Aviva's climate-related financial disclosure 2017

As an international insurance group, our sustainability and financial strength is underpinned by an effective risk management system. Our business will be directly impacted by the effects of climate change and therefore we need to build resilience to and mitigate the risk of the impact of climate change for our customers and investors. We believe unmitigated climate change presents a real threat to financial stability over the coming decades, both at a governmental and corporate level, to the point where it will permanently impair total asset value.

We have been reporting on climate change in our Annual Report & Accounts since 2004. This disclosure builds on our 2016 initial response and takes into account the final version of the Taskforce on Climate-related Financial Disclosure (TCFD) recommendations published in July 2017.

This expanded response builds on the summary in our Annual Report and Accounts (link) and constitutes our further statement of intent to fully report against the recommendations of Financial Stability Board's Taskforce for Climate related Financial Disclosure framework next year. We make this disclosure in respect of Aviva in our multiple roles as an asset owner with assets to the value of £490bn, an insurer with gross written premiums of £27.6bn, and asset manager with assets under management of £353bn.

Governing climate-related risks

At the Aviva Plc Board level, the following two Committees oversee our management of climate related risks:

Board Risk Committee

This Committee met eight times in 2017 and reviews, manages and monitors all aspects of risk management in the Group, including climate risk. Climate change is highlighted as an emerging risk in the 2017 Annual Report & Accounts (see pages 31-32) and it is therefore assessed for its proximity and significance to Aviva via our local markets and group emerging risk processes. The Committee has incorporated emerging risk scenarios into our scenario planning, enabling us to review the most significant risks that would affect the Company's strategy.

Board Governance Committee

One of this Committee's responsibilities is to oversee the way Aviva meets its corporate and societal obligations. This includes setting the guidance, direction and policies for Aviva's customer and corporate responsibility agenda and advising the Board and management on this. This Committee met six times in 2017 and formally considered Aviva's strategic approach to climate change during the year. The Committee continues to ensure the Board remains informed on the issue.

Further, the Board Audit Committee has reviewed and signed off the contents of the Annual Report & Accounts including the summary climate related financial disclosure.

Strategy

Whilst Aviva's climate change strategy relates to the entire Group, the businesses that form Aviva work to different risk horizons. For example, general insurance (GI) has primarily an 18 month outlook (although recognising there are longer term risks) and focuses on the physical impacts of climate change. As a life insurer and pension provider we also make investments. This is, first and foremost, to ensure we can cover our future commitments and meet the promises we have made to our customers, so insurance claims and pensions will be honoured. To do this we look very carefully at how different investments meet our risk appetite in the longer term, when transition risks become much more important.

Aviva's strategy to implement the TCFD recommendations includes conducting climate-related scenario analysis consistent with the recommendations, wherever possible using commonly agreed sector/subsector scenarios and time horizons. The results of the scenario analysis should promote the embedding of environmental, social and governance (ESG) factors in all internal decision-making and business processes. In particular, it should assist the identification of climate risks and opportunities so that appropriate action is taken in order to manage the risks and grasp the opportunities.

Our work this year aims to identify appropriate climate related scenarios, assess those scenarios, and develop reporting formats for the results of the scenario analysis. In order to do this we will continue to partner with industry associations, sector peers (asset owners, asset managers and insurers), academics, professional bodies, external consultancies, as well as regulators and international agencies to drive consistency in scenarios and analysis and so provide comprehensive and comparable information.

This work will draw on significant expertise from the business and involves an inter-disciplinary team including Group Risk, Group Capital, Finance, Aviva Investors, Group Reinsurance, the General and Life insurance businesses, and the Corporate Responsibility and Public Policy teams.

The UNEPFI Investors Commission has created a work stream working with nine leading asset owners/asset managers, including Aviva to promote climate transparency by piloting the recommendations and jointly develop scenarios, models and approaches which will be made publicly available at the end of the project. This will enable other investors to pick up and expand on this joint work and encourage the wider investment community to assess how they can adapt to and promote a climate-resilient, low-carbon economy.

We will report on the progress of our work on scenarios to Aviva's relevant board committees and aim to first report against scenarios in our disclosure next year.

