing how well a bank is meeting both expectations and the underlying regulatory requirements. Because supervisory guidance is not the product of a formal rulemaking process, it can be deployed with limited administrative delays and avoid pitfalls that impede many legislative and regulatory efforts. Once the guidance is deployed, examinations can help gather updated, granular data about a bank's business—tools that regulators use to inform and improve their own models of how climate risk will affect banks.

The flexible nature of bank supervision and the lack of procedural or substantive veto points mean that regulators can quickly update their expectations to reflect the unique threats posed by climate change. In particular, when banks finance emissions today, they contribute to risks the banking system will face from climate change in the future. Regulators can address this challenge by encouraging banks to adopt a precautionary approach (Chenet, Ryan-Collins, and van Lerven 2021) in the face of uncertain harms, to address risks now (even if their projections suggest loans will mature before the risks manifest), and to balance risk management with maintaining the flow of credit to communities harmed by climate change. Effective supervision will chart a course for banks integrating these considerations into every part of their risk management approach, including governance, strategy, and policies and procedures.

Regulators' familiarity with supervision will help them deploy it quickly and effectively to mitigate climate-related risks. They can adapt lessons learned from addressing other novel risks that banks have faced, even as they develop the expertise needed to fully tackle the unique aspects of climate-related risk. Examples of previous supervisory topics that should prove helpful include underwriting for oil and gas exploration loans, the transition away from the use of the London Interbank Offered Rate benchmark in setting contractual interest rates, and leveraged lending.

If the OCC, Federal Reserve Board of Governors (Fed), and the FDIC wait too long to fully employ supervision, the results could be catastrophic. The severity of the 2008 financial crisis was a product of lax oversight and supervision of risky bank activities (Financial Crisis Inquiry Commission 2011). The Fed's Director of Banking Supervision and Regulation from 1991 to 2006 reported that before the crisis, regulators shied away from forceful supervision of bank activity, waiting to act until excessive risk-taking turned into negative financial performance out of fear that acting prematurely would harm credit and the economy (Angelides et al. 2011). By the time the extent of the risk became apparent on bank balance sheets, it was too late to stop the tsunami of bad lending and devalued assets from triggering far worse contractions and crashing the economy.

Federal banking regulators must use the lessons of 2008 and proactively address the impact of the looming climate crisis through rigorous oversight of banks' activities—before bank failures risk the health of the broader financial system. Although regulators will also need to consider approaches that improve the resilience of the financial system to the climate shocks that are already present, an important first step is to make sure that individual institutions are adequately managing and addressing the risk of climate change. Setting supervisory expectations for addressing climate risk now will give both regulators and banks a longer runway to prepare for large-scale shifts in the economy spurred by climate change and the developing green transition.[1]

[1] This report builds on previous Roosevelt Institute work on climate finance and macroprudential regulation, including *A Regulatory Greenlight: How Dodd-Frank Can Address Wall Street's Role in the Climate Crisis* (Steele 2020) and *Unsafe at Any Charge: Why Financial Regulators Should Actively Mitigate Climate-Related Risk* (Arkush 2021).

SECTION ONE

OVERVIEW OF BANK SUPERVISION

Supervision is a process built on the authority of examiners at the banking regulators to require reports from banks and conduct inspections of the institutions under their jurisdiction (banking regulators primarily include the OCC, the Fed, and the FDIC, as well as state banking regulators). It occurs primarily via an on-site exam in which examiners review a bank's documents and hold discussions with its leadership to understand and assess its governance, operations, and policies and procedures (OCC 2018a).

The value of using supervision to address climate risk lies in part in its informal and confidential nature. Regulators can effectively use supervision to quickly direct banks away from excessive climate-related risks, without the delays and political compromises inherent in legislation, rulemaking, or enforcement litigation. Supervision also provides greater flexibility in this rapidly changing area, allowing regulators to learn and update their expectations without spending years developing an administrative record for each revision. Although direction from supervisors is not formally binding, banks are usually eager to conform their operations to supervisory expectations, particularly before any deficiencies are made public. These dynamics make supervision an excellent means to quickly convey new expectations for how banks should address climate risk, then rapidly review how banks implement the expectations. The process also benefits banks, which have the opportunity to address risks and get feedback from regulators without fear of immediate public sanction, such as enforcement actions that can result in civil penalties and reputational harm.

Examinations look at compliance with a range of banking laws, but the core focus of supervision is risk to the examined bank's safety and soundness, as well as to the safety and soundness of the broader banking system (OCC 2018a). Examinations are conducted in accordance with published procedures and guidance, which lay out what examiners are looking for and put banks on notice of supervisory expectations.

Bank examinations occur on a 12 to 18 month "cycle," although many larger institutions may at any given moment have multiple open examinations focused on different lines of business or risk areas. In addition to on-site exams, examiners monitor banks through correspondence and data collection, which allows them to assess compliance with any required corrective actions, review changes in the bank's operations or risk profile, and decide which review areas to prioritize in subsequent examinations.

An exam concludes with determining whether a bank is operating in a safe and sound manner. This conclusion is relayed to the institution in an exam report, which includes a numerical rating on six components, known as the Uniform Financial Institution Rating System (UFIRS) or CAMELS ratings (an initialism of the six evaluation components) (Board of Governors of the Federal Reserve System and FDIC 2019). Along with the component ratings, examiners also assign an overall rating for the institution's safety and soundness ranging from one (strongest) to five (critically deficient).

Congress has provided some broad principles for which areas safety and soundness oversight must cover, but regulators can identify others when needed. Supervisors must provide specific direction to banks regarding operational and managerial standards, such as underwriting for loans, as well as standards for assessing the safety of a bank's assets (Board of Governors of the Federal Reserve System and FDIC 2019). The ultimate expectation is for supervisors to prevent deficiencies that may harm the institution or depositors, even where the harm cannot be quantified exactly (Menand 2018). Rather, examiners use their expertise and judgment to assess a bank's operations, identify potential problems, and develop corrective actions.

Reflecting the notion that safety and soundness is not determined exclusively by quantitative thresholds and bright-line rules, Congress and reviewing courts have extensively deferred to agency judgment on which bank activities should be deemed unsafe and unsound, and agencies make these assessments on a case-by-case basis instead of hewing to strict rules (Menand 2018). Courts have accepted that a bank practice is unsafe and unsound if it poses a reasonably foreseeable and undue risk to the bank (*Kaplan v. OTS* 1997). Courts are also generally quite deferential to regulators' determinations, concluding that Congress has "clearly" committed definition and eradication of unsafe and unsound practices to their discretion (*Lowe v. FDIC* 1992; *Indep. Bankers Ass'n of Am. v. Heiman* 1979).

Supervisors have a wide range of tools to both identify and remediate problems they identify through examinations. Although formal sanction for unsafe and unsound practices is rare, examiners often work with banks to identify the root causes of such practices and address them (OCC 2018a). Particularly egregious or long-standing issues are reflected in low overall supervisory rating, with poorly rated banks required to take prompt corrective action to remedy those issues.[2] Failure to correct the problem can lead to enforcement action, with penalties that range from fines, to increased capital requirements, to suspension of a bank's deposit insurance. Banks with poor supervisory ratings may also be unable to open new branches or merge with or acquire other banks, both of which require regulatory approval.

[2] 12 U.S.C. 1831o.

Supervisory authority for safety and soundness is spread across several regulators, each with jurisdiction over different types of institutions.[3] Because many financial institutions are structured as a set of interlocking subsidiaries, these regulators often share jurisdiction and seek to coordinate their examination procedures and guidance to institutions. To that end, the Federal Financial Institutions Examination Council exists to promote uniformity in the supervision of financial institutions by federal banking regulators.[4] But regulators can and do issue guidance alone if they see the need to move quickly without waiting for interagency coordination.

[3] This overlapping, interlocking structure has raised a number of concerns and was also implicated in the 2008 financial crisis but is beyond the scope of this paper. As an example of this structure, consider the following, incomplete list of financial regulators' jurisdictions. The Federal Reserve oversees bank holding companies, nonbank financial institutions designated for enhanced supervision by the Financial Stability Oversight Council, and state-chartered banks that are members of the Federal Reserve System. The Office of the Comptroller of the Currency (OCC) oversees nationally chartered banks and federal savings associations. The Federal Deposit Insurance Corporation oversees other state-chartered banks as a condition of their receiving federal deposit insurance. The National Credit Union Administration oversees federally chartered credit unions. State banking regulators concurrently oversee all state-chartered banks and credit unions for compliance with state laws.

[4] 12 U.S.C. § 3301.

SECTION TWO

PRINCIPLES FOR DESIGNING AND IMPLEMENTING SUPERVISORY GUIDANCE ON CLIMATE-RELATED RISK

To use supervision effectively to address climate-related risk, regulators need to lay out clear expectations. First, they must provide principles for dealing with the unique challenges presented by climate change. Instead of allowing the uncertainty or complexity of climate-related risks to deter them from acting, banks must adopt new risk-management approaches. The magnitude of the threats is too great to ignore them simply because they are complex. Second, the guidelines must also include expectations for how banks will integrate these new approaches into their existing risk management structures. Such integration is needed to make sure all relevant bank decisions are made with a proper awareness of the threats posed by climate change.

PRINCIPLES FOR ADDRESSING THE UNIQUE CHALLENGES PRESENTED BY CLIMATE RISK

US banking regulators have in the past excused their inaction on climate risk by maintaining that banks are already expected to address it as part of their normal risk management process (McWilliams 2021). But addressing the relevant threats solely via processes designed to manage ordinary business risks leaves banks vulnerable to certain unique characteristics of climate-related risk, as described below. The European Central Bank has found that most banks are not adequately updating their procedures to meet this challenge (European Central Bank System 2021). US regulators are finally moving to provide banks with more specific guidance on how to update their risk management procedures, which will accelerate banks' adoption of proper risk management procedures and clarify what examiners will expect in future reviews. Specifically, the guidance should encourage banks to adopt a precautionary approach to managing the uncertainty and complexity of climate risk, explain the importance of mitigating risks that will manifest over a long time horizon, incorporate banks' contribution to climate risk into their assessments, and recognize that climate risk management must be balanced with attention to equity to avoid disproportionately harming groups that have long suffered unlawful discrimination.

Regulators who have moved forward on addressing climate-related risks acknowledge that the exact ways these risks will manifest are uncertain and that the threats they pose are non-linear, correlated, and irreversible (Bank of England 2019). The harms of climate change, although already clear today, operate on time horizons that in many cases exceed the typical three-to-five-year span that banks use for planning (Board of Governors of the Federal Reserve System 2020; Stiroh 2020). The inherent complexity and uncertainty of modeling climate change makes it difficult to use observed data to model future outcomes (FSOC 2021b). There is also tremendous political pressure on banks and supervisors to avoid mitigating their climate risk when doing so would harm politically favored fossil fuel industries (OCC 2020). Regulators must resist these pressures and instead press banks to implement risk management policies and tools for addressing climate risk before the threats are too severe or imminent to mitigate properly.

The challenges of climate-related financial risk are of a different magnitude than what banks have dealt with before (Arkush 2021). Plugging in climate change as an element of standard risk management models will not be enough, particularly since the evolving climate science shows that the impacts of climate change are consistently worse than even the most accurate models have predicted (Porter et al. 2022; Plumer and Zhong 2022). The FSOC has acknowledged that regulators cannot wait to act while they pursue bigger data sets and more sophisticated models to let them better assess the threats that banks face. They must replace this inclination to wait and see with one that reflects the severity and urgency of the crisis they seek to mitigate. This is especially critical because the science shows that the risks of climate change will be worse than expected and manifest sooner than planned.

Precautionary Approach

An important lesson of the 2008 financial crisis is that even large and sophisticated financial firms like Lehman Brothers or Wachovia can struggle to guard against unexpected extreme events, known as tail risks—especially those that are costly to mitigate in the short run or difficult to measure. Hedging and insurance can be insufficient to protect against such risks (Federal Reserve Bank of St. Louis 2020). Examiners should scrutinize climate risk management practices that rely primarily on insuring, hedging, and diversification. Particularly for scenarios where the increase in global temperatures exceeds 1.5°C, reliance on these strategies may introduce new risks instead of mitigating first-order ones (Brainard 2021). Climate change will continue generating new and unpredictable risks that may be correlated across previously unrelated asset classes. For instance, geographic diversity of bank business may become less helpful as negative climate shocks manifest as increased wildfires in one area, more flooding in a second, and severe droughts in a third.

Banks and regulators cannot respond by ignoring these uncertain or unpredictable risks until they can be modeled more fully. Rather, the industry should adopt a precautionary approach to climate-related financial risk (Chenet, Ryan-Collins, and van Lerven 2021). This is the favored approach for addressing climate-related risk by experts like the United Nations Framework Convention on Climate Change (1992) and the Intergovernmental Panel on Climate Change (IPCC 2014). It has also been endorsed by the White House, in its climate financial risk roadmap (Executive Order 14030). Banking regulators can learn from these experts when they consider how to mitigate the damage that climate change will inflict on the financial system—and encourage banks to do the same.

