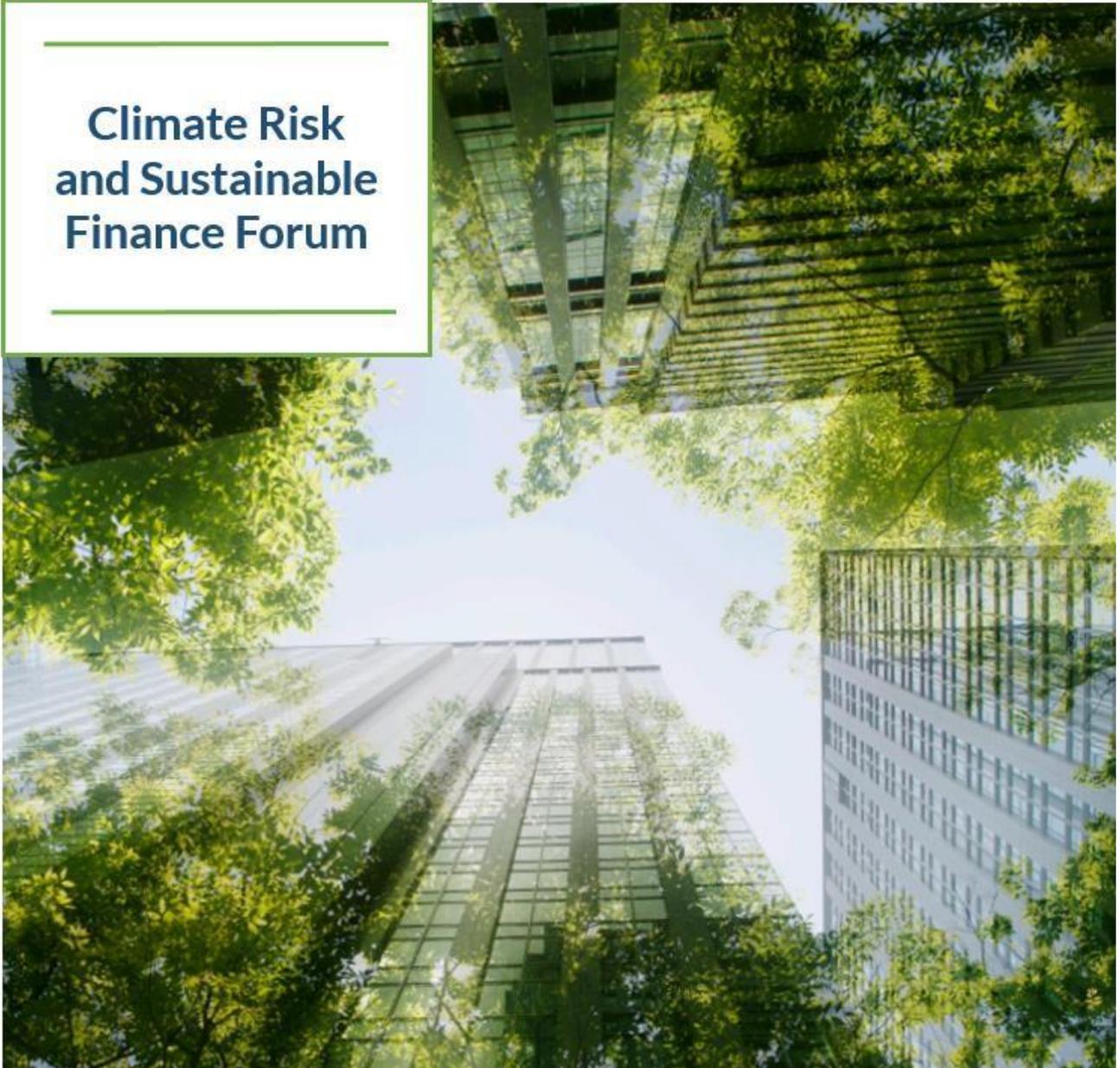

**Climate Risk
and Sustainable
Finance Forum**



Risk Management Working Group

DISCLAIMER

This report has been written by the Risk Management Working Group of the Climate Risk and Sustainable Finance Forum (Climate Forum), and represents a report written by financial sector practitioners, for practitioners, with the intention of supporting financial institutions in their climate change related work. The findings of this report do not constitute financial or other professional advice and should not be relied upon as such.

The Central Bank of Ireland has convened and facilitated Risk Management Working Group discussions but does not accept liability for the views expressed in this report. The findings outlined in this report do not necessarily represent the views of the Central Bank of Ireland. The findings of this report do not constitute regulatory guidance.

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Key Definitions

Some Key Definitions

- **Climate Change:** A change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods.
- **Greenhouse Gas (GHG):** A gas that contributes to the natural greenhouse effect. Greenhouse gases (GHGs) produced by human activities include: carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons and sulphur hexafluoride. Another important natural GHG is water vapour.
- **Physical Risks:** Climate physical risks, arising from the impact of natural hazards (e.g., hurricanes, floods, droughts) on physical assets, lead to plants' damage, lower productive capacity and output, and lower the value of firms' financial contracts. This in turn negatively affects the value of the portfolio of financial actors (e.g., banks, insurance companies, pension funds) who hold such contracts. For instance, a firm whose productive capital is destroyed by severe floods and has borrowed from a bank, may not be able to repay the interest and principal on the loan.
- **Transition Risks:** Climate transition risks are the costs relating to the transition to a low-carbon or net zero economy (e.g. carbon tax or regulations), and are likely to be much higher in a disorderly transition state that is not fully anticipated relative to an orderly one. In this context, high-carbon firms are expected to experience higher costs and lower revenues, giving rise to stranded assets. Stranded assets, in turn, can lead to large adjustments in asset prices, with potential implications for economic and financial stability.

Explanation of Three Lines of Defence

In financial services, the three Lines of Defence Model refers to how a firm organises itself to shield against risk that could negatively impact the achievement of its objectives:

- **First Line of Defence:** The Operations Function is fully responsible for risks in its area of activity and must ensure appropriate controls are implemented in the correct way, with sufficient awareness and prioritisation of risk. This line owns the risk and is accountable for risk taking.
- **Second Line of Defence:** The Risk and Control Function acts as an independent control function to ensure risks are identified, controlled, and managed within appropriate boundaries. They provide an adequate degree of certainty that first-line control function is managing risks well.
- **Third Line of Defence:** Internal Audit is responsible for the quality control of the existing business processes; they provide assurance and review.

1. Foreword

The Risk Management Working Group was established by the Climate Risk and Sustainable Finance Forum (Climate Forum) to identify approaches to climate-related risk management within financial services in Ireland, and to help leverage the opportunities presented by the evolving climate agenda.

The Risk Management Working Group (Working Group) comprises representatives of asset management firms, domestic and international banks, insurers, intermediaries, credit unions, trade associations, the consulting firm EY, and the World Bank, with representatives of the Department of Finance, the Central Bank of Ireland and NTMA participating as observers.

A key area of focus for the Working Group is on how financial services firms are supporting their customers, clients and stakeholders in their own transition journeys as they seek to identify and take actions to address climate risk in the medium to long term, whilst mitigating its impacts in the short term.

The report provides a baseline of knowledge on the approach adopted across the financial industry on climate risk management and includes practical examples of industry-identified emerging good practice in addressing the risks and opportunities arising from climate change. It is written by the industry, for the industry, and reflects both the domestic and the global nature of the financial services sector in Ireland, with many participating firms operating across multiple jurisdictions.

It outlines how the financial services industry is supporting the transition to a more sustainable future. It will be of interest to those already well-versed in climate risk management and those with limited understanding who are grappling with transition plans and embedding climate-related risks in their firms' business strategies. The report sets out how financial services firms are considering actions and taking practical steps to adapt to climate-related opportunities and risks.

The Chairs would like to acknowledge the many firms who gave their time and expertise over the course of the past year including Invesco on the evolving sustainable finance regimes in the EU and the UK, KPMG on the interplay between corporate sustainability reporting requirements, transition finance and climate risk, Barclays Bank on the approach to climate risk management in the UK, and EY on climate-related data considerations. Briefings and discussions with these firms and others assisted with the identification of common issues and possible approaches and solutions to the challenges associated with the complex and evolving climate risk reality.

We look forward to working with the Central Bank's Climate Forum on next steps to foster best practice in climate risk management.

Louise O'Mahony

Andrew Gardner

Louise O'Mahony, Head of Sustainable Banking, Banking & Payments Federation

Andrew Gardner, Chief Administration Officer, Invesco

2. Members of the Risk Management WG

Financial Services Firms

AIB	Donal McAuliffe
Bank of America Europe	Ursula Mapley
Bank of Ireland	Damien Pidgeon
Davy Group	Dr Dorothy Maxwell
Hermes Fund Managers Ireland Limited	Sarahann Duff
Jupiter Asset Management	Ross Allen
Invesco Investment Management Limited	Andrew Gardner - Co-Chair
IPB Insurance	Enda Devine
National Bank of Canada	Enda Twomey, on behalf of IMIA
RSA Insurance Ireland DAC	Kevin Thompson
Wells Fargo Bank International	Sarah Stafford

Other members

Banking and Payments Federation of Ireland	Louise O'Mahony - Co-Chair
Brokers Ireland	Elizabeth Smith Wright
Credit Union Managers Association	Timothy Molan
EY	Fidelma Clarke
FSI (IBEC)	Elena Lillo
Insurance Ireland	Nadya Lazarova
Irish MiFID Industry Association	Aoife Brophy (for information)
Society of Actuaries in Ireland (SAI)	Declan Lavelle
Society of Actuaries	Stuart Redmond
World Bank Group	Patrick Flanagan

Climate Forum Observers

Department of Finance	David Owens
NTMA	Emma Jane Joyce
Central Bank of Ireland Support	
Climate Change Unit	Yvonne McCarthy
	Philip Brennan

3. Executive Summary

“Climate-related events are becoming ever more common, and this is leading to a growing focus on potential risks climate change could pose to financial stability. A manifestation of physical risks as well as a disorderly transition to a low-carbon economy could have destabilising effects on the financial system, such as a rise in risk premia and falling asset prices.”

– Financial Stability Board, July 2023

Recent extreme weather events globally and the devastating flooding in parts of Ireland caused by recent storms such as Storm Babet demonstrate the importance of joined-up thinking on climate risk and financial stability. The Central Bank of Ireland’s Climate Forum provides a unique opportunity to learn from climate experts and build a shared knowledge and dialogue between the regulator and the financial services industry on the management of climate-related risk, a risk to financial stability that needs to be managed in a coherent and robust manner.

The report provides a baseline of knowledge on the approach adopted across the financial industry on climate risk management, and includes practical examples of practical industry-identified good practices on how financial institutions can address risks associated with climate change within their own organisations¹.

The report also outlines some of the significant actions already underway to incorporate climate risk management into financial institutions and explores the climate related challenges and opportunities facing these firms, regardless of their sector. In addition, it considers the regulations applicable to different financial services sectors, their strategy, governance and risk management processes, business initiatives, and how they are engaging with clients to support them with their sustainability transition. Many firms² participate in global alliances formed by firms within their sector that help inform on best practice and cooperate to develop tools and standardise methodologies and metrics, where possible.

The risks for financial Institutions arise from both climate change and policies to combat it and include physical, transitional, litigation and reputation risks. A coherent, robust climate risk management framework will inform firms’ business models and strategies, allowing them to better identify the many opportunities available through supporting their clients and customers on the urgent transition to sustainable economic activities that contribute to a decarbonised, healthier and safer world.

A survey of all firms regulated by the Central Bank of Ireland was carried out in April 2023. The survey sought the views of the financial services industry on climate risk management, with reportedly considerable progress being made by some financial services providers, such as banks and insurers, most likely thanks to mounting regulatory requirements. Common challenges reported by firms across the industry included a lack of training on climate risk impacts, and data limitations. Naturally, individual businesses also face their own unique challenges.

The survey found that financial services firms are implementing new, complex, evolving and inter-related climate risk regulations, identifying and mapping climate risk, sourcing and managing data, integrating climate-related risk into their risk management frameworks and reporting in a transparent manner. Please see Appendix 1 for a discussion on the survey findings.

The volume of required disclosures on financial services’ firms, Net Zero strategies, progress towards targets, key performance indicators and the quantum of green financing is increasing rapidly. There are multiple emerging standards globally in terms of scientifically measuring Green House Gas (GHG) emissions as well as classification systems to determine a ‘green’ activity such as the EU Taxonomy. All these

¹ The content reflects insights from within the Working Group and invited speakers, and should not be considered as an exhaustive overview of all industry practices currently in operation.

² WG members belong to key alliances such as Net Zero Banking Alliance, Net Zero Insurance Alliance, UN Principles for Responsible Investment and UN Principles for Responsible Banking.

standards and disclosures require financial institutions to capture and validate new data in terms of Environment, Social and Governance (ESG) ratings, GHG emissions, green asset and investment ratios, and physical and transition risk quantification.

This report also provides a baseline view on how the financial services industry is actively supporting the transition to a sustainable future, both within their firms and by supporting their customers and clients in their own sustainability journeys.

The intention is to support financial institutions to understand how best to prepare for the risks and opportunities arising from the growing climate challenge and to offer a guide on how to integrate climate resilience into firms' risk management, strategy formulation, and decision-making processes. It can serve as a starting point for discussions on areas where collaboration is required.

4. Key Findings of the Report

- Climate-related risk management is becoming an integral part of financial services firms' business model and is informing decision making and financial planning
- Emerging good practice in climate risk management will support opportunities in financing the green transition
- Firms can identify and manage climate risks in portfolios, supported by regulation and transition planning, but firms cannot mitigate external risks (e.g., flood risks)
- Public-private collaboration on solutions is required
- Scaling up financing of the sustainable transition and incentivising and informing customers to choose green economic activities is required
- Allowing access and building shared understanding of climate-related data via open collaboration on data in Ireland (e.g., a common data utility) is required
- Firms are growing staff skillsets to manage the data required but require external mechanisms to standardise and simplify data management

Emerging Good Practice

The report illustrates industry identified emerging good practices on the following issues:

- Portfolio alignment with respect to climate and engagement
- Ongoing monitoring of climate related metrics and indicators
- Embedding of climate risk into strategies, business models, risk management frameworks
- Sourcing ESG data required for NetZero transition planning and regulatory requirements.
- Deploying scenario analysis and stress testing of climate related events
- Integration of climate risk in underwriting and pricing
- Enhanced climate risk disclosures and reporting
- Consideration of climate change risk in solvency assessments

5. Industry Identified Emerging Good Practice across the Financial Services Sector

5.1. Introduction

In this chapter, we consider climate risk management in financial services. Representatives from Asset Management, Insurance, Banking, Credit Unions and Brokers have each set out emerging good practice on climate risk management in their sector, with case studies to provide illustration of such practices. The material in this chapter is not exhaustive and reflects insights from Working Group members.³

The Role of the Financial Services Sector in Climate Risk Management

The Paris Agreement reached at the COP 21 United Nations Climate Change Conference in 2015 set out that it would pursue efforts to limit an increase in temperature of 1.5°C above pre-industrial levels (or the levels that existed between 1850 and 1900). Since then, governments around the world have been setting national objectives to transition to low-carbon economies. The European Green Deal (2020) set the European Union's objective to reduce net GHGs by at least 55% by 2030, compared to 1990 levels, and become climate neutral by 2050. Ireland has set a target of a 51% reduction in GHGs by 2030, with individual emission ceilings for each sector of the economy, and to be climate neutral by 2050. Globally, supervisors are taking action to ensure financial institutions can identify their risk exposures to climate change and revise their strategies and business models to better address such risks. (Please see Appendix 2 for a table of current regulations and standards).