We recognise that the increased severity and frequency of weather-related losses has the potential to turn events that could benefit our earnings, to ones that will negatively impact our profitability. Consequently, large catastrophic (CAT) losses are already explicitly considered in our economic capital modelling to ensure we are resilient to such CAT scenarios.

We are closely monitoring sectors or subsectors particularly exposed to transition risk and analysing the risk to Aviva of our individual company level investments. In 2017, we worked with 2 Degree Investing Initiative to analyse how close we are as an asset owner to achieving a 2°C future. Using the European Commission's Sustainable Energy Investment metrics, the reports show how our equity and bond portfolios are aligned to the Paris Agreement, both now and in 5 years' time. We have fed them into the investment strategy reviews of our businesses to help further shape our ongoing response. Further strategic work is ongoing to understand the impacts of our investments through all asset classes and on a more granular basis.

Our French business unit, Aviva France, has been developing its understanding of the best way to incorporate climate risk into the business. In 2017, it published its first ESG and Climate report in line with the requirements of the French law for energy transition and green growth. As part of this exercise, Aviva France evidenced how it, through its asset manager - Aviva Investors France - incorporates ESG requirements into its investment process, considers ESG and climate change related issues in its governance process and manages climate change related risks (I.e. physical, transition and legal risks) impacting its investments. The report also covers how Aviva France aims at aligning its investment strategy to the UN COP 21 goal of limiting climate warming to 2 degrees compared to a pre-industrial world.[1]

As part of the on-going development of its ESG and climate change investment related framework, Aviva France is now refining its approach to further translate climate change considerations into investment targets through scenario analysis, green investments and carbon foot-printing of investments. Aviva France also decided to go beyond the requirements of the French law by embedding the United Nations' Sustainable Development Goals into is investment process.

Climate change is part of our asset management House View, which outlines the framework we use to analyse the global financial markets. It is updated quarterly to provide key climate-related physical or policy trends and developments. We again include our position on the TCFD in Aviva Investors Corporate Governance and Corporate Responsibility Voting Policy 2018[2] advising that we expect companies to begin reporting climate risks, strategy, policies and performance against the Taskforce disclosure framework, including stress testing of business models and assets against various climate policy scenarios. Aviva Investors will begin voting against the report and accounts of companies operating in high impact sectors that have not made sufficient progress in providing the market with investment relevant climate disclosures.

Over the past few years we have developed insurance products and services that support customers' choices to reduce their environmental impact, such as bespoke electric vehicle policies and generation of domestic scale renewables. We are also building our support of commercial-level opportunities around environmental goods and services. In 2017, we had 20 such products across our markets.

The Aviva Staff Pension scheme Board has recently commenced a review of their wider ESG policy which incorporates climate change risk. Their work has considered the actions taken by Aviva as an asset owner to ensure consistency.

Risk management – identification, assessment and management

Aviva's risk spectrum is used to help us determine the significance of impact and timescales for different external issues. Whilst we are already experiencing the effects of climate change, we only expect it to threaten the viability of our business model in the longer term. We therefore consider climate change to be proximate risk, that is to say we are taking action now to mitigate its impacts in the future.

When making investments we need to think long term, since many of our liabilities fall decades in the future. This means we need to be careful and considered in our investments. We therefore regularly review the climate related issues that can impact our investments. Within these constraints we have an appetite to invest in low carbon projects around the world.

The ways in which the insurance sector could be impacted by climate change are diverse, complex and uncertain. However, for the purposes of our response we have focused on the three risk factors that the Prudential Regulation Authority identified in its 2015 report2– Physical, Transition, and Liability.[3]

1. Physical risk (acute and chronic impacts)

a. Insurance risks

We recognise that weather-related events may become more frequent, severe, clustered and persistent. These single and cumulative losses may impact our ability to write profitable new business over the longer term. This has driven a focus on explicitly considering the impact of climate and weather in financial planning and pricing. Our GI business exposure is limited by being predominantly in Northern Europe and Canada. We require our GI businesses to protect against all large, single catastrophe events in line with local regulatory requirements, or

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[1] link - https://www.aviva.fr/aviva-france/nous-connaitre/rapports-annuels.html