A precautionary approach means prioritizing reducing risk even in the absence of full certainty about its magnitude or probability and in the absence of perfect scientific or economic data. Implementing such an approach means taking on less risk than what models suggest is acceptable, on the assumption that the models fail to accurately quantify the likelihood or magnitude of all relevant risk factors. Precaution also means planning for failure and resilience, instead of just the avoidance of harm, when developing risk management procedures. And it means assuming *every* part of the business is subject to climate risk, even in seemingly implausible or unrelated lines of business.

One challenge for evaluating the implementation of a precautionary approach is that it is difficult to define what amount of risk is "safe"; the very approach is driven in no small part by the difficulty of quantifying and modeling the relevant risks. But this challenge underscores that a precautionary approach is a good fit for supervision. Supervisors are concerned not just with the quantitative specifics of a bank's loan book, but with process—how the bank evaluates and manages risk. Examiners could assess whether banks are appropriately implementing worst-case scenarios in their planning, and how the risk management tools and buffers they rely on to maintain solvency might break down during those periods of stress. As climate change progresses and climate scientists update their predictions, banks will then have more of a buffer to update their own risk management methods and resilience planning.

Longer Time Horizon

A related and unique challenge is the long time horizon under which many climate-related risks may manifest. Typical bank strategic plans and existing stress testing procedures both look at the risks and opportunities of the next 3 to 5 years and therefore are not well-suited to identifying or avoiding risks that may take much longer to manifest. As the time horizon lengthens, it becomes more difficult to project how a bank's operations and the broader economic context will develop.

To address this challenge, many banks and regulators are turning to scenario analyses to assess potential risks over longer time frames and across a range of plausible scenarios (Brainard 2021). Such assessments, when done properly, represent a major step forward in understanding the threats that banks face (Reclaim Finance 2021; Keen 2021). But improved assessment will only mitigate risk if banks embed the findings into their risk models and management tools today. The uncertain and nonlinear nature of climate harms, as well as the established pattern that improvements in climate science nearly always darken the picture, suggest harms projected to occur in 20 or 30 years based on the best current science could manifest much sooner, or with much greater magnitude. In addition, long duration assets that appear entirely safe in a three-to-five-year horizon may become extremely risky over two or three decades. Finally, even short duration bank assets are often refreshed with similar ones, creating a possible path dependency—where a bank does not actually let risky assets run off its books when it has the opportunity, or must do so in a way that disrupts its business strategy. A failure to start reducing foreseeable risks now means that necessary future readjustments may be far sharper and more disruptive to a bank's business and to its customers. The precautionary approach dictates doing what can be done now to mitigate risk, with the expectation that some risks may become inevitable much sooner than expected based on a bank's best current understanding.

Bank Contributions to Climate Risk

An example of this kind of "locked-in" risk that supervisors should consider as they assess the risk banks face is the role that bank contributions to climate change play in elevating future risks (Philipponnat 2020). As the IPCC's recent Sixth Assessment report discusses, every fraction of a degree counts when it comes to mitigating the physical impacts of climate change (IPCC 2022). Additional emissions in excess of science-based targets today may be the trigger for increased or novel physical damage in the future (Basel Committee on Banking Supervision 2021). Many of these changes are outside the control of banks and will require them to build resilience in other ways. But examiners should consider whether the effects of the banking system continuing to provide financing for emissions create undue systemic risk, even if they cannot demonstrate that an individual bank's financed emissions have a material effect.

Financing of emissions in excess of science-based targets threatens the safety and soundness of the banking system by exposing every bank to heightened physical and transition risks (Arkush 2021). As in the case of subprime mortgages or leveraged loans, one role of supervision is making sure a bank's activities do not threaten the safety and soundness of the financial system. As discussed in Section III, banks engaged in an originate-to-distribute model for these kinds of loans may be engaged in unsafe and unsound behavior even if the banks' own solvency is not at risk. While the origination activity of a single small bank may not pose meaningful systemic risk, the combined

effect of many banks' activities can create a systemic threat that supervisors should mitigate. Climate-related risk has a similar dimension: An individual bank may finance emissions that cannot be linked to specific physical harms, yet the behavior of US banks together can meaningfully affect the degree of physical risk they face. Climate science gives clear guidelines for which behavior contributes to that threat: financed emissions in excess of what is compatible with holding global temperature rise below 1.5°C. Examiners should consider how effectively banks can mitigate their exposure to climate risk, how that mitigation will affect vulnerable communities (discussed below), and whether reducing banking system-wide financed emissions is the most cost-effective method of risk reduction.

Reducing financed emissions not only helps to mitigate physical risk; it can also help protect banks from transition risk. Many of the loans or investments that contribute the most to carbon emissions are also the most likely to become worthless as the momentum to decarbonize continues accelerating (Arkush 2021). If the physical harms of climate change develop faster, social and technological pressure to reduce emissions may rise, triggering a rapid, disorderly transition that does not allow banks to offload these assets. This scenario is particularly dangerous because periods of increased physical risk may also contribute to broader macro stressors. Medium-term strategic plans that rely on continued lending to high emissions sectors may also be disrupted as companies in those sectors become bad credit risks, leaving banks vulnerable to other forms of stress. Examiners should consider how banks assess these possibilities relative to the climate models they develop and the climate commitments they have made.

Banking regulators have shied away from pushing banks to reduce emissions, viewing that step as too "political" or otherwise outside their mandate (Cox 2021). But failing to consider this lever because it might draw accusations of setting climate policy is a decision to ignore a major tool for managing and reducing banks' risk. It is akin to bank regulators ignoring that banks are originating poorly underwritten mortgage-backed securities because regulating housing is a responsibility of Congress. Reducing the availability of subprime mortgages would have housing policy implications, just as reducing financed emissions has climate policy implications. But if bank lending creates financial risk, as financed emissions do, then regulators have been given a mandate by Congress to address it and mitigate the risks. If Congress disagrees with the consequences, it can pass laws to reverse the regulatory policy choices or even alter regulatory mandates.

Equity

Finally, regulators should assess and mitigate the damage that banks' climate risk management strategies might do to consumer markets, and especially to low-income communities and communities of color. Banking regulators have often failed to consider how issues of racial and economic inequality fit into their supervisory missions, but doing so is crucial in responding to climate risk. Racially discriminatory practices fueled much of the unsafe and unsound behavior during the 2008 financial crisis, and the subsequent economic fallout for those communities further strained the banks that did serve them (Neal 2020).

Without close regulatory attention, the climate crisis will cause significant harm to these communities—communities that are already bearing the brunt of the climate crisis (Zonta and Willingham 2020). Even now, disinvestment and discriminatory credit practices mean these communities have too few resources available for necessary investments in climate adaptation and resilience. Unless regulators explicitly consider and emphasize the racial and economic equity implications of climate-related risk management, banks may conclude that raising the costs of credit, reducing lending, or disinvesting from vulnerable areas are the most cost-effective options for managing the costs of climate change. These actions would only deepen the damage to already underserved communities and threaten the safety and soundness of banks that remain, further denying those communities credit and opportunities to invest in economic growth.

Regulators should actively raise these issues during examinations and plan for how they will balance bank safety and soundness with fair access to credit for vulnerable communities. One step that regulators can recommend immediately is reviewing whether a bank's current financing choices are exacerbating climate and other environmental harms in vulnerable communities. Following a precautionary approach, avoiding contributions to climate risks is an essential early step to mitigation.

INTEGRATING CLIMATE-RELATED RISK INTO EXISTING RISK MANAGEMENT

Although banks cannot treat climate risk like a business-as-usual risk, it would be equally dangerous for them to completely separate it from existing risk management plans. Climate risk is tied to the other risks a bank faces and must be managed alongside them. Supervisors need to make clear in their expectations that banks must integrate climate risk into every level of business, from governance and strategic planning to detailed risk management frameworks. This approach is consistent with the Network for Greening the Financial System's guidance for supervisors (NGFS 2020).

Governance

Governance that takes climate-related risk seriously requires explicitly defining and assigning responsibilities for the risk within existing governance arrangements, while establishing appropriate documentation and oversight to allow regulators to assess whether those responsibilities are being met.

Engagement must start with a bank's Board of Directors (Board of Governors of the Federal Reserve System 2021). Given the level of risk posed by climate change, the board should approve and monitor the bank's climate risk approach, require detailed information from management on the bank's climate exposures and how they fit the latest climate science and potential climate policies, and oversee whether management's implementation of the strategy is consistent with the information it has about a bank's climate risks. If the board lacks sufficient climate expertise, it should add a member with the relevant experience, in addition to requiring training for all other members, particularly for members of the risk and audit committees.

Senior management is responsible for developing and implementing a bank's strategic plan, developing the policies and processes to execute it, and monitoring implementation (OCC 2019). To make sure there is meaningful leadership on climate risk that is not siloed from broader risk management or operations, a senior management officer must be directly responsible for overseeing the response to climate-related risk—and the duties of all senior leaders must include responding to the impacts of climate change. Along with strategic and operational responsibilities, a bank's management will need to develop plans for training staff, identifying gaps in skills or expertise, and hiring new employees and consultants to fill those gaps.

Strategic Planning and Scenario Analysis

The climate crisis is already affecting bank safety and soundness, and the risks it poses will only grow. Critically, the strategic planning process must take on a longer time horizon to reflect the extended time it may take climate risks to manifest. Planning should be informed by scenario analysis that reflects the latest developments in climate science and a precautionary approach to assessing both the likelihood and magnitude of climate-driven harms.

Depending on a bank's asset mix and business lines, incorporating climate risk into its strategies may require immediate, meaningful changes in its business. At a minimum, regulators should assess whether banks are seriously planning for what their businesses would look like if the needed energy transition occurs. For instance, the International Energy Agency's recent global energy report concluded that in order to meet 2050 net-zero emissions goals, there can be no new fossil fuel production (IEA 2021). Many private companies have made commitments that match that timeline, with the pace of those commitments increasing in the last few years. If the world is moving toward its net-zero goals, continued investment in new fossil fuels reflects a lack of consideration for whether those assets will ever meet their financial projections or if they will become inoperative many years short. At a minimum, regulators must ask how banks rationalize their own climate commitments—which ostensibly aspire to alignment with science-based emissions targets—with strategic planning decisions that permit continued investment in fossil fuels, while ensuring that scenario analyses include sufficiently rapid and realistic transition scenarios.

Risk Management Frameworks

To properly implement a strategic focus on climate-related risk, banks need to integrate it into their risk management activities. This means analyzing how the climate crisis will affect established risk categories: credit, market, liquidity, operational, reputational, and legal risk. It also means developing the tools and metrics to incorporate those risks into existing risk management procedures. In September 2021, civil society organizations sent detailed recommendations to the banking regulators regarding how to integrate climate-related risk into these areas (American for Financial Reform et al. 2021).

Credit risk arises from the failure of a borrower or other counterparty to perform on the terms of a loan or other repayment arrangement. Adequately managing credit risk related to climate change means a bank must assess whether a borrower, counterparty, or investment is likely to default due to a climate disaster (American for Financial Reform et al. 2021). Increasingly, banks will also need to assess how chronic impacts from climate change, including heat stress, drought, human migration, political

instability, and many others, affect assumptions around historical loan performance. Credit decisions should also incorporate whether loans or investments secured by fossil fuels will be at higher risk for default as the clean energy transition accelerates, as well as the possibility that collateral for those loans becomes less valuable, magnifying the impact of a default.

Market risk is the degree to which changes in interest rates, foreign exchange rates, commodity prices, or equity prices affect a bank's safety and soundness. The climate crisis is already disrupting a range of commodity markets, and this disruption will only become more severe as drought and heat shift the geographic location of agricultural belts (Foscari 2021). Extreme rainfall and other climate disasters may damage infrastructure, limiting the availability of other commodities and supplies like heavy rare earth metals (Woetzel et al. 2020). Increasing political instability due to drought and migration may cause rapid shifts in foreign exchange rates, putting at risk foreign investments with little obvious connection to the climate crisis. Banks must incorporate these climate risks into their assessment of market risk, applying a precautionary approach to manage the high levels of uncertainty they face. This means testing the assumptions of risk models to ensure that they make adequate provision for the impacts of correlated disruptions across markets.

Liquidity risk is the possibility that a bank will be unable to meet obligations to pay debts as they are due. This risk exists because banks tend to hold long-duration assets while funding operations with short-term liabilities. Disruptions in short-term funding markets have sometimes forced banks to liquidate longer-term assets. If those assets are hard to sell on the open market, it may force a fire sale, threatening a bank's safety and soundness. Indeed, in 2008, banks suspected of holding large quantities of worthless subprime mortgage assets were subject to deposit outflows and found themselves unable to otherwise secure short-term financing (Rose 2015). Banks that hold excessive levels of fossil fuel assets or who are exposed to unexamined climate risk may find themselves in a similar position when markets adjust. Banks should assess their reliance on short-term financing and the possible impact of sudden, climate-related asset repricing and market freezes on their liquidity.