The financial risks arising from climate change have several distinctive characteristics, which present unique challenges for financial services providers and require a strategic approach to risk management. Some of the climate risk exposures are relatively well-known and established but financial services providers may have exposures that are not so clear and therefore more difficult to identify and manage.

Characteristics of climate-related risk include:

- **Far-reaching in breadth and magnitude:** the financial risks presented by physical and transition risk factors are relevant to multiple lines of business, sectors, and geographies. Their full impact on the financial system may therefore be larger than for other types of risks, and the risks are potentially non-linear, correlated and irreversible.
- **Uncertain and extended time horizons:** the time horizons over which financial risks may be realised are uncertain, and their full impact may crystallise outside of many current business planning horizons. Therefore, using past data may not be a good predictor of future risks.
- **Foreseeable nature:** while the exact outcome is uncertain, there is a high degree of certainty that financial risks from some combination of physical and transition risk factors will occur.
- **Dependency on short-term actions:** the scale of future impact will be partly determined by the actions taken today by governments, supervisors, firms and their clients and customers.

³ In certain case studies, the firm has opted to remain anonymous.

Risk management helps in identifying and understanding the specific climate-related risks that the firm may face. It involves:

- Analysing the potential impacts of regulatory changes (e.g., carbon pricing) and climate change generally, such as extreme weather events, sea level rise, temperature change and shifts in precipitation patterns.
- Assessing the potential severity and likelihood of occurrence of these identified risks involves evaluating the vulnerabilities of assets, infrastructure, and systems to climate change impacts, as well as understanding the potential economic, social and environmental consequences.
- Due diligence risk management practices, which identify specific environmental risks integrated into the financial institution's credit policy and loan/investment origination framework.
- In managing climate risks, some financial institutions have implemented an exclusion-based approach. More advanced approaches include requiring the counterparty to meet certain conditions (e.g., sustainability certifications) or including legal covenants in investment agreements to require specific environmental performance. This can include requiring a counterparty to mitigate climate risks through adopting sustainable practices, improving infrastructure design, diversifying supply chains, implementing early warning systems and promoting adaptive management approaches.
- Risk management involves tracking climate-related changes and updating risk assessments as new information becomes available. Regular monitoring enables financial institutions to adapt their risk management strategies and frameworks and take appropriate actions in response to evolving climate risks.
- At a portfolio level, risk management can employ scenario planning to assess and prepare for various climate change scenarios. By considering different future climate scenarios, financial institutions can better understand the range of potential risks they may face and develop flexible strategies to adapt and respond accordingly.
- Risk management tools available to portfolio managers include decisions on capital allocation, divestment, the integration of climate metrics and methodologies to manage and mitigate climate risk, and active ownership focused on supporting and encouraging corporate behaviours which contribute to sustainable returns through enhanced disclosure and action around climate change.

To manage climate-related risk, financial institutions in Ireland follow supervisory expectations from supervisors including the European Central Bank and the Central Bank of Ireland, which focus on five key areas set out below⁴:

- **Governance** - Board ownership of climate risk and the promotion of a culture that emphasises climate and other ESG issues.
- **Strategy and Business Model Risk** - Determination of impacts of climate risk and opportunities on overall risk profile, business strategy and sustainability.
- **Risk Management Framework** - Understanding the impact of climate change on risk profile and enhancement of risk frameworks to identify, measure, monitor and mitigate climate risk.
- **Scenario Analysis** - Assessment of the impact of future climate outcomes and their impacts on capital adequacy.

⁴ https://www.centralbank.ie/docs/default-source/publications/correspondence/dept-of-finance-correspondence/letter-minister-finance-financial-regulation-priorities-2023.pdf?sfvrsn=369d981d_5 Central Bank of Ireland (November 2021) - <https://bit.ly/40Qgr6d>

- **Disclosures** – Reference to existing obligations in respect of disclosures and the risks of greenwashing.

5.2. Asset Management

This Section discusses

- Role of asset managers in relation to climate risk
- What steps asset managers can take in relation to the products they offer
- Considerations in relation to greenwashing risks and net zero commitments
- Looking at climate risk measurement, management, monitoring, and stress testing in asset management
- Key role that advocacy plays in climate risk management
- How asset management companies can incorporate climate sustainability risks into their governance

Key aspects of industry identified emerging good practice relate to:

- Portfolio alignment and engagement
- Ongoing climate risk monitoring
- Scenario analysis and stress testing

The asset management sector differs from other financial sectors in that the key driver of climate impact in this sector comes from the funds under management (also called products). Asset Management firms (or Fund Management Companies 'FMC's) typically have relatively low carbon footprints for their business and as such this chapter will focus on the funds under management where investors' capital is pooled and invested.

Investors are becoming more conscious of the materiality of climate risk and the potential impact of climate change on their long-term investments, as demonstrated by the large adoption of 'green' investment strategies under the EU's Sustainability Financial Disclosure Regime⁵. Consideration of climate criteria within an investment strategy is essential if climate is claimed to be part of the strategy in the product documentation.

In Ireland, the asset management industry's efforts to integrate climate risk management within investment strategies demonstrate its commitment to safeguarding assets while playing its part in creating a sustainable future. While Irish domiciled 'green' funds (using SFDR Article 8 and 9 as a proxy) lag 'non-green' funds by €1.3tr in assets (€2.5tr compared to €1.2tr) there are increasingly more 'green' funds being launched than 'non-green' ones⁶. This trend of increasing supply of green funds is expected to continue into the future.

It should be noted that the Central Bank of Ireland permits certain obligations to be applied in a proportionate nature given the nature, scale and complexity of the FMC. These extend to the integration of

⁵ EFAMA stated that 45% of UCITS and AIF AUM was in Article 8 Funds at the end of Dec 2022 (https://www.efama.org/sites/default/files/files/EFAMA_MKT%20INSIGHTS%2312_final.pdf)

⁶ Sustainable Finance in Practice for Fund Managers - Remarks by Patricia Dunne, Director of Securities and Markets Supervision. September 2023 (<https://www.centralbank.ie/news/article/speech-sustainable-finance-in-practice-for-fund-managers-remarks-by-patricia-dunne--director-of-securities-and-markets-supervision-27-sep-2023>)

climate risks in ensuring compliance with its regulatory and fiduciary obligations. As such, this chapter should be read in the context of each individual company and its specific obligations.

Management of Climate Risk

In simple terms, climate risk within funds is managed through investment allocation and, where appropriate, engagement with investee companies. The starting point is embedding climate risk management into the investment process.

Mapping climate risk onto the investment management process:

- Emerging good practices lean towards integration of climate risk considerations and engagement insights into the investment processes in all a firm's products, across all asset classes.
- Investment teams can incorporate and consider climate factors into their investment process by accessing both quantitative and qualitative ESG and engagement information, by accessing third-party research and by undertaking their own fundamental research. Research and analysis by the investment teams may include an evaluation of performance on strategy, financials, material risks and climate factors, and the interplay between these elements.
- Insights from engagement with company management, boards, subject specialists and other shareholders and stakeholders – including the extent of engagement progress – is a key input into this process for actively managed funds and investment decisions at a portfolio and individual asset level. Where concerns arise in relation to one of the firm's existing investments, engagement is often a means to both raise concerns with the company and, where effective, reduce the investment risk and enhance the opportunity from the investment.

Product Offering and Documentation

Firms need to be able to examine in depth climate risk exposure across product offerings from their initiation and right through their lifecycle. The manner of treating climate risks should be consistent with other investment risks (subject to data availability) to which products are exposed. As market conditions evolve over time, and investor preferences change, a truly integrated climate risk process will ensure the product offering remains appropriate for the target market. Given the complexities surrounding climate risk, regulatory bodies have been engaging with the industry as demonstrated by the recent consultations on the future of SFDR⁷.

Where product disclosures relate to climate impact or risk, FMCs should provide an explanation of how the effects of climate change will be integrated within the investment process and of the tools available to monitor and control climate exposures. Controls should be implemented as part of the governance and oversight of these commitments. As such any commitments to managing climate risks within fund offer documents need to be realistic and be capable of measurement and verification.

By way of example, where commitments are given regarding a product's allocation to climate-friendly assets, it is important that those in FMCs are able to clearly articulate what is meant by climate-friendly, any operational bounds around the defined asset allocation, and the controls and monitoring in place to ensure that the commitments are met over time. The framework shown below (issued by European Securities and Markets Authorities (ESMA)) should be considered by practitioners in the sector to avoid potential greenwashing practices.

⁷ https://finance.ec.europa.eu/sustainable-finance/disclosures/sustainability-related-disclosure-financial-services-sector_en

Dimensions used to analyse Greenwashing risks

Dimensions	Detailed parameters used to analyse greenwashing risks under each dimension		
Roles	Trigger	Spreader	Receiver
Sustainability topics (and sub-topics) about which a claim is communicated	Governance and resources <ul style="list-style-type: none"> Board and senior management role (governance-related elements of entity-level ESG policies) ESG resources and expertise (incl. ESG dedicated staff) 	ESG strategy <ul style="list-style-type: none"> ESG strategy, objectives, characteristics (integration of sustainability in strategy, ESG characteristics, sustainable objectives, taking into account clients' sustainability preferences) Sustainability management policies ESG credentials (qualifications, labels, certificates): adherence to (voluntary) reporting frameworks (e.g. UNPRI, TCFD), labels, ratings, awards, certifications Engagement with stakeholders (proxy voting and active engagement) 	Sustainability metrics and targets <ul style="list-style-type: none"> ESG performance to date: ESG results, metrics for real-world impact Pledges about future ESG performance: ESG targets (incl. net zero targets), transition plans
Qualities through which the claim is misleading investors or consumers	<div style="display: flex; justify-content: space-between;"> <div style="width: 48%;"> Misleading through provision of information <ul style="list-style-type: none"> Empty claims (exaggeration and/or failure to deliver on claims) Inconsistency Irrelevance Outright lie (false) Suggestive non-textual imagery and sounds Suggestive use of ESG-related terminology </div> <div style="width: 48%;"> Misleading through omission of information <ul style="list-style-type: none"> Selective disclosure / cherry-picking Omission or lack of disclosure Vagueness or ambiguity or lack of clarity Lack of fair and meaningful comparisons, thresholds and/or underlying assumptions No proof (unsubstantiated) Outdated information </div> </div>		
Channels through which the claims are communicated	Regulatory information (e.g. Prospectuses, Financial statements, Mandatory sustainability disclosures, Issuers' press releases etc.)		Marketing materials (including website, social media, presentations to investors)
	Ratings (inc. ESG ratings) and Benchmarks & Labels	Intermediary/advice information	Product information (including internal classifications)
			Voluntary reporting, falling outside previous categories

Reference: ESMA Progress Report on Greenwashing 31 May 2023: ESMA30-16684-16927-2498

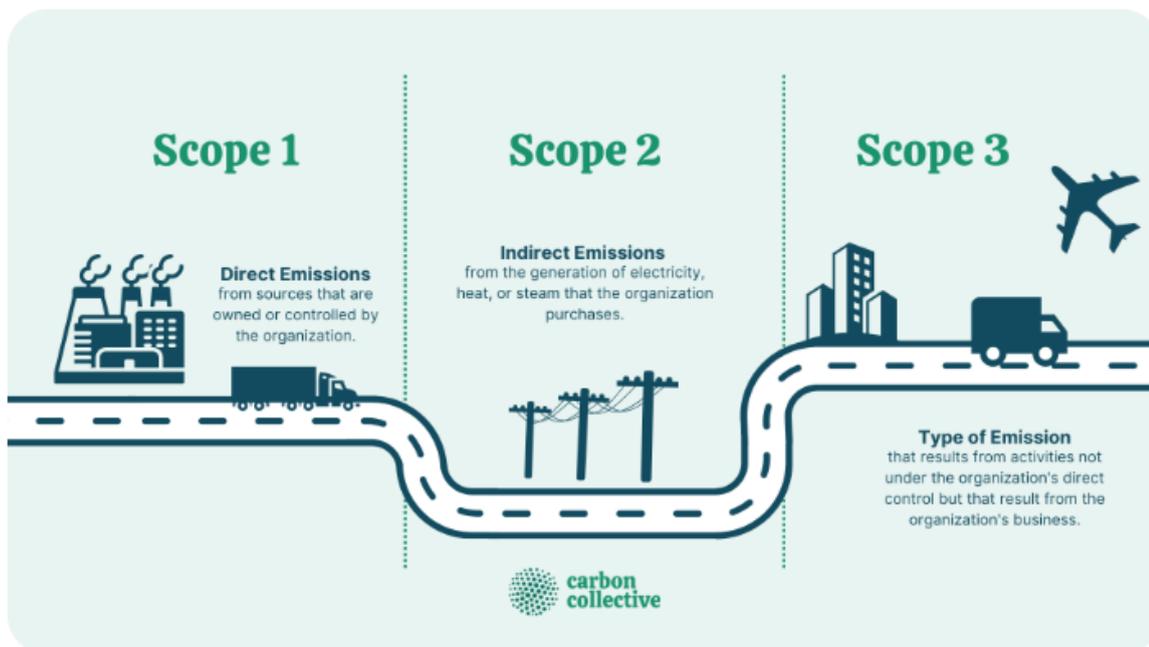
Measurement of Climate Risk

Measurement of specific climate-related risks that the firm may face at corporate and product levels can involve analysing the potential impacts of climate change, such as extreme weather events, sea level rise, temperature change, shifts in precipitation patterns, as well as identifying key climate risk metrics such as carbon emission intensity and carbon footprint.

While there is no fully standardised approach for the measurement of climate risk, measurement methodologies for carbon emissions, carbon emissions intensity and carbon footprint do exist and are increasingly becoming more advanced. Carbon emissions are broken down into three areas: direct emissions, indirect emissions and emissions that result from activities not under the company's direct control but result from the company's business activities. (See graphic under this section).

Each product will have its own unique climate risk profile, which is directly linked to the climate objective of the fund. Such objectives might be a Net Zero by 2050 goal (such as the IIGCC approach⁸) or a carbon efficiency goal where the objective is to have lower carbon levels than a broad market index. Those objectives will be linked in part to the SFDR classification applied to the Fund (Article 8 and Article 9 Funds are more likely to have specific climate goals).

⁸ <https://www.iigcc.org/resources/tag/net-zero-investment-framework>



Source: <https://www.carboncollective.co/sustainable-investing/scope-3-emissions>

Examples of industry identified good and emerging practices of embedding climate risk in the product risk profile include:

- Assessment of carbon emissions associated with the product's investments, including analysis of emissions generated by the companies in which the fund holds positions. Consideration given to both direct and indirect emissions from the use of electricity and purchased goods and services, as well as value chain emissions. The quality of the climate data has improved for Scope 1 and 2 but remains very challenging for Scope 3.
- Scenario analysis conducted to evaluate the fund's resilience to different climate scenarios ensuring it aligns with the objectives of the fund. This can include the potential impacts of climate change through physical risks such as extreme weather events and transition risks such as policy changes and technology advancements on the fund's investments.

