ISDA® Safe, Efficient Markets

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Climate Risk Scenario Analysis for the Trading Book Phase 4: NGFS Short-term Scenarios

CONTENTS

1. EXECUTIVE SUMMARY

Climate scenario analysis has become a useful tool for banks and financial institutions to understand the short- and long-term financial risks associated with climate change, particularly in light of evolving regulations and an increased emphasis on reducing the impact of climate-related shocks.

ISDA has developed this paper to support banks as they seek to address the challenges of climate scenario analysis for the trading book. The paper includes a review, from a trading book perspective, of the short-term scenarios recently published by the Network of Central Banks and Supervisors for Greening the Financial System (NGFS), and it provides a set of market risk shocks consistent with two of those NGFS scenarios.

The NGFS published the first iteration of its short-term scenarios in May 2025, providing a valuable addition to existing climate scenarios, which are mainly longer-term. The short-term scenarios enable banks to consider how climate risks might impact their businesses over a three- to five-year horizon, rather than a 30-year horizon. All scenarios involve a range of assumptions and this paper includes a review of the scenarios to help users understand any gaps, limitations or uncertainties associated with the scenarios.

In order to make these scenarios more useful from a trading book perspective, the paper proposes a corresponding set of market risk shocks. These shocks are designed to translate the multi-year NGFS scenarios into market risk shocks for the trading book, while maintaining alignment with previously published ISDA market risk frameworks and shocks.

The paper builds on the work ISDA has been doing in recent years, in close collaboration with more than 30 banks and supported by Deloitte. In 2023, ISDA published a conceptual framework for climate scenario analysis in the trading book[1]. Insights from a comprehensive survey of more than 25 banks informed the successful piloting of three short-term climate scenarios – a physical risk scenario, a transition risk scenario and a combination of both – which were published in a second paper in 2024[2]. Last year, ISDA published a third paper that expanded the initiative to include four new regions and additional market risk factor shocks (for the transition scenario), coupled with an updated survey to evaluate banks' operational readiness[3].

Section 2 of the paper covers the independent review of the NGFS short-term scenarios, while section 3 explores the process of market risk factor shocks. Section 4 presents an analysis of the results; section 5 provides insights from a short survey; and section 6 provides conclusions. Section 7 sets out detailed methodologies on the models used to derive the market risk factor shocks.

[1] A Conceptual Framework for Climate Scenario Analysis in the Trading Book, ISDA, July 12, 2023, www.isda.org/2023/07/12/a-conceptual-framework-for-climate-scenario-analysis-in-the-trading-book/

[2] Climate Scenario Analysis in the Trading Book – Phase II, ISDA, February 12, 2024, www.isda.org/2024/02/12/climate-scenario-analysis-in-the-trading-book-phase-ii/

[3] Climate Risk Scenario Analysis for the Trading Book: Phase 3, February 5, 2025, www.isda.org/2025/02/05/climate-risk-scenario-analysis-for-the-trading-book-phase-3/

2. NGFS SHORT-TERM SCENARIOS

2.1 Background

The NGFS short-term scenarios are publicly available and explicitly designed for near-term (three-to-five year) climate risk assessment. The short-term scenarios seek to bridge transition and physical risks with macro-financial dynamics. Given other climate scenarios focus on much longer-term horizons (eg, 30 years), the short-term scenarios fill an important gap and provide a useful resource for supervisors and firms. The NGFS has presented these scenarios as an initial iteration and a work in progress, highlighting that improvements and refinements are ongoing and users should remain mindful of realism, tail risks and the limitations of coverage[4].

Given the need for users to understand the scenarios in the context of their specific use case, this paper describes the scenarios and highlights considerations that are particularly important in the context of using the scenarios in a trading book context[5].

2.2 Model Inputs and Assumptions

2.2.1 Model Observations

The short-term scenarios are based on a multi-model architecture composed of three macroeconomic and climate-integrated models: GEM-E3, CLIMACRED and EIRIN.

GEM-E3 is a computable general equilibrium model that assesses the macroeconomic consequences of policy shocks such as carbon pricing and technology shifts. CLIMACRED is a climate credit risk model that estimates sector-specific default probabilities and the cost of capital based on transition and physical risk shocks. EIRIN is a stock-flow consistent macro-financial model that explicitly incorporates interactions between households, firms, banks and governments in the face of climate policy shocks and physical disruptions.

The range of models allows the scenarios to offer broad coverage in terms of variables. But it should be noted that, although each model brings a different dimension to the scenario framework, the models were not calibrated to function together as a fully consistent ensemble.

The models make several assumptions. Carbon prices are treated as exogenous policy levers and physical climate shocks are simulated as compound regional events representing a 1-in-50-year hazard. Formation of expectations is handled differently across the models. GEM-E3 relies on rational expectation, while EIRIN uses adaptive behaviour and path dependency. In addition, the models do not simulate the financial market microstructure or investor behaviors that would be necessary for trading book application.

2.2.2 Key Assumptions and Input Shocks

2.2.2.1 Long-term Scenarios as Anchors for Short-term Shocks

The short-term scenarios draw their structure and narratives from the long-term NGFS pathways such as Net Zero 2050, Delayed Transition and Current Policies. This ensures consistency in policy logic and energy system transitions. However, anchoring to long-term scenarios could also lead to a risk of underestimation of the likelihood of sudden, severe and non-linear events that could be material for trading book portfolios.

[4] To raise any additional questions about the scenarios, contact the Network of Central Banks and Supervisors for Greening the Financial System (NGFS), www.ngfs.net/en

[5] NGFS Short-term Climate Scenarios for central banks and supervisors, May 7, 2025, www.ngfs.net/en/publications-and-statistics/publications/ngfs-short-term-climate-scenarios-central-banks-and-supervisors

2.2.2.2 Short-term Macroeconomic Projections

The macroeconomic baselines are taken from the International Monetary Fund's World Economic Outlook (October 2023 for GEM-E3 and April 2024 for EIRIN). These provide a credible policy-consistent starting point, covering gross domestic product (GDP), trade, consumption, investment and government spending. As these were published in October 2023 and April 2024, the baseline paths are already somewhat out of date, meaning care is needed when using the scenario pathways that are created from the baselines. Geopolitical risks are not explicitly considered in the baseline. Looking at the scenarios relative to the baseline provides a way of abstracting from the timeliness of the baseline itself.

2.2.2.3 Climate and Energy Policy Assumptions

The policy framework is based on detailed national and sectoral targets, including carbon pricing, renewable energy shares and emissions reduction pathways. Examples include US greenhouse gas reduction targets, EU renewable electricity shares, China's nuclear capacity, Japan's wind targets and India's hydroelectricity and renewable shares. Policies are implemented either as explicit carbon prices or exogenous investment trajectories.

In practice, policy is uncertain and may be delayed, reversed or fragmented across regions. The NGFS assumes policies are binding and known in advance, which removes the possibility of investor surprise – a potentially important channel of trading book risk. When using this for scenario analysis, banks should consider whether the various policy assumptions included in the scenario are appropriate. Banks should also consider whether they view the assumed speed of technological progress as appropriate (see section 2.3).

2.2.2.4 Physical and Climate Impact Assumptions

The Disasters and Policy Stagnation (DAPS) scenario introduces stylized physical shocks such as floods, storms and heatwaves, implemented as exogenous productivity shocks or capital losses. These are designed as plausible but non-tail events and exclude catastrophic or climate tipping-point dynamics.

This underplays the real potential for cascading impacts, such as simultaneous crop failures, energy market disruptions or infrastructure damage. The shocks are applied evenly over time and do not consider the possibility of clustering effects (eg, multiple disasters in a single year). There also seems to be limited consideration of spillover effects and amplifiers such as food price inflation leading to social unrest. As a result, the physical risk impacts are probably more representative of moderate severity outcomes, rather than more severe tail risk scenarios (see section 2.3 for an illustration).

2.2.2.5 Stylized Monetary and Financial Policy Responses

The short-term scenarios include projections for short-term policy rates in major regions, reflecting central bank responses to transition and physical risks. These are based on stylized, rule-based assumptions rather than endogenous, macro-financial interactions. No policy rates are provided at less than 12-month horizons, requiring users to interpolate shorter horizons. Unconventional policies such as quantitative easing, liquidity interventions and surprise rate hikes are not considered.

This conservative design choice underestimates the role of monetary policy surprises, which in practice have driven significant market volatility (eg, 2022-23 rate hiking cycle). For trading book purposes, this omission limits realism as central bank confidence, communication and crisis tools are often decisive in shaping market outcomes (see section 2.3 section for an illustration).

2.3 Key Uncertainties

All scenario analysis is subject to uncertainty. The uncertainty associated with climate scenario analysis is particularly pronounced given the need to explore the impact of transition and physical climate risks that do not have historical precedents. Much of that uncertainty is associated with the key assumptions and input shocks discussed in the previous section.

In this section, a heatmap is provided to highlight how varying some of those key assumptions might affect the likelihood and impact of the NGFS short-term scenarios when viewed from a trading book perspective. By exploring some of these uncertainties, the heatmap is intended to help users assess how best to use the NGFS scenarios and how to tailor them for their own use. For example, if banks want to use different assumptions to the ones used in the NGFS scenarios, the heatmap will help them tailor their scenarios to more accurately reflect the climate risk assumptions they feel are most relevant for their institution.

The heatmap was constructed by identifying a set of key modeling assumptions and comparing the specific NGFS assumption choices with some plausible alternatives. Table 1 identifies where the scenarios may understate, overstate or omit important risk drivers. The table then presents an assessment of how adopting the alternative assumption would affect the probability and impact of the NGFS scenarios. That assessment is based on analysis of alternative climate scenarios or analysis where similar alternative assumptions have been used. The assessment is rated with high (H), medium (M) and low (L) scores for both impact and probability. The modeling assumptions as well as the impact and probability ratings have been informed by ISDA working group views.

Impact reflects the potential severity of trading book shocks if the alternative materializes:

- **High:** Systemic or cross-asset disruption with global spillovers leading to materially larger impacts than in the existing NGFS scenarios.
- **Medium:** Material repricing in key sectors or regions, but not globally systemic, leading to moderately larger impacts than in the existing NGFS scenarios.
- **Low:** Limited impacts, leading to slightly larger impacts than in the existing NGFS scenarios.

Probability reflects the likelihood of the alternative occurring within the NGFS short-term horizon:

- **High:** Events that are plausible and frequently observed in markets or climate risk trends leading to a scenario that is more likely than the NGFS scenarios.
- **Medium:** Events that are possible but not the central case, or that would likely play out unevenly across regions, leading to a scenario that is as likely as the NGFS scenarios.
- **Low:** Events that are unlikely to occur within the five-year horizon, leading to a scenario that is less likely than the NGFS scenarios.

Table 1: Key NGFS Modeling Assumptions vs Alternatives and Associated Change in Scenario Probability and Impact

Modeling Assumptions	NGFS Assumption	Alternative Assumption	Rationale for Placement	Impact Score (H/M/L)	Probability Score (H/M/L)
1.Technological Advancements	Technological advancements occur gradually	Adoption and development could be faster than expected, leading to a sudden re-pricing of assets	Climate related technology has evolved more rapidly in some sectors. This risk is judged as medium probability and high impact given the potential for sudden changes in technology to have impacts on market prices		
2.Geopolitical Events	Not explicitly modeled	Trade tensions, energy security risks and supply chain shocks are frequent across the scenarios and exacerbate the climate risks	These events seem likely in the future so are rated as high probability. Because they would interact with the demand and price of energy, the impacts are judged as medium		

