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Bridging the Investment Gap:

The Role of Prudential Regulation in Advancing Long-term, Private-sector Investment in Sustainable Development

Columbia SIPA research on behalf of the UN Dept. of Economic & Social Affairs:
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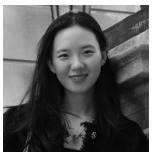

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Executive Summary

The mobilization of private sector capital for sustainable development represents one of the most pressing challenges in addressing climate change and achieving the sustainable development goals. According to the 2024 UN DESA report on Financing for Sustainable Development, the sustainable investment gap now exceeds $4 trillion (USD) annually and continues to widen. This challenge has become particularly urgent as society braces for breaching the 1.5°C global temperature rise threshold. While public sector funding remains critical, the current prudential regulatory framework may inadvertently impede needed sustainable investment flows. This paper examines how prudential regulation can be adapted to facilitate long-term, private investment in sustainable development, while maintaining its core function of protecting the stability of the global financial system (Financing, 2024).

Through exhaustive stakeholder interviews, a thorough literature review and analysis of the Basel framework, particularly Basel III and Basel III Endgame, we identify several critical considerations and recommendations for policymakers:

Reforming Capital Requirements (Basel III, Pillar 1): While prudential regulation can play a role in promoting sustainable investments, any adjustments require careful consideration due to potential unintended consequences. Current proposals for Basel Pillar 1 Risk Weighted Assets (RWAs) adjustments through Green Differentiated Capital Requirements (DCR) need additional empirical evidence to demonstrate that such changes would effectively accelerate risk-neutral capital flow to sustainable sectors. Options for consideration include implementing a "tiered penalty" for brown assets based on carbon footprint, supported by accurate environmental risk identification through robust data quality and carbon footprint mapping. Beyond RWAs adjustments, prudential regulators should consider macroprudential regulations, such as sectoral limits and additional buffer requirements, to promote sustainable investments without compromising the Basel framework's core stabilizing function. This effort should be complemented by the creation of supplementary carbon rating frameworks that operate alongside existing credit risk assessment systems. Policy options highlighted in this paper emphasizing the use of green supporting factors must be evaluated with caution, given the potential for unintended consequences that could compromise financial stability or undermine the credibility and effectiveness of sustainable investment objectives.

Strengthening Supervisory Review Process (Basel III, Pillar 2): Financial institutions stand to benefit from strengthening their Internal Capital Adequacy Assessment Process (ICAAP) to more effectively integrate climate-related risks into their frameworks. Regulators, in turn, should consider introducing additional capital add-ons and implementing targeted reforms to oversight and control functions as part of the supervisory review process. This enhanced framework would include mandatory climate stress testing and transition planning as part of regular risk assessment, alongside specific criteria for evaluating improvement metrics over defined periods.

Enhancing Disclosure Requirements (Basel III, Pillar 3): Regulators must implement standardized sustainability disclosure requirements aligned with emerging global standards, requiring banks to report consistently on environmental impacts alongside traditional risk metrics. This should be supported by strengthened climate and sustainability-related disclosure requirements in line with the Financial Stability Board's roadmap and the implementation of International Sustainability Standards Board (ISSB) standards.

Updating Macroprudential Regulation: Regulators should implement sectoral exposure limits for carbon-intensive industries and develop additional buffer requirements for climate-related systemic risks. This approach must ensure complementarity between micro and macroprudential approaches, while considering mandatory climate risk capital buffers for systemic risk

Advancing Taxonomy Implementation: The development and implementation of standardized sustainable finance taxonomies must be accelerated, with particular focus on building implementation capacity in developing economies through multilateral support. This effort should prioritize enhancing interoperability between different jurisdictions' taxonomies, while strengthening data collection and management information systems.

Based on our literature review, adjustments to Pillar 1 risk-weighted assets through Green Differentiated Capital Requirements require stronger empirical support to confirm that green investments carry lower risk. Any changes must be approached cautiously to safeguard financial stability. Nonetheless, our research highlights the urgent need to address the mispricing of climate risks within the financial system.

The implementation of these recommendations should proceed through a phased approach. Initial efforts should prioritize strengthening disclosure requirements and enhancing supervisory processes, laying the groundwork for more substantial reforms to capital requirements. Achieving success will demand an unprecedented level of coordination among financial regulators, development institutions and market participants. Regulators across jurisdictions must coordinate and act decisively to develop frameworks that support the scale of sustainable investment needed to address climate change, while preserving the core principles of financial stability. The costs of inaction on climate-related financial risks far exceed the challenges posed by regulatory reform. These recommendations offer a roadmap for progress, balancing the urgency of climate action with the necessity of maintaining robust risk management practices.

Introduction

The global community faces an escalating challenge in mobilizing financing for sustainable development and addressing climate change, with progress to date proving inadequate. Recent COP29 discussions have highlighted substantial shortfalls in climate finance commitments, particularly in emerging markets that are disproportionately vulnerable to climate-related risks. With global temperatures already 1.2°C above pre-industrial levels and a breach of the critical 1.5°C threshold likely within this decade, key systems including: food security, infrastructure, supply chains and economic resilience, face heightened instability. Failure to act decisively risks cascading disruptions that could undermine global economic stability and exacerbate inequality.

According to the 2024 UN DESA report on Financing for Sustainable Development, addressing this systemic threat requires more than $4 trillion (USD) in annual investments by 2030, with emerging markets and developing economies requiring approximately US$2.4 trillion annually for climate action alone. The investment gap has widened significantly, growing from US$2.5 trillion annually before 2020 to nearly US$4 trillion today. Emerging markets face particularly acute challenges, with climate-vulnerable nations paying more for debt financing than their peers, which constrains their capacity to invest in critical resilience infrastructure (Financing, 2024).

At COP29, developed nations pledged to triple their annual climate finance commitments to developing countries to $300 billion USD, but this increase still represents a persistent and dangerous shortfall in meeting the actual funding needed to address the climate crisis (UNFCCC, 2024). While public sector funding remains vital, private sector investment must be mobilized at an unprecedented scale to meet this need and the broader global investment gap in sustainable development. Currently, private finance flows to developing countries remain far below the level required to mitigate and adapt to climate change and meet global sustainable development goals. According to the International Monetary Fund, the private sector share of climate finance must more than double from 40 percent to 90 percent of the total in emerging markets and developing economies by 2030, requiring comprehensive policy reforms to address barriers such as foreign exchange and policy risks, underdeveloped capital markets and insufficient investable projects (IMF, 2023).

The current global financial system's prudential regulatory framework, originally adapted to strengthen banking sector resilience after the 2008 financial crisis, may unintentionally hinder the flow of capital toward sustainable investments. These regulations now warrant careful reassessment to align more effectively with sustainability objectives while preserving their critical stabilizing role. For instance, the Basel III Endgame proposals, which "would substantially revise the capital requirements applicable to large banking organizations and to banking organizations with significant trading activity," raise concerns as they could inadvertently constrain sustainable investment flows unless appropriately calibrated to balance resilience with the need for green financing (Randall S. Kroszner, Ph.D., Norman R. Bobins, 2024).

This paper explores how to advance long-term, private-sector investment in sustainable development through prudential regulation reform. We examine the current landscape, analyze specific challenges and opportunities based on extensive stakeholder research and propose evidence-based recommendations to help global regulators bridge the gap in sustainable investments, without compromising financial stability. Our analysis offers practical pathways for regulatory evolution that promotes financial stability, while simultaneously advancing global sustainability.

Research Methodology

This research investigates how global policymakers can advance long-term, private-sector investment in sustainable development with an emphasis on prudential regulation. It explores how to reduce impediments to sustainable investment flows, while maintaining the core stability function of the global financial system. Through systematic analysis of both primary and secondary sources, this research examines the current landscape of prudential regulation, dissects specific challenges and opportunities, and proposes evidence-based recommendations for regulatory evolution.

Research Question: How can global policymakers advance long-term, private-sector investment in sustainable development with an emphasis on prudential regulation?

Primary Research Design

The study involved twelve contributors, including two experts from the United Nations Department of Economic and Social Affairs (UN DESA), and 10 expert stakeholders from across the financial sector ecosystem, including banks, development finance institutions, nonprofit research organizations, private equity and venture capital and academia. Additionally, this research builds upon and incorporates perspectives of a working group convened by UN DESA, comprising 62 independent experts on sustainable investing and prudential regulation. The geographical spread of participants, spanning the United States, European Union, China, India and others, provided crucial insights into regional variations in regulatory approaches and implementation challenges.

To ensure systematic data collection aligned with our core research question, we developed one comprehensive questionnaire (Appendix 1), comprised of 25 questions and sub-questions applied consistently across all interviews — and tailored to four stakeholder groups: (1) private banks, development finance banks and central banks; (2) asset managers and investors; (3) regulators and legal experts; and (4) credit rating agencies. Each interview was confidential and explored three central themes: (1) the current landscape of prudential regulation and sustainable investment, (2) the dimensions of regulatory challenges and opportunities and (3) potential regulatory amendments to further incentivize long-term sustainable investment. These standardized questions were augmented with targeted supplementary inquiries that accounted for participants' specific expertise and regional contexts, enabling deeper exploration of regulatory challenges and opportunities within different market environments.

Each response was coded to consistently elevate prominent themes and insights across each interview and stakeholder group. This report was shaped through this process of synthesizing insights — complemented by a comprehensive review of relevant academic and industry literature.

Secondary Research Design

The study's secondary research methodology was centered on four interconnected areas, systematically cross-referencing policy documents, academic literature and reports from international organizations to identify correlations and address our core research question:

1. **Current State of Prudential Regulation Frameworks**: We conducted comprehensive analysis of Basel III and Basel III Endgame, examining critical components including risk-weighted assets, capital adequacy ratios, Basel III pillars and the risk capture framework. This evaluation established the foundation for understanding how existing regulatory structures influence sustainable investment flows.

2. **Dimensional Analysis of Regulatory Challenges and Opportunities**: By closely examining rules and provisions at the intersection of financial stability and sustainable development, we identified key barriers to green finance as well as opportunities for regulatory evolution. This effort drew on an extensive analysis of research papers and reports from institutions such as the Bank for International Settlements, the International Monetary Fund, the World Bank and leading academic organizations.

3. **Potential Advancements for Prudential Regulation**: We explored potential policy adjustments within the current prudential regulation framework, focusing specifically on mechanisms to reduce barriers to long-term sustainable investment while maintaining financial system stability. This investigation included analysis of capital allocation requirements, risk assessment protocols and other key regulatory components.