Stress Testing and Scenario Analysis

Stress testing has an important role to play in climate risk management for FMCs.

Stress testing determines how a fund will perform under a series of hypothetical or historical scenarios with the results feeding into investment decision making. Climate stress testing is still relevantly nascent within asset management and continues to be developed and improved.

Two types of stress testing that can be performed are:

Factor Stress Testing

This attempts to isolate a single factor such as environmental risk or carbon intensity and determine how changes in that factor will impact fund performance. Factor stress testing has a long history in asset management with examples including factors such as value, growth, momentum, and size, but its application to climate is new. Factor stress testing uses historical patterns to determine future outcomes.

Climate Value at Risk

These types of stress tests use models that attempt to determine the impact on carbon prices linked to various global temperature warming scenarios. The models also incorporate social pathways such as how society as a whole will respond to temperature rises. The results are typically shown under two headings – transition risk and physical risk.

Climate Value at Risk models come with high levels of model risk – the number of model inputs is very high and the long-dated time horizon means even small changes can lead to extremely large output variations. While this may impact the level of confidence associated with the model, there are obvious benefits including the identification of investments, sectors or regions where climate risks may have a material impact. This can result in divestment or a reallocation to other investment opportunities.

Monitoring of Climate Risk

The frequency of monitoring will be determined by the stated climate objective of the fund and the specific nature of the climate related investment criteria. Some criteria will require monitoring in line with the dealing frequency of the fund, i.e., daily, weekly, monthly etc., while others may be more appropriate to monitor less frequently. Examples may include:

- Monitoring frequency for a fund committed to having a carbon intensity lower by at least 10% compared to the benchmark would be linked to the dealing frequency of the fund. Daily if within a daily dealing UCITS fund, for example.
- In the case of a fund committed to promoting the transition to net zero by 2050, the long-term time horizon means less frequent monitoring may be appropriate. Monthly or quarterly reviews with formal annual reviews may be adequate.

Stewardship and Advocacy

To effectively measure and manage climate risks, firms should aim to be a responsible owner of the companies and assets in which they invest through engagement and advocacy. Firms should actively engage with companies and the other assets in which they invest to seek to align outcomes with the best interests of the end investor. This encompasses both improved financial returns and, where possible, better environmental and societal outcomes. Engagement focus areas may include encouraging companies to put strong climate governance, strategy and risk management processes in place to appropriately assess and respond to climate risks, as well as consideration of all impacted stakeholders.

When assessing the universe of companies for engagement, firms have found that a systematic approach to prioritising companies to be beneficial. This can involve selecting companies and tailoring the intensity of engagement based on the size of the firm's investment, the materiality of the risks and issues, and the feasibility of achieving change through engagement. Engagement and voting should be integrated as part of the firm's stewardship approach for relevant asset classes. Voting decisions should be informed by engagement activities and can be a means of engagement escalation to support the delivery of long-term value for investors. Within private markets, firms should use their rights to seek to improved outcomes for clients. For example, in real estate investors can work with property on site to engage with tenants on energy efficiency measures.

Monitoring the progress of investee companies towards their climate objectives is essential. In cases where there is a lack of acknowledgement from the company and/or progress in the engagement, firms should consider escalation methods, such as voting against management.

Advocacy on public policy and market best practice can be conducted individually or through collaborative industry initiatives. Collaborative initiatives are particularly important in addressing systemic challenges like climate change.

Governance

The Role of the Board of Directors and Key Parties in Climate Risk Management

Effective governance pertaining to the financial risks arising from climate change centres around robust oversight, full understanding, and accountability for these risks. This governance is the responsibility of the Board of Directors, through the Executive Committee, Senior Management Team (comprising those in pre-approved control functions PCFs) and Committee structures as appropriate⁹. In addition, relevant departments and functions in the company require detailed understanding of climate risk in order to successfully implement the board's agenda.

The Board of Directors has ultimate responsibility for the long-term resiliency and profitability of the entity – however, the tools and level of resources available to the entity will determine its ability to ensure climate risks are identified, assessed, measured and controlled for across the business. Therefore, retention of climate risk knowledge and expertise within the board is important for enabling sufficient challenge and interrogation of the executive team.

Examples of industry identified good and emerging climate risk governance practices include:

- Board composition and the ability of the directors to understand, challenge and question senior management and others such as investment managers/advisors is reviewed.
- Ensuring an adequate level of subject-matter expertise exists within the firm in order to understand the regulatory framework, interpret sustainability risks considerations and constructively challenge the investment manager. This will vary based on the nature, scale and complexity of the firm.
- Outsourcing arrangements to ensure access to sustainable finance expertise are reviewed.
- Training needs of the Board and all personnel are assessed.

⁹ The Irish Funds industry has published a report (“Integrating EU Sustainable Finance Duties for Fund Management Companies”) which sets out recommendations on how firms should incorporate climate and sustainability risks in their governance processes. We recommend that market participants reference this document for further reading. <https://www.irishfunds.ie/news-knowledge/news/irish-funds-publishes-paper-on-eu-sustainable-finance-duties-for-fund-management-companies/>

5.3. Insurance¹⁰

This Section discusses

- How climate risk can impact on an insurance firm's strategy and business model
- How the governance of an insurance company can support climate change objectives
- How climate risk can be managed and what is meant by physical, transition and litigation risks with case studies from insurers on how they look at these types of risks
- How climate change risks impact on other risks to which insurance firms are exposed
- How to embed climate risk into a risk appetite framework and devise climate key risk indicators (KRIs)
- Insurance case studies, including examples of evolving good practices in climate risk governance and management.

Climate change is not a new risk for the insurance industry, and it affects both the asset and liability sides of the balance sheet. Insurers have significant expertise in risk pooling and management and as risk managers, risk carriers and investors, the industry can play a leading role in building climate-resilient communities and in facilitating the transition to a net-zero emissions and low-carbon economy.

Strategy and Business Model

Failure to address and manage climate change risks and respond to changing market demand can negatively impact on an insurer's financial performance, competitiveness, and market share.

Industry identified good practices

Good practice for the implementation and monitoring of strategic objectives regarding climate risks is to establish key performance and risk indicators. Other examples of good practice include:

- Business planning and strategy documents demonstrate that climate change risk has been taken into consideration across all core areas of the business.
- Management and staff participate in cross-functional working groups across core areas of the business to support collaboration and exchange of knowledge.
- Mechanisms are established for sharing ideas and insights between different areas of the business.
- The board has discussed and adopted a clear position on the climate change debate, for instance on its objectives in the area of climate change and its approach to achieving them.
- Internal and external communications and marketing materials clearly set out the insurer's position and strategy on climate change and comply with relevant regulatory obligations and market expectations.

¹⁰ Insurers can be classified into three broad types:

- Life Insurers (such as pensions and mortgage protection)
- Non-Life insurers (such as property and motor insurance)
- Re-insurers

Governance

Insurers' governance structures play an important role in the understanding and management of climate risks. The following examples identify both the requirements of regulatory guidance and industry good practice:

- Effective management and oversight from the board.
- Appropriate allocation of senior management responsibility (and a requirement under the forthcoming Senior Executive Accountability Framework in Ireland).
- Clear roles, responsibilities, and accountability across all three lines of defence.
- Updated risk frameworks and policies for relevant risk types through which climate risks manifest.
- Board approved risk appetite and management reporting metrics.
- Clear risk authorities, reflecting the materiality of risks, which are implemented effectively.
- Controls embedded into relevant processes covering risk identification, assessment, acceptance or approval, monitoring and reporting.
- Remuneration policies aligned with climate risk strategy and risk appetite.
- Education and awareness building to develop climate risk understanding at all levels in an organisation.

The Risk Management Process

The process of managing climate risk is similar to that for managing any other typical insurance risk. The following steps are included:

- Identification of risk exposure
- Risk assessment and measurement
- Risk mitigation measures, and
- Monitoring and reporting.

Regulatory Guidance on Scenario Analysis:

As a good practice, insurance firms might refer to EIOPA's Application Guidance on climate change materiality assessments and the climate change scenarios in ORSA which provides examples on running climate change materiality assessments and using climate change scenarios and the online climate scenario analysis tool developed by the UK Climate Finance Risk Forum (CFRF), which aims to assist firms in assessing their climate-related risks and opportunities.

Given the uncertainties and the length of the time horizons used for climate scenario analyses and the challenges for firms arising from this, the Central Bank of Ireland in its Guidance, accepts that initially at least, long-term analysis may be more exploratory and qualitative in nature.

However, the Central Bank expectation is that the scope of analysis and methodologies adopted by (re)insurers should develop and improve over time including quantitative approaches where possible, particularly where the risk is material.

Climate change risks that are relevant to insurers can be classified into three categories: physical, transition, and litigation risks (see Appendix 3 for a detailed description of the three risk categories).

Embedding climate risks in risk appetite frameworks

A firm's risk appetite allows it to explore which risk categories are affected by climate change and to what extent; the use of materiality analysis allows firms to take targeted measures related to material risks within its risk appetite. The regular review of a firm's risk appetite is expected, especially considering the new and dynamic nature of climate risks and the increasing volume of regulations in this area¹¹

Industry identified emerging good practices (also reflecting regulatory expectations) include:

- The insurer has performed a comprehensive assessment of the nature and extent of potential asset and liability exposures to climate change risk.
- Material areas of uncertainty have been identified and documented.
- The firm has conducted detailed reviews of some of its most material climate risk exposures.
- A process has been established to review material risk exposures regularly or in relation to new developments. The scope of insurance cover on existing policies potentially exposed to climate change-related events is regularly reviewed and challenged.
- Regular monitoring of litigation developments that may set precedent for climate change-related liability disputes.
- Climate change-related accumulation risk in the investment portfolio is regularly monitored according to a set of key metrics.
- Climate change considerations are incorporated into all relevant processes such as supplier due diligence and business planning.
- Climate change risk exposure limits and thresholds are integrated into the firm's wider risk appetite.
- Factors such as long-term financial interests of the firm and results of stress and scenario testing are taken into consideration when incorporating climate change into risk appetite.
- The board has challenged, discussed and approved the climate change risk appetite and revisits it on a regular basis in light of new risk exposures.
- The board tracks actual exposures against risk appetite thresholds, and this is demonstrated and documented in relevant board management information and meeting minutes.
- A mature climate related risk appetite is informed by the firms' strategy and results of scenario analysis used to identify the range of potential outcomes, longer time horizons and high levels of uncertainty associated with climate change.

Monitoring and reporting

The monitoring of climate risks using established risk indicators allows those risks and their development to be tracked. For firms that have commitments to achieve certain climate targets, it is important to monitor

¹¹ De Nederlandsche Bank, 2023: https://www.dnb.nl/media/devh2uet/76226_dnb_ia_klimaat-en-milieurisico-s-sectoren-2023_eng_web.pdf

the progress of these commitments to remain credible and avoid reputational damage and greenwashing risk. The knowledge, expertise and understanding of climate risks and their modelling are evolving rapidly, data coverage is growing, and legislation and regulations are increasing. Accordingly, it is very important that a firm regularly evaluates its climate risk management cycle.

GOOD PRACTICE CASE STUDIES

AVIVA CASE STUDY

Aviva Ireland is now categorising climate risks in line with the guidance from EIOPA and the Central Bank of Ireland. The risk management frameworks in Aviva's businesses include, where relevant and measurable, Physical, Transition and Litigation Risks, which are also now categorised using a Financial and Non-Financial Risk categorisation specifying the type of risk they represent to Aviva's business model and plan and how the firm's actions can impact on external stakeholders (cross-cutting, transverse).

Based on Aviva's Climate Risk Management Framework, the business identifies the following types of climate related financial and non-financial risks and opportunities. Financial risks include: credit risks, underwriting risks, market risks and liquidity risks and non-financial risks considered by the firm include: operational risk, litigation risk, compliance risks, regulatory risk and political risk.

IPB CASE STUDY 1

Climate Risk is now considered a key strategic risk for mutual insurer IPB. The ORSA considers the impact of climate change on the risk profile of IPB whilst ensuring that there is a robust climate risk identification, measurement, monitoring, mitigation and reporting framework in place through an iterative approach.

IPB constantly strives to integrate ESG issues into risk management and underwriting processes. In 2022, the firm established the IPB Local Authority Member Sustainability Forum, the purpose of which is to guide and advise IPB Insurance on members' insurable needs to ensure they are appropriate in terms of their climate action objectives and exposures.

IPB CASE STUDY 2

IPB's Risk Framework describes the company's system to identify, measure, manage, monitor, and report on risks in the business. It ensures that risk management is aligned with the Company's strategic objectives, and it is guided by seven key principles. The Risk Framework continues to be enhanced through proactive monitoring and mitigation of the threats and opportunities associated with the environmental, social and governance issues facing IPB and its stakeholders.

Evolving good practices and approaches to climate risk management at IPB include

- **Stress testing and scenario analysis:** IPB is conducting stress tests and scenario analyses to assess climate-related risks.
- **Integration of climate risk in underwriting and pricing:** IPB is beginning to integrate climate risk considerations into its underwriting and pricing processes. This involves assessing the exposure of insured assets to climate-related risks in particular flood zones whilst engaging with flood mapping experts.

- **Product innovation:** the firm is developing new products and coverage options to address emerging climate-related risks.
- **Engagement with stakeholders:** it is actively engaging with various stakeholders, including its members through the member engagement forum, the regulator, and industry peers, to enhance climate risk management. Collaborative initiatives involve sharing data, best practices, and knowledge to collectively improve the understanding and management of climate-related risks. The company also participates in industry working groups where insurers can contribute to the development of effective risk management strategies and policy frameworks.
- **Sustainability and responsible investing:** the firm has incorporated sustainability considerations and responsible investing practices into its investment portfolio.
- **Enhanced risk disclosure and reporting:** IPB has improved the disclosure and reporting of climate-related risks to provide transparency and enable all stakeholders to make informed decisions.
- **Employee training and awareness:** the firm provides comprehensive training programmes for employees to enhance their understanding of climate-related risks and foster a culture of climate risk awareness and management throughout the organisation. This culture is particularly evident in the firm's dedicated Sustainability Awareness Week.

CASE STUDY - CLIMATE RADAR

An insurance company has devised and implemented a Climate Change Risk RADAR to articulate the physical, transition and liability risks that the business is exposed to. RADAR is a summary of emerging risks and associated major trends that could affect the insurance sector. Risks are classified low, medium or high according to their perceived materiality. The RADAR also identifies future mitigating actions which will continue to be monitored as the risks evolve.

The company identified climate change risks under six categories - insurance, conduct, business, compliance, operational, and financial. Each year, business stakeholders, including members of the Executive team are asked to allocate a priority rating to each risk (high, medium-high, medium, and low) taking into account the magnitude of the financial impact on the business, risk accumulation, the degree of uncertainty, and crystallisation.

Risk impact is assessed in the context of mitigations already in place. The priority ratings are therefore considered to be net of current mitigations but gross of future mitigations and do not make allowance for mitigations that could or will be put in place in the future.

Challenges include:

- The definition of each risk and the fact that climate risks cannot be assessed in isolation.
- Secondary effects need to be considered when defining each risk, and in some instances it may be difficult to avoid overlap.
- The assignment of priority ratings which are based on expert matter judgment. One risk can be linked to different areas across the business, but not all areas are impacted in the same way or magnitude by the same risk.