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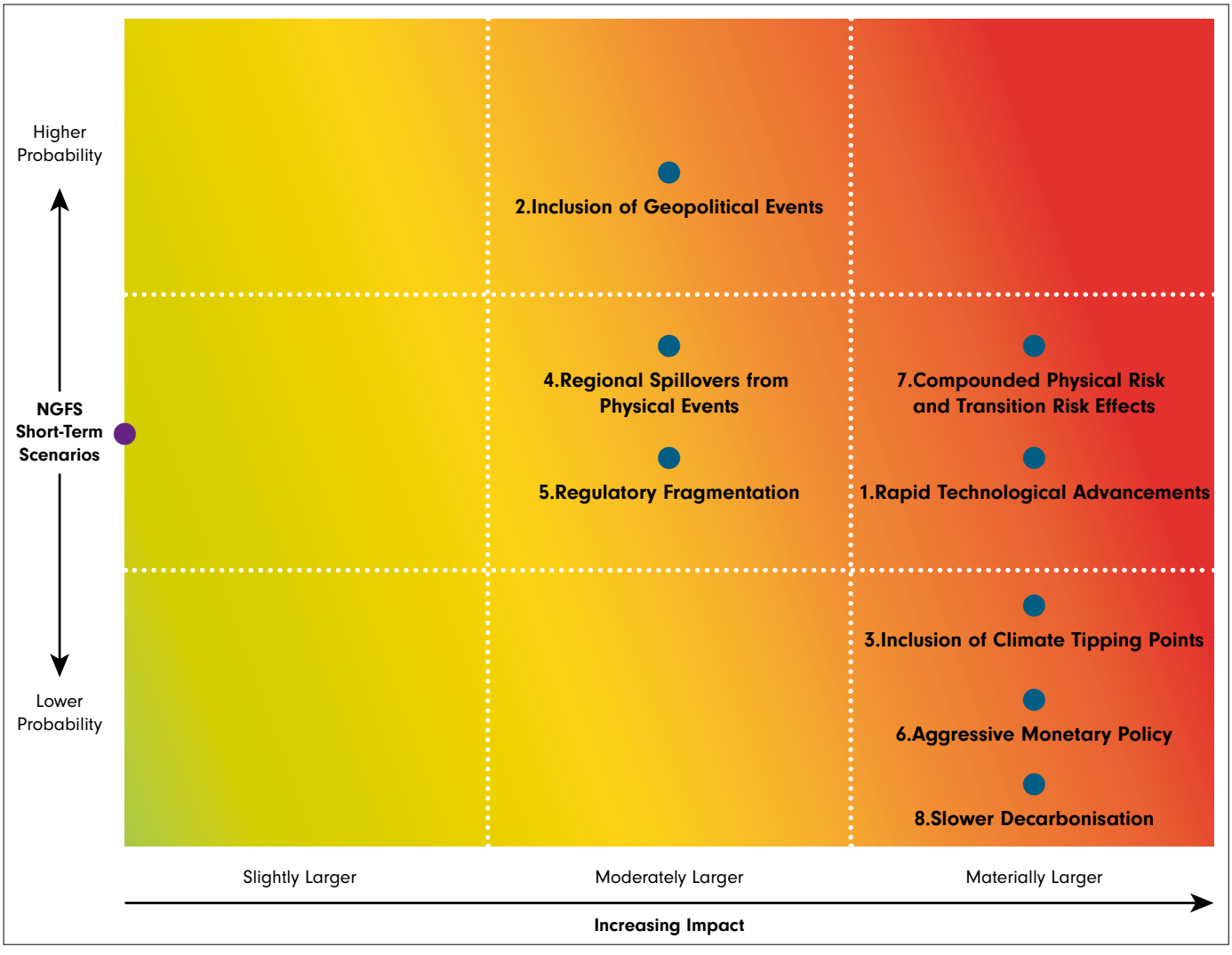
3.Climate Tipping Points	Not included in short-term scenarios	A climate tipping point occurs over the scenarios	Low five-year probability but catastrophic if realized (eg, ice sheet collapse). Judged to be very high impact / low probability		
4.Timing and Spillovers from Physical Events	Disasters and Policy Stagnation (DAPS) staggers shocks by region, with small spillovers assumed	Disasters occur concurrently with large spillovers across countries	Medium probability: impact is also medium as simultaneous shocks with large spillovers would increase market shocks, but resilience differs by region		
5.Regulatory Co-ordination	Sudden Wake-up Call assumes rapid, coordinated policy tightening in 2027; DAPS assumes limited action	Coordination is weaker, policies unevenly enforced. SWUC less likely than assumed	Policymakers unlikely to act as smoothly as NGFS assumes. Medium impact/ probability as fragmentation drives wider credit spreads and FX risk, but not global systemic collapse		
6.Monetary Policy Reaction Function	EIRIN assumes Taylor-rule, smooth, rule-based responses; no unconventional tools (eg, Quantitative Easing)	In more severe scenarios, central banks may have to act more aggressively than assumed with potentially material impacts on asset pricing	Probability judged to be low, but impacts judged to be high given market pricing is based on predictable central bank behavior		
7.Compounded Physical and Transition Risk Effects	Transition risks independent of physical risks in the short term without any reactions such as governments stepping in with ad hoc responses that can amplify market moves	Physical risks compound and exacerbate transition risks	Transition can be sped up as well as derailed due to physical risks. All scenarios should include physical risk component. Interaction between the two types of risk needs to be explored. Judged as high impact and medium probability		
8.Slower Decarbonisation	Decarbonization occurs quickly and evenly with steep carbon pricing (see SWUC) and assumed significant decline in fossil fuel demand	Slow decarbonization even with higher carbon prices, lower economic activity with punitive carbon prices	Lead/lag time of investments in low/ zero-carbon alternatives take time. Judged as high impact and low probability		

The heatmap below, comprising nine distinct sections, plots the alternative assumptions and associated scores in Table 1 relative to the NGFS short-term scenarios. The horizontal axis represents three progressively increasing impact scores relative to the NGFS scenarios: the band on the right indicates a materially larger impact; the band in the middle indicates a moderately larger impact; and the band on the left indicates a somewhat larger impact[6]. The vertical axis represents probability scores, with the middle band containing scenarios deemed as likely as the NGFS scenarios, with lower probability scenarios in the bottom band and higher probability scenarios in the top band. For example, including climate tipping points would make the NGFS scenarios considerably more severe but less likely, so that alternative assumption appears in the bottom-right box on the chart. If banks want to consider scenarios that include climate tipping points in their scenario analysis, they would want to increase the severity of the NGFS scenarios or consider scenarios that are more severe.

Figure 1: Heatmap of NGFS Short-term Scenario Uncertainties[7,8]



[6] Given a key use case for these scenarios is stress testing, the focus was on alternatives that could raise the impact of the scenarios. Most of the discussions with the working group also focussed on possibilities of larger impacts

[7] Each blue dot represents the implications of adopting alternative assumptions for the probability and impact of the NGFS scenarios. The implications are all relative to NGFS Disasters and Policy Stagnation (DAPS) and Sudden Wake-up Call (SWUC) scenarios, which lie at the centre of the probability axis of the chart. Adoption of any of these alternative assumptions is judged to increase the impact of the NGFS scenarios but could make them more or less likely. For example, including climate tipping points would make the NGFS scenarios considerably more severe but less likely. Further details can be found in Table 1

[8] The heatmap focuses on DAPS and SWUC as these are the scenarios that are the focus of the rest of

2.4 NGFS Models Output Data

2.4.1 Limitations of NGFS Output Data

In addition to the uncertainties around key assumptions, there are some data issues that users of the NGFS scenarios should be aware of.

Firstly, the granularity of policy rate data in the EIRIN model is restricted to the regional level, necessitating the use of regional proxies for individual countries. This introduces potential inaccuracies and reduces the precision of the analysis, particularly when considering countries with unique economic contexts. This is an area the NGFS has acknowledged will require future improvement.

Secondly, the GEM-E3 model lacks gross value-added (GVA) data at the sectoral level, hindering a comprehensive assessment of the economic impact across different sectors. This limitation prevents a detailed understanding of sector-specific vulnerabilities. The NGFS has indicated the potential for future inclusion of GVA data.

Scenario narratives incorporate specific assumptions regarding transition risk. For example, in certain scenarios, the modeling focuses exclusively on negative shocks to high-carbon sectors, deliberately omitting positive impacts on low-carbon sectors. Moreover, in the NGFS scenarios, high-carbon energy producing sectors, such as coal and oil-fired power in the UK, are not subjected to these negative shocks if they have already been phased out in the baseline.

A significant methodological bias emerges from this approach, particularly in the analysis of sectoral equity and credit shocks, where the treatment of both positive and negative shocks is critical. The emphasis solely on negative shocks to high-carbon sectors, with the exclusion of published positive shocks to low-carbon sectors (especially in the Sudden Wake-up Call (SWUC) scenario), potentially masks the full range of economic impacts. This simplification, particularly the absence of negative shocks to certain already phased-out high-carbon energy sectors, warrants careful consideration.

The ISDA working group identified several key issues. For instance, members raised concerns about the disparities in the size of shocks in the coal sector between the UK and Germany. They also highlighted inconsistencies with the level of sovereign spread shocks when compared to the level of shocks for variables and the overall scenario narratives. For example, the US observes large sovereign spread shocks when the impact on other variables is not as severe. Furthermore, there is unexpectedly large variation in the estimated size of the impact from physical hazards in the Disasters and Policy Stagnation (DAPS) scenario between comparable countries within Europe, for example between the UK and Ireland.

Working group members also expressed a desire for greater transparency on the transmission channels for DAPS and the acute physical risk. This was a result of discussions on spillover effect from an acute physical risk event, with impacts happening in one location and the effect this would have on other linked or dependent economies.

Finally, the outputs are reported annually, which lacks the temporal resolution needed for short-horizon market volatility analysis.

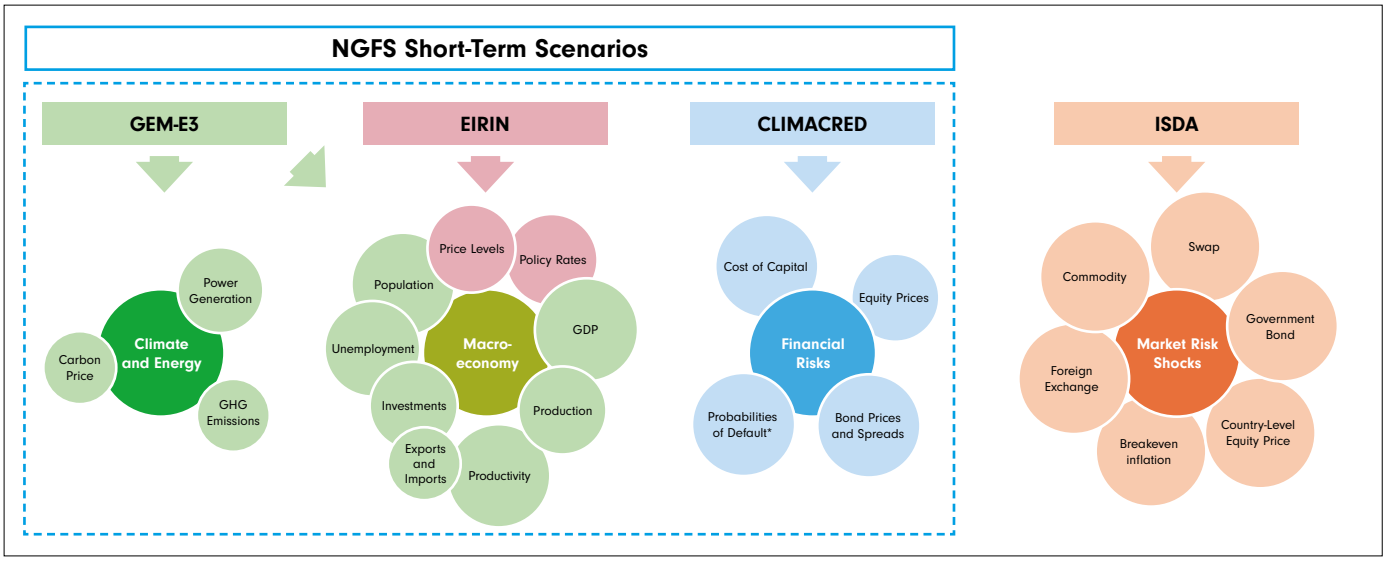
2.4.2 Data Availability | Market Risk Factor Data

Regarding market risk factor data, while the scenarios do include some financial price data – such as sectoral equity shocks, probability of default shocks and credit spread shocks – they do not encompass the full range of shocks necessary for comprehensive trading book analysis.

Specifically, the absence of data for instruments like government bonds, swaps, commodities and FX contracts significantly restricts the scope of the analysis, preventing a holistic assessment of climate-related financial risks across all relevant asset classes. Additionally, the NGFS does not include data on country-level equity shocks. This limitation, particularly the lack of comprehensive market risk factor data and baseline paths for certain financial variables, serves as a key motivation to produce market risk shocks consistent with the NGFS scenarios.

Furthermore, limitations on the granularity of data, with many macroeconomic variables only provided at a regional level instead of a country level, lead to the use of proxies and the exclusion of certain countries (eg, South Africa), due to the lack of appropriate proxies. Inconsistent country coverage, as exemplified by the inclusion of Australia in Oceania policy rate data but its exclusion from market risk factor data, further restricts analysis.

Figure 2: NGFS Scenario Data and ISDA Data



2.5 Scenario Impacts and Comparison with Other Scenarios

Table 2 benchmarks the NGFS short-term scenarios against recent supervisory and industry stress tests. It highlights their shock profiles, GDP impacts, timing and type of stress test. This comparison illustrates how the NGFS scenarios, while policy-consistent and coherent, are milder and more back-loaded than other supervisory scenarios. This underscores the need for adjustments when applying them to short-term trading book analysis.

