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AVIVA

Aviva plc
Results Announcement 2022

News release

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Aviva plc 2022 Results Announcement

Strong 2022 results, operating momentum continues

Announcing share buyback of £300m¹. Total capital return over £5bn since 2021

On track to meet or exceed Group targets, outlook remains positive

Solvency II OFG [‡]	Solvency II cover ratio ^{‡,3}	General insurance COR [‡]	Operating profit ^{‡,4}	Baseline controllable costs ^{‡,5}
£1,623m	212%	94.6%	£2,213m	£2,771m
+37%	(32)pp	+1.7pp	+35%	(3)%
2021²: £1,187m	2021: 244%	2021²: 92.9%	2021²: £1,634m	2021²: £2,854m

Amanda Blanc, Group Chief Executive Officer, said:

"We are making excellent progress at Aviva. Operating profits and dividends are growing and we have strong trading momentum despite significant market volatility. We have radically simplified Aviva, we are financially strong and we are utterly focused on transforming and growing the business.

"Our core businesses in the UK, Ireland and Canada grew in 2022, and contributed to a very strong, all round performance. Life insurance value of new business is up 15%, general insurance sales^{6,7} are up 8% and overall operating profit is up 35%. We are investing to make it easier for customers to do business with Aviva and customer numbers in the UK have grown to 15.5m.

"Cash remittances² are up strongly, our capital position is robust, and we are today declaring a final dividend of 20.7 pence, meaning a total ordinary dividend of 31.0 pence for 2022. We are committed to delivering an attractive and sustainable dividend, and have upgraded our dividend guidance to low-to-mid single digit growth in the cash cost of the dividend. We are confident in the future capital generation of our business, and so we are also announcing today an additional return of capital to shareholders, via the launch of a £300m share buyback, in line with our preference to return surplus capital regularly and sustainably. This takes the total capital return to over £5bn since 2021.

"The diversified model we have built at Aviva has proved its worth, providing clear benefits for customers and shareholders and driving our great results last year. Whilst I am pleased with what's been accomplished over the past twelve months, I am clear there is significantly more value which Aviva can and will deliver in 2023 and beyond."

Strong results demonstrating benefits of diversified business model

- General insurance gross written premiums (GWP) up 8%⁷ to £9,749m (2021²: £8,807m) and COR[‡] of 94.6% (2021²: 92.9%)
- UK & Ireland Life VNB[‡] up 15% to £767m (2021: £668m) with sales⁶ of £33bn (2021: £36bn)
- Operating profit^{‡,4} up 35% to £2,213m (2021²: £1,634m)
- Solvency II operating own funds generation[‡] up 37% to £1,623m (2021²: £1,187m)
- Solvency II return on equity[‡] 16.4% (2021²: 10.7%)
- Cash remittances[‡] up 11% to £1,845m (2021²: £1,662m)
- Baseline controllable costs^{‡,5} down 3% to £2,771m (2021²: £2,854m) reflecting continued focus on efficiency
- IFRS loss of £(1,139)m (2021: £2,036m profit) largely reflects adverse market movements
- Final dividend per share of 20.70p (2021: 14.70p). Total dividend per share of 31.00p (2021: 22.05p), as per previous guidance

Capital position remains robust - £300m share buyback to commence immediately

- Solvency II shareholder cover ratio[‡] of 212% (2021: 244%) and centre liquidity[‡] (Feb 23) of £2.2bn (Feb 22: £6.6bn)
- Estimated Solvency II shareholder cover ratio pro forma for further debt reduction and pension scheme payment of 207%. Allowing for payment of the 2022 final dividend and the £300m share buyback the ratio is estimated at 196%.
- Solvency II debt leverage ratio[‡] of 31% (2021: 27%), and 30% on a pro forma basis for further debt reduction and pension scheme payment.
- Given our robust capital position, we are commencing a £300m share buyback programme immediately¹. Our preference remains to return surplus capital regularly and sustainably.

Continuing strong operating momentum

- Wealth proved resilient in challenging market conditions with net flows[†] of £9.1bn (2021: £10.0bn) benefitting from strong performance in Workplace which added 374 new schemes in the year.
- Annuities & Equity release sales⁶ were 21% lower at £6,238m (2021: £7,887m) with Solvency II OFG[†] up 34% to £524m (2021: £392m). The outlook for BPA volumes is positive and we are confident in meeting our £15-£20bn volume target over 2022-24.
- Protection & Health VNB[†] up 18% to £221m (2021: £188m) reflecting strong sales, improved margins and beneficial assumption changes, partly offset by the negative impact from higher interest rates.
- UK & Ireland General Insurance GWP, up 7% to £5,740m (2021: £5,352m), and COR[†] of 96.1% (2021: 94.3%). UK commercial lines performed strongly with GWP up 12% while personal lines was up 2% as we retained our pricing discipline amid adverse market conditions. We will continue to take the necessary actions to price appropriately for the inflationary environment in 2023.
- Canada GWP up 16% (9% at constant currency) to £4,009m (2021: £3,455m) and a COR[†] of 92.5% (2021: 90.7%). We saw excellent growth in both commercial and personal lines with GWP up 14% and 6% respectively at constant currency.
- Aviva Investors external net flows[†] remain positive despite challenging market conditions at £1.3bn (2021: £3.3bn).

Group financial performance

Cash and liquidity

General Insurance GWP	UK & Ireland Life VNB [†]	IFRS loss for the year	Cash remittances [†]	Centre liquidity [†]
£9.7bn	£767m	£(1,139)m	£1,845m	£2.2bn
+8% ⁷	+15%	(156)%	+11%	£(4.4)bn
2021 ² : £8.8bn	2021 ² : £668m	2021: profit £2,036m	2021 ² : £1,662m	Feb 22: £6.6bn

Outlook

Our positive momentum continued in 2022 with a strong set of results, and our diversified business model positions us well to navigate the current macroeconomic environment. This reinforces our confidence in the prospects, financial targets and outlook for the Group.

In UK & Ireland Life we expect higher BPA volumes in 2023 as a growing number of pension schemes look to de-risk. Our Wealth business remains positioned to grow, and while market conditions are challenging in the near-term in Adviser Platform, our Workplace business offers strong growth opportunities. We continue to expect good demand for Protection and Health products.

In General Insurance we will remain focused on pricing appropriately for the inflationary environment. In the UK, we expect to see continued momentum in commercial lines while we focus on growing our retail business in personal lines. In Canada, rates are expected to remain supportive in commercial lines along with personal property, while we continue to focus on managing rate in personal motor given the inflationary pressures, and growing our RBC partnership and direct business. Across General Insurance, we remain focused on meeting our <94%⁸ COR[†] ambition over time.

Aviva Investors continues to focus on improving efficiency across the business, and is taking actions to drive improvements. However, conditions are likely to remain challenging in 2023 given ongoing uncertainty in the macro environment and investment markets.

We are committed to delivering for our shareholders. We have set out a sustainable dividend policy, and expect to pay a dividend of c.£915 million for 2023, with low-to-mid single digit growth in the cash cost of the dividend thereafter.

Under our capital framework, surplus capital is available for reinvestment in the business, focused M&A and returns to shareholders. We have announced a share buyback today, and anticipate further regular and sustainable capital returns in the future⁹.

[†] Denotes Alternative Performance Measures (APMs) and further information can be found in the 'Other information' section | 1. Commencing on 10th March 2023 | 2. Comparatives presented are from continuing operations | 3. Solvency II cover ratio is the estimated Solvency II shareholder cover ratio at 31 December 2022 | 4. Operating profit represents Group adjusted operating profit which is a non-GAAP APM. Operating profit is not bound by the requirements of IFRS. Further details are included in the 'Other information' section. | 5. Baseline controllable costs exclude strategic investment, cost reduction implementation, IFRS 17 and other costs not included in the 2018 costs savings target baseline | 6. Sales refers to present value of new business premiums (PVNBP) in life or gross written premiums (GWP) in General Insurance | 7. Constant currency | 8. Based on IFRS 4 | 9. The Board has not approved or made any decision to pay any dividend in respect of any future period

Chief Executive's Overview

Overview

Aviva had an excellent 2022. We are making clear strategic progress and have delivered consistently strong results throughout the year.

Our combination of insurance, wealth and retirement brings clear benefits. Our capital position remains very solid and has proven its resilience in the face of market volatility. Importantly, we have also invested significantly in Aviva's future: improving customer experience, targeting growth and further reducing our costs.

The fact that we've achieved this despite a difficult economic and political backdrop, shows once more that our strategy is the right one and the diversified business model we have built is working.

I would like to thank all of my Aviva colleagues for their contribution to the 2022 results. In the face of a very challenging year, the team really delivered. Every single customer that chooses Aviva, every single life or business that we protect, every single claim that we handle well, is down to our people and their ability to deliver for our customers. So, a very big thank you to the Aviva team.

Significant momentum in 2022

This year's results underline Aviva's ability to grow. We have demonstrated consistent and reliable momentum through disciplined, profitable growth and tight cost control. Value of new business (VNB) is up 14%, gross written premiums are up 11%, and we have had over £9 billion of net flows into our Wealth business.

In Insurance, our Canadian business performed very well and is now number two by size in an attractive market. Commercial lines premiums were up 14%¹ across mid-market and GCS and Canadian personal lines delivered excellent growth in our key RBC partnership. In the UK we delivered growth of 13% in our GI Commercial SME business. Group protection grew 29%, and health premiums were up 14% driven by strong SME sales.

In Wealth, workplace net flows of £5.8 billion were up 14%, driven by strong retention and the inflationary impact on salaries. Our advisor platform business remained resilient with £3.8 billion of net flows, despite severe cost of living pressures. Aviva Investors delivered positive net flows of £1.3 billion with our external clients in an extremely volatile year and was ranked third in ShareAction's report on the responsible investment practices of 77 of the world's largest asset managers.

In our Retirement business we transacted on 50 BPA deals in 2022 for £4.4 billion of sales² at very strong margins. The BPA pipeline is positive and we announced an £850 million buy-in transaction with the Arcadia schemes in February 2023. External individual annuities sales were around 70% higher, as rising interest rates drive more attractive pricing for consumers, and equity release sales were up 17%.

Solvency II own funds generation increased by 37%, operating profit was 35% higher and we delivered a strong Group combined operating ratio (COR) of 94.6% despite the impact of inflation and adverse weather in the UK. The strength of our COR once more points to the benefits of the scale and diversification of our general insurance businesses in the UK, Ireland and Canada.

Cash remittances are up 11% to £1.8 billion in 2022 while costs were 3% lower. We have maintained our focus on cost discipline and efficiency, which is a strong performance given the significant inflationary backdrop.

These results are testament to the progress that we have made over the past two years in simplifying the business, building resilience, and further embedding a high performance culture across Aviva. And that performance underpins our confidence in the delivery of our targets.

We completed the return of £4.75 billion of capital to shareholders during 2022 and we have declared a final dividend of 20.7p, bringing the total dividend for the year to 31.0p, in line with our guidance.

We know how important a sustainable dividend is for our shareholders and our guidance of c.£915 million cash cost for 2023 remains unchanged. We have also announced an upgrade to our dividend guidance. We have strong confidence in our future performance, and in the outlook for sustainable growth in cash generation, and so we now expect to grow the cash cost of our dividend by low-to-mid single digits from 2024 onwards.

Under our capital framework, surplus capital is available for reinvestment in the business, focused M&A and returns to shareholders. The momentum and consistency in our performance, together with our capital strength allow us to deliver on our commitment of further capital returns, starting immediately with a £300 million share buyback programme. Our preference remains for regular and sustainable returns of surplus capital over time, in addition to the ordinary dividend.

Delivering the strategy is unlocking competitive advantage

Our plan and strategy to transform Aviva remains unchanged. We are utterly focused on executing against each of our four strategic priorities – customer, growth, efficiency, and sustainability – and this is unlocking the clear competitive advantages that come from Aviva's model: our customer base, our scale, and our diversification. In turn this is driving a higher quality and more consistent financial performance for our shareholders.

Meeting more of our customers' needs

The strategy starts with our 18.7 million customers. Almost 14% of the UK population are saving or retiring with Aviva. They are central to everything we do, and over the past year we have continued to deliver for them. In 2022 we paid £23.2 billion in claims, fulfilling our purpose to be with people in the crunch times when it really matters.

We want more customers to stay with us for longer, so we can look after more of their needs, brilliantly. And we are making good progress. This year we have won over 370 new Workplace schemes and customer numbers in the UK have grown to 15.5 million.

1. At constant currency | 2. References to sales represent present value of new business premiums (PVNBP) which is an Alternative Performance Measure (APM) and further information can be found in the 'Other information' section

We are investing to accelerate this advantage. To make it easier for our customers to buy from us, we are building an engaging mobile-led customer experience which will deliver more personalised interactions. And we can see that this investment is working. For example, improvements we made to the MyAviva pension digital journey have resulted in over £600 million of additional flows in 2022.

We are also investing in innovation to improve the products and services we can offer and are making it easier for customers to do business with us. For example, we are launching a new market-leading pension tracing and consolidation proposition which will be available for all Workplace and Direct customers.

Delivering on our ambitious growth plans

Our excellent performance is a result of our simpler, more focused business. We recognise the difficult economic environment we are operating in, with the cost of living crisis, high inflation and macro-economic uncertainty. But even in these challenging times, we are driving profitable growth right across Insurance, Wealth and Retirement. Each plays a critical role in our portfolio and we are not relying on any single business for our growth.

We also benefit from scale and diversification which underpin our profitable growth. We already enjoy a balanced portfolio with significant capital diversification benefits, lower earnings volatility, and resilient performance. And, as we continue to accelerate growth in Insurance and Wealth, we will maximise this benefit.

In Insurance, our ambition is above market growth and to achieve this we will continue expanding our Commercial and GCS capability in Canada and the UK. We will also build on our leading position in UK High Net Worth (HNW) following our acquisition of Azur's UK HNW personal lines business.

In Wealth, we are aiming for at least 10% growth in net flows. We have enhanced our master trust proposition and launched open banking functionality, furthering our market leadership in Workplace. We are now focused on building our direct wealth offering and an integrated wealth proposition. We also completed the acquisition of Succession Wealth in August and we moved quickly to enhance our proposition for customers and advisors with better service, a lower-cost Aviva platform, and award-winning investment solutions from Aviva Investors.

Finally, in Retirement we are continuing to invest in our BPA platform which went live to new customers in 2022, and we are expanding our adviser capabilities to support growth in Equity Release.

Delivering real efficiency gains

Running ourselves efficiently remains a non-negotiable and despite high inflation across our markets, we have delivered our 2022 target with a net cost¹ reduction of £327 million. This equates to £575 million gross of inflation. We are on track to deliver our £750 million gross cost reduction target by the end of 2024.

We have achieved this with simplified customer journeys, reduced property costs, outsourcing in Aviva Investors, streamlined IT and a reduced number of products. We have also significantly reduced costs at the Group centre.

All of this points to a new and permanent culture of operational efficiency that we are embedding across the group, to deliver our commitment of top quartile efficiency.

Leading in sustainability

On sustainability we continue to lead the pack on climate action, working towards our ambition to become Net Zero by 2040. We are ranked fifth amongst global insurers by Sustainalytics and our S&P Global rating improved – putting us in the 95th percentile.

We have donated £38 million to restore Britain's lost temperate rainforests as part of a broader £100 million programme to help address climate change through supporting biodiversity. On social action, we are stepping up our ambition to help regenerate communities, investing £25 billion in the UK economy over the next 10 years. And we are reinvesting 2% of our operating profits in communities every year.

Delivering Aviva's Promise

All the elements are clicking into place for Aviva to provide even more value for customers and shareholders. We have had an excellent year. We have delivered strong and resilient financial performance quarter by quarter. Our plan is working and our combination of Insurance, Wealth and Retirement brings clear benefits, as evidenced in our 2022 results.

We have leading positions in all chosen markets, high performing businesses, talented leaders, committed people and a formidable brand. We have the right strategy to unlock the unique advantages of our model and we are executing it. We generate an attractive and growing dividend and we are aiming for regular and sustainable capital returns alongside this.

Although we have delivered a lot, there is so much more to go after to satisfy our big ambitions. This year's performance shows that we can, and we will, deliver on Aviva's promise.

Amanda Blanc

Group Chief Executive Officer

8 March 2023

1. Baseline controllable costs exclude strategic investment, cost reduction implementation, IFRS 17 and other costs not included in the 2018 costs savings target baseline

Other operating highlights

UK & Ireland Life	<ul style="list-style-type: none">• Wealth – robust net flows of £9.1 billion (2021: £10.0 billion), good performance in challenging markets• Workplace pensions – >310,000 net new customers. Net flows up 14% to £5.8 billion• Adviser platform – #2¹ by net flows in the adviser platform market with net flows £3.8 billion• Annuities - BPA sales² of £4.4 billion with strong pipeline of opportunities looking into 2023• Equity release – sales² up 17% benefiting from strong demand and updates to our proposition• Protection & Health VNB up 18% – strong sales and margins achieved
UK General Insurance	<ul style="list-style-type: none">• UK commercial lines GWP up 12% to £2,931 million (2021: £2,609 million)• UK personal lines GWP up 2% up to £2,386 million (2021: £2,334 million). Pricing discipline maintained in the high inflation environment• Strong combined ratio of 96.1% (2021: 94.3%) given challenging market conditions in 2022
Canada	<ul style="list-style-type: none">• Canada commercial lines GWP up 22% to £1,543 million (2021: £1,268 million), up 14% in constant currency• Canada personal lines GWP up 13% to £2,466 million (2021: £2,187 million), up 6% in constant currency• Excellent combined ratio of 92.5% (2021: 90.7%) reflecting prudent underwriting and rate actions
Aviva Investors	<ul style="list-style-type: none">• Announced cost reduction initiatives including the transition of back-office operations to Bank of New York Mellon and a new scalable real assets model in partnership with HSBC with loan servicing outsourced to Mount Street

¹ Latest data available as at Q3 2022 (Fundscape) | ² References to sales represent present value of new business premiums (PVNBP) which is an Alternative Performance Measure (APM) and further information can be found in the 'Other information' section

Cash remittances ^{R,†} and Centre liquidity [‡]	2022 £m	2021 £m	Sterling % change			
UK, Ireland, Canada and Aviva Investors	1,826	1,651	11 %			
International investments ¹	19	11	73 %			
Cash remittances [‡] from continuing operations	1,845	1,662	11 %			
Centre liquidity [‡] as at February 2023 and February 2022	2,220	6,644	(67)%			
Profit	2022 £m	2021 £m	Sterling % change			
UK, Ireland, Canada and Aviva Investors	2,704	2,231	21 %			
International investments ¹	52	97	(46)%			
Corporate centre costs and Other operations	(297)	(379)	22 %			
Group debt costs and other interest	(246)	(315)	22 %			
Adjusted operating profit from continuing operations ^{R,†,2}	2,213	1,634	35 %			
IFRS (loss)/profit for the year ³	(1,139)	2,036	(156)%			
Operating earnings per share (as reported) from continuing operations ^{R,†,4}	59.8 p	32.5 p	84 %			
Operating earnings per share (normalised) ^{†,4,5}	66.8 p	N/A	N/A			
Basic earnings per share	(38.2)p	50.1 p	(176)%			
Controllable costs [‡]	2022 £m	2021 £m	Sterling % change			
UK, Ireland, Canada and Aviva Investors	2,537	2,559	(1)%			
Corporate centre costs and Other operations	234	295	(21)%			
Baseline controllable costs ⁶	2,771	2,854	(3)%			
Cost reduction implementation, IFRS 17 costs and other	287	242	19 %			
Strategic investment	94	—	100 %			
Controllable costs [‡] from continuing operations	3,152	3,096	2 %			
Solvency II operating own funds generation (OFG) ^{R,†} and Solvency II operating capital generation (OCG) [‡]	Solvency II operating own funds generation ^{R,†}			Solvency II operating capital generation [‡]		
	2022 £m	2021 £m	Sterling % change	2022 £m	2021 £m	Sterling % change
UK, Ireland, Canada and Aviva Investors	2,010	1,660	21 %	1,710	1,906	(10)%
International investments ¹	106	124	(15)%	34	55	(38)%
Corporate centre costs, Group external debt costs and Other	(493)	(597)	17 %	(310)	(597)	48 %
Group Solvency II operating own funds generation ^{R,†} and Solvency II operating capital generation [‡] from continuing operations	1,623	1,187	37 %	1,434	1,364	5 %
Solvency II return on capital/equity ^{R,†}	2022 %	2021 %	Change			
Solvency II return on capital						
UK, Ireland, Canada and Aviva Investors	11.3 %	8.8 %	2.5 pp			
International investments ¹	10.8 %	13.6 %	(2.8)pp			
Group Solvency II return on equity ^{R,†} on a continuing basis	16.4 %	10.7 %	5.7 pp			
Capital position	31 December 2022	31 December 2021	Change			
Estimated Solvency II shareholder cover ratio ^{R,†}	212 %	244 %	(32)pp			
Estimated Solvency II surplus	£8.7bn	£13.1bn	(34)%			
Solvency II net asset value per share [‡]	390p	417p	(27)p			
Solvency II debt leverage ratio [‡]	31 %	27 %	4 pp			
Dividend	2022	2021	Sterling % change			
Interim dividend per share	10.3p	7.35p	40 %			
Final dividend per share	20.70p	14.70p	41 %			
Total dividend per share	31.00p	22.05p	41 %			

R Symbol denotes key performance indicators used as a base to determine or modify remuneration | ‡ Denotes Alternative Performance Measures (APMs) and further information can be found in the 'Other information' section | 1. International investments comprise our investments in India, China and Singapore | 2. Group adjusted operating profit is a non-GAAP APM and is not bound by the requirements of IFRS. Further details of this measure are included in the 'Other information' section. | 3. IFRS (loss)/profit for the year represents IFRS (loss)/profit after tax and in 2021, includes discontinued operations | 4. Operating earnings per share is derived from the Group adjusted operating profit APM. Further details of this measure are included in the 'Other information' section. | 5. Normalised EPS is calculated as if the share consolidation completed on 16 May 2022 as part of the £3.75 billion capital return, had taken place on 1 January 2022 | 6. Baseline controllable costs exclude strategic investment, cost reduction implementation, IFRS 17 and other costs not included in the 2018 cost savings target baseline

Group financial headlines

Operating results

Cash remittances

Cash remittances were up 11% to £1,845 million (2021¹: £1,662 million). UK & Ireland Life remittances were lower in 2022 however this was more than offset by UK & Ireland General Insurance and Canada, demonstrating the benefits of our diversified business model. We are on track to deliver our cash remittance target of >£5.4 billion over 2022-24.

Performance

Operating profit² increased by 35% to £2,213 million (2021¹: £1,634 million). Excluding UK Life management actions and other of £278 million (2021: £77 million), operating profit² was up 24% to £1,935 million (2021: £1,557 million).

UK & Ireland Life operating profit² was up 34% with strong performance in Retirement (Annuities & Equity Release) driven by improved margins, earnings growth on the in-force book and other favourable experience. Operating profit² in Wealth was lower in 2022 while Protection & Health was flat. Heritage profits grew in the period, reflecting the impact of market movements on policyholder tax.

General Insurance operating profit² was up 1% to £771 million (2021¹: £762 million) reflecting strong performance in Canada partly offset by lower profits in UK & Ireland. The UK, Ireland and Canada all saw a return to more normal claims frequency, and benefited from improved LTIR returns from higher reinvestment yields. Importantly, the Group has managed the inflationary environment well, and continues to remain vigilant in this regard.

We manage the business on a Solvency II basis and our hedging strategy, which reduces volatility from economic and market fluctuations, is focused on protecting the Solvency II capital position and securing our ability to pay dividends. This approach introduces IFRS volatility from the movement in the fair-value of assets which are held for the long term to back liabilities and capital requirements. During 2022 our IFRS results were adversely impacted by rising interest rates which reduced the fair value of these assets. As we focus on the Solvency II capital position, we accept variability in the IFRS results. The IFRS loss for the year was £(1,139) million (2021: profit of £2,036 million) while basic earnings per share decreased to (38.2) pence (2021: 50.1 pence). Higher operating profit was more than offset by these economic and market movements.

Cost reduction

Baseline controllable costs³ from continuing operations, fell by 3% to £2,771 million (2021: £2,854 million) despite headwinds from inflation. Since 2018 we have achieved £327 million of savings net of inflation, ahead of target. We are on track to meet our ambition of £750 million (gross of inflation) cost reduction from the 2018 baseline by the end of 2024.

Solvency II operating own funds generation (Solvency II OFG)

Solvency II OFG, a key measure of growth, increased by 37% to £1,623 million (2021¹: £1,187 million) driven primarily by strong growth in UK Life, which benefited from growth in Retirement, Wealth, and management actions and other. Solvency II OFG in UK & Ireland General Insurance and Canada was marginally lower in 2022, a good performance given the inflationary backdrop and the return to more normal levels of claims frequency in 2022. Solvency II OFG also benefited from lower central costs and external debt costs as a result of our simplification and deleveraging programme. Solvency II OFG excluding management actions and other was up 15% in 2022.

We are on track to exceed our target of £1.5 billion p.a. by 2024, a target which assumes a lower contribution from management actions & other than seen in 2022.

Solvency II operating capital generation (Solvency II OCG)

Solvency II OCG increased by 5% to £1,434 million (2021¹: £1,364 million) driven primarily by growth in UK & Ireland Life, partly offset by adverse impacts from the latest reinsurance renewal across our General Insurance business.

Solvency II return on equity (Solvency II RoE)

Solvency II RoE was 16.4%, improving by 5.7pp (2021: 10.7%), primarily reflecting the increase in Solvency II OFG and lower 2022 opening capital driven by higher interest rates in 2021.

1. Comparatives presented are from continuing operations. | 2. Operating profit represents Group adjusted operating profit which is a non-GAAP APM. Operating profit is not bound by the requirements of IFRS. Further details are included in the 'Other information' section

Business performance

UK & Ireland Life

UK & Ireland Life operating profit¹ increased by 34% to £1,908 million (2021: £1,428 million) driven by strong margins in Retirement, strong performance in Ireland Life, the impact of market movements on policyholder tax in Heritage, and a higher contribution from management actions and other, partly offset by Wealth where revenue was adversely impacted by market volatility.

Solvency II OFG increased by 44% to £1,368 million (2021: £953 million) driven by Retirement, Wealth, and a higher contribution from Other, partly offset by Protection & Health and Heritage. Cash remittances were £780 million (2021: £1,219 million) reflecting the deferral of a dividend payment into 2023 amid market volatility during the second half of 2022.

VNB increased by 15% to £767 million (2021: £668 million) driven by improved margins across all lines of business. Sales² were 7% lower at £33.3 billion (2021: £35.6 billion) reflecting lower BPA volumes of £4.4 billion (2021: £6.2 billion) and the impact of higher discounting of future premiums in Wealth and Protection & Health as a result of higher interest rates.

Wealth net flows were resilient at £9.1 billion (2021: £10.0 billion) driven by strong performance in Workplace offset by Platform which remained robust in the face of market volatility.

Baseline controllable costs³ decreased by 1% to £1,093 million (2021: £1,102 million).

UK & Ireland General Insurance

UK & Ireland General Insurance operating profit¹ was 5% lower at £338 million (2021: £356 million) reflecting a return to more normal claims frequency partly offset by higher investment returns, while we have mitigated the impact of rising inflation through pricing discipline. UK & Ireland COR was 96.1% (2021: 94.3%), a strong result given the challenging conditions in 2022.

Solvency II OFG was 14% lower at £293 million (2021: £339 million), with the lower result primarily reflecting a return to more normal claims frequency. Cash remittances increased 180% to £731 million (2021: £261 million), reflecting both the cash generated from the operations as well as surplus capital in excess of local risk appetite.

GWP increased 7% to £5,740 million (2021: £5,352 million). UK commercial lines was up 12% driven by strong retention, new business growth and increased rates. UK personal lines was up 2% as we focused on pricing discipline amid adverse conditions, while we benefited from our strengths in price comparison websites and from the launch of Aviva Zero.

