

INTERVIEW

The CFTC's Kristin N. Johnson
on market shocks

BANKS

SVB's collapse informs
US Basel III rules

DIVERSITY

Citi's Erika Irish Brown on
improving inclusion



ISDA® Quarterly

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GREEN FUTURE

*Financial institutions are collaborating with the public sector to stress
test and manage their exposures to climate risk*

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Summer Reading

US bank capital experts packing their bags for an August vacation may well have had to ditch the John Grisham in favour of somewhat heavier reading, after US prudential regulators published their keenly-awaited Basel III ‘endgame’ proposals on July 27. But while the 1,000-plus-page notice of proposed rulemaking may lack the thrills and spills of Grisham’s *The Pelican Brief*, it does contain one or two plot twists and surprises of its own.

Chief among them is the decision to replace the advanced approaches with a new expanded risk-based approach (ERBA) – a methodology that no longer provides banks with the option to use internal models for credit risk, counterparty credit risk and operational risk. The only area where sophisticated banks still have the option to use internal models is market risk. Under the proposed framework, all US banks with total assets of \$100 billion or more will have to calculate risk-weighted assets amounts using both the current US standardised approach and the new ERBA and use whichever is higher – an approach that differs from that taken by regulators in other jurisdictions (see pages 8-9 and 32-35).

The US agencies estimate the new proposals will result in an aggregate 16% increase in common equity tier-one capital requirements for banks, but with the increase falling principally on the largest and most complex banks. That’s despite the roughly 3.7 times increase in capital at US global systemically important banks since the 2008 financial crisis. ISDA plans to run a quantitative impact study to get a more detailed breakdown of how the rules will play out in terms of capital requirements. We’ll also delve into the detail of the proposals during our dedicated capital events in the fourth quarter – the London event on November 30 is already open for registration ([isda.org/events](https://www.isda.org/events)) and the New York event on December 12 will open shortly. Spaces will be strictly limited, so make sure you don’t miss out.

Our cover story for this issue is also capital-related – it explores the efforts of ISDA, Deloitte and a group of banks to develop an approach to help assess the impact of climate-related risks on short-dated trading book assets. Having developed a conceptual framework for scenario analysis earlier this year, the next step will be to create a set of scenarios for the trading book – work that is already underway (see pages 12-17).

Nick Sawyer

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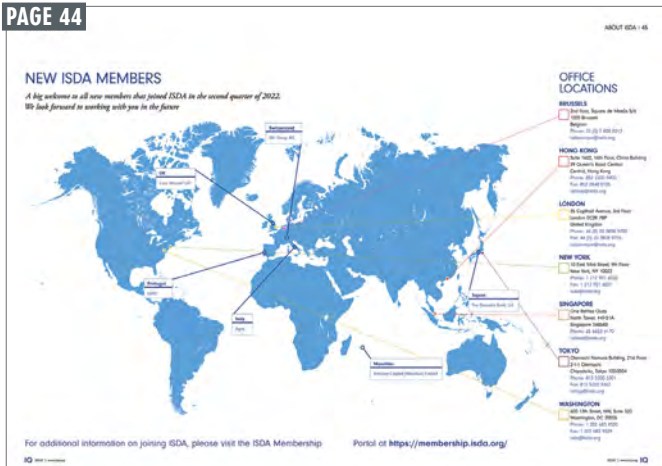
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“We found blind spots in the identification of climate and environmental risks in key sectors. For physical risk, many institutions only cover certain risk drivers for individual portfolios, but fail to reflect the full array of risk drivers”

Irene Heemskerk, European Central Bank



Align, Advance, Adopt

*ISDA is bringing greater alignment to its suite of mutualised digital solutions, designed to create more efficiency for derivatives users, writes **Scott O'Malia***

The derivatives market is complicated enough, but we persist in making it more complex than it needs to be by continuing to use paper documents, manual processes and non-standard practices. For some time, ISDA has worked to address this by developing a variety of industry solutions designed to bring greater efficiency, standardisation and automation to derivatives markets. We're now taking this effort to the next level by bringing all our digital solutions and team members who handle digital transformation under a single umbrella – a change designed to not only align our solutions, but to encourage innovation and ensure we're prioritising the issues the industry wants solved.

The rationale is simple: there are certain processes that we think benefit from having automated, standardised industry solutions, eliminating needless inconsistencies, errors and risks. For market participants, it is far cheaper and more efficient to use a mutualised solution for those tasks where there is no competitive advantage to going it alone. This is what drove the development of our first industry solution – the ISDA Standard Initial Margin Model. Given counterparties must ultimately agree on the margin amounts that need to be exchanged, there was simply no benefit for each firm to spend time and money building its own unique model.

Since then, we have developed a variety of mutualised platforms and services that aim to digitise critical processes in the derivatives market. From ISDA Create that facilitates the online negotiation and execution of flagship derivatives documents to the Perun quantitative analysis platform that underpins our capital benchmarking initiative, ISDA's digital solutions have been developed in close collaboration with our membership to reduce risk and create efficiencies. The ISDA Create platform is now used by more than 300 buy- and sell-side firms, while ISDA's benchmarking service has been used by 77 banks and 20 regulators across 20 countries to benchmark hundreds of portfolios.

We also developed the Common Domain Model (CDM), a free-to-use data standard for financial products, trades and lifecycle events, which has been effectively deployed in the derivatives market to digitise regulatory reporting and key collateral management processes.

For regulatory reporting, the first iteration of our digital initiative was launched in November 2022, ahead of reporting rule changes introduced by the US Commodity Futures Trading Commission on December 5.

By using the CDM to transform a mutualised interpretation of the requirements agreed by an ISDA working group into machine-executable code that anyone can use, firms can avoid the need to dedicate time and resources to interpreting the rules themselves, creating significant efficiencies and cost savings while delivering more accurate and consistent data to regulators. We're now planning to extend the digital regulatory reporting initiative to cover rule amendments in Europe and Asia-Pacific, beginning in April 2024 with the EU and Japan.

A key part of the effort has been to digitise our legal documentation. The MyLibrary electronic documentation platform now hosts around 90 derivatives documents in digital form, including the flagship 2002 ISDA Master Agreement and the 2021 ISDA Interest Rate Derivatives Definitions. The platform means firms can now quickly pinpoint crucial contractual terms rather than trawling through hundreds of pages of legal documents in PDF or paper form, bringing massive efficiencies and time savings. New documents are being added to MyLibrary all the time, and we're now exploring the use of artificial intelligence to make that process quicker.

Having developed these services and solutions, we're aligning them under a single digital transformation team. This new dedicated group within ISDA will focus on identifying key industry needs across our full suite of platforms to ensure we're prioritising our efforts where they are most needed in a consistent and coherent way.

We know there's a strong appetite for efficiency and cost reduction across the industry. We want to maximise the potential to achieve that by making the most of what we already offer – by advancing and innovating existing solutions where necessary – and identifying new areas where digital solutions can create efficiencies. Of course, those efficiencies will increase as more and more firms implement the same mutualised solutions, so a key focus for us will be on raising awareness and encouraging adoption.

These three prongs – align, advance and adopt – will be at the centre of our digitisation initiatives, led by our new digital transformation team. We believe this will contribute to a more standardised, automated and efficient derivatives market.

Scott O'Malia
ISDA Chief Executive Officer

"There are certain processes that we think benefit from having automated, standardised industry solutions"

ISDA SIMM to Move to Semiannual Calibration

The ISDA Standard Initial Margin Model

(ISDA SIMM) will move to semiannual calibrations from 2025, replacing a framework to allow for off-cycle recalibrations introduced late last year.

The decision to change to a semiannual calibration was made in coordination with global regulators and is intended to make the process for updating the ISDA SIMM consistent and predictable, while also ensuring the model is responsive to stress events.

Under the new semiannual framework, there will be a primary and secondary calibration. The primary calibration will assess all ISDA SIMM parameters while the other will evaluate the main delta risk weights. Each calibration cycle is expected to take 7.5 months – although that includes a notification period required by some regulators for any changes to the model resulting from the calibration. As currently planned, the primary calibration will occur in the first half of each year, effective in August, and the secondary review will run in the second half, with implementation in February.

The original process for updating the ISDA SIMM was based on an annual calibration and backtesting exercise, in line with regulatory


requirements. This was modified late last year to allow for off-cycle recalibrations, resulting in version 2.5A of the ISDA SIMM methodology. This was published on May 5, 2023 and implemented on July 15 after the first off-cycle calibration, triggered by a period of interest rate volatility at the end of 2022, which led to an update to the main interest rate delta risk weights. The previous version – 2.5 – was published on September 7, 2022, with an effective date of December 3, 2022.

As part of the off-cycle methodology, quarterly checks take place to determine if there has been a new market stress event and whether there is a material and systemic issue caused by low risk weights that could lead to a significant under-margining of portfolios. If there has been a stress event and there is a material and systemic issue, then an off-cycle recalibration is performed for the main delta risk weights of the affected risk class, with a new version of the methodology effective six to eight months later – ensuring any new stress event is incorporated into the model sooner than would have been the case under the original annual calibration.

In contrast, the new semiannual calibration means the model will be reviewed and updated twice a year, irrespective of market conditions.

“Having gone through an off-cycle calibration, we appreciate they are complex and unpredictable, without any opportunity to plan for operational efficiency,” says Scott O’Malia, ISDA’s chief executive.

Making changes to the ISDA SIMM methodology can pose operational challenges for users and usually involves a formal review by each firm’s internal model validation group. A notification period is also required by some regulators for any modifications to the model resulting from a calibration exercise.

“We are working with regulators to streamline the time frames so both updates can be accomplished within the year. We’re also looking at ways of making the experience as efficient as possible for market participants,” says O’Malia. 

More information on the ISDA SIMM, including details of version 2.5A of the methodology, is available here: <https://shorturl.at/kHJQ6>

EU Legislators Urged to Drop EMIR 3.0 Active Account Proposal


ISDA and 10 other trade associations have called for the removal of the European Commission’s proposed active account requirement under the European Market Infrastructure Regulation 3.0 (EMIR 3.0), which would require all market participants to hold active accounts at EU central counterparties (CCPs) for clearing at least a portion of certain derivatives contracts.

The EMIR 3.0 proposals are currently being debated in the European Parliament and the Council of the European Union.

The trade associations published a joint statement on September 7 that urges policymakers to delete the proposed active account requirement and instead focus on streamlining the supervisory framework for EU CCPs across member states while making EU CCPs’ offerings for clearing in the EU more attractive and innovative.

“Any measures to increase the attractiveness of EU clearing should be guided by the principle of supporting EU financial stability, facilitating client choice on where to clear and

protecting the international competitiveness of EU market participants,” said the associations.

The statement also highlights the detrimental impact the proposed active account requirement would have on EU capital markets by introducing fragmentation, loss of netting benefits and making the EU less resilient to market stresses, with no benefit to EU financial stability. This will ultimately harm European pensions savers and investors, the associations point out. 

US Agencies Publish Basel III NPR

US prudential regulators published their long-awaited notice of proposed rulemaking (NPR) on the final Basel III measures on July 27, which includes deviations from the approach taken by the Basel Committee on Banking Supervision – and regulators in the EU and UK – in several areas.

The proposal extends the rules to US banking organisations with total assets of \$100 billion or more (see pages 32-25), and introduces a number of new elements to certain parts of the framework, including the Fundamental Review of the Trading Book (FRTB) and the revised credit valuation adjustment (CVA) risk methodology.

In a major deviation from the Basel Committee standards, US agencies have

introduced a new expanded risk-based approach (ERBA) that replaces the advanced approaches. Under the ERBA, banks will no longer have the ability to use internal models for credit risk and counterparty credit risk, unlike institutions in the EU and UK, based on proposed rules in those jurisdictions. The only part of the ERBA that allows internal models is the FRTB: the NPR introduces the new FRTB internal models-based methodology, which requires desk-level supervisory approval, alongside a more risk-sensitive standardised approach (see Chart).

“The US rules largely follow the Basel Committee framework, although there are areas that differ compared to the implementation in other major jurisdictions – including

a minimum haircuts floor framework for securities financing transactions. A significant difference to the Basel Committee framework is the removal of internal models for credit risk and counterparty credit risk,” says Panayiotis Dionysopoulos, head of capital at ISDA.

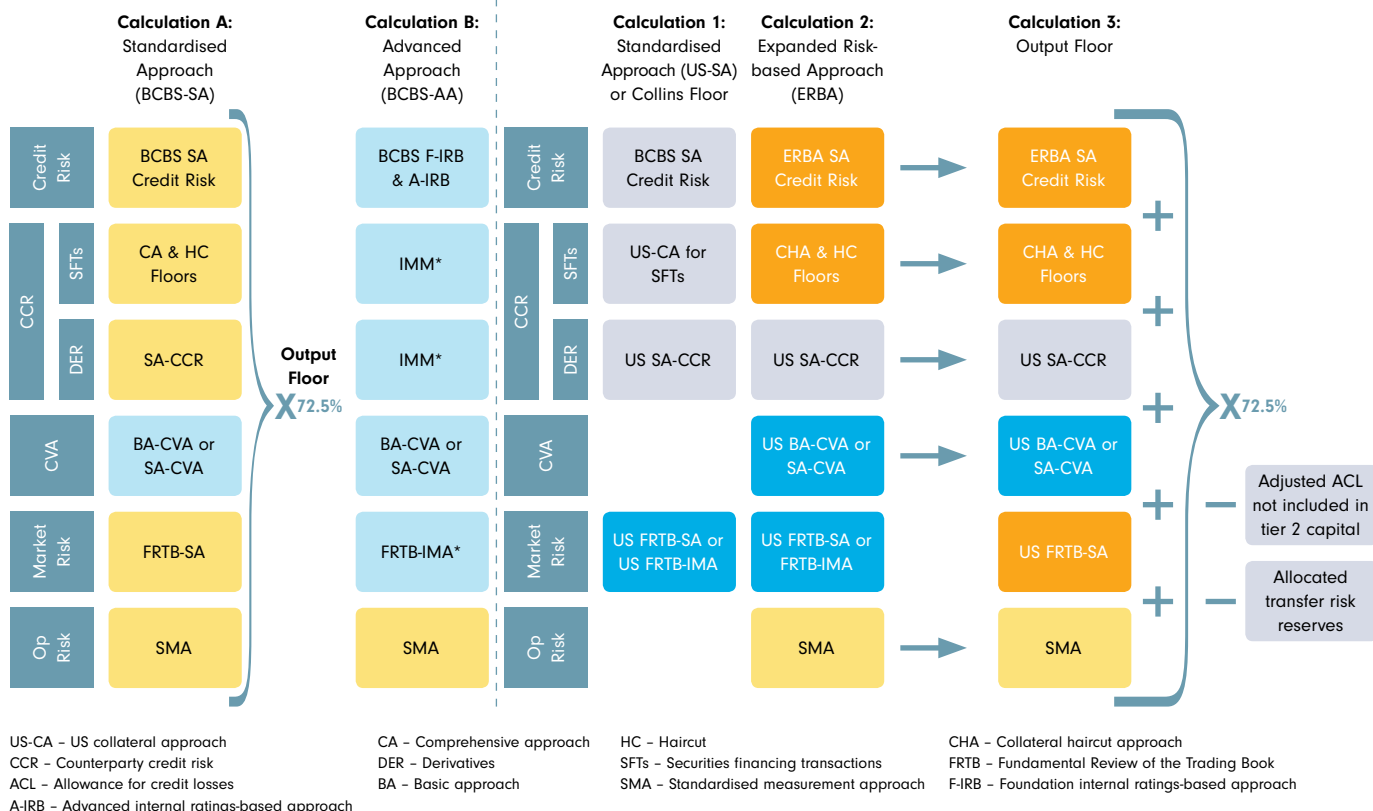
In another divergence from the Basel Committee standards, US agencies have retained the current US standardised approach but replaced the market risk requirements with the FRTB. Banks will also have to calculate risk-weighted asset (RWA) amounts using the new ERBA, which comprises standardised approaches for credit risk, operational risk, counterparty credit risk and market risk (with the choice to use internal models for the FRTB). For CVA risk, banks will have the option under

Basel Committee on Banking Supervision (BCBS)

Minimum Risk-based Capital Requirement: This is the most punitive of calculations A and B. For standardised approach (SA) banks, only calculation A is needed. For advanced approach (AA) banks, both calculation A and B are needed, as banks need to apply a floor at 72.5% of the BCBS-SA.