Table 2: NGFS Short-term Scenarios Benchmarked Against Supervisory and Industry Stress Tests

Framework / Scenario	Horizon used for comparison	Summary	GDP headline (vs baseline or actual)	World GDP (peak-to-trough or deviation)	Timing and shape	Type of stress test
NGFS: Highway to Paris	2024–2030	Early, gradual transition; smooth annual path	Global GDP about −0.4% by 2030 vs baseline	~−0.4% by 2030	Backloaded and smooth	Climate transition
NGFS: Sudden Wake-Up Call	2024–2030	Abrupt policy shift in 2027; carbon price jump; macro 'kink'	Global GDP down ~1–1.3% by 2030	~−1.3% by 2030	Mostly backloaded (2027 shock), otherwise smooth	Climate transition
NGFS: Disasters and Policy Stagnation	2024–2030	Back-to-back physical shocks (Europe-led in 2026; Asia-led in 2027); annual	Global GDP −1.0% in 2026 and −2.1% in 2027	~−2.1% by 2027	Main impacts in two separate years 2026, 2027	Climate physical

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NGFS: Diverging Realities	2024–2030	Fragmented transition + physical shocks + critical-minerals bottlenecks	Global GDP losses up to −2.8% by 2028	~−2.8% by 2028	Events occur for different regions in different years.	Climate transition + physical
Bank of England: 2025 Bank Capital Stress Test (Global downturn scenario)	2025–2029	Severe global recession based on the global financial crisis	UK GDP −5%, World GDP −3%	−3% global	Front-loaded recessionary path	Non-climate
Federal Reserve: 2025 Dodd-Frank Act Stress Tests – Severely Adverse	2025–2027	US recession; commercial real estate/housing shock; markets under stress	US real GDP −7.8% peak-to-trough	~−4% global	Sharply front-loaded; trough by Q1-2026	Non-climate
European Banking Authority / European Central Bank: 2025 EU-wide stress test – Adverse	2025–2027	Trade/energy shock; financial tightening; global demand slump	EU real GDP −6.3% (cumulative 2024–27); −10.4% vs baseline	~−3.5% global	Front-loaded, heaviest hits in 2025–26	Non-climate
European Central Bank: 2025 Supervisory Adverse	2025–2027	Geopolitics + inward-looking trade leading to higher energy/ commodities; fragmentation	EU GDP adverse path, global slowdown via trade	~−3% global	Front-loaded	Non-climate
ISDA: 2023 Transition Risk Scenario	1-year horizon	Abrupt transition shocks (carbon price spike, rapid policy tightening)	US GDP -0.6%	~−1.3% global	More front-loaded than NGFS	Climate transition
ISDA: 2023 Physical Risk Scenario	1-year horizon	Acute physical shocks (floods, storms, wildfires) hitting clustered years	US GDP -1.6%	~−2.9% global	Front-loaded, clustered	Climate physical
ISDA: 2023 Combined Scenario	1-year horizon	Transition + physical overlap (carbon shocks + disasters)	US GDP -2.0%	~−3.3% global	Front-loaded, compounding	Climate transition + physical

The NGFS short-term scenarios provide a policy-credible but relatively mild, back-loaded macro path, with the largest global GDP effects only emerging by 2027–2028 (eg, Sudden Wake-up Call –1.3%). In contrast, recent supervisory and industry stress tests are sharper and front-loaded: the Bank of England's 2025 bank capital stress test assumes a –3% world GDP drop with immediate recessionary dynamics; the Federal Reserve's 2025 Dodd-Frank Act stress test projects a –7.8% US GDP peak-to-trough fall within about a year; and the European Banking Authority / European Central Bank 2025 adverse scenario shows >–6% losses in Europe with global spillovers. ISDA's transition, physical and combined scenarios also push more front-loaded shocks that map more naturally to traded risk. From a trading book perspective, this mismatch means the NGFS scenarios serve best as a directional anchor for climate pathways, but they require adjustments to be useful for decision-making purposes.

3. 2025 MARKET RISK FACTOR SHOCKS

The objective of this phase of the project was to produce market risk factor shocks in line with the suite of shocks that were produced in the 2024 phase of work, using data from two of the NGFS short-term scenarios where appropriate.

To generate the market risk factor shocks in this phase, the same approach as in the previous phases was adopted, which ensured consistency with the original conceptual framework that was published in 2023. The difference in this phase was to start with the macroeconomic shocks generated by the NGFS rather than producing a new set of macroeconomic shocks. The two short-term scenarios chosen were SWUC, which is a transition risk scenario, and DAPS, which is a physical risk scenario. The GDP shocks were at a country-specific level, whereas the inflation and interest rate shocks were at a regional level (Asia, Europe and North America).

To facilitate the selection of the two scenarios, the ISDA working group conducted a survey. Prior to the distribution of the survey, the working group narrowed the focus of the regional scenarios for DAPS to Asia, North America and Europe, reflecting the primary interests of the working group.

The survey concluded with the selection of the SWUC and DAPS scenarios as the most preferred for this phase of work. This selection aligned with feedback from the ISDA working group, which expressed a clear preference for distinct scenarios addressing severe transition risk and physical risk separately. There were differences in views between members, with some banks preferring the Diverging Realities scenario because it is a combined climate risk scenario.

3.1 Scenario Narratives

The two NGFS scenarios selected to produce the market risk factor shocks were SWUC and DAPS.

The SWUC scenario is classified as one of the NGFS's transition risk scenarios. This scenario is characterized by widespread climate unawareness, which is subsequently confronted by an abrupt shift in policy preferences. This shift precipitates an immediate reorientation of consumer and investor preferences towards green sectors. Concurrently, a sharp surge in carbon prices triggers a supply shock. The transition occurs too suddenly for markets to adapt, leading to a 'Climate Minsky moment' – a wave of financial instability as asset values adjust abruptly.

The DAPS scenario is designed as the NGFS's only fully physical risk scenario. This scenario outlines a future where a sequence of severe, region-specific extreme weather events unfolds during 2026 and 2027. These events lead to a significant capital destruction, a reduction in productivity and overall production, generating cascading economic impacts across the globe. This chain of events ultimately amplifies both financial and economic instability worldwide.

3.2 Translation of NGFS Scenarios for the Trading Book

The objective of this project was to derive a set of market risk shocks at one-day, 10-day, three-month and one-year liquidity horizons, which is consistent with the asset classes published in the previous phases and with the narratives of the NGFS short-term scenarios. As the NGFS scenarios are multi-year and the climate events occur in different years across scenarios, countries, asset classes and sectors, an approach was developed to translate these multi-year scenarios into 12-month shocks suitable for climate scenario analysis for the trading book.

The methodology for translating the NGFS multi-year scenarios into 12-month shocks was established following deliberations within the ISDA working group. These discussions explored diverse options, ultimately yielding a consensus on the approach outlined below.

To translate the five-year scenarios into 12-month shocks for macroeconomic variables, sectoral equity and credit spread shocks, the following approach was applied. First, the NGFS climate scenario narratives were used to identify that the climate shock events are occurring over the first three years of the scenarios. Second, for each scenario, the magnitude of the shocks over the first three years was considered. The single year exhibiting the largest shocks across the greatest number of variables was then identified, thereby selecting the peak year of each scenario. To ensure consistency with the underlying scenario narratives, a single year was taken for all data points within each scenario, specifically 2027 for DAPS and 2028 for SWUC. Lastly, these

shocks were brought forward and used to calculate the market risk shocks over the first 12 months of each scenario. Front-loading the shocks in this way is consistent with the forward-looking nature of financial market prices and allowed the multi-year scenarios to be summarized in a set of 12-month shocks.

3.3 Macroeconomic Shocks

The macroeconomic shocks were directly extracted from the NGFS macroeconomic dataset. The one-year figures were subsequently determined by expressing the corresponding one-year NGFS values as a year-on-year percentage change from the baseline.

GDP shocks are provided by the NGFS at a country-specific level. Conversely, inflation and policy rate shocks are available at a regional level. For the purposes of regional mapping, inflation and policy rate values were assigned as follows: China, Japan and India were associated with the Asia regions; Germany and the UK with the Europe region; and Canada and the US with the North America region.

Figure 3: NGFS SWUC GDP Relative to Baseline Forecast

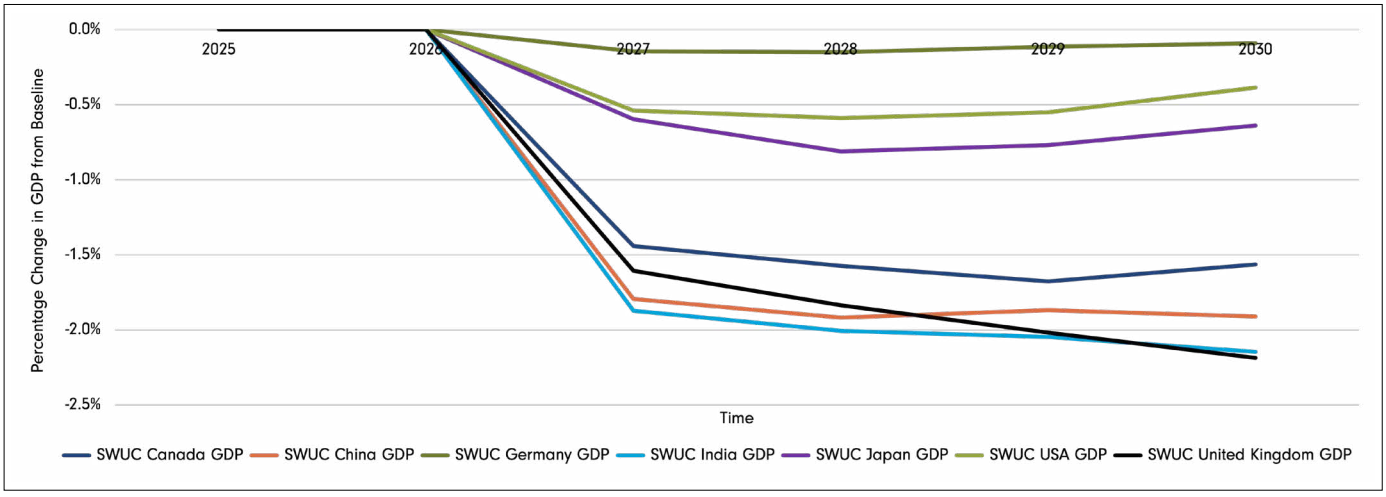

Figure 3 illustrates the percentage change in GDP from baseline for the seven countries included in this phase of work under the SWUC scenario. A consistent observation across all countries is a decrease in GDP from 2026 to 2027, which aligns with the scenario's narrative of a sudden policy change in 2027. Notably, Japan, the US and Germany experience a considerably smaller reduction in GDP compared to the other countries.

Figure 4: NGFS DAPS GDP Relative to Baseline Forecast

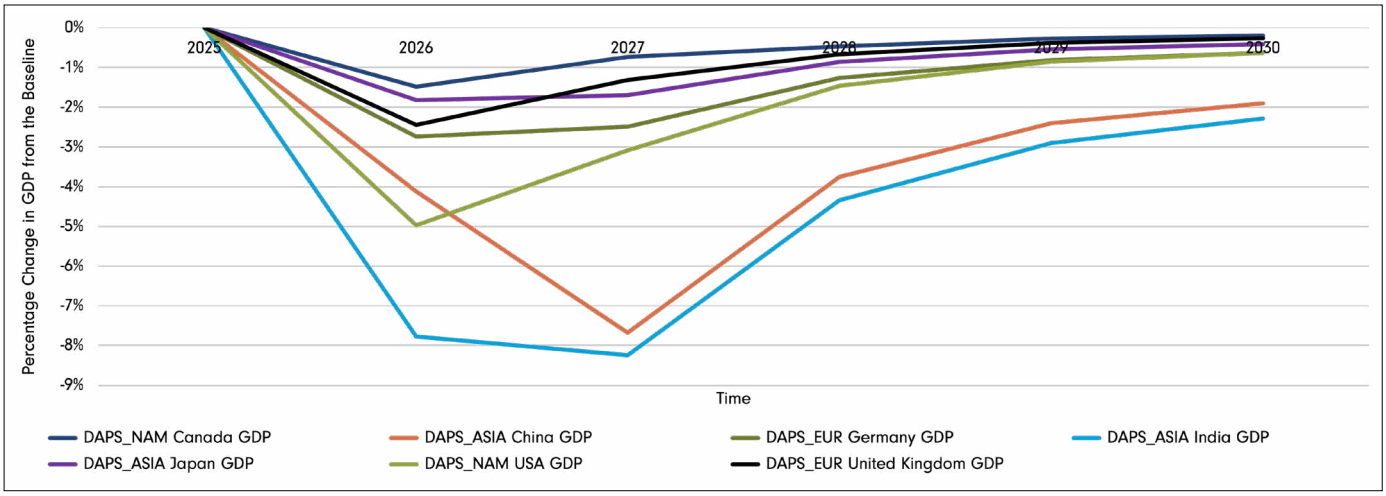

Figure 4 illustrates the percentage change in GDP from the baseline for the seven countries under the DAPS scenario. A key observation is that emerging economies experience the most significant impact from this scenario, particularly between 2025 and 2026. This period coincides with the occurrence of dry physical risk events, including droughts, heatwaves and wildfires.

Similarly, other countries also experience their most significant GDP impact in 2026. However, a recovery in GDP is observed in some of these countries during 2027. This recovery aligns with the occurrence of wet physical risk events, suggesting a comparatively lesser economic impact from wet events such as floods, compared to dry events such as droughts.

Figure 5: NGFS SWUC Year-on-year Policy Rate Relative to Baseline Forecast

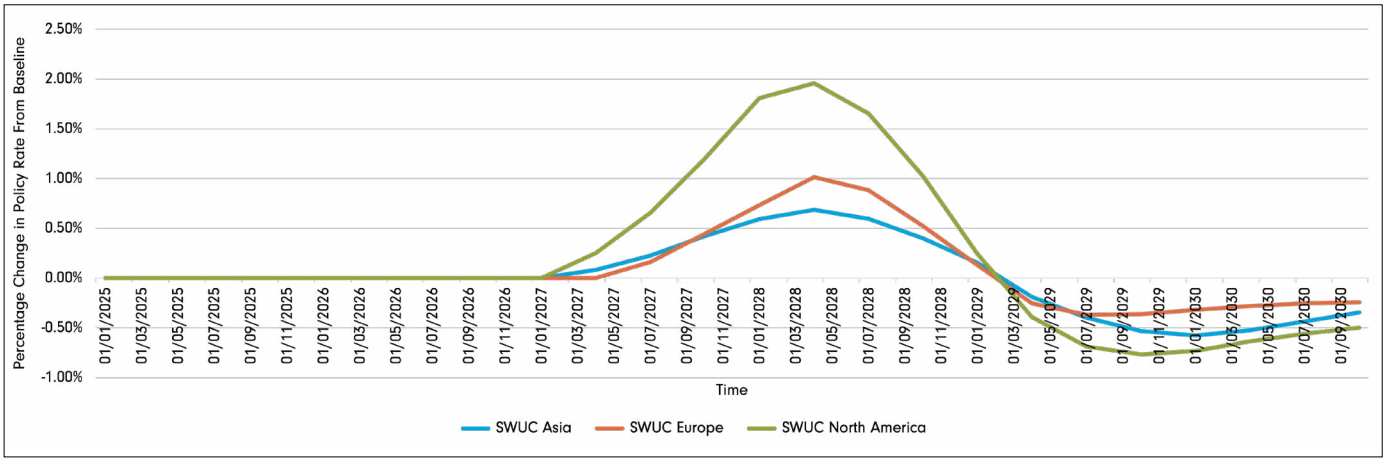

Figure 5 illustrates the year-on-year percentage change in policy rates from the baseline for the SWUC scenario. As the NGFS provides policy rate data at a regional level, the figure focuses on the three regions, encompassing the seven countries included in this phase of work.

