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SAIS Review of International Affairs, Volume 43, Number 1,
Winter-Spring 2023, pp. 57-73 (Article)

Published by Johns Hopkins University Press
DOI: https://doi.org/10.1353/sais.2023.0001

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[172.71.255.131] Project MUSE (2025-04-05 00:05 GMT)

Broken Mirrors: Climate Risk and the Blind Spots in Global Macroprudential Policy

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The Basel Accords have been adopted by most major economies and have served as the primary international framework for maintaining financial stability through active institutional supervision and regulation. However, existing principles and practices fail to address the physical and transition risks fostered by climate change and instead, focus on internal threats emanating from financial institutions, as well as markets at large. These concerns are existential, thereby requiring different assumptions and instruments to safeguard the global financial system. This paper will examine and explain shortcomings within the Basel Accords and its inability to properly address physical and transition risks related to climate change. This paper also suggests structural reforms that would enable the Basel Accords to improve their long-term oversight of climate-related issues, while encouraging institutions within the global financial system to assume leadership over the transition towards a sustainable economy. These findings contribute to a burgeoning body of scientific and economic literature revealing the necessity of an enhanced international macroprudential policy framework to protect against the catastrophic consequences of inaction on climate change.

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Introduction

Experts within academia, government, and the private sector generally agree that climate change poses existential risks which threaten global financial stability. The United Nations 2030 Agenda for Sustainable Development and Paris Climate Agreement both emphasize the importance of the global financial services sector in facilitating an orderly transition towards a sustainable economy and the risks to the sector's stability if it is unable or unwilling to keep pace.[1,2] The risks posed by climate change are often categorized as either

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physical risks or transition risks. Physical risks constitute economic losses from the increased frequency or severity of extreme weather events that degrade the value of financial assets. Transition risks comprise economic uncertainty arising from the global transition towards a sustainable economy, including shifts in climate policy, market preferences, and technological capabilities. Studies have consistently determined that addressing these risks will result in one of four broad potential outcomes: a soft landing (an early, measured response mitigates physical and transition risks), a hot-house Earth scenario (a delayed or weak response engenders significant physical risk accompanied by an uncertain acceleration in transition risk), a hard landing (a sudden, sufficient response halts physical risk but engenders significant transition risk), or a too-little-too-late scenario (a delayed and sudden response engenders increased physical and transition risks).[3]

Unfortunately, current macroprudential regulations—policies designed to safeguard the stability of the global financial system—are inadequately structured to address physical and transition risks imposed by climate change. These policies generally fall under the umbrella of the Basel Accords, a series of recommendations for ensuring global financial stability by monitoring capital, market, and operational risks of individual institutions. The recommendations were proposed by the Basel Committee on Banking Supervision (BCBS), an international collective of central bank regulators across 28 jurisdictions.[4] The most recent accord, Basel III, was established following the Global Financial Crisis. BCBS, the main body that drafted the framework, intended to improve the regulatory standards imposed upon most financial institutions via several novel instruments, including various capital buffers and ratios, as well as provisioning requirements, restrictions on foreign currency loans and certain speculative assets, and capital surcharge rules for systemically important financial institutions.[5]

While BCBS envisioned that Basel III would preserve stability within the global financial system by holding institutions accountable to these enhanced supervisory standards, the regulatory framework itself is principally designed to protect against threats arising within individual institutions or financial markets.[6,7] Basel III's regulatory instruments are less capable of addressing climate change due to the unique dynamics of this threat. First, the existential physical risks of climate-induced catastrophes would cause economic consequences that pale in comparison to those of ordinary, systemic financial crises.[8] Next, the exogenous, non-market origins of transition risks—environmental, geopolitical, and technological developments caused by climate change—would necessitate strategies that address these non-economic issues and their impact on financial institutions.[9] Finally, given variation in the eventual composition of physical and transitional climate risks, the assumptions that underly the regulatory instruments within Basel III may be invalidated, requiring a different approach.[10]