4. **Regulatory Implementation in Local Contexts**: We conducted a comprehensive investigation of implementation case studies across different jurisdictions, analyzing 47 sustainable finance frameworks and regulations issued globally between 2012 and 2024. This analysis included an in-depth examination of key initiatives such as the Climate Bonds Initiative, the International Finance Corporation's guidance, Multilateral Development Bank taxonomy frameworks and the EU taxonomy.

Research Limitations

Several important limitations in the investigation are acknowledged. First, recommendations for prudential regulatory reform necessitate extended implementation timeframes and consideration of local context, creating a tension with the pressing urgency of climate action. Second, the current lack of robust empirical data on risk differentials between green and brown investments constrains the ability to fully assess the effectiveness of Green Differentiated Capital Requirements as a policy instrument. Additional research and data collection will be necessary for evaluating how such requirements can effectively drive sustainable investment practices.

Given our focus on regulatory frameworks, this analysis only briefly explores good practices related to blended finance mechanisms and the role of credit rating agencies in benchmarking SDG-related investment risks, leaving these shorter-term solutions largely unaddressed in depth. These topics merit separate investigation as complementary mechanisms for advancing sustainable investment.

I. Context & Current Landscape of Prudential Regulation

Progress toward the Sustainable Development Goals remains critically delayed, with only 17% of targets achieved as of 2024. This stark shortfall underscores the urgent need to accelerate capital investments to meet carbon neutrality and sustainable development objectives by 2050. The current capital requirement framework presents structural limitations, neither providing sufficient incentives for banks to increase green financing nor establishing adequate controls on activities inconsistent with Paris Agreement targets.

The Basel III capital standards set minimum requirements for internationally active banks, aiming to address regulatory shortcomings revealed by the global financial crisis and to build a more resilient banking system. These standards rely on Risk-Weighted Assets (RWA) to determine capital requirements, with the Capital Adequacy Ratio (CAR) measuring a bank's ability to absorb losses and protect depositor funds. Under this framework, banks must maintain Common Equity Tier 1 (CET1) of minimum 4.5% of RWA, Tier 1 Capital of at least 6.0% and Total Capital (Tier 1 plus Tier 2) of minimum 8.0%.

One approach proposed to incentivize banking system lending involves implementing Green Differentiated Capital Requirements (GDCR). Under this framework, banks would be encouraged to lend to green sectors through adjustments to risk weights via 'green supporting factors' (GSF) and/or 'brown penalizing factors' (BPF). Dafermo and Nikolaidi (2021) suggest that GDCR can reduce physical financial risks, though their research indicates the effect is small and most effective when implemented simultaneously with green fiscal policies.

IFC(2023) report on Challenges of Green Finance talks of limited empirical evidence to demonstrate that green assets are necessarily less risky to justify the green supporting factor in RWA. Also, even with substantial green supporting factors, overall credit growth for green projects might remain minimal while this could potentially weaken total capital adequacy. The analysis indicates that alternative measures, such as carbon taxation to disincentivize brown projects, combined with public subsidies and guarantees, may offer a more effective approach.

Oehmke and Opp (2022) find that while capital regulation can address climate-related financial risks, this does not necessarily reduce emissions. They conclude that leveraging capital requirements to reduce carbon emissions may either compromise financial stability or prove operationally unfeasible. One caveat: The lack of Scope 3 GHG emissions reporting limits visibility into total emissions, hindering effective mitigation and accurate risk pricing. Their analysis suggests higher capital requirements for carbon-intensive loans exposed to transition risk may crowd out lending for sustainable initiatives and firms.

The Basel III Endgame represents a significant evolution of this framework, with Risk Weighted Assets for market risk projected to increase by approximately 75% across banks. According to PwC's 2023 analysis, G-SIBs are anticipated to experience a 21% increase in capital requirements, while regional banks may face a 10% increase. These increased requirements pose challenges for sustainable investment, particularly affecting tax equity structures that are vital for financing renewable energy projects.

Kroszner (2024) identifies specific challenges in the U.S. context, where Basel III Endgame could increase by fourfold the capital required for crucial funding sources for solar and wind farms, potentially rendering them prohibitively expensive for banks. This regulatory change imposes a 400% risk weight on equity investment exposures, signaling a preference for project financing via debt instruments rather than equity allocations.

Under Basel's Pillar 2, the Supervisory Review and Evaluation Process (SREP) ensures banks maintain adequate capital for all business risks while developing better risk management techniques. The framework's Pillar 3 requires mandatory disclosure of information on risk, capital structure and risk management practices, ensuring bank accountability to market participants. These mechanisms create additional channels for embedding sustainability considerations into the regulatory framework, supporting broader financial system integration and risk management objectives.

The implementation of sustainable finance taxonomies enhances market transparency and facilitates the redirection of capital flows. Comprehensive classification of economic activities helps determine project eligibility for green investment designation. However, as Hilbrich et al. (2023) identify, major constraints to taxonomy implementation persist, including data availability challenges, lack of institutional expertise and the need for regulatory embedding of taxonomy. Their research emphasizes the importance of tax incentives for taxonomy-aligned investments and improved interoperability with other relevant taxonomies, particularly the EU framework.

The findings highlight that changes to the prudential regulatory framework must be carefully evaluated to mitigate unintended consequences. Success hinges on a clear understanding of implementation challenges and impacts, while preserving the framework's core mandate of financial stability. The evidence suggests that a comprehensive approach combining taxonomy development, appropriate capital requirements, focus on SREP, disclosure requirements and complementary policy measures offers the most promising path forward for advancing sustainable investment, while preserving stability of the global financial system.

II. Dimensions of Regulatory Challenges and Opportunities

The Basel framework, including the Basel III Endgame updates, is central to global financial regulation, shaping capital management, risk assessment and investment strategies. Beyond traditional banking oversight, these standards influence infrastructure development and climate finance across markets. Assessing their impact on global capital flows and potential to hinder sustainable investment is crucial for closing the climate finance gap while maintaining financial stability.

A detailed review of these regulatory structures identifies potential adjustments to mobilize private capital for sustainable development without undermining the stability safeguards established post-2008. As the Basel III Endgame introduces significant changes to capital requirements, this analysis is both timely and critical for understanding its broader implications for sustainable investment flows.

The key pillars of Basel III address minimum capital requirements, supervisory review processes and market discipline. Paragraph 510 (Basel Committee on Banking Supervision the Basel Framework, 2019) requires banks to appropriately monitor the risk of environmental liability. Under Pillar 1, capital requirements can be met by carefully managing transaction-specific environmental risks. Under Pillar 2, the Internal Capital

Adequacy Assessment Process (ICAAP) and Supervisory Review Evaluation Process (SREP) can be used to assess portfolio risk exposures to systemic environmental risks. Under Pillar 3, risk management through the lens of market, credit and operational risk creates space for a harmonized approach to information disclosure in efforts to mitigate environmental risks.

Pillar 1 **Minimum Capital Requirements**	Pillar 2 **Supervisory Review Processes**	Pillar 3 **Market Discipline**
• Liquidity Coverage Ratio (LCR) • Net Stable Funding Ratio (NSFR) • Leverage Ratio Capital • Conservation Buffers • Countercyclical Buffers • Enhanced Loss Absorption Clause • **Capital Requirements**	• Managing Risk Concentration • Alignment of Long-term Incentives • Firm-wide Corporate Governance and Risk Management • Stress Tests and Valuation Practice • Internal Capital Adequacy Assessment Process (ICAAP) • **Supervisory Review Evaluation Process (SREP) — Capital and Governance**	• **Risk Management (Market, Credit, Operational)** • Regulatory Capital Components • Regulatory Capital Ratios • Detailed Capital Reconciliation

Basel III Endgame, proposed by regulators in 2023, represents the culmination of post-financial crisis reforms aimed at strengthening the global banking system's resilience. This comprehensive update focuses on the calculation of Risk Weighted Assets (RWAs), introducing more stringent capital requirements that will fundamentally reshape how banks allocate capital across their portfolios. The proposed changes significantly raise capital requirements across various risk categories, potentially affecting banks' lending capacity and investment strategies. Key areas highlighted in the analysis represent the most viable opportunities for aligning regulatory updates with the goal of fostering long-term private-sector investment in sustainable development.

Central to Basel III Endgame is a recalibration of how banks calculate and maintain their capital reserves. These changes aim to create a more standardized approach to risk assessment while increasing the overall robustness of bank capital positions. Initial regulatory estimates suggest an approximate 20% increase (Federal Reserve, 2024) in RWAs across banks under the proposal's supervision, a change that could significantly impact lending patterns and capital allocation decisions.

Before assessing the implications of the Basel III Endgame, it is essential to first understand the core elements of the existing Basel III framework. The accompanying table (Delphix, 2022) highlights its key components, offering critical context for how the Endgame proposals aim to enhance and adjust these existing standards.

Key Requirements Under Basel III Framework		
Minimum Capital Requirements	Common Equity (as a % of Risk Weighted Assets)	4.5%
	Buffer Requirement	2.5%
Countercyclical Measures	Tier 1 Capital Requirement	0-2.5%
Leverage Ratio	Non-risk-based Leverage Ratio*	>3%
Liquidity Requirements	Liquidity Coverage Ratio (LCR)**	100%
	Net Stable Funding Ratio (NSFR)	100%

*Non-risk-based leverage ratio = Tier 1 capital / Average total consolidated assets
**Liquidity Coverage Ratio (LCR) requires banks to hold sufficient highly liquid assets that can withstand a 30-day stressed funding scenario as per the regulators' stress test.

The Basel Committee on Banking Supervision (BCBS) has established four risk-based categories to determine capital and liquidity requirements, forming the foundation of global regulatory standards. This framework is pivotal for analyzing how Basel III and the proposed Basel III Endgame reforms will influence banking institutions worldwide, particularly in their capacity to finance sustainable development initiatives.

Category I institutions, or Global Systemically Important Banks (G-SIBs), are identified annually by the Basel Committee and the Financial Stability Board based on factors such as size, interconnectedness and global activity. Prominent examples include JPMorgan Chase, HSBC and BNP Paribas. Given their systemic importance, G-SIBs are subject to the highest capital requirements and enhanced supervision to mitigate risks to global financial stability.

