News Release

7 March 2019

AVIVA PLC 2018 PRELIMINARY RESULTS ANNOUNCEMENT

Sir Adrian Montague, Chairman, said:

Aviva made steady progress in 2018. We grew profits, had a record year for cash remittances and further increased our solvency cover ratio to 204%. As a result, the Board has increased the full year dividend by 9% to 30.0 pence per share.

Our key profit measure, operating earnings per share, is up 7%. Just under half our earnings growth is due to higher profits from our major businesses, with the rest of the increase due to our ordinary share buy-back, debt reduction and a higher net contribution from longevity and assumption changes.

We increased profit in the UK, where we won more workplace pension schemes and bulk annuity deals, and across our international businesses, where we expanded and diversified our distribution. Aviva Investors had a more challenging year due to difficult investment markets and we have continued to invest in our asset management expertise.

Looking forward, our capital management plan will prioritise debt reduction for the foreseeable future. We plan to reduce debt by at least £1.5 billion by the end of 2022, saving approximately £90 million per year in interest expenses. This builds on the £1.4 billion of debt repaid over the past two years and will further enhance our financial flexibility.

The security and sustainability of our dividend remains paramount. We are moving to a progressive dividend policy, which will see the dividend maintained or grown over time depending on business performance and growth prospects.

We recently announced the appointment of Maurice Tulloch as Chief Executive. Under Maurice's leadership, we are confident that we can make Aviva a better business for the benefit of our customers and our shareholders.

Maurice Tulloch, Chief Executive Officer, said:

I am excited to be taking over as CEO of Aviva. We have strong foundations but we are only scratching the surface of our full potential. There's a huge opportunity here. At the heart of it, it's all about insurance fundamentals, delivering excellent customer experience, tackling complexity and injecting a different pace of change into Aviva. And that will be just the start. I am determined to re-energise Aviva and deliver long term growth for our shareholders.

Profit	• Operating EPS[2,#,‡] up 7% to 58.4 pence *(2017: 54.8 pence)* • Operating profit[1,#,‡] up 2% to £3,116 million *(2017: £3,068 million)* • IFRS profit after tax up 2% to £1,687 million *(2017: £1,646 million)*
Dividend	• Final dividend per share 20.75 pence • Total 2018 dividend per share 30.0 pence *(2017: 27.4 pence)*
Capital	• Solvency II capital surplus[4] £12.0 billion *(2017: £12.2 billion)* • Solvency II cover ratio[4,‡] 204% *(2017: 198%)* • Operating capital generation[#] £3.2 billion *(2017: £2.6 billion)* • IFRS net asset value per share 424 pence *(2017: 423 pence)*
Cash	• Cash remittances[‡,#] up 31% to £3,137 million *(2017: £2,398 million)* • UK Insurance special remittance £1,250 million *(2017: £500 million)* • Holding company liquidity £1.6 billion[5] *(2017: £2.0 billion)* • Cash deployed on debt reduction and share repurchase programme £1.5 billion *(2017: £0.8 billion)*
Performance	• Value of new business (VNB)[‡] down 3% to £1,202 million *(2017: £1,243 million)*. Excluding the impact of divested businesses, VNB[‡] grew 2% • General insurance net written premium stable at £9,114 million *(2017: £9,141 million)* • General insurance combined operating ratio[‡] stable at 96.6% *(2017: 96.6%)* • Longevity reserve releases £780 million *(2017: £779 million)* • Operating expenses[3] up 7% to £4,026 million *(2017: £3,778 million)* • Integration and restructure costs held to zero *(2017: £141 million)*

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5 Stated as at end February 2019 .

Operating profit[1,#,‡]

	2018 £m	2017 £m	Sterling % change
Life business[2]	**2,999**	2,852	5%
General insurance and health[2]	**704**	704	—
Fund management	**146**	164	(11)%
Other[2,3]	**(733)**	(652)	(12)%
Total	**3,116**	3,068	2%
Operating earnings per share[‡#]	**58.4p**	54.8p	7%

Cash remittances[4,‡#]

	2018 £m	2017 £m	Sterling % change
United Kingdom[4]	**2,549**	1,800	42%
Canada	**28**	55	(49)%
Europe[4]	**447**	485	(8)%
Asia, Aviva Investors and Other	**113**	58	95%
Total	**3,137**	2,398	31%

Operating capital generation (OCG): Solvency II basis[4,#]

	2018 £bn	2017 £bn	Sterling % change
United Kingdom[4]	**2.2**	2.8	(21)%
Canada	**0.1**	(0.1)	200%
Europe[4]	**0.9**	0.9	—
Asia & Aviva Investors	**0.1**	0.1	—
Other[5]	**(0.1)**	(1.1)	91%
Total	**3.2**	2.6	23%

Expenses

	2018 £m	2017 £m	Sterling % change
Operating expenses	**4,026**	3,778	7%
Integration & restructuring costs	—	141	(100)%
Expense base	**4,026**	3,919	3%
Operating expense ratio	**54.2%**	52.7%	1.5pp

Value of new business (VNB): Adjusted Solvency II basis[‡] and Present value of new business premium (PVNBP)

	VNB			PVNBP		
	2018 £m	2017 £m	Sterling % change	2018 £m	2017 £m	Sterling % change
United Kingdom	**481**	527	(9)%	**23,946**	23,764	1%
Europe	**517**	533	(3)%	**12,641**	12,065	5%
Asia & Aviva Investors	**204**	183	11%	**4,176**	4,966	(16)%
Total	**1,202**	1,243	(3)%	**40,763**	40,795	—

General insurance combined operating ratio (COR)[‡] and Net written premiums (NWP)

	COR			NWP		
	2018	2017	Change	2018 £m	2017 £m	Change
United Kingdom	**93.8%**	93.9%	(0.1)pp	**4,193**	4,078	3%
Canada	**102.4%**	102.2%	0.2pp	**2,928**	3,028	(3)%
Europe	**93.4%**	93.3%	0.1pp	**1,985**	2,018	(2)%
Asia & Other	**122.1%**	123.2%	(1.1)pp	**8**	17	(52)%
Total	**96.6%**	96.6%	—	**9,114**	9,141	—

Profit after tax

	2018 £m	2017 £m	Sterling % change
IFRS profit after tax	**1,687**	1,646	2%
Basic earnings per share	**38.2p**	35.0p	9%

Dividend

	2018	2017	Sterling % change
Final dividend per share	**20.75p**	19.00p	9%
Total dividend per share	**30.00p**	27.40p	9%

Capital position

	2018	2017	Sterling % change
Estimated Solvency II shareholder cover ratio[‡,6]	**204%**	198%	6.0pp
Estimated Solvency II surplus	**£12.0bn**	£12.2bn	(2)%
Net asset value per share	**424p**	423p	1p

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2 Non-insurance operations relating to the UK have been reclassified to their respective market segments to better reflect the management of the underlying businesses consistent with the segmental analysis shown in note B6. The impact of this change was to reduce UK Life operating profit by £80 million (2017: £30 million); UK General Insurance operating profit increased by £2 million (2017: £3 million) and UK Health increased by £2 million (2017: £1 million).
3 Other includes other operations, corporate centre costs and group debt and other interest costs, including coupon payments in respect of the direct capital instrument (DCI) and tier 1 notes (net of tax).
4 Cash remitted to Group and Solvency II operating capital generation are managed at legal entity level. As Ireland constitutes a branch of the United Kingdom business, cash remittances from Ireland are not aligned to our management structure within Europe, but they are reported within United Kingdom.
5 Other includes Group activities and the Group SCR diversification benefit.
6 The estimated Solvency II position represents the shareholder view only. See Section 8i for more details.

Overview

Saving for the future, drawing a secure pension income, or protecting against unforeseen events, all these are fundamental to our customers' well-being. Supporting customers in these areas, and more, is Aviva's lifeblood and, through this commitment to serving customers, we will earn the returns our shareholders expect.

To provide customers with security and peace of mind, it is imperative to have strong financial foundations. Our capital position makes Aviva a partner that our customers can count on. In 2018, our Solvency II capital surplus[4] remained strong at £12.0 billion, equivalent to a Solvency II cover ratio[4,‡] of 204%. We increased our Solvency II cover ratio in 2018 despite weaker investment markets and deploying £1.5 billion to repay debt and repurchase shares. And, in 2018, Group adjusted operating profit[1,‡,#] rose 2% to £3.1 billion, while operating earnings per share[2,‡,#] increased 7% to 58.4 pence. Profit before tax was £2,129 million *(2017: £2,003 million)*.

In view of Aviva's continued financial strength and steady performance, the Board of Directors has proposed a 9% increase in the full year dividend to 30.0 pence per share. We are moving to a progressive dividend policy. Moderating the rate of dividend per share growth will enhance our flexibility to repay debt and invest in business improvement. The future trajectory of the dividend will reflect performance against our strategic objectives.

Operational highlights

In 2018, Aviva's businesses maintained a disciplined approach in competitive markets.

In the UK, our business has consolidated its position and we are seeing encouraging results across long-term savings, bulk purchase annuity and general insurance product lines. In 2018, a strong pipeline of workplace pension scheme wins helped to sustain long-term savings flows and we wrote our largest ever bulk purchase annuity contract, a £925 million transaction with Marks and Spencer. We launched AvivaPlus, our new subscription style insurance that offers greater flexibility and choice, giving our customers even more control and rewarding their loyalty.

Our European businesses have been invigorated through intelligent choices on product design and mix and a focus on expanding our distribution footprint. In France, we have begun the process of bringing our multi-channel distribution under the Aviva brand, and there is more work to do on that in the coming year. In Italy, our success in the financial adviser channel has paved the way for sustained growth in sales volumes. In Ireland, we completed the acquisition of Friends First, strengthening our position in life insurance.

In our general insurance businesses, we have continued to prioritise profitability over sales volumes. While our Canadian motor insurance portfolio is in the early stages of its recovery and an increase in weather related claims provided a headwind for profits across all of our general insurance businesses, the Group combined operating ratio[‡] of 96.6% remained acceptable.

In Asia, we have a mix of established and emerging businesses and we have continued to invest in their development. In our largest Asian business, Singapore, our advisery distribution network has continued to expand, providing customers with wider product choice and stimulating growth in sales and profits.

Digital remains an important element of Aviva's strategy of improving customer experience. In the UK, the number of active customers registered on MyAviva rose 48% to 4.2 million with 700,000 customers logging into MyAviva each month to transact online or to check policy information. We have launched new propositions with AvivaPlus, MyAviva Workplace and Wealthify creating a strong platform for the future. In Hong Kong, following receipt of regulatory approval, we launched "Blue", our digital insurance venture with Tencent and Hillhouse, which offers customers in Hong Kong a new way to buy insurance.

Challenges

Externally, uncertainty in the political and economic backdrop intensified during the year and this was reflected in a difficult year for investment market performance across most asset classes. In our home market, the UK, the prolonged and fraught process of negotiating Britain's exit from the European Union has weighed down on growth in the economy. But Aviva is well placed to deal with this; our locally incorporated and locally regulated businesses in Europe have prepared to minimise the potential operational impact.

The regulatory environment also continues to evolve, requiring our businesses to adapt and, in some cases, provide remediation for past practices. The shifting external environment, coupled with competitive insurance and savings markets, has provided a challenging macro-environment in which to operate. The resilience built into Aviva's capital position and operating model over recent years has allowed us to overcome these challenges and continue to serve customers across all our markets.

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Challenges (continued)

There were also challenges of our own making, including our announcement in March 2018 that we were "evaluating alternatives" for the Aviva plc and General Accident plc preference shares. While we responded quickly to certain investor concerns by withdrawing from further action and paid £10 million in goodwill and administration costs to compensate those who incurred losses from selling these securities during this period, it was a disappointing episode and lessons have been learned.

We also responded to challenges in our UK business. We encountered disruption during the migration of our independent financial adviser platform to a new supplier, which adversely affected our service standards. Our teams worked hard to resolve these challenges and advisers are now starting to benefit from the improved functionality and processing capability that the new platform offers. We also increased the amount set aside for customer redress in relation to historical advised sales by Friends Provident to £250 million *(2017: £75 million)*. Over 90% of cases identified are pre-2002.

Financial performance

2018 has been a year of steady performance overall for Aviva. Our businesses have delivered broad-based growth, with six out of our eight major markets increasing operating profit in 2018.

We have maintained profit momentum in our UK and European insurance businesses and Canada has responded well to the challenges in the auto insurance portfolio that emerged in 2017. Aviva Investors was set back by a difficult investment market backdrop, though we have chosen to continue investing to facilitate the long-term expansion of our third-party franchise.

In the UK, our results have continued to benefit from releases of provisions arising from changes in UK longevity trends. However, as in 2017, we continued to use this additional profitability to increase spending to advance our digital innovation agenda and accelerate the transformation programme in IT and Finance that will provide benefits to Aviva in the years to come.

Leadership & priorities

In October 2018, we announced that Mark Wilson would step down from his role as Chief Executive Officer. In almost six years under Mark's leadership, Aviva transformed its capital strength, refined its focus towards those markets with the strongest returns and growth prospects and invested in digital capabilities and propositions that will differentiate Aviva in the insurance and savings market place in the coming years.

From these strong foundations, Aviva is entering a new phase of its development. We recently announced the appointment of Maurice Tulloch as Chief Executive Officer. Maurice will work with the Board to establish and refine the strategy that will take Aviva forward in the coming years.

Maurice will be an outstanding Chief Executive of Aviva. He knows the business inside out. He has led our businesses in the UK and internationally and built strong teams across life insurance and general insurance. Maurice knows our strengths, knows where we need to improve and has a deep understanding of insurance and customers' needs. He is exceptionally well qualified to re-energise Aviva and deliver long-term growth.

Having made Aviva stronger, the focus of the next phase is to make Aviva a better company. This means re-emphasising the fundamentals: customer service, distribution, product mix and pricing, and managing expenses. There is much more we can and will achieve.

Outlook

The coming year is shaping up as an important period for Aviva. The arrival of our new Chief Executive will have a galvanising effect on our organisation, providing renewed clarity of purpose. Aviva has abundant strengths: committed and energetic staff, depth in technical expertise, supportive partners and most importantly, 33 million customers. Our challenge is to capitalise on these strengths to become a better, simpler, more efficient company known for excellence in serving customers. This will require significant improvements by Aviva. It will also entail choices with respect to resource allocation. However, our strong existing foundations give us all we need to ensure the new phase Aviva is embarking on will be a success.

Sir Adrian Montague
Chairman

Overview

In 2018, Aviva delivered growth while investing to improve the fundamentals of the business and maintaining a prudent approach to pricing and risk management.

Group adjusted operating profit[1,‡,#] increased 2% to £3,116 million (*2017: £3,068 million*) while operating earnings per share[2,‡,#] rose 7% to 58.4 pence (*2017: 54.8 pence*). IFRS profit after tax was £1,687 million (*2017: £1,646 million*), leading to basic earnings per share of 38.2 pence (*2017: 35.0 pence*). Our operating results continue to benefit from broad based growth from our major markets together with releases of longevity provisions in our UK annuity portfolio. However, as in previous years, we have used the additional profitability provided by longevity releases to accelerate investment in digital, IT and finance change initiatives and to strengthen provisions in areas related to past practices.

In late 2018, the Civil Liability Bill, which determines how personal injury compensation awards are set in the UK, received Royal Assent. While confirmation of the new "Ogden" rate will be provided in 2019, following passage of the legislation we have revised the discount rate used in determining our personal injury claims reserves in the UK to 0%, from -0.75% previously, giving rise to non-operating profit of £190 million. Offsetting this are adverse investment variances due to widening sovereign and corporate credit spreads and a mark-to-market impact from our hedging programme, which protects Solvency II capital[4]. Despite heightened investment market volatility in late 2018, investment variances were broadly flat in the second half of the year despite an increase in the Brexit related property allowance to c.£400 million *(2017: c.£300 million)* in addition to other customary reserves.

During 2018, we repaid £0.9 billion of subordinated debt and completed a £0.6 billion share repurchase programme, leading to the cancellation of approximately 3% of our shares in issue. Despite this £1.5 billion of capital deployment, our Solvency II capital surplus remained robust at £12.0 billion (*2017: £12.2 billion*) and Solvency II cover ratio[‡,4] increased to 204% (*2017: 198%*).

As we embark on the next phase under a new Chief Executive, we do so from strong foundations, with businesses that are well established in their respective markets, a capital position that provides security for today and flexibility for the future and a well funded, sustainable dividend. However, there are opportunities to reignite the self-help agenda, focusing on cost efficiency, business complexity and prioritising further reduction in debt leverage.

United Kingdom

Aviva is the UK's largest insurer and is unique in operating at scale across life insurance, savings, general insurance, health insurance and retirement markets. In 2018, operating profit[1,‡,#] from our UK Insurance businesses increased 7% to £2,324 million (*2017: £2,164 million*). The UK Insurance result continued to benefit from elevated levels of reserve releases relating to the slowing rate of improvement in life expectancy in our annuity portfolio and this is reflected in a higher contribution from "other". Excluding the contribution from "other", our five main operating segments in the UK delivered aggregate operating profit of £1,974 million (*2017: £1,904 million*), an increase of 4%.

Annuity and equity release provides significant long-term growth opportunities as companies look to transfer their defined benefit pension obligations to the insurance sector and individuals seek to secure income and unlock equity in their retirement. In 2018, annuity and equity release sales rose 12% to £4.8 billion (*2017: £4.3 billion*) due to higher volumes in bulk purchase annuities. The increase in sales helped to deliver a 7% increase in operating profit to £779 million (*2017: £725 million*). The result benefitted from favourable experience variances relating to longevity trends though this was offset by lower income from asset mix optimisation. While we have increased our annuity and equity release sales volumes in 2018, we have been selective in expanding our appetite and reflected the uncertain political and economic backdrop in our investment portfolio. We will maintain a prudent approach in 2019.

In long-term savings, operating profit rose 7% to £198 million (*2017: £185 million*). Net fund inflows[3] were £5.0 billion (*2017: £5.6 billion*) equating to 4.2% of opening assets under administration[3]. Having integrated digital features into our workplace pension propositions, we increased new scheme wins with large corporates and delivered higher net fund flows. This was offset by lower net fund flows into the adviser platform, as migration to a new IT service provider caused disruption for both IFAs and customers. Weak investment markets towards the end of 2018 constrained growth in assets under administration, which ended the year at £116 billion (*2017: £118 billion*). As fee income is linked to assets under administration, this may weigh on operating profit growth in 2019. Nonetheless, we see compelling long-term growth opportunities from rising participation and higher contribution rates in workplace savings.

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United Kingdom (continued)

In protection, we adapted to changing market conditions, resulting in operating profit[1,‡,#] remaining stable at £226 million (*2017: £227 million*). Results from Group protection improved in 2018 following actions taken to address adverse claims experience in 2017. This offset weaker results in individual protection, where new business volumes fell 8% in response to heightened competition while margins were compressed by higher reinsurance costs. We will continue to manage our protection business with a focus on maximising profit over the cycle rather than volume.

Aviva's UK general insurance business maintained its track record of delivering consistent, attractive underwriting results in 2018. The combined operating ratio[‡] was 93.8% (*2017: 93.9%*) as higher levels of prior year reserve releases offset an increase in weather related claims. Net written premiums rose 3% to £4,193 million (*2017: £4,078 million*) due to progress in Global Corporate and Specialty (GCS) and Small and Medium Sized Enterprise (SME) markets. The underwriting result rose 3% to £253 million (*2017: £246 million*), which in turn helped to underpin a 4% increase in operating profit to £415 million (*2017: £400 million*).

Our legacy portfolio performed in line with expectations in 2018, with operating profit declining 4% to £318 million (*2017: £331 million*). The UK with-profits portfolio, which makes a significant contribution to the legacy performance, saw total assets decline to £48.9 billion (*2017: £58.2 billion*) reflecting the weak investment market environment.

Each year, our UK results include the impact of assumption changes, adjustments to provisions and management actions to increase or accelerate value emergence from our capital-intensive businesses. We ordinarily expect this to provide between £150 million and £200 million per annum benefit to our results. In 2018, the contribution remained above this range at £350 million (*2017: £260 million*). The largest driver of this result was the release of longevity provisions totalling £728 million (*2017: £710 million*) due to changes in life expectancy trends. This was partially offset by increased provisions and remediation costs, including those pertaining to historical advised sales by Friends Provident, with over 90% of cases identified being pre-2002, where we increased the amount set aside for customer redress to £250 million (2017: £75 million).

International

Aviva's International markets comprise Europe, where we have focused multi-line franchises, and Canada, where we are the second largest general insurer by premiums written. Excluding the impact of businesses divested in 2017 and 2018, operating profit[1,‡,#] from our International businesses increased 9% to £1,080 million (*2017: £990 million*).

In France, we maintained our operating momentum in 2018, delivering higher sales, improved product mix and better efficiency. Operating profit in France was £546 million (*2017: £507 million*), up 7% in local currency terms. In our life insurance business, increased demand for savings products helped to deliver 6% growth in new business volumes to £4.3 billion (*2017: £4.0 billion*). With higher average asset balances supporting fee revenues and operating expense[3] growth of just 1%, our French life insurance business grew operating profit 7% to £436 million (*2017: £403 million*). In general insurance, operating profit rose 5% to £110 million (*2017: £104 million*). Net written premiums were £1,118 million (*2017: £1,053 million*) with growth mainly derived from commercial lines. The combined operating ratio[‡] was maintained at 94.5% (*2017: 94.5%*) despite higher claims from weather and natural catastrophe events. Our French leadership team have begun to align our distribution channels under the Aviva brand and we expect to increase investment in brand, distribution and digitisation in 2019.

In Poland, Aviva responded to subdued trends in the life insurance market by implementing a targeted product strategy with our distribution partners, delivering record levels of customer retention and managing expenses tightly. As a result, despite lower industry sales, our life insurance business increased new business volumes by 3% and operating profit rose 8% to £170 million. The higher life insurance result helped propel our total operating profit in Poland to £190 million (*2017: £177 million*), an increase of 6% in local currency terms. In general insurance, operating profit was £20 million (*2017: £21 million*) due to lower profitability in motor insurance. Our general insurance business lacks scale, though we are targeting growth through multi-cover policies, encouraging digital engagement, utilising our existing distribution scale in life insurance and developing the price comparison website market.

In Canada, the focus of our team in 2018 was on setting the business on the path to recovery following the challenges experienced in 2017, where results were adversely affected by heightened claims inflation in motor insurance. We have taken a range of actions including increases in premium rates, cancellation of some broker relationships and adjustments to underwriting appetite. While these actions have begun to yield results, operating profit in Canada was flat at £46 million (*2017: £46 million*). Elevated weather and large loss experience, persistent challenges in motor insurance and costs relating to the completion of the RBC Insurance integration kept the combined operating ratio elevated at 102.4% (*2017: 102.2%*), despite an improvement in prior year development.

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International (continued)

Aviva recently received regulatory approval for further increases in premium rates in Ontario motor insurance which will move us toward rate adequacy. The regulatory approved premium rate increase of 8.6% in the Aviva portfolio and 16.8% in the RBC portfolio will be implemented from Q1 2019 and should begin to benefit results in the latter part of this year and in 2020. In addition, we will continue to work with provincial governments and regulators to drive much needed reform in the Canadian insurance market. In summary, we expect our actions to deliver progress in our financial results in 2019 and we remain confident that we can achieve our sub-96% combined operating ratio[#] goal in 2020.

Aviva made further strategic and financial progress in Italy in 2018. Our focus on diversifying distribution and providing customers with innovative products has delivered higher sales, positive net flows[3] and growth in operating profit[1,‡,#]. On a like-for-like basis (excluding the divested Avipop business), operating profit increased 16% to £188 million (*2017: £162 million*). In life insurance, sales rose 37% in local currency terms to £6.3 billion (*2017: £4.5 billion*). Hybrid products, which provide customers a combination of with-profit, unit linked and protection coverage, achieved growth of 161% and contributed 44% of our total life sales (2017: 23%). We also expanded our distribution capability; in 2018, non-bank channels accounted for greater than 40% of life insurance sales. The sustained strength in sales has taken our share of the Italian life insurance market to approximately 6% and generated significant positive net fund flows[3]. As a result, life insurance operating profit rose 14% to £156 million (*2017: £136 million*). In general insurance, Aviva has a niche position in the Italian market. Net written premiums in this business fell 7% to £317 million (*2017: £337 million*) as we took underwriting actions on the motor insurance portfolio. These actions contributed to improved underwriting margins, which helped lift operating profit to £32 million (*2017: £26 million*).

In Ireland, operating profit was £100 million (*2017: £86 million*) and we extended our sponsorship of the Aviva Stadium, a key element of our Group brand strategy. The main driver of growth in operating profit was the Friends First business, which was acquired by Aviva on 1 June 2018. Benefits from the integration of Friends First supported higher operating profit in life insurance, compensating for lower sales in annuities. In general insurance, Aviva has continued to focus on protecting profitability as the pricing cycle has begun to soften. Net written premium fell 2% to £430 million (*2017: £436 million*) though underwriting margins remained attractive, with a combined operating ratio of 91.5% (*2017: 91.4%*). As a result, general insurance operating profit rose slightly to £56 million (*2017: £53 million*). During 2018, we also completed important structural changes in our Irish business, with the establishment of a locally incorporated legal entity. This was an important component of our Brexit preparations.

Aviva Investors

In a challenging year for the fund management industry, Aviva Investors top-line growth slowed, with revenue up 4% to £597 million *(2017: £577 million)*. However, we chose to continue to invest in building a more valuable diversified long-term business, particularly in our Equities and Real Assets capabilities. This continued investment, together with the absorption of MiFID II costs, which we did not pass onto clients, resulted in operating profit[1,‡,#] of £150 million *(2017: £168 million)*. We also realised a non-operating profit of £27 million on the sale of a part of our real estate business. Over the year, assets under management[3] declined due to the aforementioned business disposal, adverse market movements and expected net outflows on Aviva's legacy life insurance books. The AIMS range of funds saw assets reduce to £10.3 billion *(2017: £12.6 billion)* as difficult market conditions weighed on performance.

Singapore

In Singapore, we continue to grow our distribution network, including Aviva Financial Advisors with 816 advisers *(2017: 673)* and Professional Investment Advisory Services Pte Ltd, with 724 advisers *(2017: 593)*. As a result, we have maintained positive momentum in life insurance. New business volumes increased 11% to £1,279 million (*2017: £1,164 million*) and operating profit[1,‡,#] from our life insurance operations grew 21% in local currency terms to £141 million (*2017: £118 million*). We believe the financial advisery model provides enhanced flexibility and choice for both advisers and customers and we will continue to invest in its development in 2019. In general insurance and health, operating loss widened to £16 million (*2017: £8 million*) due to adverse claims experience in our health insurance portfolio. We are taking steps to improve the health insurance portfolio and this will continue in 2019.

Strategic investments

Aviva's strategic investments include our Digital operations together with our joint venture businesses in China, Hong Kong, India, Turkey, Vietnam and Indonesia. In 2018, the aggregate operating loss[1,‡,#] from these businesses widened to £142 million *(2017: £85 million)*. The primary driver of this was our digital business in the UK, where we invested further in digital innovation, and customer proposition development and engagement. This has given rise to a sharp uplift in customer activity levels; UK MyAviva active customer registrations have risen 48% and we are seeing higher volumes of online customer traffic. However, this did not translate through to higher levels of profitability reflecting the soft market conditions in 2018. Excluding Digital, results from our Strategic Investment markets improved. In China and Turkey, we delivered growth in operating profit in local currency terms while losses narrowed in our less mature businesses in South East Asia.

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# Denotes key performance indicators which are used by the Group to determine or modify remuneration. Further details of this measure are included in the 'Other information' section of the Analyst Pack.
1 Group adjusted operating profit is a non-GAAP Alternative Performance Measure (APM) which is not bound by the requirements of IFRS. Further details of this measure are included in the 'Other information' section of the Analyst Pack.
2 This measure is derived from the Group adjusted operating profit APM. Further details of this measure are included in the 'Other information' section of the Analyst Pack.
3 This is an Alternative Performance Measure (APM) which provides useful information to enhance the understanding of financial performance. Further details of this measure are included in the 'Other information' section of the Analyst Pack.
4 All percentage movements in this section are quoted in constant currency unless otherwise stated.

Capital & cash

At the end of 2018, our Solvency II cover ratio[2,‡] was 204% (*2017: 198%*). The increase in the ratio was achieved despite significant capital management actions undertaken during the year, with the £0.9 billion repayment of subordinated debt and £0.6 billion share repurchase equating to a 13 percentage point drag on the opening solvency position.

Operating capital generation[#] totalled £3.2 billion (*2017: £2.6 billion*). Underlying operating capital generation was £1.5 billion (*2017: £1.7 billion*), the decline resulting from business disposals, higher capital strain from new business growth and increased business investment spend. Other operating capital generation of £1.7 billion (*2017: £0.9 billion*) comprised UK longevity releases together with capital benefits from the inclusion of dynamic volatility adjustment in our Group Solvency II position and model changes in France, Poland and the UK.

Net cash remittances[‡,#] increased to £3.1 billion *(2017: £2.4 billion)* on the back of a significant uplift in dividends from the UK Insurance business. Special remittances from UK Insurance were £1.25 billion (*2017: £500 million*) and comprised £500 million related to Friends Life integration synergies and an additional £750 million that was made possible by the strength of our local entity solvency position.

At our Capital Markets Day in November 2017, we upgraded our target for cumulative cash remittances over the three year period ending in December 2018 to £8 billion (from £7 billion previously). We fell slightly short of the upgraded target, achieving £7.9 billion of cumulative cash flows to Group centre from remittances and divestiture proceeds. This reflects the delay in completing the sale of Friends Provident International and our decision to retain the £0.2 billion of proceeds from the sale of Avipop in our Italian subsidiary to support capital given growth in the business and recent trends in Italian Government bond spreads.

In conjunction with the higher remittances, excess centre cash flow[3] in 2018 was £2,437 million (*2017: £1,656 million*). Even after adjusting for special remittances, recurring excess centre cash flow was sufficient to fund Aviva's ordinary dividend. At the end of February 2019, Group centre liquidity was £1.6 billion (*2017: £2.0 billion*). Our intention is to maintain the Group centre liquidity balance in a range of £1 billion to £2 billion over time. Additional cash may also be set aside at Group centre for the purpose of decreasing subordinated debt maturities in 2020 and beyond. In 2018, we raised €750 million of senior debt with maturity in 2027 and a coupon of 1.875%. This was used to redeem €350 million of maturing senior debt and reduce commercial paper balances and was therefore neutral to our net debt position, while extending our liability profile.

In November 2017, we outlined an ambition to deploy £3 billion of cash by the end of 2019. In 2018, our deployment initiatives totalled £1.7 billion, comprising £0.9 billion of subordinated debt retirement, £0.6 billion of capital returned to shareholders via a share repurchase programme and £0.2 billion on M&A initiatives, the largest of which was the acquisition of Friends First in Ireland. Of the remaining £1.3 billion of cash we had anticipated deploying, we are extending the time-line beyond 2019 and will prioritise reinvestment in our existing operations and debt deleveraging. Based on our current outlook, there is less appetite for bolt-on acquisitions in 2019.

Between 2019 and 2022, Aviva has c£3 billion of maturing debt, of which we currently expect to repay without refinancing £1.5 billion. On a pro forma basis, this would reduce our outstanding debt balances by approximately 20%, reduce our ratio of debt to Solvency II own funds by 4 percentage points to 29%, and reduce our Solvency II cover ratio, by 10 percentage points to 194%. We estimate this would give rise to cash interest expense savings of approximately £90 million per annum, improving operating profit[1,‡,#], capital generation and centre cash flow. We continue to manage the company consistent with double-A financial metrics.

We expect to fund the reduction of debt balances from internal sources, including regular cash remittances from our business units, special remittances associated with our capital structure optimisation initiatives and proceeds from divestiture activity.

Dividend

In light of our results and the strength of our financial position, we have increased our total dividend per share by 9% to 30.0 pence (*2017: 27.4 pence*). This is the fifth consecutive year of significant annual growth in the dividend, with the 2018 level representing double the level paid for 2013 (15.0 pence).

Having achieved our 50% dividend payout ratio target relative to operating EPS[‡,#] in 2017, this year we have increased the dividend payout ratio to 51.4%. Looking forward, the Board of Directors has decided to move from a policy targeting a pay-out ratio tied to operating EPS to a progressive dividend policy. This change will afford the new CEO greater flexibility to implement his strategic agenda while protecting the current dividend per share for our existing shareholders.

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1 Group adjusted operating profit is a non-GAAP Alternative Performance Measure (APM) which is not bound by the requirements of IFRS. Further details of this measure are included in the 'Other information' section of the Analyst Pack.
2 The estimated Solvency II position represents the shareholder view as defined in section 8.i of the Analyst Pack.
3 This is an Alternative Performance Measure (APM) which provides useful information to enhance the understanding of financial performance. Further details of this measure are included in the 'Other information' section of the Analyst Pack.
4 All percentage movements in this section are quoted in constant currency unless otherwise stated.

Dividend (continued)

At Aviva, a "progressive" dividend policy means that, under ordinary circumstances, the Board of Directors would at least maintain the then-current annual ordinary dividend per share, while seeking to grow the dividend per share over time based on the Board of Directors' periodic assessment of the Group's financial performance and future outlook. In practice, this might result in a higher or lower dividend pay-out ratio relative to earnings, which could fluctuate, while the dividend per share remains steady or grows under ordinary circumstances. Aviva's annual ordinary dividend per share has doubled from 2013 to 2018, and the Company expects that future percentage growth rates of the dividend per share will be more modest than those in the recent past.

Outlook

Given current uncertainties, including the unknown future impacts of Brexit on the economies of the United Kingdom and Europe, our near-term outlook entering 2019 is more muted than our outlook a year ago. While we achieved 7% operating EPS[‡,#,2] growth in each of the past two years, it will be difficult to sustain this momentum in 2019.

In terms of currently identifiable result drivers, we cite potential headwinds from weak investment markets in late 2018 on fee income in our asset gathering businesses including UK long-term savings, European life and Aviva Investors, and a possible increase in the blended tax rate due to changes in the business mix of operating profit[1,‡,#]. On the other side of the ledger, we expect results to benefit from improved profitability in Canada in addition to lower interest expense and a reduction in weighted average shares in issue following capital management initiatives undertaken in 2018. Our results will also depend on the degree of offset between benefits from changing longevity trends in the UK and costs associated with investment and change spend.

In conjunction with the appointment of a new Chief Executive, we are reallocating resources and making changes to our priorities. This process has begun, though it will receive further impetus now that the new Chief Executive has been appointed. Areas of focus include potential changes to our business model to drive further efficiency, opportunities to optimise our product and market portfolio and the prioritisation of debt deleveraging announced in today's results. The new Chief Executive will expand on our plans and outline refreshed targets in the near future.

In conclusion, we approach 2019 with strong fundamentals; our balance sheet is robust and resilient, our businesses are well positioned in their respective markets and overall performance has been steady. This provides a strong platform on which the incoming Chief Executive can build, with renewed focus on efficiency, complexity and customer to drive future performance.

Thomas D. Stoddard
Chief Financial Officer

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Notes to editors

All comparators are for the full year 2017 position unless otherwise stated.

Income and expenses of foreign entities are translated at average exchange rates while their assets and liabilities are translated at the closing rates on 31 December 2018. The average rates employed in this announcement are 1 euro = £0.88 *(2017: 1 euro = £0.88)* and CAD$1 = £0.58 *(2017: CAD$1 = £0.60)*.

Growth rates in the press release have been provided in sterling terms unless stated otherwise. The following supplement presents this information on both a sterling and constant currency basis.

Cautionary statements:

This should be read in conjunction with the documents distributed by Aviva plc (the "Company" or "Aviva") through the Regulatory News Service (RNS). This announcement contains, and we may make other verbal or written "forward-looking statements" with respect to certain of Aviva's plans and current goals and expectations relating to future financial condition, performance, results, strategic initiatives and objectives. Statements containing the words "believes", "intends", "expects", "projects", "plans", "will," "seeks", "aims", "may", "could", "outlook", "likely", "target", "goal", "guidance", "trends", "future", "estimates", "potential" and "anticipates", and words of similar meaning, are forward-looking. By their nature, all forward-looking statements involve risk and uncertainty. Accordingly, there are or will be important factors that could cause actual results to differ materially from those indicated in these statements. Aviva believes factors that could cause actual results to differ materially from those indicated in forward-looking statements in the announcement include, but are not limited to: the impact of ongoing difficult conditions in the global financial markets and the economy generally; the impact of simplifying our operating structure and activities; the impact of various local and international political, regulatory and economic conditions; market developments and government actions (including those arising from the referendum on UK membership of the European Union); the effect of credit spread volatility on the net unrealised value of the investment portfolio; the effect of losses due to defaults by counterparties, including potential sovereign debt defaults or restructurings, on the value of our investments; changes in interest rates that may cause policyholders to surrender their contracts, reduce the value of our portfolio and impact our asset and liability matching; the impact of changes in short or long-term inflation; the impact of changes in equity or property prices on our investment portfolio; fluctuations in currency exchange rates; the effect of market fluctuations on the value of options and guarantees embedded in some of our life insurance products and the value of the assets backing their reserves; the amount of allowances and impairments taken on our investments; the effect of adverse capital and credit market conditions on our ability to meet liquidity needs and our access to capital; changes in, or restrictions on, our ability to initiate capital management initiatives; changes in or inaccuracy of assumptions in pricing and reserving for insurance business (particularly with regard to mortality and morbidity trends, lapse rates and policy renewal rates), longevity and endowments; a cyclical downturn of the insurance industry; the impact of natural and man-made catastrophic events on our business activities and results of operations; our reliance on information and technology and third-party service providers for our operations and systems; the inability of reinsurers to meet obligations or unavailability of reinsurance coverage; increased competition in the UK and in other countries where we have significant operations; regulatory approval of extension of use of the Group's internal model for calculation of regulatory capital under the European Union's Solvency II rules; the impact of actual experience differing from estimates used in valuing and amortising deferred acquisition costs ("DAC") and acquired value of in-force business ("AVIF"); the impact of recognising an impairment of our goodwill or intangibles with indefinite lives; changes in valuation methodologies, estimates and assumptions used in the valuation of investment securities; the effect of legal proceedings and regulatory investigations; the impact of operational risks, including inadequate or failed internal and external processes, systems and human error or from external events (including cyber attack); risks associated with arrangements with third parties, including joint ventures; our reliance on third-party distribution channels to deliver our products; funding risks associated with our participation in defined benefit staff pension schemes; the failure to attract or retain the necessary key personnel; the effect of systems errors or regulatory changes on the calculation of unit prices or deduction of charges for our unit-linked products that may require retrospective compensation to our customers; the effect of fluctuations in share price as a result of general market conditions or otherwise; the effect of simplifying our operating structure and activities; the effect of a decline in any of our ratings by rating agencies on our standing among customers, broker-dealers, agents, wholesalers and other distributors of our products and services; changes to our brand and reputation; changes in government regulations or tax laws in jurisdictions where we conduct business, including decreased demand for annuities in the UK due to changes in UK law; the inability to protect our intellectual property; the effect of undisclosed liabilities, integration issues and other risks associated with our acquisitions; and the timing/regulatory approval impact, integration risk and other uncertainties, such as non-realisation of expected benefits or diversion of management attention and other resources, relating to announced acquisitions and pending disposals and relating to future acquisitions, combinations or disposals within relevant industries; the policies, decisions and actions of government or regulatory authorities in the UK, the EU, the US or elsewhere, including the implementation of key legislation and regulation. For a more detailed description of these risks, uncertainties and other factors, please see 'Other information – Shareholder Information – Risks relating to our business' in Aviva's most recent Annual Report. Aviva undertakes no obligation to update the forward-looking statements in this announcement or any other forward-looking statements we may make. Forward-looking statements in this presentation are current only as of the date on which such statements are made.

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Contents

In this section	Page
Overview	
Key financial metrics	2
1 Operating profit	**3**
2 Cash	**4**
i Cash remittances	4
ii Excess centre cash flow	4
iii Operating capital generation: Solvency II (SII) basis	5
iv Solvency II future surplus emergence	6
3 Expenses	**7**
4 New business	**8**
i Value of new business on an adjusted Solvency II basis	8
ii Sales, VNB and new business margin analysis	8
5 Combined operating ratio	**9**
6 Business unit performance	**10**
i United Kingdom	10
ii International	13
iii Asia	16
iv Aviva Investors	18
7 Profit drivers	**19**
i Life business	19
ii General insurance and health	21
iii Life business fund flows	23
8 Capital	**24**
i Solvency II	24
ii Net asset value	26
iii Analysis of return on equity	27
iv Group capital under IFRS basis	28
Financial supplement	**29**
A Income & expenses	30
B IFRS financial statements and notes	35
C Analysis of assets	92
Other information	**108**
Alternative Performance Measures	108

As a reminder

Throughout this report we use a range of financial metrics to measure our performance and financial strength. These metrics include Alternative Performance Measures (APMs), which are non-GAAP measures that are not bound by the requirements of IFRS. Further guidance in respect of the APMs used by the Group, including a reconciliation to the financial statements (where possible), can be found within the Other Information section.

All references to 'Operating profit' represent 'Group adjusted operating profit'.

symbol denotes key financial performance indicators used as a base to determine or modify remuneration.

‡ denotes APMs which are key performance indicators. There have been no changes to the APMs used by the Group during the period under review.

All percentages, including currency movements, are calculated on unrounded numbers so minor rounding differences may exist.

A glossary explaining key terms used in this report is available on www.aviva.com/glossary.

Key financial metrics

Operating profit‡#

	2018 £m	2017 £m	Sterling % change
Life business[1]	**2,999**	2,852	5%
General insurance and health[1]	**704**	704	—
Fund management	**146**	164	(11)%
Other[1,2]	**(733)**	(652)	(12)%
Total	**3,116**	3,068	2%
Operating earnings per share‡#	**58.4p**	54.8p	7%

Cash remittances[3,‡#]

	2018 £m	2017 £m	Sterling % change
United Kingdom[3]	**2,549**	1,800	42%
Canada	**28**	55	(49)%
Europe[3]	**447**	485	(8)%
Asia, Aviva Investors and Other	**113**	58	95%
Total	**3,137**	2,398	31%

Operating capital generation (OCG): Solvency II basis[3#]

	2018 £bn	2017 £bn	Sterling % change
United Kingdom[3]	**2.2**	2.8	(21)%
Canada	**0.1**	(0.1)	200%
Europe[3]	**0.9**	0.9	—
Asia & Aviva Investors	**0.1**	0.1	—
Other[4]	**(0.1)**	(1.1)	91%
Total	**3.2**	2.6	23%

Expenses

	2018 £m	2017 £m	Sterling % change
Operating expenses	**4,026**	3,778	7%
Integration & restructuring costs	—	141	(100)%
Expense base	**4,026**	3,919	3%
Operating expense ratio	**54.2%**	52.7%	1.5pp

Value of new business (VNB): Adjusted Solvency II basis‡ and Present value of new business premium (PVNBP)

	VNB			PVNBP		
	2018 £m	2017 £m	Sterling % change	2018 £m	2017 £m	Sterling % change
United Kingdom	**481**	527	(9)%	**23,946**	23,764	1%
Europe	**517**	533	(3)%	**12,641**	12,065	5%
Asia & Aviva Investors	**204**	183	11%	**4,176**	4,966	(16)%
Total	**1,202**	1,243	(3)%	**40,763**	40,795	—

General insurance combined operating ratio (COR)‡ and Net written premiums (NWP)

	COR			NWP		
	2018	2017	Change	2018 £m	2017 £m	Change
United Kingdom	**93.8%**	93.9%	(0.1)pp	**4,193**	4,078	3%
Canada	**102.4%**	102.2%	0.2pp	**2,928**	3,028	(3)%
Europe	**93.4%**	93.3%	0.1pp	**1,985**	2,018	(2)%
Asia & Other	**122.1%**	123.2%	(1.1)pp	**8**	17	(52)%
Total	**96.6%**	96.6%	—	**9,114**	9,141	—

Profit after tax

	2018 £m	2017 £m	Sterling % change
IFRS profit after tax	**1,687**	1,646	2%
Basic earnings per share	**38.2p**	35.0p	9%

Dividend

	2018	2017	Sterling % change
Final dividend per share	**20.75p**	19.00p	9%
Total dividend per share	**30.00p**	27.40p	9%

Capital position

	2018	2017	Sterling % change
Estimated shareholder Solvency II cover ratio[‡,5]	**204%**	198%	6.0pp
Estimated Solvency II surplus	**£12.0bn**	£12.2bn	(2)%
Net asset value per share	**424p**	423p	1p

1 Non-insurance operations relating to the UK have been reclassified to their respective market segments to better reflect the management of the underlying businesses consistent with the segmental analysis shown in note B6. The impact of this change was to reduce UK Life operating profit by £80 million *(2017: £30 million)*; UK General Insurance operating profit increased by £2 million *(2017: £3 million)* and UK Health increased by £2 million *(2017: £1 million)*.
2 Other includes other operations, corporate centre costs and group debt and other interest costs, including coupon payments in respect of the direct capital instrument (DCI) and tier 1 notes (net of tax).
3 Cash remitted to Group and Solvency II operating capital generation are managed at legal entity level. As Ireland constitutes a branch of the United Kingdom business, cash remittances from Ireland are not aligned to our management structure within Europe, but they are reported within United Kingdom.
4 Other includes Group activities and the Group SCR diversification benefit.
5 The estimated Solvency II position represents the shareholder view only. See Section 8i for more details.

Operating profit

1 – Operating profit‡#
For the year ended 31 December 2018

	2018 £m	2017 £m
Operating profit before tax attributable to shareholders' profits		
Life business		
United Kingdom[1]	**1,871**	1,728
Europe	**831**	873
Asia	**300**	235
Other	**(3)**	16
Total life business	**2,999**	2,852
General insurance and health		
United Kingdom[1]	**453**	447
Canada	**46**	46
Europe	**220**	223
Asia	**(16)**	(8)
Other	**1**	(4)
Total general insurance and health	**704**	704
Fund management		
Aviva Investors	**150**	168
Asia	**(4)**	(4)
Total fund management	**146**	164
Other		
Other operations[1,2]	**(237)**	(143)
Market operating profit	**3,612**	3,577
Corporate centre	**(216)**	(184)
Group debt costs and other interest	**(280)**	(325)
Operating profit before tax attributable to shareholders' profits	**3,116**	3,068
Tax attributable to shareholders' profit	**(647)**	(639)
Non-controlling interests	**(100)**	(134)
Preference dividends and other[3]	**(53)**	(82)
Operating profit attributable to ordinary shareholders	**2,316**	2,213
Operating earnings per share‡#	**58.4p**	54.8p

1 Non-insurance operations relating to the UK have been reclassified to their respective market segments to better reflect the management of the underlying businesses consistent with the segmental analysis shown in note B6. The impact of this change was to reduce UK Life operating profit by £80 million *(2017: £30 million)*; UK General Insurance operating profit increased by £2 million *(2017: £3 million)* and UK Health increased by £2 million *(2017: £1 million)*.
2 Other operations relate to non-insurance activities and include costs associated with our Group and regional head offices, pension scheme expenses, as well as non-insurance income.
3 Other includes coupon payments in respect of the direct capital instrument (DCI) and tier 1 notes (net of tax).

Operating profit increased by 2% to £3,116 million *(2017: £3,068 million)*. The life business operating profit increased to £2,999 million *(2017: £2,852 million)*. In the UK, operating profit increased by 8% to £1,871 million *(2017: £1,728 million)* due to continued growth of long-term savings and bulk purchase annuities (BPAs) and further benefits from changes in longevity assumptions. In Europe, operating profit decreased by 5% to £831 million *(2017: £873 million),* after allowing for the impact of disposals, operating profit increased by 10% to £816 million *(2017: £740 million)*. Growth was driven by the increase in new business volumes of our hybrid savings products in Italy and unit-linked savings product in France. In Asia, operating profit increased to £300 million *(2017: £235 million)* driven by Singapore primarily due to the higher contribution from the financial advisory channel.

The general insurance and health business operating profit remained stable at £704 million *(2017: £704 million)*. In the UK, operating profit increased by 1% to £453 million *(2017: £447 million)* which included a 3% increase in underwriting profit as the business has grown while maintaining a stable COR. In Canada, operating profit remained stable at £46 million *(2017: £46 million)* as elevated weather and large loss experience as well as persistent challenges in the Canadian motor market were offset by an improvement in prior year development.

Fund management operating profit decreased to £146 million *(2017: £164 million)* mainly as a result of Aviva Investors where we continued to invest in capabilities (equities and real assets), expanded our global distribution reach and absorbed regulatory costs (particularly MiFID II) which we did not pass on to our clients.

Other operations relate to non-insurance activities and include costs associated with our Group and regional head offices, pension scheme expenses as well as non-insurance business. Total costs in relation to non-insurance activities were £237 million *(2017: £143 million)* reflecting an increased investment in the development of our digital business.

Operating earnings per share increased by 3.6p to 58.4p *(2017: 54.8p)* due to the increase in operating profit, repayment of debt, reduction in minority interest due to disposals and decrease in the weighted average number of shares as a result of the share buy-back.

Cash

2.i – Cash remittances‡#

Sustainable cash remittances from the Group's businesses are a key financial priority. We use a wholly-owned, UK domiciled reinsurance subsidiary for internal capital and cash management purposes. Some remittances otherwise attributable to the operating businesses arise from this internal reinsurance vehicle.

The table below reflects actual remittances received by the Group, comprising dividends and interest on internal loans paid by our operating segments. Cash remittances are eliminated on consolidation and hence are not directly reconcilable to the Group's IFRS statement of cash flows.

	2018 £m	2017 £m
United Kingdom[1,2]	**2,549**	1,800
Canada	**28**	55
Europe[2]	**447**	485
Asia, Aviva Investors & Other	**113**	58
Total	**3,137**	2,398

1 Full year 2018 cash remittances include £331 million *(2017: £337 million)* received from UK General Insurance in February 2019 in respect of 2018 activity.
2 Cash remitted to Group is managed at legal entity level. As Ireland constitutes a branch of the United Kingdom business, cash remittances from Ireland are not aligned to our management structure within Europe, but they are reported within the United Kingdom.

2.ii – Excess centre cash flow

Excess centre cash flow represents cash remitted by business units to the Group centre less central operating expenses and debt financing costs. It is an important measure of the cash that is available to pay dividends, reduce debt, pay central charges or invest back into our business units. It does not include cash movements such as disposal proceeds or capital injections.

	2018 £m	2017 £m
Dividends received	**2,944**	2,213
Internal interest received	**193**	185
Cash remitted to Group	**3,137**	2,398
External interest paid	**(507)**	(549)
Internal interest paid	**(47)**	(66)
Central spend	**(258)**	(183)
Other operating cash flows[1]	**112**	56
Excess centre cash flow[2]	**2,437**	1,656

1 Other operating cash flows include central investment income and group tax relief payments and other financial cash flows.
2 Before non-adjusting items and capital injections.

The increase of £781 million in excess centre cash flow is primarily driven by higher cash remittances to the Group Centre, together with reduced interest costs on a lower debt base. Central spend increased mainly due to project expenses. Other operating cash inflows increased mainly due to collateral returned on the expiry of cross-currency swaps offset by lower group tax relief receipts from UK businesses.

Group Centre liquidity consists of cash and liquid assets. Holding company liquidity at 28 February 2019 was £1.6 billion *(28 February 2018: £2.0 billion)*.

Cash continued

2.iii – Operating capital generation: Solvency II (SII) basis#

The active management of the generation and utilisation of capital is a primary Group focus, balancing new business investment and shareholder distribution, to deliver cash plus growth for our shareholders.

Solvency II Operating Capital Generation (OCG) measures the amount of Solvency II capital the Group generates from operating activities. Capital generated enhances Solvency II surplus which can be used to fund business unit remittances and, in turn, the Group dividend as well as for investment in initiatives that provide potential future growth.

2018 £bn	Life business SII operating capital generation				Non-life SII operating capital generation	
	Impact of new business	Earnings from existing business	Other[1]	Life SII operating capital generation	GI, Health, FM & Other SII operating capital generation	Total SII operating capital generation
United Kingdom & Ireland Life[2]	**(0.1)**	**1.0**	**0.9**	**1.8**	**—**	**1.8**
United Kingdom & Ireland General Insurance and Health[2]					**0.4**	**0.4**
Canada					**0.1**	**0.1**
Europe[2]	**(0.1)**	**0.5**	**0.3**	**0.7**	**0.2**	**0.9**
Asia & Aviva Investors[3]	**—**	**0.1**	**—**	**0.1**	**—**	**0.1**
Group centre costs and Other[4]	**—**	**—**	**0.6**	**0.6**	**(0.7)**	**(0.1)**
Total Group Solvency II operating capital generation	**(0.2)**	**1.6**	**1.8**	**3.2**	**—**	**3.2**

2017 £bn	Life business SII operating capital generation				Non-life SII operating capital generation	
	Impact of new business	Earnings from existing business	Other[1]	Life SII operating capital generation	GI, Health, FM & Other SII operating capital generation	Total SII operating capital generation
United Kingdom & Ireland Life[2]	(0.1)	0.9	1.6	2.4	—	2.4
United Kingdom & Ireland General Insurance and Health[2]					0.4	0.4
Canada					(0.1)	(0.1)
Europe[2]	—	0.6	0.1	0.7	0.2	0.9
Asia & Aviva Investors[3]	—	0.1	—	0.1	—	0.1
Group centre costs and Other	—	—	(0.8)	(0.8)	(0.3)	(1.1)
Total Group Solvency II operating capital generation	(0.1)	1.6	0.9	2.4	0.2	2.6

1 Other includes the impact of capital actions and non-economic assumption changes
2 Solvency II operating capital generation is managed at legal entity level. As Ireland constitutes a branch of the United Kingdom business, Solvency II operating capital generation from Ireland was not aligned to the new management structure within Europe, but it was reported within United Kingdom.
3 The methodology used to calculate OCG for our UK Fund Management business, Aviva Investors, has been changed such that profit is now recognised as it is earned (in line with the insurance businesses) rather than at the point which profits can be recognised under the Solvency II regulations therefore this represents a difference to regulatory Solvency II own funds. There is no impact on reported OCG at 2017 as a result of this change.
4 Included in GI, Health, FM & other is £0.1 billion of project expenses in 2018 which are excluded from underlying OCG of £1.5 billion *(2017: £1.7 billion)*. Underlying excludes other OCG.