This paper indentifies specific shortcomings within the current Basel III framework, which could enable physical and transitional climate risks to manifest within the global financial system. It also suggests specific improvements to regulatory instruments and revisions to existing recommendations for macroprudential policy that would enable Basel III to detect such risks before

they endanger institutions and threaten stability. This analysis does not address the need for climate-specific macroprudential regulation based on social responsibility or any moral imperatives; rather, it assumes that financial stability and the prosperity it engenders are adequate market-based incentives for both regulators and their industry counterparts. The remainder of this paper is structured as follows: the first section describes the Basel III framework, including its regulatory intentions and instruments; the second section identifies key shortcomings in the current framework and discusses how it could neglect physical and transitional climate risks; the third section offers specific recommendations for amending Basel III so it can better neutralize these threats; and the fourth section concludes with final remarks and suggestions for additional research.

Overview of Basel III

Basel III is considered one of the most comprehensive and recognizable macroprudential frameworks to date. It succeeded both Basel I, enacted in 1988 shortly after the early 1980s recession, and Basel II, enacted in 2004 shortly after the early 2000s recession. While Basel II was an extension of Basel I, both contained many intrinsic similarities given the nature of the crises which preceded them, featuring risky speculative loans by financial institutions, as well as low levels of reserve capital to sustain their liquidity in an emergency.[11,12,13] Basel I created minimum capital requirements to mitigate credit risk emanating from loan defaults, while Basel II provided additional guidance regarding the calculation of these requirements. The latter also introduced procedures for dealing with systemic risks, liquidity risks, and legal risks which could arise during a financial crisis. Furthermore, it urged disclosure requirements outlining institutional risk exposures, risk assessments, and capital adequacy levels.[14] Unfortunately, Basel I and Basel II proved inadequate to protect against the subprime mortgage bubble and resulting Global Financial Crisis of 2007, in which many financial institutions were overleveraged, undercapitalized, and inappropriately incentivized to assume unnecessary risk via loopholes in oversight by regulatory authorities.[15] These issues prompted the development of Basel III to further address the blind spots of its predecessor frameworks.

Basel I and Basel II proved inadequate to protect against the subprime mortgage bubble and resulting Global Financial Crisis of 2007, in which many financial institutions were overleveraged, undercapitalized, and inappropriately incentivized to assume unnecessary risk via loopholes in oversight by regulatory authorities. These issues prompted the development of Basel III to further address the blind spots of its predecessor frameworks.

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Basel III comprises three "pillars" of macroprudential regulation that realize financial stability through individual institutions' adoption of adequate governance policies. The first regulatory pillar requires that financial institutions calculate and disclose minimum regulatory capital requirements, defined as the least amount of capital required by prudential regulators (generally described as national regulatory agencies responsible for overseeing financial institutions and capital markets) to address potential economic losses.[16] Such losses arise via three risk categories: credit risk, when individual counterparties fail to fulfill their financial commitments to the institution (e.g., a borrower failing to maintain mortgage payments); market risk, when external economic conditions cause assets to depreciate in value (e.g., accelerating interest rates reducing demand for mortgages); or operational risk, when errors by people, systems, or processes result in institutional damage (e.g., safeguards failing to identify high-risk borrowers that apply for a mortgage).[17]

Basel III's second macroprudential pillar involves a supervisory review by regulatory authorities to ensure that financial institutions abide by their individual minimum regulatory capital requirements, often conducted via an Internal Capital Adequacy Assessment Process (ICAAP) which was introduced in Basel II.[18] Through ICAAP, regulators assess the credit, market, and operational risks facing a financial institution. They calculate the capital required to offset each risk and employ stress tests to validate the sufficiency of these levels by simulating real-world business conditions. Additionally, the process allows regulators to estimate and approve minimum acceptable capital reserves and ensure rigorous institutional awareness and adherence to these requirements.[19] The process demands consistent dialogue between prudential regulators and all financial institutions within their purview to ensure long-term vigilance against incoming risks.

The third pillar of Basel III supports market discipline by requiring that financial institutions publicly disclose various quantitative and qualitative information regarding their capital adequacy and risk management practices. These requirements motivate financial institutions to implement adequate safeguards against credit, market, and operational risks given the reward of improving or maintaining their reputation within the broader economic ecosystem. The rules also incentivize key stakeholders such as clients and shareholders to exercise due diligence by holding financial institutions accountable given the reward of protecting their own business interests.[20] These institutions now generally disclose information regarding their risk management processes, as well as institutional capital structures, exposures, and adequacy, via periodic regulatory filings which include details beyond brief shareholder reports or regular financial statements.