The company has set out clear actions to mitigate climate risks taking a long-term approach. It considers the speed of development of climate risks to determine the appropriate approach to confront each risk (short term 0-5 years, medium term 5-10, long term 10+ years). However, this is challenging considering the degree of uncertainty around climate related risks.

The company treats climate risk as a standalone risk. Climate risk has moved from the emerging risk category, and it's assessed separately. The RADAR includes a list of physical, transition and liability risks that are relevant to the company.

A strong governance structure is required to monitor climate risks. When updating the RADAR, executives provide inputs for each of the risks. Once the RADAR is finalized, it is reviewed at the Executive Risk Committee and Board Risk Committee for approval.

Climate risk is a regular agenda item at board and risk committee meetings to ensure sufficient forward-looking consideration of potential risks. The outputs of this exercise feed into the company's ORSA report.

In terms of business model and strategy, the RADAR is an opportunity to assess potential climate risks and opportunities. Mitigating actions are linked to business as usual and strategic initiatives where applicable.

Ripple effects are taken into consideration when identifying and assessing climate related risks. These can include availability of reinsurance, changes to government policy, and so on. For each risk, especially for those rated as high and medium-high, the company outlines the mitigating actions already in place and discusses what future actions could be implemented to strengthen its current position.

The Climate RADAR is shared with other entities that are part of the same group as the company. The company also provides training to board members and staff members on climate change to enable them to oversee and challenge climate risks appropriately. In addition, the company is working to introduce the concept of double materiality to describe and assess the company's impact on climate.

CASE STUDY - CLIMATE KEY RISK INDICATORS (KRIs)

The company endeavours to continuously enhance its overall understanding and assessment of potential climate risk impact to inform its strategy. Climate KRIs were developed in 2022 ensure that the company's "climate dynamics" fall within its Climate Risk appetite. KRIs are classified into six main categories: compliance, reputation, financial, pension, insurance and operational. Each category aims to quantify a particular sub-statement of the company's risk appetite.

Some of the benefits of the disclosure of climate related metrics include increased awareness and understanding of climate-related risks and opportunities within the company, better risk management, and more informed decision-making and strategic planning; improved corporate reputation; and enhanced resilience to challenges arising from the implementation of the climate risk strategy.

KRI selection was based on those that offer meaningful and concrete information including an appropriate level of granularity, availability, and accuracy of data and the capability to set efficient risk thresholds.

Climate KRIs are discussed at board level on a regular basis at the Board Risk Committee. They are discussed with key stakeholders such as the underwriting and pricing and investment teams to make sure that the company's green targets and goals are measurable and aligned with its Risk Appetite Statement (RAS) business model and strategy.

Thresholds are aligned with underwriting business planning, investment strategy and the risk management processes. KRIs that are rated as amber or red are reported to executive management. Stakeholders are required to develop a plan to go to green, where applicable.

The Climate KRIs are updated on a quarterly basis and shared with entities that belong to the group. Further insights into climate KRIs will be updated in light of the company's new Environmental Strategy (2024-2026). Strategic targets will be linked with risk appetite statements.

5.4. Banking

This Section discusses

- How banks' strategic approaches are being adapted to meet climate change challenges and how regulators are influencing these changes
- Factors to consider when assessing and managing climate risks in banking
- Business initiatives supporting climate risk management including Science-Based Targets initiatives
- How client engagement is being used to effect change and drive product development with examples of a bank building out a client assessment process
- How governance in banking is evolving to meet sustainability challenges
- Banking case studies on the various aspects of climate-related risk management and on a BPFI project in which banks collaborate on climate risk data matters.

Key aspects of industry identified emerging best practice

- Embedding of climate risk into banks' strategies, business models and risk management frameworks
- Sourcing ESG data required for NetZero transition planning and regulatory requirements
- Deploying scenario analysis and stress testing

Ireland has two distinct banking sectors: the domestic banking sector and the international banking sector which is part of the International Financial Services Centre.

The domestic banking sector comprises Allied Irish Bank (AIB), Bank of Ireland (BOI) and Permanent TSB (PTSB), as well as several smaller retail credit firms, credit servicing firms, payment firms and a long-established credit union sector.

Dublin hosts the EU/European Economic Area (EEA) headquarters of several major international banking groups. Three pan-European banks (Barclays, Citibank and Bank of America) have activities primarily focused on the wider European market. Similar to the domestic banks all three are directly supervised by the European Central Bank (ECB) under the European Single Supervisory Mechanism (SSM). Other international banks, such as Wells Fargo and Bank of Montreal, have established smaller EU/EEA HQs in Dublin and the sector has continued to grow since Brexit.

Strategy and Business Model

This section provides insights into the strategic approach to climate change risks and sustainability in the sector, offering an understanding of the current dynamics and best practices emerging for banks in Ireland, in both the domestic and international sectors.

For banks, the path to sustainable transition demands foresight, adaptability, and a commitment to creating both economic and environmental value. Their approach to climate risk management and the attendant reporting and disclosures on progress in greening their lending portfolios will influence their relationships with households, consumers, SMEs and corporate clients and support the decarbonising of economies in Ireland and globally.

The European Central Bank (ECB) recognised that the financial sector is pivotal in mobilising the necessary financial resources for the transition and assisting economies to manage climate change adaptation and mitigation. The ECB guidance of 2020 and related documents require banks classified as Significant Institutions to explicitly include climate-related and environmental risks in their risk appetite framework and assign responsibility for the management of climate-related and environmental risks within the organisational structure in accordance with the three lines of defence model¹². Banks classified as Less Significant Institutions abide by similar but reduced requirements as per their local supervisor.

If policymakers' climate ambitions are to be realised, in Ireland and globally, the banks' role in supporting their clients to choose financial products that support sustainable economic activities is essential.

About 75% of banking respondents to the Climate Forum Survey said climate risk is integrated into their firms' risk management frameworks. This reflects the current focus on climate risk and sustainability strategies within the banking sector. This has allowed banks identify opportunities with 75% of them seeing increased revenue from the adaptation of products and services.

In the European Union (EU), the emerging climate risk regulatory regime for the banking sector has prompted a new approach in how banks manage climate risk. Banks must understand the impact of climate-related and environmental risks on the business environment in which they operate in the short, medium and long term, and integrate these into their business strategy.

The banks' strategy reflects European Banking Authority (EBA) guidance that climate-related risk should be treated as a transverse risk and needs to be considered across the entire risk management framework.

For banks, the drive towards net zero has two aspects: clients in their transition and re-evaluating their internal alignment with evolving national, EU and global policies.

As clients articulate their commitment to net-zero emissions, banks must validate the legitimacy of these claims and the viability of their transition plans. This will require significant support for clients through tailored advice and funding solutions that will help to reduce their exposure to climate risk based on clients' emissions. Many companies implementing sustainability plans will require partnerships with banks that will support activities that are sustainable or are supporting the transition to become sustainable.

It is essential to have a comprehensive decision framework in place, encompassing the criteria and data requisites for green transactions. As emission reduction targets become more stringent, banks are setting goals at the product, sector and geographical level. At the same time, monitoring tools need to be developed to ensure thorough scrutiny of all transactions and the performance of clients regarding their emissions reduction commitments.

Potential Factors to consider in Assessing and Managing Climate Risks in Banking

Greenwashing: as sustainable finance grows, the danger of greenwashing magnifies. Banks require a robust framework to detect and counteract such deceptive practices.

Risk Framework: intensified integration of risk management with operational processes and controls is essential. This ensures continuous monitoring and assessment of climate risks across the spectrum.

Regulatory Deployment & Scenario Analysis: keeping pace with escalating regulatory benchmarks supports banks to integrate climate risk into their business models. Additionally, banks must build their

¹² <https://www.bankingsupervision.europa.eu/ecb/pub/pdf/ssm.202011finalguideonclimate-relatedandenvironmentalrisks~58213f6564.en.pdf>

capabilities in climate risk modelling and scenario analysis, informing both risk management and broader strategic initiatives.

Industry identified good practices to embed ESG Risks into Operational and Cultural Frameworks

- **Training & Policies:** Substantial investments in training resources are required to upskill teams on evolving regulatory mandates and client requirements. In addition, banks now require people from very different educational backgrounds such as climate and data scientists in order to keep pace with the rapidly evolving sustainability agenda.
- **Client Selection and Advocacy:** Banks are integrating climate considerations in their client due diligence processes and, as per regulatory requirements, increasing their ESG disclosures in annual reporting.
- **Commercial Opportunities and Product Offering:** Banks are identifying potential business avenues arising from regulatory developments, while also expanding their ESG product portfolios. Their Net Zero transition planning and the implementation of sustainability reporting requirements is prompting them to encourage clients to consider decarbonisation actions by, for example, offering more attractive products to an SME that demonstrates progress on improving the energy performance of their premises.
- **Emissions Management and Impact Assessment:** In line with evolving policy, banks are moving toward operational carbon neutrality. Commitments regarding greenhouse gas (GHG) emissions require mechanisms for continuous impact assessment.
- **Employee Engagement:** Internal culture is crucial. Banks are attuned to their employees' aspirations, fostering a culture that resonates with the broader ambition of being environmentally responsible.

Risk Management Framework

Integration of climate and environment-related risks into banks' risk management frameworks requires identification of specific risks arising from climate change and actions to mitigate and adapt to climate change. Banks must set and monitor key performance indicators to reflect these risks and map climate risk to financial risk, so that climate risks are identified as drivers of financial risk.

To ensure capital adequacy, banks must identify and quantify these risks. They must consider how a physical risk event such as flooding could have an adverse impact on business continuity, along with the extent of potential reputational and liability risks.

Banks conduct stress tests to monitor how climate-related factors affect market risk positions and future investments and must continue to develop stress tests to incorporate climate risks.

Banks increasingly require data to understand climate-related risks and performance of their portfolios in terms of greening the transition. For example, there is transition risk inherent in coastal and river flooding events. Policy changes to promote an environmentally resilient economy may reduce the demand for real estate in certain areas, for example where there is high flood risk. Banks in Ireland are currently mapping flood risk and flood risk defences to reflect such risks in their loan origination policies and to monitor the risks in their portfolios.

CASE STUDY - DEFINING ESG RISK

Bank of Ireland defines ESG risk as the risk to value arising from an environmental (including climate change), social or governance event or condition that, if it occurs, could cause an actual or potential material negative impact on:

- The group's earnings, franchise value or reputation.
- The group's regulatory standing.
- The long-term sustainability of customers' operations and financial wellbeing.
- The communities and environment in which the bank and its customers operate.

The bank also defines two key sub-categories of climate-related risks and environmental risks that impact its business. These are the risks associated with the transition to a low-carbon economy and from climate-related physical events¹³.

Scenario Analysis

The objective of climate scenario analysis is to understand and assess the impacts across a range of potential outcomes, rather than selecting a single path. The range of outcomes helps broaden banks' understanding of potential financial impacts and can inform business strategy and risk management decisions.

It is best practice for a bank to incorporate climate-related risks into existing enterprise-wide scenario analyses framework and processes. These processes are used to support capital planning, recovery and resolution assessments as well as overall risk management.

By integrating climate scenario analysis into these existing enterprise capabilities, a bank can more effectively assess potential pathways for the transition to a net zero economy and assess their impact on business and risk management decisions. This includes evaluating the impact of different transition and physical-related risks and events, as well as providing deeper insight into how climate-related risks and opportunities may evolve.

Identification and Assessment of Climate Risk

Both transition and physical risks can affect the creditworthiness of banks' customers, the stability of their lending portfolios, as well as the value of assets in the medium to long term. These climate risk drivers can intensify risks to banks across existing key risk categories.

¹³ These definitions are in line with the ECB guidelines on climate-related and environmental risks and the recommendations of the TCFD.

MAPPING CLIMATE-RELATED RISK DRIVERS

To increase its understanding of the risks and opportunities that climate change presents to its business strategy, a bank conducted an assessment the impacts of climate on different risk types in late 2022. The assessment covered credit, business, people, operational, conduct and regulatory risk among others and involved business leaders and subject matter experts from across their Group.

The potential impact of transition and physical risk drivers was assessed for each key risk type over the short (< 3 years), medium (3-5 years) and long-term (> 5 years). The outcome allowed the bank to map for each type of risk - financial, operational, and capital adequacy), as well as transition and physical risk, and quantify their potential impacts for each time horizon

Climate Risk Data

ECB Guidelines and related legislative requirements such as ESG Pillar III Requirements require banks to report aggregated risk data that reflects their exposures to climate-related and environmental risks so that the management body and relevant sub-committees can make informed decisions.

Banks must consider how to source and manage this data (See Chapter 7 - Cross Industry Data Considerations). Effective identification of physical risk data sources could benefit from government-led collaboration between regulatory bodies and state agencies and the banks and other financial services providers who need to access the data. For example, banks are required to understand the energy performance of residential and commercial buildings and must know the flood risk defences and insurance coverage available when providing mortgages.

Governance

Incorporating climate risks responsibly aligns with the core values of modern banking. Establishing a strong governance framework affirms to all stakeholders that climate risks are not only identified but also proficiently managed and mitigated.

In banking, a strong governance framework is designed to ensure the effective management and oversight of the entity and support robust review and challenge of material decisions. A governance framework should interlink the board, risk and business oversight, and decision making. There should be clearly defined roles and responsibilities which are effectively overseen by senior management and the board to ensure the primacy of decision making of the entity and stability.

Employees play an important role in ensuring the governance model is implemented and executed in accordance with the agreed model. Management of climate risk requires experienced independent board of directors, a skilled management team and clear and effective governance practices.

Industry identified good practices as part of a comprehensive governance framework tailored to oversee climate risk are:

- **Remuneration Committee:** Endeavours to correlate the board's performance in achieving climate objectives with its members' compensation, ensuring alignment of incentives.
- **Director Selection:** To bolster the board's proficiency in ESG matters, banks should prioritise the appointment of directors with pertinent knowledge, skills, and expertise in the ESG realm.

- **Chief Risk Officer/Chief Climate Risk Officer:** Banks should determine whether to institute a specialised role focused solely on climate risk or to amalgamate such responsibilities within the responsibilities of the Chief Risk Officer.

Organisational Framework

Roles and responsibilities should be documented in an organisational framework to show the oversight model and escalation pathway, encompassing both the board and management tiers. This blueprint should delineate the governance entities entrusted with review, challenge, and decision-making processes pertinent to all climate-related affairs.

CASE STUDIES

INCORPORATING ECB GUIDANCE ON CLIMATE AND ENVIRONMENT RELATED RISK INTO THE GOVERNANCE FRAMEWORK

Bank of Ireland has set out a five-point climate action plan aligned with EU, Irish and UK government targets and commitments. Fundamental to this plan is the important role the bank can play in facilitating the transition to a resilient, low-carbon economy. When the European Central Bank (ECB) guidelines on Climate and Environmental Risk Management were published in consultation form in mid-2020, they informed the group's sustainability strategy development and the initial steps taken to mitigate climate risk exposure consistent with the guidelines.

During the first half of 2021, the ECB requested significant institutions to conduct a self-assessment of their current practices against the expectations set in the guidelines and to submit implementation plans detailing how and when they would bring their practices into line with the guidance.

