The Federal Reserve's Responsibilities in a Warming World: A Normative Case and Strategic Primer for Fed Action on Climate Change

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According to one study, by the year 2100, the cost of unchecked climate change could be as high as $551 trillion. This is broader money than currently exists on earth, yet to date the Federal Reserve has failed to take any meaningful action on climate. This Article argues that the Fed not only has the authority to insulate our financial system from the contagious collapse of a dead-end fossil fuel industry, but also that it cannot act in accordance with its congressional mandates and statutory obligations without doing so. Through legal and historical analysis, this Article examines how the structure of Fed independence—far from requiring the Fed to eschew climate policy, as many have claimed—militates for the Fed to take a leadership role in protecting the U.S. economy from the ravages of climate change. Finally, after describing the regulatory and monetary-policy strategies the Fed could utilize to address climate threats, this Article analyzes the resistance of these tools to judicial review. This review results in the somewhat paradoxical strategic recommendation that the Fed's use of its more sweeping monetary powers may, in fact, be better able to withstand challenge than the deployment of its arguably less controversial regulatory tools.

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INTRODUCTION

The scope of danger that climate change poses to human civilization is very difficult to comprehend. The term "existential threat" is often used, but what does it really mean? In geologic terms, Earth has experienced five mass extinction events prior to the one we are currently living through, and all but one (the asteroid that killed off the dinosaurs) featured climate change caused by greenhouse gases.[1] The most severe of these, the end-Permian extinction, resulted from processes eerily similar to those we are seeing today: it began with carbon dioxide warming the planet, accelerated as that warming triggered global

1. DAVID WALLACE-WELLS, THE UNINHABITABLE EARTH: LIFE AFTER WARMING 1 (1st ed. 2019).

methane releases, and ended with over 90 percent of all species of life on Earth going extinct.[2] Today, according to most estimates, humans are adding carbon to the atmosphere at a rate at least ten times faster than the build-up that preceded the end-Permian extinction.[3] In more anthropocentric terms, our planet is hotter now than it has been at any point over the past 12,000 years, meaning that we are exiting the stable climatic conditions that have spanned and supported the entire development of human civilization.[4] Indeed, there is already over a third more carbon in the atmosphere than there has been in at least the last 800,000 years—since back when the oceans were more than a hundred feet higher than they are today and *Homo sapiens* did not yet exist.[5] In other words, the world we are entering is one that humanity, let alone complex human society, has never experienced. It is a world that our species quite literally did not evolve to face. As David Wallace-Wells wrote in his book *The Uninhabitable Earth*, climate change is a crisis in which "the only factually appropriate language is of a kind we've been trained . . . to dismiss, categorically, as hyperbole"—a crisis that "will produce a new kind of cascading violence, waterfalls and avalanches of devastation, the planet pummeled again and again, with increasing intensity and in ways that build on each other and undermine our ability to respond."[6]

To combat this existential threat and avoid the most catastrophic climate scenarios, our government must deploy every tool it has at its disposal.[7] And because the climate crisis is being driven in critical ways by actors within our financial system, this deployment must include those governmental tools related to financial and monetary policy. A recent report found that the world's sixty largest banks invested $4.6 trillion in fossil fuels in the six years since the adoption of the Paris agreement, with four U.S. banks—JPMorgan Chase, Citi, Wells Fargo, and Bank of America—together accounting for one quarter of all fossil fuel financing.[8] These financial activities are simply not compatible with a livable future, given that the emissions from fossil fuels that are already in production are enough to take the world well past 1.5ºC of global heating, and the International Energy Agency has found that achieving net zero by 2050 requires "no new oil and gas fields."[9] Indeed, avoiding the most catastrophic climate scenarios requires that 89 percent of coal reserves, 58 percent of oil reserves, and 59 percent of gas reserves remain unextracted, meaning that the

2. *Permian Extinction*, ENCYCLOPÆDIA BRITANNICA (June 1, 2023), https://www.britannica.com/science/mass-extinction-event.

3. *See* WALLACE-WELLS, *supra* note 1, at 1.

4. Damian Carrington, *Climate Crisis World is at its Hottest for at Least 12,000 Years – Study*, THE GUARDIAN (Jan. 27, 2021), https://bit.ly/3qqv3Ig.

5. *See* WALLACE-WELLS, *supra* note 1, at 2.

6. *See id.* at 16.

7. *See* Bill McKibben, *A World at War We're Under Attack from Climate Change, and Our Only Hope is to Mobilize Like We Did in WWII*, THE NEW REPUBLIC (Aug. 15, 2016), http://bit.ly/3UYG1BM.

8. OIL CHANGE INTERNATIONAL ET AL., BANKING ON CLIMATE CHAOS: FOSSIL FUEL FINANCE REPORT 2022 3 (Apr. 2022), https://bit.ly/37wdNeg.

9. *Id.* at 5, 14.

banks and financial institutions that continue to finance fossil fuel projects are directly driving humanity towards climate disaster.[10]

As this Article argues, then, we cannot achieve our climate goals without tackling fossil fuel financing, and that requires leadership by the Federal Reserve (the Fed)—the U.S. governmental institution that has been given primary responsibility for regulating our financial system. Part I of the Article grapples with the normative questions that surround the proper role of the Fed in our larger system of government, responding to the arguments that are frequently deployed against Fed action on climate and making a legal, comparative, and constitutional case for the Fed to pursue as robust a climate agenda as it possibly can. Part II describes various regulatory and monetary-policy tools that the Fed could conceivably utilize under its current statutory authority to achieve critical climate goals. And Part III analyzes the vulnerability of these different strategies to judicial review, resulting in the somewhat paradoxical observation that the Fed's use of its more sweeping monetary powers may in fact be more strategically viable than the deployment of its arguably less controversial regulatory tools.

I. A NORMATIVE CASE FOR FED ACTION ON CLIMATE

A 2018 study estimated that by the year 2100, the high-end cost of unchecked climate change could be $551 trillion.[11] That is more money than currently exists on Earth.[12] Yet in January of 2023, Federal Reserve Chairman Jerome Powell told a panel of his global colleagues, "[I]t would be inappropriate for us to use our monetary policy or supervisory tools to promote a greener economy or to achieve other climate-based goals."[13] Statements such as this demonstrate a fundamental disconnect between the actual financial impacts of climate change and the Fed's current, unjustifiably hands-off approach to this crisis. The following Part will explore this mismatch in detail, beginning with an analysis of the Fed's statutory responsibilities to take climate action; continuing with a brief examination of the degree to which the Fed is falling behind its peer institutions on this issue; and ending with a discussion of the ways the Fed's unique status within our governmental system should bolster, rather than detract from, the case for it to lead on climate.

10. Bianca Nogrady, *Most Fossil-Fuel Reserves Must Remain Untapped to Hit 1.5 °C Warming Goal*, NATURE (Sept. 8, 2021), https://go.nature.com/3vsATus.

11. TYNDALL CTR. FOR CLIMATE CHANGE RSCH., RISKS ASSOCIATED WITH GLOBAL WARMING OF 1.5 C OR 2 C 2 (May 2018), https://bit.ly/3eXDsAj.

12. Sue Chang, *Here's All the Money in the World, in One Chart*, MARKETWATCH (Nov. 28, 2017), https://on.mktw.net/3ETpZlO.

13. Jeanna Smialek, *Powell Says Fed Will Not Be a 'Climate Policymaker',* N.Y. TIMES (Jan. 10, 2023), http://bit.ly/45nHdUJ.

A. The Fed Has a Legal Mandate to Take Climate Action

Perhaps the most important argument in favor of the Fed drastically increasing its engagement on climate is that the agency is legally required to do so. While it has been frequently argued that action on climate exceeds the statutory limits placed upon the Fed by Congress,[14] and Chairman Powell has warned that the Fed should "not wander off to pursue perceived social benefits that are not tightly linked to our statutory goals and authorities,"[15] this view demonstrates both a misunderstanding of the profound threats that climate change poses to our financial system and a misreading of the Fed's statutory mandates. Climate change presents a severe challenge to the Fed's realization of nearly all its statutory responsibilities. First, climate risk to borrowers endangers the safety and soundness of individual banking institutions, which Congress has instructed the Fed to safeguard through microprudential (i.e., firm-level) regulation and supervision. Second, climate change's connection to correlated defaults and economic crises threatens the financial stability the Fed is required to pursue through macroprudential (i.e., systems-level) regulation. And finally, climate's potential to rock the very foundations of our global economic order presents profound long-term threats to the monetary-policy objectives Congress has directed the Fed to pursue. As the following analysis will make clear, the Fed's statutory directives not only allow the institution to take steps to prevent and mitigate the most disastrous global heating scenarios, but they *require* the Fed to do so.