Categories II through IV establish clear thresholds for capital and liquidity requirements based on total consolidated assets and cross-border activity for internationally active banks across all Basel member jurisdictions. This tiered framework ensures proportional application of prudential standards based on an institution's systemic importance and complexity at the global level. For instance, while a major European bank like HSBC would fall into Category I as a G-SIB, large regional banks with significant international operations but below G-SIB designation thresholds would be classified in lower categories based on their total assets and cross-jurisdictional activity (Financial Stability Board, 2024).

Risk-Based Categories for Capital and Liquidity Requirements	
Category I	U.S. Global Systemically Important Banks (G-SIBs)
Category II	≥ $700bn in total consolidated assets; or ≥ $75bn in cross jurisdictional activity; do not meet the criteria for Category I
Category III	≥ $250bn in total consolidated assets; or ≥ $75bn in weighted short-term wholesale funding, nonbank assets, or off-balance sheet exposure; do not meet the criteria for Category I or II
Category IV	≥ $100bn in total consolidated assets; do not meet the criteria for Category I, II or III

Source: Federal Deposit Insurance Corporation

Global Systemically Important Banks (G-SIBs) are subject to differentiated capital buffer requirements based on their categorization, primarily determined by total assets. In addition to adhering to the Basel III

framework, G-SIBs must comply with Total Loss-Absorbing Capacity (TLAC) standards. As emphasized by the Financial Stability Board (2024), these institutions are subject to enhanced crisis prevention measures, including rigorous resolvability assessments and elevated supervisory expectations for risk management, governance and internal controls.

The revision of capital requirements across these categories is guided by a comprehensive risk register analysis, ensuring alignment with G-SIB regulatory standards. This encompasses credit risk, market risk, operational risk and credit valuation adjustment risk. The Federal Reserve (2023) defines these precisely: credit risk emerges from obligor non-performance; market risk stems from trading position value fluctuations; operational risk results from inadequate or failed internal processes, people, systems, or external events; and credit valuation adjustment risk specifically addresses potential losses on derivative contracts. Institutions with total assets exceeding $100 billion (USD) are required to incorporate unrealized gains and losses from specific securities into their capital ratios, comply with supplementary leverage ratio standards and uphold countercyclical capital buffers when activated, consistent with G-SIB regulatory expectations.

PwC's analysis of banking sector resilience indicates Risk Weighted Assets (RWA) for market risk will increase by approximately 75% across all institutions. Credit risk calculation modifications introduce additional complexity, necessitating exposure repositioning. The new Standardized Approach (SA) for operational risk projects RWA increases of $1.4 trillion (USD) for Category I and II Banks, while Category III and IV Banks face increases of $550 billion (USD). G-SIBs specifically confront a 21% increase in capital requirements, with regional banks facing a 10% increase (PwC, 2023).

The Basel III Endgame framework highlights a fundamental tension between financial resilience and sector efficiency. Elevated capital requirements increase funding costs, which are ultimately passed on to businesses, households and consumers — resulting in higher lending costs and restricted credit access.

Under Basel III Endgame, increased risk-weighted assets (RWA), projected to rise by 20% across supervised institutions, directly reduce lending capacity. Without capital increases or portfolio adjustments, elevated risk weights will lower regulatory capital ratios. The updated capital calculation methodology incorporates unrealized gains and losses from specific portfolio components. As of March 2024, these provisions apply to 33 banks with total assets between $100 billion and $700 billion, significantly expanding the scope of enhanced prudential oversight under G-SIB regulatory standards.

It is important to note that Basel III Endgame is still in the public review phase. Below is a summary from Deloitte of Basel III Endgame across all four categories defined above against Basel III regulations:

Capital Regulations		Category I	Category II	Category III	Category IV
Risk-based Requirements	Market risk	Currently applicable with changes to methodology	Currently applicable with changes to methodology	Currently applicable with changes to methodology	Currently applicable with changes to methodology
	Operational risk	Currently applicable with changes to methodology	Currently applicable with changes to methodology	Newly applicable	Newly applicable
	Credit risk	Currently applicable with changes to methodology	Currently applicable with changes to methodology	Currently applicable with changes to methodology	Currently applicable with changes to methodology

	Credit Valuation Adjustment (CVA) risk	Currently applicable with changes to methodology	Currently applicable with changes to methodology	Newly applicable	Newly applicable
	Regulatory capital	Currently applicable with no changes	Currently applicable with no changes	Currently applicable with changes to methodology	Currently applicable with changes to methodology
	G-SIB surcharge	Currently applicable with changes to methodology	N/A		
	Countercyclical Capital Buffer	Currently applicable with no changes	Currently applicable with no changes	Currently applicable with no changes	Newly applicable
Leverage Capital	Supplementary Leverage Ratio (SLR)	Currently applicable with no changes	Currently applicable with no changes	Currently applicable with no changes	Newly applicable

Source: Deloitte's US Basel III Endgame Report: Key Changes, Impacts and Where to Begin. 2023

Additional prudential regulation on U.S. Global Systemically Important Banks (G-SIBs) are subject to the following:

Regulatory Requirement	G-SIB Treatment	Non-GSIB Treatment
G-SIB Surcharge	Additional Capital Surcharge of 1.0-4.0 percentage points	N/A
Stress Testing (frequency)	Annual	Every other year (for selected Non-GSIB)
Leverage Requirements	5% "enhanced" SLR	3% SLR
Liquidity Requirements	100% LCR and NSFR	0-85% LCR and NSFR
TLAC and LTD Requirements	100% TLAC and LTD	N/A
Resolution Planning	2-year planning cycle	3-year planning cycle

Source: Financial Services Forum (FSF) study presented to the Fed and FSF delegates in May 2024

This underscores the practice of "window dressing," where banks adjust their balance sheets at financial period-ends to manage risk while remaining regulatory compliant. This behavior has significant micro- and macroprudential implications.

Potential Unintended Consequences

The Basel III Endgame highlights a key challenge for sustainable investment, exposing the complex interplay between prudential regulation and green infrastructure financing. Its approach to risk-weighted assets (RWAs) risks unintended consequences that could hinder sustainable development.

Reduced Cross-Border Lending and Capital Allocation Challenges: The proposed regulatory framework introduces significant distortions in financing green and brown assets. Green supporting factors risk overvaluing green assets by presuming systematic mispricing of climate risks, while brown penalizing factors may generate market inefficiencies, freezing capital and obstructing companies' green transition efforts. By raising borrowing costs and capital requirements, these measures could unintentionally undermine the sustainability objectives they are designed to promote.

"Tax Equity" Instruments and Renewable Energy Financing: In the United States, clean energy projects depend on advanced financial mechanisms, including Investment Tax Credits (ITCs) under the Inflation Reduction Act, which offer credits of up to 30% of project costs, alongside accelerated depreciation and interest deductions. However, the Basel III Endgame's proposed 400% risk weight on equity investment exposures risks disrupting this finely tuned financing framework, potentially making renewable energy projects economically unviable.

International Competitive Implications: The regulatory approach creates a significant competitive disadvantage for U.S. financial institutions. By imposing substantially higher capital requirements compared to international competitors, the regulations would increase operational costs for U.S. banks. This misalignment of risk pricing could potentially:

- Reduce the global competitiveness of U.S. financial institutions
- Shift sustainable investment opportunities to more favorably regulated markets
- Create arbitrage opportunities for international banks that could be used to gain a competitive advantage by exploiting regulatory differences

Regulatory Complexity and Risk Assessment: Prudential regulation must account for local contexts and institutional nuances, avoiding uniform standards in favor of dynamic risk pricing across diverse financial environments. The key challenge is crafting a framework that accurately assesses risk variations, ensures transparency and prevents disproportionate capital allocation, especially in opaque non-bank financial sectors.

Balancing Financial Stability and Sustainable Development: The Basel III Endgame highlights the need for regulators to balance financial resilience with fostering sustainable investment. Overly restrictive capital requirements could hinder renewable energy and green development, emphasizing the importance of a nuanced approach that fairly assesses sustainable investment risks without obstructing the green transition.

Effective regulation must balance accurate risk pricing with support for green infrastructure investment, acknowledging the complex relationship between financial oversight and sustainable economic transformation.

III. Exploration of Potential Advancements for Global Prudential Regulation

1. Further Standardizing Sustainability within Global Investment Context

Advancing sustainable development through prudential regulation requires clear frameworks and rigorous standards for defining sustainable investments. This section explores key elements for effective global standards while emphasizing the need for regional adaptation in implementation.

Establishment of Global Taxonomy Standards

The development and implementation of consistent, standardized taxonomies for sustainable investment constitutes a fundamental prerequisite for advancing sustainable development through prudential regulation. The current fragmentation in classification systems across jurisdictions creates significant inefficiencies and elevates the risk of greenwashing in global sustainable finance markets.

While the European Union has made significant strides in taxonomy development, emerging markets are at varying stages. India's experience underscores both the importance and challenges of creating taxonomies. Despite ongoing efforts since 2021 by its Sustainable Finance Task Force, India's taxonomy remains in the consultation phase, reflecting the difficulty of balancing robust standards with feasible implementation timelines.

Recommended Action for Policymakers: Accelerating globally aligned taxonomies with clear, science-based definitions of green and transition activities is essential. Harmonization taxonomies across jurisdictions will reduce market fragmentation, enhance competitiveness and promote cross-border sustainable investment flows.

Implementation of Standardized Sustainability-related Disclosure Requirements

Evidence highlights the effectiveness of mandatory disclosure frameworks in advancing sustainability standards. India's Business Responsibility and Sustainability Reporting (BRSR) framework and the European Union's Corporate Sustainability Reporting Directive (CSRD) demonstrate how mandated reporting for large companies can drive corporate responsibility. However, challenges remain, particularly in addressing the role of smaller enterprises (SMEs) in supply chain emissions.

Global sustainability-related disclosure standards address the systemic risk posed by asymmetric information, ensuring investors have access to consistent and comparable data on the social, environmental and economic impacts of their investments. The current financial system's inefficiency stems from the lack of such data, preventing the internalization of externalities and comprehensive investment decision-making. Expanding the adoption of these standards is crucial for minimizing global investment risks.

The leading sustainability-related standards today, which are gaining traction across G20 nations, include the International Sustainability Standards Board (ISSB), which has a more traditional focus on materiality as it relates to business and the Global Reporting Initiative (GRI), which focuses more on impact (or double) materiality of investments. These often underpin stock exchange listing requirements, national and regional regulation, as well as sustainability taxonomies.

Recommended Action for Policymakers: Mandating comprehensive sustainability disclosure requirements under Basel III Pillar 3, aligned with emerging global standards like ISSB and GRI. This will promote transparency, mitigate greenwashing and enable more informed capital allocation decisions.