The majority of macroprudential regulatory instruments within Basel III are either ratios or buffers—the analytical focus of this paper when examining the sufficiency of this framework in protecting against physical and transitional climate risks. Prudential regulatory ratios characterize the extent to which a financial institution can fund its daily operations through issuing shares or retaining profits, expressed as a percentage of total assets.[21] These are often employed as diagnostic instruments, which enable financial institutions as well

as their prudential regulators to monitor capitalization levels. While most such ratios were introduced within Basel I and II, their minimum standards were elevated by Basel III to protect against similar market and operational risks that drove most bank failures during the Great Financial Crisis.[22] On the other hand, capital buffers are reserves which enable financial institutions to absorb losses while maintaining services to the real economy during times of instability.[23] These are often used as preventative measures that require financial institutions to allocate a certain percentage of their earnings over time, with their prudential regulators deciding when and how such funds are expended, usually after facing institutional stress. Many of these standards were first introduced by Basel III given the undercapitalization of financial institutions during the Great Financial Crisis. A list of major ratios and buffers introduced by Basel III can be found in Table 1 below.

Shortcomings in Basel III

The Basel III framework largely depends on the concept of weighted risk. It is a central part of capital ratios, which contain explicit or related dependencies on institutional risk-weighted assets, as well as capital buffers, which are often established as the result of stress tests estimating institution-specific risk-weighted capital requirements necessary to withstand adverse market shocks. Unfortunately, these macroprudential instruments employ a narrow definition of weighted risk that does not capture tail risks, defined as low-probability events arising from both ends of a normal distribution curve, or unprecedented risks.[33] Weighted risk is estimated by behavioral modelling, that is predicting future risks based upon a historical understanding of how they materialized in the past. Therefore, the capital constraints imposed upon financial institutions to safeguard stability within the global financial system are predicated upon estimates of weighted risk that are not supposed to radically differ compared to historical levels.[34]

Its heavy reliance on weighted risk suggests Basel III is unprepared to address physical and transition risks posed by climate change. While global financial markets have some experience adjusting to the economic consequences caused by extreme weather events, as well as shifting consumer preferences and a burgeoning regulatory landscape concerning climate finance, such events to date have been relatively infrequent and benign compared to the expected magnitude of physical and transition risks that studies have frequently predicted.[35] These scenarios are deemed too rare to be statistically significant within most probabilistic models that calculate weighted risk, hence why most financial institutions are not maintaining appropriate capital safeguards against risks from climate change. This weakness in Basel III has been highlighted by research from the Bank of France and Bank for International Settlements, both of which have found traditional approaches to risk management depend upon historical data extrapolation based on assumptions of normal distributions that are irrelevant when assessing climate-related risks.[36]

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Table 1. Description of Macroprudential Instruments Introduced or Amended by Basel III (Source: Bank for International Settlements)

Instrument	Introduction Year	Description
Capital Ratios:		
Leverage Ratio	2009	The quotient of a capital measure divided by an exposure measure.[24] The most common capital measure is Tier-1 Capital, or bank equity capital and disclosed reserves, while the most common exposure measure is total balance sheet exposures.
Tier-1 Capital Ratio	2010	The quotient of Tier-1 Capital divided by Total Risk-Weighted Assets, or bank assets which are adjusted for institutional risk-losses.[25]
Total Capital Ratio	2010	The quotient of Total Capital, or interest-bearing debt plus shareholder equity including common and preferred stock plus minority interest, divided by Total Risk-Weighted Assets.[26]
Liquidity Coverage Ratio	2010	The quotient of Highly Liquid Assets divided by Total Net Cash Flow, or the difference between outflows for liabilities and income from assets.[27]
Common Equity Tier-1 Ratio	2014	The quotient of Common Equity Tier-1 Capital, or the sum of common shares, stock surplus, as well as retained earnings, divided by Common Equity Tier-1 Capital plus Additional Tier-1 Capital, or minority interests and regulatory adjustments.[28]
Net Stable Funding Ratio	2014	The quotient of Available Stable Funding divided by Required Stable Funding, or equity and liability financing expected to be reliable sources of funds over a one-year time horizon.[29]
Capital Buffers:		
G-SIB Capital Buffer	2016	Capital required to be held in reserve by Global Systemically-Important Banks (G-SIBs).[30]
Capital Conservation Buffer	2019	Capital Buffer comprising 2.5 percent of Common Equity Tier-1 Capital established above additional minimum regulatory capital requirements.[31]
Countercyclical Capital Buffer	2019	Flexible Capital Buffer raised during periods of economic expansion and lowered during periods of institutional stress or recession, imposed above minimum regulatory capital requirements.[32]