The bank developed an overarching Climate Risk Implementation Plan covering each of the ECB's priorities, including actions to address gaps highlighted in the self-assessment, across a multi-year timeline. This plan was developed following engagement with key stakeholders from across the group and was subject to review and peer benchmarking by specialist third party consultants.

The Implementation Plan is consistent with the group's overarching five-point climate action plan and was jointly approved by its relevant committees. The Implementation Plan is a critical enabler in progressively aligning the group to the ECB guidelines on climate risk management in respect of strategy, risk governance and measurement, with progress against the plan subject to oversight to the relevant board committees. The group continues to progressively embed climate-related risks into its key risk management activities.

GOVERNANCE OF THE ESG FRAMEWORK

In 2022, the AIB board approved the bank's ESG Framework. The purpose of the ESG Framework is to ensure the overall approach to the management of key components of the ESG agenda is clearly defined and well understood across the group and to enable the achievement of the group's strategic objectives in line with the risk management framework while delivering on regulatory requirements and the commitments made to its stakeholders. AIB's ESG Framework is focused on Business Strategy and Processes, Governance and Risk Management.

- Business Strategy and Process includes: considering ESG Factors in strategy setting, ESG targets, objectives and limits; current and future investment and lending activities; sustainable product development; counterparty and supplier management.

- Governance includes: ESG Framework, ownership, applicability and management; ESG governance structure; three lines of defence in relation to ESG; internal ESG reporting, communication and training.
- Risk Management: ESG risk definitions; ESG risk appetite integration; policy and framework integration of ESG; incorporation of ESG within the risk management approach; ESG systems and data.

Disclosures

The regulatory requirements for transparency and disclosures mean banks' actions to finance the green transition and to manage climate-related risk are reported in their public disclosures in very specific detail. Typically, a bank will establish a disclosure committee to provide oversight of material disclosures and market announcements and to support consistency of messaging to the public, including the Annual Financial Report, ESG Pillar III Disclosures and dedicated sustainability reports.

Workforce training

Industry identified good practices see banks work with government agencies such as the Sustainable Finance Skillnet and professional bodies like the Institute of Bankers to identify upskilling requirements and avail of training opportunities for staff. For example, domestic banks are training frontline staff and relationship managers to educate customers on the benefits of retrofitting and to inform them of the services and assistance provided by the Sustainable Energy Authority of Ireland (SEAI) and the One Stop Shops that provide a full retrofitting service to customers.

(See the *Report of the Capacity Building Working Group* for detailed information on skills training for financial services providers¹⁴.)

Client Engagement

Banks are well placed to support clients to transition to more sustainable economic activities. The nature of their business means banks typically have a close customer relationship; if the customer's business is exposed to transition risk, it is in both the bank's and the customer's interest for the business to transition safely to economic activities better aligned with the climate policies of the EU and the Irish government.

The banking sector has a positive role to play in funding the transition for their customers and society, and in helping their clients along the journey with advice and guidance. Their products and services that support more sustainable activities and thereby help reduce climate-related risk include, for example, mortgage products, car finance, sustainability-linked loans for business owners, financing of renewable energy projects and issuing of successful green bonds frameworks to fund projects or assets that mitigate climate change.

¹⁴ https://www.centralbank.ie/docs/default-source/tns/events/capacity-building-working-group.pdf?sfvrsn=5d2b631a_1

Sector Initiatives

Adopting Science Based Targets Initiative

The banking sector in Ireland has identified the importance of using science-based targets validated by the Science Based Targets initiative (SBTi) as a good/best practice. The SBTi is a collaboration between the Carbon Disclosure Project (CDP), the United Nations Global Compact, the World Resources Institute, and the Worldwide Fund for Nature. It defines and promotes best practice in science-based climate target setting and independently assesses companies' emission reduction goals. At the end of 2022, more than 4,000 companies covering over a third of the global economy's market capitalisation were setting targets or committed to do so via the SBTi.

Ireland is unique in Europe and is among the world's leaders in having more than 70% of lending to the domestic economy made by banks that have validated science-based targets.

In a significant development for sustainable finance in Ireland, two of the three domestic banks have received formal validation by the Science-Based Targets initiative. In one instance, the bank's goals for GHG emissions were validated by the SBTi. In the other, AIB became the first bank in the world to secure a scientifically validated electricity generation maintenance target from SBTi to demonstrate the sustainability of its electricity generation loan portfolio.

Best practice initiatives like these allow banks to report in a regular and transparent manner on progress and to integrate rigorous scientific targets into their business models. While the targets can be onerous, they provide supervisors and investors with confidence in the climate risk reduction business model of the banks. Linking their emissions reduction targets to these targets directly impacts and is advantageous to the economy in Ireland; bank finance will encourage customers to change their business to reduce emissions, for example, by retrofitting their factories to reduce energy usage.

CASE STUDIES

AIB PATHWAY ON ENERGY GHG

AIB became the first bank globally to secure a scientifically validated electricity generation maintenance target from the SBTi. This recognises the existing low-carbon intensity of AIB's electricity generation loan book. Financed emissions targets for 75% of the AIB loan book are now validated by SBTi.

The targets provide a clearly defined pathway for how AIB plans to reduce GHG emissions in line with a 1.5°C scenario. The emissions targets AIB have set and validated for its own operations are to reduce absolute Scope 1 GHG emissions by 34% by 2027; and increase annual sourcing of renewable electricity to 100% by 2030.

AIB reports regularly on its Greenhouse Gas (GHG) Emissions for its own operations. Measurable business actions and metrics have been put in place that will be monitored to ensure progress is made towards achieving the targets, and AIB intends to commence reporting on progress against these targets in its FY2023 reporting. (For further detail see AIB's Sustainability Report Template¹⁵)

AIB Methodology for Setting Financed Emissions Targets

AIB follows a detailed methodology for setting financed emissions targets. The first step is to combine AIB and wider market data with a set of assumptions and decarbonisation levers to provide a baseline financed emissions position along with associated emission reduction targets.

Subsequent steps include:

¹⁵ <https://aib.ie/content/dam/frontdoor/personal/sustainability/AIB-SR22-supporting-information.pdf>

- Calculation of each lending portfolio's baseline emissions in line with Partnership for Carbon Account Financials (PCAF) Global GHG Accounting and Reporting Standard for the Financial Industry.
- Calculation of absolute and intensity requirement based on standardised industry (IEA) decarbonisation pathways.
- Determination of AIB and national decarbonisation levers to reduce emissions, for example, decarbonisation of the electricity system as a national lever and continued market leading green mortgage proposition as an AIB-specific lever.
- Quantification of the impact of each lever on emissions across counterparty Scope 1, 2 and 3 emissions.
- Internal governance and approval of portfolio targets and the relevant business metrics and actions.
- Short term (annual) portfolio level financed emissions targets set in-line with medium term Net Zero ambitions regularly monitored.

ESG INTEGRATION IN STRATEGIC PLANNING

The identification, quantification and management of ESG risks remains a key priority for clients, shareholders and employees of this international bank. Over the past three years, the bank has evolved its annual strategic planning process to consider first client, then environment and now social and governance strategy. It is now embedded into all lines of business.

The strategy shows the impact of ESG factors on the financial plan, and details the resources required to deliver the strategy. The strategy encompasses the following key tenets:

- Minimise the bank's impact on the environment.
- Deploy capital to enable clients to achieve net zero.
- Assess and manage climate and environmental risks.
- Build partnerships to increase and accelerate the bank's achievement of net zero.
- A governance programme to ensure best practice in delivering the ESG strategy.
- A strategy to deliver in the short, medium and long term.

The bank monitors the embedding of climate risks in relevant risk management processes and uses scenario analysis and climate risk KRIs / KPIs to inform business decisions. The board monitors progress against the strategy.

BUILDING A CLIENT ASSESSMENT PROCESS

To address the complexities of assessing climate-related risk at a client level, this bank has created a Centre of Excellence to steer the implementation of client-level climate and environmental risk assessments (CERAs). This client-level due diligence process was piloted as part of its credit underwriting activity in Europe and the bank is now working to roll it out globally.

The CERA considers both physical and transition risks and country climate risk classifications, where relevant, with the aim of providing additional insight into a borrower's response to climate risks, including the incorporation of mitigating factors such as insurance and management plans and expertise.

REWARDING SUSTAINABILITY GAINS WITH PREFERENTIAL LENDING TERMS

In November 2023 Bank of Ireland, in partnership with the Kerry Group subsidiary Kerry Dairy Ireland, launched a new loan product to provide a new funding option for farmers implementing sustainable farming practices. BOI's Enviroflex sustainability-linked loans aim to support farmers in an evolving sector as they try to reduce their farms environmental footprint, increase forestry and tree planting, while also improving biodiversity, water quality and animal welfare practises.

Initial applicants will come from suppliers to Kerry Dairy Ireland who are participants of its "Evolve Sustainability Programme" and are carrying out environmental sustainability measures on their farms. The Evolve Dairy Sustainability Programme supports the accelerated adoption of science-based sustainable farming practises and is underpinned by Origin Green and the Teagasc Marginal Abatement Cost Curve (MACC).

Targeted products like Enviroflex are designed to reward farmers who implement more sustainable farming practises with discounted finance options. Applicants can avail of a simplified online journey, and following initial launch with Kerry Dairy Ireland the product will be made available to more farmers across the agriculture industry in 2024.

A key benefit for Bank of Ireland is the increased availability of data that will inform its own sustainability reporting as it works towards meeting its science-based targets across its operations.

GATHERING DATA ON CLIMATE-RELATED RISK EXPOSURES

A collaborative project involving the Irish domestic banks and their representative body, BPF, was established to enable the banks to follow a standardised approach to ESG disclosures and to benchmark their progress with peer banks in the EU. Outcome of this process will be the development of a standardised questionnaire for customers of all the domestic banks. Potentially, this project can be extrapolated to other data requirements that arise.

The standardisation of customer questionnaires will make compliance with sustainability and other associated regulations as efficient as possible for credit institutions and as easy as possible for customers. Standardised questions avoid a situation whereby multi-banked clients and customers must complete different questionnaires for different banks, leading to reporting that is not comparable.

In the context of new and inter-related ESG disclosures requirements under CSRD, CRD, EU Taxonomy, it also provides an opportunity for stronger collaboration in defining, sourcing and managing ESG data.

5.5. Brokers and Credit Unions

This Section discusses:

- How Credit Unions are meeting sustainability and climate change challenges and are supporting their members in transitioning.
- How brokers are helping clients to meet climate risk challenges, the impact of climate related risk on brokers' strategy and business models
- How brokers are managing product and reputational risk and the opportunities arising in the transition to a more sustainable future.
- The Brokers Ireland Good Governance Template.

This section looks at how credit unions and brokers are integrating climate risk management into their business models and operations. It also looks at their key role in supporting customers to make choices that are "greener", such as choosing consumer loans that reward them for renovating their homes in a manner that improves energy performance.

Credit Unions

Credit unions in Ireland are not-for-profit financial co-operatives, owned and controlled by their members. They have undergone a significant consolidation and been placed under a new regulatory regime in recent years. The government has recently designated credit unions as "Sustainable Development Goal (SDG) champions" to serve as leaders in driving forward Ireland's progress towards the United Nations Sustainable Development Goals (SDGs).

Credit Unions' closeness to communities mean they are well placed to support consumers to make more sustainable choices, and as per other lenders, to do so they require understanding of physical-risk related factors, including flood patterns.

An industry identified good practice is the examination by credit unions of their investment portfolios to quantify their "green" element. This is part of a general trend towards developing key climatic indicators for measurement purposes.

Other industry identified good practices see credit unions offer flexible green home improvement loans, and some are engaged in partnerships with suppliers to help support customers through the retrofitting process. Others are actively raising awareness in their local communities of the importance of energy efficient activities.

Some credit unions may find the CSRD useful to help them shape their sustainability information disclosures. It could provide a framework for some credit unions to better manage their support for communities while limiting the climate-related risk in their portfolios. Industry identified good practices in this regard include:

- Setting and reporting sustainable key performance indicators.
- Provision of assurance by credit union auditors on sustainability disclosures.

Brokers

Brokers or financial and insurance intermediaries are a key element of the financial advice industry in Ireland and play a fundamental and important role in providing financial services to consumers and businesses.

The majority of brokers are small to medium sized firms employing less than 10 staff and they are based in every county in Ireland. The main services provided by brokers are essential for financial stability, both at a personal and at an economy level and ensure that as high a percentage of the population as possible have adequate access to investments, risk management, and risk-mitigation products.

Given the complexity of sustainability terminology and product categorisation, brokers play an important role in explaining and advising consumers where appropriate in this regard.

Strategy

As the main conduit through which businesses buy insurance, Brokers are potentially materially affected by transition risk in particular. The risks for which their clients will seek cover will change over time as their risk profiles and insurance needs change. Some coverage may simply become obsolete, while some new risks will require new products. In this context, brokers face both risks and opportunities while some current business models may be over-reliant on clients in carbon-intensive industries, they may also find new clients as the carbon transition continues.

Business Initiatives and Client Engagement

Product risk: Insurance products may be affected by physical, transition, or liability risks related to climate change. Climate change could also affect the price of insurance. For example, in an extreme scenario, certain commercial properties may become uninsurable due to increased underlying physical risks, and therefore impossible to rent or buy. If these scenarios become widespread and lead to a shrinking addressable market, brokers' bottom lines could be affected. An industry identified good practice is for brokers to work with insurers to understand what they are doing to adapt insurance products to the changing climate, and how this will affect their clients.

The interpretation of the scope of existing insurance coverage may change as a result of climate change. For example, liability-type policies that were not originally designed to include climate-related risks may be seen to cover climate risks in the absence of explicit exclusion clauses. An industry identified good practice is for brokers to work with clients to understand any changes in risk profile, assess the cover provided by current insurance policies, and identify products to cover new risks where necessary.

Reputation risk: Insurers have been announcing plans to cease providing insurance to certain non-sustainable sectors and activities. As the intermediary between insurance companies and their clients, brokers need to adapt and form new relationships to sustain revenue streams while also protecting their own reputations. Assessing climate risk is complex and evolving and requires access to substantial amounts of data and tools which may be difficult for smaller brokers to obtain given staff capacity and financial constraints.

Opportunities: There are significant opportunities for brokers who may increasingly be asked to perform due diligence on their clients to make sure they fulfil certain criteria set out by insurers. Brokers could, for example, have a role in verifying that clients do not invest in non-sustainable sectors and activities, or are taking steps to reduce their impact on climate in order to be allowed to purchase a specific insurance policy. Brokers could also advise clients on how to diversify in order to meet some of the criteria set by insurers. The Deloitte Brokers Ireland Climate Risk Report provides a useful guide for brokers on how to adapt to climate risk and regulations¹⁶.

¹⁶ [Climate Risk – A guide for Brokers, Brokers Ireland in association with Deloitte](#)

6. Cross Industry Data Considerations

This chapter sets out to identify some of the gaps and challenges that the industry faces in address climate risk and considers an approach to address some of these concerns.

Climate Change Physical and Transition Risk Disclosures

Mandatory disclosure requirements are increasing, with the timing and level of disclosures based on the size of financial institutions and whether they have issued securities admitted to trading on a regulated market of any EU member state. They include qualitative disclosures on ESG risks, quantitative disclosures on physical and transition risks and mitigating actions. Examples include Pillar III disclosures for banks and Solvency II disclosures for insurance companies and the forthcoming CSRD disclosure which will be effective for the largest corporations from the 2024 financial reporting period. These disclosures need to incorporate the EU Taxonomy which classifies economic activities as sustainable or otherwise and at a granular (level 4) level.

