Ceres Accelerator for Sustainable Capital Markets

January 16, 2024

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Board of Governors of the Federal Reserve System
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Via File Upload to federalreserve.gov

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Martin J. Gruenberg, Chair
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Via Email to comments@fdic.gov

Re: **Docket No. R-1813, OCC-2023-0008, RIN 3064–AF29** – Response to Proposed Regulatory Capital Rule: Large Banking Organizations and Banking Organizations With Significant Trading Activity

Dear Chair Powell, Acting Comptroller Hsu, and Chair Gruenberg:

It is a pleasure to submit comments on behalf of Ceres and the Ceres Accelerator for Sustainable Capital Markets. Ceres is a nonprofit organization with almost 35 years of experience working on climate change with the world's leading investors and companies to drive sustainability in the bottom line and through ambitious federal and state climate and clean energy policy. Our Investor Network currently includes over 220 institutional investors that collectively manage $45 trillion in assets. Our Company Network includes more than 50 of the largest global companies and banks with whom we work on an in-depth basis on climate strategy and disclosure, among other issues.

The Ceres Accelerator works to transform the practices and policies that govern capital markets in order to reduce the worst financial impacts of the climate crisis. It spurs capital market influencers to act on climate-related financial risk as a systemic risk, driving the large-scale behavior and systems change needed to achieve a just and sustainable future and a low carbon emissions economy.

We congratulate the regulators for proposing changes to the U.S. regulatory capital framework for banking organizations with $100 billion or more in assets in line with the international capital standards issued by the Basel Committee on Banking Supervision (BCBS) following the financial crisis of 2007-09. Below, we provide our comments on the proposed rule.

I. INTRODUCTION

As described by the agencies in their joint 2023 Principles for Climate-Related Financial Risk Management for Large Financial Institutions, the FSOC's 2021 Report on Climate-Related Financial Risk, and Ceres' response to the Fed's draft Climate Principles, climate-related financial risk presents a systemic risk to individual financial institutions and our financial system as a whole.

BCBS has likewise acknowledged the risks posed by climate-related financial risk (CRFR), describing how it can be addressed under Pillar 2 in its 2019 Overview of Pillar 2 Supervisory Review Practices and Approaches, and issuing 2022 Principles for the Effective Management and Supervision of Climate-Related Financial Risks; 2022 Frequently Asked Questions on Climate-Related Financial Risks addressing how CRFR may be captured in Pillar 1 standards; 2023 Consultation on Core Principles for Effective Banking Supervision proposal to incorporate CRFR; and 2023 consultative document on a proposed Pillar 3 disclosure framework for bank exposures to CRFR, which would complement and be interoperable with parallel disclosure initiatives under way by the International Financial Reporting Standards (IFRS) Foundation's International Sustainability Standards Board (ISSB). The European Banking Authority (EBA) likewise published Implementing Technical Standards (ITS) on Pillar 3 Disclosures on ESG in 2022 and a Report on the Role of Environmental and Social Risks in the Prudential Framework in 2023.[1]

Research consistently shows financial institutions are exposed to both the physical impacts of climate change and the risks associated with the transition to a low carbon economy. Over 50 central banks and other foreign regulatory bodies have already begun regulating climate-related financial risk and are conducting mandatory climate scenario analyses. Yet, despite the serious and growing systemic risks climate change poses to our economy, the U.S. financial sector is far more exposed than banks and regulators are accounting for.[2] We implore the agencies to contemplate these risks when finalizing this NPR, and further to issue more detailed guidance on how they

[1] In its 2023 report, the EBA issued recommendations for actions under traditional risk categories to address and integrate environmental and social risk factors, including increased capital requirements where warranted.

[2] One major vulnerability arises from the central role insurers play in risk management. If extreme weather events undermine the solvency of major insurers, this can have spillover effects on the stability of the wider financial systems. Bank balance sheets and capital adequacy may suffer from defaults on loans and bonds tied to impacted insurers and liquidity issues may arise if banks and asset managers face sudden losses from failed insurers. More broadly, banks face risks from the destruction of real estate and infrastructure collateral due to intensifying natural disasters. Repricing of carbon-intensive assets as the energy transition accelerates also presents market risks. While insurers are on the frontlines, the whole financial sector is exposed to climate impacts through a complex web of interconnections. Managing these urgent, economy-wide systemic risks requires strong risk management and coordination across the financial system, based on robust climate data and scenario analysis.

recommend and expect banks of all sizes to identify, measure, and manage CFRC – including through climate scenario analysis, data procurement and sharing, and clarifications on how CFRC fits into each pillar of Basel III and this new capital framework, similar to the FAQ issued by BCBS.

