

# LOOKING OVER THE HORIZON:

## The Case for Prioritizing Climate-Related Risk Supervision of Banks

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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.<sup>1</sup>

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<sup>1</sup> 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.<sup>2</sup> 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.

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<sup>2</sup> [12 U.S.C. 1831o.](#)



Supervisory authority for safety and soundness is spread across several regulators, each with jurisdiction over different types of institutions.<sup>3</sup> 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.<sup>4</sup> But regulators can and do issue guidance alone if they see the need to move quickly without waiting for interagency coordination.

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<sup>3</sup> 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.

<sup>4</sup> [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.<sup>5</sup>

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.

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<sup>5</sup> 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.<sup>6</sup>

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.

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<sup>6</sup> 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.



# REFERENCES

- Alternative Reference Rates Committee (ARRC). 2018. *Second Report of the Alternative Reference Rates Committee*. New York: Federal Reserve Bank of New York. <https://www.newyorkfed.org/medialibrary/Microsites/arrc/files/2018/ARRC-Second-report#:~:text=SECOND%20REPORT%20OF%20THE%20ALTERNATIVE%20REFERENCE%20RATES%20COMMITTEE,-The%20ARRC%20has&text=ISDA%20has%20outlined%20a%20proposed,implementation%20details%20of%20that%20process.>
- Americans for Financial Reform (AFR), Center for American Progress, Natural Resources Defense Council, and Public Citizen. 2021. *Recommendations for Supervisory Guidance from Bank Regulators*. Washington, DC: Public Citizen. <https://www.citizen.org/wp-content/uploads/Supervision-Guidance-Climate-Risk.pdf>.
- Arkush, David. 2021. *Unsafe at Any Charge: Why Financial Regulators Should Actively Mitigate Climate-Related Risk*. New York: Roosevelt Institute. [https://rooseveltinstitute.org/wp-content/uploads/2021/05/RI\\_UnsafeAtAnyCharge\\_Report\\_202105-1.pdf](https://rooseveltinstitute.org/wp-content/uploads/2021/05/RI_UnsafeAtAnyCharge_Report_202105-1.pdf).
- Bank of England. 2019. *Enhancing Banks' and Insurers' Approaches to Managing the Financial Risks from Climate Change*. London: Prudential Regulation Authority. <https://www.bankofengland.co.uk/-/media/boe/files/prudential-regulation/supervisory-statement/2019/ss319>.
- Barnes, David and Zack Livingstone. 2021. *The Green Central Banking Scorecard: How Green are G20 Central Banks and Financial Supervisors?* London: Positive Money. <https://positivemoney.org/publications/green-central-banking-scorecard/>.
- Basel Committee on Supervision. 2021. *Climate-Related Financial Risks — Measurement Methodologies*. Basel: Bank for International Settlements. <https://www.bis.org/bcbs/publ/d518.pdf>.
- Board of Governors for the Federal Reserve System. 2015. *Risk-Focused Safety-and-Soundness Inspections*. Washington, DC: Board of Governors of the Federal Reserve. <https://www.federalreserve.gov/publications/files/2000p5.pdf>.
- Board of Governors of the Federal Reserve System. 2016. *SR 16-17: Supervisory Expectations for Risk Management of Reserve-Based Energy Lending Risk*. Washington, DC: Board of Governors of the Federal Reserve System. <https://www.federalreserve.gov/supervisionreg/srletters/sr1617.htm>.
- Board of Governors of the Federal Reserve System. 2019. *Federal Reserve Supervision and Regulation Report - November 2019*. Washington, DC: Board of Governors of the Federal System. <https://www.federalreserve.gov/publications/2019-november-supervision-and-regulation-report-supervisory-developments.htm>.



Board of Governors of the Federal Reserve System. 2020. *Federal Reserve Supervision and Regulation Report - November 2020*. Washington, DC: Board of Governors of the Federal Reserve System. <https://www.federalreserve.gov/publications/2020-november-supervision-and-regulation-report.htm>.

Board of Governors of the Federal Reserve System. 2021. *SR 21-3 / CA 21-1 : Supervisory Guidance on Board of Directors' Effectiveness*. Washington, DC: Board of Governors of the Federal Reserve System. <https://www.federalreserve.gov/supervisionreg/srletters/SR2103.htm>.