The Corporate Sustainability Reporting Directive (CSRD)

The CSRD forms part of a package of EU measures to support the achievement of the European Green Deal policy objectives and replaces the current Non-Financial Reporting Directive. The aim is to encourage investment flows from the financial sector to companies engaged in sustainable activities so that the EU can meet its commitment under the Paris Agreement to become carbon neutral by 2050.

Corporates which include financial institutions will be required to publicly disclose in their management report (annual report) adequate information about the sustainability risks they have and opportunities they face, as well as the impacts they have on people and the environment, commencing with their 2024 report.

Sustainability information encompasses environmental, social and governance factors (ESG). Reported information should be consistent with EU regulations and the European Sustainability Reporting Framework (or equivalent), and the EU Taxonomy and will be subject to limited assurance and in time reasonable assurance, the same standard as published financial statements. There are specific requirements to report on performance metrics against the organisation's ESG targets and policies and trajectory.

Climate Risk Stress Testing

Financial institutions require new data to conduct scenario analyses and stress testing in relation to how climate risk might affect their business, and for the banking industry, there are some EU wide systemic stress testing exercises to be undertaken. The types of data required for this include more granular internal firm data on sector and geolocation, emission data – using third party data providers to fill gaps for larger corporates and the creation of proxies for smaller firms, the use of NACE (Nomenclature of economic activities) codes for businesses and collateral, and EPC data (Energy Performance Certificates) to indicate the energy efficiency of a building.

All of these disclosures require data and data definitions that meet the EU Taxonomy classification. From a climate risk perspective, these new data requirements include:

- **Exposures** – for example, industry and sectoral exposures to climate change, categorised into high, medium and low impact.
- **Climate Risk indicators** – the volume of collateral highly exposed to climate risk, for example.
- **Environmental indicators** – including sea level changes, average temperature rises.
- **Business metrics** – such as the proportion of sovereign bonds underwritten for countries with net zero targets and progress towards them.

- **Performance metrics** – such as Scope 1, 2 and 3 financed emissions.

Because climate risk is a transversal risk, it is assessed across all the risk categories which require specific, delineated data requirements. Examples include:

Credit Risk

- Exposures to clients/customers who own businesses or are employed in sectors categorised as high, medium, and low impact.
- Aggregate utilised loans and leases exposure by sector (volume and value).
- Total exposures by customer by country.
- Loan losses linked to green / ESG linked facilities.
- Progress on transition pathways for separate sectors.

Market Risk

- Issuer risk by industry and country.
- Metrics used to measure the risk of options trading as they apply to different high, medium and low risk industry sectors in relation to climate risk. Inflation spread by high, medium, and low risk country rating.

Liquidity Risk

- Change in market share of sustainable debt market (month, quarter, annual).
- Secured funding concentration by counterparties classified as high, medium, and low risk.

Operational Risk

- Physical Risk - third party / vendor concentration by geographical region classified as high, medium, and low impact.
- Firms' own operational concentration by geographical region classified as high, medium, and low impact.

Strategic and Reputational Risk

There are also broader reporting considerations for executives and board members in terms of the firm's strategy, business model and reported climate related ambitions and targets.

Demand for and Suppliers of ESG Data

The ESG data market is evolving to meet the increasing demand from financial institutions and their investors and to comply with regulatory reporting requirements. Investor demand is a key driver of growth in the ESG data market. Financial institutions with strong ESG propositions are increasingly seen as enjoying a competitive advantage over their peers. This pull factor is reinforced by a strong push from regulation, which continues to actively shape ESG data markets.

The EU Sustainable Finance Disclosure Regulation (SFDR) has an important impact on asset management, given its strict ESG and sustainable labelling requirements and the disclosure burdens it imposes on funds and managers.

The scope of ESG data coverage is broadening too, as investors look beyond climate and seek to address other environmental issues and social priorities. Biodiversity is one example of a nascent data category

receiving growing attention. The Task Force for Nature Related Financial Disclosures (TNFD) framework is likely to drive an increase in the availability of data and help investors to set nature positive targets.

Large vendors dominate this area whilst there are more specialised data providers addressing niche gaps where financial institutions require additional data. There are challenges and shortcomings in the quality and variability of data available, and it is likely that multiple data providers will be required for the foreseeable future.

The position of the leading data providers is further strengthened by significant technology-related barriers to switching. Users regularly make small changes to their data suppliers, but wholesale changes are challenging. Typically, a large asset manager would need over a year to switch between core suppliers due to the difficulty of integrating multiple data types into core technology systems.

ESG data vendors continue to expand their asset class coverage. In the public markets, sovereign instruments and listed real estate vehicles are key growth areas. There is also expansion in private markets, although scarce data on SMEs means that availability is heavily concentrated on larger unlisted companies. Coverage of other alternative investments, such as land or real assets, is generally confined to specialised data providers. Scope 3 emissions data is one area where the limitations of underlying disclosure leave data providers heavily reliant on interpretation and proxy metrics.

Different data providers can generate starkly contrasting ratings of the same companies. Inconsistent ratings reflect several structural weaknesses in ESG data. A lack of harmonization between jurisdictions, not to mention the incompleteness of crucial taxonomies, can lead to huge inconsistencies in the corporate disclosures that ESG data vendors use to create their scores and ratings. Different approaches are another factor.

Data Integrity

Data providers often place contrasting levels of focus on different categories of environmental, social and governance disclosures. Many financial institutions currently feel unable to rely on a single data provider. However, a blended approach based on multiple data vendors not only duplicates external costs, but also necessitates in-house spending to analyse, compare and curate ESG data. In fact, many larger financial institutions now have their own ratings teams providing proprietary scores that draw on a range of third-party datasets.

These challenges and concerns are fuelling the appetite for regulation – especially of leading data vendors. In April 2022, the European Commission published a consultation on ESG ratings that will feed into an impact assessment of a possible EU intervention in ESG data markets. Data coverage and categories are advancing rapidly, but there are still many gaps and inconsistencies to be addressed. Some evidence of collaboration on industry platforms is emerging both in terms of open-source platforms to exchange ESG data in a harmonised way and the EU Commission pushing forward with its plan to launch the European Single Access Point (ESAP).

The ESAP is intended to act as a direct access point for obtaining ESG and financial company data in machine-readable form. Companies will be asked to provide annual financial statements and management reports and, once CSRD comes into effect, sustainability reports including detailed information on the EU Taxonomy. The proposal also opens up the possibility of collecting additional data on a voluntary basis, provided that certain technical and quality standards are adhered to.

All this will help to improve the availability, quality and accessibility of ESG data as well as the efficiency with which financial institutions work with and use ESG data.

7. Conclusions

Recent climate events globally and in Ireland demonstrate the importance of joined-up thinking on climate risk and financial stability.

The integration of climate risk management into financial institutions' strategies, business models and risk management frameworks will help these firms to finance the transition to a net zero economy, thus supporting domestic, EU and global commitments to reduce GHG emissions to meet the Paris Agreement goals.

It will also allow financial institutions to provide clear information to enable policymakers and investors to assess the adequacy of their approach to climate change and management of the associated risks and opportunities.

This report on climate risk management in Ireland demonstrates that while the regulatory requirements globally differ in impact and scope, the changing regulatory regime, along with demand-pressure from investors and clients, means that all financial services sectors recognise the importance of climate risk management for long-term solvency and financial stability and can benefit from collaboration to address common challenges and identify opportunities for shared learnings.

The approach to climate risk management of each financial services sector directly impacts the speed of transition to a net-zero emissions economy. Together with policymakers, government bodies, supervisors, businesses and individuals, each sector plays a vital role in supporting the objectives of the Paris Climate Agreement to channel finance to sustainable economic activities: Asset managers and investment firms in directing capital allocation into the real economy; Insurers in building on their significant expertise in risk pooling and management and as risk managers, risk carriers and investors; and Banks, Brokers and Credit Unions in financing clients and customers in their path to greener economic activities.

Next Steps: The Climate Risk and Sustainable Finance Forum provides a great opportunity for collaboration and education on this critical topic, and building on the report of the Risk Management Working Group, will be presented with proposals for further work in this area at its next meeting.

The cross-sector platform provided by the Climate Forum is helpful in several areas. For example, the insurance and banking sectors can consider with government and stakeholders the interplay of climate risk mitigation actions on insurance and mortgage products. For those financial institutions with customers in Ireland, there is potential for this platform to support the development of national capabilities to monitor and map physical and transition risk data together with government bodies and key State agencies such as the Environmental Protection Agency and academic experts inter alia.

Appendix 1 - Embedding Climate Risk Management – 2023 Survey Findings

This section sets out the findings of the Survey conducted by the Climate Forum in April 2023.

Challenges, Impacts, and Opportunities

Integration

The first question concerned the integration of climate risk into the company’s risk management frameworks and the responses provide invaluable insights into the current state of this vital aspect of corporate governance (see Figure 1).

The data reveals a varying degree of climate risk integration across different types of financial institutions. Some subsectors, like banking and insurance, have made significant progress in fully integrating and continually developing key risk indicators (KRIs), while others, including brokers and credit unions, are at different stages in this process. This reflects a diverse landscape in terms of regulatory requirements, readiness and approaches to climate risk management.

Notable progress is particularly evident within the banking and insurance sectors, with six firms in each sector having achieved full integration of climate risk, and several others actively engaged in the development of KRIs. Subsectors such as credit unions and fund service providers are currently in a transitional phase, acknowledging the significance of climate risk while working towards achieving full integration.

These findings underscore the importance of industry-wide initiatives and regulatory oversight to ensure that the financial sector, as a whole, is well-prepared to address the risks and opportunities associated with climate change.

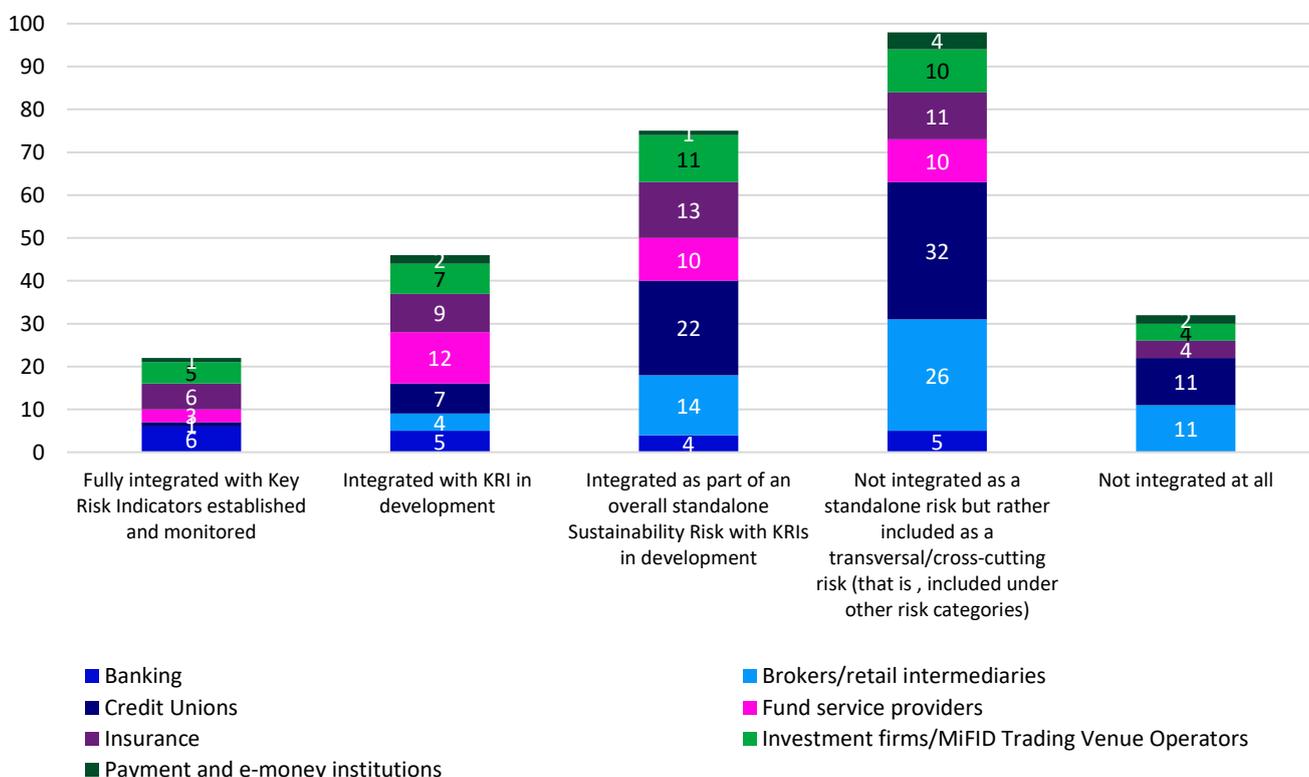


Figure 1: Integration of Climate Risk into Risk Management Framework

Risk Management Frameworks

The second question asked about challenges faced in the integration of climate risks into risk management frameworks. A recurring theme across all types of institutions was the 'lack of understanding/training of staff regarding the impact of climate risk on your business'. This challenge appears to be of paramount importance, with many institutions rating it as Most Important or Very Important.

In both the credit union and insurance sectors, challenges related to data availability and limitations in risk models were identified, alongside a consistent need for staff training. In the banking sector, while limitations in risk models and data availability are somewhat less prominent, the focus remains on staff training.

Conversely, brokers and retail intermediaries highlighted the complexity of climate-related regulations as an additional challenge. Fund service providers and payment and e-money institutions, albeit represented by smaller sample sizes, expressed similar concerns, primarily centred on staff comprehension and data limitations. This analysis underscores the importance of staff training and enhanced data management.

On an aggregated level, the data reveals that the main challenges facing firms in integrating climate risk vary across different types of institutions but are largely focused on poor staff understanding and training and availability of necessary data. There are also some variations, such as issues with risk models and allocation of responsibility within firms that differ from one type of financial institution to another (see Figure 2).