Baseline controllable costs³ reduced 1% to £703 million (2021: £713 million) despite the inflationary environment, and while continuing to grow the business.

Canada

Canada operating profit¹ increased 6% to £433 million (2021: £406 million) and was flat in constant currency. A lower underwriting result, driven by increased claims frequency and the impact of inflation was offset by improved investment returns. The combined operating ratio was 92.5% (2021: 90.7%). This is a strong performance in 2022 given challenging conditions and reflects our focus on prudent underwriting and rate actions.

Solvency II OFG was 2% lower at £325 million (2021: £332 million) reflecting inflationary impacts and increased claims frequency. Cash remittances grew strongly to £287 million (2021: £156 million), with higher remittances partly reflecting the payment of surplus capital in excess of local risk appetite.

GWP of £4,009 million (2021: £3,455 million) was up 9% on a constant currency basis. Personal lines was up 6% in constant currency reflecting higher rate in Ontario motor and growth in our direct business. Commercial lines was up 14%⁴ reflecting the favourable rate environment as well as strong growth in mid-market and large corporate accounts.

Baseline controllable costs³ increased 3% on a constant currency basis to £410 million (2021: £399 million) as we invest in our core capabilities and our digital direct business.

Aviva Investors

Aviva Investors operating profit¹ decreased to £25 million (2021: £41 million), or £48 million (2021: £58 million) excluding cost reduction implementation, strategic investment costs and impact of foreign exchange movements. Revenues were 6% lower at £379 million (2021: £403 million) reflecting the impact of weak investment markets on average AUM, with the most significant impact on credit.

Solvency II OFG was £24 million (2021: £36 million) while cash remittances increased to £28 million (2021: £15 million).

Net outflows improved to £(3.8) billion (2021: £(4.6) billion), of which £(3.9) billion related to strategic actions, mainly from the sale of France. External net flows were resilient in light of difficult market conditions at £1.3 billion (2021: £3.3 billion).

Baseline controllable costs³ were 4% lower at £331 million (2021: £345 million).

International investments

Operating profit¹ was £52 million (2021: £97 million) and SII OFG was £106 million (2021: £124 million), with the lower operating performance primarily due to a one-off property charge. PVNBP was 3% lower in constant currency at £1,172 million (2021: £1,122 million) and up 5% at reported FX.

Cash remittances increased to £19 million (2021: £11 million) benefiting from an increased dividend pay-out ratio agreed with our partner in China.

See section 6 (Our business review) for more detailed information on business performance

1. Operating profit represents Group adjusted operating profit which is a non-GAAP APM. Operating profit is not bound by the requirements of IFRS. Further details are included in the 'Other information' section. | 2. References to sales represent present value of new business premiums (PVNBP) which is an Alternative Performance Measure (APM) and further information can be found in the 'Other information' section | 3. Baseline controllable costs exclude strategic investment, cost reduction implementation, IFRS 17 and other costs not included in the 2018 costs savings target baseline | 4. At constant currency

Capital and cash

Solvency II capital

At 31 December 2022, Aviva's Solvency II shareholder surplus was £8.7 billion and estimated Solvency II shareholder cover ratio was 212% (2021: £13.1 billion and 244% respectively). Our pro forma Solvency II shareholder cover ratio allowing for the remaining debt reduction and £(0.1) billion pension scheme payment, is estimated at 207%.

After allowing for the payment of the final dividend and £300 million share buyback, the ratio is estimated to be 196%.

The solvency capital requirement of £7.8 billion includes a £2.1 billion benefit from Group diversification.

Solvency II net asset value per share was 390 pence (2021: 417 pence).

Solvency II shareholder position ¹ £bn unless otherwise stated	31 December 2021	31 December 2022	Pro forma ² adjustments	Pro forma	£300m buyback and dividend	Adjusted pro forma
Own funds	22.2	16.5	(0.4)	16.1	(0.9)	15.2
SCR	(9.1)	(7.8)	—	(7.8)	—	(7.8)
Surplus	13.1	8.7	(0.4)	8.3	(0.9)	7.5
Solvency II shareholder cover ratio (%)	244 %	212 %	(5)%	207 %	(11)%	196 %

Centre liquidity

At end February 2023, centre liquidity was £2.2 billion (end February 2022: £6.6 billion) with the reduction primarily driven by the £3.75 billion capital return, £0.5 billion subordinated debt redemption, ordinary dividends of £0.8 billion and centre and debt costs of £0.8 billion, partly offset by cash remittances of £1.8 billion.

Solvency II debt leverage

Solvency II debt leverage ratio increased to 31% (2021: 27%) primarily as a result of the reduction in own funds following the capital return. Our pro forma Solvency II debt leverage ratio is 30% after allowing for the planned £0.5 billion debt reduction² and the £0.1 billion pension payment.

Dividend

Today we have announced a final dividend per share for 2022 of 20.7 pence (2021: 14.7 pence). Together with an interim dividend of 10.3 pence (2021: 7.35 pence) this bring total dividends for the year to 31.0 pence (2021: 22.05 pence) with a cash cost of c.£870 million.

Our guidance for 2023 is for a dividend payment of c.£915 million⁴. We anticipate low-to-mid single digit growth in the cash cost of ordinary dividends thereafter.

Share buyback

Under our capital framework, surplus capital is available for reinvestment in the business, focused M&A and returns to shareholders.

Given our strong capital position and prospects, today we are announcing the launch of a £300 million share buyback programme, commencing immediately. Our preference remains to return surplus capital regularly and sustainably. This builds on the £4.75 billion capital return programme completed in 2022.

Shareholder asset portfolio

Aviva's high quality shareholder asset portfolio of £78.4 billion at 31 December 2022 continues to perform well and is defensively positioned.

Shareholder asset exposure to equities, emerging market sovereigns, and European peripherals is low.

Corporate bonds represent £21.6 billion or 27.6% of the portfolio. Of this 87% is externally rated investment grade and 13% internally rated. Aviva has a long history in private debt, with a robust internal rating model, and these internally rated assets have an average rating of 'single A' quality.

The corporate bond portfolio continues to perform well with <£150 million downgraded to a lower letter in 2022, and no corporate bond downgrades below investment grade.

Our commercial mortgage portfolio of £6.0 billion comprises largely long-duration fixed rate contracts with low average loan-to-value (LTV) ratios of c.49%.

Our securitised mortgage loans and equity release portfolio of £9.5 billion is mostly internally securitised with low average LTVs of c.28%.

¹ Rounding differences apply | ² Solvency II pro forma shareholder cover ratio is the estimated Solvency II shareholder cover ratio at 31 December 2022 adjusted for £0.5 billion further debt reduction³ and pension scheme payment | ³ Which we now expect to incorporate a combination of subordinated and senior debt | ⁴ The Board has not approved or made any decision to pay any dividend in respect of any future period

Notes to editors

- All figures have been retranslated at average exchange rates applying for the period, with the exception of the capital position which is translated at the closing rates on 31 December 2022. The average rates employed in this announcement are 1 euro = £0.85 (12 months to 31 December 2021: 1 euro = £0.86) and CAD\$1 = £0.62 (12 months to 31 December 2021: CAD\$1 = £0.58). Where percentage movements are quoted on a constant currency basis, this is calculated by applying year to date average exchange rates to prior period.
- 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.
- All percentages, including currency movements, are calculated on unrounded numbers so minor rounding differences may exist.
- 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 and Solvency II. A complete list and further guidance in respect of the APMs used by the Group can be found in the 'Other information' section.
- We are one of the UK's leading Insurance, Wealth & Retirement businesses and we operate in the UK, Ireland and Canada. We also have international investments in India, China and Singapore.
- We help our 18.7 million customers make the most out of life, plan for the future, and have the confidence that if things go wrong we'll be there to put it right.
- We have been taking care of people for 325 years, in line with our purpose of being 'with you today, for a better tomorrow'. In 2022, we paid £23.2 billion in claims and benefits to our customers.
- Aviva is a market leader in sustainability. In 2021, we announced our plan to become Net Zero by 2040, the first major insurance company in the world to do so. This plan means Net Zero carbon emissions from our investments by 2040; setting out a clear pathway to get there with a cut of 25% in the carbon intensity of our investments by 2025 and of 60% by 2030; and Net Zero carbon emissions from our own operations and supply chain by 2030. Find out more about our climate goals at www.aviva.com/climate-goals and our sustainability ambition and action at www.aviva.com/sustainability
- Aviva is a Living Wage and Living Hours employer and provides market-leading benefits for our people, including flexible working, paid carers leave and equal parental leave. Find out more at www.aviva.com/about-us/our-people
- As at 31 December 2022, total Group assets under management at Aviva Group are £352 billion and our Estimated Solvency II shareholder surplus is £8.7 billion. Our shares are listed on the London Stock Exchange and we are a member of the FTSE 100 index.
- For more details on what we do, our business and how we help our customers, visit www.aviva.com/about-us

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Cautionary statement

This document 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 (including, without limitation, climate-related plans and goals). Statements containing the words 'believes', 'intends', 'expects', 'projects', 'plans', 'will', 'seeks', 'aims', 'may', 'could', 'outlook', 'likely', 'target', 'goal', 'guidance', 'trends', 'future', 'estimates', 'potential', 'objective', 'predicts', 'ambition' 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 uncertain conditions in the global financial markets and the national and international political and economic situation generally (including those arising from the Russia-Ukraine conflict); market developments and government actions (including those arising from the evolving relationship between the UK and the EU); 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; reduce the value or yield of our investment 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 (including the longer-term impact of COVID-19) on our business activities and results of operations; the transitional, litigation and physical risks associated with climate change; failure to understand and respond effectively to the risks associated with environmental, social or governance ('ESG') factors; our reliance on information and technology and third-party service providers for our operations and systems; the impact of the Group's risk mitigation strategies proving less effective than anticipated, including the inability of reinsurers to meet obligations or unavailability of reinsurance coverage; poor investment performance of the Group's asset management business; the withdrawal by customers at short notice of assets under the Group's management; failure to manage risks in operating securities lending of Group and third-party client assets; increased competition in the UK and in other countries where we have significant operations; regulatory approval of changes to the Group's internal model for calculation of regulatory capital under the UK's version of 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 and malicious acts (including cyber attack and theft, loss or misuse of customer data); 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 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 tax laws and interpretation of existing tax laws in jurisdictions where we conduct business; changes to International Financial Reporting Standards relevant to insurance companies and their interpretation (for example, IFRS 17); the inability to protect our intellectual property; the effect of undisclosed liabilities, separation issues and other risks associated with our business disposals; and other uncertainties, such as diversion of management attention and other resources, 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, Canada or elsewhere, including changes to and the implementation of key legislation and regulation (for example, FCA Consumer Duty and Solvency II). Please see Aviva's most recent Annual Report and Accounts for further details of risks, uncertainties and other factors relevant to the business and its securities.

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 report are current only as of the date on which such statements are made. The climate metrics used in this document should be treated with special caution, as they are more uncertain than, for example, historical financial information and given the wider uncertainty around the evolution and impact of climate change. Climate metrics include estimates of historical emissions and historical climate change and forward-looking climate metrics (such as ambitions, targets, climate scenarios and climate projections and forecasts). Our understanding of climate change and its impact continue to evolve. Accordingly, both historical and forward-looking climate metrics are inherently uncertain and, therefore, less decision-useful than metrics based on historical financial statements.

This report has been prepared for, and only for, the members of the Company, as a body, and no other persons. The Company, its directors, employees, agents or advisers do not accept or assume responsibility to any other person to who this document is shown or into whose hands it may come, and any such responsibility or liability is expressly disclaimed

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As a reminder

Our 2022 financial statements are included within the Aviva plc Annual Report and Accounts 2022, which are available on the Company's website, at <https://www.aviva.com/investors/reports/>.

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 and Solvency II. Further guidance in respect of the APMs used by the Group, including a reconciliation to the financial statements (where possible), can be found in the Other Information section.

The financial performance of our key businesses are presented as UK & Ireland Life, General Insurance (incorporating UK & Ireland and Canada) and Aviva Investors. Our International businesses are presented as International investments (consisting of India, China and Singapore).

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

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

1 – Profit and earnings per share

	Note	2022 £m	2021 £m
UK & Ireland Life		1,908	1,428
UK & Ireland General Insurance		338	356
Canada		433	406
Aviva Investors		25	41
UK, Ireland, Canada and Aviva Investors		2,704	2,231
International investments		52	97
Corporate centre costs and Other operations	A2	(297)	(379)
Group debt costs and other interest	A3	(246)	(315)
Operating profit from continuing operations		2,213	1,634
Discontinued operations		—	631
Operating profit		2,213	2,265
Tax attributable to shareholders' profit		(289)	(470)
Non-controlling interests		(21)	(71)
Preference dividends and other		(34)	(17)
Operating profit attributable to ordinary shareholders		1,869	1,707
Operating earnings per share (as reported)		59.8p	43.8p
Operating earnings per share (normalised)¹		66.8p	N/A
IFRS (loss)/profit for the year²		(1,139)	2,036
Basic earnings per share		(38.2)p	50.1p

1. Normalised earnings per share (EPS) is calculated as if the share consolidation completed on 16 May 2022, as part of the £3.75 billion capital return, had taken place on 1 January 2022.

2. See note A1 for the reconciliation of Group adjusted operating profit to IFRS (loss)/profit for the year.

Operating profit from continuing operations increased by 35% to £2,213 million (2021: £1,634 million). UK, Ireland, Canada and Aviva Investors operating profit increased by 21% to £2,704 million (2021: £2,231 million) with strong performance from our UK & Ireland Life and Canada businesses, partially offset by lower operating profit in UK & Ireland General Insurance and Aviva Investors.

UK & Ireland Life operating profit increased by 34% to £1,908 million (2021: £1,428 million), mainly driven by improved performance in Annuities & Equity Release, beneficial longevity assumption changes and improved performance within Ireland Life. This was partially offset by an unfavourable impact of the reduction in the carrying value of deferred acquisition costs which was driven by market movements as well as reduced operating profit in Wealth reflecting the impact of market volatility during 2022 on fee income.

UK & Ireland General Insurance operating profit decreased by 5% to £338 million (2021: £356 million). The UK saw a return to normal claims frequency and higher weather costs compared to a benign 2021, while also experiencing rising inflation. The impact of these factors was partly offset by increased investment returns. Commercial lines continues to grow market share through profitable new business growth and strong rate momentum, and personal lines continues to maintain pricing discipline.

In Canada, operating profit increased by 6% to £433 million (2021: £406 million). On a constant currency basis, operating profit was broadly in line with the prior year as a lower underwriting result was offset by increased investment returns. Favourable prior year reserve development, lower commissions, reduced weather-related catastrophe losses, and the impact of our continued actions around pricing, indemnity management and risk selection were offset by increased claims frequency resulting from changes in driving behaviour, and heightened claims severity including the impact of inflation.

Aviva Investors operating profit decreased to £25 million (2021: £41 million), or £48 million (2021: £58 million) excluding cost reduction implementation, strategic investment costs and foreign exchange movements. These results are driven by a bigger impact of cost reduction initiatives which included the transition of operations to Bank of New York Mellon and a new scalable real assets operating model with loan servicing successfully outsourced to Mount Street.

International investments operating profit decreased to £52 million (2021: £97 million) mainly as a result of a one-off property charge.

On 2 March 2022, Aviva announced a further capital return of £3.75 billion via a B Share Scheme which completed on 16 May 2022. During the year the share consolidation has resulted in a reduction of 884,957,280 shares. If the share consolidation had taken place on 1 January 2022, this would have resulted in normalised operating earnings per share of 66.8 pence for 2022.

We manage the business on a Solvency II basis and our hedging strategy, which reduces volatility from economic and market fluctuations, is focused on protecting the Solvency II capital position and securing our ability to pay dividends. This approach introduces IFRS volatility from the movement in the fair-value of assets which are held for the long term to back liabilities and capital requirements. During 2022 our IFRS results were adversely impacted by rising interest rates which reduced the fair value of these assets. As we focus on the Solvency II capital position, we accept variability in the IFRS results. IFRS loss for the year is £(1,139) million (2021: profit of £2,036 million including discontinued operations) and basic earnings per share is (38.2) pence (2021: 50.1 pence from continuing and discontinued operations). This reflects the adverse impact of £2,387 million (2021: adverse impact of £805 million) from investment variances and economic assumption changes, primarily driven by the significant increase in UK interest rates which resulted in unrealised losses on fixed-income assets supporting our long-term liabilities. In addition, our general insurance business recognised short-term fluctuation losses of £1,375 million (2021: loss of £149 million), mainly driven by falls in the value of fixed income securities in the UK and Canada. Furthermore, 2022 includes no significant disposals or remeasurements of subsidiaries, joint ventures and associates in the year (2021: profit of £1,572 million). See notes A4, A5 and A9 for further information.

2 – Cash and Centre liquidity

2.i – Cash remittances

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

	2022 £m	2021 £m
UK & Ireland Life ^{1,2}	780	1,219
UK & Ireland General Insurance ^{1,2}	731	261
Canada ^{1,2}	287	156
Aviva Investors	28	15
UK, Ireland, Canada and Aviva Investors	1,826	1,651
International investments	19	11
Cash remittances from continuing operations	1,845	1,662
Discontinued operations ¹ and Other	—	237
Total	1,845	1,899

1. 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.

2. In 2022 a review was undertaken of the basis of allocation of remittances from Aviva's internal reinsurance vehicle. From April 2022, remittances are allocated to businesses using an aggregate capital basis, previously remittances were allocated on a first in, first out basis.

Cash remittances from our continuing operations increased by 11% to £1,845 million (2021: £1,662 million). Amid market volatility following the UK mini-budget, we made the decision to defer a remittance from UK & Ireland Life and accelerated remittances from UK & Ireland General Insurance and Canada.

2.ii – Centre liquidity

Centre liquidity comprises cash and liquid assets. Excess centre cash flow represents cash remitted by our businesses 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 or invest back into our businesses.

	2022 £m	2021 £m
Cash remittances from continuing operations	1,845	1,662
External interest paid	(355)	(388)
Internal interest paid	(30)	(40)
Central spend	(397)	(432)
Other operating cash flows ¹	88	62
Excess centre cash inflow from continuing operations	1,151	864
Cash remittances from discontinued operations	—	237
Excess centre cash inflow	1,151	1,101
Ordinary dividend	(828)	(841)
Net reduction in borrowings	(419)	(2,035)
External disposal proceeds	—	6,150
Share buyback	(147)	(853)
Capital return via B share scheme	(3,750)	—
Net reduction/(increase) in internal borrowings	500	(708)
Other non-operating cash flows ²	(931)	(255)
Movement in centre liquidity	(4,424)	2,559
Centre liquidity as at end of February 2023 and 2022 respectively	2,220	6,644

1. Other operating cash flows include group tax relief receipts.

2. Other non-operating cash flows include capital injections, other investment cash flows and transaction costs paid on disposals and includes a £75 million payment relating to our staff pension scheme.

Centre liquidity as at end of February 2023 is £2,220 million (February 2022: £6,644 million), with the decrease primarily driven by the £3,750 million capital return and £147 million of shares purchased in buyback from 1 March 2022. In addition centre liquidity has reduced by ordinary dividends to external shareholders of £828 million offset by cash remittances of £1,845 million. Net reduction in borrowings includes the redemption of the Group's 8.250% £500 million Tier 2 subordinated notes that reached their final maturity date on 21 April 2022, a £500 million final repayment on the Group's £800 million subordinated debt which matured on 20 September 2022, offset by £500 million of 6.875% fixed rate reset perpetual Restricted Tier 1 contingent convertible notes issued by the Group on 15 June 2022. Net reduction of internal borrowings of £500 million represents the repayment of an internal loan. A capital contribution to a subsidiary entity of £500 million made to facilitate the repayment of the external debt is included within other non-operating cash flows.

3 – Controllable costs

	2022 £m	2021 £m
Baseline controllable costs ¹		
UK & Ireland Life	1,093	1,102
UK & Ireland General Insurance	703	713
Canada	410	399
Aviva Investors	331	345
UK, Ireland, Canada and Aviva Investors	2,537	2,559
Corporate centre costs and Other operations ³	234	295
Baseline controllable costs from continuing operations	2,771	2,854
Cost reduction implementation, IFRS 17 costs and other ^{2,3}	287	242
Strategic investment	94	—
Continuing operations	3,152	3,096
Discontinued operations	—	590
Group controllable costs	3,152	3,686

1. Baseline controllable costs are controllable costs included in the scope of the 2018 cost savings target baseline.

2. 'Other' includes costs relating to recently acquired entities, non-insurance operations relating to Europe and Asia and the impact of foreign exchange movements which were not included in the 2018 cost savings target baseline.

3. Following a review of the presentation of controllable costs, comparative amounts have been amended to reclassify foreign exchange rate movements and amounts relating to non-insurance operations relating to Europe and Asia from 'other operations' into 'other' as these amounts were not included in the 2018 cost savings target baseline (£2,856 million group controllable costs excluding cost reduction implementation and IFRS 17 previously published).

Baseline controllable costs from continuing operations have reduced by £83 million to £2,771 million (2021: £2,854 million), despite inflationary headwinds. This reflects our relentless focus on operating efficiency, with the decrease driven by planned savings mainly due to lower staff costs, lower property costs, and other operational savings.

The reduction in baseline controllable costs in UK & Ireland Life reflects the continued progress on cost savings targets and delivery of targeted efficiencies. Costs attributable to the UK & Ireland General Insurance business have decreased as a result of ongoing cost reduction actions. Costs incurred in Canada have increased due to additional investment in external marketing to drive the growth ambition in Digital Direct business, offsetting savings in other operational activities. The decrease in Aviva Investors reflects continued focus on cost reduction actions and streamlining of the business. Corporate centre costs and Other operations have reduced by £61 million, reflecting the Group's focus on driving down costs at the centre.

4 – Solvency II performance

4.i – Solvency II operating own funds generation

Solvency II operating own funds generation is used by the Group to assess sustainable growth.

	Solvency II operating own funds generation				
	Impact of new business (life) £m	Earnings from existing business (life) £m	Non-life capital generation £m	Management actions and other ¹ £m	Total £m
2022					
UK & Ireland Life	390	400	—	578	1,368
UK & Ireland General Insurance	—	—	260	33	293
Canada	—	—	305	20	325
Aviva Investors	—	—	24	—	24
UK, Ireland, Canada and Aviva Investors	390	400	589	631	2,010
International investments	67	75	—	(36)	106
Corporate centre costs and Other	—	—	(281)	2	(279)
Group external debt costs	—	—	(214)	—	(214)
Solvency II operating own funds generation	457	475	94	597	1,623

1. Management actions and other includes the impact of capital actions, non-economic assumption changes and other non-recurring items.

	Solvency II operating own funds generation				
	Impact of new business (life) £m	Earnings from existing business (life) £m	Non-life capital generation £m	Management actions and other ¹ £m	Total £m
2021					
UK & Ireland Life	360	314	—	279	953
UK & Ireland General Insurance	—	—	330	9	339
Canada	—	—	326	6	332
Aviva Investors	—	—	36	—	36
UK, Ireland, Canada and Aviva Investors	360	314	692	294	1,660
International investments	63	62	—	(1)	124
Corporate centre costs and Other	—	(3)	(340)	1	(342)
Group external debt costs	—	—	(255)	—	(255)
Continuing operations	423	373	97	294	1,187
Discontinued operations	90	321	45	2	458
Solvency II operating own funds generation	513	694	142	296	1,645

1. Management actions and other includes the impact of capital actions, non-economic assumption changes and other non-recurring items.

Solvency II operating own funds generation from continuing operations has increased by £436 million to £1,623 million (2021: £1,187 million).

In the UK & Ireland Life businesses, Solvency II operating own funds generation has increased by £415 million to £1,368 million (2021: £953 million) due to existing business improvements in BPAs and Wealth as well as the beneficial impact of longevity and expense assumption changes.

In the UK & Ireland General Insurance businesses and Canada, Solvency II operating own funds generation has decreased marginally by £53 million to £618 million (2021: £671 million), reflecting a strong performance given the inflationary backdrop, non-recurrence of COVID-19 frequency benefits and the general insurance catastrophe reinsurance renewal market. The strong performance was driven by retention and new business growth in commercial lines, lower expenses in UK personal lines and higher expected investment returns.

Solvency II operating own funds generation has benefitted from a reduction in corporate centre costs and other, £(279) million in 2022 (2021: £(342) million) and Group external debt costs, £(214) million in 2022 (2021: £(255) million). This is primarily as a result of lower project spend and debt reduction over 2021 and 2022.

4.ii – Solvency II return on capital/equity

Solvency II return on capital/equity measures return generated on shareholder capital at our business level and Group level and is used by the Group to assess performance, as we look to deliver long-term value for our shareholders.

2022	Solvency II OFG (post TMTP adjustment) £m	Opening own funds £m	Solvency II return on capital %
Business Solvency II return on capital			
UK & Ireland Life	1,432	13,830	10.4 %
UK & Ireland General Insurance ¹	293	2,339	12.5 %
Canada	325	1,746	18.6 %
Aviva Investors	24	400	6.0 %
UK, Ireland, Canada and Aviva Investors	2,074	18,315	11.3 %
International investments	106	982	10.8 %

2022	Solvency II OFG (post TMTP adjustment) £m	Opening own funds ² £m	Solvency II return on equity %
Group Solvency II return on equity			
Group Solvency II return on equity	1,621	9,884	16.4 %
Group Solvency II return on equity (excluding UK Life Heritage business) ³	1,606	8,445	19.0 %

- For UK General Insurance only, capital held for internal risk appetite purposes is used instead of opening shareholder Solvency II own funds to ensure consistency in measuring performance across businesses. This is only applicable to UK General Insurance Solvency II return on capital and not to the aggregated Group Solvency II return on equity measure.
- Opening own funds for Group Solvency II return on equity reflects opening unrestricted tier 1 shareholder Solvency II own funds adjusted to exclude excess capital above our target Solvency II shareholder cover ratio.
- Group Solvency II return on equity (excluding UK Life Heritage business) has been calculated on a consistent basis to Group Solvency II RoE except that an adjustment is made to remove the contribution of UK Life Heritage business from the numerator and the denominator. For Solvency II OFG for UK Life Heritage see note 6.i. When calculating opening unrestricted tier 1 shareholder Solvency II own funds attributable to UK Life Heritage, adjusted to exclude excess capital, a proportion of restricted tier 1, tier 2 and tier 3 capital is assumed to be attributable to UK Life Heritage with a consistent adjustment to debt costs in the numerator.

2021	Solvency II OFG (post TMTP adjustment) £m	Opening own funds £m	Solvency II return on capital %
Business Solvency II return on capital			
UK & Ireland Life	996	15,073	6.6 %
UK & Ireland General Insurance ¹	339	2,401	14.1 %
Canada	332	1,534	21.6 %
Aviva Investors	36	385	9.3 %
UK, Ireland, Canada and Aviva Investors	1,703	19,393	8.8 %
International investments	124	909	13.6 %
Discontinued operations	458	6,362	7.2 %

2021	Solvency II OFG (post TMTP adjustment) £m	Opening own funds ² £m	Solvency II return on equity %
Group Solvency II return on equity			
Group Solvency II return on equity	1,648	14,574	11.3 %
Group Solvency II return on equity on a continuing basis ³	1,215	11,320	10.7 %
Group Solvency II return on equity on a continuing basis (excluding UK Life Heritage business) ^{3,4}	1,184	9,621	12.3 %

- For UK General Insurance only, capital held for internal risk appetite purposes is used instead of opening shareholder Solvency II own funds to ensure consistency in measuring performance across businesses. This is only applicable to UK General Insurance Solvency II return on capital and not to the aggregated Group Solvency II return on equity measure.
- Opening own funds for Group Solvency II return on equity reflects opening unrestricted tier 1 shareholder Solvency II own funds adjusted to exclude excess capital above our target Solvency II shareholder cover ratio.
- Group Solvency II return on equity on a continuing basis excludes our discontinued operations. Further details can be found in the 'Other Information' section.
- Group Solvency II return on equity (excluding UK Life Heritage business) has been calculated on a consistent basis to Group Solvency II RoE except that an adjustment is made to remove the contribution of UK Life Heritage business from the numerator and the denominator. For Solvency II OFG for UK Life Heritage see note 6.i. When calculating opening unrestricted tier 1 shareholder Solvency II own funds attributable to UK Life Heritage, adjusted to exclude excess capital, a proportion of restricted tier 1, tier 2 and tier 3 capital is assumed to be attributable to UK Life Heritage with a consistent adjustment to debt costs in the numerator.