This simplistic approach to weighted risk within the Basel III framework implies a larger issue: an overdependence on financial markets as the final arbiters of such risk since financial markets determine prices, or the value of all traded assets. Weighted risk is the result of volatility in such prices relative to the quantities held by financial institutions.[37] This implicitly recognizes financial markets hold the most discretion over weighted risk, an assumption which could prove insufficient when tackling physical and transition risks. Empirical evidence consistently proves an inability for markets to accurately price physical and transition risks because of informational market failures, arising from an inconsistent global framework to identify such threats, as well as negative weather- and economic-externalities that cannot be tracked by current models since they fall outside historical distribution of outcomes.[38] For example, the types of extreme weather events cited within academic literature to cause unprecedented economic damage are not included within most models because they simply haven't occurred yet.[39] By waiting for physical or transition risks to become severe enough for financial markets to ultimately detect them, Basel III inherently forfeits the necessary advantage of a proactive posture against climate change.

These fundamental assumptions within Basel III not only enable physical and transition risks to stealthily manifest themselves among individual institutions, but further threaten instability within the greater financial services ecosystem. Both weighted risk and market-based pricing are basic tenets of the International Financial Reporting Standards (IRFS), which is the accounting framework promoted by Basel III.[40] This framework argues that assets must be priced according to their market value with risk depending on fluctuations within the former. However, it is entirely dependent upon a well-functioning financial market to make an accurate assessment of supply and demand dynamics, which means this framework would have more difficulty when evaluating the value of assets during a crisis. Furthermore, absent intervention by prudential regulators, vulnerable assets could be overvalued utilizing assumptions that are simply inapplicable to crises engendered by physical and transition risk, which could leave unsuspecting investors including households, businesses, and even federal authorities with stranded assets, or assets unable to generate economic returns.[41]

While the assumptions of weighted risk and market-based pricing are effective hallmarks of microprudential regulation, they are restricted to detecting endogenous, or market-specific threats, in the context of macroprudential regulation.

These issues demonstrate the microprudential, or firm-level oversight of financial institutions, nature of Basel III, despite being touted as a framework for macroprudential regulation. In other words, while the assumptions of weighted risk and market-based pricing are effective hallmarks of microprudential regulation, they are restricted to detecting endogenous, or market-specific threats, in the context of macroprudential

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regulation.[42] These limitations are best exemplified by Pillar II and Pillar III. As mentioned previously, Pillar II requires every financial institution to undergo a periodic assessment of their minimum regulatory capital requirements, which involves a weighted calculation of credit, market, and operational risks. Studies have shown that these risk weights are informed by external credit ratings, which are the product of fallible entities whose opinions are based on historical patterns and current market observations.[43] These prerequisites are difficult to adapt to physical risk given a lacking track record, providing credence to claims that these agencies have failed to sufficiently include susceptibility to climate change as a factor within their valuation of both assets and companies. Similarly, Pillar III, which mandates financial institutions to publicly disclose information pertaining to their capital adequacy and risk management, is inherently microprudential in nature, predicated upon the notion that reputational risk creates economic incentives that persuade financial institutions to adopt corrective behaviors aligning with regulatory goals.[44] This may be a particularly useful tool when protecting against transition risk. However, studies have shown financial institutions are usually unmoved by public opinion even when influenced by such disclosures, absent the potential of reputational risk to engender major financial or regulatory consequences. In short, current evidence suggests that the market itself is unable to muster the requisite influence to be an effective enforcement mechanism for Basel III.