[2] https://www.avivainvestors.com/content/dam/aviva-investors/united-kingdom/documents/institutional/uk-corporate-governance-and-corporate-responsibility-voting-policy-2018.pdf

[3] https://www.bankofengland.co.uk/-/media/boe/files/prudential-regulation/publication/impact-of-climate-change-on-the-uk-insurance-sector.pdf?la=en&hash=EF9FE0FF9AEC940A2BA722324902FFBA49A5A29A

where none exist, to at least a 1 in 250 year event. Factors determining these decisions include: capital efficiency, appetite for GI earnings volatility, predictability of cash flows and dividend paying capability and reinsurance market competitiveness. Canada is moving to 1:500 reinsurance limits in line with government requirements.
We consider our top insurance climate-related risks to be:

- Our actuarial pricing assumptions and projections which may prove incorrect
- The levels of coverage available to make assets insurable
- Financial results volatility resulting from the potentially increasing scale of weather losses.

We purchase a group-wide catastrophe reinsurance programme to protect against the severity and frequency of large CAT events, and review the adequacy of the cover and the programme structure annually at renewal. The total Group potential retained loss from its most concentrated catastrophe exposure peril (Northern Europe Windstorm) is £150 million on a per occurrence basis and £175 million on an annual aggregate basis. Any losses above these levels are covered by the group-wide catastrophe reinsurance programme to a level in excess of a 1 in 200 year return period.

On a separate note, a change in climate can mean that disease may spread to new and expanded geographic areas. Therefore Aviva uses external reinsurance for its life business to manage its exposure to life insurance risks such as pandemics, and manages capital in an efficient manner in line with the Aviva Group's risk appetite.

b. Investment risks
When acquiring property, Aviva Investors' strategy is to commission an Environmental Assessment Report. This covers important potential risks, such as flood exposure and historic and potential pollution. Within our real estate portfolio, we use the Global Real Estate Sustainability Benchmark (GRESB) to understand the climate resilience and broader sustainability of individual properties and funds. The majority of our real estate and infrastructure investments are located in Europe. When considering or reviewing fixed income or equities investments, our fund managers consider any relevant climate change factor that could adversely impact the credit quality of a fixed income security or the valuation of equity.

2. Transition risk (policy, legal, technology, political, market, reputation impacts)
With the Paris agreement to pursue limiting global temperature increases to below 2°C, there will be an increasing number of climate–related policies and regulations to assist this transition, which will impact sectors in different ways. We consider active stewardship to be a fundamental responsibility for us as investors. This includes considered voting at AGMs and engagement on climate risk, disclosure and performance. We continue to deliver on our five year Strategic Response to Climate Change (2015-2020) which sets out our approach to acting on climate related investment risk. We have focused on in-depth engagement with companies strategically exposed to climate related risks due to their significant carbon impact and exposure to transition risks (and opportunities). We undertake this engagement individually and collaboratively, actively supporting or co-filing shareholder resolutions as appropriate.
We continue to be committed to increasing our investment in low carbon infrastructure and to considering how best we support the financing of the transition to a lower carbon economy.

3. Liability risk
Aviva has negligible exposure to litigation risks on the insurance side through liability contracts such as professional indemnity for Directors and Officers and Pension Trustee Liability insurances. However, we may have holdings in companies that could be subject to regulatory and legal challenges due to their climate-related impacts and level disclosures. The direct impact from legal challenges and any associated fines are likely to be limited to specific companies.

Metrics and targets

Operational
We have measured, monitored and reduced our operational carbon emissions since 2004, on an absolute and relative basis, and disclose related metrics on an annual basis in our public filings. Although we do not consider these to be material, we have exceeded our long term reduction target of 50% by 2020 and continue to work towards the more ambitious reduction target of 70% by 2030, from a baseline of 2010. These figures can be found at www.aviva.com/ESGdatasheet2017

Our operational footprint boundaries show the scope of the data we monitor and the emissions we offset. We report on the Greenhouse Gas (GHG) emission sources on a carbon dioxide emissions equivalent basis. We also refer to the GHG Protocol Corporate Accounting and Reporting Standard and emission factors from the UK Government's GHG factors to company reporting 2017. Our total CO_2e emissions for 2017 are 68,500 tCO_2e. This is an absolute reduction from the previous year. An LED retrofit programme across our UK business, use of onsite renewable electricity, and consolidation of old inefficient office space into new LEED Gold energy efficient office space in the Canadian business has contributed to this reduction.