Solvency II return on equity on a continuing basis has increased by 5.7pp to 16.4% (2021: 10.7%) primarily reflecting the increase in Solvency II operating own funds generation over the period and lower 2022 opening capital driven by higher interest rates in 2021.

4.iii – Solvency II operating capital generation

Solvency II operating capital generation (Solvency II 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 support sustainable cash remittances from our businesses, which in turn, supports the Group's dividend as well as funding further investment to generate sustainable growth.

	Solvency II operating capital generation					Of which:	
	Impact of new business (life) £m	Earnings from existing business (life) £m	Non-life capital generation £m	Management actions and other ¹ £m	Total OCG £m	Own funds OCG £m	SCR OCG £m
2022							
UK & Ireland Life	(63)	922	—	635	1,494	1,368	126
UK & Ireland General Insurance	—	—	(19)	1	(18)	293	(311)
Canada	—	—	200	8	208	325	(117)
Aviva Investors	—	—	26	—	26	24	2
UK, Ireland, Canada and Aviva Investors	(63)	922	207	644	1,710	2,010	(300)
International investments	20	37	—	(23)	34	106	(72)
Corporate centre costs and Other	—	—	(91)	(5)	(96)	(279)	183
Group external debt costs	—	—	(214)	—	(214)	(214)	—
Group Solvency II operating capital generation	(43)	959	(98)	616	1,434	1,623	(189)

1. Management actions and other includes the impact of capital actions, non-economic assumption changes and other non-recurring items.

	Solvency II operating capital generation					Of which:	
	Impact of new business (life) £m	Earnings from existing business (life) £m	Non-life capital generation £m	Management actions and other ¹ £m	Total OCG £m	Own funds OCG £m	SCR OCG £m
2021							
UK & Ireland Life	(84)	873	—	430	1,219	953	266
UK & Ireland General Insurance	—	—	322	(26)	296	339	(43)
Canada	—	—	353	(15)	338	332	6
Aviva Investors	—	—	53	—	53	36	17
UK, Ireland, Canada and Aviva Investors	(84)	873	728	389	1,906	1,660	246
International investments	34	18	—	3	55	124	(69)
Corporate centre costs and Other	—	(3)	(263)	(76)	(342)	(342)	—
Group external debt costs	—	—	(255)	—	(255)	(255)	—
Continuing operations	(50)	888	210	316	1,364	1,187	177
Discontinued operations	(381)	528	49	1	197	458	(261)
Group Solvency II operating capital generation	(431)	1,416	259	317	1,561	1,645	(84)

1. Management actions and other includes the impact of capital actions, non-economic assumption changes and other non-recurring items.

Solvency II OCG for continuing operations has increased by £70 million to £1,434 million (2021: £1,364 million).

In the UK & Ireland Life businesses, Solvency II OCG has increased by £275 million to £1,494 million (2021: £1,219 million) primarily due to strong growth in Solvency II operating own funds generation partly offset by a reduction in SCR run-off on existing business due to the smaller opening SCR following interest rate rises in 2021 and a lower SCR benefit from management actions and other which included additional equity hedging in 2021.

In the UK & Ireland General Insurance businesses and Canada, Solvency II OCG has decreased by £444 million to £190 million (2021: £634 million), due to a reduction in Solvency II operating own funds generation and an increase in capital requirements. Capital requirements have increased due to the one-off impact of changes to our external catastrophe reinsurance treaties from 1 January 2023, higher exposure from strong business growth and re-risking activity in the UK in the first half of 2022.

Corporate centre costs and other Solvency II OCG has increased by £246 million due to an increase in SII operating own funds generation and Group diversification benefit from the increase in capital requirements in general insurance business in 2022. Additionally, there is a £41 million increase due to a reduction in Group external debt costs.

4.iv – Solvency II future surplus emergence

Emergence of surplus – UK & Ireland Life (undiscounted)	Full year 2022 £bn	Full year 2021 £bn
Year 1	0.8	0.9
Year 2	0.8	0.9
Year 3	0.7	0.8
Year 4	0.7	0.7
Year 5	0.7	0.6
Year 6	0.6	0.5
Year 7	0.6	0.5
Year 8	0.5	0.4
Year 9	0.5	0.4
Year 10	0.7	0.3
Year 11-15	2.9	2.8
Year 16-20	2.1	2.0

The table above shows the expected future emergence of Solvency II surplus from the existing long-term in-force life business and provides an indication of our expected Solvency II OCG from this business in future periods.

The projection is a static analysis as at a point in time and hence it does not include future new business or 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). It is also based on a linear run-off of the TMTP up to the end of 2031 hence there is an uplift from year 10 onwards. These items may affect the actual amount of Solvency II OCG earned from existing business in future periods.

5 – Solvency II capital position

5.i – Solvency II position (shareholder view)

Shareholder view cover ratio	2022 £m	2021 £m
Own funds	16,468	22,150
Solvency capital requirement	(7,774)	(9,076)
Estimated Solvency II shareholder surplus	8,694	13,074
Estimated Solvency II shareholder cover ratio	212 %	244 %

The estimated Solvency II shareholder cover ratio is 212% at 31 December 2022. 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 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 £1,369 million at 31 December 2022 (2021: £2,205 million) and staff pension schemes in surplus of £394 million at 31 December 2022 (2021: £1,218 million) 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 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 2022 Solvency II position includes a notional reset (an application for a formal reset has been submitted to the regulator and will be reflected in our regulatory position once approved) while the 31 December 2021 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 and hence no adjustment was required. In addition, due to yield rises over the period, a formal reset of TMTP as at 30 June 2022 was approved and is included in the estimated 31 December 2022 regulatory Solvency II position.
- Adjustments are made if the Solvency II shareholder cover ratio does not fully reflect the effect of future regulatory changes that are known as at each reporting date. These adjustments are made in order to show a more representative view of the Group's solvency position. No adjustments for future regulatory changes are included in the 31 December 2022 or 31 December 2021 Solvency II position.

	31 December 2022			31 December 2021		
	Own funds £m	SCR £m	Surplus £m	Own funds £m	SCR £m	Surplus £m
Estimated Solvency II regulatory surplus	18,668	(9,441)	9,227	25,573	(12,499)	13,074
Fully ring-fenced with-profit funds	(1,369)	1,369	—	(2,205)	2,205	—
Staff pension schemes in surplus	(394)	394	—	(1,218)	1,218	—
Notional reset of TMTP	(437)	(96)	(533)	—	—	—
Estimated Solvency II shareholder surplus	16,468	(7,774)	8,694	22,150	(9,076)	13,074

The proforma Solvency II cover ratio allowing for the redemption of c.£0.5 billion of debt over time (which we now expect to incorporate a combination of subordinated and senior debt), £0.1 billion payment in relation to our staff pension scheme, £0.3 billion share buyback and 2022 final dividend of £0.6 billion is 196 % as at 31 December 2022.

5.ii – Movement in Solvency II shareholder surplus

Shareholder view movement	2022			2021		
	Own funds £m	SCR £m	Surplus £m	Own funds £m	SCR £m	Surplus £m
Group Solvency II shareholder surplus at 1 January	22,150	(9,076)	13,074	25,770	(12,770)	13,000
Operating capital generation	1,623	(189)	1,434	1,645	(84)	1,561
Non-operating capital generation	(1,827)	1,502	(325)	(1,310)	1,156	(154)
Dividends ¹	(866)	—	(866)	(874)	—	(874)
(Repayment)/issue of debt	(502)	—	(502)	(1,506)	—	(1,506)
Capital return / Share buyback	(3,750)	—	(3,750)	(1,000)	—	(1,000)
Acquisitions / Disposals	(360)	(11)	(371)	(575)	2,622	2,047
Estimated Solvency II shareholder surplus at 31 December	16,468	(7,774)	8,694	22,150	(9,076)	13,074

1. Dividends includes £17 million (2021: £17 million) of Aviva plc preference dividends and £21 million (2021: £21 million) of General Accident plc preference dividends.

The estimated Solvency II surplus is £8,694 million at 31 December 2022 (2021: £13,074 million), with a Solvency II shareholder cover ratio of 212% (2021: 244%). The decrease in surplus since 31 December 2021 is mainly due to the £3,750 million capital return to shareholders (reducing Solvency II shareholder cover ratio by 41pp), the payment of the final 2021 dividend and the interim 2022 dividend, the debt reduction and non-operating capital generation partly offset by operating capital generation. Non-operating capital generation includes the impact of market movements primarily from an increase in interest rates and widening of credit spreads and has a positive impact on cover ratio despite the reduction in surplus.

5.iii – Analysis of SCR

The table below summarises the SCR by business. The Group diversification between businesses is the SCR diversification arising from the sum of the SCR for each market being higher than the SCR at Group. The benefit from Group diversification increased by £0.2 billion and is £2.1 billion at 31 December 2022 (2021: £1.9 billion). The increase in diversification benefit is mainly due to an increase in general insurance capital requirements.

SCR by business	31 December 2022 £bn	31 December 2021 £bn
UK and Ireland Life	5.8	7.3
UK and Ireland General Insurance	1.7	1.5
Canada	0.6	0.6
Aviva Investors	0.3	0.3
International Investments	1.0	0.8
Group centre and other	0.5	0.5
Group diversification	(2.1)	(1.9)
Total	7.8	9.1

The composition by business has remained stable with the reduction in the UK & Ireland Life SCR primarily due to higher interest rates.

The table below summarises the diversified SCR by risk:

SCR by risk	31 December 2022 £bn	31 December 2021 £bn
Credit risk	1.9	2.1
Equity risk	1.1	1.1
Interest rate risk	0.0	0.0
Other market risk	1.1	1.0
Life insurance risk	1.8	2.9
General insurance risk	1.0	0.8
Operational risk	0.9	0.9
Other risk	0.0	0.3
Total	7.8	9.1

The SCR has decreased by £1.3 billion to £7.8 billion since 31 December 2021 primarily due to interest rate rises over the period which affect several risks through the impact of discounting.

5.iv – Solvency II sensitivities

Illustrative sensitivity analysis of Solvency II shareholder surplus and cover ratio

The following sensitivity analysis of Solvency II shareholder surplus and cover ratio allows for any consequential impact on the assets 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 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. See below for further details on the limitations of the sensitivity analysis.

The table below shows the absolute change in Solvency II shareholder surplus and cover ratio under each sensitivity, e.g. a 2pp positive impact would result in a Solvency II shareholder cover ratio of 214%.

		Impact on shareholder surplus	Impact on shareholder cover ratio	Impact on shareholder surplus	Impact on shareholder cover ratio
		31 December 2022 £bn	31 December 2022	31 December 2021 £bn	31 December 2021
Sensitivities for illustrative purposes					
Changes in economic assumptions	50 bps increase in interest rate	—	4 pp	0.3	12 pp
	100 bps increase in interest rate	0.1	7 pp	0.4	21 pp
	50 bps decrease in interest rate	(0.1)	(5)pp	(0.3)	(11)pp
	100 bps decrease in interest rate ¹	(0.1)	(10)pp		
	50 bps increase in corporate bond spread ²	—	4 pp	0.2	7 pp
	100 bps increase in corporate bond spread ²	—	6 pp	0.4	15 pp
	50 bps decrease in corporate bond spread ²	(0.1)	(5)pp	(0.4)	(11)pp
	Credit downgrade on annuity portfolio ³	(0.4)	(7)pp	(0.5)	(9)pp
	10% increase in market value of equity	0.1	— pp	0.1	— pp
	25% increase in market value of equity	0.2	(2)pp	0.3	1 pp
	10% decrease in market value of equity	(0.1)	— pp	(0.1)	— pp
	25% decrease in market value of equity	(0.3)	(1)pp	(0.3)	(1)pp
	20% increase in value of commercial property	0.4	7 pp	0.3	6 pp
	20% decrease in value of commercial property	(0.5)	(9)pp	(0.5)	(9)pp
	20% increase in value of residential property	0.3	5 pp	0.4	8 pp
	20% decrease in value of residential property	(0.5)	(9)pp	(0.6)	(10)pp
Changes in non-economic assumptions	10% increase in maintenance and investment expenses	(0.7)	(10)pp	(0.7)	(11)pp
	10% increase in lapse rates	(0.3)	(4)pp	(0.3)	(3)pp
	5% increase in mortality/morbidity rates – life assurance	(0.2)	(2)pp	(0.2)	(2)pp
	5% decrease in mortality rates – annuity business	(0.7)	(12)pp	(1.4)	(21)pp
	5% increase in gross loss ratios	(0.3)	(4)pp	(0.2)	(3)pp

1. The 100 bps decrease in interest rate sensitivity was not disclosed as at 31 December 2021.

2. The corporate bond spread sensitivity is applied such that even though movements vary by rating and duration consistent with the approach in the solvency capital requirement, the weighted average spread movement equals the headline sensitivity. Fundamental spreads remain unchanged.

3. An immediate full letter downgrade on 20% of the annuity portfolio credit assets (e.g. from AAA to AA, from AA to A).

The sensitivity of Solvency II shareholder surplus to assumption changes has generally reduced over the period primarily due to our capital deployment in the first half of 2022 and significant rises in interest rates.

Limitations of sensitivity analysis

The table above demonstrates the effect of an instantaneous change in a key assumption while other assumptions remain unchanged. In reality, changes may occur over a period of time and 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 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 and taking other protective action.

Other limitations in the above sensitivity analysis include the use of hypothetical market movements to demonstrate potential risks 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 parameters move in an identical fashion.

Specific examples:

- The sensitivity analysis assumes a parallel shift in interest rates at all terms. These results should not be used to calculate the impact of non-parallel yield movements.
- The sensitivity analysis assumes equivalent assumption changes across all markets i.e. UK and non-UK yield curves move by the same amounts, equity markets across the world rise or fall identically.

Additionally, the movements observed by assets held by Aviva will not be identical to market indices so caution is required when applying the sensitivities to observed index movements.

5.v – Solvency II net asset value

	2022 £m	pence per share ¹	2021 £m	pence per share ¹
Solvency II shareholder unrestricted Tier 1 own funds at 1 January	15,697	417 p	17,358	442 p
Operating own funds generation	1,623	58 p	1,645	44 p
Non-operating capital generation	(1,827)	(67)p	(1,310)	(35)p
Dividends ²	(866)	(31)p	(874)	(23)p
Capital return / Share buyback	(3,750)	10 p	(1,000)	(8)p
Acquisitions / disposals	(360)	(13)p	(575)	(15)p
Impact of changes to the value of subordinated liabilities	618	22 p	480	13 p
Impact of changes to the value of net deferred tax assets	(173)	(6)p	(27)	(1)p
Estimated Solvency II shareholder unrestricted Tier 1 own funds at 31 December	10,962	390 p	15,697	417 p

1. Number of shares in issue as at 31 December 2022 was 2,808 million (2021: 3,766 million).

2. Dividends includes £17 million (2021: £17 million) of Aviva plc preference dividends and £21 million (2021: £21 million) of General Accident plc preference dividends.

Solvency II net asset value per share has decreased by 27 pence to 390 pence per share (2021: 417 pence) as a result of non-operating own funds generation (primarily driven by interest rates) and dividends partly offset by operating own funds generation

5.vi – Solvency II regulatory own funds and Solvency II debt leverage ratio

Regulatory view	2022 £m	2021 £m
Solvency II regulatory debt ¹	5,210	6,330
Senior notes	687	651
Commercial paper	252	50
Total debt	6,149	7,031
Unrestricted Tier 1	13,162	19,120
Restricted Tier 1	946	967
Tier 2	4,264	5,363
Tier 3 ²	296	123
Estimated total regulatory own funds	18,668	25,573
Solvency II debt leverage³	31%	27%

1. Solvency II regulatory debt consists of Restricted Tier 1 and Tier 2 regulatory own funds

2. Tier 3 regulatory own funds at 31 December 2022 consist of £296 million net deferred tax assets (2021: £123 million). There is no subordinated debt included in Tier 3 regulatory own funds (2021: £nil).

3. Solvency II debt leverage is calculated as the total debt as a proportion of total regulatory own funds plus commercial paper and senior notes

Solvency II debt leverage ratio at 31 December 2022 is 31% (2021: 27%). The increase is primarily due to the decrease in regulatory own funds following the completion of the £3.75 billion capital return to ordinary shareholders during the first half of 2022 and interest rate increases over the period. The Group redeemed a net £0.5 billion of debt in the period.

On 21 April 2022 the Group's 8.250% £500 million Tier 2 subordinated notes reached their final maturity date and were redeemed.

On 15 June 2022 the Group issued £500 million of 6.875% fixed rate reset perpetual Restricted Tier 1 contingent convertible notes.

On 29 September 2022 the remaining £502 million of the Group's 6.125% £800 million fixed rate reset perpetual Restricted Tier 1 notes reached their optional first call date and were redeemed.

6 – Our business review

6.i – UK & Ireland Life

£m (unless otherwise stated)	2022	2021	Sterling % change	Constant currency %
Operating profit	1,908	1,428	34 %	34 %
Cash remittances	780	1,219	(36)%	(36)%
Baseline controllable costs¹	1,093	1,102	(1)%	(1)%
New business				
VNB	767	668	15 %	15 %
PVNB ²	33,279	35,625	(7)%	(7)%
VNB Margin	2.3 %	1.9 %	0.4 pp	0.4 pp
Solvency II operating own funds generation	1,368	953	44 %	44 %
Solvency II return on capital	10.4%	6.6%	3.8 pp	3.7 pp
Solvency II operating capital generation	1,494	1,219	23 %	23 %

1. Baseline controllable costs exclude strategic investment, cost reduction implementation, IFRS 17 and other costs not included in the 2018 costs savings target baseline.

Overview

Aviva is the UK's largest insurer with a 20% share¹ of the UK life and savings market, over 11 million customers and significant scale of assets under management (AUM). We are well positioned in the UK to be able to provide customers with all their insurance, protection, savings and retirement needs. We aim to maintain and strengthen our leadership position in the market by leveraging the Aviva brand, widening our already strong distribution relationships, building on our data analytics and underwriting capability and providing broader access to Aviva Investors' investment solutions. UK & Ireland Life is critical to delivery of Aviva's sustainability ambition.

Our Insurance, Wealth and Retirement businesses help individuals save and achieve financial peace of mind through their workplace, advisers or by engaging directly with us. We provide corporate customers with de-risking solutions for their pension schemes and provide solutions to help promote wellbeing and health within their workforce.

In Ireland we are number four² in the market. We offer a wide range of products across protection, savings, pensions and annuities and are committed to making it easier for intermediaries to do business with Aviva.

In 2023 we will promote diversified growth by strengthening our Workplace, Retail, Health and Protection propositions, whilst continuing to apply rigorous selection and high level of discipline in our bulk purchase annuities (BPA) growth strategy and accelerating the development of our Wealth offering available to customers through the direct channel, supported by our expanding advice capability following the acquisition of Succession Wealth.

Operating performance

Operating profit

	2022 £m	2021 £m	Sterling % change
Operating profit			
Insurance (Protection & Health)	229	229	— %
Wealth	131	147	(11)%
Retirement (Annuities & Equity Release)	851	645	32 %
Heritage	369	319	16 %
Other ¹	278	77	261 %
UK Life	1,858	1,417	31 %
Ireland Life	50	11	360 %
Total	1,908	1,428	34 %

1. Other represents changes in assumptions and modelling, non-recurring items and non-product specific overheads.

UK & Ireland Life operating profit increased by 34% to £1,908 million (2021: £1,428 million). UK Life operating profit increased by 31% to £1,858 million (2021: £1,417 million) driven by an improved performance in Retirement and a net benefit from assumption changes of £552 million (2021: £349 million), including a positive longevity benefit of £537 million (2021: £266 million). Retirement operating profit grew by 32% to £851 million (2021: £645 million) due to higher BPA new business margins and favourable experience. Wealth operating profit was down by 11% to £131 million (2021: £147 million) with fee income impacted by market volatility during 2022. Protection & Health operating profit was stable at £229 million as strong trading and portfolio growth was offset by the non-recurrence of favourable 2021 claims experience. Heritage operating profit increased due to the impact of market movements on policyholder tax. The net benefit from assumption changes in other operating profit was partly offset by adverse changes in the carrying value of deferred acquisition costs (DAC) driven by the rise in interest rates. Ireland Life operating profit increased to £50 million (2021: £11 million) driven by improved underlying profits, reduced expenses as well as modelling improvements.

1. Association of British Insurers (ABI) – 9 months to 30 September 2022 based on share of new business.

2. Aviva calculation derived from the Milliman Life and Pensions New Business 2022 H1 Report, which is based on responses from a number of key companies within the Irish Life market

New business

New Business	VNB			PVNBP			New Business Margin	
	2022 £m	2021 £m	Sterling % change	2022 £m	2021 £m	Sterling % change	2022 %	2021 %
Insurance (Protection & Health)	221	188	18 %	2,507	2,374	6 %	8.8 %	7.9 %
Wealth and Other	229	178	29 %	22,877	23,718	(4)%	1.0 %	0.8 %
Retirement (Annuities & Equity Release)	281	280	— %	6,238	7,887	(21)%	4.5 %	3.6 %
Ireland Life	36	22	61 %	1,657	1,646	1 %	2.2 %	1.3 %
Total	767	668	15 %	33,279	35,625	(7)%	2.3 %	1.9 %

UK & Ireland VNB increased by 15% to £767 million (2021: £668 million) driven by improved margins across all our products. PVNBP decreased by 7% to £33,279 million (2021: £35,625 million) with a strong trading performance in Workplace more than offset by lower BPA and Platform sales. The PVNBP growth in Protection & Health was dampened by higher discounting of future premiums from higher interest rate rises, whilst sales increased by 20%, using an Annual Premium Equivalent (APE) measure.

Net flows

Assets under management and net flows	Platform £m	Workplace £m	Individual pensions £m	Total Wealth £m	Retirement £m	Heritage £m	Other UK Life £m	Ireland Life £m	2022 Total UK & Ireland Life £m	2021 Total UK & Ireland Life £m
Assets under management at 1 January	43,101	95,798	13,308	152,207	73,021	82,172	6,646	11,802	325,848	307,081
Succession Wealth acquisition	3,003	—	—	3,003	—	—	—	—	3,003	—
Premiums and deposits, net of reinsurance (inflows)	7,257	10,708	437	18,402	3,773	727	1,366	1,192	25,460	26,912
Claims and redemptions, net of reinsurance (outflows)	(3,385)	(4,942)	(940)	(9,267)	(2,529)	(6,702)	(644)	(1,147)	(20,289)	(20,949)
Net flows	3,872	5,766	(503)	9,135	1,244	(5,975)	722	45	5,171	5,963
Market and other movements	(5,373)	(8,548)	(1,203)	(15,124)	(15,770)	(7,680)	(1,674)	(959)	(41,207)	12,804
Assets under management at 31 December	44,603	93,016	11,602	149,221	58,495	68,517	5,694	10,888	292,815	325,848

Wealth net flows were robust at £9.1 billion (2021: £10.0 billion), representing 6% of opening assets under management. Workplace net flows increased 14% due to higher wage inflation on employee contributions and strong scheme retention. Platform net flows were 32% lower with new business affected by the volatile and uncertain environment for investment activity. Net flows were also impacted by reduced Retirement new business inflows and lower outflows in Heritage. AUM increased by £3.0 billion from the acquisition of Succession Wealth in August 2022.

Insurance (Protection & Health)

Aviva is the only provider of scale in the UK offering coverage across health, group protection and individual protection. We are second in the individual protection market by new business sales¹, second in the group protection market by book size² and third in the health³ market. We have developed strong relationships with our intermediary partners, including financial advisers, estate agents and other third parties. We have invested for growth in these markets, focusing on our digital proposition and bringing new health & wellbeing products to market. Pricing and underwriting discipline as well as cost efficiency are key drivers for profitability in this sector.

Protection & Health PVNBP increased by 6% to £2,507 million (2021: £2,374 million) with strong sales in protection and health products offset by the greater impact of discounting of future premiums due to higher interest rate rises. Group Protection PVNBP increased by 29% due to large scheme wins, strong increments on existing schemes and excellent retention. Individual Protection delivered a strong performance, driven by new distribution relationships, growth with existing IFA partners and proposition enhancements in a lower overall protection market size following the exceptional housing market activities of 2021. Excluding the impact of discounting in reported Individual Protection PVNBP, new business sales on an APE basis increased by 9%. Health PVNBP increased by 14% driven by strong sales in the SME channel, while our Expert Select product continued to attract new business from consumers after record volumes in 2021.

Protection & Health VNB increased by 18% to £221 million (2021: £188 million), driven by strong sales, robust margins and beneficial assumption changes, partly offset by negative impacts from changes in the yield curve.

Operating profit was in line with 2021 at £229 million due to higher new business profits being offset by the non-recurrence of favourable claims experience on Group Income Protection in 2021.

1. Aviva analysis of 2021 company reporting.

2. Swiss Re Group Watch 2022.

3. LaingBuisson, Health Cover UK Market Report, 17th edition.

Wealth

Our Wealth business offers workplace pensions and retail savings products, through both intermediated and retail channels. Our products are supported by guidance and advice and offer access to open architecture asset solutions including Aviva Investors who provide expertise in multi-asset and Environmental, Social, and Governance (ESG) investing. New business is capital efficient, with profits being derived from asset management fees less costs. We have a competitive position in both workplace and retail markets, which have delivered diversified and resilient earnings and highly efficient customer acquisition into the Group.

Wealth inflows reduced by 5% to £18.4 billion (2021: £19.4 billion). Workplace inflows increased 2% to £10.7 billion (2021: £10.5 billion) driven by growth in employee contributions from in-force schemes, partly offset by the inclusion of 2020 deferred scheme wins reported in the first half of 2021. Platform inflows were 15% lower at £7.3 billion (2021: £8.6 billion) due to subdued new business amid market volatility, as well as 2021 benefitting from the release of pent-up demand from 2020.

Wealth outflows were lower at £9.3 billion (2021: £9.4 billion) despite larger asset values, due to improved persistency rates with advisers and customers not crystallising the impact of the market volatility in 2022 by delaying withdrawals.

AUM as at 31 December 2022 has fallen to £149.2 billion from an opening position of £152.2 billion. Positive net inflows were more than offset by adverse market movements of £15.1 billion, primarily reflecting a fall in overseas equity prices. The acquisition of Succession Wealth increased AUM by £3.0 billion at the date of acquisition.

Wealth operating profit decreased to £131 million (2021: £147 million) with revenue adversely impacted by market volatility.

Retirement (Annuities & Equity Release)

Our Retirement business consists of BPA, individual annuities and equity release. Our products offer customers safe and secure income in their retirement and support employers in their desire to de-risk their pension schemes. We are the UK's largest provider of individual annuities¹, we manage the UK's largest book of equity release mortgages² and are one of the largest providers of BPAs³. Our Retirement products create synergies, with equity release assets being held to back annuity liabilities, alongside assets sourced by Aviva Investors. Profits are primarily driven by yields, and our focus on capital efficiency secures significant cash flows, which has allowed us to invest in, and grow, our BPA business.

Retirement PVNBP decreased by 21% to £6,238 million (2021: £7,887 million) with strong growth in Equity Release more than offset by lower sales of Individual annuity and BPA business. Equity Release PVNBP grew by 17% reflecting increased demand for equity release products as well as the positive reaction to changes to our proposition. BPA PVNBP decreased 28% to £4,436 million (2021: £6,165 million) due to maintaining our pricing discipline in a competitive market and the impact of higher interest rates on transaction sizes. Individual annuity PVNBP decreased by 3% driven by lower internal annuity volumes, partly offset by strong growth in external volumes from competitive pricing.