Solvency II OCG was £3.2 billion during 2018 *(2017: £2.6 billion)*.

The life business OCG has increased by £0.8 billion from £2.4 billion to £3.2 billion. In the UK & Ireland Life, OCG has decreased by £0.6 billion predominantly due to a reduction in Other OCG. In 2018, Other OCG includes the benefit of non-economic assumption changes, including longevity, while 2017 included both the impact of non-economic assumption changes as well as the Friends Life Part VII transfer.

In Europe, OCG on life business is unchanged at £0.7 billion as slightly lower earnings from existing business, partly due to disposals, was offset by an increase in Other OCG due to assumption changes and a benefit arising from the transfer of pensions business into a supplementary occupational pension fund (FRPS) in France.

The £0.6 billion OCG in Group centre costs and other life business includes the benefit of a model change to vary the volatility adjustment (VA) on France business in the Group Solvency Capital requirement (SCR). The VA is a stabilising measure that avoids excessive short-term volatility on the Solvency II balance sheet and is implemented as an increase in the discount rate. In 2017, this model change was recognised in the France solo SCR but not at Group level and was reversed in Group centre costs and other, largely contributing to the £(0.8) billion adverse impact.

The general insurance, health, fund management and other business OCG reduced by £0.2 billion to nil at 2018. In Canada, OCG has increased by £0.2 billion primarily as a result of rate increases which has led to a reduction in expected loss ratios. This is offset by a reduction due to increased project expenses on continued targeted investment in simplification and growth initiatives as well as costs that typically relate to mandatory requirements like IFRS 17 and GDPR, as well as slightly lower Group diversification benefit.

Cash continued

2.iv – Solvency II future surplus emergence

Emergence of future profits and release of Solvency II capital requirements – life business	2018 £bn	2017 £bn
Year 1	**1.4**	1.5
Year 2	**1.3**	1.4
Year 3	**1.1**	1.2
Year 4	**1.0**	1.1
Year 5	**1.0**	1.0
Year 6	**0.9**	1.0
Year 7	**0.8**	0.9
Year 8	**0.8**	0.8
Year 9	**0.7**	0.8
Year 10	**0.7**	0.7
Year 11-15	**3.4**	3.4
Year 16-20	**3.3**	3.6
Year 20+	**8.2**	9.6
Total net of non-controlling interests	**24.6**	27.0

The table above shows the expected future emergence of Solvency II surplus from the existing long-term in-force life business. For business subject to short contract boundaries under Solvency II, allowance has been made for the impact of renewal premiums as and when they are expected to occur. The cash flows have been split annually for the first ten years followed by five-year tranches thereafter.

The projected surplus, which is primarily expected to arise from the release of risk margin (net of transitional measures) and solvency capital requirement as the business runs off over time, is expected to emerge through OCG in future years. The cash flows are real-world cash flows, i.e. they are based on best estimate non-economic assumptions used in the Solvency II valuation and real-world investment returns rather than risk-free. The expected investment returns are consistent with the returns used in IFRS (as set out in note A4 in the financial supplement), except in the UK where a risk-free curve plus an allowance for expected real-world returns (less an adjustment for credit risk where required) is applied.

Solvency II future surplus emergence is a projection of the movement in Group Solvency II surplus from existing long-term in-force life business as set out in note 8.i and is not reconcilable to IFRS. The projection is a static analysis as at a point in time and hence it does not include the potential impact of active management of the business (for example, active management of market, demographic and expense risk through investment, hedging, risk transfer, operational risk and expense management), which may affect the actual amount of OCG earned from existing business in future periods.

Total cash flows have reduced by £2.4 billion to £24.6 billion over 2018. This reduction predominantly reflects the impact of capital actions across the Group, on the emergence of future surplus. The beneficial impacts of these capital actions are recognised in OCG in 2018 (see note 2.iii).

3 – Expenses

	2018 £m	2017 £m
United Kingdom	**1,613**	1,493
Canada	**477**	478
Europe	**847**	820
Asia	**186**	207
Aviva Investors	**447**	409
Other Group activities	**456**	371
Operating expenses	**4,026**	3,778
Integration & restructuring costs	—	141
Expense base	**4,026**	3,919
Operating expense ratio	**54.2%**	52.7%

Operating expenses were £4,026 million *(2017: £3,778 million)*. The increase in expenses includes the impact of continued targeted investment in simplification and growth initiatives in digital, IT and finance change as well as strengthening capabilities in Aviva Investors and the UK and project expenses that typically relate to mandatory requirements like IFRS 17 and GDPR. This was partially offset by savings from disposals referred to in note B4.

There have been no costs classified as integration and restructuring in the year. In 2017, these costs relate to integration costs in the UK and Canada, and restructuring costs in the UK and Europe. It is possible that significant integration and restructuring activity undertaken in the future may result in the related costs being excluded from operating profit.

New business

4 – New business

4.i – Value of new business on an adjusted Solvency II basis (VNB)‡

VNB reflects Solvency II assumptions and allowance for risk, and is defined as the increase in Solvency II own funds resulting from business written in the period, including the impacts of interactions between in-force and new business, adjusted to:

- Remove the impact of the contract boundary restrictions under Solvency II;
- Allow for businesses which are not within the scope of Solvency II own funds (e.g. UK and Asia Healthcare, Retail fund management and UK equity release); and
- Include the impacts of tax and 'look through profits' in service companies (where not included in Solvency II) and deduct the impacts of non-controlling interests.

The methodology underlying the calculation of VNB remains unchanged from the prior year. Further details of the methodology are included in the Other Information section.

A reconciliation between VNB and the Solvency II own funds impact of new business is provided below.

2018	UK[1] £m	Europe £m	Asia & Other £m	Group £m
VNB (gross of tax and non-controlling interests)	**481**	**517**	**204**	**1,202**
Allowance for Solvency II contract boundary restrictions	**75**	**(48)**	**(10)**	**17**
Allowance for businesses which are not in the scope of the Solvency II own funds	**(117)**	**(4)**	**(36)**	**(157)**
Tax & Other[2]	**(92)**	**(212)**	**(23)**	**(327)**
Solvency II own funds impact of new business (net of tax and non-controlling interests)	**347**	**253**	**135**	**735**

2017	UK[1] £m	Europe £m	Asia & Other £m	Group £m
VNB (gross of tax and non-controlling interests)	527	533	183	1,243
Allowance for Solvency II contract boundary restrictions	54	(64)	4	(6)
Allowance for businesses which are not in the scope of the Solvency II own funds	(167)	(45)	(34)	(246)
Tax & Other[2]	(105)	(184)	(25)	(314)
Solvency II own funds impact of new business (net of tax and non-controlling interests)	309	240	128	677

1 New business written since the introduction of Solvency II has been reflected in the calculation of UK Life's transitional measures (in line with the clarification issued by the PRA in 2017).
2 Other includes the impact of 'look through profits' in service companies (where not included in Solvency II) of £(63) million *(2017: £(34) million)* and the reduction in value when moving to a net of non-controlling interests basis of £(81) million *(2017: £(91) million)*.

4.ii – Sales, VNB and new business margin analysis

The table below sets out the present value of new business premiums (PVNBP) written by the life and related businesses, VNB and the resulting margin, gross of tax and non-controlling interests, on an adjusted Solvency II basis. PVNBP is calculated using assumptions consistent with those used to determine VNB.

	PVNBP		VNB		New business margin	
Gross of tax and non-controlling interests	2018 £m	2017 £m	2018 £m	2017 £m	2018 %	2017 %
United Kingdom	**23,946**	23,764	**481**	527	**2.0%**	2.2%
Europe	**12,625**	10,552	**514**	466	**4.1%**	4.4%
Asia & Aviva Investors	**3,728**	4,341	**206**	182	**5.5%**	4.2%
Total (excl. disposals)	**40,299**	38,657	**1,201**	1,175	**3.0%**	3.0%
Disposals[1]	**464**	2,138	**1**	68	**0.2%**	3.2%
Total	**40,763**	40,795	**1,202**	1,243	**2.9%**	3.0%

1 Antarius, Avipop, Spain, FPI and Taiwan.

Total new business margin has reduced slightly to 2.9% *(2017: 3.0%)*. In the UK, new business margin fell to 2.0% *(2017: 2.2%)*. This reduction was primarily driven by competitive pressures in protection, platform and equity release markets, which was partially offset by improved new business margin on BPAs.

In Europe new business margins reduced to 4.1% *(2017: 4.4%)* primarily reflecting lower volumes of high-margin protection business in France and Italy.

The new business margin for Asia & Aviva Investors increased to 5.5% *(2017: 4.2%)* reflecting an improved product mix in Singapore towards higher margin protection business.

Combined operating ratio

5 – General insurance combined operating ratio (COR)‡

	Net earned premiums		Claims ratio		Commission and expense ratio		Combined operating ratio	
	2018 £m	2017 £m	**2018 %**	2017 %	**2018 %**	2017 %	**2018 %**	2017 %
United Kingdom	**4,106**	4,015	**62.5**	61.0	**31.3**	32.9	**93.8**	93.9
Canada	**2,955**	2,944	**71.8**	72.2	**30.6**	30.0	**102.4**	102.2
Europe	**1,963**	2,001	**64.4**	63.1	**29.0**	30.2	**93.4**	93.3
Asia & other[1]	**6**	16	**81.7**	85.9	**40.4**	37.3	**122.1**	123.2
Total	**9,030**	8,976	**66.0**	65.3	**30.6**	31.3	**96.6**	96.6

1 Includes Asia and Aviva Re

Normalised accident year COR

The normalised accident year combined operating ratio represents the combined operating ratio adjusted to exclude the impact of prior year reserve development and weather variations versus expectations, gross of the impact of profit sharing arrangements. Dealing with each of these adjustments in turn:

- Prior year reserve development represents the change in the ultimate cost of the claims incurred in prior years.
- Weather claims over/(under) long-term average represents the difference between the reported net incurred cost of claims that have occurred as a result of weather events and the equivalent long-term average expected net costs.

These adjustments are made so that the underlying performance of the Group can be assessed excluding factors that might distort the trend in the claims ratio on a year on year basis. A reconciliation between the reported and normalised accident year COR is provided below.

	UK		Canada		Europe		Total	
	2018 %	2017 %	**2018 %**	2017 %	**2018 %**	2017 %	**2018 %**	2017 %
Normalised accident year COR	**97.0**	96.9	**103.4**	100.7	**94.5**	94.1	**98.8**	97.8
Prior year reserve development	**(2.5)**	(1.0)	**(1.3)**	1.3	**(2.8)**	(0.9)	**(2.3)**	(0.3)
Weather claims over/(under) long-term average	**(0.7)**	(2.0)	**0.3**	0.2	**1.7**	0.1	**0.1**	(0.9)
Combined operating ratio	**93.8**	93.9	**102.4**	102.2	**93.4**	93.3	**96.6**	96.6

The Group normalised COR increased to 98.8% *(2017: 97.8%)*. This increase was mainly due to Canada, where the normalised COR deteriorated to 103.4% *(2017: 100.7%)* driven by adverse claims experience, predominantly on personal motor. Progress has been made in Canada on the profit remediation plan and pricing rate increases have been approved during 2018, the impact of these should come through in 2019. The normalised COR in Europe increased to 94.5% (*2017: 94.1%)* predominantly as a result of higher large claim costs in France, partially offset by improvements in the commission and expense ratio in Italy as a result of remediation actions. The normalised COR in the UK increased slightly to 97.0% (*2017: 96.9%)* against the backdrop of the softer motor market.

Business unit performance

6 – Business unit performance
6.i – United Kingdom

	2018 £m	2017 £m	Sterling % change
Operating profit[1, ‡#]			
Life	**1,871**	1,728	8%
General Insurance	**415**	411	1%
Health	**38**	36	6%
	2,324	2,175	7%
Cash remitted to Group[2,3, ‡#]			
Life	**2,170**	1,366	59%
General Insurance and Health	**379**	434	(13)%
	2,549	1,800	42%
Expenses			
Operating expenses	**1,613**	1,493	8%
Integration and restructuring costs	**—**	76	(100)%
	1,613	1,569	3%
New business			
PVNBP	**23,946**	23,764	1%
Solvency II VNB[‡]	**481**	527	(9)%
General Insurance			
COR[‡]	**93.8%**	93.9%	(0.1)pp
Net written premium (NWP)	**4,193**	4,078	3%

1 Non-insurance operations relating to the UK have been reclassified to their respective market segments to better reflect the management of the underlying businesses consistent with the segmental analysis shown in note B6. The impact of this change was to reduce UK Life operating profit by £80 million *(2017: £30 million)*; UK General Insurance operating profit increased by £2 million *(2017: £3 million)* and UK Health increased by £2 million *(2017: £1 million)*.
2 In 2018 cash remittances include amounts of £331 million received from UK General Insurance in February 2019 in respect of 2018 activity.
3 Cash remitted to Group is managed at legal entity level. As Ireland constitutes a branch of the United Kingdom business, cash remittances from Ireland were not aligned to our management structure within Europe, but they were reported within United Kingdom.

Overview

UK Insurance's operating profit, increased by 7% to £2,324 million *(2017: £2,175 million)*. Our position as the UK's leading multi-line insurer has allowed us to deliver a year on year increase in operating profit despite challenging trading conditions in some of our markets. We have benefitted from continued positive longevity developments, growth in long-term savings and annuities and, against the backdrop of the storms popularly known as the Beast from the East and the softening of rates in the motor market, delivered a strong performance in general insurance. This result was delivered while absorbing the costs of investment in growth and simplification initiatives.

Cash remittances of £2,549 million include special cash remittances of £1,250 million. £500 million of which relates to the final Friends Life integration remittance following the Friends Life Part VII transfer in 2017, taking the total Friends Life integration remittances to £1.25 billion, exceeding the targeted £1 billion. In addition, a further special remittance of £750 million has been made reflecting the strong capital position of the UK Life entities following recent longevity developments and management actions.

Operating and financial performance

Operating profit[‡#]

	2018			2017			
Operating profit[1,‡#]	**New business**	**Existing business**	**Total £m**	New business	Existing business	Total £m	Sterling % change
Long-term savings[2]	**(96)**	**294**	**198**	(74)	259	185	7%
Annuities and equity release	**363**	**416**	**779**	335	390	725	7%
Protection	**91**	**135**	**226**	130	97	227	—
Legacy[3]	**—**	**318**	**318**	—	331	331	(4)%
Other[4]	**—**	**350**	**350**	—	260	260	35%
Life	**358**	**1,513**	**1,871**	391	1,337	1,728	8%
Underwriting result			**253**			246	3%
Long-term investment return			**161**			163	(1)%
Other[5]			**1**			2	(50)%
General Insurance			**415**			411	1%
Health			**38**			36	6%
Total operating profit			**2,324**			2,175	7%

1 Non-insurance operations relating to the UK have been reclassified to their respective market segments to better reflect the management of the underlying businesses consistent with the segmental analysis shown in note B6. The impact of this change was to reduce UK Life operating profit by £80 million *(2017: £30 million)*; UK General Insurance operating profit increased by £2 million *(2017: £3 million)* and UK Health increased by £2 million *(2017: £1 million)*.
2 Includes pensions and the savings Platform.
3 Legacy represents products no longer actively marketed, including with-profits and bonds.
4 Other Life represents changes in assumptions and modelling, non-recurring items and non-product specific items.
5 Other General Insurance includes unwind of discount and pension scheme net finance costs.

UK Life operating profit increased by 8% to £1,871 million *(2017: £1,728 million)* due to further benefits from changes in longevity assumptions and the continued growth of long-term savings and BPAs.

UK General Insurance operating profit was up 1% at £415 million *(2017: £411 million)*, including a 3% increase in underwriting profit as the business has grown while maintaining a stable COR.

UK Health operating profit increased by 6% to £38 million *(2017: £36 million)* due to improved underlying margins

Symbol denotes key financial performance indicators used as a base to determine or modify remuneration.
‡ denotes APMs which are key performance indicators. There have been no changes to the APMs used by the Group during the period under review.

Business unit performance continued

6.i – United Kingdom continued

Long-term savings

Long-term savings operating profit increased by 7% to £198 million *(2017: £185 million)* with positive net inflows of £5.0 billion *(2017: £5.6 billion)* while maintaining a stable in-force profit margin. Average assets under management (AUM) across the year grew to £118 billion *(2017: £111 billion)*. However, weak investment markets towards the end of 2018 constrained growth in AUM, which ended the year at £116 billion *(2017: £118 billion)*. Along with growth in workplace pension net flows, driven by new scheme wins with large corporates, we delivered continued positive platform net flows of £3.9 billion *(2017: £6.2 billion)* despite a difficult market environment and functionality problems impacting advisers and customers during the migration of the adviser platform to a new service provider. Platform assets under management grew by 12% in the year to £22.6 billion *(2017: £20.2 billion)*. The increase in new business strain reflects our workplace pensions growth and the continued investment in the Aviva Financial Advisers network.

Annuities and Equity Release

Annuities and equity release operating profit increased by 7% to £779 million *(2017: £725 million).* BPA trading drove a 12% increase in volumes to £4,784 million *(2017: £4,287 million)*, including Aviva's largest BPA deal to date of £925 million with Marks and Spencer, leading to an 8% increase in new business profits to £363 million *(2017: £335 million)*. Existing business operating profit increased by £26 million to £416 million *(2017: £390 million)* due to favourable longevity experience partly offset by a reduction to £24 million *(2017: £86 million)* in the benefit from the optimisation of the asset mix by increasing the proportion of illiquid assets backing the in-force portfolio.

Protection

Protection operating profit remained stable at £226 million *(2017: £227 million)*. The benefit of improved claims experience in Group Protection following actions taken to mitigate 2017 adverse experience was offset by an 8% reduction in new business volumes to £1,799 million PVNBP *(2017: £1,964 million)* and fall in new business profits in a competitive individual protection market including the impact of hardening reinsurance rates.

Legacy

Legacy contributed operating profit of £318 million *(2017: £331 million)*. The expected reduction in assets under management as policies mature was partly offset by favourable market movements in 2017 that drove higher opening 2018 assets under management. We continue to expect operating profit from the legacy business to decline by approximately 10% per annum over the medium term.

Other (Life)

Other of £350 million includes the benefit of continued positive longevity developments where recent experience has led to a positive change to base mortality for individual annuities of £345 million. Updates to the rate of mortality improvements, including CMI 2017, had a benefit of £251 million and a refinement to BPA modelling together with changes to base mortality and improvements had a benefit of £132 million. Longevity benefits were partly offset by the recognition of an additional £175 million provision relating to potential redress for advised sales by Friends Provident (of which over 90% of cases relate to pre-2002) and a £119 million adverse impact in respect of the settlement of certain legacy reinsurance arrangements.

In 2017, Other of £260 million mainly related to assumption changes. We recognised benefits from changes in longevity assumptions, including the impact of completing our review of the allowance for anti-selection risk of £170 million, updates reflecting recent experience of £200 million and updates to the rate of historic and future mortality improvements, including CMI 2016, of £340 million. These were partly offset by the impact of strengthening maintenance expense reserves by £89 million from harmonising the UK expense basis following the Friends Life Part VII transfer in 2017, recognition of future costs reserves of £125 million and a £75 million product governance provision along with various other reserve and modelling impacts totalling £131 million.

General insurance

UK General Insurance operating profit was up 1% at £415 million *(2017: £411 million)*.

The underwriting result increased 3% to £253 million *(2017: £246 million)*, reflecting an improved underlying performance, as we maintained a disciplined approach to underwriting and distribution. The impact of less favourable weather compared to 2017, (although weather remained favourable to the long-term average), was offset by higher prior year reserve releases.

Long-term investment return (LTIR) declined by £2 million to £161 million *(2017: £163 million)*, with the reduction in the internal loan return (net neutral to Group) broadly offset by the impact of an updated investment mix.

In December 2018, the Civil Liability Bill became an Act of Parliament, which includes a change in the way the discount rate used to calculate lump sum compensation in personal injury cases (the 'Ogden rate') is set. Although the rate remains uncertain, it is anticipated that the Government will set a discount rate which is higher than the current -0.75% rate. At this stage, following a review of a range of outcomes, Aviva has adopted a rate of 0.0% within the full year 2018 reserves. The positive impact of this reserve change (£190 million) has been excluded from the 2018 operating result, a consistent treatment with the previous rate change in 2016.

Cash[‡#]

Cash remitted to Group was £2,549 million *(2017: £1,800 million)*. 2018 includes an additional £500 million *(2017: £500 million)* of Friends Life integration remittance taking the total Friends Life integration remittances to £1.25 billion, exceeding the target of £1 billion, along with further special remittances of £750 million, reflecting the strong capital position of UK Life following recent positive longevity developments and management actions.

Business unit performance continued

6.i – United Kingdom continued

Expenses

Total expenses increased 3% year on year to £1,613 million *(2017: £1,569 million)* as we continue to focus on operational efficiency and invest in growth and simplification initiatives including building our BPA capability, updating our IT infrastructure, improvements to customer experience while also implementing mandatory requirements such as IFRS 17 and GDPR. Excluding these initiatives, expenses were broadly flat.

New business

Gross of tax and non-controlling interests	PVNBP 2018 £m	PVNBP 2017 £m	PVNBP Sterling % change	Solvency II VNB 2018 £m	Solvency II VNB 2017 £m	Solvency II VNB Sterling % change	New Business Margin 2018 %	New Business Margin 2017 %
Long term savings	**16,829**	16,813	—	**111**	153	(27)%	**0.7%**	0.9%
Annuities and equity release	**4,784**	4,287	12%	**196**	157	25%	**4.1%**	3.7%
Protection	**1,799**	1,964	(8)%	**140**	183	(23)%	**7.8%**	9.3%
Health and Other	**534**	700	(24)%	**34**	34	—	**6.4%**	4.9%
Total	**23,946**	23,764	1%	**481**	527	(9)%	**2.0%**	2.2%

PVNBP increased 1% to £23,946 million *(2017: £23,764 million)* as the growth in BPA and workplace pensions was offset by lower Platform, Protection and Health volumes. However, VNB decreased by 9% to £481 million *(2017: £527 million)*. The increase in PVNBP is primarily due to BPA growth, including Aviva's largest BPA deal to date of £925 million with Marks and Spencer, while the overall reduction in VNB reflects falls in protection and long-term savings.

Long-term savings VNB reduction is mainly driven by lower Savings Platform volumes during and after service provider transition. It also reflects a reduction in workplace pension VNB, as an increase in volumes has been offset by a change in mix towards lower margin, larger pension schemes.

Annuities and equity release VNB increased 25% to £196 million *(2017: £157 million)* driven by growth in BPA volumes with improved margins as we continued to participate in the market on a selective basis. Annuity SII VNB includes an £85 million *(2017: £96 million)* impact of new business on the calculation of UK Life's transitional measures.

Protection VNB reduced by 23% to £140 million *(2017: £183 million)* driven by an 8% reduction in sales to £1,799 million (*2017: £1,964 million)* in a competitive individual protection market and the impact of hardening reinsurance rates.

Health and Other VNB was stable at £34 million *(2017: £34 million)* with a fall in volumes, as we exited the International PMI market, offset by increased margins.

Net written premiums (NWP) and combined operating ratio (COR)‡

United Kingdom General insurance	Net written premiums 2018 £m	Net written premiums 2017 £m	Net written premiums Sterling % change	Combined operating ratio 2018 %	Combined operating ratio 2017 %	Combined operating ratio Change
Personal motor	**1,125**	1,142	(1)%			
Personal non-motor	**1,369**	1,359	1%			
UK Personal lines	**2,494**	2,501	—	**92.4%**	92.0%	0.4pp
Commercial motor	**532**	514	4%			
Commercial non-motor	**1,167**	1,063	10%			
UK Commercial lines	**1,699**	1,577	8%	**96.1%**	96.7%	(0.6)pp
Total	**4,193**	4,078	3%	**93.8%**	93.9%	(0.1)pp

NWP

NWP increased 3% to £4,193 million *(2017: £4,078 million)*, the fourth consecutive year of growth, as we continue to focus on our preferred products and channels.

UK Personal lines was broadly in line with the prior year with a 1% fall in motor reflecting lower average premiums in the softer market, while non-motor increased 1% driven by growth in home.

UK Commercial lines increased 8%, driven by a 10% increase in Commercial non-motor, with solid growth in SME and Global Corporate Specialty (GCS) while commercial motor increased 4%.

COR‡

UK General Insurance COR of 93.8% is a 0.1pp improvement on prior year against the backdrop of the Beast from the East and the softer motor market. Improved underlying performance and higher prior year reserve releases, primarily from favourable experience in attritional and large injury claims, was partly offset by less favourable weather experience compared to prior year, although this was still favourable to the long term average.

UK Personal lines COR of 92.4% was 0.4pp higher year on year, reflecting higher weather costs partly offset by higher prior year reserve releases and improved business mix.

UK Commercial lines COR of 96.1% improved 0.6pp year on year, as our underlying performance improved from the continued disciplined underwriting and growth combined with higher prior year reserve releases, partly offset by higher weather costs.

Business unit performance continued

6.ii – International

(a) Canada

	2018 £m	2017 £m	Sterling % change	Constant currency %
Operating profit‡#	**46**	46	(2)%	1%
Cash remitted to Group‡#	**28**	55	(49)%	(48)%
Expenses				
Operating expenses	**477**	478	—	3%
Integration and restructuring costs	**—**	15	(100)%	(100)%
	477	493	(3)%	—
COR‡	**102.4%**	102.2%	0.2pp	0.2pp
NWP	**2,928**	3,028	(3)%	—

Overview

In 2018, operating profit remained flat compared to the prior year at £46 million *(2017: £46 million)*. The business also continued to experience challenges in the Canadian motor market and adverse weather conditions. Towards the end of 2017, an extensive profit remediation plan was put in place with ongoing actions around pricing, indemnity management and risk selection. The impact of these actions are starting to flow through our results. In the second half of the year, our COR for the 6 months to December 2018 improved to 100.2% *(HY18: 104.6%)*.

All percentage movements below are quoted in constant currency unless otherwise stated.

Operating and financial performance

Profit

Operating profit‡#	2018 £m	2017 £m	Sterling % change	Constant currency %
Underwriting result	**(70)**	(64)	(11)%	(14)%
Long-term investment return	**121**	115	5%	8%
Other[1]	**(5)**	(5)	3%	—
Total	**46**	46	(2)%	1%

1 Includes unwind of discount and pension scheme net finance costs

In 2018, the underwriting result was a loss of £70 million *(2017: loss of £64 million)*, mainly driven by increased claims frequency and severity in our personal motor business, slightly adverse weather conditions compared to the long-term average and the inclusion of RBC GI integration costs within operating expenses, partially offset by favourable prior year reserve development.

Cash‡#

Cash remittances during the period decreased to £28 million *(2017: £55 million),* reflective of our underwriting performance.

Expenses

Operating expenses remained broadly flat at £477 million *(2017: £478 million)*, which includes costs of £11 million related to the completion of RBC GI systems migration and staff relocation. These costs were reported within integration and restructuring costs in 2017.

Net written premiums (NWP) and combined operating ratio (COR)‡

	Net written premiums				Combined operating ratio		
	2018 £m	2017 £m	Sterling % change	Constant currency %	2018 %	2017 %	Change
Personal lines	**2,107**	2,171	(3)%	—	**104.2%**	102.5%	1.7pp
Commercial lines	**821**	857	(4)%	(1)%	**97.8%**	101.2%	(3.4)pp
Total	**2,928**	3,028	(3)%	—	**102.4%**	102.2%	0.2pp

NWP

Net written premiums were down 3% to £2,928 million *(2017: £3,028 million)* but flat on a constant currency basis. In personal lines, lower new business sales were offset by rate increases. Commercial lines premiums reduced slightly over the prior year as rate increases were offset by lower new business sales and retention as we tightened our underwriting risk appetite.

COR‡

The COR increased slightly to 102.4% *(2017: 102.2%)* due to elevated claims frequency and severity, particularly in motor, partially offset by favourable prior year reserve development. This is an improvement on the half year 2018 result of 104.6%.

Symbol denotes key financial performance indicators used as a base to determine or modify remuneration.
‡ denotes APMs which are key performance indicators. There have been no changes to the APMs used by the Group during the period under review.

6.ii – International continued
(b) Europe

	2018 £m	2017 £m	Sterling % change	Constant currency %
Operating profit‡#				
Life	**831**	873	(5)%	(5)%
General insurance & health	**220**	223	(1)%	(2)%
	1,051	1,096	(4)%	(5)%
Cash remitted to Group‡#,1	**447**	485	(8)%	(9)%
Expenses				
Operating expenses	**847**	820	3%	2%
Integration and restructuring costs	**—**	36	(100)%	(100)%
	847	856	(1)%	(2)%
New business				
PVNBP	**12,641**	12,065	5%	5%
Solvency II VNB‡	**517**	533	(3)%	(3)%
General Insurance				
COR‡	**93.4%**	93.3%	0.1pp	0.1pp
NWP	**1,985**	2,018	(2)%	(3)%

1 Cash remitted to Group is managed at legal entity level. As Ireland constitutes a branch of the United Kingdom business, cash remittances from Ireland are not aligned to our management structure within Europe, but they are reported within the United Kingdom.

Overview
Overall operating profit in Europe was down by 5% to £1,051 million *(2017: £1,096 million)*. However excluding disposals, operating profit grew 10% to £1,034 million (*2017: £944 million*), driven primarily by our life businesses which continue to grow revenue, improve product mix and focus on expense efficiencies.

In 2018, we completed the sale of our shareholdings in Caja Murcia Vida, Caja Granada Vida and Pelayo Vida, concluding the exit of our Spanish businesses. In Italy, we completed the sale of our shareholdings in Avipop Assicurazioni S.p.A and Avipop Vita S.p.A. (collectively known as Avipop) in March 2018. In Ireland, we completed our acquisition of Friends First Life Assurance Company in June 2018.

All percentage movements are quoted in constant currency unless otherwise stated.

Operating and financial performance
Operating profit‡#

	Life				General insurance & health			
Operating profit‡#	2018 £m	2017 £m	Sterling % change	Constant currency %	2018 £m	2017 £m	Sterling % change	Constant currency %
France (excl. Antarius)[1]	**436**	403	8%	7%	**110**	104	6%	5%
Poland	**170**	156	9%	8%	**20**	21	(3)%	(5)%
Italy (excl. Avipop)	**156**	136	15%	14%	**32**	26	26%	25%
Ireland	**44**	33	32%	31%	**56**	53	4%	3%
Other Europe (excl. Spain)[2]	**10**	12	(21)%	8%	**—**	—	—	—
Total (excl. Antarius, Avipop, Spain)	**816**	740	10%	10%	**218**	204	7%	6%
Disposals								
Antarius[1]	**—**	22	(100)%	(100)%	**—**	—	—	—
Avipop	**6**	32	(81)%	(81)%	**2**	19	(89)%	(90)%
Spain	**9**	79	(88)%	(88)%	**—**	—	—	—
Total	**831**	873	(5)%	(5)%	**220**	223	(1)%	(2)%

1 In April 2017, Aviva sold its 50% shareholding in Antarius. The Antarius figures shown represent up to completion of the disposal in 2017.
2 Other Europe includes Turkey.

Life operating profit
Excluding the impact of disposals, the operating profit of our life businesses grew by 10% to £816 million *(2017: £740 million).* Dealing with each of the markets in turn:
- In France, operating profit was up 7% to £436 million *(2017: £403 million)*, due to an increase in new business volumes of our unit-linked savings products.
- In Poland, operating profit was £170 million *(2017: £156 million)*, an increase of 8% as a result of the favourable impact of equity market movements on opening assets under management increasing fee income and an improved mix towards protection business.
- In Italy, operating profit was £156 million *(2017: £136 million)*, an increase of 14% with significant net inflows of £3.6 billion mainly driven by an increase in new business volumes of our hybrid product.
- In Ireland, operating profit increased to £44 million *(2017: £33 million)*, an increase of 31% mainly driven by the acquisition of Friends First, longevity releases and asset mix optimisation on the annuity book partially offset by lower sales of annuity products.
- In Turkey, operating profit was lower at £10 million *(2017: £12 million)*, due to adverse FX movements. However on a constant currency basis, operating profit was up 8% due to growth in protection products.

symbol denotes key financial performance indicators used as a base to determine or modify remuneration.
‡ denotes APMs which are key performance indicators. There have been no changes to the APMs used by the Group during the period under review.

6.ii – International continued

General insurance operating profit

Excluding disposals, the operating profit of our general insurance businesses grew by 6% to £218 million *(2017: £204 million)*. Dealing with each of the markets in turn:

- In France, operating profit was £110 million *(2017: £104 million)*, an increase of 5%, due to growth, particularly in commercial lines, turnaround of the health business and expense efficiencies, partially offset by higher large losses and weather-related claims.
- In Poland, operating profit was £20 million *(2017: £21 million)* with the slight decrease mainly due to motor business with improved performance in other lines of business.
- In Italy, operating profit increased to £32 million *(2017: £26 million)* mainly driven by claims management actions on the motor book.
- In Ireland, operating profit increased to £56 million *(2017: £53 million)* driven by improvements to product mix and higher earned premiums, partially offset by an increase in large claims.

Cash‡#

Cash remitted to the Group was £447 million *(2017: £485 million)*. Higher dividends from France and Poland were offset by Italy, where the dividend was withheld to withstand the volatile market conditions experienced in the year.

Expenses

Operating expenses were up 2% to £847 million *(2017: £820 million)* due to the inclusion of the Friends First business in Ireland for the first time and the absorption of integration costs into operating expenses in 2018, partly offset by a reduction due to the disposal of our Spanish businesses. Excluding these items, expenses are flat year on year.

New business

	PVNBP				Solvency II VNB				New Business Margin	
Gross of tax and non-controlling interests	**2018 £m**	2017 £m	Sterling % change	Constant currency % change	**2018 £m**	2017 £m	Sterling % change	Constant currency % change	**2018 %**	2017 %
France (excl. Antarius)	**4,335**	4,042	7%	6%	**210**	216	(3)%	(4)%	**4.8%**	5.3%
Poland	**486**	468	4%	3%	**58**	57	2%	1%	**11.9%**	12.1%
Italy (excl. Avipop)	**6,263**	4,519	39%	37%	**222**	162	37%	36%	**3.5%**	3.6%
Ireland	**1,208**	1,050	15%	14%	**11**	11	(8)%	(9)%	**0.9%**	1.1%
Other Europe (excl. Spain)[1]	**333**	473	(30)%	(4)%	**13**	20	(31)%	(6)%	**3.9%**	4.2%
Total (excl. Antarius, Avipop, Spain)	**12,625**	10,552	20%	20%	**514**	466	12%	13%	**4.1%**	4.4%
Antarius	**—**	411	(100)%	(100)%	**—**	12	(100)%	(100)%	**—**	2.9%
Avipop	**16**	98	(84)%	(84)%	**3**	17	(85)%	(85)%	**18.8%**	16.9%
Spain	**—**	1,004	(100)%	(100)%	**—**	38	(100)%	(100)%	**—**	3.8%
Total	**12,641**	12,065	5%	5%	**517**	533	(3)%	(3)%	**4.1%**	4.4%

1 Other Europe includes Turkey.

Excluding disposals, PVNBP was up by 20% to £12,625 million *(2017: £10,552 million)* and VNB increased by 13%. In Italy VNB growth of 36% was mainly due to continued growth in sales of our hybrid savings product. In France, PVNBP was up 6% reflecting growth in sales of savings products, although VNB was down 4% primarily due to reduced protection volumes and new business margin reflecting increased competition in this market.

Net written premiums (NWP) and combined operating ratio (COR)‡

	Net written premiums				Combined operating ratio‡		
	2018 £m	2017 £m	Sterling % change	Constant currency %	**2018 %**	2017 %	Change
France	**1,118**	1,053	6%	5%	**94.5%**	94.5%	—
Poland	**106**	117	(9)%	(10)%	**87.0%**	86.7%	0.3pp
Italy (excl. Avipop)	**317**	337	(6)%	(7)%	**95.1%**	98.1%	(3.0)pp
Ireland	**430**	436	(2)%	(2)%	**91.5%**	91.4%	0.1pp
Total (excl. Avipop)	**1,971**	1,943	1%	—	**93.5%**	93.9%	(0.4)pp
Avipop	**14**	75	(81)%	(81)%	**87.8%**	72.4%	15.4pp
Total	**1,985**	2,018	(2)%	(3)%	**93.4%**	93.3%	0.1pp

NWP

Excluding Avipop, NWP was broadly flat with growth in France offset by decreases in Poland, Italy and Ireland, as we maintained strong underwriting discipline. In France, NWP grew to £1,118 million (*2017: £1,053 million*) with growth mainly in commercial lines. In Poland, NWP decreased by 10% to £106 million *(2017: £117 million)* reflecting a change in product mix from bancassurance business. In Italy, NWP decreased by 7% due to continued underwriting action taken on segments of the motor book. In Ireland, NWP was down 2% mainly due to rate reductions in a softening motor market.

COR‡

Excluding Avipop, COR in Europe has improved by 0.4pp to 93.5% primarily reflecting an improved performance in Italy as underwriting action on the motor book takes effect.

Business unit performance continued

6.iii – Asia

	2018 £m	2017 £m	Sterling % change	Constant currency %
Operating profit‡#				
Life	**300**	235	28%	28%
General insurance & health	**(16)**	(8)	(100)%	(103)%
	284	227	26%	26%
Cash remitted to Group‡	**6**	—	—	—
Expenses				
Operating expenses[1]	**186**	207	(10)%	(9)%
Integration and restructuring costs	**—**	—	—	—
	186	207	(10)%	(9)%
New business				
PVNBP	**2,656**	2,719	(2)%	(1)%
Solvency II VNB‡	**189**	162	17%	18%
General Insurance				
COR‡	**122.1%**	123.2%	(1.1)pp	(1.1)pp
NWP	**13**	13	4%	5%

1 Operating expenses relate to subsidiaries and exclude joint ventures.

Overview

Investment in Asia's distribution, digital and analytics capabilities continued throughout 2018. Singapore continues to grow its distribution network, including our financial adviser subsidiaries Aviva Financial Advisers with 816 *(2017: 673)* advisers and Professional Investment Advisory Services with 724 *(2017: 593)* advisers on board. Aviva-COFCO, our joint venture in China, posted a modest growth in operating profit amid regulatory tightening and an economic slowdown. In Hong Kong, we launched Blue, our new digital life joint venture with Tencent and Hillhouse in September 2018, which is expected to disrupt the insurance market. Aviva Vietnam, which is now a wholly owned subsidiary, is accelerating its business via a stronger partnership with Vietinbank. In 2018, we also completed the sale of our entire 49% shareholding in a joint venture in Taiwan.

All percentage movements below are quoted in constant currency unless otherwise stated.

Operating and financial performance

Operating profit‡#

Operating profit‡#	2018 £m	2017 £m	Sterling % change	Constant currency %
Life operating profit				
Singapore	**141**	118	20%	21%
Other Asia (excl. Friends Provident International Limited (FPI), Taiwan)	**8**	(3)	338%	429%
Total life (excl. FPI, Taiwan)	**149**	115	30%	31%
General insurance & health operating profit	**(16)**	(8)	(100)%	(103)%
Total operating profit (excl. FPI, Taiwan)	**133**	107	25%	25%
FPI[1]	**151**	119	28%	28%
Taiwan[2]	**—**	1	(100)%	(100)%
Total operating profit	**284**	227	26%	26%

1 In July 2017, Aviva announced the sale of FPI. The subsidiary has been classified as held for sale from July 2017, when management were committed to a plan to sell the business.
2 In 2018 Aviva completed the sale of its entire 49% shareholding in a joint venture in Taiwan.

Operating profit from our life and general insurance and health businesses was £284 million *(2017: £227 million).* Excluding FPI and Taiwan, life operating profit increased by 31% to £149 million *(2017: £115 million).* Within this, Singapore's operating profit increased by 21% to £141 million *(2017: £118 million)*, which was mainly due to a higher contribution from the financial advisory channel. Improved results in China, Indonesia and Vietnam were partly offset by the initial set up costs of Blue in Hong Kong. Life operating profit for FPI improved from £119 million to £151 million as a result of improved operational performance and cost reductions.

The general insurance and health business reported a £16 million operating loss *(2017: £8 million loss)* mainly as a result of higher claims experience in our health business in Singapore. Management has identified a number of actions, including re-pricing, product design changes and cost containment measures to improve the portfolio performance. These remediation actions have commenced in 2018 and will continue throughout 2019.

Cash‡#

Cash remitted to Group in 2018 was £6 million *(2017: £nil)* as the successful progress of our business in Singapore has allowed the business to resume paying a dividend.

Expenses

Total operating expenses for Asia were £186 million *(2017: £207 million)*. Excluding FPI, operating expenses were £143 million *(2017: £150 million)*. The decrease is mainly as a result of cost saving initiatives as well as lower project development and IT costs.

symbol denotes key financial performance indicators used as a base to determine or modify remuneration.
‡ denotes APMs which are key performance indicators. There have been no changes to the APMs used by the Group during the period under review.

Business unit performance continued

6.iii – Asia continued

New business

Gross of tax and non-controlling interests	PVNBP 2018 £m	PVNBP 2017 £m	PVNBP Sterling % change	PVNBP Constant currency % change	Solvency II VNB‡ 2018 £m	Solvency II VNB‡ 2017 £m	Solvency II VNB‡ Sterling % change	Solvency II VNB‡ Constant currency % change	New Business Margin 2018 %	New Business Margin 2017 %
Singapore	**1,279**	1,164	10%	11%	**152**	123	24%	25%	**11.9%**	10.6%
Other Asia	**929**	930	(0)%	3%	**39**	38	4%	10%	**4.2%**	4.0%
Total life (excl. FPI, Taiwan)	**2,208**	2,094	5%	7%	**191**	161	19%	22%	**8.6%**	7.7%
FPI[1]	**448**	467	(4)%	(4)%	**(2)**	(6)	73%	73%	**(0.3)%**	(1.2)%
Taiwan[2]	**—**	158	(100)%	(100)%	**—**	7	(100)%	(100)%	**—**	4.4%
Total	**2,656**	2,719	(2)%	(1)%	**189**	162	17%	18%	**7.1%**	6.0%

1 In July 2017, Aviva announced the sale of FPI. The subsidiary has been classified as held for sale from July 2017, when management were committed to a plan to sell the business.
2 In 2018 Aviva completed the sale of its entire 49% shareholding in a joint venture in Taiwan.

Whilst PVNBP has remained stable at £2,656 million in 2018, VNB increased by 18% to £189 million *(2017: £162 million).* Excluding FPI and Taiwan, VNB increased 22% to £191 million *(2017: £161 million),* primarily driven by Singapore where higher new business volumes from the financial advisory channel and an improved product mix towards protection products improved VNB to £152 million *(2017: £123 million).*

COR‡

The general insurance COR improved by 1.1pp to 122.1% *(2017: 123.2%)* as a result of improved claims experience.

NWP

General insurance net written premiums remained stable at £13 million *(2017: £13 million)*.

Business unit performance continued

6.iv – Aviva Investors

	2018 £m	2017 £m	Sterling % change
Revenue: Fee income	**597**	577	4%
Expenses			
Operating expenses	**447**	409	10%
Integration and restructuring costs	**—**	3	(100)%
	447	412	9%
Operating profit‡#			
Fund management	**150**	168	(10)%
Other operations	**—**	32	(100)%
	150	200	(25)%
Cash remitted to Group‡#	**92**	58	59%

Overview

We continue to invest in growing our investment capabilities, particularly in Equities. During the year, we created a new Real Assets division, focused on direct real estate and infrastructure investing. We also further expanded our distribution capability, particularly in the US. As a result, we have experienced new business wins across a broader range of products, creating a more diversified client base.

Operating and financial performance

Revenue

Revenue increased by 4% to £597 million *(2017: £577 million)*, driven by sales across the business and a transfer of £2.3 billion in respect of Stewardship fund assets in the first half of the year which were previously externally managed.

Expenses

Operating expenses in Aviva Investors were £447 million *(2017: £409 million)*. The year-on-year increase reflects investment in our front office capabilities and expanded distribution reach. It also reflects increased costs due to regulatory changes.

Operating profit‡#

Fund management operating profit decreased by £18 million to £150 million *(2017: £168 million)* due to continued investment in capabilities (Equities and Real Assets), expansion of our global distribution reach and absorption of regulatory costs (particularly MiFID II) which we did not pass on to our clients. Operating profit from other operations in 2017 of £32 million related to insurance recoveries.

Cash‡#

Cash remitted to Group was £92 million in 2018, an increase of £34 million from 2017 *(2017: £58 million)*.

Net flows and assets under management and assets under administration

Assets under management represent all assets managed by Aviva Investors and third parties. These comprise assets which are included within the Group's statement of financial position and those belonging to external clients outside the Group which are not included in the statement of financial position. Internal legacy relates to assets managed by Aviva Investors on behalf of the Group relating to products that are no longer actively marketed.

Assets under administration comprise assets managed by Aviva Investors and by third parties on platforms administered by Aviva Investors.

	Internal legacy £m	Internal core £m	External[1] £m	Total[1] £m
Aviva Investors				
Assets under management at 1 January 2018	90,939	187,542	72,246	350,727
Total inflows	9,432	37,782	7,682	54,896
Total outflows	(15,643)	(38,545)	(7,747)	(61,935)
Net flows	(6,211)	(763)	(65)	(7,039)
Net flows into liquidity funds and cash	42	925	2,730	3,697
Transfers in from external managers	—	2,329	—	2,329
Transfers out to external managers	(367)	—	—	(367)
Disposals[2]	—	—	(6,289)	(6,289)
Market and foreign exchange movements	(788)	(7,022)	(4,542)	(12,352)
Assets under management at 31 December 2018	**83,615**	**183,011**	**64,080**	**330,706**
Externally managed assets under administration at 1 January 2018				30,483
Externally managed assets under administration net flows and other movements				(1,379)
Externally managed assets under administration at 31 December 2018				**29,104**
Assets under management and administration at 1 January 2018				381,210
Assets under management and administration at 31 December 2018				**359,810**

1 Following a review of external funds under management, comparative amounts have been amended from those previously reported to reflect the fact that certain crossholdings had not been correctly eliminated on consolidation. The effect of this change is to reduce external funds under management previously reported at 1 January 2018 by £2.5 billion.
2 On 5 November 2018, Aviva Investors completed the sale of an indirect Real Estate Multi-Manager business and our interest in the management of a pan-European commercial property fund to another leading real estate global asset manager.

Assets under management decreased by £20.0 billion to £330.7 billion *(2017: £350.7 billion)*. This is due to £6.3 billion of disposals, £12.4 billion adverse market and foreign exchange movements and £1.3 billion net outflows. Assets under management and administration at 31 December 2018 were £359.8 billion *(2017: £381.2 billion)*.

Symbol denotes key financial performance indicators used as a base to determine or modify remuneration.
‡ denotes APMs which are key performance indicators. There have been no changes to the APMs used by the Group during the period under review.

Profit drivers

7.i – Life business profit drivers

Life business operating profit before shareholder tax increased by 5% to £2,999 million *(2017: £2,852 million)*, up by 6% on a constant currency basis.

Overall, total income increased by 2% to £4,832 million *(2017: £4,757 million)* and total expenses increased by 3% to £2,398 million *(2017: £2,336 million)*. Operating profit increased £147 million to £2,999 million (*2017: £2,852 million*). This was partly due to a higher benefit from 'Other' items of £568 million *(2017: £415 million)*, which includes the impact of continued positive longevity developments in the UK.

	United Kingdom[1]		Europe		Asia		Total	
	2018 £m	2017 £m	**2018 £m**	2017 £m	**2018 £m**	2017 £m	**2018 £m**	2017 £m
New business income	**772**	868	**309**	335	**300**	252	**1,381**	1,455
Underwriting margin	**382**	280	**196**	215	**103**	85	**681**	580
Investment return	**1,406**	1,324	**1,131**	1,171	**233**	227	**2,770**	2,722
Total income	**2,560**	2,472	**1,636**	1,721	**636**	564	**4,832**	4,757
Acquisition expenses	**(425)**	(473)	**(335)**	(326)	**(217)**	(191)	**(977)**	(990)
Administration expenses	**(798)**	(689)	**(523)**	(558)	**(100)**	(99)	**(1,421)**	(1,346)
Total expenses	**(1,223)**	(1,162)	**(858)**	(884)	**(317)**	(290)	**(2,398)**	(2,336)
Other[2]	**534**	418	**53**	36	**(19)**	(39)	**568**	415
	1,871	1,728	**831**	873	**300**	235	**3,002**	2,836
Other business[3]							**(3)**	16
Total life business operating profit							**2,999**	2,852

1 Non-insurance operations relating to the UK have been reclassified to their respective market segments to better reflect the management of the underlying businesses consistent with the segmental analysis shown in note B6.
2 Other represents DAC, changes in assumptions and modelling, non-recurring items and non-product specific items.
3 Other business includes the total result for Aviva Investors' Pooled Pensions and Aviva Life Reinsurance.

Income: New business income and underwriting margin

	United Kingdom[1]		Europe		Asia		Total	
	2018 £m	2017 £m	**2018 £m**	2017 £m	**2018 £m**	2017 £m	**2018 £m**	2017 £m
New business income (£m) (A)	**772**	868	**309**	335	**300**	252	**1,381**	1,455
APE (£m)[2]	**3,444**	3,140	**1,381**	1,327	**359**	358	**5,184**	4,825
As margin on APE (%)	**22%**	28%	**22%**	25%	**84%**	70%	**27%**	30%
Acquisition expenses (£m) (B)	**(425)**	(473)	**(335)**	(326)	**(217)**	(191)	**(977)**	(990)
As acquisition expense ratio on APE (%)	**12%**	15%	**24%**	25%	**60%**	53%	**19%**	21%
Net contribution (A-B)	**347**	395	**(26)**	9	**83**	61	**404**	465
Underwriting margin (£m)	**382**	280	**196**	215	**103**	85	**681**	580
Analysed by:								
Expenses	**63**	63	**67**	65	**75**	65	**205**	193
Mortality and longevity	**319**	217	**122**	157	**30**	21	**471**	395
Persistency	**—**	—	**7**	(7)	**(2)**	(1)	**5**	(8)

1 Non-insurance operations relating to the UK have been reclassified to their respective market segments to better reflect the management of the underlying businesses consistent with the segmental analysis shown in note B6.
2 APE excludes Retail Fund Management and Health business in Asia.

(a) Net contribution from new business

The net contribution from new business decreased by 13% to a profit of £404 million *(2017: profit of £465 million)*. In the UK, the net contribution decreased to a profit of £347 million *(2017: profit of £395 million)* mainly as a result of lower protection volumes in a competitive market. New business margin on APE decreased to 22% *(2017: 28%)* due to lower protection, platform and equity release margins. In Europe, the net contribution decreased to a loss of £26 million *(2017: profit of £9 million)* as growth in Italy and France was more than offset by the impact of disposals. New business margin on APE decreased to 22% *(2017: 25%)*. In Asia, the net contribution increased to a profit of £83 million *(2017: profit of £61 million)* as a result of higher sales in Singapore through its financial advisory channel and a favourable shift in product mix towards higher margin protection products. New business margin on APE increased to 84% *(2017: 70%)* due to the favourable impact of changes in product mix partially offset by increased acquisition expenses.

(b) Underwriting margin

The overall increase in the underwriting margin was primarily driven by the UK, which increased to £382 million *(2017: £280 million)* mainly due to improvement in protection claims experience and favourable annuity experience. In Europe, the underwriting margin decreased to a profit of £196 million *(2017: £215 million)* due to adverse mortality in Italy and the impact of disposals in Spain. In Asia, the underwriting margin increased to £103 million *(2017: £85 million)* due to favourable margins on in-force business in China.

(c) Other

Other made a positive contribution of £568 million *(2017: £415 million)*, primarily as a result of the benefit of longevity assumption changes partially offset by an increase in provisions in the UK.