Board of Governors of the Federal Reserve System and Federal Deposit Insurance Corporation (FDIC). 2019. *Request for Information on Application of the Uniform Financial Institutions Rating System*. Washington, DC: Federal Register. <https://www.federalregister.gov/documents/2019/10/31/2019-23739/request-for-information-on-application-of-the-uniform-financial-institutions-rating-system>.

Board of Governors of the Federal Reserve System, Federal Deposit Insurance Corporation (FDIC), and Office of the Comptroller of the Currency (OCC). 2013a. *Interagency Guidance on Leveraged Lending*. Washington, DC: Board of Governors of the Federal Reserve System <https://www.federalreserve.gov/supervisionreg/srletters/sr1303a1.pdf>.

Board of Governors of the Federal Reserve System, Federal Deposit Insurance Corporation (FDIC), and Office of the Comptroller of the Currency (OCC). 2013b. *Shared National Credits Program 2013 Review*. Washington, DC: Board of Governors of the Federal Reserve System <https://www.federalreserve.gov/newsevents/pressreleases/files/bcreg20131010a1.pdf>.

Board of Governors of the Federal Reserve System, Federal Deposit Insurance Corporation (FDIC), and Office of the Comptroller of the Currency (OCC). 2014. *Frequently Asked Questions (FAQ) for Implementing March 2013 Interagency Guidance on Leveraged Lending*. Washington, DC: Board of Governors of the Federal Reserve System. <https://www.occ.treas.gov/publications-and-resources/publications/shared-national-credit-report/files/pub-snc-faqs-2014.pdf>.

Brainard, Lael. "Building Climate Scenario Analysis on the Foundations of Economic Research." Transcript of speech delivered via webcast at Federal Reserve Stress Testing Research Conference, Federal Reserve Bank of Boston, Boston, Massachusetts, October 07, 2021. <https://www.federalreserve.gov/newsevents/speech/brainard20211007a.htm>.

Cox, Jeff. 2021. "Powell Says Climate Change Is Not a Main Factor in the Fed's Policy Decisions." *CNBC*, June 4, 2021. <https://www.cnbc.com/2021/06/04/powell-says-climate-change-is-not-a-main-factor-in-the-feds-policy-decisions.html>.

- Chenet, Hugues, Josh Ryan-Collins, and Frank van Lerven. 2021. "Finance, Climate-Change and Radical Uncertainty: Towards a Precautionary Approach to Financial Policy." *Ecological Economics* 183 (May). <https://doi.org/10.1016/j.ecolecon.2021.106957>.
- European Central Bank System. 2021. "Banks Must Accelerate Efforts to Tackle Climate Risks, ECB Supervisory Assessment Shows." Press release, November 22, 2021. <https://www.bankingsupervision.europa.eu/press/pr/date/2021/html/ssm.pr211122~6984de0ae5.en.html>.
- Executive Order 14030 of October 14, 2021, A Roadmap to Build a Climate-Resilient Economy," Code of Federal Regulations, (2021): 27967-27971, <https://www.federalregister.gov/documents/2021/05/25/2021-11168/climate-related-financial-risk>.
- Federal Deposit Insurance Corporation (FDIC). 1997. "Banking Problems in the Southwest." In *History of the Eighties: Lessons for the Future. Vol. 1, An Examination of the Banking Crises of the 1980s and Early 1990s. Vol. 1*. [https://www.fdic.gov/bank/historical/history/291\\_336.pdf](https://www.fdic.gov/bank/historical/history/291_336.pdf).
- Federal Deposit Insurance Corporation (FDIC). 2016. "Prudent Risk Management of Oil and Gas Exposures." Federal Deposit Insurance Corporation, July 27, 2016. <https://www.fdic.gov/news/financial-institution-letters/2016/fil16049.pdf>.
- Federal Deposit Insurance Corporation (FDIC). 2018. "Supervisory Insights." *Federal Deposit Insurance Corporation* 15, 2 (Winter 2018). <https://www.fdic.gov/regulations/examinations/supervisory/insights/siwin18/si-winter-2018.pdf>.
- Federal Deposit Insurance Corporation (FDIC). 2020. "RMS Manual of Examination Policies Section 3.2." Federal Deposit Insurance Corporation. <https://www.fdic.gov/regulations/safety/manual/section3-2.pdf>.
- Federal Deposit Insurance Corporation (FDIC), Board of Governors of the Federal Reserve System, Consumer Financial Protection Bureau, National Credit Union Administration, Office of the Comptroller of the Currency, State Bank and Credit Union Regulators. 2021. "Joint Statement on Managing the LIBOR Transition." Financial Institution Letter, October 20, 2021. <https://www.fdic.gov/news/financial-institution-letters/2021/fil21070.html#:~:text=On%20July%20201%2C%202020%2C%20the.result%20from%20the%20LIBOR%27s%20discontinuation>
- Federal Reserve Bank of St. Louis. 2020. "Tail Risk and Its Effect on the Economy" *On the Economy* (blog). February 24, 2020. <https://www.stlouisfed.org/on-the-economy/2020/february/tail-risk-effect-economy>.
- Financial Crisis Inquiry Commission. 2011. *The Financial Crisis Inquiry Report: Final Report of the National Commission on the Causes of the Financial and Economic Crisis in the United States*. Washington, DC: The Financial Crisis Inquiry Commission. <https://www.govinfo.gov/content/pkg/GPO-FCIC/pdf/GPO-FCIC.pdf>.