Operational risk comes from inadequate or failed internal processes or adverse external events. These include inadequate workplace safety, damage to physical assets, business disruption, and systems failures. Banks must prepare for potential physical disruptions to their headquarters, major operational centers, or critical market and physical infrastructure. They should incorporate the possibility of severe disruptions into their models and develop contingency plans for dealing with resulting impacts.

Reputation risk arises from negative public opinion. Beyond the opinion of customers, banks also need to consider their reputation with counterparties, employees, investors, and the community. Most major banks have made some kind of pledge to align their business with science-based emissions targets, actions that likely indicate some degree of sensitivity to reputational harm around climate change. Revelations that a bank's behavior contradicts its public climate commitments—for example, that it persists in serving as a major financier of fossil fuel extraction or other high-emissions activities—likely would draw negative publicity and activist pressure and may create concerns about the bank's long-term sustainability, in turn narrowing its options for customers, employees, investors, and counterparties. Banks should consider whether they are risking outcomes that would make them more fragile, threatening safety and soundness.

By considering climate-related risk comprehensively, a bank can shape its operations and holdings in a way that makes it more resilient to the growing threats. It will also develop tools and processes that will help it respond more nimbly to new and unexpected climate developments. Though each bank will reach different answers based on its own business, regulators need to monitor this progress and provide feedback on potential gaps and oversights.

SECTION THREE

INSTRUCTIVE SUPERVISION CASE STUDIES

Regulators have the experience they need to start implementing the recommendations above even as they develop additional expertise over the coming years. The three case studies discussed below show that regulators can use supervision to begin addressing the threats of climate risk now, even while they work to deepen their knowledge and refine their approaches.

The case studies also identify precedent for bank regulators addressing risks that have important parallels to climate-related risk, showing that addressing it is within both their competence and their remit. First, a discussion of supervisory treatment of oil and gas lending demonstrates that supervisors already understand and have experience addressing some of the key factors involved in transition risk. Second, the regulators' recent engineering of an orderly transition away from the use of the London Interbank Offered Rate (LIBOR) as a reference rate shows how banking regulators can (and do) use supervision to end practices that subject banks and the financial system to risk that is hard to predict or assess but that is clearly possible—and unacceptable. Last, a discussion of recent treatment of leveraged lending shows how regulators have used microprudential supervisory authority to address practices that did not necessarily threaten an individual bank's solvency but generated risk to the financial system.

SUPERVISION OF OIL AND GAS LENDING

Regulators have long treated oil and gas lending as a source of particular risk to bank safety and soundness (Garcia and Weber 2018). When considering climate-related risk, regulators can learn from the models and approaches they have developed over years of monitoring the threat posed by lending to this sector. And they can adapt their analysis to start managing transition risks, which are rooted in growing turmoil and eventual price collapses in the oil and gas industry.

The threat from volatile oil and gas markets has long been an important consideration for safety and soundness supervision. During the savings and loan crisis of the late 1980s, bank failures were most prevalent in states suffering from a concurrent severe economic downturn due to the collapse in oil prices (FDIC 1997). Similarly, in 2014, as oil prices again tumbled, examination findings suggested that banks with significant exposure to the oil and gas sector saw a disproportionate increase in problem assets (Garcia and Weber 2018). Supervisors found that banks with more than 10 percent of their portfolio directed to oil and gas lending suffered more supervisory downgrades and worse asset quality assessments than other banks (Garcia and Weber 2018).

Increased supervisory attention helped keep the 2014 price collapse from creating a new round of bank failures (Garcia and Weber 2018). This attention included assessing banks' risk management regarding oil and gas exposures, as well as evaluating how their lending strategies and loan underwriting accounted for potential long-term changes in energy prices (Garcia and Weber 2018). Examiners looked at direct energy lending as well as the extent to which a bank's portfolio was exposed indirectly to oil and gas sector stress, such as by issuing loans in oil-producing localities. To direct bank attention to these issues, the Fed, the FDIC, and the OCC all issued guidance highlighting the risks of oil and gas lending and updated their examiner handbooks to reflect the risks.[5]

The updated guidance, still in force today, can serve as a blueprint for managing transition risk. While the OCC's current handbook describes the risks associated with oil and gas lending in the most detail, all the regulators provide similar guidance (OCC 2018a). The main focus is on lending for "upstream" exploration and extraction, but regulators emphasize that indirect exposure via support services also creates increased risk for banks due to the correlation with upstream production (OCC 2018a). Both heightened price volatility and correlated exposures are characteristics of climate-related transition risk.

Recognizing that open-ended principles would not be enough, the guidance also recommends specific risk management practices that could be used for overseeing climate-related credit risk. Upstream oil and gas lending is primarily made on the basis of projected cash flows from fossil fuel extraction, and banks semiannually redetermine the borrowing base of proven reserves to reflect changes in commodity prices (OCC 2018a). During periods of low or declining prices, regulators expect banks to increase the risk adjustment for proven but non-producing reserves, reducing the amount of lending that can be secured by those reserves (OCC 2018a). This adjustment reflects the increased possibility that these reserves will not generate cash flows needed to repay the loan. Banks are also expected to produce sensitivity analyses subjecting reserve amounts and expected pricing to assumptions of a sustained low-price environment (OCC 2018a). Examiners armed with expertise in this kind of assessment and a basic understanding of climate-related transition risk can review whether banks are adequately preparing for the kinds of price impacts that a rapid clean energy transition will create across a range of high-emissions assets, including oil and gas.

[5] For the Fed, see Board of Governors of the Federal Reserve System 2016. For the FDIC, *see* FDIC 2016. For the OCC, *see* OCC 2018a.

As this discussion shows, examiners already have experience assessing many of the risks and solutions posed by a clean energy transition. The OCC handbook highlights the risk of new regulatory restrictions on fossil fuel production, both in the US and worldwide; new compliance requirements for borrowers with health, safety, or environmental regulations; and the problem of specialized collateral which may have little value at auction in a depressed oil and gas market (OCC 2018a). The handbook also discusses the elevated level of operational and strategic risk from oil and gas lending due to the complexity of the industry, and encourages banks to invest in specialized expertise to provide effective oversight of their portfolio (OCC 2018a). Finally, the OCC handbook notes the reputational risk for oil and gas lending that arises from widespread media coverage of environmental damage or hazardous accidents (OCC 2018a). This experience will serve examiners well in assessing transition risk.

As the low-carbon transition accelerates, oil and gas lending will only become more risky. Regulators already know how to address some of the relevant challenges in this sector, and they have shown a willingness to move swiftly to head off potential crises. Using oil and gas lending oversight to inform supervision of transition risk is sensible and constructive.

LONDON INTERBANK OFFERED RATE TRANSITION

Bank supervisors' experience with the ongoing transition away from the London Interbank Offered Rate (LIBOR) shows how regulators can use supervision as a tool to drive system-wide changes in practices, steering banks away from assets that create undue levels of risk. This precedent is relevant for managing the necessary transition away from the most risky fossil fuel loans and other high-emissions assets.

LIBOR is a measure of lending costs used to set the interest rate on loan and other financial transactions. It reflects the average rate at which a panel of banks agree they will lend to each other. Following revelations that major banks had colluded to manipulate LIBOR for years, possibly even decades, UK regulators implemented several reforms. The negative reaction of panel banks to these reforms, as well as changes to the way banks financed their operations post-crisis, cast doubt on the usefulness of LIBOR as an ongoing benchmark and raised the possibility that the panel banks would cease to report LIBOR rates. Any disruption or discontinuation of LIBOR without adequate preparation would have affected $200 trillion of existing financial contracts that reference LIBOR (ARRC 2018). An abrupt cessation threatened to cause "considerable disruptions to and uncertainties around the large gross flows of USD LIBOR-related payments" and "impair the normal functioning of a variety of markets" (ARRC 2018).

In response, US banking regulators have driven a transition away from LIBOR, and they have done it without any new mandates from Congress. They used supervisory guidance to highlight the risks to bank safety and soundness from the possible end of LIBOR and encouraged banks to stop using LIBOR as a reference rate by December 31, 2021 (FDIC et al. 2021).

In 2018, the OCC told bank management to implement proactive plans to address the transition, recommending that banks take the risk of LIBOR discontinuation into account when entering into financial agreements (OCC 2018c). The FDIC issued similar guidance (FDIC 2018). By 2019, regulators had increased the specificity of their guidance and announced plans to prioritize and conduct examinations to review LIBOR preparedness (Board of Governors of the Federal Reserve System 2019). The OCC told banks to undertake an inventory of assets and liabilities that could be affected by the transition, perform an analysis of customer impacts, and revise and test their models (OCC 2019).

With expectations and examinations in place to assess readiness, the supervisors issued joint guidance calling on banks to transition away from originating or purchasing LIBOR-indexed instruments by December 31, 2021 (Gibson 2020). The purpose of this transition date was to limit banks' exposure to the risks of LIBOR's abrupt disappearance. In effect, regulators engineered an "an orderly transition away from LIBOR" (FDIC 2021) by setting clear supervisory expectations that banks move away from using LIBOR as a reference rate.

The 2020 supervisory guidance also told banks that the focus on evaluating preparedness for institutions with significant LIBOR exposure or with poorly developed transition processes would increase in 2020 and 2021. This created additional incentives for banks to shift away from LIBOR in advance of a 2021 transition date, to reduce their regulatory burden and keep supervisors happy. It remains to be seen what will be done if a bank continues to originate or purchase significant quantities of LIBOR-indexed debt, but such action would present serious market risk for a bank and raise supervisory questions about its operational competence.

The LIBOR transition shows that regulators are willing to move banks away from assets and practices that create risks for themselves or other market participants. Regulators should use a similar model of expectations, examination, and encouragement to transition banks away from the riskiest and most risk-generating climate-related assets—and follow that model with additional scrutiny for banks that fail to transition. This approach could help direct the banking system toward a safer level of exposure to high-emissions assets.

LEVERAGED LENDING

In responding to the growth of leveraged lending after the financial crisis, supervisors demonstrated that their purview includes considering how a bank's business impacts the entire banking system. Regulators can use similar logic when assessing how a bank's financed emissions contribute to worsening climate change, thus generating massive risk to the financial system.

A leveraged loan is typically one that significantly increases the borrower's liabilities relative to assets (OCC 2008). Often, these loans are bundled by the lending banks and used to create collateralized loan obligations (CLO's), which are then sold to other banks and investors. As a result, the primary risk of bad loans often falls not on the originating institution, but on those who buy the securitized assets. Purchasers include not just banks but also pension funds, insurance companies, and other market participants.[6]

Given the role that excessive leverage played in causing the 2008 financial crisis, the rapid rebound of leveraged lending in the years following the crisis triggered concern among many regulators and advocates (Sung Eun 2015). Regular supervisory reviews identified continued increases in the level of leveraged lending, as well as serious weakness in the loans that banks were making (Board of Governors of the Federal Reserve System et al. 2013a). In response to the growth of risky leveraged lending, banking regulators issued updated interagency guidance in 2013 (Board of Governors of the Federal Reserve System et al. 2013a).

In addition to describing risk management frameworks and credit policies needed for individual loans, the regulators also highlighted the systemically risky nature of leveraged lending. Specifically, they stated that financial institutions should not "unnecessarily heighten risks by originating poorly underwritten loans," since such a loan, when pooled with others, "may generate risks for the financial system" (Board of Governors of the Federal Reserve System et al. 2013a).

The regulators in this example recognized that supervision meant looking at more than just risk to an individual bank—that their role includes stopping banks from threatening other parts of the financial system, including investors whose failure would not be within a banking regulator's jurisdiction. These investors matter to banking regulators because their failures can have systemic implications, as they did in 2008.

[6] There is also "pipeline" risk for loans that an originator has made but cannot sell.

Banking regulators addressed this threat by adding expectations regarding minimum underwriting standards and effective practices for loan origination, even in instances where a bank intends to sell the loans. Specifically, banks were expected to underwrite the loans using criteria that would have made them acceptable to keep on their own books (Board of Governors of the Federal Reserve System et al. 2014). The regulators also provided specific standards for debt-to-income ratios and debt repayment levels that, if breached, would raise concerns. Although regulators denied that these guidelines were meant to ban certain loans, many in the banking industry treated them as a de facto ban, complaining that, due to new regulatory scrutiny, banks were unable to make many deals with characteristics similar to those done before 2013 (Ropes & Gray 2018).

As with the response to growing leveraged lending, supervisors can provide guidance on emissions financing to limit overall risk to the system. Like leveraged lending, financed emissions create a systemic financial threat that is hard to assess. A bank that finances emissions in excess of what is permitted by science-based climate targets is both spreading transition risk throughout the financial system and increasing the likelihood and magnitude of climate-related damage, which will cause negative shocks to the economy and the financial system. In either case, originating risky loans for sale or financing excessive greenhouse gas pollution, a bank is engaging in an activity that, regardless of its effect on the bank's own safety and soundness, generates clear threats to the financial system.