II. RESPONSE TO REQUEST FOR COMMENT

Climate-related financial risk (CRFR) touches on every aspect of a financial institution's risk management, and CRFR to large financial institutions in particular impacts the stability of our financial system overall. We encourage the agencies to integrate CRFR factors and drivers into risk weight calculations for credit, operational, and market risk where relevant. Banks should identify, measure, and manage the CRFR that could lead to the need for more capital, including increased volatility of portfolios and risk from counterparties. Once identified, the risks must be managed through appropriate systems and processes to minimize CRFR exposure. Relatedly, these risks should be disclosed to increase information availability and facilitate forward-looking risk assessments in order to enhance financial stability.

We urge the agencies to contemplate how CRFR impacts each of the provisions in this NPR, and to take these impacts into consideration when implementing these rules and examining institutions under the revised capital framework.

A. Capital Ratios and Buffers Requirements (Section III.A)

1. Risk-based capital ratio calculations should include CRFR considerations

An expanded risk-based approach is intended to align capital requirements more closely with the actual risks that a financial institution faces. Although climate events – regardless of asset size or business model – dramatically increase financial institutions' risk exposure, these risks are currently not reflected in U.S. capital requirements.[3]

Given the increasing frequency and intensity of climate events, Ceres recommends that the Fed, OCC, and FDIC take action to address material gaps in financial institutions capital framework. Last year, BIS published a set of FAQs clarifying how banks should think about CRFR in Pillar 1 risk weighted asset (RWA) calculations for credit, operational, and market risk. However, as noted by the European Central Bank (ECB) in a 2021 Macroprudential Bulletin, both the internal ratings-based approach (IRB) and the standardized approach (SA) "may fail to capture future developments from the climate risk perspective."

The SA uses risk weights for broad asset classes based on predefined drivers that do not consider CRFR. Both models are based on bank estimates or regulator-set risk weights that do not consider interactions between these factors, potentially increasing portfolio variance without assessing

[3] For example, based on the outcomes of their 2022 climate scenario analysis, the ECB raised capital requirements for some banks.

capital required for the total portfolio – and failing to capture "uneven vulnerability to climate risk across … regions, sectors[,] and financial institutions." Likewise, both models depend on historical data and short time horizons. Climate-related risks, however, are characterized by their forward-looking nature that unfold over decades or longer, making them challenging to account for using historical data alone. These approaches may not adequately consider the evolving nature of CRFR and their impacts on borrowers or sectoral and geographic concentrations of those risks.

While the expanded risk-based approach may account for more CRFR drivers by adding credit valuation adjustment (CVA) risk, operational risk, and market risk to the calculation, many of the same gaps are still present – reliance on historical data, short time horizons, and inability to determine or input interactions between assets or compounding effects of those interactions across sectors, geographies, or portfolios. Risk weights also implicate more than the minimum capital held by a bank. Because RWA calculations do not reflect CRFR, capital buffers cannot capture that risk either.[4] Additionally, physical risk can increase market volatility, which increases overall risk, and transition risk can increase the correlation between asset classes, negating the benefits of diversification.

Given these complications, Ceres recommends the regulators include additional risk management methodologies to account for CRFR. To capture this risk in capital buffers, the agencies could consider incorporating climate-related risk metrics into the expanded approach to improve estimates of relative riskiness across asset classes. Current approaches to CRFR modeling by large banks also treat these risks in a manner analogous to credit risk, and capital or risk limits are adjusted to account for that risk.

2. Capital buffer determinations should include CRFR considerations

Bank capital is intended to absorb unexpected losses and mitigate risk. Climate-related financial risk could increase both the average losses and the variance of losses, as it introduces additional uncertainty and the possibility of more frequent, severe, and volatile adverse events, necessitating the need for enhanced capital resilience. Ceres research shows that the 28 largest U.S. banks have a VAR from physical risk of more than $250 billion (~10% of syndicated loan portfolio value), even if adaptation measures are taken, and have more than $500 billion (~50% of syndicated lending) exposed to transition risk.[5] Similarly, our research shows that other assets like derivatives could amplify shocks within a financial institution. And while some financial institutions have begun to adjust lending policies to account for risk fossil fuel companies, most have an incomplete view of their transition risk.