Classification of Green Activities

Establishing scientifically grounded standards for green activities is critical to preserving market integrity and investor confidence. India's sovereign green bond framework, aligned with the International Capital Market Association (ICMA) principles, illustrates the viability of creating universally accepted green classifications while accommodating regional adaptations.

The classification system must also effectively address transition activities, particularly in sectors undergoing significant transformation. As highlighted by market participants, "Challenges arise in classifying transition activities like nuclear energy or natural gas. Governments must take clear positions on such issues and align classifications with global standards." Establishing industry benchmarks and measurable improvement metrics over estimated five-year periods is crucial for maintaining classification integrity while addressing the complexities inherent in economic transitions.

These standardized classifications are designed to enhance efficient capital allocation across asset classes while preserving market credibility and investor confidence. The framework offers significant advantages for emerging markets by providing clear, standardized classifications that unlock new sources of capital while safeguarding environmental integrity. Successful implementations highlight that sectors with established revenue models are particularly well-suited for catalytic capital deployment, seamlessly integrating traditional investment strategies with sustainable development objectives. This approach establishes a scalable foundation for sustainable finance, ensuring the market robustness required to sustain investor confidence.

Recommended Action for Policymakers: Macroprudential incentives for sustainable infrastructure investments, tailored to the distinct risk profiles of sectors such as renewable energy, green buildings and sustainable transportation, is essential for unlocking catalytic financing for high-priority sustainable development initiatives.

Role of Regulatory Bodies

Financial regulatory authorities must reconcile their core mandate of maintaining financial stability with the imperative to address climate-related financial risks. As comprehensive empirical data on sustainable investments evolves through expanded reporting frameworks, regulators must act proactively, rather than delaying action in pursuit of complete information. Employing the Precautionary Principle, a cornerstone of international policymaking, regulators should implement forward-looking policies that internalize negative externalities and incentivize long-term sustainable investments, ensuring alignment with broader economic and environmental objectives.

This approach acknowledges that, while current data may be incomplete, the stability of global economic, social and environmental systems necessitates informed investment decisions now. As sustainability data becomes more consistent and comparable through voluntary and mandatory reporting initiatives, regulatory frameworks can adapt to more effectively capture and price these risks, thereby reinforcing financial stability while advancing sustainable development objectives.

2. Enhancing Risk Assessment & Management

The Basel III capital standards set minimum requirements for internationally active banks, addressing critical weaknesses in the pre-crisis regulatory framework. These standards utilize risk-weighted assets (RWAs) to establish capital requirements, with the Capital Adequacy Ratio (CAR) measuring a bank's ability to absorb losses and protect depositor funds. Higher risk weights are applied to assets deemed riskier, while lower-risk assets receive reduced weights. A robust and credible calculation of RWAs is essential to maintaining the integrity of the risk-weighted capital framework and supporting financial stability globally.

The CAR is evaluated as…
Minimum CAR = Eligible Total Capital / Risk-Weighted Assets (Exposure)
= (Tier 1 Capital + Tier 2 Capital) / RWA

Where…

- Tier 1 Capital= Core Capital and consists of Common Equity Tier 1 and Additional Tier 1
- Tier 2 Capital= Supplementary Capital (including subordinated debt, undisclosed reserves, revaluation reserves)
- Common Equity Tier 1 (CET1) of minimum of 4.5% of the RWA.
- Tier 1 Capital must be at least 6.0% of RWA.
- Total Capital (Tier 1 Capital plus Tier 2 Capital) must be at least 8.0% of RWA

And…
RWA = Pillar 1 Risks (Credit Risk +Market Risk + Operational Risk) + Pillar 2 Adjustment

The RWA calculation encompasses Pillar 1 risks, including Credit Risk, Market Risk and Operational Risk, plus any Supervisory Adjustments under Pillar 2. At minimum, banks and financial institutions (BFIs) evaluate these risk types under the Basel III framework.

PIllar 1 Risk Exposures

Under Basel III Pillar 1, BFIs can use a Standardized Approach (SA) or Internal Ratings-Based (IRB) approach to assess credit risk. Under the SA, banks apply predetermined risk weights, such as:

- Exposures to sovereigns and their central banks: 0% to 150%, unrated at 100%
- Exposures to non-central government public sector entities (PSEs): 20 % to 150%, unrated at 100%
- Exposures to multilateral development banks (MDBs): 20 % to 150%, unrated at 100%
- Exposures to banks: 20% to 150%
- Exposures to covered bonds: 10% to 100%
- Corporate Exposures: 20% to 150%, unrated at 100%

BFIs utilize Standardized Approach or Internal Model Approaches (IMA) under Pillar 1 to assess market risk from factors such as interest rates, equities and foreign exchange. Operational risk is measured through the standardized approach, ensuring alignment with Basel III pillar 1 risk management framework.

Restoy (2021) highlights challenges in adapting the Pillar 1 framework to address climate-related risks, as physical risks extend beyond the 12-month horizon used for capital adequacy assessments. Capital requirements, calibrated using an implicit value-at-risk methodology, ensure adequate loss absorption capacity. However, reducing RWAs for green assets could lead to insufficient coverage of unexpected losses and may incentivize the overvaluation of such assets. Additionally, increasing RWAs for brown assets can lead to unintended consequences, including unwarranted capital freezing and reduced lending to carbon intensive firms working to reduce their carbon footprint.

Beyond the minimum Pillar 1 requirements, Basel III includes Capital Buffers that require banks to hold extra capital as a safeguard against systemic risks. The Supervisory Review and Evaluation Process (SREP) under Pillar 2 then tailors capital to each bank's specific risk profile, while Pillar 3 mandates disclosures on banks' risk, capital and risk management practices.

Pillar 2 Supervisory Review & Evaluation Process

The Supervisory Review and Evaluation Process (SREP) under Basel III Pillar 2 plays a crucial role in ensuring the appropriateness of a bank's capital position. This process enables regulators to tailor additional capital requirements to each bank's specific business model and risk profile. The SREP encompasses several key components, including a comprehensive review of the bank's risk assessment practices, an evaluation of capital adequacy to cover all material risks, an assessment of the bank's governance structure and risk management framework, and stress testing to assess resilience to adverse economic conditions.

Under Basel III Pillar 2, the Supervisory Review and Evaluation Process (SREP) enables regulators to impose tailored capital add-ons based on stress testing and scenario analysis, addressing risks not fully captured under standardized Pillar 1 requirements, including emerging sustainability-related risks. Through SREP, regulators can require banks to integrate sustainability risks into their Internal Capital Adequacy Assessment Process (ICAAP). This process ensures that additional capital requirements are proportionate to a bank's specific business model and risk profile, while assessing the adequacy of its risk management, capital and control framework.

Under Basel III Pillar 2, banks and financial institutions (BFIs) are exposed to sustainability-related risks through two primary drivers: physical risks, such as extreme weather events, and transition risks, including policy shifts, technological advancements — and evolving consumer and investor behavior. These risks manifest through traditional risk categories such as credit, market, operational and liquidity risks. BFIs should integrate sustainability-related risks into their risk appetite frameworks and credit management processes, ensuring a comprehensive approach to risk identification and mitigation. This involves assessing sustainability risks at exposure/borrower level when they take financing decisions and incorporating sustainability risks in their Internal Capital Adequacy Assessment Process. The ultimate aims should be to align their portfolio with the Paris Agreement for the net-zero alignment. Consequently, regulators should implement supplementary actions (through SREP including any capital add-ons) and Pillar 3 (disclosure requirements).

Under SREP of Pillar 2, prudential regulators can impose capital add-ons based on scenario analysis and stress testing, which can be more effective than risk weight adjustments under Pillar 1. For example, the Reserve Bank of India has introduced a discussion paper requiring banks to consider these risks while preparing their ICAAP document under Pillar 2. Supervisors can then use the ICAAP to require a combination of management actions, plans for governance, controls and oversight reforms, or additional loss-absorption requirements.

Pillar 2 adjustments will however likely result in heterogeneous results to managing sustainability risks. The methodology and approaches used for Pillar 2 risk assessment are largely at the discretion of each institution and not scrutinized as the methodology for regulatory minimum capital requirements under Pillar 1. This inconsistency in risk assessment across BFIs undermines comparability and increases the potential for greenwashing. Addressing data gaps and developing robust methodologies is essential to ensure that Pillar 2 assessments are both effective and credible, aligning with Basel's emphasis on sound risk management and transparency.

Pillar 2 adjustments offer regulators the flexibility to encourage BFIs to strengthen governance and control frameworks for managing sustainability risks and directing capital toward sustainable investments. Rather than pursuing Pillar 1 Risk-Weighted Assets (RWA) adjustments, the focus remains on addressing data and informational gaps by developing taxonomies for risk evaluation across sectors and asset classes. Enhanced Pillar 2 measures provide a more nuanced approach to integrating sustainability considerations into the regulatory framework while allowing time for regulators and institutions to develop the necessary expertise and data infrastructure.

Pillar 3 Market Discipline

Enhanced disclosure requirements for BFIs provide a mechanism to improve transparency on non-sustainable investments and support the integration of sustainability considerations, aligning with Basel's emphasis on robust reporting standards. Significant progress has been made in climate-related disclosures, with the FSB's 2021 Roadmap providing a structured approach to addressing climate-related financial risks. The FSB's 2023 progress report highlights ongoing advancements, and the ISSB standards establish a global framework for sustainability disclosures, enhancing consistency and comparability across jurisdictions. In 2021, the Basel Committee published two analytical reports on sustainability: Climate-related risk drivers and their transmission channels, and Climate-related financial risks measurement methodologies. In 2022, the Committee issued the Principles for the effective management and supervision of climate-related financial risks, followed in 2023 by the consultative document on Disclosure of climate-related financial risks, which detailed both qualitative and quantitative disclosure requirements. Several jurisdictions have already implemented requirements, guidance, or supervisory expectations regarding climate-related disclosures. BIS continues to investigate the extent to which climate related financial risks can be addressed within the existing Basel Framework, identifying potential gaps in the current framework and considering possible measures to address them. These advancements in disclosure frameworks will enable prudential regulators to refine and enhance Pillar 3 disclosure requirements for BFIs, aligning them with emerging sustainability considerations.

Recommendations for Evolving the Basel Framework

Our analysis of sustainable investment definitions and taxonomies indicates that the Basel framework requires

targeted amendments to enhance the standardization and assessment of sustainable investments, ensuring alignment with its core mandate of maintaining financial stability.

