

February 13, 2022

Grovetta N. Gardineer
Senior Deputy Comptroller for Bank Supervision Policy
Attention: Comment Processing
Office of the Comptroller of the Currency
400 7th St. SW, Suite 3E-218
Washington, DC 20219.

Re: Principles for Climate-Related Financial Risk Management for Large Banks [Docket ID OCC-2021-0023]

Dear Ms. Gardineer:

I am pleased to provide these comments in response to the release by the Office of the Comptroller of the Currency (OCC) of proposed “Principles for Climate-Related Financial Risk Management for Large Banks.”¹

General Comments

The OCC mission statement reads:

To ensure that national banks and federal savings associations operate in a safe and sound manner, provide fair access to financial services, treat customers fairly, and comply with applicable laws and regulations.²

There is nothing in the mission statement about climate change, curing cancer or a hundred other worthy objectives.

“Climate-related” financial risks are only relevant to the OCC’s actual mission if they are material to the safety and soundness of supervised banks. As a factual matter, climate-related risks are generally not material to the safety and soundness of banks. Constant repetition by regulators and politicians that they are does not make it so. *But to the extent climate-related financial risks are actually financially material and determinable, current laws and regulations require that those risks be addressed. There is no need for additional rules.*

Indeed, virtually the entire “Principles for Climate-Related Financial Risk Management for Large Banks” document reads as if Part 30 of Title 12 of the Code of Federal Regulations and the Comptroller’s Handbook risk management sections³ were summarized and then the words

¹ “Risk Management: Principles for Climate-Related Financial Risk Management for Large Banks; Request for Feedback,” OCC Bulletin 2021-62, December 16, 2021 <https://www.occ.gov/news-issuances/bulletins/2021/bulletin-2021-62.html> and “Principles for Climate-Related Financial Risk Management for Large Banks” <https://www.occ.gov/news-issuances/bulletins/2021/bulletin-2021-62a.pdf>.

² Our Mission, Office of the Comptroller of the Currency <https://www.occ.treas.gov/about/index-about.html>.

³ See, for example, Comptroller's Handbook: Corporate and Risk Governance, Comptroller's Handbook: Country Risk Management, Comptroller's Handbook: Interest Rate Risk, Comptroller's Handbook: Model Risk Management,

“climate-related financial” were inserted in front of the word “risk” wherever it occurred. There is no legitimate reason to single out climate-related risks for special treatment as compared to the hundreds of other types of material risk – risks that are usually more important than those attributable to climate change. Were the OCC to stay in its lane and only address climate-related financial risks that are *actually* material and determinable under current bank supervision principles, then such an approach is legitimate. There is good reason to believe, however, that is not what is really going to happen.

The OCC should not submit to political demands from the White House to weaponize financial regulation in furtherance of progressive political objectives.⁴ Politicizing the OCC will seriously damage its reputation. Moreover, attempting to further progressive political and social objectives unrelated to the OCC’s actual mission will make any such regulation economically suspect and may well result in a court holding that the OCC does not have the statutory authority to promulgate the regulation. OCC attempts to circumvent the Administrative Procedure Act by the use of guidance documents and examinations and enforcement actions based on guidance documents will be similarly suspect. They may well be successfully challenged as unlawful when subjected to judicial review.⁵

Before this guidance document becomes the basis for any enforcement action or any bank examination, the OCC needs to do the hard work of writing an Administrative Procedure Act compliant rule providing notice and seeking public comment. If it does so, the points made in the sections below regarding the complexity and deep ambiguity involved in undertaking the “climate-related” risk assessment enterprise will become quite evident. OCC also needs to seek OIRA clearance and, further, comply with Regulatory Flexibility Act, the Paperwork Reduction Act, Executive Order No. 12866 and related executive orders. It should not seek to evade the APA and other regulatory requirements by issuing guidance documents that are really rules and then moving immediately to enforcement of the rule masquerading as guidance by means of the bank supervision process.