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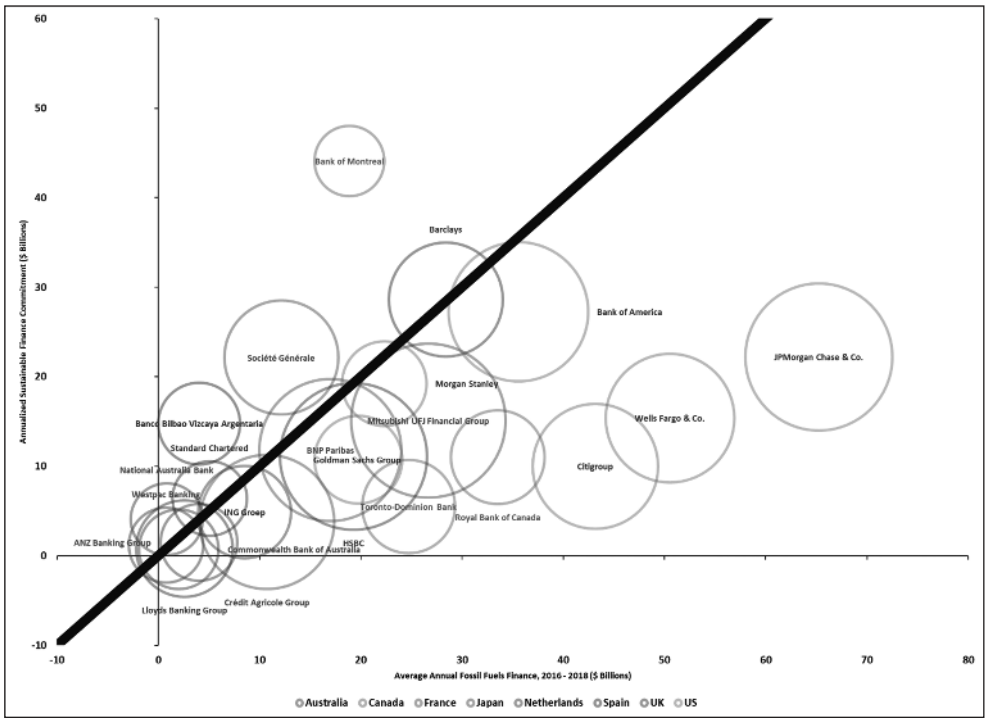
Unfortunately, if the current configuration of Basel III is not revised to better address the physical and transition risks of climate change, its current reactive, microprudential nature will most likely enable one of two least desirable long-term outcomes: a hard landing, or too-little-too-late scenario. Over the past 20 years, major climate disasters have cost $170 billion, prompting significant investment currently at $115 billion to protect against future catastrophes.[45,46] By contrast, the data suggests a global investment of $275 trillion over the next 30 years is required to foster a soft transition toward a sufficiently sustainable economy; however, aggregate investment today is estimated at $632 billion.[47] These statistics demonstrate unflattering political realities regarding the divisiveness of transition risk relative to physical risk, a phenomenon also visible within the financial services sector. Figure 1 below compares the dollar value of sustainability commitments made by 23 of the largest global financial institutions to that of their dealings with the fossil fuels industry.[48] By demonstrating a considerable imbalance favoring their financial relationships with the fossil fuels industry, these numbers also reveal the difficulties in hastening the pace by which the financial services sector mitigates transition risk before incurring significant economic damages. This could augment the possibility of a hard-landing scenario. Yet, this would be an optimistic outlook, as some studies have shown financial institutions continue to face substantial physical risks, including over $500 billion in just syndicated loans.[49] This would likely enable a too-little-too-late scenario.