- Financial Stability Oversight Corporation (FSOC). 2021a. "Minutes of the Financial Stability Oversight." Financial Stability Oversight Corporation. [https://home.treasury.gov/system/files/261/FSOC\\_Minutes\\_6-11-21\\_1.pdf](https://home.treasury.gov/system/files/261/FSOC_Minutes_6-11-21_1.pdf).
- Financial Stability Oversight Council (FSOC). 2021b. *Report on Climate-Related Financial Risk*. Washington, DC. Financial Stability Oversight Council. <https://home.treasury.gov/system/files/261/FSOC-Climate-Report.pdf>.
- Foscari, Ca'. 2021. "A Quarter of Global Harvests at Risk If Agriculture Does Not Adapt to Climate Change." Phys.Org, 2021. <https://phys.org/news/2021-06-quarter-global-harvests-agriculture-climate.html>.
- Garcia, Lisa, and Kenneth Weber. 2018. "Oil Price Volatility and Bank Performance: A View from the Supervisory Process." *FDIC Supervisory Insights* (Summer 2018). <https://www.fdic.gov/regulations/examinations/supervisory/insights/sisum18/si-summer-2018-article01.pdf>.
- Gibson, Michael. 2020. "SR 20-25: Interagency Statement — Reference Rates for Loans." Board of Governors of the Federal Reserve System. Interagency statement, November 6, 2020. <https://www.federalreserve.gov/supervisionreg/srletters/SR2025.htm#:~:text=The%20statement%20encourages%20banks%20to,for%2C%20the%20transition%20from%20LIBOR>.
- Houben, Sem, Guan Schellekens, and Kathrin Zander. 2021. *The Clock Is Ticking for Banks to Manage Climate and Environmental Risks*. Frankfurt: European Central Bank. [https://www.bankingsupervision.europa.eu/press/publications/newsletter/2021/html/ssm.nl210818\\_5.en.html](https://www.bankingsupervision.europa.eu/press/publications/newsletter/2021/html/ssm.nl210818_5.en.html).
- Independent Bankers Association of America. v. Heimann*, 613 F.2d 1164, 1168-69 (DC Cir. 1979), <https://law.justia.com/cases/federal/appellate-courts/F2/613/1164/198077/>.
- Intergovernmental Panel on Climate Change (IPCC). 2014. *Climate Change 2014: Mitigation of Climate Change*. Intergovernmental Panel on Climate Change. <https://www.ipcc.ch/report/ar5/wg3/>.
- Intergovernmental Panel on Climate Change (IPCC). 2022. *IPCC Sixth Assessment Report*. Intergovernmental Panel on Climate Change. <https://www.ipcc.ch/report/ar6/wg2/>.
- Kaplan v. United States Office of Thrift Supervision*, 104 F.3d 417, 421 (DC Cir. 1997), <https://law.justia.com/cases/federal/appellate-courts/F3/104/417/548447/>.
- Keen, Steve. 2021. "The Appallingly Bad Neoclassical Economics of Climate Change." *Globalizations* 18, 7 (September 2020): 1149–77. <https://doi.org/10.1080/14747731.2020.1807856>.