Problems with OCC Regulation of “Climate-Related Financial Risk”

1. Additional Climate Change Risk Assessment Requirements Would Impede the OCC’s Important Mission. The important mission of the OCC is to ensure the safety and soundness of banks, provide fair access to financial services, and ensure that customers are treated fairly. Requirements relating to climate-related financial risk beyond those required under existing rules

Comptroller's Handbook: Rating Credit Risk, Comptroller's Handbook: Risk Management of Financial Derivatives, available at <https://www.ots.treas.gov/publications-and-resources/publications/comptrollers-handbook/index-comptrollers-handbook.html> or 12 CFR Part 30, Appendix A to Part 30 - Interagency Guidelines Establishing Standards for Safety and Soundness, II. Operational and Managerial Standards, A.2. Effective risk assessment <https://www.ecfr.gov/current/title-12/chapter-I/part-30>.

⁴ See especially, “Executive Order on Climate-Related Financial Risk,” section 3, May 20, 2021 <https://www.whitehouse.gov/briefing-room/presidential-actions/2021/05/20/executive-order-on-climate-related-financial-risk/>. The Executive Order like the “Principles” document is almost entirely unsullied by citations to facts.

⁵ See, for example, the Memorandum Ruling in *State of Louisiana et al. v. Biden* (United States District Court for the Western District of Louisiana, February 11, 2022) granting a preliminary injunction against Executive Order 13990 (another climate change motivated initiative) available at <https://aboutblaw.com/1FH> or via PACER.

related to material risks would impede rather than further that mission. Such requirements would affirmatively harm depositors, customers, bank shareholders, taxpayers, and the economy by distracting the OCC from its actual mission.

2. Requiring Banks to Devote Resources and Inappropriately Weight Immaterial Climate Change “Risk” Will Increase Rather than Decrease Risk. Requiring banks to inappropriately weight climate-related financial risks that are not actually material and to devote resources to risks that are not actually material or determinable will reduce the focus on and weight given to risks that actually are material. Banks are likely to distort their risk assessments to satisfy a politicized OCC. To the extent that banks begin focusing on immaterial or lesser “climate-related” risks out of concern for satisfying politicized regulators, instead of focusing on real, material risks, the risks borne by the financial system will increase, not decrease.

3. Climate Models and Climate Science are Highly Uncertain. There is a massive amount of variance among various climate models and uncertainty regarding the future of the climate.

I am no climate science expert. Nor, I suspect, is anyone at the OCC since climate science is way outside of the OCC’s lane. I do know a thing or two about modeling in an economics context. Models are typically highly dependent on a few relationships specified in their equations and parameters. A small number of assumptions about relationships and parameters drive results. For example, a model examining the impact of proposed tax policy might adopt a neoclassical view where the impact of the proposed tax changes on the user cost of capital and labor response are central (as specified in the equations) and the empirical parameters (as specified in the elasticities) governing investment and labor are key.⁶ Seemingly small adjustments to elasticities (even though within the bounds established in the empirical literature) result in significantly different results. A Keynesian “macroeconomic” approach focusing on aggregate demand would yield dramatically different results, operate on different principles and lead to different policy recommendations. And so on.

Climate modeling is, in principle, no different. A small number of equations and empirical parameters drive results. Even the conventional governmental source -- the Intergovernmental Panel on Climate Change -- shows massive variations in projections and shows the wide divergence in the ability of models to account for past warming⁷ and the degree of warming that is anthropogenic.⁸ The worst-case concentration pathway, for example, assumes unlikely

⁶ Parker Sheppard and David Burton, “How the GOP Tax Bill Will Affect the Economy,” *Daily Signal*, November 17, 2017 <https://www.dailysignal.com/2017/11/17/gop-tax-bill-will-affect-economy/>. In this case, we used the Hall-Jorgenson user cost of capital equation, the Cobb-Douglas production function and conventional price theoretic labor market modeling.

⁷ See, for instance, Byron A. Steinman, Michael E. Mann and Sonya K. Miller, “Atlantic and Pacific Multidecadal Oscillations and Northern Hemisphere Temperatures,” *Science*, February 27, 2015, Vol. 347, Issue 6225, pp 988-991, <https://science.sciencemag.org/content/347/6225/988#aff-1> and Joseph Majkut, “Climbing the Staircase of Global Warming,” Niskanen Center, July 27, 2016, <https://www.niskanencenter.org/climbing-staircase-global-warming/>.