Tonnes CO_2e	2017	2016	2015*
Scope 1	17,915	19,210	19,112
Scope 2	31,280	41,008	49,595
Scope 3	19,305	19,193	19,991
Absolute CO_2e**	68,500	79,410	88,698
Carbon offsetting***	(68,500)	(79,410)	(88,698)
Total net emissions	-	-	-

* This includes Friends Life business operations for the whole of 2015.
** 2017 Assurance provided by PricewaterhouseCoopersLLP available at aviva.com/CRkpisandassurance2017
*** Carbon offsetting through the acquisition and surrender of emissions units on the voluntary and compliance markets.

Scope 1 – natural gas, fugitive emissions, oil, and company owned cars.

Scope 2 – electricity.

Scope 3 – business travel and grey fleet waste and water.

	2017	2016	2015
CO2e tonnes per employee	1.6	2.0	2.2
CO2e per £m GWP	2.48	3.12	4.05

Investment

As a life insurer, we must match the long nature of our liabilities with similarly long dated investments. It is therefore key for us to identify measure and mitigate the long term risks that might adversely impact the value our investments. Climate risk is of one of the most material long term risks.

Aviva is also committed to be a good ancestor. One way of achieving this is to integrate ESG and climate risk into our investment process in order to deliver long term sustainable and superior investment outcomes for our customers. Our clients' welfare will be determined not only by the size of their savings but also by the state of the world that they retire into.

We integrate ESG and climate related factors to our investment process. To that end, we have enhanced our Environmental, Social, and Governance heat map to include proxy climate risk metrics. This heat map is available to our analysts and fund managers and updated on a monthly basis. It includes a composite carbon exposure metric based on the carbon-intensity of business activities, the extent of operations in jurisdictions with stringent carbon emissions regulations and the quality of a company's carbon management. Last year, we disclosed the carbon intensity of our French investments.

Through our Strategic response to Climate Change we targeted a £500m annual investment in low-carbon infrastructure from 2015-2020, and an associated carbon saving target of 100,000 CO_2e tonnes annually. In 2017, we signed £527.5m of new investment into wind, solar, biomass and energy efficiency. We are progressively increasing our holdings in Green bonds. Aviva currently holds over £744m in green bonds, more than doubling our holding in 2016 .

In 2015, we identified 40 companies (C40) with more than 30% of their business revenue associated with thermal coal mining or coal power generation and undertook focused engagement with them, including 51 in depth conversations. These meetings set out our expectations on their governance, business strategy, operational efficiency, responsible climate and energy policy advocacy. We also asked, whether any of those companies have any plans for new investment in coal generating capacity, as we believe this in particular would go against our approach to helping meet the Paris Agreement of limiting global temperature rise to well below 2 degrees Celsius.

We continue to engage with a number of these companies to encourage them to transition. We believe it is better to be an engaged owner lobbying for change rather than divesting and walking away as these are the companies in need of the greatest challenge from their shareholders. Indeed, five companies we have engaged with have committed to Science Based Targets[4] following our discussions.

However, where we don't see any prospect of movement then we will divest. In September 2017 we added two companies to our Investment Stoplist: PGE and JPower and divested our active beneficial holdings wherever possible[5]. We are also in the process of divesting a further fifteen of companies from our portfolio. A further six companies have been classified for a final approach from us, we will then move to divest. Once we have divested, we will disclose the names of these divestments. We currently have no exposure to six of the companies that we included in the original C40 list in 2015.

Some examples of where engagement has led to clarification of companies' plans to transition include the confirmation of mine closures, an announcement on Bloomberg that no additional mining operations would take place, and Aviva Investors being asked to feed advice into early drafts of a company's strategy.

In 2017, we were asked to review our holdings against a list of 120 coal companies. We had beneficial holdings in 26 companies with a total market value of £55.6m or 0.01% of our total assets. 11 of these companies are also part of the list of 40 companies identified and engaged with since 2015.

More details of this engagement can be found on aviva.com/cr.