- Kirsch, Alison, Jason Opeña Disterhoft, Grant Marr, Paddy McCully, Ruth Breech, Maaïke Beenes, Henriëke Butijn, Johan Frijns, Ernst-Jan Kuiper, and Daisy Termorshuizen et al. 2021. *Banking on Climate Chaos*. Rainforest Action Network, BankTrack, Indigenous Environmental Network, Oil Change International, Reclaim Finance, and Sierra Club. <https://www.ran.org/wp-content/uploads/2021/03/Banking-on-Climate-Chaos-2021.pdf>.
- Lowe v. FDIC*, 958 F.2d 1526, 1535 n. 35 (11th Cir. 1992), <https://law.justia.com/cases/federal/appellate-courts/F2/958/1526/371238/>.
- Menand, Lev. 2018. "Too Big to Supervise: The Rise of Financial Conglomerates and the Decline of Discretionary Oversight in Banking." *Cornell Law Review* 103, 6: 1527–88. <https://scholarship.law.cornell.edu/clr/vol103/iss6/8/>.
- McWilliams, Jelena. "Statement by FDIC Chairman Jelena McWilliams at the Financial Stability Oversight Council Meeting." Speech delivered at Federal Depository Insurance Corporation, Washington, DC, March 31, 2021. <https://www.fdic.gov/news/speeches/2021/spmar3121.html>.
- Neal, Michael N. 2020. "To Significantly Increase Access to Capital for Communities of Color, We Need to Support Black Banks and All CDFIs." *Urban Institute* (blog). July 31, 2020. <https://www.urban.org/urban-wire/significantly-increase-access-capital-communities-color-we-need-support-black-banks-and-all-cdfis>.
- Network for Greening the Financial System (NGFS). 2020. *Guide for Supervisors Integrating Climate-Related and Environmental Risks into Prudential Supervision*. Paris: Network for Greening the Financial System. [https://www.ngfs.net/sites/default/files/medias/documents/ngfs\\_guide\\_for\\_supervisors.pdf](https://www.ngfs.net/sites/default/files/medias/documents/ngfs_guide_for_supervisors.pdf).
- International Energy Agency (IEA). 2021. *Net Zero by 2050 A Roadmap for the Global Energy Sector*. Paris: International Energy Agency. <https://www.iea.org/reports/net-zero-by-2050>.
- Office of the Comptroller of the Currency (OCC). 2008. *Leveraged Lending Comptroller's Handbook*. Washington, DC: Office of the Comptroller of the Currency. <https://www.occ.treas.gov/publications-and-resources/publications/comptrollers-handbook/files/leveraged-lending/index-leveraged-lending.html>.
- Office of the Comptroller of the Currency (OCC). 2018a. *Examination Process: Bank Supervision Process, Comptroller's Handbook*. Washington, DC: Office of the Comptroller of the Currency. <https://www.occ.gov/publications-and-resources/publications/comptrollers-handbook/files/bank-supervision-process/pub-ch-bank-supervision-process.pdf>.