For capital adequacy assessments under Pillar 1, we recommend that policymakers should be cautious on adjustment of RWAs given the unintended consequences of both green supporting factors and brown penalizing factors. Any RWA changes should be based on careful analysis of evidence justifying the changes. We however recommend the possibility of introduction of supplementary carbon rating frameworks operating alongside existing credit risk assessment methodologies. Rather than altering established risk-weighting mechanisms, this parallel framework would allow for an independent evaluation of carbon exposures, preserving the analytical clarity and consistency of traditional credit risk assessments. This approach is consistent with Basel III's proven methodology for managing discrete risk categories while addressing the growing challenge of climate-related financial risks.

Within Basel III's Pillar 2, Supervisory Review process, policymakers must leverage on enhanced ICAAP and SREP. We propose incorporating explicit assessment protocols for transition activities. These protocols should define specific criteria for assessing improvement metrics over standardized periods, typically five years, allowing supervisors to distinguish between substantive transition efforts and superficial adjustments. This approach aligns with Basel's focus on robust risk management practices while addressing the unique complexities associated with financing transition activities.

Under Basel III's Pillar 3 Market Discipline framework, we recommend implementing standardized sustainability disclosure requirements that align with emerging global standards like ISSB and GRI. This enhancement would complement Basel's existing consolidated and enhanced disclosure framework by addressing the critical issue of asymmetric information in sustainable finance markets. The proposed framework would mandate consistent reporting by banks on environmental impacts alongside traditional risk metrics, enabling investors to comprehensively assess both financial performance and sustainability considerations.

These modifications recognize that, while comprehensive empirical data on sustainable investments remains under development, the Precautionary Principle justifies measured incorporation of sustainability considerations into prudential frameworks. Consistent with Basel's established phase-in approach, implementation should account for jurisdictional differences in regulatory capacity, as exemplified by the varying stages of taxonomy development in markets such as the European Union and India.

Through targeted enhancements across the Basel framework's three pillars, regulators can effectively incorporate climate-related financial risks while preserving the framework's core focus on financial stability. This balanced approach allows prudential regulation to evolve in support of sustainable development objectives, ensuring alignment with the robust risk management principles that form the foundation of the Basel framework.

Recommended Action for Policymakers: Policymakers should be cautious on adjustments of RWA under Pillar 1 given the unintended consequences of both green supporting factors and brown penalizing factors. Any RWA changes should be based on careful analysis of evidence justifying the changes. Under Pillar 2 and the Supervisory Review and Evaluation Process (SREP), regulators may impose tailored capital add-ons informed by climate stress testing and scenario analysis. This approach requires banks to integrate sustainability-related risks into their Internal Capital Adequacy Assessment Process (ICAAP), ensuring alignment with their specific risk profiles and enhancing overall risk management practices. Policymakers must leverage on enhanced ICAAP and SREP under pillar 2 together with higher disclosure under Pillar 3 to promote sustainable investments.

3. Evolving Structured Finance Underwriting Methodology

The evolution of structured finance underwriting methodologies marks a pivotal intersection between prudential regulation and sustainable investment. As frameworks adapt to include sustainability considerations, structured finance must align traditional risk assessment with sustainable development goals, focusing on three critical elements:

1. Integrating Multilateral Development Bank Frameworks
2. Innovations in Sustainable Finance Instruments
3. Adaptation of Risk Assessment Methodologies

Leveraging MDB Tools to Mobilize Private Capital

Industry experts stress the importance of de-risking investments to mitigate market and liquidity risks. Governments have a pivotal role in designing cohesive, long-term financing strategies that align incentives to attract private capital. Structured finance deals, supported by de-risking mechanisms such as credit enhancements and guarantees from Multilateral Development Banks (MDBs), offer a viable pathway.

The challenge lies in balancing MDBs' reliance on low-cost market funding with their due diligence processes and development mandates, while addressing the market and liquidity risks that deter private lenders. By leveraging their Preferred Creditor Status (PCS), MDBs act as catalysts for mobilizing private capital, although this status subordinates the debt claims of other creditors, including commercial lenders.

Key Consideration for Policymakers: Collaborate with MDBs to design structured finance frameworks that align their funding requirements with their development mandates and private lenders' risk management needs. This includes developing innovative risk-sharing mechanisms, harmonizing regulatory treatments and increasing the fungibility of MDB-backed instruments to facilitate integration within private capital markets, consistent with their Preferred Creditor Status (PCS).

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Balancing Funding, Regulation & Risk Management

Holding long-term loans to maturity on the balance sheet increases market and liquidity risks, which can lead to asset value deterioration, capital erosion, weakened capital adequacy ratios and potential threats to MDBs' solvency. To address these risks, MDBs employ balance sheet risk management strategies and leverage their Preferred Creditor Status (PCS). While PCS functions as a credit enhancement mechanism that mitigates potential losses for MDBs, it effectively subordinates the debt claims of other creditors, including commercial lenders.

Under Basel regulations, private lenders holding subordinated debt in structured finance transactions are required to allocate additional capital to account for the elevated credit risk. To meet their fiduciary duty, commercial lenders require higher yields to compensate for the risks associated with their investments, leading to wider credit spreads that could price sovereign debt borrowers out of capital markets. The lack of risk-adjusted returns diminishes private lenders' willingness to invest in long-duration sovereign instruments, including structured finance deals for sustainable investments. To balance long-term debt funding with their fiduciary and regulatory obligations under Basel I, II and III, private lenders would prefer lower RWAs and PCS to reduce funding costs. However, regulatory changes that facilitate lower RWAs and PCS are susceptible to mispricing risks, such as: currency volatility, interest rate changes, liquidity issues and market conditions, which could have spillover effects and unintended consequences for the broader financial system.

Private lenders prioritize lower RWAs and leverage PCS to minimize funding costs. However, during regulatory adjustments facilitating these preferences, risk may end up being mispriced, potentially triggering spillover effects and unintended consequences.

Key Consideration for Policymakers: As Basel III updates progress, policymakers would want to carefully evaluate the treatment of structured finance instruments and the application of credit risk mitigation tools, such as MDB guarantees. Regulatory frameworks should strive to balance incentivizing private sector participation with upholding robust risk management standards, ensuring alignment with financial stability objectives.

Adjusting RWAs: Balancing Incentives for Green and Brown Assets

While regulatory adjustments to lower RWAs for sustainable investments are under consideration, an equally critical issue is the potential for increased RWAs on brown assets. A "brown penalty" approach, viewed skeptically by financial institutions, could lead to higher capital requirements, reducing the availability and raising the cost of capital for carbon-intensive investments. This highlights the need for a balanced approach that mitigates transition risks without imposing undue strain on financial intermediation.

Empirical studies indicate that sustainable financial instruments can exhibit lower risk profiles under specific market conditions . However, these risk-mitigation benefits are not universally consistent across sectors. Industry insights suggest that the observed risk reductions are often attributable to the robust sustainability and risk management practices of the funded firms, rather than inherent characteristics of the assets

themselves (The Securities and Exchange Commission, 2024). This underscores the importance of firm-level governance in realizing the potential benefits of sustainable investments.

Key Consideration for Policymakers: As part of the ongoing Basel III framework updates, policymakers should assess the calibration of RWA adjustments to better support green investments while appropriately managing brown assets. Such changes must be underpinned by robust empirical data and analytical rigor to mitigate the risk of unintended consequences, including the mispricing of credit, liquidity, or market risks. Achieving a balanced approach that incentivizes sustainable investments while preserving financial stability will be essential to the framework's effectiveness.

Adjusting RWAs: Should "Brown Penalty" Considered?

While regulatory adjustments to lower RWAs for sustainable investments are under consideration, another critical issue is the potential for increased RWAs on brown assets. Financial institutions view such 'brown penalties' as challenging, as higher capital requirements would raise the cost and limit the availability of capital for these investments (Thomä & Gibhardt, 2019). Insurers, however, with their long-term investment horizons, face significant transition risks from climate change, including asset devaluation and stranded assets in non-decarbonizing sectors. In response, the European Insurance and Occupational Pensions Authority (EIOPA) has recommended that the European Commission impose additional capital requirements on fossil fuel assets held by insurers, proposing up to a 17% increase for fossil fuel-related equities and a capital charge of up to 40% for bonds (EIOPA, 2024).

Recommended Action for Policymakers: If policymakers consider a "brown penalty" approach, it should be nuanced to prevent crowding out financial intermediation. The magnitude of EIOPA's proposed increased RWAs on fossil fuel-related equities and bonds aligned with climate objectives require careful evaluation of their effects on capital availability and financial stability. Alternatively, fostering robust firm-level governance and sustainability practices is crucial for maximizing the risk-mitigation benefits of sustainable investments and increasing sustainable funding flows.

Aligning Valuation Practices for Greater Private Investment

Multilateral Development Banks (MDBs) prioritize stability and long-term development objectives by valuing their loan portfolios at amortized cost, ensuring consistent valuations until maturity or impairment. This approach reduces balance sheet volatility and supports predictable capital adequacy ratios, aligning with their development mandates. In contrast, private banks adopt mark-to-market valuation practices to meet regulatory compliance, improve risk management and ensure transparency through real-time portfolio valuations (World Bank, 2023). To foster greater private sector capital allocation toward sustainable development, MDBs could explore adopting mark-to-market reporting for their loan portfolios. Such alignment with market practices would enhance liquidity, facilitate securitization and improve risk assessment, thereby encouraging increased private investment in sustainable projects.

The effective evolution of structured finance methodologies hinges on striking a delicate balance between integrating MDB frameworks, fostering innovative sustainable finance instruments and adapting risk assessment practices. Successfully navigating this intersection of prudential regulation and sustainable investment is essential for mobilizing the private capital required to drive the transition to a sustainable future.

Recommended Action for MDBs: To catalyze greater private investment in sustainable development, Multilateral Development Banks (MDBs) could explore aligning their loan portfolio valuation practices with market-based, mark-to-market methodologies. This approach has the potential to enhance the fungibility of MDB-backed instruments, improve risk transparency and facilitate the mobilization of private capital toward sustainable projects more effectively.