[4] Another solution proposed in the EU-context is environmental-risk weighted assets (ERWA). ERWA classify sectors based on environmental and health impacts and benefits – built on the EU taxonomy framework – and weights bank assets. ERWA can be used to reflect transition risks for certain sectors or activities, and can encourage investments that reduce these risks, such as those contemplated in the Inflation Reduction Act (IRA).

[5] This research was conducted several years ago, and these risks may have increased in the intervening time.

The recent collapse of four U.S. banks within two months of each other – three of which were taken over by the FDIC before being sold to other banks – demonstrates just how quickly unmanaged risk can sweep through the financial system. Risk management and strong capital matter, and not just for individual institutions. Climate-related financial risk may further amplify the distress or failure of one institution on others, or in financial market more broadly. The financial sector must implement stronger management frameworks to better assess and capture a broader range of emerging and unpriced risks, externalities, and contagion channels to understand the potential consequences of unforeseen climate events.

Given these exposures – and the greater variance and uncertainty of changes in loss distribution – the agencies should look closely at potential solutions. One suggestion explored by academics is adjusting the stress capital buffer and/or the countercyclical capital buffer (CCyB) or implementing a specific time-varying systemic risk buffer to address exposure to climate-related concentration risks during times of known stress. For example, based on the outcomes of their 2022 climate scenario analysis, the ECB raised capital requirements for some banks.

If forward-looking estimates of CRFR impacts are greater than those in the stress capital buffer, the buffer ratio should be altered to reflect the increased risk and ensure banks build up capital buffers to withstand climate-related stress events and absorb losses stemming from climate-related shocks. Considering the extended nature of CRFR, longer time horizons are necessary to capture potential losses. We recommend a 20 or 25 year time horizon, as it would better reflect actual risk and provide a more comprehensive analysis for banks and their customers. Climate-related financial risk scenario analysis exercises and incorporation of CRFR factors into stress testing is therefore critical to determining whether the stress capital buffer is adequate.

Congress gave the agencies broad and explicit instruction to "make the capital standards required under [12.U.S.C. § 3907] … countercyclical so that the amount of capital required to be maintained by an insured depository institution increases in times of economic expansion and decreases in times of economic contraction, consistent with the safety and soundness of the insured depository institution," but gave the agencies no guidance on how to determine CCyB requirements or indicators. Climate impacts – like other economic contraction events such as the Great Recession or Covid-19 pandemic – can exacerbate shocks and sensitivities, affecting losses in periods of stress, fluctuations in the business cycle, or dynamics of credit and financial cycles. For example, climate-related transition and physical risks may cause certain assets to become so illiquid that they are effectively stranded, or a low-carbon economy less dependent on fossil fuels may change the dynamics, duration, or severity of economic cycles. It might therefore "be appropriate to adjust the size or duration of the countercyclical capital buffer."

Alternatively, the agencies could consider implementing a time-varying systemic risk buffer (SyRB) calibrated to address CRFR sensitivity to allow for stability during the transition process and/or period of elevated physical risk. For example, a SyRB could be held for wildfire or hurricane season-prone regions to be released following a major climate or weather event. A SyRB could help mitigate those risks, and help target shifts in unexpected losses over time or from a late

or disorderly transition, based on susceptible geographies, portfolios, exposure classes, or concentration risks as determined by climate scenario analysis exercises. Banks with higher transition risk in their lending books could also be required to hold a higher SyRB due to their higher level of risk relative to banks with lower transition risk.

We recommend the agencies ensure banks assess how climate-related financial risks could impact the quality of assets, whether CRFR change the concentration of risks across portfolios, and how climate-related risks feed into and increase liquidity risk. Likewise, banks must evaluate their ability to address climate-related shocks that could lead to the need for more capital. Identifying how climate-related risk drivers could impact VaR, evaluating the potential risk of losses on and increased volatility of their portfolio, and establishing processes to control or mitigate the associated impacts are key, as is actively engaging and collecting data from clients to better understand transition strategies and risk profiles. Ensuring that loan pricing reflects CRFR would begin the process of adaptation and mitigation.