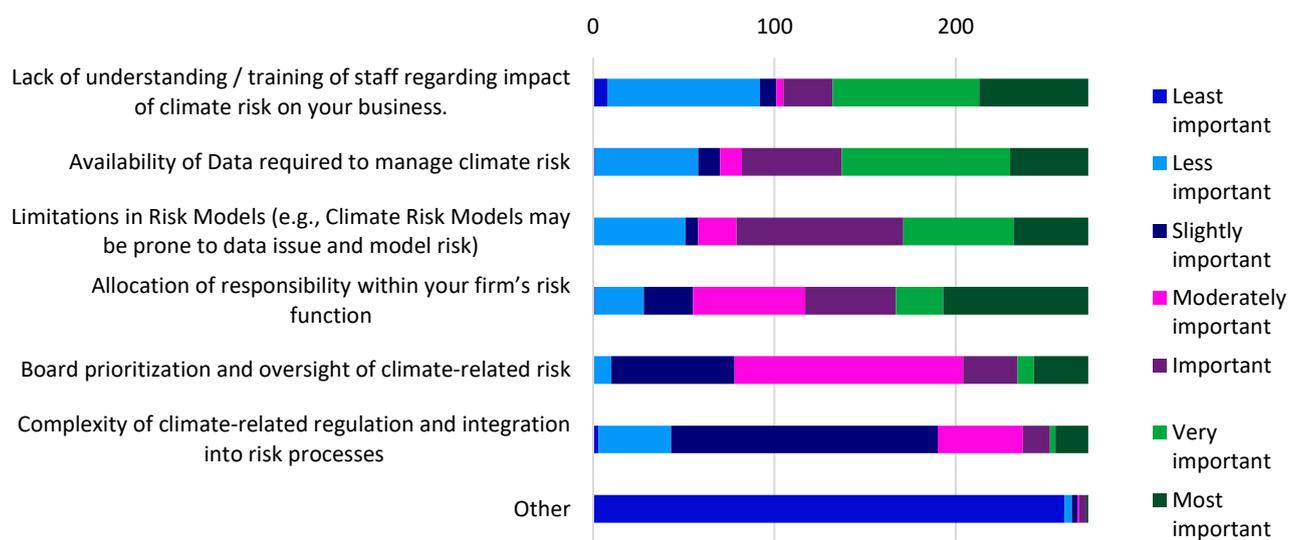


Figure 2: Key Challenges in Climate Risk Management (aggregated)

Transition Risks

The third question related to the Key Transition Risks impacting the firms. The responses indicate that transition risks associated with climate change have broad ramifications across the financial sector, though they manifest differently in each sub sector. "Increased operating costs" emerged as the most common impactful risk, followed by impacts on reputation and policy changes affecting asset impairments and valuations.

Among credit unions, 67 firms identified "increased operating costs" as a key transition risk, which was also expressed by 44 firms in the brokers and retail intermediaries' sector. In contrast, the "impact on reputation risk" was more prominently highlighted by 30 firms in the insurance sector and 20 investment firms. The "impact of fines and judgments on product/service demand" is the least frequently mentioned transition risk, indicating that regulatory penalties are not currently viewed as an immediate concern.

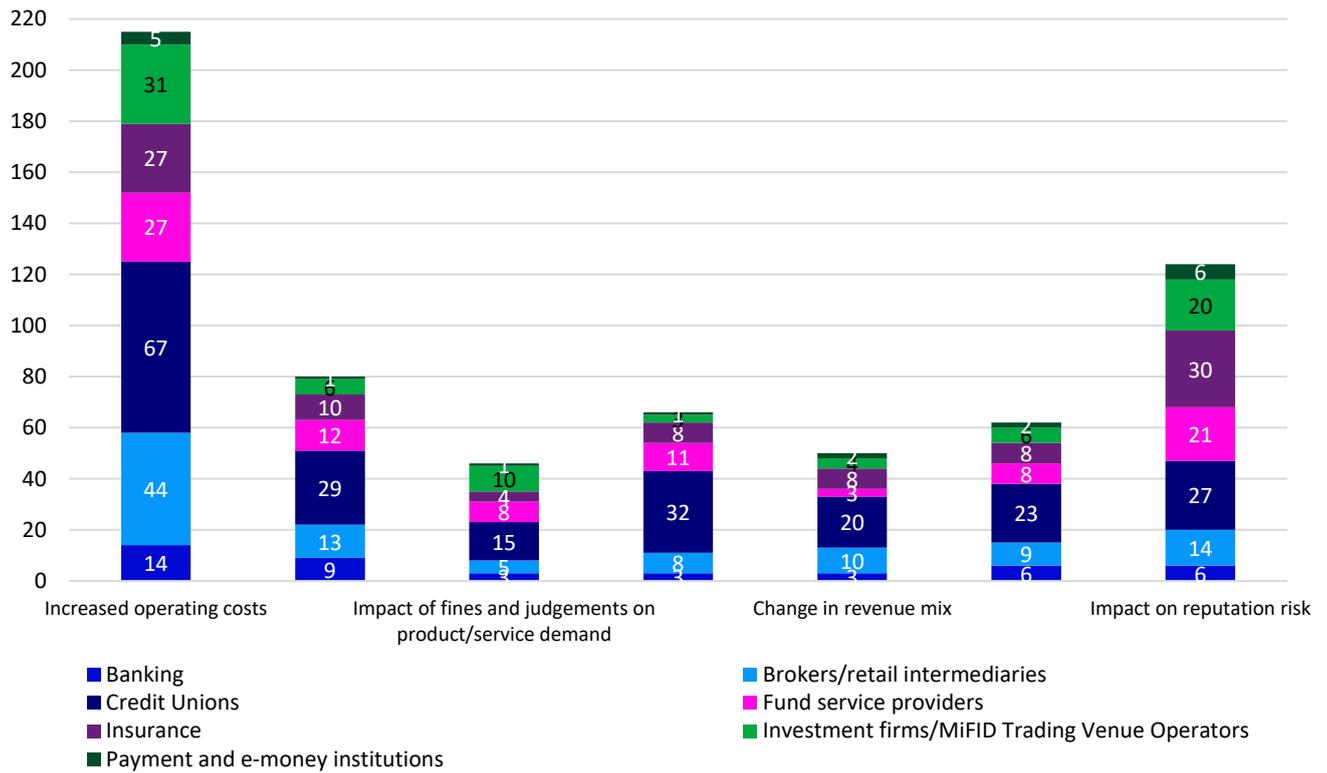


Figure 3: Key Transition Risks

Physical Risks

Like transition risks, physical risks primarily manifest as "increased operational and/or capital costs," according to responses to our fourth question. The findings reflect a near universal concern for escalating expenses related to supply costs, facilities damage, or the need for facility upgrades in the wake of climate change.

Credit unions expressed the highest level of concern, with 89% of all firms acknowledging increased operating and capital costs. Banks, payment and e-money institutions follow closely, with 70% of each citing increased costs. This suggests that these institutions are particularly sensitive to changes in operating conditions attributed to physical climate risks. While institutions like insurance and fund service providers also share significant concerns regarding increased costs, they appear to face a more diversified range of physical risks, including higher insurance premiums and asset write-offs.

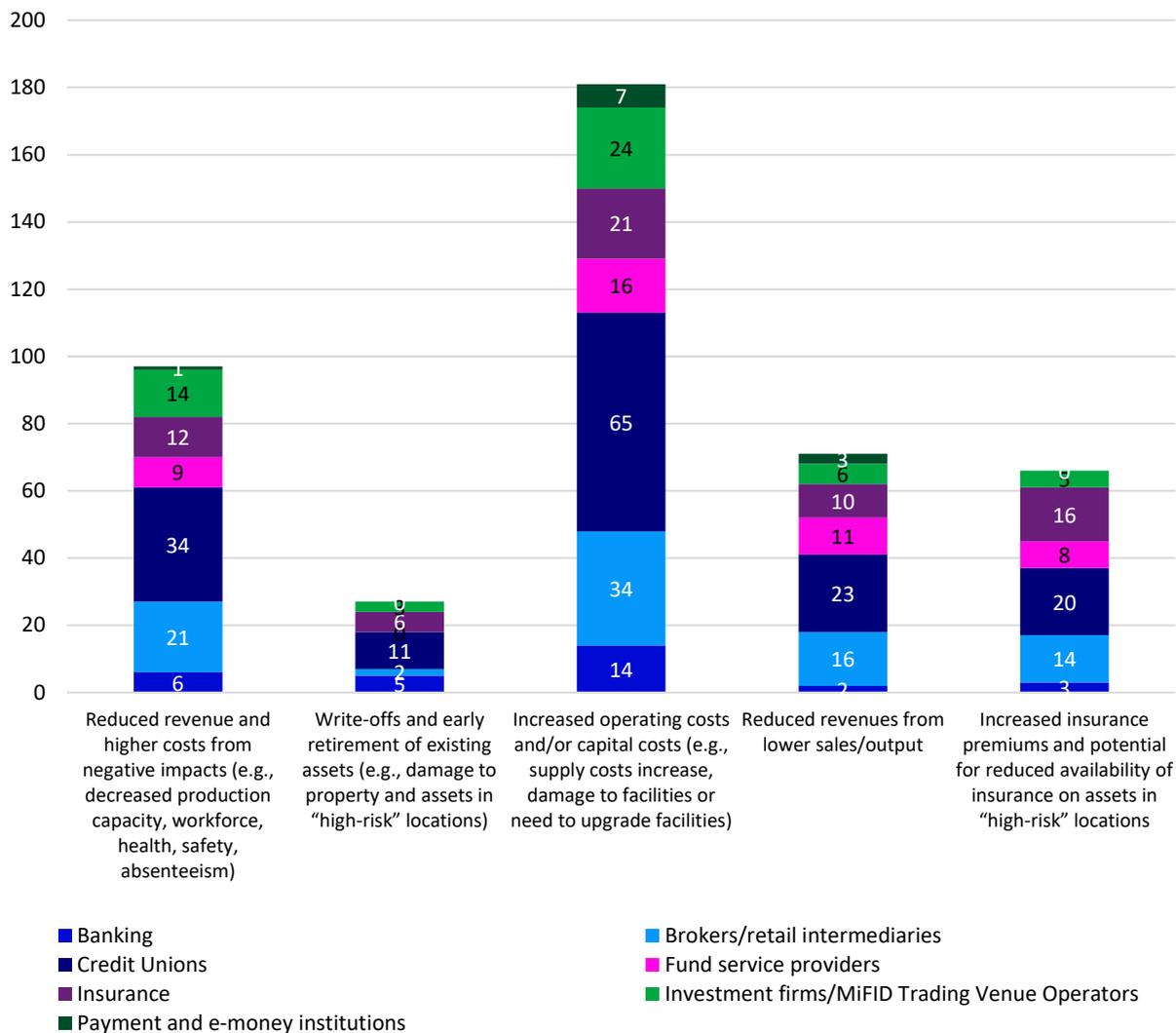


Figure 4: Key Physical Risks

Climate risk scenario analysis and stress tests

Responses to the question regarding the role of climate stress tests in risk management reveal a high degree of variation in their utilisation across the different subsectors. While certain subsectors, such as insurance and banking, tend to prioritise these assessments, reflecting regulatory requirements, others show a lower level of usage, indicating a uneven approach to understanding and managing climate-related risks within the financial services industry.

The insurance and banking sectors, which often engage in scenario calculations, lead the way, with nearly 70% of all firms frequently or sometimes using climate stress tests. Overall, this data highlights a significant gap in current risk management practices, emphasising the importance of widespread adoption of climate stress tests across all sectors in their risk assessment and monitoring processes.

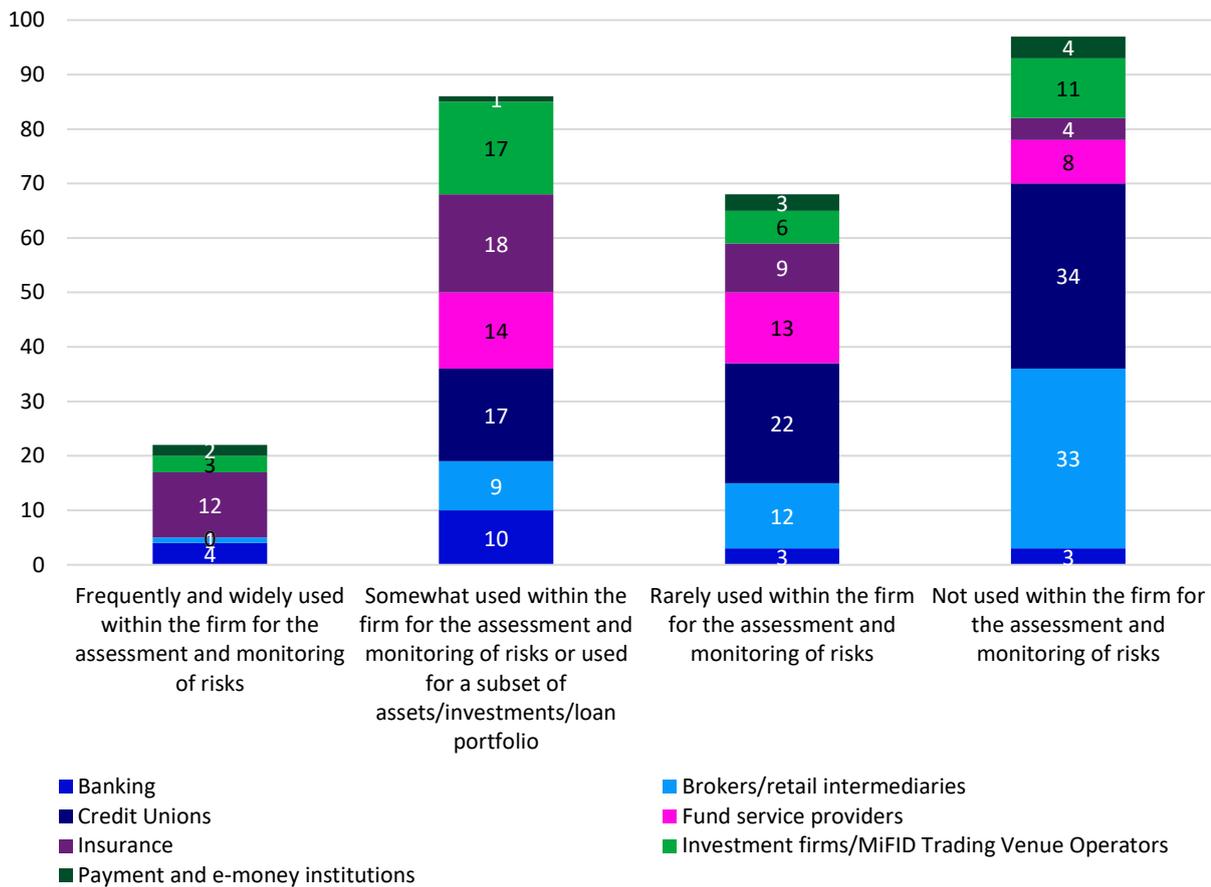


Figure 5: Role of Climate Stress Tests in Risk Management

Opportunities

The most significant opportunities identified by respondents revolve around increasing revenue through novel adaptation solutions and the development of resilient products and services. These two areas emerge as particularly important across the entire sector, indicating a collective industry focus on innovation and adaptation as central strategies for growth and risk mitigation.

Credit unions and fund service providers identified substantial opportunities in generating new revenue streams through adaptation solutions while also emphasising the importance of new resilient products. Insurance and banking firms shared similar perspectives on these opportunities. Investment firms lean towards enhancing their competitive advantage, while brokers demonstrated a more mixed approach, leaning towards both new adaptation solutions and increased revenues from emerging markets. Payment and e-money institutions appear to have a less definitive stance. In summary, the data indicates that while the overarching themes of innovation and adaptation are consistent, the specific priorities can vary among different types of institutions.