IV. Adoption of Global Regulation within a Local Context

The global landscape of sustainable finance regulation stands at a critical juncture in addressing the systemic challenges of climate change and sustainable development. As of early 2024, the sustainable investment gap has expanded to exceed $4 trillion annually, underscoring the urgent need for coordinated, sophisticated regulatory approaches that can mobilize private capital effectively (UN DESA Report on Financing for Sustainable Development, 2024). The implementation of sustainable finance taxonomies emerges as a crucial mechanism for standardizing, directing and accelerating investment flows toward critical sustainable development objectives.

Global Standardization of Sustainability Frameworks & Taxonomies

The implementation of sustainable finance taxonomies has become essential for standardizing and accelerating investment flows toward sustainable development. By early 2024, 47 taxonomies or eligible activity lists have been issued globally, including 31 national taxonomies across 20 countries (SBFN Toolkit, 2024). This expansion underscores the growing commitment to sustainable finance while highlighting the challenges of achieving consistency and effectiveness in regulatory frameworks.

The current fragmentation in classification systems across jurisdictions creates substantial inefficiencies and elevates the risk of greenwashing in global sustainable finance markets (Financial Stability Board, 2021). Despite these challenges, the development of consistent, standardized taxonomies remains fundamental to advancing sustainable development through prudential regulation.

The development and implementation of standardized taxonomies for sustainable investment constitutes a necessary prerequisite for advancing sustainable development through prudential regulation. While regions, such as the European Union, have made significant strides in implementing taxonomy frameworks, many emerging market economies are navigating varying stages of development. Key obstacles to progress include data availability constraints, limited institutional expertise and the need for regulatory integration of taxonomies (Hilbrich et al., 2023). These disparities provide critical insights into achieving standardization that balances global alignment with respect for local market conditions and development priorities.

The Common Ground Taxonomy (CGT), developed by the European Union and China under the International Platform on Sustainable Finance (IPSF), represents a sophisticated approach to cross-border sustainable investment assessment. The framework systematically examines 55 activities aligned with 87 EU Taxonomy elements and 94 Chinese Taxonomy components, creating a robust comparison framework centered on climate mitigation objectives. This methodology facilitates detailed evaluation across six distinct scenarios, enabling a nuanced understanding of alignment and differences between the two taxonomies.

1. Complete Alignment: Taxonomies share identical criteria
2. EU Stringency: EU framework imposes more stringent requirements
3. Chinese Stringency: Chinese framework has more rigorous criteria
4. Partial Overlap: Frameworks share core principles with distinct approaches
5. Unclear Alignment: Areas requiring further standardization
6. Fundamental Divergence: Reflecting distinct regulatory priorities

This structured approach enables market participants to navigate cross-border sustainable investments while respecting distinct regulatory frameworks, particularly benefiting emerging markets where clear, standardized classifications can help unlock new sources of capital, while ensuring environmental integrity (International Finance Corporation, 2023).

Comparison of EU & China Taxonomies

The framework objectives of the EU focus on six environmental objectives, emphasizing climate change mitigation and adaptation, whereas China concentrates on three key environmental goals with a broader emphasis on pollution control (SBFN Toolkit, 2024).These differing approaches reflect fundamental variations in environmental objectives and sectoral coverage, carrying significant implications for aligning market frameworks while preserving the flexibility required for local conditions. The comparative analysis below illustrates how these frameworks operationalize their unique approaches while remaining consistent with global sustainable finance objectives.

Comparison of Environmental Taxonomies: EU & China	
EU Taxonomy Environmental Objectives	**China Taxonomy Environmental Objectives**
Climate change mitigation	Climate change response
Climate change adaptation	
The sustainable use and protection of water and marine resources	Environmental improvement (pollution control and ecological conservation)
The protection and restoration of biodiversity and ecosystems	
The transition to a circular economy	More efficient resource utilization (circular economy, waste recycling and pollution prevention)
Pollution prevention and control	

Source: EU-China Common Ground Taxonomy is detailed in the China Green bond Endorsed Projects Catalogue (2021)

The European Union employs Technical Screening Criteria (TSC) to ensure that taxonomy-aligned activities provide a "substantial contribution" to climate change mitigation or adaptation (European Union, 2024). These activities must comply with the TSC, meet Do No Significant Harm (DNSH) requirements and adhere to minimum social safeguards. In contrast, China's taxonomy framework is built around a detailed "whitelist" of eligible projects, defined by national and industry-specific standards (China Central Depository & Clearing Co., 2024). Only projects explicitly listed and meeting their prescribed descriptions and standards qualify as eligible under the framework.

Sector Coverage & Economic Activity Categories	
European Union	**China**
Forestry	Ecology and environment-related sector
Environmental protection and restoration activities	Energy saving and environmental protection industry
Water supply, sewerage, waste management and remediation	
Manufacturing	Clean production industry
Energy	Clean energy industry
Transport	Sustainable upgrade of infrastructure
Construction and real estate activities	
Information and communication	Green Services
Professional, scientific and technical activities	

Source: European Union: Climate Change Mitigation, EU Taxonomy

The EU taxonomy's broader sectoral focus supports comprehensive economic transitions, while China's taxonomy prioritizes industrial upgrades and technology-driven solutions (Climate Bonds Initiative, 2024). This complementarity highlights how diverse standardization approaches can coexist, with distinct sector coverage strategies working together to advance sustainable investment objectives.

The implementation timelines and priorities of these frameworks reflect their distinct market contexts and development objectives. The European Union has adopted an iterative approach, beginning with climate change mitigation and adaptation before expanding to broader environmental objectives. China's framework prioritizes immediate pollution control and resource efficiency challenges alongside climate objectives, reflecting its industrial development priorities and environmental context. The differences are evident in disclosure requirements, with China mandating alignment with its Green Bond Endorsed Projects Catalogue for onshore issuance, while the EU incorporates taxonomy disclosure within corporate sustainability reporting via the European Green Bond Standard (EuGB). This phased approach enables market participants to build necessary capabilities while advancing comprehensive sustainability goals.

Recommended Action for Policymakers: Expediting the implementation of globally aligned taxonomies with science-based definitions of green and transition activities. Harmonization will reduce market fragmentation, boost competitiveness and facilitate cross-border sustainable investment flows.

Enhanced Risk Assessment Implementation

The implementation of enhanced risk assessment frameworks shows how prudential regulation can adapt to support sustainable investment while preserving financial stability. The European Union's Infrastructure Supporting Factor (ISF) provides key insights into adjusting risk-weighted asset calculations to account for the specific attributes of sustainable infrastructure investments without undermining core risk management principles..

The Infrastructure Supporting Factor (ISF) implementation in the European Union exemplifies our recommendations for enhancing risk assessment and management. Introduced under CRR Article 501a in June 2020, this provision allows banks to apply a 25% reduction in Risk-Weighted Assets (RWA) for infrastructure loans meeting specific criteria (EBA, 2022). The application of differentiated capital requirements illustrates how regulatory frameworks can adapt to more accurately align capital allocations with the risk profiles of sustainable investments.

The European Banking Authority's 2022 evaluation showed significant adoption of the Infrastructure Supporting Factor (ISF), with 90 of 2,389 top-tier EEA banks implementing it, resulting in a €21.8 billion total RWA adjustment, 94% of which was concentrated in large banks. This implementation contributed to a 0.06 percentage point increase in the CET1 ratio, weighted by total risk exposure, highlighting how targeted risk assessment frameworks can balance financial stability with sustainability objectives.

The qualitative survey results showed that two-thirds of responding banks applied ISF, finding most standards acceptable and verifiable. However, criteria related to ESG evaluations, cash flow predictability and refinancing risks scored lower due to unclear definitions and guidance (EBA, 2022). This experience underscores the importance of enhancing risk assessment methodologies and reinforces the need for clear and consistent implementation guidance to ensure effective alignment with financial stability and sustainability objectives.

Key Consideration for Policymakers: Supporting evolving underwriting methodology to align with the EU's Infrastructure Supporting Factor (ISF), which reduces RWAs for qualifying sustainable infrastructure loans, aligning capital requirements with specific risk profiles; based on standardization of cash flow predictability of sustainable investments and refinancing risks to ensure effective implementation, balancing financial stability with sustainability objectives.

Case Study: EU Infrastructure Support Factor Implementation

The Infrastructure Support Factor (ISF) introduced in June 2020 under CRR Article 501a provides a concrete example of how risk assessment frameworks can evolve to support sustainable development. This provision allows banks to apply a 25% reduction in Risk-Weighted Assets for infrastructure loans meeting specific sustainability criteria, effectively lowering capital requirements for eligible projects.

The European Banking Authority's 2022 evaluation highlighted significant adoption and measurable impact, reflecting the growing integration of sustainability considerations within the regulatory framework. By December 2021, 90 of 2,389 top-tier EEA banks had implemented the ISF, resulting in total RWA adjustments of €21.8 billion. This implementation contributed to a 0.06 percentage point increase in CET1 ratios, demonstrating how targeted regulatory adjustments can support sustainable investment while maintaining financial stability.

The qualitative assessment revealed that while two-thirds of banks successfully applied the ISF, challenges arose around ESG evaluations, cash flow predictability and refinancing risks due to unclear definitions. This underscores the critical need for clear guidance and standardized criteria in implementing new regulatory frameworks.

Evolution of Structured Finance & Disclosure Requirements

The development of structured finance frameworks and disclosure requirements marks a vital step in sustainable finance regulation. Leading markets, such as China with its green bond framework, demonstrate how mandatory disclosure requirements can enhance transparency, drive market growth and uphold integrity in sustainable financial products.

China's approach to green bond regulation demonstrates successful implementation of our recommendations for evolving structured finance underwriting methodology. The regulatory framework has developed into a well-structured system supported by stringent disclosure requirements that have driven efficient market development (CCDC, 2024). The mandatory disclosure framework spans initial issuance, ongoing monitoring and final reporting — creating transparency that enables effective risk assessment.

China's green bond issuance experienced remarkable growth, increasing from USD 27.7 billion in 2016 to USD 131 billion in 2023, achieving an average annual growth rate of 24.58% (CBI, 2024). This expansion has positioned the country as a global leader in the green bond market, highlighting the robust disclosure frameworks in driving market development. According to the Climate Bonds Initiative and China Central Depository & Clearing Co., the quality of these financial instruments has also seen significant improvement. In 2023, 63.6% of transactions met the criteria for inclusion in the Climate Bonds Green Bond Database, reflecting compliance with Climate Bonds Initiative standards, an increase from 57.3% in 2022. The data underscore the role of stringent standards and transparency in fostering both market growth and quality enhancement in sustainable finance.