7.i – Life business profit drivers continued

Income: Investment return

	United Kingdom[1]		Europe		Asia		Total	
	2018 £m	2017 £m	2018 £m	2017 £m	2018 £m	2017 £m	2018 £m	2017 £m
Unit-linked margin (£m)	**903**	891	**581**	585	**204**	202	**1,688**	1,678
As annual management charge on average reserves (bps)	**66**	68	**136**	138	**217**	213	**89**	92
Average reserves (£bn)[2]	**137.6**	130.1	**42.8**	42.3	**9.4**	9.5	**189.8**	181.9
Participating business (£m)[3]	**165**	164	**461**	487	**4**	(4)	**630**	647
As bonus on average reserves (bps)	**39**	34	**68**	73	**10**	(10)	**55**	55
Average reserves (£bn)[2]	**42.4**	48.1	**67.5**	66.4	**4.1**	3.9	**114.0**	118.4
Spread margin (£m)	**266**	271	**2**	6	**7**	12	**275**	289
As spread margin on average reserves (bps)	**40**	42	**4**	13	**37**	80	**38**	41
Average reserves (£bn)[2]	**65.8**	64.2	**4.5**	4.5	**1.9**	1.5	**72.2**	70.2
Expected return on shareholder assets (£m)[4]	**72**	(2)	**87**	93	**18**	17	**177**	108
Total (£m)	**1,406**	1,324	**1,131**	1,171	**233**	227	**2,770**	2,722
Total Average reserves (£bn)[2]	**245.8**	242.4	**114.8**	113.2	**15.4**	14.9	**376.0**	370.5

1 Non-insurance operations relating to the UK have been reclassified to their respective market segments to better reflect the management of the underlying businesses consistent with the segmental analysis shown in note B6.
2 An average of the insurance or investment contract liabilities over the reporting period, including managed pension business which is not consolidated within the statement of financial position.
3 The shareholders' share of the return on with- profits and other participating business.
4 The expected investment return based on opening economic assumptions applied to expected surplus assets over the reporting period that are not backing policyholder liabilities.

(d) Unit-linked margin

The unit-linked margin increased slightly to £1,688 million *(2017: £1,678 million)* and the margin as a proportion of average reserves decreased to 89 bps *(2017: 92 bps)*. In the UK, the unit-linked margin has increased mainly due to increased average assets under management compared to 2017 driven by growth in the sales of workplace pensions. At the same time, the margin on average reserves decreased to 66 bps *(2017: 68 bps)* due to a change in product mix with the expected run-off of the higher margin back book being replaced with lower unit-linked margin, and lower administration cost, workplace pensions and Savings Platform business. In Europe, the unit-linked margin decreased slightly to £581 million *(2017: £585 million)* due to growth in France more than offsetting a decrease as a result of the disposal of Spain. In Asia, the margin remained stable at £204 million *(2017: £202 million)*.

(e) Participating business

Income from participating business decreased to £630 million *(2017: £647 million)*. Participating business average reserves have decreased to £114 billion *(2017: £118 billion)*. In the UK, income from participating business was broadly flat at £165 million *(2017: £164 million),* as expected run-off was offset by an increase in terminal bonuses as a result of maturing endowments. In Europe, income decreased to £461 million *(2017: £487 million)* due to lower income as a result of the disposal of Spain.

(f) Spread margin

Spread business income mainly relates to UK in-force immediate annuity and equity release business. The decrease during the period to £275 million *(2017: £289 million)* is mainly due to the disposals of Spain and Taiwan, with the UK remaining broadly stable.

(g) Expected return on shareholder assets

Expected returns, representing investment income on surplus funds, increased to £177 million *(2017: £108 million)* due mainly to the impact of asset liability matching activity.

Expenses

	United Kingdom[1]		Europe		Asia		Total	
	2018 £m	2017 £m	2018 £m	2017 £m	2018 £m	2017 £m	2018 £m	2017 £m
Acquisition expenses (£m)	**(425)**	(473)	**(335)**	(326)	**(217)**	(191)	**(977)**	(990)
APE (£m)[2]	**3,444**	3,140	**1,381**	1,327	**359**	358	**5,184**	4,825
As acquisition expense ratio on APE (%)	**12%**	15%	**24%**	25%	**60%**	53%	**19%**	21%
Administration expenses (£m)	**(798)**	(689)	**(523)**	(558)	**(100)**	(99)	**(1,421)**	(1,346)
As existing business expense ratio on average reserves (bps)	**32**	28	**46**	49	**65**	66	**38**	36
Total Average reserves (£bn)[3]	**245.8**	242.4	**114.8**	113.2	**15.4**	14.9	**376.0**	370.5

1 Non-insurance operations relating to the UK have been reclassified to their respective market segments to better reflect the management of the underlying businesses consistent with the segmental analysis shown in note B6.
2 APE excludes Retail Fund Management and Health business in Asia.
3 An average of the insurance or investment contract liabilities over the reporting period, including managed pension business which is not consolidated within the statement of financial position.

(h) Acquisition expenses

Acquisition expenses decreased to £977 million *(2017: £990 million).* The decrease was driven by the UK, due to lower protection volumes and increased volumes of BPAs, which have a lower acquisition expenses rate to APE, as well as the impact of disposals in Europe. This was offset by an overall increase in Europe due to the acquisition of Friends First in Ireland and an increase in new business volumes in Italy and France, and Asia due to an increase in new business volumes in Singapore.

(i) Administration expenses

The overall expense ratio remained broadly stable at 38 bps (*2017: 36 bps*) on average reserves of £376 billion *(2017: £371 billion)* with offsetting movements across markets. The increase in the UK is driven by targeted investment in simplification and growth initiatives as well as costs that typically relate to mandatory requirements such as IFRS 17 and GDPR. The decrease in Europe is due to a fall in commission and expenses as a result of the impact of disposals and an improved mix of protection products in Poland. Asia remains flat due to a focus on cost control.

Profit drivers continued

7.ii – General insurance and health

2018	UK Personal £m	UK Commercial £m	Total UK £m	Canada Personal £m	Canada Commercial £m	Total Canada £m	Europe £m	Asia & Other[1] £m	Total £m
General insurance									
Gross written premiums	2,562	1,942	**4,504**	2,143	904	**3,047**	**2,075**	**14**	**9,640**
Net written premiums	2,494	1,699	**4,193**	2,107	821	**2,928**	**1,985**	**8**	**9,114**
Net earned premiums	2,493	1,613	**4,106**	2,116	839	**2,955**	**1,963**	**6**	**9,030**
Net claims incurred	(1,546)	(1,019)	**(2,565)**	(1,609)	(513)	**(2,122)**	**(1,264)**	**(6)**	**(5,957)**
Of which claims handling costs			**(159)**			**(110)**	**(60)**	**(1)**	**(330)**
Earned commission	(601)	(336)	**(937)**	(377)	(172)	**(549)**	**(368)**	**1**	**(1,853)**
Earned expenses	(156)	(195)	**(351)**	(218)	(136)	**(354)**	**(203)**	**(4)**	**(912)**
Underwriting result	190	63	**253**	(88)	18	**(70)**	**128**	**(3)**	**308**
Longer-term investment return (LTIR)[2]			**161**			**120**	**82**	**—**	**363**
Other[3, 4]			**1**			**(4)**	**—**	**1**	**(2)**
Operating profit (GI)			**415**			**46**	**210**	**(2)**	**669**
Health insurance									
Gross written premiums			**485**			**—**	**204**	**190**	**879**
Net written premiums			**485**			**—**	**204**	**165**	**854**
Underwriting result			**33**			**—**	**9**	**(14)**	**28**
Longer-term investment return (LTIR)			**5**			**—**	**1**	**1**	**7**
Operating profit (Health)			**38**			**—**	**10**	**(13)**	**35**
Total operating profit (GI and Health)			**453**			**46**	**220**	**(15)**	**704**
Total gross written premiums			**4,989**			**3,047**	**2,279**	**204**	**10,519**
Total net written premiums			**4,678**			**2,928**	**2,189**	**173**	**9,968**
General insurance combined operating ratio									
Claims ratio	62.0%	63.2%	**62.5%**	76.1%	61.1%	**71.8%**	**64.4%**		**66.0%**
Commission ratio	24.1%	20.8%	**22.8%**	17.8%	20.5%	**18.6%**	**18.7%**		**20.5%**
Expense ratio	6.3%	12.1%	**8.5%**	10.3%	16.2%	**12.0%**	**10.3%**		**10.1%**
Combined operating ratio	92.4%	96.1%	**93.8%**	104.2%	97.8%	**102.4%**	**93.4%**		**96.6%**
Assets supporting general insurance and health business									
Debt securities			**2,367**			**4,445**	**2,387**	**72**	**9,271**
Equity securities			**568**			**208**	**90**	**—**	**866**
Investment property			**436**			**—**	**148**	**—**	**584**
Cash and cash equivalents			**700**			**130**	**371**	**93**	**1,294**
Other[5]			**1,735**			**207**	**407**	**—**	**2,349**
Assets at 31 December 2018			**5,806**			**4,990**	**3,403**	**165**	**14,364**
Debt securities			**3,020**			**4,273**	**2,592**	**169**	**10,054**
Equity securities			**492**			**247**	**33**	**—**	**772**
Investment property			**323**			**—**	**176**	**—**	**499**
Cash and cash equivalents			**546**			**140**	**399**	**30**	**1,115**
Other[5]			**1,763**			**252**	**481**	**2**	**2,498**
Assets at 31 December 2017			**6,144**			**4,912**	**3,681**	**201**	**14,938**
Average assets			**5,975**			**4,951**	**3,542**	**183**	**14,651**
LTIR as % of average assets			**2.8%**			**2.4%**	**2.3%**	**0.5%**	**2.5%**

1 Asia & Other includes Aviva Re.
2 LTIR includes UK £41 million *(2017: £52 million)* and Ireland £5 million *(2017: £6 million)* relating to the internal loan.
3 Includes the result of non-insurance operations, unwind of discount rate and pension scheme net finance costs.
4 Non-insurance operations relating to the UK have been reclassified to their respective market segments to better reflect the management of the underlying businesses consistent with the segmental analysis shown in note B6. The impact of this change was UK General Insurance operating profit increased by £2 million and UK Health increased by £2 million.
5 Includes loans and other financial investments.

7.ii – General insurance and health continued

2017	UK Personal £m	UK Commercial £m	Total UK £m	Canada Personal £m	Canada Commercial £m	Total Canada £m	Europe £m	Asia & Other[1] £m	Total £m
General insurance									
Gross written premiums	2,567	1,788	4,355	2,209	929	3,138	2,104	13	9,610
Net written premiums	2,501	1,577	4,078	2,171	857	3,028	2,018	17	9,141
Net earned premiums	2,461	1,554	4,015	2,103	841	2,944	2,001	16	8,976
Net claims incurred	(1,457)	(992)	(2,449)	(1,583)	(543)	(2,126)	(1,262)	(19)	(5,856)
Of which claims handling costs			(149)			(119)	(59)	—	(327)
Earned commission	(647)	(324)	(971)	(372)	(178)	(550)	(390)	(1)	(1,912)
Earned expenses	(161)	(188)	(349)	(201)	(132)	(333)	(213)	(6)	(901)
Underwriting result	196	50	246	(53)	(12)	(65)	136	(10)	307
Longer-term investment return (LTIR)[2]			163			115	79	3	360
Other[3,4]			2			(4)	—	—	(2)
Operating profit (GI)			411			46	215	(7)	665
Health insurance									
Gross written premiums			509			—	240	164	913
Net written premiums			509			—	240	145	894
Underwriting result			33			—	7	(5)	35
Longer-term investment return (LTIR)			3			—	1	—	4
Operating profit (Health)			36			—	8	(5)	39
Total operating profit (GI and Health)			447			46	223	(12)	704
Total gross written premiums			4,864			3,138	2,344	177	10,523
Total net written premiums			4,587			3,028	2,258	162	10,035
General insurance combined operating ratio									
Claims ratio	59.2%	63.8%	61.0%	75.3%	64.5%	72.2%	63.1%		65.3%
Commission ratio	26.3%	20.8%	24.2%	17.7%	21.1%	18.7%	19.5%		21.3%
Expense ratio	6.5%	12.1%	8.7%	9.5%	15.6%	11.3%	10.7%		10.0%
Combined operating ratio	92.0%	96.7%	93.9%	102.5%	101.2%	102.2%	93.3%		96.6%
Assets supporting general insurance and health business									
Debt securities			3,020			4,273	2,592	169	10,054
Equity securities			492			247	33	—	772
Investment property			323			—	176	—	499
Cash and cash equivalents			546			140	399	30	1,115
Other[5]			1,763			252	481	2	2,498
Assets at 31 December 2017			6,144			4,912	3,681	201	14,938
Debt securities			3,718			4,349	2,535	197	10,799
Equity securities			7			235	25	—	267
Investment property			208			—	133	—	341
Cash and cash equivalents			757			115	267	23	1,162
Other[5]			1,464			256	309	3	2,032
Assets at 31 December 2016			6,154			4,955	3,269	223	14,601
Average assets			6,149			4,934	3,475	212	14,770
LTIR as % of average assets			2.7%			2.3%	2.3%	1.4%	2.5%

1 Asia & Other includes Aviva Re.
2 LTIR includes UK £52 million *(2016: £62 million)* and Ireland £6 million *(2016: £7 million)* relating to the internal loan.
3 Includes the result of non-insurance operations, unwind of discount rate and pension scheme net finance costs.
4 Non-insurance operations relating to the UK have been reclassified to their respective market segments to better reflect the management of the underlying businesses consistent with the segmental analysis shown in note B6. The impact of this change was UK General Insurance operating profit increased by £3 million and UK Health increased by £1 million.
5 Includes loans and other financial investments.

Profit drivers continued

7.iii – Life business fund flows

Net flows is one of the measures of growth used by management and is a component of the movement in life and platform business managed assets (excluding UK with-profits) during the period. It is the difference between the inflows (being net written premiums plus deposits received under investment contracts) and outflows (being net paid claims plus redemptions and surrenders under investment contracts). It excludes market and other movements.

The table shown below sets out the life and platform business managed assets of the Group and excludes managed assets relating to our general insurance and health businesses. It includes managed assets of £19.5 billion (*2017: £17.5 billion*) which are excluded from the Group's statement of financial position which mainly relates to the platform business. For these reasons, the amounts disclosed are not directly reconcilable to the Aviva Investors assets under management and administration set out in section 6.iv.

	Managed assets at 1 January 2018 £m	Premiums and deposits, net of reinsurance £m	Claims and redemptions, net of reinsurance £m	Net flows[1,2] £m	Market and other movements £m	Managed assets at 31 December 2018 £m
Life and platform business						
UK – non-profit:						
– platform	20,238	5,719	(1,840)	3,879	(1,474)	**22,643**
– pensions and other long-term savings	97,970	8,258	(7,088)	1,170	(6,080)	**93,060**
– long-term savings[3]	118,208	13,977	(8,928)	5,049	(7,554)	**115,703**
– annuities and equity release	60,797	3,144	(2,586)	558	199	**61,554**
– other	24,727	1,376	(2,522)	(1,146)	(757)	**22,824**
United Kingdom (excluding UK with-profits)	203,732	18,497	(14,036)	4,461	(8,112)	**200,081**
Europe	114,068	11,746	(7,547)	4,199	251	**118,518**
Asia	14,526	898	(431)	467	(218)	**14,775**
Other	1,290	18	(248)	(230)	20	**1,080**
	333,616	31,159	(22,262)	8,897	(8,059)	**334,454**
UK – with-profits and other	58,200					**48,920**
Total life and platform business	391,816					**383,374**

1 Life business net flows in the table above are net of reinsurance.
2 For the period to 31 December 2018, net flows of £8.9 billion *(2017: £7.0 billion)* includes net flows of £3.0 billion *(2017: £3.4 billion)* that are included in the IFRS income statement within net written premiums and net paid claims.
3 Includes platform and pensions business and externally reinsured non-participating investment contracts.

United Kingdom (excluding UK with-profits)

UK long-term savings managed assets have decreased to £115.7 billion *(2017: £118.2 billion)* during the period. Within this, net inflows were £1.2 billion *(2017: £0.6 billion net outflows)* for pensions and other long-term savings and £3.9 billion *(2017: £6.2 billion)* for the platform business. Platform assets under management grew by 12% in the year to £22.6 billion *(2017: £20.2 billion)*.

UK annuities and equity release net inflows were £0.6 billion *(2017: £0.1 billion)*, reflecting increased BPA volumes in 2018. Other non-profit net outflows were £1.1 billion *(2017: £1.4 billion)* driven by bonds & savings as the book continues to run off as expected. Market and other movements include the adverse impact of widening spreads and increasing interest rates.

Europe

Net inflows in Europe of £4.2 billion *(2017: £2.8 billion)* were mainly driven by the growth in sales of our new hybrid savings product in Italy. Market and other movements in Europe includes £4.0 billion of investment assets added during the year following the acquisition of Friends First, offset by the disposal of £0.8 billion of investment assets following the sale of Avipop in Italy and Spain, and £2.9 billion attributable to adverse investment market movements mainly in Italy and France.

Asia and other

Net inflows in Asia were £0.5 billion *(2017: £0.3 billion)* arising mainly in Singapore. Other business net outflows of £0.2 billion *(2017: £0.5 billion)* primarily relate to Aviva Investors' Pooled Pensions business.

8.i – Solvency II

The estimated Solvency II shareholder cover ratio is 204% at 31 December 2018. The Solvency II position disclosed is based on a 'shareholder view'. The shareholder view is considered by management to be more representative of the shareholders' risk exposure and the Group's ability to cover the Solvency Capital Requirement (SCR) with eligible own funds and aligns with management's approach to dynamically manage its capital position. In arriving at the shareholder position, the following adjustments are typically made to the regulatory Solvency II position:

- The contribution to the Group's SCR and own funds of the most material fully ring fenced with-profits funds of £2.6 billion at 31 December 2018 *(2017: £3.3 billion)* and staff pension schemes in surplus of £1.1 billion at 31 December 2018 *(2017: £1.5 billion)* are excluded. These exclusions have no impact on Solvency II surplus as these funds are self-supporting on a Solvency II capital basis with any surplus capital above SCR not recognised.
- A notional reset of the transitional measure on technical provisions (TMTP), calculated using the same method as used for formal TMTP resets. This presentation avoids step changes to the Solvency II position that arise only when the formal TMTP reset points are triggered. The 31 December 2018 Solvency II position includes a notional reset (£0.1 billion decrease in surplus) while the 31 December 2017 Solvency II position included a formal, rather than notional, reset of the TMTP in line with the regulatory requirement to reset the TMTP at least every two years or in the event of a material change in the risk profile. The TMTP is amortised on a straight-line basis over 16 years from 1 January 2016 in line with the Solvency II rules.
- The 31 December 2018 Solvency II position includes two pro forma adjustments to reflect known or highly likely events that could materially impact the Group's solvency position post 31 December 2018. These pro forma adjustments relate to the disposal of FPI (£0.1 billion increase in surplus) and the potential impact of an expected change to Solvency II regulations on the treatment of equity release mortgages (£0.2 billion reduction in surplus as a result of an increase in SCR). Note there is no expected impact on own funds from this expected change to Solvency II regulations and uncertainty remains around the final regulations for determining the SCR. These adjustments have been made in order to show a more representative view of the Group's solvency position. The 31 December 2017 Solvency II position includes the pro forma impact of the disposals of FPI (£0.1 billion increase in surplus) and Avipop in Italy (£0.1 billion increase in surplus).

Summary of Solvency II position

	2018 £bn	2017 £bn
Own funds	**23.6**	24.7
Solvency capital requirement	**(11.6)**	(12.5)
Estimated Solvency II surplus at 31 December	**12.0**	12.2
Estimated Solvency II shareholder cover ratio[‡]	**204%**	198%

Movement in Group Solvency II surplus

	2018 £bn	2017 £bn
Group Solvency II surplus at 1 January	**12.2**	11.3
Operating capital generation	**3.2**	2.6
Non-operating capital generation	**(0.9)**	(0.3)
Dividends	**(1.2)**	(1.1)
Share buy-back	**(0.6)**	(0.3)
Foreign exchange variances	—	0.1
Hybrid debt repayments	**(0.9)**	(0.5)
Acquired/divested business	**0.2**	0.4
Estimated Solvency II surplus at 31 December	**12.0**	12.2

The estimated Solvency II surplus is £12.0 billion at 31 December 2018, with a shareholder cover ratio of 204%. During 2018 the surplus has reduced as the beneficial impact from operating capital generation and the impact of disposals were offset by the buy-back of ordinary shares of £(0.6) billion, hybrid debt repayments of £(0.9) billion, the payment of the Aviva plc dividend of £(1.2) billion and non-operating capital generation of £(0.9) billion. Non-operating capital generation is primarily due to the impact of widening sovereign and corporate bond spreads in Italy, adverse global equity market conditions, SCR impact of an expected change to Solvency II regulations on the treatment of equity release mortgages and a further £0.1 billion reduction in surplus due to the capital requirement on surplus assets originated in 2018 to back new business in 2019 that would otherwise be invested in cash.

8.i – Solvency II continued

Summary of analysis of diversified Solvency Capital Requirement[1]

	2018 £bn	2017 £bn
Credit risk	**3.0**	3.2
Equity risk	**1.2**	1.7
Interest rate risk	**1.0**	0.5
Other market risk	**1.4**	1.4
Life insurance risk	**2.5**	3.2
General insurance risk	**0.8**	0.8
Operational risk	**1.1**	1.1
Other risk[2]	**0.6**	0.6
Total	**11.6**	12.5

1 The methodology to allocate capital to risks has been updated in 2018. The change does not impact total SCR. The 2017 allocation has been restated to reflect the updated methodology. This allocation has resulted in a change to individual risks mainly due to the reallocation of "Other risk".
2 Capital held in respect of other risk recognises the Group's shareholder exposure to specific risks unique to particular business units and other items.

The SCR has reduced by £0.9 billion since 31 December 2017 primarily due to a reduction in equity and life insurance risk which is partially offset by an increase in interest rate risk. The reduction in equity risk is due to a lower exposure to equities following adverse market conditions and further equity and equity volatility hedging in 2018. The longevity assumption changes in the UK and the transfer of pensions business into a supplementary occupational pension fund (FRPS) in France resulted in a reduction in life insurance risk. The increase in interest rate risk is due to increased exposure in the UK, including the impact from surplus assets originated in 2018 to back new business in 2019 that would otherwise be invested in cash.

Sensitivity analysis of Solvency II surplus

The following sensitivity analysis of Solvency II surplus allows for any consequential impact on the asset and liability valuations. All other assumptions remain unchanged for each sensitivity, except where these are directly affected by the revised economic conditions or where a management action that is allowed for in the SCR calculation is applicable for that sensitivity. For example, future bonus rates are automatically adjusted to reflect sensitivity changes to future investment returns.

TMTP are assumed to be recalculated in all sensitivities where its impact would be material.

The table below shows the absolute change in cover ratio under each sensitivity, e.g. a 3% positive impact would result in a cover ratio of 207%.

Sensitivities		Impact on cover ratio %
Changes in economic assumptions	25 bps increase in interest rate	**3%**
	50 bps increase in interest rate	**5%**
	100 bps increase in interest rate	**8%**
	25 bps decrease in interest rate	**(4%)**
	50 bps decrease in interest rate	**(10%)**
	50 bps increase in corporate bond spread[1]	**(4%)**
	100 bps increase in corporate bond spread[1]	**(8%)**
	50 bps decrease in corporate bond spread[1]	**2%**
	Credit downgrade on annuity portfolio[2]	**(4%)**
	10% increase in market value of equity	**1%**
	25% increase in market value of equity	**3%**
	10% decrease in market value of equity	**(1%)**
	25% decrease in market value of equity	**(5%)**
Changes in non-economic assumptions	10% increase in maintenance and investment expenses	**(8%)**
	10% increase in lapse rates	**(3%)**
	5% increase in mortality/morbidity rates – life assurance	**(2%)**
	5% decrease in mortality rates – annuity business	**(11%)**
	5% increase in gross loss ratios	**(3%)**

1 Credit spread movement for corporate bonds with credit rating A at 10 year duration, with the other ratings and durations stressed by the same proportion relative to the stressed capital requirement.
2 An immediate full letter downgrade on 20% of the annuity portfolio bonds (e.g. from AAA to AA, from AA to A).

The Group has kept under review the allowance in our long-term assumptions for future property prices and rental income for the possible adverse impact of the decision for the UK to leave the European Union. This allowance has been determined in line with previous periods and is £0.4 billion as at 31 December 2018, an increase of £0.1 billion from 31 December 2017. This allowance is already incorporated in our Solvency II surplus at 31 December 2018 and is equivalent to decreases in property values prevailing at 31 December 2018 of 12% for properties backing equity release mortgages and 14% for properties backing commercial mortgages, as a result the shareholder cover ratio is 5pp lower.

Limitations of sensitivity analysis

The table above demonstrates the effect of a change in a key assumption while other assumptions remain unchanged. In reality, there is a correlation between the assumptions and other factors. It should also be noted that these sensitivities are non-linear, and larger or smaller impacts should not be interpolated or extrapolated from these results.

8.i – Solvency II continued

The sensitivity analysis does not take into consideration that the Group's assets and liabilities are actively managed. Additionally, the Solvency II position of the Group may vary at the time that any actual market movement occurs. For example, the Group's financial risk management strategy aims to manage the exposure to market fluctuations.

As investment markets move past various trigger levels, management actions could include selling investments, changing investment portfolio allocations, adjusting bonuses credited to policyholders and taking other protective action.

Other limitations in the above sensitivity analysis include the use of hypothetical market movements to demonstrate potential risk that only represent the Group's view of possible near-term market changes that cannot be predicted with any certainty and the assumption that all interest rates move in an identical fashion.

8.ii – Net asset value

	2018 £m	**pence per share[2]**	2017 £m	pence per share[2]
Equity attributable to shareholders of Aviva plc at 1 January[1]	**16,969**	**423p**	16,803	414p
Group adjusted operating profit	**3,116**	**80p**	3,068	76p
Investment return variances and economic assumption changes on life and non-life business	**(672)**	**(17)p**	(318)	(8)p
Profit on the disposal and remeasurements of subsidiaries, joint ventures and associates	**102**	**2p**	135	3p
Goodwill impairment and amortisation of intangibles	**(222)**	**(6)p**	(246)	(6)p
Amortisation and impairment of acquired value of in-force business	**(426)**	**(11)p**	(495)	(12)p
Integration and restructuring costs	**—**	**—**	(141)	(3)p
Other[3]	**231**	**6p**	—	—
Tax on operating profit and on other activities	**(442)**	**(11)p**	(357)	(9)p
Non-controlling interests	**(119)**	**(3)p**	(149)	(4)p
Profit after tax attributable to shareholders of Aviva plc	**1,568**	**40p**	1,497	37p
AFS securities fair value and other reserve movements	**(24)**	**(1)p**	7	—
Ordinary dividends	**(1,128)**	**(29)p**	(983)	(25)p
Direct capital instrument and tier 1 notes interest and preference share dividend	**(53)**	**(1)p**	(82)	(2)p
Foreign exchange rate movements	**(2)**	**—**	33	1p
Remeasurements of pension schemes	**(236)**	**(6)p**	(2)	—
Shares purchased in buy-back	**(600)**	**(15)p**	(300)	(7)p
Other net equity movements[4]	**64**	**13p**	(4)	5p
Equity attributable to shareholders of Aviva plc at 31 December[1]	**16,558**	**424p**	16,969	423p

1 Excluding preference shares of £200 million *(2017: £200 million)*.
2 Number of shares as at 31 December 2018: 3,902 million *(2017: 4,013 million)*.
3 Other includes a gain of £190 million due to a change in the discount rate used for estimating lump sum payments in settlement of bodily injury claims, a gain of £78 million provision release relating to the sale of Aviva USA in 2013, a gain of £36 million relating to negative goodwill on the acquisition of Friends First, a charge of £63 million relating to the UK defined pension scheme as a result of the requirement to equalise members' benefits for the effects of Guaranteed Minimum Pension and a charge of £10 million relating to goodwill payments to preference shareholders, which was announced on 30 April 2018, and associated administration costs. For more information see note A11.
4 Other net equity movements per share includes the effect of the reduction of the number of shares in issue by 119,491,188 in respect of shares acquired and cancelled under the share buy-back programme.

On 1 May 2018 Aviva announced a buy-back of ordinary shares for an aggregate purchase price of £600 million under its share buy-back programme which was successfully completed on 18 September 2018. In 2017, a £300 million buy-back was completed on 19 September 2017.

At the end of 2018, IFRS net asset value per share was 424 pence *(2017: 423 pence)*. The slight increase was due to higher operating profit partially offset by adverse investment return variances, remeasurement of pension schemes, dividend payments to shareholders and the cost of ordinary shares purchased in the buy-back programme. Net asset value per share also benefitted from the impact of the reduction in the number of shares as a result of the buy-back programme. Further details of the investment return variances are shown in sections A4 and A5.

Capital continued

8.iii – Analysis of return on equity

2018	Operating return Before tax £m	After tax £m	Weighted average shareholders' funds including non-controlling interests £m	Return on equity %
United Kingdom[1]	**2,324**	**1,899**	**12,209**	**15.6%**
Canada	**46**	**34**	**1,306**	**2.6%**
Europe	**1,051**	**752**	**5,406**	**13.9%**
Asia	**284**	**263**	**1,627**	**16.2%**
Fund management	**146**	**100**	**533**	**18.8%**
Corporate and other business[1,2]	**(367)**	**(281)**	**5,656**	**n/a**
Return on total capital employed	**3,484**	**2,767**	**26,737**	**10.3%**
Subordinated debt	**(364)**	**(295)**	**(6,767)**	**4.4%**
Senior debt	**(4)**	**(3)**	**(1,403)**	**0.2%**
Return on total equity	**3,116**	**2,469**	**18,567**	**13.3%**
Less: Non-controlling interests		**(100)**	**(1,074)**	**9.3%**
Direct capital instrument and tier 1 notes		**(36)**	**(730)**	**4.9%**
Preference capital		**(17)**	**(200)**	**8.5%**
Return on equity shareholders' funds		**2,316**	**16,563**	**14.0%**

1 Non-insurance operations relating to the UK have been reclassified to their respective market segments to better reflect the management of the underlying businesses consistent with the segmental analysis shown in note B6, resulting in a reclassification of operating return before tax of £76 million from other business to the UK reporting segment.
2 The Corporate and other business loss before tax of £367 million comprises corporate costs of £216 million, other business operating loss of £239 million, partially offset by interest on internal lending arrangements of £13 million and finance income on the main UK pension scheme of £75 million.

2017	Operating return Before tax £m	After tax £m	Weighted average shareholders' funds including non-controlling interests £m	Return on equity %
United Kingdom[1]	2,175	1,767	13,000	13.6%
Canada	46	34	1,442	2.4%
Europe	1,096	787	5,890	13.4%
Asia	227	212	1,638	12.9%
Fund management	164	127	495	25.7%
Corporate and other business[1,2]	(247)	(181)	5,497	n/a
Return on total capital employed	3,461	2,746	27,962	9.8%
Subordinated debt	(389)	(314)	(7,224)	4.3%
Senior debt	(4)	(3)	(1,398)	0.2%
Return on total equity	3,068	2,429	19,340	12.6%
Less: Non-controlling interests		(134)	(1,325)	10.1%
Direct capital instrument and tier 1 notes		(65)	(1,025)	6.3%
Preference capital		(17)	(200)	8.5%
Return on equity shareholders' funds		2,213	16,790	13.2%

1 Non-insurance operations relating to the UK have been reclassified to their respective market segments to better reflect the management of the underlying businesses consistent with the segmental analysis shown in note B6, resulting in a reclassification of operating return before tax of £26 million from other business to the UK reporting segment.
2 The Corporate and other business loss before tax of £247 million comprises corporate costs of £184 million, interest on internal lending arrangements of £7 million, other business operating loss (net of investment return) of £131 million, partly offset by finance income on the main UK pension scheme of £75 million.

8.iv – Group capital under IFRS basis

The table below shows how our capital is deployed by market and how that capital is funded.

	2018 Capital employed £m	2017 Capital employed £m
Life business		
United Kingdom[1]	**10,266**	11,493
France	**2,885**	2,704
Poland	**319**	352
Italy	**686**	954
Other Europe	**380**	422
Europe	**4,270**	4,432
Asia	**1,691**	1,558
	16,227	17,483
General insurance & health		
United Kingdom General Insurance[1,2]	**1,509**	1,872
United Kingdom Health[1]	**122**	106
Canada	**1,290**	1,364
France	**585**	589
Poland	**131**	140
Italy	**148**	319
Other Europe	**185**	203
Europe	**1,049**	1,251
Asia	**—**	10
	3,970	4,603
Fund management	**545**	520
Corporate and other business[1,2,3]	**5,412**	5,169
Total capital employed	**26,154**	27,775
Financed by		
Equity shareholders' funds	**16,558**	16,969
Non-controlling interests	**966**	1,235
Direct capital instrument and tier 1 notes	**731**	731
Preference shares	**200**	200
Subordinated debt[4]	**6,335**	7,221
Senior debt	**1,364**	1,419
Total capital employed[5]	**26,154**	27,775

1 Non-insurance operations relating to the UK have been reclassified to their respective market segments to better reflect the management of the underlying businesses consistent with the segmental analysis shown in note B6.
2 Capital employed for United Kingdom General Insurance excludes c.£0.9 billion *(2017: c£0.9 billion)* of goodwill which does not support the general insurance business for capital purposes and is included in Corporate and other business.
3 Corporate and other business includes centrally held tangible net assets, the main UK staff pension scheme surplus and also reflects internal lending arrangements. These internal lending arrangements, which net out on consolidation, include the formal loan arrangement between Aviva Group Holdings Limited and Aviva Insurance Limited.
4 Subordinated debt excludes amounts held by Group companies of £5 million *(2017: £9 million)*.
5 Goodwill, AVIF and other intangibles are maintained within the capital base. Goodwill includes goodwill in subsidiaries of £1,872 million *(2017: £1,876 million)*, goodwill in joint ventures of £13 million *(2017: £17 million)* and goodwill in associates of £nil *(2017: £nil)*. AVIF and other intangibles comprise £3,201 million *(2017: £3,455 million)* of intangibles in subsidiaries, £33 million *(2017: £40 million)* of intangibles in joint ventures and £nil *(2017: £nil)* of intangibles in associates, net of deferred tax liabilities of £(475) million *(2017: £(721) million)* and the non-controlling interest share of intangibles of £(31) million *(2017: £(254) million)*.

Total capital employed is financed by a combination of equity shareholders' funds, preference capital, subordinated debt and other borrowings. At 31 December 2018, the Group had £26.2 billion *(2017: £27.8 billion)* of total capital employed in our trading operations measured on an IFRS basis.

During 2018, Aviva has undertaken a number of actions to deploy its excess capital.

On 1 May 2018, the Group announced a share buy-back of ordinary shares, which was completed for an aggregate purchase price of £600 million. Shares totalling 119,491,188 *(2017: 57,724,500 shares)* were purchased and subsequently cancelled bringing the total cancelled under the programme to 177,215,688 shares, completing the share buy-back programme for an aggregate price of £900 million.

During the year, the Group also redeemed two subordinated debt instruments in full at their first call date, reduced the outstanding commercial paper balance and issued one senior debt. Further details are set out below:

- On 22 May 2018, the Group redeemed its €500 million 6.875% subordinated notes in full at first call date
- On 8 November 2018, the Group redeemed its $575 million 7.875% undated subordinated notes in full at first call date
- On 13 November 2018, Aviva plc issued €750 million of senior notes at 1.875% which mature in 2027
- On 13 December 2018, the Group's €350 million 0.100% senior notes matured
- The outstanding commercial paper balance was reduced to £251 million *(2017: £668 million)*

At 31 December 2018, the market value of our external debt (subordinated debt and senior debt), preference shares (including both Aviva plc preference shares of £200 million and General Accident plc preference shares, within non-controlling interests, of £250 million), and direct capital instrument and tier 1 notes was £9,278 million *(2017: £11,311 million)*.

Financial supplement

		Page
A	**Income & expenses**	30
B	**IFRS financial statements and notes**	35
C	**Analysis of assets**	92

In this section

A	**Income & expenses**	
Reconciliation of Group adjusted operating profit to profit for the year		30
A1	Other operations	31
A2	Corporate centre	31
A3	Group debt costs and other interest	31
A4	Life business: Investment variances and economic assumption changes	32
A5	Non-life business: Short-term fluctuation in return on investments	33
A6	General insurance and health business: Economic assumption changes	34
A7	Impairment of goodwill, joint ventures , associates and other amounts expensed	34
A8	Amortisation and impairment of intangibles	34
A9	Amortisation and impairment of acquired value of in-force business	34
A10	Profit/loss on the disposal and remeasurement of subsidiaries, joint ventures and associates	34
A11	Other	34

Reconciliation of Group adjusted operating profit‡# to profit for the year

For the year ended 31 December 2018

	2018 £m	2017 £m
Group adjusted operating profit before tax attributable to shareholders' profits		
Life business		
United Kingdom[1]	**1,871**	1,728
Europe	**831**	873
Asia	**300**	235
Other	**(3)**	16
Total life business	**2,999**	2,852
General insurance and health		
United Kingdom General insurance[1]	**415**	411
United Kingdom Health	**38**	36
Canada	**46**	46
Europe	**220**	223
Asia	**(16)**	(8)
Other	**1**	(4)
Total general insurance and health	**704**	704
Fund management		
Aviva Investors	**150**	168
Asia	**(4)**	(4)
Total fund management	**146**	164
Other		
Other operations[1] (note A1)	**(237)**	(143)
Market adjusted operating profit	**3,612**	3,577
Corporate centre (note A2)	**(216)**	(184)
Group debt costs and other interest (note A3)	**(280)**	(325)
Group adjusted operating profit before tax attributable to shareholders' profits	**3,116**	3,068
Integration and restructuring costs	**—**	(141)
Group adjusted operating profit before tax attributable to shareholders' profits after integration and restructuring costs	**3,116**	2,927
Adjusted for the following:		
Life business: Investment variances and economic assumption changes (note A4)	**(197)**	34
Non-life business: Short-term fluctuation in return on investments (note A5)	**(476)**	(345)
General insurance and health business: Economic assumption changes (note A6)	**1**	(7)
Impairment of goodwill, joint ventures, associates and other amounts expensed (note A7)	**(13)**	(49)
Amortisation and impairment of intangibles (note A8)	**(209)**	(197)
Amortisation and impairment of acquired value of in-force business (note A9)	**(426)**	(495)
Profit on the disposal and remeasurement of subsidiaries, joint ventures and associates (note A10)	**102**	135
Other (note A11)	**231**	—
Adjusting items before tax	**(987)**	(924)
Profit before tax attributable to shareholders' profits	**2,129**	2,003
Tax on Group adjusted operating profit	**(647)**	(639)
Tax on other activities	**205**	282
	(442)	(357)
Profit for the year	**1,687**	1,646

1 Non-insurance operations relating to the UK have been reclassified to their respective market segments to better reflect the management of the underlying businesses consistent with the segmental analysis shown in note B6. The impact of this change was to reduce UK Life operating profit by £80 million *(2017: £30 million)*; UK General Insurance operating profit increased by £2 million *(2017: £3 million)* and UK Health increased by £2 million *(2017: £1 million)*.

Other Group adjusted operating profit Items
A1 – Other operations

	2018 £m	2017 £m
Europe	**(40)**	(37)
Asia	**(18)**	(32)
Other Group operations[1]	**(179)**	(74)
Total[2]	**(237)**	(143)

1 Other Group operations include Group and head office costs and expenditure on UK digital business.
2 Non-insurance operations relating to the UK have been reclassified to their respective market segments to better reflect the management of the underlying businesses consistent with the segmental analysis shown in note B6. This resulted in a loss before tax of £30 million and profit before tax of £4 million in 2017 being transferred from the 'Other' products and services segment to the 'Long-term business' and 'General insurance and health' segments respectively.

Other operations relate to non-insurance activities and include costs associated with our Group and regional head offices, pension scheme expenses, as well as non-insurance business. Total costs in relation to non-insurance activities were £237 million *(2017: £143 million)*.

Other Group operations includes net expenses of £99 million *(2017: £48 million)* in relation to supporting the development of the Group's digital business through its UK insurance intermediary which places business primarily on behalf of UK General Insurance.

A2 – Corporate centre

	2018 £m	2017 £m
Project spend	**(80)**	(29)
Central spend and share award costs	**(136)**	(155)
Total	**(216)**	(184)

Corporate centre costs of £216 million *(2017: £184 million)* increased by £32 million mainly due to higher Group led project costs offset by a decrease in central spend and share award costs. The project spend increase relates to expenditure on continued targeted investment in simplification and growth initiatives in digital, IT and finance change as well as strengthening capabilities in Aviva Investors and project expenses that typically relate to mandatory requirements like IFRS 17 and GDPR.

A3 – Group debt costs and other interest

	2018 £m	2017 £m
External debt		
Subordinated debt	**(364)**	(391)
Other	**(4)**	(2)
Total external debt	**(368)**	(393)
Internal lending arrangements	**13**	(7)
Net finance income on main UK pension scheme	**75**	75
Total	**(280)**	(325)

The reduction in subordinated debt costs is due to the redemption of two subordinated debt instruments in full at their first call date (see note 8.iv).

Non-operating profit items

A4 – Life business: Investment variances and economic assumption changes

(a) Definitions

Group adjusted operating profit for life business is based on expected investment returns on financial investments backing shareholder funds over the period, with consistent allowance for the corresponding expected movements in liabilities. Group adjusted operating profit includes the effect of variance in experience for operating items, such as mortality, persistency and expenses, and the effect of changes in operating assumptions. Changes due to economic items, such as market value movements and interest rate changes, which give rise to variances between actual and expected investment returns, and the impact of changes in economic assumptions on liabilities, are disclosed separately outside Group adjusted operating profit.

(b) Economic volatility

The investment variances and economic assumption changes excluded from Group adjusted operating profit for life businesses are as follows:

Life business	2018 £m	2017 £m
Investment variances and economic assumptions	**(197)**	34

Investment variances and economic assumption changes were £197 million negative *(2017: £34 million positive)*, primarily due to negative variances in the UK and Italy. In the UK, these variances were mainly due to an increase in yields, the widening of corporate bond spreads and an increase in the allowance for the possible adverse impact of the decision for the UK to leave the European Union, partially offset by the beneficial impact of our equity hedges. The negative variance in Italy was primarily driven by a widening of sovereign credit spreads and a fall in equity markets.

The Group has kept under review the allowance in our long-term assumptions for future property prices and rental income for the possible adverse impact of the decision for the UK to leave the European Union. This allowance has been determined in line with previous periods and is £395 million as at 31 December 2018, an increase of £109 million from 31 December 2017.

The variance in 2017 was driven by positive variances in the UK, partially offset by negative variances in France. Positive variances in the UK were mainly due to economic modelling developments implemented in 2017. These included developments to align the approach to calculating valuation interest rates across the heritage Aviva and Friends Life portfolios and also a development to the approach to calculating the valuation interest rate for certain deferred annuity business. The negative variance in France was primarily due to an increase in life annuity pension reserves, resulting from a reduction to the discount rate cap used in the calculation of these reserves.

(c) Assumptions

The expected rate of investment return is determined using consistent assumptions at the start of the period between operations, having regard to local economic and market forecasts of investment return and asset classification under IFRS.

The principal assumptions underlying the calculation of the expected investment return for equity and property are:

	Equity		Property	
	2018	2017	2018	2017
United Kingdom	**4.8%**	4.8%	**3.3%**	3.3%
Eurozone	**4.4%**	4.2%	**2.9%**	2.7%

The expected return on equity and property has been calculated by reference to the 10 year mid-price swap rate for an AA rated bank in the relevant currency plus a risk premium. The use of risk premium reflects management's long-term expectations of asset return in excess of the swap yield from investing in different asset classes. The asset risk premiums are set out in the table below:

All territories	2018	2017
Equity risk premium	**3.5%**	3.5%
Property risk premium	**2.0%**	2.0%

The 10 year mid-price swap rates at the start of the period are set out in the table below:

Territories	2018	2017
United Kingdom	**1.3%**	1.3%
Eurozone	**0.9%**	0.7%

For fixed interest securities classified as fair value through profit or loss, the expected investment returns are based on average prospective yields for the actual assets held less an adjustment for credit risk (assessed on a best estimate basis). This includes an adjustment for credit risk on all eurozone sovereign debt. Where such securities are classified as available for sale, the expected investment return comprises the expected interest or dividend payments and amortisation of the premium or discount at purchase.

A5 – Non-life business: Short-term fluctuation in return on investments

Non-life business	2018 £m	2017 £m
Analysis of investment income:		
– Net investment income	**63**	331
– Foreign exchange losses and other charges	**(8)**	(24)
	55	307
Analysed between:		
– Long-term investment return, reported within operating profit	**370**	364
– Short-term fluctuations in investment return, reported outside operating profit	**(315)**	(57)
	55	307
Short-term fluctuations:		
– General insurance and health	**(315)**	(57)
– Other operations[1]	**(161)**	(288)
Total short-term fluctuations	**(476)**	(345)

1 Represents short-term fluctuation on assets backing non-life business in Group centre investments, including the centre hedging programme and Group external borrowings.

The long-term investment return is calculated separately for each principal non-life market. In respect of equities and properties, the return is calculated by multiplying the opening market value of the investments, adjusted for sales and purchases during the year, by the long-term rate of investment return. It is determined using consistent assumptions between operations, having regard to local economic and market forecasts of investment return. The allocated long-term return for other investments is the actual income receivable for the period. Actual income and long-term investment return both contain the amortisation of the discount/premium arising on the acquisition of fixed income securities.

Market value movements which give rise to variances between actual and long-term investment returns are disclosed separately in short-term fluctuations outside operating profit.

The short-term fluctuations during 2018 of £476 million loss was primarily due to adverse market conditions across most of our major markets. This resulted in losses on fixed income securities driven by interest rate increases and widening credit spreads plus significant falls in equities and other adverse market movements on Group centre holdings.

The adverse short-term fluctuations during 2017 were mainly due to foreign exchange losses and adverse market movements on Group centre holdings, including the centre hedging programme.

Total assets supporting the general insurance and health business, which contribute towards the long-term return, are:

	2018 £m	2017 £m
Debt securities	**9,271**	10,054
Equity securities	**866**	772
Properties	**584**	499
Cash and cash equivalents	**1,294**	1,115
Other[1]	**2,349**	2,498
Assets supporting general insurance and health business	**14,364**	14,938
Assets supporting other non-life business[2]	**812**	685
Total assets supporting non-life business	**15,176**	15,623

1 Includes the internal loan to Group from UK Insurance.
2 Represents assets backing non-life business in Group centre investments, including the centre hedging programme.

The principal assumptions underlying the calculation of the long-term investment return are:

	Long-term rate of return on equities		Long-term rate of return on property	
	2018	2017	2018	2017
United Kingdom	**4.8%**	4.8%	**3.3%**	3.3%
Eurozone	**4.4%**	4.2%	**2.9%**	2.7%
Canada	**5.9%**	5.5%	**4.4%**	4.0%

The long-term rates of return on equities and properties have been calculated by reference to the 10-year mid-price swap rate for an AA rated bank in the relevant currency plus a risk premium. The underlying reference rates and risk premiums are shown in note A4(c).

A6 – General insurance and health business: Economic assumption changes

In the general insurance and health business, there is a positive impact of £1 million *(2017: £7 million adverse)* as a result of a slight increase in interest rates used to value periodic payment orders (PPOs) and latent claims.

A7 – Impairment of goodwill, joint ventures, associates and other amounts expensed

Impairment of goodwill, associates and joint ventures expensed in the period totalled £13 million *(2017: £49 million)*, comprising impairments of goodwill relating to businesses in the UK, Asia and Poland. Negative goodwill of £36 million has arisen relating to the acquisition of Friends First Life Assurance Company DAC (Friends First) on 1 June 2018. This has been recognised in Other items (see note A11).

A8 – Amortisation and impairment of intangibles

The amortisation and impairment of intangible assets increased to £209 million *(2017: £197 million)* mainly due to an increase in the amortisation charge on software costs relating to software capitalised in the second half of 2017 and during 2018.

A9 – Amortisation and impairment of acquired value of in-force business

Amortisation and impairment of acquired value of in-force business (AVIF) is a charge of £426 million *(2017: £495 million charge)*, which relates solely to amortisation in respect of the Group's subsidiaries and joint ventures. Impairment charges of £13 million in relation to Friends Provident International Limited (FPI) remeasurement losses are recorded within profit on disposal and remeasurement of subsidiaries, joint ventures and associates (see note A10).

A10 – Profit/loss on the disposal and remeasurement of subsidiaries, joint ventures and associates

The total Group profit on disposal and remeasurement of subsidiaries, joint ventures and associates is £102 million *(2017: £135 million profit)*. This consists of £113 million profit on the disposals of Italy – Avipop, Spain, Taiwan and other small operations, a remeasurement gain of £2 million in relation to Hong Kong; offset by £13 million remeasurement loss in relation to FPI. Further details of these items are provided in note B5.

A11 – Other

Other items are those items that, in the directors' view, are required to be separately disclosed by virtue of their nature or incidence to enable a full understanding of the Group's financial performance. At 31 December 2018, other items is a net gain of £231 million *(2017: £nil)*, which comprises the following:

- A gain of £190 million due to a change in the discount rate used for estimating lump sum payments in settlement of bodily injury claims. Such payments are determined by the UK courts in accordance with the Ogden tables and discount rate. In December 2018, the Civil Liability Bill became an Act of Parliament, which will result in a new Ogden discount rate being set by the Lord Chancellor in 2019. Although the value of the final rate remains uncertain, for 2018 the claim reserves in the UK have been calculated using a discount rate of 0.00% *(2017: -0.75%)*.
- A gain of £78 million arising from the release of a provision in relation to the sale of Aviva USA in 2013.
- A gain of £36 million relating to negative goodwill arising on the acquisition of Friends First (refer to note B4), which arose primarily due to differences between the valuation of the pension scheme liability used to determine the transaction price and the recognition and measurement principles defined by IAS 19 *Employee Benefits*.
- A charge of £63 million relating to the estimated additional liability arising in the UK defined benefit pension schemes as a result of the requirement to equalise members' benefits for the effects of Guaranteed Minimum Pension (GMP). This additional liability has arisen following the High Court judgement in October 2018 in the case involving Lloyds Banking Group.
- A charge of £10 million relating to goodwill payments to preference shareholders, which was announced on 30 April 2018, and associated administration costs, to those preference shareholders who were adversely affected by the sale of shares between 8 March and 22 March 2018.

IFRS financial statements

In this section | **Page**

Consolidated financial statements

	Page
Consolidated income statement	36
Consolidated statement of comprehensive income	37
Consolidated statement of changes in equity	38
Consolidated statement of financial position	39
Consolidated statement of cash flows	40

Notes to the consolidated financial statements

B1	Basis of preparation	41
B2	Presentation changes	43
B3	Exchange rates	43
B4	Subsidiaries, joint ventures and associates – acquisitions	44
B5	Subsidiaries, joint ventures and associates – disposals and held for sale	45
B6	Segmental information	47
B7	Tax	54
B8	Earnings per share	56
B9	Dividends and appropriations	57
B10	Contracted liabilities and associated reinsurance	58
B11	Insurance liabilities	59
B12	Insurance liabilities methodology and assumptions	64
B13	Liability for investment contracts	68
B14	Reinsurance assets	70
B15	Effect of changes in assumptions and estimates during the year	72
B16	Unallocated divisible surplus	72
B17	Borrowings	73
B18	Pension obligations	73
B19	Related party transactions	75
B20	Risk management	76
B21	Direct capital instrument and tier 1 notes	89
B22	Cash and cash equivalents	90
B23	Contingent liabilities and other risk factors	90
B24	Acquired value of in-force business (AVIF) and other intangible assets	91
B25	Subsequent events	91

Consolidated income statement

For the year ended 31 December 2018

	Note	2018 £m	2017 £m
Income			
Gross written premiums		**28,659**	27,606
Premiums ceded to reinsurers		**(2,326)**	(2,229)
Premiums written net of reinsurance		**26,333**	25,377
Net change in provision for unearned premiums		**(81)**	(153)
Net earned premiums		**26,252**	25,224
Fee and commission income		**2,180**	2,187
Net investment (expense)/income		**(10,847)**	22,066
Share of profit after tax of joint ventures and associates		**112**	41
Profit on the disposal and remeasurement of subsidiaries, joint ventures and associates	B5 (a)	**102**	135
		17,799	49,653
Expenses			
Claims and benefits paid, net of recoveries from reinsurers		**(23,142)**	(24,113)
Change in insurance liabilities, net of reinsurance	B10 (b)	**6,246**	(1,074)
Change in investment contract provisions		**5,321**	(13,837)
Change in unallocated divisible surplus	B16	**3,237**	294
Fee and commission expense		**(3,393)**	(4,329)
Other expenses		**(3,843)**	(3,537)
Finance costs		**(573)**	(683)
		(16,147)	(47,279)
Profit before tax		**1,652**	2,374
Tax attributable to policyholders' returns	B7	**477**	(371)
Profit before tax attributable to shareholders' profits		**2,129**	2,003
Tax credit/(expense)	B7	**35**	(728)
Less: tax attributable to policyholders' returns	B7	**(477)**	371
Tax attributable to shareholders' profits	B7	**(442)**	(357)
Profit for the year		**1,687**	1,646
Attributable to:			
Equity holders of Aviva plc		**1,568**	1,497
Non-controlling interests		**119**	149
Profit for the year		**1,687**	1,646
Earnings per share	B8		
Basic (pence per share)		**38.2p**	35.0p
Diluted (pence per share)		**37.8p**	34.6p

Consolidated statement of comprehensive income

For the year ended 31 December 2018

	Note	2018 £m	2017 £m
Profit for the year		**1,687**	1,646
Other comprehensive income:			
Items that may be reclassified subsequently to income statement			
Investments classified as available for sale			
Fair value gains/(losses)		**57**	(7)
Fair value gains transferred to profit on disposals		**(78)**	(2)
Share of other comprehensive (loss)/income of joint ventures and associates		**(10)**	6
Foreign exchange rate movements		**5**	68
Aggregate tax effect – shareholder tax on items that may be reclassified subsequently to income statement	B7(b)	**8**	5
Items that will not be reclassified to income statement			
Owner-occupied properties – fair value gains/(losses)		**1**	(1)
Remeasurements of pension schemes		**(279)**	(5)
Aggregate tax effect – shareholder tax on items that will not be reclassified subsequently to income statement	B7(b)	**43**	5
Total other comprehensive income, net of tax		**(253)**	69
Total comprehensive income for the year		**1,434**	1,715
Attributable to:			
Equity holders of Aviva plc		**1,310**	1,523
Non-controlling interests		**124**	192
		1,434	1,715

Consolidated statement of changes in equity

For the year ended 31 December 2018

	Ordinary share capital £m	Preference share capital £m	Capital reserves[1] £m	Treasury shares £m	Currency translation reserve £m	Other reserves £m	Retained earnings £m	DCI and tier 1 notes £m	Total equity excluding non-controlling interests £m	Non-controlling interests £m	Total equity £m
Balance at 1 January	**1,003**	**200**	**10,195**	**(14)**	**1,141**	**(274)**	**4,918**	**731**	**17,900**	**1,235**	**19,135**
Profit for the year	—	—	—	—	—	—	1,568	—	1,568	119	1,687
Other comprehensive income	—	—	—	—	28	(50)	(236)	—	(258)	5	(253)
Total comprehensive income for the year	—	—	—	—	28	(50)	1,332	—	1,310	124	1,434
Dividends and appropriations	—	—	—	—	—	—	(1,189)	—	(1,189)	—	(1,189)
Non-controlling interests share of dividends declared in the year	—	—	—	—	—	—	—	—	—	(90)	(90)
Shares purchased in buy-back[2]	(30)	—	30	—	—	—	(600)	—	(600)	—	(600)
Transfer to profit on disposal of subsidiaries, joint ventures and associates	—	—	—	—	(40)	36	—	—	(4)	—	(4)
Changes in non-controlling interests in subsidiaries	—	—	—	—	(7)	—	1	—	(6)	(306)	(312)
Reserves credit for equity compensation plans	—	—	—	—	—	64	—	—	64	—	64
Shares issued under equity compensation plans	2	—	7	(1)	—	(55)	49	—	2	—	2
Capital contributions from non-controlling interests	—	—	—	—	—	—	—	—	—	3	3
Forfeited dividend income	—	—	—	—	—	—	4	—	4	—	4
Reclassification of tier 1 notes to financial liabilities	—	—	—	—	—	—	—	—	—	—	—
Treasury shares held by subsidiary companies	—	—	—	—	—	—	—	—	—	—	—
Owner-occupied properties fair value gains transferred to retained earnings on disposals	—	—	—	—	—	—	—	—	—	—	—
Aggregate tax effect – shareholder tax	—	—	—	—	—	—	8	—	8	—	8
Balance at 31 December	**975**	**200**	**10,232**	**(15)**	**1,122**	**(279)**	**4,523**	**731**	**17,489**	**966**	**18,455**

1 Capital reserves consist of share premium of £1,214 million, a capital redemption reserve of £44 million and a merger reserve of £8,974 million.
2 On 1 May 2018, the Group announced a share buy-back of ordinary shares for an aggregate purchase price of up to £600 million. On completion in 2018 of this buy-back, £600 million of shares had been purchased and shares with a nominal value of £30 million have been cancelled, giving rise to an additional capital redemption reserve of an equivalent amount.