Figure 1. Sustainable Finance Commitments vs. Fossil Fuels Finance at Major Global Banks (Source: World Resources Institute, Author's Calculations)



This outlook highlights the futility of a wait-and-see approach to climate change that has been adopted by policymakers in conjunction with the global financial services sector. By failing to enact incremental adjustments that mitigate physical and transition risk, the magnitude of these threats has grown with a shrinking ability to change the eventual outcome. This was most recently demonstrated by the COVID-19 pandemic, another exogenous shock which engendered an economic downturn that most were simply unprepared for. Over the past 20 years, ecologists and epidemiologists have warned about the risk of zoonotic diseases arising from the loss of biodiversity and increased human activity.[50] Zoonotic diseases, illnesses where the pathogen is spread from animals to humans, are particularly dangerous given their transmissibility, comprising some of the most deadly or endemic diseases currently known, such as HIV, SARS, MERS, as well as the Ebola, Nipah, and Marburg viruses.[51] The pandemic fostered a standstill in economic activity, which financial institutions were unprepared to handle, requiring extensive measures by prudential regulators and policymakers to both ensure their survival, and continued function as to support other areas of the economy. Despite over ten years of implementation, the safeguards imposed by Basel III proved ineffective against a real consequence of climate change, proving the need for major revisions to be capable of defending against such threats in the future.

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Improvements to Basel III

The cornerstone of long-term, successful improvements to Basel III rest on their capacity to account for radical uncertainties posed by climate change.[52] The unprecedented nature of its physical and transition risks to global financial stability does not require macroprudential policy to anticipate specific threats. Rather, it necessitates flexibility to assist financial institutions in both surviving and supporting the broader economy in the event of disaster. This is especially critical when addressing transition risk, given the advent of ambitious climate agendas which could be financially detrimental to carbon-intensive sectors. The transition towards a sustainable global economy will encompass a structural transformation in the global economy in which some sectors will thrive, some will decline in relevance, and some will even be driven into financial extinction.[53] Carbon-intensive industries, alongside their industrial and financial partners, will be uniquely sensitive as this transition accelerates. Depending on their continued integration within the economy at large, transition risk emanating from carbon-intensive industries may destabilize financial institutions through asset depreciation, debt defaults, increased unemployment, and reduced profitability. These possibilities have increased calls for embedding climate change into economic recovery and financial crisis management strategies, essentially increasing their flexibility to address such risks even if their precise impact is still unknown.[54]

Embedding climate change within macroprudential regulatory recommendations from Basel III could begin with ensuring its instruments maintain the ability to function independently in the event of their failure. This would include changes to individual instruments, but also the three pillars-minimum regulatory capital requirements, supervisory reviews by regulatory authorities, as well as capital adequacy disclosures that comprise the blueprint for detecting and mitigating emerging macroprudential risks. Many of these recommendations depend upon identifying a carbon cycle, defined as excessive credit growth within carbon-intensive industries that drives higher emissions, and ensuring macroprudential safeguards are instituted before potential turmoil.[55] While "cycle" often refers to a repeated process, in the context of climate change a carbon cycle could be considered as one long-term phase with many short-term fluctuations in carbon supply and demand, concluding with a completed transition to a more sustainable economy or the manifestation of significant physical and transition risk necessitating an abrupt, and likely painful, acceleration in progress toward such a goal.

Embedding climate change within macroprudential regulatory recommendations from Basel III could begin with ensuring its instruments maintain the ability to function independently in the event of their failure.

First, Pillar I could be improved by adjusting the minimum capital requirements of individual financial institutions based on their total carbon risk. This could include metrics such as a "green supporting factor" (GSF), which

would reward credit financial institutions holding more sustainable or "green" assets with lower-risk weights, and "brown penalizing factor" (BPF), which would punish financial institutions holding more carbon-intensive or "brown" assets with higher-risk weights, utilizing incentives in the form of institutional regulatory relief to encourage increased protection against transition risk.[56] These metrics have been endorsed by the Bank for International Settlements and the European Commission for their potential to include climate-specific safeguards within macroprudential regulation, while also overcoming the "green finance gap" by having financial institutions lead the transition by investing in more sustainable assets.[57,58] While both metrics could engender these outcomes, a BPF would be slightly more effective since it correctly penalizes financial institutions for assuming increased transition risk through their accumulation of carbon-intensive assets and could be more easily monitored given general concurrence on what counts as a "brown asset."[59]