US Proposed Minimum Risk-based Capital Requirement:

This is the most punitive of calculations 1, 2 and 3. The US-SA and ERBA are required for all banks with total assets of \$100 billion or more. FRTB-SA banks would then calculate the output floor based on the ERBA. For FRTB-IMA banks, a third constraint would be applicable – ie, an output floor using calculation 3.



*If no internal model method (IMM) or internal models approach (IMA) desk approval is obtained, then the standardised approach is followed.

the ERBA to use a standardised approach and a basic approach, in line with Basel Committee standards. For banks applying internal models for market risk, a third calculation is needed using the FRTB standardised approach to determine an output floor.


“The NPR keeps the existing US standardised approach due to the so-called Collins amendment, which sets this as a floor for any US banking organisation’s capital requirements. However, having multiple capital calculations that differ in scope and methodology introduces operational complexity that needs to be assessed,” says Lisa Galletta, head of US prudential risk at ISDA.

Under the new framework, the US rules will come into effect on July 1, 2025, but with a three-year transition for some components, meaning the requirements will become fully effective from July 1, 2028. This differs from the approach taken by EU and UK policymakers, which have opted for an implementation date of January 1, 2025, with a five-year transition for certain requirements, such as the output floor.

“It is important that the time lines for implementation align across the major jurisdictions in order to prevent an unlevel playing field. We hope regulators will coordinate timings to avoid potential issues,” says Galletta.

The US agencies estimate the changes will result in an aggregate 16% rise in common equity tier-one capital requirements for banks, but state that the increase will primarily impact the largest and most complex banks. That’s despite the fact that US global systemically important banks (G-SIBs) have significantly increased their capital since the financial crisis. According to PwC, the aggregate amount of common equity tier-one capital held by US G-SIBs has risen from approximately \$237 billion in 2008 to \$881 billion in the fourth quarter of 2022.

For market risk, the impact could be even greater. Based on the NPR, category one to four banks are estimated to see a 75% increase in market risk RWAs.

“While US regulators have recognised banks are currently well capitalised, they also expect the new Basel III proposals to result in a significant rise in capital requirements for trading book activities, which could force banks to curtail certain trading and intermediary businesses. ISDA will run an industry quantitative impact study to obtain a more detailed understanding of how the rules will affect banks,” says ISDA’s Dionysopoulos. 

End of the Road for US Dollar LIBOR

The five remaining US dollar LIBOR settings were published for the last time on a representative basis on June 30, marking the end of one of the biggest structural changes in the history of financial markets. Following years of preparation and collaboration between the public and private sectors, completion of the transition from LIBOR occurred without any significant disruption.

“A combination of industry efforts, legislative solutions and public-sector initiatives have allowed us to reach this milestone. As we close the book on LIBOR, we should be proud of the painstaking work that has gone into the transition,” says Scott O’Malia, chief executive of ISDA.


For legacy contracts, central counterparty conversions of cleared US dollar LIBOR derivatives to SOFR in April and May helped to accelerate the market’s transition. Implementation of the LIBOR Act in the US also provided a critical avenue for US law-governed tough legacy non-cleared LIBOR contracts to switch to a SOFR-based fallback.

For contracts not governed by US law, the UK Financial Conduct Authority (FCA) announced in April that it would require LIBOR’s administrator, ICE Benchmark Administration, to continue publishing one-, three- and six-month US dollar LIBOR using a synthetic methodology until September 30, 2024. However, the FCA made clear that these synthetic rates are not representative of the underlying markets and are only available for limited use in non-cleared legacy contracts.

ISDA’s involvement in the LIBOR transition dates from 2016, when it was asked by the Financial Stability Board’s Official Sector Steering Group to take the lead in improving the contractual robustness of derivatives referencing LIBOR and other key interbank offered rates (IBORs). In collaboration with the industry, ISDA developed fallbacks that automatically kick in for non-cleared derivatives that continue to reference certain IBORs that cease to exist or, in the case of LIBOR, become non-representative, creating a safety net for those transactions that don’t otherwise switch to alternative reference rates.

ISDA launched the IBOR Fallbacks Supplement and IBOR Fallbacks Protocol in October 2020, with both becoming effective on January 25, 2021. The supplement updated ISDA’s standard interest rate derivatives definitions to incorporate the fallbacks into new transactions, while the protocol allowed adhering parties to embed fallbacks into non-cleared derivatives traded before January 25, 2021 with other counterparties that also adhered. More than 16,200 entities from 92 countries have so far adhered to the protocol, highlighting the widespread recognition of the importance of fallbacks.

While contractual fallbacks and legislative solutions for tough legacy trades reduced the systemic risk associated with the switch from LIBOR, other workstreams led by regulators and risk-free rate (RFR) working groups such as the Alternative Reference Rates Committee helped to drive proactive transition to alternative reference rates. For example, the US Commodity Futures Trading Commission’s Market Risk Advisory Committee’s SOFR First initiative, which was modelled on the successful SONIA First initiative in the UK, switched trading conventions for derivatives to reference SOFR on a phased basis from July 2021, leading to month-on-month increases in the use of the benchmark.

The percentage of total US dollar cleared over-the-counter and exchange-traded interest rate derivatives DV01 referenced to SOFR rose to an all-time high of 76.2% in August 2023, up from just 7.4% in July 2021, according to the ISDA-Clarus RFR Adoption Indicator. The overall indicator, which monitors RFR activity across eight currencies, reached an all-time high of 66.1% in August 2023, up from 14.0% in July 2021. 

ISDA Publishes Survey on Derivatives Use in EMDEs

ISDA has published the results of a survey that explores the development of capital and derivatives markets in emerging market and developing economies (EMDEs) and recommends possible policy approaches for authorities in those jurisdictions.

The study, published on July 13, follows an ISDA paper in May 2022 that highlighted key legal, regulatory and risk management issues EMDE authorities should consider when establishing a framework for local derivatives markets. The survey highlights the current situation in each of those areas across 44 EMDEs, which include Ghana, Mexico, Pakistan, Serbia, Vietnam and United Arab Emirates.

For example, the survey shows that 19 out of 44 surveyed EMDEs have restrictions in place limiting the types of participants allowed to use derivatives, while 18 out of 43 EMDEs limit or prohibit use of certain types of derivatives. Around half – 20 out of 43 jurisdictions – require firms to register before they can engage in derivatives activity.

While the 44 surveyed EMDEs are at different stages in terms of economic and financial market development, a number have implemented regulatory reforms in line with Group-of-20 standards. Seventeen out of the 44 jurisdictions have reporting requirements for over-the-counter derivatives in place – an important step to enable monitoring of risk by regulators. Nine out of 44 have introduced margining requirements for non-cleared derivatives and six out of 44 have rolled out clearing mandates for certain standardised derivatives.

“Derivatives play a vital role in managing risk and facilitating robust, liquid capital markets, which, in turn, support economic growth. To help the development of local derivatives markets, policymakers should address certain regulatory, legal and risk issues governing their use,” says Scott O’Malia, chief executive of ISDA.

“But while some practices, laws and rules, such as the enforceability of close-out netting, are essential in every jurisdiction, not all global regulatory standards are appropriate in all EMDEs. Our survey is

intended to shed light on the state of play in 44 emerging market and developing economies, and to recommend steps authorities can take to foster safe and efficient derivatives markets,” O’Malia adds.

ISDA’s recommendations include establishing legal certainty over the enforceability of close-out netting as an important prerequisite for robust, liquid derivatives markets. Counterparty credit exposures are significantly reduced in jurisdictions where netting is legally enforceable, which enhances capital efficiency and liquidity management and can facilitate

Committee on Banking Supervision and the International Organization of Securities Commissions. Importantly, enforceability of close-out netting is a necessary precondition to implement margin rules. Having a liquid and efficient collateral market without undue restrictions and the development of collateral management capabilities within local financial institutions should also be considered.

In addition, mandatory clearing requirements might not be appropriate in jurisdictions with relatively little derivatives activity or exchange controls, as local

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Scott O’Malia, ISDA

additional investment and economic activity. Legislators should identify in detail the relevant areas of local law that could potentially conflict with the effectiveness of netting agreements, so all relevant issues are adequately addressed in local legislation. Netting legislation should deal not only with close-out netting, but also with financial collateral.

ISDA recommends policymakers should allow diverse types of counterparties with different business models and risk exposures to participate in derivatives markets, including foreign counterparties. A wider range of participants will help financial market development and also allow a smoother reallocation of risk in the system between institutions.

When contemplating the implementation of margin requirements in EMDEs, regulators should consider the scope of the rules. Specifically, entities that are not systemically important should be exempt from margin obligations. Any new or revised margin requirements should be aligned with standards developed by the Basel

derivatives markets might lack sufficient depth and liquidity. As a result, central counterparties may not be able to effectively manage the risk of a portfolio of derivatives if a clearing member defaults. These jurisdictions should focus on enforceability of close-out netting prior to establishing any clearing mandate.

ISDA also recommends that regulators in EMDEs should ensure market participants have appropriate risk management policies and practices in place. This involves developing, implementing and periodically benchmarking risk management policies and practices. 

[Read the full survey results and recommendations: shorturl.at/MRT49](https://shorturl.at/MRT49)

[The latest episode of *The Swap* podcast explores how the development of local derivatives markets can help boost economic growth and financial market liquidity in emerging market and developing economies. Listen here: shorturl.at/ehy19](https://shorturl.at/ehy19)



Green Future

Financial institutions are collaborating with the public sector to stress test and manage their exposures to climate risk

As financial institutions address the twin challenges of managing their climate risk exposures and reducing their emissions, there is increasing recognition of the need for collaboration to achieve meaningful results.

Up until now, banks have used scenario analysis to model the impact of future climate shocks on long-term assets, but it has become clear that such shocks – from extreme weather events to changes in government policy – could also affect the value of short-term traded assets. During the first half of this year, ISDA worked with a group of more than 30 banks to establish a conceptual framework for climate scenario analysis in the trading book and is now building on that framework to develop scenarios (see pages 12-17).

In designing the conceptual framework, ISDA collaborated closely with public-sector entities, including the Network of Central Banks and Supervisors for Greening the Financial System, which is working to expand its suite of climate scenarios. The European Central Bank (ECB) has also developed its own climate scenarios as part of a wide-ranging focus on climate change that includes stress testing, disclosure requirements and other supervisory measures. In an interview with **IQ**, Irene Heemskerk, head of the ECB's climate change centre, discusses the central bank's strategy (see pages 18-23).

As well as managing climate risk and meeting the expectations of supervisors, financial institutions must also reduce their own carbon emissions and support global efforts to reach net zero. The voluntary carbon market has the potential to offset those emissions that can't be immediately eliminated while also channelling finance to green infrastructure and technology, but concerns over greenwashing have impeded its growth. A set of core carbon principles developed by an independent governance body, the Integrity Council for the Voluntary Carbon Markets, could help to address this problem (see pages 24-27). **IQ**

“Climate scenarios are the best way to estimate the impact of future risks because we don't have robust historical data as we do for shocks such as a financial market crash or an economic recession. The scenarios that have been developed in recent years have enabled financial institutions to prepare for future climate risks over a long period of time”

Stéphane Dees, Banque de France

* A Trading Book Framework

Climate scenario analysis has typically focused on the long-term impact of climate shocks, but banks have also identified a need to assess the short-term effects on traded assets. A conceptual framework developed by ISDA and a group of banks is intended to provide a starting point

Global efforts to reduce greenhouse gas emissions

and a spate of extreme weather events have prompted a growing number of businesses to think about how they might be affected by changes in climate and the various initiatives to transition to a greener economy. For many financial institutions, this has led to an evolution in risk management to capture the impact of possible climate- and transition-related shocks on certain assets – but participants in the public and private sectors are now looking to take this work a step further.

Scenario analysis is a key tool for estimating the effects of future climate events on financial assets, and this has typically focused on how loans and other held-to-maturity assets might be affected over a period of years and decades. Banks recognise the need to extend this analysis to assess the impact on shorter-term trading book assets. But, to achieve this, a number of challenges must be overcome, including the lack of robust data and standardised methodologies.

20%

The fall in global GDP by 2100 that could result from no policy action to mitigate climate change, according to NGFS scenarios

“To date, most climate stress testing and scenario analysis has focused on credit exposures such as loans, which is understandable given the relative size of the banking book and the fact that climate risks might be expected to emerge over longer time horizons. But climate change and the transition to a net-zero economy will also create risks for banks’ trading businesses. Central banks, regulators, financial firms and others are all seeking to better understand how climate risks might play out in trading businesses,” said Bruce Aitken, head of supervisory risk at the UK Prudential Regulation Authority (PRA), speaking at an event on climate scenario analysis in the trading book hosted by ISDA and risk advisory firm Deloitte in June.

Working with a group of banks and Deloitte, ISDA has developed an end-to-end conceptual framework for climate scenario analysis in the trading book that offers a valuable starting point. The framework recognises that the climate narrative for future

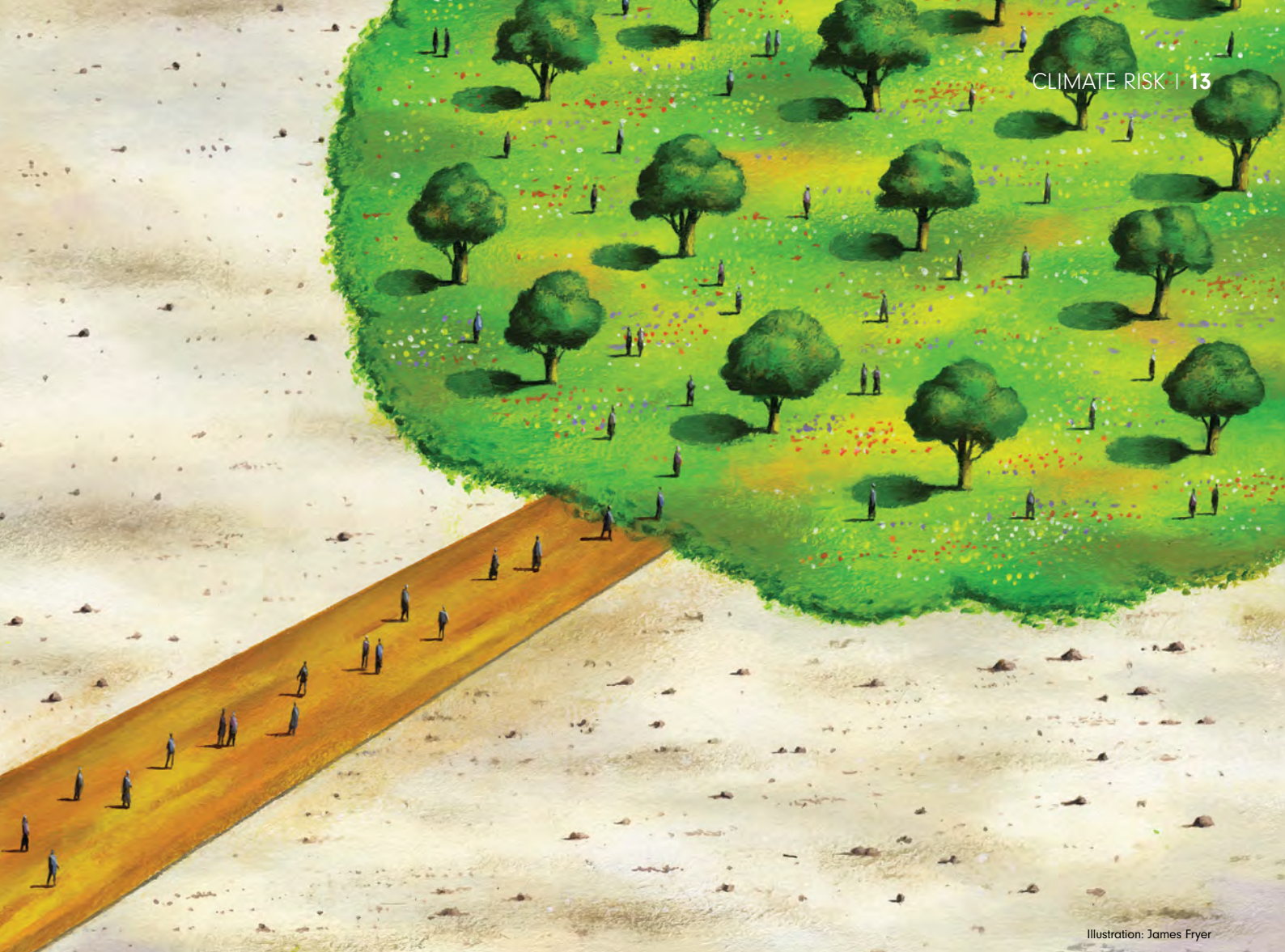


Illustration: James Fryer

short-term scenarios should be consistent and comparable with existing long-term versions, such as those developed by the Network of Central Banks and Supervisors for Greening the Financial System (NGFS), but should be more directly applicable to the trading book.

