Risk and risk management

Risk management is key to Aviva's success. We accept the risks inherent to our core business lines of life, general, health and protection and asset management. We diversify these risks through our scale, geographic spread, the variety of the products and services we offer and the channels through which we sell them.

We receive premiums which we invest to maximise risk-adjusted returns, so that we can fulfil our promises to customers while providing a return to our shareholders.

In doing so we have a preference for retaining those risks we believe we are capable of managing to generate a return.

Looking forward, these risks may be magnified or dampened by current and emerging external trends (for example, climate change, cyber crime and political risks, such as Brexit) which may impact upon our current and longer term profitability and viability, in particular our ability to write profitable new business.

This includes the risk of failing to adapt our business model to take advantage of these trends. The 'Principal risk trends and causal factors' table in this section describes these trends, their impact, future outlook and how we manage these risks.

How we manage risk

Rigorous and consistent risk management is embedded across the Group through our Risk Management Framework, comprising our systems of governance, risk management processes and risk appetite framework.

Our governance

This includes risk policies and business standards, risk oversight committees and roles and responsibilities. Line management in the business is accountable for risk management which, together with the risk function and internal audit, form our 'three lines of defence'. The roles and responsibilities of the Board Governance, Audit and Risk Committees and management's Disclosure, Asset Liability and Operational Risk Committees in relation to the oversight of risk management and internal control is set out in the 'Directors' and corporate governance report' in the Annual report and accounts.

Our process

The processes we use to identify, measure, manage, monitor and report risks, including the use of our risk models, and stress and scenario testing, are designed to enable dynamic risk-based decision-making and effective day-to-day risk management. Having identified and measured the risks of our business, depending on our risk appetite, we either accept these risks or take action to reduce, transfer or mitigate them.

Our risk appetite framework

This refers to the risks that we select in pursuit of return on capital deployed, the risks we accept but seek to minimise and the risks we seek to avoid or transfer to third parties, including quantitative expressions of the level of risk we can support (e.g. the amount of capital we are prepared to put at risk).

Types of risk inherent to our business model

Risks customers transfer to us

- Life insurance risk includes longevity risk (annuity customers living longer than we expect), mortality risk (customers with life protection), critical illness risk, expense risk (the amount it costs us to administer policies) and persistency risk (customers lapsing or surrendering their policies)
- General insurance risk is the risk arising from loss events (fire, flooding, windstorms, accidents etc)
- Accident and Health insurance risk covers healthcare costs and loss of earnings arising from customers falling ill

Risks arising from our investments

- Credit risks (actual defaults and market expectation of defaults) create uncertainty in our ability to offer a minimum investment return on our investments
- Liquidity risk is the risk of not being able to make payments as they become due because there are insufficient assets in cash form
- Market risks result from fluctuations in asset values, including equity prices, property prices, foreign exchange, inflation and interest rates

Risks from our operations and other business risks

- Operational risk is the risk of direct or indirect loss, arising from inadequate or failed internal processes, people and systems, or external events including changes in the regulatory environment
- Asset management risk is the risk of customers redeeming funds, not investing with us, or switching funds, resulting in reduced fee income

Principal risk types

The types of risk to which the Group is exposed, described in the table below, have not changed significantly over the year. All of the risks below, and in particular operational risks, may have an adverse impact on our brand and reputation.