Retirement VNB increased to £281 million (2021: £280 million) due to higher BPA margins offsetting lower sales. BPA margins have improved with an excellent year for asset acquisition whilst maintaining pricing discipline in a competitive 2022 market.

Operating profit increased 32% to £851 million (2021: £645 million) driven by higher new business profits, earnings growth on our in-force book and favourable experience.

Heritage

Aviva has one of the largest back books in the UK, with AUM of £69 billion. We manage legacy pension and savings policies for approximately 1.4 million customers, honouring promises made over many years. Heritage is an important part of the Group as a predictable source of capital and cash generation as well as supporting our annuity and wealth propositions and Aviva Investors. The Heritage business is in run-off, and profit is driven by effective management of AUM run-off and cost efficiencies.

Heritage operating profit increased to £369 million (2021: £319 million) due to the impact of market movements on policyholder tax. Excluding these items, operating profit was lower than the prior year, reflecting the expected run-off of this book and lower revenues, driven by market volatility during the year.

Ireland Life

Our core lines of business are protection and annuity business, pre and post retirement unit-linked contracts, as well as unit-linked savings and investments. We are the market leader in the income protection market⁴.

Ireland Life PVNBP was £1,657 million (2021: £1,646 million) and on a constant currency basis grew by 2%, driven by strong sales of unit-linked business. This was partially offset by lower protection and annuity sales. VNB increased to £36 million (2021: £22 million) driven primarily by improvements in unit-linked and protection margins.

Ireland Life operating profit was £50 million (2021: £11 million) driven by improved underlying profits, reduced expenses as well as modelling improvements. We continue to invest in the future of our business through strategic initiatives.

Other

Other operating profit increased to £278 million (2021: £77 million) driven by the net benefit from assumption changes of £552 million (2021: £349 million), including positive longevity benefits of £537 million (2021: £266 million). The assumption changes in 2022 were offset in part by a £163 million reduction in the carrying value of DAC, driven by interest rate movements. 2021 included the cost of rectification on a specific cohort of legacy business, which did not repeat in 2022.

1. Aviva analysis of half year 2022 company reporting

2. UK Finance 2021 data on UK mortgage lenders

3. LCP H1 analysis - September 2022

4. Aviva calculation derived from the Milliman Life and Pensions New Business 2022 H1 Report, which is based on responses from a number of key companies within the Irish Life market

Controllable costs

UK & Ireland Life baseline controllable costs decreased 1% to £1,093 million (2021: £1,102 million), benefitting from our cost reduction initiatives. Baseline controllable costs excludes £150 million (2021: £84 million) of strategic investment, cost reduction implementation, IFRS 17 and other costs, including the acquired operating cost base on Succession Wealth.

Cash remittances

Cash remitted to Group by UK & Ireland Life was £780 million (2021: £1,219 million). The reduction versus prior year was driven by the deferral of a dividend payment into 2023, amid market volatility during the second half of 2022.

Solvency II operating performance

	2022 £m	2021 £m	Sterling % change
Operating own funds generation			
Insurance (Protection & Health)	113	132	(14)%
Wealth	202	103	96 %
Retirement (Annuities & Equity Release)	524	392	34 %
Heritage	28	47	(40)%
Other ¹	462	260	78 %
UK Life	1,329	934	42 %
Ireland Life	39	19	105 %
Total	1,368	953	44 %

1. Other represents changes in assumptions and modelling, non-recurring items and non-product specific overheads.

Solvency II operating own funds generation (OFG)

Solvency II OFG increased by 44% to £1,368 million (2021: £953 million). Protection & Health decreased by 14% to £113 million (2021: £132 million). The strong growth in new business contribution was dampened by the non-recurrence of favourable claims experience in 2021. Wealth increased by 96% to £202 million (2021: £103 million) driven by higher contributions from new business and a growing in-force book. There were additional beneficial movements from the one-off release of an experience provision during the second half of 2022. Retirement increased by 34% to £524 million (2021: £392 million) driven by higher contribution from our in-force book and favourable experience. Other has increased by 78% to £462 million (2021: £260 million) driven by a higher benefit from assumption changes, principally for longevity, compared to 2021. Ireland Life increased by 105% to £39 million (2021: £19 million) driven by an uplift in new business margins including improved reinsurance terms and reduced expenses.

Solvency II return on capital

Solvency II return on capital increased by 3.8pp to 10.4% (2021: 6.6%) driven by the increase in operating own funds generation. Opening own funds in 2022 was lower than prior year, in part due to interest rate increases over 2021.

Solvency II operating capital generation (OCG)

Solvency II OCG increased by 23% to £1,494 million (2021: £1,219 million) primarily due to strong growth in Solvency II operating own funds generation. This was partly offset by a reduction in SCR run-off on existing business due to the smaller opening SCR following interest rate rises in 2021 and a lower SCR benefit from management actions and other which included additional equity hedging in 2021.

6.ii – General Insurance: UK & Ireland and Canada

£m (unless otherwise stated)	UK & Ireland				Canada			
	2022	2021	Sterling % change	Constant currency %	2022	2021	Sterling % change	Constant currency %
Operating profit	338	356	(5)%	(5)%	433	406	6 %	— %
COR	96.1 %	94.3 %	1.8 pp		92.5 %	90.7 %	1.8 pp	
GWP	5,740	5,352	7 %	7 %	4,009	3,455	16 %	9 %
Baseline controllable costs¹	703	713	(1)%	(1)%	410	399	3 %	3 %
Cash remittances	731	261	180 %	180 %	287	156	84 %	72 %
Solvency II operating own funds generation	293	339	(14)%	(14)%	325	332	(2)%	(8)%
Solvency II return on capital²	12.5 %	14.1 %	(1.6)pp	(1.7)pp	18.6 %	21.6 %	(3.0)pp	(4.1)pp
Solvency II operating capital generation	(18)	296	(106)%	(106)%	208	338	(38)%	(42)%

1. Baseline controllable costs exclude strategic investment, cost reduction implementation, IFRS 17 and other costs not included in the 2018 costs savings target baseline.

2. For UK general insurance only, capital held for internal risk appetite purposes is used instead of opening shareholder Solvency II own funds to ensure consistency in measuring performance across businesses.

Overview

Aviva is a leading insurer across the UK, Ireland and Canada general insurance markets. In the UK and Ireland we provide insurance to around 6 million customers, holding the number one position in the UK market¹ and number three in Ireland². Aviva Canada is the second largest general insurer in Canada³.

We are continuing to grow our general insurance businesses with a focus on extending our leadership in the UK, Ireland and Canada. General insurance performance in 2022 has been impacted by headwinds from weather and rising inflationary pressures, combined with the return to more normal claims frequency following impacts of the COVID-19 pandemic. Despite this, we continue to grow market share through new business growth, whilst maintaining pricing and portfolio discipline and a continued focus on our cost base.

In 2023 we will continue to focus on executing our market strategies and growing our business, while responding to the impact of increasing inflation on general insurance markets, principally impacting claims and economic activity. Our strategy is to invest for profitable growth, build best-in-class capabilities, and lead the industry on sustainability.

UK & Ireland General Insurance

Operating performance

Operating profit and COR

	2022 £m	2021 £m	Sterling % change	Constant currency %
Operating profit				
Underwriting result	178	230	(23)%	(23)%
Long-term investment return	128	85	50 %	50 %
Other ⁴	3	3	(3)%	(3)%
UK	309	318	(3)%	(3)%
Ireland	29	38	(22)%	(24)%
Total	338	356	(5)%	(5)%
COR				
Personal lines	97.3 %	94.6 %	2.7 pp	
Commercial lines	94.9 %	94.6 %	0.3 pp	
UK	96.1 %	94.6 %	1.5 pp	
Ireland	95.8 %	91.7 %	4.1 pp	
Total	96.1 %	94.3 %	1.8 pp	

1. Source: ABI General Insurance Company Rankings 2021, by GWP

2. Source: Insurance Ireland Non-life Members ranking 2021, by GWP

3. Canada market share source: Q3-2022 MSA Quarterly Outlook Report

4. Includes the result of non-insurance operations, unwind of discount rate and pension scheme net finance costs

UK & Ireland operating profit decreased 5% to £338 million (2021: £356 million), driven by a challenging external environment, with rising inflation and claims frequency in our motor business returning to near pre-pandemic levels. Our continued pricing discipline, including proactive rating action to respond to claims inflation, and strong new business growth, helped to partly mitigate these adverse market factors. Long-term investment return increased by £43 million due to yields from investment in corporate bonds.

UK COR of 96.1% is 1.5pp higher than prior year (2021: 94.6%), driven by lower Motor frequency benefits and the market-wide heightened claims inflation, partially offset by strong commercial underwriting performance. Commercial lines COR of 94.9% (2021: 94.6%) absorbed significant headwinds from inflation, which were largely offset by profitable new business growth and strong portfolio management across both Small and Medium Enterprise (SME) and Global Corporate and Specialty (GCS). Personal lines COR of 97.3% (2021: 94.6%), was 2.7pp higher due to claims inflation, adverse weather and the return to more normal claims frequency. We continue to maintain pricing discipline in a soft market to deliver efficiency savings from ongoing simplification, which is driving a lower expense ratio.

Ireland COR increased 4.1pp to 95.8% (2021: 91.7%), largely driven by a return to more normal motor frequency.

Gross Written Premiums (GWP)

GWP	2022 £m	2021 £m	Sterling % change	Constant Currency %
Personal lines	2,386	2,334	2 %	2 %
Commercial lines	2,931	2,609	12 %	12 %
UK	5,317	4,943	8 %	8 %
Ireland	423	409	3 %	4 %
Total	5,740	5,352	7 %	7 %

UK and Ireland GWP increased by 7% to £5,740 million (2021: £5,352 million).

UK GWP grew by 8% to £5,317 million (2021: £4,943 million). Commercial lines GWP, which is up 12% to £2,931 million (2021: £2,609 million), was driven by a combination of strong retention, new business growth and a hard rating environment. Within Commercial, SME grew 13%, supported by both mid-market and digitally traded business, combined with GCS growth of 12% to deliver a strong trading performance. Personal lines GWP of £2,386 million was up 2% (2021: £2,334 million) reflecting a good trading performance as we maintained pricing discipline in a soft rating environment with high levels of inflation. Retail trading was up slightly, supported by the launch of Aviva Zero, despite significant inflationary headwinds and rating for inflation ahead of the market. Intermediated delivered good GWP growth driven by high-net-worth business and the travel rebound following the COVID-19 pandemic.

Ireland GWP increased 3% to £423 million (2021: £409 million), with an uplift of 4% on a constant currency basis. There was strong growth in commercial lines, which increased 12% (13% on a constant currency basis) to £231 million (2021: £206 million), with strong retention and a favourable rating environment. Personal lines GWP of £192 million is 5% lower (5% lower on a constant currency basis) largely due to a reduction in personal motor GWP as we maintained our pricing discipline in a soft market.

Controllable costs

Baseline controllable costs in 2022 were £10 million lower at £703 million (2021: £713 million) despite GWP growth, reflecting continued cost discipline as we have grown and the benefit from efficiency, automation and simplification initiatives. Baseline controllable costs for UK and Ireland exclude £31 million (2021: £22 million) of strategic investment, cost reduction implementation and IFRS 17 costs.

Solvency II operating performance

Solvency II operating own funds generation (OFG) and Solvency II return on capital

£m (unless otherwise stated)	2022	2021	Sterling % change	Constant currency %
Solvency II operating own funds generation	293	339	(14)%	(14)%
Solvency II return on capital¹	12.5 %	14.1 %	(1.6)pp	(1.7)pp

1. For UK general insurance only, capital held for internal risk appetite purposes is used instead of opening shareholder Solvency II own funds to ensure consistency in measuring performance across businesses.

Solvency II OFG in the UK and Ireland was £293 million (2021: £339 million), £46 million lower than 2021, reflecting a strong performance given the inflationary backdrop and the general insurance catastrophe reinsurance renewal market. The strong performance was driven by retention and new business growth in commercial lines, lower expenses in UK personal lines and higher expected investment returns.

Solvency II return on capital has fallen to 12.5% (2021: 14.1%) driven by the reduction in Solvency II OFG.

Solvency II operating capital generation (OCG)

£m	2022	2021	Sterling % change	Constant currency %
Solvency II operating capital generation	(18)	296	(106)%	(106)%

UK and Ireland Solvency II OCG decreased to £(18) million (2021: £296 million) due to a reduction in Solvency II operating own funds generation and an increase in capital requirements. Capital requirements have increased due to the one-off impact of changes to our external catastrophe reinsurance treaties from 1 January 2023, higher exposure from strong business growth and re-risking activity in the first half of 2022.

Cash remittances

£m	2022	2021	Sterling % change	Constant currency %
Cash remittances	731	261	180 %	180 %

Cash remittances to Group from the UK and Ireland were £731 million (2021: £261 million) reflecting cash generated from business operations and the distribution of surplus capital in excess of risk appetite.

Canada

Operating performance

Operating profit and COR

	2022 £m	2021 £m	Sterling % change	Constant currency %
Operating profit				
Underwriting result	270	293	(8)%	(14)%
Long-term investment return	168	117	43 %	34 %
Other ¹	(5)	(4)	(52)%	(42)%
Total	433	406	6 %	— %
COR				
		2022 %	2021 %	Change
Personal lines		94.7 %	92.6 %	2.1 pp
Commercial lines		88.6 %	86.8 %	1.8 pp
Total		92.5 %	90.7 %	1.8 pp

1. Includes the result of non-insurance operations, unwind of discount rate and pension scheme net finance costs.

Operating profit in 2022 increased 6% to £433 million (2021: £406 million) reflecting increased investment returns partly offset by lower underwriting results. The underwriting result of £270 million (2021: £293 million) was mainly attributable to increased claims frequency resulting from changes in driving behaviour post COVID-19 and heightened claims severity including the impact of inflation. This was partly offset by favourable prior year reserve development, lower commissions, reduced weather-related catastrophe losses, and the impact of our continued actions around pricing, indemnity management and risk selection. Long-term investment return was higher by 34% on a constant currency basis mainly due to higher reinvestment yields and growth in the portfolio.

An excellent COR of 92.5% (2021: 90.7%) was higher than in 2021 due to increased claims experience, partly offset by lower commissions. Personal lines COR of 94.7% (2021: 92.6%) was 2.1pp higher, driven by increased claims frequency and severity, partially offset by favourable prior year reserve development, reduced weather-related catastrophe losses, lower commissions from profit share agreements with our distributors, along with prudent underwriting and rate actions. Commercial lines COR of 88.6% (2021: 86.8%) was 1.8pp higher primarily due to increased claims frequency and severity, partly offset by decreased commissions from profit share agreements with our distributors, favourable prior year reserve development, and lower weather-related catastrophe losses.

Gross Written Premiums (GWP)

GWP	2022 £m	2021 £m	Sterling % change	Constant currency %
Personal lines	2,466	2,187	13 %	6 %
Commercial lines	1,543	1,268	22 %	14 %
Total	4,009	3,455	16 %	9 %

Canada GWP was £4,009 million (2021: £3,455 million), up 9% on a constant currency basis. In personal lines, GWP of £2,466 million (2021: £2,187 million) was higher due to Ontario motor rate increases in the current year compared to rate reductions in the prior year and new business growth in our direct business. Commercial lines GWP increased to £1,543 million (2021: £1,268 million) due to increased rate in the prevailing hard market and strong new business growth in mid-market and large corporate accounts.

Controllable costs

Baseline controllable costs were £410 million (2021: £399 million), up 3% as we continue to invest in our core capabilities and digital direct business. Baseline controllable costs for Canada exclude £40 million (2021: £3 million) of strategic investment, cost reduction implementation, IFRS 17 and other costs.

Solvency II operating performance

Solvency II operating own funds generation (OFG) and Solvency II return on capital

£m (unless otherwise stated)	2022	2021	Sterling % change	Constant currency %
Solvency II operating own funds generation	325	332	(2)%	(8)%
Solvency II return on capital	18.6 %	21.6 %	(3.0)pp	(4.1)pp

Solvency II OFG in Canada decreased to £325 million (2021: £332 million) mainly due to inflationary pressures, a tough general insurance catastrophe reinsurance renewal market and non-recurrence of COVID-19 frequency benefits. This has been partly offset by beneficial prior year reserve developments and higher expected investment returns. The Solvency II return on capital is 18.6% (2021: 21.6%).

Solvency II operating capital generation (OCG)

£m (unless otherwise stated)	2022	2021	Sterling % change	Constant currency %
Solvency II operating capital generation	208	338	(38)%	(42)%

Solvency II OCG in Canada decreased to £208 million (2021: £338 million), mainly due to the one-off impact of changes to our external reinsurance treaties from 1 January 2023 and non-recurrence of COVID-19 frequency benefits partly offset by beneficial prior year reserve developments.

Cash remittances

£m (unless otherwise stated)	2022	2021	Sterling % change	Constant currency %
Cash remittances	287	156	84 %	72 %

Cash remittances to Group from Canada were £287 million (2021: £156 million), 84% higher than the prior year due to a release of surplus accumulated capital to the Group.

6.iii – Aviva Investors

£m (unless otherwise stated)	2022	2021	Sterling % change
Aviva Investors revenue	379	403	(6)%
Baseline controllable costs	(331)	(345)	(4)%
	48	58	(17)%
Cost reduction implementation, strategic investment costs and foreign exchange movements	(23)	(17)	35 %
Operating profit	25	41	(39)%
Cost income ratio	87 %	86 %	1 pp
Cash remittances	28	15	87 %
Net flows	(3.8)bn	(4.6)bn	17 %
<i>Of which: External net flows¹</i>	1.3 bn	3.3 bn	(61)%
<i>Of which: Internal net flows¹</i>	(1.3)bn	(1.8)bn	31 %
<i>Of which: Strategic actions</i>	(3.9)bn	(6.1)bn	37 %
Assets under management (AUM)	223 bn	268 bn	(17)%
Solvency II operating own funds generation	24	36	(33)%
Solvency II return on capital	6.0 %	9.3 %	(3.3)pp
Solvency II operating capital generation	26	53	(51)%

1. External and internal net flows above exclude net flows from strategic actions that are separately presented.

Overview

Aviva Investors is an asset manager that combines our insurance heritage, investment capabilities and sustainability expertise to deliver investment outcomes that matter most to customers of Aviva and external clients. Aviva Investors manages £223 billion of assets, with £185 billion managed for the Aviva Group.

By combining our insurance heritage with our skills and experience in asset allocation, portfolio construction and risk management, we provide a range of asset management solutions to our institutional, wholesale and retail clients. We have a highly diversified range of capabilities, with expertise in real assets, multi-assets, equities and credit. Our goal is to support Aviva becoming the UK's leading insurer and the go-to customer brand while also leveraging our expertise and scale for the benefit of external clients.

Our key strategic priorities are delivering for our customers by meeting their investment needs, ongoing focus on simplifying our business to deliver efficiency benefits and capitalising on growth opportunities within Aviva Group and externally through our strengths.

Our focus on sustainable investing provides further opportunities for growth while playing an active role in the fight against climate change, promoting biodiversity, human rights and building stronger communities. We have an ambition to become Net Zero by 2040 and have also signed up to the Net Zero Asset Managers Initiative. We provide our ESG investing expertise to Aviva and our external clients.

Operating performance

Operating profit

Operating profit decreased to £25 million (2021: £41 million), or £48 million (2021: £58 million) excluding cost reduction implementation, strategic investment costs and foreign exchange movements. These results are driven by lower revenues partly offset by improved efficiency reflecting cost reduction initiatives which included the transition of operations to Bank of New York Mellon and a new scalable real assets operating model in partnership with HSBC, with loan servicing successfully outsourced to Mount Street.

Aviva Investors revenue was 6% lower at £379 million (2021: £403 million) primarily reflecting the adverse impact of weak investment markets in 2022 on AUM. Average AUM¹ declined by 8% driven by market movements which were negative across all asset classes but had the most significant impact on credit.

Controllable costs

Despite significant inflationary pressures, including pay rises in a competitive market for talent, baseline controllable costs decreased by 4% to £331 million (2021: £345 million) as we benefitted from cost management initiatives.

Our cost income ratio increased to 87% (2021: 86%), reflecting the drop in revenues which offset the increased efficiency. We continue to drive down our costs by simplifying our business and focusing our product range but in the short term our cost income ratio may be impacted by volatility in investment markets and our revenues.

1. Average assets under management calculated based on monthly assets under management balances for the year.

Net flows and Assets under Management (AUM)

AUM represent all assets managed by Aviva Investors. This includes assets managed by Aviva Investors on behalf of Aviva's life and non-life operations, reported as internal assets in the table below. These internal assets are included within the Group's statement of financial position. AUM also include assets managed by Aviva Investors on behalf of external clients, which are not included in the Group's statement of financial position.

	Internal £m	External £m	2022 Total £m	2021 Total £m
Assets under management at 1 January	216,448	51,332	267,780	260,286
Total inflows	37,345	4,293	41,638	50,112
Total outflows	(38,609)	(2,987)	(41,596)	(48,631)
Net flows (excluding strategic actions)	(1,264)	1,306	42	1,481
Strategic actions ¹	11	(3,865)	(3,854)	(6,077)
Total net flows	(1,253)	(2,559)	(3,812)	(4,596)
Net flows into liquidity funds and cash	(5,966)	474	(5,492)	6,689
Market and foreign exchange movements	(24,392)	(11,413)	(35,805)	5,401
Assets under management² at 31 December	184,837	37,834	222,671	267,780

1. Strategic actions include outflows from clients previously part of the Group and corporate actions.

2. Aviva Investors administer an additional £38 billion (2021: £44 billion) of assets classified as assets under administration which are not included in assets under management.

AUM decreased by £45 billion during 2022 to £223 billion (2021: £268 billion) primarily driven by market movements which were negative across all asset classes.

Net outflows reduced to £(3.8) billion (2021: £(4.6) billion) of which £(3.9) billion (2021: £(6.1) billion) related to strategic actions including £(3.1) billion net outflows from actions by entities previously part of the Aviva Group and £(0.8) billion due to corporate actions. External client net flows (excluding strategic actions) were resilient in light of the difficult market conditions, but reduced to £1.3 billion (2021: £3.3 billion), mainly driven by inflows in 2021 in to the US investment grade capability which was sold in Q4 2021. Positive external net flows reflected the diversity of our business with strong demand for our real assets capabilities more than offsetting a weak market for liquid strategies such as credit in a rapidly rising interest rate environment. Internal net outflows (excluding strategic actions) reduced to £(1.3) billion (2021: £(1.8) billion) reflecting demand for new ESG solutions from workplace and internal clients. As in 2021, we also benefitted from Aviva Life & Pensions Ireland bringing in additional assets previously managed by external fund managers. These significant mandate wins demonstrate the synergies of Aviva's business model, our expertise in managing insurance assets and our strength in ESG with all assets transferring into our Article 8¹ multi-asset funds.

Net outflows from our liquidity business of £(5.5) billion (2021: inflows of £6.7 billion) largely reflect Aviva Group dividends and capital return payments to shareholders in 2022.

While the short-term momentum for flows could be impacted by the continuing market volatility, our longer term outlook remains positive as we continue to build and deliver growth through our strengths in ESG, real assets, infrastructure, credit and sustainable equities.

Solvency II operating performance

Solvency II operating own funds generation (OFG) and Solvency II return on capital

Solvency II OFG decreased to £24 million (2021: £36 million) as a result of lower operating profit as discussed above. Solvency II return on capital reduced to 6.0% (2021: 9.3%) driven by the lower Solvency II OFG and a higher opening capital base.

Solvency II operating capital generation (OCG)

Solvency II OCG decreased to £26 million (2021: £53 million) due to a decrease in Solvency II OFG and year-on-year solvency capital requirement movement which saw a more significant reduction in 2021.

1. An Article 8 Fund under Sustainable Finance Disclosure Regulation is defined as an EU domiciled fund which 'promotes, among other characteristics, environmental or social characteristics, or a combination of those characteristics, provided that the companies in which the investments are made follow good governance practices'.

6.iv – International investments

£m (unless otherwise stated)	2022	2021	Sterling % change	Constant currency %
Operating profit	52	97	(46)%	(51)%
Cash remittances	19	11	73 %	62 %
New business - Life Insurance				
VNB	84	78	8 %	— %
PVNB	1,172	1,122	5 %	(3)%
Solvency II operating own funds generation	106	124	(15)%	(21)%
Solvency II return on capital	10.8 %	13.6 %	(2.8)pp	(3.6)pp
Solvency II operating capital generation	34	55	(38)%	(43)%

Overview

International investments comprise our subsidiary in India, and our joint ventures in China and Singapore, providing us with value creation potential and optionality in attractive and fast-growing markets.

In India we have a life insurance business through our investment in Dabur Invest. Corp. The business is a provider of savings, protection and retirement products through bancassurance, retail agency channels and a direct sales force. On 1 April 2022, Aviva agreed to acquire an additional 25% shareholding in Aviva India. The transaction completed on 28 September 2022 taking Aviva's shareholding to 74%. Aviva India is now a subsidiary of the Aviva Group. As a result our key performance measures include 49% of India's results until the date of acquisition and 100% of India's results from this date except for OFG and OCG which are reported net of non-controlling interests, and therefore are on a 74% basis.

In China we have a 50% shareholding in Aviva-COFCO Life Insurance Company Ltd.

Our joint venture in Singapore brings together Aviva's scale and leading franchise with Singlife's innovative and digitally focused capabilities. Aviva has a 26% shareholding in Aviva Singlife.

New business and operating performance

Operating profit decreased to £52 million (2021: £97 million) and operating own funds generation decreased to £106 million (2021: £124 million). The decrease in 2022 is mainly as a result of the impact of a one-off property charge. PVNB from international investments has increased to £1,172 million (2021: £1,122 million) and VNB to £84 million (2021: £78 million). On a constant currency basis VNB is flat and PVNB is 3% lower, primarily due to a reduction in Singapore, which had a particularly strong prior period, following the successful launch of a long-term care product.

Cash remittances

Cash remittances to Group increased to £19 million (2021: £11 million), and relate to dividends from China, with the second half of 2022 benefitting from the increased dividend pay-out ratio as agreed with COFCO in April 2022.

7 – Profit drivers

7.i – Life business profit drivers

Profit drivers and the supporting income and expense analysis in this section relate to UK & Ireland life.

	2022 £m	2021 £m
New business income	883	799
Underwriting margin	428	419
Investment return	1,409	1,452
Total income	2,720	2,670
Acquisition expenses	(477)	(419)
Administration expenses ¹	(1,047)	(985)
Total expenses	(1,524)	(1,404)
Other ²	642	115
Life business operating profit	1,838	1,381
Health business operating profit	70	47
Total operating profit	1,908	1,428

1. Includes strategic investment, cost reduction implementation, IFRS 17 and other costs not included in the 2018 costs savings target baseline of £150 million (2021: £84 million).

2. Other represents amortisation of deferred acquisition costs (DAC), changes in assumptions and modelling, non-recurring items, including provision for legacy customer remediation, and non-product specific items.

Income: New business income and underwriting margin

	2022 £m	2021 £m
New business income	883	799
Acquisition expenses	(477)	(419)
Net contribution	406	380
Annual premium equivalent (APE) (£m)	4,907	4,797
As margin on APE (%)	8 %	8 %
Underwriting margin (£m)	428	419
<i>Analysed by:</i>		
Expenses	82	96
Mortality and longevity	337	323
Persistency	9	—

Income: Investment return

	2022 £m	2021 £m
Unit-linked margin (£m)	1,032	1,061
As annual management charge on average reserves (bps)	54	56
Average reserves (£bn) ¹	191	189
Participating business (£m)²	99	104
As bonus on average reserves (bps)	29	27
Average reserves (£bn) ¹	34	39
Spread margin (£m)	285	283
As spread margin on average reserves (bps)	42	37
Average reserves (£bn) ¹	68	77
Expected return on shareholder assets (£m)³	(7)	4
Total (£m)	1,409	1,452
Total Average reserves (£bn) ¹	293	305

1. An average of the insurance or investment contract liabilities over the reporting period, including business which is not consolidated within the statement of financial position.