“Climate scenarios are the best way to estimate the impact of future risks because we don’t have robust historical data as we do for shocks such as a financial market crash or an economic recession. The scenarios that have been developed in recent years have enabled financial institutions to prepare for future climate risks over a long period of time, but there is a need to reduce the time horizon and address the more immediate impact,” says Stéphane Dees, head of the climate economics unit at the Banque de France and co-lead of the NGFS sub-stream on short-term scenarios.

Industry priority

Climate risks can be broadly divided into two categories – physical risks, such as floods, droughts and hurricanes, and transition risks, such as a sudden change in public policy on the drive to reduce emissions. In both cases, there is a potential market risk impact, but banks can’t rely on past experience for modelling because the relevant event may not have happened before, or it might not have occurred with the severity that might come to pass in the future. Following a succession of extreme weather events across

the globe and with the transition to net zero gathering pace, climate scenario analysis has become an industry priority.

In the third quarter of 2022, ISDA and EY conducted a survey of 18 banks, including 14 categorised as globally systemically important, to better understand the maturity of firms’ approaches to climate risk and scenario analysis in the trading book. The results showed most banks recognise the need for more advanced scenario analysis but are still at a very early stage, with only a partial ability to quantify the market risk impact of defined climate shocks.

“The industry as a whole understands this is something that needs to be done and banks are going through the gears to determine what a sophisticated approach might look like. We need to think about the range of possible scenarios, from an extreme weather event to a political event, such as a change in carbon taxation policy, and then develop a robust way to model what the market reaction would be and how it might affect asset prices and other factors,” says a senior risk manager at one European bank.

The ISDA survey also probed the challenges banks had encountered in developing climate risk scenario analysis for the trading book. A majority of respondents pointed to the difficulty of identifying and defining climate risk shocks, as well as mapping climate drivers to market risk factors. A lack of consensus on methodology and



“It is important that we all consider how climate risks in banks’ trading businesses could materialise and how they can be managed, and how climate shocks might transmit via the trading book to other parts of firms’ exposures, or affect the financial system more broadly”

Bruce Aitken, UK Prudential Regulation Authority

→ approach was widely acknowledged as an obstacle, while many respondents highlighted challenges in selecting and calibrating parameters. A majority also identified the lack of consistent, granular and reliable data to assess climate risk as a key problem.

“From a market risk perspective, our job is to think about possible risks on the horizon and how we protect against them, so we are used to designing scenarios and putting numbers around those scenarios. We’ve started to take the same approach to climate risk, but the shortage of historical data and the lack of an established industry methodology to translate scenarios into actual shocks

makes it a challenge,” says Pradyumna Javalekar, co-head of climate market risk at JP Morgan.

As with any evolution in market practice, banks are at different phases in the development of their climate risk management capabilities, from the very early stages to the more advanced. But a combination of factors, including shareholder and regulatory pressure and the magnitude of recent weather shocks, is likely to move this higher up the agenda for many banks in the coming years.

A big driver is the fact that climate risk has been incorporated into supervisory processes in recent years, with entities including the European Central Bank (ECB),

KEY FACTORS TO SUPPORT THE DESIGN AND IMPLEMENTATION OF CLIMATE SCENARIOS

- 1. Applications:** Establishing the use case of climate scenario analysis is required to inform the design of the exercise and ensure it can generate an appropriate set of outputs.
- 2. Assumptions:** Adopting a static balance sheet is the most appropriate approach for climate scenario analysis in the trading book, given the complexity and uncertainty associated with climate risk. However, firms may wish to consider dynamic approaches based on the use case.
- 3. Narrative:** The scenario narrative is necessary to describe the logic or development of physical or transition risk events and should be consistent with the outcome of the climate risk shock.
- 4. Scenario horizon:** The horizon of the climate risk scenario should be sufficiently short term to be able to capture an instantaneous climate risk event and its effects on financial markets, while also considering the use case and asset class being assessed.
- 5. Scenario coherence:** Thought should be given to the plausibility of multiple occurring events and how this would affect the ability to isolate the effects of one climate event when conducting scenario analysis.
- 6. Scenario consistency:** Short-term trading book scenario narratives should be consistent with and easily comparable to existing longer-term scenario narratives, such as those provided by the Network of Central Banks and Supervisors for Greening the Financial System.
- 7. Portfolio segmentation:** Portfolio segmentation should be undertaken to identify the most vulnerable and material sectors in the chosen portfolio(s). This will help to prioritise the climate scenario analysis in the trading book. Banks should try to achieve the greatest level of portfolio granularity possible to enable a robust assessment of climate risk.
- 8. Climate data:** Reflecting the current challenges of gathering appropriate data to conduct climate scenario

the Bank of England and France's Autorité de Contrôle Prudentiel et de Résolution seeking to ascertain the readiness of banks for future climate shocks. In 2022, the ECB carried out a climate risk stress test across 41 banks and set out the areas where it expects firms to make further progress in the coming years.

The ECB stress test included a three-year disorderly transition risk scenario and two physical risk scenarios and found the combined credit and market risk losses for the 41 banks would amount to roughly €70 billion, although this is believed to significantly understate the risk. As central banks and supervisors enhance their scrutiny of this area and require banks to manage climate risk with greater sophistication and consistency, the need for advanced scenario analysis for the trading book will increase.

"It is important that we all consider how climate risks in banks' trading businesses could materialise and how they can be managed, and how climate shocks might transmit via the trading book to other parts of firms' exposures, or affect the financial system more broadly. We will be encouraging banks to develop their internal capabilities, and we will also be seeking to develop our own understanding of how firms are considering climate risks in their trading books and techniques for risk management," said the PRA's Aitken.

As regulators continue to develop their climate stress testing capabilities, there is clearly a need for sophisticated scenario analysis that can more accurately model the effects of climate shocks on traded instruments. While all banks have unique risk profiles and idiosyncrasies in their business structures, there is value in having a consistent framework for the development of those scenarios so the results are comparable across institutions.

"The supervisory climate stress tests that have been undertaken only partially cover the trading book and are based on a limited choice of scenarios at this point, which makes it difficult to deliver meaningful results. As an industry, we have to improve our ability to measure these risks and design short-term scenarios that are consistently applied across the industry. This has to be a collaboration, because if every institution builds its own framework, we will have many different outcomes that will be unreadable and incomparable," says Marc Irubetagoiena, global head of stress testing and financial simulation at BNP Paribas.

Developing scenarios

Given the challenge of accurately measuring the impact of climate risk on traded assets, banks have typically taken existing scenarios as a starting point and modified them to reflect the specific characteristics of the trading book. A number of entities, including the NGFS, the ECB and the Bank of England, have developed their own climate scenarios that typically take a more long-term view. These might be used as a template, but with an accelerated time horizon to reflect an instantaneous shock and with market risk variables included to derive an assessment of the trading book impact.

The NGFS, which was first convened in 2018 and now comprises 127 central banks and supervisors, published the third iteration of its climate scenarios in September 2022. The scenarios explore the transition and physical impacts of climate change over a long time horizon that runs to the end of the century. At a global level, the latest scenarios suggest the macroeconomic impact of no policy action to mitigate climate change could lead to a fall in gross domestic product (GDP) of at least 20% by 2100. →

analysis, the industry should consider a quantitative assessment where feasible and supplement this using qualitative approaches and expert judgement to inform climate risk shocks.

9. Transmission channels: Identifying relevant transmission channels for climate shocks and their associated market impact is an important step in determining the appropriate calibration approach and assessing the resulting trading book effect.

10. Liquidity horizon: A given climate shock could affect the ability to liquidate positions in each sector or market in the short term and may subsequently affect hedging strategies. Attention

should be given to liquidity horizons when considering the effect of a climate scenario on the trading book.

11. Calibration: Firms should select the most appropriate method to calibrate market risk factors for the trading book and decide if a quantitative or qualitative approach is more suitable for the given use case and scenario pathway. Firms should consider alternative approaches that might be required for transition and physical risks. Firms should take care to evidence and justify their choices.

12. Modelling capabilities: Institutions should consider undertaking a stocktake of existing modelling capabilities to

generate market risk factors and look to develop these for climate scenario analysis in the trading book with other approaches, such as data-driven assessment or expert judgement. Any development of a new model should be commensurate with materiality and consider the model risk associated with the approach.

13. Metrics: A range of metrics, such as profit and loss or risk-weighted assets, should be used to assess the financial impact of climate risk shocks in the trading book, and the most appropriate metric could differ depending on the use case or a firm's level of maturity in scenario analysis.

→ “Scenario analysis helps to shed light on a highly uncertain future. The NGFS scenarios have enabled supervisors and market participants to assess the impact of climate policies and physical risks over a long-term horizon. In addition, there are important cyclical aspects and short-term amplification mechanisms that have so far not been explored. Providing NGFS short-term scenarios is a key priority to close this gap and enable financial institutions to engage in stress testing over a three-to-five-year horizon and transition planning. A conceptual note will be published by the end of this year and the technical implementation will follow next year,” says Laura Nowzohour, economist graduate program participant at the ECB and co-lead of the NGFS sub-stream on short-term scenarios.

Developing short-term climate scenarios running to three to five years will be new territory for the NGFS, but there is demand from banks with large trading businesses for scenarios that run to an even shorter time horizon. Given many assets are held in trading books for only a short amount of time, banks need to be able to model the immediate impact that a

climate shock might have over a period of days, weeks and months.

Following last year’s survey, ISDA worked with Deloitte and more than 30 member banks during the first half of 2023 to develop a conceptual framework for the design and implementation of climate risk scenario analysis in the trading book. The framework has been designed with the objective of creating scenarios that are sufficiently short-term to capture the effect of an instantaneous climate risk event on financial markets.

“Banks already have strong scenario analysis capabilities, which typically leverage their existing pricing models and risk management practices, so this conceptual framework uses those capabilities as a baseline and adds components to facilitate the analysis of climate risk.

We worked closely with the public sector and the participating banks, and the NGFS scenarios provided an important reference point, but it’s clear that scenarios for the trading book need to run at very short time intervals and go to an extra level of granularity that covers market risk factors,” says Panayiotis Dionysopoulos, head of capital at ISDA.



€70 billion

The combined credit and market risk losses for 41 banks resulting from a three-year disorderly transition risk scenario and two physical risk scenarios, according to ECB stress tests

“As an industry, we have to improve our ability to measure these risks and design short-term scenarios that are consistently applied across the industry. This has to be a collaboration, because if every institution builds its own framework, we will have many different outcomes that will be unreadable and incomparable”

Marc Irubetagoiena, BNP Paribas

While the NGFS expects its short-term climate scenarios to cover a time horizon of three to five years, the ISDA framework anticipates scenarios running to one day, one week, one month or up to one year. In the case of physical risks, a flood or tsunami would be expected to have an immediate impact on short-term asset prices. The effect of a transition event, such as a change in government policy, might be less obvious, but both need to be considered as part of effective scenario analysis, says Stephen Weston, partner, traded and quantitative risk advisory at Deloitte.

“Physical risks, such as earthquakes and droughts, are easier to grasp because there is some history of those events and people can see the effects, but transition risk is much trickier and many banks don’t yet see this as a short-term trading book problem. In reality, given the number of markets around the world where carbon is traded, a change in carbon taxation policy could have a really significant impact. Having a framework that enables us to think about these problems rationally and consistently is extremely valuable,” says Weston.

At the centre of the conceptual framework are the key stages of scenario design and implementation. At the design stage, the objective of the exercise would need to be clearly defined and then a coherent, plausible climate scenario would be developed that translates a specific shock into macro-financial variables. At the implementation stage, portfolio exposures would be identified and segmented by asset class, region, sector and counterparty, and data requirements and availability would be assessed. Market risk factors would then be derived and results would be generated to estimate the aggregate trading book impact of the scenario.

As an example, a transition shock like the introduction of a carbon tax or a physical shock like a flood might both have a macro-economic impact, such as a decline in the GDP of the relevant country. Translating those impacts into risk parameters – for example, a widening of credit spreads or a change in correlation between assets that might reduce the effectiveness of hedges – is a critical part of the framework that addresses the specific features of trading book assets.

“Quantifying the impact of long-term climate scenarios on short-term trading books with a composition that changes daily is more art than science at this stage. Risk management is not standardised across the industry and a variety of views is welcome, but it will be beneficial to increase cooperation and share best practices to achieve a certain degree of consistency in climate risk assessment for more liquid assets,” says Elena Renaudiere, co-head of climate market risk at JP Morgan.


ISDA published a paper in July that describes the conceptual framework in detail, as well as 13 key factors to support the design and implementation of climate scenario analysis in the trading book. Those range from the narrative and time horizon of the scenario to the calibration of market

“Risk management is not standardised across the industry and a variety of views is welcome, but it will be beneficial to increase cooperation and share best practices to achieve a certain degree of consistency in climate risk assessment for more liquid assets”

Elena Renaudiere, JP Morgan

risk factors and modelling capabilities (see box, pages 14-15).

In the second phase of the work, ISDA will build on the framework to develop a suite of scenarios for the trading book that can be used for regulatory stress testing and internal risk management and to inform strategy and pricing. As the NGFS works to develop its own short-term climate scenarios in the months ahead, ISDA will continue to engage with the public sector and participating banks during the next phase.

“There has been very positive engagement and collaboration with the NGFS and other public-sector entities throughout the development of the conceptual framework and we expect that to continue as we test the framework and develop scenarios. The feedback so far has indicated that we should start with a small number of scenarios that cover the key dimensions of physical and transition risks in a very targeted way, so that will be our focus during the rest of this year,” says ISDA’s Dionysopoulos. 

Read the ISDA paper, *A Conceptual Framework for Climate Scenario Analysis in the Trading Book*:
bit.ly/3OJEZt6

* Accelerating Change

*The European Central Bank established a climate change centre in 2021 to steer its climate strategy by aligning priorities, objectives and processes across business areas. **Irene Heemskerk**, head of the centre, talks to **IQ** about the achievements and challenges of the first two years*

IQ: What does the European Central Bank's (ECB) climate change strategy entail and how much progress has been achieved since the climate change centre was established in 2021?

Irene Heemskerk (IH): Let me start by emphasising the urgency of the climate crisis and why this is relevant for central banks and supervisors, and for us at the ECB. According to climate scientists, July 2023 is likely to have been the hottest month in recorded history across the globe and has affected many people's lives. The rise in temperatures is unfolding quicker than scientists expected, triggering devastating wildfires in Canada, Europe and many other places around the world. At the same time, the green transition is speeding up and countries committed to reaching Paris Agreement goals are putting policies and measures in place to reach these targets. The recent spike in energy prices has also spurred investment in renewable energy.

Governments have the best tools to address the climate crisis, but that doesn't mean central banks and supervisors can just stand by and watch. Climate change and the efforts to tackle it will lead to profound structural changes in our economy. If not well managed, they will impact price stability and create risks for the stability of our financial system, including individual financial institutions. Think about droughts leading to higher food prices, threats to the value of real estate in flood-prone areas or companies needing to change their business models to limit their carbon footprint. This means that, as a central bank and supervisor, we also need to do our part. It's great to see that ISDA has also picked up work on this, executing a survey on climate risk and publishing a conceptual framework for climate scenario analysis in the trading book.