For the year ended 31 December 2017

	Ordinary share capital £m	Preference share capital £m	Capital reserves[1] £m	Treasury shares £m	Currency translation reserve £m	Other reserves £m	Retained earnings £m	DCI and tier 1 notes £m	Total equity excluding non-controlling interests £m	Non-controlling interests £m	Total equity £m
Balance at 1 January	1,015	200	10,171	(15)	1,146	(349)	4,835	1,123	18,126	1,425	19,551
Profit for the year	—	—	—	—	—	—	1,497	—	1,497	149	1,646
Other comprehensive income	—	—	—	—	121	(93)	(2)	—	26	43	69
Total comprehensive income for the year	—	—	—	—	121	(93)	1,495	—	1,523	192	1,715
Dividends and appropriations	—	—	—	—	—	—	(1,081)	—	(1,081)	—	(1,081)
Non-controlling interests share of dividends declared in the year	—	—	—	—	—	—	—	—	—	(103)	(103)
Shares purchased in buy-back[2]	(14)	—	14	—	—	—	(300)	—	(300)	—	(300)
Transfer to profit on disposal of subsidiaries, joint ventures and associates	—	—	—	—	(126)	137	1	—	12	—	12
Changes in non-controlling interests in subsidiaries	—	—	—	—	—	—	—	—	—	(315)	(315)
Reserves credit for equity compensation plans	—	—	—	—	—	77	—	—	77	—	77
Shares issued under equity compensation plans	2	—	10	—	—	(44)	42	—	10	—	10
Capital contributions from non-controlling interests	—	—	—	—	—	—	—	—	—	36	36
Reclassification of tier 1 notes to financial liabilities[3]	—	—	—	—	—	—	(92)	(392)	(484)	—	(484)
Treasury shares held by subsidiary companies	—	—	—	1	—	—	—	—	1	—	1
Owner-occupied properties fair value gains transferred to retained earnings on disposals	—	—	—	—	—	(2)	2	—	—	—	—
Aggregate tax effect – shareholder tax	—	—	—	—	—	—	16	—	16	—	16
Balance at 31 December	1,003	200	10,195	(14)	1,141	(274)	4,918	731	17,900	1,235	19,135

1 Capital reserves consist of share premium of £1,207 million, a capital redemption reserve of £14 million and a merger reserve of £8,974 million.
2 On 25 May 2017, the Group announced a share buy-back of ordinary shares for an aggregate purchase price of up to £300 million. On completion in 2017 of this buy-back, £300 million of shares had been purchased and shares with a nominal value of £14 million have been cancelled, giving rise to a capital redemption reserve of an equivalent amount.
3 On 28 September 2017, notification was given that the Group would redeem the $650 million fixed rate tier 1 notes. At that date, the instrument was reclassified as a financial liability of £484 million, representing its fair value on translation into sterling on that date. The resulting foreign exchange loss of £92 million has been charged to retained earnings.

Consolidated statement of financial position

As at 31 December 2018

	Note	2018 £m	2017 £m
Assets			
Goodwill		**1,872**	1,876
Acquired value of in-force business and intangible assets	B24	**3,201**	3,455
Interests in, and loans to, joint ventures		**1,214**	1,221
Interests in, and loans to, associates		**304**	421
Property and equipment		**548**	509
Investment property		**11,482**	10,797
Loans		**28,785**	27,857
Financial investments		**297,585**	311,082
Reinsurance assets	B14	**11,755**	13,492
Deferred tax assets		**185**	144
Current tax assets		**76**	94
Receivables		**8,879**	8,285
Deferred acquisition costs		**2,965**	2,906
Pension surpluses and other assets		**3,341**	3,468
Prepayments and accrued income		**2,947**	2,860
Cash and cash equivalents		**46,484**	43,347
Assets of operations classified as held for sale	B5	**8,855**	10,871
Total assets		**430,478**	442,685
Equity			
Capital			
Ordinary share capital		**975**	1,003
Preference share capital		**200**	200
		1,175	1,203
Capital reserves			
Share premium		**1,214**	1,207
Capital redemption reserve		**44**	14
Merger reserve		**8,974**	8,974
		10,232	10,195
Treasury shares		**(15)**	(14)
Currency translation reserve		**1,122**	1,141
Other reserves		**(279)**	(274)
Retained earnings		**4,523**	4,918
Equity attributable to shareholders of Aviva plc		**16,758**	17,169
Direct capital instrument and tier 1 notes	B21	**731**	731
Equity excluding non-controlling interests		**17,489**	17,900
Non-controlling interests		**966**	1,235
Total equity		**18,455**	19,135
Liabilities			
Gross insurance liabilities	B11	**144,077**	148,650
Gross liabilities for investment contracts	B13	**202,468**	203,986
Unallocated divisible surplus	B16	**5,949**	9,082
Net asset value attributable to unitholders		**18,125**	18,327
Pension deficits and other provisions		**1,399**	1,429
Deferred tax liabilities		**1,885**	2,377
Current tax liabilities		**254**	290
Borrowings	B17	**9,420**	10,286
Payables and other financial liabilities		**16,882**	16,459
Other liabilities		**3,043**	2,791
Liabilities of operations classified as held for sale	B5	**8,521**	9,873
Total liabilities		**412,023**	423,550
Total equity and liabilities		**430,478**	442,685

Consolidated statement of cash flows

For the year ended 31 December 2018

The cash flows presented in this statement cover all the Group's activities and include flows from both policyholder and shareholder activities. All cash and cash equivalents are available for use by the Group.

	Note	2018 £m	2017 £m
Cash flows from operating activities[1]			
Cash generated from operating activities		**6,405**	8,361
Tax paid		**(447)**	(620)
Total net cash from operating activities		**5,958**	7,741
Cash flows from investing activities			
Acquisitions of, and additions to, subsidiaries, joint ventures and associates, net of cash acquired		**192**	25
Disposals of subsidiaries, joint ventures and associates, net of cash transferred		**381**	(49)
Purchases of property and equipment		**(87)**	(69)
Proceeds on sale of property and equipment		**15**	5
Purchases of intangible assets		**(64)**	(107)
Total net cash from/(used in) investing activities		**437**	(195)
Cash flows from financing activities			
Proceeds from issue of ordinary shares		**8**	12
Shares purchased in buy-back		**(600)**	(300)
Treasury shares purchased for employee trusts		**(4)**	—
New borrowings drawn down, net of expenses		**3,148**	1,320
Repayment of borrowings[2]		**(4,181)**	(1,904)
Net repayment of borrowings	B17 (b)	**(1,033)**	(584)
Interest paid on borrowings		**(551)**	(610)
Preference dividends paid	B9	**(17)**	(17)
Ordinary dividends paid	B9	**(1,128)**	(983)
Forfeited dividend income		**4**	—
Coupon payments on direct capital instrument and tier 1 notes	B9	**(44)**	(81)
Capital contributions from non-controlling interests of subsidiaries		**3**	36
Dividends paid to non-controlling interests of subsidiaries		**(90)**	(103)
Other[3]		**(13)**	—
Total net cash used in financing activities		**(3,465)**	(2,630)
Total net increase in cash and cash equivalents		**2,930**	4,916
Cash and cash equivalents at 1 January		**43,587**	38,405
Effect of exchange rate changes on cash and cash equivalents		**92**	266
Cash and cash equivalents at 31 December		**46,609**	43,587

1 Cash flows from operating activities include interest received of £5,093 million *(2017: £5,302 million)* and dividends received of £4,648 million *(2017: £2,606 million)*.
2 Repayment of borrowings includes the redemption of €500 million 6.875% subordinated notes and $575 million 7.875% undated subordinated notes, in full at first call dates, and the maturity of €350 million 0.100% senior notes.
3 Includes £10 million relating to goodwill payments to preference shareholders, which was announced on 30 April 2018, and associated administration costs, and £3 million donation of forfeited dividend income to a charitable foundation.

Notes to the consolidated financial statements

B1(i) Basis of preparation

(a) The results in this preliminary announcement have been taken from the Group's 2018 Annual report and accounts which will be available on the Company's website on 26 March 2019. The consolidated financial statements have been prepared and approved by the directors in accordance with International Financial Reporting Standards (IFRS) as adopted by the European Union (EU), and those parts of the Companies Act 2006 applicable to those reporting under IFRS.

The basis of preparation and summary of accounting policies applicable to the Group's consolidated financial statements can be found in the Accounting policies section of the 2018 Annual report and accounts. The comparative figures have been restated for the adjustments detailed in note B2. In addition, the Group has adopted new amendments to published standards as described in B1(ii), however, these do not have a significant impact on the Group's consolidated financial statements.

The preliminary announcement for the year ended 31 December 2018 does not constitute statutory accounts as defined in Section 434 of the Companies Act 2006. The results on an IFRS basis for full year 2018 and 2017 have been audited by PricewaterhouseCoopers LLP (PwC). PwC have reported on the 2018 and 2017 consolidated financial statements. Both reports were unqualified and neither contained a statement under section 498 (2) or (3) of the Companies Act 2006. The Group's 2017 report and accounts have been filed with the Registrar of Companies.

After making enquiries, the Directors have a reasonable expectation that the Group as a whole has adequate resources to continue in operational existence over a period of at least 12 months from the date of approval of the financial statements. For this reason, they continue to adopt the going concern basis in preparing the financial statements.

(b) Items included in the financial statements of each of the Group's entities are measured in the currency of the primary economic environment in which that entity operates (the functional currency). The consolidated financial statements are stated in pounds sterling, which is the Company's functional and presentational currency. Unless otherwise noted, the amounts shown in these financial statements are in millions of pounds sterling (£m).

(c) The long-term nature of much of the Group's operations means that, for management's decision-making and internal performance management of our operating segments, the Group focuses on Group adjusted operating profit, a non-GAAP alternative performance measure (APM), that incorporates an expected return on investments supporting its long-term and non-long-term businesses.

Group adjusted operating profit for long-term business is based on expected investment returns on financial investments backing shareholder and policyholder funds over the reporting period, with allowance for the corresponding expected movements in liabilities. Variances between actual and expected investment returns, and the impact of changes in economic assumptions on liabilities, are disclosed separately outside operating profit. For non-long-term business, the total investment income, including realised and unrealised gains, is analysed between that calculated using a longer-term return and short-term fluctuations from that level. The exclusion of short-term realised and unrealised investment gains and losses from the Group adjusted operating profit APM reflects the long-term nature of much of our business and presents separately the operating profit APM which is used in managing the performance of our operating segments from the impact of economic factors.

Group adjusted operating profit also excludes impairment of goodwill, associates and joint ventures; amortisation and impairment of other intangibles; amortisation and impairment of acquired value of in-force business; and the profit or loss on disposal and remeasurement of subsidiaries, joint ventures and associates. These items principally relate to mergers and acquisition activity which we view as strategic in nature, hence they are excluded from the operating profit APM as this is principally used to manage the performance of our operating segments when reporting to the Group's chief decision maker. Other items are those items that, in the Directors' view, are required to be separately disclosed by virtue of their nature or incidence to enable a full understanding of the Group's financial performance. Details of these items, including an explanation of the rationale for their exclusion, are provided in the relevant notes.

The Group adjusted operating profit APM should be viewed as complementary to IFRS GAAP measures. It is important to consider Group adjusted operating profit and profit before tax together to understand the performance of the business in the period.

B1(ii) New standards, interpretations and amendments to published standards that have been adopted by the Group

The Group has adopted the following amendments to standards which became effective for the annual reporting period beginning on 1 January 2018:

(i) Amendments to IFRS 4, Insurance Contracts

In September 2016, the IASB published amendments to IFRS 4 *Insurance Contracts* that address the accounting consequences of the application of IFRS 9 to insurers prior to implementing the new accounting standard for insurance contracts, IFRS 17, which replaces IFRS 4. The amendments introduce two options for insurers: the deferral approach and the overlay approach. The deferral approach provides an entity, if eligible, with a temporary exemption from applying IFRS 9. The overlay approach allows an entity to remove from profit or loss the effects of some of the accounting mismatches that may occur before the new insurance contracts standard is applied. In November 2018 the IASB recommended an amendment to IFRS 17 to defer the effective date to 1 January 2022. At the same time, they recommended an extension to the fixed expiry date for the temporary exemption for insurers from applying IFRS 9 until 1 January 2022. These amendments are subject to IASB's due process and will be included in an exposure draft expected to be published later in 2019.

The carrying amount of the Group's liabilities connected with insurance exceed 90% of the carrying amount of the Group's total liabilities and, as such, the Group is eligible to apply the deferral approach, as defined by the amendments to IFRS 4. The Group has opted to apply this deferral from 2018. Liabilities connected with insurance in the statement of financial position primarily include liabilities arising from contracts within the scope of IFRS 4, non-derivative investment contract liabilities and tax liabilities and payables arising in the course of writing insurance business.

IFRS 9 information relating to entities within the Group which have applied the standard from 1 January 2018 can be found in the entities' publicly available individual financial statements.

(ii) IFRS 15, Revenue from Contracts with Customers

In May 2014, the IASB issued IFRS 15 *Revenue from Contracts with Customers*. This standard applies to annual reporting periods beginning on or after 1 January 2018 and has been endorsed by the EU. This standard replaces IAS 18 *Revenue*.

The scope of IFRS 15 includes all contracts where an Aviva company has agreed to provide goods or services to a customer, except for the following:

- Insurance contracts (IFRS 4)
- Financial instruments (IAS 39)
- Leases (IAS 17)

The adoption of this standards has resulted in the following minor amendments to the Group accounting policies:

- (I) Other investment contract fee revenue – updated to clarify that fees related to investment management services are recognised as revenue over time, as performance obligations are satisfied. Variable consideration, such as performance fees and commission subject to clawback arrangements, are only recorded as revenue to the extent it is highly probable that it will not be subject to significant reversal.
- (J) Other fee and commission income – updated to clarify that all other fee and commission income is recognised over time as the services are provided.

The retrospective impact of the adoption of IFRS 15 on prior reporting periods is not material to the Group, and prior period comparative figures have not been restated as a result. The adoption of IFRS 15 does not have a significant impact on the Group's consolidated financial statements.

The following amendments to existing standards and IFRIC interpretations have been issued, and are effective from 1 January 2018 or earlier, and do not have an impact on the Group's consolidated financial statements as the clarifications are consistent with our existing interpretation.

(iii) Amendments to IFRS 2: Classification and Measurement of Share-based Payment Transactions

In June 2016, the IASB issued amendments to IFRS 2 *Share-based Payment*. The amendments were endorsed by the EU in February 2018 and are effective from 1 January 2018.

(iv) Annual Improvements to IFRSs 2014-2016

These improvements consist of amendments to three IFRSs including IFRS 1 *First-time Adoption of International Financial Reporting Standards*, IFRS 12 *Disclosure of Interests in Other Entities* and IAS 28 *Investments in Associates*. The amendment to IFRS 12 was effective for annual reporting periods beginning on or after 1 January 2017. The amendments to IFRS 1 and IAS 28 are effective for annual reporting periods beginning on or after 1 January 2018. The amendments were endorsed by the EU in February 2018.

(v) Amendments to IAS 40 – Transfers of Investment Property

In December 2016, the IASB published amendments to IAS 40 *Investment Property*. The amendments are effective from 1 January 2018 and have been endorsed by the EU.

(vi) IFRIC 22, Foreign Currency Transactions and Advance Consideration

In December 2016, the IASB published IFRIC 22 *Foreign Currency Transactions and Advance Consideration*. The standard is effective for annual reporting beginning on or after 1 January 2018 and has been endorsed by the EU.

B2 – Presentation changes

During 2018, non-insurance business in the UK which was previously reported within the Other products and services segment, such as the savings business, is now reported within the Long-term business or General insurance and health segments, as appropriate, as this is more reflective of the Group's operating segments and consistent with how the businesses are managed. Comparative information in the products and services segmental note B6(b) has been restated to reflect this change. This resulted in a loss before tax of £80 million *(2017: £30 million)* and profit before tax of £4 million *(2017: £4 million)* being transferred from the Other products and services segment to the long-term business and general insurance and health segments respectively. The corresponding net assets amount is £55 million *(2017: £140 million)*. This change has no impact on the Group's operating profit, profit before tax, net assets or on the operating segmental disclosures in note B6(a).

B3 – Exchange rates

The Group's principal overseas operations during the year were located within the eurozone, Canada and Poland. The results and cash flows of these operations have been translated into sterling at the average rates for the year, and the assets and liabilities have been translated at the year end rates as follows:

	2018	2017
Eurozone		
Average rate (€1 equals)	**£0.88**	£0.88
Year end rate (€1 equals)	**£0.90**	£0.89
Canada		
Average rate ($CAD1 equals)	**£0.58**	£0.60
Year end rate ($CAD1 equals)	**£0.57**	£0.59
Poland		
Average rate (PLN1 equals)	**£0.21**	£0.21
Year end rate (PLN1 equals)	**£0.21**	£0.21

B4 – Subsidiaries, joint ventures and associates – acquisitions

This note provides details of the acquisitions of subsidiaries, joint ventures and associates that the Group has made during the year.

(i) Wealthify

On 8 February 2018, Aviva acquired a majority shareholding in Wealthify Group Limited, the holding company of Wealthify, for a cash consideration of £17 million. The investment is part of Aviva's strategy to build customer loyalty by providing customers with a wide range of insurance and investment services, all managed through the convenience and simplicity of Aviva's digital hub, MyAviva.

(ii) Friends First

On 13 November 2017, Aviva plc announced the acquisition of Friends First Life Assurance Company DAC (Friends First), an Irish insurer, for a consideration of €146 million (approximately £129 million). Following completion of the transaction on 1 June 2018, Friends First is now a wholly owned subsidiary. As a result of this acquisition, Aviva is now one of the largest composite insurers in Ireland.

The following table summarises the consideration for the acquisition, the fair value of the assets acquired, liabilities assumed and resulting allocation to goodwill.

	1 June 2018 Fair Value £m
Assets	
Acquired value of in-force business and intangible assets	96
Property and equipment	3
Investment property	424
Financial investments	3,207
Reinsurance assets	502
Receivables	33
Tax assets	3
Cash and cash equivalents	354
Total identifiable assets	**4,622**
Liabilities	
Gross Insurance liabilities	1,409
Gross liabilities for investment contracts	2,921
Unallocated divisible surplus	66
Payables and other financial liabilities	33
Other liabilities	28
Total identifiable liabilities	**4,457**
Net identifiable assets acquired	**165**
Consideration	**129**
Negative goodwill arising on acquisition	**36**

The acquisition resulted in a gain from negative goodwill of £36 million, as the fair value of the net assets acquired of £165 million exceeded the consideration paid of £129 million. The gain arose primarily due to differences between the valuation of the pension scheme liability used to determine the transaction price and the recognition and measurement principles defined by IAS 19. The gain has been recognised immediately in the income statement as required by IFRS 3. The receivables balance of £33 million is made up of other receivables, prepayments and accrued income, measured at fair value and assessed as fully recoverable.

In the period 1 June 2018 to 31 December 2018, the profits of the acquired Friends First company have contributed net earned premiums and fees and commission income of £68 million and a loss before tax attributable to shareholders of £0.4 million.

If the acquisition had been effective on 1 January 2018, on a pro-forma basis the contribution to the Group's net earned premiums is estimated at £102 million and profit before tax attributable to shareholders is estimated at £5 million. In determining this amount, management has assumed that the fair value adjustments that arose on the date of acquisition would have been the same if the acquisition occurred on 1 January 2018. The pro-forma results are provided for information purposes only and do not necessarily reflect the actual results that would have occurred had the acquisition taken place on 1 January 2018, nor are they necessarily indicative of the future results of the combined Group.

Subsequent events

On 30 January 2019, Aviva acquired a majority holding in Neos Ventures Limited for a cash consideration of £9 million.

B5 – Subsidiaries, joint ventures and associates – disposals and held for sale

This note provides details of the disposals of subsidiaries, joint ventures and associates that the Group has made during the year, together with details of businesses held for sale at the year end.

(a) Summary

The profit on the disposal and remeasurement of subsidiaries, joint ventures and associates comprises:

	2018 £m	2017 £m
Disposals	**113**	237
Held for sale remeasurements	**(13)**	(125)
Remeasurements due to change in control status	**2**	23
Total profit on disposal and remeasurement	**102**	135

The profit on disposal in the period of £113 million *(2017: £237 million)* primarily relates to the disposals of Italy Avipop and three businesses in Spain (see note B5(b)(i) and (ii) below for further details respectively). There has been a £13 million remeasurement loss in relation to Friends Provident International Limited (FPI) (see note B5(c)(i) for further details) and a £2 million remeasurement gain due to change in control status of the Hong Kong business (see note B5(d) for further details).

(b) Disposals of subsidiaries, joint ventures and associates

The following businesses were disposed of in 2018:

	Italy – Avipop (i) £m	Spain (ii) £m	Total £m
Assets			
Goodwill, acquired value of in-force business and intangible assets	439	213	652
Investments	376	457	833
Receivables and other financial assets	17	4	21
Reinsurance assets	75	6	81
Deferred acquisition costs	15	—	15
Prepayments and accrued income	—	6	6
Cash and cash equivalents	42	18	60
Total assets	**964**	**704**	**1,668**
Liabilities			
Gross insurance liabilities	376	381	757
Payables and other financial liabilities	2	19	21
Tax liabilities	143	48	191
Other liabilities	6	21	27
Total liabilities	**527**	**469**	**996**
Net assets	**437**	**235**	**672**
Non-controlling interests before disposal	(213)	(128)	(341)
Group's share of net assets disposed	**224**	**107**	**331**
Cash consideration	235	189	424
Less: transaction costs	(3)	(4)	(7)
Net consideration	**232**	**185**	**417**
Reserves recycled to the income statement	16	(14)	2
Profit on disposal	**24**	**64**	**88**
Other small disposals (iii)			**25**
Total profit on disposal			**113**

(i) Italy – Avipop

On 29 March 2018, Aviva announced that it had completed the sale of its entire shareholding of Avipop Assicurazioni S.p.A and Avipop Vita S.p.A to Banco BPM for cash consideration of €265 million (approximately £235 million). The transaction resulted in a total gain on disposal of £24 million.

(ii) Spain

On 11 July 2018, Aviva announced that it had completed the sale of its entire shareholding in life insurance and pension joint ventures Caja Murcia Vida and Caja Granada Vida to Bankia for a total consideration of €203 million (approximately £180 million). In addition, on 1 October 2018, Aviva completed the sale of its entire 50% shareholding in the small life insurance operation Pelayo Vida to Santa Lucia for a total consideration of €10 million (approximately £9 million). These transactions resulted in a total gain on disposal of £64 million.

(iii) Other

On 19 January 2018, Aviva announced that it had completed the sale of its entire 49% shareholding in its joint venture in Taiwan, First Aviva Life (Aviva Taiwan) to Aviva's joint venture partner, First Financial Holding Company Limited (FFH) for cash consideration of $1. The transaction resulted in a gain of £7 million arising from reserves recycled to the Income Statement. Remeasurement losses arising from the classification of Aviva Taiwan as held for sale were recognised in 2017.

B5 – Subsidiaries, joint ventures and associates – disposals and held for sale continued

On 5 November 2018, Aviva Investors completed the sale of its Real Estate Multi-Manager business to LaSalle Investment Management and exited its partnership arrangement in Encore+, a pan-European commercial property fund, also with LaSalle. The assets disposed of represent customer related intangible assets. The gain on disposal was £27 million.

The remaining balance of £9 million loss primarily relates to other currency translation reserve recycling adjustments.

(iv) Disposals of other investments

In the second half of 2018, Aviva France disposed of its investments in the asset management company Primonial Real Estate Investment Management and the breakdown assistance company Opteven. The realised gains on disposal of these investments recognised in net investment income was €107 million (approximately £94 million).

(c) Assets and liabilities of operations classified as held for sale

The assets and liabilities of operations classified as held for sale as at 31 December 2018 are as follows:

	2018 £m	2017 £m
Assets		
Goodwill, acquired value of in-force and other intangibles	**660**	1,467
Property and equipment	**5**	5
Loans	**—**	6
Financial investments	**7,251**	8,306
Reinsurance assets	**45**	123
Other assets	**206**	225
Cash and cash equivalents	**688**	739
Total assets	**8,855**	10,871
Liabilities		
Gross insurance liabilities	**121**	914
Gross liability for investment contracts	**8,341**	8,663
Unallocated divisible surplus	**—**	19
Other liabilities	**59**	277
Total liabilities	**8,521**	9,873
Net assets	**334**	998

Assets and liabilities of operations classified as held for sale as at 31 December 2018 relate to the expected disposal of the international operations of FPI. See below for further details. Assets and liabilities of operations classified as held for sale during 2017 relate to Italy Avipop, Aviva Taiwan and Spain which were disposed of in 2018 and FPI.

(i) FPI

On 19 July 2017, Aviva announced the sale of FPI to RL360 Holding Company Limited, a subsidiary of International Financial Group Limited, for a total consideration of £340 million. The conditions defined in IFRS 5 for a subsidiary to be classified as held for sale include the presumption that the sale will be completed within 12 months of the date of reclassification. The transaction remains subject to regulatory approvals and is now expected to complete in the first half of 2019. As such, the subsidiary continues to be classified as held for sale and has been remeasured at fair value based on the expected sale price less costs to sell, calculated as £334 million. This resulted in a total loss on remeasurement of £118 million in 2017, and an additional remeasurement loss of £13 million in 2018. The goodwill attributable to FPI was fully impaired in 2017. The business remains a consolidated subsidiary of Aviva at the balance sheet date.

(d) Remeasurements due to change in control status

On 13 February 2018, Aviva announced that it has completed the transaction to develop a digital insurance joint venture in Hong Kong (Blue) with Hillhouse Capital Group (Hillhouse) and Tencent Holdings Limited (Tencent). The joint venture commenced operating under its new corporate structure during the first half of 2018. The transaction included the sale of 60% of the shareholding in Aviva Life Insurance Company Limited (Aviva Hong Kong) for cash consideration of HKD 301 million (approximately £29 million). The transaction resulted in a remeasurement gain of £2 million mainly arising through the recycling of reserves to the income statement and, additionally, a loss of £4 million in equity in accordance with IFRS 10 as Aviva has retained control of certain activities under the sale agreement.

(e) Significant restrictions

In certain jurisdictions the ability of subsidiaries to transfer funds to the Group in the form of cash dividends or to repay loans and advances is subject to local corporate or insurance laws and regulations and solvency requirements. There are no protective rights of non-controlling interests which significantly restrict the Group's ability to access or use the assets and settle the liabilities of the Group.

B6 – Segmental information

The Group's results can be segmented either by activity or by geography. Our primary reporting format is along market reporting lines, with supplementary information being given by business activity. This note provides segmental information on the consolidated income statement and consolidated statement of financial position.

(a) Operating segments

United Kingdom

The United Kingdom comprises two operating segments – Life and General Insurance. The principal activities of our UK Life operations are life insurance, long-term health and accident insurance, savings, pensions and annuity business. UK General Insurance provides insurance cover to individuals and businesses, for risks associated mainly with motor vehicles, property and liability (such as employers' liability and professional indemnity liability) and medical expenses.

Canada

The principal activity of our operation in Canada is general insurance. In particular it provides personal and commercial lines insurance products principally distributed through insurance brokers.

France

The principal activities of our operations in France are long-term business and general insurance. The long-term business offers a range of long-term insurance and savings products, primarily for individuals, with a focus on the unit-linked market. The general insurance business predominantly sells personal and small commercial lines insurance products through agents and a direct insurer.

Poland

Activities in Poland comprise long-term business and general insurance and includes our long-term business in Lithuania.

Italy, Ireland, Spain and Other

These countries are not individually significant at a Group level, so have been aggregated into a single reporting segment in line with IFRS 8. The principal activities of our operations in Italy and Ireland are long-term business and general insurance. The principal activity of our operation in Spain was the sale of accident and health insurance and a selection of savings products. Our 'Other' operations include our life operations in Turkey. This segment also includes Friends First, which was acquired on 1 June 2018 (see note B4). The results of entities within Spain are included up to the date of disposal (Unicorp Vida and Caja España Vida on 15 September 2017, Caja Murcia Vida and Caja Granada Vida on 11 July 2018 and Pelayo Vida on 1 October 2018) and the results of Avipop, part of our operations in Italy, have been included up to the date of disposal on 29 March 2018 (see note B5).

Asia

Our activities in Asia principally comprise our long-term business operations in China, India, Singapore, Hong Kong, Vietnam, Indonesia, Taiwan (up to 19 January 2018, (see note B5(b))) and FPI (see note B5(c)). This segment also includes general insurance and health operations in Singapore and health operations in Indonesia. This segment includes the results of the digital insurance joint venture in Hong Kong, which commenced operating under its new corporate structure during the first half of 2018.

Aviva Investors

Aviva Investors operates in most of the markets in which the Group operates, in particular the UK, France, North America and Asia Pacific. Aviva Investors manages policyholders' and shareholders' invested funds, provides investment management services for institutional pension fund mandates and manages a range of retail investment products. These include investment funds, unit trusts, open-ended investment companies and individual savings accounts.

Other Group activities

Investment return on centrally held assets and head office expenses, such as Group treasury and finance functions, together with certain taxes and financing costs arising on central borrowings are included in 'Other Group activities', along with central core structural borrowings and certain tax balances in the segmental statement of financial position. The results of our internal reinsurance and digital broker operations and the Group's interest in Wealthify (see note B4) are also included in this segment, as are the elimination entries for certain inter-segment transactions.

B6 – Segmental information continued

Measurement basis

The accounting policies of the segments are the same as those for the Group as a whole. Any transactions between the business segments are subject to normal commercial terms and market conditions. The Group evaluates performance of operating segments on the basis of:
(i) profit or loss from operations before tax attributable to shareholders
(ii) profit or loss from operations before tax attributable to shareholders, adjusted for items outside the segment management's control, including investment market performance and fiscal policy changes.

(a) (i) Segmental income statement for the year ended 31 December 2018

	United Kingdom			Europe						
	Life £m	GI £m	Canada[2] £m	France £m	Poland £m	Italy, Ireland, Spain and Other £m	Asia £m	Aviva Investors[3] £m	Other Group activities[4] £m	Total £m
Gross written premiums	7,302	4,504	3,047	5,584	616	6,504	1,102	—	—	28,659
Premiums ceded to reinsurers	(1,666)	(317)	(119)	(77)	(12)	(113)	(20)	—	(2)	(2,326)
Internal reinsurance revenue	—	6	—	—	—	(2)	(7)	—	3	—
Premiums written net of reinsurance	5,636	4,193	2,928	5,507	604	6,389	1,075	—	1	26,333
Net change in provision for unearned premiums	14	(87)	27	(38)	7	9	(13)	—	—	(81)
Net earned premiums	5,650	4,106	2,955	5,469	611	6,398	1,062	—	1	26,252
Fee and commission income	939	122	24	313	94	113	202	368	5	2,180
	6,589	4,228	2,979	5,782	705	6,511	1,264	368	6	28,432
Net investment (expense)/income	(6,693)	16	51	(2,302)	(73)	(1,111)	(286)	37	(486)	(10,847)
Inter-segment revenue	—	—	—	—	—	—	—	259	—	259
Share of profit of joint ventures and associates	78	—	1	9	—	10	14	—	—	112
Profit/(loss) on the disposal and remeasurement of subsidiaries, joint ventures and associates	—	—	—	—	—	89	(5)	27	(9)	102
Segmental income[1]	(26)	4,244	3,031	3,489	632	5,499	987	691	(489)	18,058
Claims and benefits paid, net of recoveries from reinsurers	(10,184)	(2,731)	(1,989)	(4,659)	(356)	(2,595)	(570)	—	(58)	(23,142)
Change in insurance liabilities, net of reinsurance	6,184	351	(133)	557	148	(872)	(40)	—	51	6,246
Change in investment contract provisions	7,540	—	—	27	—	(2,249)	42	(39)	—	5,321
Change in unallocated divisible surplus	270	—	—	1,754	12	1,063	138	—	—	3,237
Fee and commission expense	(741)	(1,225)	(791)	(484)	(146)	(343)	(199)	(33)	569	(3,393)
Other expenses	(1,687)	(220)	(182)	(256)	(106)	(188)	(272)	(449)	(483)	(3,843)
Inter-segment expenses	(232)	(5)	(6)	(1)	(6)	(7)	—	—	(2)	(259)
Finance costs	(157)	(1)	(5)	(1)	—	(5)	(3)	—	(401)	(573)
Segmental expenses	993	(3,831)	(3,106)	(3,063)	(454)	(5,196)	(904)	(521)	(324)	(16,406)
Profit/(loss) before tax	967	413	(75)	426	178	303	83	170	(813)	1,652
Tax attributable to policyholders' returns	469	—	—	—	—	1	7	—	—	477
Profit/(loss) before tax attributable to shareholders' profits	1,436	413	(75)	426	178	304	90	170	(813)	2,129
Adjusting items:										
Reclassification of corporate costs and unallocated interest	—	(16)	31	48	—	(1)	—	5	(67)	—
Life business: Investment variances and economic assumption changes	115	—	—	(6)	10	57	21	—	—	197
Non-life business: Short-term fluctuation in return on investments	—	172	45	44	2	57	—	—	156	476
General insurance and health business: Economic assumption changes	—	4	—	(5)	—	—	—	—	—	(1)
Impairment of goodwill, joint ventures, associates and other amounts expensed	—	—	—	—	2	—	3	—	8	13
Amortisation and impairment of intangibles	73	32	46	2	7	3	13	3	30	209
Amortisation and impairment of AVIF	285	—	—	2	—	6	130	—	3	426
(Profit)/loss on the disposal and remeasurement of subsidiaries, joint ventures and associates	—	—	—	—	—	(89)	5	(27)	9	(102)
Other[5]	—	(190)	—	—	—	(36)	—	—	(5)	(231)
Group adjusted operating profit/(loss) before tax attributable to shareholders' profits after integration and restructuring costs	1,909	415	47	511	199	301	262	151	(679)	3,116
Integration and restructuring costs	—	—	—	—	—	—	—	—	—	—
Group adjusted operating profit/(loss) before tax attributable to shareholders' profits	1,909	415	47	511	199	301	262	151	(679)	3,116

1 Total reported income, excluding inter-segment revenue, includes £4,412 million from the United Kingdom (Aviva plc's country of domicile). Income is attributed on the basis of geographical origin which does not differ materially from revenue by geographical destination, as most risks are located in the countries where the contracts were written.
2 Canada operating profit includes £1 million relating to non-insurance activities.
3 Aviva Investors operating profit includes £1 million profit relating to Aviva Investors Pooled Pensions business.
4 Other Group activities include Group Reinsurance and net expenses of £99 million associated with supporting the development of the Group's digital business written through its UK insurance intermediary which places business primarily on behalf of UK General Insurance.
5 Other includes a movement in the discount rate used for estimating lump sum payments in settlement of bodily injury claims which resulted in a gain of £190 million (see note B12(b)), a provision release of £78 million relating to the sale of Aviva USA in 2013, a gain of £36 million relating to negative goodwill on the acquisition of Friends First (see note B4), a charge of £63 million relating to the UK defined benefit pension scheme as a result of the requirement to equalise members' benefits for the effects of Guaranteed Minimum Pension (see note B18) and a charge of £10 million relating to goodwill payments to preference shareholders, which was announced on 30 April 2018, and associated administration costs.

B6 – Segmental information continued

(a) (ii) Segmental income statement for the year ended 31 December 2017

	United Kingdom			Europe						
	Life £m	GI £m	Canada £m	France £m	Poland £m	Italy, Ireland, Spain and Other £m	Asia £m	Aviva Investors[2] £m	Other Group activities[3] £m	Total £m
Gross written premiums	6,872	4,355	3,138	5,692	594	5,923	1,032	—	—	27,606
Premiums ceded to reinsurers	(1,531)	(271)	(110)	(78)	(11)	(101)	(127)	—	—	(2,229)
Internal reinsurance revenue	—	(6)	—	—	—	(9)	(10)	—	25	—
Premiums written net of reinsurance	5,341	4,078	3,028	5,614	583	5,813	895	—	25	25,377
Net change in provision for unearned premiums	—	(63)	(84)	23	3	(21)	(11)	—	—	(153)
Net earned premiums	5,341	4,015	2,944	5,637	586	5,792	884	—	25	25,224
Fee and commission income	906	121	24	316	83	141	193	407	(4)	2,187
	6,247	4,136	2,968	5,953	669	5,933	1,077	407	21	27,411
Net investment income	16,202	138	86	2,613	292	811	1,465	136	323	22,066
Inter-segment revenue	—	—	—	—	—	—	—	239	—	239
Share of profit/(loss) of joint ventures and associates	72	—	—	14	—	12	(57)	—	—	41
Profit/(loss) on the disposal and remeasurement of subsidiaries, joint ventures and associates	—	—	—	216	16	28	(118)	—	(7)	135
Segmental income[1]	22,521	4,274	3,054	8,796	977	6,784	2,367	782	337	49,892
Claims and benefits paid, net of recoveries from reinsurers	(10,783)	(2,547)	(1,902)	(5,145)	(397)	(2,799)	(526)	—	(14)	(24,113)
Change in insurance liabilities, net of reinsurance	1,380	78	(221)	(804)	(134)	(928)	(450)	—	5	(1,074)
Change in investment contract provisions	(9,041)	—	—	(1,591)	—	(2,121)	(947)	(137)	—	(13,837)
Change in unallocated divisible surplus	195	—	—	153	(2)	85	(137)	—	—	294
Fee and commission expense	(496)	(1,268)	(796)	(703)	(134)	(421)	(144)	(39)	(328)	(4,329)
Other expenses	(1,385)	(221)	(178)	(281)	(102)	(229)	(298)	(418)	(425)	(3,537)
Inter-segment expenses	(207)	(8)	(6)	2	(6)	(12)	—	—	(2)	(239)
Finance costs	(233)	(1)	(5)	(1)	—	(7)	(3)	—	(433)	(683)
Segmental expenses	(20,570)	(3,967)	(3,108)	(8,370)	(775)	(6,432)	(2,505)	(594)	(1,197)	(47,518)
Profit/(loss) before tax	1,951	307	(54)	426	202	352	(138)	188	(860)	2,374
Tax attributable to policyholders' returns	(330)	—	—	—	—	(4)	(37)	—	—	(371)
Profit/(loss) before tax attributable to shareholders' profits	1,621	307	(54)	426	202	348	(175)	188	(860)	2,003
Adjusting items:										
Reclassification of corporate costs and unallocated interest	—	(12)	28	48	—	—	—	5	(69)	—
Life business: Investment variances and economic assumption changes	(323)	—	—	249	(7)	12	38	—	(3)	(34)
Non-life business: Short-term fluctuation in return on investments	—	56	7	(26)	(3)	27	—	—	284	345
General insurance and health business: Economic assumption changes	—	18	(2)	(9)	—	—	—	—	—	7
Impairment of goodwill, joint ventures, associates and other amounts expensed	—	—	2	—	—	—	47	—	—	49
Amortisation and impairment of intangibles	74	31	50	1	7	5	9	5	15	197
Amortisation and impairment of AVIF	327	—	—	2	—	1	154	—	11	495
(Profit)/loss on the disposal and remeasurement of subsidiaries, joint ventures and associates	—	—	—	(216)	(16)	(28)	118	—	7	(135)
Group adjusted operating profit/(loss) before tax attributable to shareholders' profits after integration and restructuring costs	1,699	400	31	475	183	365	191	198	(615)	2,927
Integration and restructuring costs	65	11	15	25	—	11	—	3	11	141
Group adjusted operating profit/(loss) before tax attributable to shareholders' profits	1,764	411	46	500	183	376	191	201	(604)	3,068

1 Total reported income, excluding inter-segment revenue, includes £26,949 million from the United Kingdom (Aviva plc's country of domicile). Income is attributed on the basis of geographical origin which does not differ materially from revenue by geographical destination, as most risks are located in the countries where the contracts were written.
2 Aviva Investors operating profit includes £1 million profit relating to the Aviva Investors Pooled Pensions business.
3 Other Group activities include Group Reinsurance and net expenses of £48 million associated with supporting the development of the Group's digital business written through its UK insurance intermediary which places business primarily on behalf of UK General Insurance.

B6 – Segmental information continued

(a) (iii) Segmental statement of financial position as at 31 December 2018

	United Kingdom			Europe						
	Life £m	GI £m	Canada £m	France £m	Poland £m	Italy, Ireland, Spain and Other £m	Asia £m	Aviva Investors £m	Other Group activities £m	Total £m
Goodwill	**663**	**924**	**82**	**—**	**27**	**125**	**51**	**—**	**—**	**1,872**
Acquired value of in-force business and intangible assets	**2,424**	**154**	**220**	**98**	**72**	**96**	**25**	**5**	**107**	**3,201**
Interests in, and loans to, joint ventures and associates	**859**	**—**	**8**	**117**	**—**	**55**	**479**	**—**	**—**	**1,518**
Property and equipment	**71**	**29**	**50**	**258**	**4**	**5**	**5**	**4**	**122**	**548**
Investment property	**6,124**	**436**	**—**	**3,595**	**—**	**807**	**—**	**616**	**(96)**	**11,482**
Loans	**27,619**	**—**	**164**	**710**	**—**	**255**	**37**	**—**	**—**	**28,785**
Financial investments	**169,221**	**3,627**	**4,696**	**71,903**	**3,423**	**32,842**	**5,422**	**343**	**6,108**	**297,585**
Deferred acquisition costs	**1,361**	**489**	**367**	**354**	**124**	**259**	**11**	**—**	**—**	**2,965**
Other assets	**38,240**	**5,311**	**1,225**	**8,355**	**304**	**4,840**	**525**	**1,267**	**13,600**	**73,667**
Assets of operations classified as held for sale	**—**	**—**	**—**	**—**	**—**	**—**	**8,855**	**—**	**—**	**8,855**
Total assets	**246,582**	**10,970**	**6,812**	**85,390**	**3,954**	**39,284**	**15,410**	**2,235**	**19,841**	**430,478**
Insurance liabilities										
Long-term business and outstanding claims provisions	**94,181**	**4,914**	**3,455**	**16,778**	**3,068**	**12,646**	**4,069**	**—**	**4**	**139,115**
Unearned premiums	**214**	**2,104**	**1,517**	**501**	**109**	**410**	**91**	**—**	**—**	**4,946**
Other insurance liabilities	**—**	**16**	**—**	**—**	**—**	**—**	**—**	**—**	**—**	**16**
Gross liabilities for investment contracts	**123,406**	**—**	**—**	**54,159**	**4**	**23,874**	**—**	**1,025**	**—**	**202,468**
Unallocated divisible surplus	**2,244**	**—**	**—**	**3,518**	**55**	**(78)**	**210**	**—**	**—**	**5,949**
Net asset value attributable to unitholders	**25**	**—**	**—**	**2,427**	**—**	**—**	**—**	**—**	**15,673**	**18,125**
External borrowings	**1,660**	**10**	**—**	**—**	**—**	**46**	**—**	**—**	**7,704**	**9,420**
Other liabilities, including inter-segment liabilities	**13,667**	**(255)**	**1,011**	**5,350**	**230**	**944**	**801**	**589**	**1,126**	**23,463**
Liabilities of operations classified as held for sale	**—**	**—**	**—**	**—**	**—**	**—**	**8,521**	**—**	**—**	**8,521**
Total liabilities	**235,397**	**6,789**	**5,983**	**82,733**	**3,466**	**37,842**	**13,692**	**1,614**	**24,507**	**412,023**
Total equity										**18,455**
Total equity and liabilities										**430,478**

(a) (iv) Segmental statement of financial position as at 31 December 2017

	United Kingdom			Europe						
	Life £m	GI £m	Canada £m	France £m	Poland £m	Italy, Ireland, Spain and Other £m	Asia £m	Aviva Investors £m	Other Group activities £m	Total £m
Goodwill	663	924	84	—	29	124	52	—	—	1,876
Acquired value of in-force business and intangible assets	2,751	152	258	90	78	4	26	4	92	3,455
Interests in, and loans to, joint ventures and associates	936	—	9	184	—	68	445	—	—	1,642
Property and equipment	52	30	46	253	4	3	8	4	109	509
Investment property	6,242	324	—	3,322	—	215	—	788	(94)	10,797
Loans	26,695	5	180	739	7	197	34	—	—	27,857
Financial investments	184,428	4,184	4,592	72,886	3,775	27,403	5,007	400	8,407	311,082
Deferred acquisition costs	1,364	487	383	322	118	222	8	2	—	2,906
Other assets	38,800	5,370	1,338	8,567	244	3,591	765	1,020	11,995	71,690
Assets of operations classified as held for sale	—	—	—	—	—	1,685	9,186	—	—	10,871
Total assets	261,931	11,476	6,890	86,363	4,255	33,512	15,531	2,218	20,509	442,685
Insurance liabilities										
Long-term business and outstanding claims provisions[1]	100,183	5,360	3,449	17,213	3,275	10,110	4,056	—	11	143,657
Unearned premiums	228	2,003	1,578	458	119	520	74	—	—	4,980
Other insurance liabilities[1]	—	13	—	—	—	—	—	—	—	13
Gross liabilities for investment contracts	130,890	—	—	53,529	2	18,335	—	1,230	—	203,986
Unallocated divisible surplus	2,514	—	—	5,239	68	922	339	—	—	9,082
Net asset value attributable to unitholders	57	—	—	2,472	—	—	—	—	15,798	18,327
External borrowings	1,566	—	—	1	—	70	—	—	8,649	10,286
Other liabilities, including inter-segment liabilities	14,234	(294)	971	4,927	253	869	618	392	1,376	23,346
Liabilities of operations classified as held for sale	—	—	—	—	—	1,021	8,852	—	—	9,873
Total liabilities	249,672	7,082	5,998	83,839	3,717	31,847	13,939	1,622	25,834	423,550
Total equity										19,135
Total equity and liabilities										442,685

1 Following a review, 2017 comparative amounts have been amended, with a reclassification of £244 million made from 'Other insurance liabilities' to 'Long-term business and outstanding claims provisions' in order to align with note B11(a).

(b) Further analysis by products and services

The Group's results can be further analysed by products and services which comprise long-term business, general insurance and health, fund management and other activities. Non-insurance businesses in the UK previously included within 'Other', such as the savings business, have been reclassified to the long-term business or general insurance and health segments, as appropriate, as this presentation is consistent with how the business is managed (see note B2 for further details). Results for the year ended 31 December 2017 have been restated accordingly.

B6 – Segmental information continued

Long-term business

Our long-term business comprises life insurance, long-term health and accident insurance, savings, pensions and annuity business written by our life insurance subsidiaries, including managed pension fund business. Long-term business also includes our share of the other life and related business written in our associates and joint ventures, as well as lifetime mortgage business written in the UK.

General insurance and health

Our general insurance and health business provides insurance cover to individuals and to small and medium-sized businesses, for risks associated mainly with motor vehicles, property and liability, such as employers' liability and professional indemnity liability, and medical expenses.

Fund management

Our fund management business invests policyholders' and shareholders' funds and provides investment management services for institutional pension fund mandates. It manages a range of retail investment products, including investment funds, unit trusts, open-ended investment companies and individual savings accounts. Clients include Aviva Group businesses and third-party financial institutions, pension funds, public sector organisations, investment professionals and private investors.

Other

'Other' includes service companies, head office expenses such as Group treasury and finance functions, and certain financing costs and taxes not allocated to business segments and elimination entries for certain inter-segment transactions.

(b) (i) Segmental income statement – products and services for the year ended 31 December 2018

	Long-term business[2] £m	General insurance and health[2,3] £m	Fund management £m	Other[2,4] £m	Total £m
Gross written premiums[1]	18,140	10,519	—	—	28,659
Premiums ceded to reinsurers	(1,775)	(551)	—	—	(2,326)
Premiums written net of reinsurance	16,365	9,968	—	—	26,333
Net change in provision for unearned premiums	—	(81)	—	—	(81)
Net earned premiums	16,365	9,887	—	—	26,252
Fee and commission income	1,496	138	365	181	2,180
	17,861	10,025	365	181	28,432
Net investment (expense)/income	(10,375)	63	(1)	(534)	(10,847)
Inter-segment revenue	—	—	263	—	263
Share of profit/(loss) of joint ventures and associates	112	—	—	—	112
Profit/(loss) on the disposal and remeasurement of subsidiaries, joint ventures and associates	84	—	27	(9)	102
Segmental income	7,682	10,088	654	(362)	18,062
Claims and benefits paid, net of recoveries from reinsurers	(16,540)	(6,602)	—	—	(23,142)
Change in insurance liabilities, net of reinsurance	6,044	202	—	—	6,246
Change in investment contract provisions	5,321	—	—	—	5,321
Change in unallocated divisible surplus	3,237	—	—	—	3,237
Fee and commission expense	(1,248)	(2,592)	(31)	478	(3,393)
Other expenses	(2,152)	(596)	(461)	(634)	(3,843)
Inter-segment expenses	(249)	(12)	—	(2)	(263)
Finance costs	(164)	(6)	—	(403)	(573)
Segmental expenses	(5,751)	(9,606)	(492)	(561)	(16,410)
Profit/(loss) before tax	1,931	482	162	(923)	1,652
Tax attributable to policyholders' returns	477	—	—	—	477
Profit/(loss) before tax attributable to shareholders' profits	2,408	482	162	(923)	2,129
Adjusting items	591	222	(16)	190	987
Group adjusted operating profit/(loss) before tax attributable to shareholders' profits	2,999	704	146	(733)	3,116

1 Gross written premiums include inward reinsurance premiums assumed from other companies amounting to £56 million, which all relates to property and liability insurance.
2 Non-insurance business in the UK previously included within 'Other operations', such as the savings business, have been reclassified to long-term business and general insurance and health segments as this presentation is consistent with how the business is managed. See note B2 for further details. The impact of this change was to reduce long-term operating profit by £80 million and increase general insurance and health operating profit by £4 million.
3 General insurance and health business segment includes gross written premiums of £879 million relating to health business. The remaining business relates to property and liability insurance.
4 Other includes net expenses of £99 million associated with supporting the development of the Group's digital business written through its UK insurance intermediary which places business primarily on behalf of UK General Insurance.