These three cases demonstrate the broad extent to which supervision can be used to address emerging threats, and how much regulators can already do to address climate risk. Promptly putting this knowledge and expertise into practice is the surest way to protect the financial system from climate risk.

SECTION FOUR

RECOMMENDATIONS FOR REGULATORS

To implement principles for supervising climate risk, banking regulators must act now to communicate their supervisory expectations and move quickly to implement those expectations into their examination planning and tools. The OCC and FDIC's separately issued but very similar "Principles for Climate-Related Financial Risk Management for Large Banks" are an important first step, but they can and should be further strengthened, both before release and in subsequent, more detailed guidance. The Federal Reserve should move quickly to join the updated guidance, and regulators should work together to provide and implement more detailed expectations.

ASSESSING THE OCC'S PROPOSED GUIDANCE

In recognizing that climate risk poses a threat to bank safety and soundness, the proposed guidance on climate risk is an important step forward. But to fully protect banks, the guidance must more explicitly discuss how banks should act to appropriately mitigate that risk. Here, we evaluate the proposed guidance using the principles outlined above.

- **Unique nature of climate risk:** The existence of this guidance implicitly recognizes that climate-related risk requires different tools and approaches from ordinary risks. And the FSOC report, which the OCC approved, clearly discusses the particular challenges of climate risk (FSOC 2021b). But given the importance of banks grasping these challenges and the scrutiny this guidance will receive, the OCC and FDIC should add a discussion of how they understand the challenges posed by climate risk.

- **Precautionary approach:** The guidance does not discuss or endorse a precautionary approach. Given the guidance's focus on aligning climate-related risk exposures with a bank's risk appetite, and its recognition that incorporating climate risk is a learning process that will require multiple iterations, this is concerning. Climate risks that appear to be in line with a chosen risk appetite may turn out to be more severe faster than a bank can adjust, threatening safety and soundness. The OCC and FDIC should discuss the benefits of a precautionary approach to climate risk and the dangers that could result in failure to incorporate it into climate risk management processes.

- **Long time horizon:** By endorsing scenario analysis, the OCC and FDIC recognize the importance of measuring risk on a longer timeline than the typical three-to-five-year planning window. The guidance should add a discussion of how banks should address risks that may not fully manifest in the short-term, especially when they can only be fully mitigated by acting now.
- **Banks' contribution to climate risk:** The guidance does not highlight contribution to climate-related risk as a consideration in its expectations, although it does approach this issue from the direction of banks' own climate commitments. Many large US banks, recognizing that under-mitigated global warming will create new challenges for their business, have made commitments to align their activities with science-based emissions targets (UNEP n.d.). The OCC and FDIC expect management to ensure public commitments align with internal strategies and statements about the level of risk they are comfortable taking on. This will leave banks a choice between abandoning their factual, science-based public commitments, or bringing their operations in line with reality. This approach remains imperfect, as many banks have not yet made climate commitments, but it represents important progress on addressing the risk that banks create for the financial system.
- **Equity:** The guidance specifically highlights the importance of considering equity in developing climate risk management. It warns that risk mitigation measures that disproportionately affect groups on the basis of race and ethnicity can raise concerns about fair lending. It also reminds banks that engaging in this kind of behavior can have serious reputational consequences. The guidance provides a strong foundation for remedying any additional harm to climate-impacted communities, and it should build on that foundation in future guidance.
- **Integration into existing risk management:** The guidance recognizes that banks must incorporate climate risk into all risk management procedures. It discusses how banks should think about including climate risk in governance, strategic planning, and risk management policies and procedures, as well as in developing data and conducting scenario analysis. It also discusses how climate risk can affect each of the specific risk areas that banks face. The only gap in the guidance is the lack of public regulatory reporting requirements, but it is clear from the requests for comment that the OCC and FDIC are assessing how to best design such requirements.

IMMEDIATE POST-GUIDANCE ACTIONS

The OCC and FDIC guidance will likely be finalized later this year. The Fed should quickly follow and adopt its own version of these principles, updated and strengthened based on the recommendations above. Even before work finishes, the regulators should start implementing the next critical steps in supervising climate risk.

Add a climate risk module to upcoming examinations of the riskiest banks. OCC examiners should add a climate risk module to a subset of 2022 examinations, and the Fed and FDIC's examiners should follow once the agencies adopt their initial guidance. Waiting until the next cycle of exam scheduling to include climate risk will delay the lessons that examinations will provide by months or years. This round of climate risk reviews should be purely descriptive, with no deficiency findings, required corrective actions, or other supervisory consequences.

Supervisors should prioritize climate examinations for banks facing the highest levels of climate risks. The first type of institution to focus on is the largest ones: bank holding companies that are overseen by the Fed's Large Institution Supervision Coordinating Committee, and their subsidiary national banks overseen by the OCC. The second group of banks to prioritize is smaller banks which, due to their geography or business strategy, have particularly high exposure to immediately apparent types of climate risk. This would include banks with exposure to areas most vulnerable to wildfires or extreme weather, oil patch banks, and those with significant agricultural lending. These banks are the likeliest to come under severe stress in the near term due to the effects of climate change or the clean energy transition. Focusing on these two sets of banks will give examiners a view of how the most sophisticated banks deal with climate-related risk and the biggest potential gaps or failures in addressing it.

The first round of exams should review how banks have incorporated climate risk into their governance, strategy, and policies and procedures. The examinations should also look at how banks monitor ongoing risks to their loan books and investments, for instance by regularly testing individual loans and asset-backed security purchases for exposure to physical and transition risks. Finally, the examinations can look at how current and planned operations incorporate the bank's publicly announced emissions goals. Fair lending exam modules should look at how a bank's climate-related risk management avoids reducing lending and investment to low-income and minority communities.

Provide additional guidance. Even before the first round of exams finishes, the banking regulators should provide additional, detailed bulletins on climate risk. Assuming the proposed guidance is adopted in its current form, the first bulletins should clarify expectations for management related to climate commitments—especially net-zero transition plan—and fair lending. The damage caused by banks failing to follow through on their commitments or denying credit to vulnerable communities will be the hardest to mitigate in the future.

Develop staff capacity. Examiners are largely well-equipped for this first round of exams but will need to get up to speed on best practices in this field. Bank regulators should immediately train examiners on the basics of climate risk: what it is, how and where it might manifest, and the general principles for managing that risk. Even as this first round of exams progresses, regulators can use the FFIEC as a venue to develop more robust training on climate-related risk.

Improve regulatory data quality and availability. Bank regulators should require disclosure of relevant climate risk-related information in the Reports of Condition and Income, colloquially known as "call reports," that banks periodically file. Call reports today capture certain climate-related risk data, such as information about agricultural, automobile, and real estate assets, but they do not provide details on the geographic distribution of loans or exposure to the fossil fuel industry. The FDIC noted that this lack of information made assessment of risky exposures more difficult to perform during the 2014 fall in oil prices (FDIC 2016).

The FDIC, in concert with the Federal Financial Institutions Examination Council, should update the call report forms to capture additional information about climate risk. The report should add a series of line items to each applicable schedule about loans for fossil fuel exploration and production, and fossil electricity generation, as well as securities backed by these assets and derivatives referencing them. As with real estate lending on the current call report, these loans should be broken out by duration, with detailed information about allowances for losses on loans with terms of three or more years, which are particularly exposed to transition risk. The call reports should also add additional information about exposure of existing loan types to physical risks, such as separate line items for loans and asset-backed securities secured by real estate in flood zones or high wildfire risk areas.

INCORPORATE LESSONS FROM INITIAL REVIEWS

The initial findings from these exams should be shared with the broader banking and financial services industry and used to bolster the effectiveness of future exams. Regulators have several supervisory tools they can use that accomplish both goals.

Supervisory insights. Regulators should publish supervisory insights from the first set of examinations within six months of completion. For the OCC, this should come by the end of 2022. This guidance should discuss the percentage of banks that are taking climate risk into account, the number who have identified material climate risks, and the best practices that examiners have seen for identifying and managing those risks. It should also highlight whether some banks are failing to consider climate-related risk and the risks that may arise from this failure. The ECB released these types of findings in 2021, highlighting several troubling gaps and building the case for additional action (Houben et al. 2021).

Updated examination manuals. The insights should be followed by updates to examination procedures to guide bank behavior and future examinations. The procedures should provide specific guidance for how examiners will assess climate risk, including key risk indicators that examiners will look for when they assess loans and portfolios for climate risk. Such indicators are already commonly used in exam manuals (Board of Governors for the Federal Reserve System 2015). In developing thresholds, regulators should take a precautionary approach and incorporate qualitative characteristics.

Along with climate risk-specific procedures in the main exam procedures, regulators should begin updating various forms of supplemental guidance, such as the OCC's Oil and Gas Lending Handbook, to incorporate climate-related risk where appropriate. Other areas where climate risk will need to be integrated include guidance on agricultural lending, country risk management, real estate lending, and allowances for loan and lease losses. As the climate crisis develops further, the scope of bank activities affected by physical risks will grow, and updates to guidance should reflect this reality.

Reflect climate risk in supervisory ratings. Once regulators have laid out standards for addressing climate risk, they should reflect those standards in the supervisory ratings that each bank receives from its primary supervisor. Since climate-related risk cuts across ratings factors, the best approach would be to incorporate climate-related risk into each factor, not to add a new one. This will require a rulemaking process, with a proposal issued concurrently with updated examiner guidance.

CONCLUSION

The climate crisis creates a set of novel challenges for regulators. No matter what path policymakers choose, the financial system will need to navigate an unprecedented economic transformation. The magnitude of this change, coupled with the uncertainties of both the physical impacts of the climate crisis and the policy implications of the solutions, mean that banks and regulators must take a precautionary approach to addressing these risks.

Despite this uncertainty, the urgency of the threat means that regulators do not have the luxury of waiting until they have perfect data and models. They must take immediate steps to help banks to account for these risks and to build up their resilience to the risks they cannot anticipate.

A critical aspect of this solution is one of the most common tools available to bank regulators: safety and soundness supervision. As regulators have insisted, much of climate-related risk management is just regular risk management. But unlike the supervisory failures in advance of the 2008 financial crisis, regulators must use supervision to see whether banks are doing in practice what they should in theory. Quickly deploying this tool will allow regulators to take an iterative, flexible approach to making sure banks are addressing the risks they face. It will also generate valuable data that can help inform future rounds of examination, as well as the deployment of other tools available to bank regulators to protect vulnerable communities, individual banks, and the larger system from risk.

Managing the challenges of the climate crisis for the financial system means deploying every tool in our arsenal. Bank regulators must embrace supervision as one of the most efficient and effective approaches available.

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EDITORIAL

Trickle-down climate risk regulation

Climate change impacts—including flooding, wildfires, and crop failures—are destroying ecosystems, homes, infrastructure, farms, and businesses. Regulators around the globe are paying increasing attention to what these events mean for banks and the financial system, with several attending not only to bank impacts from, but also bank contributions to, climate change. The European Central Bank, for example, is signaling to banks that they must plan and make their transition away from financing of fossil fuels—to respond not only to their own risks but also to the science pointing to the necessity of this transition for the planet and financial system. Yet in the US, the primary regulators of national and community banks are narrowly zeroing in on risks posed to the largest banks—those with over $100 billion in total consolidated assets—without attention to these banks' role in financing greenhouse gas–emitting activities and what they mean for other important financial actors. Such a "trickle-down" approach to regulation—assuming that protecting big banks will protect other, smaller financial entities and the financial system more broadly—obscures the financial crisis that is already underway and inadequately responds to scientific evidence on distinctive features of climate risk and impacts.

Big banks should be worried about climate risks. Loans for fossil fuel–related activities are at risk of rapidly losing value, causing banks that hold them to suffer major losses. Bank balance sheets will also suffer when property damage creates loan defaults. Still, despite promises by most to reach "net-zero" emissions by 2050, big US banks remain the world's largest fossil fuel financiers, apparently believing they can ditch their fossil assets before the energy transition torpedoes their value and that physical impacts to investments in one location can be offset by safe investments elsewhere.

By focusing on threats to big banks, draft climate risk guidance by the US Office of the Comptroller of the Currency (OCC) and the Federal Deposit Insurance Corporation (FDIC) is treating climate risks like the financial risks that spurred the last global financial crisis. Yet science shows that climate change poses new and substantial risks, requiring greater attention to the interconnectedness of financial and environmental systems and what those relationships imply for other financial actors and risk management measures. As climate change simultaneously, repeatedly, and often permanently affects natural and human systems across geographic areas—and as borrowers and taxpayers struggle to pay their bills in response—many community banks and municipalities, ignored by the trickle-down approach, could fail. A report to the US Commodity Futures Trading Commission suggests that such repeated "subsystemic" shocks are initiating "a systemic crisis in slow motion."