At the ECB, we identified three strategic objectives. First, managing and mitigating financial risks associated with climate change and assessing its economic impact,

"Climate change and the efforts to tackle it will lead to profound structural changes in our economy. If not well managed, they will impact price stability and create risks for the stability of our financial system"



"While a speedier transition involves higher investment and energy costs, financial risks decrease significantly in the medium term. Banks are exposed to the highest credit risk if the transition has to be rushed at a later stage"

so our analyses and decision making accounts for these structural changes to our economy. Second, supporting a smooth transition to a climate-neutral economy within the scope of the ECB's mandate. And third, fostering wider action from others, as we cannot succeed on our own. After all, central banks are climate policy takers, not policymakers.

We have been taking action on all fronts. Climate considerations are now part of our monetary policy operations, and we started decarbonising corporate bond holdings in our monetary policy portfolios and limited the acceptance of assets from high carbon footprint companies as collateral. We stress test the stability of our financial system on the path to net zero, and we factor the impact of climate change into our macroeconomic models. As a supervisor, we push banks to better manage and disclose their climate and environmental (C&E) risks according to our supervisory expectations in this area, which we first published in 2020. Since then, we have run several supervisory exercises focusing on banks' approaches to managing these risks and laid out a clear roadmap for banks to meet our expectations.

Overall, the ECB's climate agenda serves as a guide for efforts to address climate change across all areas of its responsibilities. The climate change centre plays a vital role in keeping the ECB's climate work on track and advancing climate-related initiatives in collaboration with internal and external stakeholders.

IQ: How do you identify, measure and assess the risks posed to the financial system by climate change?

IH: Over the past two years, we have taken measures across the board to understand and address the risks to the financial system arising from climate change, both at the macro- and micro-prudential levels.

An example on the macro-prudential side is our economy-wide climate stress tests, which we executed in 2021 and just recently in 2023. In 2021, the results showed that the long-term benefits of the transition to a net-zero economy would far outweigh its short-term



“Some banks have already started to plan for the transition to a low-carbon economy and to engage with their clients. However, a wait-and-see approach still prevails in most institutions”

→ costs. In 2023, we found that the best way to achieve this transition for firms, households and banks is to accelerate it faster than under the current policies. While a speedier transition involves higher investment and energy costs, financial risks decrease significantly in the medium term. Banks are exposed to the highest credit risk if the transition has to be rushed at a later stage and investment is needed more quickly at higher costs.

Another example is the work we conducted with the European Systemic Risk Board, which demonstrated how climate shocks could impact the financial system. The report evaluated the potential use of macro-prudential policies as part of a broader response to complement micro-prudential efforts in addressing the financial consequences of climate change.

On the micro-prudential front, the ECB conducted several assessments, including a review of banks' disclosures and a thematic review of climate-related and environmental risks. A climate stress test also evaluated the financial system's resilience to climate-related stresses.

The assessment of climate risks is an area in development, also at the regulatory level globally. We work together in the Network of Central Banks and Supervisors for Greening the Financial System (NGFS), the Basel Committee on Banking Supervision Task Force on Climate-related Financial Risks and the groups dealing with climate at the Financial Stability Board. The Basel Committee task force has published clarifications on how existing regulatory standards could address climate-related financial risks and provided principles on how to effectively manage and supervise these risks.

IQ: How do you ensure regulated financial institutions in the EU proactively incorporate climate-related and environmental risks into their business strategies and their governance and risk management frameworks?

IH: As part of our supervisory priorities, we have laid out a clear roadmap for banks to deal with climate-related and environmental risks. We started in 2020 by publishing a

guide in which we clearly set out what we expect banks to do across 13 key activities, including risk management, governance and disclosure.

The guide goes beyond climate-related risk, comprehensively covering environmental risks like biodiversity, water stress and pollution. Our supervision encompasses all these risks in a coordinated approach. Building on this guide, we followed up with several supervisory exercises – a thematic review, a bottom-up climate stress test and on-site inspections. We have also specifically checked that banks adhere to our expectations on their disclosures of these risks.

To make sure supervisory teams integrate C&E risks appropriately, the ECB treats them on a par with other financial risks. The regular thematic review of these risks is integrated into the work of every joint supervisory team, making evaluation more thorough and effective. The risks are also progressively integrated into the Supervisory Review and Evaluation Process scores, which may indirectly impact minimum capital requirements. The ECB may impose targeted qualitative requirements on banks, based on the review's findings. We have a wide range of tools to address any shortcomings in this area.

The ECB's supervisory approach includes issuing comprehensive feedback to banks that identifies any shortcomings detected during the thematic review. For banks under direct supervision, this feedback is crucial in assessing their adherence to requirements. The ECB possesses a range of supervisory measures to address any identified deficiencies.

As well as addressing shortcomings, the ECB shares good practices observed in the bottom-up climate stress test and the thematic review. Given the progress made by banks in devising action plans and the wealth of information published on this topic by various organisations, the ECB expects this will help banks to make substantial advances in concrete actions and meet implementation deadlines.

Overall, the ECB's approach involves active guidance, comprehensive thematic reviews and integrating C&E into the supervisory framework to ensure banks in the EU effectively address, disclose and manage these risks.

IQ: In November 2022, the ECB published the results of its thematic review on climate-related and environmental risks that showed banks are still far from adequately managing climate and environmental risks. What were the main shortfalls?

IH: First of all, we saw progress. More than 85% of institutions now have at least basic practices in place for most of the areas addressed by our expectations. This means they have performed an initial mapping of their risk exposures, allocated responsibilities within the organisation, set initial key performance and risk indicators, and developed a qualitative mitigation strategy for at least part of their risk exposures.

Secondly, there is a need for progress. We found that banks' approaches still lack methodological sophistication, the use of granular information on risk and/or active management of the portfolio and risk profile. Moreover, around 10% of the banks are lagging behind our expectations and have not shown any material progress in the past year. These institutions started from a weak position in 2021, but have either not been able to complete all their planned actions or have not incorporated last year's feedback from the ECB. For most of them, there is no clear C&E risk governance in place, making it more difficult to steer the institution towards managing these risks.

Some banks have already started to plan for the transition to a low-carbon economy and to engage with

their clients. However, a wait-and-see approach still prevails in most institutions. For example, banks do not set interim targets or limits to their risk taking to fulfil their long-term strategic commitments, or they set them in such a way that the immediate impact on their business is negligible.

Specifically, we found that banks continue to significantly underestimate the breadth and magnitude of the risks. We found blind spots in the identification of C&E risks in key sectors. For physical risk, many institutions only cover certain risk drivers (for example, flood risk) for individual portfolios (for example, mortgages in one country), but fail to reflect the full array of risk drivers.

Based on these findings, we have set institution-specific deadlines for banks to achieve full alignment with our expectations by the end of 2024, with two intermediate steps. The first step was taken in March 2023, when we expected banks to adequately categorise C&E risks and to conduct a full assessment of the impact on their activities. By the end of 2023, we expect banks to include C&E risks in their governance, strategy and risk management.

By the end of 2024, banks are expected to meet all remaining supervisory expectations on C&E risks outlined in our 2020 guide, including full integration into the Internal Capital Adequacy Assessment Process and stress testing.

For us as supervisors, the end goal is to see banks fully incorporating these risks into their business strategies and risk



IRENE HEEMSKERK ON EU CLIMATE DISCLOSURE RULES

IQ: The EU is more advanced than many other jurisdictions in developing climate disclosure and reporting requirements. What role do such requirements play, and how important is it that they are consistent with rules in other countries?

Irene Heemskerk: Addressing climate change and accelerating the transition to a sustainable economy are urgent global challenges. Consistent and reliable corporate sustainability disclosures – in particular, better quality and availability of climate-related information – are essential to provide investors, policymakers and all relevant stakeholders with the key information to understand and manage the interdependencies between economic activities, our environment and society at large.

Two big milestones were reached recently. The first was in July 2022, when the European Commission adopted the European Sustainability Reporting Standards (ESRS) for use by all companies subject to the Corporate Sustainability Reporting Directive. The standards cover the full range of environmental, social and governance issues, including climate change, biodiversity and human rights.

The second milestone came a month earlier, when the International Sustainability Standards Board (ISSB) released the first two sets of sustainability disclosure standards – the general requirements for disclosure of sustainability-related financial information and climate-related disclosures. These are key steps to making sure that accurate, global and comparable sustainability disclosures are available to everyone who needs them and can significantly contribute to enhancing the

risk management of climate and other sustainability risks.

The EU is indeed more advanced than many other jurisdictions in developing climate disclosure and reporting requirements, due to its strong commitment to addressing climate change and promoting sustainability. But given the global nature of climate and sustainability challenges, the ECB has always voiced the need for globally coordinated action. Internationally consistent standards on sustainability disclosures would foster comparable information and provide greater clarity to the financial industry on how to align its reporting internationally, while avoiding unnecessary double reporting. Having been involved very closely in both the ISSB and the European processes, I am very glad to see a high level of alignment between the ESRS and the ISSB standards.

→ management frameworks, accounting for not only climate-related risks but also environmental risks. The thematic review highlighted the importance of coordinated efforts and robust risk management practices to address these challenges effectively, and our supervisory action has followed suit.

IQ: Last year, the ECB carried out a climate risk stress test that showed progress on climate stress testing capabilities but also revealed many deficiencies, data gaps and inconsistencies across institutions. How has this been addressed?

IH: The bottom-up climate risk stress test revealed that many banks are not adequately considering climate risk in their stress testing frameworks and internal models, despite some progress since 2020. Of the 104 significant banks that participated, around 60% lacked a climate risk stress testing framework. Most banks also did not include climate risk in their credit risk models, and only 20% considered climate risk when granting loans.

Results also indicated that an orderly green transition would lead to lower losses compared to disorderly or no policy action. However, banks currently lack robust strategies to differentiate between various long-term scenarios. They mainly aim to reduce exposure to polluting sectors and support lower carbon-emitting businesses. To improve, banks must consider both direct and indirect transmission channels in their long-term plans.

As with the thematic review, all participating banks

received individual feedback following the stress test and are expected to take action accordingly. This was the ECB's first bottom-up climate stress test and was not a typical capital adequacy stress test like the one we published last July. It was a learning exercise aimed at identifying climate risk vulnerabilities, good practices and providing guidance to banks for the green transition.

To ensure banks can benefit from all the insights gained from the climate stress test, we shared a report to provide them with concrete examples and suggestions on how to improve their climate stress testing capabilities, based on good practices we observed in the 2022 supervisory stress test, and to support banks in their transitional journey.

Overall, it is crucial that banks obtain better data from their customers and rely less on proxies to estimate their exposure to carbon-intensive sectors. We see some banks proactively trying to overcome the scarcity of climate-related data by independently developing their own indicators to identify corporate clients with high sensitivity to climate transition risks. The advanced climate-related disclosure requirements for companies will most certainly help to improve the climate data for banks.

IQ: What are the priorities for the climate change centre in the months ahead?

IH: Over the past years, the ECB has taken action on many fronts. A lot of our work will be dedicated to further developing and improving what we have started to

IRENE HEEMSKERK ON CLIMATE SCENARIO ANALYSIS

IQ: ISDA recently published a conceptual framework for climate scenario analysis in the trading book. How important is it to develop short-term scenario analysis to complement the long-term analysis that has been conducted previously?

Irene Heemskerk: The recent spikes in energy prices and the increase of extreme weather events over the past few months are just two examples of why we need to further develop short-term scenarios.

Our bottom-up climate stress test already included short-term scenarios: a three-year disorderly transition risk scenario and the two physical risk scenarios – flood risk and drought and heat risk. We found that the combined

credit and market risk losses for the 41 banks providing projections would amount to around €70 billion.

At the same time, we were very clear that this estimate significantly understates the actual risk. First, the scenarios considered in this exercise are not adverse, as they are in regular stress tests. Specifically, there is no economic downturn accompanying the negative climate effects. Second, the data and modelling underlying bank projections are still at a preliminary stage, with climate factors only captured to a rudimentary degree. Third, as this is essentially a learning exercise, no supervisory overlays were applied. Fourth, the exposures in scope of this exercise only account for around one-third of the total exposures of the 41 banks.

The need to further develop short-term scenarios is widely recognised by central banks and supervisors around the globe. At the Network of Central Banks and Supervisors for Greening the Financial System, the European Central Bank leads the workstream on climate scenarios and recently started a project to call for short-term climate scenarios to complement the existing scenario framework of long-term climate scenarios, with the key objective of better capturing the adverse implications of a disorderly transition and severe natural disasters in the near future. For this, we will work with external modellers to develop a macroeconomic model that can simulate various shocks related to transition and acute physical risks. The analytical implementation is expected to start imminently.

“To make the green transition really happen and manage the risks of high carbon exposures, transition plans play a key role in translating long-term goals into action to take tomorrow and in the years to come”


implement and ensuring we fully reach our objectives. One example is the improvement of our initial set of climate-related statistical indicators on sustainable finance, carbon emissions and physical risks.

On top of that, two important priorities for the climate change centre are nature-related risks and transition plans. The ECB has initiated a study to examine the dependence of more than 4.2 million individual companies – representing over €4.2 trillion in corporate loans – on nature-related benefits known as ecosystem services. These services include products derived from ecosystems like food, water, timber and minerals, as well as protection against natural hazards and carbon uptake by vegetation. Preliminary findings indicate that around 75% of all bank loans in the euro area are tied to companies that are highly reliant on at least one ecosystem service. If nature degradation persists, these companies may face difficulties and bank credit portfolios could become riskier. The detailed results of the analysis will be published later to identify necessary actions to tackle the impacts of nature degradation and climate change on the economy and financial stability.

Secondly, on transition plans. To make the green

transition really happen and manage the risks of high carbon exposures, transition plans play a key role in translating long-term goals into action to take tomorrow and in the years to come, as well as providing a benchmark to check firms are on track.

As we shared in our thematic review, we have observed banks implementing good practices in transition planning through, for example, materiality assessment practices, where they identify areas of significant exposure to transition risks and subsequently classify sectors according to the materiality of their exposure at default to them. Other examples include establishing key performance and risk indicators to measure progress towards targets or integrating targets and thresholds into monitoring and escalation arrangements.

As ECB president Christine Lagarde has stated, if the world fails to take critical decisions on climate change, we will be "toasted, roasted and grilled". I fully share this sentiment and feel a pressing urgency to make progress on all fronts. We need action from all actors in our economy, and must take climate conscious decisions in our daily lives. The hottest month in July was for me a stark reminder that we just don't have the luxury of time. 

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* Promoting Integrity

The voluntary carbon market could play a big role in the transition to net zero, but concerns over greenwashing have constrained its growth. The publication of core carbon principles is an important step to enhance the integrity of this market

The voluntary carbon market could become a vital clog in efforts to transition to a sustainable economy, unlocking investment in green infrastructure and technology while also enabling companies to offset those emissions they can't immediately reduce. Despite its enormous promise, however, concerns about greenwashing and the potential for manipulation have persistently hung over this market – concerns that could ultimately impede its growth.

But there are grounds for optimism. Industry efforts to build robust legal foundations and boost the credibility of carbon credits could enable the market to reach its full potential, with estimates it could grow from around \$2 billion to \$1 trillion globally by 2037, according to BloombergNEF. In particular, principles developed by the Integrity Council for the Voluntary Carbon Market (ICVCM), if implemented effectively, should give greater confidence that credits reflect projects that genuinely reduce carbon in the atmosphere.

“If we get it right, the voluntary carbon market holds the power to unlock urgently needed finance, which would not otherwise occur, for projects that can reduce and remove billions of tons of emissions. But today, the quality of credits being traded on the market is inconsistent. Trading is fragmented and opaque. And not all carbon crediting programmes impose high-quality standards. Ultimately, it is fair to say that the voluntary carbon market as we know it today does not consistently meet the expectations of purchasers or the urgent needs of our planet. This is a significant problem that creates a lack

of confidence in the market, limiting its full potential to help meet our climate goals,” says Annette Nazareth, senior counsel at Davis Polk & Wardwell and chair of the ICVCM.