More broadly, in 2017, we engaged with 989 companies on strategic, social and/or governance (ESG) issues. In the same period we supported 52% of climate change related shareholder resolutions[6]. The reason that we were only able to support just over half of such resolutions was because some proposals were overly prescriptive and micro-managerial. We are looking to work with NGO partners to support guidelines for the creation of ESG-related resolutions which institutional shareholders can then support.

We also continue to focus on improving the sustainability of our real estate investments. Now in its eight year, in 2017 the Global Real Estate Sustainability Benchmark (GRESB) assessed 850 real estate portfolios, jointly representing more than USD 3.7 trillion in assets under management, as well as more than 200 infrastructure assets and funds. In 2017, Aviva Investors improved overall GRESB scores for all 19 fund submitted funds, and were awarded 7 Green Stars in total (up from 5 in 2016). An example of the work Aviva Investors has done with partners on one of our investment properties is the Corn Exchange, Manchester. The energy saving project has delivered £48,000 savings in 5 months and is forecast to achieve £91,000 saving over the year. Landlord energy consumption has reduced by 42% and the project payback was 3 months. Actions like these means that our investment stock becomes more energy efficient; achieving higher energy efficiency certification and so attracts a higher leasing premium.

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[4] Science based targets - Targets adopted by companies to reduce GHG emissions are considered "science-based" if they are in line with the level of decarbonisation required to keep global temperature increase below 2°C compared to pre-industrial temperatures, as described in the Assessment Report of the Intergovernmental Panel on Climate Change (IPCC).

[5] For example – due to regulatory restrictions around pension provision in Poland in respect of the investment strategy and independent governance arrangements, we are not able to influence the exposure of portfolios to companies we have chosen to divest from elsewhere.

[6] https://www.avivainvestors.com/content/dam/aviva-investors/united-kingdom/documents/institutional/ai-vote-disclosure.pdf

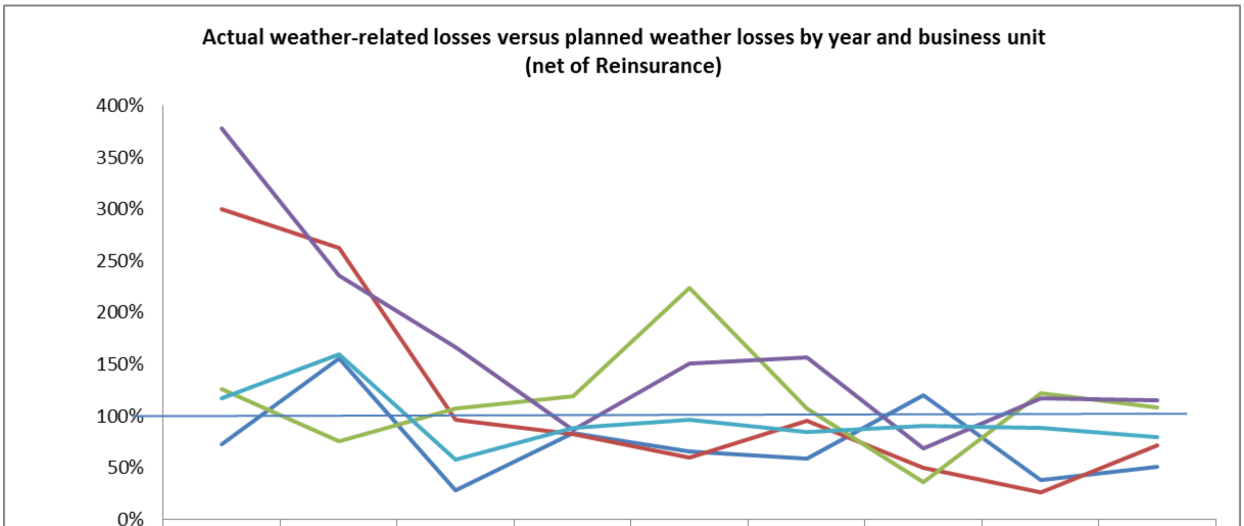
Insurance
We build the possibility of extreme weather events into our planning to help us understand the impact and ensure our pricing is adequate. Catastrophic event model results are supplemented by in-house disaster scenarios. A 1:800 CAT event is required in order for Aviva to incur losses (after reinsurance) above £1bn. Therefore, multiple very large CAT events would have to occur in a year in order to adversely impact Aviva's capital position (Solvency II capital surplus £11.3bn).