Risk type	Risk preference	Mitigation
Credit risk • Credit spread[1] • Credit default	We like credit risk as we believe we have the expertise to manage it and the structural investment advantages conferred to insurers with long-dated, relatively illiquid liabilities enable us to earn superior investment returns.	• Risk appetites set to limit overall level of credit risk • Credit limit framework imposes limits on credit concentration by issuer, sector and type of instrument • Investment restrictions on certain sovereign and corporate exposures • Credit risk hedging programme • Specific asset de-risking
Market risk • Equity price[1] • Property • Interest rate • Foreign exchange • Inflation	We actively seek some market risks as part of our investment and product strategy. We have a limited appetite for interest rate, foreign exchange and inflation risks as we do not believe that these are adequately rewarded.	• Risk appetites set to limit exposures to key market risks • Active asset management and hedging in business units • Scalable Group-level equity and foreign exchange hedging programme • Pension fund active risk management • Asset and liability duration matching limits impact of interest rate changes and actions taken to manage guarantee risk, through product design
Life insurance risk • Longevity[1] • Persistency • Mortality • Expenses	We take measured amounts of life insurance risk provided we have the appropriate core skills in underwriting and pricing. We like longevity risk as it diversifies well (i.e. has little or no correlation against other risks we retain).	• Risk selection and underwriting on acceptance of new business • Aviva's staff pension scheme longevity swap covering approximately £5 billion of pensioner-in-payment scheme liabilities • Product design that ensures products and propositions meet customer needs • Use of reinsurance to mitigate mortality/morbidity risks and, since 2016, longevity risk for bulk purchase annuities and guaranteed annuity options
General insurance risk • GI catastrophe • GI reserving (latent and non-latent) • GI underwriting • Expenses	We take general insurance risk in measured amounts for explicit reward, in line with our core skills in underwriting and pricing. We have a preference for those risks that we understand well, that are intrinsically well managed and where there is a spread of risks in the same category. GI risk diversifies well with our Life Insurance and other risks.	• Use of reinsurance to reduce the financial impact of a catastrophe and manage earnings volatility • Application of robust and consistent reserving framework to derive best estimate with results subject to internal and external review, including independent reviews and audit reviews • Extensive use of data, financial models and analysis to improve pricing and risk selection • Underwriting appetite framework linked to delegations of authority that govern underwriting decisions and underwriting limits • Product development and management framework that ensures products and propositions meet customer needs • Formal and documented claims management procedures
Liquidity risk[2]	The relatively illiquid nature of insurance liabilities is a potential source of additional investment return by allowing us to invest in higher yielding, but less liquid, assets such as commercial mortgages.	• Maintaining committed borrowing facilities (£1.65 billion) from banks • Asset liability matching methodology develops optimal asset portfolio maturity structures in our businesses to ensure cash flows are sufficient to meet liabilities • Commercial paper issuance • Use of our limit framework covering minimum liquidity cover ratio and minimum central liquidity • Contingency funding plan in place to address liquidity funding requirements in a significant stress scenario
Asset management risk • Fund liquidity, performance and margin, Product, and Persistency risks	Operational risks specific to asset management should generally be reduced to as low a level as is commercially sensible, on the basis that taking on these risks will rarely provide us with an upside.	• Product development and review process • Investment performance and risk management oversight and review process • Propositions based on customer needs • Client relationship teams managing client retention risk
Operational risk • Conduct • Legal & regulatory • People • Process • Data security • Technology	Operational risk should generally be reduced to as low a level as is commercially sensible, on the basis that taking operational risk will rarely provide us with an upside.	• Application of enhanced business standards covering key processes • Our Operational Risk & Control Management Framework which includes the tools, processes and standardised reporting necessary to identify, measure, manage, monitor and report on the operational risks and the controls in place to mitigate those risks within centrally set tolerances • Enhanced scenario-based approach to determine appropriate level of capital to be held in respect of operational risks • On-going investment in simplifying our technology estate to improve the resilience and reliability of our systems and in IT security to protect ours and our customers' data

1 Top three risks ranked by diversified Solvency II Solvency Capital Requirement
2 Not quantifiable in terms of economic capital

Principal risk trends and causal factors

This table describes the external trends and causal factors impacting our inherent risks, their impact, future outlook and how we take action to manage these risks:

Key trends and movement	Risk management	Outlook
Economic & credit cycle – uncertainty over prospects for future macroeconomic growth, credit and interest rates, and the response of Central Banks, could adversely impact the valuation of our investments or credit default experience as well as the level of the returns we can offer to customers. Trend: Increasing Risks impacted: Credit risk, Market risks, Liquidity risk	Over the last few years we have taken significant steps to reduce the sensitivity of our balance sheet to investment risks. We aim to closely duration-match assets and liabilities and take additional measures to limit interest rate risk. We hold substantial capital against market risks, and we protect our capital with a variety of hedging strategies to reduce our sensitivity to shocks. We regularly monitor our exposures and employ both formal and ad hoc processes to evaluate changing market conditions. Other actions taken in the past include reducing sales of products with guarantees and shifting our sales towards protection and unit-linked products.	While interest rates are still well below pre-financial crisis levels, during 2018 the US Federal Reserve raised interest rates on four occasions, in August the Bank of England raised its base rate and in December the European Central Bank ended its asset purchase programme. While rates may remain below pre-2008 financial crisis levels in the EU and UK for some time to come, there is a risk that a rapid increase in rates and a deterioration in companies' fundamentals could result in a re-rating of financial assets leading to a collapse in bond prices, widening spreads or credit defaults and reducing asset prices.
UK-EU relations (Brexit uncertainty) – there remains considerable uncertainty over the UK's future relationship with the EU, and the implications for economic growth and productivity and in the longer term for financial services regulation, including Solvency II. Trend: Volatile Risks impacted: Credit risk, Market risks, Operational risk	Brexit is not expected to have a significant operational impact on Aviva. We have been actively engaged to ensure the interests of our customers, the Company and the industry are appropriately taken into account. We have addressed the loss of our ability to passport business into the EU through insurance portfolio transfers to our business in Ireland and expansion of our business in Luxembourg to serve our EEA asset management clients and funds. We have reviewed and are amending contractual terms for data sharing and transfers to allow continued uninterrupted flow of personal data between our EU businesses and the UK. Our Financial Event Response Plan ensures that we will be able to respond swiftly and effectively to any severe adverse financial event.	UK Parliamentary approval of the EU Withdrawal agreement remains uncertain and there are a number of possible alternative outcomes including departure from the EU without a deal, deferral of the UK's departure and a renegotiated deal or even continuing membership of the EU after a second referendum. Uncertainty over UK-EU relations will continue if as planned the UK withdraws on 29 March 2019, as the UK and EU start to negotiate their future free trade agreement. While these negotiations are intended to complete by 31 December 2020, the end of the transition period under the withdrawal agreement, there is a risk they may need to be extended.
Changes in public policy – any change in public policy (government or regulatory) could influence the demand for, and profitability of, our products. In some markets there are (or could be in the future) restrictions and controls on premium rates, rating factors and charges. Trend: Volatile Risks impacted: Operational risk (developing the right strategy, regulatory compliance)	We actively engage with governments and regulators in the development of public policy and regulation. We do this to understand how public policy may change and to help ensure better outcomes for our customers and the Company. The Group's multi-channel distribution and product strategy and geographic diversification underpin the Group's adaptability to public policy risk, and often provides a hedge to the risk. For example, since the end of compulsory annuitisation in 2015 in the UK we have compensated for falling sales of individual annuities by increasing sales of other life and pension products including bulk purchase annuities.	The UK government's lack of parliamentary majority and Brexit divisions could trigger a general election and change of government resulting in a shift in public policy with consequences for the products we sell and our investment strategy. Planned key UK regulatory changes include Guaranteed Minimum Pension equalisation, renewal pricing, Equity Release Mortgage regulation, changes to the Ogden rate and Whiplash Reform. In our other markets: general elections will be held in Canada and Poland in 2019; in France the Pacte Law 1 will significantly change the French savings market; and Italy-EU relations may remain volatile over Italian fiscal policy.
New technologies & data – failure to understand and react to the impact of new technology and its effect on customer behaviour and how we distribute products could potentially result in our business model becoming obsolete. Failure to keep pace with the use of data to price more accurately and to detect insurance fraud could lead to loss of competitive advantage and underwriting losses. Trend: Increasing Risks impacted: Operational risk (developing the right strategy)	Aviva's strategy is focused on transformation into a digital leader by taking an enterprise-wide approach to digital and automation, focused on: [1] Digital customer centric propositions (e.g. AvivaPlus) [2] A single view of the customer, consolidating individual and company data on a single platform [3] MyAviva, our digital portal for customers and intermediaries [4] Quantum, our data science practice facilitating market leading innovation in use of data analytics to significantly improve the customer journey (e.g. Ask it Never), improve our understanding of how customers interact with us, and improve underwriting margins. Our Data Charter sets out our public commitment to use data responsibly and securely. Considerable work is going into modernising our legacy infrastructure.	Data creation is likely to continue to grow, while effective use of "Big data" through artificial intelligence and advanced analytics will increasingly become a critical driver of competitive advantage for insurers, and subject to increasing regulatory scrutiny. The competitive threat to traditional insurers is likely to increase with the potential for big technology companies and low cost innovative digital start-ups to enter the insurance market, where previously underwriting capability, risk selection and required capital have proven to be a sufficient barrier to entry.