Legal foundations

The voluntary carbon market is distinct from the compliance carbon markets that exist in the EU, UK, North America and China, where mandatory caps are imposed on carbon emissions. While those emissions trading systems are tightly regulated and tend to cover specific industries in certain countries or regions, the voluntary carbon market is global,

allows entities not involved in mandatory schemes to participate and is not overseen by any particular regulatory or government authority. In

January 2023, the World Economic Forum estimated the voluntary market could demand up to 2.6 gigatonnes of carbon credits by 2030, roughly 13 times larger than the market in 2021.

One of the vital ingredients for the growth of any financial market is a robust and consistent legal and regulatory framework.

As global efforts to scale the voluntary market have gathered momentum in recent years, ISDA has worked with its members to explore the key legal issues for derivatives markets, publishing

a whitepaper in December 2021 that focused on the UK, US and Germany, followed by a supplementary analysis covering France, Japan and Singapore in November 2022. Those papers led to industry proposals to intergovernmental organisations for globally consistent standards on the legal treatment of carbon credits.



\$1
trillion

Possible size of the voluntary
carbon market by 2037

“If we get it right, the voluntary carbon market holds the power to unlock urgently needed finance, which would not otherwise occur, for projects that can reduce and remove billions of tons of emissions”

Annette Nazareth, Davis Polk & Wardwell

In parallel, ISDA developed the 2022 ISDA Verified Carbon Credit Transactions Definitions and related template confirmations for spot, forward and options contracts, which were launched in December 2022. The definitions provide a single contractual framework that can be used for the voluntary trading of carbon credits around the world.

“The potential for the voluntary carbon market to play a role in broader emissions reduction strategies has become a major policy discussion in recent years. Although the volume of transactions is not yet large, there was demand for standard trading documentation to support the development of this market,” says Peter Werner, senior counsel at ISDA.

While the two whitepapers explored specific legal issues in the six jurisdictions – for instance, whether voluntary carbon credits might be recognised as a form of intangible property under each local law – the definitions have been designed to work across regions in recognition of the global nature of the voluntary carbon market. The terms of a trade can be adapted to reflect specificities as needed, but the umbrella document provides standard terms for trading around the world.

“The voluntary carbon market is global, so we wanted a document that would work across different jurisdictions and registries. But it is intended to be a starting point and so, as with any ISDA documentation, market participants can take it and adapt it to their particular needs. We have already started to see this happening in practice. We’ve drafted in a way that prevents needing to modify the documents every time a registry updates its rules, but this is still very much a 1.0 edition. The documents are going to have to be updated as the market evolves, and that’s important as we need to reflect the direction of the market,” says Leanne Banfield, counsel at Linklaters, which acted as drafting counsel for the definitions.

The carbon credit definitions are only available in digital form on ISDA’s MyLibrary electronic documentation

platform, which means they can be seamlessly updated as market practices evolve. Rather than having to add supplements to reflect changes, the definitions will be amended and restated whenever an update is needed, with parties always accessing the latest version, as well as being able to review and compare earlier versions.

“The benefit of the digital format is that any updates can be implemented in real time without having to add supplements. Counterparties will always trade on the latest version of the documentation, which has been fully digitised,” says Werner.

Addressing greenwashing

While standard documentation is an important stepping stone to an efficient global market for the trading of voluntary carbon credits, doubts over the quality and environmental value of some credits, as well as concerns over a lack of transparency, have affected trust in this market and could hamper growth.

According to BloombergNEF, the number of offsets purchased fell by 4% in 2022, which it attributes to fears of reputational risk from purchasing low-quality credits. An overabundance of poor-quality credits that don’t reflect permanent carbon removal will keep prices low, discouraging investment in new technologies like direct air capture. In this scenario, carbon credits would end up being a cheap way for companies to meet their net-zero targets without genuinely contributing to overall carbon reduction.

“The voluntary carbon market has certainly cooled somewhat and it’s received a lot of scrutiny. But the fundamental goals haven’t changed – they’re very much the same and are still important. It is a support mechanism that is there to get funding to the projects that wouldn’t get it otherwise. These are projects that need to get done to support the mitigation of and adaptation for climate change. It’s about reducing, avoiding and removing carbon emissions,” says Chris Leeds, head of carbon markets



“For this market to reach its full potential and make a real difference, we need greater standardisation and transparency, so market participants can be confident the projects they are supporting when they buy carbon credits have a genuine and verifiable impact on carbon reduction”

Scott O'Malia, ISDA

→ development at Standard Chartered and an elected market representative on the ICVCM.

Regulators are now paying attention to the issue. In November 2022, the International Organization of Securities Commissions launched a consultation on the resilience and integrity of voluntary carbon markets, which explored the vulnerabilities preventing the market from upscaling and asked respondents to consider the role regulators might play in its oversight.

In the US, the Commodity Futures Trading Commission (CFTC) is also looking at the potential for greenwashing. As carbon credits are an underlying commodity for futures contracts that are listed on CFTC-registered exchanges, the CFTC has anti-fraud and anti-manipulation enforcement authority over the underlying spot market. On June 20, the CFTC's Whistleblower Office in the Division of Enforcement published an alert informing the public how to identify and report potential violations connected to fraud or manipulation in the carbon markets. It followed up on June 29 with the launch of a new task force that will focus on environmental fraud and misconduct in derivatives and relevant spot markets. The CFTC's climate risk unit is also drafting guidance addressing standards in the voluntary carbon markets.

“We have a clear understanding that there is interest and there is opportunity to ensure that we take intentional steps towards support standards for high-integrity offsets. The financialisation of the voluntary carbon markets is here. The funnelling of private climate finance and capital allocation towards climate solutions and the increasing need to hedge risk throughout the value and supply chains that comprise and support the voluntary carbon markets demand the highest integrity from the products and markets available,” said CFTC chair Rostin Behnam in a speech on July 19.

Core carbon principles

Along with these regulatory efforts, several private sector initiatives are underway to address the integrity and transparency of the voluntary carbon market, including publication of global standards for carbon credits by the ICVCM.

The ICVCM is an independent governance body that was established in September 2021, tasked with taking forward the work of its predecessor, the Taskforce on Scaling Voluntary Carbon Markets. With wide-ranging representation from different sectors and geographies, the ICVCM has developed a set of 10 core carbon principles (CCPs) that are designed to act as a global benchmark for high-integrity carbon credits that make a verifiable impact, based on science and best practice (see box). The principles relate to governance, emissions impact and sustainable development, setting minimum standards to give buyers greater confidence that credits will have a permanent and additional impact on the reduction of carbon emissions.

“For this market to reach its full potential and make a real difference, we need greater standardisation and transparency, so market participants can be confident the projects they are supporting when they buy carbon credits have a genuine and verifiable impact on carbon reduction. The ICVCM's core carbon principles establish standards for firms to identify high-quality credits that have a permanent, additional and verifiable impact on emissions. We believe initiatives like these are absolutely critical to the future success of the voluntary carbon market,” says Scott O'Malia, ISDA's chief executive.

One of the key principles is additionality, which requires that greenhouse gas emissions reductions or removals would not have occurred in the absence of the incentive created by carbon credit revenues. The CCPs also require emissions reductions or removals to be permanent. If there is a risk of reversal, then measures should be in place to address those risks and compensate for any back sliding.

“The demand for high-integrity credits is already evident, and many anticipate that CCP-labelled credits will trade at a premium. This will create powerful incentives for project developers to enhance their practices to come in line with the CCPs. We expect the CCPs to drive continual improvement in the quality and impact of carbon reduction projects, ensuring the market’s contribution to emissions reduction aligns with the urgency of the climate crisis,” says Nazareth.

Following extensive consultation, the ICVCM launched the CCPs and assessment framework in March 2023. It followed up on July 27 with the full criteria for assessing categories of credits and crediting methodologies, completing the framework it will use to determine whether carbon credits are compliant with the CCPs. Carbon crediting projects can apply for CCP eligibility by submitting evidence they meet the principles. Once approved, they can use the CCP label on specific categories of credits that have been accepted as meeting the principles.

The ICVCM will assess which programmes meet the criteria, while expert working groups will recommend which categories of carbon credits should be fast tracked, which require a deeper assessment and which should not be approved. The ICVCM expects the first credits to be labelled as CCP-eligible by the end of this year.

“The problem of greenwashing arose from the fact that some of the credits available in the market were not high integrity and, until very recently, there was no definition of what made a company’s claim about its climate impact credible. Along with ISDA’s work on legal frameworks for trading credits, we are moving towards a market characterised by end-to-end integrity across the supply, use and trading of credits,” says Nazareth.

The ICVCM establishes a two-stage approach, combining the core principles with detailed criteria to maintain a global standard for carbon crediting projects and the credits they create. It is hoped the framework will help unlock financing for projects that remove billions of tons of emissions from the atmosphere, but it will be an iterative process, with future updates already planned to take account of experience, advances in science and market developments. It is expected that the next version of the CCPs will be published in 2025 and implemented in 2026.

“This is the beginning – we’re continuing to improve quality. It may not be perfect quality straight away, but as we learn more, we’re able to improve and change. It’s an evolution rather than anything else. This year has seen a level of scrutiny that was required: it has made companies step back and think about what it is exactly they want to do here. The conclusion for everyone is that they want a carbon market. It’s clear we do need guardrails around that and we do need oversight,” says Leeds. ¹⁰

The 2022 ISDA Verified Carbon Credit Transactions Definitions are available on the MyLibrary platform: mylibrary.isda.org/bookstore

THE CORE CARBON PRINCIPLES

Governance

Effective governance

The carbon crediting programme should have effective programme governance to ensure transparency, accountability, continuous improvement and the overall quality of carbon credits.

Tracking

The carbon crediting programme should operate or make use of a registry to uniquely identify, record and track mitigation activities and carbon credits issued to ensure credits can be identified securely and unambiguously.

Transparency

The carbon crediting programme should provide comprehensive and transparent information on all credited mitigation activities. The information should be publicly available in electronic format and be accessible to non-specialised audiences to enable scrutiny of mitigation activities.

Robust independent third-party validation and verification

The carbon crediting programme should have programme-level requirements for robust independent third-party validation and verification of mitigation activities.

Emissions Impact

Additionality

The greenhouse gas (GHG) emission reductions or removals from the mitigation activity should be additional – ie, they would not have occurred in the absence of the incentive created by carbon credit revenues.

Permanence

The GHG emission reductions

or removals from the mitigation activity should be permanent or, where there is a risk of reversal, there should be measures in place to address those risks and compensate reversals.

Robust quantification of emission reductions and removals

The GHG emission reductions or removals from the mitigation activity should be robustly quantified, based on conservative approaches, completeness and scientific methods.

No double counting

The GHG emission reductions or removals from the mitigation activity should not be double counted – ie, they should only be counted once towards achieving mitigation targets or goals. Double counting covers double issuance, double claiming and double use.

Sustainable Development

Sustainable development benefits and safeguards

The carbon crediting programme should have clear guidance, tools and compliance procedures to ensure mitigation activities conform with or go beyond widely established industry best practices on social and environmental safeguards while delivering positive sustainable development impacts.

Contribution toward net zero transition

The mitigation activity should avoid locking in levels of GHG emissions, technologies or carbon-intensive practices that are incompatible with the objective of achieving net-zero GHG emissions by mid-century.

Source: Integrity Council for the Voluntary Carbon Market

Time To Act

*Following a number of market shocks in recent years, including the collapse of several US banks, **Kristin N. Johnson**, commissioner at the Commodity Futures Trading Commission, reflects on the lessons learned and the response of international policymakers*

IQ: You're now well into your second year as a commissioner at the Commodity Futures Trading Commission (CFTC), having taken up the role in March 2022. What have been your key priorities and achievements so far?

Kristin Johnson (KJ): In September 2021, President Biden nominated me to serve as a commissioner at the CFTC, which gave me an incredible opportunity to serve our nation as a financial markets regulator and help advance the long-established bipartisan goals of customer protection and market integrity. It is a genuine honour to work with the incredibly talented staff of the CFTC and my fellow commissioners.

Serving as a commissioner draws on the diversity of experiences I have had as in-house

counsel at a large financial institution and a lawyer in private practice at a large law firm in New York, London and São Paulo, representing issuers and underwriters in domestic and international debt and equity offerings, lenders and borrowers in banking and credit matters, and private equity firms and publicly-traded companies in mergers and acquisitions.

During my term of service, I have encouraged advancing the adoption of regulatory interventions in three critical areas – digital assets regulation, cyber resilience and climate-related risks in financial markets. I have encouraged, internally and within our community of stakeholders, careful consideration of policies related to the adoption and integration of digital assets in our markets, the implementation of robust cyber-resilience reforms, and intervention that enhances

sustainability by assessing and addressing climate-related risks in our markets. I have also encouraged careful review of regulations on a number of additional issues: reliance on third- and fourth-party service providers by our registrants to satisfy regulatory obligations; the aggregation of multiple regulated services offered to a customer under the same corporate group; and the use of novel, disintermediated clearing models, particularly where retail investors face the clearing house directly as clearing members.

I am committed to and have accepted a leadership role focused on developing and advancing certain regulatory protections, including measures to ensure the effective segregation of funds and separation of member property, oversight of conflicts of interest, and transparency in risk management governance.

In my second year, one thing is clear – it's time for action. The CFTC must enhance the integrity of the markets we serve and strengthen the ability of market participants to navigate the kinds of failures we have witnessed over the past two years. These failures generated shocks that reverberated across the digital asset, crypto and stablecoin communities and, later, among the regulated banking and non-bank financial institution sectors.

I am eager to work with my colleagues at the CFTC to adopt thoughtful, sensible and workable regulations, advisories and guidance that enhance and clarify relevant regulatory requirements. While promoting innovation and competition, it is critical that we address outstanding questions on the application of our regulation to novel financial products and market structures that may engender new risk management concerns in our markets.

Two words capture my best aspirations for our next steps: let's go.

“While promoting innovation and competition, it is critical that we address outstanding questions on the application of our regulation to novel financial products and market structures that may engender new risk management concerns in our markets”



IQ: Financial markets have been shaken by a series of stress events in recent years, including the failure of several US banks in March 2023. In the case of Silicon Valley Bank (SVB), the Federal Reserve has identified a number of issues that led to its collapse, one of which was a failure to properly manage interest rate and liquidity risk. How should the CFTC respond?

KJ: I firmly believe that we must never let a good crisis go to waste. When we think of this adage in the context of SVB's collapse, it necessitates careful exploration of the issues that precipitated the bank's liquidity crisis, the methodology adopted to identify and mitigate the interest rate risk exposures at the centre of the collapse, and the implementation of effective, well-tailored regulatory interventions.

The global derivatives markets are deep and liquid and have demonstrated robust resilience in the face of significant macro-economic challenges, including the COVID pandemic and Russia's invasion of Ukraine. Yet the stability and integrity of our markets depend, in large part, on the successful enterprise risk management of counterparties operating in various sectors of the economy in countries around the world, as well as domestically, and internationally coordinated systemic risk management.

For years leading up to its collapse, SVB enjoyed a growing deposit base concentrated among venture capital and technology firms. Banking regulators' reports following SVB's collapse indicate that it did not have sufficient liquid assets to meet its obligations, including cash withdrawals from depositors, and did not adequately identify, measure and control the risks stemming from rising interest rates. Federal

Reserve vice chair for supervision Michael Barr noted that certain deficiencies resulting from this concentration were not identified. As he explained, these deficiencies marked critical risk management failures, and regulators should work in harmony to address such failures.

To this end, I have spent significant time with senior leaders of other US market regulators, at several of the regional offices of the Federal Reserve, and with central banks and market regulators from countries around the world. It is time to act swiftly and decisively to close gaps and resolve unchecked regulatory deficiencies that may create market, liquidity or counterparty risks for market participants.

The recent disruption in the banking sector reminds us that we may not rest on our laurels in taming systemic risk. While the legislation and regulations adopted in the aftermath of the 2008 financial crisis have improved the CFTC's visibility of the previously bespoke and often bilateral over-the-counter derivatives markets, we must ensure we are vigilant in our supervision across markets. A myopic focus on the last crisis may blind us to the threat of the next one.