2. The shareholders' share of the return on with-profits and other participating business.

3. The expected investment return based on opening economic assumptions applied to expected surplus assets over the reporting period that are not backing policyholder liabilities.

Expenses

	2022 £m	2021 £m
Acquisition expenses (£m)	(477)	(419)
APE (£m)	4,907	4,797
As acquisition expense ratio on APE (%)	10 %	9 %
Administration expenses (£m) ¹	(1,047)	(985)
As existing business expense ratio on average reserves (bps)	36	32
Total Average reserves (£bn) ²	293	305

1. Includes, cost reduction implementation, IFRS 17, strategic investment and other costs not included in the 2018 costs savings target baseline of £150 million (2021: £84 million).

2. An average of the insurance or investment contract liabilities over the reporting period, including business which is not consolidated within the statement of financial position.

7.ii – General insurance profit drivers

2022	UK Personal £m	UK Commercial £m	Total UK £m	Ireland £m	Total UK & Ireland £m	Canada Personal £m	Canada Commercial £m	Total Canada £m	Total continuing operations £m
Gross written premiums	2,386	2,931	5,317	423	5,740	2,466	1,543	4,009	9,749
Net written premiums	2,291	2,477	4,768	394	5,162	2,403	1,352	3,755	8,917
Net earned premiums	2,269	2,320	4,589	388	4,977	2,339	1,268	3,607	8,584
Net claims incurred	(1,477)	(1,480)	(2,957)	(236)	(3,193)	(1,524)	(687)	(2,211)	(5,404)
<i>Of which claims handling costs</i>			(120)	(14)	(134)			(120)	(254)
Earned commission	(491)	(458)	(949)	(59)	(1,008)	(420)	(258)	(678)	(1,686)
Earned expenses	(240)	(265)	(505)	(76)	(581)	(270)	(178)	(448)	(1,029)
Underwriting result	61	117	178	17	195	125	145	270	465
Long-term investment return (LTIR)			128	12	140			168	308
Other ¹			3	—	3			(5)	(2)
Operating profit			309	29	338			433	771
Claims ratio	65.1 %	63.8 %	64.4 %	60.8 %	64.2 %	65.1 %	54.2 %	61.3 %	63.0 %
Of which:									
Prior year reserve development (%)			1.6 %	(8.3)%	0.8 %			(2.1)%	(0.4)%
Weather claims over/(under) long-term average (%) ²			0.6 %	(1.9)%	0.4 %			(0.9)%	(0.1)%
Commission ratio	21.6 %	19.7 %	20.7 %	15.3 %	20.2 %	18.0 %	20.3 %	18.8 %	19.6 %
Expense ratio	10.6 %	11.4 %	11.0 %	19.7 %	11.7 %	11.6 %	14.1 %	12.4 %	12.0 %
Combined operating ratio	97.3 %	94.9 %	96.1 %	95.8 %	96.1 %	94.7 %	88.6 %	92.5 %	94.6 %
Assets supporting general insurance business									
Debt securities					3,176			5,188	8,364
Equity securities ³					111			166	277
Investment property					202			—	202
Cash and cash equivalents					1,477			436	1,913
Other ^{3,4}					2,011			323	2,334
Assets at 31 December 2022					6,977			6,113	13,090
Debt securities					3,106			5,012	8,118
Equity securities					633			207	840
Investment property					271			—	271
Cash and cash equivalents					2,346			368	2,714
Other					712			430	1,142
Assets at 31 December 2021					7,068			6,017	13,085
Average assets					7,023			6,065	13,088
LTIR as % of average assets					2.0 %			2.8 %	2.4 %

1. Includes the result of non-insurance operations, unwind of discount rate and pension scheme net finance costs.

2. Actual weather-related losses compared to expected and the weather impact on COR are included as part of Aviva's climate metrics reported in our Climate-related financial disclosure.

3. The reduction in Equity securities during 2022 reflects a reallocation in favour of equity unit trusts, which are reported in Other.

4. Other includes loans, equity unit trusts and other financial investments.

2021	UK Personal £m	UK Commercial £m	Total UK £m	Ireland £m	Total UK & Ireland £m	Canada Personal £m	Canada Commercial £m	Total Canada £m	Total continuing operations £m
Gross written premiums	2,334	2,609	4,943	409	5,352	2,187	1,268	3,455	8,807
Net written premiums	2,250	2,162	4,412	382	4,794	2,136	1,120	3,256	8,050
Net earned premiums	2,216	2,019	4,235	381	4,616	2,085	1,062	3,147	7,763
Net claims incurred	(1,293)	(1,249)	(2,542)	(216)	(2,758)	(1,262)	(519)	(1,781)	(4,539)
<i>Of which claims handling costs</i>			(117)	(15)	(132)			(117)	(249)
Earned commission	(548)	(408)	(956)	(60)	(1,016)	(438)	(252)	(690)	(1,706)
Earned expenses	(254)	(253)	(507)	(74)	(581)	(232)	(151)	(383)	(964)
Underwriting result	121	109	230	31	261	153	140	293	554
Long-term investment return (LTIR)			85	7	92			117	209
Other ¹			3	—	3			(4)	(1)
Operating profit			318	38	356			406	762
Claims ratio	58.4 %	61.9 %	60.0 %	56.6 %	59.7 %	60.5 %	48.9 %	56.6 %	58.5 %
<i>Of which:</i>									
Prior year reserve development (%)			1.1 %	(1.4)%	0.9 %			(0.3)%	0.4 %
Weather claims over/(under) long-term average (%) ²			0.4 %	(1.9)%	0.2 %			(0.4)%	(0.1)%
Commission ratio	24.7 %	20.2 %	22.6 %	15.7 %	22.0 %	21.0 %	23.7 %	21.9 %	22.0 %
Expense ratio	11.5 %	12.5 %	12.0 %	19.4 %	12.6 %	11.1 %	14.2 %	12.2 %	12.4 %
Combined operating ratio	94.6 %	94.6 %	94.6 %	91.7 %	94.3 %	92.6 %	86.8 %	90.7 %	92.9 %
Assets supporting general insurance business									
Debt securities					3,106			5,012	8,118
Equity securities					633			207	840
Investment property					271			—	271
Cash and cash equivalents					2,346			368	2,714
Other ³					712			430	1,142
Assets at 31 December 2021					7,068			6,017	13,085
Debt securities					2,402			4,773	7,175
Equity securities					2			238	240
Investment property					352			—	352
Cash and cash equivalents					2,678			217	2,895
Other ³					1,497			396	1,893
Assets at 31 December 2020					6,931			5,624	12,555
Average assets					7,000			5,820	12,820
LTIR as % of average assets					1.3 %			2.0 %	1.6 %

1. Includes the result of non-insurance operations, unwind of discount rate and pension scheme net finance costs.

2. Actual weather-related losses compared to expected and the weather impact on COR are included as part of Aviva's climate metrics reported in our Climate-related Financial Disclosure.

3. Includes loans and other financial investments.

Financial supplement

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Profit

A1 – Reconciliation of Group adjusted operating profit to IFRS (loss)/profit for the year

	Note	2022 £m	2021 £m
UK & Ireland Life	6.i	1,908	1,428
UK & Ireland General Insurance	6.ii	338	356
Canada	6.ii	433	406
Aviva Investors	6.iii	25	41
International investments	6.iv	52	97
		2,756	2,328
Corporate centre costs and Other operations	A2	(297)	(379)
Group debt costs and other interest	A3	(246)	(315)
Group adjusted operating profit from continuing operations		2,213	1,634
Group adjusted operating profit from discontinued operations		—	631
Group adjusted operating profit before tax attributable to shareholders' profits		2,213	2,265
Adjusted for the following:			
Life business: Investment variances and economic assumption changes	A4	(2,387)	(805)
Non-life business: Short-term fluctuation in return on investments	A5	(1,375)	(149)
General insurance and health business: Economic assumption changes	A5	147	(85)
Impairment of goodwill, joint ventures, associates and other amounts expensed	A6	(8)	—
Amortisation and impairment of intangibles acquired in business combinations	A7	(54)	(66)
Amortisation and impairment of acquired value of in-force business	A8	(182)	(199)
Profit on the disposal and remeasurement of subsidiaries, joint ventures and associates	A9	—	1,572
Other	A10	41	(204)
Adjusting items before tax		(3,818)	64
IFRS (loss)/profit before tax attributable to shareholders' profits from continuing operations and discontinued operations		(1,605)	2,329
Tax on group adjusted operating profit		(289)	(470)
Tax on other activities		755	177
		466	(293)
IFRS (loss)/profit for the year		(1,139)	2,036

Other Group adjusted operating profit items

A2 – Corporate centre costs and Other operations

	2022 £m	2021 £m
Cost reduction implementation and IFRS 17 costs	(79)	(115)
Strategic initiatives	(44)	—
Other projects	(31)	(76)
Project spend	(154)	(191)
Central spend	(156)	(169)
Corporate centre costs	(310)	(360)
Other operations	13	(19)
Total	(297)	(379)

Corporate centre costs of £310 million (2021: £360 million) decreased by £50 million. As we are now a simpler group we are addressing our central spend and are taking initiatives to reduce this as reflected in the decrease of £13 million from £169 million in 2021 to £156 million in 2022. The increase in Other operations is largely due to increased interest income.

A3 – Group debt costs and other interest

	2022 £m	2021 £m
Subordinated debt	(253)	(304)
Other	(11)	(11)
Total external debt	(264)	(315)
Internal lending arrangements	(24)	(31)
Net finance income on main UK pension scheme	42	31
Total	(246)	(315)

External debt costs of £264 million (2021: £315 million) decreased by £51 million as a result of the £1 billion debt tender and loan repayments during the year as well as a £500 million loan repayment in 2022. Costs of internal lending arrangements of £24 million (2021: £31 million) decreased by £7 million due to early repayment of capital towards the end of 2021 which is partially offset by higher interest rates. Net finance income on the main UK pension scheme of £42 million (2021: £31 million) increased by £11 million due to an increase in interest rates.

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 long-term 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 variances 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, in investment variances and economic assumption changes.

(b) Methodology

The expected investment returns and corresponding expected movements in life business liabilities are calculated separately for each principal life business unit.

The expected return on investments for both policyholders' and shareholders' funds is based on opening economic assumptions applied to the expected funds under management over the reporting period. Expected investment return assumptions are derived actively, based on market yields on risk-free fixed interest assets at the end of each financial year. The same margins are applied on a consistent basis across the Group to gross risk-free yields, to obtain investment return assumptions for equity and property. Expected funds under management are equal to the opening value of funds under management, adjusted for sales and purchases during the period arising from expected operating experience.

The actual investment return is affected by differences between the actual and expected funds under management, changes in asset mix, as well as other market movements. To the extent that these differences arise from the operating experience of the life business, or management decisions to change asset mix, the effect is included in the Group adjusted operating profit. The residual difference between actual and expected investment return is included in investment variances, outside Group adjusted operating profit but included in profit before tax attributable to shareholders' profits.

The movement in liabilities included in Group adjusted operating profit reflects both the change in liabilities due to the expected return on investments, and the impact of experience variances and assumption changes for non-economic items. This would include movements in liabilities due to changes in the discount rate arising from discretionary management decisions that impact on product profitability over the lifetime of products.

The effect of differences between actual and expected economic experience on liabilities, and changes to economic assumptions used to value liabilities, are taken outside Group adjusted operating profit. For many types of life business, including unit-linked and with-profits funds, movements in asset values are offset by corresponding changes in liabilities, limiting the net impact on profit. The profit impact of economic volatility on other life business depends on the degree of matching of assets and liabilities, and exposure to financial options and guarantees.

(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
	2022	2021	2022	2021
United Kingdom	4.4 %	3.9 %	2.9 %	2.4 %
Ireland	3.8 %	3.2 %	2.3 %	1.7 %

The expected return on equity and property has been calculated by reference to the ten-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	2022	2021
Equity risk premium	3.5 %	3.5 %
Property risk premium	2.0 %	2.0 %

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

Territories	2022	2021
United Kingdom	0.9 %	0.4 %
Ireland	0.3 %	(0.3)%

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.

(d) Investment variances and economic assumption changes

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

	2022 £m	2021 £m
Life business		
Investment variances and economic assumptions	(2,387)	(805)

The loss of £2,387 million (2021: loss of £805 million) in relation to investment variances and economic assumption changes is primarily driven by the significant increase in UK interest rates, with the rate on 10-year swaps increasing by 280bps during 2022. This resulted in a reduction in the value of fixed income securities and loans (see notes 23 and 26 of the IFRS Financial Statements in Aviva plc Annual Report and Accounts 2022) which was not fully offset by a reduction in the valuation of long-term insurance liabilities from the increase in the valuation interest rate (see note 46 of IFRS Financial Statements in Aviva plc Annual Report and Accounts 2022). Other components of investment variances and economic assumption changes were smaller and broadly offset. These include positive impacts from hedging negative global equity returns and a reduction in the allowance for risk of default on assets backing annuities due to reduced asset values; and negative impacts from foreign exchange losses and widening of spreads on corporate bonds.

The adverse impact of interest rates rises and the beneficial impact from equity falls reflect the fact that we hedge on a Solvency II basis as that drives the ability of markets to remit cash rather than an IFRS basis. For example, when equity markets increase we gain from the increase in the value of future annual management charges on unit-linked products on an economic basis which are not recognised under IFRS, however, the loss from hedges in place is recognised on both Solvency II and IFRS bases.

Further information on the sensitivity of the Group's long-term business to economic factors is provided in note 58(h)(iv) of IFRS Financial Statements in Aviva plc Annual Report and Accounts 2022.

The negative variance for 2021 was primarily driven by an increase in interest rates and positive global equity returns, partially offset by narrowing of credit spreads.

A5 – Non-life business: Short-term fluctuation in return on investments**(a) Definitions**

Group adjusted operating profit for non-life business is based on an expected long-term investment return over the period. Any variance between the total investment return (including realised and unrealised gains) and the expected return over the period is disclosed separately outside Group adjusted operating profit, in short-term fluctuations.

(b) Methodology

The long-term investment return is calculated separately for each principal non-life market. In respect of equities and investment 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.

The long-term rate of investment return 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 (including debt securities) is the actual income receivable for the year. Actual income and long-term investment return both contain the amortisation of the discounts/premium arising on the acquisition of fixed income securities. For other operations, the long-term return reflects assets backing non-life business held in Group centre investments.

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

The impact of realised and unrealised gains and losses on Group centre investments is included in short-term fluctuations on other operations.

(c) Assumptions

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	
	2022	2021	2022	2021
United Kingdom	4.4 %	3.9 %	2.9 %	2.4 %
Ireland	3.8 %	3.2 %	2.3 %	1.7 %
Canada	5.5 %	4.7 %	4.0 %	3.2 %

The long-term rates of return on equities and properties have been calculated by reference to the ten-year mid-price swap rate for an AA rated bank in the relevant currency plus a risk premium. The asset risk premia are set out in the table below:

	2022	2021
All territories		
Equity risk premium	3.5%	3.5%
Property risk premium	2.0%	2.0%

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

	2022	2021
Territories		
United Kingdom	0.9%	0.4%
Ireland	0.3%	(0.3%)
Canada	2.0%	1.2%

(d) Analysis of investment return

The total investment income on our non-life business, including short-term fluctuations, is as follows:

General Insurance and Health	2022 £m	2021 £m
Analysis of investment (losses)/income:		
– Net investment (expense)/income	(841)	7
– Foreign exchange (losses)/gains and other charges	(45)	47
	(886)	54
Analysed between:		
– Long-term investment return, reported within Group adjusted operating profit	312	253
– Short-term fluctuations in investment return, reported outside Group adjusted operating profit	(1,198)	(199)
	(886)	54
Short-term fluctuations:		
– General insurance and health	(1,198)	(199)
– Other operations ¹	(177)	50
Total short-term fluctuations	(1,375)	(149)

1. Other operations represents short-term fluctuations on Group centre investments.

Short-term fluctuation losses of £1,375 million (2021: loss of £149 million), were primarily driven by falls in the value of fixed income securities in the UK and Canada due to the significant increase in interest rates during 2022 (UK: 291 bps for 7 year term; Canada: 240bps for 3 year term). The increase in interest rates resulted in a reduction in the value of fixed income securities (see note 26 of the IFRS Financial Statements in Aviva plc Annual Report and Accounts 2022). Additionally there were further losses from equity market falls, foreign exchange losses and credit spreads widening.

The short-term fluctuations during 2021 were primarily due to rising interest rates reducing the value of fixed income securities, partially offset by foreign exchange gains.

Further information on the sensitivity of the general insurance and health business to economic factors is provided in note 58(h)(iv) of IFRS Financial Statements in Annual Report and Accounts.

(e) Economic assumption changes

In the general insurance and health business, there is a beneficial impact of £147 million (2021: loss of £85 million) which has arisen primarily as a result of a material increase in the interest rates used to discount claims reserves for periodic payment orders (PPOs) and latent claims.

A6 – Impairment of goodwill, joint ventures, associates and other amounts expensed

The impairment of goodwill, associates and joint ventures is a charge of £8 million (2021: £nil), which relates to full impairment of an investment in an associate held by the UK&I life business, offset by a reversal of a £15 million historic impairment of the India business on fair value remeasurement immediately prior to reclassification as a subsidiary.

A7 – Amortisation and impairment of intangibles acquired in business combinations

The amortisation of intangible assets acquired in business combinations is a charge of £54 million (2021: £66 million charge). There is no impairment of intangible assets acquired in business combinations (2021: £nil).

A8 – Amortisation and impairment of acquired value of in-force business

Amortisation of acquired value of in-force business (AVIF) is a charge of £182 million (2021: £199 million charge), which relates solely to amortisation of AVIF in respect of the Group's subsidiaries and joint ventures. There is no impairment of AVIF (2021: £nil).

A9 – Profit on the disposal and remeasurement of subsidiaries, joint ventures and associates

There were no significant disposals or remeasurements of subsidiaries, joint ventures and associates in the year. The profit on the disposal and remeasurement of subsidiaries, joint ventures and associates at 31 December 2021 is analysed below.

	2021 £m
Disposals of discontinued operations	
Aviva France ¹	128
Aviva Vita	65
Aviva Italy ²	233
Aviva Poland	1,671
Other	(9)
Held for sale remeasurements of discontinued operations	
Aviva France ¹	(538)
Total gain on disposals and remeasurements of discontinued operations	1,550
Profit on disposal from continuing operations	22
Total gain on disposals and remeasurements	1,572

1. A £538 million loss on remeasurement in respect of Aviva France was recognised at 30 June 2021, with a subsequent £128 million gain on disposal recognised when the disposal completed on 30 September 2021.
 2. Aviva Italy excludes Aviva Vita, which is disclosed separately.

A10 – 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 2022, other items are a net gain of £41 million (2021: charge of £204 million) which comprises:

- The following items which are disclosed outside of Group adjusted operating profit as they relate to acquisition and disposal activity that we consider to be strategic in nature:
 - A gain of £77 million relating to negative goodwill on the acquisition of Aviva India, which is excluded from Group adjusted operating profit for consistency with the treatment of impairment of goodwill;
 - A charge of £15 million arising from third party reinsurance, accepted by Aviva from the former Aviva France general insurance entity, which was terminated on 31 December 2021;
 - A net release of provisions relating to acquisition and disposal activity of £1 million;
 - A charge of £7 million relating to costs directly associated with the acquisition of Succession Wealth;
- A charge of £10 million relating to fees and charges associated with the share buyback and return of capital to ordinary shareholders; and
- A charge of £5 million relating to the cost of the employee free share award, which recognises the contribution our employees have made to the return of capital to ordinary shareholders.

Other items at 2021 comprised:

- The following items which were disclosed outside of Group adjusted operating profit as they relate to acquisition and disposal activity that we consider to be strategic in nature:
 - A charge of £76 million arising from third party reinsurance, accepted by Aviva from the former Aviva France general insurance entity, which was terminated on 31 December 2021;
 - A charge of £45 million relating to costs associated with the disposals of France, Italy, Aviva Vita, Poland, Singapore, Turkey and Vietnam, comprising IT contracts that have become onerous, severance costs associated with senior management and relocation costs;
 - Net charges of £22 million relating to provisions for indemnities entered into through acquisition and disposal activity.
- A charge of £51 million relating to the redemption payment in excess of the market value of debt repaid as part of the Group's deleveraging strategy. This is disclosed outside of Group adjusted operating profit as the costs arise from a strategic decision relating to the financing of the Group as a whole and not to the operating performance of the Group or its operating segments;
- A charge of £7 million relating to the cost of voluntary amendments to a small proportion of ground rent leases held by the Aviva Investors REaLM Ground Rent Fund; and
- A charge of £3 million relating to stamp duty costs on share buybacks.

IFRS capital

A11 – IFRS Net asset value

	2022 £m	pence per share ²	2021 £m	pence per share ²
Equity attributable to shareholders of Aviva plc at 1 January¹	19,002	677p	19,354	514p
Group adjusted operating profit	2,213	79p	2,265	60p
Investment return variances and economic assumption changes	(3,615)	(129)p	(1,039)	(28)p
Amortisation and impairment of intangibles, joint ventures, associates and other amounts expensed	(62)	(2)p	(66)	(2)p
Amortisation and impairment of acquired value of in-force business	(182)	(6)p	(199)	(5)p
Profit on the disposal and remeasurements of subsidiaries, joint ventures and associates	—	—	1,572	42p
Other (note A10)	41	1p	(204)	(5)p
Tax on operating profit and on other activities	466	17p	(293)	(8)p
Non-controlling interests	(21)	(1)p	(70)	(2)p
(Loss)/profit after tax attributable to shareholders of Aviva plc	(1,160)	(41)p	1,966	52p
Other reserves movements	(38)	(1)p	(73)	(2)p
Dividends and appropriations	(862)	(31)p	(1,127)	(29)p
Foreign exchange rate movements (net of tax)	159	5p	(315)	(8)p
Remeasurements of pension schemes (net of tax)	(1,130)	(40)p	(100)	(3)p
Shares purchased in buyback	(336)	(12)p	(663)	(18)p
Return of capital to ordinary shareholders via B share scheme	(3,750)	(134)p	—	—
Other net equity movements	4	—	(40)	(1)p
Equity attributable to shareholders of Aviva plc at 31 December¹	11,889	423p	19,002	505p

1. Excluding preference shares of £200 million (2021: £200 million).

2. The IFRS net asset value per share is based on the actual number of shares in issue at the closing balance sheet date. Therefore, for each year reported, the opening pence per share is updated from the previously reported closing pence per share and includes the effects of the reduction of the 79,987,629 shares (2021: 165,237,860 shares) acquired as part of the share buyback programme announced on 12 August 2021 and the reduction of 884,957,280 shares (2021: nil shares) under the share capital consolidation on 16 May 2022. Number of shares as at 31 December 2022: 2,808 million (2021: 3,766 million).

At 31 December 2022, IFRS net asset value per share was 423 pence (2021: 505 pence). The decrease of 82 pence, compared to 31 December 2021, primarily reflects adverse investment variances and economic assumption changes, payments of dividends and remeasurement of pension scheme, partially offset by Group adjusted operating profit.

A12 – IFRS return on equity

	Operating profit			Return on equity %
	Before tax attributable to shareholders' profits £m	After tax attributable to shareholders' profits £m	Weighted average shareholders' funds including non-controlling interests £m	
2022				
UK & Ireland Life	1,908	1,592	12,318	12.9 %
UK & Ireland General Insurance	338	316	951	33.2 %
Canada	433	346	1,580	21.9 %
Aviva Investors	25	17	485	3.5 %
UK, Ireland, Canada and Aviva Investors	2,704	2,271	15,334	14.8 %
International investments	52	52	931	5.6 %
Other Group activities ¹	(279)	(185)	4,784	N/A
Return on capital employed from continuing operations	2,477	2,138	21,049	10.2 %
Discontinued operations	—	—	—	— %
Return on total capital employed	2,477	2,138	21,049	10.2 %
Subordinated debt	(253)	(205)	(4,990)	4.1 %
Senior debt	(11)	(9)	(771)	1.2 %
Return on total equity	2,213	1,924	15,288	12.6 %
Less: Non-controlling interests		(21)	(267)	7.9 %
Tier 1 notes		(17)	(248)	6.9 %
Preference shares		(17)	(200)	8.5 %
Return on equity shareholders' funds		1,869	14,573	12.8 %
Return on equity shareholders' funds (normalised)²		1,869	13,636	13.7 %

1. The other Group activities operating loss before tax of £279 million comprises corporate centre costs of £310 million, interest expense on internal lending arrangements of £24 million, offset by finance income on the main UK pension scheme of £(42) million and other operations profit of £(13) million.

2. Return on equity shareholders' funds (normalised) is calculated as if the share consolidation completed on 16 May 2022 as part of the £3.75 billion capital return, had taken place on 1 January 2022.

	Operating profit			Return on equity %
	Before tax attributable to shareholders' profits £m	After tax attributable to shareholders' profits £m	Weighted average shareholders' funds including non-controlling interests £m	
2021				
UK & Ireland Life	1,428	1,125	12,282	9.2 %
UK & Ireland General Insurance	356	338	1,353	25.0 %
Canada	406	315	1,592	19.8 %
Aviva Investors	41	35	438	8.0 %
UK, Ireland, Canada and Aviva Investors	2,231	1,813	15,665	11.6 %
International investments	97	97	808	12.0 %
Other Group activities ¹	(379)	(351)	6,836	N/A
Return on capital employed from continuing operations	1,949	1,559	23,309	6.7 %
Discontinued operations	631	491	2,923	16.8 %
Return on total capital employed	2,580	2,050	26,232	7.8 %
Subordinated debt	(304)	(246)	(5,855)	4.2 %
Senior debt	(11)	(9)	(839)	1.1 %
Return on total equity	2,265	1,795	19,538	9.2 %
Less: Non-controlling interests		(71)	(757)	9.4 %
Preference shares		(17)	(200)	8.5 %
Return on equity shareholders' funds		1,707	18,581	9.2 %

1. The other Group activities operating loss before tax of £379 million comprises corporate centre costs of £360 million, other operations loss of £19 million, interest expense on internal lending arrangements of £31 million, partly offset by finance income on the main UK pension scheme of £(31) million.

A13 – Group capital under IFRS basis

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

	2022 £m	2021 £m
UK & Ireland Life	11,959	12,403
UK & Ireland General Insurance ¹	459	1,281
Canada	1,466	1,593
Aviva Investors	427	494
UK, Ireland, Canada and Aviva Investors	14,311	15,771
International investments	1,045	858
Other Group activities ^{1,2}	3,008	8,958
Capital employed from operations	18,364	25,587
Financed by		
Equity shareholders' funds	11,889	19,002
Non-controlling interests	310	252
Tier 1 notes	496	—
Preference shares	200	200
Subordinated debt	4,530	5,432
Senior debt	939	701
Total capital employed³	18,364	25,587

1. Capital employed for United Kingdom General Insurance excludes £924 million (2021: £924 million) of goodwill which does not support the general insurance business for capital purposes and is included in other Group activities.

2. Other Group activities include centrally held tangible net assets, the main UK staff pension scheme surplus and also reflect 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.

3. Goodwill, AVIF and other intangibles are maintained within the capital base. Goodwill includes goodwill in subsidiaries of £2,072 million (2021: £1,741 million) and goodwill in joint ventures of £62 million (2021: £62 million). AVIF and other intangibles comprise £2,089 million (2021: £1,950 million) of intangibles in subsidiaries and £153 million (2021: £138 million) of intangibles in joint ventures, gross of deferred tax liabilities of £(465) million (2021: £(433) million).