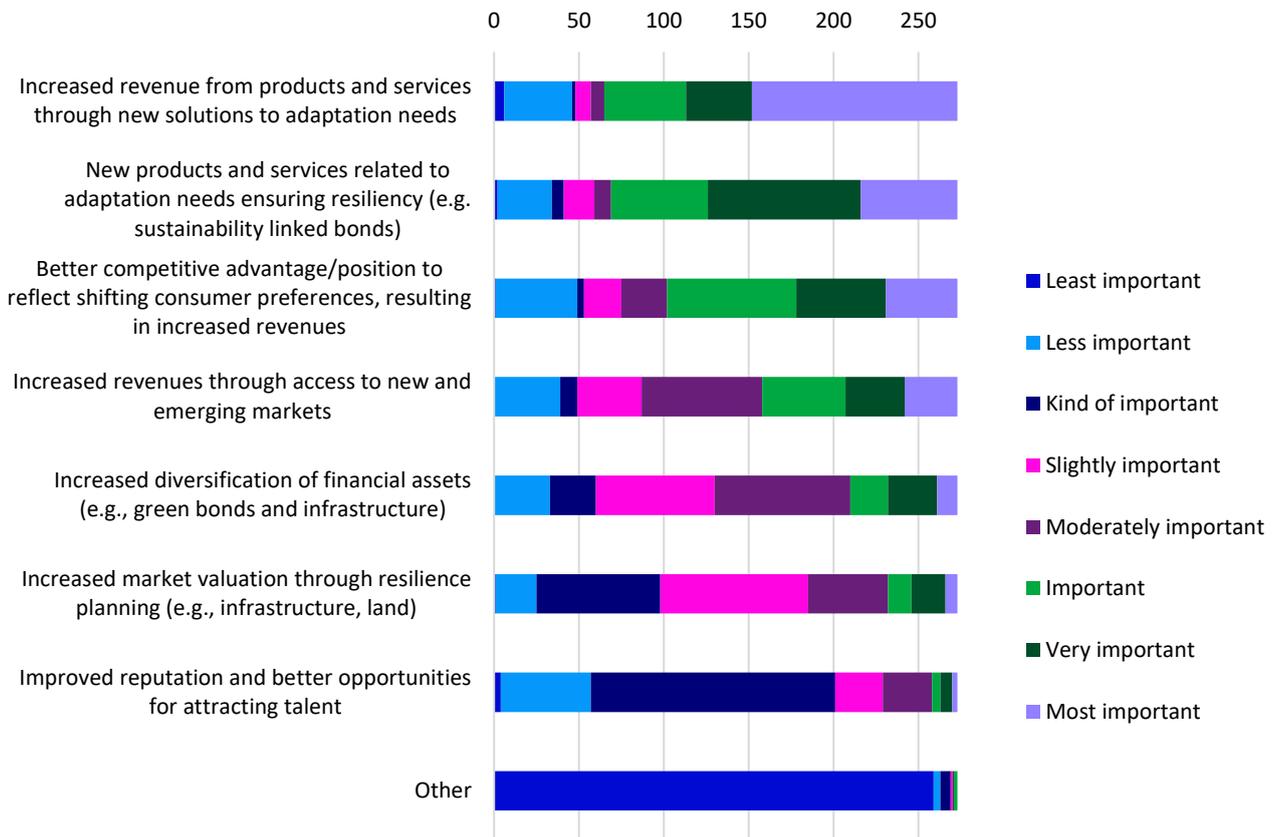


Figure 6: Greatest Opportunities

This report paints a varied picture of climate risk management in Ireland's financial sector. Banking and insurance sectors lead in climate risk integration, while brokers and credit unions are catching up. A shared challenge is the need for staff training on climate risk implications, requiring immediate attention.

Concerns differ across the subsectors, but the report highlights increased operating costs as a key risk and emphasises the potential for innovation and diversification to drive growth. The data underscores the necessity for a coordinated industry-wide approach to managing climate risks and seizing new opportunities.

By addressing both risks and opportunities, the financial sector can usher in a new era of sustainable and resilient finance in Ireland.

Appendix 2: Emerging Regulations and Standards

In response to climate change impacts, regulators and policymakers across the globe have introduced regulations and rules aimed at strengthening financial sector resilience, accelerating the transition to more sustainable economies, and protecting the interests of consumers and investors through increased transparency.

Table of Key Climate and Environmental Regulations and Guidelines

Mandatory ● Voluntary ● Risk and Governance Disclosure

Regulation and Guidelines	Brief Description	Applicability	Effective Date	Type
	Corporate Sustainability Reporting Directive requires annual disclosure of a firm's sustainability risks and opportunities, as well as the external impacts of the firm's economic activities. Sustainability information covers environmental, social and governance matters (ESG).	Companies currently under the NFRD, companies listed in the EU, large private companies in the EU, or third country companies	From year ending 2024 – 2026, depending on type / size of corporate	D  ●
	US Securities and Exchange Commission's proposed rule changes requiring companies to include certain climate-related disclosures in their registration statements and periodic reports. Scope of reporting includes climate-related risks that are reasonably likely to have a material impact on a firm's businesses, results of operations, or financial results.	Companies listed in US that are large, accelerated filers, Non-accelerated filers or smaller reporting companies	From year beginning 2025	D 

Regulation and Guidelines	Brief Description	Applicability	Effective Date	Type
	TCFD refers to Taskforce on Climate-related Financial Disclosure set up by Financial Stability Board which establishes a reporting framework to disclose climate-related risks and opportunities. The framework is structured around four pillars – governance, strategy, risk management and metrics and targets.	In the UK mandatory for: <ul style="list-style-type: none"> - Listed companies, UK registered companies and LLPs - Banks, building societies, insurance companies and asset managers - FCA-regulated pension providers, Occupational pension schemes <p>Voluntary in other jurisdictions</p>	2021	D    
	Sustainability reporting standards issued by the International Sustainability Standards Board comprise of General Requirements for Disclosure of Sustainability-related Financial Information (“IFRS S1”) and Climate related Disclosures (“IFRS S2”) (together, the “Standards”). The Standards are based on “four content areas”—governance, strategy, risk management, and metrics and targets—as they relate to a company’s risks and opportunities, consistent with TCFD.	Universal	From year ending 2023	D  
	TNFD refers to Taskforce on Nature-related Financial Disclosure which sets out a disclosure framework to report and act on evolving nature-related dependencies, impacts, risks, and opportunities. Consistent with TCFD and ISSB, the framework is structured around four pillars, and are aligned with the goals and targets of the Kunming-Montreal Global Biodiversity Framework.	Universal	2023	D  

Regulation and Guidelines	Brief Description	Applicability	Effective Date	Type
	The UK Transition Plan Taskforce Disclosure Framework is a sector neutral framework for best-practice transition plan disclosures, accompanied with implementation guidance and sector summary. The framework is organised across five elements (ambition, implementation strategy, engagement strategy, metrics & targets, and governance).	Universal	Framework published in Oct 2023. Guidance in Listing Rules 2025	D  
 EU Taxonomy	The EU Taxonomy Regulation sets out the criteria to be applied by EU and EU member states to classify activities as environmentally sustainable based on six environmental objectives.	Universal	2020	D  
	The EU Sustainable Finance Disclosure Regulation (SFRD) sets out disclosure requirements at entity and product level in relation to sustainability risks and principal adverse impacts.	Financial market participants and financial advisers	2021	D  
	Bank of England Prudential Regulatory Authority Supervisory Statement on enhancing banks and insurers' approaches to managing the financial risks from climate change.	UK insurance and reinsurance firms and groups within the scope of Solvency II and non-Solvency II, banks, building societies, PRA designated investment firms	2019	R  
	European Central Bank ("ECB") Banking Supervision's Guild on climate-related and environmental risks setting out thirteen supervisory expectations relating to risk management (inc. stress testing) and disclosure.	Significant institutions directly supervised by the ECB	2020	R, D  
	Commission Delegated Regulation (EU) 2021/1253 on integration of sustainability factors, risks and preferences into certain organisational requirements and operating conditions for investment firms.	Investment firms	2021	R  

Regulation and Guidelines	Brief Description	Applicability	Effective Date	Type
	Guidelines issued by European Securities and Markets Authorities (“ESMA”) on MiFID II product governance requirements including the specification of any sustainability-related objectives a product is compatible with.	Firms manufacturing or distributing financial instruments and structured deposits	2023	R  
	European Insurance and Occupational Pension Authority (“EIOPA”) application guidance on climate change materiality assessments and climate change scenarios in Own Risk and Solvency Assessment.	Insurance and re-insurance	2022	R  
	The Central Bank of Ireland letter to regulated financial services providers on statutory obligations and related supervisory expectations relating to climate and sustainability issues The Central Bank of Ireland’s Guidance for (Re)Insurance Undertakings on Climate Change Risk.	Regulated financial services firms Insurance and re-insurance	2021 2023	R, D  

Appendix 3 - Categorisation of Risks (Insurance)

Physical Risks

Non-life insurance companies are familiar with assessing exposures to natural catastrophe risks, providing insurance for property, energy and marine and transportation. Natural catastrophes are increasing in severity and frequency, partly as a result of climate change. This is resulting in increasing insurance claims for both primary physical risks and second-order physical risks which are more difficult to identify. In addition to higher claims costs, increased claims frequencies can also pose significant operational challenges for insurers and brokers arising from increased demand for claims handling, for example.

On the liability side, insurers may experience a rise in claims costs across several different types of insurance products. This includes more traditional catastrophe-type risk insurance products but also general liability-type insurance covers.

On the asset side, insurers are major investors in the wider economy and may experience losses in value of certain types of investments, and in some cases may be left with devalued, stranded or illiquid carbon-intensive assets. In addition, insurers' property investments may lose value due to physical damage by, for example, floods, or property becoming too expensive to rent or buy due to the additional cost of insurance involved. Properties may also lose value as a result of potential future impacts of climate change, including proximity to flood plains or coastal areas at risk of erosion. In some extreme scenarios, certain properties may even become 'uninsurable' due to increased underlying present or future risks.

The uncertain weather patterns brought about by climate change may cause investments previously considered "safe", such as the credit rating of sovereign/municipal bonds, to lose their value. A useful case study on physical risks provided by Deloitte can be accessed [here](#).

Physical risk factors can impact not only non-life insurers but also life insurers. Impacts from heatwaves, floods, droughts and fires, could lead to significant changes in longevity, morbidity and mortality.

Secondary effects impacting life insurers' liabilities could include climate change-related developments such as migration, urbanisation, and access to clean water as these could result in changes in life expectancy.

Transition Risks

Transition risks are only emerging and are therefore less well understood than physical risks. Transition risks may particularly affect specialist insurers in sectors such as energy, shipping and other carbon-intensive industries whose transition to net zero is more challenging than other industries. These sectors could experience significant downturns as the world transitions to a low-carbon economy, and this could in turn lead to reduced premium income for general insurers exposed to them.

Insurers may also have investments in, or affected by, the carbon-economy. For example, investments in traditional carbon-intensive energy sectors and infrastructure that are potentially at risk of being stranded due to the transition.

Examples of transition risks affecting the insurance industry include:

- Implementation of carbon taxes might adversely affect the value of carbon-intensive assets.
- Rapid technological change, such as the development of electric vehicles or renewable energy technology, affecting the value of financial assets in the automotive and energy sectors.

- Companies in the wider economy that fail to mitigate, adapt, or disclose the financial risks from climate change being exposed to climate-related litigation, which could impact their market value or lead to higher claims for insurers that provide liability cover to those companies.

A useful case study on transition risks provided by Deloitte can be accessed [here](#).

Litigation Risks

The legal risks from climate-related liabilities can be of particular importance to insurance firms given that they can be transferred through liability protection, such as directors' and officers' and professional indemnity insurance. Research by the UN Environment Programme indicates that climate-related litigation has increased significantly around the world, including over action – or inaction – regarding climate mitigation and adaptation efforts¹⁷. Liability risks can arise from management and boards of insurers not fully taking into account or addressing the impacts of climate change, or inadequate disclosure of current and future risks (IAIS and SIF, 2018).

A useful case study on litigation risks provided by Deloitte can be accessed [here](#).

Managing the Risks

Physical and transition risks may result in different strategic, operational, and reputational risks to insurance firms across underwriting and investment business. While certain climate factors are long-term in nature, many are already proving to be material for firms:

- **Underwriting Risk:** climate change is already impacting the frequency and concentration of high impact natural catastrophes around the world, resulting in an increase of weather-related insurance claims.
- **Market Risk:** insurers' capacity to write insurance business may be limited by increasing physical risks to assets if risk-based pricing goes beyond demand elasticity and customer willingness to pay. Market declines arising from physical risks might further exacerbate barriers for consumers to access insurance. Transition risks may significantly impact the products and services demanded from insurers, and an inability to appropriately design products relevant to changing needs could impact market share as well as create a strategic risk to overall business viability.
- **Strategic Risk:** examples of risk arising from a climate event or scenario (internal or external) could include losses resulting from an inappropriate strategy relating to climate objectives, poor management of future plans, or failure to address a changing industry environment.
- **Investment Risk:** the profitability of insurer investment portfolios may be affected if invested in sectors or assets which may be at risk from either physical or transition-related factors. In a worse-case scenario, this could constrain insurers' ability to pay future claims. The impacts of climate risks at portfolio level will be affected by the concentration of holdings in specific firms or sectors, diversification and hedging strategies, and the intensity of efforts to actively manage and monitor exposures.
- **Operational Risk:** physical climate impacts may affect insurer's own assets including property, equipment, IT systems, and human resources, resulting in increased operating costs, inhibited delivery infrastructure, or potential disruptions.
- **Reputational Risk:** in the last number of years, insurance underwriting or investment in sectors perceived as contributing to climate change has emerged as a civil society issue, led by prominent social

¹⁷ <https://www.unep.org/news-and-stories/press-release/climate-litigation-more-doubles-five-years-now-key-tool-delivering>

movements calling for actions such as divestment from fossil fuels and the cessation of underwriting of coal-fired power infrastructure.

Physical and transition risk factors are linked. The longer policy action and the transition to a lower-carbon economy is delayed, the bigger might be the actual or expected physical effects. As a result, this might require more drastic policy measures which are a transition risk factor. Physical and transition risks can also lead to systemic risks, which are risks that arise from the failure of the entire system. Physical and transition risk factors can lead to financial or non-financial risks for financial institutions, including insurers, as they can affect the economy and thus feed through to the financial system.

Potential manifestations of physical, transition, and liability risks across underwriting and investment activities include:

	Underwriting	Investment
Physical Risks	<ul style="list-style-type: none"> • Pricing risks arising from changing risk profiles of insured assets and property (non-life), changing mortality profiles and demographic trends (life and health) • Claims risk arising from unexpected confluence of extreme events (i.e. multiple category 4 or 5 hurricanes) • Strategic/market risks arising from changing market dynamics (i.e., un-insurability of property) 	Risks arising from impacts of physical climate events and trends on assets, firms, and sectors, affecting profitability and cost of business, leading to impacts on financial assets and portfolios (i.e. debt, equity)
Transition Risks	<ul style="list-style-type: none"> • Strategic/market risks arising from contraction of market demand in certain sectors (i.e. coal, oil, marine transport) • Strategic/market risks arising from market trends, technological innovation, and policy changes related to climate change (i.e. carbon pricing, energy efficiency regulations), affecting products and services demanded by consumers 	Risks arising from market, policy, technological, and social changes, affecting profitability and cost of business of firms and sectors (i.e. energy, industry, transport, agriculture), leading to impacts on financial assets and portfolios (i.e. debt, equity)
Liability Risks	<ul style="list-style-type: none"> • Liability risks arising from insurers liable on the basis of insurance provided (i.e. tort or negligence claims) • Liability risks stemming from Directors & Officers policies 	Risks arising from litigation (i.e. class action) relating to the consideration of climate change in investment decision- making, or inadequate disclosure of climate risks

Source: International Association of Insurance Supervisors (IAIS), 2018