We know all too well that banking and derivatives markets are highly interconnected. When banking failures arise, the CFTC stands ready for round-the-clock engagement to ensure markets continue to work and provide necessary relief to insure against defaults, facilitate compliance and prevent spillover effects that may create paralysis across markets. For example, significant efforts by CFTC staff enabled market participants to satisfy requirements in connection with the transfer of qualified financial contracts, fostering successful bridge arrangements. Timely action by the CFTC reduced the impact of certain ripple effects created by the banking crisis in March. However, the threat of these risk management failures underscores the potential systemic risk implications of liquidity crises for the larger financial system and global financial markets.

IQ: Concerns have been raised about the role of social media in fuelling the rapid withdrawal of deposits in the lead up to the collapse of SVB. How might this be addressed?

KJ: With a few simple taps on a screen, technology now enables speed-of-light information transfers and the rapid →

→ dissemination of (mis)information over smartphones, internet-based apps or online social media platforms.

In Frank Capra's *It's A Wonderful Life*, customers stood calmly in line to withdraw deposits as Uncle Billy locked the doors and George made an impassioned plea. In March 2023, markets witnessed a new phenomenon that could be called a social media bank run. Online transfers enabled a bank run in the digital age. The speed and volume of withdrawals demonstrated that we are now living in a brave new technology-driven world. For regulation to keep pace with technology, regulators must be prepared to adapt and adopt dynamic interventions with the flexibility and fluidity to respond to unprecedented changes in the operational infrastructure of our markets.

Regulators and market participants are on notice. Social media and technology may significantly accelerate the timeline for a potential run on a bank or liquidity drain. Within two days of announcing its restructuring efforts on March 8, SVB failed, following withdrawals of more than \$40

of Wachovia included about \$10 billion in outflows over eight days, while the failure of Washington Mutual involved \$19 billion over 16 days.

Emerging technologies offer tremendous potential for increased efficiency and lower costs, but they can also create new market integrity and market stability challenges. Both regulators and market participants must adapt to address these challenges.

IQ: What issues keep you up at nights, and what are your regulatory priorities going forward?

KJ: During my term of service, I have advocated for the CFTC to examine the need for parallel customer protection rules for certain derivatives clearing organisations (DCOs) that may not rely on intermediation and therefore may not be subject to certain customer protection regulations. The need for parallel protection becomes even more acute as more market participants adopt this non-intermediated market structure.

“Emerging technologies offer tremendous potential for increased efficiency and lower costs, but they can also create new market integrity and market stability challenges”

billion in deposits and expected withdrawals of over \$100 billion. Consider the speed of the dissemination of information and execution of transactions in SVB's collapse and compare it with the timing of the events that unfolded during the 2008 financial crisis. Estimates suggest the failure

I am the lead architect of a rulemaking that seeks to establish protections for DCO member property in the context of novel market structures in the event a DCO employing such an approach experiences a liquidity crisis or fails. This will ensure parallel customer protections, enhance

market integrity and market stability, and mitigate crises in crypto-commodity derivatives markets and possibly other markets as well. Markets have witnessed devastating losses as have unsuspecting retail customers lured by marketing schemes into transactions that rendered their investments worthless, converting customers into general unsecured creditors in crypto firm bankruptcies.

DCOs and futures commission merchants (FCMs) play an essential role in the derivatives market. FCMs hold and transfer customer funds, including margin, when facilitating derivatives transactions and are subject to robust statutory and regulatory requirements to ensure customer funds are available for customers in the event the FCM experiences a solvency or liquidity crisis or bankruptcy or liquidation. At the core, customer protection rules require, among other protections, the segregation of customer funds, including when such funds are held at a DCO.

In newly emerging disintermediated market structures, the absence of an intermediary may create a gap in the application of the CFTC's customer protection rules. In several instances, key customer protections are triggered by the presence of a 'customer', as defined by the CFTC, and an intermediary that facilitates the clearing of a customer's derivatives transactions at the DCO.

I am advancing a proposed rule to ensure that we adopt rigorous and balanced regulations that effectively address market integrity and customer protection concerns. I am meeting with stakeholders to understand the issues and concerns that may arise from introducing new regulations. Increasingly, there is consensus that it is time to craft careful, well-tailored regulations and introduce seasoned regulatory oversight in cryptocurrency markets.

It is also imperative that the CFTC requires firms adopting novel market structures to comply with regulations that mitigate conflicts of interest. This is particularly important in instances in which firms leverage customer relationships across business lines or combine various functions such as custody, transfer, pre- and post-trade activities and clearing and settlement within a single operational approach. A number of market participants in the crypto-asset

ecosystem increasingly favour such vertically integrated operational models. In the absence of conflict-of-interest protections, customers may be exceptionally vulnerable.

This issue has gained the attention of global standard-setting bodies. The International Organization of Securities Commissions has published formal guidance with recommendations on conflicts of interest and vertical integration in the crypto market, setting forth principles that emphasise the importance of accurate and transparent disclosure by crypto-asset service providers about their roles and capacities to their clients, prospective clients, the general public and regulators across jurisdictions. In the US, the Financial Stability Oversight Council recently called on regulatory agencies to thoroughly analyse the impact of vertical integration and determine whether it is a model that should be supported by existing laws.

The CFTC recently published a request for comment to study the impact of vertical integration in our markets, and I look forward to the thoughtful commentary that we will receive and to participating in the development of regulation that addresses these issues and others that merit careful study and consideration.

As the recent crypto bankruptcies demonstrate, without sufficient risk management, corporate governance and conflict-of-interest guardrails, vertical integration may present endemic conflicts of interest and risks. These episodes highlight the need for careful consideration and regulatory oversight.

IQ: As sponsor of the CFTC's Market Risk Advisory Committee (MRAC), what issues do you expect the committee to prioritise in the months ahead?

KJ: For almost a decade, the MRAC has supported the CFTC by advancing central elements of our mission - customer protection, market integrity and systemic risk management. Since becoming the sponsor of the committee in May 2022, I have continued advancing these enterprise and systemic risk management goals.

Recently, for example, the CFTC unanimously approved a final rule memorialising governance requirements for DCOs, requiring the establishment of

at least one risk management committee and advisory working group. The requirements originated with the MRAC's recommendations. This final rule establishes important structural and procedural mechanisms to improve the identification and mitigation of material risks, strengthen the resilience of DCOs, and foster the integrity of our markets.

Because of this central role in trade processing, the cyberattack disrupted not only ION's operations but also those of other market participants, triggering a ripple effect across markets. The incident stymied operational mechanics and information flows. Affected parties had to rely on old-school manual trade processing, causing delays in reconciliation and information

"The interconnectedness and correlations in our markets may amplify the potential for contagion in the event of successful cyberattacks against critical infrastructure resources"

The MRAC has demonstrated exceptional value by fostering the development of critical reforms, including central counterparty (CCP) risk management and governance reforms, the transition from LIBOR to alternative reference rates and a first-of-its-kind report on climate-related risks in financial markets. Under my leadership, we have launched the Future of Finance Subcommittee to focus on emerging technologies and innovative market structures and products.

The MRAC meeting on March 8 convened an unprecedented number of senior market leaders and representatives from other regulators. Panels at the meeting examined recent cyber events that disrupted our markets. On January 31, ION Cleared Derivatives, a division of Dublin-based ION Markets, acknowledged in a short statement that a cybersecurity event had affected some of its services. Many market participants, including some significant FCMs, had entered into service agreements with ION for back-office trade processing and settlement of exchange-traded derivatives.

sharing and reporting, among other challenges.

As the recent financial crisis illustrated, our markets are deeply interconnected, with significant investment and relational correlations. The interconnectedness and correlations may amplify the potential for contagion in the event of successful cyberattacks against critical infrastructure resources. The MRAC will address systemic issues that affect the stability of derivatives and other related markets, as well as the impact and implications of the evolving market structure on those markets. The MRAC will work to tackle issues around CCP recovery and resolution, margin and collateral guidelines, technology and operations, block rules implementation, FCM concentration and capacity, US Treasury market reform and post-trade risk reduction.

I am looking forward to the detailed reports and policy recommendations that the MRAC might provide to me as its sponsor, and that I might present to the CFTC for future action. [IQ](#)

Implications of SVB

In the wake of the collapse of Silicon Valley Bank, the Federal Reserve has taken an unflinching look at the conditions that led to the bank's failure and the shortcomings in prudential regulation and supervision for banks with more than \$100 billion in assets – analysis that has fed into the US Basel III proposals

In a four-page foreword to a review of the Federal Reserve's supervision and regulation of Silicon Valley Bank (SVB), published in April 2023, the word 'fail' appears no less than 15 times. It's not just the bank itself that had failed a month earlier, according to Michael Barr, the Fed's vice chair for supervision – its senior leadership had failed, its board of directors had

failed, and its supervisors had failed.

"Our banking system is sound and resilient, with strong capital and liquidity. And, in some respects, SVB was an outlier because of the extent of its highly concentrated business model, interest rate risk and high level of reliance on uninsured deposits; however, SVB's failure demonstrates that there are

weaknesses in regulation and supervision that must be addressed," wrote Barr.

In the months that have passed since the collapse of SVB in March 2023, US regulators have sought to unpick what went wrong and what lessons need to be learned. While US global systemically important banks (G-SIBs) were untroubled and

FEDERAL RESERVE CATEGORIES OF BANK SUPERVISION

The Federal Reserve approaches supervision by categorising banks into four different groups:

1. Community banking organisations (CBOs)
2. Regional banking organisations (RBOs)
3. Large and foreign banking organisations (LFBOs)
4. Large Institution Supervision Coordinating Committee (LISCC) organisations

CBOs are defined as banks with less than \$10 billion in assets, of which there were 655 at the end of 2022. Their combined assets amounted to a total of roughly \$2.9 trillion at that time. A CBO typically has one examination every 12 to 18 months, in which examiners assess the bank's financial condition, management of risks and progress on fixing previously identified issues.

RBOs are defined as banks with total assets of between \$10 billion and \$100 billion, of which there were 102 at the end of 2022. Their combined assets amounted to a total of roughly \$2.8 trillion at that time. An RBO typically undergoes more than one examination each year, with examiners dividing up the areas of risk to be examined. Examiners meet with RBO management several times during the year to discuss their financial reports.

LFBOs are defined as banks with total assets of \$100 billion or more that are not identified as global systemically important banks (G-SIBs). At the end of 2022, there were 35 LFBOs, with total combined assets amounting to roughly \$10 trillion. An LFBO has its own supervisory team fully dedicated to its supervision and is subject to multiple bank-specific examinations each year.

LISCC organisations include the eight US G-SIBs – Bank of America, Bank of New York Mellon, Citi, Goldman Sachs, JP Morgan, Morgan Stanley, State Street and Wells Fargo. Their combined assets amounted to roughly \$14 trillion at the end of 2022, and they are subject to around 27 bank-specific examinations each year, as well as frequent meetings with management that can take place on a daily basis.

In 2019, the Fed finalised its so-called 'tailoring' framework, which divided banks with \$100 billion or more in assets into four separate categories for the purposes of capital and liquidity requirements. Category one comprises US G-SIBs; category two comprises banks with \$700 billion or more in total assets or \$75 billion or more in cross-jurisdictional activity; category three comprises banks with assets of \$250 billion or more or \$75 billion or more in non-bank assets, weighted short-term wholesale funding or off-balance sheet exposure; and category four comprises banks with between \$100 billion and \$250 billion in total assets.

remained resilient throughout the period, regulators have highlighted a number of specific issues that led to SVB's demise.

The Fed report identifies a failure to properly manage interest rate and liquidity risk, but also notes that supervisors did not fully appreciate the extent of SVB's vulnerabilities as it grew in size and complexity, and insufficient action was taken to resolve problems when vulnerabilities were identified. These findings look set to reshape the model of supervision and future regulatory requirements for banks of a similar size to SVB – and have influenced the Basel III notice of proposed rulemaking (NPR) published by US agencies on July 27.

"There clearly were some idiosyncratic weaknesses to the SVB model, which weren't properly addressed by supervisors and which in the end the bank was unable to risk manage. SVB had an extraordinarily high ratio of non-guaranteed deposits and its asset-and-liability management proved to be deficient under the extreme conditions encountered, so when interest rates rose, the bank's growth reversed itself and led very quickly to its insolvency," says Eric Litvack, chairman of ISDA.

March shock

Although the Fed report focuses exclusively on the failure of SVB, it was one of a number of US bank failures in March 2023. California-based Silvergate Bank and New York-based Signature Bank collapsed within days of SVB, while San Francisco-based First Republic Bank, which had also run into trouble in March, was closed on May 1 with its assets sold to JP Morgan.

This series of bank failures was unexpected, but it was the scale and speed of SVB's collapse, coupled with the destabilising impact of its failure, that led the Fed to quickly address what had happened. "Contagion from the failure of SVB threatened the ability of a broader range of banks to provide financial services and access to credit for individuals, families and businesses," wrote Barr.

"SVB had an extraordinarily high ratio of non-guaranteed deposits and its asset-and-liability management proved to be deficient under the extreme conditions encountered, so when interest rates rose, the bank's growth reversed itself"

Eric Litvack, ISDA

Founded in California in 1983, SVB focused on the provision of financial services to early-stage companies in the technology and life sciences sectors. Until 2019, its growth was fairly gradual, with its assets rising from around \$18 million in 1983 to \$57 billion in 2018. Then, in the period from 2019 to 2021, the bank tripled in size, driven by low interest rates and the boom in venture capital (VC) activity in the technology sector. At the time of its failure, SVB's assets had risen to roughly \$212 billion.

On March 8, SVB announced a restructuring of its balance sheet to cover losses on its securities portfolio due to rising interest rates, which was interpreted as a sign the bank was in financial difficulties. The following day, the bank saw a sudden outflow of deposits amounting to more than \$40 billion as

depositors lost confidence and withdrew their funds at speed. With more than £100 billion of further losses expected the following day, SVB was closed on March 10 and the Federal Deposit Insurance Corporation (FDIC) was appointed as receiver.

Failures in governance and risk management played a significant role in SVB's collapse, according to US regulators. As interest rates were rising in early 2022, the Fed report notes that the bank began removing interest rate hedges as part of a strategy to take profit and protect its net interest income from falling interest rates. At the same time, there was a lack of robust oversight from independent risk management and internal audit, the Fed report adds. As interest rates continued to rise and growth in the technology sector slowed during 2022, the seeds of crisis were sown.

"A lot of SVB's deposit base had grown furiously at the height of the VC bubble and spurred very fast growth. When the bubble started to deflate, there was a double effect of a reduction in new cash coming in and also a greater demand for liquidity. As long as the VC bubble was riding high, the bank was pulling in new cash faster than it could allocate

it, but once the Fed started to raise rates, the bubble quickly deflated and the phenomenon effectively reversed," says Litvack.

From RBO to LFBO

Although it was SVB's own failings that led to its demise, the Fed has recognised that a lack of sufficient force and urgency in its supervision also played a role. Between 2019 and 2021, SVB's assets grew from \$71 billion to more than \$211 billion, but it was supervised as a regional banking organisation (RBO) for most of that period, the third category of Fed supervision after G-SIBs and large and foreign banking organisations (LFBOs). By its own admission, the Fed failed to identify deficiencies in the bank's governance, liquidity and interest rate risk management when it was supervised as an RBO. →

→ In February 2021, SVB began to be supervised as an LFBO, the supervision bracket for banks with assets of \$100 billion or more, and it became subject to more stringent expectations and requirements. A new 20-strong team was assigned to supervise the bank, up from just eight previously.

Yet the Fed is candid in its recognition that the transition from RBO to LFBO lacked a clearly defined plan and its liquidity ratings remained satisfactory despite apparent weaknesses in its risk management. The nature of supervisory policy had shifted the burden of proof from firms to supervisors, shrinking the

ability of supervisors to take quick and decisive action. At the time of its failure, SVB had 31 unaddressed supervisory findings relating to areas such as governance and risk management, liquidity, interest rate risk management and technology. This was about triple the number observed at the bank's peers.

"In a short period of time, SVB had grown from a small bank to a fairly large bank, but it continued to be supervised as a small bank for most of that time and supervisors did not react quickly enough to its growth and the change in its deposit base. In the light of its failure and the Fed's

findings, there is certainly a case to be made for more nimble supervision," says Litvack.

One of the consequences is that US regulators are now relooking at prudential requirements for large banks that are not G-SIBs. In 2019, the Fed finalised rules that tailored requirements for domestic and foreign banks to more closely match their risk profiles, raising the threshold for the application of enhanced prudential standards from \$50 billion in assets to \$100 billion.