⁸ *Climate Change 2014 Synthesis Report*, Intergovernmental Panel on Climate Change https://www.ipcc.ch/site/assets/uploads/2018/02/SYR_AR5_FINAL_full.pdf See, for example, “The Representative Concentration Pathways,” (p. 57); “Box 2.3, Models and Methods for Estimating Climate Change Risks, Vulnerability and Impacts,” (pp. 58-59); “Table 2.1, Projected Change in Global Mean Surface Temperature and Global Mean Sea Level Rise for the Mid- and Late 21st Century, Relative to the 1986–2005 Period,” (p. 60);

projections of coal use, high population growth, low economic growth and technological progress.⁹ Using the worst-case scenario of these emissions concentration pathways as the business-as-usual scenario will mislead the private sector, policymakers, and regulators on the estimated climate impacts and costs.¹⁰

Once you broaden your reading to include those that do not have a financial or political interest in climate change alarmism, it becomes clear that the variance and uncertainty in climate modeling is even higher than the IPCC report indicates.¹¹ It is clear that various models yield dramatically different results. Explaining the details of these dramatic differences in model outcomes is beyond the scope of this letter and my current competence. It is also beyond the ability of the OCC and its bank examiners.

4. Economic Modeling of Climate Change Effects is Even More Uncertain. There is an even higher degree of variance and uncertainty associated with attempts to model or project the *economic impact* of highly divergent and uncertain climate models. Any estimate of the economic impact of climate change would have to rely on highly uncertain and divergent climate model results discussed in section 3 (above). In addition to this high degree of uncertainty would be added an entirely new family of economic ambiguity and uncertainty. At the outset, any economic estimate of the impact of climate change would also have to choose a discount rate to arrive at the present discounted value of future costs and benefits of climate change and to estimate the future costs and benefits of various regulatory or private responses. The choice of discount rate is controversial and important.

Estimates would need to be made of the cost of various aspects of climate change (sea level rises, the impact on agriculture, etc.). Estimates would need to be made of the cost of various remediation techniques. Guesses would need to be made about the rate of technological change. Guesses would need to be made about the regulatory, tax and other responses of a myriad of governments. Estimates would need to be made using conventional economic techniques regarding the economic impact of those changes which, in turn, would reflect a wide variety of techniques and in many cases a thin or non-existent empirical literature. Guesses would need to

“Cumulative Total Anthropogenic CO₂ Emissions from 1870 (GtCO₂),” (p. 63); “Table 2.2, “Cumulative Carbon Dioxide (CO₂) Emission Consistent with Limiting Warming to Less than Stated Temperature Limits at Different Levels of Probability, Based on Different Lines of Evidence,” (p. 64). The updated sixth version of the Synthesis Report is due for release in April, 2022 https://archive.ipcc.ch/pdf/ar6_material/AC6_brochure_en.pdf.

⁹ Justin Ritchie and Hadi Dowlatabadi, “Why Do Climate Change Scenarios Return to Coal?” *Energy*, December 2017, Vol. 140, Part 1, pp 1276-1291, <https://www.sciencedirect.com/science/article/abs/pii/S0360544217314597>.

¹⁰ Roger Pielke and Justin Ritchie, “Systemic Misuse of Scenarios in Climate Research and Assessment,” May, 2020 https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3581777.

¹¹ Steven E. Koonin, *Unsettled: What Climate Science Tells Us, What It Doesn't, and Why It Matters*, Chapter 4, “Many Muddled Models,” (Dallas, TX: BenBella Books, 2021); Bjorn Lomborg, *False Alarm: How Climate Change Panic Costs Us Trillions, Hurts the Poor, and Fails to Fix the Planet*, (New York: Basic Books, 2020); Pat Michaels and Chip Knappenberger, *Lukewarming: The New Climate Science that Changes Everything*, (Washington: Cato Institute, 2016); Benjamin Zycher, Resident Scholar, American Enterprise Institute, Statement before the Committee on Banking, Housing, and Urban Affairs, U.S. Senate, Hearing on the “21st Century Economy: Protecting the Financial System from Risks Associated with Climate Change” March 18, 2021 <https://www.banking.senate.gov/imo/media/doc/Zycher%20Testimony%203-18-21.pdf>; Kevin Dayaratna, Ross McKittrick and David Kreutzer, “Empirically Constrained Climate Sensitivity and the Social Cost of Carbon,” *Climate Change Economics*, Vol. 8, No. 2, 2017, pp. 1-12 https://econpapers.repec.org/article/wsiccexxx/v_3a08_3ay_3a2017_3ai_3a02_3an_3as2010007817500063.htm.

be made of market responses to all of these changes since market participants will not stand idly by and do nothing as markets and the regulatory environment change.