While Ceres generally supports the inclusion of CRFR in capital requirements, we recommend care and deep study on strategies to address potential risks to vulnerable and underserved populations. Actions to address climate-related financial risks could disproportionately impact financially vulnerable communities through consequences such as higher insurance or credit costs, which would exacerbate existing inequities. Banks should therefore assess avenues to support customers that are particularly exposed to CRFR, including LMI, BIPOC, and other financially vulnerable populations.

B. Credit Risk (Section III.C)

As described by the agencies in their recent joint Principles for Climate-Related Financial Risk Management for Large Financial Institutions, financial institutions are exposed to climate-related credit risk through sectoral, geographic, and single-name concentration. This includes exposure to credit losses from physical and transition risks such as wildfire, floods, or policy changes that could impact a borrower's ability to meet its debt obligations to the lender, assets that could become inaccessible or uninsurable, impacting the value of collateral for lenders. For example, a financial institution could face higher default rates from borrowers in or dependent on the fossil fuel industry, or from borrowers facing physical losses or chronic productivity losses (e.g. real estate losses due to hurricanes; agricultural loan losses due to drought). Financial institutions should therefore "understand the impact of climate-related risk drivers on their credit risk profiles and ensure that credit risk management systems and processes consider material climate-related financial risks."

To adhere to due diligence standards, financial institutions should incorporate CRFR data into credit assessments, starting with assessing and monitoring the climate-related risks of new and existing clients, including during the onboarding, underwriting, credit, and transaction review processes, as well as in the ongoing monitoring of client risk profiles and counterparty credit risk. Financial institutions should also implement internal controls and due diligence procedures to

review new loans in high transition risk sectors, particularly where those assets or exposures are geographically concentrated. To further account for counterparty climate-related risk, financial institutions should likewise implement policies and procedures to identify, measure, evaluate, monitor, report and control the impacts of from the 11 exposures identified by the agencies in order to determine RWA amounts. Where climate-related credit risk is identified, financial institutions should impose risk mitigation strategies such loan or credit limitations or restrictions, adjusting earnings sufficiency, or allocating additional capital.

C. Equity Exposures (Section III.E)

The proposed rule assigns a 400% risk weight to all non-publicly traded equity exposures, which would include renewable energy tax equity investments. This is an increase of four times from the risk weight many of these investments are currently assigned, and may not accurately reflect the risk profile of renewable energy projects, which are not structured like traditional private equity investments and have loan-like characteristics that pass less risk to the investing bank. However, there is a need to move away from the 10% threshold requirement to distinguish various kinds of equity exposures that may carry different risks, particularly for non-publicly traded equity which is generally riskier than owning debt and more illiquid than publicly-traded stock.

Considering these complexities, we believe the agencies should take a close look at the different risks presented by renewable energy tax equity investments. In implementing the final rule, we urge the agencies to use caution so that legitimate clean energy projects are not squeezed out. While we do not support lowering the risk weight for the entire non-publicly traded equity exposure bucket, the agencies could potentially implement an exemption application process with a nuanced assessment of the risks presented by the various types of underlying energy tax credits.[6]

D. Operational Risk (Section III.F)

As described by the agencies in their recent joint Principles for Climate-Related Financial Risk Management for Large Financial Institutions, climate-related operational risk could adversely affect financial institution operations, controls, and operational resilience. Exposure to climate-related operational risk could come in the form of increased legal liabilities from insufficient disclosure of CRFR transference to customers; losses due to damage to operational and physical assets (e.g. reduced productivity and disruption of the supply chain); losses due to disruptions to physical infrastructure (e.g. electric grid); or losses due to disruptions to operational infrastructure (e.g. payments systems). Financial institutions must therefore "ensure that risk management

[6] It is also worth noting the recent expanded tax credit incentives available under the IRA, which allow annual transferability of credit to third parties for cash. The incentives and flexibility for energy projects offer a more efficient use of taxpayer resources, are less risky as the project keeps more of its money, and expands the investors and financers available for these projects. Banks should also still be able to profitably underwrite TEFs or loans for clean energy projects at the appropriate risk weight.

systems and processes consider material climate-related risks … and put in place adequate measures to account for these risks."

Because CRFR can impact all business lines and continuity, including operations performed by third parties, it should be incorporated into four of the proposed operational loss event types under the internal loss multiplier: (4) clients, products, and business practices; (5) damage to physical assets; (6) business disruption and system failures; and (7) execution, delivery, and process management. Financial institutions should also incorporate physical risk from climate/weather event and natural disasters – such as utility outages, increases in customer demand, and physical damage to buildings – into business continuity plans to ensure ability to continue operations and serve customers, as well as CRFR drivers that could lead to strategic, reputational, and regulatory compliance risk.