1. Climate and the Fed's Microprudential Responsibilities

Congress has assigned the Fed the responsibility of regulating bank holding companies, financial holding companies, and systemically important nonbank financial institutions such as insurance companies.[16] In this role, the Fed examines financial institutions and assesses "risk-management systems, financial condition, and compliance with applicable laws and regulations,"[17] with a goal of safeguarding these individual institutions' safety and soundness.[18] Given the profound ways in which climate risks—physical risks, transition risks, and credit risks—operate directly at the level of bank assets, the Fed cannot possibly fulfill these microprudential responsibilities without a clear focus on the climate crisis.

Climate change presents major physical risks to properties and assets financed by the institutions the Fed is required to supervise. Acute examples of

14. *See, e.g.*, Christina Parajon Skinner, *Central Banks and Climate Change*, 74 VAND. L. REV 1301, 1354 (2021), https://bit.ly/3IqnnMo.

15. *See* Smialek, *supra* note 13.

16. *See* BD. OF GOVERNORS OF THE FED. RSRV. SYS., THE FED EXPLAINED: WHAT THE CENTRAL BANK DOES 64–69 (11th ed. 2021), https://bit.ly/3OJM0YF.

17. *Id.* at 70.

18. *See* 12 U.S.C. §§ 1831p-1, 1844(e).

such risk include "weather-induced damage to real estate that secures mortgages, damage to crops on properties that have farm loans, or wildfires burning factory buildings owned by companies with small business loans."[19] A more chronic example is the estimated $1 trillion in real estate property exposed to both sudden flooding and rising oceans.[20]

Climate change also creates transition risks—risks caused by the shift from fossil fuels to clean energy. Whether or not we achieve this transition in time to save human civilization, the coming years will see human civilization move away from a fossil fuel-based economy, creating stranded assets—infrastructure, plants, and equipment designed for carbon-based production that will become worthless as the clean-energy transition accelerates—that may impact "commodity prices, corporate bonds, equities, and certain derivatives contracts."[21] These impacts, of course, will be sharper the longer that financial institutions invest in fossil fuels, which they continue to do at a torrid pace—indeed, the largest banks have only increased their holdings in fossil fuel assets since the Paris Agreement, in which the global order committed to measures that are guaranteed to strand said assets.[22] In a seminal 2020 paper, current Assistant Secretary of the Treasury for Financial Institutions Graham Steele describes the potential culmination of this process as a "climate Minsky moment,"[23] in which a wholesale reassessment of the value of fossil fuel assets could destabilize markets and make it "difficult for banks to manage their exposures to carbon-intensive investments simultaneously, increasing losses and potentially also causing liquidity issues."[24]

These changes also present lending businesses with the possibility of losses resulting from borrowers' failure to repay their loans. Such climate-induced credit risks can cause "loan defaults, lost income, and severely discounted assets on the balance sheet."[25] As Steele writes, climate change presents a singular source of credit risk in that climate disasters can lower both the creditworthiness of borrowers and the value of the collateral securing their loans, meaning that, "unlike other types of risk, it can lead to both a higher probability of default as

19. Graham S. Steele, *Confronting the "Climate Lehman Moment" The Case for Macroprudential Regulation*, 30 CORNELL J.L. & PUB. POL'Y 109, 115 (2020), https://bit.ly/3isyoT2.

20. *Id.* at 115–16 (citing U.S. GLOB. CHANGE RSCH. PROGRAM, FOURTH NATIONAL CLIMATE ASSESSMENT VOL. II 47 (2018), https://bit.ly/3LIyfan).

21. *Id.* at 116.

22. *See* Patrick Jahnke, *Holders of Last Resort The Role of Index Funds and Index Providers in Divestment and Climate Change*, SOC. SCI. RSCH. NETWORK 1, 5 (2019), https://bit.ly/3iuNVS2.

23. Named after Hyman Minsky, a 20th century economist whose financial instability hypothesis posited that the economy creates its own bubbles and crashes, a "Minsky Moment" refers to a sudden, cataclysmic collapse of asset values following a period of over-leveraged investment. *See* Enda Curran, *What's a Minsky Moment, and Why the Worries About One?*, BLOOMBERG (Mar. 21, 2023), https://bit.ly/3R1D9p7.

24. *See* Steele, *supra* note 19, at 119 (quoting BANK OF ENG. PRUDENTIAL REGUL. AUTH., TRANSITION IN THINKING: THE IMPACT OF CLIMATE CHANGE ON THE U.K. BANKING SECTOR 24 (Sept. 2018), https://bit.ly/3JK8wO8).

25. *Id.* at 118.

well as higher losses in the event of default."[26] From the 2019 bankruptcy of the California utility Pacific Gas and Electric,[27] to the bankruptcies of three of the five largest American coal companies since 2011, to the sub-investment-grade credit ratings of a growing number of fossil fuel firms that many of the largest banks are increasingly exposed to, it is clear this problem is not going away.[28]

Any one of these possibilities could dissolve the solvency of countless bank debtors, opening pathways to the kinds of default waves that threaten bank safety and soundness. And unlike most risks that regulators need to consider, which operate along a spectrum of probabilities, climate change poses a guaranteed threat. The planet *is* heating up. Even if humanity takes the aggressive steps necessary to keep the effects below civilization-ending levels, a significant global temperature increase—and its concomitant damage—is already baked into our future.[29] For all these reasons, the Fed's microprudential responsibilities as assigned by Congress require the agency to take real action on climate.

2. Climate and the Fed's Macroprudential Responsibilities

The Fed has also been charged by Congress with protecting the broader stability of the U.S. financial system. The Dodd-Frank Wall Street Reform Act of 2010 (Dodd-Frank) was passed in response to the 2008 financial crisis with two stated goals: to prevent the recurrence of the same problems that gave rise to that crisis and to create a new regulatory framework that could respond to the challenges of a twenty-first century marketplace.[30] To those ends, Section 165 of Dodd-Frank requires the Fed to craft "enhanced . . . prudential standards" for the largest bank holding companies and systemically important financial institutions in order to "prevent or mitigate risks to the financial stability of the United States that could arise from the material financial distress or failure, or ongoing activities, of large, interconnected financial institutions."[31] Fulfilling this responsibility requires tackling climate change.

The physical, transition, and credit risks associated with the climate crisis do not operate discretely. Each occurs in ways that build off one another, just as climate change is already producing cascading effects and feedback loops across a diverse range of geographies and economic sectors.[32] This limits the capacity of any institution to maintain stability through diversification, as "the global

26. *Id.* at 119.

27. *Id.* (citing Steven Mufson, *Inside a California Utility Mandatory Blackouts Amid Wildfire Threats and Bankruptcy*, WASH. POST (Dec. 21, 2019), https://wapo.st/3PfocOA).

28. *See* Steele, *supra* note 19, at 118.

29. *See, e.g.*, Chen Zhou et al., *Greater Committed Warming after Accounting for the Pattern Effect*, 11 NATURE CLIMATE CHANGE 132, 135 (Feb. 2021), https://go.nature.com/3vMrMov.

30. *See* S. REP. NO. 111-176, at 42 (2010).

31. 12 U.S.C. § 5365(a)(1).

32. *See* World Adaptation Science Program, *The Risk of Cascading Climate Change Shocks and Stressors - Science for Adaptation Policy Brief #5*, U.N. ENV'T PROGRAMME (2021), https://bit.ly/3Ir5hNR.

scale and scope of climate change could mean that it cannot be contained as a regional phenomenon or diversified away."[33] And this interconnectedness also applies to asset classes—for example, if insurers begin refusing to insure properties that are near the coastline or within wildfire zones, those decisions would also affect real estate-collateralized lending.[34] Indeed, the "hallmark of climate change is that it poses a global, correlated set of threats to our current forms of economic production."[35] As such, climate change's impacts on individual financial institutions will also be interconnected and therefore systemic.

This reality is further exacerbated by the degree to which climate risk is concentrated in the largest U.S. financial institutions. As Steele cataloged:

> From 2016-2018, six of the eight largest U.S. bank holding companies loaned, underwrote, or otherwise financed over $700 billion to fossil fuel companies, and have accounted for 37 percent of global fossil fuel financing since the Paris Agreement was adopted. If the six largest bank holding companies' aggregate fossil fuel assets were themselves a standalone institution, they would be the seventh largest bank holding company in the nation and would exceed the banking agencies' consensus asset threshold for a systemically important bank holding company.[36]

Of course, the risks taken on by these systemically important financial institutions do not stay confined to them. Again and again we have seen publicly-funded bailouts rescue privately owned firms at the brink of collapse due to their own irresponsibly risky profit-seeking activities, and there is no reason to think that climate risk will be any different.[37] Indeed, a 2019 study found that climate change will increase the frequency of banking crises by between 26 and 248 percent, depending on the rate of global temperature increase, and that rescuing these insolvent banks will cause an additional fiscal burden of approximately 5 to 15 percent of gross domestic product per year and increase the ratio of public debt to gross domestic product by a factor of two.[38] Because of these impacts, the study estimated that by the end of the century the expected global debt-to-GDP ratio would be slightly above 400 percent, compared to 85 percent with no climate change.[39]

Opponents of Fed action on climate have responded to these arguments by claiming that the Fed's financial stability responsibilities apply solely to short-term risks. For example, Federal Reserve General Counsel Mark Van Der Weide

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33. *See* Steele, *supra* note 19, at 135.