B6 – Segmental information continued

(b) (ii) Segmental income statement – products and services for the year ended 31 December 2017 – restated[1]

	Long-term business £m	General insurance and health[3] £m	Fund management £m	Other[4] £m	Total £m
Gross written premiums[2]	17,083	10,523	—	—	27,606
Premiums ceded to reinsurers	(1,741)	(488)	—	—	(2,229)
Premiums written net of reinsurance	15,342	10,035	—	—	25,377
Net change in provision for unearned premiums	—	(153)	—	—	(153)
Net earned premiums	15,342	9,882	—	—	25,224
Fee and commission income	1,486	134	369	198	2,187
	16,828	10,016	369	198	27,411
Net investment income/(expense)	21,468	331	(1)	268	22,066
Inter-segment revenue	—	—	244	—	244
Share of profit of joint ventures and associates	41	—	—	—	41
Profit/(loss) on the disposal and remeasurement of subsidiaries, joint ventures and associates	100	42	—	(7)	135
Segmental income	38,437	10,389	612	459	49,897
Claims and benefits paid, net of recoveries from reinsurers	(17,791)	(6,322)	—	—	(24,113)
Change in insurance liabilities, net of reinsurance	(863)	(211)	—	—	(1,074)
Change in investment contract provisions	(13,837)	—	—	—	(13,837)
Change in unallocated divisible surplus	294	—	—	—	294
Fee and commission expense	(1,210)	(2,668)	(36)	(415)	(4,329)
Other expenses	(1,919)	(626)	(425)	(567)	(3,537)
Inter-segment expenses	(226)	(15)	—	(3)	(244)
Finance costs	(240)	(6)	—	(437)	(683)
Segmental expenses	(35,792)	(9,848)	(461)	(1,422)	(47,523)
Profit/(loss) before tax	2,645	541	151	(963)	2,374
Tax attributable to policyholders' returns	(371)	—	—	—	(371)
Profit/(loss) before tax attributable to shareholders' profits	2,274	541	151	(963)	2,003
Adjusting items	578	163	13	311	1,065
Group adjusted operating profit/(loss) before tax attributable to shareholders' profits	2,852	704	164	(652)	3,068

1 Non-insurance business in the UK previously included within 'Other', such as the savings business, have been reclassified to the long-term business and general insurance and health segments as this presentation is consistent with how the business is managed. See note B2 for further details. The impact of this change was to reduce long-term operating profit by £30 million and increase general insurance and health operating profit by £4 million.
2 Gross written premiums include inward reinsurance premiums assumed from other companies amounting to £91 million, of which £73 million relates to property and liability insurance and £18 million relates to long-term business.
3 General insurance and health business segment includes gross written premiums of £914 million relating to health business. The remaining business relates to property and liability insurance.
4 Other includes net expenses of £48 million associated with supporting the development of the Group's digital business written through its UK insurance intermediary which places business primarily on behalf of UK General Insurance.

(b) (iii) Segmental statement of financial position – products and services as at 31 December 2018

	Long-term business[1] £m	**General insurance and health[1] £m**	**Fund management £m**	**Other[1] £m**	**Total £m**
Goodwill	**722**	**1,083**	**—**	**67**	**1,872**
Acquired value of in-force business and intangible assets	**2,688**	**403**	**5**	**105**	**3,201**
Interests in, and loans to, joint ventures and associates	**1,502**	**8**	**—**	**8**	**1,518**
Property and equipment	**260**	**147**	**4**	**137**	**548**
Investment property	**10,995**	**584**	**—**	**(97)**	**11,482**
Loans	**28,620**	**165**	**—**	**—**	**28,785**
Financial investments	**280,130**	**11,279**	**66**	**6,110**	**297,585**
Deferred acquisition costs	**1,877**	**1,088**	**—**	**—**	**2,965**
Other assets	**49,316**	**9,243**	**1,117**	**13,991**	**73,667**
Assets of operations classified as held for sale	**8,855**	**—**	**—**	**—**	**8,855**
Total assets	**384,965**	**24,000**	**1,192**	**20,321**	**430,478**
Gross insurance liabilities	**127,709**	**16,368**	**—**	**—**	**144,077**
Gross liabilities for investment contracts	**202,468**	**—**	**—**	**—**	**202,468**
Unallocated divisible surplus	**5,949**	**—**	**—**	**—**	**5,949**
Net asset value attributable to unitholders	**2,451**	**—**	**—**	**15,674**	**18,125**
External borrowings	**1,706**	**10**	**—**	**7,704**	**9,420**
Other liabilities, including inter-segment liabilities	**19,124**	**1,373**	**574**	**2,392**	**23,463**
Liabilities of operations classified as held for sale	**8,521**	**—**	**—**	**—**	**8,521**
Total liabilities	**367,928**	**17,751**	**574**	**25,770**	**412,023**
Total equity					**18,455**
Total equity and liabilities					**430,478**

1 Non-insurance business in the UK previously included within 'Other', such as the savings business, have been reclassified to the long-term business and general insurance and health segments as this presentation is consistent with how the business is managed. See note B2 for further details.

B6 – Segmental information continued

(b) (iv) Segmental statement of financial position – products and services as at 31 December 2017 – restated[1]

	Long-term business £m	General insurance and health £m	Fund management £m	Other £m	Total £m
Goodwill	720	1,084	3	69	1,876
Acquired value of in-force business and intangible assets	2,922	439	4	90	3,455
Interests in, and loans to, joint ventures and associates	1,617	9	—	16	1,642
Property and equipment	240	136	4	129	509
Investment property	10,392	499	—	(94)	10,797
Loans	27,671	186	—	—	27,857
Financial investments	290,840	11,934	54	8,254	311,082
Deferred acquisition costs	1,804	1,100	2	—	2,906
Other assets	49,118	9,283	905	12,384	71,690
Assets of operations classified as held for sale	10,552	319	—	—	10,871
Total assets	395,876	24,989	972	20,848	442,685
Gross insurance liabilities	131,987	16,663	—	—	148,650
Gross liabilities for investment contracts	203,986	—	—	—	203,986
Unallocated divisible surplus	9,082	—	—	—	9,082
Net asset value attributable to unitholders	2,529	—	—	15,798	18,327
External borrowings	1,601	—	—	8,685	10,286
Other liabilities, including inter-segment liabilities	18,828	1,413	376	2,729	23,346
Liabilities of operations classified as held for sale	9,694	179	—	—	9,873
Total liabilities	377,707	18,255	376	27,212	423,550
Total equity					19,135
Total equity and liabilities					442,685

1 Non-insurance business in the UK previously included within 'Other', such as the savings business, have been reclassified to the long-term business and general insurance and health segments as this presentation is consistent with how the business is managed. See note B2 for further details.

B7 – Tax

This note analyses the tax charge for the year and explains the factors that affect it.

(a) Tax (credited)/charged to the income statement

(i) The total tax (credit)/charge comprises:

	2018 £m	2017 £m
Current tax		
For the period	**559**	651
Prior period adjustments	**(49)**	(46)
Total current tax	**510**	605
Deferred tax		
Origination and reversal of temporary differences	**(531)**	134
Changes in tax rates or tax laws	**(13)**	(8)
Write (back) of deferred tax assets	**(1)**	(3)
Total deferred tax	**(545)**	123
Total tax (credited)/charged to income statement	**(35)**	728

(ii) The Group, as a proxy for policyholders in the UK, Ireland and Singapore, is required to record taxes on investment income and gains each year. Accordingly, the tax benefit or expense attributable to UK, Ireland and Singapore life insurance policyholder returns is included in the tax charge. The tax credit attributable to policyholder returns included in the credit above is £477 million *(2017: charge of £371 million)*.

(iii) The tax credit above, comprising current and deferred tax, can be analysed as follows:

	2018 £m	2017 £m
UK tax	**(236)**	528
Overseas tax	**201**	200
	(35)	728

(iv) Unrecognised tax losses and temporary differences of previous years were used to reduce the current tax expense and deferred tax credit by £nil and £nil *(2017: £13 million and £nil)*, respectively.

(v) Deferred tax (credited)/charged to the income statement represents movements on the following items:

	2018 £m	2017 £m
Long-term business technical provisions and other insurance items	**907**	37
Deferred acquisition costs	**3**	(2)
Unrealised (losses) on investments	**(1,453)**	(33)
Pensions and other post-retirement obligations	**2**	19
Unused losses and tax credits	**7**	19
Subsidiaries, associates and joint ventures	**(7)**	(4)
Intangibles and additional value of in-force long-term business	**(64)**	(85)
Provisions and other temporary differences	**60**	172
Total deferred tax (credited)/charged to income statement	**(545)**	123

(b) Tax (credited) to other comprehensive income

(i) The total tax (credit) comprises:

	2018 £m	2017 £m
Current tax		
In respect of pensions and other post-retirement obligations	**(59)**	(45)
In respect of foreign exchange movements	**(1)**	4
	(60)	(41)
Deferred tax		
In respect of pensions and other post-retirement obligations	**16**	42
In respect of fair value (losses) on owner-occupied properties	**—**	(2)
In respect of unrealised (losses) on investments	**(7)**	(9)
	9	31
Total tax (credited) to other comprehensive income	**(51)**	(10)

(ii) The tax charge attributable to policyholders' returns included above is £nil (*2017: £nil*).

B7 – Tax continued

(c) Tax credited to equity

Tax credited directly to equity in the year in respect of coupon payments on the direct capital instrument and tier 1 notes amounted to £8 million *(2017: £16 million)*.

(d) Tax reconciliation

The tax on the Group's profit before tax differs from the theoretical amount that would arise using the tax rate of the home country of the Company as follows:

	Shareholder £m	**Policyholder £m**	**2018 £m**	Shareholder £m	Policyholder £m	2017 £m
Total profit before tax	**2,129**	**(477)**	**1,652**	2,003	371	2,374
Tax calculated at standard UK corporation tax rate of 19.00% *(2017: 19.25%)*	**405**	**(91)**	**314**	386	71	457
Reconciling items						
Different basis of tax – policyholders	**—**	**(385)**	**(385)**	—	301	301
Adjustment to tax charge in respect of prior periods	**(16)**	**—**	**(16)**	(44)	—	(44)
Non-assessable income and items not taxed at the full statutory rate	**(4)**	**—**	**(4)**	(47)	—	(47)
Non-taxable profit on sale of subsidiaries and associates	**(59)**	**—**	**(59)**	(27)	—	(27)
Disallowable expenses	**50**	**—**	**50**	47	—	47
Different local basis of tax on overseas profits	**71**	**(1)**	**70**	82	(1)	81
Change in future local statutory tax rates	**—**	**—**	**—**	(36)	—	(36)
Movement in deferred tax not recognised	**(3)**	**—**	**(3)**	(3)	—	(3)
Tax effect of profit from joint ventures and associates	**(6)**	**—**	**(6)**	(3)	—	(3)
Other	**4**	**—**	**4**	2	—	2
Total tax (credited)/charged to income statement	**442**	**(477)**	**(35)**	357	371	728

The tax (credit)/charge attributable to policyholder returns is removed from the Group's total profit before tax in arriving at the Group's profit before tax attributable to shareholders' profits. As the net of tax profits attributable to with-profits and unit-linked policyholders is zero, the Group's pre-tax profit attributable to policyholders is an amount equal and opposite to the tax charge/(credit) attributable to policyholders included in the total tax charge.

Finance Act 2016 introduced legislation reducing the UK corporation tax rate from 1 April 2020 to 17%. In addition, in France the rate of corporation tax was reduced from 34.43% to 32.02% from 1 January 2019, to 27.37% from 1 January 2021 and 25.83% from 1 January 2022. These reduced rates were used in the calculation of the Group's deferred tax assets and liabilities as at 31 December 2018 and 31 December 2017.

B8 – Earnings per share

This note shows how to calculate earnings per share on profit attributable to ordinary shareholders, based both on the present shares in issue (the basic earnings per share) and the potential future shares in issue, including conversion of share options granted to employees (the diluted earnings per share). We have also shown the same calculations based on our Group adjusted operating profit as we believe this gives an important indication of operating performance. Consideration of both these measures gives a full picture of the performance of the business in the period.

(a) Basic earnings per share

(i) The profit attributable to ordinary shareholders is:

			2018			2017
	Group adjusted operating profit £m	**Adjusting items £m**	**Total £m**	Group adjusted operating profit £m	Adjusting items £m	Total £m
Profit before tax attributable to shareholders' profits	**3,116**	**(987)**	**2,129**	3,068	(1,065)	2,003
Tax attributable to shareholders' profit	**(647)**	**205**	**(442)**	(639)	282	(357)
Profit for the year	**2,469**	**(782)**	**1,687**	2,429	(783)	1,646
Amount attributable to non-controlling interests	**(100)**	**(19)**	**(119)**	(134)	(15)	(149)
Cumulative preference dividends for the year	**(17)**	**—**	**(17)**	(17)	—	(17)
Coupon payments in respect of the direct capital instrument (DCI) and tier 1 notes (net of tax)	**(36)**	**—**	**(36)**	(65)	—	(65)
Profit attributable to ordinary shareholders	**2,316**	**(801)**	**1,515**	2,213	(798)	1,415

(ii) Basic earnings per share is calculated as follows:

			2018			2017
	Before tax £m	**Net of tax, NCI, preference dividends and DCI[1] £m**	**Per share p**	Before tax £m	Net of tax, NCI, preference dividends and DCI[1] £m	Per share p
Group adjusted operating profit attributable to ordinary shareholders	**3,116**	**2,316**	**58.4**	3,068	2,213	54.8
Integration and restructuring costs	**—**	**—**	**—**	(141)	(111)	(2.8)
Group adjusted operating profit attributable to ordinary shareholders after integration and restructuring costs	**3,116**	**2,316**	**58.4**	2,927	2,102	52.0
Adjusting items:						
Investment variances and economic assumption changes	**(197)**	**(198)**	**(5.0)**	34	86	2.1
Non-life business: Short-term fluctuation in return on investments	**(476)**	**(378)**	**(9.6)**	(345)	(250)	(6.3)
General insurance and health business: Economic assumption changes	**1**	**(1)**	**—**	(7)	(6)	(0.1)
Impairment of goodwill, joint ventures, associates and other amounts expensed	**(13)**	**(13)**	**(0.3)**	(49)	(49)	(1.2)
Amortisation and impairment of intangibles	**(209)**	**(172)**	**(4.3)**	(197)	(151)	(3.7)
Amortisation and impairment of acquired value of in-force business	**(426)**	**(371)**	**(9.4)**	(495)	(430)	(10.6)
Profit on disposal and remeasurement of subsidiaries, joint ventures and associates	**102**	**102**	**2.6**	135	113	2.8
Other[2]	**231**	**230**	**5.8**	—	—	—
Profit attributable to ordinary shareholders	**2,129**	**1,515**	**38.2**	2,003	1,415	35.0

1 DCI includes the direct capital instrument and tier 1 notes.
2 Other includes a movement in the discount rate used for estimating lump sum payments in the settlement of bodily injury claims which resulted in a gain of £190 million (see note B12(b)), a provision release of £78 million relating to the sale of Aviva USA in 2013, a gain of £36 million relating to negative goodwill on the acquisition of Friends First (see note B4), a charge of £63 million relating to the UK defined pension scheme as a result of the requirement to equalise members' benefits for the effects of Guaranteed Minimum Pension (see note B18) and a charge of £10 million relating to goodwill payments to preference shareholders, which was announced on 30 April 2018, and associated administration costs.

(iii) The calculation of basic earnings per share uses a weighted average of 3,963 million *(2017: 4,041 million)* ordinary shares in issue, after deducting treasury shares. The actual number of shares in issue at 31 December 2018 was 3,902 million *(2017: 4,013 million)* and 3,899 million *(2017: 4,010 million*) excluding treasury shares.

(iv) On 1 May 2018 Aviva announced a share buy-back of ordinary shares for an aggregate purchase price of up to £600 million *(2017: £300 million)*, which was carried out in full during the period from 1 May 2018 to 17 September 2018. The number of shares in issue has reduced by 119 million as at 31 December 2018 in respect of shares acquired and cancelled under the buy-back programme. Net of new shares issued during the period, the number of shares in issue reduced by 110 million *(2017: 49 million*).

B8 – Earnings per share continued

(b) Diluted earnings per share

(i) Diluted earnings per share is calculated as follows:

	2018			2017		
	Total £m	**Weighted average number of shares million**	**Per share p**	Total £m	Weighted average number of shares million	Per share p
Profit attributable to ordinary shareholders	**1,515**	**3,963**	**38.2**	1,415	4,041	35.0
Dilutive effect of share awards and options	**—**	**47**	**(0.4)**	—	48	(0.4)
Diluted earnings per share	**1,515**	**4,010**	**37.8**	1,415	4,089	34.6

(ii) Diluted earnings per share on Group adjusted operating profit attributable to ordinary shareholders is calculated as follows:

	2018			2017		
	Total £m	**Weighted average number of shares million**	**Per share p**	Total £m	Weighted average number of shares million	Per share p
Group adjusted operating profit attributable to ordinary shareholders	**2,316**	**3,963**	**58.4**	2,213	4,041	54.8
Dilutive effect of share awards and options	**—**	**47**	**(0.6)**	—	48	(0.7)
Diluted group adjusted operating profit per share	**2,316**	**4,010**	**57.8**	2,213	4,089	54.1

B9 – Dividends and appropriations

This note analyses the total dividends and other appropriations paid during the year. The table below does not include the final dividend proposed after the year end because it is not accrued in these financial statements.

	2018 £m	2017 £m
Ordinary dividends declared and charged to equity in the year		
Final 2017 – 19.00 pence per share, paid on 17 May 2018	**764**	—
Final 2016 – 15.88 pence per share, paid on 17 May 2017	**—**	646
Interim 2018 – 9.25 pence per share, paid on 24 September 2018	**364**	—
Interim 2017 – 8.40 pence per share, paid on 17 November 2017	**—**	337
	1,128	983
Preference dividends declared and charged to equity in the year	**17**	17
Coupon payments on DCI and tier 1 notes	**44**	81
	1,189	1,081

Subsequent to 31 December 2018, the directors proposed a final dividend for 2018 of 20.75 pence per ordinary share *(2017: 19.00 pence)*, amounting to £810 million *(2017: £764 million)* in total. Subject to approval by shareholders at the AGM, the dividend will be paid on 30 May 2019 and will be accounted for as an appropriation of retained earnings in the year ending 31 December 2019.

Interest on the direct capital instrument and tier 1 notes is treated as an appropriation of retained profits and, accordingly, is accounted for when paid. Tax relief is obtained at a rate of 19% *(2017: 19.25%)*.

B10 – Contract liabilities and associated reinsurance

The Group's liabilities for insurance and investment contracts it has sold, and the associated reinsurance, is covered in the following notes:
- Note B11 covers insurance liabilities
- Note B12 covers the methodology and assumptions used in calculating the insurance liabilities
- Note B13 covers liabilities for investment contracts
- Note B14 details the associated reinsurance assets on these liabilities
- Note B15 shows the effects of changes in the assumptions on the liabilities

(a) Carrying amount

The following is a summary of the contract liabilities and related reinsurance assets as at 31 December.

	2018			2017		
	Gross provisions £m	**Reinsurance assets £m**	**Net £m**	Gross provisions £m	Reinsurance assets £m	Net £m
Long-term business						
Insurance liabilities	**(125,829)**	**5,836**	**(119,993)**	(130,972)	5,469	(125,503)
Liabilities for participating investment contracts	**(90,455)**	**1**	**(90,454)**	(87,654)	2	(87,652)
Liabilities for non-participating investment contracts	**(120,354)**	**4,009**	**(116,345)**	(124,995)	6,094	(118,901)
	(336,638)	**9,846**	**(326,792)**	(343,621)	11,565	(332,056)
Outstanding claims provisions	**(2,001)**	**89**	**(1,912)**	(1,798)	64	(1,734)
	(338,639)	**9,935**	**(328,704)**	(345,419)	11,629	(333,790)
General insurance and health						
Outstanding claims provisions	**(9,046)**	**789**	**(8,257)**	(8,964)	845	(8,119)
Provisions for claims incurred but not reported	**(2,360)**	**822**	**(1,538)**	(2,837)	884	(1,953)
	(11,406)	**1,611**	**(9,795)**	(11,801)	1,729	(10,072)
Provision for unearned premiums	**(4,946)**	**254**	**(4,692)**	(4,980)	257	(4,723)
Provision arising from liability adequacy tests[1]	**(16)**	**—**	**(16)**	(13)	—	(13)
	(16,368)	**1,865**	**(14,503)**	(16,794)	1,986	(14,808)
Total	**(355,007)**	**11,800**	**(343,207)**	(362,213)	13,615	(348,598)
Less: Amounts classified as held for sale	**8,462**	**(45)**	**8,417**	9,577	(123)	9,454
	(346,545)	**11,755**	**(334,790)**	(352,636)	13,492	(339,144)

1 Provision arising from liability adequacy tests relates to general insurance business only. Liability adequacy test provisions for life operations, where applicable, are included in other line items. At 31 December 2018 this provision is nil for the life operations.

(b) Change in contract liabilities, net of reinsurance, recognised as an expense

The purpose of the following table is to reconcile the change in insurance liabilities, net of reinsurance, to the change in insurance liabilities recognised as an expense in the relevant movement tables in the following notes. The components of the reconciliation are the change in provision for outstanding claims on long-term business (which is not included in a separate movement table), and the unwind of discounting on general insurance reserves (which is included within finance costs in the income statement). For general insurance and health, the change in the provision for unearned premiums is not included in the reconciliation as, within the income statement, this is included within earned premiums.

2018	**Gross £m**	**Reinsurance £m**	**Net £m**
Long-term business			
Change in insurance liabilities (note B11(b)(iii))	**(6,284)**	**61**	**(6,223)**
Change in provision for outstanding claims	**190**	**(11)**	**179**
	(6,094)	**50**	**(6,044)**
General insurance and health			
Change in insurance liabilities (note B11(c)(iii) and B14(c)(ii))[1]	**(313)**	**111**	**(202)**
Less: Unwind of discount	**(8)**	**8**	**—**
	(321)	**119**	**(202)**
Total change in insurance liabilities	**(6,415)**	**169**	**(6,246)**

1 Includes £(190) million in the UK General Insurance and health business relating to a change in the discount rate used for estimating lump sum payments in the settlement of bodily injury claims.

2017	Gross £m	Reinsurance £m	Net £m
Long-term business			
Change in insurance liabilities (note B11(b)(iii))	624	315	939
Change in provision for outstanding claims	(65)	(11)	(76)
	559	304	863
General insurance and health			
Change in insurance liabilities (note B11(c)(iii) and B14(c)(ii))	73	138	211
Less: Unwind of discount	(9)	9	—
	64	147	211
Total change in insurance liabilities	623	451	1,074

For non-participating investment contracts, deposits collected and amounts withdrawn are not shown on the income statement, but are accounted for directly through the statement of financial position as an adjustment to the gross liabilities for investment contracts. The associated change in investment contract provisions shown on the income statement consists of the attributed investment return. For participating investment contracts, the change in investment contract provisions on the income statement primarily consists of the movement in participating investment contract liabilities (net of reinsurance) over the reporting period.

B11 – Insurance liabilities

This note analyses the Group's gross insurance contract liabilities for the long-term and general insurance and health business, describes how the Group calculates these liabilities and presents the movement in these liabilities during the year.

(a) Carrying amount

Insurance liabilities (gross of reinsurance) at 31 December comprised:

	2018 £m	2017 £m
Long-term business		
Participating insurance liabilities	**40,840**	49,928
Unit-linked non-participating insurance liabilities	**14,480**	16,040
Other non-participating insurance liabilities	**70,509**	65,004
	125,829	130,972
Outstanding claims provisions	**2,001**	1,798
	127,830	132,770
General insurance and health		
Outstanding claims provisions	**9,046**	8,964
Provision for claims incurred but not reported	**2,360**	2,837
	11,406	11,801
Provision for unearned premiums	**4,946**	4,980
Provision arising from liability adequacy tests[1]	**16**	13
	16,368	16,794
Total	**144,198**	149,564
Less: Amounts classified as held for sale	**(121)**	(914)
	144,077	148,650

1 Provision arising from liability adequacy tests relates to general insurance business only. Liability adequacy test provisions for life operations, where applicable, are included in other line items. At 31 December 2018 this provision is nil for the life operations.

(b) Long-term business liabilities

(i) Business description

The Group underwrites long-term business in a number of countries as follows:

- In the UK, long-term business is mainly written in the 'Non-Profit' fund and in a number of 'With-Profits' sub-funds. In the 'Non-Profit' fund shareholders are entitled to 100% of the distributed profits. In the 'With-Profits' sub-funds the with-profits policyholders are entitled to between 40% and 100% of distributed profits, depending on the fund rules. There is also the Reattributed Inherited Estate External Support Account (RIEESA), which does not itself underwrite any business, but provides capital support to one of the with-profits sub-funds and receives any surplus or deficit emerging from it. In the RIEESA, shareholders are entitled to 100% of the distributed profits, but these cannot be distributed until the 'lock-in' criteria set by the Reattribution Scheme have been met.
- In France, the majority of policyholders' benefits are determined by investment performance, subject to certain guarantees, and shareholders' profits are derived largely from management fees. In addition, a substantial number of policies participate in investment returns, with the balance being attributable to shareholders.
- In other operations in Europe and Asia, a range of long-term insurance and savings products are written.

(ii) Group practice

The long-term business liabilities are calculated separately for each of the Group's life operations. The provisions for overseas subsidiaries have generally been included on the basis of local regulatory requirements, modified where necessary to reflect the requirements of the Companies Act 2006.

Material judgement is required in calculating the liabilities and is exercised particularly through the choice of assumptions where discretion is permitted. In turn, the assumptions used depend on the circumstances prevailing in each of the life operations. Provisions are most sensitive to assumptions regarding discount rates, mortality and morbidity rates. Where discount rate assumptions are based on current market yields on fixed interest securities, allowance is made for default risk implicit in the yields on the underlying assets.

Bonuses paid during the year are reflected in claims paid, whereas those allocated as part of the bonus declaration are included in the movements in the long-term business liabilities.

A description of the main methodology and most material valuation assumptions can be found in note B12.

B11 – Insurance liabilities continued

(iii) Movements

The following movements have occurred in the gross long-term business liabilities during the year:

	2018 £m	2017 £m
Carrying amount at 1 January	**130,972**	137,218
Liabilities in respect of new business	**6,190**	5,731
Expected change in existing business	**(7,952)**	(7,747)
Variance between actual and expected experience	**(1,844)**	1,520
Impact of operating assumption changes	**(1,456)**	(1,175)
Impact of economic assumption changes	**(959)**	2,115
Other movements recognised as an expense[1]	**(263)**	180
Change in liability recognised as an expense (note B10(b))	**(6,284)**	624
Effect of portfolio transfers, acquisitions and disposals[2]	**788**	(8,124)
Foreign exchange rate movements	**413**	1,252
Other movements[3]	**(60)**	2
Carrying amount at 31 December	**125,829**	130,972

1 Other movements during 2017 and 2018 primarily relate to a special bonus distribution to with-profits policyholders in the UK.
2 The movement during 2018 includes the acquisition of Friends First in Ireland offset by the disposal of Spain and Avipop in Italy. The movement during 2017 primarily relates to the disposal of Antarius in France and a major share of the business in Spain offset by the consolidation of the Poland and Vietnam joint ventures.
3 Other movements during 2018 include the reclassification in France from insurance to participating investment contracts (£(56)m).

For many types of long-term business, including unit-linked and participating insurance liabilities, movements in asset values are offset by corresponding changes in liabilities, limiting the net impact on profit. The gross long-term business liabilities decreased by £5.1 billion during 2018 *(2017: £6.2 billion decrease)* mainly driven by the variance between actual and expected experience of £(1.8) billion, which was mainly due to adverse equity returns in France and the reduction in with-profits and unit-linked liabilities in the UK; the impact of non-economic assumption changes of £(1.5) billion mainly due to updates to longevity assumptions (with the impact on profit partially offset by a corresponding reduction in reinsurance assets) in the UK; and the economic assumption changes of £(1.0) billion, which reflects an increase in valuation interest rates in response to widening credit spreads, primarily in respect of immediate annuity and participating insurance contracts in the UK.

For participating insurance liabilities, a movement in liabilities is generally offset by a corresponding adjustment to the unallocated divisible surplus and does not impact profit. Where assumption changes impact profit, these are included in the effect of changes in assumptions and estimates during the year (shown in note B15), together with the impact of movements in related non-financial assets.

(c) General insurance and health liabilities

(i) Business description

The Group underwrites general insurance and health business in a number of countries as follows:

- In the UK, providing individual and corporate customers with a wide range of insurance products
- In Canada, providing a range of personal and commercial lines products
- In Europe and Asia, providing a range of general insurance and health products

(ii) Group practice

Delays occur in the notification and settlement of claims and a substantial measure of experience and judgement is involved in assessing outstanding liabilities, the ultimate cost of which cannot be known with certainty at the statement of financial position date. The liabilities for general insurance and health business are based on information currently available. However, it is inherent in the nature of the business written that the ultimate liabilities may vary as a result of subsequent developments.

Provisions for outstanding claims are established to cover the outstanding expected ultimate liability for losses and loss adjustment expenses (LAE) in respect of all claims that have already occurred. The provisions established cover reported claims and associated LAE, as well as claims incurred but not yet reported and associated LAE.

The Group only establishes reserves for losses that have already occurred. The Group therefore does not establish catastrophe equalisation reserves that defer a share of income in respect of certain lines of business from years in which a catastrophe does not occur to future periods in which catastrophes may occur. When calculating reserves, the Group takes into account estimated future recoveries from salvage and subrogation, and a separate asset is recorded for expected future recoveries from reinsurers after considering their collectability.

B11 – Insurance liabilities continued

The table below shows the total general insurance and health liabilities split by outstanding claim provisions and provision for claims incurred but not reported (IBNR provisions), gross of reinsurance, by major line of business.

	As at 31 December 2018			As at 31 December 2017		
	Outstanding claim provisions £m	**IBNR provisions £m**	**Total claim provisions £m**	Outstanding claim provisions £m	IBNR provisions £m	Total claim provisions £m
Motor	**5,019**	**963**	**5,982**	5,039	1,339	6,378
Property	**1,833**	**104**	**1,937**	1,734	114	1,848
Liability	**1,856**	**1,164**	**3,020**	1,814	1,270	3,084
Creditor	**4**	**7**	**11**	24	11	35
Other	**334**	**122**	**456**	353	103	456
	9,046	**2,360**	**11,406**	8,964	2,837	11,801

Outstanding claims provisions are based on undiscounted estimates of future claim payments, except for the following classes of business for which discounted provisions are held:

	Discount rate		Mean term of liabilities	
Class	**2018**	2017	**2018**	2017
Reinsured London Market business	**1.0% to 2.9%**	0.7% to 2.6%	**10 years**	9 years
Latent claims	**1.0% to 2.6%**	0.7% to 1.9%	**11 to 18 years**	8 to 17 years
Structured settlements	**1.0% to 3.0%**	0.5% to 3.0%	**9 to 37 years**	7 to 39 years

The gross outstanding claims provision before discounting was £10,955 million (*2017: £11,346 million*). The period of time which will elapse before the liabilities are settled has been estimated by modelling the settlement patterns of the underlying claims.

The discount rate that has been applied to latent claims reserves and reinsured London Market business is based on the swap curve in the relevant currency having regard to the expected settlement dates of the claims. The range of discount rates used depends on the duration of the claims and is given in the table above. The duration of the claims span over 35 years, with the average duration being between 10 and 18 years depending on the geographical region.

Any change in discount rates between the start and the end of the accounting period is reflected outside of Group adjusted operating profit as an economic assumption change.

(iii) Movements in general insurance and health claims liabilities

The following changes have occurred in the general insurance and health claims liabilities during the year:

	2018 £m	2017 £m
Carrying amount at 1 January	**11,801**	11,709
Impact of changes in assumptions[1]	**(22)**	(7)
Claim losses and expenses incurred in the current year	**7,158**	6,890
Decrease in estimated claim losses and expenses incurred in prior periods	**(544)**	(172)
Incurred claims losses and expenses	**6,592**	6,711
Less:		
Payments made on claims incurred in the current year	**(3,927)**	(3,642)
Payments made on claims incurred in prior periods	**(3,343)**	(3,283)
Recoveries on claim payments	**357**	278
Claims payments made in the period, net of recoveries	**(6,913)**	(6,647)
Unwind of discounting	**8**	9
Changes in claims reserve recognised as an expense (note B10(b))	**(313)**	73
Effect of portfolio transfers, acquisitions and disposals[2]	**(29)**	3
Foreign exchange rate movements	**(53)**	16
Carrying amount at 31 December	**11,406**	11,801

1 Shown gross of reinsurance. The impact of reinsurance was £23 million, resulting in a net impact of £1 million as per B15.
2 The movement during 2018 relates to the disposal of Avipop in Italy.

(iv) Movements in general insurance and health unearned premiums

The following changes have occurred in the liabilities for unearned premiums (UPR) during the year:

	2018 £m	2017 £m
Carrying amount at 1 January	**4,980**	4,766
Premiums written during the year	**10,519**	10,523
Less: Premiums earned during the year	**(10,421)**	(10,365)
Changes in UPR recognised as an expense/(income)	**98**	158
Gross portfolio transfers and acquisitions[1]	**(103)**	46
Foreign exchange rate movements	**(29)**	10
Carrying amount at 31 December	**4,946**	4,980

1 The movement during 2018 relates to the disposal of Avipop in Italy. The £46 million in respect of 2017 relates to the full consolidation of the Poland Joint Venture.

B11 – Insurance liabilities continued

(v) Analysis of general insurance and health claims development

The tables that follow present the development of claims payments and the estimated ultimate cost of claims for the accident years 2009 to 2018. The upper half of the tables shows the cumulative amounts paid during successive years related to each accident year, while the lower section of the tables shows the original estimated ultimate cost of claims and how these original estimates have increased or decreased, as more information becomes known about the individual claims and overall claim frequency and severity.

Key elements of the development of prior accident year general insurance and health net provisions during 2018 were:

- £372 million release from the UK due to a change in the discount rate used for estimating lump sum payments in settlement of bodily injury claims (for further details see note B12) and favourable claims experience in Personal and Commercial motor
- £78 million release from Canada primarily due to favourable claims experience on personal motor and aligning RBC claims practices with that of the Aviva book
- £127 million release from Europe (including Ireland) mainly due to continued favourable development in France

Key elements of the development of prior accident year general insurance and health net provisions during 2017 were:

- £107 million release from UK due to favourable claims experience in Personal Motor offset by the less favourable experience in 2017 of Commercial Liability claims and large claims in Personal and Commercial Property
- £2 million strengthening from Canada due to the better than expected claims experience following the 2010 Ontario auto reforms tailing off, unfavourable development in the Ontario Accident Benefits coverage in the RBC book in 2017, deterioration of experience in Alberta Auto Bodily Injury and Newfoundland Auto Bodily Injury
- £79 million release from Europe (including Ireland) mainly due to continued favourable development in France and Italy

Gross of reinsurance

Before the effect of reinsurance, the loss development table is:

Accident year	All prior years £m	2009 £m	2010 £m	2011 £m	2012 £m	2013 £m	2014 £m	2015 £m	2016 £m	2017 £m	2018 £m	**Total £m**
Gross cumulative claim payments												
At end of accident year		(3,780)	(3,502)	(3,420)	(3,055)	(3,068)	(3,102)	(2,991)	(3,534)	(3,517)	(3,769)	
One year later		(5,464)	(5,466)	(4,765)	(4,373)	(4,476)	(4,295)	(4,285)	(4,972)	(4,952)		
Two years later		(6,102)	(5,875)	(5,150)	(4,812)	(4,916)	(4,681)	(4,710)	(5,435)			
Three years later		(6,393)	(6,163)	(5,457)	(5,118)	(5,221)	(4,974)	(4,997)				
Four years later		(6,672)	(6,405)	(5,712)	(5,376)	(5,467)	(5,244)					
Five years later		(6,836)	(6,564)	(5,864)	(5,556)	(5,645)						
Six years later		(6,958)	(6,649)	(5,978)	(5,635)							
Seven years later		(7,043)	(6,690)	(6,032)								
Eight years later		(7,078)	(6,718)									
Nine years later		(7,100)										
Estimate of gross ultimate claims												
At end of accident year		7,364	6,911	6,428	6,201	6,122	5,896	5,851	6,947	6,894	7,185	
One year later		7,297	7,006	6,330	6,028	6,039	5,833	5,930	6,931	6,796		
Two years later		7,281	6,950	6,315	6,002	6,029	5,865	5,912	6,864			
Three years later		7,215	6,914	6,292	5,952	6,067	5,842	5,814				
Four years later		7,204	6,912	6,262	6,002	6,034	5,772					
Five years later		7,239	6,906	6,265	5,979	5,996						
Six years later		7,217	6,926	6,265	5,910							
Seven years later		7,256	6,913	6,223								
Eight years later		7,228	6,877									
Nine years later		7,227										
Estimate of gross ultimate claims		7,227	6,877	6,223	5,910	5,996	5,772	5,814	6,864	6,796	7,185	
Cumulative payments		(7,100)	(6,718)	(6,032)	(5,635)	(5,645)	(5,244)	(4,997)	(5,435)	(4,952)	(3,769)	
	2,388	127	159	191	275	351	528	817	1,429	1,844	3,416	**11,525**
Effect of discounting	(411)	(14)	(25)	(2)	—	(1)	—	—	—	—	—	**(453)**
Present value	1,977	113	134	189	275	350	528	817	1,429	1,844	3,416	**11,072**
Cumulative effect of foreign exchange movements	—	—	(1)	2	6	12	31	101	(7)	(12)	—	**132**
Effect of acquisitions	11	(1)	2	12	15	17	38	57	51	—	—	**202**
Present value recognised in the statement of financial position	**1,988**	**112**	**135**	**203**	**296**	**379**	**597**	**975**	**1,473**	**1,832**	**3,416**	**11,406**

B11 – Insurance liabilities continued

Net of reinsurance

After the effect of reinsurance, the loss development table is:

Accident year	All prior years £m	2009 £m	2010 £m	2011 £m	2012 £m	2013 £m	2014 £m	2015 £m	2016 £m	2017 £m	2018 £m	**Total £m**
Net cumulative claim payments												
At end of accident year		(3,650)	(3,386)	(3,300)	(2,925)	(2,905)	(2,972)	(2,867)	(3,309)	(3,483)	(3,718)	
One year later		(5,286)	(5,242)	(4,578)	(4,166)	(4,240)	(4,079)	(4,061)	(4,591)	(4,843)		
Two years later		(5,885)	(5,637)	(4,963)	(4,575)	(4,649)	(4,432)	(4,452)	(5,012)			
Three years later		(6,177)	(5,905)	(5,263)	(4,870)	(4,918)	(4,720)	(4,725)				
Four years later		(6,410)	(6,137)	(5,485)	(5,110)	(5,159)	(4,973)					
Five years later		(6,568)	(6,278)	(5,626)	(5,289)	(5,324)						
Six years later		(6,657)	(6,361)	(5,740)	(5,371)							
Seven years later		(6,708)	(6,411)	(5,798)								
Eight years later		(6,744)	(6,440)									
Nine years later		(6,771)										
Estimate of net ultimate claims												
At end of accident year		7,115	6,650	6,202	5,941	5,838	5,613	5,548	6,489	6,714	6,997	
One year later		7,067	6,751	6,103	5,765	5,745	5,575	5,635	6,458	6,591		
Two years later		7,036	6,685	6,095	5,728	5,752	5,591	5,608	6,377			
Three years later		6,978	6,644	6,077	5,683	5,733	5,559	5,517				
Four years later		6,940	6,634	6,034	5,717	5,689	5,490					
Five years later		6,977	6,614	6,005	5,680	5,653						
Six years later		6,908	6,624	6,003	5,631							
Seven years later		6,897	6,615	5,967								
Eight years later		6,896	6,590									
Nine years later		6,901										
Estimate of net ultimate claims		6,901	6,590	5,967	5,631	5,653	5,490	5,517	6,377	6,591	6,997	
Cumulative payments		(6,771)	(6,440)	(5,798)	(5,371)	(5,324)	(4,973)	(4,725)	(5,012)	(4,843)	(3,718)	
	907	130	150	169	260	329	517	792	1,365	1,748	3,279	**9,646**
Effect of discounting	(157)	(12)	(21)	3	—	4	—	—	—	—	—	**(183)**
Present value	750	118	129	172	260	333	517	792	1,365	1,748	3,279	**9,463**
Cumulative effect of foreign exchange movements	—	—	(1)	1	6	11	30	99	(6)	(12)	—	**128**
Effect of acquisitions	12	(1)	2	12	15	17	39	57	51	—	—	**204**
Present value recognised in the statement of financial position	**762**	**117**	**130**	**185**	**281**	**361**	**586**	**948**	**1,410**	**1,736**	**3,279**	**9,795**

In the loss development tables shown above, the cumulative claim payments and estimates of cumulative claims for each accident year are translated into sterling at the exchange rates that applied at the end of that accident year. The impact of using varying exchange rates is shown at the bottom of each table. Disposals are dealt with by treating all outstanding and IBNR claims of the disposed entity as 'paid' at the date of disposal.

The loss development tables above include information on asbestos and environmental pollution claims provisions from business written before 2008. The undiscounted claim provisions, net of reinsurance, in respect of this business at 31 December 2018 were £94 million (*2017: £95 million*). The movement in the year reflects a reduction of £6 million due to favourable claims development, claim payments net of reinsurance recoveries and foreign exchange movements.

B12 – Insurance liabilities methodology and assumptions

(a) Long-term business

The main method used for the actuarial valuation of long-term insurance liabilities is the gross premium method which involves the discounting of projected future cash flows. The cash flows are calculated using the contractual premiums payable together with explicit assumptions for investment returns, discount rates, inflation, mortality, morbidity, persistency and future expenses. These assumptions can vary by contract type and reflect current and expected future experience with an allowance for prudence.

The methodology and assumptions described below relate to the UK and France insurance businesses only.

(i) UK

Non-profit business

The valuation of non-profit business is based on grandfathered regulatory requirements under IFRS 4 prior to the adoption of Solvency II, adjusted to remove certain regulatory reserves and margins in assumptions, notably for annuity business. Conventional non-profit contracts, including those written in the with-profits funds, are valued using the gross premium method. For non-profit business in the ex. Friends Life with-profits funds, the liabilities are measured on a realistic basis with implicit recognition of the present value of future profits.

For unit-linked and some unitised with-profits business, the provisions are valued by adding a prospective non-unit reserve to the bid value of units. The prospective non-unit reserve is calculated by projecting the future non-unit cash flows using prudent assumptions and on the assumption that future premiums cease, unless it is more onerous to assume that they continue.

Discount rates

Valuation discount rate assumptions are set with regard to yields on the supporting assets and the general level of long-term interest rates as measured by gilt yields. An explicit allowance for risk is included by making an explicit deduction from the yields on corporate bonds, mortgages and deposits, based on historical default experience of each asset class. For equity release assets, the risk allowances are consistent with those used in the fair value asset methodology. A further margin for risk is then deducted for all asset classes.

Valuation discount rates for business in the non-profit funds are as follows:

Valuation discount rates (Gross of investment expenses)	**2018**	2017
Assurances		
Life conventional non-profit	**0.9% to 2.6%**	0.8% to 2.5%
Pensions conventional non-profit	**1.1% to 2.1%**	1.0% to 2.4%
Annuities		
Conventional immediate and deferred annuities	**1.2% to 3.0%**	1.0% to 2.8%
Non-unit reserves on unit-linked business		
Life	**0.9% to 1.3%**	0.8% to 1.2%
Pensions	**0.9% to 1.6%**	0.8% to 1.5%
Income Protection		
Active lives	**1.1% to 2.6%**	1.0% to 2.5%
Claims in payment (level and index linked)	**1.3% to 1.6%**	1.0% to 1.5%

The valuation discount rates are after a reduction for risk, but before allowance for investment expenses. For conventional immediate annuity business, the allowance for risk comprises long-term assumptions on a prudent basis for defaults or (in the case of equity release assets) expected losses arising from the No-Negative-Equity Guarantee. These allowances vary by asset category and for some asset classes by rating.

The risk allowances made for corporate bonds, mortgages (including healthcare mortgages, commercial mortgages and infrastructure assets), and equity release equated to 50 bps, 39-41 bps, and 112 bps respectively at 31 December 2018 *(2017: 47-48 bps, 33- 40 bps, and 102 bps respectively)*.

The total valuation allowance in respect of corporate bonds and mortgages, including healthcare mortgages but excluding equity release, was £1.9 billion *(2017: £1.8 billion)* over the remaining term of the portfolio at 31 December 2018. The total valuation allowance in respect of equity release assets was £1.3 billion at 31 December 2018 *(2017: £1.2 billion)*. Total liabilities for the annuity business were £53.7 billion at 31 December 2018 *(2017: £52.0 billion)*.

Expenses

Maintenance expense assumptions for non-profit business are generally expressed as a 'per policy' charge set with regards to an allocation of current year expense levels by broad category of business and using the policy counts for in-force business. The assumptions also include an allowance for prudence and increase by future expense inflation over the lifetime of each contract. Expense inflation is assumed to be in line with RPI, and in line with external agreements for business administered externally. An additional liability is held if projected per-policy expenses in future years are expected to exceed current assumptions. Further, explicit project expense liabilities are held for non-discretionary project costs that typically relate to mandatory requirements. Expense-related liabilities are only held where expenses are not covered by anticipated future profits in the liability methodology, notably for unit-linked contracts. Investment expense assumptions are generally expressed as a proportion of the assets backing the liabilities.

B12 – Insurance liabilities methodology and assumptions continued

Mortality

Mortality assumptions for non-profit business are set with regard to recent Company experience and general industry trends. The mortality tables used in the valuation are summarised below:

Mortality tables used	2018	2017
Assurances		
Non-profit	**AM00/AF00 or TM08/TF08 adjusted for smoker status and age/sex specific factors**	AM00/AF00 or TM00/TF00 adjusted for smoker status and age/sex specific factors
Pure endowments and deferred annuities before vesting	**AM00/AF00 adjusted**	AM00/AF00 adjusted
Annuities in payment		
Pensions business and general annuity business	**PMA08 HAMWP/PFA08 HAMWP adjusted plus allowance for future mortality improvement**	PCMA00/PCFA00 adjusted plus allowance for future mortality improvement
Bulk purchase annuities	**CV2**	PCMA00/PCFA00/CV2

For the largest portfolio of pensions annuity business, the underlying mortality assumptions for males are 105.8% of PMA08 HAMWP adjusted *(2017: 104.0% of PCMA00 adjusted)* with base year 2008; for females the underlying mortality assumptions are 99.0% of PFA08 HAMWP adjusted *(2017: 94.5% of PCFA00 adjusted)* with base year 2008.

Improvements are based on 'CMI_2017 (S=7.5) Advanced with adjustments' *(2017: 'CMI_2016 (S=7.5) Advanced with adjustments')* with a long-term improvement rate of 1.75% *(2017: 1.75%)* for males and 1.5% *(2017: 1.5%)* for females, both with an additional improvement for prudence of 0.5% *(2017: 0.5%)* to all future annual improvement adjustments. The CMI_2017 tables have been adjusted by adding 0.25% *(2017: 0.25%)* and 0.35% *(2017: 0.35%)* to the initial rate of mortality improvements for males and females respectively (to allow for greater mortality improvements in the annuitant population relative to the general population on which CMI_2017 is based), and uses the advanced parameters to taper the long-term improvement rates to zero between ages 90 and 115 (the 'core' parameters taper the long-term improvement rates to zero between ages 85 and 110). In addition, on a significant proportion of individual annuity business, year-specific adjustments are made to allow for potential selection effects due to the development of the Enhanced Annuity market and covering possible selection effects from pension freedom reforms.

With-profits business

The Group's UK with-profits funds are evaluated by reference to FRS 27, which was grandfathered under IFRS 4, prior to the adoption of Solvency II. This uses an approach of calculating the realistic liabilities for the contracts. The realistic liabilities include the with-profits benefit reserve (WPBR), and an additional provision for the expected cost of any guarantees and options in excess of the WPBR.

The WPBR for an individual contract is generally calculated on a retrospective basis, and represents the accumulation of the premiums paid on the contract, allowing for investment return, taxation, expenses and any other charges levied on the contract.

Provisions for guarantees and options within realistic liabilities are measured using market-consistent stochastic models. A stochastic approach includes measuring the time value of guarantees and options, which represents the additional cost arising from uncertainty surrounding future economic conditions. Non-market-related assumptions (for example, persistency, mortality and expenses) are assessed on a best estimate basis with reference to Company and wider industry experience, adjusted to take into account future trends.

The with-profits business is valued by adjusting Solvency II Best Estimate Liabilities and results in a valuation in accordance with FRS 27.

Future investment return

A 'risk-free' rate equal to the spot yield on UK swaps is used for the valuation of with-profits business. The rates vary according to the outstanding term of the policy, with a typical rate as at 31 December 2018 of 1.44% *(2017: 1.29%)* for a policy with ten years outstanding.

Volatility of investment return

Volatility assumptions are set with reference to implied volatility data on traded market instruments, where available, or on a best estimate basis where not.

Volatility	2018	2017
Equity returns	**18.0%**	20.9%
Property returns	**15.8%**	16.4%

The equity volatility used depends on term, money-ness and region. The figure shown is for a sample UK equity, at the money, with a ten-year term.

B12 – Insurance liabilities methodology and assumptions continued

Future regular bonuses

Annual bonus assumptions for 2019 have been set consistently with the year-end 2018 declaration. Future annual bonus rates reflect the principles and practices of each fund. In particular, the level is set with regard to the projected margin for final bonus and the change from one year to the next is limited to a level consistent with past practice.

Mortality

Mortality assumptions for with-profits business are set with regard to recent Company experience and general industry trends. The mortality tables used in the valuation are summarised below:

Mortality table used	2018	2017
Assurances, pure endowments and deferred annuities before vesting	**Nil or Axx00 adjusted**	Nil or Axx00 adjusted
Pensions business after vesting and pensions annuities in payment	**PMA08 HAMWP/PFA08 HAMWP adjusted plus allowance for future mortality improvement**	PCMA00/PCFA00 adjusted plus allowance for future mortality improvement

Allowance for future mortality improvement is in line with the rates for non-profit business.

Expenses

Maintenance expense assumptions for with-profits business are generally expressed as a fixed 'per policy' charge in line with agreements between Aviva Life Services UK Limited (UKLS) and Aviva Life & Pensions UK Limited (AVLAP). The assumptions increase by a future inflation charge over the lifetime of each contract, which is 50% RPI, 100% RPI or 100% RPI + 1% depending on product type. Any excess of expenses charged by UKLS to AVLAP over the charges specified by the agreements is borne by the non-profit business.

Guarantees and options

The provisions held in respect of guaranteed annuity options for the with-profits and the non-profit business are a prudent assessment of the additional liability incurred under the option on a basis and method consistent with that used to value basic policy liabilities, and includes a prudent assessment of the proportion of policyholders who will choose to exercise the option.

(ii) France

The majority of reserves arise from single premium savings products and are based on the accumulated fund values, adjusted to maintain consistency with the value of the assets backing the policyholder liabilities. For traditional business, the net premium method is used for prospective valuations, in accordance with local regulation, where the valuation assumptions depend on the date of issue of the contract. The valuation discount rate also depends on the original duration of the contract and mortality rates are based on industry tables.

	Valuation discount rates		Mortality tables used
	2018	2017	2018 and 2017
Life assurances	**0% to 4.5%**	0% to 4.5%	TD73-77,TD88-90,TH00-02 TF00-02, H_AVDBS,F_AVDBS H_SSDBS, F_SSDBS
Annuities	**0% to 2%**	0% to 2%	TGF05/TGH05

(b) General insurance and health

Outstanding claims provisions are estimated based on known facts at the date of estimation. Case estimates are set by skilled claims technicians and established case setting procedures. Claims above certain limits are referred to senior claims handlers for estimate authorisation.

No adjustments are made to the claims technicians' case estimates included in booked claim provisions, except for rare occasions when the estimated ultimate cost of individual large or unusual claims may be adjusted, subject to internal reserve committee approval, to allow for uncertainty regarding, for example, the outcome of a court case. The ultimate cost of outstanding claims is then estimated by using a range of standard actuarial claims projection techniques, such as the Chain Ladder and Bornhuetter-Ferguson methods. Historical claims development is mainly analysed by accident period, although underwriting or notification period is also used where this is considered appropriate.

The assumptions used in most non-life actuarial projection techniques, including future rates of claims inflation or loss ratio assumptions, are implicit in the historical claims development data on which the projections are based. Additional qualitative judgement is used to assess the extent to which past trends may not apply in the future in order to arrive at a point estimate for the ultimate cost of claims that represents the likely outcome, from a range of possible outcomes, taking account of all the uncertainties involved. The range of possible outcomes does not, however, result in the quantification of a reserve range. The following explicit assumptions are made which could materially impact the level of booked net reserves:

B12 – Insurance liabilities methodology and assumptions continued

UK mesothelioma claims

The level of uncertainty associated with latent claims is considerable due to the relatively small number of claims and the long-tail nature of the liabilities. UK mesothelioma claims account for a large proportion of the Group's latent claims. The key assumptions underlying the estimation of these claims include claim numbers, the base average cost per claim, future inflation in the average cost of claims and legal fees.