A consistent trend across the three regions is observed, with divergence from the baseline starting in 2027. Policy rates peak in mid-2028 before beginning to decline. North America exhibits the most significant percentage increase, reaching just below 2% in 2028.

Figure 6: NGFS DAPS Year-on-year Policy Rate Relative to Baseline Forecast

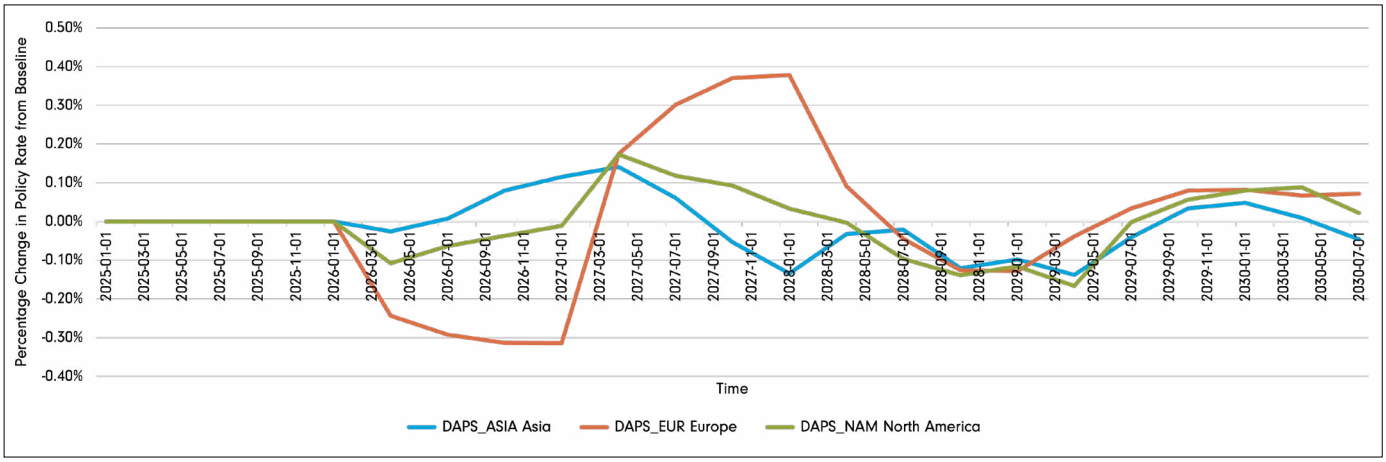

Figure 6 illustrates the year-on-year percentage change in policy rates from baseline under the DAPS scenario. A key distinction of the scenario is the divergence from the baseline starting in 2026, which is a year earlier than observed in the SWUC scenario (2027). Within the DAPS scenario, Europe experiences an initial decrease in policy rates in 2026, followed by an increase in 2027. Furthermore, the overall magnitude of these policy rate changes in the DAPS scenario is notably smaller compared to those in the SWUC scenario.

Figure 7 : NGFS SWUC Year-on-year Annualized Inflation Relative to Baseline Forecast

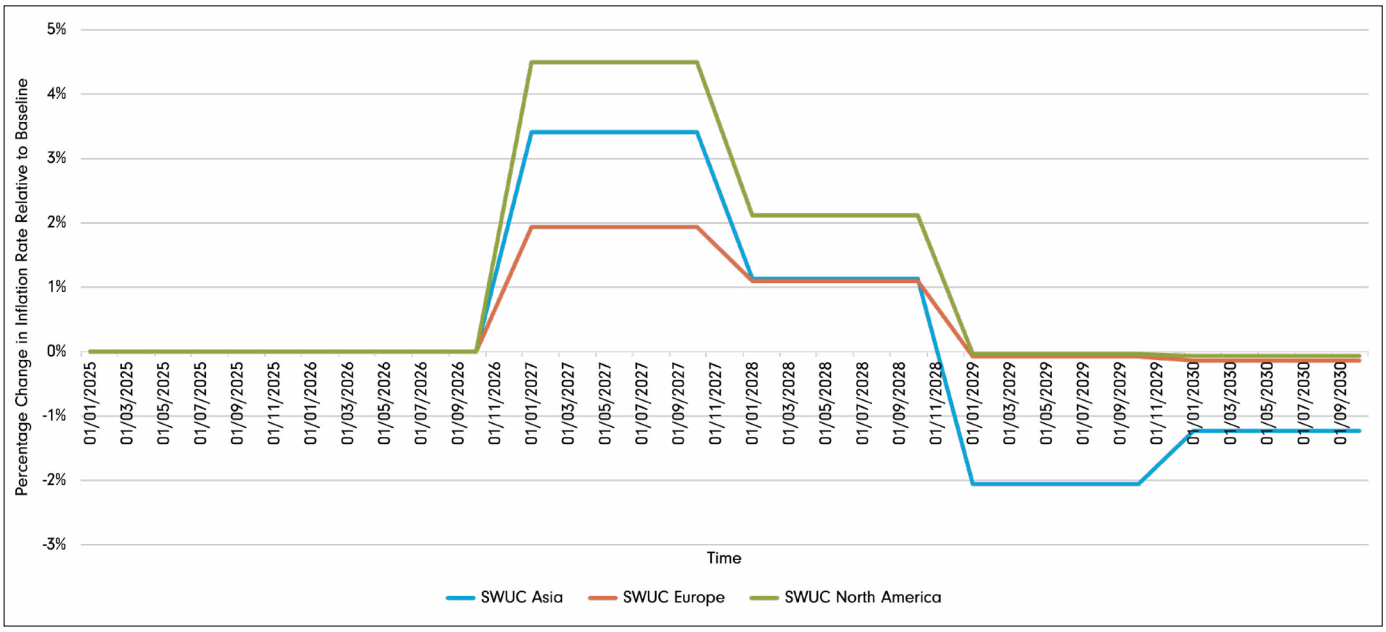

Figure 7 illustrates the year-on-year annualized percentage change in inflation rates from the baseline under the SWUC scenario. This chart reveals a pattern similar to that observed in Figure 4, with all three regions experiencing increases in inflation during 2027 and 2028. However, a divergence from Figure 5 is evident in 2029, where the Asia region records a modest decrease in inflation rates.

Figure 8 : NGFS DAPS Year-on-year Annualized Inflation Relative to Baseline Forecast

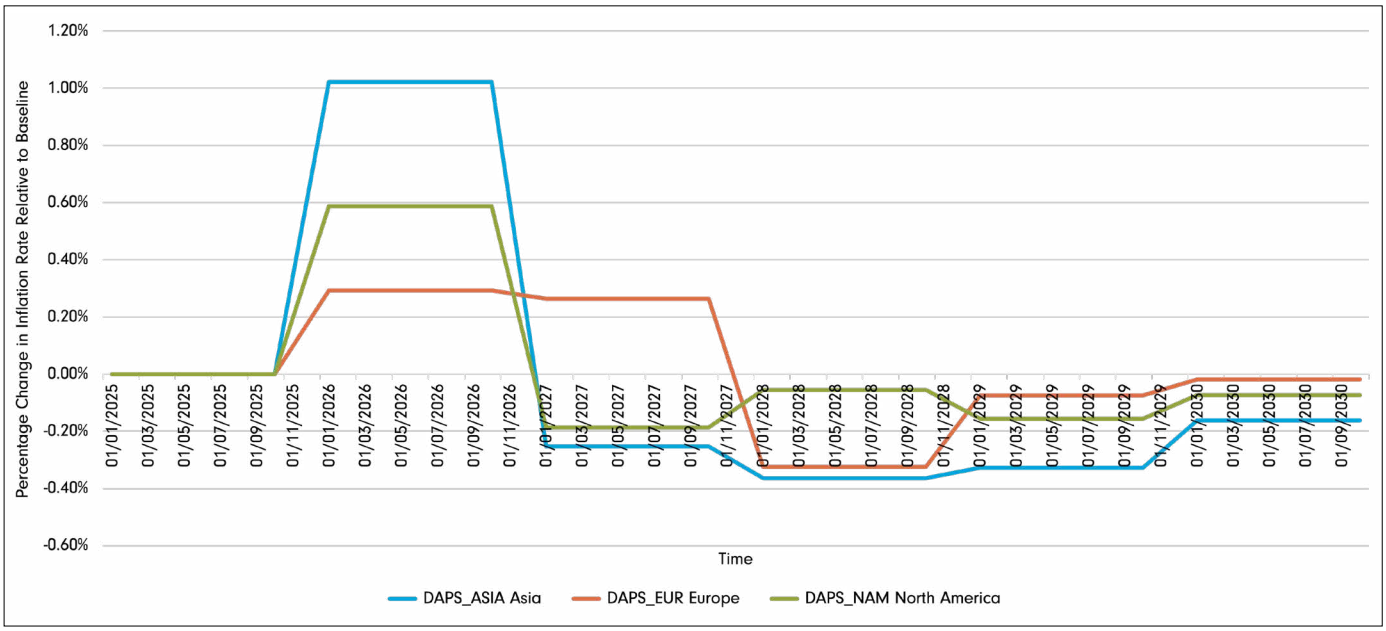

Figure 8 illustrates the year-on-year annualized percentage change in inflation rate relative to the baseline in the DAPS scenario. Initially, all three regions experience an increase in inflation rates during 2026. Both Asia and North America subsequently show negative percentage changes in inflation for the remainder of the observed periods, indicating a deceleration or reversal of inflationary trends compared to the baseline.

3.4 Market Risk Factor Shocks

A crucial part of the conceptual framework was translating the climate-adjusted macroeconomic shocks into market risk shocks. For the 2025 suite of shocks, a range of expansion models were used to develop market risk factors for each asset class. The models were built on the foundations of the 2024 phase with some changes, notably for sectoral equities and credit spreads as these were taken directly from NGFS output. The detailed methodology and equations for each of the models can be found in section 7. The mapping of models to market risk factors is provided in Tables 3 and 4.

Table 3 : Market Risk Factors Directly from the NGFS

Market Risk Factor	Model	Key Macroeconomic Drivers
Sectoral Equities	Directly from NGFS Output	-
Credit Spreads	Directly from NGFS Output	-

Table 4 : Market Risk Factors by Model Type

Market Risk Factor	Model	Key Macroeconomic Drivers
Government Yield Curves	Hull White Model	Interest rate
Interest Rate Swap Curves	Hull White Model	Interest rate
Breakeven Inflation	Hull White Model	Interest rate
Foreign Exchange	Interest Rate Differentials	Interest Rate
Commodities	Regression on NGFS Macroeconomic Outputs	GDP and Inflation
Country Equity Indices	Gordon Growth Model	Interest Rate and GDP

The market risk shocks from Tables 3 and 4 are all at the one-year liquidity horizon. To derive the one-day, 10-day and three-month horizons, the term structure of shocks across the horizons was leveraged from the 2024 phase of work. Further details on the process can be found in the appendix in Section 7.5.

3.5 Selection Process

In this phase, the objective was to align as closely as possible with taxonomy of market factors from the ISDA shocks published in previous years. The initial steps in determining the shocks for inclusion in this phase involved starting from the set of 2024 shocks. However, variations in data between the NGFS dataset and the 2024 shocks necessitated certain adjustments to the scope of countries, sectors and asset classes[9,10]. Nevertheless, the fundamental core set of shocks maintained the alignment across both sets of market risk shocks. The proposed set of market risk shocks was approved by the ISDA working group.

The market risk shocks encompass multiple asset classes: sectoral and country-level equities, credit spreads, government bonds, swaps, breakeven inflation, FX and commodities. These shocks span seven countries, specifically Canada, the US, the UK, Germany, Japan, China and India. The full suite of market risk shocks can be found in Section 4.

[9] For example, Australia was excluded from the 2025 set of shocks owing to the absence of NGFS data, despite its inclusion in the 2024 phase of work. Conversely, the UK sectoral equity coverage was expanded to incorporate air transport, electricity, mining and quarrying, manufacturing of chemical products, land transport and finance

[10] To maintain alignment with the previous phase of work, the sectors from the NGFS GEM-E3 sectors were mapped to the ISDA 2023 and 2024 sectors. The mapping of these sectors is provided in 14 in Section 7.6

3.6 Crowdsourcing Process

Once the modeled results for the selected set of market risk shocks had been produced, they were distributed to the working group for the crowdsourcing process to be conducted.