34. *See id.* at 129.

35. Peter Conti-Brown & David A. Wishnick, *Technocratic Pragmatism, Bureaucratic Expertise, and the Federal Reserve*, 130 YALE L.J. 636, 690 (2021), https://bit.ly/3iw1jWd.

36. *See* Steele, *supra* note 19, at 133.

37. *See generally* Saule T. Omarova, *The "Too Big to Fail" Problem*, 103 MINN. L. REV. 2495 (2019), http://bit.ly/3VdUuK6.

38. Francesco Lamperti et al., *The Public Costs of Climate-Induced Financial Instability*, 9 NATURE CLIMATE CHANGE 829, 829 (Oct. 29, 2019), https://go.nature.com/3jvEy5w.

39. *Id.*

has argued that the risks outlined above will only hit the banking sector in the distant future, and as such do not need to be incorporated into the Fed's current financial stability frameworks.[40] Putting aside the fact that climate disruption and disaster are already playing out on a vast scale, the macroprudential oversight provisions of Dodd-Frank focus on the materiality of risks to financial stability, not their temporality,[41] meaning that "the idea of a time-delimited approach to financial stability oversight finds no basis in Dodd-Frank."[42] In reality, the range, severity, and interconnectedness of climate threats pose a very real challenge to the Fed's statutorily directed responsibility to maintain financial stability, and as such require the Fed to begin taking action to prevent such threats from materializing.

3. Climate and the Fed's Monetary-Policy Objectives

The Fed's most fundamental authority is its ability to engage in monetary policy. Congress's instructions for the use of this authority are located in section 2A of the Federal Reserve Act, which requires the Fed to "maintain long run growth of the monetary and credit aggregates commensurate with the economy's long run potential to increase production, so as to promote effectively the goals of maximum employment, stable prices, and moderate long-term interest rates."[43] This is an exceedingly broad statutory mandate. While the Federal Reserve Act includes some specific instructions that circumscribe the uses of certain monetary tools (which will be discussed later in this Article), the statute does not specify the particular set of policies that are compatible with its triple mandate of maximum employment, stable prices, and moderate long-term interest rates.[44] Decisions around these policies have been delegated to the Fed, which—over the long term—will not be able to achieve its objectives without taking climate action.

The future we face if we do not rapidly decarbonize—a future of extreme heat, deadly wildfires, rising seas, continuous hurricanes, expansive droughts, and more—is not one that lends itself to strong economic growth. Indeed, it is difficult to imagine that path leading to anywhere but secular stagnation. Even in the shorter term, climate disasters "could have a significant impact on the aggregate economy and inflation."[45] For example, extreme weather events are linked to food commodity price shocks which, as such incidents increase in

40. *Fed Official No Near-Term Plans for Climate Risk Weights, Stress Tests*, AM. BANKERS ASS'N RISK & COMPLIANCE (Jan. 17, 2020), https://bit.ly/3ujhlYV.

41. *See* 12 U.S.C. § 5365(a)(1).

42. *See* Conti-Brown & Wishnick, *supra* note 35, at 700.

43. 12 U.S.C. § 225(a).

44. *See* Conti-Brown & Wishnick, *supra* note 35, at 654–55.

45. *See* Sandra Batten et al., *Climate Change Macroeconomic Impact and Implications for Monetary Policy*, *in* ECOLOGICAL, SOCIETAL, AND TECHNOLOGICAL RISKS AND THE FINANCIAL SECTOR 7 (Thomas Walker et al. eds. 2020), https://bit.ly/3umY2xI.

frequency, could have profound inflationary effects.[46] The positive effects of an energy transition are also relevant: the economy-wide shift that is necessary to avert climate catastrophe could drive strong economic growth and spur maximum employment for decades.[47] In any event, climate change is guaranteed to massively restructure our economy, in ways that—depending on our policy choices today—could either aid or serve as an impossible barrier to the Fed's pursuit of its monetary-policy objectives. As such, achieving the Fed's triple mandate in the years to come requires direct engagement with the climate crisis.

B. The Fed is Falling Behind Other Central Banks on Climate

As central banks around the world experiment with a range of approaches to the dangers of climate change, the Fed continues to fall far behind its peer institutions in addressing this existential threat. The Fed has currently taken no substantive steps towards incorporating climate threats into its mission beyond joining the Network for Greening the Financial System, a consortium of central banks focused on studying the effects of climate change on financial markets[48] and announcing a plan to launch a pilot "scenario analysis" in 2023 to assess climate-related financial risks facing lenders.[49]

This stands in stark contrast to the significant climate commitments taken by the Fed's peer institutions around the world. Many central banks, including the Bank of England (BOE), the European Central Bank (ECB), the People's Bank of China (PBOC), and the Bank of Brazil have adopted climate stress testing of financial institutions, and the BOE and ECB have mandated climate risk disclosures.[50] The BOE is also actively exploring climate-related capital requirements[51] and has committed to reducing the weighted carbon intensity of its corporate bond purchasing program by 25 percent by 2025.[52] The BOE, ECB, and Bank of Japan (BOJ) have all announced policies that make green assets

46. *Id.* at 10 (referencing Andreas Heinen et al., *The Inflationary Costs of Extreme Weather in Developing Countries* (2016) (unpublished working paper), and Gert Peersman, *International Food Commodity Prices and Missing (Dis)inflation in the Euro Area* (2018) (CESifo Working paper, no. 7338)).

47. *See* Jonah Fisher, *Switching to Renewable Energy Could Save Trillions - Study*, BBC (Sept. 13, 2022), http://bit.ly/3E83ucG; *see also* Sivio Marcacci, *Clean Energy Jobs Are Booming, Making up for Rising Fossil Fuel Unemployment*, FORBES (June 29, 2022), http://bit.ly/3tsP1TY.

48. *Membership*, NETWORK FOR GREENING FIN. SYS. (Nov. 30, 2021), https://bit.ly/3qrj4dL.

49. Pete Schroeder, *U.S. Fed is Reviewing Capital Rules, Plans 2023 Climate Tests*, REUTERS (Sept. 7, 2022), https://reut.rs/3BPJiMM.

50. *See* Camilla Hodgson & Billy Nauman, *Chinese Central Bank Governor Backs Push for Climate Risk Disclosure*, FIN. TIMES (June 4, 2021), https://on ft.com/45NtdDt; *see also* Huw Jones, *Bank of England Launches Climate Stress Test for Banks and Insurers*, REUTERS (June 8, 2021), https://reut.rs/3L50Hmx; *see also* Carolina Mandl, *Brazil Makes Climate-Related Financial Disclosure Mandatory*, REUTERS (Sept. 15, 2021), https://bit.ly/3KXfke8; *see also ECB Wants to Put Banks on Schedule to Meet Climate Goals*, REUTERS (Nov. 2, 2022), https://reut.rs/4643Gq7.

51. Khalid Azizuddin, *BoE Announces Climate Stress Test and Initiative on Climate-Related Capital Requirements*, RESPONSIBLE INV. (Feb. 10, 2022), https://bit.ly/3qscpzQ.