Then, after making decisions regarding all of these extraordinarily complex, ambiguous and uncertain issues, banks would then need to assess the likely impact of climate change *on their specific business years into the future* – a business that may by then bear little resemblance to the issuers’ existing business and a business that will adjust its choices based on future developments rather than blithely continuing to do what it is doing today.

5. The OCC Does Not Possess the Expertise to Competently Assess Climate Models or the Economic Impact of Climate Change. The OCC has neither the expertise to assess climate models nor the expertise to assess economic models purporting to project the economic impact of divergent and uncertain climate projections. To even begin to have such a capability, OCC will have to build out a climate change department of twenty to forty climatologists, meteorologists, geologists, biologists, economists and so forth and then train their approximately 666 large bank examiners on these various issues at a very sophisticated level.

Any estimate of the economic impact of climate change will have to rely on the highly uncertain and divergent climate and economic model results discussed in sections 3 and 4 (above). Then, OCC examiners would need to assess the accuracy of the banks’ “risk assessments” based on this speculative house of cards. The idea that all of this can be done in a way that will meaningfully improve the regulation of the safety and soundness of banks is not credible. People, including banks, bank examiners, investors and customers, are going to disagree about the future because the future is highly uncertain. To deny this evident fact is folly.

6. The OCC Has Neither the Expertise nor the Administrative Ability to Assess the Accuracy of Banks-Specific Climate Change Risk Assessments. The OCC does not have the expertise or administrative ability to assess the accuracy, or lack thereof, of banks’ “climate change risk assessments” based on bank-specific speculation regarding the impact of climate change which would be based on bank-specific choices regarding highly divergent and uncertain economic models projecting the economic impact of climate changes based on bank-specific choices regarding highly divergent and uncertain climate models.

7. OCC Resources Are Better Spent Furthering Its Mission. Imposing these requirements and developing the expertise to police such climate change risk assessment by roughly 1,100 regulated entities will involve the expenditure of very substantial resources. These resources would be much better spent furthering the OCC’s important mission.

There are approximately 2380 OCC bank examiners, 28 percent (about 666) of whom are assigned to large banks.¹² The “Principles” document, by its terms, only applies to roughly 33 banks (i.e. those with assets over \$100 billion). If that remains the case, then the administrative burden, while significant and wasteful, will be manageable. OCC will have to build out a climate change department of twenty to forty climatologists, meteorologists, geologists, biologists,

¹² OCC Annual Report, 2021, Figure 1, p. 2 <https://www.occ.treas.gov/publications-and-resources/publications/annual-report/files/2021-annual-report.html>.

economists and so forth and then train their 666 large bank examiners on these various issues. This amounts to about a three to six percent increase in the non-examiner OCC staff.¹³

It is likely, however, that this is just a trial run – a pilot program if you will – and that the rules will eventually be applied using a more conventional large bank definition of \$10 billion in assets. Then, it will apply to roughly 150 banks.¹⁴ Assuming (heroically) that a bank examiner could *competently* evaluate the climate modeling choices, economic modeling choices and bank specific determinations of one bank every month, that would still mean that OCC would need at least an additional 13 employees. It probably would take more like three months and therefore about 40 additional employees. Were the requirement applied to all 1,118 supervised institutions, the corresponding employee requirements would be 93 (one month) and 280 employees (three months) devoted to this aspect of supervision (a 4 to 12 percent increase in the number of examiners). These requirements are in addition to the estimated 20 to 40 personnel needed to staff out a new climate change department. This department will be necessary to create even a modicum of climate-related expertise within the OCC related to climate modeling, the associated economic modeling and training of bank examiners.