The best estimate of the liabilities reflects the latest available market information and studies. Many different scenarios can be derived by flexing these key assumptions and applying different combinations of these assumptions. An upper and lower scenario can be derived by making reasonably likely changes to these assumptions, resulting in an estimate of £20 million *(2017: £35 million)* greater than the best estimate, or £30 million *(2017: £40 million)* lower than the best estimate. These scenarios do not, however, constitute an upper or lower bound on these liabilities.

Interest rates used to discount latent claim liabilities and structured settlements

The discount rates used in determining our latent claim liabilities and structured settlements are based on the swap curve in the relevant currency at the reporting date, having regard to the duration of the expected settlement of claims. The range of discount rates used (for further details see note B11(c)(ii)) depends on the duration of the claim and the reporting date. At 31 December 2018, it is estimated that a 1% fall in the discount rates used would increase net claim reserves by approximately £104 million *(2017: £110 million)*, excluding the offsetting effect on asset values as assets are not hypothecated across classes of business.

Allowance for risk and uncertainty

The uncertainties involved in estimating loss reserves are allowed for in the reserving process and by the estimation of explicit reserve uncertainty distributions. The reserve estimation basis requires all non-life businesses to calculate booked claim provisions as the best estimate of the cost of future claim payments, plus an explicit allowance for risk and uncertainty. The allowance for risk and uncertainty is calculated by each business unit in accordance with the requirements of the Group non-life reserving policy, taking into account the risks and uncertainties specific to each line of business and type of claim in that territory. The requirements of the Group non-life reserving policy also seek to ensure that the allowance for risk and uncertainty is set consistently across both business units and reporting periods.

Lump sum payments in settlement of bodily injury claims that are decided by the UK courts are calculated in accordance with the Ogden Tables and discount rate. The Ogden discount rate is set by the Lord Chancellor and is applied when calculating the present value of future care costs and loss of earnings for claims settlement purposes. Following the announcement by the Ministry of Justice on 27 February 2017 to decrease the Ogden rate from 2.75% to -0.75%, balance sheet reserves have been calculated using a rate of -0.75%. On 20 March 2018, the Government announced that it will introduce the Civil Liability Bill (the Bill), which includes provisions to amend the discount rate. In December 2018 the Bill became an Act of Parliament, meaning that a new Ogden discount rate will be set by the Lord Chancellor in 2019.

Based upon this, there is certainty that there will be a change in the Ogden rate in 2019, but uncertainty remains around the amount and timing of the final rate. At December 2018, the claim reserves in the UK have been calculated using a discount rate of 0.00% *(2017: -0.75%)* resulting in a release of £190 million, though the rate to be announced by the Lord Chancellor later this year may result in a different discount rate. By way of illustration, should the Ogden discount rate announced in the future be 0.50% then this would be expected to reduce reserves by approximately £80 million with an equivalent positive impact on profit before tax. Alternatively, should the Ogden discount rate announced in the future be -0.50% then this would be expected to increase reserves by approximately £110 million with an equivalent negative impact on profit before tax.

B13 – Liabilities for investment contracts

This note analyses our gross liabilities for investment contracts by type of product and describes the calculation of these liabilities.

(a) Carrying amount

The liabilities for investment contracts (gross of reinsurance) at 31 December comprised:

	2018 £m	2017 £m
Long-term business		
Liabilities for participating investment contracts	**90,455**	87,654
Liabilities for non-participating investment contracts	**120,354**	124,995
Total	**210,809**	212,649
Less: Amounts classified as held for sale	**(8,341)**	(8,663)
	202,468	203,986

(b) Group practice

Investment contracts are those that do not transfer significant insurance risk from the contract holder to the issuer, and are therefore treated as financial instruments under IFRS.

Many investment contracts contain a discretionary participation feature in which the contract holder has a contractual right to receive additional benefits as a supplement to guaranteed benefits. These are referred to as participating contracts and are measured according to the methodology for long-term business liabilities as described in note B12. They are not measured at fair value as there is currently no agreed definition of fair valuation for discretionary participation features under IFRS. In the absence of such a definition, it is not possible to provide a range of estimates within which a fair value is likely to fall. The IASB deferred consideration of participating contracts to the IFRS 17 insurance standard, which is expected to be implemented on 1 January 2022.

For participating business, the discretionary participation feature is recognised separately from the guaranteed element and is classified as a liability, referred to as unallocated divisible surplus, except for the with-profits sub-fund supported by the RIEESA.

Investment contracts that do not contain a discretionary participation feature are referred to as non-participating contracts and the liability is measured at either fair value or amortised cost. We currently have no non-participating investment contracts measured at amortised cost.

Of the non-participating investment contracts measured at fair value, £119,402 million at 31 December 2018 *(2017: £123,916 million)* are unit-linked in structure and the fair value liability is equal to the current unit fund value, including any unfunded units, plus if required, additional non-unit reserves based on a discounted cash flow analysis. These contracts are generally classified as 'Level 1' in the fair value hierarchy, as the unit reserve is calculated as the publicly quoted unit price multiplied by the number of units in issue, and any non-unit reserve is insignificant.

For unit-linked business, a deferred acquisition cost asset and deferred income reserve liability are recognised in respect of transaction costs and front-end fees respectively, that relate to the provision of investment management services, and which are amortised on a systematic basis over the contract term.

For non-participating investment contracts acquired in a business combination, an acquired value of in-force business asset is recognised in respect of the fair value of the investment management services component of the contracts, which is amortised on a systematic basis over the useful lifetime of the related contracts. The amount of the acquired value of in-force business asset is shown in note B24, which relates primarily to the acquisition of Friends Life in 2015 and Friends First in 2018.

(c) Movements in the year

The following movements have occurred in the gross provisions for investment contracts in the year:

(i) Participating investment contracts

	2018 £m	2017 £m
Carrying amount at 1 January	**87,654**	89,739
Liabilities in respect of new business	**6,301**	5,193
Expected change in existing business	**(4,491)**	(4,986)
Variance between actual and expected experience	**(1,441)**	2,072
Impact of operating assumption changes	**59**	10
Impact of economic assumption changes	**(40)**	411
Other movements recognised as an expense[1]	**152**	(16)
Change in liability recognised as an expense[2]	**540**	2,684
Effect of portfolio transfers, acquisitions and disposals[3]	**427**	(7,243)
Foreign exchange rate movements	**774**	2,452
Other movements[4]	**1,060**	22
Carrying amount at 31 December	**90,455**	87,654

1 Other movements during 2018 and 2017 primarily relate to a special bonus distribution to with-profits policyholders in UK Life.
2 Total interest expense for participating investment contracts recognised in profit or loss is £(419) million *(2017: £2,489 million)*.
3 The movement during 2018 relates to the acquisition of Friends First in Ireland. The movement during 2017 relates to the disposal of Antarius in France.
4 The movement during 2018 relates to the reclassification in France from non- participating investment contracts to participating investment contracts (£151 million) and from insurance to participating investment contracts (£56 million) and to a reclassification from non-participating investment contracts to participating investment contracts in the UK (£853 million).

B13 – Liabilities for investment contracts continued

For many types of long-term business, including unit-linked and participating funds, movements in asset values are offset by corresponding changes in liabilities, limiting the net impact on profit.

The variance between actual and expected experience in 2018 of £(1.4) billion is primarily driven by adverse equity returns in the UK and France.

The impact of assumption changes in the analysis shows the resulting movement in the carrying value of participating investment contract liabilities. For participating business, a movement in liabilities is generally offset by a corresponding adjustment to the unallocated divisible surplus and does not impact profit. Where assumption changes do impact profit, these are included in the effect of changes in assumptions and estimates during the year shown in note B15, together with the impact of movements in related non-financial assets.

(ii) Non-participating investment contracts

	2018 £m	2017 £m
Carrying amount at 1 January	**124,995**	114,531
Liabilities in respect of new business	**4,869**	4,484
Expected change in existing business	**(5,509)**	(4,427)
Variance between actual and expected experience	**(5,539)**	10,115
Impact of operating assumption changes	**(10)**	2
Impact of economic assumption changes	**(81)**	(1)
Other movements recognised as an expense	**6**	10
Change in liability	**(6,264)**	10,183
Effect of portfolio transfers, acquisitions and disposals[1]	**2,494**	(4)
Foreign exchange rate movements	**133**	277
Other movements[2]	**(1,004)**	8
Carrying amount at 31 December	**120,354**	124,995

1 The movement during 2018 relates to the acquisition of Friends First in Ireland. The movement during 2017 relates to the disposal of Antarius in France.
2 The movement during 2018 relates to the reclassification in France from non- participating investment contracts to participating investment contracts (£(151) million) and to a reclassification from non-participating investment contracts to participating investment contracts in the UK (£(853) million).

For unit-linked investment contracts, movements in asset values are offset by corresponding changes in liabilities, limiting the net impact on profit. The variance between actual and expected experience in 2018 of £(5.5) billion is primarily driven by the impact of negative equity returns in the UK and Ireland.

The impact of assumption changes in the above analysis shows the resulting movement in the carrying value of non-participating investment contract liabilities. The impacts of assumption changes on profit are included in the effect of changes in assumptions and estimates during the year shown in note B15, which combines participating and non-participating investment contracts together with the impact of movements in related non-financial assets.

B14 – Reinsurance assets

This note details the reinsurance assets on our insurance and investment contract liabilities.

(a) Carrying amount

The reinsurance assets at 31 December comprised:

	2018 £m	2017 £m
Long-term business		
Insurance contracts	**5,836**	5,469
Participating investment contracts	**1**	2
Non-participating investment contracts[1]	**4,009**	6,094
	9,846	11,565
Outstanding claims provisions	**89**	64
	9,935	11,629
General insurance and health		
Outstanding claims provisions	**789**	845
Provisions for claims incurred but not reported	**822**	884
	1,611	1,729
Provisions for unearned premiums	**254**	257
	1,865	1,986
	11,800	13,615
Less: Amounts classified as held for sale	**(45)**	(123)
Total	**11,755**	13,492

1 Balances in respect of all reinsurance treaties are included under reinsurance assets, regardless of whether they transfer significant insurance risk. The reinsurance assets classified as non-participating investment contracts are financial instruments measured at fair value through profit or loss. During 2018, £3,840 million of reinsurance assets have been reclassified as collective investments in unit-linked funds following a restructure of a reinsurance treaty in UK Life. This is a continuation of activity undertaken in 2017 (£14,353 million).

Of the above total, £10,800 million *(2017: £12,302 million)* is expected to be recovered more than one year after this statement of financial position.

(b) Assumptions

The assumptions, including discount rates, used for reinsurance contracts follow those used for insurance liabilities. Reinsurance assets are valued net of an allowance for recoverability.

(c) Movements

The following movements have occurred in the reinsurance assets during the year:

(i) Long-term business liabilities

	2018 £m	2017 £m
Carrying amount at 1 January	**11,565**	24,554
Assets in respect of new business	**1,766**	1,004
Expected change in existing business assets	**(22)**	(786)
Variance between actual and expected experience	**431**	2,264
Impact of non-economic assumption changes	**(460)**	(634)
Impact of economic assumption changes	**21**	94
Other movements[1]	**(3,877)**	(14,529)
Change in assets[2]	**(2,141)**	(12,587)
Effect of portfolio transfers, acquisitions and disposals[3]	**399**	(410)
Foreign exchange rate movements	**23**	8
Carrying amount at 31 December	**9,846**	11,565

1 The movement during 2018 includes £3,840 million of reinsurance assets being reclassified as collective investments in unit-linked funds following the restructure of a reinsurance treaty in UK Life. This is a continuation of activity undertaken in 2017 (£14,353 million).
2 Change in assets does not reconcile with values in note B10(b) due to the inclusion of reinsurance assets classified as non-participating investment contracts where, for such contracts, deposit accounting is applied on the income statement.
3 The movement during 2018 primarily relates to the acquisition of Friends First in Ireland. The movement during 2017 primarily relates to the disposal of Antarius in France.

The impact of assumption changes in the above analysis shows the resulting movement in the carrying value of reinsurance assets, with corresponding movements in gross insurance contract liabilities. For participating businesses, a movement in reinsurance assets is generally offset by a corresponding adjustment to the unallocated divisible surplus and does not impact profit. Where assumption changes impact profit, these are included in the effect of changes in assumptions and estimates during the year (shown in note B15), together with the impact of movements in related liabilities and other non-financial assets.

B14 – Reinsurance assets continued

(ii) General insurance and health claims liabilities

	2018 £m	2017 £m
Carrying amount at 1 January	**1,729**	1,885
Impact of changes in assumptions	**(22)**	(15)
Reinsurers' share of claim losses and expenses		
Incurred in current year	**176**	179
Incurred in prior years	**40**	15
Reinsurers' share of incurred claim losses and expenses	**216**	194
Less:		
Reinsurance recoveries received on claims		
Incurred in current year	**(54)**	(32)
Incurred in prior years	**(259)**	(293)
Reinsurance recoveries received in the year	**(313)**	(325)
Unwind of discounting	**8**	8
Change in reinsurance asset recognised as income (note B10(b))	**(111)**	(138)
Effect of portfolio transfers, acquisitions and disposals[1]	**(9)**	—
Foreign exchange rate movements	**2**	(18)
Carrying amount at 31 December	**1,611**	1,729

1 The movement during 2018 relates to the proportion of reinsurance assets held by Avipop sold by Italy GI.

(iii) General insurance and health unearned premiums

	2018 £m	2017 £m
Carrying amount at 1 January	**257**	250
Premiums ceded to reinsurers in the year	**392**	489
Less: Reinsurers' share of premiums earned during the year	**(375)**	(484)
Changes in reinsurance asset recognised as income	**17**	5
Reinsurers' share of portfolio transfers and acquisitions[1]	**(21)**	—
Foreign exchange rate movements	**1**	2
Carrying amount at 31 December	**254**	257

1 The movement during 2018 relates to the proportion of Avipop sold by Italy GI that was ceded to reinsurers.

B15 – Effect of changes in assumptions and estimates during the year

Estimates and assumptions used in determining the liabilities for insurance and investment contracts were changed from 2017 to 2018, affecting the liabilities with an equivalent impact on profit recognised during the year. This note analyses the impact of these changes on liabilities for insurance and investment contracts, and related assets and liabilities, such as unallocated divisible surplus, reinsurance, deferred acquisition costs and acquired value of in-force business, and does not allow for offsetting movements in the value of backing financial assets.

	Effect on profit 2018 £m	Effect on profit 2017 £m
Assumptions		
Long-term insurance business		
Interest rates	**1,061**	(1,720)
Expenses	**9**	(128)
Persistency rates	**23**	(79)
Mortality and morbidity for assurance contracts	**24**	113
Mortality for annuity contracts	**780**	779
Tax and other assumptions	**18**	2
Long-term investment business		
Expenses	**(1)**	—
General insurance and health business		
Change in discount rate assumptions	**1**	(7)
Total	**1,915**	(1,040)

The impact of interest rates on long-term business relates primarily to annuities in the UK (including any change in credit default and reinvestment risk provisions), where an increase in the valuation interest rate in response to widening of credit spreads, has decreased liabilities.

The impact of mortality for annuitant contracts on long-term business relates primarily to the UK. In 2018, there has been a reduction in reserves due to longevity assumptions and modelling which include: updates to mortality to reflect recent experience including the 2008 series tables for individual annuities of £345 million, updates to the rate of mortality improvements including CMI 2017 of £251 million, refinements to modelling of bulk purchase annuities together with a change to base mortality and improvements of £132 million and other less significant movements of £24 million. In Ireland and Singapore there was a slight reduction in the reserves of £28 million following a review of recent experience.

In 2017 the impact of mortality for annuitant contracts on long-term business relates primarily to the UK. This resulted in a reduction in reserves due to recognition of benefits from changes in longevity assumptions including: the impact of completing our review of the allowance for anti-selection risk of £170 million, updates reflecting our recent experience of £200 million, updates to the rate of historic and future mortality improvements, including the adoption of CMI 2016, of £340 million, and other less significant movements of £31 million. In Ireland there was a reduction of £38 million following a review of recent experience.

B16 – Unallocated divisible surplus

An unallocated divisible surplus (UDS) is established where the nature of policy benefits is such that the division between shareholder reserves and policyholder liabilities is uncertain at the reporting date. Therefore, the expected duration for settlement of the UDS is undefined.

This note shows the movements in the UDS during the year.

	2018 £m	2017 £m
Carrying amount at 1 January	**9,101**	10,208
Change in participating fund assets	**(4,139)**	406
Change in participating fund liabilities	**902**	(710)
Other movements	**—**	10
Change in liability recognised as an expense	**(3,237)**	(294)
Effect of portfolio transfers, acquisition and disposals[1]	**48**	(1,076)
Foreign exchange rate movements	**37**	263
	5,949	9,101
Less: Amounts classified as held for sale[2]	**—**	(19)
Carrying amount at 31 December	**5,949**	9,082

1 The movement during 2018 relates to the acquisition of Friends First (£66 million), and the disposal of the remainder of the Spanish business (£18 million). The movement during 2017 relates to the disposal of Antarius (£832 million) and majority of Spanish business (£244 million).
2 The amount classified as held for sale in 2017 relates to the remainder of the Spanish business (£19 million).

The amount of UDS at 31 December 2018 has decreased to £5.9 billion *(2017: £9.1 billion)*. The decrease is mainly due to adverse market movements in Europe with credit spreads widening and a reduction in equity markets.

Where the aggregate amount of participating assets is less than the participating liabilities within a fund then the shortfall may be held as negative UDS, subject to recoverability testing as part of the liability adequacy requirements of IFRS 4. As at 31 December 2018 there is negative UDS in five funds in Italy totalling £355 million *(2017: no negative UDS).* These balances were tested for recoverability and all but one is considered to be recoverable by comparing the excess of IFRS participating liabilities net of any related DAC or AVIF over the adjusted Solvency II best estimate liabilities for the relevant contracts. The Solvency II best estimate liabilities were adjusted where Solvency II does not represent a best estimate of shareholders' interests consistent with the impairment test for goodwill for long-term business and for AVIF on insurance contracts. An impairment of £8 million was applied to one fund to reflect no recoverability.

B17 – Borrowings

Our borrowings are classified as either core structural borrowings, which are included within the Group's capital employed, or operational borrowings drawn by operating subsidiaries. This note shows the carrying values and contractual maturity amounts of each type, and explains their main features and movements during the year.

(a) Analysis of total borrowings

Total borrowings comprise:

	2018 £m	2017 £m
Core structural borrowings, at amortised cost	**7,699**	8,640
Operational borrowings, at amortised cost	**496**	466
Operational borrowings, at fair value	**1,225**	1,180
	1,721	1,646
	9,420	10,286

(b) Movements during the year

Movements in borrowings during the year were:

	2018			2017		
	Core Structural £m	Operational £m	Total £m	Core Structural £m	Operational £m	Total £m
New borrowings drawn down, excluding commercial paper, net of expenses	**649**	**126**	**775**	—	55	55
Repayment of borrowings, excluding commercial paper[1]	**(1,178)**	**(211)**	**(1,389)**	(488)	(151)	(639)
Movement in commercial paper[2]	**(419)**	**—**	**(419)**	—	—	—
Net cash outflow	**(948)**	**(85)**	**(1,033)**	(488)	(96)	(584)
Foreign exchange rate movements	**42**	**6**	**48**	104	(17)	87
Borrowings reclassified/(loans repaid) for non-cash consideration	**—**	**65**	**65**	484	(13)	471
Fair value movements	**—**	**89**	**89**	—	108	108
Amortisation of discounts and other non-cash items	**(35)**	**—**	**(35)**	(37)	(16)	(53)
Movements in debt held by Group companies[3]	**—**	**—**	**—**	—	(38)	(38)
Movements in the year	**(941)**	**75**	**(866)**	63	(72)	(9)
Balance at 1 January	**8,640**	**1,646**	**10,286**	8,577	1,718	10,295
Balance at 31 December	**7,699**	**1,721**	**9,420**	8,640	1,646	10,286

1 On 28 September 2017, notification was given that the Group would redeem the $650 million fixed rate tier 1 notes. At that date, the instrument was reclassified as a financial liability of £484 million, representing its fair value on translation into Sterling at that date. On 3 November 2017 the instrument was redeemed in full at a cost of £488 million.
2 Gross issuances of commercial paper were £2,372 million in 2018 *(2017: £1,265 million)*, offset by repayments of £2,791 million *(2017: £1,265 million)*.
3 Certain subsidiary companies have purchased issued subordinated notes and securitised loan notes as part of their investment portfolios. In the consolidated statement of financial position, borrowings are shown net of these holdings but movements in such holdings over the year are reflected in the tables above.

All movements in fair value in 2017 and 2018 on securitised mortgage loan notes designated as fair value through profit or loss were attributable to changes in market conditions.

B18 – Pension obligations

The Group operates a number of defined benefit and defined contribution pension schemes. The material defined benefit schemes are in the UK, Ireland and Canada. The assets and liabilities of these defined benefit schemes as at 31 December 2018 are shown below.

	2018				2017			
	UK £m	Ireland £m	Canada £m	Total £m	UK £m	Ireland £m	Canada £m	Total £m
Total fair value of scheme assets	**17,059**	**775**	**249**	**18,083**	17,744	658	276	18,678
Present value of defined benefit obligation	**(14,246)**	**(950)**	**(324)**	**(15,520)**	(14,824)	(847)	(372)	(16,043)
Net IAS 19 surpluses/(deficits) in the schemes	**2,813**	**(175)**	**(75)**	**2,563**	2,920	(189)	(96)	2,635
Surpluses included in other assets	**3,256**	**—**	**—**	**3,256**	3,399	—	—	3,399
Deficits included in provisions	**(443)**	**(175)**	**(75)**	**(693)**	(479)	(189)	(96)	(764)
Net IAS 19 surpluses/(deficits) in the schemes	**2,813**	**(175)**	**(75)**	**2,563**	2,920	(189)	(96)	2,635

B18 – Pension obligations continued

Movements in the scheme surpluses and deficits

Movements in the pension schemes' surpluses and deficits comprise:

2018	Fair Value of Scheme Assets £m	Present Value of defined benefit obligation £m	IAS 19 Pensions net surplus/ (deficits) £m
Net IAS 19 surplus in the schemes at 1 January	**18,678**	**(16,043)**	**2,635**
Past service costs – amendments[1]	**—**	**(63)**	**(63)**
Administrative expenses[2]	**—**	**(19)**	**(19)**
Total pension cost charged to net operating expenses	**—**	**(82)**	**(82)**
Net interest credited/(charged) to investment income/(finance costs)[3]	**442**	**(375)**	**67**
Total recognised in income	**442**	**(457)**	**(15)**
Remeasurements:			
Actual return on these assets	**(182)**	**—**	**(182)**
Less: Interest income on scheme assets	**(442)**	**—**	**(442)**
Return on scheme assets excluding amounts in interest income	**(624)**	**—**	**(624)**
Gains from change in financial assumptions	**—**	**622**	**622**
Losses from change in demographic assumptions	**—**	**(185)**	**(185)**
Experience losses	**—**	**(93)**	**(93)**
Total recognised in other comprehensive income	**(624)**	**344**	**(280)**
Acquisitions	**87**	**(96)**	**(9)**
Employer contributions	**236**	**—**	**236**
Plan participant contributions	**9**	**(9)**	**—**
Benefits paid	**(724)**	**724**	**—**
Administrative expenses paid from scheme assets[2]	**(23)**	**19**	**(4)**
Foreign exchange rate movements	**2**	**(2)**	**—**
Net IAS 19 surplus in the schemes at 31 December	**18,083**	**(15,520)**	**2,563**

1 Past service costs include a charge of £63 million relating to the estimated additional liability arising in the UK defined benefit pension schemes as a result of the requirement to equalise members' benefits for the effects of Guaranteed Minimum Pension (GMP). This additional liability has arisen following the High Court judgement in October 2018 in the case involving Lloyds Banking Group.
2 Administrative expenses are expensed as incurred.
3 Net interest income of £89 million has been credited to investment income and net interest expense of £22 million has been charged to finance costs.

The decrease in the surplus during the period is primarily due to remeasurements recognised in other comprehensive income relating to updated demographic assumptions in the ASPS, partially offset by employer contributions paid into the schemes.

2017	Fair Value of Scheme Assets £m	Present Value of defined benefit obligation £m	IAS 19 Pensions net surplus/ (deficits) £m
Net IAS 19 surplus in the schemes at 1 January	19,694	(17,347)	2,347
Past service costs – amendments	—	(1)	(1)
Administrative expenses[1]	—	(18)	(18)
Total pension cost charged to net operating expenses	—	(19)	(19)
Net interest credited/(charged) to investment income/(finance costs)[2]	470	(407)	63
Total recognised in income	470	(426)	44
Remeasurements:			
Actual return on these assets	740	—	740
Less: Interest income on scheme assets	(470)	—	(470)
Return on scheme assets excluding amounts in interest income	270	—	270
Losses from change in financial assumptions	—	(182)	(182)
Losses from change in demographic assumptions	—	(30)	(30)
Experience losses	—	(63)	(63)
Total recognised in other comprehensive income	270	(275)	(5)
Employer contributions	259	—	259
Plan participant contributions	9	(9)	—
Benefits paid	(2,021)	2,021	—
Administrative expenses paid from scheme assets[1]	(21)	18	(3)
Foreign exchange rate movements	18	(25)	(7)
Net IAS 19 surplus in the schemes at 31 December	18,678	(16,043)	2,635

1 Administrative expenses are expensed as incurred.
2 Net interest income of £87 million has been credited to investment income and net interest expense of £24 million has been charged to finance costs.

B19 – Related party transactions

This note gives details of the transactions between Group companies and related parties which comprise our joint ventures, associates and staff pension schemes.

The Group undertakes transactions with related parties in the normal course of business. Loans to related parties are made on normal arm's-length commercial terms.

Services provided to, and by related parties

	2018				2017			
	Income earned in the year £m	**Expenses incurred in the year £m**	**Payable at year end £m**	**Receivable at year end £m**	Income earned in the year £m	Expenses incurred in the year £m	Payable at year end £m	Receivable at year end £m
Associates	**1**	**—**	**—**	**2**	4	(4)	—	—
Joint ventures	**49**	**—**	**(1)**	**2**	49	—	—	2
Employee pension schemes	**10**	**—**	**—**	**7**	12	—	—	14
	60	**—**	**(1)**	**11**	65	(4)	—	16

Transactions with joint ventures in the UK relate to the property management undertakings. The Group has equity interests in these joint ventures, together with the provision of administration services and financial management to many of them. Our fund management companies also charge fees to these joint ventures for administration services and for arranging external finance.

Key management personnel of the Company may from time to time purchase insurance, savings, asset management or annuity products marketed by group companies on equivalent terms to those available to all employees of the Group. In 2018, other transactions with key management personnel were not deemed to be significant either by size or in the context of their individual financial positions.

Our UK fund management companies manage most of the assets held by the Group's main UK staff pension scheme, for which they charge fees based on the level of funds under management. The main UK scheme holds investments in Group-managed funds and insurance policies with other group companies. As at 31 December 2018, the Friends Provident Pension Scheme ('FPPS'), acquired in 2015 as part of the acquisition of the Friends Life business, held an insurance policy of £620 million *(2017: £630 million)* issued by a group company, which eliminates on consolidation.

The related parties' receivables are not secured and no guarantees were received in respect thereof. The receivables will be settled in accordance with normal credit terms.

B20 – Risk management

This note sets out the major risks our businesses and our shareholders face and describes the Group's approach to managing these. It also gives sensitivity analysis around the major economic and non-economic assumptions that can cause volatility in the Group's earnings and capital position.

(a) Risk management framework

The risk management framework in Aviva forms an integral part of the management and Board processes and decision-making framework across the Group. The key elements of our risk management framework comprise risk appetite; risk governance, including risk policies and business standards, risk oversight committees and roles and responsibilities; and the processes we use to identify, measure, manage, monitor and report risks, including the use of our risk models and stress and scenario testing.

For the purposes of risk identification and measurement, and aligned to Aviva's risk policies, risks are usually grouped by risk type: credit, market, liquidity, life insurance (including long-term health), general insurance (including short-term health), asset management and operational risk. Risks falling within these types may affect a number of metrics including those relating to balance sheet strength, liquidity and profit. They may also affect the performance of the products we deliver to our customers and the service to our customers and distributors, which can be categorised as risks to our brand and reputation or as conduct risk.

To promote a consistent and rigorous approach to risk management across all businesses we have a set of risk policies and business standards which set out the risk strategy, appetite, framework and minimum requirements for the Group's worldwide operations. The business chief executive officers make an annual declaration supported by an opinion from the business chief risk officers that the system of governance and internal controls was effective and fit for purpose for their business throughout the year.

A regular top-down key risk identification and assessment process is carried out by the risk function. This includes the consideration of emerging risks and is supported by deeper thematic reviews. This process is replicated at the business unit level. The risk assessment processes are used to generate risk reports which are shared with the relevant risk committees.

Risk models are an important tool in our measurement of risks and are used to support the monitoring and reporting of the risk profile and in the consideration of the risk management actions available. We carry out a range of stress (where one risk factor, such as equity returns, is assumed to vary) and scenario (where combinations of risk factors are assumed to vary) tests to evaluate their impact on the business and the management actions available to respond to the conditions envisaged. For those risk types managed through the holding of capital, being our principal risk types except for liquidity risk, we measure and monitor our risk profile on the basis of the Solvency II solvency capital requirement.

Roles and responsibilities for risk management in Aviva are based around the 'three lines of defence model' where ownership for risk is taken at all levels in the Group. Line management in the business is accountable for risk management, including the implementation of the risk management framework and embedding of the risk culture. The risk function is accountable for quantitative and qualitative oversight and challenge of the risk identification, measurement, monitoring, management and reporting processes and for developing the risk management framework. Internal Audit provides an independent assessment of the risk framework and internal control processes.

Board oversight of risk and risk management across the Group is maintained on a regular basis through its Risk Committee and Governance Committee. The Board has overall responsibility for determining risk appetite, which is an expression of the risk the business is willing to take. Risk appetites are set relative to capital and liquidity at Group and in the business units.

Risk appetites, requiring management action if breached, are also set for interest rate and foreign exchange risk (calculated on the basis of the Solvency II solvency capital requirement), and liquidity risk (based on stressing forecast central liquid assets and cash inflows and outflows over a specified time horizon). For other risk types the Group sets Solvency II capital tolerances. The Group's position against risk appetite and capital tolerances is monitored and reported to the Board on a regular basis. Long-term sustainability depends upon the protection of franchise value and good customer relationships. As such, Aviva has a risk preference that we will not accept risks that materially impair the reputation of the Group and requires that customers are always treated with integrity. The oversight of risk and risk management at the Group level is supported by the Asset Liability Committee, which focuses on business and financial risks, and the Operational Risk Committee which focuses on operational and reputational risks. Similar committee structures with equivalent terms of reference exist in the business units.

The risk management framework of a small number of our joint ventures and strategic equity holdings differs from the Aviva framework outlined in this note. We work with these entities to understand how their risks are managed and to align them, where possible, with Aviva's framework.

Further information on the types and management of specific risk types is given in sections (b) to (j) below.

B20 – Risk management continued

(b) Credit risk

Credit risk is the risk of financial loss as a result of the default or failure of third parties to meet their payment obligations to Aviva, or variations in market values as a result of changes in expectations related to these risks. Credit risk is taken so that we can provide the returns required to satisfy policyholder liabilities and to generate returns for our shareholders. In general we prefer to take credit risk over equity and property risks, due to the better expected risk adjusted return, our credit risk analysis capability and the structural investment advantages conferred to insurers with long-dated, relatively illiquid liabilities.

Our approach to managing credit risk recognises that there is a risk of adverse financial impact resulting from fluctuations in credit quality of third parties including default, rating transition and credit spread movements. Our credit risks arise principally through exposures to debt security investments, structured asset investments, bank deposits, derivative counterparties, mortgage lending and reinsurance counterparties.

The Group manages its credit risk at business unit and Group level. All business units are required to implement credit risk management processes (including limits frameworks), operate specific risk management committees, and ensure detailed reporting and monitoring of their exposures against pre-established risk criteria. At Group level, we manage and monitor all exposures across our business units on a consolidated basis, and operate a Group limit framework that must be adhered to by all.

A detailed breakdown of the Group's current credit exposure by credit quality is shown below.

(i) Financial exposures by credit ratings

Financial assets are graded according to current external credit ratings issued. AAA is the highest possible rating. Investment grade financial assets are classified within the range of AAA to BBB ratings. Financial assets which fall outside this range are classified as sub-investment grade. The following table provides information regarding the aggregated credit risk exposure of the Group for financial assets with external credit ratings. 'Not rated' assets capture assets not rated by external ratings agencies.

As at 31 December 2018	AAA	AA	A	BBB	Below BBB	Not rated	Carrying value including held for sale £m	Less: Amounts classified as held for sale £m	Carrying value £m
Debt securities	**10.3%**	**33.6%**	**18.2%**	**25.1%**	**6.5%**	**6.3%**	**169,686**	**(397)**	**169,289**
Reinsurance assets	**—**	**83.1%**	**10.0%**	**2.7%**	**—**	**4.2%**	**11,800**	**(45)**	**11,755**
Other investments	**0.2%**	**0.1%**	**0.3%**	**0.1%**	**—**	**99.3%**	**52,812**	**(6,644)**	**46,168**
Loans	**—**	**5.6%**	**—**	**—**	**—**	**94.4%**	**28,785**	**—**	**28,785**
Total							**263,083**	**(7,086)**	**255,997**

As at 31 December 2017	AAA	AA	A	BBB	Below BBB	Not rated	Carrying value including held for sale £m	Less: Amounts classified as held for sale £m	Carrying value £m
Debt securities	10.6%	32.5%	20.0%	23.3%	7.8%	5.8%	175,948	(1,140)	174,808
Reinsurance assets	—	87.3%	8.2%	1.9%	—	2.6%	13,615	(123)	13,492
Other investments	—	0.2%	0.3%	0.1%	—	99.4%	53,277	(6,971)	46,306
Loans	—	7.1%	—	—	—	92.9%	27,863	(6)	27,857
Total							270,703	(8,240)	262,463

The majority of non-rated debt securities within shareholder assets are held by our businesses in the UK. Of these securities most are allocated an internal rating using a methodology largely consistent with that adopted by an external rating agency, and are considered to be of investment grade credit quality; these include £3.6 billion (*2017: £2.0 billion*) of debt securities held in our UK Life business, predominantly made up of private placements and other corporate bonds, which have been internally rated as investment grade.

The following table provides information on the Group's exposure by credit ratings to financial assets that meet the definition of 'solely payment of principal and interest' (SPPI).

	AAA £m	AA £m	A £m	BBB £m	Below BBB £m	Not rated £m
Loans	**—**	**1,620**	**—**	**—**	**—**	**894**
Receivables	**6**	**213**	**294**	**214**	**—**	**5,122**
Accrued income & interest	**—**	**—**	**18**	**—**	**—**	**175**
Other financial assets	**—**	**—**	**10**	**—**	**—**	**—**
Total	**6**	**1,833**	**322**	**214**	**—**	**6,191**

At the period end, the Group held cash and cash equivalents of £13,246 million that met the SPPI criteria, of which £13,231 million is placed with financial institutions with issuer ratings within the range of AAA to BBB. Further information on the extent to which unrated receivables, including those that meet the SPPI criteria, are past due may be found in section (ix) of this note.

The Group continues to hold a series of macro credit hedges to reduce the overall credit risk exposure. The Group's maximum exposure to credit risk of financial assets, without taking collateral or these hedges into account, is represented by the carrying value of the financial instruments in the statement of financial position. These comprise debt securities, reinsurance assets, derivative assets, loans and receivables.

B20 – Risk management continued

(ii) Other investments

Other investments (including assets of operations classified as held for sale) include unit trusts and other investment vehicles; derivative financial instruments, representing positions to mitigate the impact of adverse market movements; and other assets, including deposits with credit institutions and minority holdings in property management undertakings.

The credit quality of the underlying debt securities within investment vehicles is managed by the safeguards built into the investment mandates for these funds which determine the funds' risk profiles. At the Group level, we also monitor the asset quality of unit trusts and other investment vehicles against Group set limits.

A proportion of the assets underlying these investments are represented by equities and so credit ratings are not generally applicable. Equity exposures are managed against agreed benchmarks that are set with reference to overall appetite for market risk.

(iii) Loans

The Group loan portfolio principally comprises:

- Policy loans which are generally collateralised by a lien or charge over the underlying policy;
- Loans and advances to banks which primarily relate to loans of cash collateral received in stock lending transactions. These loans are fully collateralised by other securities;
- Healthcare, infrastructure and PFI loans secured against healthcare, education, social housing and emergency services related premises; and
- Mortgage loans collateralised by property assets.

We use loan to value, interest and debt service cover, and diversity and quality of the tenant base metrics to internally monitor our exposures to mortgage loans. We use credit quality, based on dynamic market measures, and collateralisation rules to manage our stock lending activities. Policy loans are loans and advances made to policyholders, and are collateralised by the underlying policies.

(iv) Credit concentration risk

The long-term and general insurance businesses are generally not individually exposed to significant concentrations of credit risk due to the regulations applicable in most markets and the Group credit policy and limits framework, which limit investments in individual assets and asset classes. Credit concentrations are monitored as part of the regular credit monitoring process and are reported to the Group Asset Liability Committee (ALCO). With the exception of government bonds the largest aggregated counterparty exposure within shareholder assets is to the Swiss Reinsurance Company Ltd (including subsidiaries), representing approximately 2.3% of the total shareholder assets.

(v) Reinsurance credit exposures

The Group is exposed to concentrations of risk with individual reinsurers due to the nature of the reinsurance market and the restricted range of reinsurers that have acceptable credit ratings. The Group operates a policy to manage its reinsurance counterparty exposures, by limiting the reinsurers that may be used and applying strict limits to each reinsurer. Reinsurance exposures are aggregated with other exposures to ensure that the overall risk is within appetite. The Group Capital and Group Risk teams have an active monitoring role with escalation to the Chief Financial Officer (CFO), Chief Risk Officer (CRO), Group ALCO and the Board Risk Committee as appropriate.

The Group's largest reinsurance counterparty is Swiss Reinsurance Company Ltd (including subsidiaries). At 31 December 2018, the reinsurance asset recoverable, including debtor balances, from Swiss Reinsurance Company Ltd was £2,835 million *(2017: £2,902 million)*. Up until late 2018, BlackRock Life Ltd had been the Group's largest reinsurance counterparty as a result of the BlackRock funds offered to UK Life customers via unit-linked contracts. However, as a result of action taken to restructure the agreements with BlackRock Life Ltd the reinsurance asset recoverable, including debtor balances, from BlackRock Life Ltd as at 31 December 2018 has been reduced to £2,457 million *(2017: £5,307 million)*.

(vi) Securities finance

The Group has significant securities financing operations within the UK and smaller operations in some other businesses. The risks within this activity are mitigated by collateralisation and minimum counterparty credit quality requirements.

(vii) Derivative credit exposures

The Group is exposed to counterparty credit risk through derivative trades. This risk is generally mitigated through holding collateral for most trades. Residual exposures are captured within the Group's credit management framework.

(viii) Unit-linked business

In unit-linked business the policyholder bears the direct market risk and credit risk on investment assets in the unit funds and the shareholders' exposure to credit risk is limited to the extent of the income arising from asset management charges based on the value of assets in the fund.

B20 – Risk management continued

(ix) Impairment of financial assets

The following table provides information regarding the carrying value of financial assets subject to impairment testing that have been impaired and the ageing of those assets that are past due but not impaired. The table excludes assets carried at fair value through profit or loss and held for sale.

As at 31 December 2018	Neither past due nor impaired £m	Financial assets that are past due but not impaired 0–3 months £m	3–6 months £m	6 months–1 year £m	Greater than 1 year £m	Financial assets that have been impaired £m	Carrying value £m
Debt securities	**1,675**	**—**	**—**	**5**	**—**	**—**	**1,680**
Reinsurance assets	**7,791**	**—**	**—**	**—**	**—**	**—**	**7,791**
Other investments	**1**	**—**	**—**	**—**	**—**	**—**	**1**
Loans	**3,259**	**—**	**—**	**—**	**—**	**—**	**3,259**
Receivables and other financial assets	**8,776**	**74**	**16**	**11**	**2**	**—**	**8,879**

As at 31 December 2017	Neither past due nor impaired £m	Financial assets that are past due but not impaired 0–3 months £m	3–6 months £m	6 months–1 year £m	Greater than 1 year £m	Financial assets that have been impaired £m	Carrying value £m
Debt securities	1,726	—	—	—	—	—	1,726
Reinsurance assets	7,521	—	—	—	—	—	7,521
Other investments	1	—	—	—	—	—	1
Loans	3,465	—	—	—	—	—	3,465
Receivables and other financial assets	8,185	78	12	5	5	—	8,285

Excluded from the tables above are financial and reinsurance assets carried at fair value through profit or loss that are not subject to impairment testing, as follows: £168.0 billion of debt securities *(2017: £174.2 billion)*, £52.8 billion of other investments *(2017: £53.3 billion)*, £25.5 billion of loans *(2017: £24.4 billion)* and £4.0 billion of reinsurance assets *(2017: £6.1 billion)*.

Where assets have been classed as 'past due and impaired', an analysis is made of the risk of default and a decision is made whether to seek to mitigate the risk. There were no material financial assets that would have been past due or impaired had the terms not been renegotiated.

(c) Market risk

Market risk is the risk of adverse financial impact resulting, directly or indirectly from fluctuations in interest rates, inflation, foreign currency exchange rates, equity and property prices. Market risk arises in business units due to fluctuations in both the value of liabilities and the value of investments held. At Group level, it also arises in relation to the overall portfolio of international businesses and in the value of investment assets owned directly by the shareholders. We actively seek some market risks as part of our investment and product strategy. However, we have limited appetite for interest rate risk as we do not believe it is adequately rewarded.

The management of market risk is undertaken at business unit and at Group level. Businesses manage market risks locally using the Group market risk framework and within local regulatory constraints. Group Capital is responsible for monitoring and managing market risk at Group level and has established criteria for matching assets and liabilities to limit the impact of mismatches due to market movements.

In addition, where the Group's long-term savings businesses have written insurance and investment products where the majority of investment risks are borne by its policyholders, these risks are managed in line with local regulations and marketing literature, in order to satisfy the policyholders' risk and reward objectives. The Group writes unit-linked business in a number of its operations. The shareholders' exposure to market risk on this business is limited to the extent that income arising from asset management charges is based on the value of assets in the fund.

The most material types of market risk that the Group is exposed to are described below.

B20 – Risk management continued

(i) Equity price risk

The Group is subject to direct equity price risk arising from changes in the market values of its equity securities portfolio. Our most material indirect equity price risk exposures are to policyholder unit-linked funds, which are exposed to a fall in the value of the fund thereby reducing the fees we earn on those funds, and participating contracts, which are exposed to a fall in the value of the funds thereby increasing our costs for policyholder guarantees. We also have some equity exposure in shareholder funds through equities held to match inflation-linked liabilities.

We continue to limit our direct equity exposure in line with our risk preferences. At a business unit level, investment limits and local investment regulations require that business units hold diversified portfolios of assets thereby reducing exposure to individual equities. The Group does not have material holdings of unquoted equity securities.

Equity risk is also managed using a variety of derivative instruments, including futures and options. Businesses actively model the performance of equities through the use of risk models, in particular to understand the impact of equity performance on guarantees, options and bonus rates. An equity hedging strategy remains in place to help control the Group's overall direct and indirect exposure to equities. At 31 December 2018 the Group continues to hold a series of macro equity hedges to reduce the overall shareholder equity risk exposure.

Sensitivity to changes in equity prices is given in section (j) Risk and capital management, below.

(ii) Property price risk

The Group is subject to property price risk directly due to holdings of investment properties in a variety of locations worldwide and indirectly through investments in mortgages and mortgage backed securities. Investment in property is managed at business unit level, and is subject to local regulations on investments, liquidity requirements and the expectations of policyholders.

As at 31 December 2018, no material derivative contracts had been entered into to mitigate the effects of changes in property prices. Exposure to property risk on equity release mortgages from sustained underperformance in the UK House Price Index (HPI) is mitigated by capping loan to value on origination at low levels and regularly monitoring the performance of the mortgage portfolio.

Sensitivity to changes in property prices is given in section (j) Risk and capital management, below.

(iii) Interest rate risk

Interest rate risk arises primarily from the Group's investments in long-term debt and fixed income securities and their movement relative to the value placed on the insurance liabilities. A number of policyholder product features have an influence on the Group's interest rate risk. The major features include guaranteed surrender values, guaranteed annuity options, and minimum surrender and maturity values.

Exposure to interest rate risk is monitored through several measures that include duration, capital modelling, sensitivity testing and stress and scenario testing. The impact of exposure to sustained low interest rates is considered within our scenario testing.

The Group typically manages interest rate risk by investing in fixed interest securities which closely match the interest rate sensitivity of the liabilities where such investments are available. In particular, a key objective is to at least match the duration of our annuity liabilities with assets of the same duration, and in some cases where appropriate cash flow matching has been used. These assets include corporate bonds, residential mortgages and commercial mortgages. Should they default before maturity, it is assumed that the Group can reinvest in assets of a similar risk and return profile, which is subject to market conditions. Interest rate risk is also managed in some business units using a variety of derivative instruments, including futures, options, swaps, caps and floors.

Some of the Group's products, principally participating contracts, expose us to the risk that changes in interest rates will impact on profits through a change in the interest spread (the difference between the amounts that we are required to pay under the contracts and the investment income we are able to earn on the investments supporting our obligations under those contracts). The primary markets where Aviva is exposed to this risk are the UK, France and Italy.

Despite the continued pick up in market interest rates from the historical lows experienced in 2016, the continued low interest rate environment in a number of markets around the world has resulted in our current reinvestment yields being lower than the overall current portfolio yield, primarily for our investments in fixed income securities and commercial mortgage loans. As long as market yields remain below the current portfolio level, the portfolio yield, and as a result net investment income, will continue to decline. While we anticipate interest rates may remain below historical averages before the 2008 financial crisis for some time to come, it is also possible that further future increases in interest rates or market anticipation of such increases, if larger and more rapid than expected, could adversely impact market values of our portfolio of fixed income securities and increase the risk of credit defaults and downgrades.

Other product lines of the Group, such as protection, are not significantly sensitive to interest rate or market movements. For unit-linked business, the shareholder margins emerging are typically a mixture of annual management fees and risk/expense charges. Risk and expense margins will be largely unaffected by low interest rates. Annual management fees may increase in the short term as the move towards low interest rates increases the value of unit funds. However, in the medium term, unit funds will grow at a lower rate which will reduce fund charges. For the UK annuities business interest rate exposure is mitigated by closely matching the duration of liabilities with assets of the same duration.

B20 – Risk management continued

The UK participating business includes contracts with features such as guaranteed surrender values, guaranteed annuity options, and minimum surrender and maturity values. These liabilities are managed through duration matching of assets and liabilities and the use of derivatives, including swaptions. As a result, the Group's exposure to sustained low interest rates on this portfolio is not material. The Group's key exposure to low interest rates arises through its other participating contracts, principally in Italy and France. Some of these contracts also include features such as guaranteed minimum bonuses, guaranteed investment returns and guaranteed surrender values. In a low interest rate environment there is a risk that the yield on assets might not be sufficient to cover these obligations. For certain of its participating contracts the Group is able to amend guaranteed crediting rates. Our ability to lower crediting rates may be limited by competition, bonus mechanisms and contractual arrangements.

In addition, the following table summarises the weighted average minimum guaranteed crediting rates and weighted average book value yields on assets as at 31 December 2018 for our Italian and French participating contracts, where the Group's key exposure to sustained low interest rates arises.

	Weighted average minimum guaranteed crediting rate	Weighted average book value yield on assets	Participating contract liabilities £m
France	0.70%	2.67%	67,956
Italy	0.48%	3.52%	19,010
Other[1]	N/A	N/A	44,329
Total	N/A	N/A	131,295

1 'Other' includes UK participating business

Profit before tax on General Insurance and Health Insurance business is generally a mixture of insurance, expense and investment returns. The asset portfolio is invested primarily in fixed income securities and the reduction in interest rates over the last decade has reduced the investment component of profit, although in 2018 there was a small partial reversal in this long term trend. The portfolio investment yield and average total invested assets in our general insurance and health business are set out in the table below.

	Portfolio investment yield[1]	Average assets £m
2016	2.47%	14,369
2017	2.07%	14,770
2018	2.28%	14,651

1 Before realised and unrealised gains and losses and investment expenses

The nature of the business means that prices in certain circumstances can be increased to maintain overall profitability. This is subject to the competitive environment in each market. To the extent that there are further falls in interest rates the investment yield would be expected to decrease further in future periods.

Sensitivity to changes in interest rates is given in section (j) Risk and capital management, below.

(iv) Inflation risk

Inflation risk arises primarily from the Group's exposure to general insurance claims inflation, to inflation linked benefits within the defined benefit staff pension schemes and within the UK annuity portfolio and to expense inflation. Increases in long-term inflation expectations are closely linked to long-term interest rates and so are frequently considered with interest rate risk. Exposure to inflation risk is monitored through capital modelling, sensitivity testing and stress and scenario testing. The Group typically manages inflation risk through its investment strategy and, in particular, by investing in inflation linked securities and through a variety of derivative instruments, including inflation linked swaps.

B20 – Risk management continued

(v) Currency risk

The Group has minimal exposure to currency risk from financial instruments held by business units in currencies other than their functional currencies, as nearly all such holdings are backing either unit-linked or with-profits contract liabilities or are hedged. As a result the foreign exchange gains and losses on investments are largely offset by changes in unit-linked and with-profits liabilities and fair value changes in derivatives attributable to changes in foreign exchange rates recognised in the income statement.

The Group operates internationally and as a result is exposed to foreign currency exchange risk arising from fluctuations in exchange rates of various currencies. Approximately 59% of the Group's premium income arises in currencies other than sterling and the Group's net assets are denominated in a variety of currencies, of which the largest are sterling, euro and Canadian dollars. The Group does not hedge foreign currency revenues as these are substantially retained locally to support the growth of the Group's business and meet local regulatory and market requirements. However, the Group does use foreign currency forward contracts to hedge planned dividends from its subsidiaries.

Businesses aim to maintain sufficient assets in local currency to meet local currency liabilities, however movements may impact the value of the Group's consolidated shareholders' equity which is expressed in sterling. This aspect of foreign exchange risk is monitored and managed centrally, against pre-determined limits. These exposures are managed by aligning the deployment of regulatory capital by currency with the Group's regulatory capital requirements by currency. Currency borrowings and derivatives are used to manage exposures within the limits that have been set. Except where the Group has applied net investment hedge accounting, foreign exchange gains and losses on foreign currency borrowings are recognised in the income statement, whereas foreign exchange gains and losses arising on consolidation from the translation of assets and liabilities of foreign subsidiaries are recognised in other comprehensive income. At 31 December 2018 and 2017, the Group's total equity deployment by currency including assets 'held for sale' was:

	Sterling £m	Euro £m	CAD$ £m	Other £m	Total £m
Capital 31 December 2018	**15,720**	**611**	**311**	**1,813**	**18,455**
Capital 31 December 2017	16,776	444	309	1,606	19,135

A 10% change in sterling to euro/Canada$ (CAD$) period-end foreign exchange rates would have had the following impact on total equity.

	10% increase in sterling/euro rate £m	10% decrease in sterling/euro rate £m	10% increase in sterling/CAD$ rate £m	10% decrease in sterling/ CAD$ rate £m
Net assets at 31 December 2018	**(61)**	**77**	**(31)**	**31**
Net assets at 31 December 2017	(44)	44	(31)	31

A 10% change in sterling to euro/Canada$ (CAD$) average foreign exchange rates applied to translate foreign currency profits would have had the following impact on profit before tax, including resulting gains and losses on foreign exchange hedges.

	10% increase in sterling/euro rate £m	10% decrease in sterling/euro rate £m	10% increase in sterling/CAD$ rate £m	10% decrease in sterling/ CAD$ rate £m
Impact on profit before tax 31 December 2018	**(60)**	**85**	**8**	**(9)**
Impact on profit before tax 31 December 2017	(78)	95	6	(7)

The balance sheet changes arise from retranslation of business unit statements of financial position from their functional currencies into sterling, with above movements being taken through the currency translation reserve. These balance sheet movements in exchange rates therefore have no impact on profit. Net asset and profit before tax figures are stated after taking account of the effect of currency hedging activities.

(vi) Derivatives risk

Derivatives are used by a number of the businesses. Derivatives are primarily used for efficient investment management, risk hedging purposes, or to structure specific retail savings products. Activity is overseen by the Group Capital and Group Risk teams, which monitor exposure levels and approve large or complex transactions.

The Group applies strict requirements to the administration and valuation processes it uses, and has a control framework that is consistent with market and industry practice for the activity that is undertaken.

(vii) Correlation risk

The Group recognises that lapse behaviour and potential increases in consumer expectations are sensitive to and interdependent with market movements and interest rates. These interdependencies are taken into consideration in the internal capital model and in scenario analysis.

B20 – Risk management continued

(d) Liquidity risk

Liquidity risk is the risk of not being able to make payments as they become due because there are insufficient assets in cash form. 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 and infrastructure loans. The Group seeks to ensure that it maintains sufficient financial resources to meet its obligations as they fall due through the application of a Group liquidity risk policy and business standard and through the development of its liquidity risk management plan. At Group and business unit level, there is a liquidity risk appetite which requires that sufficient liquid resources be maintained to cover net outflows in a stress scenario. In addition to the existing liquid resources and expected inflows, the Group maintains significant undrawn committed borrowing facilities (£1,650 million) from a range of leading international banks to further mitigate this risk.