The crowdsourcing process allows the banks to provide their opinion on the size and shape of the modeled shocks. Climate modeling is nascent, and modeling climate shocks is further complicated by the lack of historical precedent. A key part of constructing the final set of market risk shocks was therefore including this expert judgment provided by the ISDA working group. This expert judgment was gathered via a survey process and then overlaid onto the pure modeled shocks to produce the final set of market risk factor shocks described below.

The crowdsourcing aspect of the scenario analysis was an integral part of the process. The introduction of expert views is a mitigant against the non-linearities and structural changes expected by climate change and a method for reducing model uncertainty, as well as a further validatory check on the set of shocks produced and the suitability of the model methodologies chosen.

Banks submitted quantitative and qualitative responses to the modeled market risk factor shocks. To aggregate the submissions from the working group, individual submissions for each market risk factor shock were organized together with the modeled output. From this list of working group submissions and the modeling output, the median was taken. The median was then rounded to the nearest interval of five, 10 or 100 and this value was treated as the final market risk factor shock.

4. RESULTS

This section of the paper presents the comprehensive list of market risk shocks for both the SWUC and DAPS scenarios. These figures represent the initial modeled shocks, which were crowdsourced by members of the ISDA working group and refined through their expert judgment. The shocks are disaggregated across the five in-scope asset classes, each accompanied by commentary on the market risk shocks.

4.1 Equities

The results indicate significant decreases in equity prices across all indices and sectors under the SWUC (transition risk) scenario. This highlights the macroeconomic effects of the carbon tax, which drives inflation and interest rates higher, resulting in diminished profits, reduced valuations and a decline in GDP.

The sectors that see the largest decrease are the more carbon-intensive sectors like gas and coal. Due to their heightened vulnerability to the carbon tax shock, these sectors experienced significant declines in equity prices, with coal facing the steepest drop. In contrast, the market services sector experienced a smaller decline over the period, reflecting its lower exposure to the carbon tax.

The pronounced negative effect on carbon-intensive sectors aligns with the narrative of the SWUC scenario, which sees a sharp increase in carbon taxation in 2027.

In the DAPS (physical risk) scenario, the shocks are less severe but affect a broader range of sectors, with smaller impacts ranging from -5% to -15%. However, India experiences the most significant shocks, particularly in the air transport and gas sectors. This aligns with the NGFS scenario, where less developed countries are more heavily impacted by physical risk events.

Table 5: Market Risk Shocks for Equities

Asset Class	Country	Sector	SWUC Proposed Shocks				DAPS Proposed Shocks			
			1-DAY	10-DAY	3-MONTH	1-YEAR	1-DAY	10-DAY	3-MONTH	1-YEAR
Equities (percentage change)	China	Air Transport	0%	0%	0%	0%	-10%	-15%	-25%	-25%
		Electricity	-15%	-25%	-35%	-35%	-10%	-25%	-35%	-25%
		Mining	-10%	-30%	-35%	-35%	-10%	-25%	-35%	-25%
		Manufacture of Chem/Chem Prods	0%	-5%	-5%	-10%	-5%	-5%	-10%	-10%
		Land Transport	0%	0%	0%	-5%	-10%	-15%	-25%	-25%
		Finance	0%	0%	0%	0%	0%	0%	-5%	0%
		SSC 100	-5%	-5%	-10%	-10%	-10%	-15%	-20%	-30%
	India	Air Transport	-5%	-5%	-5%	-5%	-15%	-20%	-35%	-40%
		Electricity	0%	-5%	-5%	-5%	-15%	-30%	-40%	-40%
		Mining	-15%	-30%	-40%	-40%	-10%	-30%	-40%	-35%
		Manufacture of Chem/Chem Prods	0%	0%	0%	0%	-5%	-10%	-15%	-15%
		Land Transport	0%	0%	-5%	-5%	-10%	-20%	-30%	-35%
		Finance	0%	0%	0%	0%	-5%	-5%	-5%	-5%
		Sensex	-5%	-5%	-10%	-10%	-10%	-20%	-25%	-30%
	Japan	NIKKEI225	0%	0%	-5%	-5%	0%	-5%	-5%	-10%

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Equities (percentage change)	Germany	Air Transport	0%	0%	0%	0%	-5%	-10%	-10%	-15%
		Electricity	-5%	-10%	-10%	-15%	-5%	-10%	-10%	-15%
		Mining	-10%	-15%	-20%	-20%	-5%	-10%	-10%	-15%
		Publishing Activities	0%	0%	0%	0%	0%	-5%	-10%	-10%
		Manufacture of Chem/Chem Prods	0%	0%	0%	0%	0%	-10%	-10%	-5%
		Land Transport	0%	0%	0%	0%	-5%	-10%	-10%	-15%
		Finance	0%	0%	0%	0%	-5%	-5%	-10%	-10%
		EUROSTOXX50	0%	0%	0%	0%	-5%	-5%	-10%	-10%
	UK	Air Transport	0%	0%	0%	0%	0%	-5%	-5%	-5%
		Electricity	-10%	-15%	-20%	-25%	0%	-5%	-5%	-5%
		Mining	-25%	-40%	-45%	-55%	-5%	-5%	-5%	-5%
		Publishing Activities	0%	0%	0%	0%	0%	0%	0%	0%
		Manufacture of Chem/Chem Prods	0%	0%	0%	0%	0%	-5%	-5%	0%
		Land Transport	0%	0%	-5%	-5%	0%	-5%	-5%	-5%
		Finance	0%	0%	-5%	-5%	0%	0%	0%	0%
		FTSE100	-5%	-5%	-5%	-10%	0%	-5%	-5%	-10%
	US	Air Transport	0%	0%	0%	0%	-5%	-10%	-10%	-15%
		Electricity	-5%	-10%	-10%	-20%	-5%	-10%	-10%	-15%
		Mining	-25%	-35%	-45%	-70%	-5%	-10%	-10%	-15%
		Manufacture of Chem/Chem Prods	0%	0%	0%	0%	0%	-5%	-5%	-5%
		Land Transport	0%	0%	0%	0%	-5%	-10%	-10%	-15%
		Finance	0%	0%	0%	0%	0%	0%	0%	-5%
		S&P500	0%	0%	-5%	-5%	0%	0%	-5%	-5%
	Canada	Air Transport	0%	0%	0%	-5%	0%	0%	0%	-5%
		Electricity	-10%	-15%	-20%	-30%	0%	0%	0%	-5%
		Mining	-10%	-25%	-30%	-50%	0%	0%	0%	-5%
		Manufacture of Chem/Chem Prods	0%	0%	0%	0%	0%	0%	0%	0%
		Land Transport	0%	0%	0%	-5%	0%	0%	0%	-5%
		Finance	0%	0%	0%	0%	0%	0%	0%	0%
		S&P/TSX 60	0%	-5%	-5%	-10%	0%	0%	0%	-5%

Credit on next page

4.2 Credit

Credit spreads widen across all regions and sectors in the SWUC scenario, reflecting the transition risk shock that raises the likelihood of company defaults across the economy. This highlights the macroeconomic effects of the increase in carbon taxation, which reduces GDP while driving up inflation and interest rates, ultimately leading to lower profits and valuations. All carbon-intensive sectors experience widening spreads, with the biggest being the coal sector in India. These results align with the scenario narrative, where carbon taxes see an increase and carbon-intensive sectors are the most heavily affected.

In the DAPS scenario, as was the case for equities, a greater impact is observed in less developed countries, with the largest impact happening in the gas sector in India, which aligns with the scenario narrative.

Table 6: Market Risk Shocks for Credit

Asset Class	Country	Sector	SWUC Proposed Shocks				DAPS Proposed Shocks			
			1-DAY	10-DAY	3-MONTH	1-YEAR	1-DAY	10-DAY	3-MONTH	1-YEAR
Credit (absolute spread change, in basis points)	China	Air Transport	10	10	30	45	180	230	560	850
		Electricity	280	420	1000	1400	270	400	1000	980
		Mining	460	920	1500	2000	120	240	370	470
		Manufacture of Chem/Chem Prods	45	55	120	190	95	120	270	420
		Land Transport	10	15	40	55	120	175	490	600
		Finance	10	15	30	35	15	25	50	55
	India	Air Transport	80	100	260	400	360	450	970	1300
		Electricity	55	85	210	280	520	770	1500	1600
		Mining	510	1000	1600	2200	240	490	770	770
		Manufacture of Chem/Chem Prods	45	55	130	210	200	230	510	800
		Land Transport	70	85	240	350	250	310	800	1000
		Finance	75	120	250	270	35	60	110	120
	Germany	Air Transport	0	0	0	0	35	75	150	200
		Electricity	20	30	80	120	50	75	200	310
		Mining	35	70	140	180	20	40	85	110
		Manufacture of Chem/Chem Prods	0	0	0	0	20	70	110	90
		Land Transport	0	0	0	5	20	65	130	130
		Finance	0	5	5	10	10	10	20	25
	UK	Air Transport	0	0	10	15	25	40	85	130
		Electricity	110	160	430	650	35	50	130	200
		Mining	390	770	1500	2000	15	30	65	85
		Manufacture of Chem/Chem Prods	0	0	0	0	15	35	65	70
		Land Transport	10	10	35	45	15	35	75	95
		Finance	10	10	20	25	15	20	40	50

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Credit (absolute spread change, in basis points)	US	Air Transport	0	5	5	10	110	120	240	410
		Electricity	120	170	310	480	170	170	320	500
		Mining	580	750	1300	2000	85	110	180	280
		Manufacture of Chem/Chem Prods	0	0	0	0	70	85	150	240
		Land Transport	5	5	10	15	80	95	210	330
		Finance	10	10	20	25	55	70	140	180
	Canada	Air Transport	10	15	25	45	15	20	40	65
		Electricity	200	290	540	830	20	35	60	95
		Mining	350	570	900	1200	10	15	25	40
		Manufacture of Chem/Chem Prods	0	0	0	0	10	10	20	35
		Land Transport	10	10	25	35	10	15	30	45
		Finance	5	5	15	15	5	10	15	20

Rates on next page

4.3 Rates

In the SWUC scenario, yield curves increase across countries and maturities for both government bonds and swaps. The increase in yield curves is driven by central banks raising interest rates in response to higher inflation caused by increases in carbon taxation. As interest rates rise, investors demand higher returns to align with the new interest rate environment. The increases in yield curves are greatest at shorter maturities and longer liquidity horizons.

Breakeven inflation curves also rise across countries, with slightly larger increases observed in the US and the UK. This is consistent with an increase in inflation and interest rates in the scenario. Increases are larger at shorter maturities and longer liquidity horizons.

The increases in yield curves are modest in the DAPS (physical risk) scenario, which aligns with the minimal increases in central bank interest rates observed in this scenario. In the UK and US, breakeven inflation rates also show some increases, with notable peaks occurring at the one-year tenor point.

During discussions about the DAPS scenario, working group members presented divergent opinions on its potential impact on yield curves. For example, one perspective was that it would lead to a significant widening of yield curves, particularly at longer maturities, driven by a substantial increase in risk premium associated with increased sovereign risk from large economic shocks. Conversely, another viewpoint anticipated a tightening of yield curves, characterized by moderate decreases across all maturities, particularly for advanced economies. This latter view could be consistent with 'flight to quality' behavior.

Table 7: Market Risk Shocks for Rates

Asset Class	Country	Sector	SWUC Proposed Shocks				DAPS Proposed Shocks			
			1-DAY	10-DAY	3-MONTH	1-YEAR	1-DAY	10-DAY	3-MONTH	1-YEAR
Rates (absolute change, in basis points)	China	Government - 1D	30	55	65	75	5	10	10	10
		Government - 6M	30	50	60	70	5	10	10	10
		Government - 1Y	20	45	55	65	5	5	10	10
		Government - 5Y	20	30	30	45	5	5	5	5
		Government - 10Y	30	30	30	30	5	5	5	5
		Government - 20Y	15	15	15	15	5	5	5	5
		Swap - 1D	35	55	70	80	5	10	10	10
		Swap - 6M	35	55	65	75	5	10	10	10
		Swap - 1Y	25	50	60	75	5	5	10	10
		Swap - 5Y	20	35	35	50	5	5	5	5
		Swap - 10Y	35	35	35	35	5	5	5	5
		Swap - 20Y	20	20	20	20	5	5	5	5
	India	Government - 1D	15	35	50	75	0	5	5	10
		Government - 6M	15	35	45	75	0	5	5	10
		Government - 1Y	10	30	45	75	0	5	5	10
		Government - 5Y	10	30	45	80	0	5	5	10
		Government - 10Y	10	25	40	75	0	5	5	10
		Government - 20Y	5	20	35	70	0	5	5	15