- Office of the Comptroller of the Currency (OCC). 2018b. *Oil and Gas Exploration and Production Lending*. Washington, DC: Office of the Comptroller of the Currency. <https://www.occ.treas.gov/publications-and-resources/publications/comptrollers-handbook/files/oil-gas-exploration-prod-lending/index-oil-gas-exploration-production-lending.html>.
- Office of the Comptroller of the Currency (OCC). 2018c. *Semiannual Risk Perspective*. Washington, DC: Office of the Comptroller of the Currency. <https://www.occ.treas.gov/publications-and-resources/publications/semiannual-risk-perspective/files/semiannual-risk-perspective-fall-2018.html>.
- Office of the Comptroller of the Currency (OCC). 2019. *OCC Highlights Key Risks for Federal Banking System*. Washington, DC: Office of the Comptroller of the Currency. <https://www.occ.treas.gov/news-issuances/news-releases/2019/nr-occ-2019-145.html>.
- Office of the Comptroller of the Currency (OCC). 2020. Fair Access to Financial Services: A Proposed Rule" Federal Register. Last updated November 24, 2020. <https://www.federalregister.gov/documents/2020/11/25/2020-26067/fair-access-to-financial-services>.
- Philipponnat, Thierry. 2020. *Breaking the Climate Finance Doom Loop*. Brussels: Finance Watch. <https://www.finance-watch.org/publication/breaking-the-climate-finance-doom-loop/>.
- Plumer, Brad, and Raymond Zhong. 2022. "Climate Change Is Harming the Planet Faster Than We Can Adapt, U.N. Warns." *New York Times*, February 27, 2022, sec. Climate. <https://www.nytimes.com/2022/02/28/climate/climate-change-ipcc-report.html>.
- Pörtner, Hans-O., Debra C. Roberts, Helen Adams, Carolina Adler, Paulina Aldunce, Elham Ali, Rawshan Ara Begum, Richard Betts, Rachel Bezner Kerr, Robbert Biesbroek et al. 2022. *Climate Change 2022: Impacts, Adaptation and Vulnerability*. New York: Intergovernmental Panel on Climate Change. <https://www.ipcc.ch/report/ar6/wg2/>.
- Reclaim Finance. 2021. "NGFS Climate Scenarios are Pushing Financial Players into Risky Gambles." *Reclaim Finance* (blog). April 08, 2021. <https://reclaimfinance.org/site/en/2021/08/04/ngfs-climate-scenarios-are-pushing-financial-players-into-risky-gambles/>.
- Ropes & Gray. 2018. "OCC Head Says Banks Need Not Comply with Leveraged Lending Guidance." Ropes & Gray. Last accessed April 13, 2022. <https://www.ropesgray.com/en/newsroom/alerts/2018/03/OCC-Head-Says-Banks-Need-Not-Comply-with-Leveraged-Lending-Guidance>.
- Rose, Jonathan D. 2015. *Old-Fashioned Deposit Runs*. Finance and Economics Discussion Series 2015-111. Washington, DC: Board of Governors of the Federal Reserve System. <http://dx.doi.org/10.17016/FEDS.2015.111>.

- Steele, Graham. 2020. *A Regulatory Green Light: How Dodd-Frank Can Address Wall Street's Role in the Climate Crisis*. New York: Greater Democracy Initiative. [https://rooseveltinstitute.org/wp-content/uploads/2021/08/GDI\\_Regulatory-Greenlight\\_202001.pdf](https://rooseveltinstitute.org/wp-content/uploads/2021/08/GDI_Regulatory-Greenlight_202001.pdf).
- Stiroh, Kevin. "A Microprudential Perspective on the Financial Risks of Climate Change." Transcript of speech delivered at FRBNY, New York, NY, November 10, 2020. <https://www.bis.org/review/r201110b.htm>.
- Sung Eun, Kim. 2015. "Managing Regulatory Blindspots: A Case Study of Leveraged Loans" 23. *Yale Journal on Regulation* 32, 1: 89-120. [https://openyls.law.yale.edu/bitstream/handle/20.500.13051/8215/05\\_32YaleJonReg89\\_2015\\_.pdf?sequence=2&isAllowed=y](https://openyls.law.yale.edu/bitstream/handle/20.500.13051/8215/05_32YaleJonReg89_2015_.pdf?sequence=2&isAllowed=y).
- United Nations Environment Programme (UNEP). n.d. "Net-Zero Banking Alliance Members." United Nations Environment Programme. Last accessed April 13, 2022. <https://www.unepfi.org/net-zero-banking/members/>.
- United Nations Framework Convention on Climate Change. 1992. "Article 3: Principles." United Nations. <https://unfccc.int/resource/ccsites/tanzania/conven/text/art03.htm>.
- Woetzel, Jonathan, Dickon Pinner, Hamid Samandari, Hauke Engel, Mekala Krishnan, Claudia Kempel, and Jakob Graabak. 2020. *Could Climate Become the Weak Link in Your Supply Chain?* McKinsey Global Institute. <https://www.mckinsey.com/business-functions/sustainability/our-insights/could-climate-become-the-weak-link-in-your-supply-chain>.
- Zonta, Michela, and Caius Z Willingham. 2020. *A CRA To Meet the Challenge of Climate Change*. Washington, DC: Center for American Progress. <https://www.americanprogress.org/article/cra-meet-challenge-climate-change/>.



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