Maturity analyses

The following tables show the maturities of our insurance and investment contract liabilities, and of the financial and reinsurance assets held to meet them.

(i) Analysis of maturity of insurance and investment contract liabilities

For non-linked insurance business, the following table shows the gross liability at 31 December 2018 and 2017 analysed by remaining duration. The total liability is split by remaining duration in proportion to the cash-flows expected to arise during that period, as permitted under IFRS 4, *Insurance Contracts*.

Almost all linked business and non-linked investment contracts may be surrendered or transferred on demand. For such contracts, the earliest contractual maturity date is therefore the current statement of financial position date, for a surrender amount approximately equal to the current statement of financial position liability. However, we expect surrenders, transfers and maturities to occur over many years, and therefore the tables below reflect the expected cash flows for these contracts, rather than their contractual maturity date. This table includes amounts held for sale.

As at 31 December 2018	Total £m	On demand or within 1 year £m	1-5 years £m	5-15 years £m	Over 15 years £m
Long-term business					
Insurance contracts – non-linked	**106,622**	**8,421**	**25,940**	**40,548**	**31,713**
Investment contracts – non-linked	**75,158**	**5,547**	**19,199**	**28,572**	**21,840**
Linked business	**156,859**	**15,559**	**23,901**	**52,656**	**64,743**
General insurance and health	**16,368**	**6,859**	**6,758**	**2,217**	**534**
Total contract liabilities	**355,007**	**36,386**	**75,798**	**123,993**	**118,830**

As at 31 December 2017	Total £m	On demand or within 1 year £m	1-5 years £m	5-15 years £m	Over 15 years £m
Long-term business					
Insurance contracts – non-linked	109,900	10,105	27,278	41,720	30,797
Investment contracts – non-linked	71,948	5,370	17,088	26,300	23,190
Linked business	163,571	17,609	27,632	55,519	62,811
General insurance and health	16,794	6,877	6,838	2,462	617
Total contract liabilities	362,213	39,961	78,836	126,001	117,415

(ii) Analysis of maturity of financial assets

The following table provides an analysis, by maturity date of the principal, of the carrying value of financial assets which are available to fund the repayment of liabilities as they crystallise. This table excludes assets held for sale.

As at 31 December 2018	Total £m	On demand or within 1 year £m	1-5 years £m	Over 5 years £m	No fixed term (perpetual) £m
Debt securities	**169,289**	**31,282**	**43,876**	**92,985**	**1,146**
Equity securities	**82,128**	**—**	**—**	**—**	**82,128**
Other investments	**46,168**	**41,027**	**77**	**4,301**	**763**
Loans	**28,785**	**2,089**	**4,236**	**22,457**	**3**
Cash and cash equivalents	**46,484**	**46,484**	**—**	**—**	**—**
	372,854	**120,882**	**48,189**	**119,743**	**84,040**

As at 31 December 2017	Total £m	On demand or within 1 year £m	1-5 years £m	Over 5 years £m	No fixed term (perpetual) £m
Debt securities	174,808	28,037	47,289	99,078	404
Equity securities	89,968	—	—	—	89,968
Other investments	46,306	40,500	364	4,680	762
Loans	27,857	1,651	5,053	21,149	4
Cash and cash equivalents	43,347	43,347	—	—	—
	382,286	113,535	52,706	124,907	91,138

B20 – Risk management continued

The assets above are analysed in accordance with the earliest possible redemption date of the instrument at the initiation of the Group. Where an instrument is transferable back to the issuer on demand, such as most unit trusts or similar types of investment vehicle, it is included in the 'On demand or within 1 year' column. Debt securities with no fixed contractual maturity date are generally callable at the option of the issuer at the date the coupon rate is reset under the contractual terms of the instrument. The terms for resetting the coupon are such that we expect the securities to be redeemed at this date, as it would be uneconomic for the issuer not to do so, and for liquidity management purposes we manage these securities on this basis. The first repricing and call date is normally ten years or more after the date of issuance. Most of the Group's investments in equity securities and fixed maturity securities are market traded and therefore, if required, can be liquidated for cash at short notice.

(e) Life and health insurance risk

Life insurance risk in the Group arises through its exposure to mortality risk and exposure to worse than anticipated operating experience on factors such as persistency levels, exercising of policyholder options and management and administration expenses. The Group's health insurance business (including private health insurance, critical illness cover, income protection and personal accident insurance, as well as a range of corporate healthcare products) exposes the Group to morbidity risk (the proportion of our customers falling sick) and medical expense inflation. The Group chooses to take measured amounts of life and health insurance risk provided that the relevant business has the appropriate core skills to assess and price the risk and adequate returns are available. The Group's underwriting strategy and appetite is communicated via specific policy statements, related business standards and guidelines. Life insurance risk is managed primarily at business unit level with oversight at the Group level.

The underlying risk profile of our life and health insurance risks, primarily persistency, longevity, mortality and expense risk, has remained stable during 2018, although the current continued relatively low levels of interest rates have increased our sensitivity to longevity shocks compared to historical norms. We are also exposed to longevity risk through the Aviva Staff Pension Scheme, to which our economic exposure has been reduced since 2014 by entering into a longevity swap covering approximately £5 billion of pensioner in payment scheme liabilities. Longevity risk remains the Group's most significant life insurance risk, while persistency risk remains significant and continues to have a volatile outlook with underlying performance linked to some degree to economic conditions. However, businesses across the Group have continued to make progress with a range of customer retention activities. The Group has continued to write considerable volumes of life protection business, and to utilise reinsurance to reduce exposure to potential losses. More generally, life insurance risks are believed to provide a significant diversification against other risks in the portfolio. Life insurance risks are modelled within the internal capital model and subject to sensitivity and stress and scenario testing. Our UK Life business is in the process of implementing a new actuarial modelling system for non-profit business. During the year ended 31 December 2018, annuities and certain protection products were transferred into the new modelling system which had minimal financial impact.

The assumption and management of life and health insurance risks is governed by the Group-wide business standards covering underwriting, pricing, product design and management, in-force management, claims handling, and reinsurance. The individual life and health insurance risks are managed as follows:

- Mortality and morbidity risks are mitigated by use of reinsurance. The Group allows businesses to select reinsurers, from those approved by the Group, based on local factors, but retains oversight of the overall exposures and monitors that the aggregation of risk ceded is within credit risk appetite.
- Longevity risk and internal experience analysis are monitored against the latest external industry data and emerging trends. Whilst individual businesses are responsible for reserving and pricing for annuity business, the Group monitors the exposure to this risk and any associated capital implications. The Group has used reinsurance solutions to reduce the risks from longevity and continually monitors and evaluates emerging market solutions to mitigate this risk further.
- Persistency risk is managed at a business unit level through frequent monitoring of company experience, and benchmarked against local market information. Generally, persistency risk arises from customers lapsing their policies earlier than has been assumed. Where possible the financial impact of lapses is reduced through appropriate product design. Businesses also implement specific initiatives to improve the retention of policies which may otherwise lapse. The Group has developed guidelines on persistency management.
- Expense risk is primarily managed by the business units through the assessment of business unit profitability and frequent monitoring of expense levels.

Embedded derivatives

The Group is exposed to the risk of changes in policyholder behaviour due to the exercise of options, guarantees and other product features embedded in its long-term savings products. These product features offer policyholders varying degrees of guaranteed benefits at maturity or on early surrender, along with options to convert their benefits into different products on pre-agreed terms. The extent of the impact of these embedded derivatives differs considerably between business units and exposes Aviva to changes in policyholder behaviour in the exercise of options as well as market risk.

Examples of each type of embedded derivative affecting the Group are:

- Options: call, put, surrender and maturity options, guaranteed annuity options, options to cease premium payment, options for withdrawals free of market value adjustment, annuity options, and guaranteed insurability options.
- Guarantees: embedded floor (guaranteed return), maturity guarantee, guaranteed death benefit, and guaranteed minimum rate of annuity payment.
- Other: indexed interest or principal payments, maturity value, loyalty bonus.

The impact of these is reflected in the capital model and managed as part of the asset liability framework.

B20 – Risk management continued

(f) General insurance risk

Types of risk

General insurance risk in the Group arises from:

- Fluctuations in the timing, frequency and severity of claims and claim settlements relative to expectations;
- Unexpected claims arising from a single source or cause;
- Inaccurate pricing of risks or inappropriate underwriting of risks when underwritten; and
- Inadequate reinsurance protection or other risk transfer techniques.

Aviva has a preference for general insurance risk in measured amounts for explicit reward, in line with our core skills in underwriting and pricing. The majority of the general insurance business underwritten by the Group continues to be short tail in nature such as motor, household and commercial property insurances. The Group's underwriting strategy and appetite is communicated via specific policy statements, related business standards and guidelines. General insurance risk is managed primarily at business unit level with oversight at the Group level. Claims reserving is undertaken by local actuaries in the various general insurance businesses and is also subject to periodic external reviews. Reserving processes are further detailed in note B11 Insurance liabilities.

The vast majority of the Group's general insurance business is managed and priced in the same country as the domicile of the customer.

Management of general insurance risks

Significant insurance risks will be reported under the risk management framework. Additionally, the capital model is used to assess the risks that each general insurance business unit, and the Group as a whole, is exposed to, quantifying their impact and calculating appropriate capital requirements.

Business units have developed mechanisms that identify, quantify and manage accumulated exposures to contain them within the limits of the appetite of the Group. The business units are assisted by the General Insurance Council which provides technical input for major decisions which fall outside individual delegated limits or escalations outside group risk preferences, group risk accumulation, concentration and profitability limits.

Reinsurance strategy

Significant reinsurance purchases are reviewed annually at both business unit and Group level to verify that the levels of protection being bought reflect any developments in exposure and the risk appetite of the Group. The basis of these purchases is underpinned by analysis of capital, earnings and capital volatility, cash flow and liquidity and the Group's franchise value.

Detailed actuarial analysis is used to calculate the Group's extreme risk profile and then design cost and capital efficient reinsurance programmes to mitigate these risks to within agreed appetites. For businesses writing general insurance we analyse the natural catastrophe exposure using our own internal probabilistic catastrophe model which is benchmarked against external catastrophe models widely used by the rest of the (re)insurance industry.

The Group cedes much of its worldwide catastrophe risk to third-party reinsurers through excess of loss and aggregate excess of loss structures. The Group purchases a Group-wide catastrophe reinsurance programme to protect against catastrophe losses exceeding a 1 in 200 year return period. The total Group potential retained loss from its most concentrated catastrophe exposure peril (Northern Europe Windstorm) is approximately £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. In addition the Group purchases a number of GI business line specific reinsurance programmes with various retention levels to protect both capital and earnings, and has reinsured 100% of its latent exposures to its historic UK employers' liability and public liability business written prior to 31 December 2000.

(g) Asset management risk

Aviva is directly exposed to the risks associated with operating an asset management business through its ownership of Aviva Investors. The underlying risk profile of our asset management risk is derived from investment performance, specialist investment professionals and leadership, product development capabilities, fund liquidity, margin, client retention, regulatory developments, fiduciary and contractual responsibilities. Funds invested in illiquid assets such as commercial property are particularly exposed to liquidity risk. The risk profile is regularly monitored.

A client relationship team is in place to manage client retention risk, while all new asset management products undergo a review and approval process at each stage of the product development process, including approvals from legal, compliance and risk functions. Investment performance against client objectives relative to agreed benchmarks is monitored as part of our investment performance and risk management process, and subject to further independent oversight and challenge by a specialist risk team, reporting directly to the Aviva Investors' Chief Risk Officer.

(h) Operational risk

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. We have limited appetite for operational risk and aim to reduce these risks as far as is commercially sensible.

Our business units are primarily responsible for identifying and managing operational risks within their businesses, within the Group-wide operational risk framework including the risk and control self-assessment process. Businesses must be satisfied that all material risks falling outside our risk tolerances are being mitigated, monitored and reported to an appropriate level. Any risks with a high potential impact are monitored centrally on a regular basis. Businesses use key indicator data to help monitor the status of the risk and control environment. They also identify and capture loss events, taking appropriate action to address actual control breakdowns and promote internal learning.

B20 – Risk management continued

The increasing importance to our strategy of digital interaction with our customers and advanced data analytics, the conduct, data protection and financial crime agenda of the European institutions, the FCA and other regulators, as well as the increasing cyber security threat, as evidenced by continuing instances of high profile cyber security breaches for other corporates in the UK and elsewhere, mean that the Group's inherent risk exposure to risks such as data theft, conduct regulatory breaches (including financial crime) and customer service interruption due to IT systems failure increased in 2018 and is expected to continue to increase into the future. The risk of customer service interruption is increased by the age and complexity of the Group's IT infrastructure, which at times during the first half of 2018 resulted in disruption to continuous service to our customers, while our UK long-term savings business also experienced some functionality issues during its update of its platform capability. During 2018 we have continued to take action to reduce our residual exposure to these risks and improve our operational resilience through our conduct risk management framework, financial crime risk mitigation programme and significant investment in upgrading our IT infrastructure (including migrations to a new data centre infrastructure provider and to the Cloud) and IT Security Transformation programme, and by ensuring appropriate consideration of IT infrastructure and security risks in developing our digital strategy, and will continue to do so into the future.

(i) Brand and reputation risk

We are exposed to the risk that litigation, employee misconduct, operational failures, the outcome of regulatory investigations, media speculation and negative publicity, disclosure of confidential client information, inadequate services, whether or not founded, could impact our brands or reputation. Any of our brands or our reputation could also be affected if products or services recommended by us (or any of our intermediaries) do not perform as expected (whether or not the expectations are founded) or customers' expectations for the product change. We seek to reduce this risk to as low a level as commercially sensible.

The FCA regularly considers whether we are meeting the requirement to treat our customers fairly and we make use of various metrics to assess our own performance, including customer advocacy, retention and complaints. Failure to meet these requirements could also impact our brands or reputation.

If we do not manage the perception of our brands and reputation successfully, it could cause existing customers or agents to withdraw from our business and potential customers or agents to choose not to do business with us.

(j) Risk and capital management

(i) Sensitivity test analysis

The Group uses a number of sensitivity tests to understand the volatility of earnings, the volatility of its capital requirements, and to manage its capital more efficiently. Sensitivities to economic and operating experience are regularly produced on the Group's key financial performance metrics to inform the Group's decision making and planning processes, and as part of the framework for identifying and quantifying the risks to which each of its business units, and the Group as a whole, are exposed.

(ii) Life insurance and investment contracts

The nature of long-term business is such that a number of assumptions are made in compiling these financial statements. Assumptions are made about investment returns, expenses, mortality rates and persistency in connection with the in-force policies for each business unit. Assumptions are best estimates based on historic and expected experience of the business. A number of the key assumptions for the Group's central scenario are disclosed elsewhere in these statements.

(iii) General insurance and health business

General insurance and health claim liabilities are estimated by using standard actuarial claims projection techniques. These methods extrapolate the claims development for each accident year based on the observed development of earlier years. In most cases, no explicit assumptions are made as projections are based on assumptions implicit in the historic claims.

(iv) Sensitivity test results

Illustrative results of sensitivity testing for long-term business, general insurance and health business and the fund management and non-insurance business are set out below. For each sensitivity test the impact of a reasonably possible change in a single factor is shown, with other assumptions left unchanged.

Sensitivity factor	Description of sensitivity factor applied
Interest rate and investment return	The impact of a change in market interest rates by a 1% increase or decrease. The test allows consistently for similar changes to investment returns and movements in the market value of backing fixed interest securities.
Credit spreads	The impact of a 0.5% increase in credit spreads over risk-free interest rates on corporate bonds and other non-sovereign credit assets. The test allows for any consequential impact on liability valuations.
Equity/property market values	The impact of a change in equity/property market values by ± 10%.
Expenses	The impact of an increase in maintenance expenses by 10%.
Assurance mortality/morbidity (life insurance only)	The impact of an increase in mortality/morbidity rates for assurance contracts by 5%.
Annuitant mortality (long-term insurance only)	The impact of a reduction in mortality rates for annuity contracts by 5%.
Gross loss ratios (non-long-term insurance only)	The impact of an increase in gross loss ratios for general insurance and health business by 5%.

B20 – Risk management continued

Long-term business

Sensitivities as at 31 December 2018

31 December 2018 Impact on profit before tax £m	Interest rates +1%	Interest rates -1%	Credit spreads +0.5%	Equity/ property +10%	Equity/ property -10%	Expenses +10%	Assurance mortality +5%	Annuitant mortality -5%
Insurance participating	(75)	35	(15)	(105)	70	(20)	(5)	(5)
Insurance non-participating	(975)	1,130	(695)	(125)	105	(210)	(115)	(865)
Investment participating	(40)	40	(10)	(15)	(15)	(15)	—	—
Investment non-participating	—	—	—	10	(25)	(20)	—	—
Assets backing life shareholders' funds	(95)	105	(25)	20	(20)	—	—	—
Total	**(1,185)**	**1,310**	**(745)**	**(215)**	**115**	**(265)**	**(120)**	**(870)**

31 December 2018 Impact on shareholders' equity before tax £m	Interest rates +1%	Interest rates -1%	Credit spreads +0.5%	Equity/ property +10%	Equity/ property -10%	Expenses +10%	Assurance mortality +5%	Annuitant mortality -5%
Insurance participating	(75)	35	(15)	(105)	70	(20)	(5)	(5)
Insurance non-participating	(975)	1,130	(695)	(125)	105	(210)	(115)	(865)
Investment participating	(40)	40	(10)	(15)	(15)	(15)	—	—
Investment non-participating	—	—	—	10	(25)	(20)	—	—
Assets backing life shareholders' funds	(145)	150	(25)	25	(25)	—	—	—
Total	**(1,235)**	**1,355**	**(745)**	**(210)**	**110**	**(265)**	**(120)**	**(870)**

Sensitivities as at 31 December 2017

31 December 2017 Impact on profit before tax £m	Interest rates +1%	Interest rates -1%	Credit spreads +0.5%	Equity/ property +10%	Equity/ property -10%	Expenses +10%	Assurance mortality +5%	Annuitant mortality -5%
Insurance participating	(45)	25	(15)	(20)	(40)	(25)	(5)	(10)
Insurance non-participating	(475)	485	(790)	(135)	115	(215)	(105)	(905)
Investment participating	—	10	(5)	(5)	—	(15)	—	—
Investment non-participating	—	(10)	(5)	10	(10)	(30)	—	—
Assets backing life shareholders' funds	(90)	115	(25)	20	(20)	—	—	—
Total	(610)	625	(840)	(130)	45	(285)	(110)	(915)

31 December 2017 Impact on shareholders' equity before tax £m	Interest rates +1%	Interest rates -1%	Credit spreads +0.5%	Equity/ property +10%	Equity/ property -10%	Expenses +10%	Assurance mortality +5%	Annuitant mortality -5%
Insurance participating	(45)	25	(15)	(20)	(40)	(25)	(5)	(10)
Insurance non-participating	(475)	485	(790)	(135)	115	(215)	(105)	(905)
Investment participating	—	10	(5)	(5)	—	(15)	—	—
Investment non-participating	—	(10)	(5)	10	(10)	(30)	—	—
Assets backing life shareholders' funds	(150)	175	(35)	20	(20)	—	—	—
Total	(670)	685	(850)	(130)	45	(285)	(110)	(915)

Changes in sensitivities between 2018 and 2017 reflect underlying movements in the value of assets and liabilities, the relative duration of assets and liabilities and asset liability management actions. The sensitivities to economic and demographic movements relate mainly to business in the UK. Our sensitivity to interest rates has increased over the period mainly due to the impacts of our hedging programme which protects Solvency II capital and increased exposure in the UK, predominantly as a result of surplus assets originated in 2018 to back new business in 2019 that would otherwise be invested in cash.

B20 – Risk management continued

General insurance and health business sensitivities as at 31 December 2018

31 December 2018 Impact on profit before tax £m	Interest rates +1%	Interest rates -1%	Credit spreads +0.5%	Equity/ property +10%	Equity/ property -10%	Expenses +10%	Gross loss ratios +5%
Gross of reinsurance	**(240)**	**235**	**(115)**	**165**	**(165)**	**(120)**	**(325)**
Net of reinsurance	**(305)**	**295**	**(115)**	**165**	**(165)**	**(120)**	**(315)**

31 December 2018 Impact on shareholders' equity before tax £m	Interest rates +1%	Interest rates -1%	Credit spreads +0.5%	Equity/ property +10%	Equity/ property -10%	Expenses +10%	Gross loss ratios +5%
Gross of reinsurance	**(240)**	**235**	**(115)**	**170**	**(170)**	**(25)**	**(325)**
Net of reinsurance	**(305)**	**295**	**(115)**	**170**	**(170)**	**(25)**	**(315)**

Sensitivities as at 31 December 2017

31 December 2017 Impact on profit before tax £m	Interest rates +1%	Interest rates -1%	Credit spreads +0.5%	Equity /property +10%	Equity/ property -10%	Expenses +10%	Gross loss ratios +5%
Gross of reinsurance	(285)	300	(130)	165	(165)	(120)	(335)
Net of reinsurance	(345)	355	(130)	165	(165)	(120)	(325)

31 December 2017 Impact on shareholders' equity before tax £m	Interest rates +1%	Interest rates -1%	Credit spreads +0.5%	Equity/ property +10%	Equity/ property -10%	Expenses +10%	Gross loss ratios +5%
Gross of reinsurance	(285)	300	(130)	165	(165)	(25)	(335)
Net of reinsurance	(345)	355	(130)	165	(165)	(25)	(325)

For general insurance and health, the impact of the expense sensitivity on profit also includes the increase in ongoing administration expenses, in addition to the increase in the claims handling expense provision.

Fund management and non-insurance business sensitivities as at 31 December 2018

31 December 2018 Impact on profit before tax £m	Interest rates +1%	Interest rates -1%	Credit spreads +0.5%	Equity/ property +10%	Equity/ property -10%
Total	**(25)**	**20**	**30**	**(20)**	**35**

31 December 2018 Impact on shareholders' equity before tax £m	Interest rates +1%	Interest rates -1%	Credit spreads +0.5%	Equity/ property +10%	Equity/ property -10%
Total	**(20)**	**15**	**30**	**(20)**	**30**

Sensitivities as at 31 December 2017

31 December 2017 Impact on profit before tax £m	Interest rates +1%	Interest rates -1%	Credit spreads +0.5%	Equity/ property +10%	Equity /property -10%
Total	(30)	30	80	(10)	20

31 December 2017 Impact on shareholders' equity before tax £m	Interest rates +1%	Interest rates -1%	Credit spreads +0.5%	Equity/ property +10%	Equity /property -10%
Total	(25)	25	80	(10)	15

B20 – Risk management continued

Limitations of sensitivity analysis

The above tables demonstrate the effect of a change in a key assumption while other assumptions remain unchanged. In reality, there is a correlation between the assumptions and other factors. It should also be noted that these sensitivities are non-linear, and larger or smaller impacts should not be interpolated or extrapolated from these results.

The sensitivity analyses do not take into consideration that the Group's assets and liabilities are actively managed. Additionally, the financial position of the Group may vary at the time that any actual market movement occurs. For example, the Group's financial risk management strategy aims to manage the exposure to market fluctuations.

As investment markets move past various trigger levels, management actions could include selling investments, changing investment portfolio allocation, adjusting bonuses credited to policyholders, and taking other protective action.

A number of the business units use passive assumptions to calculate their long-term business liabilities. Consequently, a change in the underlying assumptions may not have any impact on the liabilities, whereas assets held at market value in the statement of financial position will be affected. In these circumstances, the different measurement bases for liabilities and assets may lead to volatility in shareholder equity. Similarly, for general insurance liabilities, the interest rate sensitivities only affect profit and equity where explicit assumptions are made regarding interest (discount) rates or future inflation.

Other limitations in the above sensitivity analyses include the use of hypothetical market movements to demonstrate potential risk that only represent the Group's view of possible near-term market changes that cannot be predicted with any certainty, and the assumption that all interest rates move in an identical fashion.

B21 – Direct capital instrument and tier 1 notes

Notional amount	2018 £m	2017 £m
5.9021% £500 million direct capital instrument – Issued November 2004	**500**	500
6.875% £210 million STICS – Issued November 2003	**231**	231
Total	**731**	731

The direct capital instrument (the DCI) was issued on 25 November 2004. The DCI has no fixed redemption date but the Company may, at its sole option, redeem all (but not part) of the principal amount on 27 July 2020, at which date the interest rate changes to a variable rate, or on any respective coupon payment date thereafter. The variable rate will be the six month sterling deposit rate plus margin.

The Step-up Tier one Insurance Capital Securities ('STICS') were issued on 21 November 2003 by Friends Life Holdings plc, substituted as issuer by Aviva plc on 1 October 2015. The STICS are irrevocably guaranteed on a subordinated basis by Aviva Life & Pensions UK Limited. Prior to the Part VII transfer of the Friends Life business into UK Life on 1 October 2017 the guarantor for the STICS was Friends Life Limited. The STICS have no fixed redemption date but the Company may, at its sole option, redeem the instrument (in whole or in part) on 21 November 2019, or on the coupon payment date falling on successive fifth anniversaries from this date. For each coupon period beginning 21 November 2019, the STICS will bear interest reset every five years at the rate per annum which is the aggregate of 2.97% and the Gross Redemption Yield of the Benchmark Gilt.

The Company has the option to defer coupon payments on the DCI and the STICS on any relevant payment date.

In relation to the DCI, deferred coupons shall only be satisfied should the Company exercise its sole option to redeem the instruments.

In relation to the STICS, deferred coupons may be satisfied at any time, at the sole option of the Company. The Company is required to satisfy deferred coupons upon the earliest of the following:

- Resumption of payment of coupons on the STICS; or
- Redemption; or
- The commencement of winding up of the issuer.

No interest will accrue on any deferred coupon on the DCI. Interest will accrue on deferred coupons on the STICS at the then current rate of interest on the STICS.

Deferred coupons on the DCI and the STICS will be satisfied by the issue and sale of ordinary shares in the Company at their prevailing market value, to a sum as near as practicable to (and at least equal to) the relevant deferred coupons. In the event of any coupon deferral, the Company will not declare or pay any dividend on its ordinary or preference share capital. These instruments have been treated as equity.

At the end of 2018 the fair value of the DCI and the STICS was £722 million *(2017: £778 million)*.

B22 – Cash and cash equivalents

Cash and cash equivalents in the statement of cash flows at 31 December comprised:

	2018 £m	2017 £m
Cash and cash equivalents	**46,484**	43,347
Cash and cash equivalents of operations classified as held for sale	**688**	739
Bank overdrafts	**(563)**	(499)
Net cash and cash equivalents at 31 December	**46,609**	43,587

B23 – Contingent liabilities and other risk factors

This note sets out the main areas of uncertainty over the calculation of our liabilities.

(a) Uncertainty over claims provisions

Note B12 gives details of the estimation techniques used by the Group to determine the general insurance business outstanding claims provisions and of the methodology and assumptions used in determining the long-term business provisions. These approaches are designed to allow for the appropriate cost of policy-related liabilities, with a degree of prudence, to give a result within the normal range of outcomes. However, the actual cost of settling these liabilities may differ, for example because experience may be worse than that assumed, or future general insurance business claims inflation may differ from that expected, and hence there is uncertainty in respect of these liabilities.

(b) Asbestos, pollution and social environmental hazards

In the course of conducting insurance business, various companies within the Group receive general insurance liability claims, and become involved in actual or threatened related litigation arising therefrom, including claims in respect of pollution and other environmental hazards. Amongst these are claims in respect of asbestos production and handling in various jurisdictions, including Europe, Canada and Australia. Given the significant delays that are experienced in the notification of these claims, the potential number of incidents they cover and the uncertainties associated with establishing liability, the ultimate cost cannot be determined with certainty. However, on the basis of current information having regard to the level of provisions made for general insurance claims and substantial reinsurance cover now in place, the directors consider that any additional costs arising are not likely to have a material impact on the financial position of the Group.

(c) Guarantees on long-term savings products

As a normal part of their operating activities, various Group companies have given guarantees and options, including interest rate guarantees, in respect of certain long-term insurance and investment products. In providing these guarantees and options, the Group's capital position is sensitive to fluctuations in financial variables including foreign currency exchange rates, interest rates, property values and equity prices. Interest rate guaranteed returns, such as those available on guaranteed annuity options, are sensitive to interest rates falling below the guaranteed level. Other guarantees, such as maturity value guarantees and guarantees in relation to minimum rates of return, are sensitive to fluctuations in the investment return below the level assumed when the guarantee was made. The directors continue to believe that the existing provisions for such guarantees and options are sufficient.

(d) Regulatory compliance

The Group's insurance and investment business is subject to local regulation in each of the countries in which it operates. A number of the Group's UK subsidiaries are dual regulated (directly authorised by both the PRA (for prudential regulation) and the FCA (for conduct regulation) while others are solo regulated (regulated solely by the FCA for both prudential and conduct regulation). Between them, the PRA and FCA have broad powers including the authority to grant, vary the terms of, or cancel a regulated firm's authorisation; to investigate marketing and sales practices; and to require the maintenance of adequate financial resources. The Group's regulators outside the UK typically have similar powers, but in some cases they also operate a system of 'prior product approval'.

The Group's regulated businesses have compliance resources to respond to regulatory enquiries in a constructive way, and take corrective action when warranted. However, all regulated financial services companies face the risk that their regulator could find that they have failed to comply with applicable regulations or have not undertaken corrective action as required.

The impact of any such finding (whether in the UK or overseas) could have a negative impact on the Group's reported results or on its relations with current and potential customers. Regulatory action against a member of the Group could result in adverse publicity for, or negative perceptions regarding, the Group, or could have a material adverse effect on the business of the Group, its results, operations and/or financial condition and divert management's attention from the day-to-day management of the business.

(e) Structured settlements

The Group has purchased annuities from licensed Canadian life insurers to provide for fixed and recurring payments to claimants. As a result of these arrangements, the Group is exposed to credit risk to the extent that any of the life insurers fail to fulfill their obligations. The Group's maximum exposure to credit risk for these types of arrangements is approximately CAD$1,235 million as at 31 December 2018 *(2017: CAD$1,213 million)*. Credit risk is managed by acquiring annuities from a diverse portfolio of life insurers with proven financial stability. This risk is reduced to the extent of coverage provided by Assuris, the Canadian life insurance industry compensation plan. As at 31 December 2018, no information has come to the Group's attention that would suggest any weakness or failure in life insurers from which it has purchased annuities and consequently no provision for credit risk is required.

B23 – Contingent liabilities and other risk factors continued

(f) Other

In the course of conducting insurance and investment business, various Group companies receive liability claims, and become involved in actual or threatened related litigation. In the opinion of the directors, adequate provisions have been established for such claims and no material loss will arise in this respect.

In addition, in line with standard business practice, various Group companies have given guarantees, indemnities and warranties in connection with disposals in recent years of subsidiaries and associates to parties outside the Aviva Group. In the opinion of the directors, no material unprovisioned loss will arise in respect of these guarantees, indemnities and warranties.

There are a number of charges registered over the assets of Group companies in favour of other Group companies or third parties. In addition, certain of the Company's assets are charged in favour of certain of its subsidiaries as security for intra-Group loans.

B24 – Acquired value of in-force business and intangible assets

Acquired value of in-force business and intangible assets presented in the statement of financial position is comprised of:

	2018 £m	2017 £m
Acquired value of in-force business on insurance contracts[1]	**1,418**	1,533
Acquired value of in-force business on investment contracts[2]	**1,498**	1,725
Intangible assets	**945**	1,628
	3,861	4,886
Less: Amounts classified as held for sale	**(660)**	(1,431)
Total	**3,201**	3,455

1 On insurance and participating investment contracts.
2 On non-participating investment contracts.

The acquired value of in-force (AVIF) business on insurance and investment contracts has reduced in the period primarily due to an amortisation charge of £426 million *(2017: £468 million charge)*, partially offset by the addition of £96 million of AVIF in relation to the acquisition of Friends First (see note B4). There was also an impairment of AVIF on investment contracts of £13 million in the period relating to FPI *(2017: £118 million)* recorded as a remeasurement loss as FPI is held for sale (see note B5(c)(i)).

The decrease in intangible assets primarily relates to the disposal of the Avivpop business in Italy (see note B5(b)(i)) and the amortisation charge of £209 million *(2017: £197 million charge)*.

B25 – Subsequent events

For details of subsequent events relating to:

- Acquisitions – refer to note B4

Analysis of assets

In this section		Page
C Analysis of assets		
C1	Summary of total assets – by fund	93
C2	Summary of total assets by valuation bases	94
C3	Summary of financial investments by fund	96
C4	Analysis of debt securities	97
C5	Analysis of loans	102
C6	Analysis of equity securities	104
C7	Analysis of investment property	104
C8	Analysis of other financial investments	105
C9	Analysis of available for sale investments	106
C10	Exposures to peripheral countries	106
C11	Exposures to worldwide bank debt securities	106
C12	Reinsurance assets	107

Analysis of assets

As an insurance business, the Group holds a variety of assets to match the characteristics and duration of its insurance liabilities. Appropriate and effective asset liability matching (on an economic basis) is the principal way in which Aviva manages its investments. To support this, we use a variety of hedging and other risk management strategies to mitigate any residual mismatch risk that is outside of our risk appetite.

C1 – Summary of total assets by fund

2018	Policyholder assets £m	Participating fund assets £m	Shareholder assets £m	Total assets analysed £m	Less assets of operations classified as held for sale £m	Balance sheet total £m
Goodwill and acquired value of in-force business and intangible assets	—	—	5,733	5,733	(660)	5,073
Interests in joint ventures and associates	—	999	519	1,518	—	1,518
Property and equipment	—	194	359	553	(5)	548
Investment property	6,868	3,884	730	11,482	—	11,482
Loans	9	3,128	25,648	28,785	—	28,785
Financial investments						
Debt securities	29,472	91,469	48,745	169,686	(397)	169,289
Equity securities	67,152	14,117	1,069	82,338	(210)	82,128
Other investments	41,954	7,225	3,633	52,812	(6,644)	46,168
Reinsurance assets	4,099	534	7,167	11,800	(45)	11,755
Deferred tax assets	—	—	185	185	—	185
Current tax assets	—	—	76	76	—	76
Receivables and other financial assets	813	1,442	6,635	8,890	(11)	8,879
Deferred acquisition costs and other assets	66	591	5,840	6,497	(191)	6,306
Prepayments and accrued income	296	1,149	1,506	2,951	(4)	2,947
Cash and cash equivalents	14,455	18,737	13,980	47,172	(688)	46,484
Assets of operations classified as held for sale	—	—	—	—	8,855	8,855
Total	**165,184**	**143,469**	**121,825**	**430,478**	**—**	**430,478**
Total %	**38.4%**	**33.3%**	**28.3%**	**100.0%**	**—**	**100.0%**
2017 Total	172,635	148,839	121,211	442,685	—	442,685
2017 Total %	39.0%	33.6%	27.4%	100.0%	—	100.0%

Analysis of assets continued

C2 – Summary of total assets by valuation bases

Total assets – 2018	Fair value £m	Amortised cost £m	Equity accounted/ tax assets[1] £m	Total £m
Goodwill and acquired value of in-force business and intangible assets	—	5,733	—	5,733
Interests in joint ventures and associates	—	—	1,518	1,518
Property and equipment	427	126	—	553
Investment property	11,482	—	—	11,482
Loans	25,526	3,259	—	28,785
Financial Investments				
Debt securities	169,686	—	—	169,686
Equity securities	82,338	—	—	82,338
Other investments	52,812	—	—	52,812
Reinsurance assets	4,008	7,792	—	11,800
Deferred tax assets	—	—	185	185
Current tax assets	—	—	76	76
Receivables and other financial assets	—	8,890	—	8,890
Deferred acquisition costs and other assets	—	6,497	—	6,497
Prepayments and accrued income	—	2,951	—	2,951
Cash and cash equivalents	47,172	—	—	47,172
Total	**393,451**	**35,248**	**1,779**	**430,478**
Total %	**91.4%**	**8.2%**	**0.4%**	**100.0%**
Assets of operations classified as held for sale	7,952	903	—	8,855
Total (excluding assets held for sale)	**385,499**	**34,345**	**1,779**	**421,623**
Total % (excluding assets held for sale)	**91.4%**	**8.2%**	**0.4%**	**100.0%**
2017 Total	405,152	35,651	1,882	442,685
2017 Total %	91.5%	8.1%	0.4%	100.0%

1 Within the Group's statement of financial position, assets are recognised for deferred tax and current tax. The valuation basis of these assets does not directly fall within any of the categories outlined above. As such, these assets have been reported together with equity accounted items within the analysis of the Group's assets.

Total assets – Participating fund assets 2018	Fair value £m	Amortised cost £m	Equity accounted/ tax assets[1] £m	Total £m
Goodwill and acquired value of in-force business and intangible assets	—	—	—	—
Interests in joint ventures and associates	—	—	999	999
Property and equipment	187	7	—	194
Investment property	3,884	—	—	3,884
Loans	52	3,076	—	3,128
Financial Investments				
Debt securities	91,469	—	—	91,469
Equity securities	14,117	—	—	14,117
Other investments	7,225	—	—	7,225
Reinsurance assets	—	534	—	534
Deferred tax assets	—	—	—	—
Current tax assets	—	—	—	—
Receivables and other financial assets	—	1,442	—	1,442
Deferred acquisition costs and other assets	—	591	—	591
Prepayments and accrued income	—	1,149	—	1,149
Cash and cash equivalents	18,737	—	—	18,737
Total	**135,671**	**6,799**	**999**	**143,469**
Total %	**94.6%**	**4.7%**	**0.7%**	**100.0%**
Assets of operations classified as held for sale	—	—	—	—
Total (excluding assets held for sale)	**135,671**	**6,799**	**999**	**143,469**
Total % (excluding assets held for sale)	**94.6%**	**4.7%**	**0.7%**	**100.0%**
2017 Total	140,937	6,769	1,133	148,839
2017 Total %	94.7%	4.5%	0.8%	100.0%

1 Within the Group's statement of financial position, assets are recognised for deferred tax and current tax. The valuation basis of these assets does not directly fall within any of the categories outlined above. As such, these assets have been reported together with equity accounted items within the analysis of the Group's assets.

C2 – Summary of total assets by valuation bases continued

Total assets – Shareholders assets 2018	Fair value £m	Amortised cost £m	Equity accounted/ tax assets[1] £m	Total £m
Goodwill and acquired value of in-force business and intangible assets	—	**5,733**	—	**5,733**
Interests in joint ventures and associates	—	—	**519**	**519**
Property and equipment	**240**	**119**	—	**359**
Investment property	**730**	—	—	**730**
Loans	**25,474**	**174**	—	**25,648**
Financial Investments				
Debt securities	**48,745**	—	—	**48,745**
Equity securities	**1,069**	—	—	**1,069**
Other investments	**3,633**	—	—	**3,633**
Reinsurance assets	**9**	**7,158**	—	**7,167**
Deferred tax assets	—	—	**185**	**185**
Current tax assets	—	—	**76**	**76**
Receivables and other financial assets	—	**6,635**	—	**6,635**
Deferred acquisition costs and other assets	—	**5,840**	—	**5,840**
Prepayments and accrued income	—	**1,506**	—	**1,506**
Cash and cash equivalents	**13,980**	—	—	**13,980**
Total	**93,880**	**27,165**	**780**	**121,825**
Total %	**77.1%**	**22.3%**	**0.6%**	**100.0%**
Assets of operations classified as held for sale	**184**	**887**	—	**1,071**
Total (excluding assets held for sale)	**93,696**	**26,278**	**780**	**120,754**
Total % (excluding assets held for sale)	**77.6%**	**21.8%**	**0.6%**	**100.0%**
2017 Total	92,403	28,061	747	121,211
2017 Total %	76.2%	23.2%	0.6%	100.0%

1 Within the Group's statement of financial position, assets are recognised for deferred tax and current tax. The valuation basis of these assets does not directly fall within any of the categories outlined above. As such, these assets have been reported together with equity accounted items within the analysis of the Group's assets.

C3 – Analysis of financial investments by fund

The asset allocation as at 31 December 2018 across the Group, split according to the type of the liability the assets are backing, is shown in the table below.

	Shareholder business assets				Participating fund assets				
Carrying value in the statement of financial position	General Insurance & health & other[1] £m	Annuity and non-profit £m	Total Shareholder assets	Policyholder (unit linked assets) £m	UK style with profits £m	Continental European-style Participating funds £m	Total assets analysed £m	Less assets of operation classified as held for sale £m	Carrying value in the statement of financial position £m
Debt securities (note C4)									
Government bonds	**6,123**	**16,148**	**22,271**	**14,711**	**14,488**	**30,472**	**81,942**	**(19)**	**81,923**
Corporate bonds	**3,404**	**20,784**	**24,188**	**12,236**	**12,966**	**26,855**	**76,245**	**(378)**	**75,867**
Other	**264**	**2,022**	**2,286**	**2,525**	**722**	**5,966**	**11,499**	**—**	**11,499**
	9,791	**38,954**	**48,745**	**29,472**	**28,176**	**63,293**	**169,686**	**(397)**	**169,289**
Loans (note C5)									
Mortgage loans	**—**	**19,813**	**19,813**	**—**	**51**	**—**	**19,864**	**—**	**19,864**
Other loans	**165**	**5,670**	**5,835**	**9**	**2,367**	**710**	**8,921**	**—**	**8,921**
	165	**25,483**	**25,648**	**9**	**2,418**	**710**	**28,785**	**—**	**28,785**
Equity securities (note C6)	**909**	**160**	**1,069**	**67,152**	**11,713**	**2,404**	**82,338**	**(210)**	**82,128**
Investment property	**487**	**243**	**730**	**6,868**	**2,157**	**1,727**	**11,482**	**—**	**11,482**
Other investments (note C8)	**1,449**	**2,184**	**3,633**	**41,954**	**1,941**	**5,284**	**52,812**	**(6,644)**	**46,168**
Total as at 31 December 2018	**12,801**	**67,024**	**79,825**	**145,455**	**46,405**	**73,418**	**345,103**	**(7,251)**	**337,852**
Total as at 31 December 2017	13,581	65,576	79,157	153,729	54,813	70,349	358,048	(8,312)	349,736

1 Of the £12.8 billion of assets 6% relates to other shareholder business assets.

Analysis of assets continued

C4 – Analysis of debt securities

C4.1 Fair value hierarchy

To provide further information on the valuation techniques we use to measure assets carried at fair value, we have categorised the measurement basis for assets carried at fair value into a 'fair value hierarchy' described as follows, based on the lowest level input that is significant to the valuation as a whole:

- Inputs to Level 1 fair values are quoted prices (unadjusted) in active markets for identical assets.
- Inputs to Level 2 fair values are inputs other than quoted prices included within Level 1 that are observable for the asset, either directly or indirectly. If the asset has a specified (contractual) term, a Level 2 input must be observable for substantially the full term of the asset.
- Inputs to Level 3 fair values are unobservable inputs for the asset. Unobservable inputs may have been used to measure fair value to the extent that observable inputs are not available, thereby allowing for situations in which there is little, if any, market activity for the asset at the measurement date. However, the fair value measurement objective remains the same, i.e. an exit price at the measurement date from the perspective of a market participant that holds the asset. Unobservable inputs reflect the assumptions the business unit considers that market participants would use in pricing the asset. Examples are investment property and commercial and equity release mortgage loans.

	Fair value hierarchy			
Debt securities – Total 2018	Level 1 £m	Level 2 £m	Level 3 £m	Total £m
UK Government	25,207	2,128	521	27,856
Non-UK government	37,705	12,617	3,764	54,086
Europe	31,996	6,403	3,175	41,574
North America	1,003	3,626	291	4,920
Asia Pacific & Other	4,706	2,588	298	7,592
Corporate bonds – Public utilities	3,735	5,620	1,448	10,803
Other corporate bonds	32,253	23,250	9,939	65,442
Other	4,098	5,136	2,265	11,499
Total	**102,998**	**48,751**	**17,937**	**169,686**
Total %	**60.7%**	**28.7%**	**10.6%**	**100.0%**
Assets of operations classified as held for sale	19	19	359	397
Total (excluding assets held for sale)	**102,979**	**48,732**	**17,578**	**169,289**
Total % (excluding assets held for sale)	**60.8%**	**28.8%**	**10.4%**	**100.0%**
2017 Total	108,535	51,921	15,492	175,948
2017 Total %	61.7%	29.5%	8.8%	100.0%

	Fair value hierarchy			
Debt securities – Policyholders assets 2018	Level 1 £m	Level 2 £m	Level 3 £m	Total £m
UK Government	9,826	1	—	9,827
Non-UK government	4,242	637	5	4,884
Europe	1,401	354	—	1,755
North America	588	249	5	842
Asia Pacific & Other	2,253	34	—	2,287
Corporate bonds – Public utilities	806	131	4	941
Other corporate bonds	9,635	1,043	617	11,295
Other	1,382	1,143	—	2,525
Total	**25,891**	**2,955**	**626**	**29,472**
Total %	**87.9%**	**10.0%**	**2.1%**	**100.0%**
Assets of operations classified as held for sale	18	19	359	396
Total (excluding assets held for sale)	**25,873**	**2,936**	**267**	**29,076**
Total % (excluding assets held for sale)	**89.0%**	**10.1%**	**0.9%**	**100.0%**
2017 Total	26,377	4,044	566	30,987
2017 Total %	85.1%	13.1%	1.8%	100.0%

Analysis of assets continued

C4 – Analysis of debt securities continued

C4.1 Fair value hierarchy continued

Debt securities – Participating fund assets 2018	Fair value hierarchy Level 1 £m	Level 2 £m	Level 3 £m	Total £m
UK Government	**6,790**	**822**	**133**	**7,745**
Non-UK government	**30,324**	**4,989**	**1,902**	**37,215**
Europe	**27,656**	**3,049**	**1,873**	**32,578**
North America	**367**	**16**	**29**	**412**
Asia Pacific & Other	**2,301**	**1,924**	**—**	**4,225**
Corporate bonds – Public utilities	**2,822**	**798**	**164**	**3,784**
Other corporate bonds	**21,653**	**8,017**	**6,367**	**36,037**
Other	**2,461**	**2,287**	**1,940**	**6,688**
Total	**64,050**	**16,913**	**10,506**	**91,469**
Total %	**70.0%**	**18.5%**	**11.5%**	**100.0%**
Assets of operations classified as held for sale	**—**	**—**	**—**	**—**
Total (excluding assets held for sale)	**64,050**	**16,913**	**10,506**	**91,469**
Total % (excluding assets held for sale)	**70.0%**	**18.5%**	**11.5%**	**100.0%**
2017 Total	67,713	18,439	9,623	95,775
2017 Total %	70.7%	19.3%	10.0%	100.0%

Debt securities – Shareholder assets 2018	Fair value hierarchy Level 1 £m	Level 2 £m	Level 3 £m	Total £m
UK Government	**8,591**	**1,305**	**388**	**10,284**
Non-UK government	**3,139**	**6,991**	**1,857**	**11,987**
Europe	**2,939**	**3,000**	**1,302**	**7,241**
North America	**48**	**3,361**	**257**	**3,666**
Asia Pacific & Other	**152**	**630**	**298**	**1,080**
Corporate bonds – Public utilities	**107**	**4,691**	**1,280**	**6,078**
Other corporate bonds	**965**	**14,190**	**2,955**	**18,110**
Other	**255**	**1,706**	**325**	**2,286**
Total	**13,057**	**28,883**	**6,805**	**48,745**
Total %	**26.8%**	**59.2%**	**14.0%**	**100.0%**
Assets of operations classified as held for sale	**1**	**—**	**—**	**1**
Total (excluding assets held for sale)	**13,056**	**28,883**	**6,805**	**48,744**
Total % (excluding assets held for sale)	**26.8%**	**59.2%**	**14.0%**	**100.0%**
2017 Total	14,445	29,438	5,303	49,186
2017 Total %	29.3%	59.9%	10.8%	100.0%

Analysis of assets continued

C4 – Analysis of debt securities continued
C4.2 External ratings

Debt securities – Total 2018	AAA £m	AA £m	A £m	BBB £m	Less than BBB £m	Non-rated £m	Total £m
				External ratings			
Government							
UK Government	—	27,106	117	—	—	442	27,665
UK local authorities	—	137	—	—	—	54	191
Non-UK Government	10,396	21,768	5,747	12,710	2,015	1,450	54,086
	10,396	49,011	5,864	12,710	2,015	1,946	81,942
Corporate							
Public utilities	1	633	3,300	5,242	432	1,195	10,803
Other corporate bonds	6,474	6,017	19,589	20,840	6,402	6,120	65,442
	6,475	6,650	22,889	26,082	6,834	7,315	76,245
Certificates of deposit	—	389	497	—	19	303	1,208
Structured							
Residential Mortgage Backed Security non-agency prime	12	3	29	27	4	28	103
	12	3	29	27	4	28	103
Commercial Mortgage Backed Security	300	60	116	54	—	26	556
Asset Backed Security	—	404	401	49	54	—	908
Collateralised Debt Obligation (including Collateralised Loan Obligation)	—	—	—	—	—	335	335
Asset Backed Commercial Paper	—	6	—	—	—	—	6
	300	470	517	103	54	361	1,805
Wrapped credit	—	14	498	76	5	40	633
Other	213	513	608	3,566	2,173	677	7,750
Total	17,396	57,050	30,902	42,564	11,104	10,670	169,686
Total %	10.3%	33.6%	18.2%	25.1%	6.5%	6.3%	100.0%
Assets of operations classified as held for sale	11	9	2	358	3	14	397
Total (excluding assets held for sale)	17,385	57,041	30,900	42,206	11,101	10,656	169,289
Total % (excluding assets held for sale)	10.2%	33.7%	18.3%	24.9%	6.6%	6.3%	100.0%
2017 Total	18,718	57,240	35,192	40,947	13,740	10,111	175,948
2017 Total %	10.6%	32.5%	20.0%	23.3%	7.8%	5.8%	100.0%

Debt securities – Policyholders assets 2018	AAA £m	AA £m	A £m	BBB £m	Less than BBB £m	Non-rated £m	Total £m
				External ratings			
Government							
UK Government	—	9,696	—	—	—	130	9,826
UK local authorities	—	1	—	—	—	—	1
Non-UK Government	1,179	189	1,232	1,005	898	381	4,884
	1,179	9,886	1,232	1,005	898	511	14,711
Corporate							
Public utilities	1	17	334	325	256	8	941
Other corporate bonds	427	667	3,407	2,656	2,497	1,641	11,295
	428	684	3,741	2,981	2,753	1,649	12,236
Certificates of deposit	—	389	497	—	19	217	1,122
Structured							
Residential Mortgage Backed Security non-agency prime	—	2	—	—	—	—	2
	—	2	—	—	—	—	2
Commercial Mortgage Backed Security	—	—	3	—	—	—	3
Asset Backed Security	—	—	8	—	—	—	8
Collateralised Debt Obligation (including Collateralised Loan Obligation)	—	—	—	—	—	—	—
Asset Backed Commercial Paper	—	6	—	—	—	—	6
	—	6	11	—	—	—	17
Wrapped credit	—	—	—	4	—	—	4
Other	38	91	108	635	387	121	1,380
Total	1,645	11,058	5,589	4,625	4,057	2,498	29,472
Total %	5.6%	37.5%	19.0%	15.7%	13.7%	8.5%	100.0%
Assets of operations classified as held for sale	10	9	2	358	3	14	396
Total (excluding assets held for sale)	1,635	11,049	5,587	4,267	4,054	2,484	29,076
Total % (excluding assets held for sale)	5.6%	38.0%	19.2%	14.7%	14.0%	8.5%	100.0%
2017 Total	2,337	9,900	6,557	4,692	5,012	2,489	30,987
2017 Total %	7.6%	31.9%	21.2%	15.1%	16.2%	8.0%	100.0%

Analysis of assets continued

C4 – Analysis of debt securities continued

C4.2 External ratings continued

Debt securities – Participating fund assets 2018	AAA £m	AA £m	A £m	BBB £m	Less than BBB £m	Non-rated £m	Total £m
				External ratings			
Government							
UK Government	—	7,602	3	—	—	133	7,738
UK local authorities	—	7	—	—	—	—	7
Non-UK Government	3,944	17,593	3,489	10,844	1,117	228	37,215
	3,944	25,202	3,492	10,844	1,117	361	44,960
Corporate							
Public utilities	—	131	944	2,412	105	192	3,784
Other corporate bonds	3,972	3,059	9,429	13,347	3,781	2,449	36,037
	3,972	3,190	10,373	15,759	3,886	2,641	39,821
Certificates of deposit	—	—	—	—	—	—	—
Structured							
Residential Mortgage Backed Security non-agency prime	11	1	9	24	2	—	47
	11	1	9	24	2	—	47
Commercial Mortgage Backed Security	48	18	34	—	—	10	110
Asset Backed Security	—	53	125	20	17	—	215
Collateralised Debt Obligation (including Collateralised Loan Obligation)	—	—	—	—	—	335	335
Asset Backed Commercial Paper	—	—	—	—	—	—	—
	48	71	159	20	17	345	660
Wrapped credit	—	—	34	4	—	2	40
Other	163	394	466	2,733	1,666	519	5,941
Total	8,138	28,858	14,533	29,384	6,688	3,868	91,469
Total %	8.9%	31.5%	15.9%	32.1%	7.3%	4.3%	100.0%
Assets of operations classified as held for sale	—	—	—	—	—	—	—
Total (excluding assets held for sale)	8,138	28,858	14,533	29,384	6,688	3,868	91,469
Total % (excluding assets held for sale)	8.9%	31.5%	15.9%	32.1%	7.3%	4.3%	100.0%
2017 Total	9,342	29,946	15,703	27,618	8,202	4,964	95,775
2017 Total %	9.7%	31.3%	16.4%	28.8%	8.6%	5.2%	100.0%

Analysis of assets continued

C4 – Analysis of debt securities continued

C4.2 External ratings continued

Debt securities – Shareholder assets 2018	AAA £m	AA £m	A £m	BBB £m	Less than BBB £m	Non-rated £m	Total £m
				External ratings			
Government							
UK Government	—	9,808	114	—	—	179	10,101
UK local authorities	—	129	—	—	—	54	183
Non-UK Government	5,273	3,986	1,026	861	—	841	11,987
	5,273	13,923	1,140	861	—	1,074	22,271
Corporate							
Public utilities	—	485	2,022	2,505	71	995	6,078
Other corporate bonds	2,075	2,291	6,753	4,837	124	2,030	18,110
	2,075	2,776	8,775	7,342	195	3,025	24,188
Certificates of deposit	—	—	—	—	—	86	86
Structured							
Residential Mortgage Backed Security non-agency prime	1	—	20	3	2	28	54
	1	—	20	3	2	28	54
Commercial Mortgage Backed Security	252	42	79	54	—	16	443
Asset Backed Security	—	351	268	29	37	—	685
Collateralised Debt Obligation (including Collateralised Loan Obligation)	—	—	—	—	—	—	—
Asset Backed Commercial Paper	—	—	—	—	—	—	—
	252	393	347	83	37	16	1,128
Wrapped credit	—	14	464	68	5	38	589
Other	12	28	34	198	120	37	429
Total	7,613	17,134	10,780	8,555	359	4,304	48,745
Total %	15.6%	35.2%	22.1%	17.6%	0.7%	8.8%	100.0%
Assets of operations classified as held for sale	1	—	—	—	—	—	1
Total (excluding assets held for sale)	7,612	17,134	10,780	8,555	359	4,304	48,744
Total % (excluding assets held for sale)	15.6%	35.2%	22.1%	17.6%	0.7%	8.8%	100.0%
2017 Total	7,039	17,394	12,932	8,637	526	2,658	49,186
2017 Total %	14.2%	35.4%	26.3%	17.6%	1.1%	5.4%	100.0%

Within shareholder assets debt securities, 46% of exposure is in government holdings *(2017: 46%)*. Our corporate debt securities portfolio represents 50% of total shareholder debt securities *(2017: 50%)*. At 31 December 2018, the proportion of our shareholder debt securities that are investment grade is 90.4% *(2017: 93.5%)*. The remaining 9.6% of shareholder debt securities that do not have an external rating of BBB or higher can be split as follows:
- 0.8% are debt securities that are rated as below investment grade;
- 8.8% are not rated by the major rating agencies.