Total capital employed is financed by a combination of equity shareholders' funds, preference capital, subordinated debt and other borrowings.

On 21 April 2022 the Group's 8.250% £500 million Tier 2 subordinated notes reached their final maturity and were redeemed. On 29 September 2022 the remaining £502 million of the Group's 6.125% £800 million fixed rate reset perpetual Restricted Tier 1 notes reached their optional first all date and were redeemed.

On 15 June 2022 the Group issued £500 million of 6.875% fixed rate reset perpetual restricted tier 1 contingent convertible notes (the RT1 Notes). The RT1 Notes are callable at par between 15 December 2031 and 15 June 2032 (the First Reset Date) inclusive and thereafter every five years after the First Reset Date. If not called, the coupon from 15 June 2032 will be reset to the prevailing five year benchmark gilt yield plus 4.649%. The notes have no fixed maturity date. Optional cancellation of coupon payments is at the discretion of the Group and mandatory cancellation is upon the occurrence of certain conditions.

The RT1 notes are therefore treated as equity and the coupon payment is recognised directly in equity. On the occurrence of certain conversion trigger events the notes are convertible into ordinary shares of the Group at the prevailing conversion price. The notes are treated as restricted tier 1 own funds for Solvency II purposes.

At 31 December 2022 the market value of our external debt (subordinated debt and senior debt) and preference shares (including both Aviva plc preference shares of £200 million (2021: £200 million) and General Accident plc preference shares, within non-controlling interests, of £250 million (2021: £250 million)) was £6,215 million (2021: £7,670 million).

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B1 Note to the consolidated financial statements

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Consolidated income statement

For the year ended 31 December 2022

	2022 £m	2021 £m
Continuing operations		
Income		
Gross written premiums	18,919	19,398
Premiums ceded to reinsurers	(3,585)	(4,701)
Premiums written net of reinsurance	15,334	14,697
Net change in provision for unearned premiums	(356)	(307)
Net earned premiums	14,978	14,390
Fee and commission income	1,453	1,488
Net investment (expense)/income	(37,673)	17,138
Share of (loss)/profit after tax of joint ventures and associates	(2)	146
Profit on the disposal and remeasurement of subsidiaries, joint ventures and associates	—	22
	(21,244)	33,184
Expenses		
Claims and benefits paid, net of recoveries from reinsurers	(13,201)	(12,493)
Change in insurance liabilities, net of reinsurance	22,342	1,699
Change in investment contract provisions	15,449	(15,304)
Change in unallocated divisible surplus	(13)	(175)
Fee and commission expense	(3,489)	(3,172)
Investment income/(expense) attributable to unitholders	531	(224)
Other expenses	(2,211)	(2,412)
Other net foreign exchange (losses)/gains	(73)	201
Finance costs	(470)	(503)
	18,865	(32,383)
(Loss)/profit before tax from continuing operations	(2,379)	801
Tax attributable to policyholders' returns	774	(245)
(Loss)/profit before tax attributable to shareholders' profits from continuing operations	(1,605)	556
Tax credit/(expense)	1,240	(465)
Less: tax attributable to policyholders' returns	(774)	245
Tax attributable to shareholders' profits	466	(220)
(Loss)/profit from continuing operations	(1,139)	336
Profit for the year from discontinued operations	—	150
Profit on disposal of discontinued operations	—	1,550
Profit from discontinued operations	—	1,700
(Loss)/profit for the year	(1,139)	2,036
Attributable to:		
Equity holders of Aviva plc	(1,160)	1,966
Non-controlling interests	21	70
(Loss)/profit for the year	(1,139)	2,036
Earnings per share		
Basic (pence per share)	(38.2)	50.1
Diluted (pence per share)	(38.2)	49.7
Continuing operations - basic (pence per share)	(38.2)	7.7
Continuing operations - diluted (pence per share)	(38.2)	7.6

Consolidated statement of comprehensive income

For the year ended 31 December 2022

	2022 £m	2021 £m
(Loss)/profit for the year from continuing operations	(1,139)	336
Other comprehensive income from continuing operations:		
<i>Items that may be reclassified subsequently to income statement</i>		
Share of other comprehensive (loss)/income of joint ventures and associates	(38)	5
Foreign exchange rate gains/(losses)	145	(34)
Aggregate tax effect – shareholder tax on items that may be reclassified subsequently to income statement	6	(7)
<i>Items that will not be reclassified to income statement</i>		
Remeasurements of pension schemes	(1,542)	59
Aggregate tax effect – shareholder tax on items that will not be reclassified subsequently to income statement	412	(159)
Total other comprehensive loss, net of tax from continuing operations	(1,017)	(136)
Total comprehensive (loss)/income for the year from continuing operations	(2,156)	200
Profit for the year from discontinued operations	—	1,700
Other comprehensive loss, net of tax from discontinued operations	—	(241)
Total comprehensive income for the year from discontinued operations	—	1,459
Total comprehensive (loss)/income for the year	(2,156)	1,659
Attributable to:		
Equity holders of Aviva plc		
From continuing operations	(2,169)	178
From discontinued operations	—	1,444
Non-controlling interests		
From continuing operations	13	22
From discontinued operations	—	15
	(2,156)	1,659

Consolidated statement of changes in equity

For the year ended 31 December 2022

	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	Tier 1 notes £m	Total equity excluding non-controlling interests £m	Non-controlling interests £m	Total equity £m
Balance at 1 January	941	200	10,308	(51)	314	(66)	7,556	—	19,202	252	19,454
(Loss)/profit for the year	—	—	—	—	—	—	(1,160)	—	(1,160)	21	(1,139)
Other comprehensive income/(loss)	—	—	—	—	197	(76)	(1,130)	—	(1,009)	(8)	(1,017)
Total comprehensive income/(loss) for the year	—	—	—	—	197	(76)	(2,290)	—	(2,169)	13	(2,156)
Dividends and appropriations	—	—	—	—	—	—	(862)	—	(862)	—	(862)
Non-controlling interests share of dividends declared in the year	—	—	—	—	—	—	—	—	—	(21)	(21)
Reserves credit for equity compensation plans	—	—	—	—	—	58	—	—	58	—	58
Shares purchased under equity compensation plans	2	—	15	(34)	—	(46)	9	—	(54)	—	(54)
Shares purchased in buyback ²	(19)	—	19	—	—	—	(336)	—	(336)	—	(336)
Return of capital to ordinary shareholders via B share scheme ³	—	—	—	—	—	—	(3,750)	—	(3,750)	—	(3,750)
Issue of tier 1 notes ⁴	—	—	—	—	—	—	—	496	496	—	496
Non-controlling interests in acquired subsidiaries ⁵	—	—	—	—	—	—	—	—	—	66	66
Changes in non-controlling interests in subsidiaries	—	—	—	—	—	—	—	—	—	—	—
Transfer to profit on disposal of subsidiaries, joint ventures and associates	—	—	—	—	—	—	—	—	—	—	—
Owner-occupied properties fair value gains transferred to retained earnings on disposals	—	—	—	—	—	—	—	—	—	—	—
Balance at 31 December	924	200	10,342	(85)	511	(130)	327	496	12,585	310	12,895

1. Capital reserves consist of share premium of £1,263 million, a capital redemption reserve of £3,855 million and a merger reserve of £5,224 million

2. In the year ended 31 December 2022, £336 million of shares were purchased and shares with a nominal value of £19 million have been cancelled as part of the share buyback programme

3. On 2 March 2022, Aviva announced a proposed return of capital, via a £3,750 million B Share Scheme for the holders of ordinary shares. 3,687,322,000 B shares were issued for nil consideration with a nominal value of 101.69 pence per share on 16 May 2022, resulting in a total of £3,750 million being credited to the B share capital account. At the same time, the merger reserve was reduced by £3,750 million. On 17 May 2022, the B shares were redeemed at 101.69 pence per share, which resulted in a £3,750 million reduction in the B share capital account and a corresponding increase in the capital redemption reserve. Retained earnings reduced by £3,750 million on payment of the return of capital to ordinary shareholders.

4. On 15 June 2022, the Group issued £500 million of 6.875% fixed rate reset perpetual Restricted Tier 1 contingent convertible notes (the RT1 Notes). These RT1 Notes are treated as equity and any coupon payments are recognised directly in equity as they arise (see Aviva plc Annual Report and Accounts 2022, note 35).

5. On 28 September 2022, Aviva acquired an additional 25% of the ordinary shares of Aviva Life Insurance Company India Limited giving Aviva a controlling interest in the entity (see Aviva plc Annual Report and Accounts 2022, note 2(a)).

Consolidated statement of changes in equity

For the year ended 31 December 2021

	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	Tier 1 notes £m	Total equity excluding non- controlling interests £m	Non- controlling interests £m	Total equity £m
Balance at 1 January	982	200	10,260	(6)	862	(212)	7,468	—	19,554	1,006	20,560
Profit for the year	—	—	—	—	—	—	1,966	—	1,966	70	2,036
Other comprehensive loss	—	—	—	—	(221)	(23)	(100)	—	(344)	(33)	(377)
Total comprehensive (loss)/income for the year	—	—	—	—	(221)	(23)	1,866	—	1,622	37	1,659
Dividends and appropriations	—	—	—	—	—	—	(1,127)	—	(1,127)	—	(1,127)
Non-controlling interests share of dividends declared in the year	—	—	—	—	—	—	—	—	—	(60)	(60)
Reserves credit for equity compensation plans	—	—	—	—	—	24	—	—	24	—	24
Shares purchased under equity compensation plans	1	—	6	(45)	—	(29)	3	—	(64)	—	(64)
Shares purchased in buyback ²	(42)	—	42	—	—	—	(663)	—	(663)	—	(663)
Return of capital to ordinary shareholders via B share scheme	—	—	—	—	—	—	—	—	—	—	—
Issue of tier 1 notes	—	—	—	—	—	—	—	—	—	—	—
Non-controlling interests in acquired subsidiaries	—	—	—	—	—	—	—	—	—	—	—
Changes in non-controlling interests in subsidiaries	—	—	—	—	—	—	—	—	—	(9)	(9)
Transfer to profit on disposal of subsidiaries, joint ventures and associates	—	—	—	—	(327)	183	—	—	(144)	(722)	(866)
Owner-occupied properties fair value gains transferred to retained earnings on disposals	—	—	—	—	—	(9)	9	—	—	—	—
Balance at 31 December	941	200	10,308	(51)	314	(66)	7,556	—	19,202	252	19,454

1. Capital reserves consist of share premium of £1,248 million, a capital redemption reserve of £86 million and a merger reserve of £8,974 million

2. On 12 August 2021, the Group announced a share buyback of ordinary shares for an aggregate purchase price of up to £750 million. On 16 December 2021 Aviva announced the increase and extension of the share buyback programme to £1 billion. In the year ended 31 December 2021, £663 million of shares had been purchased and shares with a nominal value of £42 million were cancelled.

Consolidated statement of financial position

As at 31 December 2022

	2022 £m	2021 £m
Assets		
Goodwill	2,072	1,741
Acquired value of in-force business and intangible assets	2,089	1,950
Interests in, and loans to, joint ventures	1,933	1,855
Interests in, and loans to, associates	41	118
Property and equipment	350	428
Investment property	5,899	7,003
Loans	29,647	38,624
Financial investments	224,086	264,961
Reinsurance assets	13,056	15,032
Deferred tax assets	611	138
Current tax assets	336	170
Receivables	6,043	6,088
Deferred acquisition costs	2,592	2,721
Pension surpluses and other assets	1,234	2,769
Prepayments and accrued income	2,822	2,391
Cash and cash equivalents	22,505	12,485
Total assets	315,316	358,474
Equity		
Capital		
Ordinary share capital	924	941
Preference share capital	200	200
	1,124	1,141
Capital reserves		
Share premium	1,263	1,248
Capital redemption reserve	3,855	86
Merger reserve	5,224	8,974
	10,342	10,308
Treasury shares	(85)	(51)
Currency translation reserve	511	314
Other reserves	(130)	(66)
Retained earnings	327	7,556
Equity attributable to shareholders of Aviva plc	12,089	19,202
Tier 1 notes	496	—
Equity excluding non-controlling interests	12,585	19,202
Non-controlling interests	310	252
Total equity	12,895	19,454
Liabilities		
Gross insurance liabilities	99,685	122,250
Gross liabilities for investment contracts	158,999	172,452
Unallocated divisible surplus	1,990	1,960
Net asset value attributable to unitholders	14,080	16,427
Pension deficits and other provisions	761	1,001
Deferred tax liabilities	825	1,983
Current tax liabilities	40	35
Borrowings	6,755	7,344
Payables and other financial liabilities	16,442	12,609
Other liabilities	2,844	2,959
Total liabilities	302,421	339,020
Total equity and liabilities	315,316	358,474

Consolidated statement of cash flows

For the year ended 31 December 2022

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.

	2022 £m	2021 £m
Continuing operations		
Cash flows from operating activities		
Cash generated from/(used in) operating activities ¹	16,093	(2,554)
Tax paid	(210)	(304)
Total net cash from/(used in) operating activities	15,883	(2,858)
Cash flows from investing activities		
Acquisitions of, and additions to, subsidiaries, joint ventures and associates, net of cash acquired ²	(275)	—
Disposals of subsidiaries, joint ventures and associates, net of cash transferred	—	23
Purchases of property and equipment	(16)	(86)
Proceeds on sale of property and equipment	35	159
Purchases of intangible assets	(83)	(22)
Total net cash (used in)/from investing activities	(339)	74
Cash flows from financing activities		
Proceeds from issue of ordinary shares	17	6
Return of capital to ordinary shareholders via B share scheme	(3,750)	—
Shares purchased in buyback	(336)	(663)
Treasury shares purchased for employee trusts	(75)	(69)
New borrowings drawn down, net of expenses	659	229
Repayment of borrowings ³	(1,554)	(2,197)
Net repayment of borrowings	(895)	(1,968)
Interest paid on borrowings	(450)	(489)
Repayment of leases	(63)	(71)
Preference dividends paid	(17)	(17)
Ordinary dividends paid	(828)	(1,110)
Coupon payments on tier 1 notes	(17)	—
Issue of tier 1 notes ⁴	496	—
Dividends paid to non-controlling interests of subsidiaries	(21)	(21)
Total net cash used in financing activities	(5,939)	(4,402)
Total net increase/(decrease) in cash and cash equivalents from continuing operations	9,605	(7,186)
Cash flows used in discontinued operations	—	(286)
Cash flow on disposals from discontinued operations	—	3,364
Net cash flows from discontinued operations	—	3,078
Cash and cash equivalents at 1 January	11,878	16,182
Effect of exchange rate changes on cash and cash equivalents	93	(196)
Cash and cash equivalents at 31 December	21,576	11,878

1. Cash flows from operating activities include interest received of £4,335 million (2021: £3,605 million) and dividends received of £4,347 million (2021: £4,461 million). Cash flows from operating activities include impacts from the investment of proceeds from the disposal of discontinued operations into financial investments during 2021, and subsequent disinvestment from those financial investments in 2022 ahead of the return of capital to ordinary shareholders. This activity is reflected as an increase in cash generated from operating activities in 2022.

2. Acquisitions of, and additions to, subsidiaries, joint ventures and associates net of cash acquired relates to the acquisition of Succession Wealth and Aviva Life Insurance Company India Limited (see note 2a)

3. Repayment of borrowings includes the redemption of £1,002 million (2021: £1,878 million) subordinated debt and senior notes (see note 51(e))

4. On 15 June 2022, the Group issued £500 million of 6.875% fixed rate reset perpetual restricted tier 1 contingent convertible notes (the RT1 notes). The RT1 notes are callable at par between 15 December 2031 and 15 June 2032 (the First Reset Date) inclusive and thereafter every five years after the First Reset Date. If not called, the coupon from 15 June 2032 will be reset to the prevailing five year benchmark gilt yield plus 4.649%. The notes have no fixed maturity date. Optional cancellation of coupon payments is at the discretion of the Group and mandatory cancellation is upon the occurrence of certain conditions. The RT1 notes are therefore treated as equity and the coupon payment is recognised directly in equity. On the occurrence of certain conversion trigger events the notes are convertible into ordinary shares of the Group.

B1 – Note to the consolidated financial statements

The results in this announcement have been taken from the Aviva plc Annual Report and Accounts 2022. The consolidated financial statements have been prepared and approved by the directors in accordance with UK-adopted international accounting standards and the legal requirements of the Companies Act 2006.

The Aviva plc Annual Report and Accounts 2022, including the Financial Statements, is available at <https://www.aviva.com/investors/reports/> and a copy has been submitted to the National Storage Mechanism and will shortly be available for inspection at <https://data.fca.org.uk/#/nsm/nationalstoragemechanism>

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).

Analysis of assets

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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

(a) Group assets by fund

	Policyholder assets £m	Participating fund assets £m	Shareholder assets £m	Total £m
2022				
Goodwill and acquired value of in-force business and intangible assets	—	—	4,161	4,161
Interests in joint ventures and associates	293	724	957	1,974
Property and equipment	—	68	282	350
Investment property	3,853	1,742	304	5,899
Loans	643	1,840	27,164	29,647
Financial investments				
Fixed maturity securities	36,967	19,930	46,879	103,776
Equity securities	77,560	7,538	692	85,790
Other investments	26,962	4,234	3,324	34,520
Reinsurance assets	5,254	260	7,542	13,056
Deferred tax assets	—	—	611	611
Current tax assets	—	—	336	336
Receivables and other financial assets	658	512	4,873	6,043
Deferred acquisition costs and other assets	5	884	2,937	3,826
Prepayments and accrued income	507	709	1,606	2,822
Cash and cash equivalents	8,141	3,643	10,721	22,505
Total	160,843	42,084	112,389	315,316
Total %	51.0 %	13.4 %	35.6 %	100.0 %
2021 Total	174,509	50,992	132,973	358,474
2021 Total %	48.7 %	14.2 %	37.1 %	100.0 %

(b) Assets under management by fund

	Policyholder assets £m	Participating fund assets £m	Shareholder assets £m	External funds £m	Total £m
2022					
Assets managed on behalf of the Group's subsidiaries					
Investment property	3,853	1,742	304	—	5,899
Loans	643	1,840	27,164	—	29,647
Fixed maturity securities	36,967	19,930	46,879	—	103,776
Equity securities	77,560	7,538	692	—	85,790
Other investments	26,962	4,234	3,324	—	34,520
Cash and cash equivalents	8,141	3,643	10,721	—	22,505
Other	5,574	684	150	—	6,408
	159,700	39,611	89,234	—	288,545
Assets managed on behalf of third parties¹					
Aviva Investors	—	—	—	37,834	37,834
UK Platform ²	—	—	—	44,603	44,603
Other	—	—	—	677	677
Less: third-party funds and UK Platform included in assets managed on behalf of Group's subsidiaries	—	—	—	(19,511)	(19,511)
	—	—	—	63,603	63,603
Total	159,700	39,611	89,234	63,603	352,148
Total %	45.4 %	11.2 %	25.3 %	18.1 %	100.0 %
2021 Total	173,387	48,191	107,687	72,141	401,406
2021 Total %	43.2 %	12.0 %	26.8 %	18.0 %	100.0 %

1. AUM managed on behalf of third parties cannot be directly reconciled to the financial statements

2. UK Platform relates to the assets under management in the UK Wealth business, including assets under management from acquisition of Succession Wealth

(c) Assets under management included in climate metrics

The following table sets out the assets which are in-scope for our Financed emissions climate metrics (Scope 3, category 15) compared to the assets under management (AUM) on the IFRS consolidated statement of financial position:

	2022 £bn	2021 £bn
Total assets for which emissions are calculated	165	191
Assets under management on IFRS consolidated statement of financial position	289	329
Coverage	57 %	58 %

A reconciliation of climate metrics to AUM on the IFRS Consolidated statement of financial position and more information on our climate metrics, is included in the Metrics and Targets section of the Climate-related Financial Disclosure report.

C2 – Summary of total assets by valuation bases

	Fair value £m	Amortised cost £m	Equity accounted/ tax assets ¹ £m	Total £m
Total assets 2022				
Goodwill and acquired value of in-force business and intangible assets	—	4,161	—	4,161
Interests in joint ventures and associates	—	—	1,974	1,974
Property and equipment	76	274	—	350
Investment property	5,899	—	—	5,899
Loans	25,920	3,727	—	29,647
Financial investments				
Fixed maturity securities	103,776	—	—	103,776
Equity securities	85,790	—	—	85,790
Other investments	34,520	—	—	34,520
Reinsurance assets	5,254	7,802	—	13,056
Deferred tax assets	—	—	611	611
Current tax assets	—	—	336	336
Receivables and other financial assets	—	6,043	—	6,043
Deferred acquisition costs and other assets	—	3,826	—	3,826
Prepayments and accrued income	—	2,822	—	2,822
Cash and cash equivalents	22,505	—	—	22,505
Total	283,740	28,655	2,921	315,316
Total %	90.0 %	9.1 %	0.9 %	100.0 %
2021 Total	319,643	36,550	2,281	358,474
2021 Total %	89.2 %	10.2 %	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.

	Fair value £m	Amortised cost £m	Equity accounted/ tax assets ¹ £m	Total £m
Policyholder assets 2022				
Goodwill and acquired value of in-force business and intangible assets	—	—	—	—
Interests in joint ventures and associates	—	—	293	293
Property and equipment	—	—	—	—
Investment property	3,853	—	—	3,853
Loans	—	643	—	643
Financial investments				
Fixed maturity securities	36,967	—	—	36,967
Equity securities	77,560	—	—	77,560
Other investments	26,962	—	—	26,962
Reinsurance assets	5,254	—	—	5,254
Deferred tax assets	—	—	—	—
Current tax assets	—	—	—	—
Receivables and other financial assets	—	658	—	658
Deferred acquisition costs and other assets	—	5	—	5
Prepayments and accrued income	—	507	—	507
Cash and cash equivalents	8,141	—	—	8,141
Total	158,737	1,813	293	160,843
Total %	98.7 %	1.1 %	0.2 %	100.0 %
2021 Total	171,370	2,899	240	174,509
2021 Total %	98.2 %	1.7 %	0.1 %	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.

	Fair value £m	Amortised cost £m	Equity accounted/ tax assets ¹ £m	Total £m
Participating fund assets 2022				
Goodwill and acquired value of in-force business and intangible assets	—	—	—	—
Interests in joint ventures and associates	—	—	724	724
Property and equipment	68	—	—	68
Investment property	1,742	—	—	1,742
Loans	674	1,166	—	1,840
Financial investments				
Fixed maturity securities	19,930	—	—	19,930
Equity securities	7,538	—	—	7,538
Other investments	4,234	—	—	4,234
Reinsurance assets	—	260	—	260
Deferred tax assets	—	—	—	—
Current tax assets	—	—	—	—
Receivables and other financial assets	—	512	—	512
Deferred acquisition costs and other assets	—	884	—	884
Prepayments and accrued income	—	709	—	709
Cash and cash equivalents	3,643	—	—	3,643
Total	37,829	3,531	724	42,084
Total %	89.9 %	8.4 %	1.7 %	100.0 %
2021 Total	44,360	5,915	717	50,992
2021 Total %	87.0 %	11.6 %	1.4 %	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.

	Fair value £m	Amortised cost £m	Equity accounted/ tax assets ¹ £m	Total £m
Shareholder assets 2022				
Goodwill and acquired value of in-force business and intangible assets	—	4,161	—	4,161
Interests in joint ventures and associates	—	—	957	957
Property and equipment	8	274	—	282
Investment property	304	—	—	304
Loans	25,246	1,918	—	27,164
Financial investments				
Fixed maturity securities	46,879	—	—	46,879
Equity securities	692	—	—	692
Other investments	3,324	—	—	3,324
Reinsurance assets	—	7,542	—	7,542
Deferred tax assets	—	—	611	611
Current tax assets	—	—	336	336
Receivables and other financial assets	—	4,873	—	4,873
Deferred acquisition costs and other assets	—	2,937	—	2,937
Prepayments and accrued income	—	1,606	—	1,606
Cash and cash equivalents	10,721	—	—	10,721
Total	87,174	23,311	1,904	112,389
Total %	77.5 %	20.8 %	1.7 %	100.0 %
2021 Total	103,913	27,736	1,324	132,973
2021 Total %	78.1 %	20.9 %	1.0 %	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 2022 across the Group, split according to the type of the liability the assets are backing, is shown in the table below.