Additionally, collecting information on the climate drivers of operational loss events with the level of detail of any descriptive information commensurate with the size of the gross loss amount is important to understanding the potential impact of climate-related financial risks to institution operations. However, because climate events are increasing in both frequency and severity, the proposed requirement to collect only historical data may leave this calculation incomplete. To ensure these assessments are as accurate as possible and that financial institutions maintain sufficient capital given operational loss risk, the internal loss multiplier should incorporate information gathered from climate scenario analysis exercises.

Ceres also recommends that banks involved in the trading of non-renewable commodities (including physical energy commodities and physical energy commodity derivatives) be required to disclose the impact of climate-related risk drivers on their operational risk around these products and services.

E. Disclosure Requirements (Section III.G)

As noted above, the EBA published an ITS on Pillar 3 ESG disclosures and BCBS issued a consultative document on a Pillar 3 framework requiring disclosure of bank exposures to climate-related financial risks, which would complement parallel disclosures initiatives at the IFRS[7] and other authorities, including the SEC. As noted by BCBS, "[t]the existing Pillar 3 framework does not provide distinct or comparable information as to how climate risk drivers could impact a bank or the banking sector." Increasing disclosure of CRFR will promote market discipline and enable market participants and regulators to access relevant risk exposure information, including the sufficiency of regulatory capital.

These standards generally require entities to disclose information regarding climate-related risks and opportunities that could reasonably be expected to impact cash flows; access to finance; or

[7] IFRS S1 Sustainability Disclosure Standard: General Requirements for Disclosure of Sustainability-related Financial Information; IFRS S2 Sustainability Disclosure Standard: Climate-related Disclosures.

cost of capital over the short, medium, or long term – including exposure and resilience to physical and transition risk, GHG emissions data, and governance and management processes. To align with these standards and ensure completeness of disclosures, the agencies should consider incorporating CRFR into the revised qualitative disclosure requirements contained in Tables 5-8 and 11-15 to §___.162. These descriptions could include how the bank:

- Identifies, assesses, and manages credit risk arising from climate exposures (including from counterparties) and climate-related credit risk concentrations (e.g. sectors that may be impacted by transition to a low carbon economy, asset exposure to extreme weather events)
- Integrates climate-related factors, such as physical and transition risks, into the bank's credit risk assessment and lending practices
- Assesses the credit quality of assets exposed to climate-related risks
- Considers climate exposure when valuing collateral (including in the event of climate-related credit rating downgrade), assessing its sufficiency in covering credit risk, and determining eligible credit risk mitigants
- Identifies, measures, monitors, controls, and hedges CVA risks influenced by climate exposures, including its impact on the valuation of derivative portfolios and how climate-related data is collected
- Identifies, assesses, and manages climate exposure of transferred securitized assets, resecuritized assets, and supported securitized assets
- Reports credit risk exposure-related to climate factors to its leadership and the board, and how senior management is involved in the risk management framework regarding climate-related credit/CVA risk
- Integrates climate exposures into operational risk management policies, frameworks, and guidelines, and whether and how CRFR data is incorporated into the operational risk capital requirement
- Identifies, assesses, and mitigates operational risks associated with climate exposure, which may include insurance coverage, business continuity planning, and other risk transfer mechanisms
- Considered climate exposure when defining the main features and capital adequacy of regulatory capital instruments and instruments eligible for TLAC, including the valuation or recoverability of these instruments
- For GSIBs, how climate exposure influences the main features of covered debt positions

Similar quantitative revisions should likewise be incorporated into FFIEC reporting forms and instructions, including the Call Report, FFIEC 101, and FFIEC 102 – which the agencies have

indicated they will update to reflect the changes made by the final capital rule – as well as the Uniform Bank Performance Report (UBPR). Disclosure forms collected by the FFIEC play an important role in ensuring the stability and transparency of the financial system by providing valuable information for regulatory oversight and policy development, consumer protection, market confidence, and risk assessment, contributing to the overall safety and soundness of financial institutions and the broader economy – but do not currently capture climate-related financial risk.

