

## Supplement 2

# MCEV Financial Statements

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This document should be read in conjunction with the Half Year Report 2012.

# MCEV financial statements

## Condensed consolidated income statement – MCEV basis

For the six month period ended 30 June 2012

	6 months 2012 £m		Restated <sup>3</sup> 6 months 2011 £m		Full year 2011 £m		
	Continuing operations	Continuing operations	Discontinued operations	Total	Continuing operations	Discontinued operations	Total
<b>Operating profit before tax attributable to shareholders' profits</b>							
United Kingdom & Ireland	471	509	—	509	1,102	—	1,102
France	200	295	—	295	1,077	—	1,077
United States	81	188	—	188	241	—	241
Italy, Spain and Other	323	248	270	518	197	270	467
Higher Growth markets	153	162	—	162	512	—	512
Long-term business	1,228	1,402	270	1,672	3,129	270	3,399
General insurance and health	461	455	1	456	935	1	936
Fund management <sup>1</sup>	7	9	9	18	32	9	41
Other operations <sup>2</sup>	(96)	(80)	7	(73)	(204)	7	(197)
<b>Market operating profit</b>	1,600	1,786	287	2,073	3,892	287	4,179
Corporate centre	(64)	(66)	—	(66)	(138)	—	(138)
Group debt costs and other interest	(334)	(321)	(4)	(325)	(657)	(4)	(661)
<b>Operating profit before tax attributable to shareholders' profits (excluding Delta Lloyd as an associate)</b>	1,202	1,399	283	1,682	3,097	283	3,380
Share of operating profit (before tax) of Delta Lloyd as an associate	112	35	—	35	157	—	157
<b>Operating profit before tax attributable to shareholders' profits</b>	1,314	1,434	283	1,717	3,254	283	3,537
Integration and restructuring costs	(188)	(60)	—	(60)	(212)	—	(212)
<b>Operating profit before tax attributable to shareholders' profit after integration and restructuring costs</b>	1,126	1,374	283	1,657	3,042	283	3,325
Adjusted for the following:							
Economic variances on long-term business	1,173	81	(316)	(235)	(6,541)	(316)	(6,857)
Short-term fluctuation in return on investments on non-long-term business	31	(80)	(60)	(140)	(266)	(60)	(326)
Economic assumption changes on general insurance and health business	(18)	(8)	—	(8)	(90)	—	(90)
Impairment of goodwill	(603)	(20)	—	(20)	(392)	—	(392)
Amortisation and impairment of intangibles	(134)	(42)	(5)	(47)	(266)	(5)	(271)
Profit on the disposal of subsidiaries and associates	(30)	(11)	159	148	565	159	724
Exceptional items	—	—	—	—	(57)	—	(57)
<b>Non-operating items before tax (excluding Delta Lloyd as an associate and integration and restructuring costs)</b>	419	(80)	(222)	(302)	(7,047)	(222)	(7,269)
Share of Delta Lloyd's non-operating items (before tax) as an associate	(523)	(8)	—	(8)	10	—	10
<b>Non-operating items before tax</b>	(104)	(88)	(222)	(310)	(7,037)	(222)	(7,259)
Share of Delta Lloyd's tax expense, as an associate	107	(7)	—	(7)	(34)	—	(34)
<b>Profit/(loss) before tax attributable to shareholders' profits</b>	1,129	1,279	61	1,340	(4,029)	61	(3,968)
Tax on operating profit	(414)	(487)	(74)	(561)	(974)	(74)	(1,048)
Tax on other activities	(335)	(40)	98	58	2,217	98	2,315
	(749)	(527)	24	(503)	1,243	24	1,267
<b>Profit/(loss) for the period</b>	380	752	85	837	(2,786)	85	(2,701)

1. Excludes the proportion of the results of Aviva Investors fund management businesses and other fund management operations within the Group that arises from the provision of fund management services to our life businesses.

These results are included within the life MCEV operating earnings consistent with the MCEV methodology.

2. Excludes the proportion of the results of subsidiaries providing services to the Life business. These results are included within the life MCEV operating earnings consistent with the MCEV methodology.