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Rates (absolute change, in basis points)	Germany	Government - 1D	30	50	80	90	5	5	5	5
		Government - 6M	20	40	70	80	5	5	5	5
		Government - 1Y	10	30	70	75	5	5	5	5
		Government - 5Y	5	10	30	35	0	0	0	0
		Government - 10Y	0	5	20	25	0	0	0	0
		Government - 20Y	0	0	10	10	0	0	0	0
		Swap - 1D	25	60	80	100	0	5	5	5
		Swap - 6M	20	50	70	90	0	5	5	5
		Swap - 1Y	15	40	60	80	0	5	5	5
		Swap - 5Y	5	20	30	45	0	0	0	5
		Swap - 10Y	5	10	20	30	0	0	0	0
		Swap - 20Y	0	5	10	15	0	0	0	0
	UK	Government - 1D	40	80	100	100	0	5	5	5
		Government - 6M	30	70	100	100	0	5	5	5
		Government - 1Y	15	65	85	100	0	5	5	5
		Government - 5Y	20	55	75	90	0	5	5	5
		Government - 10Y	10	40	60	85	0	5	5	5
		Government - 20Y	10	25	45	70	0	0	5	5
		Swap - 1D	35	85	95	110	0	5	5	5
		Swap - 6M	35	80	95	110	0	5	5	5
		Swap - 1Y	30	75	90	100	0	5	5	5
		Swap - 5Y	15	60	75	90	0	5	5	5
		Swap - 10Y	15	40	55	70	0	5	5	5
		Swap - 20Y	5	25	35	45	0	0	0	0
		Breakeven Inflation - 1D	45	55	70	95	5	5	5	10
		Breakeven Inflation - 6M	50	50	65	90	5	10	15	15
		Breakeven Inflation - 1Y	70	40	50	90	20	25	35	60
		Breakeven Inflation - 5Y	10	25	25	50	5	15	10	25
		Breakeven Inflation - 10Y	5	10	10	20	5	5	5	10
		Breakeven Inflation - 20Y	0	0	0	0	5	5	5	10

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Rates (absolute change, in basis points)	US	Government - 1D	40	95	110	210	0	0	5	5
		Government - 6M	35	80	90	200	0	0	0	5
		Government - 1Y	30	70	85	200	0	0	0	5
		Government - 5Y	10	45	60	150	0	0	0	0
		Government - 10Y	10	30	40	120	0	0	0	0
		Government - 20Y	5	15	20	80	0	0	0	0
		Swap - 1D	40	85	110	240	0	0	5	5
		Swap - 6M	35	65	90	210	0	0	5	5
		Swap - 1Y	30	60	120	220	0	0	5	5
		Swap - 5Y	10	35	85	170	0	0	5	5
		Swap - 10Y	10	20	60	130	0	0	0	5
		Swap - 20Y	5	5	35	80	0	0	0	5
		Breakeven Inflation - 1D	95	110	140	220	0	0	5	5
		Breakeven Inflation - 6M	60	65	140	210	0	5	10	15
		Breakeven Inflation - 1Y	90	60	120	210	15	25	35	80
		Breakeven Inflation - 5Y	85	95	110	170	10	15	15	25
		Breakeven Inflation - 10Y	35	10	15	15	5	5	5	10
		Breakeven Inflation - 20Y	0	0	0	0	5	5	5	10
	Canada	Government - 1D	100	130	180	200	5	5	5	10
		Government - 6M	110	130	160	190	5	5	5	10
		Government - 1Y	95	110	150	170	5	5	5	10
		Government - 5Y	80	65	100	100	5	5	5	5
		Government - 10Y	35	20	55	55	0	0	5	5
		Government - 20Y	30	30	30	30	0	0	0	0
		Swap - 1D	140	140	220	220	5	5	5	5
		Swap - 6M	90	110	150	200	5	5	5	5
		Swap - 1Y	95	110	170	190	5	5	5	5
		Swap - 5Y	55	70	90	110	0	5	5	5
		Swap - 10Y	30	30	50	65	0	0	5	5
		Swap - 20Y	10	10	35	35	0	0	0	0

FX on next page

4.4 FX

In the SWUC (transition risk) scenario, the US dollar experiences a slight decline against the euro. For other currencies, the changes are negligible and round to 0%, which is consistent with the minimal interest rate differentials observed across countries.

In the DAPS (physical risk) scenario, there were only small changes to FX rates across currencies, with all changes rounding to 0%.

Table 8: Market Risk Shocks for FX

Asset Class	Country	Sector	SWUC Proposed Shocks				DAPS Proposed Shocks			
			1-DAY	10-DAY	3-MONTH	1-YEAR	1-DAY	10-DAY	3-MONTH	1-YEAR
FX (percentage change)	China	USDCNY	0%	0%	0%	0%	0%	0%	0%	0%
	India	USDINDR	0%	0%	0%	0%	0%	0%	0%	0%
	Japan	USDJPY	0%	0%	0%	0%	0%	0%	0%	0%
	Germany	USDEUR	0%	0%	0%	-5%	0%	0%	0%	0%
	UK	USDGBP	0%	0%	0%	0%	0%	0%	0%	0%
	Canada	USDCAD	0%	0%	0%	0%	0%	0%	0%	0%

Commodities on next page

4.5 Commodities

ISDA working group members expressed a diverse range of perspectives on the commodities shocks. Discussions centred on whether, within a transition risk narrative, commodity price shocks would be positive or negative.

Some working group members highlighted that the price of certain transition-related commodities such as cobalt and copper, as well as transition fuels like natural gas, would likely rise due to increased relative demand for these materials. It was also suggested that commodities like steel could see price increases, as steel producers would face increasing demand, given the need for steel as an input in transition construction.

Extensive discussions focused on the interplay between the price increases driven by higher relative demand and the downward pressure on prices caused by declining global demand. The group debated which of these opposing effects would dominate for each commodity under consideration.

In the SWUC scenario for gold, there are small positive shocks, which are consistent with a transition scenario and a flight to quality. For corn, there are small negative shocks, which are consistent with a reduction in global demand. In this scenario for coal and WTI Crude Oil, there was a moderate-to-large decrease, which is consistent with a transition scenario resulting in decreased global demand for more carbon-intense commodities. For steel, there was a very small increase, which would be consistent with increased demand and producers facing increased input costs. For cobalt, there was a large increase with it being a transition metal and global demand increasing due to its use in electric vehicles and batteries, whereas copper sees only a small increase. Lastly for natural gas, there was a moderate increase with the commodity being viewed as a transition fuel and relative demand increasing as markets move away from even more carbon-intensive fuels.

In the DAPS scenario, no change was observed for gold, which is driven by the decrease in global demand and the flight to quality offsetting each other. For all other commodities, a moderate-to-large decrease was observed, which is driven by the decrease in global demand following falls in GDP among the largest consumers of the commodities.

Table 9: Market Risk Shocks for Commodities

Asset Class	Country	Sector	SWUC Proposed Shocks				DAPS Proposed Shocks			
			1-DAY	10-DAY	3-MONTH	1-YEAR	1-DAY	10-DAY	3-MONTH	1-YEAR
Commodities (percentage change)	Global	GOLD	5%	5%	5%	5%	0%	0%	0%	0%
		CBOT CORN	0%	0%	-5%	-5%	-5%	-10%	-15%	-20%
		COAL PRICE	-10%	-30%	-45%	-55%	-15%	-35%	-50%	-65%
		WTI CRUDE	-5%	-10%	-20%	-30%	-10%	-20%	-35%	-55%
		STEEL	0%	5%	5%	0%	0%	-10%	-10%	-40%
		COBALT	5%	15%	30%	40%	-5%	-10%	-20%	-20%
		COPPER	-5%	0%	0%	5%	-10%	-20%	-30%	-40%
		NATURAL GAS	5%	5%	10%	20%	0%	0%	-5%	-10%

5. 2025 SURVEY

In recent years, ISDA has surveyed the various banks in the climate risk working group, primarily focusing on the operational readiness for conducting climate scenario analysis in the trading book. In 2025, ISDA sought to gain further insight into the current state of climate scenario analysis capabilities across the industry by running a survey of a small group of nine additional banks, broadening participation and encompassing a wider geographical representation.

Comparing the results from this survey with the survey of working group banks in 2024 highlighted clear differences in maturity between the two groups, showing that ISDA working group banks were more advanced in their climate scenario analysis capabilities.

While 63% of the working group banks described their capabilities as 'evolving' in 2024, only 22% of the additional banks reported the same state of readiness, and a further 22% admitted to not having considered climate scenario analysis at all. In terms of asset class coverage, Tier 1 banks exhibited broader inclusion of assets, such as credit (100%), FX (83%-100%) and equities (88%), while additional banks identified FX (67%) and commodities and equities (56%) as future priorities. Furthermore, Tier 1 banks were more effective at tailoring existing scenarios to trading book contexts, with 75% modifying scenarios, compared to only 33% of additional banks. A key focus for the additional banks was shorter time horizons, with 67% prioritizing short-term scenarios aligned with addressing sudden shocks or liquidity risks, whereas some institutions used long-term scenarios specifically for unhedgeable risks.

In terms of calibration, additional banks primarily applied a combination of expert judgment and data-driven assessments (67%), reflecting an emerging capability similar to Tier 1 banks. However, a greater percentage of additional banks lacked structured approaches to calibrating shocks related to physical and transition risks. The use of climate scenario analysis within internal solvency and liquidity processes remains underdeveloped across both groups, although Tier 1 banks displayed slightly higher adoption rates. Similarly, most additional banks had not yet integrated climate scenario analysis into their strategic planning and pricing decisions, nor do they report these results through frameworks like the Task Force on Climate-related Financial Disclosures or the Sustainable Finance Disclosure Regulation. However, 44% of the additional banks expressed their intentions to disclose climate-related outcomes in the future, showing growing momentum towards greater transparency.

Additionally, 89% of the additional banks were not currently using ISDA market risk shocks, citing reasons such as reliance on internal capabilities and unfamiliarity with existing modeling approaches. However, all additional banks demonstrated keen interest in the creation of a centralized market risk shock utility, expressing a need for features like transparency, benchmarking and ready-to-use shock methodologies that support comparability and industry alignment.

The ISDA survey illustrated that additional banks are less advanced in their implementation of climate scenario analysis than Tier 1 banks. Nonetheless, the additional banks expressed considerable interest in ISDA's initiatives, such as the development of standardized tools and methodologies to align with best practices.

While there are gaps in their current coverage, methods and applications of climate scenario analysis, the findings from the survey show a strong intention among additional banks to enhance their capabilities, making climate scenario analysis a developing area of focus in the future.

6. CONCLUSION

This paper continues ISDA's work to support banks as they develop their capabilities in climate scenario analysis for the trading book. By leveraging two key NGFS scenarios, the 2025 phase of the project developed market risk factor shocks that align with both NGFS narratives and the ISDA market risk shocks produced in the previous phases[11,12,13].

The independent review of the NGFS short-term scenarios provided valuable insights into banks' assessment of climate-related financial risks over a three-to-five-year horizon. The scenarios benefitted from a robust multi-model architecture, with each model offering unique perspectives on macroeconomic, credit and financial system interactions. However, the analysis also identified several limitations, including limited data granularity, gaps in sectoral coverage and the omission of key financial market dynamics, which reduced their effectiveness for trading book applications.

While the scenarios offered useful policy-consistent and directional guidance, their relatively mild and backloaded nature contrasted with sharper, more immediate shocks observed in supervisory stress tests. These findings underscore the need for further adjustments to enhance their relevance for short-term financial risk analysis. Addressing these limitations and refining the scenarios to account for key uncertainties would improve their utility for financial institutions and ensure they remain robust tools for understanding and managing climate-related risks.

Through collaboration with the ISDA working group members and the incorporation of expert feedback, the project has delivered a robust, standardized set of market risk shocks applicable across multiple asset classes and regions. These shocks provide a critical tool for banks to enhance their climate scenario analysis capabilities by bridging the gap between the NGFS five-year scenarios and the very short-term shocks required by banks in a trading book context.

The results highlight significant climate risk impacts on carbon-intensive sectors such as coal and gas under the SWUC (transition risk) scenario, with equity prices falling and credit spreads rising. These impacts are driven by the macroeconomic effects of carbon taxes, which increase inflation and interest rates and reduce economic growth and profits. Yield curves rise across maturities, with the largest increases at shorter maturities, reflecting central bank responses to inflationary pressures. Commodities exhibit mixed impacts, with transition-related commodities such as cobalt and copper seeing price increases due to rising relative demand, while carbon-intensive commodities like coal and crude oil experience significant declines due to reduced global demand.

In contrast, the DAPS (physical risk) scenario shows material impacts across a broad range of sectors, with equites falling and credit spreads rising. There are particularly large impacts in less developed countries. Most commodity prices also see substantial falls, reflecting the broad and substantial impacts across activities in a range of sectors and countries.

These results align with the scenario narratives, providing critical insights into the vulnerabilities and dynamics of various sectors and asset classes under transition and physical risk scenarios. This reinforces the importance of further work to explore the potential impact of climate risk on banks, including through the use of climate scenario analysis.

Finally, the ISDA survey highlighted that additional banks are less advanced than Tier 1 banks in their climate scenario analysis, but it showed there is strong interest in ISDA's standardized tools and methodologies. While gaps remain in the coverage and methods, these banks are committed to improving their capabilities. The findings illustrate that climate scenario analysis continues to be a growing area of focus for banks.

[11] Climate Risk Scenario Analysis for the Trading Book: Phase 3, February 5, 2025, www.isda.org/2025/02/05/climate-risk-scenario-analysis-for-the-trading-book-phase-3/

[12] Climate Scenario Analysis in the Trading Book – Phase II, ISDA, February 12, 2024, www.isda.org/2024/02/12/climate-scenario-analysis-in-the-trading-book-phase-ii/

[13] A Conceptual Framework for Climate Scenario Analysis in the Trading Book, ISDA, July 12, 2023, www.isda.org/2023/07/12/a-conceptual-framework-for-climate-scenario-analysis-in-the-trading-book/

7. APPENDIX: MODEL METHODOLOGIES

This appendix details the theoretical basis of the models that support the results presented in this paper. It offers a concise overview of the key principles and concepts that define each model's structure and its application within this research.