	Shareholder business assets					Carrying value in the statement of financial position £m
	General insurance & health & other ¹ £m	Annuity and non-profit £m	Total shareholder assets £m	Policyholder (unit-linked assets) £m	Participating fund assets (UK style with-profits) £m	
2022						
Fixed maturity securities (note C4)						
Government bonds	5,582	13,557	19,139	16,286	8,271	43,696
Corporate bonds	4,796	16,789	21,585	17,227	8,969	47,781
Other	2,618	3,537	6,155	3,454	2,690	12,299
	12,996	33,883	46,879	36,967	19,930	103,776
Loans (note C5)						
Mortgage loans	—	17,496	17,496	—	18	17,514
Other loans	1,143	8,525	9,668	643	1,822	12,133
	1,143	26,021	27,164	643	1,840	29,647
Equity securities (note C6)	482	210	692	77,560	7,538	85,790
Investment property (note C7)	202	102	304	3,853	1,742	5,899
Other investments (note C8)	1,850	1,474	3,324	26,962	4,234	34,520
Total	16,673	61,690	78,363	145,985	35,284	259,632
2021 Total	23,792	78,075	101,867	162,541	46,180	310,588

1. Of the £16,673 million of assets 34% relates to other shareholder business assets

C4 – Analysis of fixed maturity securities

(a) 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			Total £m
	Level 1 £m	Level 2 £m	Level 3 £m	
Fixed maturity securities - Total 2022				
UK government	17,270	1,905	483	19,658
Non-UK government	4,858	17,271	1,909	24,038
Europe	1,132	5,935	1,026	8,093
North America	3,724	3,972	455	8,151
Asia Pacific & Other	2	7,364	428	7,794
Corporate bonds - public utilities	—	4,039	1,497	5,536
Other corporate bonds	—	39,384	2,861	42,245
Other	12	11,849	438	12,299
Total	22,140	74,448	7,188	103,776
Total %	21.3 %	71.8 %	6.9 %	100.0 %
2021 Total	34,520	90,254	8,477	133,251
2021 Total %	25.9 %	67.7 %	6.4 %	100.0 %

	Fair value hierarchy			Total £m
	Level 1 £m	Level 2 £m	Level 3 £m	
Fixed maturity securities - Policyholder assets 2022				
UK government	7,024	—	—	7,024
Non-UK government	3,312	5,949	1	9,262
Europe	778	1,975	—	2,753
North America	2,534	181	1	2,716
Asia Pacific & Other	—	3,793	—	3,793
Corporate bonds - public utilities	—	1,160	—	1,160
Other corporate bonds	—	16,050	17	16,067
Other	11	3,443	—	3,454
Total	10,347	26,602	18	36,967
Total %	28.0 %	72.0 %	— %	100.0 %
2021 Total	11,523	30,843	41	42,407
2021 Total %	27.2 %	72.7 %	0.1 %	100.0 %

	Fair value hierarchy			Total £m
	Level 1 £m	Level 2 £m	Level 3 £m	
Fixed maturity securities - Participating fund assets 2022				
UK government	3,005	756	166	3,927
Non-UK government	936	3,193	215	4,344
Europe	291	1,382	110	1,783
North America	645	40	—	685
Asia Pacific & Other	—	1,771	105	1,876
Corporate bonds - public utilities	—	633	85	718
Other corporate bonds	—	8,054	197	8,251
Other	—	2,467	223	2,690
Total	3,941	15,103	886	19,930
Total %	19.8 %	75.8 %	4.4 %	100.0 %
2021 Total	5,896	20,298	911	27,105
2021 Total %	21.7 %	74.9 %	3.4 %	100.0 %

Fixed maturity securities - Shareholder assets 2022	Fair value hierarchy			
	Level 1 £m	Level 2 £m	Level 3 £m	Total £m
UK government	7,241	1,149	317	8,707
Non-UK government	610	8,129	1,693	10,432
Europe	63	2,578	916	3,557
North America	545	3,751	454	4,750
Asia Pacific & Other	2	1,800	323	2,125
Corporate bonds - public utilities	—	2,246	1,412	3,658
Other corporate bonds	—	15,280	2,647	17,927
Other	1	5,939	215	6,155
Total	7,852	32,743	6,284	46,879
Total %	16.8 %	69.8 %	13.4 %	100.0 %
2021 Total	17,101	39,113	7,525	63,739
2021 Total %	26.8 %	61.4 %	11.8 %	100.0 %

(b) External ratings

	External ratings						
	AAA £m	AA £m	A £m	BBB £m	Less than BBB £m	Non-rated £m	Total £m
Fixed maturity securities - Total 2022							
Government							
UK government	—	19,166	152	—	—	252	19,570
UK local authorities	—	—	72	—	—	16	88
Non-UK government	11,452	5,392	3,211	1,745	1,104	1,134	24,038
	11,452	24,558	3,435	1,745	1,104	1,402	43,696
Corporate bonds							
Public utilities	—	170	1,418	2,700	111	1,137	5,536
Other corporate	6,279	7,119	14,572	8,712	2,730	2,833	42,245
	6,279	7,289	15,990	11,412	2,841	3,970	47,781
Certificates of deposit	59	6,763	2,822	—	—	415	10,059
Structured							
Residential mortgage backed security non-agency prime	3	—	53	73	—	—	129
	3	—	53	73	—	—	129
Commercial mortgage backed security	333	85	118	65	—	23	624
Asset backed security	294	315	64	138	18	50	879
Collateralised debt obligation (including collateralised loan obligation)	222	—	—	—	—	—	222
	849	400	182	203	18	73	1,725
Wrapped credit	—	17	244	77	39	9	386
Total	18,642	39,027	22,726	13,510	4,002	5,869	103,776
Total %	18.0 %	37.6 %	21.9 %	13.0 %	3.8 %	5.7 %	100.0 %
2021 Total	17,855	57,511	29,561	16,111	4,865	7,348	133,251
2021 Total %	13.3 %	43.2 %	22.2 %	12.1 %	3.7 %	5.5 %	100.0 %

	External ratings						
	AAA £m	AA £m	A £m	BBB £m	Less than BBB £m	Non-rated £m	Total £m
Fixed maturity securities - Policyholders assets 2022							
Government							
UK government	—	7,018	6	—	—	—	7,024
UK local authorities	—	—	—	—	—	—	—
Non-UK government	4,453	961	1,741	1,245	798	64	9,262
	4,453	7,979	1,747	1,245	798	64	16,286
Corporate bonds							
Public utilities	—	22	325	761	52	—	1,160
Other corporate	2,668	2,393	4,725	3,662	1,930	689	16,067
	2,668	2,415	5,050	4,423	1,982	689	17,227
Certificates of deposit	21	1,861	1,001	—	—	265	3,148
Structured							
Residential mortgage backed security non-agency prime	1	—	2	47	—	—	50
	1	—	2	47	—	—	50
Commercial mortgage backed security	58	32	4	14	—	1	109
Asset backed security	65	45	12	6	—	6	134
Collateralised debt obligation (including collateralised loan obligation)	—	—	—	—	—	—	—
	123	77	16	20	—	7	243
Wrapped credit	—	8	4	1	—	—	13
Total	7,266	12,340	7,820	5,736	2,780	1,025	36,967
Total %	19.7 %	33.3 %	21.2 %	15.5 %	7.5 %	2.8 %	100.0 %
2021 Total	4,951	16,023	10,137	6,401	3,405	1,490	42,407
2021 Total %	11.7 %	37.8 %	23.9 %	15.1 %	8.0 %	3.5 %	100.0 %

	External ratings						
	AAA £m	AA £m	A £m	BBB £m	Less than BBB £m	Non-rated £m	Total £m
Fixed maturity securities - Participating fund assets 2022							
Government							
UK government	—	3,724	14	—	—	188	3,926
UK local authorities	—	—	1	—	—	—	1
Non-UK government	1,327	1,411	677	407	288	234	4,344
	1,327	5,135	692	407	288	422	8,271
Corporate bonds							
Public utilities	—	63	105	407	58	85	718
Other corporate	1,475	1,261	2,471	1,981	745	318	8,251
	1,475	1,324	2,576	2,388	803	403	8,969
Certificates of deposit	11	1,511	550	—	—	61	2,133
Structured							
Residential mortgage backed security non-agency prime	1	—	—	25	—	—	26
	1	—	—	25	—	—	26
Commercial mortgage backed security	64	9	12	5	—	8	98
Asset backed security	69	43	21	44	16	6	199
Collateralised debt obligation (including collateralised loan obligation)	222	—	—	—	—	—	222
	355	52	33	49	16	14	519
Wrapped credit	—	1	10	—	—	1	12
Total	3,169	8,023	3,861	2,869	1,107	901	19,930
Total %	15.9 %	40.3 %	19.4 %	14.4 %	5.5 %	4.5 %	100.0 %
2021 Total	3,811	11,592	5,863	3,422	1,365	1,052	27,105
2021 Total %	14.1 %	42.8 %	21.6 %	12.6 %	5.0 %	3.9 %	100.0 %

	External ratings						Total £m
	AAA £m	AA £m	A £m	BBB £m	Less than BBB £m	Non-rated £m	
Fixed maturity securities - Shareholder assets 2022							
Government							
UK government	—	8,424	132	—	—	64	8,620
UK local authorities	—	—	71	—	—	16	87
Non-UK government	5,672	3,020	793	93	18	836	10,432
	5,672	11,444	996	93	18	916	19,139
Corporate bonds							
Public utilities	—	85	988	1,532	1	1,052	3,658
Other corporate	2,136	3,465	7,376	3,069	55	1,826	17,927
	2,136	3,550	8,364	4,601	56	2,878	21,585
Certificates of deposit	27	3,391	1,271	—	—	89	4,778
Structured							
Residential mortgage backed security non-agency prime	1	—	51	1	—	—	53
	1	—	51	1	—	—	53
Commercial mortgage backed security	211	44	102	46	—	14	417
Asset backed security	160	227	31	88	2	38	546
Collateralised debt obligation (including collateralised loan obligation)	—	—	—	—	—	—	—
	371	271	133	134	2	52	963
Wrapped credit	—	8	230	76	39	8	361
Total	8,207	18,664	11,045	4,905	115	3,943	46,879
Total %	17.5 %	39.8 %	23.6 %	10.5 %	0.2 %	8.4 %	100.0 %
2021 Total	9,093	29,896	13,561	6,288	95	4,806	63,739
2021 Total %	14.3 %	46.9 %	21.3 %	9.9 %	0.1 %	7.5 %	100.0 %

Within shareholder assets fixed maturity securities, 40.8% of exposure is in government holdings (2021: 46.2%). Our corporate fixed maturity securities portfolio represents 46.0% of total shareholder fixed maturity securities (2021: 37.9%). At 31 December 2022, the proportion of our shareholder fixed maturity securities that are investment grade is 91.4% (2021: 92.4%). The remaining 8.6% of shareholder fixed maturity securities that do not have an external rating of BBB or higher can be split as follows:

- 0.2% are fixed maturity securities that are rated as below investment grade; and
- 8.4% 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 £2.8 billion (2021: £3.5 billion) of fixed maturity 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.

C5 – Analysis of loans

(a) Overview

The Group's loan portfolio of £29,647 million (2021: £38,624 million) is principally made up of the following:

- Policy loans of £14 million (2021: £14 million), which are generally collateralised by a lien or charge over the underlying policy;
- Loans and advances to banks of £4,481 million (2021: £8,297 million), which primarily relate to loans of cash collateral received in stock lending transactions and are therefore fully collateralised by other securities;
- Mortgage loans collateralised by property assets of £17,514 million (2021: £21,684 million); and
- Healthcare, infrastructure and private financial initiative (PFI) loans of £6,837 million (2021: £7,994 million).

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, 59.1% (2021: 56.1%) is invested in mortgage loans. The shareholder risk relating to these loans is discussed further below.

Healthcare, infrastructure and PFI loans included within shareholder assets are £6,726 million (2021: £7,994 million). These loans are secured against the income from healthcare and education premises and as such are not considered further in this section.

An analysis of the shareholder loans is set out below.

	United Kingdom £m	Canada £m	Europe £m	Total £m
Loans - Shareholder assets 31 December 2022				
Policy loans	3	—	—	3
Loans and advances to banks	2,612	—	—	2,612
Healthcare, Infrastructure and PFI other loans	6,576	—	150	6,726
Mortgage loans	17,496	—	—	17,496
Other loans	214	113	—	327
Total	26,901	113	150	27,164
Total %	99.0 %	0.4 %	0.6 %	100.0 %
2021 Total	33,156	104	204	33,464
2021 Total %	99.1 %	0.3 %	0.6 %	100.0 %

(b) Analysis of shareholder mortgage loans

Mortgage loans included within shareholder assets are £17,496 million (2021: £21,663 million) and are held in the UK. The narrative below focuses on explaining the risks arising as a result of these exposures.

	Total £m
31 December 2022	
Non-securitised mortgage loans	
– Residential (Equity release)	7,784
– Commercial	5,953
– Healthcare, Infrastructure and PFI mortgage loans	2,000
	15,737
Securitised mortgage loans	1,759
Total	17,496
2021 Total	21,663

Non-securitised mortgage loans

Residential

The UK non-securitised residential mortgage portfolio has a total value as at 31 December 2022 of £7,784 million (2021: £9,699 million). The movement in the year is due to £804 million of new lending offset by a decrease in the fair value of £2,484 million. Additional accrued interest in the year is offset against 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 24.6% (2021: 27.5%).

Commercial

Gross exposure by loan to value and arrears of UK non-securitised commercial mortgages is shown in the table below.

31 December 2022	>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	27	—	—	—	—	—	—	134	224	5,568	5,953
Total	27	—	—	—	—	—	—	134	224	5,568	5,953

All of the £5,953 million (2021: £7,225 million) of mortgage loans within shareholder assets 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, reduced to 2.29x (2021: 2.31x). 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, reduced to 2.62x (2021: 2.65x). Average mortgage LTV decreased from 56.0% in 2021 to 49.4%. As at 31 December 2022, there were no loans with balances in arrears (2021: £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. £14,096 million of shareholder loan assets are backing annuity liabilities and comprise of commercial mortgage loans (£5,953 million), Healthcare, Infrastructure and PFI mortgage loans (£2,000 million) and Healthcare, Infrastructure and PFI other loans (£6,143 million).

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 benefitting 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. The Group continues to actively manage this position.

Healthcare, Infrastructure and PFI

Healthcare, Infrastructure and PFI mortgage loans included within shareholder assets of £2,000 million (2021: £2,508 million) are secured against healthcare premises, 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 58.9% (2021: 68.3%), 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. The Group therefore considers these loans to be lower risk relative to other mortgage loans.

Securitised mortgage loans

As at 31 December 2022, the Group has £1,759 million (2021: £2,231 million) 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 £208 million (2021: £213 million) are held by Group companies. The remainder are 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 42.8% (2021: 49.5%).

Valuation allowance

The Group carries a valuation allowance within insurance liabilities against the risk of default for assets backing annuities. The total valuation allowance in respect of corporate bonds was £0.7 billion (2021: £1.4 billion) over the remaining term of the portfolio at 31 December 2022. The total valuation allowance in respect of mortgages, including healthcare mortgages but excluding equity release, was £0.3 billion at 31 December 2022 (2021: £0.5 billion). The total valuation allowance in respect of equity release mortgages was £0.8 billion at 31 December 2022 (2021: £1.2 billion). The risk allowances made for corporate bonds (including overseas government bonds and structured finance assets), mortgages (including healthcare mortgages, commercial mortgages and infrastructure assets) and equity release equated to 34 bps, 28 bps, and 98 bps respectively at 31 December 2022 (2021: 44 bps, 30 bps and 91 bps respectively).

C6 – Analysis of equity securities

	2022				2021			
	Fair value hierarchy			Total £m	Fair value hierarchy			Total £m
	Level 1 £m	Level 2 £m	Level 3 £m		Level 1 £m	Level 2 £m	Level 3 £m	
Equity securities - Total								
Public utilities	5,047	—	—	5,047	3,240	—	—	3,240
Banks, trusts and insurance companies	16,041	—	174	16,215	17,221	—	159	17,380
Industrial miscellaneous and all other	64,212	—	157	64,369	74,139	—	191	74,330
Non-redeemable preference shares	159	—	—	159	219	—	—	219
Total	85,459	—	331	85,790	94,819	—	350	95,169
Total %	99.6 %	—	0.4 %	100.0 %	99.6 %	—	0.4 %	100.0 %

	2022				2021			
	Fair value hierarchy			Total £m	Fair value hierarchy			Total £m
	Level 1 £m	Level 2 £m	Level 3 £m		Level 1 £m	Level 2 £m	Level 3 £m	
Equity securities - Policyholder assets								
Public utilities	4,609	—	—	4,609	2,925	—	—	2,925
Banks, trusts and insurance companies	14,515	—	3	14,518	15,577	—	5	15,582
Industrial miscellaneous and all other	58,390	—	1	58,391	66,616	—	9	66,625
Non-redeemable preference shares	42	—	—	42	54	—	—	54
Total	77,556	—	4	77,560	85,172	—	14	85,186
Total %	100.0 %	—	—	100.0 %	100.0 %	—	—	100.0 %

	2022				2021			
	Fair value hierarchy			Total £m	Fair value hierarchy			Total £m
	Level 1 £m	Level 2 £m	Level 3 £m		Level 1 £m	Level 2 £m	Level 3 £m	
Equity securities - Participating fund assets								
Public utilities	418	—	—	418	308	—	—	308
Banks, trusts and insurance companies	1,471	—	—	1,471	1,601	—	—	1,601
Industrial miscellaneous and all other	5,493	—	154	5,647	6,715	—	181	6,896
Non-redeemable preference shares	2	—	—	2	3	—	—	3
Total	7,384	—	154	7,538	8,627	—	181	8,808
Total %	98.0 %	—	2.0 %	100.0 %	97.9 %	—	2.1 %	100.0 %

	2022				2021			
	Fair value hierarchy			Total £m	Fair value hierarchy			Total £m
	Level 1 £m	Level 2 £m	Level 3 £m		Level 1 £m	Level 2 £m	Level 3 £m	
Equity securities - Shareholder assets								
Public utilities	20	—	—	20	7	—	—	7
Banks, trusts and insurance companies	55	—	171	226	43	—	154	197
Industrial miscellaneous and all other	329	—	2	331	808	—	1	809
Non-redeemable preference shares	115	—	—	115	162	—	—	162
Total	519	—	173	692	1,020	—	155	1,175
Total %	75.0 %	—	25.0 %	100.0 %	86.8 %	—	13.2 %	100.0 %

C7 – Analysis of investment property

The Group's total investment property value is £5,899 million (2021: £7,003 million).

Within total investment properties by value, 94.8% (2021: 94.1%) are held in policyholder or participating fund assets. Shareholder exposure to investment properties is principally through investments in UK commercial property.

Investment properties are stated at their market values as assessed by qualified external independent valuers. The properties are valued on an income approach 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. The uplift and discount rates are derived from rates implied by recent market transactions on similar properties. These inputs are deemed unobservable.

Within total investment properties by value, 96.2% (2021: 95.8%) 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, 100.0% (2021: 100.0%) are leased to third parties under operating leases.

C8 – Analysis of other financial investments

	2022				2021			
	Fair value hierarchy			Total £m	Fair value hierarchy			Total £m
	Level 1 £m	Level 2 £m	Level 3 £m		Level 1 £m	Level 2 £m	Level 3 £m	
Other investments - Total								
Unit trusts and other investment vehicles	27,834	557	820	29,211	28,758	842	780	30,380
Derivative financial instruments	285	4,464	167	4,916	200	5,126	408	5,734
Deposits with credit institutions	56	—	—	56	84	—	—	84
Minority holdings in property management undertakings	—	—	222	222	—	—	246	246
Other	17	—	98	115	1	—	96	97
Total	28,192	5,021	1,307	34,520	29,043	5,968	1,530	36,541
Total %	81.7 %	14.5 %	3.8 %	100.0 %	79.5 %	16.3 %	4.2 %	100.0 %

	2022				2021			
	Fair value hierarchy			Total £m	Fair value hierarchy			Total £m
	Level 1 £m	Level 2 £m	Level 3 £m		Level 1 £m	Level 2 £m	Level 3 £m	
Other investments - Policyholder assets								
Unit trusts and other investment vehicles	25,259	515	8	25,782	27,308	657	2	27,967
Derivative financial instruments	109	1,014	—	1,123	44	424	—	468
Deposits with credit institutions	56	—	—	56	84	—	—	84
Minority holdings in property management undertakings	—	—	1	1	—	—	2	2
Other	—	—	—	—	—	—	—	—
Total	25,424	1,529	9	26,962	27,436	1,081	4	28,521
Total %	94.3 %	5.7 %	—	100.0 %	96.2 %	3.8 %	—	100.0 %

	2022				2021			
	Fair value hierarchy			Total £m	Fair value hierarchy			Total £m
	Level 1 £m	Level 2 £m	Level 3 £m		Level 1 £m	Level 2 £m	Level 3 £m	
Other investments - Participating fund assets								
Unit trusts and other investment vehicles	2,033	—	529	2,562	1,363	25	503	1,891
Derivative financial instruments	101	1,443	18	1,562	156	2,749	31	2,936
Deposits with credit institutions	—	—	—	—	—	—	—	—
Minority holdings in property management undertakings	—	—	95	95	—	—	116	116
Other	15	—	—	15	—	—	—	—
Total	2,149	1,443	642	4,234	1,519	2,774	650	4,943
Total %	50.7 %	34.1 %	15.2 %	100.0 %	30.7 %	56.2 %	13.1 %	100.0 %

	2022				2021			
	Fair value hierarchy			Total £m	Fair value hierarchy			Total £m
	Level 1 £m	Level 2 £m	Level 3 £m		Level 1 £m	Level 2 £m	Level 3 £m	
Other investments - Shareholder assets								
Unit trusts and other investment vehicles	542	42	283	867	87	160	275	522
Derivative financial instruments	75	2,007	149	2,231	—	1,953	377	2,330
Deposits with credit institutions	—	—	—	—	—	—	—	—
Minority holdings in property management undertakings	—	—	126	126	—	—	128	128
Other	2	—	98	100	1	—	96	97
Total	619	2,049	656	3,324	88	2,113	876	3,077
Total %	18.6 %	61.6 %	19.8 %	100.0 %	2.8 %	68.7 %	28.5 %	100.0 %

C9 – 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.

2022	Ratings						Total £m
	AAA £m	AA £m	A £m	BBB £m	Less than BBB £m	Not rated £m	
Policyholder assets	—	4,359	490	405	—	—	5,254
Participating fund assets	—	7	253	—	—	—	260
Shareholder assets	—	4,322	3,207	—	—	13	7,542
Total	—	8,688	3,950	405	—	13	13,056
Total %	—	66.5 %	30.3 %	3.1 %	— %	0.1 %	100.0 %
2021 Total	—	11,530	2,834	574	—	94	15,032
2021 Total %	—	76.7 %	18.9 %	3.8 %	—	0.6 %	100.0 %

Other information

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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 amounts 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. The calculation of APMs is consistent with previous periods unless otherwise stated.

Further details on APMs derived from IFRS measures and APMs derived from Solvency II measures are provided in the following sections. A further section describes Other APMs.

APMs derived from IFRS measures

A number of APMs relating to IFRS are utilised to measure and monitor the Group's performance

- Group adjusted operating profit
- Combined operating ratio
- Claims, commission, and expense ratios
- Operating earnings per share
- Controllable costs
- IFRS return on equity
- IFRS net asset value per share
- Assets Under Management and Assets Under Administration
- Net flows
- Aviva Investors revenue
- Cost income ratio

Definitions and additional information, including reconciliation to the relevant amounts in the IFRS Financial Statements and, where appropriate, commentary on the material reconciling items are included within this section.

Group adjusted operating profit

Group operating profit is an APM that supports decision making and 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 Group considers this measure meaningful to stakeholders as it enhances the understanding of the Group's operating performance over time by separately identifying non-operating items. 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. 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 long-term rate of return. This rate of return is the same as that applied for the long-term business expected returns. The long-term return for other investments (including debt securities) is the actual income receivable for the period. Actual income and long-term investment return both contain the amortisation of the discounts/premium arising on the acquisition of fixed income securities.

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 variances, 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 intangible assets acquired in business combinations; 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 2022 comprise:

- The following items which are disclosed outside of Group adjusted operating profit as they relate to acquisition and disposal activity that we consider to be strategic in nature:
 - A gain of £77 million relating to negative goodwill on the acquisition of Aviva India, which is excluded from Group adjusted operating profit for consistency with the treatment of impairment of goodwill
 - A charge of £15 million arising from third party reinsurance, accepted by Aviva from the former Aviva France general insurance entity, which was terminated on 31 December 2021
 - A net release of provisions relating to acquisition and disposal activity of £1 million
 - A charge of £7 million relating to costs directly associated with the acquisition of Succession Wealth
- A charge of £10 million relating to fees and charges associated with the share buyback and return of capital to ordinary shareholders
- A charge of £5 million relating to the cost of the employee free share award, which recognises the contribution our employees have made to the return of capital to ordinary shareholders.

Other items at 2021 comprised:

- The following items which were disclosed outside of Group adjusted operating profit as they relate to acquisition and disposal activity that we consider to be strategic in nature:
 - A charge of £76 million arising from third party reinsurance, accepted by Aviva from the former Aviva France general insurance entity, which was terminated on 31 December 2021;
 - A charge of £45 million relating to costs associated with the disposals of France, Italy, Aviva Vita, Poland, Singapore, Turkey and Vietnam, comprising IT contracts that have become onerous, severance costs associated with senior management and relocation costs;
 - Net charges of £22 million relating to provisions for indemnities entered into through acquisition and disposal activity.
- A charge of £51 million relating to the redemption payment in excess of the market value of debt repaid as part of the Group's deleveraging strategy. This is disclosed outside of Group adjusted operating profit as the costs arise from a strategic decision relating to the financing of the Group as a whole and not to the operating performance of the Group or its operating segments;
- A charge of £7 million relating to the cost of voluntary amendments to a small proportion of ground rent leases held by the Aviva Investors REaLM Ground Rent Fund; and
- A charge of £3 million relating to stamp duty costs on share buybacks

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

The table below presents a reconciliation between our consolidated operating profit and (loss)/profit before tax attributable to shareholders' profits.

	2022 £m	2021 £m
UK & Ireland Life	1,908	1,428
UK & Ireland General Insurance	338	356
Canada	433	406
Aviva Investors	25	41
UK, Ireland, Canada and Aviva Investors	2,704	2,231
International investments	52	97
	2,756	2,328
Corporate centre costs and Other operations	(297)	(379)
Group debt costs and other interest	(246)	(315)
Group adjusted operating profit before tax attributable to shareholders' profits from continuing operations	2,213	1,634
Group adjusted operating profit before tax attributable to shareholders' profits from discontinued operations	—	631
Group adjusted operating profit before tax attributable to shareholders' profits	2,213	2,265
Adjusted for the following:		
Life business: Investment variances and economic assumption changes	(2,387)	(805)
Non-life business: Short-term fluctuation in return on investments	(1,375)	(149)
General insurance and health business: Economic assumption changes	147	(85)
Impairment of goodwill, associates and joint ventures and other amounts expensed	(8)	—
Amortisation and impairment of intangibles acquired in business combinations	(54)	(66)
Amortisation and impairment of acquired value of in-force business	(182)	(199)
Profit on the disposal and remeasurement of subsidiaries, joint ventures and associates	—	1,572
Other	41	(204)
Adjusting items before tax	(3,818)	64
IFRS (loss)/profit before tax attributable to shareholders' profits	(1,605)	2,329
Tax on Group adjusted operating profit	(289)	(470)
Tax on other activities	755	177
	466	(293)
IFRS (loss)/profit for the year	(1,139)	2,036

Combined operating ratio (COR)

COR is a useful financial measure of general insurance underwriting profitability calculated as total underwriting costs in our insurance entities expressed as a percentage of net earned premiums. It is used to monitor the profitability of lines of business. A COR below 100% indicates profitable underwriting. The Group COR is shown below.

	2022 £m	2021 £m
Continuing operations		
Incurred claims – GI & Health ¹	(5,625)	(4,954)
Adjusted for the following:		
Incurred claims – Health	368	338
Change in discount rate assumptions	(147)	77
Total incurred claims (included in COR)	(5,404)	(4,539)
Commission and expenses – GI & Health ²	(3,037)	(2,869)
Adjusted for the following:		
Amortisation and impairment of intangibles acquired in business combinations	11	10
Foreign exchange (losses)/gains	48	(48)
Commission income	19	16
Other	36	22
Commission and expenses – Health & Other Non GI	208	199
Total commission and expenses (included in COR)³	(2,715)	(2,670)
Total underwriting costs from continuing operations	(8,119)	(7,209)
Total underwriting costs from discontinued operations	—	(1,448)
Total underwriting costs	(8,119)	(8,657)
Net earned premiums – GI & Health	9,140	8,253
Adjusted for:		
Net earned premiums – Health	(556)	(490)
Net earned premiums (included in COR) from continuing operations	8,584	7,763
Net earned premiums (included in COR) from discontinued operations	—	1,430
Net earned premiums (included in COR)	8,584	9,193
Combined operating ratio - continuing operations	94.6%	92.9 %
Combined operating ratio	94.6%	94.1 %

1. Incurred claims - GI & Health 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 3 b(i) of the Aviva plc 2022 Annual Report and Accounts

2. Commission and expenses - GI & Health corresponds to the sum of fee and commission expense, other expenses and other net foreign exchange (losses)/gains per note 3 b(i) of the Aviva plc 2022 Annual Report and Accounts

3. Commission and expenses (included in COR) is comprised of £1,686 million earned commission (2021: £1,706 million) and £1,029 million earned expenses (2021: £964 million)

Claims, commission, and expense ratios

Financial measures of the performance of our general insurance business which are calculated as incurred claims, earned commissions or earned expenses expressed as a percentage of net earned premiums, which can be derived from the COR table above. The ratios are meaningful to stakeholders because they enhance understanding of the profitability of the business sold.

Operating earnings per share (Operating 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 direct capital instrument coupons divided by the weighted average number of ordinary shares in issue, after deducting treasury shares. Operating EPS is considered meaningful to stakeholders because it enhances the understanding of the Group's operating performance over time by adjusting for the effects of non-operating items. A reconciliation between operating EPS and basic EPS can be found in note 13 of the Aviva plc 2022 Annual Report and Accounts.

Controllable costs

Controllable costs is a useful measure of the controllable operational overheads associated with maintaining our businesses.

These predominantly consist of staff costs, central costs, property and IT related costs and other expenses. Controllable costs also include indirect acquisition costs, such as underwriting overheads, and claims handling costs. These are considered to be controllable by the operating segments.

Controllable costs excludes:

- Impairment of goodwill, associates and joint ventures; amortisation and impairment of other intangible assets acquired in business combinations; and amortisation and impairment of acquired value of in-force business. These items relate to merger, acquisition and disposal activity which we view as strategic in nature, hence they are excluded from controllable costs which is principally used to manage the performance of our operating segments.
- Costs in relation to product governance and mis-selling. These costs represent compensation and redress payments made to policyholders and are excluded from controllable costs because they have characteristics of claims payments.
- Premium based taxes, fees and levies that vary directly with premiums. These costs are by their nature a direct cost incurred as a result of generating premium income, and therefore not a controllable operational overhead.
- Other amounts that, in management's view, are not representative of underlying day-to-day expenses involved in running the business, and that would distort the year-on-year controllable costs trend such as GI instalment income and charges reported as 'Other' outside of Group adjusted operating profit.