Despite having only 15% of total industry loans, community banks are lifelines for rural and underserved communities, representing ~90% of regulated US banks. With lending concentrated in agriculture, mortgages, and commercial real estate, they are especially vulnerable to climate change. As issuers of $3.8 trillion in bonds, municipalities also play a critical role, their health affecting the financial health of bondholders. A municipality hit hard by a wildfire or hurricane will struggle to make bond payments. The 20 and growing number of lawsuits against fossil fuel companies by municipalities needing financial help to deal with climate-related losses are warnings for municipal bondholders and those dependent on public-sector services. For now, government subsidies, including additional annual federal spending of $25 to $128 billion on costs such as disaster relief and insurance, are masking financial harms to these entities.

> "...repeated 'subsystemic' shocks are initiating 'a systemic crisis in slow motion.'"

US banking regulators must reduce threats to bank safety and soundness at every level of the financial system. They should adopt measures that incentivize and require banks to reduce their financed emissions, starting with directing banks to develop science-based plans to accomplish this transition and supporting restrictions on financing of coal and new fossil fuel development. Regulators should also push for disclosure of bank contributions to climate-changing emissions—not just to inform investors as the US Securities and Exchange Commission's recent proposed rule would do, but also to inform regulator efforts to maintain financial system health. In addition to the OCC and FDIC proposals, the Federal Reserve Board will soon issue climate-risk guidance for public comment. As all three finalize their guidance, and prepare follow-up proposals, they have an opportunity to advance just such measures.

–Anne M. Perrault and Gaël Giraud

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SUPERVISING THE TRANSITION:

How Banking Regulators Can Address the Coming Shift to Net-Zero Emissions

REPORT BY **YEVGENY SHRAGO**
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ROOSEVELT INSTITUTE

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SECTION ONE

INTRODUCTION

The financial system is invested in the appearance of taking climate change seriously, but its public commitments mask a failure to take meaningful action.

Financial institutions and regulators agree that climate change poses significant physical risks to markets, even as the ongoing clean energy transition creates risk for assets and lines of business that may rapidly lose value as political, economic, and technological developments render them obsolete. As customers, investors, and employees recognize these trends, they are starting to scrutinize whether and how banks are addressing climate-related risks. In response, US megabanks trumpet their commitment to reducing operational and financed emissions in line with science-based climate targets. Banks promise to reach "net-zero" emissions by 2050, in order to meet the Paris Agreement goal of limiting global temperature increase to 1.5°C above pre-industrial levels. Following through on these commitments would strengthen the financial system against the ongoing and growing shocks created by both the climate crisis and the low-carbon energy transition.

But it appears these net-zero commitments are rarely worth the pixels they're rendered on (Scott 2022). The largest American banks, all of which have committed to "net-zero" emissions by 2050 and announced initial plans to meet those commitments, remain the world's biggest financiers of the fossil fuel projects that drive global emissions (Shraiman and Cushing 2022). None have stopped or pledged to stop financing new oil and gas production or infrastructure projects such as pipelines, even though such projects are incompatible with limiting global temperature rise to 1.5°C above pre-industrial levels. Taking advantage of the ill-defined "net" in net-zero, most banks have given few, if any, specifics on how they will achieve the promised emission reductions, aside from noting vague plans to engage with borrowers and other clients on the issue. In short, despite making commitments to reduce emissions, banks continue to operate in ways that do not reflect these promises—or the growing risks posed by climate change and the clean energy transition.

US banking regulators have noticed this dangerous disconnect. In December 2021, the Office of the Comptroller of the Currency (OCC) became the first US regulator to issue guidance for large banks on addressing the risks posed by climate change (OCC 2021). The OCC's draft principles for addressing climate risk state that "where banks engage in public communication of their climate-related strategies, boards and management should ensure that any public statements about their banks' climate-related strategies and commitments are consistent with their internal strategies and risk appetite statements" (OCC 2021). The Federal Deposit Insurance Corporation (FDIC), another banking regulator, proposed guidance with similar language in March 2022 (FDIC 2022). In December 2022, the Federal Reserve joined its peer regulators in issuing "substantially similar" guidance with the same expectations regarding commitments (Board of Governors 2022).

Transition plans and climate commitments are within the purview of bank regulators, and their forthcoming scrutiny of voluntary climate commitments is an important first step. Climate commitments and transition plans can illuminate how well bank management understands climate risk and how effectively this group can implement a plan for handling such risk. To that end, the principles are a welcome and needed start. But regulators must complement them with more detailed guidance, as the principles fall far short of providing sufficient guidance for banks or examiners to assess whether a bank's commitments and internal strategies are aligned, or what risks are revealed by any misalignment. Given the wide adoption of net-zero commitments and the lagging development of transition plans, regulators should provide detailed guidance on how they will assess alignment and how failure to achieve alignment raises concerns about a bank's management and asset quality.

But regulators should not rely on banks meeting their voluntary commitments. The passage of the Inflation Reduction Act (IRA), along with a package of California legislative and regulatory enactments in August 2022, constitutes a major government effort to reshape the economy, and will hasten the clean energy transition. Modeling from the Princeton Net Zero Lab's REPEAT Project predicts that the IRA will significantly reduce emissions by 2030 (Jenkins et al. 2022). Coupled with state-level policies, the IRA is likely to reshape the economic landscape for energy producers and consumers in the US, which is the type of transition risk that both banks' net-zero commitments and regulatory climate-related risk guidance are meant to address. Banking regulators should make sure banks are preparing for future disruptions instead of taking unnecessary risks for short-term gains.

Given the uncertainty and complexity inherent in both climate change and the energy transition, net-zero transition plans are a strong risk management and financial stability tool available to large banks and their regulators. To protect the banking system, regulators should encourage or even require large banks to adopt commitments to reach net-zero emissions by 2050 and credible transition plans to achieve that goal.

SECTION TWO

LARGE BANK ACTIONS ARE INCONSISTENT WITH THEIR PUBLIC COMMITMENTS TO REDUCE THEIR GREENHOUSE GAS EMISSIONS

The largest US banks have made public commitments to reduce their financed and operational emissions in line with science-based limits. Seven large US banks, including JPMorgan Chase, Citi, Bank of America, and Wells Fargo, have made specific public commitments to reach net-zero emissions by 2050 as part of joining the global Net-Zero Banking Alliance (NZBA) initiative under the Glasgow Financial Alliance for Net Zero (GFANZ) (Sutton 2021). A few other large banks, like Truist (Truist 2022) and US Bank (US Bank 2021), have made similar public commitments through other venues.

To join NZBA, members must commit to reducing the emissions financed via their lending or investment activity to net zero by 2050 (UNEP FI 2022). Eighteen months after joining NZBA, banks are also expected to set intermediate targets, including a 50 percent reduction in greenhouse gas emissions by 2030. This requirement reflects the fact that carbon emissions are cumulative and the goal of limiting global temperature increase to 1.5°C above pre-industrial levels cannot be met if banks continue "business as usual" and only consider making real adjustments years or decades in the future.

Furthermore, all of these commitments require reducing significant emissions in bank borrowers' and other clients' value chains, which include the emissions of the client's suppliers, vendors, and customers. This especially impacts financing for industries in which value chain emissions constitute the bulk of their business, including the coal and oil and gas sectors. Banks that join NZBA are also required to take into account the best available scientific knowledge in designing their plans, use decarbonization scenarios from credible and well-recognized sources, and prioritize reductions in the most greenhouse gas-intensive and highest greenhouse gas-emitting sectors within their portfolios. Finally, members commit to limit their reliance on negative-emissions technologies, such as carbon capture, in assessing their reductions.

A standardized measurement system is critical for assessing progress on net-zero emissions commitments. To help quantify their emissions in a consistent way, most large banks with net zero commitments have also joined the Partnership for Climate Accounting Financials (PCAF), a global voluntary standard setter (PCAF 2022). PCAF sets out a methodology for how banks account for the emissions from their lending, investments, and capital markets activities across different sectors, as well as expectations for how to assess data quality and disclose this information.

In joining NZBA and PCAF, large US banks have agreed to certain key elements of the transition plans needed to meet their public net-zero commitments. These elements reflect a considered process developed with wide-ranging stakeholder input (UNEP FI 2021). With those guideposts in place, the groups leave it up to each bank to make the credit and investment decisions needed to comply with and monitor their commitments. Unfortunately, to date, banks have not made the business decisions necessary to align their business with these net-zero commitments.

A. LARGE BANKS CONTINUE TO MAKE LENDING AND UNDERWRITING DECISIONS THAT CONFLICT WITH THEIR PUBLIC COMMITMENTS, AND THERE IS NO SIGN THEY INTEND TO CHANGE COURSE

The business decisions made by US signatories to NZBA do not align with their commitments (Kirsch et al. 2022). JPMorgan Chase, Citi, Wells Fargo, and Bank of America are still four of the five largest fossil fuel funders in the world. In fact, in 2021, when they joined NZBA, JPMorgan and Wells Fargo both significantly increased their oil and gas funding (Davey 2022). JPMorgan CEO Jamie Dimon has consistently maintained that the bank will continue to fund fossil fuel expansion (Towey 2022), even as it trumpets new net-zero targets.

Additionally, none of the largest US banks with net-zero commitments have promised to stop funding or underwriting new oil and gas development outside of the Arctic, and the rising funding levels for oil and gas at some banks suggest those commitments are not forthcoming. While NZBA has not yet explicitly banned funding or underwriting for new or existing oil and gas projects (Bindman 2022), such behavior is inconsistent with meeting NZBA targets or achieving net-zero emissions by 2050. Even the International Energy Agency, an influential energy modeler that has long been criticized as biased in favor of fossil fuels and long resisted calling for an immediate end to new fossil fuel production (Muttitt 2016), said in its 2021 World Energy Outlook that its "narrow" pathway to net zero by 2050 did not include any new fossil fuel supply or development (IEA 2021). Continuing to finance new fossil fuel development through 2030 or beyond is not consistent with the mechanics or purpose of a net zero by 2050 commitment. Even if the loans funding those assets are sold or otherwise removed from a bank's balance sheet, the underlying projects will continue to operate, making it harder for the economy to meet the ultimate goals of the net-zero commitment: reducing the negative physical and economic impacts of both climate change and the energy transition.

Banks have also been unwilling to limit their reliance on offsets and negative emissions technologies like carbon capture and sequestration despite their NZBA commitment to use such technologies only as a last resort. As long as offsets and unproven technologies remain

part of banks' net-zero commitments, their emissions reductions are unlikely to reach the level of their commitments. As we discuss in Section 4B, these approaches are not a reliable method for reducing emissions, and they may never be. Yet of the largest banks, only Wells Fargo has stated that it will not include offsets in its 2030 targets. In contrast, Kathleen Finucane of Bank of America recently described offsets as an important component of a net-zero transition, even as she acknowledged the evidence that offsets do not, in fact, reduce emissions (Finucane 2021).

B. WITHOUT APPROPRIATE OVERSIGHT AND CONTROLS, BANKS ARE HIGHLY UNLIKELY TO MEET THEIR COMMITMENTS

In addition to specific decisions that are incommensurate with their commitments, large US banks have not implemented any real controls or processes for reducing their financed emissions. At a September 27, 2022 conference on "Financing a Net Zero Economy" hosted by Ceres, a sustainable markets nonprofit, a representative of one large bank with a net-zero commitment described the bank's current approach as focused on educating the staff who make loans and hold client relationships about the benefits of ESG. Without some form of monitoring in place, it will be virtually impossible for banks to make business decisions that align with their public climate commitments.

Banks already must implement different types of controls to align incentives. Banks are large institutions, and while climate risk is now understood as a mainstream challenge, the solutions are not universally accepted. In many cases, bankers' bonuses may be tied to relationships with borrowers whose businesses are not aligned with net-zero emissions goals. For these employees, meeting climate goals by divesting from certain businesses, introducing tougher loan terms, or doing anything more than engaging clients in gentle conversation may seem unacceptable. In the absence of rigorous data to quantify emissions and controls put in place by management, these recalcitrant employees or even whole departments can and will continue to act in a manner contrary to the bank's stated goals.

Ensuring that banks have appropriate controls in place to address risks is the purview of financial regulators. Other sources of pressure are unlikely to generate compliance because they cannot influence or direct banks to change their internal incentive structures, and they lack visibility into the specifics of internal bank controls. Nor can other bodies sanction banks for failing to make progress on their commitments. The NZBA, which banks join voluntarily, may be willing to sanction or expel a single scofflaw; but by and large, the group reflects the will of the majority of the very member banks who are failing to meet the organization's requirements and their own commitments. Indeed, several US banks, including JPMorgan, Morgan Stanley, and Bank of America, recently threatened to withdraw from NZBA (Marsh and White 2022) over concerns that it would require members to commit

to phase out fossil fuel funding. Other civil society organizations that have served as watchdogs also lack authority to sanction banks for misalignment. Nigel Topping, co-leader of GFANZ, has said, "It's insane for the world to rely on underfunded NGOs to police capital markets . . . Governments need to step up" (Walker et al. 2022).