52. *See* Press Release, Bank of England, Bank of England Publishes its Approach to Greening the Corporate Bond Purchase Scheme (Nov. 5, 2021), https://bit.ly/3L5LamB.

issued by governments eligible for purchase or discount.[53] The PBOC and BOJ have gone a step further, launching dedicated facilities to offer discounted funding for clean energy,[54] with the BOJ providing zero-interest loans to financial intermediaries that make eligible green loans or hold green bonds.[55]

Other institutions are taking steps to actively drop assets that are tied to fossil fuels. In 2019, Sweden's central bank sold off all its bonds from Alberta, Canada and Queensland, Australia due to the high emissions of these oil- and coal-producing regions, and the bank declared it would no longer invest in assets from issuers with a large climate footprint, even if the yields were high.[56] And France's central bank also recently announced plans to green its balance sheet, including a drawdown policy that includes a "definitive exit" from all companies with coal-related activity before the end of 2024, the exclusion of all companies where oil is at least 10 percent of revenues or gas is more than half, and a commitment to exercise its voting rights against any new projects to develop fossil fuels.[57]

Of course, one cannot make an apples-to-apples comparison between any of these institutions and the Fed. Different central banks operate within distinctive legal frameworks, and it has been argued that the Fed's mandate provides it less flexibility to take climate action than those of other central banks, many of which include directives to further the national priorities of the government, which may include climate goals.[58] However, this difference may be exaggerated. A rarely-discussed provision of the Federal Reserve Act reads: "[W]herever any power vested by this Act in the Board of Governors of the Federal Reserve System or the Federal reserve agent appears to conflict with the powers of the Secretary of the Treasury, *such powers shall be exercised subject to the supervision and control of the Secretary*."[59]

While this statutory language seems somewhat in tension with traditional notions of Fed independence, it seems plausible to read this provision as justifying a Fed focus on furthering the treasury secretary's climate goals, in a

53. *See* Reuters Staff, *Bank of England to Accept New Green Gilts in QE Programme*, REUTERS (July 23, 2021), https://reut.rs/37Lvwyh; Press Release, European Central Bank, ECB to Invest in Bank for International Settlements' Green Bond Fund (Jan. 26, 2021), https://bit.ly/37LctUJ; *see also* Kuroda Haruhiko, Governor of the Bank of Japan, The Bank of Japan's Strategy on Climate Change, Speech via Webcast Before the Japan National Press Club 3, 5, 6, 8 (July 27, 2021), https://bit.ly/3ujPDv9.

54. *See* Georgina Lee, *Climate Change China's Central Bank Unveils Lending Facility to Spur Funding for Carbon-Reduction Projects in Net-Zero Drive*, SOUTH CHINA MORNING POST (Nov. 9, 2021), https://bit.ly/3D3v61U.

55. *See* Megumi Fujikawa, *Bank of Japan Opens Push on Climate Change in Contrast to Fed*, THE WALL ST. J. (July 16, 2021), https://on.wsj.com/3wp4VS1.

56. Kelsey Johnson, *Sweden's Central Bank Sells off Bonds from Canadian Province over Climate Concerns*, REUTERS (Nov. 13, 2019), https://reut.rs/3IvAL1R.

57. Claire Jones, *France's Central Bank has Pledged to Green its Balance Sheet*, FIN. TIMES (Jan. 22, 2021), https://on.ft.com/3tvX17n.

58. *See, e.g.*, Simon Dikau & Ulrich Volz, *Central Bank Mandates, Sustainability Objectives and the Promotion of Green Finance*, 184 ECOLOGICAL ECON. (June 2021), https://bit.ly/3LCxAXW.

59. 12 U.S.C. § 246 (emphasis added).

manner analogous to some other central banks' subsidiary directives to support their governments' priorities.

But at the very least, the fact that so many of the Fed's peer institutions are actively taking climate action demonstrates the widespread understanding that climate risk and financial risk are linked and underscores the legitimacy and wisdom of an active central bank policy on climate—wisdom the Fed would be wrong to eschew.

C. Principles of Fed Independence and Democratic Accountability Militate for Climate Action, Not Against It

The idea of Fed independence has been regularly deployed to attack the propriety of Fed engagement with controversial or "politicized" issues like climate change. A 2021 letter by Republican U.S. Senator Pat Toomey to Mary Daly, the president of the Federal Reserve Bank of San Francisco (FRBSF)—which has been by far the most active on climate of the twelve Federal Reserve Banks[60]—offers a useful distillation of this perspective:

> [FRBSF's] approach has inserted the Federal Reserve into the emotionally-charged political arena—a place where the Federal Reserve seldom has ventured, and for good reason . . . . The Federal Reserve's independence and careful adherence to nonpartisanship has allowed it to avoid being seen as a politicized body in the course of carrying out its dual mandate.[61]

Even when not used cynically, this argument gets a great deal wrong about the actual history of the Fed, the goals of Fed independence, the reality of the Fed as an evolving agency in a changing world, and the democratic implications of Fed climate action. As the following Part illustrates, each of these principles bolsters, rather than detracts from, the case for Fed leadership on climate.

1. The Fed Has Regularly Inserted Itself into the Political Arena

Opponents of climate action strive to paint the Fed as a studiously apolitical actor, such that wading into the "emotionally-charged political" climate crisis would shatter an ironclad norm of neutrality that constrains the agency from engaging on such issues. But this ahistorical argument obscures the reality that the Fed's leadership has regularly waded into highly politicized policy fights.

Take, as one prominent example, the career of former Federal Reserve Chairman Alan Greenspan. Over the course of his unprecedented five terms at the helm of the Fed, which stretched from 1987 to 2006, Greenspan came to be seen as the personal embodiment of the institution. Yet Greenspan's career is replete with examples of exceedingly high-profile political actions taken on

60. *See Why Climate Risk Matters to Us*, FED. RSRV. BANK OF S.F., https://bit.ly/3JAescB (last visited Mar. 19, 2023).

61. Letter from U.S. Senator Pat Toomey to Mary Daly, President, Fed. Rsrv. Bank of S.F. (Mar. 29, 2021), https://bit.ly/351b8YW.

behalf of controversial issues. In 2001 Greenspan famously endorsed President George W. Bush's tax cuts, speaking out in favor of the legislation and actively undercutting objections to the proposal by Democrats.[62] He went on to be a strong voice in favor of Republican plans to privatize Social Security, testifying before Congress that he supported private accounts for Social Security[63] and publicly advocating for benefit cuts.[64] As Fed historian Peter Conti-Brown wrote, "Republicans in Congress and the White House may have been the primary political faces of these reforms, but they had in Greenspan the imprimatur of the Fed's technocracy and functional legitimacy."[65]

Conti-Brown has highlighted another deeply politicized issue around which a leader within the Federal Reserve System is *currently* engaging in advocacy.[66] Neel Kashkari, the president of the Federal Reserve Bank of Minneapolis, has weighed in on one of the most controversial issues in education politics, standardized testing, by spearheading a campaign to add an amendment to Minnesota's state constitution that would require students to be "measured against uniform achievement standards set forth by the state."[67] To support this push, Kashkari has intricately linked the campaign to his role as a central banker, and his advocacy materials are prominently hosted on the Federal Reserve Bank of Minneapolis' own website.[68]

These examples implicate issues that are far less directly linked to the Fed's microprudential, macroprudential, or monetary-policy responsibilities than climate change. And while there is a difference between Fed leaders taking controversial advocacy positions and the Fed substantively pursuing controversial policies, the fact remains that an accurate history of this institution includes examples of its leadership engaging in highly partisan political fights on a range of different issues. It would be inconsistent to label this engagement as appropriate in some arenas yet inappropriate when it comes to climate change—a threat that endangers the very foundations of our economic and financial order.

2. Fed Independence Was Designed to Facilitate Action on Issues Like Climate

Beyond its inconsistent application, the argument that the Fed was not meant to act on controversial issues like climate change is simply incorrect. The

62. *See* John Berry, *Greenspan Supports a Tax Cut*, WASH. POST (Jan. 26, 2001), https://wapo.st/3D40gWL.

63. *See* Editorial, *What Does Alan Greenspan Want?*, N.Y. TIMES (Feb. 18, 2005), https://nyti.ms/351HQcH.

64. *See* Opinion, *Fixes for Social Security*, N.Y. TIMES (Apr. 4, 2004), https://nyti.ms/36JrK8k (describing conservative ideas to privatize social security).

65. *See* Conti-Brown & Wishnick, *supra* note 35, at 703.

66. *Id.* at 704.

67. *What is the Page Amendment?*, OUR CHILDREN, https://bit.ly/3JwrXKd (last visited Mar. 5, 2023).

68. Neel Kashkari & Alan Page, *Our Push for an Education Amendment Has Only Gotten More Relevant*, FED. RSRV. BANK OF MINN. (July 13, 2020), https://bit.ly/3ip8D5Y.

entire purpose of Fed independence was—and is—to allow the agency to tackle critical issues related to its statutory mandates, regardless of how controversial or thorny they might be. The story most frequently used to illustrate the importance and function of Fed independence is former Fed Chairman Paul Volcker's "war on inflation."[69] In the late 1970s and early 1980s, Volcker pursued deflationary monetary policy and actively caused a major recession, creating national unemployment levels near 11 percent.[70] These measures crippled U.S. manufacturing and construction sectors, causing significant economic pain and generating massive backlash. Yet despite that public and political pressure, Volcker stood firm and has been lionized for doing so. As former Federal Reserve Chairman Ben Bernanke said upon Volcker's death, "He came to represent independence. He personified the idea of doing something politically unpopular but economically necessary."[71]

Without passing judgment on Volcker's policies, the celebration of Volcker's role in this recession demonstrates the flaw in claims that the Fed was designed to stick to neutral or apolitical courses of action. And this observation is particularly meaningful in the context of the climate crisis, given the structural similarities between efforts to maintain price stability and campaigns to win ambitious climate action. Regarding the former, "the politics of money mean that politicians will always want to provide short-term monetary stimulus at the expense of long-term price stability."[72] This dynamic is strongly echoed in the politics of decarbonization, which "imposes costs on the short term for the realization of benefits many decades and sometimes centuries later."[73] In this way, we can see climate change as a challenge that is uniquely suited for action by an institution like the Fed.