As noted by FSOC, the Call Report in particular, "combined with other data sources[,] might help inform assessments of climate exposures facing the banking sector as a whole, and in the context of climate-related financial risk, facilitate assessment of systemic risk." FSOC also notes that the Call Report data "could benefit from further enhancement and integration with other data sources" such as "delineat[ing] lending by geography, industry, or borrower" to better "inform assessments of climate exposures."

To assist financial institutions in determining how to incorporate CRFR exposure into disclosure forms, the agencies should work through FFIEC to issue handbooks and assessment tools as they have done for cybersecurity risk, while acknowledging the data and methodological challenges that exist while banks and regulators gain experience. The agencies, individually and through FFIEC, should further issue guidance for CRFR assessments as they have for cybersecurity risk assessments. These resources could build off of the disclosure tables issued by the EBA, which provides detailed instructions and templates for qualitative and quantitative assessments and disclosures.

F. Market Risk (Section III.H)

As described by FSOC and BCBS, financial institutions are exposed to climate-related market risk through price volatility and liquidity costs. This includes losses to assets due carbon pricing (through regulation or market forces), competition from cheaper technologies, investor-driven reallocations of capital, or consumer shifts (including stranded asset risk); increased cost of capital if shareholders and bondholders withdraw financing; losses to assets due to changes in market prices (e.g. agricultural commodity prices rises because of crop damage, or energy market volatility after extreme weather events); increased cost of capital, increased credit drawdowns, or compromised liquidity buffers if shareholders and bondholders withdraw financing (e.g. after an extreme weather event, commodity volatility, carbon tax, etc.). Financial institutions should therefore "understand the impact of climate-related risk drivers on their market risk positions and ensure that market risk management systems and processes consider material climate-related financial risks," including the value of financial instruments in their portfolios and the impact of sudden shocks on trading books.

1. *CRFR should be incorporated under the market risk covered position*

Under the five expanded types of positions in the proposed definition of a market risk covered position, banks and regulators should consider the following when determining exposure for those positions, as well as their associated risks and hedging strategies:

(i) certain equity positions in an investment fund

- Assess the investment fund's holdings to identify climate-sensitive assets (e.g. in fossil fuel companies may be subject to climate-related risk)
- Integrate CRFR into the assessment of the market risk associated with these equity positions, such as how climate events or regulatory changes could impact the value of these positions

(ii) net short risk positions

- Assess how net short positions may be influenced by climate events, especially for companies or sectors exposed to CRFR
- Incorporate CRFR factors into the assessment of market risk for net short positions

(iii) certain publicly traded equity positions

- Analyze the CRFR associated with publicly traded equity positions (e.g. companies with coastal real estate may have a higher risk profile)
- Integrate CRFR assessments into the market risk calculation for these positions

(iv) embedded derivatives on instruments issued that relate to credit or equity risk and are bifurcated for accounting purposes

- Assess the impact of CRFR on the embedded derivatives (e.g. instruments tied to energy, agriculture, real estate, or transportation)
- Include CRFR in the bifurcation process to evaluate how changes in credit or equity risk due to climate factors affect the valuation of these derivatives

(v) positions associated with internal risk transfer

- Consider how CRFR can affect internal risk transfer processes and assess whether it can create new exposures or alter the risk profiles of these positions (e.g. counterparty risk after climate-related economic disruptions, depreciation of real estate holdings due to increased flood risk or coastal erosion, losses for or withdrawal by insurers and reinsurers due to an increase in severe weather disasters, etc.)
- Integrate CRFR considerations into the assessment of market risk for these positions

2. Factors for commodity risk should incorporate climate considerations

The agencies should ensure that the delta, vega, and curvature risk factors for commodity risk contemplate climate-related financial risk. CRFR can introduce additional uncertainty and complexity into commodity price sensitivity, causing delivery location to become more unpredictable or influencing the viability or duration of a contract. CRFR can disrupt supply chains, influencing the price of the asset being delivered, by impacting transportation and delivery of commodities (e.g. hurricanes, floods); shifting agricultural and marine production capacities, cycles, or geographic zones (e.g. rising temperatures, decreased rainfall); and exacerbating natural resource scarcity (e.g. water, metals, sand). CRFR can also – and is already – impact the production dynamics and demand for energy commodities, increasing demand for renewable energy (e.g. solar, wind) and decreasing demand for fossil fuels (e.g. coal). Regulatory changes, market sentiment, and technological advancements likewise implicate commodity prices, shifting investments, valuation, demand, competitiveness, and longevity of contracts, especially those tied to long-term production or supply agreements.