8. The Costs Imposed on Regulated Entities Would be Large. Requiring even just large banks to develop climate modeling expertise, the ability to make macroeconomic projections based on these models and then make firm-specific economic assessments based on these climate and economic models will be expensive, imposing costs that will amount to hundreds of millions and potentially billions of dollars. These expenses must be recovered by the banks one way or another. These costs would harm investors by reducing shareholder returns or customers by increasing costs (to borrowers) or reducing returns to depositors or other lenders. Costs incurred by private institutions relating to ESG requirements in capital markets generally are already running to the many billions of dollars.¹⁵

9. Climate Change Risk Assessment Requirements Would Create a New Compliance Eco-System and a New Lobby to Retain the Requirements. The imposition of such requirements would result in the creation of a new compliance eco-system and pro-complexity lobby composed of the economists, accountants, attorneys and compliance officers that live off of the revised banking regulations. This is already starting to happen.¹⁶

10. Banking Laws are a Poor Mechanism to Address Externalities. Externalities, such as pollution, should be addressed by either enhancing property rights or, in the case of unowned resources such as the air and waterways, by a regulatory response that carefully assesses the costs and benefits of the regulatory response. Banking safety and soundness regulation is the

¹³ $3,551 - 2880 = 671$. $20/671 = 0.03$. $20/671 = 0.06$. The OCC and Federal Banking System at a Glance, Employees (2021) <https://www.occ.gov/about/what-we-do/key-data-and-statistics/index-occ-and-federal-banking-system-at-a-glance.html>.

¹⁴ Biggest US Banks by Asset Size (2021) <https://www.mx.com/moneysummit/biggest-banks-by-asset-size-united-states/>.

¹⁵ Jean Eaglesham, “Wall Street’s Green Push Exposes New Conflicts of Interest: Auditors, Bond Raters and Others Aim to Profit by Both Judging and Advising Companies on their ESG Scores,” *Wall Street Journal*, January 29, 2022.

¹⁶ Ibid..

wrong place to try to address externalities. Policing externalities is far outside of the scope of OCC's mission and the purpose of the banking laws.

The economic justification for climate change mandates is that they are designed to address a negative externality. An externality is (1) a cost that is imposed on (negative externality) or (2) a benefit accorded to (positive externality) someone that is not a party to a transaction or not engaged in an action. There are countless positive and negative externalities all around us. Air pollution is a typical example of a negative externality.

There are many ways to address negative externalities. Improved property rights,¹⁷ tort law,¹⁸ regulation,¹⁹ or a tax equal to the cost involuntarily imposed by the economic actor creating the externality on those "external" to the transaction.²⁰ A tax subsidy for politically favored interests with strong lobbies would be fairly far down the list of efficacious means of addressing the problem of negative externalities but there are many provisions in the Internal Revenue Code with this purpose. To achieve the desired effect, the policy designed to address the externality must be calibrated to accurately internalize the actual cost of the externality. This requires estimating the costs imposed by the externality and imposing costs in an equal and off-setting amount on the economic actor in question. Detailed scientific, cost and market information must be obtained to get this even close to right.

Trying to achieve this result through risk assessments by banks is comparable to trying to score in basketball by bouncing the ball off the floor and then the backboard. It is theoretically possible, but there is a vanishingly small chance that it will achieve the desired result. And any team that tried that on a regular basis would lose. Similarly, banking laws are not the place to do environmental regulation.

It is clear that mandated climate-related risk assessments will have significant costs and adverse effects. Proponents of such risk assessments should be required to explain how, exactly, it will have a meaningful positive impact AND why banking regulation is a more efficacious means of addressing the problem than traditional means of addressing environmental problems, some of which have been highly successful. I suggest that they will not be able to do so.

11. Climate Change Risk Assessment Requirements Would Have No Meaningful Impact on the Climate. When all is said and done, climate change risk assessment requirements will have somewhere between a trivial impact and no impact on climate change.

¹⁷ In the case of air and water that are usually unowned resources, this is problematic. In other cases, this can be the solution, although transactions costs can impede a private solution. See Ronald H. Coase, "The Problem of Social Cost," *Journal of Law and Economics*, Vol. 3, October, 1960, pp. 1–44.

¹⁸ The common law of nuisance and various more modern environmental torts.

¹⁹ Most notably by the Environmental Protection Agency and state analogs.

²⁰ This is commonly known as a Pigouvian tax. See Arthur Cecil Pigou, *The Economics of Welfare* (1920 and various later editions); "Pigouvian Taxes," *The Economist*, August 19, 2017 <https://www.economist.com/news/economics-brief/21726709-what-do-when-interests-individuals-and-society-do-not-coincide-fourth>.