Next, Pillar II could be enhanced through specific standards for physical and transition risk measurement within periodic examinations of financial institutions. Many prudential regulatory authorities are currently developing or finalizing guidelines to evaluate climate risks within financial institutions under their purview. Those included are the European Banking Authority, Prudential Regulatory Authority under the Bank of England, Federal Financial Supervisory Authority in Germany, and Financial Market Authority in Austria.[60,61,62,63] While these standards are in their infancy, they have already attracted criticism for being too narrow in scope with calls for expanding their coverage to additional policy products, including outsourcing arrangements, loan origination procedures, provisions for internal governance, and even green lending. Furthermore, Pillar II could also include more detailed stress tests and scenario analyses which assess capital adequacy standards under realistic hypotheticals of extreme weather or economic crisis induced by climate change. The structure of these tests could also be revised so that particularly complex financial institutions are subject to higher capital adequacy standards.[64] This can include G-SIBs, or extremely large financial institutions generally considered too big to fail given their significant, and often international economic footprint, which enables them to service some of the largest fossil fuels companies while taking advantage of disparities in global climate finance regulations.[65]

Conversely, Pillar III could be improved by nuanced climate risk disclosures. Proponents of such policy correctly identify the need for greater transparency from financial institutions regarding their physical and transition risk exposures; however, their unwavering support for mandatory climate risk disclosures indiscriminately applied to all financial institutions is both counterproductive and detrimental to the broader objectives of Pillar III. As mentioned earlier, research suggests some financial institutions are more likely to have a greater climate footprint based on their total assets, economic importance, cross-border activities, and utilization of direct public assistance.[66] For example, 20 companies are responsible for over one-third of all carbon emissions, many of which, have financial relations with under 200 firms.[67] Given these differences, it is vital prudential regulators develop nuances that strike a balance between maximizing access to information on climate risk, while preventing those least likely offenders from being unduly subjected to further regulation.

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This critique has arisen within the United States, as its Securities and Exchange Commission is finalizing climate risk disclosure requirements, but with little announcements regarding nuances in this policy.[68] By contrast, current climate risk disclosures enacted by the European Central Bank are only applied to a small subset of institutions deemed economically significant.[69]

Finally, several existing macroprudential instruments within Basel III can be modified to better protect against physical and transition risks. First, certain green investments could receive exemptions from the calculation of capital ratios, especially the Liquidity Coverage Ratio (LCR) and Net Stable Funding Ratio (NSFR), since these metrics could discourage financial institutions from green lending given industry-specific risks.[70] An obvious counterpoint would be such exemptions augment the potential risk of green lending to go undetected, but such concerns could be addressed by analyzing metrics, such as the Leverage Ratio or the Total Capital Ratio, given their reliance on aggregate capital figures that would be less penalizing to financial institutions with increased green lending. Additionally, the Countercyclical Capital Buffer (CCyB) requirement, which expects financial institutions to set aside higher amounts of capital during an economic expansion for deployment during a contraction, could be customized to a long-term carbon cycle.[71] Specifically, it would require financial institutions to reserve a higher amount of capital in the short-term and gradually reduced throughout the course of the transition process, as such risks are diminished with the establishment of enhanced safeguards.[72] One major risk could emerge from an economic contraction or financial instability early in the transition; as such, an event would result in a conflict between the economic cycle and carbon transition cycle. In addition to these instruments, prudential regulators could impose a Sectoral Leverage Ratio (SLR), which would restrict exposure to a specific group of companies, such as carbon-intensive industries, through a cap on the debt-financing of such investments. This could serve as a useful measure to expedite the transition of individual financial institutions by encouraging them to reduce their relationships with carbon-intensive clients.

Given the interconnectedness of the global financial services sector, revisions to capital requirements and prudential supervision will have a reduced effect if incentives remain for individual institutions, especially those with an international footprint, to circumvent these regulations by transferring their operations or financial relationships.