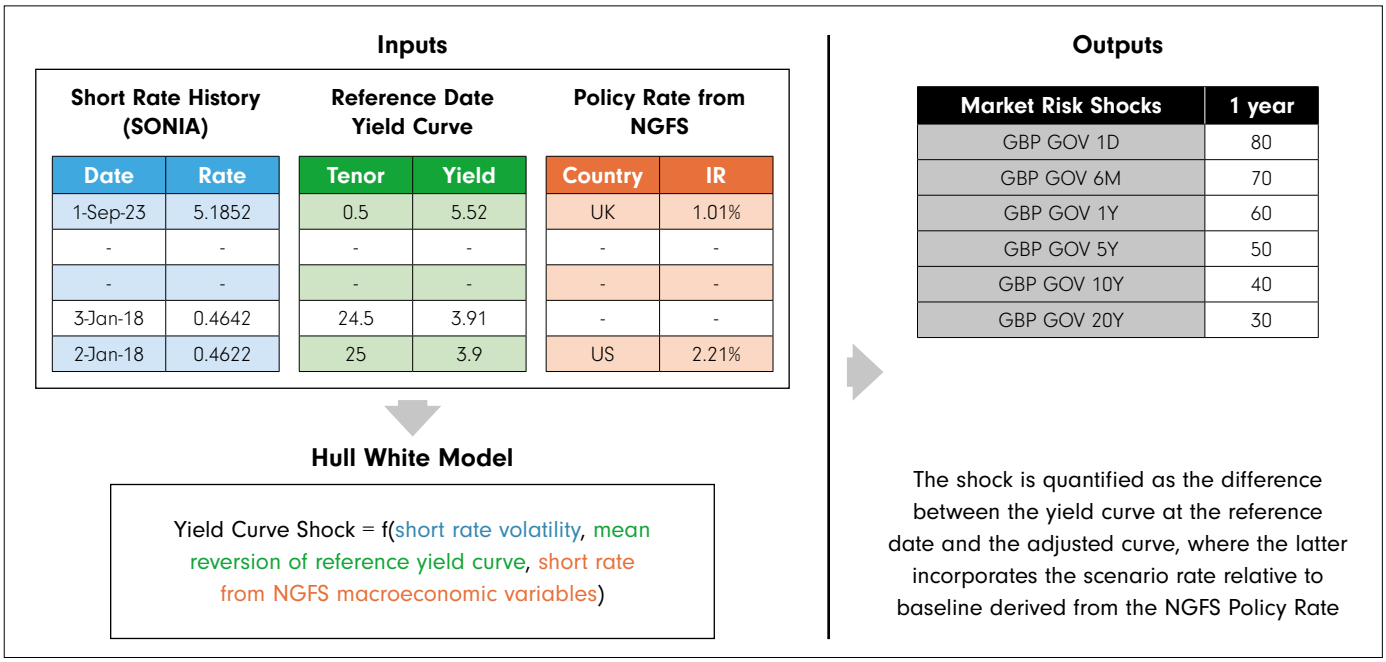
7.1 Yield Curve Model

The Hull-White model was used to derive the yield curves. This model, an extension of the Vasicek Model, has the capability to fit a term structure of interest rates. It posits that short-term interest rates can be presented as realizations of an Ornstein-Uhlenbeck mean-reverting stochastic process. The model facilitates the simulation of multiple future interest rate paths, driven by short rate shocks, which in this context are derived from the risk-free rate shocks provided by the NGFS. The future trajectory of interest rates is modeled using two parameters calibrated by historical data: the speed of mean reversion and the volatility of the short rate. The volatility of the short rate was directly computed from historical short rate data for each economy. Conversely, the speed of mean reversion was determined through a least-squares fitting to historical yield curves, identifying the value that best replicates past data. This calibration ensures the dynamics of the yield curve shocks conform to historical experiences, including those observed during previous financial crises. However, the magnitude of these shocks is not necessarily constrained by historical precedent, given their origination from the NGFS scenarios.

Pre-determined values for the speed of mean reversion and volatility were consistently applied to each relevant economy. Using these parameters, a yield curve was constructed to optimally align with the future interest rate paths derived from the NGFS scenario-specific policy rates. By comparing these constructed yield curves across different scenarios. The Hull-White model provided the theoretical basis for the curves pertaining to government bonds, swaps and breakeven inflation.

The model assumes the short rate follows a mean-reverting process, which means the model assumes short-term interest rates tend to move back towards a long-term average over time. The Hull-White model assumes the volatility of interest rates is constant over time. This is a simplification, as interest rate volatility can be observed to change in the real world. The Hull-White model, like any model, is a simplification of reality. It cannot capture all the complexities of the real-world interest rate market. For example, it may not accurately predict sudden jumps or large spikes in interest rates.

Figure 9: Illustration of the Logic of the Modeling Method for Yield Curve Shocks[14]



[14] The values presented in Figure 9 are for illustrative purposes only and do not represent the actual values used

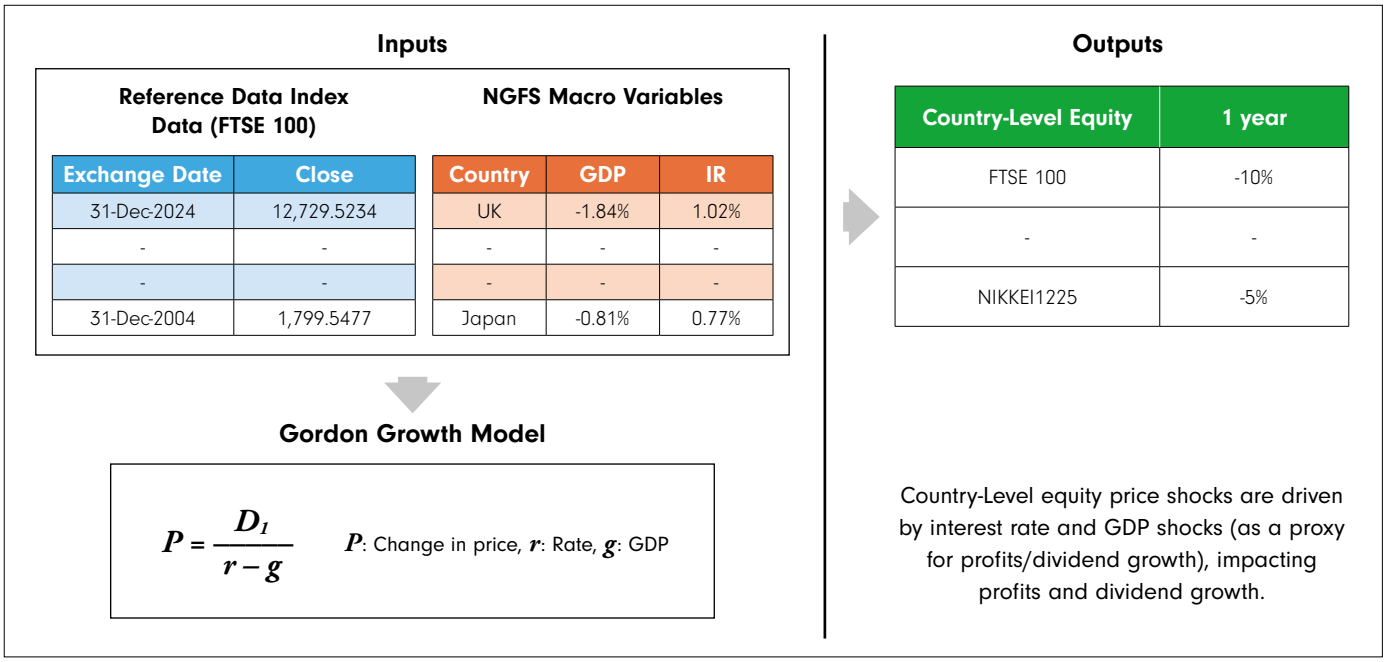
7.2 Country Equities Model

The Gordon Growth Model (GGM) is a quantitative method used to determine the intrinsic value of a company's equity based on the present value of its future dividend payments. The model operates on the premise that a share's current price reflects the sum of all its future dividend payments, discounted back to their present value using a predetermined discount rate. By using the GGM, future dividends can be discounted and the present worth of a company's future cash distributions to its equity holders can be calculated.

The same approach was used to model changes in the value of an equity index as a function of changes to prospects for future discounted dividend growth in a particular country. GDP growth and interest rates from the NFGS were used as a proxy for expected future dividend growth and discount rates respectively.

The GGM assumes dividends will grow indefinitely at a constant rate. This is a simplification, as companies rarely exhibit perfectly consistent dividend growth over extended periods. The model places significant emphasis on dividends as the primary driver of value. The GGM is sensitive to the chosen growth rate and required rate of return.

Figure 10: Illustration of the Logic of the Modeling Method for Country-level Equities[15]



[15] The values presented in Figure 10 are for illustrative purposes only and do not represent the actual values used

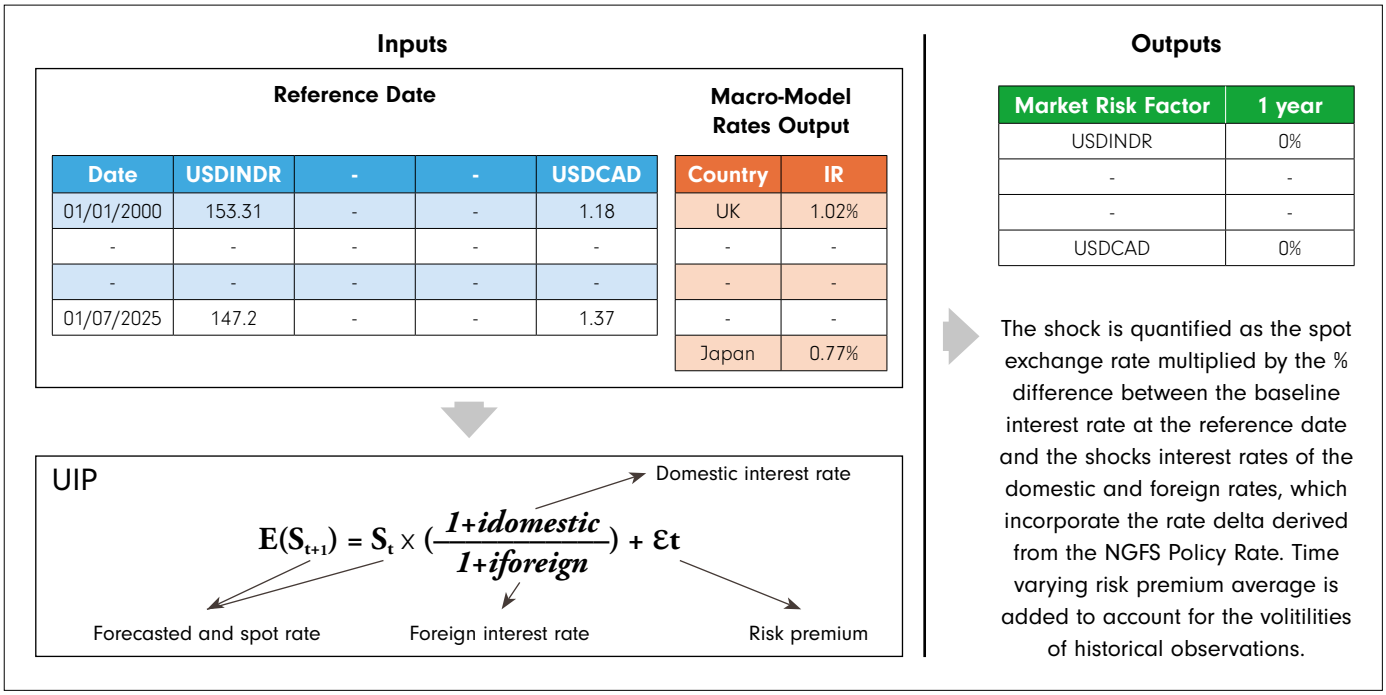
7.3 FX Model

An interest rate differential approach was used to predict the 12-month FX shocks. First, spot rates were used for the following currencies: USD/CNY, USD/GBP, USD/CAD, USD/EUR, USD/INR and USD/JPY (the spot rates were externally sourced). Next, interest rate differentials were calculated and derived from baseline rates and the interest rate shocks provided by the NGFS. A risk premium was then added to refine the projected exchange rate changes using a regression-based approach. Lastly, the one-day, 10-day, and three-month term structures used in the liquidity horizon were applied to the 12-month projected exchange rates to derive the final shocks.

This approach assumes interest rate differentials are the primary driver of exchange rate movements, consistent with uncovered interest parity (UIP) theory. The addition of a regression-based risk premium adjustment helps to account for persistent deviations from UIP observed in historical data but still relies on the assumption that past relationships between interest rate differentials and FX rates remain valid over the stress horizon.

The reliance on historical correlations and simplified UIP assumptions means the model may understate the role of other short-term FX drivers such as capital flows, geopolitical shocks or market sentiment. As with commodities, the framework is internally consistent and transparent, but its usefulness depends on the stability of the assumed relationships and may not fully capture non-linear market dynamics or structural breaks in FX behavior under climate-related stress.