Market pressure is also unlikely to fill the gap. Climate change has long been called "the greatest market failure the world has ever seen" (Benjamin 2007). Governments around the world acknowledge that markets need additional regulation to properly internalize the risks posed by such a dramatic market failure. Banks are no different. Today, banks use three- to five-year time horizons for strategic planning that make it easy to assign climate-related risks and the costs of decarbonization to the future, while retaining the short-term profits generated by still-lucrative, high-emitting clients. The lack of available data will also blunt the possibility of market pressure. For instance, the 2 Degree Investing Initiative found that 0 percent of PCAF signatories are disclosing greenhouse gas emissions information that is compliant with the standard (Thomä 2022). Without high quality, properly baselined data, it is impossible for investors to know whether banks are complying with net-zero commitments. Regulators can push banks to address these shortcomings and require them to gather or measure necessary data. But because of the confidential nature of supervisory examinations, regulators need to do more than just identify misalignment: They must set out clear expectations for what alignment looks like.

SECTION THREE

BANK REGULATORS HAVE THE AUTHORITY AND THE RESPONSIBILITY TO SUPERVISE WHETHER AND HOW BANKS ALIGN INTERNAL STRATEGIES WITH VOLUNTARY CLIMATE COMMITMENTS

Banking regulators assess whether banks are operating in a safe and sound manner—essentially, whether they are taking on excessive risks that may harm the institution or depositors or they lack procedures to guard against excessive risk-taking. As we discussed in a previous report, *Looking Over the Horizon: The Case for Prioritizing Climate-Related Risk Supervision of Banks* (Shrago and Arkush 2022), regulators can use supervisory guidance and bank examinations to assess how banks are handling climate risk in all aspects of their business, including planning for the transition.

The federal banking regulators, including the OCC, FDIC, and Federal Reserve, as well as state banking regulators, use a supervisory risk management framework known as CAMELS ratings (Board of Governors of the Federal Reserve System and FDIC 2019). Examiners assess six components, each of which contributes an initial to CAMELS,[1] on a scale of one (strongest) to five (critically deficient). Banks that are deficient in any area can be subject to sanctions such as limits on expansion, increased capital requirements, or even fines. Exams can look at public climate commitments through two CAMELS components.

The first relevant component is Asset Quality (A), which is based on the credit risk associated with a bank's lending and investment portfolios. The regulators' proposed principles for climate risk management identify transition risk as a potential source of credit risk to a bank's assets (OCC 2021). The regulators define transition risk as the stresses to banks or clients that arise from the policy-related, economic, and technological shifts associated with efforts to limit climate change (OCC 2021). Public climate commitments are a way to reduce a bank's exposure to high-transition risk assets. Failure to act on this commitment means a bank is keeping those assets on its balance sheet, increasing the risk of credit losses associated with the transition.

The second relevant component is Management (M), which is based on the capability of the bank's leadership to identify, measure, monitor, and control the risks of a bank's activities (Board of Governors of the Federal Reserve System and FDIC 2019). The implications of a failure to align public commitments and internal strategies go beyond a bank's exposure to transition risk. Voluntary net-zero commitments are part of a bank's business plan and represent a statement by management about a strategic and operational priority with

1 The six components are: Capital Adequacy, Asset Quality, Management, Earnings, Liquidity, and Sensitivity.

far-reaching implications for the bank's business. Failure to appropriately implement the plan can reveal broader weaknesses in a bank's governance, strategic planning, and risk management apparatus.

A. REGULATORS SHOULD ASSESS CLIMATE COMMITMENTS AND TRANSITION PLANS TO UNDERSTAND WHETHER A BANK'S ASSETS ARE OVERLY EXPOSED TO TRANSITION RISK.

Regardless of whether individual banks align their internal strategies with net-zero commitments, the world is moving toward net zero. Bank assets are subject to the economic, technological, and political forces driving the low-carbon transition.

Existing commitments and transition plans reflect an emerging global consensus about what the transition will look like. Frank Elderson, Vice Chair of the European Central Bank's (ECB) Supervisory Board, has described these commitments as acknowledging the importance of "transition-robust business models" (Elderson 2021). Examiners can use a bank's plans for implementing its commitments as a tool for assessing the risks faced by assets subject to the transition, and the overall credit risk that the bank's own transition plans (or lack thereof) pose to its existing portfolio.

When a bank makes climate commitments and then implements an insufficient transition plan, examiners should consider whether the banks' assets are overexposed to transition risk. In these situations, the bank is projecting a world in which emissions fall off sharply, reaching net zero by 2050, even while continuing to fund borrowers whose business plans cannot exist in such a world. This leaves the bank's assets vulnerable to unexpected write-downs, as the threat of a sharp repricing of high-emitting assets, sometimes known as a "climate Minsky moment" (Miller and Dikau 2022), grows as the transition hastens. The exact timing of such a repricing is hard to predict. Regulators should provide additional scrutiny to assets and portfolios that a bank itself thinks are potentially at high risk of such a rapid impairment, and perhaps scrutinize even more closely a bank's failure to identify such assets.

B. REGULATORS SHOULD ASSESS BANKS' CLIMATE COMMITMENTS AND TRANSITION PLANS TO GAIN INSIGHT INTO MANAGEMENT'S ABILITY TO BUILD AND IMPLEMENT STRATEGIC PLANS

Along with testing portfolios and loans to identify whether a bank is engaged in excessive risk-taking, examiners assessing the bank's safety and soundness should assess management's power and ability to discharge its responsibilities. This includes implementing policies and processes for managing risk and developing and overseeing control systems for those risks (OCC 2019). This broader approach helps illuminate a bank's resilience to unexpected risk and predict management's ability to react to new developments.

Whether climate commitments and internal strategies are aligned provides a bellwether of how management can handle implementing the kinds of complex risk management processes necessary to protect the safety and soundness of a large financial institution. In addition, climate commitments are a highly visible part of a bank's overall strategic plan, which means they should garner additional attention from management. If management cannot execute on its climate-related commitments or plans, regulators should doubt its ability to successfully guide the bank in other strategic initiatives, including those related to managing risk.

Existing supervisory guidance from banking regulators sets an expectation that management should establish appropriate policies and procedures before introducing new activities (OCC 2019), such as a major climate commitment, that would require changes throughout the bank's business. Failure to do so may reflect broader weaknesses in oversight or policies and procedures. For example, if transition plans are not based on realistic assumptions or do not take into account the resources and technological needs to achieve the bank's goals—both of which are requirements of the strategic planning process—management may be setting up the bank to fail in meeting its commitment. Alternatively, misalignment between stated commitments and actions may show that management struggles to implement its policies, to review whether they are implemented effectively, or to maintain accountability for implementation.

C. FAILURE TO OBSERVE A NET-ZERO COMMITMENT MAY ALSO CONSTITUTE A DECEPTIVE ACT OR FRAUD

It is possible that banks might make public climate commitments with no intention of fulfilling them, seeking instead to obtain reputational or social benefits of "green" branding. Increasingly, consumers value sustainable choices and are more likely to take

climate impact into account when they select a product (J.P. Morgan Global Research 2021). Instances in which a bank tries to meet consumer and investor preferences via empty climate commitments should create concerns about both the specific deceptiveness of the bank's statements and its general market conduct toward consumers and investors. Anneli Tuominen, a member of the ECB Supervisory Board (Tuominen 2022), suggested that banks who make and then break climate commitments may face legal risks related to making misleading statements.

A bank's act or practice is deceptive if it misleads or is likely to mislead a reasonable consumer and the claim is likely to affect a consumer's conduct or decision (CFPB 2022). A bank whose internal strategies diverge significantly from its public commitments could be misleading consumers about those commitments. Determining whether such a divergence is deceptive requires further review and assessments of consumer preferences and behavior, bank commitments, and the contexts in which banks present those commitments. That analysis is beyond the scope of this paper but it should receive attention from the Consumer Financial Protection Bureau (CFPB), which has primary jurisdiction over consumer protection supervision for large banks.

SECTION FOUR

BANKING REGULATORS SHOULD ISSUE GUIDANCE EXPLAINING HOW THEY WILL ASSESS ALIGNMENT OF INTERNAL STRATEGY AND PUBLIC COMMITMENTS

Bank regulators can help address misalignment between public climate commitments and internal strategies by issuing supervisory guidance and reviewing bank transition plans during regularly scheduled examinations of compliance with banking law. Providing a clear framework for assessing alignment will help examiners understand which banks have serious problems with transition risk, management oversight, or market conduct. Once the regulators have issued guidance, they should incorporate the expectations into scheduled examinations, including consequences for a bank's CAMELS rating.

The guidance should explain what it means for a commitment to be aligned with internal strategies and how examiners should assess whether management is effectively implementing that commitment. Furthermore, in discussing what is needed to achieve alignment, regulators should use net-zero by 2050 commitments, the overwhelming market standard, as a benchmark.

A key element of the alignment review should consist of assessing whether a bank's transition plan reflects realistic projections of climate science, technological progress, market conditions, and policy. The review should consider how the commitments align with other business practices and risk management strategies, taking the commitments seriously and expecting the bank to do the same. Along with the overall direction of the business, examiners should also look at the governance and processes implemented by the bank to achieve its transition plan goals. Without these structures in place, a bank will struggle to implement something as transformative as a net-zero transition plan. Where a bank does not appear to have incorporated its climate commitments into its business, either at the strategic or operational level, the review should trigger additional scrutiny and questions from examiners about the alignment of the plan and the bank's ability to manage transition risks or address other significant strategic priorities.

A. NET-ZERO BY 2050 COMMITMENTS ARE ALIGNED WITH INTERNAL STRATEGY ONLY IF A BANK HAS TOOLS TO TRACK ITS PROGRESS AND MAKE ADJUSTMENTS IF IT IS NOT MEETING ITS GOALS

Banks achieve strategic alignment with climate commitments by building transition plans from credible, widely accepted decarbonization scenarios and pathways that reflect the latest in economic and technological development (Dikau et al. 2022). When it comes to achieving their commitments, banks have several options, ranging from engaging with clients about the value of a net-zero transition, to investing in client decarbonization, to divesting from clients who lack business plans that align with the bank's goals. Based on the scenarios they use for projecting emissions reductions, banks will need to assess how to balance these options. In all likelihood, they will need to employ different options based on client profile.

Regulators should ensure that the bank's pathways and scenarios are based on science and logic (Dikau et al. 2022). This will help examiners understand the validity of other assumptions about transition risk to assets and whether management can marshal the relevant subject matter expertise to balance risks and achieve business goals. Regulators should assess the basis of a bank's pathways and scenarios by examining how they diverge from existing well-regarded protocols, such as GFANZ. Regulators should also assess the processes the bank uses to track and manage progress. This means transition plans need to reflect meaningful intermediate milestones that are consistent with the chosen decarbonization scenarios. Effective transition plans should also include approaches for assessing client progress on the bank's metrics and for shifting approaches when clients make too little progress.

MILESTONES

Most banks' climate commitments promise net-zero financed emissions by 2050. However, as discussed above, few banks have announced any intermediate targets or other metrics to measure progress before that year.

The most obvious potential consequence of a bank's failure to set interim targets or metrics for a multi-decade plan is that the bank will not achieve its goal. Indeed, failure may become a near certainty well before the end date. Milestones are also important because a bank that delays its transition increases the credit risk associated with a future transition. If a bank waits to reduce the financed emissions in its portfolio until the late 2030s or 2040s, it may find a limited market for long-term assets, as other potential buyers implement their own

transition plans. In this case, the bank might have to choose between missing its climate commitments and writing down assets or engaging in a fire sale, threatening the bank's safety and soundness. Setting milestones will help reduce these risks.

A bank cannot manage this risk simply by pointing to the short-term nature of its loan portfolio. The failure to start reducing foreseeable risks now means that necessary future readjustments may be far sharper and more disruptive to a bank's business and to its borrowers. Short-term decisions may push the bank down a path that is untenable in the medium or long term. If the bank does not let high-emitting assets run off its books according to a longer-term plan, it may be forced to do so in a way that disrupts its business strategy. Transition pathways are unpredictable: A bank faced with a choice between continuing to operate a stubbornly high-emitting line of business or significantly reducing revenues by cutting it will have no good short-term choices. Setting clear milestones will give the bank a more predictable plan for reducing emissions that it can tailor to the specific duration of its assets and the broader composition of its loan book, making it more likely to meet its commitments and weather the clean energy transition safely.

Without reasonable milestones, management will not be able to assess the bank's progress toward its decarbonization goal and, if it is lagging, adjust its strategy or execution. Climate commitments are not the only bank strategy that requires intermediate milestones, and their absence in this space should raise questions about the appropriateness of management's approach to implementing other policies and procedures. Milestones also show that management has a plan to assess whether the mix of pathways adopted in its transition plan will achieve its commitment and, if not, to adjust accordingly. If management finds that a bank's portfolio is not meeting its intermediate targets, milestones will allow them to adjust gradually rather than having to make a sharp pivot that may threaten the bank's safety and soundness or its reputation.