Key trends and movement	Risk management	Outlook
Climate change – potentially resulting in higher than expected weather-related claims (including business continuity claims) and inaccurate pricing of general insurance risk, as well as adversely impacting economic growth and investment markets. Trend: Increasing Risks impacted: General insurance risk, Credit risk, Market risk	We are actively engaged in public policy debate on the risks and impacts of climate change to our business and customers. We use reinsurance to reduce the financial impact of catastrophic weather events. In the UK, our flood mapping analytics helps us identify properties most at risk and improve our risk selection. Our responsible investment strategy ensures climate change, as well as other environmental and social issues are integrated into our investment decisions. You can read more about the physical, transition and liability risks we face as an asset owner, insurer and asset manager in our 'Climate-related financial disclosure'.	Global average temperatures over the last five years have been the hottest on record. Despite the UNFCCC Paris agreement, the current trend of increasing CO_2e emissions is expected to continue with global temperatures likely to exceed pre-industrial levels by at least 2°C and weather events (floods, droughts, windstorms) increasing in frequency and severity. Disclosure of potential impacts against various climate scenarios and time horizons will become increasingly common for all companies.
Medical advances and healthier life styles – these contribute to an increase in life expectancy of our annuity customers and thus future payments over their lifetime may be higher than we currently expect. Trend: Decreasing Risks impacted: Life insurance risk (longevity)	We monitor our own experience carefully and analyse external population data to identify emerging trends. Detailed analysis of the factors that influence mortality informs our pricing and reserving policies. We add qualitative medical expert inputs to our statistical analysis and analyse factors influencing mortality and trends in mortality by cause of death. We also use longevity swaps to hedge some of the longevity risk from the Aviva Staff Pension Scheme and longevity reinsurance for bulk purchase annuities and guaranteed annuity options.	There is considerable uncertainty as to whether the improvements in life expectancy that has been experienced over the last 40 years will continue into the future. Despite continued medical advances emerging, dietary changes, increasing obesity and strains on public health services have begun to slow this trend, leading in the UK to some significant industry-wide longevity reserve releases in 2018, and in the longer term may even result in a reversal in the trend of increasing life expectancy.
Cyber crime – criminals may attempt to access our IT systems to steal or utilise company and customer data, or plant malware viruses, in order to access customer or company funds, and/or damage our reputation and brand. Trend: Increasing Risks impacted: Operational risk (fraud, business interruption)	We are not complacent. We continue to invest significantly in IT Security, introducing additional automated controls to protect our data, detect and prevent cyber-attacks. In addition to implementing secure development practices we employ our own 'white hat' hackers to regularly test our IT security defences. We undertake regular activities with our people to promote awareness of cyber and data security, including: employee phishing exercises, computer-based training and more regular communications about specific threats as they are identified.	In 2018 there continued to be several high profile cyber security incidents for corporates in the UK and elsewhere, and we expect this to further increase in 2019 as the multiple threat sources, including cyber criminals and rogue states, become ever more sophisticated and given the growing importance of digital automation in business strategy. We will continuously review the near-to-mid-term threat environment to ensure that our cyber investment remains appropriate to mitigate the continued and changing nature of the cyber threat.
Changes in customer behaviour – will impact how customers wish to interact with us and the product offering they expect, including the exercise of options embedded in contracts already sold by us. Trend: Stable Risks impacted: Operational risk (developing the right strategy, regulatory compliance)	Not only do we listen to our customers to ensure we meet their needs, we also seek to transform the customer experience through our digital strategy, creating an effortless customer experience. Our new vulnerable customer policy recognises the needs of our less digitally aware customers. For information on how we are mitigating this risk through the execution of Digital First and True Customer Composite strategies refer to 'Our strategy'.	We expect customers will be much more in control, expecting to self-service and self-solve. They will want to access data and insight and use it to guide their own decisions. However, we also expect regulatory scrutiny to increase to ensure we continue to serve and treat fairly our existing customers who are vulnerable and less digitally aware.
Outsourcing – we rely on a number of outsourcing providers for business processes, customer servicing, investment operations and IT support. The failure of a critical outsourcing provider could significantly disrupt our operations. Trend: Increasing Risks impacted: Operational risk	Our businesses are required to identify business critical outsourced functions (internal and external) and for each to have exit and termination plans and business continuity and disaster recovery plans in the event of supplier failure, which are reviewed annually. Business continuity and disaster recovery plans are subject to at least annual testing. We also carry out supplier financial stability reviews at least annually.	In 2018, the insolvency of Carillion, which was not a direct supplier of services to Aviva, and financial difficulties faced by other outsourcing providers, as well as customer service issues following the migration of our third party provided investment platform has brought added focus to this risk and we expect regulatory scrutiny of outsourcing arrangements to increase.