12. Efforts to Redefine Materiality or the Broader Purpose of Business should be Opposed. There is a major push to redefine what is deemed material for securities regulation purposes. This “Principles” document is the beginning of a similar push with respect to determining what is material risk in banking regulation.

Simply because some politically motivated investors seek to impose a disclosure requirement on issuers, for example, does not make such a requirement material. The effort to redefine materiality in the securities laws (and now banking) is part of an increasingly strident effort to redefine the purpose of businesses more generally to achieve various social or political objectives unrelated to earning a return, satisfying customers, or treating workers or suppliers fairly. This is being done under the banner of social justice; corporate social responsibility (CSR); stakeholder theory; environmental, social and governance (ESG) criteria; socially responsible investing (SRI); sustainability; diversity; business ethics; common-good capitalism; or corporate actual responsibility. The social costs of ESG and broader efforts to repurpose business firms will be considerable. Wages will decline or grow more slowly, firms will be less productive and less internationally competitive, investor returns will decline, innovation will slow, goods and services quality will decline and their prices will increase.

Banking regulation risk assessments should be limited to those risks that impose a substantial, material financial risk for banks. Period. Full stop. While climate-related risks can fall into that category, they rarely do. And, more importantly, to the extent that they do, no additional regulation is required. The current rules would cover material risks associated with climate change.

The Social Costs of ESG

The broader social costs associated with ESG requirements can, in principle, be quantified. This section provides an analytical framework that may be useful in analyzing the social welfare costs of ESG requirements.

To the extent ESG objectives are not pursued by businesses for the purpose of making a profit, $R > R_{\text{ESG/CSR}}$, where R is the rate of return on investment in the absence of ESG, CSR, sustainability requirements, diversity requirements, or stakeholder theory implementation, and $R_{\text{ESG/CSR}}$ is the rate of return after implementation of those requirements. The difference, $R - R_{\text{ESG/CSR}}$, is economically analogous to a tax. It is a reduction in return due to the pursuit of ESG objectives. Thus, $R - R_{\text{ESG/CSR}} = \text{Tax}_{\text{ESG/CSR}}$. This means that various techniques used in public finance to analyze the social welfare impact of taxes may be used to quantitatively analyze the social welfare cost of these provisions (i.e., $\text{Tax}_{\text{ESG/CSR}}$).

A tax has an excess burden or deadweight loss that can be calculated.²¹ By introducing a wedge ($\text{Tax}_{\text{ESG/CSR}}$) between, in this case, the gross return and the net return, ESG/CSR reduces the size

²¹Arnold C. Harberger, “The Incidence of the Corporation Income Tax,” *Journal of Political Economy* (June 1962), pp. 215–240; Alan J. Auerbach and James R. Hines, “Taxation and Economic Efficiency,” in Martin Feldstein and A. J. Auerbach, eds., *Handbook of Public Economics* (Amsterdam: North Holland, 2002); and John Creedy, “The Excess Burden of Taxation and Why It (Approximately) Quadruples When the Tax Rate Doubles,” New Zealand Treasury Working Paper No. 03/29, December 2003, <https://treasury.govt.nz/sites/default/files/2007-10/twp03->

of the capital market and therefore output and employment. In a well-functioning market, the price of a capital asset should be equal to the present value of the expected future income stream generated by the asset net of taxes and depreciation.²² Introducing a new tax (in this case Tax_{ESG/CSR}) would reduce the expected future income stream, and therefore, the price of the asset. It would also cause investment to flow out of the affected sector or jurisdiction.

Who bears the actual economic burden of the corporate income tax is an open question.²³ The analysis of who bears the burden of Tax_{ESG/CSR} would be the same. One thing is certain: It cannot be corporations. A corporation is a legal fiction, and legal fictions do not pay taxes—people pay taxes. The corporate tax could be borne by corporate shareholders in the form of lower returns;²⁴ owners of all capital (again in the form of lower returns);²⁵ corporate customers in the form of higher prices;²⁶ or employees (in the form of lower wages).²⁷ It is, almost certainly, some

[29.pdf](#). See also, for example, N. Gregory Mankiw, *Principles of Economics*, 4th ed. (Boston: Cengage Learning, 2006), chapter 8 (or many other textbooks on price theory, microeconomics, or principles of economics).