In June 2021, SVB became a category four entity under the tailoring framework, designed for banks with \$100 billion or more in assets, under which it would be subject to tougher capital, liquidity and risk management requirements. However, transition periods meant the bank did not immediately face a number of these requirements, including supervisory stress testing, the stress capital buffer, the liquidity coverage ratio and the net stable funding ratio. It continued to grow very rapidly but was not due for a supervisory stress test until 2024, more than two years after its transition to a category four bank.

"Under the prudential framework in the US, the G-SIBs in category one are subject to stringent capital, liquidity and stress testing requirements, as well as a high frequency of supervisory reviews. But as you start descending from category one to category four, the requirements slim down. In contrast, banks of SVB's size in the EU would have been regulated as very large banks. This has become an area of significant discussion, and we expect prudential requirements for mid-sized banks to be recalibrated," says Panayiotis Dionysopoulos, head of capital at ISDA.

Holistic capital review

While the collapse of SVB sent shockwaves through the banking sector and raised questions about the supervisory structure and regulatory requirements for banks of that size, G-SIBs weathered the storm without disruption. The aggregate amount of common equity tier-one capital held by US G-SIBs has increased from roughly \$244 billion in 2008 to \$881 billion in the fourth quarter of 2022, according to a recent PwC report. But the Fed has been clear that it intends to revisit prudential requirements for non-G-SIBs.

In a speech in Washington, DC on July 10, the Fed's Barr announced the outcome of a nine-month review of capital requirements

THE US BASEL III ENDGAME PROPOSALS

The proposed US Basel III measures, published by the Federal Reserve Board, the Federal Deposit Insurance Corporation and the Office of the Comptroller of the Currency on July 27, will result in extensive changes to the US capital framework, with key requirements extended to banks with \$100 billion or more in total assets to improve the consistency of capital requirements across large banking organisations.

Under the new proposals, all banks from category one (global systemically important banks) to category four (banks with \$100 billion or more in assets) will need to comply with the new market risk framework, which includes the Fundamental Review of the Trading Book (FRTB) and revised credit valuation adjustment (CVA) risk requirements, as well as the standardised approach for counterparty credit risk. Operational risk and CVA risk rules will be imposed on category three and four banks for the first time, while the countercyclical capital buffer and supplementary leverage ratio will be extended to category four entities. Category three and four banks will also be required to recognise unrealised gains and losses on available-for-sale securities in their capital ratios, a change from current practices.

Importantly, the US proposals introduce a new expanded risk-based approach (ERBA) that replaces the advanced approaches, which will be applicable for all category one to four banks. This deviates from the Basel Committee on Banking Supervision's Basel III standards by removing the option for sophisticated banks to use internal models for credit risk and counterparty credit risk. The FRTB framework will be the only part of the US rules that gives banks the option to use internal models alongside a new risk-sensitive standardised approach.

The ERBA is essentially comparable to the Basel Committee's new standardised approach, and comprises standardised approaches for credit risk, counterparty credit risk, operational risk and market risk (FRTB) and a revised approach for CVA risk that incorporates a standardised approach and a basic approach. The main difference from the Basel Committee's standardised approach is that the ERBA also allows banks to opt to use internal models under the FRTB. All category one to four banks will be required to calculate risk-weighted assets under the existing US standardised approach and the new ERBA and use the higher of the two amounts.

The US agencies estimate the changes will result in an aggregate 16% rise in common equity tier-one capital requirements for banks, but the increase is expected to fall most heavily on the largest banks.

The rules are scheduled to be implemented from July 1, 2025, with a three-year phase in for parts of the framework. The consultation is open until November 30, 2023.

| Read the US Basel III NPR here: [shorturl.at/botw9](https://www.federalreserve.gov/newswriting/2023/072723usbaseliii.htm)

for banks with \$100 billion or more in total assets. While the review had been initiated well before the collapse of SVB and other US banks, those failures have underscored the need for resilience in the banking system, he said. Based on the review, Barr stressed the importance of implementing the Basel III package for credit risk, market risk and operational risk, and applying those rules to all US banks with \$100 billion or more in assets. This would represent a significant tightening of prudential rules, as key parts of the current US framework only apply to banks that are internationally active or have \$700 billion or more in assets.

“Our recent experience shows that even banks of this size can cause stress that spreads to other institutions and threatens financial stability. The risk of contagion implies that we need a greater degree of resilience for these firms than we previously thought, as the losses posed to society by the failure of a given firm are greater, and the probability that another firm may be a victim to another firm’s failure are higher,” said Barr.

On July 27, the Fed, the FDIC and the Office of the Comptroller of the Currency published their long-awaited NPR to implement the final Basel III measures in the US, which would apply to banks with \$100 billion or more in assets, in line with Barr’s recommendation. With a comment period now open until November 30, the agencies plan to begin transitioning to the new framework from July 1, 2025, with full compliance from July 1, 2028 (see box).

“Recent events have demonstrated the need to strengthen supervision and regulation for firms with assets between \$100 billion and \$250 billion. Here, too, however, we need to strike the right balance. Regulation and supervision should reflect the size and risks of individual institutions. That approach is essential if we are to allow banks of different sizes to thrive, and preserve our diverse banking system,” said Fed chair Jerome Powell on publication of the NPR.

“A key takeaway is the power of social media in causing a run on SVB. It was just wildfire. Regulators will investigate this, but it will be difficult for them to limit the use of social media by borrowers in these circumstances”

Patrick Bryan, DLA Piper

Barr has also expressed support for a long-term debt requirement for banks with \$100 billion or more in assets, on the basis that this could be converted to equity and used to absorb losses, improving a bank’s ability to be resolved. With sufficient long-term debt on its balance sheet, SVB might have reduced the risk of a bank run and lessened the cost of its resolution, he said. In addition, the NPR would require banks to account for unrealised gains and losses in their available-for-sale securities when calculating regulatory capital, in an attempt to better reflect their loss-absorbing capacity.

“Realising the losses from these securities, without adequate capital to protect from those losses, was an important part of the set of events that triggered the run on SVB. If the bank had already been required to include those losses in its reported capital, it is less


likely that the market and depositors would have reacted the same way,” said Barr.

Social media

Drawing a comparison with banks that collapsed during the financial crisis, the Fed report notes that the failure of Wachovia in 2008 included about \$10 billion in outflows over eight days, while the failure of Washington Mutual involved outflows of \$19 billion over 16 days. The fact that in 2023, a bank can lose more than \$40 billion of deposits in a matter of hours, with the threat of an estimated \$100 billion being withdrawn the following day, highlights both the severity of the problems affecting SVB itself, as well as the change in market dynamics that enabled such a rapid bank run.

Specifically, a combination of social media, technology and a highly networked and concentrated depositor base appear to have fundamentally accelerated the potential speed of bank runs, the Fed notes. Social media allowed depositors to instantly spread

concerns about a bank run, while technology enabled immediate withdrawals – factors that could barely even have been imagined in 2008. Further work is expected at the international level to address the role of social media and technology in accelerating bank runs, with an upcoming Financial Stability Board report expected to address this issue.

“A key takeaway is the power of social media in causing a run on SVB. It was just wildfire. Regulators will investigate this, but it will be difficult for them to limit the use of social media by borrowers in these circumstances. Subjecting banks to more stringent prudential requirements should help to address what happened with SVB, but given the speed of the bank run and the magnitude of funds that were withdrawn, I think that would overwhelm just about any supervisory effort,” says Patrick Bryan, partner at DLA Piper and a former regulator. 

On an Equal Footing

*Improving diversity in the workplace has become a big focus for financial institutions, but what practical steps can be taken to achieve this? IQ talks to **Erika Irish Brown**, chief diversity, equity and inclusion officer and global head of talent at Citi*

IQ: How much progress has been made in promoting greater diversity, equity and inclusion (DEI) in financial markets in recent years, and where is further work needed?

Erika Irish Brown (EIB): Over my 30-plus years working on Wall Street, DEI has progressed from being seen as a 'nice to have' to being recognised as a business imperative. Research shows that companies can be more successful when they make DEI initiatives a priority. At Citi, DEI helps us build a better workplace culture, attract and recruit the top talent from around the world, and then in turn foster innovation so we can provide the best products and services for our customers, clients and the communities we serve.

There is definitely more work that can be done to drive DEI across the financial services and banking industry, including at Citi. As the socio-demographics of our world continue to evolve, the initiatives must evolve too. DEI is about expanding the pool of talent to include people who historically have been marginalised and creating opportunities so there's an equitable footing for everyone. There's more opportunity to build diverse teams across all levels of the organisation. Diversity of thoughts, perspectives and backgrounds makes a team stronger, and it's important that leaders continue to champion these efforts – endorsement from the top that cascades throughout the organisation is key to success in this space. But, more importantly, we recognise that besides the grassroots efforts to drive inclusion in our culture through our



inclusion networks, we have to build real competency around inclusive leadership among our senior leaders.

External factors will continue to challenge DEI efforts, and the easy thing to do would be to become complacent with what we've already accomplished. However, we're committed to continuing this business-critical work and challenging ourselves to find additional opportunities to build inclusion in the workplace. We hope other companies follow suit as well.

IQ: Can you give examples of DEI initiatives that have been particularly effective at Citi? How do you measure the success of these initiatives, both qualitatively and quantitatively?

EIB: We constantly strive to ensure Citi remains a great place to work – where people can thrive professionally and personally – and we have a track record of implementing leading practices that support our global workforce, enable economic progress and drive our firm forward. I always say that what gets measured gets done, and we've seen that be effective across several of our initiatives.

Our leadership drives a culture of inclusion and belonging from the very top of the organisation. In 2022, we announced that we had met and exceeded our 2021 firm-wide aspirational representation goals. Globally, we increased representation at the assistant vice president to managing director levels for women to 40.6% (up from 37% in 2018) and we increased black representation in the US for those same levels to 8.1% (up from 6% in 2018). That same year, we expanded our aspirational representation goals to include additional markets and under-represented groups. We also have a diverse executive management team and gender parity on our board of directors. For our 2022 managing director class, we promoted 331 managing directors based in 26 countries, representing one of the largest and most diverse cohorts in recent years.

Earlier this year, we launched our global self-ID campaign entitled 'It starts with me'. We encourage colleagues to share information across all six categories – sex, race/ethnicity, gender identity, sexual orientation, veteran status and/or disability status. In turn, we can better shape our workplaces, benefits, policies

and development programmes to better meet our colleagues' needs and aspirations. For example, we were able to expand parental leave benefits globally to help improve work-life integration for our workforce, in part due to self-ID data. We've received significant participation from our global workforce and have seen increased self-ID rates across all six categories by making this campaign fun through engaging activities and giveaways to encourage participation, all the while ensuring colleagues' information is being handled with the utmost level of privacy and security.

With the support of senior leadership, we launched our first Europe, the Middle East and Africa (EMEA) social mobility network in 2022 in the UK to address socio-economic diversity at work. Social mobility refers to the ability to access opportunities regardless of class, geography, education, parental occupation and other factors, and research shows that improvements in social mobility could drive a 2% annual increase in national gross domestic product. The goals of our network are to help improve access to a career in financial services for candidates from lower socio-economic backgrounds, amplify the voices of Citi employees from lower socio-economic backgrounds, and be

visible role models and allies that inspire the next generation of leaders through engagement in lower socio-economic areas. This network has really resonated with colleagues as it has attracted more than 500 members so far. We're also adding social mobility questions to self-ID in the UK to better understand our colleagues and help measure progress in this space.

IQ: How do regulators interact with DEI programmes and initiatives? Do you see them taking a more proactive interest in the diversity of the workforce, management teams and boards?

EIB: Regulators around the world have taken a greater interest in DEI. Growing empathy and reducing groupthink are key focus areas, as well as going beyond gender and building out the focus on other diversity demographics, like race and social mobility. We've put this into practice in several ways.

In 2017, the UK government-sponsored *Race in the workplace: The McGregor-Smith Review* found that black, Asian, mixed race and other ethnically diverse staff still encounter significant disparities in employment and progression, and greater progress and →

"Diversity of thoughts, perspectives and backgrounds makes a team stronger, and it's important that leaders continue to champion these efforts – endorsement from the top that cascades throughout the organisation is key to success in this space"

→ positive outcomes are needed to ensure all organisations benefit from the wealth of diverse talent available in the market. In 2022, Citi signed the UK Race at Work Charter, committing to seven calls to action aiming to ensure that ethnic minority employees are represented at all levels in an organisation.

In 2017, we also made commitments to the UK Women in Finance Charter (WIFC), a UK government initiative. We have set a goal that at least 30% of our directors and managing directors in EMEA will be women by 2025. Our entire leadership team has ownership of this goal, which is monitored as part of our executive goals. We have continued to make progress towards this goal in many areas of our business. At the time of our last annual WIFC update, 27% of directors and managing directors were women, up from 26% at the end of 2021. In January 2023, 34% of employees promoted to managing director in EMEA and 37% of director promotions were women. Globally, Citi set a goal to increase women's representation at the assistant vice president to managing director levels to 43.5% by 2025.

Citi also has an initiative called the Strategic Training for Experienced Professionals programme within our markets business. The programme is aimed at recruiting experienced professionals from backgrounds outside the financial services industry. This initiative is a unique opportunity for individuals interested in transitioning into financial services – specifically, markets. Following an initial intensive training programme to develop financial and markets fundamentals skills needed to perform and succeed in a markets role, selected participants will have the opportunity to build on their knowledge and experience over the course of 24 months. Applicants are not required to have previous knowledge of the financial services industry, and Citi will provide comprehensive training, development, resources and support for every candidate as part of this programme.

On top of this, our inclusion networks continue to drive progress. In 2023, Citi's multicultural network in London launched a reverse mentoring programme with the aim of bridging cultural barriers by giving senior leaders the opportunity to be mentored by junior colleagues from ethnic minority backgrounds. Eight pairings are part of the

“Tap diversity as a source for innovation. Celebrating diversity of backgrounds, perspectives and ideas leads to more creativity and more business opportunities”

pilot programme in 2023. Our Citi pride network in London continues its highly successful reverse mentoring programme, partnering senior leader mentees in EMEA with junior LGBTQ+ mentors to build awareness of the issues that members of the LGBTQ+ community face.

IQ: What practical steps are needed across the industry to make sure we continue to make progress on improving DEI in the years ahead?

EIB: As we move forward, DEI initiatives will continue to grow in importance. Companies will need to stay laser focused on driving DEI programmes while navigating geopolitical, social and environmental challenges in our world. There are several key steps firms can take to make DEI core to business plans. Don't shy away from the data – be transparent about where there are opportunities for improvement across your talent and diversity programmes. At Citi, we're huge believers in checking in with our global workforce to gauge their sentiment on the company culture, as well as leveraging data and metrics to drive progress on inclusion and equity.

Engage across all dimensions of diversity. The various elements of a person's identity do not operate in a vacuum independently, and it's the combination of these identities and traits – including ability, sexual orientation, race, gender identity, generation, military

experience and socio-economic status – that create unique lived experiences for each person.

Rethink the way you do business. Implementing DEI within your business does not stop at your workforce. It should include who you do business with, invest in and raise capital with. In addition, tap diversity as a source for innovation. Celebrating diversity of backgrounds, perspectives and ideas leads to more creativity and more business opportunities.

At Citi, we remain committed in our approach to building a more diverse workplace, and we know there is more work to be done. DEI will continue to drive innovation, create a positive workplace culture and attract and retain top business talent. This will breed success and bring immense value to our colleagues, clients, customers and the communities we serve. ¹⁰

Further Reading

- *Most diverse companies now more likely than ever to outperform financially*, McKinsey & Company, June 2020, mck.co/47VdRib
- *Economic and Social Mobility: The Role of Business in Improving Outcomes*, Citi, June 2023, bit.ly/3YUisNv
- *Race in the workplace: The McGregor-Smith Review*, UK Government, February 2017, bit.ly/3QUSYOH
- *Race at Work Charter*, Business in the Community, bit.ly/3ONjKW4
- *Women in Finance Charter*, UK Government, bit.ly/3L0o6rG

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Paradigm Shift

*Generative artificial intelligence will have a major impact on derivatives trading, but a number of risks must be addressed to realise its full potential, write **Tirath Virdee**, **Charles Kerrigan** and **Gary Fisher***

Financial derivatives have traditionally relied heavily on human expertise and analysis, but the next stage of artificial intelligence (AI) will bring a paradigm shift in how these products are traded and managed.