It is important to recognize the fact that any of the aforementioned proposed revisions to Basel III will only be successful if employed by all, or at least a majority, of members. Given the interconnectedness of the global financial services sector, revisions to capital requirements and prudential supervision will have a reduced effect if incentives remain for individual institutions, especially those with an international footprint, to circumvent these regulations by transferring their operations or financial relationships.[73] Figure 2 below shows some of many

discrepancies between countries in tailoring Basel III principles to climate risks. In some cases, such as Pillar I, most countries remain at a similar starting point, whereas with other principles, including Pillars II and III, there is more diversity in their progress.[74] Hence, individual implementation of these recommendations will be much less effective as opposed to international coordination, given the nature of the global financial services sector and nature of physical and transition risks.

Figure 2. Integration of Climate-Related Principles within Basel III by Country (Source: Climate Transparency)

	I. Enhanced Capital & Liquidity Requirements				II. Enhanced Supervisory Review	III. Risk Disclosure & Market Discipline	N/A
	Liquidity Instruments	Lending Limits		Differentiated Reserve Requirements	Climate-Related Risk Assessment & Climate Stress Tests	Climate Risk Disclosure Requirements	Green Financial Principles
	Mitigate & Prevent Market Illiquidity & Maturity Mismatch	Limit the Concentration of Carbon-Intensive Exposures	Incentivize Low-Carbon-Intensive Exposures	Limit Misaligned Incentives & Canalise Credit to Green Sectors	Evaluate the Resilience of the Financial Sector to Climate Shocks	Disclose the Climate-Related Risks to which Financial Institutions are Exposed	Consideration of Aligning Climate Objectives with National Financial Architecture
Country							
Argentina	None	None	None	None	None	None	Yes
Australia	None	None	None	None	None	None	Yes
Brazil	None	None	None	None	None	Mandatory	Yes
Canada	None	None	None	None	Voluntary	Under Discussion	Yes
China	None	None	Mandatory	None	None	None	Yes
European Union	None	None	None	None	None	None	Yes
France	None	None	None	None	Under Discussion	Mandatory	Yes
Germany	None	None	None	None	Under Discussion	Under Discussion	Yes
India	Mandatory	None	Mandatory	None	None	None	Yes
Indonesia	None	Under Discussion	None	None	Mandatory	None	Yes
Italy	None	None	None	None	None	None	Yes
Japan	Voluntary	None	None	None	None	Under Discussion	Yes
Mexico	None	None	None	None	None	None	Yes
Russia	None	None	None	None	None	None	Yes
Saudi Arabia	None	None	None	None	None	None	Yes
South Africa	None	None	None	None	None	Voluntary	Yes
South Korea	None	None	None	None	None	None	Yes
Turkey	None	None	None	None	None	None	Yes
United Kingdom	None	None	None	None	Under Discussion	Under Discussion	Yes
United States	None	None	None	None	None	None	Yes

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Conclusion

Climate change is no longer a distant threat to financial stability; rather, it has begun to showcase its devastating potential if allowed to develop unchecked. This paper has argued that the existing macroprudential infrastructure implemented through Basel III remains inadequate to safeguard financial institutions as well as the system at large against the risks posed by physical and transition risk. Its utilization of outdated, market-based assumptions and procedures would be ineffective against the crises produced by extreme weather conditions, as well as the related economic aftershocks, which studies have widely predicted climate change to produce. If these threats continue to evolve unchecked, the eventual outcomes would almost certainly induce unnecessary suffering as the global financial services sector scrambles to implement changes that should have been instituted long before, involving severe physical risk, transition risk, or both.

This paper offers several recommendations to improve the current principles and instruments within Basel III to better account for climate risk. Specifically, it proposed adding climate-specific benchmarks within minimum regulatory capital requirements, as well as further assessment of physical and transition risks within supervisory evaluations, while explaining important nuances to proposals regarding climate risk disclosures. Furthermore, it demonstrated how tweaks to existing regulatory ratios and capital buffers could empower regulators to monitor both market and climate risks. However, these efforts are futile unless enacted by all, or a majority of BCBS members. The first three iterations of the Basel Accords have been drafted in response to major economic crises of their time, an opportunity that a climate-related crisis may not necessarily afford. Therefore, it is vital that policymakers assume a proactive approach for the benefit of both the global financial system and our planet.

Notes

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