Given the complexity and heterogeneity of bank portfolios, banks will need to set different milestones for lines of business, economic sectors, and even individual borrowers or assets instead of setting milestones only for the whole bank. And while regulators should not dictate whether banks need to set milestones at a sector, borrower, or even loan level, they should provide guidance on the reasoning they expect to see from banks when they choose the granularity of these milestones.

BORROWER CREDIBILITY AND PROGRESS

Banks need to rely on projections of their borrowers' and other clients' future emissions when assessing how new and continuing loans will affect their portfolio alignment. That kind of forward-looking assessment is fundamental to management's ability to safely and soundly operate a bank. The process requires employing a mix of data and judgment similar to other forward-looking assessments, such as the ability to repay loans.

Regulators should provide guidance similar to what they provide for credit risk assessment, possibly building on the work done by GFANZ, which suggests a range of approaches for assessing client performance (GFANZ 2022). Examiners should check to see that the bank adopts a consistent methodology, consider how the bank plans to apply it, and at key milestones, review its effectiveness. Specifically, a bank should have a plan for changing its estimation approach where a methodology consistently underestimates climate emissions reductions generated by certain pathways, such as educating clients on the benefits of net zero or the unspecified "engagement" that many large banks say is their main tool for reaching their net-zero goals. Conversely, a lack of provisions for pivoting or adjusting when emissions reductions do not meet projections should raise questions about management's ability to manage other nonperforming aspects of the bank's business.

Along with adjusting methodologies, banks must have a plan for handling borrowers or sectors that do not make progress against milestones and targets, just as the bank would for nonperforming borrowers. Regulators should issue guidance detailing different approaches for managing this issue. Some examples include incentives like providing better terms for borrowers that are making the transition effectively (Philipponnat 2022), or alternatively, requiring more stringent covenants for those that do not meet the criteria as part of reassessing the adequacy and appropriateness of their loan pricing and collateral decisions. Banks have flexibility to set the terms of the loan, as long as the overall financing remains soundly underwritten. Other approaches might include funding a managed phaseout of a high emissions business line or investing in early-stage technologies that can help decarbonize other borrowers. These approaches need not always generate immediate emissions reductions, but they should reflect realistic economic and technological conditions.

Most banks today have said they will not stop doing business with clients or sectors that do not have a well-defined path to net zero, preferring client-engagement models. But to date, there is little or no description of what this engagement entails, and little evidence that client engagement yields progress toward banks' commitments. At a minimum, where there is no progress based on engagement, banks should incorporate explicit commitment targets into their underwriting process, loan covenants, and collateral guidelines. Regulators need not require exit, but they should note in the guidance that continued engagement with a borrower that makes no progress will raise questions about the effectiveness of a bank's transition plan. Examiners should conduct reviews of borrowers or sectors that consistently miss milestones or targets and evaluate management's plan for generating different results.

B. STRATEGIES FOR ACHIEVING COMMITMENTS SHOULD REFLECT CLIMATE SCIENCE AND TECHNOLOGICAL REALITIES

While regulators may not wish to set specific parameters for net-zero commitments, they should require banks to design their transition plans in ways that reflect plausible assessments of future developments. Plans should be based on the latest in scientific assessments and grounded in realistic projections of technological, market, and policy conditions. The most important aspects of the commitment to assess will be how banks address financing for fossil fuel development and whether they rely on offsets and other negative emissions technologies.

FINANCING FOR FOSSIL FUEL DEVELOPMENT

Regulators should issue guidance clarifying that, based on the latest climate science and the current and projected state of technology, the transition plans and transition risk management of banks that continue to fund new fossil fuel development will receive significant additional scrutiny. As discussed in Section 2A, new fossil fuel development is incompatible with net zero by 2050. A climate commitment that is not aligned with this reality raises the likelihood that management is not accurately assessing other transition risks that the bank faces, or that the bank's assets are overly exposed to those risks, as reflected in the bank's own commitments.

CARBON OFFSETS AND NEGATIVE EMISSIONS TECHNOLOGIES

Banks that continue to invest in new fossil fuel development may be planning to "offset" this development by financing projects that ostensibly avoid emissions or actively reduce the level of greenhouse gases in the atmosphere.

The primary form of avoided emissions involves the preservation or expansion of nature-based sinks of greenhouse gases, such as forests or wetlands. Reforestation, in particular, is a popular type of offset project (Gurgel 2022). Any use of offsets by banks should reflect the serious concerns that climate scientists raise about the efficacy of relying on such nature-based offsets. The main sources of concern include the exaggeration of the level of additional carbon emissions avoided by preserving existing forests (Canham 2021; Elgin 2020), the limits on the level of emissions that can reasonably be sequestered through the creation of new natural carbon sinks (Stabinsky 2021), and the challenges of protecting natural sinks from human and natural impacts in ways that keep the emissions from being returned to the atmosphere at a later date (Kahn 2021).

In addition to these nature-based offsets, other offsets include efforts to develop or deploy carbon removal technologies, such as carbon capture, utilization, and storage (CCUS), and direct air capture (DAC). Both technologies are largely unproven, and existing pilot projects show the challenges in scaling up. For instance, a hydrogen plant that Shell touted as using a carbon capture system emitted 50 percent more greenhouse gases than it sequestered during the period of its operation (Global Witness 2022). Meanwhile, the cost to capture carbon dioxide at the world's largest direct air capture plant is four to eight times higher than what is needed to turn a profit (Birnbaum 2021). The plant's operator does not expect direct air capture to be cost competitive until the late 2030s at the earliest, while sharp emissions cuts are needed immediately to remain consistent with a 1.5° pathway.

With these challenges in mind, excessive reliance by management on offsets or negative emissions technologies in net-zero plans creates risk that examiners should address. First, if these projects do not deliver on their emissions commitments, banks may fall far behind their milestones. That will require banks to either break their commitments, incurring significant credit risk and reputational harm, or quickly reduce portfolio emissions in a way that may trigger write-downs or fire sales of high-emitting assets. Second, excessive reliance on offsets suggests that management is willing to pursue projects that are not scientifically or technologically feasible, which should raise concerns about management's ability to assess the feasibility of other projects or borrowers it finances. Much like the purchase of collateralized debt obligations (CDOs)[2] during the subprime mortgage crisis, management's willingness to believe in something that is too good to be true poses a serious threat to a bank's safety and soundness, even beyond the specific credit risk of an asset.

C. SUPERVISORS SHOULD REVIEW HOW ALL PARTS OF THE BUSINESS EXPECT TO ALIGN WITH THE BANK'S COMMITMENT

The proposed principles for climate risk management issued by the federal banking regulators recognize that, to be effective, a bank must take a whole-of-business approach to risk management (Board of Governors of the Federal Reserve System 2022). Regulators must treat a transition plan as an important part of risk management and a major public commitment to be implemented throughout all parts of the business. The recommendations in this section include ways that a bank's management can demonstrate sound practices for managing transition plans and the climate risk they help mitigate. These recommendations largely apply the principles for climate risk management and the recommendations made in our report *Looking Over the Horizon* (Shrago and Arkush 2022) to transition plans.

2 CDOs are a type of structured financial product that purported to transform risky subprime mortgages into safe, high-yield debt that could be held by pension funds.

The Board of Directors should play an important oversight role in tracking the bank's progress on its transition plan and receive regular updates from bank officers on progress. Management should provide the board with training on how to understand and assess the details of any commitments or benchmarks it has agreed to meet and how to evaluate those standards. In addition to the board, senior management should be at the forefront when implementing climate commitments. Primary responsibility should sit with a senior leader with the authority to drive needed changes in practices across the business. Furthermore, all senior leaders must have incentives and responsibilities that are compatible with meeting that commitment. Management should develop plans for training and hiring staff to equip them with the necessary expertise to implement the transition plan.

Along with specifically aligning their transition plans with their strategic plans, banks with public climate commitments need to adjust their strategic planning process writ large. Banks can only be in alignment if they use a strategic planning horizon that reflects their commitments. Commitments for reaching net zero by 2050 will require investments and business decisions that exceed the standard three-to-five-year planning horizon most banks use (Bateson and Saccardi 2020). The planning process should identify where reducing emissions in the short, medium, and long term conflicts with other strategic priorities and should provide clear guidelines for resolving the conflict. It should also include a review and update of climate-related assumptions underlying the commitments. Rapid policy shifts like the passage of the IRA can cause major changes to these assumptions, and they will need to be reevaluated frequently.

Translating a strategic plan into operational success requires banks to update their existing policies and processes for monitoring and measuring progress and to identify risks to success. The review processes for lending, collateral adequacy, asset purchase, and other financing decisions should incorporate the bank's transition plan goals. For instance, alignment checks should accompany a loan during the loan underwriting process. Banks should also conduct periodic portfolio testing of their existing assets to assess whether they are still aligned with the transition plan. Bank staff should report these results regularly through the bank's normal risk management processes, similar to results from other portfolio tests for asset impairment.

Such assessments should align with the bank's management of climate-related credit risk. If a bank is financing a business or activity that is not aligned with its own net-zero commitments, the same asset may be subject to unsafe levels of transition risk (Arkush 2021; Stiroh 2022). When a bank runs scenario analyses, it should incorporate its own net-zero commitments (and those of other banks and counterparties) into the scenarios to understand the effect that plans may have on the ability to dispose of long-term, high-emissions assets as the market for them dwindles.

To make sure that these risk management processes are meaningful, banks must select metrics for assessing how both new and existing assets meet their transition plan goals. The most common metrics involve the percentage of portfolio companies that have net-zero

aligned emission reduction targets and how mature those commitments are. To make such metrics meaningful, banks should select from recognized options for portfolio alignment—like those GFANZ recommends in its report on portfolio alignment (GFANZ 2022)—or develop similar metrics that align with their plan goals. Banks should also have tools and processes to regularly gather necessary information from borrowers and other clients and track progress toward commitments. Most directly, this requires a process for understanding the emissions contribution of each financing or client relationship decision and accounting for those emissions across the entire bank.

SECTION FIVE

REGULATORS SHOULD ENCOURAGE OR DIRECT BANKS TO ADOPT NET-ZERO TRANSITION PLANS

The passage of the Inflation Reduction Act in August 2022, viewed alongside a subsequent package of California policies designed to phase out internal combustion engines and increase the adoption of renewable energy, represents perhaps the most significant regulatory policies and investments in the energy transition that any jurisdiction has made to date. These policies show how quickly the policy landscape can shift, and they are projected to catalyze rapid growth in the adoption of renewable energy (Jenkins et al. 2022). These investments are likely to trigger economic and technological changes that further exacerbate transition risk—and US banks and their regulators are failing to keep up. Banks and regulators need to be prepared for the effects that the transition risk will have on asset quality, even as they may be unable to predict the specific economic, political, and technological developments that drive it.

Transition plans are a way to manage this risk. Given the unpredictability and complexity of climate-related risk, regulators can use well-settled authorities to encourage or require transition plans as a tool for minimizing the risks that banks can control and to create resilience for the risks that they cannot anticipate. At the same time, the Federal Reserve and the Financial Stability Oversight Council have an expanded and underused financial stability mandate under the Dodd-Frank Act, and they have already recognized that climate change poses an emerging threat to financial stability (FSOC 2021).

To date, even regulators who recognize the challenges of climate risk have disclaimed any authority to direct banks to divest from specific sectors, asserting that they do not direct credit allocation (Gruenberg 2022; Cox 2021). Those statements are correct in a vacuum. But the relevant authorities are based on correcting unsafe and unsound practices and preventing threats to financial stability. If a whole sector is extremely risky, regulators have been willing to tell banks to take special steps to manage that risk (Board of Governors et al. 2023). In any event, transition plans are not sector specific: They are a tool for managing a major source of risk regardless of sector. Regulators in the US and abroad have begun to recognize the value of transition plans in mitigating climate risk and to push financial institutions in that direction. And US regulators have been willing to encourage banks to cease certain practices due to the risks they posed.

Federal bank regulators should not dismiss this powerful risk management and financial stability tool. Instead, they should start the process of understanding how to integrate it into their toolkit.

A. TRANSITION PLANS ARE THE BEST TOOL FOR MANAGING THE TRANSITION RISK OF HIGH-EMISSIONS ASSETS

Climate-related financial risk poses challenges that differ in important ways from risks that banks managed in the past. In particular, climate risk is uncertain, highly correlated, and occurs over a long time horizon. At the same time, some amount of climate-related "risk" is nearly certain to materialize (Arkush 2021). This set of characteristics may mean hedging, diversification, and buying insurance become less reliable tools to manage exposure as climate change worsens (Brainard 2021). As discussed in previous reports (Shrago and Arkush 2022; Arkush 2021), such characteristics of climate risk mean that banks and regulators should adopt a precautionary approach to managing those risks. Among other implications, that approach means reducing exposure to foreseeable climate risks, even where the potential quantifiable losses seem acceptable, to build additional resilience for unpredictable sources of risk (Brainard 2021).