3. The half year 2011 results have been restated for US as outlined in E1 Basis of preparation.

## Earnings per share – MCEV basis

Earnings per share	6 months 2012		Restated 6 months 2011		Full year 2011		
	Continuing operations	Discontinued operations	Continuing operations	Discontinued operations	Continuing operations	Discontinued operations	
<b>Operating earnings per share on an MCEV basis after tax, attributable to ordinary shareholders of Aviva plc</b>							
Basic (pence per share)	<b>24.7p</b>	28.5p	3.9p	32.4p	71.3p	3.8p	75.1p
Diluted (pence per share)	<b>24.3p</b>	28.0p	3.8p	31.8p	70.0p	3.8p	73.8p
<b>(Losses)/earnings after tax on an MCEV basis, attributable to ordinary shareholders of Aviva plc</b>							
Basic (pence per share)	<b>(1.8p)</b>	26.1p	4.0p	30.1p	(67.3p)	4.0p	(63.3p)
Diluted <sup>1</sup> (pence per share)	<b>(1.8p)</b>	25.6p	4.0p	29.6p	(67.3p)	3.9p	(63.3p)

<sup>1</sup> Losses have an anti-dilutive effect. Therefore the basic and diluted earnings have remained the same.

Total Group MCEV operating profit before shareholder tax was £1,314 million (*HY11: £1,717 million*), a decrease of 23%. Within this total the long-term business operating profit before shareholder tax was £1,228 million (*HY11: £1,672 million*), a decrease of 27%.

**Condensed consolidated statement of comprehensive income – MCEV basis**

For the six month period ended 30 June 2012

	6 months 2012 £m	Restated 6 months 2011 £m	Full year 2011 £m
<b>Profit/(loss) for the period from continuing operations</b>	<b>380</b>	752	(2,786)
<b>Profit for the period from discontinued operations</b>	<b>—</b>	85	85
<b>Profit/(loss) for the period</b>	<b>380</b>	837	(2,701)
<b>Other comprehensive income from continuing operations</b>			
Fair value losses on AFS securities, owner-occupied properties and hedging instruments	—	(60)	(9)
Actuarial gains on pension schemes	123	22	996
Actuarial losses on pension schemes transferred to unallocated divisible surplus and other movements	—	(30)	(22)
Share of other comprehensive expense from joint ventures and associates	(7)	—	(141)
Foreign exchange rate movements	(202)	400	(461)
Aggregate tax effect – shareholder tax	(41)	(11)	(160)
<b>Other comprehensive (expense)/income, net of tax from continuing operations</b>	<b>(127)</b>	321	203
<b>Other comprehensive income, net of tax from discontinued operations</b>	<b>—</b>	131	131
<b>Other comprehensive (expense)/income, net of tax</b>	<b>(127)</b>	452	334
<b>Total comprehensive income/(expense) for the period from continuing operations</b>	<b>253</b>	1,073	(2,583)
<b>Total comprehensive income for the period from discontinued operations</b>	<b>—</b>	216	216
<b>Total comprehensive income/(expense) for the period</b>	<b>253</b>	1,289	(2,367)
Attributable to:			
Equity shareholders of Aviva plc	(134)	1,139	(1,419)
Non-controlling interests	387	150	(948)
	<b>253</b>	1,289	(2,367)

**Condensed consolidated statement of changes in equity – MCEV basis**

For the six month period ended 30 June 2012

	6 months 2012 £m	Restated 6 months 2011 £m	Full year 2011 £m
<b>Balance at 1 January</b>	<b>15,495</b>	20,205	20,205
Total comprehensive (expense)/income for the year	253	1,289	(2,367)
Dividends and appropriations	(474)	(460)	(813)
Shares issued in lieu of dividends	38	184	307
Capital contributions from minority shareholders	6	25	68
Movements in ordinary shareholder equity following deconsolidation of Delta Lloyd	—	(316)	(316)
Movements in non controlling interests following deconsolidation of Delta Lloyd	—	(1,484)	(1,484)
Minority share of dividends declared in the year	(66)	(76)	(126)
Issue of fixed rate tier 1 notes	392	—	—
Recycling of reserves to income statement on disposal of subsidiary	—	—	(3)
Non-controlling interest in (disposed)/acquired subsidiaries	5	—	—
Changes in non-controlling interest in existing subsidiaries	—	(11)	(11)
Shares acquired by employee trusts	(3)	—	(29)
Reserves credit for equity compensation plans	23	18	48
Aggregate tax effect – shareholder tax	—	—	16
<b>Total equity</b>	<b>15,669</b>	19,374	15,495
Non-controlling interests	(1,808)	(2,580)	(1,476)
<b>Balance at 30 June/31 December</b>	<b>13,861</b>	16,794	14,019