A reconciliation of other expenses in the IFRS condensed consolidated income statement to controllable costs is set out below:

	2022 £m	2021 £m
Continuing operations		
Other expenses (IFRS income statement) ¹	2,211	2,412
Add: other acquisition costs	965	895
Add: claims handling costs ¹	330	272
Less: amortisation and impairment of intangibles acquired in business combinations	(54)	(54)
Less: amortisation and impairment of acquired value of in-force business	(170)	(189)
Add/(less): product governance and mis-selling costs	12	(12)
Less: premium based income taxes, fees and levies	(216)	(195)
Add/(less): other costs	74	(33)
Controllable costs from continuing operations	3,152	3,096
Controllable costs from discontinued operations	—	590
Controllable costs	3,152	3,686

1. Following a review of other expenses, £52 million of costs associated with claims and benefits paid to policyholders on long-term business have been reclassified to claims handling costs in 2022. There is no impact on total or baseline controllable costs.

Baseline controllable costs are controllable costs included in the scope of the 2018 cost saving target baseline. Baseline controllable costs excludes:

- Cost reduction implementation and IFRS 17 costs. These costs are expected to cease by the end of 2023 and are excluded from baseline controllable costs in line with the defined cost reduction target.
- Strategic investment on significant programmes supporting growth, customer experience, efficiency or agility to transform Group performance. These costs are expected to cease by the end of 2025.
- Other costs relating to recently acquired entities, non-insurance operations relating to Europe and Asia and the impact of foreign exchange movements which were not included in the 2018 cost savings target baseline.

	2022 £m	2021 £m
Controllable costs from continuing operations	3,152	3,096
Less: Cost reduction implementation, IFRS 17 costs and other	(287)	(242)
Less: Strategic Investment	(94)	—
Baseline controllable costs from continuing operations	2,771	2,854

IFRS Return on Equity (RoE)

The IFRS 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 and preference share capital). IFRS RoE is a useful measure of growth and performance of the business on an IFRS basis.

IFRS net asset value (NAV) per share

IFRS 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 at the balance sheet date. IFRS NAV per share is meaningful as a measure of the value generated by the Group in terms of the equity shareholders' face value per share investment.

	2022	2021
Equity attributable to shareholders of Aviva plc at 31 December ¹ (£m)	11,889	19,002
Number of shares in issue at 31 December (in millions)	2,808	3,766
IFRS NAV per share	423p	505p

1. Excluding preference shares of £200 million (2021: £200 million)

Assets Under Management (AUM) and Assets Under Administration (AUA)

AUM represent all assets managed or administered by or on behalf of the Group's subsidiaries, including those assets managed by Aviva Investors and 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, Aviva Investors AUA comprises AUM plus £37,501 million (2021: £43,582 million) of 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 amounts appearing in the Group's statement of financial position to AUM is shown below:

	2022 £m	2021 £m
Assets managed on behalf of the Group's subsidiaries		
Assets included in statement of financial position		
Financial investments	224,086	264,961
Investment property	5,899	7,003
Loans	29,647	38,624
Cash and cash equivalents	22,505	12,485
Other	6,408	6,192
	288,545	329,265
Less: third-party funds and UK Platform included above	(19,511)	(22,836)
	269,034	306,429
Assets managed on behalf of third parties¹		
Aviva Investors	37,834	51,332
UK Platform ²	44,603	43,101
Other	677	544
	83,114	94,977
Total AUM³	352,148	401,406

1. AUM managed on behalf of third parties cannot be directly reconciled to the financial statements

2. UK Platform relates to the assets under management in the UK Wealth business, including Succession Wealth

3. Includes AUM of £222,671 million (2021: £267,780 million) managed by Aviva Investors

Net flows

Net flows is used by management as a key measure of growth in AUM, from which income is generated through asset management charges (AMCs). This measure is predominantly used in Aviva Investors and the Wealth business within UK & Ireland Life.

It is the net position of inflows and outflows. Inflows include IFRS net written premiums, deposits made under investment contracts, and other funds received from customers into AUM which are not included in the Group's statement of financial position. Outflows include IFRS net claims paid, redemptions and surrenders under investment contracts, and other funds withdrawn by customers from AUM which are not included in the Group's statement of financial position.

Aviva Investors net flows includes flows on internal assets which are managed on behalf of Group companies, and external flows on assets belonging to clients outside the Group which are not included in the Group's statement of financial position.

Net flows excludes market and other movements. Net flows when positive in the period can be referred to as net inflows and when negative as net outflows.

Aviva Investors revenue

Aviva Investors revenue includes AMCs received, plus transaction fees and other related income, and is stated net of fees and commissions paid. It is a useful measure of revenue earned from fund management activities. Aviva Investors recognises fee income in the segmental income statement within both fee and commission income and inter-segment revenue. Fees and commissions paid are classified in fee and commission expense.

Cost income ratio (CIR)

Cost income ratio is used to monitor profitable growth in Aviva Investors and is useful as it gives a simple view of how efficiently the business is being run, allowing management to clearly see how costs are moving in relation to income.

Cost income ratio is calculated as Aviva Investors' baseline controllable costs divided by Aviva Investors revenue.

	Aviva Investors	
	2022 £m	2021 £m
Aviva Investors revenue	379	403
Baseline controllable costs	331	345
Cost income ratio	87 %	86 %

APMs derived from Solvency II measures

The Group is a regulated entity under the Solvency II regulatory framework and therefore uses a number of APMs that are derived from Solvency II measures in addition to those that are derived from IFRS based measures.

A number of key performance measures 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)
- Solvency II operating own funds generation (Solvency II OFG)
- Solvency II operating capital generation (Solvency II OCG)
- Solvency II future surplus emergence
- Solvency II return on capital (Solvency II RoC)
- Solvency II return on equity (Solvency II RoE)
- Solvency II net asset value per share (Solvency II NAV per share)
- Solvency II debt leverage ratio

The Solvency II regulatory framework requires insurers to hold own funds in excess of the Solvency Capital Requirement (SCR). Own funds are available capital resources determined under Solvency II. This includes the excess of assets over liabilities in the Solvency II balance sheet, calculated on best estimate, market consistent assumptions and includes transitional measures on technical provisions (TMTP), subordinated liabilities that qualify as capital under Solvency II, and off-balance sheet own funds.

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 'shareholder view' of Solvency II 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 view, 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;
- A notional reset of the 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 2022 Solvency II position includes a notional reset (an application for a formal reset has been submitted to the regulator and will be reflected in our regulatory position once approved) while the 31 December 2021 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 and hence no adjustment was required. In addition, due to yield rises over the period, a formal reset of TMTP as at 30 June 2022 was approved and is included in the estimated 31 December 2022 regulatory Solvency II position;
- Adjustments are made if the Solvency II shareholder cover ratio does not fully reflect the effect of future regulatory changes that are known as at each reporting date. These adjustments are made in order to show a more representative view of the Group's solvency position. No adjustments for future regulatory changes were made at 31 December 2022 or 31 December 2021.

The reconciliation presented below shows the key differences between Group equity on an IFRS basis and Solvency II own funds on a shareholder view. Additional items bridging from Solvency II shareholder own funds to Solvency II regulatory own funds are presented subsequently.

	2022 £m	2021 £m
Total Group equity on an IFRS basis	12,895	19,454
Elimination of goodwill and other intangible assets		
Goodwill	(2,072)	(1,741)
Acquired value of in-force business	(1,581)	(1,544)
Deferred acquisition costs (net of deferred income)	(2,489)	(2,617)
Other intangibles	(508)	(406)
Liability valuation differences	8,028	7,351
Inclusion of risk margin	(2,922)	(4,719)
TMTP (on a notional reset basis)	2,319	4,309
Revaluation of subordinated liabilities	265	(449)
Other accounting differences	10	(583)
Net deferred tax	(1,041)	(616)
Exclude staff pension schemes in surplus (net of tax) ¹	(996)	(2,292)
Reallocate preference share capital and Tier 1 notes to restricted tier 1	(946)	(450)
Estimated Solvency II shareholder unrestricted tier 1 own funds	10,962	15,697
Restricted tier 1	946	967
Tier 2	4,264	5,363
Tier 3 ²	296	123
Estimated Solvency II shareholder own funds	16,468	22,150
Adjustments for:		
Fully ring-fenced with-profit funds	1,369	2,205
Staff pension schemes in surplus ¹	394	1,218
Regulatory vs. notional TMTP valuation differences	437	—
Estimated Solvency II regulatory own funds	18,668	25,573

1. Group Equity on an IFRS basis includes £996 million (2021: £2,292 million) in respect of pension schemes in surplus, net of tax. Pension schemes in surplus are excluded from the Solvency II shareholder own funds. Within the Solvency II regulatory own funds, staff pension schemes in surplus are restricted to the level of its SCR.
2. Tier 3 own funds at 31 December 2022 consists of £296 million net deferred tax assets (2021: £123 million net deferred tax assets)

Estimated Solvency II regulatory own funds of £18,668 million (2021: £25,573 million) is £1,838 million (2021: £3,294 million) greater than estimated Solvency II regulatory net assets of £16,830 million (2021: £22,279 million), primarily due to recognition of eligible subordinated debt capital less adjustments for ring-fenced funds restrictions.

Solvency II shareholder cover ratio

The estimated Solvency II shareholder cover ratio, which is derived from own funds divided by the SCR using the 'shareholder view', is one of the indicators of the Group's balance sheet strength.

A reconciliation of the Solvency II regulatory surplus to the Solvency II shareholder surplus is provided below:

	31 December 2022			31 December 2021		
	Own funds £m	SCR £m	Surplus £m	Own funds £m	SCR £m	Surplus £m
Estimated Solvency II regulatory surplus	18,668	(9,441)	9,227	25,573	(12,499)	13,074
Adjustments for:						
Fully ring-fenced with-profit funds	(1,369)	1,369	—	(2,205)	2,205	—
Staff pension schemes in surplus	(394)	394	—	(1,218)	1,218	—
Notional reset of TMTP	(437)	(96)	(533)	—	—	—
Estimated Solvency II shareholder surplus	16,468	(7,774)	8,694	22,150	(9,076)	13,074

A summary of the shareholder view of the Group's Solvency II position is shown in the table below:

	2022 £m	2021 £m
Own Funds	16,468	22,150
Solvency Capital Requirement	(7,774)	(9,076)
Estimated Solvency II Surplus	8,694	13,074
Estimated Shareholder Cover Ratio	212 %	244 %

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 life business written in the period, including the impact of interactions between in-force and new business, adjusted to:

- Remove the impact of the contract boundary restrictions under Solvency II;
- Include businesses which are not within the scope of Solvency II own funds (e.g. UK non-life Retail business and UK Equity Release); and
- Reflect a gross of tax and non-controlling interests basis, and other differences as set out in the footnote to the table below.

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

	2022				2021			
	UK & Ireland Life £m	International investments £m	Discontinued operations £m	Group £m	UK & Ireland Life £m	International investments £m	Discontinued operations ¹ £m	Group £m
VNB (gross of tax and non-controlling interests)	767	84	—	851	668	78	328	1,074
Solvency II contract boundary restrictions – new business	(94)	—	—	(94)	(91)	—	(151)	(242)
Solvency II contract boundary restrictions – increments / renewals on in-force business	128	—	—	128	101	—	58	159
Businesses which are not in the scope of Solvency II own funds	(252)	—	—	(252)	(204)	—	(1)	(205)
Tax and Other ¹	(159)	(17)	—	(176)	(114)	(15)	(144)	(273)
Solvency II own funds impact of new business (net of tax and non-controlling interests)	390	67	—	457	360	63	90	513

1. Other includes the impact of 'look-through profits' in service companies (where not included in Solvency II) of £(20) million (2021: £(66) million), the reduction in value when moving to a net of non-controlling interests basis of £nil (2021: £(42) million), the surplus from members options including transfers, early/late retirement and take up of tax-free lump sum payments at retirement (not included in Solvency II Own Funds) on BPAs of £(37) million (2021: £(3) million) and the difference between locally applicable capital requirements for Vietnam and the value of new business on an adjusted Solvency II basis of £nil (2021: £(22) million). Aviva Vietnam was sold during December 2021, so the Vietnam adjustment is only applied until then.

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. The economic assumptions follow Solvency II rules for risk-free rates, volatility adjustment and matching adjustment.

The operating assumptions are consistent with the Solvency II balance sheet. When these assumptions are updated, the year-to-date VNB will capture the impact of the assumption change on all business sold that year.

Matching Adjustment (MA)

The MA is an addition to the rate used to discount Solvency II best-estimate liabilities, to reflect the return on the matching assets used. An MA is applied to certain obligations based on the 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 an MA to certain obligations in UK Life, using methodology which is set out in the Solvency and Financial Condition Report (SFCR). The MA used for 2022 UK new business (where applicable) was 125 bps (2021: 85 bps).

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.

Present value of new business premiums (PVNBP)

PVNBP measures 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 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.

The table below presents a reconciliation of sales to IFRS net written premiums:

	2022 £m	2021 £m
Present value of new business premiums ¹	34,451	46,202
General insurance and health net written premiums	9,496	10,207
Long-term health and collectives business	(2,713)	(3,274)
Effect of capitalisation factor on regular premium long-term business ²	(14,965)	(15,555)
Joint ventures and associates ³	(653)	(625)
Annualisation impact of regular premium long-term business ⁴	(229)	(361)
Deposits ⁵	(10,111)	(11,561)
IFRS gross written premiums from existing long-term business ⁶	2,811	3,722
Long-term insurance and savings business premiums ceded to reinsurers	(2,753)	(3,979)
Total IFRS net written premiums	15,334	24,776
Analysed as:		
IFRS net written premiums from continuing business	15,334	14,697
IFRS net written premiums from discontinued operations	—	10,079
	15,334	24,776
Analysed as:		
Long-term insurance and savings net written premiums	5,838	14,569
General insurance and health net written premiums	9,496	10,207
	15,334	24,776

1. £33,279 million (2021: £35,625 million) relates to UK & Ireland Life, £1,172 million (2021: £1,122 million) relates to International investments and Enil (2021: £9,455 million) relates to discontinued operations

2. Discounted value of regular premiums expected to be received over the term of the new contract, adjusted for expected levels of persistency

3. Total long-term new business sales include our share of sales from joint ventures and associates. Under IFRS, premiums from these sales are excluded.

4. The impact of annualisation is removed in order to reconcile the non-GAAP new business sales to IFRS premiums

5. Under IFRS, only the margin earned from non-participating investment contracts is recognised in the IFRS income statement

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

Annual Premium Equivalent (APE)

APE is a measure of sales in our life insurance business. APE is calculated as the sum of new regular premiums plus 10% of new single premiums written in the period. This provides useful information on sales and new business when considered alongside VNB.

Solvency II operating own funds generation (Solvency II OFG)

Solvency II operating own funds generation measures the amount of Solvency II own funds generated from operating activities and incorporates an expected return on investments supporting the life and non-life insurance businesses. Solvency II operating own funds generation is used to assess sustainable growth. The Group considers this measure meaningful to stakeholders as it enhances the understanding of the Group's operating performance over time by separately identifying non-operating items.

The expected investment returns assumed within Solvency II OFG are consistent with the returns used for Group adjusted operating profit. Solvency II OFG includes the effect of variances in experience for non-economic items, such as mortality, persistency and expenses, the effect of changes in non-economic assumptions (for example, longevity) and model changes that are non-economic in nature.

Consistent with the Group adjusted operating profit APM, Solvency II OFG and Solvency II OCG exclude economic variances and economic assumption changes.

Solvency II operating own funds generation is the own funds component of Solvency II OCG (see below).

Solvency II operating capital generation (Solvency II OCG)

Solvency II operating capital generation (Solvency II 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 support sustainable cash remittances from our businesses, which in turn, supports the Group's dividend as well as funding further investment to provide sustainable growth.

Solvency II OCG reflects Solvency II OFG and operating movements in the SCR including the impact of capital actions, for example, strategic changes in asset mix including changes in hedging exposure.

An analysis of the components of Solvency II OCG is presented below:

	2022 £m	2021 £m
Solvency II own funds impact of new business (net of tax and non-controlling interests)	457	513
Operating own funds generation from life existing business	475	694
Operating own funds generation from non-life	589	737
Management actions and other operating own funds generation ¹	597	296
Group centre & others	(281)	(340)
Group debt costs	(214)	(255)
Solvency II operating own funds generation	1,623	1,645
Solvency II operating SCR impact	(189)	(84)
Solvency II OCG	1,434	1,561

1. Management actions and other includes the impact of capital actions, non-economic assumption changes and other non-recurring items

Solvency II OCG is a key component of the movement in Solvency II shareholder surplus. The tables below provide an analysis of the change in Solvency II shareholder surplus.

	2022			2021		
Shareholder view movement	Own funds £m	SCR £m	Surplus £m	Own funds £m	SCR £m	Surplus £m
Group Solvency II shareholder surplus at 1 January	22,150	(9,076)	13,074	25,770	(12,770)	13,000
Operating capital generation	1,623	(189)	1,434	1,645	(84)	1,561
Non-operating capital generation	(1,827)	1,502	(325)	(1,310)	1,156	(154)
Dividends ¹	(866)	—	(866)	(874)	—	(874)
(Repayment)/issue of debt	(502)	—	(502)	(1,506)	—	(1,506)
Capital return/share buyback	(3,750)	—	(3,750)	(1,000)	—	(1,000)
Acquisitions/Disposals	(360)	(11)	(371)	(575)	2,622	2,047
Estimated Solvency II shareholder surplus at 31 December	16,468	(7,774)	8,694	22,150	(9,076)	13,074

1. Dividends includes £17 million (2021: £17 million) of Aviva plc preference dividends and £21 million (2021: £21 million) of General Accident plc preference dividends

Solvency II future surplus emergence

Solvency II future surplus emergence is a projection of the capital generation from existing long-term in-force life business and provides an indication of our expected Solvency II OCG from this business in future periods.

The projection is a static analysis as at a point in time and hence it does not include the potential impact of future new business or 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). It is also based on a linear run-off of the TMTP. These items may affect the actual amount of Solvency II OCG earned from existing business in future periods.

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 projected surplus, which is primarily expected to arise from the release of risk margin (including transitional measures) and solvency capital requirement as the business runs off over time, is expected to emerge through Solvency II 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 methodology used in the Group adjusted operating profit.

Solvency II return on equity (Solvency II RoE)

Solvency II RoE is used as an economic value measure by the Group to assess growth and performance.

Solvency II RoE is calculated as:

- Operating own funds generation less preference dividends, equity RT1 notes coupons and excluding the return on excess capital above target capital, adjusted to replace the run-off of TMTP with the economic cost of holding TMTP (calculated as Group Weighted Average Cost of Capital plus 1-yr swap rate, multiplied by the opening TMTP on a shareholder basis), divided by:
- Opening Unrestricted tier 1 shareholder Solvency II own funds adjusted to exclude excess capital. Excess capital is derived as Solvency II shareholder own funds in excess of those needed to meet our target shareholder cover ratio (currently 180%).

The denominator better reflects the long-term target Solvency II shareholder cover ratio which removes distortions in the evaluation of growth and performance that would otherwise arise where the Group is temporarily holding excess capital.

Solvency II RoE is calculated on an annualised basis.

The Solvency II return on equity is shown below:

	2022 £m	2021 £m
Solvency II operating own funds generation	1,623	1,645
Adjustment to replace TMTP run-off with economic cost of TMTP	64	43
Adjustment to remove return on excess capital	(11)	(2)
Adjusted Solvency II operating own funds generation	1,676	1,686
Less preference share dividends	(38)	(38)
Less RT1 notes coupons	(17)	—
	1,621	1,648
Opening Unrestricted tier 1 shareholder Solvency II own funds	15,697	17,358
Adjustment to remove excess capital above target Solvency II shareholder cover ratio ¹	(5,813)	(2,784)
Adjusted opening unrestricted tier 1 shareholder Solvency II own funds	9,884	14,574
Solvency II return on equity	16.4 %	11.3 %

1. Our excess capital as at 1 January 2022 was £5,813 million and this included capital set aside for the £3.75 billion capital return, £1 billion further debt reduction over time, pension scheme payment, Succession Wealth acquisition and final 2021 dividend. The excess capital at 31 December 2022 is estimated at £2,474 million and this includes capital set aside for further debt reduction, pension scheme payment, final 2022 dividend and share buyback.

Group Solvency II RoE on a continuing basis was disclosed as at 31 December 2021 to provide a comparative on an equivalent basis following disposals in 2021.

Group Solvency II RoE on a continuing basis excludes the contribution from our discontinued operations and is therefore more representative of the Group's performance going forward. It has been calculated on a consistent basis to Group Solvency II RoE except that an adjustment is made to remove the contribution of discontinued operations from the numerator and the denominator.

The table below provides a reconciliation between Group Solvency II RoE and Group Solvency II RoE on a continuing basis:

	2021		
	Solvency II OFG (post TMTP adjustment) £m	Opening own funds £m	Solvency II return on equity %
Group Solvency II return on equity at 31 December	1,648	14,574	11.3 %
Adjustment to remove impacts of discontinued operations ¹	(433)	(3,254)	N/A
Group Solvency II return on equity on a continuing basis	1,215	11,320	10.7 %

1. When calculating opening unrestricted tier 1 shareholder Solvency II own funds attributable to discontinued operations, adjusted to exclude excess capital, restricted tier 1, tier 2 and tier 3 capital repaid during 2021 is assumed to be attributable to discontinued operations

Solvency II return on capital (Solvency II RoC)

Solvency II return on capital is an unlevered economic value measure as it is used to assess growth and performance in our businesses before taking debt into account. It is calculated on an annualised basis.

Solvency II RoC is calculated as:

- Operating own funds generation adjusted to replace the run-off of TMTP with the economic cost of holding TMTP (calculated as Group Weighted Average Cost of Capital plus 1-yr swap rate) multiplied by the opening TMTP on a shareholder basis), divided by:
- Opening shareholder Solvency II own funds.

For UK general insurance only, capital held for internal risk appetite purposes is used instead of opening shareholder Solvency II own funds. This removes any distortions arising from our general insurance legal entity structure and therefore ensures consistency in measuring performance across markets. This is only applicable to UK general insurance Solvency II return on capital and not to the aggregated Group Solvency II return on equity measure.

A reconciliation of Solvency II return on capital by market to Group return on equity is provided below.

2022	Solvency II OFG (post TMTP adjustment) £m	Opening shareholder own funds £m	Solvency II return on capital/equity %
Business Solvency II return on capital			
UK & Ireland Life	1,432	13,830	10.4 %
UK & Ireland General Insurance ¹	293	2,339	12.5 %
Canada	325	1,746	18.6 %
Aviva Investors	24	400	6.0 %
UK, Ireland, Canada and Aviva Investors	2,074	18,315	11.3 %
International investments	106	982	10.8 %
Discontinued operations	—	—	— %
Reconciliation to Group Solvency II return on equity			
Corporate centre costs and Other ¹	(279)	2,853	N/A
Less: Senior and subordinated debt	(214)	(5,880)	— %
Less: Adjustment to remove excess capital above target Solvency II shareholder cover ratio	(11)	(5,813)	— %
Less: RT1 coupon and Preference shares ²	(55)	(450)	— %
Less: Net deferred tax assets	—	(123)	— %
Solvency II return on equity at 31 December	1,621	9,884	16.4 %

1. For UK general insurance only, capital held for internal risk appetite purposes is used instead of opening shareholder Solvency II own funds to ensure consistency in measuring performance across businesses. This is only applicable to UK general insurance Solvency II return on capital and not to the aggregated Group Solvency II return on equity measure, with the reversal of the impact included in Corporate centre costs and Other opening own funds.
2. Preference shares includes £21 million of dividends and £250 million of capital in respect of General Accident plc

2021	Solvency II operating own funds generation £m	Opening shareholder own funds £m	Solvency II return on capital/equity %
Business Solvency II return on capital			
UK & Ireland Life	996	15,073	6.6 %
UK & Ireland General Insurance ¹	339	2,401	14.1 %
Canada	332	1,534	21.6 %
Aviva Investors	36	385	9.3 %
UK, Ireland, Canada and Aviva Investors	1,703	19,393	8.8 %
International investments	124	909	13.6 %
Discontinued operations	458	6,362	7.2 %
Reconciliation to Group Solvency II return on equity			
Corporate centre costs and Other ¹	(342)	(894)	N/A
Less: Senior and subordinated debt	(255)	(7,866)	— %
Less: Adjustment to remove excess capital above target Solvency II shareholder cover ratio	(2)	(2,784)	— %
Less: Direct capital instrument and Preference shares ²	(38)	(450)	— %
Net deferred tax assets	—	(96)	— %
Solvency II return on equity at 31 December	1,648	14,574	11.3 %

1. For UK general insurance only, capital held for internal risk appetite purposes is used instead of opening shareholder Solvency II own funds to ensure consistency in measuring performance across businesses. This is only applicable to UK general insurance Solvency II return on capital and not to the aggregated Group Solvency II return on equity measure, with the reversal of the impact included in Corporate centre costs and Other opening own funds.
2. Preference shares includes £21 million of dividends and £250 million of capital in respect of General Accident plc

Solvency II net asset value per share (Solvency II NAV per share)

Solvency II NAV per share is used to monitor the value generated by the Group in terms of the equity shareholders' face value per share investment. This is calculated as the closing unrestricted tier 1 Solvency II shareholder own funds, divided by the actual number of shares in issue as at the balance sheet date. Consistent with Solvency II RoE, it is an economic value measure used by the Group to assess growth.

The Solvency II NAV per share is shown below:

	2022	2021
Unrestricted tier 1 shareholder Solvency II own funds (£m)	10,962	15,697
Number of shares in issue (in millions)	2,808	3,766
Solvency II NAV per share	390p	417p

Solvency II debt leverage ratio

Solvency II debt leverage ratio is calculated as total debt expressed as a percentage of Solvency II regulatory own funds plus senior debt and commercial paper. Solvency II regulatory debt includes subordinated debt and preference share capital. The Solvency II debt leverage ratio provides a measure of the Group's financial strength.

	2022 £m	2021 £m
Solvency II regulatory debt	5,210	6,330
Senior notes	687	651
Commercial paper	252	50
Total debt	6,149	7,031
Estimated Solvency II regulatory own funds, senior debt and commercial paper	19,607	26,274
Solvency II debt leverage ratio	31 %	27 %

A reconciliation from IFRS subordinated debt to Solvency II regulatory debt is provided below:

	2022 £m	2021 £m
IFRS borrowings	6,755	7,344
Less: Borrowings not classified as Solvency II regulatory debt		
Senior notes	(687)	(651)
Commercial paper	(252)	(50)
Operational borrowings	(1,286)	(1,211)
IFRS subordinated debt	4,530	5,432
Revaluation of subordinated liabilities	(265)	449
Other movements	(1)	(1)
Solvency II subordinated debt	4,264	5,880
Preference share capital and tier 1 notes	946	450
Solvency II regulatory debt	5,210	6,330

Other APMs

Cash remittances

Cash paid by our operating businesses to the Group, for the period between March 2022 and the end of the month preceding the results announcement 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 businesses. Cash remittances are considered a useful measure as they support the payments of external dividends. Cash remittances eliminate on consolidation and hence are not directly reconcilable to the Group's IFRS consolidated statement of cash flows.

In 2022 a review was undertaken of the basis of allocation of remittances from Aviva's internal reinsurance vehicle. From April 2022, remittances are allocated to business units using an aggregate capital basis, previously remittances were allocated on a first in, first out basis.

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. Excess centre cash flow does not include cash movements such as disposal proceeds or capital injections. Excess centre cash flow when positive in the period can be referred to as excess centre cash inflows and when negative as excess centre cash outflows.

Centre liquidity

Centre liquidity comprises cash and liquid assets and represents amounts as at the end of the month preceding results announcements. It provides meaningful information because it shows the liquidity at the Group centre available to meet debt interest and central costs and to pay dividends to shareholders.

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