AI provides enhanced data analysis because AI algorithms can rapidly process vast amounts of data from various sources to identify patterns, correlations and anomalies. AI will have four main impacts on derivatives trading:

- **Identify patterns and trends:** AI can analyse large amounts of information from technical reports, market data and internal documents to identify patterns and trends that are not visible to the human eye. This analysis can be used to optimise trading and portfolio management strategies.
- **Generate predictive models:** AI can generate models that predict price and other information. The models can

integrate diverse trading hypotheses into a models-based approach that can create more proactive trading strategies.

- **Automate tasks:** AI can automate the placing of orders, monitoring of markets and managing of risk.
- **Manage risk:** AI can identify risks and develop mitigation strategies.

Generative AI is a type of AI that can create new data that resembles the information it was trained on. Generative AI models, including large language models, can be used to generate text and answer questions from available data in an informative and contextualised way. This can include proprietary trading and modelling data.

Unlike traditional algorithmic systems that follow pre-defined instructions, AI systems actually 'learn' – that is, they continuously adapt their algorithms as they operate.

As such, AI-powered predictive analytics holds the potential to revolutionise risk management in derivatives markets. Advanced machine learning algorithms can identify and predict market risks with greater accuracy, enabling financial institutions to proactively manage their exposures. By analysing historical data and continuously adapting to new market conditions, AI can help to identify potential risks and mitigate them in real time, reducing the likelihood of losses.

AI is an automation tool. Through smart contracts and platforms, it can facilitate faster and more efficient trade execution, reducing transaction costs and increasing transparency and regulatory compliance. It can also partially automate support services, such as answering questions about products, platforms and regulation.

However, along with the benefits, there are risks associated with using AI in financial markets. These include:

ABOUT THE AUTHORS

Dr Tirath Virdee was previously director of AI at Capita Consulting. He is an adviser to several governments and the author of *Data Alchemy: The Genesis of Business Value*. He works extensively in the use of AI in algorithmic trading, with particular focus on data entropy.

Charles Kerrigan is a partner at CMS working on the legal and advisory

aspects of deep tech projects. He sits on various UK all-party parliamentary committees associated with AI and blockchain, and is an author of numerous books including *Artificial Intelligence: Law and Regulation*.

Gary Fisher is an adviser and expert in helping enterprises, institutions, brands and tech start-ups to scale and raise capital to

drive growth towards exit. He has experience across international blue chip corporates, the consulting industry and as a successful entrepreneur.

Charles Kerrigan and Tirath Virdee are co-founders of Xeno AI Limited.

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TABLE 1: KEY DIFFERENCES BETWEEN GENERATIVE AI AND REINFORCEMENT LEARNING

Feature	Generative AI	Reinforcement Learning
Purpose	Creates new data	Learns to make decisions
Applications	Creative applications such as generating text	Proactively optimises portfolios
Training	Trained on data	Trained by interacting with its environment
Examples	ChatGPT, Huggingface	AlphaGo, OpenAI Five, New Generation Optimisers

- **Data bias:** AI algorithms are only as good as the data they are trained on. If the data is biased, the AI algorithms will be biased as well. This can lead to inaccurate predictions and poor decision making.
- **Cyber security:** AI systems are complex and can be vulnerable to cyber attacks. Algorithms have their own signatures of behaviour and are susceptible to detection. If an AI system is hacked, it could be used to manipulate markets or steal data.
- **Market manipulation:** AI algorithms can be used to manipulate markets by artificially inflating or deflating prices.
- **Algorithmic trading:** AI-powered algorithmic trading can lead to market volatility. If too many algorithms are trading at the same time, it can be difficult to predict market movements. This can lead to sharp price swings and losses for investors.
- **Lack of transparency:** AI algorithms are often opaque and difficult to understand. Explainability is crucial for auditing, governance, compliance and transparency purposes.

Generative AI poses additional issues, such as misinformation risks (generating and creating text that is false or misleading) and privacy risks (collecting private or proprietary data). It must therefore form part of a multi-model approach. This usually includes reinforcement learning, which is a type of AI that learns to make decisions by trial and error. In reinforcement learning, an AI agent is given a goal and it must learn how to achieve it by interacting with its environment. With an increasing number of

services and toolboxes, the democratisation of AI is now very rapid. The key differences between generative AI and reinforcement learning are set out in Table 1.

The key to good use of all AI tools is data, but the information captured by most businesses is incomplete and lacks intelligence about its purpose. Data often lacks context, and it becomes divorced from the business object it supports.

The value of data can be narrowed down to four key issues:

- Trust (eg, security, fairness, ethics, compliance and privacy);
- Cost and return on investment (eg, acquisition cost, storage costs and cleansing costs);
- Relevance (eg, completeness, data quality and granularity); and
- Strategy (business value, monetisation and evolution of ecosystem).


To become more driven by data and analytics, firms must:

- **Develop a data strategy:** A good data strategy is a long-term plan that defines how an organisation will collect, store, manage and use data to achieve its business goals. It should be aligned with the overall business strategy and should be regularly reviewed and updated to reflect changes in the business environment.
- **Build frameworks and pipelines for handling data and analytics:** These are technology frameworks and delivery mechanisms for data. They include aspects such as development operations,

data operations, machine learning operations and iterative refinement and incremental measurable improvement of products and services.

- **Manage frameworks for maturation of data and AI usage:** Develop mechanisms and tools for measuring the use of data and AI and the level of organisation maturity in becoming data driven.
- **Respond to value feedback metrics and dashboards:** Introduce key performance indicator dashboards that show how the business is performing in relation to use of data, analytics, value add, compliance and market positioning.

In addition, any regulated firms using AI must determine and monitor their compliance with financial services regulation. The requirement to comply with sector-specific rules in regulated industries means AI models must be explainable. General purpose regulation, such as the EU's AI Act, requires testing and auditing of all AI systems based on the level of harm they may cause.

Banks and financial institutions are data businesses. AI provides far more powerful data manipulation and management than can be gained from human insight and is more powerful than traditional decision-free-based technology. Firms need to be aware of current and emerging legislation when using GPT-type and reinforcement learning technologies. By understanding the risks and compliance concerns associated with these technologies, banks and financial institutions can mitigate these issues and ensure they are compliant with applicable laws and regulations. 

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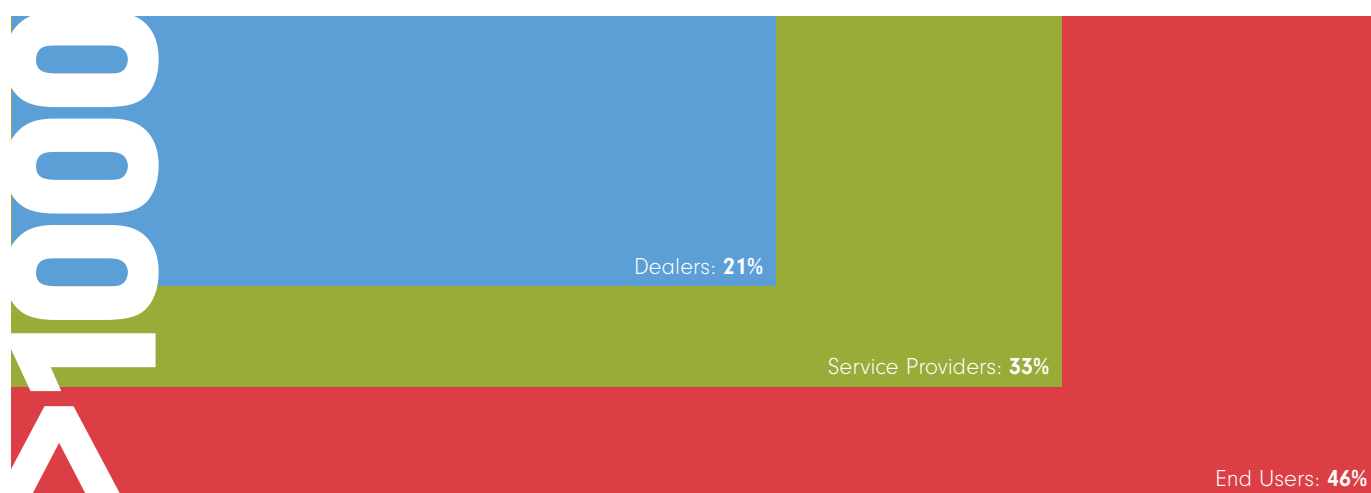
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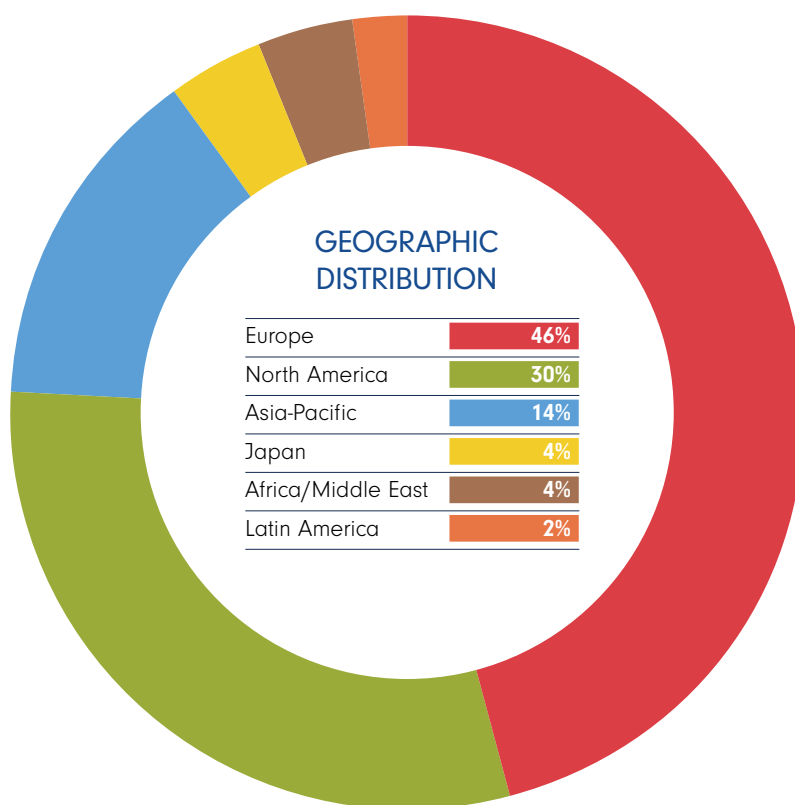
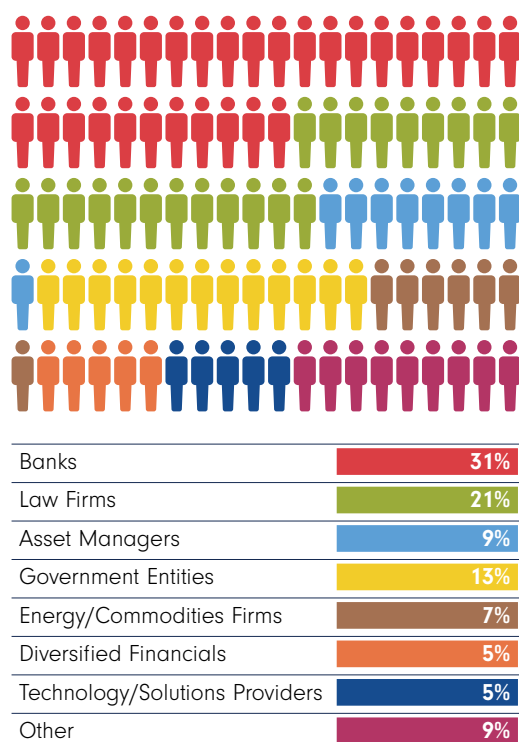
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ISDA has over 1,000 members from 77 countries. These members comprise a broad range of derivatives market participants, including corporations, investment managers, government and supranational entities, insurance companies, energy and commodities 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.

MEMBERSHIP BREAKDOWN



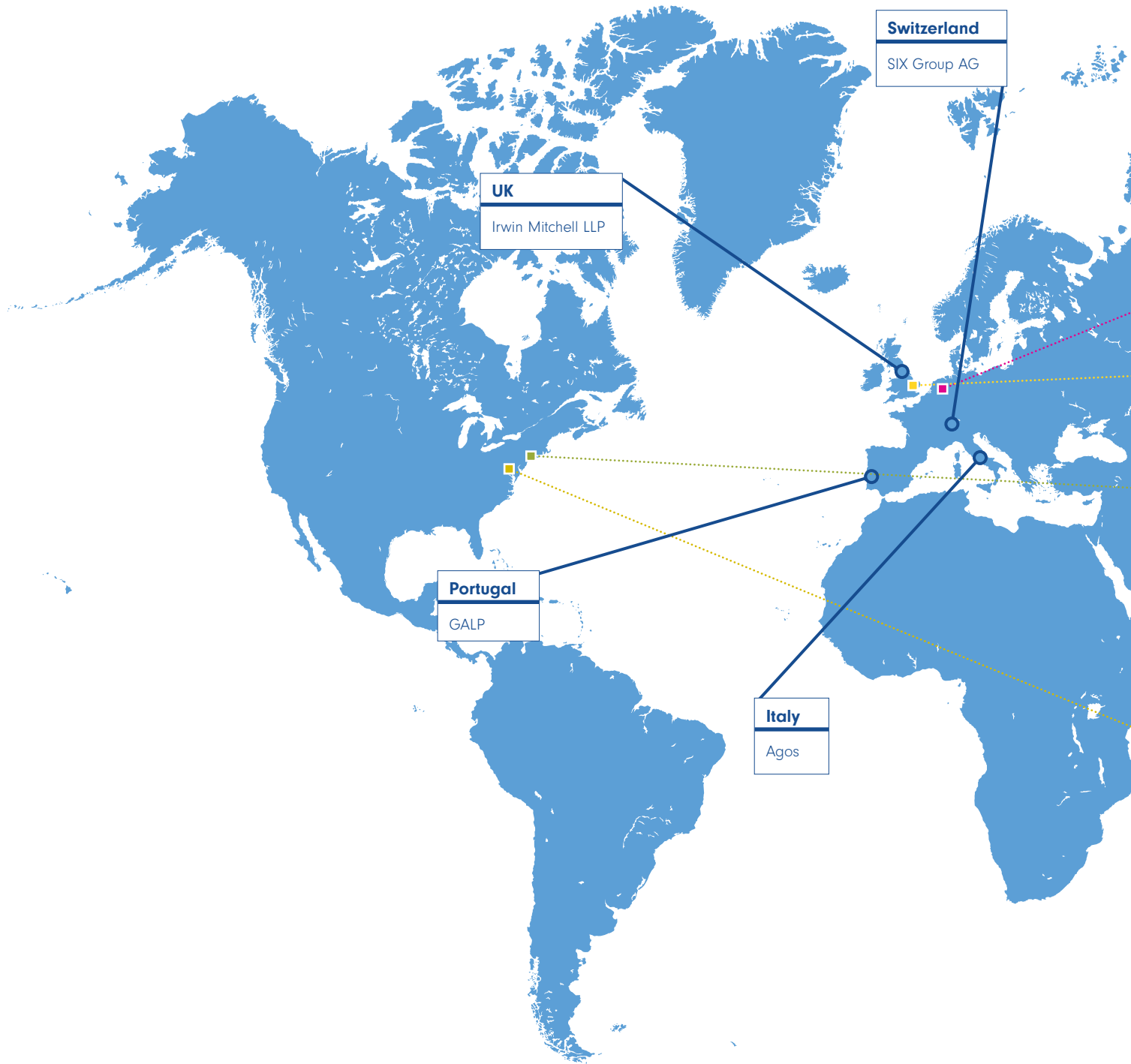
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“Climate change and the efforts to tackle it will lead to profound structural changes in our economy. If not well managed, they will impact price stability and create risks for the stability of our financial system”

Irene Heemskerk, European Central Bank