²²See Robert E. Hall and Dale Jorgenson, “Tax Policy and Investment Behavior,” *American Economic Review*, Vol. 57, No. 3 (June 1967), pp. 391–414. This section covers the basic user cost of capital analysis with taxes. See also Dale W. Jorgenson, *Investment: Capital Theory and Investment Behavior* (Cambridge, MA: MIT Press, 1996), and John Creedy and Norman Gemmell, “Taxation and the User Cost of Capital: An Introduction,” New Zealand Treasury Working Paper No. 04/2015, March 2015, https://www.wgtn.ac.nz/cpf/publications/pdfs/2015-pubs/WP04_2015_Taxation-and-User-Cost.pdf.

²³In the economics literature, this question is usually phrased as, “What is the incidence of the corporate income tax?”

²⁴Government estimators are among the few who cling to the view that shareholders bear most of the burden. Joint Committee on Taxation, “Modeling the Distribution of Taxes on Business Income,” JCX–14–13, October 16, 2013, https://www.jct.gov/publications.html?func=download&id=4528&chk=4528&no_html=1 (25 percent labor), and Julie Anne Cronin et al., “Distributing the Corporate Income Tax: Revised U.S. Treasury Methodology,” *National Tax Journal*, March 2013, <https://www.ntanet.org/NTJ/66/1/ntj-v66n01p239-62-distributing-corporate-income-tax.pdf> (18 percent labor).

²⁵The non-corporate sector can be affected because competition will eventually cause wages, prices, and after-tax returns in the corporate and non-corporate sectors to be the same. For a more detailed explanation, see Arnold C. Harberger, “The Incidence of the Corporation Income Tax,” *Journal of Political Economy*, Vol. 70, No. 3 (June 1962), pp. 215–240.

²⁶The focus of the economics profession to date has been almost exclusively the impact on capital and labor rather than customers.

²⁷Arnold C. Harberger, “The ABCs of Corporation Tax Incidence: Insights into the Open-Economy Case,” in *Tax Policy and Economic Growth* (Washington, DC: American Council for Capital Formation, 1995); Arnold C. Harberger, “The Incidence of the Corporation Income Tax Revisited,” *National Tax Journal*, Vol. 61, No. 2 (June 2008), pp. 303–312, <http://www.ntanet.org/NTJ/61/2/ntj-v61n02p303-12-incidence-corporation-income-tax.pdf>; Matthew H. Jensen and Aparna Mathur, “Corporate Tax Burden on Labor: Theory and Empirical Evidence,” *Tax Notes*, June 6, 2011, <https://www.aei.org/wp-content/uploads/2011/06/Tax-Notes-Mathur-Jensen-June-2011.pdf>; Kevin A. Hassett and Aparna Mathur, “A Spatial Model of Corporate Tax Incidence,” American Enterprise Institute, December 1, 2010, https://www.aei.org/wp-content/uploads/2011/10/a-spatial-model-of-corporate-tax-incidence_105326418078.pdf; Robert Carroll, “The Corporate Income Tax and Workers’ Wages: New Evidence from the 50 States,” Tax Foundation *Special Report* No. 169, August 3, 2009, <https://taxfoundation.org/corporate-income-tax-and-workers-wages-new-evidence-50-states/>; Desai Mihir, Fritz Foley, and James Hines, “Labor and Capital Shares of the Corporate Tax Burden: International Evidence,” December 2007, <http://piketty.pse.ens.fr/files/Desaietal2007.pdf>; and “Why Do Workers Bear a Significant Share of the Corporate Income Tax?” in Jason J. Fichtner and Jacob M. Feldman, “The Hidden Cost of Federal Tax Policy,” 2015, <https://www.mercatus.org/system/files/Fichtner-Hidden-Cost-ch4-web.pdf>. For a contrary view, see Kimberly A. Clausing, “In Search of Corporate Tax Incidence,” *Tax Law Review*, Vol. 65, No. 3 (2012), pp. 433–472, <http://ssrn.com/abstract=1974217>.

combination of these.²⁸ The economics profession has changed its thinking on this issue several times over the past four decades, but the latest —and highly plausible—consensus is that workers probably bear *more than half* of the burden of the corporate income tax because capital is highly mobile.²⁹ Labor's share of the corporate tax burden is potentially as high as three-quarters.³⁰ Shareholders (investors) probably bear most of the remainder.³¹ Initially (i.e., in the short run), the impact on shareholder returns would be greater. Adjustments take time. In the long run, ESG requirements (Tax_{ESG/CSR}) would have a disproportionately negative impact on labor due to capital factor mobility.