Figure 11: Illustration of the Logic for the Modeling Method for FX shocks[16]



[16] The values presented in Figure 11 are for illustrative purposes only and do not represent the actual values used

7.4 Commodities Model

A regression-based approach was used to predict commodity prices based on historical relationships with economic output. Commodity price predictability has been shown to be closely linked to the economic cycle, with this relationship strongest in periods of economic recession. Commodity prices are taken at quarterly intervals to match the frequency of the macroeconomic data in the period 2005-2020. When regressing commodity prices on macroeconomic variables, out-of-sample predictability has been shown to be greatest for a quarterly horizon. For the short-term horizons considered here, historical correlations are assumed to hold as traders and consumers use existing schemas and/or models to drive behavior. The trained regressor is then used to predict commodity prices using the forecasts from macroeconomic variables from the NGFS.

The approach assumes a stable relationship exists between the chosen explanatory variables and commodity prices. Additionally, relying solely on historical data for model training assumes past relationships will persist, potentially overlooking structural changes in the market or changing trends.

Figure 12: Illustration of the Logic for the Modeling Method for Commodity Shocks[17]

Economic Inputs

	Historical GDP Change Data			Historical Inflation Change Data			Historical Commodities Change		
Date	GDP UK	-	GDP US	Inflation UK	-	Inflation US	Gold	-	Crude
01/01/2005	0.06	-	0.06	-0.01	-	0.01	0.00	-	1.21
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
01/01/2020	0.05	-	0.05	-0.04	-	-0.01	0.13	-	0.02

Model Construction

A macro-regression model was run with the historic GDP and historic Inflation rates of the economies selected by the ISDA working group and historic commodity prices. Commodity prices are then forecast by the **NGFS MEVs**

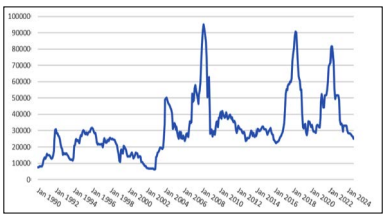
NGFS Macro FORECASTS

Country	GDP	Inflation rate
UK	-1.84%	1.13%
-	-	-
-	-	-
US	-0.59%	0.25%

Outputs

Asset Class	1 year
Gold	5%
-	-
WTI Crude	55%

Cobalt Time Series



[17] The values presented in Figure 12 are for illustrative purposes only and do not represent the actual values used

7.5 Liquidity Horizons

To address the limitation of annual NGFS data (except for quarterly interest rates), a methodology was developed to translate 12-month shocks into one-day, 10-day and three-month liquidity horizons. This methodology leverages the term structure of shocks from the ISDA shocks published in previous phases and applies them to the 12-month NGFS values to obtain the different liquidity horizons[18]. Below is a detailed example illustrating this methodology, focusing on a single US equity sector.

1. The initial step involves reviewing the market risk shocks generated and published in prior phases. For this example, the US Air Transport equity shock has been selected.

Table 10: Example of a Singular Market Risk Factor Shock from ISDA Shocks in 2024

Region	Sector	ISDA Proposed Shocks			
		1D	10D	3M	1Y
US	Air Transport	-10%	-15%	-20%	-30%

2. Next, the selected shocks are used to derive the term structure across the liquidity horizons. This is achieved by normalizing the one-day, 10-day, and three-month horizon shocks relative to the one-year horizon shock (eg, dividing the shorter-term shocks by the one-year shock). The resulting term structures for the US air transport equity is presented in the table below.

Table 11: Example of a Worked Term Structure Based on the Values in Table 10

Term Structure			
1D	10D	3M	1Y
33%	50%	67%	100%

3. The final step involves applying the term structure derived in Step 2 to the one-year NGFS shocks presented in Option 1. This is done by multiplying the one-year NGFS shock by the one-day, 10-day and three-month term structures to obtain the different liquidity horizons. The following example demonstrates this process for the 2027 air transport equity shocks for the US, sourced from the DAPS NGFS scenario (the one-year value is shown in the yellow cell).

Table 12: Worked Example of the Different Liquidity Horizons for a Singular NGFS Value

ISDA Phase 4 - NGFS			
1D	10D	3M	1Y
-5%	-8%	-10%	-15%

[18] For more information on how the term structures were derived in the previous phase of the project, see Climate Risk Scenario Analysis for the Trading Book: Phase 3, February 5, 2025, www.isda.org/2025/02/05/climate-risk-scenario-analysis-for-the-trading-book-phase-3/

7.6 Sector Mappings

The reconciliation of sectors between previous years' ISDA shocks and the 2025 set of shocks is detailed in 13. This mapping becomes essential because of discrepancies in sector classifications, both from earlier phases of work and in relation to the NGFS GEM-E3 sectors. The primary aim of this mapping process was to establish the most suitable proxy within the GEM-E3 model.

Table 13 : Mapping Between Prior ISDA Phases and NGFS GEM-E3 Sectors

Sectors in Previous ISDA Shocks	NGFS GEM-E3 Sectors
Air Transport	Air Transport
Electricity	Gas
Mining and Quarrying	Coal
Publishing Activities	Paper Products, Publishing
Manufacturing of Chemicals / Chemical Products	Chemical Products
Land Transport	Land Transport
Finance	Market Services

7.7 Policy Rate and Inflation Rate Mapping

The NGFS short-term scenarios provide both policy rates and inflation rates at a regional level. To achieve the necessary granularity for modeling market risk shocks, particularly yield curve shocks (as detailed in Section 7.1), a mapping was developed to derive country-level policy rates and inflation rates. Table 14 illustrates this mapping, showing how countries are assigned to regions with the NGFS policy rate and inflation rates of their respective mapped region then applied.

Table 14 Mapping between NGFS Policy Rate and Inflation Rate Regions and Countries

NGFS Policy Rate Regions	Country
North America	US
	Canada
Europe	UK
	Germany
Asia	China
	Japan
	India

7.8 Market Risk Benchmarking

In this section, a benchmarking exercise has been conducted to compare a selection of the market risk shocks produced in this phase of work with the market risk shocks produced in previous phases, as well as other regulatory stress tests. These include the Bank of England's 2025 bank capital stress test, the European Banking Authority's 2025 EU-wide stress test and the US Federal Reserve's severely adverse scenario. The benchmarking results indicate there is considerable variation across all these exercises. This is not entirely surprising, given they are focused on different risks. For example, the ISDA SWUC and DAPS equity shocks are smaller than the Bank of England and European Banking Authority shocks overall. But the ISDA DAPS shocks are similar to the Federal Reserve shocks for China and India (see Table 15).

Table 15: Market Risk Benchmarking for Country-level Equities Results

Asset Class	Region/ Country	Risk Factor	ISDA Sudden Wake-up Call	ISDA Disaster and Policy Stagnation	BOE Bank Capital Stress Test 2025	EBA EU-wide Stress Test 2025	US FED Stress Test 2025 Severly Adverse	ISDA Transition Risk 2025	ISDA Physical Risk 2024
			1-Year	1-Year	1-Year	1-Year	Spot	1-Year	1-Year
Country-Level Equities	China	SSC 100	-10%	-30%			-27%[19]	-20%	
	India	Sensex	-10%	-30%	-57%		-27%[20]		
	Japan	NIKKEI225	-5%	-10%	-57%		-25%[21]	-20%	-25%
	Germany	EUROSTOXX50	0%	-10%	-50%	-50%[22]	-29%	-20%	
	UK	FTSE100	-10%	-10%	-48%	-52%[23]	-20%[24]	-20%	-20%
	US	S&P500	-5%	-5%	-57%	-61%	-26%[25]	-23%	-20%
	Canada	S&P/TSX60	-10%	-5%		-35%[26]	-20%	-25%	

Table 16: Market Risk Benchmarking for Rates Results

Asset Class	Region/ Country	Risk Factor	ISDA Sudden Wake-up Call	ISDA Disaster and Policy Stagnation	BOE Bank Capital Stress Test 2025	EBA EU-wide Stress Test 2025	US FED Stress Test 2025 Severly Adverse	ISDA Transition Risk 2025	ISDA Physical Risk 2024
			1-Year	1-Year	1-Year	1-Year[27]	Spot	1-Year	1-Year
Rates	China	Gov - 5-year	45	5			-32	15	
	India	Gov - 5-year	80	10	220		-75	160	-280
	Germany	Gov - 5-year	35	0	285	21	-126	60	-55
	UK	Gov - 5-year	90	5	245	104	-152	50	-90
	US	Gov - 5-year	150	0	240	36	-131	130	-70
	Canada	Gov - 5-year	100	5		36	-99	15	

[19] In the Federal Reserve stress test, SSC 100 is not included so the shock for China country equity has been used as an appropriate proxy

[20] In the Federal Reserve stress test, Sensex is not included so the shock for India country equity has been used as an appropriate proxy

[21] In the Federal Reserve stress test, ST NIKKEI225 is not included so the shock for Japan country equity has been used as an appropriate proxy

[22] In the European Banking Authority stress test, EUROSTOXX50 is not included so the shock for EUROSTOXX30 has been used as an appropriate proxy

[23] In the European Banking Authority stress test, FTSE100 is not included so the shock for the FTSE ordinary share index has been used as an appropriate proxy

[24] In the Federal Reserve stress test, FTSE100 is not included so the shock for the UK country equity has been used as an appropriate proxy

[25] In the Federal Reserve stress test, S&P500 is not included so the shock for the US country equity has been used as an appropriate proxy

[26] In the European Banking Authority stress test, S&P/TSX60 is not included so the shock for the S&P/TSX has been used as an appropriate proxy

[27] The European Banking Authority stress test does not include government bond shocks, so the five-year sovereign credit spread shock has been used as a proxy for all the European Banking Authority rates shocks

Table 16 shows the ISDA SWUC and DAPS rates shocks have the same sign as the Bank of England and European Banking Authority shocks but the opposite sign to the Federal Reserve shocks. The table also shows the ISDA SWUC shocks are of a broadly comparable size to the Federal Reserve shocks and are smaller than the Bank of England shocks.

Table 17: Market Risk Benchmarking for Commodities Results

Asset Class	Region/ Country	Risk Factor	ISDA Sudden Wake-up Call	ISDA Disaster and Policy Stagnation	BOE Bank Capital Stress Test 2025[28]	EBA EU-wide Stress Test 2025[29]	US FED Stress Test 2025 Severly Adverse[30]	ISDA Transition Risk 2025[31]	ISDA Physical Risk 2024
			1-Year	1-Year	1-Year	1-Year	Spot	1-Year	1-Year
Commodities	Global	GOLD	5%	0%	54%		-10%	20%	20%
		CBOT CORN	-5%	-20%		23%[32]	-13%	-5%	-5%
		COAL PRICE	-55%	-65%				-40%	-30%
		WTI CRUDE	-30%	-55%	40%[33]	57%[34]	-30%	-30%	-30%
		STEEL	0%	-40%		48%[35]	-30%[36]	20%	
		COBALT	40%	-20%		48%[37]	-30%[38]	20%	
		COPPER	5%	-40%		48%[39]	-33%	20%	
		NATURAL GAS	20%	-10%		65%	-12%[40]	25%	

[28] For the full set of traded risk scenario results from the Bank of England stress test, visit: www.bankofengland.co.uk/stress-testing

[29] For the full results from the European Banking Authority's 2025 EU-wide stress test, visit: www.eba.europa.eu/sites/default/files/2025-01/39277d07-2561-4d2c-9ed3-43da3b0f6880/2025%20EU-wide%20stress%20test%20-%20Market%20risk%20scenario.pdf

[30] For the full results from the Federal Reserve stress tests, visit: www.federalreserve.gov/supervisionreg/files/ccar-2025-stress-test-severely-adverse-market-shocks.pdf

[31] For the full set of market risk shocks for both the ISDA transition risk and physical risk scenarios, visit: www.isda.org/2025/02/05/climate-risk-scenario-analysis-for-the-trading-book-phase-3/

[32] In the European Banking Authority stress test, corn is not included so the shock for agriculture has been used as an appropriate proxy

[33] In the Bank of England stress test, WTI Crude is not included so the shock for Brent Oil has been used as an appropriate proxy

[34] In the European Banking Authority stress test, WTI Crude is not included so the shock for Brent Crude has been used as an appropriate proxy

[35] In the European Banking Authority stress test, steel is not included so the shock for metal has been used as an appropriate proxy

[36] In the Federal Reserve stress test, steel is not included so the shock for unspecified metal has been used as an appropriate proxy

[37] In the European Banking Authority stress test, cobalt is not included so the shock for metal has been used as an appropriate proxy

[38] In the Federal Reserve stress test, cobalt is not included so the shock for unspecified metal has been used as an appropriate proxy

[39] In the European Banking Authority stress test, copper is not included so the shock for metal has been used as an appropriate proxy

[40] In the Federal Reserve stress test, a global commodity shock has not been included so the shock for the US has been used as an appropriate

ABOUT ISDA

Since 1985, ISDA has worked to make the global derivatives markets safer and more efficient. Today, ISDA has over 1,000 member institutions from 78 countries. These members comprise a broad range of derivatives market participants, including corporations, investment managers, government and supranational entities, insurance companies, energy and commodities firms, and international and regional banks. In addition to market participants, members also include key components of the derivatives market infrastructure, such as exchanges, intermediaries, clearing houses and repositories, as well as law firms, accounting firms and other service providers. Information about ISDA and its activities is available on the Association's website: www.isda.org. Follow us on LinkedIn and YouTube.