And while the Volcker example above involves the Fed's pursuit of price stability, this principle should, and has, extended to other issues, as well. In 2020, Fed Chairman Jerome Powell "repeatedly urged lawmakers to enact additional economic aid" in response to the COVID-19 pandemic, diving directly into the political fray with public speeches and testimony to Congress advocating for increasing the Fed's COVID-19 liquidity facilities.[74] In this instance, Powell seemed to understand that hiding from political pressure in response to a new, dangerous threat was not the best way to use or maintain Fed independence. It is time for the Fed to bring that same recognition to the climate crisis.

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69. *See* Binyamin Appelbaum & Robert Herskey, Jr., *Paul A. Volcker, Fed Chairman Who Waged War on Inflation, Is Dead at 92*, N.Y. TIMES (Dec. 9, 2019), https://nyti.ms/3tFwmp3.

70. Tim Sablik, *Recession of 1981–82*, FED, RSRV. HIST. (Nov. 22, 2013), https://bit.ly/3D0BMxI.

71. *See* Appelbaum & Herskey, *supra* note 69.

72. *See* Conti-Brown & Wishnick, *supra* note 35, at 695.

73. Richard J. Lazarus, *Super Wicked Problems and Climate Change Restraining the Present to Liberate the Future*, 94 CORNELL L. REV. 1153, 1153 (2009).

74. *Fed Chair Jay Powell Pushes for More Stimulus, Warning of Economic "Downward Spiral"*, CBS NEWS (Oct. 6, 2020), https://cbsn.ws/3tylGbI; *see also* Christine Desan & Nadav Orian Peer, *The Constitution and the Fed after the COVID-19 Crisis*, JUST MONEY (June 10, 2020), https://bit.ly/3IMsQNL.

3. The Fed's Role Has Always Evolved in Response to New Challenges

The Fed has never been a static institution. Throughout its history, Fed policymakers have regularly experimented with and then mainstreamed novel regulatory and monetary tools in response to newly arising challenges in the real world. During the 2008 financial crisis, the Fed used section 13(3) of the Federal Reserve Act—which empowers the Fed to provide an uncapped amount of liquidity to the financial system in unusual and exigent circumstances[75]—to purchase assets and lend money in new and, according to many, highly questionable ways. For example, while the language of section 13(3) contemplated only secured loan transactions, the Fed used the provision to buy assets from troubled financial institutions—including JPMorgan Chase, AIG, and others—by creating a workaround in the form of a special purpose vehicle.[76] In essence, the Fed created special purpose vehicles and lent money to them using section 13(3), which the special purpose vehicles then used to purchase assets from the troubled institutions.[77] These strategies were very controversial; indeed, in April 2008 Volcker himself publicly criticized these moves as being "neither natural nor comfortable for a central bank."[78]

Following the 2008 financial crisis, the Fed innovated again in its usage of quantitative easing and its development of the federal funds rate as a new strategy for setting interest rates.[79] And then the 2020 crisis hit, and the Fed spearheaded a new series of tools in response.[80] Most notably, the Fed created COVID-19 facilities offering support to end-borrowers—not to credit providers, but directly to corporations, municipal and state governments, and consumers.[81] These facilities have been criticized as "picking winners and losers" and using "regulatory arbitrage" to dress up what were essentially purchases as section 13(3) loans of last resort.[82] Powell's response to these critiques exemplifies how the Fed continuously redraws the boundaries of its mission and practice in response to new challenges. He explained that the Fed "really need[ed] to be using our tools to their fullest extent . . . . [I]t would be very hard to explain to

75. 12 U.S.C. § 13(3).

76. Alexander Mehra, *Legal Authority in Unusual and Exigent Circumstances The Federal Reserve and the Financial Crisis*, 13 U. OF PA. J. BUS. L. 221, 236 (2011), https://bit.ly/3wFs7LZ.

77. *Id*.

78. *See* Conti-Brown & Wishnick, *supra* note 35, at 643.

79. *See Policy Tools Open Market Operations*, BD. OF GOVERNORS OF THE FED. RSRV. SYS. (Feb. 1, 2023), https://bit.ly/3DdLe0V.

80. It is worth noting that many of the innovations the Fed pursued in response to the COVID-19 crisis were authorized to some degree in the CARES Act, providing these facilities an added degree of congressional primatur. *Use of CARES Act-Supported Programs Has Been Limited and Flow of Credit Has Generally Improved*, U.S. GOV'T ACCOUNTABILITY OFF. (Dec. 2020), https://bit.ly/3qP70pT.

81. Desan & Peer, *supra* note 74.

82. *Id*.

the public why we held back . . . . We crossed a lot of red lines that had not been crossed before."[83] But in a crisis, "You do that and you figure it out afterward."[84]

Today, humanity faces a threat that exponentially dwarfs the 2008 or 2020 crises. Given the Fed's consistent history of evolution in response to new dangers, it would be unreasonable to shut down its adaptive potential to face climate change, a crisis that requires innovation and urgent action like no other.

4. The Costs of Climate Inaction Outweigh "Government by Central Bank" Concerns

Perhaps the most compelling argument against the Fed taking its legal authority to the outer limit in response to the climate crisis is that "government by central bank" is fundamentally in conflict with the basic principles of democratic accountability that should underlie representative government. Paul Tucker, former deputy governor of the Bank of England, has provided the seminal articulation of this view in his book *Unelected Power: The Quest for Legitimacy in Central Banking and the Regulatory State*. In essence, Tucker argues that central banks should avoid "venturing into major choices on the distribution of wealth or society's values" and should only pursue "well-specified goals" through clear, preexisting procedures.[85] He goes on to provide a lengthy catalog of reasons why action by unelected central bank officials can undermine democratic principles:

> [B]ecause they reduce public participation; or because their policy boards are even less representative of the makeup of the community than the elected assembly; or because they unavoidably delegate choices on values and objectives; or because they are vulnerable to "expert" groupthink; or because, where their objectives are fixed, they reduce government's flexibility to respond to events in the interests of the people; or because they reduce the capacity of the electorate to register discontent via the orderly means of an election . . . . [O]r, more simply, because the spread of unelected power is alien to who we are, who we struggled to be.[86]

These concerns are legitimate. But they obscure much, at least when applied to the U.S. context. Perhaps most importantly, this argument seems to ignore the profoundly undemocratic realities of the U.S. political system, particularly in the context of climate change. A 2020 Pew Research Center poll found that two-thirds of Americans believe the federal government is doing too little to combat

83. *See* Conti-Brown & Wishnick, *supra* note 35, at 686 (quoting *Transcript Fed Chief Jerome Powell Q&A with Alan Blinder*, WALL ST. J. (May 29, 2020), https://bit.ly/3wITZ1Q).

84. *Id*.

85. *See id.* at 644 (quoting PAUL TUCKER, UNELECTED POWER: THE QUEST FOR LEGITIMACY IN CENTRAL BANKING AND THE REGULATORY STATE 566 (2018)).

86. PAUL TUCKER, UNELECTED POWER: THE QUEST FOR LEGITIMACY IN CENTRAL BANKING AND THE REGULATORY STATE 219 (1st ed. 2019).

climate change.[87] Almost 80 percent of Americans believe the priority for the country's energy supply should be developing alternative energy such as wind and solar, 80 percent support tougher restrictions on power plant emissions, 73 percent support taxing corporations based on the amount of carbon emissions they produce, and 71 percent support tougher fuel-efficiency standards for automobiles and trucks.[88] In a well-functioning democracy, the U.S. government *would* be taking action on climate across every possible front.

Tragically, our government today is not a well-functioning democracy. An infamous 2014 Princeton University study found that the U.S. government operates more like an oligarchy than a democracy, in which "economic elites and organized groups representing business interests have substantial independent impacts on U.S. government policy, while mass-based interest groups and average citizens have little or no independent influence."[89] The antidemocratic forces in our governmental system are legion: from the corrupting influence of a post-*Citizens United* campaign finance system in which money equals speech and "[t]here is no such thing as too much speech;"[90] to the minoritarian structure of the Senate, in which the fifty Republican senators serving from 2020 to 2022 represented approximately 41.5 million fewer people than the fifty Democratic senators;[91] to the reality that one-half of the nation's two-party political apparatus seems to have fully committed itself to the overthrow of free and fair elections;[92] to a Supreme Court (whose majority was appointed by presidents who lost the popular vote)[93] that regularly strikes down policies enacted through democratic channels using "shadow docket" decisions that often fail to even articulate appropriate legal justifications.[94] In this context, a hypercritical focus on the democratic implications of a central bank taking climate action seems disproportionate and unwise, particularly when the alternative—unabated climate chaos, with its concomitant effects on migration and social dislocation—

87. Alec Tyson & Brian Kennedy, *Two-Thirds of Americans Think Government Should Do More on Climate*, PEW RSCH. CTR. (June 23, 2020), https://pewrsr.ch/37WQF8K.