CRFR can impact the volatility of commodity prices through similar channels. Supply chain disruptions can increase uncertainty in future valuation, making those investment riskier or leading investors to factor in potential supply chain disruptions when assessing. Changes in production dynamics and demand for energy commodities as the global economy shifts from fossil fuels to renewable energy can affect business models, GDP growth, and overall economic stability, increasing volatility in the traditional energy sector as investors assess competitive dynamics and adjust positions. Perception of CRFR, the ability of insurance to manage these risks, and changing regulations may also lead to shifts in trading strategies, hedging practices, and demand for certain commodities as consumers preferences change and investors adjust expectations in response to increased market uncertainty.

CRFR can also impact the rate of price changes over time. The speed and magnitude at which prices adjust to climate-related events that impact the underlying commodity (e.g. wildfire, heatwaves, or flooding that damages crops or disrupts energy production) may accelerate in response to sudden disruptions, especially if key production or transportation hubs are affected. The severity and frequency of these events can influence the pace of price adjustments. Commodities that are associated with carbon-intensive industries as well as those associated with renewables may face rapid changes in demand in pricing as the world moves towards a low carbon economy in response to regulation, new technologies, and consumer and investor preferences. Likewise, insurers adjusting premiums and coverage based on increased CRFR can affect how quickly market participants adjust their commodity risk strategies.[8]

[8] An increasing number of states are seeing rising home insurance premiums that offer less coverage, if they can find insurance at all. In just the last few years, California has experienced a recording-breaking number and size of wildfires, which have taken hundreds of lives, bankrupted the state's largest utility, and left millions without power.

Additionally, the agencies should consider theta/time decay risk factors for commodity risk, as climate-related financial risk may indirectly influence variables that contribute to option pricing. Climate events and extreme weather can impact the volatility of markets as well as insurance market dynamics, increasing option prices and the rate of time decay. Certain industries are also more exposed to climate-related risks (e.g. energy, agriculture, insurance). Increased physical impacts from climate events, regulations, technological advancements, and changing market sentiment can affect the underlying assets of options (including stranding assets), influencing their long-term prospects and prices, and therefore time decay.

These risks apply to all derivatives, not just commodities. While commodities such as oil and gas have higher physical (e.g. spills) and transition risk (e.g. renewables competition) that may not be present for financial instruments such as stocks and bonds, CRFR will exacerbate price volatility and decrease liquidity for all asset classes. Ceres research shows that derivatives can increase CRFR exposure by up to three times – approximately $1 trillion for the 25 largest U.S. banks. Regulators should therefore consider derivatives in their analysis and supervision of CRFR to their regulated entities, and those financial institutions should likewise incorporate climate-related derivative risk into their risk management frameworks.

3. Risk weights for commodity buckets 1, 2, 6, and 9 are too low

Under Table 9 to § .209, the agencies include (1) Energy – solid combustibles with a risk weight of 30%; (2) Energy – liquid combustibles with a risk weight of 35%; (6); Gaseous combustibles and electricity with a risk weight of 45%; and (9) Livestock and dairy with a risk weight of 25%. Climate-related financial risk introduces uncertainties and potential vulnerabilities that can significantly impact these sectors, influencing their market dynamics and price movements.

Combustibles in particular are vulnerable to changing market dynamics as a result of CRFR due to their central role in global energy production and consumption – including the transition to a low carbon and susceptibility to extreme weather. As the world transitions toward cleaner energy sources and many nations enact carbon regulations, the combustibles sector faces heightened uncertainties and challenges. For example, coal pricing has become increasingly volatile over the last several decades, a trend that will likely worsen in the future. According to the American Coal Council, "laws, alternative fossil fuel markets (Natural gas/Oil prices), technological innovations, natural disasters, labor issues, and equipment failures all impact pricing volatility," and "[s]ince 2001 the market has changed significantly[,] … le[ading] to significant supply inelasticity and greatly increased price volatility." Given coal's recent history and expected decline, its volatility

As a result, several major insurers to date have limited or completely dropped property coverage in the state as they struggle to obtain sufficient data to accurately assess risk in the face of climate change. Florida is confronting rapidly rising sea levels and now-routine flooding, eroding coastal property values and wiping out freshwater supplies. Just this year, the Florida legislature was forced to substantially reform its own state-run property insurance corporation as an increasing number of insurance companies flee the state or deny coverage to Floridians – though rates are still nearly three times the national average.

will also likely increase. Other combustibles will likely follow a similar trajectory for the same reasons.