Each of our GI businesses has a Major Incident Response in place to provide customer service and manage costs of major claim events and service demand surges. We continue to invest in analytical solutions such as flood mapping, predictive analytics and risk mitigation techniques that help us better understand risks being transferred to us from our customers and to respond more rapidly when our customers need us.

The following data demonstrates how we incorporate risk into our reserving and pricing in our business.

Fig.1 outlines actual weather-related losses versus planned weather losses by year and material general insurance markets, net of reinsurance. A value above 100% indicates that weather losses were worse than expected, whereas a value under 100% indicated better than expected weather losses. Over a number of years we have improved our risk reserving and reinsurance practices which are reflected in the actual figures being closer to, or below our planned weather losses.

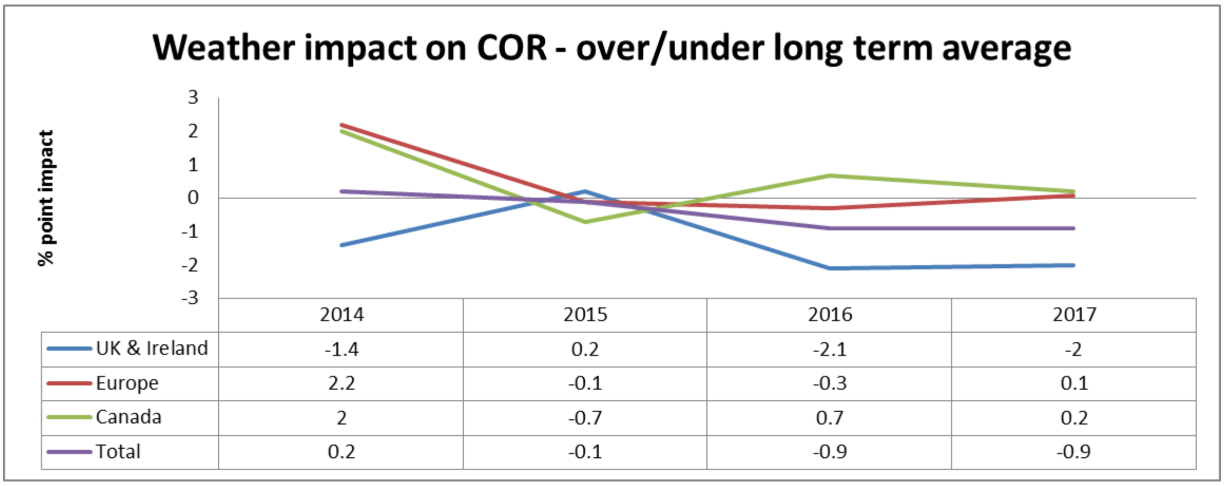
Fig1.



	2009	2010	2011	2012	2013	2014	2015	2016	2017
UK	72%	156%	28%	83%	66%	59%	120%	38%	51%
Ireland	300%	262%	96%	82%	60%	95%	50%	26%	71%
Canada	126%	75%	107%	119%	224%	107%	36%	122%	108%
France	378%	236%	166%	86%	151%	157%	69%	117%	115%
All	117%	160%	58%	88%	96%	84%	90%	88%	79%

Fig 2. shows the impact of weather on Aviva's Combined Operating Ratio (COR) at a Group and material general insurance market level. This shows on a percentage point basis the difference between the reported net ultimate cost of general insurance claims that have occurred as a result of weather events and the long term average expected costs, gross of the impact of profit share. These figures exclude reinsurance reinstatement premium costs.