Environmental impact metrics further validate this approach, with every RMB 100 million of green bonds supporting a reduction of 4,462 metric tons of carbon dioxide equivalent (CCDC, 2024). From 2016 to 2023, funds raised through China's green bonds are expected to support the reduction of 378 million tons of carbon dioxide equivalent (CCDC, 2024). These measurable outcomes highlight the effectiveness of

structured finance frameworks in efficiently allocating capital toward sustainable development initiatives

Recommended Action for Policymakers: Mandating comprehensive sustainability disclosures under Basel III Pillar 3, aligned with global standards such as ISSB and GRI, will enhance transparency, reduce greenwashing and support more informed capital allocation.

Different jurisdictions have adopted varied approaches to mandatory disclosure implementation. The European Union requires large financial and non-financial companies to report taxonomy alignment starting with qualitative information and moving to full KPI reporting. Bangladesh mandates disclosure by financial institutions, while China requires detailed reporting for green bond issuance (SBFN Toolkit, 2024). These diverse strategies offer valuable lessons for markets developing their own disclosure frameworks.

The successful implementation of these frameworks demonstrates the importance of gradual, well-planned approaches to regulatory evolution. Countries like Mongolia, Kazakhstan and Georgia have made taxonomy alignment mandatory for specific financial products, while others like Colombia and Mexico maintain voluntary frameworks while developing their markets (International Finance Corporation, 2023). This range of approaches demonstrates how markets can effectively promote sustainable finance while adapting to local conditions and institutional capabilities.

Global Implementation Status of Sustainable Finance Taxonomies and Disclosure Requirements (2024)

Region/Country	Taxonomy	Date	Enforcement and Disclosure
EU	EU Taxonomy for Sustainable Activities	June-2020	• Mandatory - Large financial and non-financial companies under the scope of the NFRD (after its revision, CSRD) must report revenue, CapExand OpEx aligned with the Taxonomy starting with qualitative information in 2022 and moving to full KPI reporting 2023. • Financial market participants (banks, asset managers, insurance) will have to disclose to what extent the activities that their financial products fund meet the EU Taxonomy criteria (Green Asset Ratio, Green Investment Ratio), starting in 2024
ASEAN	ASEAN Taxonomy for Sustainable Finance -V3	Mar-2024	• Depends on individual implementation/regulation by each ASEAN Member State
Bangladesh	Sustainable Finance Policy for Banks and Financial Institutions	Dec-2023	• Mandatory disclosure required by financial institutions
Brazil	The Brazilian Federation of Banks (FEBRABAN) Green Taxonomy	Jan-2021	• Banks and other FIs are encouraged, but not required, to use the taxonomy to improve sustainability assessment and reporting • Two of the Taxonomy's three pillars have a prudential focus for banks to monitor their exposure to Climate Change and Environmental Risks
China	Green Bond Endorsed Projects Catalogue	Jan-2021	• Mandatory for China onshore green bonds issuance • FIs: initial disclosure upon issuance and thereafter quarterly and annual reporting on use of proceeds (to PBOC), and annual report by independent certification institution on Use of Proceeds (UoP) and environmental performance • Corporates: annual green bond assessment and certification report by an independent assessment and certification body focused on UoP and environmental benefits
Colombia	Green Taxonomy of Colombia	Mar-2022	• Voluntary – no specific instruction for any public or private entity • In 2021, SFC published the External Circular 031 which requires the use of the Green Taxonomy as a reference for green portfolios. • SFC Resolution 586 of 2023 establishes that taxonomy aligned issuances are exempt from payment of offering rights

Georgia	Sustainable Finance Taxonomy for Georgia	Jun-2022	• Mandatory for Banks • A Taxonomy Screening and Reporting Tool is being developed to support the implementation of the taxonomy by banks and later capital markets participants
Indonesia	Indonesia Sustainable Finance Taxonomy	Feb-2024	• Voluntary – taxonomy is part of Indonesia's Sustainable Finance Framework and will provide a basis to develop guidelines for disclosure, risk management and financial products
Kazakhstan	Classification (taxonomy) of green projects eligible for financing through green bonds & green loans	Dec-2021	• Mandatory for the issuance of green bonds and loans
Mexico	Sustainable Taxonomy of Mexico	Mar-2023	• Voluntary - Mexican financial authorities are working on possible ESG regulation on (1) disclosure of information related to the Taxonomy and (2) definition of ESG financial instruments
Mongolia	Mongolian Green Taxonomy	Dec-2019	• Required for Green Bond issuers and FIs reporting • Banks & non-bank financial institutions are required by Bank of Mongolia & Financial Regulatory Commission to report green loans in line with the Taxonomy
South Africa	South African Green Finance Taxonomy	Apr-2022	• Voluntary
Sri Lanka	Sri Lanka Green Finance Taxonomy	May-2022	• Voluntary • The taxonomy shall be applicable to all domestic and foreign market participants, large corporations and government bodies, issuing green financial products
Thailand	Thailand Taxonomy Phase I	Jun-2023	• Voluntary
India	Business Responsibility and Sustainability Report	May-2021	• Mandatory for the top 1,000 listed companies by market capitalization • Voluntary for other listed and unlisted companies, encouraging broader ESG adoption

Source: Summarized based on the SBFN Toolkit: Sustainable Finance Taxonomies, 2024

Case Study: China's Product-Based Disclosure Framework

China's green bond regulation showcases how comprehensive disclosure requirements can foster market growth while ensuring integrity. The framework has evolved into a standardized system with rigorous standards for issuance, monitoring and impact assessment.

By 2023, the cumulative impact reached 378 million tons of carbon dioxide equivalent reduction, demonstrating how robust disclosure frameworks can effectively channel capital toward sustainable outcomes while maintaining market integrity.

This implementation highlights how mandatory disclosure requirements can simultaneously drive market growth and uphold integrity. The framework's ability to expand issuance volume while enhancing quality metrics offers critical insights for other jurisdictions establishing disclosure standards.

Implementation Insights & Future Directions

The experiences of leading markets in implementing standardized taxonomies, enhanced risk assessment frameworks and evolved structured finance methodologies validate our recommended approach to advancing sustainable investment. These implementations underscore that successful regulatory evolution hinges on striking a balance between standardization and local market conditions, providing clear risk assessment guidance and establishing robust disclosure frameworks to foster market growth and integrity.

China's green bond market demonstrates how mandatory environmental impact disclosures can mitigate pricing risks and strengthen market credibility. This, alongside the EU's Infrastructure Supporting Factor and the adoption of standardized taxonomies, offers a valuable roadmap for jurisdictions aiming to promote sustainable investment while preserving market integrity.

The expansion of sustainable finance frameworks across jurisdictions underscores the need for compatibility alongside local market flexibility. Successful implementations validate these approaches in mobilizing private capital for sustainable development while safeguarding financial market stability and integrity.

V. Recommendations for Advancing Prudential Regulation

The transformation of global financial systems to support sustainable development represents both an urgent necessity and a complex strategic challenge. Our research highlights that effective regulatory reform must balance promoting sustainable investment with ensuring financial stability. The proposed recommendations offer a comprehensive roadmap for prudential regulation, addressing climate-related financial risks while preserving financial system resilience. As the global financial system faces unprecedented climate and economic challenges, policymakers must adopt decisive, well-calibrated measures to redirect capital flows, mitigate systemic risks and accelerate the transition to a sustainable economic model. Key recommendations include:

Pillar 1: Risk-weighted Asset Adjustments

The answers to our survey questionnaire and literature suggest that using prudential risk adjustments to promote green investments or penalize brown assets is not the preferred policy approach for several reasons. First, empirical evidence supporting the notion that green assets are inherently less risky remains limited. Standard credit assessment methodologies prioritize project cash flows, underlying risks, collateral quality, borrower credibility and comprehensive due diligence. Second, the material impact of differentiated capital requirements on shifting capital from brown to green investments must be carefully evaluated, considering the broader implications for financial stability and capital allocation.

In addition, there are multiple possible unintended consequences of implementing GDCR. Capital requirements ensure that banks have sufficient loss-absorption capacity and risk weights should be calibrated with implicit value at risk methodology. Any deviation from this can result in reduced capital adequacy ratios and so can affect *financial stability.*Moreover, such an approach would also encourage the *overvaluation of green assets*. On the other hand, higher capital requirements for brown investments can lead to *unwarranted capital freezing* which could otherwise have been utilized. Higher capital requirements for brown investments can also *reduce lending to carbon intensive firms* trying to reduce their carbon footprint and so will hamper the same cause that the policy intends to promote. Furthermore, GDCR can also lead to '*greenwashing*' as companies attempt to falsely show lower carbon footprints of their investments. This is particularly true in jurisdictions with poor data availability and infrastructure to monitor investments. Hence, the prerequisite of effective implementation of differentiated capital requirements are strong institutions and mature capital markets particularly to strengthen the empirical evidence on the aforementioned.

Pillar 2: Supervisory Review and Evaluation Process

We find that financial regulators and supervisors have other policy arsenals beyond differentiated capital requirements to address environmental issues and direct investments towards green sustainable projects. These tools are guided by Pillar 2 of Basel framework and aim to link a financial institution's risk profile, its risk management/mitigation systems and its capital planning. Financial Institutions are required to strengthen their ICAAP for measuring climate related risk and incorporate these in evaluation of other risks.

Regulators should guide financial institutions in progressively integrating climate-related financial risks and stress tests into ICAAP, addressing analytical gaps as methodologies and data improve. Using macroprudential tools, such as sectoral thresholds and climate transition plan requirements, alongside a strengthened SREP, can effectively support the greening of the financial system and direct capital toward sustainable investments.

Pillar 3: Market Discipline

Pillar 3 offers a critical platform for advancing sustainable investments by enhancing disclosure requirements. Mandating financial institutions to publish data on their carbon footprint, exposure to risks and strategies for mitigating those risks empowers market participants to make informed decisions. The European Banking Authority's binding standards on Pillar 3 disclosures for ESG risks exemplify how jurisdictions are strengthening disclosure frameworks to align with sustainability objectives.

Implementation of Green Finance Taxonomy

As more than 60 countries advance green finance taxonomies, successful implementation requires robust frameworks to ensure accurate, high-quality data, supported by capacity building and strong institutions to drive the greening of the financial system. Additionally, reducing cross-border transaction costs is critical to enabling the efficient flow of green investments.