88. *Id*.

89. Martin Gilens & Benjamin Page, *Testing Theories of American Politics Elites, Interest Groups, and Average Citizens*, 12 PERSPS. ON POL. 564, 565 (Sept. 2014), https://bit.ly/3IMN6i4.

90. Citizens United v. Fed. Election Comm'n, 558 U.S. 310, 472 (2010) (Stevens, J. concurring in part) (quoting Austin v. Michigan Chamber of Com., 494 U.S. 652 (1990), *overruled by* Citizens United, 558 U.S. at 310).

91. Ian Millhiser, *America's Anti-Democratic Senate, in One Number*, VOX (Jan. 6, 2021), https://bit.ly/3uuAcQS.

92. *See* Lawrence Tribe, *The Risk of a Coup in the Next US Election is Greater Now Than It Ever Was Under Trump*, THE GUARDIAN (Jan. 3, 2022), https://bit.ly/3r5sVGa.

93. Adam Cole, *The Supreme Court is About to Hit an Undemocratic Milestone*, VOX (Sept. 28, 2020), https://bit.ly/3iMZy6U.

94. *See* Mike Fox, *The Supreme Court's Shadow Docket Leaves Reasoning in the Dark, Professors Say*, UNIV. OF VA. SCH. OF L. (Sept. 22, 2021), https://bit.ly/3kFfucJ.

poses such an existential threat to democracy.[95] After all, "it is in times of crisis that fascism finds a foothold."[96]

II. OUTLINING FED STRATEGIES FOR ACTION ON CLIMATE

As the preceding Part argues, the Fed has a responsibility to act on climate. But what can the Fed do, given its current statutorily assigned powers? The following Part maps out the types of tools—focusing first on regulatory actions and then on monetary-policy strategies—that the Fed could begin utilizing to address the threat of climate change, with a brief explanation of the legal authorities under which such tools could be pursued.

A. Regulatory Tools for Fed Action on Climate

The Fed has at its disposal an array of regulatory tools that could have a major impact in addressing climate risk and reducing the catastrophic effects of climate change on our financial and economic systems, including stress tests, capital rules, and margin requirements. As this Article briefly discussed in Part I, these actions are well justified under several statutes that make the Fed the primary regulator for a range of financial institutions and give the Fed the authority required to protect the stability of the U.S. financial system.

1. Climate Stress Testing

Stress tests are supervisory modeling exercises performed by central banks to determine whether financial institutions have the necessary capital to absorb losses from potential economic shocks. If a bank "fails" its stress test, it may not pay dividends until the Fed approves.[97] By incorporating climate risk into its stress test analysis and using the results to determine financial institutions' appropriate minimum capital ratios, the Fed could take material action to "ensure that companies' capital allocation decisions accurately reflect the financial risks posed by fossil fuel and deforestation financing activities and the climate change that results from that financing."[98]

The Fed's legal authority to pursue this strategy is rock solid. Section 165 of Dodd-Frank actually compels the Fed to utilize stress tests, requiring the agency to "conduct annual analyses" of financial institutions to evaluate whether they have the capital "necessary to absorb losses as a result of adverse economic conditions."[99] It also allows the Fed to "develop and apply other analytic

95. *See* Laurie Goering, *Democracies that Fail to Act on Climate Change Face "Existential" Threat*, REUTERS (Oct. 26, 2021), http://bit.ly/3OAU8Lx.

96. *See* Adam Weymouth, *Fascism and Climate Crisis*, ECOLOGIST (July 13, 2022), http://bit.ly/3U7jW3e.

97. *See* Mark Flannery et al., *Evaluating the Information in the Federal Reserve Stress Tests*, FED. RSRV. BANK OF N.Y., STAFF REP. NO. 744, 6 (Aug. 2016), https://nyfed.org/3IL4wfk.

98. *See* Steele, *supra* note 19, at 148.

99. 12 U.S.C. § 5365(i)(1)(A).

techniques as are necessary to identify, measure, and monitor risks to the financial stability of the United States."[100] A fair reading of these provisions plainly gives the Fed discretion to incorporate climate risks into its supervisory stress testing practices.

2. Climate Risk-Based Capital Requirements

Capital requirements are minimum ratios of capital to assets that banks and other financial institutions are required to maintain, which are determined by a system of "risk weights" for measuring an institution's assets.[101] The Fed could make banks account for the riskiness of financing emissions by increasing risk weights for loans and investments in climate change-driving assets, thereby disincentivizing this financing and incentivizing greener investments.

Like climate stress testing, the Fed's legal authority to take such action rests on strong statutory foundations. Capital regulation is the first standard required by section 165 of Dodd-Frank.[102] The Bank Holding Company Act of 1956 also authorizes the Fed to examine bank holding companies and their subsidiaries and "issue such regulations and orders, including [those] relating to the capital requirements for bank holding companies, as may be necessary to enable it to administer and carry out the purposes of [the] Act."[103] And the Federal Deposit Insurance Act allows the Fed to require a bank holding company to cease and desist its engagement in any "unsafe or unsound practice."[104] Together, these provisions grant the Fed the power to adjust capital rules to reflect climate financial risks.

3. Climate Risk-Based Margin Requirements

Margin requirements restrict the portion of transactions involving securities and derivatives that can be made using borrowed money, in order to limit the amount of leverage (i.e., debt) that can accumulate in these markets. Section 165 of Dodd-Frank empowers the Fed to implement any other macroprudential standards that it "determines are appropriate" to maintain the stability of the U.S. financial system.[105] Because adding leverage to transactions involving fossil fuels increases the scope of potential losses when those assets become stranded or when issuing companies experience other climate-related financial damage, which creates an increased threat to financial stability, there is a strong argument that the Fed has the legal authority to impose strict margin requirements on

100. *Id.* § 5365(i)(1)(B)(iii).
101. *See* Steele, *supra* note 19, at 145.
102. *See* 12 U.S.C. § 5365(b)(1)(A)(i).
103. 12 U.S.C. § 1844(b).
104. *See* 12 U.S.C. § 1844; *id.* §§ 1818(b)(1), (3).
105. 12 U.S.C. § 5365(b)(1)(B)(iv).

transactions involving securities and derivatives tied to major corporate emitters and fossil fuel assets.[106]

B. Monetary Tools for Fed Action on Climate

In the aftermath of the 2008 financial crisis, having already lowered interest rates to zero, the Fed came up against the limits of what conventional monetary-policy tools could achieve. So, in pursuit of its triple mandate, the Fed innovated, implementing a series of unconventional monetary policies that took the agency into new and previously uncharted waters.[107] Today, faced with a climate threat orders of magnitude greater in scope than the 2008 crisis, the Fed must innovate again. As described in Part I, central banks around the world have begun deploying monetary-policy tools in pursuit of climate action. It is time for the Fed to join them by greening both its discount window lending practices and its balance sheet.

1. Green Criteria for Discount Window and Primary Dealer Credit Facility Lending

In its role as lender of last resort, the Fed provides liquidity to depository institutions through the discount window under section 10B of the Federal Reserve Act and to primary dealers—certain financial institutions that have been specifically approved for lending through the Primary Dealer Credit Facility—under section 13(3).[108] These statutory provisions give the Fed's twelve Reserve Banks incredibly broad discretion to determine the collateral they will accept in exchange for their lender of last resort support, requiring only that the loans be "secured to the satisfaction of the Federal Reserve Bank."[109] As such, the Fed could choose to provide a more favorable discount rate for green collateral and a less favorable rate for fossil fuel-related collateral, or could go a step further and make fossil fuel-related collateral completely ineligible for such assistance. Because Primary Dealer Credit Facility credit provides a valuable source of low-cost finance to primary dealers, and discount window lending can be critical for depository institutions (not just in emergencies, but also in more mundane situations, like when a bank needs short-term loans to meet its overnight reserve requirements), these eligibility changes could place an immense amount of pressure on financial institutions to increase their green assets and decrease their climate-exacerbating assets.