The majority of non-rated corporate bonds are held by our businesses in the UK. Of the securities not rated by an external rating agency most are allocated an internal rating using a methodology largely consistent with that adopted by an external rating agency, and are considered to be of investment grade credit quality; these include £3.0 billion *(2017: £2.0 billion)* of debt securities held in our UK life business, predominantly made up of private placements and other corporate bonds, which have been internally rated as investment grade.

Analysis of assets continued

C5 – Analysis of loans

(a) Overview

The Group's loan portfolio of £28.8 billion *(2017: £27.9 billion)* is principally made up of the following:

- Policy loans of £0.8 billion *(2017: £0.8 billion)*, which are generally collateralised by a lien or charge over the underlying policy;
- Loans and advances to banks of £1.9 billion *(2017: £2.5 billion)*, which primarily relate to loans of cash collateral received in stock lending transactions and are fully collateralised by other securities;
- Mortgage loans collateralised by property assets of £19.9 billion *(2017: £20.3 billion)*; and
- Healthcare, infrastructure and private financial initiative (PFI) loans of £5.4 billion *(2017: £3.6 billion)*.

Loans with fixed maturities, including policy loans and loans and advances to banks, are recognised when cash is advanced to borrowers. These loans are carried at their unpaid principal balances and adjusted for amortisation of premium or discount, non-refundable loan fees and related direct costs. These amounts are deferred and amortised over the life of the loan using the effective interest rate method.

For certain mortgage loans, the Group has taken advantage of the fair value option under IAS 39 *Financial Instruments: Recognition Measurement* to present the mortgages, associated borrowings, other liabilities and derivative financial instruments at fair value, since they are managed together on a fair value basis. These mortgage loans are not traded in active markets and are classified within level 3 of the fair value hierarchy as the significant valuation assumptions and inputs are not deemed to be market observable. Of the Group's total loan portfolio, 69% *(2017: 73%)* is invested in mortgage loans. The shareholder risk relating to these loans is discussed further below.

Primary healthcare, infrastructure and PFI loans included within shareholder assets are £5.4 billion *(2017: £3.6 billion)*. These loans are secured against the income from healthcare and education premises and as such are not considered further in this section.

Loans – Shareholder assets 2018	United Kingdom £m	Canada £m	Europe £m	Asia £m	Total £m
Policy loans	**5**	**—**	**2**	**2**	**9**
Loans and advances to banks	**303**	**—**	**—**	**—**	**303**
Healthcare, Infrastructure and PFI other loans	**5,109**	**—**	**249**	**—**	**5,358**
Mortgage loans	**19,813**	**—**	**—**	**—**	**19,813**
Other loans	**—**	**164**	**1**	**—**	**165**
Total	**25,230**	**164**	**252**	**2**	**25,648**
Total %	**98.4%**	**0.6%**	**1.0%**	**—**	**100.0%**
Assets of operations classified as held for sale	**—**	**—**	**—**	**—**	**—**
Total (excluding assets held for sale)	**25,230**	**164**	**252**	**2**	**25,648**
Total % (excluding assets held for sale)	**98.4%**	**0.6%**	**1.0%**	**—**	**100.0%**
2017 Total	24,120	180	213	2	24,515
2017 Total %	98.4%	0.7%	0.9%	—	100.0%

(b) Analysis of shareholder mortgage loans

Mortgage loans included within shareholder assets are £19.8 billion *(2017: £20.2 billion)* and are almost entirely held in the UK. The narrative below focuses on explaining the risks arising as a result of these exposures.

2018	Total £m
Non-securitised mortgage loans	
– Residential (Equity release)	**7,315**
– Commercial	**7,232**
– Healthcare, Infrastructure and PFI mortgage loans	**2,829**
	17,376
Securitised mortgage loans	**2,437**
Total	**19,813**
Assets of operations classified as held for sale	**—**
Total (excluding assets held for sale)	**19,813**
2017 Total	20,189

Non-securitised mortgage loans

Residential

The UK non-securitised residential mortgage portfolio has a total value as at 31 December 2018 of £7.3 billion *(2017: £6.8 billion)*. The movement in the year is due to £0.7 billion of new lending and a decrease in the fair value of £0.2 billion. Additional accrued interest in the year offsets with the value of redemptions. These mortgages are all in the form of equity release, whereby homeowners mortgage their property to release cash equity. Due to the structure of equity release mortgages, whereby interest amounts due are not paid in cash but instead rolled into the amount outstanding, they predominantly have a current Loan to Value (LTV) of below 70%. The average LTV across the portfolio is 26.8% *(2017: 24.6%)*.

Commercial

Gross exposure by loan to value and arrears of UK non-securitised commercial mortgages is shown in the table below.

2018	>120% £m	115–120% £m	110–115% £m	105–110% £m	100–105% £m	95–100% £m	90–95% £m	80–90% £m	70–80% £m	<70% £m	Total £m
Not in arrears	**—**	**—**	**—**	**—**	**—**	**—**	**328**	**149**	**164**	**6,591**	**7,232**
Total	**—**	**—**	**—**	**—**	**—**	**—**	**328**	**149**	**164**	**6,591**	**7,232**

C5 – Analysis of loans continued

(b) Analysis of shareholder mortgage loans continued

Non-securitised mortgage loans continued

Commercial continued

Of the £7.2 billion *(2017: £7.5 billion)* of mortgage loans in the shareholder fund, £6.7 billion are used to back annuity liabilities and are stated on a fair value basis. The UK loan exposures are calculated on a discounted cash flow basis, and include a risk adjustment through the use of a Credit Risk Adjusted Value (CRAV).

For commercial mortgages, loan service collection ratios, a key indicator of mortgage portfolio performance, improved to 2.43x *(2017: 2.23x)*. Loan Interest Cover (LIC), which is defined as the annual net rental income (including rental deposits less ground rent) divided by the annual loan interest service, also improved to 2.75x *(2017: 2.51x)*. Average mortgage LTV decreased by 1pp compared to 2017 from 56% to 55%. There are no loans in arrears *(2017: nil)*.

Commercial mortgages and Healthcare, Infrastructure and PFI loans are held at fair value on the asset side of the statement of financial position. The related insurance liabilities are valued using a discount rate derived from the gross yield on assets, with adjustments to allow for risk. £14.4 billion of shareholder loan assets are backing annuity liabilities and comprise of commercial mortgage loans (£6.7 billion), Healthcare, Infrastructure and PFI mortgage loans (£2.8 billion) and Primary Healthcare, Infrastructure and PFI other loans (£4.9 billion). The Group carries a valuation allowance within insurance liabilities against the risk of default of commercial mortgages of £0.5 billion which equates to 41 bps at 31 December 2018 *(2017: 40 bps)*.

The total valuation allowance held on business transferred in from Aviva Annuity UK Limited in respect of corporate bonds and mortgages is £1.3 billion *(2017: £1.3 billion)* over the remaining term of the UK corporate bond and mortgage portfolio.

The UK portfolio remains well diversified in terms of property type, location and tenants as well as the spread of loans written over time. The risks in commercial mortgages are addressed through several layers of protection with the mortgage risk profile being primarily driven by the ability of the underlying tenant rental income to cover loan interest and amortisation. Should any single tenant default on their rental payment, rental from other tenants backing the same loan often ensures the loan interest cover does not fall below 1.0x. Where there are multiple loans to a single borrower further protection may be achieved through cross-charging (or pooling) such that any single loan is also supported by rents received within other pool loans. Additionally, there may be support provided by the borrower of the loan itself and further loss mitigation from any general floating charge held over assets within the borrower companies.

If the LIC cover falls below 1.0x and the borrower defaults then Aviva retains the option of selling the security or restructuring the loans and benefiting from the protection of the collateral. A combination of these benefits and the high recovery levels afforded by property collateral (compared to corporate debt or other uncollateralised credit exposures) results in the economic exposure being significantly lower than the gross exposure reported above. We will continue to actively manage this position.

Healthcare, Infrastructure and PFI

Primary Healthcare, Infrastructure and PFI mortgage loans included within shareholder assets of £2.8 billion *(2017: £3.4 billion)* are secured against primary health care premises (including General Practitioner surgeries), education, social housing and emergency services related premises. For all such loans, Government support is provided through either direct funding or reimbursement of rental payments to the tenants to meet income service and provide for the debt to be reduced substantially over the term of the loan. Although the loan principal is not Government guaranteed, the nature of these businesses provides considerable comfort of an ongoing business model and low risk of default.

On a market value basis, we estimate the average LTV of these mortgages to be 72% *(2017: 76%)*, although this is not considered to be a key risk indicator due to the Government support noted above and the social need for these premises. We therefore consider these loans to be lower risk relative to other mortgage loans.

Securitised mortgage loans

As at 31 December 2018, the Group has £2.4 billion *(2017: £2.5 billion)* of securitised mortgage loans within shareholder assets. Funding for the securitised residential mortgage assets was obtained by issuing loan note securities. Of these loan notes approximately £239 million *(2017: £231 million)* are held by Group companies. The remainder is held by third parties external to Aviva. As any cash shortfall arising once all mortgages have been redeemed is borne by the loan note holders, the majority of the credit risk of these mortgages is borne by third parties rather than by shareholders. The average LTV across the securitised mortgage loans is 45.2%.

Analysis of assets continued

C6 – Analysis of equity securities

Equity securities – Total assets	2018 Fair value hierarchy Level 1 £m	2018 Level 2 £m	2018 Level 3 £m	2018 Total £m	2017 Fair value hierarchy Level 1 £m	2017 Level 2 £m	2017 Level 3 £m	2017 Total £m
Public utilities	2,383	—	—	2,383	2,402	—	—	2,402
Banks, trusts and insurance companies[1]	17,868	—	172	18,040	18,645	—	208	18,853
Industrial miscellaneous and all other[1]	61,450	—	269	61,719	68,022	—	642	68,664
Non-redeemable preferred shares	196	—	—	196	244	—	—	244
Total	81,897	—	441	82,338	89,313	—	850	90,163
Total %	99.5%	—	0.5%	100.0%	99.1%	—	0.9%	100.0%
Assets of operations classified as held for sale	183	—	27	210	121	—	74	195
Total (excluding assets held for sale)	81,714	—	414	82,128	89,192	—	776	89,968
Total % (excluding assets held for sale)	99.5%	—	0.5%	100.0%	99.1%	—	0.9%	100.0%

Equity securities – Policyholder assets	2018 Fair value hierarchy Level 1 £m	2018 Level 2 £m	2018 Level 3 £m	2018 Total £m	2017 Fair value hierarchy Level 1 £m	2017 Level 2 £m	2017 Level 3 £m	2017 Total £m
Public utilities	2,073	—	—	2,073	2,042	—	—	2,042
Banks, trusts and insurance companies[1]	14,526	—	6	14,532	15,802	—	13	15,815
Industrial miscellaneous and all other[1]	50,361	—	167	50,528	56,161	—	64	56,225
Non-redeemable preferred shares	19	—	—	19	28	—	—	28
Total	66,979	—	173	67,152	74,033	—	77	74,110
Total %	99.7%	—	0.3%	100.0%	99.9%	—	0.1%	100.0%
Assets of operations classified as held for sale	183	—	26	209	115	—	74	189
Total (excluding assets held for sale)	66,796	—	147	66,943	73,918	—	3	73,921
Total % (excluding assets held for sale)	99.8%	—	0.2%	100.0%	100.0%	—	—	100.0%

Equity securities – Participating fund assets	2018 Fair value hierarchy Level 1 £m	2018 Level 2 £m	2018 Level 3 £m	2018 Total £m	2017 Fair value hierarchy Level 1 £m	2017 Level 2 £m	2017 Level 3 £m	2017 Total £m
Public utilities	306	—	—	306	356	—	—	356
Banks, trusts and insurance companies[1]	3,327	—	65	3,392	2,809	—	89	2,898
Industrial miscellaneous and all other[1]	10,324	—	95	10,419	11,237	—	563	11,800
Non-redeemable preferred shares	—	—	—	—	4	—	—	4
Total	13,957	—	160	14,117	14,406	—	652	15,058
Total %	98.9%	—	1.1%	100.0%	95.7%	—	4.3%	100.0%
Assets of operations classified as held for sale	—	—	—	—	—	—	—	—
Total (excluding assets held for sale)	13,957	—	160	14,117	14,406	—	652	15,058
Total % (excluding assets held for sale)	98.9%	—	1.1%	100.0%	95.7%	—	4.3%	100.0%

Equity securities – Shareholder assets	2018 Fair value hierarchy Level 1 £m	2018 Level 2 £m	2018 Level 3 £m	2018 Total £m	2017 Fair value hierarchy Level 1 £m	2017 Level 2 £m	2017 Level 3 £m	2017 Total £m
Public utilities	4	—	—	4	4	—	—	4
Banks, trusts and insurance companies	15	—	101	116	34	—	106	140
Industrial miscellaneous and all other	765	—	7	772	624	—	15	639
Non-redeemable preferred shares	177	—	—	177	212	—	—	212
Total	961	—	108	1,069	874	—	121	995
Total %	89.9%	—	10.1%	100.0%	87.8%	—	12.2%	100.0%
Assets of operations classified as held for sale	—	—	1	1	6	—	—	6
Total (excluding assets held for sale)	961	—	107	1,068	868	—	121	989
Total % (excluding assets held for sale)	90.0%	—	10.0%	100.0%	87.8%	—	12.2%	100.0%

1 Following a review of the Group's investment classifications, comparative amounts in the table have been revised. This review has resulted in a reclassification of £5,443 million in Equity securities previously classified as Banks, trusts and insurance companies to Industrial miscellaneous and all other. There is no impact on total Equity securities.

C7 – Analysis of investment property

Within total investment properties by value 93.6% *(2017: 94.7%)* are held in policyholder or participating fund assets. Shareholder exposure to investment properties is principally through investments in UK and French commercial property.

Investment properties are stated at their market values as assessed by qualified external independent valuers. The properties are valued on an income basis that is based on current rental income plus anticipated uplifts at the next rent review, lease expiry, or break option taking into consideration lease incentives and assuming no further growth in the estimated rental value of the property. This uplift and the discount rate are derived from rates implied by recent market transactions on similar property. These inputs are deemed unobservable.

Within total investment properties by value 97.3% *(2017: 97.4%)* are leased to third parties under operating leases, with the remainder either being vacant or held for capital appreciation.

Within shareholder investment properties by value 100% *(2017: 97.6%)* are leased to third parties under operating leases.

Analysis of assets continued

C8 – Analysis of other financial investments

Other investments – Total	2018 Fair value hierarchy Level 1 £m	Level 2 £m	Level 3 £m	2018 Total £m	2017 Fair value hierarchy Level 1 £m	Level 2 £m	Level 3 £m	2017 Total £m
Unit trusts and other investment vehicles	41,613	365	3,234	45,212	42,518	437	2,711	45,666
Derivative financial instruments	574	3,888	532	4,994	370	4,730	407	5,507
Deposits with credit institutions	155	—	—	155	161	—	—	161
Minority holdings in property management undertakings	—	28	1,947	1,975	—	27	1,408	1,435
Other	476	—	—	476	507	—	1	508
Total	**42,818**	**4,281**	**5,713**	**52,812**	43,556	5,194	4,527	53,277
Total %	**81.1%**	**8.1%**	**10.8%**	**100.0%**	81.8%	9.7%	8.5%	100.0%
Assets of operations classified as held for sale	5,038	—	1,606	6,644	5,307	—	1,664	6,971
Total (excluding assets held for sale)	**37,780**	**4,281**	**4,107**	**46,168**	38,249	5,194	2,863	46,306
Total % (excluding assets held for sale)	**81.8%**	**9.3%**	**8.9%**	**100.0%**	82.6%	11.2%	6.2%	100.0%

Other investments – Policyholder assets	2018 Fair value hierarchy Level 1 £m	Level 2 £m	Level 3 £m	2018 Total £m	2017 Fair value hierarchy Level 1 £m	Level 2 £m	Level 3 £m	2017 Total £m
Unit trusts and other investment vehicles	38,945	259	1,611	40,815	39,550	260	1,670	41,480
Derivative financial instruments	166	16	2	184	108	13	—	121
Deposits with credit institutions	125	—	—	125	147	—	—	147
Minority holdings in property management undertakings	—	—	370	370	—	—	183	183
Other	460	—	—	460	437	—	—	437
Total	**39,696**	**275**	**1,983**	**41,954**	40,242	273	1,853	42,368
Total %	**94.6%**	**0.7%**	**4.7%**	**100.0%**	95.0%	0.6%	4.4%	100.0%
Assets of operations classified as held for sale	5,022	—	1,606	6,628	5,231	—	1,660	6,891
Total (excluding assets held for sale)	**34,674**	**275**	**377**	**35,326**	35,011	273	193	35,477
Total % (excluding assets held for sale)	**98.1%**	**0.8%**	**1.1%**	**100.0%**	98.7%	0.8%	0.5%	100.0%

Other investments – Participating fund assets	2018 Fair value hierarchy Level 1 £m	Level 2 £m	Level 3 £m	2018 Total £m	2017 Fair value hierarchy Level 1 £m	Level 2 £m	Level 3 £m	2017 Total £m
Unit trusts and other investment vehicles	1,408	105	1,557	3,070	1,697	177	996	2,870
Derivative financial instruments	252	2,451	69	2,772	216	2,873	34	3,123
Deposits with credit institutions	17	—	—	17	10	—	—	10
Minority holdings in property management undertakings	—	—	1,366	1,366	—	—	1,020	1,020
Other	—	—	—	—	—	—	—	—
Total	**1,677**	**2,556**	**2,992**	**7,225**	1,923	3,050	2,050	7,023
Total %	**23.2%**	**35.4%**	**41.4%**	**100.0%**	27.4%	43.4%	29.2%	100.0%
Assets of operations classified as held for sale	—	—	—	—	—	—	—	—
Total (excluding assets held for sale)	**1,677**	**2,556**	**2,992**	**7,225**	1,923	3,050	2,050	7,023
Total % (excluding assets held for sale)	**23.2%**	**35.4%**	**41.4%**	**100.0%**	27.4%	43.4%	29.2%	100.0%

Other investments – Shareholder assets	2018 Fair value hierarchy Level 1 £m	Level 2 £m	Level 3 £m	2018 Total £m	2017 Fair value hierarchy Level 1 £m	Level 2 £m	Level 3 £m	2017 Total £m
Unit trusts and other investment vehicles	1,260	1	66	1,327	1,271	—	45	1,316
Derivative financial instruments	156	1,421	461	2,038	46	1,844	373	2,263
Deposits with credit institutions	13	—	—	13	4	—	—	4
Minority holdings in property management undertakings	—	28	211	239	—	27	205	232
Other	16	—	—	16	70	—	1	71
Total	**1,445**	**1,450**	**738**	**3,633**	1,391	1,871	624	3,886
Total %	**39.8%**	**39.9%**	**20.3%**	**100.0%**	35.8%	48.1%	16.1%	100.0%
Assets of operations classified as held for sale	16	—	—	16	76	—	4	80
Total (excluding assets held for sale)	**1,429**	**1,450**	**738**	**3,617**	1,315	1,871	620	3,806
Total % (excluding assets held for sale)	**39.5%**	**40.1%**	**20.4%**	**100.0%**	34.5%	49.2%	16.3%	100.0%

C9 – Analysis of available for sale investments

There were no impairment expenses during 2018 relating to AFS debt securities and other investments.

Total unrealised losses on AFS debt securities at 31 December 2018 were £5 million *(2017:£1 million*). There were no other unrealised losses on AFS investments.

C10 – Summary of exposure to peripheral European countries

The Group's direct sovereign exposures to Greece, Ireland, Portugal, Italy and Spain (net of non-controlling interests, excluding policyholder assets) is summarised below:

	Participating		Shareholder		Total	
	2018 £bn	2017 £bn	**2018 £bn**	2017 £bn	**2018 £bn**	2017 £bn
Greece	**—**	—	**—**	—	**—**	—
Ireland	**0.8**	0.7	**0.2**	0.1	**1.0**	0.8
Portugal	**0.1**	0.1	**—**	—	**0.1**	0.1
Italy	**6.8**	6.0	**0.6**	0.6	**7.4**	6.6
Spain	**0.6**	0.3	**0.1**	—	**0.7**	0.3
Total Greece, Ireland, Portugal, Italy and Spain	**8.3**	7.1	**0.9**	0.7	**9.2**	7.8

Included in our debt securities and other financial assets are exposures to peripheral European countries. All of these assets are valued on a mark-to-market basis under IAS 39, and therefore our statement of financial position and income statement already reflect any reduction in value between the date of purchase and the balance sheet date. The significant majority of these holdings are within our participating funds where the risk to our shareholders is governed by the nature and extent of our participation within those funds. Despite the current market volatility in Italy, shareholder risk is immaterial and continues to be managed through active portfolio management.

C11 – Summary of exposure to worldwide bank debt securities

Direct shareholder and participating fund assets exposures to worldwide bank debt securities (net of non-controlling interest, excluding policyholder assets)

	Shareholder assets			Participating fund assets		
2018	Total senior debt £bn	Total subordinated debt £bn	Total debt £bn	Total senior debt £bn	Total subordinated debt £bn	Total debt £bn
Australia	**0.2**	**—**	**0.2**	**0.8**	**0.2**	**1.0**
Denmark	**—**	**—**	**—**	**0.5**	**—**	**0.5**
France	**0.5**	**0.1**	**0.6**	**2.6**	**0.4**	**3.0**
Germany	**—**	**—**	**—**	**0.6**	**0.2**	**0.8**
Italy	**—**	**—**	**—**	**0.1**	**—**	**0.1**
Netherlands	**0.3**	**0.2**	**0.5**	**1.4**	**0.2**	**1.6**
Spain	**0.4**	**—**	**0.4**	**0.5**	**0.1**	**0.6**
Sweden	**0.1**	**—**	**0.1**	**0.3**	**0.1**	**0.4**
Switzerland	**—**	**—**	**—**	**0.7**	**—**	**0.7**
United Kingdom	**1.3**	**0.4**	**1.7**	**1.1**	**0.5**	**1.6**
United States	**1.0**	**0.2**	**1.2**	**1.5**	**0.1**	**1.6**
Other	**0.4**	**0.1**	**0.5**	**1.8**	**0.2**	**2.0**
Total	**4.2**	**1.0**	**5.2**	**11.9**	**2.0**	**13.9**
Assets of operations classified as held for sale	**—**	**—**	**—**	**—**	**—**	**—**
Total (excluding assets held for sale)	**4.2**	**1.0**	**5.2**	**11.9**	**2.0**	**13.9**
2017 Total	4.4	1.0	5.4	12.1	2.5	14.6

Net of non-controlling interests, our direct shareholder assets exposure to worldwide bank debt securities is £5.2 billion *(2017: £5.4 billion)*. The majority of our holding (81%) is in senior debt. The primary exposures are to UK (33%), US (23%), French (12%) and Dutch (10%) banks.

Net of non-controlling interest, the participating fund exposures to worldwide bank debt securities, where the risk to our shareholders is governed by the nature and extent of our participation within those funds, is £13.9 billion *(2017: £14.6 billion)*. The majority of the exposure (86%) is in senior debt. Participating funds are most exposed to French (22%), UK (12%), Dutch (12%) and US (12%) banks.

C12 – Reinsurance assets

The Group assumes and cedes reinsurance in the normal course of business, with retention limits varying by line of business. Reinsurance assets primarily include balances due from both insurance and reinsurance companies for ceded insurance liabilities. Amounts recoverable from reinsurers are estimated in a manner consistent with the outstanding claims provisions or settled claims associated with the reinsured policies and in accordance with the relevant reinsurance contract.

If a reinsurance asset is impaired, the Group reduces the carrying amount accordingly and recognises that impairment loss in the income statement. A reinsurance asset is impaired if there is objective evidence, as a result of an event that occurred after initial recognition of the reinsurance asset, that the Group may not receive all amounts due to it under the terms of the contract, and the event has a reliably measurable impact on the amounts that the Group will receive from the reinsurer.

For the table below, reinsurance asset credit ratings are stated in accordance with information from leading rating agencies.

	Ratings						
2018	AAA £m	AA £m	A £m	BBB £m	Less than BBB £m	Not rated £m	Total £m
Policyholders assets	—	3,164	267	317	—	351	4,099
Participating fund assets	—	225	307	2	—	—	534
Shareholder assets	—	6,407	609	3	1	147	7,167
Total	—	9,796	1,183	322	1	498	11,800
Total %	—	83.1%	10.0%	2.7%	—	4.2%	100.0%
Assets of operations classified as held for sale	—	9	36	—	—	—	45
Total (excluding assets held for sale)	—	9,787	1,147	322	1	498	11,755
Total % (excluding assets held for sale)	—	83.3%	9.8%	2.7%	—	4.2%	100.0%
2017 Total	—	11,880	1,113	264	3	355	13,615
2017 Total %	—	87.3%	8.2%	1.9%	—	2.6%	100.0%

Alternative Performance Measures

In order to fully explain the performance of our business, we discuss and analyse our results in terms of financial measures which include a number of alternative performance measures (APMs). APMs are non-GAAP measures which are used to supplement the disclosures prepared in accordance with other regulations such as International Financial Reporting Standards (IFRS) and Solvency II. We believe these measures provide useful information to enhance the understanding of our financial performance. However, APMs should be viewed as complementary to, rather than as a substitute for, the figures determined according to other regulations.

The APMs utilised by Aviva may not be the same as those used by other insurers and may change over time. These metrics are reviewed annually and updated as appropriate to ensure they remain an effective measurement that underpins the objectives for the Group.

This section includes a definition of each APM and additional information, including a reconciliation to the relevant amounts in the IFRS Financial Statements and, where appropriate, commentary on the material reconciling items.

There are no new APMs or changes to existing APMs in 2018.

Annual Premium Equivalent (APE)

Annual Premium Equivalent is a measure of sales in our life insurance businesses. APE is calculated as the sum of new regular premiums plus 10% of new single premiums written in the period. While not a key performance metric of the Group, the APE measure provides useful information on sales and new business when considered alongside other measures such as the present value of new business premiums (PVNBP) or value of new business on an adjusted Solvency II basis (VNB)‡.

Assets under management (AUM) and assets under administration (AUA)

Assets under management (AUM) represent all assets managed or administered by or on behalf of the Group, including those assets managed by third parties. AUM include managed assets that are reported within the Group's statement of financial position and those assets belonging to external clients outside the Aviva Group which are therefore not included in the Group's statement of financial position.

Consistent with previous years, assets under administration (AUA) comprise AUM plus assets managed by third parties on platforms administered by Aviva Investors.

Both AUM and AUA are monitored as they reflect the potential earnings arising from investment returns and fee and commission income and measure the size and scale of the Group's fund management business.

A reconciliation of AUM to amounts appearing in the Group's statement of financial position is shown below.

	2018 £bn	2017 £bn
AUM managed on behalf of Group companies		
Assets included in statement of financial position[1]		
Financial investments	**305**	319
Investment properties	**11**	11
Loans	**29**	28
Cash and cash equivalents	**47**	44
Other	**1**	1
	393	403
Less: third party funds included above	**(19)**	(19)
	374	384
AUM managed on behalf of third parties[2]		
Aviva Investors[3]	**64**	72
UK Platform[4]	**23**	20
Other	**9**	11
	96	103
Total AUM	**470**	487

1 Includes assets classified as held for sale.
2 AUM managed on behalf of third parties cannot be directly reconciled to the financial statements.
3 Following a review of AUM managed on behalf of third parties, comparative amounts for Aviva Investors have been amended from those previously reported to reflect the fact that certain crossholdings had not been correctly eliminated on consolidation. The effect of this change is to reduce total AUM by £2.5 billion at 31 December 2017.
4 UK Platform relates to the assets under management in the UK long-term savings business.

Cash remittances‡

Cash paid by our operating businesses to the Group, comprised of dividends and interest on internal loans. Dividend payments by operating businesses may be subject to insurance regulations that restrict the amount that can be paid. The business monitors total cash remittances at a Group level and in each of its markets.

Cash remittances eliminate on consolidation and hence are not directly reconcilable to the Group's IFRS consolidated statement of cash flows.

Combined operating ratio (COR)‡

A financial measure of general insurance underwriting profitability calculated as total underwriting costs in our insurance entities expressed as a percentage of net earned premiums. A COR below 100% indicates profitable underwriting.

The COR does not include the impact of any changes in the discount rate used for estimating lump sum payments in settlement of bodily injury claims.

The Group reported COR is shown below.

	2018 £m	2017 £m
Incurred claims – GI & Health (as per B6)[1]	(6,400)	(6,533)
Adjusted for the following:		
Incurred claims – Health	633	677
Impact of change in the discount rate used in settlement of bodily injury claims	(190)	—
Total incurred claims (included in COR)	(5,957)	(5,856)
Total commissions and expenses (included in COR)[2]	(2,765)	(2,813)
Total underwriting costs	(8,722)	(8,669)
Net earned premiums – GI & Health (as per B6)	9,887	9,882
Adjusted for:		
Net earned premiums – Health	(857)	(906)
Net earned premiums (included in COR)	9,030	8,976
Combined operating ratio	96.6%	96.6%

1 Corresponds to the sum of claims and benefits paid, net of recoveries from reinsurers and the change in insurance liabilities, net of reinsurance per note B6.
2 Commission and expenses consists of fee and commission income, fee and commission expense and other operating expenses included within the general insurance & health segmental income statement (per note B6) adjusted to an earned basis and to remove the health business.

symbol denotes key performance indicators used as a base to determine or modify remuneration.
‡ denotes APMs which are key performance indicators. There have been no changes to the APMs used by the Group during period under review.

Alternative Performance Measures continued

The normalised accident year combined operating ratio is derived from the COR (as defined in this section) with adjustments made to exclude the impact of prior year reserve development and weather claims variations versus expectations, gross of the impact of profit sharing arrangements. These adjustments are made so that the underlying performance of the Group can be assessed excluding factors that might distort the trend in the claims ratio on a year on year basis.

Claims ratio
A financial measure of the performance of our general insurance business which is calculated as incurred claims expressed as a percentage of net earned premiums, which can be derived from the previous COR table.

Commission and expense ratio
A financial measure of the performance of our general insurance business which is derived from the sum of earned commissions and expenses expressed as a percentage of net earned premiums from the previous COR table.

Excess centre cash flow
This represents the cash remitted by business units to the Group centre less central operating expenses and debt financing costs. Excess centre cash flow is a measure of the cash available to pay dividends, reduce debt or invest back into our business.

These amounts eliminate on consolidation and hence are not directly reconcilable to the Group's IFRS consolidated statement of cash flows.

Group adjusted operating profit[‡#]
Group adjusted operating profit is a non-GAAP APM which is reported to the Group chief operating decision maker for the purpose of decision making and for internal performance management of the Group's operating segments that incorporates an expected return on investments supporting the life and non-life insurance businesses. The various items excluded from group adjusted operating profit, but included in IFRS profit before tax, are:

Investment variances, economic assumption changes and short-term fluctuation in return on investments
Group adjusted operating profit for the life insurance business is based on expected investment returns on financial investments backing shareholder and policyholder funds over the reporting period, with allowance for the corresponding expected movements in liabilities. The expected rate of return is determined using consistent assumptions between operations, having regard to local economic and market forecasts of investment return and asset classification. For fixed interest securities classified as fair value through profit or loss, the expected investment returns are based on average prospective yields for the actual assets held less an adjustment for credit risk. Where such securities are classified as available for sale the expected return comprises interest or dividend payments and amortisation of the premium or discount at purchase. The expected return on equities and properties is calculated by reference to the opening 10-year swap rate in the relevant currency plus an appropriate risk margin.

Group adjusted operating profit includes the effect of variances in experience for non-economic items, such as mortality, persistency and expenses, and the effect of changes in non-economic assumptions. This would include movements in liabilities due to changes in discount rate arising from discretionary management decisions that impact on product profitability over the lifetime of products. Changes due to economic items, such as market value movement and interest rate changes, which give rise to variances between actual and expected investment returns, and the impact of changes in economic assumptions on liabilities, are disclosed separately outside Group adjusted operating profit.

Group adjusted operating profit for the non-life insurance business is based on expected investment returns on financial investments backing shareholder funds over the period. Expected investment returns are calculated for equities and properties by multiplying the opening market value of the investments, adjusted for sales and purchases during the year, by the longer-term rate of return. This rate of return is the same as that applied for the long-term business expected returns. The longer-term return for other investments is the actual income receivable for the period.

Changes due to market value movements and interest rate changes, which give rise to variances between actual and expected investment returns, are disclosed separately outside Group adjusted operating profit. The impact of changes in the discount rate applied to claims provisions is also disclosed outside Group adjusted operating profit.

The exclusion of short-term investment variances from this APM reflects the long-term nature of much of our business. The Group adjusted operating profit which is used in managing the performance of our operating segments excludes the impact of economic factors, to provide a comparable measure year on year.

Impairment, amortisation and profit or loss on disposal
Group adjusted operating profit also excludes impairment of goodwill, associates and joint ventures; amortisation and impairment of other intangibles; amortisation and impairment of acquired value of in-force business; and the profit or loss on disposal and remeasurement of subsidiaries, joint ventures and associates. These items principally relate to merger and acquisition activity which we view as strategic in nature, hence they are excluded from the Group adjusted operating profit APM as this is principally used to manage the performance of our operating segments when reporting to the Group chief operating decision maker.

Other items
These items are, in the Directors' view, required to be separately disclosed by virtue of their nature or incidence to enable a full understanding of the Group's financial performance. Other items at 2018 are disclosed in section A11. There were no Other items in 2017.

Group adjusted operating profit is presented before and after integration and restructuring costs. These costs are only reported to the extent that they are significant, and not otherwise absorbed within operating costs.

The Group adjusted operating profit APM should be viewed as complementary to IFRS GAAP measures. It is important to consider Group adjusted operating profit and profit before tax together to understand the performance of the business in the period.

Alternative Performance Measures continued

The table below presents a reconciliation between our consolidated operating profit and profit before tax attributable to shareholders' profits.

	2018 £m	2017 £m
United Kingdom – Life	**1,909**	1,764
United Kingdom – General Insurance	**415**	411
Canada	**47**	46
Europe	**1,011**	1,059
Asia	**262**	191
Aviva Investors	**151**	201
Other Group activities	**(679)**	(604)
Group adjusted operating profit before tax attributable to shareholders' profit	**3,116**	3,068
Integration and restructuring costs	**—**	(141)
Group adjusted operating profit before tax after integration and restructuring costs	**3,116**	2,927
Adjusted for the following:		
Investment return variances and economic assumption changes on life business	**(197)**	34
Short-term fluctuation in return on investments on non-life business	**(476)**	(345)
Economic assumption changes on general insurance and health business	**1**	(7)
Impairment of goodwill, associates and joint ventures and other amounts expensed	**(13)**	(49)
Amortisation and impairment of intangibles	**(209)**	(197)
Amortisation and impairment of acquired value of in-force business	**(426)**	(495)
Profit on the disposal and re-measurement of subsidiaries, joint ventures and associates	**102**	135
Other	**231**	—
Adjusting items before tax	**(987)**	(924)
Profit before tax attributable to shareholders' profits	**2,129**	2,003

Net asset value (NAV) per share

NAV per share is calculated as the equity attributable to shareholders of Aviva plc, less preference share capital (both within the consolidated statement of financial position), divided by the actual number of shares in issue as at the balance sheet date.

NAV per share is used to monitor the value generated by the Company in terms of the equity shareholders' face value per share investment and enables comparability.

Net fund flows

Net fund flows is one of the measures of growth used by management and is a component of the movement in the life and platform business managed assets (excluding UK with-profits) during the period. It is the difference between the inflows (being IFRS net written premiums plus deposits received under investment contracts) and outflows (being IFRS net paid claims plus redemptions and surrenders under investment contracts). It excludes market and other movements.

Operating expenses

The day-to-day expenses involved in running the business are classified as operating expenses. A reconciliation of operating expenses to the IFRS consolidated income statement is set out below:

	2018 £m	2017 £m
Other expenses (IFRS income statement)	**3,843**	3,537
Less: amortisation and impairment	**(658)**	(678)
Less: foreign exchange gains/(losses)	**(28)**	(49)
Other acquisition costs	**954**	892
Claims handling costs	**336**	330
Integration and restructuring costs	**—**	(141)
Less: Other costs	**(421)**	(113)
Operating expenses	**4,026**	3,778

Operating expenses exclude impairment of goodwill, associates and joint ventures; amortisation and impairment of other intangible assets; amortisation and impairment of acquired value of in-force business; and the profit or loss on disposal and remeasurement of subsidiaries, joint ventures and associates. These items relate to merger and acquisition activity which we view as strategic in nature, hence they are excluded from the operating expenses APM as this is principally used to manage the performance of our operating segments.

Other acquisition costs and claims handling costs are included as these are considered to be controllable by the operating segments and directly impact their performance.

There have been no costs classified as integration and restructuring in the year. In 2017, these costs relate to integration costs in the UK and Canada, and restructuring costs in the UK and Europe. It is possible that significant integration and restructuring activity undertaken in the future may result in the related costs being excluded from operating profit.

Operating expenses excludes other costs based on management's assessment of their nature or incidence that are not representative of underlying operating expenses and would distort the year on year operating expenses trend. Other costs represent a reallocation based on management's assessment of ongoing maintenance of business units and in 2018 includes movements in provisions set aside in respect of ongoing regulatory compliance as well as an increase of £175 million product governance provision relating to a historical issue over pension arrangement advised sales by Friends Provident (of which over 90% of cases relate to pre-2002).

Operating expense ratio

The operating expense ratio expresses operating expenses as a percentage of operating income.

Operating income is calculated as Group adjusted operating profit before Group debt costs and operating expenses.

Operating earnings per share (EPS)[‡ #]

Operating EPS is calculated based on the Group adjusted operating profit attributable to ordinary shareholders net of tax, deducting non-controlling interests, preference dividends and the direct capital instrument (DCI) and tier 1 note coupons divided by the weighted average number of ordinary shares in issue, after deducting treasury shares. Operating EPS is used by management to determine the dividend payout ratio target and hence a useful APM for users of the financial statements. A reconciliation between Operating EPS and Basic EPS can be found in note B8.

Present value of new business premiums (PVNBP)

PVNBP measures the additional value to shareholders of sales in the Group's life insurance business. PVNBP is derived from the present value of new regular premiums expected to be received over the term of the new contracts plus 100% of single premiums from new business written in the financial period and is expressed at the point of sale. The discounted value of regular premiums is calculated using the same methodology as for Value of new business on an adjusted Solvency II basis (VNB). PVNBP also includes any changes to existing contracts which were not anticipated at the outset of the contract that generate additional shareholder risk and associated premium income of the nature of a new policy.

Alternative Performance Measures continued

The table below presents a reconciliation of sales to IFRS net written premiums.

	2018 £m	2017 £m
Present value of new business premiums	**40,763**	40,795
Investment sales	**4,799**	7,888
General insurance and health net written premiums	**9,968**	10,035
Long-term health and collectives business	**(3,840)**	(5,213)
Total sales	**51,690**	53,505
Effect of capitalisation factor on regular premium long-term business[1]	**(12,726)**	(11,412)
JVs and associates[2]	**(257)**	(618)
Annualisation impact of regular premium long-term business[3]	**(247)**	(281)
Deposits[4]	**(10,329)**	(10,953)
Investment sales[5]	**(4,799)**	(7,888)
IFRS gross written premiums from existing long-term business[6]	**4,776**	4,765
Long-term insurance and savings business premiums ceded to reinsurers	**(1,775)**	(1,741)
Total IFRS net written premiums	**26,333**	25,377
Analysed as:		
Long-term insurance and savings net written premiums	**16,365**	15,342
General insurance and health net written premiums	**9,968**	10,035
	26,333	25,377

1 Discounted value of regular premiums expected to be received over the term of the new contract, adjusted for expected levels of persistency.
2 Total long-term new business sales include our share of sales from joint ventures and associates. Under IFRS, premiums from these sales are excluded.
3 The impact of annualisation is removed in order to reconcile the non-GAAP new business sales to IFRS premiums.
4 Under IFRS, only the margin earned from non-participating investment contracts is recognised in the IFRS income statement.
5 Investment sales included in total sales represent the cash inflows received from customers investing in mutual fund type products such as unit trusts and OEICs.
6 The non-GAAP measure of sales focuses on new business written in the period under review while the IFRS income statement includes premiums received from all business, both new and existing.

Investment sales

This measure comprises retail sales of mutual fund-type products such as unit trusts, individual savings accounts (ISAs) and open-ended investment companies (OEICs). We earn fees on the investment and management of these funds which are recorded separately in the IFRS income statement as 'fees and commissions received' and are not included in statutory premiums.

Return on capital employed (ROCE)

ROCE indicates the efficiency with which a company uses its assets to generate profits. Usually calculated as pre-tax profit divided by capital employed (total assets minus current liabilities) and expressed as a percentage.

Return on Equity (RoE)[#]

The RoE calculation is based on Group adjusted operating profit, after tax attributable to ordinary shareholders expressed as a percentage of weighted average ordinary shareholders' equity (excluding non-controlling interests, preference share capital and direct capital instrument and tier 1 notes) as shown in section 8iii.

Solvency II

Available capital resources determined under Solvency II are referred to as 'own funds'. This includes the excess of assets over liabilities in the Solvency II balance sheet, calculated on best estimate, market consistent assumptions and net of transitional measures on technical provisions (TMTP), subordinated liabilities that qualify as capital under Solvency II, and off-balance sheet own funds.

The Solvency II regime requires insurers to hold own funds in excess of the Solvency Capital Requirement (SCR). The SCR is calculated at Group level using a risk based capital model which is calibrated to reflect the cost of mitigating the risk of insolvency to a 99.5% confidence level over a one year time horizon – equivalent to a 1 in 200 year event – against financial and non-financial shocks. As a number of subsidiaries utilise the standard formula rather than a risk based capital model to assess capital requirements, the overall Group SCR is calculated using a partial internal model, and it is shown after the impact of diversification benefit.

The reconciliation from total Group equity on an IFRS basis to Solvency II own funds is presented below.

	2018 £bn	2017 £bn
Total Group equity on an IFRS basis	**18.5**	19.1
Elimination of goodwill and other intangible assets[1]	**(7.8)**	(9.8)
Liability valuation differences (net of transitional deductions)[2]	**19.2**	22.0
Inclusion of risk margin (net of transitional deductions)	**(3.3)**	(3.2)
Net deferred tax[3]	**(1.1)**	(1.3)
Revaluation of subordinated liabilities	**(0.6)**	(0.7)
Other accounting differences[4]	**(0.3)**	(0.1)
Estimated Solvency II net assets (gross of non-controlling interests)	**24.6**	26.0
Difference between Solvency II net assets and own funds[5]	**(1.0)**	(1.3)
Estimated Solvency II own funds[6]	**23.6**	24.7

1 Includes £1.8 billion *(2017: £1.9 billion)* of goodwill and £6.0 billion *(2017 £7.9 billion)* of other intangible assets comprising acquired value of in-force business of £2.9 billion *(2017: £3.3 billion)*, deferred acquisition costs (net of deferred income) of £2.8 billion *(2017: £2.9 billion)* and other intangibles of £0.3 billion *(2017: £1.7 billion)*.
2 Includes the adjustments required to reflect market consistent principles under Solvency II whereby non-insurance assets and liabilities are measured using market value and liabilities arising from insurance contracts are valued on a best estimate basis using market-implied assumptions.
3 Net deferred tax includes the tax effect of all other reconciling items in the table above which are shown gross of tax.
4 Includes valuation adjustments and the impact of the difference between consolidation methodologies under Solvency II and IFRS.
5 Regulatory adjustments to bridge from Solvency II net assets to own funds include recognition of subordinated debt capital and non-controlling interests.
6 The estimated Solvency II position represents the shareholder view only.

A number of key performance metrics relating to Solvency II are utilised to measure and monitor the Group's performance and financial strength:

- Solvency II shareholder cover ratio[‡]
- Value of new business on an adjusted Solvency II basis (VNB)[‡]
- Operating Capital Generation (OCG)[#]

Definitions and additional information in respect of each of these metrics is included within this section.

Solvency II shareholder cover ratio[‡]

The estimated Solvency II shareholder cover ratio is an indicator of the Group's balance sheet strength which is derived from own funds divided by the SCR using a 'shareholder view'. The shareholder view is considered by management to be more representative of the shareholders' risk-exposure and the Group's ability to cover the SCR with eligible own funds, and aligns with management's approach to dynamically manage its capital position. In arriving at the shareholder position, the following adjustments are typically made to the regulatory Solvency II position:

- The contribution to the Group's SCR and own funds of the most material fully ring fenced with-profits funds and staff pension schemes in surplus are excluded. These exclusions have no impact on Solvency II surplus as these funds are self-supporting on a Solvency II capital basis with any surplus capital above SCR not recognised.

Alternative Performance Measures continued

- A notional reset of the transitional measure on technical provisions (TMTP), calculated using the same method as used for formal TMTP resets. This presentation avoids step changes to the Solvency II position that arise only when the formal TMTP reset points are triggered. The TMTP is amortised on a straight-line basis over 16 years from 1 January 2016 in line with the Solvency II rules.
- Pro forma adjustments are made if the Solvency II shareholder cover ratio does not fully reflect the effect of transactions or capital actions that are known as at each reporting date. Such adjustments may be required in respect of planned acquisitions and disposals, group reorganisations and adjustments to the Solvency II valuation basis arising from changes to the underlying regulations or updated interpretations provided by EIOPA. These adjustments have been made in order to show a more representative view of the Group's solvency position.

A summary of the Group's Solvency II position is shown in the table below.

	2018 £bn	2017 £bn
Own Funds	**23.6**	24.7
Solvency Capital Requirement	**(11.6)**	(12.5)
Estimated Solvency II Surplus at 31 December	**12.0**	12.2
Estimated Shareholder Cover Ratio	**204%**	198%

Value of new business on an adjusted Solvency II basis (VNB)‡

VNB measures the additional value to shareholders created through the writing of new life business in the period. It reflects Solvency II assumptions and allowance for risk and is defined as the increase in Solvency II own funds resulting from business written in the period, including the impact of interactions between in-force and new business, adjusted to:

i) remove the impact of the contract boundary restrictions under Solvency II;
ii) allow for businesses which are not within the scope of the Solvency II own funds (e.g. UK and Asia Healthcare, retail fund management and UK equity release); and
iii) include the impacts of tax and 'look through profits' in service companies (where not included in Solvency II) and deduct the impacts of non-controlling interests.

These adjustments are considered to reflect a more realistic basis than the prudential Solvency II rules. The VNB is derived from the present value of projected pre-tax distributable profits generated by new business plus a risk margin.

Operating assumptions

The operating assumptions used are derived from an analysis of recent operating experience to give a best estimate of future experience. When these assumptions are updated, the year-to-date VNB will capture the impact of the assumption change on all business sold that year.

Economic assumptions

VNB is calculated using economic assumptions as at the point of sale, taken as those appropriate to the start of each quarter. For contracts that are repriced more frequently, weekly or monthly economic assumptions have been used. Dealing with each of the principal economic assumptions in turn:

- The risk-free interest rate curves used to calculate VNB reflect the basic risk-free interest rate curves (including the credit risk adjustment) published by EIOPA on their website.
- The volatility adjustment is intended to reflect temporary distortions in spreads on government bonds based on rates prescribed by EIOPA.
- The matching adjustment (MA) is an increase applied to the risk-free rate used to value insurance liabilities where the cash flows are relatively fixed and well matched by assets intended to be held to maturity with relatively fixed cash flows (resulting in additional yield from illiquidity risk).

Matching adjustment (MA)

A MA is applied to certain obligations based on the expected allocation of assets backing new business at each year-end date. This allocation may be different to the MA applied at the portfolio level. Aviva applies a MA to certain obligations in UK Life, using methodology which is set out in the Solvency and Financial Condition Report.

The matching adjustment used for 2018 UK new business (where applicable) was 105 bps *(2017 restated[1]: 132 bps)*.

1 The 2017 matching adjustment has been restated to reflect an allowance for credit risk and investment expenses.

New business income

New business income represents the impact on Group adjusted operating profit‡ of new business written in the period. New business income comprises income arising from premiums written during the period less initial reserves, expenses and commission. Expense and commission are shown net of deferred acquisition costs. While not a key performance metric of the Group, new business income provides useful information on sales and new business when considered alongside other measures such as PVNBP or VNB.

New business margin

New business margin is calculated as Value of new business on an adjusted Solvency II basis (VNB) divided by the present value of new business premiums (PVNBP), and expressed as a percentage.

Operating capital generation (OCG)#

OCG is the Solvency II surplus movement in the period due to operating items. The calculation of OCG is consistent with previous years.

For life business, OCG is split into the impact of new business, earnings from existing business and other OCG, where other OCG includes the impact of capital actions and non-economic assumption changes. OCG excludes economic variances and economic assumption changes. The expected investment returns assumed within earnings from existing business are consistent with the returns within Group adjusted operating profit.

An analysis of the components of OCG is presented below:

	2018 £bn	2017 £bn
Adjusted Solvency II VNB (gross of tax and non-controlling interests)	**1.2**	1.2
Allowance for Solvency II contract boundary rules	**—**	—
Differences due to change in business in scope	**(0.2)**	(0.2)
Tax & Other[1]	**(0.3)**	(0.3)
Solvency II Own Funds impact of new business (net of tax and non-controlling interests)	**0.7**	0.7
Solvency II SCR impact of new business	**(0.9)**	(0.8)
Solvency II surplus impact of new business	**(0.2)**	(0.1)
Life earnings from existing business	**1.6**	1.6
Life Other OCG[2]	**1.8**	0.9
Life Solvency II OCG	**3.2**	2.4
GI, Health, FM & Other Solvency II OCG	**—**	0.2
Total Solvency II OCG	**3.2**	2.6

1 Other includes the impact of 'look through profits' in service companies (where not included in Solvency II) and the reduction in value when moving to a net of non-controlling interests basis.
2 Other OCG includes the impact of capital actions and non-economic assumption changes.

Spread margin

The spread margin represents the return made on the Group's annuity and other non-linked business, based on the expected investment return, less amounts credited to policyholders. While not a key performance metric of the Group, the spread margin is a useful indicator of the expected investment return arising on this business.

Underwriting margin

The underwriting margin represents the release of reserves held to cover claims, surrenders and administrative expenses less the cost of actual claims and surrenders in the period. While not a key performance metric of the Group, the underwriting margin is a useful measure of the financial performance of our Life insurance business when considered alongside other financial metrics.

Unit-linked margin

The unit-linked margin represents the annual management charges on unit-linked business based on expected investment return. While not a key performance metric of the Group, the unit-linked margin is a useful indicator of the expected investment return arising on this business.