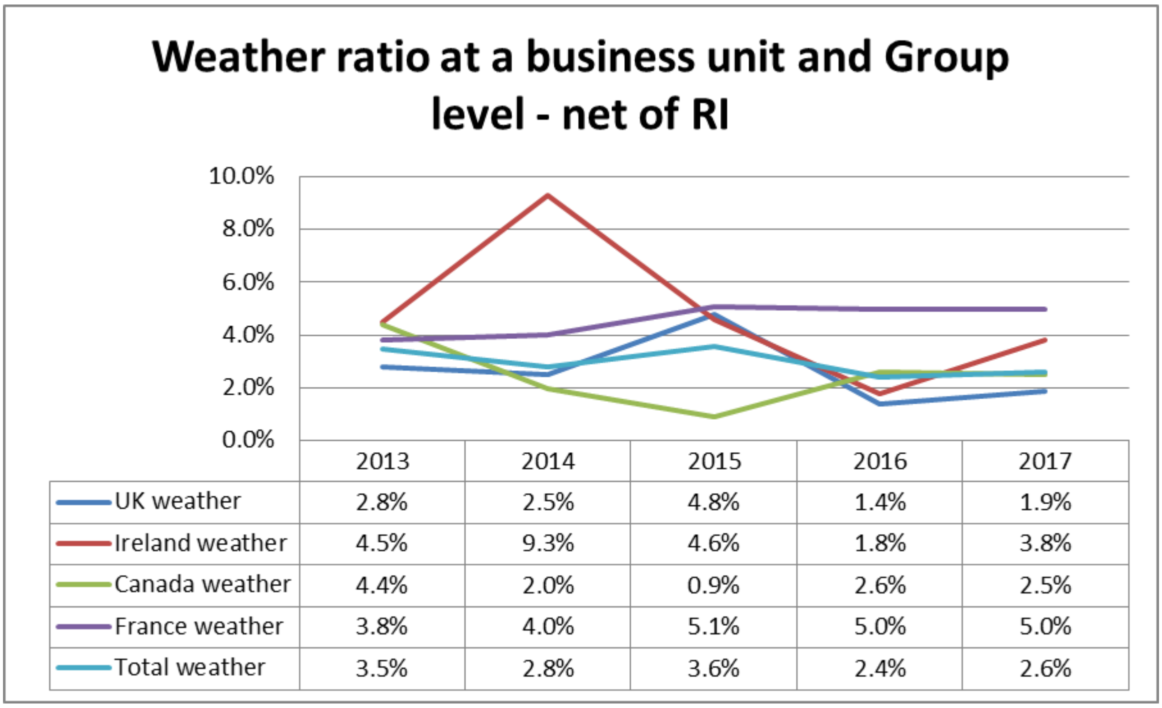
Fig.2



	2014	2015	2016	2017
UK & Ireland	-1.4	0.2	-2.1	-2
Europe	2.2	-0.1	-0.3	0.1
Canada	2	-0.7	0.7	0.2
Total	0.2	-0.1	-0.9	-0.9

Fig.3 shows weather losses ratios - the difference between the ratio of premiums paid and the claims settled by the company.at a material general insurance market and an aggregated Group level (net of reinsurance). It should be noted that different business lines within the markets and the markets themselves have differing thresholds for what is regarded as a Catastrophe events. The losses are added to adjustment expenses and then divided by total earned premiums.

Fig.3



	2013	2014	2015	2016	2017
UK weather	2.8%	2.5%	4.8%	1.4%	1.9%
Ireland weather	4.5%	9.3%	4.6%	1.8%	3.8%
Canada weather	4.4%	2.0%	0.9%	2.6%	2.5%
France weather	3.8%	4.0%	5.1%	5.0%	5.0%
Total weather	3.5%	2.8%	3.6%	2.4%	2.6%

As a founding member of ClimateWise, we have been reporting on the recommended disclosures of TCFD of Governance, Strategy, Risk Management and Metrics & Targets since 2006 through our response to the ClimateWise's Subprinciples 1.1, 3.2, 3.4, 4.1, 4.2, 5.3 and 6.1.[7] We are also a founding signatory to the UN Principles for Sustainable Insurance (UNPSI) where the TCFD recommendations are aligned to Principle 1.

The Asset Owners Disclosure Project annual climate survey in 2017 ranked Aviva among the top 6% of asset owners in the world in relation to managing climate risk.

Find out more about our approach at www.aviva.com/social-purpose

[7] https://www.aviva.com/content/dam/aviva-corporate/documents/socialpurpose/pdfs/Aviva-climateWise-response-2017-clean08.pdf