Livestock and dairy are similarly vulnerable to changing market dynamics from CRFR. Extreme weather events such as drought, floods, and heatwaves can have both direct impacts (e.g. on the health of livestock through decreased fertility, increased susceptibility to diseases, and death) as well as indirect impacts (e.g. on the availability and quality of feed and pastures) that disrupt production and increase costs. Climate-related impacts on other agricultural products that livestock depend on may also experience fluctuating and increased prices due to unpredictable yields, increasing the costs associated with livestock and dairy products. Heightened climate exposure may also lead to increased insurance premium costs for livestock and dairy operations, impacting the overall cost of doing business as well as the costs passed on to consumers. Consumer preferences may also shift towards operations with lower carbon footprints and more sustainable models, impacting market demand for certain livestock and dairy products.

As climate risk becomes an increasingly prominent factor in global markets, the assigned risk weights for combustibles and livestock should be adjusted to reflect those exposures. Although the risk weights for the commodities in Table 9 to §__.209 are based on "empirical data during historical periods of stress," forward-looking data and projections are important when considering the evolving landscape of CRFR. Historical correlations between climate events and commodity price movements can provide valuable insights, but a comprehensive analysis of future climate scenarios, regulatory developments, and technological trends is crucial for accurately reflecting the potential impacts of CRFR on these commodity buckets. Some banks are already using forward expectations in their internal models for commodity volatility. The dynamic nature of CRFR necessitates ongoing monitoring and adjustments to risk weights to ensure that financial institutions effectively manage and mitigate the potential impacts within their portfolios.

4. *Correlated risks among different commodity types should incorporate the compounding impacts of CRFR*

Within the current commodity buckets of Table 9 to §__.209, the agencies should encourage financial institutions to incorporate the correlation impacts climate-related financial risk on different commodity types and risk buckets. For example, Buckets 1 (Energy – Solid Combustibles), 2 (Energy – Liquid Combustibles), and 6 (Gaseous Combustibles) have potential strong CRFR correlation due to their association with the energy market and the global transition from combustibles to renewable energy sources. Governments around the world are regulating carbon emissions, and companies, investors, and consumers are beginning to reduce dependence on and preference for fossil fuels. Both buckets are also exposed to potential disruptions in supply chains, transportation, and production facilities related to climate events and extreme weather, which could increase correlations between commodities in these buckets during such events.

Another example is the correlation between commodities in Buckets 1, 2, & 6 and Buckets 8 & 9 (Grains and Oilseed & Livestock and Dairy). Changes in temperature patterns, precipitation, and extreme weather events can impact both energy production (solid and liquid combustibles) and

agricultural productivity. These events can disrupt supply chains, transportation, and distribution networks, affecting energy and agricultural commodities alike. Water scarcity also poses risks to both sectors, and competition for water resources may affect the cost and availability of inputs. Similarly, shifts in energy prices driven by volatile fossil fuel markets or increased stress on the grid can increase agricultural input expenses, raising both agricultural commodity prices as well as the retail food price – while the shift to renewables may lower agricultural prices but increase combustibles volatility.

Banks with exposure to multiple buckets need to consider the shared climate-related risks in their management strategies, including potential cascading and compounding effects, or risk having multiple portfolios with increased market risk and/or stranded assets. Correlation models should be dynamic to allow for changes over time, as static correlations may not capture changes adequately.

Importantly, while the agencies based the proposed commodity types and their risk weights on *historically* similar levels of volatility, future variations in temperature, precipitation, and other climate-related variables should be incorporated into these determinations. Historical data alone is no longer an adequate indicator of future climactic conditions or weather patterns as natural disasters increase in both frequency and intensity, and warming makes weather less predictable. Banks should likewise consider future projections when conducting scenario analysis and correlation sensitivities analysis on potential direct and indirect impacts to commodity production, transportation, and demand.

III. CONCLUSION

We thank the Fed, OCC, and FDIC for their work on this proposal to implement the Basel III regulatory capital requirements, and urge the regulators to consider emerging climate-related financial risks to financial institutions when implementing these new rules. We would be pleased to discuss any questions you may have on our feedback.

Sincerely,

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