Transition plans represent an effective approach for reducing knowable risk, and regulators should encourage their use via supervisory guidance on safety and soundness. High-emissions assets are the most vulnerable to transition risk, and their vulnerability grows as global progress toward reducing emissions moves forward. As the passage of the IRA shows, such progress is not linear or easily predictable. Even before the IRA, the Institute for Energy Economics and Financial Analysis had concluded that the growth of renewable energy made a strong case for divestment from the fossil fuel industry (Sanzillo et al. 2022). Analysts from the Rocky Mountain Institute have asserted that the markets for oil and gas have already peaked, and the repricing in these markets may be sharp and unpredictable (Bond and Butler-Sloss 2022). Banks cannot predict when this repricing will happen, but gradual reduction of exposures, in line with the broader global trends drawn by science-based targets, can help moderate exposure to these assets as their transition risk rises. In contrast, the approach that is least likely to mitigate risk in the event of a sharp, unpredictable transition shock is taking no action until there are clear indications that the shock is occurring.

A transition plan is particularly important for sectors—like oil and gas exploration and production—that finance assets that are capital intensive, with long payback periods. These assets are at risk of becoming stranded long before they have fully amortized their costs (Wilson et al. 2022). A bank may be able to decline to roll over a loan or extend further credit to a company before its assets reach this point, but this risk management strategy has pitfalls. First, international accounting watchdog Carbon Tracker has found that many high-emissions companies are not adequately disclosing the way that climate change and the energy transition affect their key financial assumptions (Davidson and Schuwerk 2022). This means that underwriting may overestimate the financial viability of these firms even in the short term. Second, where banks refuse to roll over or extend credit, their actions may trigger

the exact defaults they seek to avoid. If the defaulting firm is forced to liquidate assets at low prices, it may degrade the viability of higher quality loans to the same sector that remain on the bank's books. Banks with well-developed and well-implemented transition plans will have less exposure to assets affected by unpredictable "fire sale" dynamics.

B. TRANSITION PLANS HELP ADDRESS THE SYSTEMIC RISK GENERATED BY BANKS' CONTRIBUTION TO CLIMATE RISK

Climate change is a systemic threat to the US financial system (The White House 2021; Carney 2015). At the same time, recent analyses have concluded that financial markets tend to underprice climate-related risks (Campiglio et al. 2022). Climate scientists have consistently underestimated the speed and magnitude of climate change, just as forecasters have consistently underestimated the pace of the energy transition (Evans 2021; Wagner 2021). Such complex uncertainty counsels adopting a precautionary approach to managing climate risk (Arkush 2021).

Banking regulators have also highlighted the potential for climate-related risk to drive systemic threats. In its version of the draft supervisory principles, the FDIC (FDIC 2022) echoed the Financial Stability Board, noting that "interconnections within the financial system can accelerate the spread of . . . climate-related financial shocks, leading to potential contagion effects if institutions experience shocks as a result of physical or transition risks." The ECB's scenario analysis found that a delayed, disorderly green transition may be one of the biggest drivers of such financial instability (ECB and ESRB 2022). The ECB notes that in the event of a transition shock, overlapping risk exposures could drive fire sales that cannot be easily hedged by purchasing assets whose price will move up as the assets subject to a fire sale lose value. The ECB concludes, "a gradual greening of bank balance sheets, particularly among the most exposed banks, could eliminate the vast majority of transition risk losses."

Despite the ECB's strong conclusions, its analysis likely underestimates the risk, as it is based on NGFS scenarios and climate models that are limited in the level of fine detail they can provide for both physical and transition risks (Monasterolo et al. 2022). The scenarios also do not account for how damage from climate change even in "low" physical risk scenarios has disproportionate impacts on community banks, municipalities, small businesses, and other financial actors with limited ability to geographically diversify their exposures (Perrault and Giraud 2022). Indeed, an advisory committee to the Commodity Futures Trading Commission described the financial effects of sustained climate shocks on these actors as a "systemic crisis in slow motion" (Subcommittee on Climate-Related Market Risk 2020).

Based on these findings, implementing an orderly transition scenario—a gradual greening of bank balance sheets, in the ECB's words—would bolster financial stability by strengthening bank balance sheets and by reducing the level of physical risks that banks

and the financial system face. The most effective way to reduce these risks is to encourage or direct banks to adopt net-zero transition plans aligned with climate science. Doing so will reduce their exposure to high-transition risk assets and help move the transition forward.

The risks posed by the decision to continue financing high-emissions assets are the exact type of diffuse, systemic problems that the Dodd-Frank financial stability powers are designed to address. The Federal Reserve, for example, can establish prudential standards needed to mitigate risks to financial stability caused by the ongoing activities of bank holding companies with more than $100 billion in assets.[3] An appropriate use of that authority is to direct these systemically important banks to adopt plans to mitigate the risks they create for themselves and the financial system.

Although systemically important banks are the most interconnected and the largest financiers of high-emissions activities, regulators may worry that this activity will simply shift the risk to large nonbank financial companies. To address this concern, the FSOC could use its authority to designate systemically risky nonbank financial companies[4] for supervision by the Board. An entity's contribution to risk should be a factor in the decision whether or not to designate. The Board would then apply prudential standards to those nonbanks, which could include requiring them to adopt transition plans.

Regulators also may fear that if they require transition plans for the largest banks, smaller banks or nonbank financial companies will increase their exposure to these high-risk assets. These small firms are unlikely to be able to significantly increase their exposure without financing from larger financial companies. Those larger firms would be unable to provide this financing as a result of their own transition plans, since their transition plans would need to account for the emissions financed by smaller firms borrowing from the larger ones. If small banks do significantly increase their exposure to high-transition risk assets, regulators should respond by using safety and soundness requirements for managing climate-related risk exposure.

C. OTHER FINANCIAL REGULATORS, ARE ALSO ADVANCING TRANSITION PLANS AS A RISK MANAGEMENT AND FINANCIAL STABILITY TOOL

European regulators have also begun considering transition plans as part of their safety and soundness mandates (Perrault 2022). In a 2021 speech (Elderson 2021), Frank Elderson, Vice Chair of the Supervisory Board of the European Central Bank, noted that legislative initiatives in the European Union, as well as the direction of private finance, implied

3 12 U.S.C. §5365

4 12 U.S.C. §5323

that "banks need transition plans compatible with EU policies implementing the Paris Agreement, with concrete intermediate milestones, to enhance their long-term strategies and decision-making." Elderson made clear that from ECB Bank Supervision's perspective, transition plans are a tool for managing risk exposure, and described formulating such plans as a guiding principle for stepping up risk management.

The United Kingdom's Prudential Regulation Authority (PRA) has also described the value of transition plans in managing climate-related financial risks (PRA 2021). In its 2021 Climate Change Adaptation Report, the PRA noted that required disclosure of transition plans would be helpful for understanding the implications of a firm's plans on the economy-wide transition, and assessing progress at the firm and system level. The UK government also announced plans to publish a transition pathway for the financial sector transition to net zero by 2050, and to provide guidance on what constitutes a transition plan (Transition Plan Taskforce 2022).

In the US, one financial regulator has already encouraged transition plans to meet solvency goals. In 2021, the New York Department of Financial Services (DFS) issued guidance for domestic insurers on managing climate risk (NY DFS 2021). In this guidance, the first by any US financial regulator on climate risk, DFS told insurers that "reducing financed and underwritten greenhouse gas emissions in line with science-based targets is also a way to mitigate the financial and consumer risks that climate change poses to insurance markets" (NY DFS 2021). Another way to understand this is that DFS considers a transition plan aligned to a net-zero by 2050 commitment to be a useful risk management tool for insurers.

SECTION SIX

CONCLUSION

Bank net-zero commitments reflect the reality that the energy transition will transform the global economy. But despite the threats posed by the speed and disruptiveness of this transition, banks are acting as if they will be able to manage this change at some future date, without laying the appropriate groundwork in their governance and operations today.

A bank's willingness to ignore its own public commitments—commitments that are byproducts of widespread agreement that critical risks must be avoided—should draw immediate and serious regulatory attention. This is even more true when the bank's pronouncements, if taken seriously, likely require significant changes to its business.

Although initial statements by regulators are encouraging, they are not enough to mitigate the relevant risks. Banks and examiners need guidance on what alignment of public commitments and internal strategies looks like in practice. By embracing their role as supervisors of voluntary transition plans, regulators can reinforce the value of those plans as risk management tools. But they should also follow this insight to its logical conclusion and encourage or require banks to adopt transition plans to protect the safety and soundness of both individual banks and the larger financial system.

APPENDIX

SAMPLE EXAM PROCEDURES: ALIGNMENT OF PUBLIC CLIMATE COMMITMENTS WITH INTERNAL STRATEGIES

The following is a set of sample exam procedures that bank examiners can use to understand a bank's climate commitments and net-zero transition plan and the risks that the bank faces from failing to align its transition plan with its climate commitments. It assumes that a bank's commitment meets the emerging market standard of net zero by 2050, broadly aligned with the Net Zero Banking Alliance's (NZBA's) principles.

UNDERSTANDING THE CLIMATE COMMITMENT

Examiners should develop a detailed understanding of the bank's public climate commitments, including membership in any organizations that require specific commitments, such as the NZBA.

1. Review public pronouncements related to climate and emissions targets.
2. Review policies and procedures related to those targets.
3. Identify the bank's specific emissions targets. Examiners should review whether:
    a. Targets include financed and underwritten emissions along with operational emissions; and
    b. The bank has set targets for specific sectors and lines of business.
4. Identify the baseline emissions used to evaluate any planned reductions.
5. Review any specific milestones included in the climate commitment. Examiners should:
    a. Assess whether the milestones include commitments for emissions reductions in 2030 or earlier; and
    b. Determine whether any milestones have elapsed, and how the bank measured its performance against those milestones.

UNDERSTANDING THE TRANSITION PLAN

1. Identify which approaches to decarbonization the bank plans to pursue to meet its commitment. Examiners should:
    a. Review the range of scenarios regarding technological, economic, and political changes the bank is using to project progress on its transition plan; and
    b. Assess whether those approaches and scenarios were taken from specific widely accepted benchmarks. If not, examiners should determine how those approaches and scenarios were developed.

2. Review the bank's policies and procedures for determining whether a client's business model and strategy is compatible with the bank's targets. Examiners should:
    a. Review whether the bank has set policies regarding clients that continue to fund fossil fuel development as part of their business; and
    b. Assess how the bank reviews client climate commitments and how it incorporates those commitments into its transition plan.

3. Review the metrics that the bank uses to track its progress to understand whether they are based on existing benchmarks.
    a. Determine how the metrics were developed if not based on existing benchmarks; and
    b. Assess whether metrics are tracked at the level of the bank, lines of business, specific portfolios, specific clients, or something else.

4. Draw preliminary conclusions as to whether performance in setting targets and planning consistently with them is strong, satisfactory, deficient, seriously deficient, or critically deficient.

ASSET QUALITY

1. Review the training that the bank's board, senior management, and relevant staff receive on the transition plan to assess whether they have the expertise needed to evaluate and maintain progress on the bank's commitments.

2. Review how the bank updates its climate-related assumptions regarding science, technology, and business progress.

3. Assess how the bank's strategic planning process considers how other strategic priorities affect or are affected by the bank's transition plan.
    a. Determine if the bank's strategic planning horizon is long enough to reflect the interaction of the transition plan with other priorities.

4. Assess whether the bank's current milestones are sufficient to avoid an elevated risk of fire sales or asset write-downs if the bank aims to meet its commitments.

5. Review how the underwriting process incorporates the transition plan. Examiners should:
    a. Determine whether alignment checks are performed during credit review and whether those checks have any effect on the credit review process; and
    b. Assess whether climate scenario analyses and internal stress tests incorporate the transition scenarios used by the bank.

6. Draw preliminary conclusions as to whether the bank's incorporation of its transition plan into its credit risk management is strong, satisfactory, deficient, seriously deficient, or critically deficient.

MANAGEMENT

1. Identify Board members, senior management, and staff responsible for establishing and implementing the transition plan.

2. Review the bank's policies and procedures regarding board and management oversight of planning and implementation.

3. Review policies and procedures for management oversight of compliance with emissions plans and targets.

4. Review how incentives for senior management support or interfere with progress on the transition plan.

5. Review the bank's policies and procedures for adjusting its transition plan where emissions reductions do not meet milestones or targets. Examiners should:
    a. Determine whether the bank reduces its reliance on certain pathways that do not yield expected results. If it does not, assess how bank management plans to meet commitments otherwise.

6. Review the bank's policies and procedures for assessing client credibility and performance on clients' own climate commitments. Examiners should:
    a. Determine what processes are in place for assessing the continued alignment of existing loans; and
    b. Where a client has not met projected targets, determine whether the bank updates covenants with that client or takes other steps to encourage the client to meet its targets.

7. Review policies and procedures the bank has in place for evaluating offsets and negative emissions projects that are part of the transition plan. Examiners should:
    a. Determine what benchmarks and projections the bank uses to conclude that the projects will yield their promised emissions reductions.

8. Draw preliminary conclusions as to whether board and management oversight of target-setting, planning, and implementation is strong, satisfactory, deficient, seriously deficient, or critically deficient.

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