Global Standardization for Sustainability

Standardizing sustainability definitions and risk assessment protocols is critical for effective prudential reform. Our analysis underscores that the implementation of consistent, standardized taxonomies for sustainable investment is a foundational step toward advancing sustainable development through prudential regulation. Although taxonomy development is complex, as demonstrated by the EUs progress and India's ongoing effort, it is essential for mitigating market fragmentation and minimizing the risks of greenwashing.

Sustainable Infrastructure Differentiation

As industry experts interviewed for this report noted, "Infrastructure under Basel is treated as a corporate loan. They're not the same and shouldn't be treated the same." Infrastructure projects, given their long-term nature and critical role in advancing sustainable development, require tailored capital due diligence assessments. Sectors with clear revenue models, such as renewable energy, transportation and green buildings, are particularly suited for differentiated treatment within the Basel III Endgame framework. To meet these objectives, sustainable infrastructure capital due diligence must incorporate the distinct risk profiles of construction and operational phases, moving beyond generalized sustainability classifications. This approach

ensures more precise risk-weighting and enhances the efficient allocation of capital toward meeting the SDGs.

Mobilizing Private Capital Through MDB Tools & Basel III Risk Optimization

The Global Emerging Markets (GEMs) Risk Database Consortium, established in 2009, aggregates vetted credit risk data from MDBs and DFIs, offering critical insights into default and recovery rates across emerging markets and developing economies (EMDEs). The 2024 GEMs Analysis highlighted strong market demand for expanded statistics on collateral, guarantees, credit ratings and local currency lending. By leveraging the use of GEMs database, member institutions enhance the accuracy of risk assessments, enabling more precise risk-weighting of assets and optimizing capital allocation in compliance with Basel III RWA requirements.

First-Loss Mechanism: De-Risking Private Capital Investments – The IFC case study

The International Finance Corporation (IFC) leverages a 10% first-loss mechanism in its Managed Co-Lending Portfolio Program (MCPP) to attract private investment for infrastructure projects in EMDEs. By absorbing initial losses, the IFC improves the credit profile of these investments, mitigating risk exposure for private investors and incentivizing participation in high-risk markets. This approach is particularly valuable in addressing Basel III's elevated capital requirements, which impose additional buffers for credit and market risks (IFC, 2024)

Aligning Credit Enhancements with Basel III Standards

Basel III establishes strict criteria for recognizing credit risk mitigation techniques, such as guarantees, in the calculation of risk-weighted assets (RWAs). To qualify as eligible risk mitigants, guarantees must meet operational requirements, including enforceability under all circumstances and timely payment upon default (Basel III Guidelines, BIS). This presents challenges for MDBs and DFIs, which must ensure their guarantees comply with these standards to effectively reduce RWAs for financial institutions. While tools like the GEMs database and IFC's first-loss mechanisms play a crucial role in de-risking investments in EMDEs, their success in optimizing RWAs hinges on alignment with Basel III criteria. This alignment is essential for mobilizing private capital into sustainable development projects in these markets.

Mitigating Green & Brown Asset Risks Through Mandatory GHG Emissions Disclosure

Experts, including traders, rating agency executives and development bank leaders, emphasized that enhanced transparency has boosted investor confidence in the EU, where compliance with SFDR and CSRD has improved access to green financing and lowered borrowing costs. Similarly, in the United States, the SEC's new climate-related disclosure regulations aim to standardize reporting, enhance transparency and attract private capital to sustainable investments (SEC, 2024). Mandatory greenhouse gas (GHG) emissions disclosure improves market transparency, mitigates environmental and financial risks and channels private capital toward sustainable projects. By standardizing and verifying emissions data, these measures enable accurate price discovery, ensuring climate risks and opportunities are appropriately reflected in asset valuations. This approach reduces the mispricing of green and brown assets, mitigates the risk of stranded assets and strengthens market stability by preventing abrupt financial adjustments.

Beyond RWAs: Understanding price risks in the context of EMDEs and SMEs

The implementation of Basel III poses challenges for SMEs in EMDEs, particularly in accessing finance, as stricter capital requirements may drive banks toward unsecured, short-term lending or higher collateral demands (Fisera, Horvath and Melecky, 2019). Addressing these issues requires leveraging well-capitalized banking systems, credit enhancements and infrastructure funding strategies aligned with Basel III to support sustainable development goals. Under Pillar I, accurate risk pricing and funding alignment are crucial to addressing the unique needs of EMDEs and SMEs. This approach will facilitate capital mobilization while advancing sustainable development objectives in these vital sectors.

MDBs' Capital & Liquidity Strategy for Private Investment

Optimizing MDB capital offers promising opportunities to maximize development impact while safeguarding the stability of impact capital markets. Key initiatives under consideration include the World Bank Group's governance roadmap (World Bank, 2023), which emphasizes reassessing MDB risk limits, leveraging callable capital, utilizing financial innovations, enhancing engagement with credit rating agencies and improving credit performance transparency. These measures aim to unlock private capital effectively while minimizing unintended market disruptions.

The proposed recommendations provide a comprehensive roadmap for evolving prudential regulation, recognizing the critical imperative of addressing climate-related financial risks, while preserving resilience of the global financial system.

Conclusion

The transformation of the financial system to support sustainable development represents both an urgent necessity and a complex challenge. Our research demonstrates that successful reform requires careful balance between encouraging sustainable investment and maintaining financial stability. The proposed recommendations offer a pathway for evolution that recognizes both the urgency of climate action and the importance of maintaining robust risk management practices.

Success will require unprecedented coordination between financial regulators, development institutions and market participants. However, the costs of delayed action in addressing climate-related financial risks far outweigh the challenges of regulatory reform. As the financial system grapples with emerging climate risks and opportunities, prudential regulation must evolve to support the transition to a sustainable economy, while maintaining its fundamental role in ensuring financial stability.

The path forward demands both boldness and prudence. While maintaining core principles of financial stability, regulators must move decisively to create frameworks that support the scale of sustainable investment required for addressing climate change. The recommendations and action items outlined above provide a roadmap for this evolution, recognizing that the journey toward a sustainable financial system requires careful sequencing, clear metrics and unwavering commitment to both stability and sustainability.

Appendix

Appendix 1: Interview Facilitation Guide for UN DESA & Columbia University Research

Interview Questions	Banks, Development Finance Banks, Central Banks	Asset Managers, Investors	Rating Agencies	Experts, Regulators, Legal Experts
Section 1: Context and Current Landscape of Prudential Regulation				
Does the current regulatory framework adequately incentivize investment in long term sustainable investments?	Applicable	Applicable	Applicable	Applicable
What are the materially important risks to address in prudential regulation including capital requirements when considering investment in sustainable development?	Applicable	Applicable	Applicable	Applicable
To what extent do current prudential regulations deter investment in sustainable development, if at all? What are the gaps?	Applicable	Applicable	Applicable	Applicable
Would you support lower capital requirements for sustainable investments? If so, what would they be?	Applicable	Applicable		
To maintain financial sustainability, how are regulators balancing incentives for sustainable investments with penalties for unsustainable ones?	Applicable	Applicable	Applicable	Applicable
Section 2: Dimensions of Regulatory Challenges and Opportunities				
How valid is the claim that sustainable development investments carry higher long-term risks?		Applicable	Applicable	
What are the regulatory challenges in implementing lower risk-adjusted weights to sustainable investments that foster the scaling up of private capital?				Applicable
To avoid redundant compliance costs, how do investors manage/offset additional reporting requirements posed by regulators?	Applicable	Applicable		
How do regulators avoid redundant compliance costs (incurred by sustainable investment reporting) to investors?			Applicable	Applicable
How can the current regulatory capital frameworks address "capability" gaps (stemming from difficulties in estimating climate risk due to a lack of granular data) and "regime" gaps (challenges in capturing climate risk due to limitations in capital regime methodologies)?		Applicable	Applicable	
Against the Internal Capital Adequacy Assessment Process (ICAAP), what is the materiality threshold of assessing sustainable investment?		Applicable	Applicable	
Section 3: Exploration of Amendments to Existing Regulation				

Guiding Question: In your view, which of the following prudential regulations would be best suited to further incentivize sustainable investments? - Policies that shape direct financial incentives / requirements (e.g., lower capital requirements, new debt/equity requirements, internalizing externalities of brown finance, PPPs) - Policies related to improved risk assessment and mitigation (e.g., differentiated risk-weight adjustments for sustainability projects) - Policies related to improved and/or mandatory data collection and sharing for sustainable finance (e.g., sustainability-related disclosures, MDB framework recognition) - Development of regulatory criteria for sustainable asset classes, including but not limited to infrastructure (e.g., metrics defining sustainable investment)	Applicable	Applicable	Applicable	Applicable
Capital Requirements: Would you support lower capital requirements for long-term sustainable investments? If so, what would they be?	Applicable	Applicable	Applicable	Applicable
Capital Requirements: To maintain financial stability, should regulators implement differentiated capital requirements for long-term sustainable investments vs. ones deemed unsustainable? If you'd recommend a combination, what would it be?	Applicable	Applicable	Applicable	Applicable
New Debt/Equity Requirement — Y/N: Is implementing a regulatory mandate requiring at least 1% of all new debt or equity issued to be underwritten, with clear impact measurement criteria, an opportunity or challenge in bridging the financing gap to achieve the SDGs — without increasing systemic risk?	Applicable	Applicable	Applicable	Applicable
Risk Assessment & Mitigation: - Do you support differentiated risk weight adjustments (RWAs) for sustainable investment? If so, what are the regulatory challenges/opportunities to implement lower RWAs for sustainable investments? - How should regulation help adjust risk weights to reduce disincentives and further promote sustainable investments? Specifically, what aspect of existing regulation should be updated? - What other mechanisms should regulators use to further define and differentiate risk related to sustainable investment?	Applicable	Applicable	Applicable	Applicable
Data Collection & Sharing: - To improve financial prudence, how should regulators build, update or expand upon existing policy that aims to provide investors with complete, consistent and comparable information regarding sustainability? (e.g., sustainability-related disclosure regulation) - Which sustainable investing framework (i.e., those developed by MDBs) should be adopted to further encourage and standardize investments in developing countries — and how should they be amended, if at all?	Applicable	Applicable	Applicable	Applicable
Sustainable Asset Classes - How should regulation shape the global definition of sustainable asset classes? (e.g., EU taxonomy criteria) - Specifically, which metrics should be outlined by and required within this definition? (e.g., GHG emissions, human rights across the value chain) - What categories of sustainable investment are most crucial when establishing this asset class definition (e.g., sustainable infrastructure)?	Applicable	Applicable	Applicable	Applicable

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