106. *See* Steele, *supra* note 19, at 149.
107. *See* BD. OF GOVERNORS OF THE FED. RSRV. SYS., *supra* note 79.
108. 12 U.S.C. §§ 10B, 13(3).
109. *Id.*

2. Green Quantitative Easing

Quantitative easing involves harnessing a central bank's balance sheet for economic stimulus through large-scale purchases of certain debt assets—like the Fed's purchase of $1.25 trillion of mortgage-backed securities in the 2008 financial crisis—which increases demand for that asset and, as a result, decreases their interest rates.[110] Green quantitative easing, then, entails a central bank adjusting its asset holdings to increase its portfolio of green bonds—debt securities whose proceeds finance clean energy or other investments with positive climate impacts—thereby reducing the cost of borrowing for these developments and inducing companies and state and local governments to undertake such projects.[111] A 2021 study using macroeconomic modeling to analyze the effects of green quantitative easing found that this strategy could significantly increase green investment's share of total investment, thereby reducing climate-induced financial instability and restricting global warming.[112] And since green developments are more labor-intensive and generally produce more jobs per dollar than unsustainable investments, this program would also have a positive impact on the Fed's pursuit of its "full employment" monetary-policy objective.[113]

Admittedly, the Fed's legal capacity to engage in green quantitative easing is more disputed than its authority to tie lending at the discount window with green collateral. Section 14 of the Federal Reserve Act does not mention private bonds in its list of debt securities that the Fed "shall have power" to buy.[114] But this list—which includes gold, Treasury bonds, bonds guaranteed by a government agency, and state, county, or municipal bonds—clearly allows the Fed to direct dollars towards local governments that are bonding to pursue decarbonization, which could be a major game-changer in and of itself.[115]

The Fed does have authority to loan directly to the private sector and purchase private sector financial assets under section 13(3) of the Federal Reserve Act during "unusual and exigent circumstances."[116] This term is not defined in the statute, but taking the plain meaning of "unusual"—extraordinary or abnormal—and "exigent"—requiring immediate action or aid—certainly creates space for the argument that section 13(3) can be exercised to address the climate crisis.[117] The other primary requirement under section 13(3) is that

110. *See* Skinner, *supra* note 14, at 1328.

111. *Id*. at 1329.

112. *See* Yannis Dafermos et al., *Greening the Eurosystem Collateral Framework How to Decarbonise the ECB's Monetary Policy*, NEW ECON. FOUND. (Mar. 2021), https://bit.ly/3wJYPLZ.

113. *See* Joel Jaeger et al., *The Green Jobs Advantage How Climate-Friendly Investments Are Better Job Creators*, WORLD RES. INST., 10–11 (Oct. 2021), https://bit.ly/3tUGHgZ.

114. 12 U.S.C. § 355(1).

115. *Id.* §§ 354–55.

116. *Id.* § 343(3)(A).

117. *See* Bryan Hamerschlag, *A "Green New Fed" How the Federal Reserve's Existing Powers Could Allow It to Take Action on Climate Change*, 100 TEXAS L. REV. 577, 596 (2022), https://bit.ly/3wGaA6b.

programs must have "broad-based eligibility," another term not defined directly.[118] Dodd-Frank amended the statute to clarify that programs designed "to remove assets from the balance sheet of a single and specific company" or to help a "single and specific company avoid bankruptcy" do not have broad-based eligibility,[119] and Fed regulations following this amendment defined programs as having broad-based eligibility "if they provide liquidity to an identifiable sector of the financial system, would be accessible to five or more entities, and are not targeted at helping an individual company avoid bankruptcy or aiding a failing financial company."[120] None of these specifications seem to categorically rule out the use of section 13(3) for green quantitative easing.

And while a green quantitative easing program could certainly be criticized on separation of powers grounds for "dress[ing]-up Section 14 purchases as Section 13(3) loans" to pick winners and losers, the Fed has already crossed this line through its 2020 COVID-19 lending facilities, in which "lender of last resort support and monetary policy [were blended] to the point they are indistinguishable."[121] If the Fed can appropriately push the envelope on its section 14 and section 13(3) authority in response to a pandemic, because of, as Jerome Powell explained, "an emergency of a nature that we haven't really seen before," then surely it can respond similarly to the exponentially greater danger of climate breakdown, which presents emergencies of a nature we have never even imagined.[122]

III. EVALUATING THE VULNERABILITY OF FED CLIMATE ACTION TO JUDICIAL REVIEW

While the Fed has the authority to unilaterally act on climate, it does not operate in a vacuum. Like all government agencies, the Fed acts within a judicially-arbitrated constitutional framework and would likely face certain judicial constraints if it decided to pursue ambitious climate action. Given this practical reality, the following Part explores the very different levels of deference the courts have historically afforded the Fed depending on whether it was playing the role of a regulator or monetary-policymaker in a dispute.[123] This analysis leads to a somewhat paradoxical—but potentially strategically important—conclusion. Although the Fed's legal authority to address climate threats through regulatory action is arguably stronger than its authority to pursue certain monetary actions on climate, the existing framework for judicial review of the Fed, combined with the current Supreme Court's record on administrative law,

118. 12 U.S.C. § 343(3)(A).

119. *Id.* § 343(3)(B)(iii).

120. *See* Hamerschlag, *supra* note 117, at 597–98 (quoting Regulation A, 12 C.F.R. § 201.4(d)(4) (2021)).

121. Desan & Peer, *supra* note 74.

122. *Transcript Fed Chief Jerome Powell Q&A with Alan Blinder*, *supra* note 83.

123. This Part's analysis of judicial review of the Fed draws on Steffi Ostrowski, *Judging the Fed*, 131 YALE L. REV. 726 (2021), https://bit.ly/3tNxV4h.

together suggest that the monetary-policy tools described above may stand a better chance of surviving legal challenge than the regulatory ones.

A. Judicial Review of Fed Regulatory Action

The deference afforded to the Fed by the judiciary differs according to the kind of action it is taking. When the Fed acts in its role as a financial regulator, the courts have settled on an approach that treats Fed regulations like those of any other agency.

This has not always been the case. In *Board of Governors v. Agnew*, the Supreme Court's first case challenging a regulatory decision from the Fed, the Court articulated a very different take on the deference due Fed regulatory action. This 1947 case, which centered on the proper reading of the Glass-Steagall Act, featured a concurring opinion from Justices Rutledge and Frankfurter arguing that the Court should give the Fed's reading of the statute the greatest possible deference because of the Fed's role in the financial system.[124] The opinion maintained that the Fed deserved deference "[n]ot only because Congress has committed the [financial] system's operation to [the Fed's] hands," but also because the Fed possessed "specialized experience" giving the institution "an advantage judges cannot possibly have."[125] As a result, Rutledge and Frankfurter wrote, the Court should only overturn the Fed's regulatory choices "where there is no reasonable basis to sustain it or where they exercise [power] in a manner which clearly exceeds their statutory authority."[126] This hands-off attitude continued in the 1981 case *Board of Governors v. Investment Co. Institute*, in which the Court held that the Fed's "determination of what activities are 'closely related' to banking is entitled to the greatest deference,"[127] and the 1984 case *Schwab*, in which the Court stressed "the deference normally accorded the Board's construction of the banking laws" and again granted the Fed's interpretation of the Glass-Steagall Act "the greatest deference."[128]

But the Court's jurisprudence began shifting in another case that same year. In *Bankers Trust I* the Court overturned a ruling from the D.C. Circuit that the Fed's "expert knowledge of commercial banking" and "substantial responsibility" for regulating the national banking system deserved deference, instead citing case law concerning judicial review of other administrative agencies to argue against deference.[129] This approach was reaffirmed in the Court's 1986 opinion in *Board of Governors v. Dimension Financial Corp.*,

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124. *Id.* at 747–48.

125. Bd. of Governors of the Fed. Rsrv. Sys. v. Agnew, 329 U.S. 441, 450 (1947) (Rutledge, J., concurring).

126. *Id.*

127. Bd. of Governors of the Fed. Rsrv. Sys. v. Inv. Co. Inst., 450 U.S. 46, 56 (1981).

128. Sec. Indus. Ass'n v. Bd. of Governors of the Fed. Rsrv. Sys. (Schwab), 468 U.S. 207, 221 (1984).

129. *See* Ostrowski, *supra* note 123, at 750 (quoting Sec. Indus. Ass'n v. Bd. of Governors of the Fed. Rsrv. Sys. (Bankers Trust I), 468 U.S. 137, 143 (1984)).

which did not cite *Agnew*, but rather denied deference under *Chevron* step one, thereby placing the Fed in the same framework for judicial review as any other agency.[130] And this trans-substantive model has been maintained by the lower courts ever since.[131]

What does this mean for the Fed's ability to deploy its regulatory powers to address climate risk? In the context of a reasonably restrained Supreme Court, it would likely not be a cause for significant concern, as—under a normal *Chevron* framework—the Fed's statutory authority to pursue climate stress testing and climate risk-based capital and margin requirements do not seem controversial. But the current Supreme Court's conservative majority has been historically aggressive in striking down exercises of administrative authority it does not like. It has spent years pursuing a campaign to limit *Chevron* deference.[132] And it has given itself the means to veto even those regulations broadly authorized by Congress through its development of the "major questions doctrine"—an idea, never alluded to in the Constitution or in any federal law, that if a majority of the Court deems a regulation to be too significant, it can strike it down unless Congress specifically and explicitly authorized that particular rule.[133] This presents a particular problem for the Fed's use of its regulatory powers to address climate threats, as such tools require notice-and-comment rulemaking processes that could offer the Court clear opportunities to find that climate-related financial assets are not risky enough to warrant Fed action,[134] despite the Court's lack of specialized financial and scientific expertise on such a technical question.