Selected Responses to Specific Requests for Feedback

2. How could future guidance assist a bank in developing its climate-related financial risk management practices commensurate to its size, complexity, risk profile, and scope of operations?

As discussed above, OCC should not attempt to evade the APA and other rule-making requirements by issuing guidance documents that are really rules and then moving to imposing this guidance via bank examination and enforcement actions. Actually drafting a rule would impose some humility on OCC since drafting a rule would force OCC to engage with the immense complexity of such an enterprise. Furthermore, evading the APA and other requirements will make such guidance subject to successful challenges in court.

3. What challenges do banks face in incorporating these principles into their risk management systems? How should the OCC further engage with banks to understand those challenges?

See discussion above. The challenges are immense since the climate modeling, economics modeling and bank specific predictions necessary are highly indeterminate and necessitate an entire series of guesses with respect to future developments. It is a speculative house of cards.

²⁸It requires extreme, implausible assumptions about elasticities of demand for, or supply of, factors for this not to be the case. Alan J. Auerbach, "Who Bears the Corporate Tax? A Review of What We Know," National Bureau of Economic Research *Working Paper* No. 11686, October 2005, <http://www.nber.org/papers/w11686.pdf>; William M. Gentry, "A Review of the Evidence on the Incidence of the Corporate Income Tax," Department of the Treasury, Office of Tax Analysis, *OTA Paper* No. 101, December 2007, <https://www.treasury.gov/resource-center/tax-policy/tax-analysis/Documents/WP-101.pdf>; and Stephen J. Entin, "Tax Incidence, Tax Burden, and Tax Shifting: Who Really Pays The Tax?" Heritage Foundation *Center for Data Analysis Report* No. 04–12, November 5, 2004, http://s3.amazonaws.com/thf_media/2004/pdf/cda04-12.pdf.

²⁹In a competitive market, capital will flow from jurisdictions with a relatively low expected after-tax return to jurisdictions with a relatively high expected after-tax return until the expected after-tax returns are equal. Social and legal barriers reduce labor mobility relative to capital mobility. Gentry, "A Review of the Evidence on the Incidence of the Corporate Income Tax"; William C. Randolph, "International Burdens of the Corporate Income Tax," Congressional Budget Office *Working Paper* 2006–09, August 2006, <https://cbo.gov/sites/default/files/cbofiles/ftpdocs/75xx/doc7503/2006-09.pdf>; and R. Alison Felix, "Passing the Burden: Corporate Tax Incidence in Open Economies," Federal Reserve Bank of Kansas City, October 2007, <https://www.kansascityfed.org/Publicat/RegionalRWP/RRWP07-01.pdf>.

³⁰*Ibid.*

³¹As opposed to non-corporate capital and customers.

6. What time horizon do banks consider relevant when identifying and assessing the materiality of climate-related financial risks?

In principle, future risks should be discounted by a discount rate. Depending on the discount rate chosen, at some point the present discounted magnitude of future risks becomes so small as to be immaterial.

8. What, if any, climate-related financial products or services—for example, “green bonds,” derivatives, dedicated investment funds, or other instruments that take climate-related considerations into account—do banks offer to clients and customers? What risks, if any, do these products or services pose?

Banks that are involved in underwriting or otherwise marketing green bonds or other ESG products should be required to fully disclose their conflicts of interest to customers and clients.

10. What, if any, specific climate-related data, metrics, tools, and models from borrowers and other counterparties do banks need to identify, measure, monitor, and control their own climate-related financial risks? How do banks currently obtain this information? What gaps and other concerns are there with respect to these data, metrics, tools, or models?

See discussion above.

11. How could existing regulatory reporting requirements be augmented to better capture banks’ exposure to climate-related financial risks?

The current regulatory reporting requirements are sufficient.

Sincerely,

A handwritten signature in dark ink, appearing to read "D.R. Burton", with a long horizontal flourish extending to the right.

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