This is not to argue against the Fed deploying the regulatory strategies described in this Article to address climate risk. These tools represent a lawful use of the Fed's authority, and to address an existential threat like the climate crisis, it is incumbent on the Fed to pursue every means available to it. But the reality of judicial review under the current Supreme Court means that Fed

130. *Id.* at 751 (quoting Chevron U.S.A., Inc. v. Nat. Res. Def. Council, Inc. (Chevron), 467 U.S. 837, 842–43 (1984) ("If the statute is clear and unambiguous, 'that is the end of the matter; for the court, as well as the agency, must give effect to the unambiguously expressed intent of Congress.'").

131. *Id.*; *see also* Pharaon v. Bd. of Governors of the Fed. Rsrv. Sys., 135 F.3d 148, 153–55 (D.C. Cir. 1998) (upholding the Fed's interpretation via trans-substantive reasoning); Indep. Cmty. Bankers of Am. v. Bd. of Governors of the Fed. Rsrv. Sys., 195 F.3d 28, 30 (D.C. Cir. 1999) (deferring to the Board under *Chevron* step two); NACS v. Bd. of Governors of the Fed. Rsrv. Sys., 746 F.3d 474, 482–83 (D.C. Cir. 2014) (analyzing the reasonableness of the Fed's rulemaking wholly under *Chevron*); Loan Syndications & Trading Ass'n v. SEC, 882 F.3d 220, 221 (D.C. Cir. 2018) (setting aside a regulation promulgated by the Fed and SEC as relying on an unreasonable interpretation of the relevant statute).

132. *See* Kristin Hickman & Aaron Nielson, *Narrowing Chevron's Domain*, 70 DUKE L. J. 931, 934–35 (2021), https://bit.ly/3rvxji7 (noting suggestions from Justices Clarence Thomas and Neil Gorsuch that *Chevron* violates the separation of powers; describing conceptual criticisms made by Justice Brett Kavanaugh; and observing that Chief Justice John Roberts, joined by Justice Alito, has urged a narrower version of *Chevron* deference); Jeff Overley, *Chevron Deference's Future in Doubt If Barrett Is Confirmed*, LAW360 (Oct. 23, 2020), https://bit.ly/3vyHl3k. *See generally* Am. Hospital Ass'n v. Becerra, 142 S. Ct. 1896 (2022) (demonstrating the Court ignoring the traditional *Chevron* test entirely).

133. *See* Ian Millhiser, *The Post-Legal Supreme Court*, VOX (July 9, 2022), http://bit.ly/3USpAax.

134. *See* Skinner, *supra* note 14, at 1336.

regulatory action is not guaranteed to survive. This makes it vital that the Fed also deploy its monetary-policy tools in the fight against climate disaster.

B. Judicial Review of Fed Monetary-Policy Action

Whereas the courts have developed a model for judicial review of Fed regulatory action that treats the institution like any other government agency, their framework for reviewing the Fed's exercise of its monetary-policy authority is a completely different animal. First, judicial review appears to be completely unavailable when it comes to Fed action related to interest rates. In *Raichle v. Federal Reserve Bank of New York*, the Second Circuit ruled that the New York Federal Reserve Bank's use of various open-market operations and discount-window activities to raise interest rates was simply not justiciable, writing, "It would be an unthinkable burden upon any banking system if its open market sales and discount rates were to be subject to judicial review. Indeed, the correction of discount rates by judicial decree seems almost grotesque."[135] To subject such activities to judicial review "would make the courts, rather than the Federal Reserve Board, the supervisors of the Federal Reserve System," which would represent a "cure worse than the malady."[136]

Raichle speaks directly to the nonreviewability of Fed decisions to condition its lender of last resort assistance on requirements such as green collateral. The opinion clearly states that it could not be a tort "for a Federal Reserve Bank to sell its securities in the open market, to fix discount rates which are unreasonably high, *or to refuse to discount eligible paper*, even though its policy may be mistaken and its judgment bad"[137]—meaning that if the Fed declines to make a loan at the discount window or through the Primary Dealer Credit Facility because a bank's assets are exacerbating the climate crisis, that decision is nonjusticiable.

And while the opinion in *Raichle* refers to "open market sales and discount rates" rather than using the term "monetary policy," the logic of the opinion would seem to incorporate a broader range of tools, including balance-sheet management. As a 2021 Note in *The Yale Law Journal* noted, the tort claim brought in *Raichle* challenged much more than the Fed's open-market operations and discount-window lending, and the crux of the court's opinion—that it was not the courts' role to supervise the Federal Reserve System—was "most attuned to the *outcome* of the Fed's action, not the means."[138]

As such, the logic of *Raichle* should apply to a green quantitative easing program, as well—particularly considering that, on the very few occasions that courts have reviewed Fed emergency lending decisions, they have done so with similarly broad deference. In a 1977 case centering on a Fed loan to Franklin

135. Raichle v. Fed. Rsrv. Bank of N.Y., 34 F.2d 910, 915 (2d Cir. 1929).
136. *Id.*
137. *Id.* (emphasis added).
138. Ostrowski, *supra* note 123, at 752.

National Bank, the Second Circuit wrote that "[a]bsent clear evidence of grossly arbitrary or capricious action on the part of [the Fed] . . . it is not for the courts to say whether or not the actions taken were justified in the public interest, particularly where it vitally concerned the operation and stability of the nation's banking system."[139] The court supported this statement by citing to *Raichle*, signaling that it thought the deference due to the Fed in lending decisions was comparable to that required in cases involving monetary policy.[140] More recently, the Federal Circuit affirmed this point in dicta in a case connected to the Fed's 2008 bailout of AIG under section 13(3) of the Federal Reserve Act. Although the case's primary ruling focused on the plaintiff's lack of third-party standing (another major impediment to the justiciability of Fed lending decisions), the court also reiterated that "courts lack both the competence and the authority to determine such abstract issues, which are better addressed through political and economic debate over the role of monetary policy in the national economy."[141]

Of course, precedent is no guarantee, and today's conservative Supreme Court could certainly remake its jurisprudence to interfere with the Fed's use of its monetary-policy authority on climate, despite how "grotesque" doing so would be.[142] But this would represent an eye-catching reversal, requiring a far greater flexing of judicial activism than striking down Fed regulatory action would entail. While traditionalists within the Fed might perceive the deployment of monetary-policy tools to achieve climate-related goals as more controversial or less appropriate than the use of the Fed's statutorily-authorized regulatory powers, this analysis makes clear that—if policymakers want to take climate action that has the best chance of surviving judicial challenge—monetary policy must be part of the Fed's strategy.

CONCLUSION

Climate change threatens every aspect of human civilization, including our financial stability and economic order. Avoiding the most catastrophic climate scenarios requires an urgent transition away from fossil fuels. But U.S. banks and financial institutions continue to lead the world in fossil fuel financing, placing the Fed squarely at the center of one of the most critical policy arenas for climate action.

Fortunately, the Fed has an array of strategies at its disposal that could make a material difference in protecting our civilization from climate disaster. It also has a strategic imperative to deploy both its regulatory and its monetary-policy

139. Huntington Towers, Ltd. v. Franklin Nat'l Bank, 559 F.2d 863, 868 (2d Cir. 1977).

140. Ostrowski, *supra* note 123, at 757.

141. Comm. for Monetary Reform v. Bd. of Governors of Fed. Rsrv. Sys., 766 F.2d 538, 542 (D.C. Cir. 1985).

142. *Raichle*, 34 F.2d at 915.

tools to this end. Most importantly, the Fed has extremely strong justifications for taking such action—indeed, the institution cannot achieve its statutory responsibilities, meet international comparisons, or fulfill its historical role in our governmental system without doing so.

This is an all-hands-on-deck moment. Humanity is running out of time to address runaway global heating. If we want to secure a livable future, we need the Fed to step up and fulfill the crisis-prevention role that law, best practice, and common sense require of it. The stakes, quite simply, could not be higher.