## Condensed consolidated statement of financial position – MCEV basis

As at 30 June 2012

	30 June 2012 £m	Restated 30 June 2011 £m	Full year 2011 £m
<b>Assets</b>			
Goodwill	1,794	2,823	2,640
Acquired value of in-force business and intangible assets	1,649	2,396	2,021
Additional value of in-force long-term business <sup>1</sup>	1,064	4,169	132
Interests in, and loans to, joint ventures	1,689	2,154	1,700
Interests in, and loans to, associates	979	1,427	1,118
Property and equipment	445	467	510
Investment property	11,001	11,236	11,638
Loans	26,918	24,828	28,116
Financial investments	213,270	228,006	216,058
Reinsurance assets	7,239	6,570	7,112
Deferred tax assets	262	136	238
Current tax assets	74	112	140
Receivables	8,456	9,271	7,937
Deferred acquisition costs and other assets	6,444	5,956	6,444
Prepayments and accrued income	3,176	3,390	3,235
Cash and cash equivalents	25,251	23,106	23,043
Assets of operations classified as held for sale	3,962	728	426
<b>Total assets</b>	<b>313,673</b>	<b>326,775</b>	<b>312,508</b>
<b>Equity</b>			
Ordinary share capital	729	716	726
Capital reserves	4,441	4,455	4,444
Other reserves	1,066	1,634	1,262
Shares held by employee trusts	(14)	(32)	(43)
Retained earnings	4,854	5,303	5,954
Additional retained earnings on an MCEV basis <sup>1</sup>	1,203	3,528	486
<b>Equity attributable to ordinary shareholders of Aviva plc</b>	<b>12,279</b>	<b>15,604</b>	<b>12,829</b>
Preference share capital, direct capital instruments and fixed rate tier 1 notes	1,582	1,190	1,190
Non-controlling interests <sup>1</sup>	1,808	2,580	1,476
<b>Total equity</b>	<b>15,669</b>	<b>19,374</b>	<b>15,495</b>
<b>Liabilities</b>			
Gross insurance liabilities	148,003	149,515	150,101
Gross liabilities for investment contracts	107,386	119,284	110,644
Unallocated divisible surplus	3,162	3,273	650
Net asset value attributable to unitholders	11,138	8,735	10,352
Provisions	1,097	1,103	992
Deferred tax liabilities	1,324	1,166	1,171
Current tax liabilities	200	249	232
Borrowings	8,071	8,882	8,450
Payables and other financial liabilities	11,061	12,029	11,230
Other liabilities	2,927	2,822	2,828
Liabilities of operations classified as held for sale	3,635	343	363
<b>Total liabilities</b>	<b>298,004</b>	<b>307,401</b>	<b>297,013</b>
<b>Total equity and liabilities</b>	<b>313,673</b>	<b>326,775</b>	<b>312,508</b>

The condensed consolidated statement of financial position presented above is unaltered from the corresponding IFRS summarised consolidated statement of financial position with the exception of the following:

1. Adding the excess of the Life MCEV, including non controlling interests, over the corresponding Life IFRS net assets represented as the additional value of in-force long-term business; corresponding item within equity represented by the additional retained profit on an MCEV basis; and, corresponding adjustments to non-controlling interests.

## Reconciliation of shareholders' equity on IFRS and MCEV bases

For the six month period to 30 June 2012

30 June 2012	IFRS £m	Adjustment £m	MCEV £m
Ordinary share capital	729	—	729
Capital reserves	4,441	—	4,441
Other reserves	1,514	(448)	1,066
Shares held by employee trusts	(14)	—	(14)
Retained earnings	4,854	—	4,854
Additional retained earnings on an MCEV basis	—	1,203	1,203
<b>Equity attributable to ordinary shareholders of Aviva plc</b>	<b>11,524</b>	<b>755</b>	<b>12,279</b>
Preference share capital	200	—	200
Direct capital instruments and fixed rate tier 1 notes	1,382	—	1,382
Non-controlling interests	1,499	309	1,808
<b>Total equity</b>	<b>14,605</b>	<b>1,064</b>	<b>15,669</b>

Restated 30 June 2011	IFRS £m	Adjustment £m	Restated MCEV £m
Ordinary share capital	716	—	716
Capital reserves	4,455	—	4,455
Other reserves	1,729	(95)	1,634
Shares held by employee trusts	(32)	—	(32)
Retained earnings	5,303	—	5,303
Additional retained earnings on an MCEV basis	—	3,528	3,528
Equity attributable to ordinary shareholders of Aviva plc	12,171	3,433	15,604
Preference share capital	200	—	200
Direct capital instruments	990	—	990
Non-controlling interests	1,844	736	2,580
<b>Total equity</b>	<b>15,205</b>	<b>4,169</b>	<b>19,374</b>

## Reconciliation of IFRS total equity to MCEV net worth

For the six month period to 30 June 2012

	30 June 2012 £m	Restated 30 June 2011 £m	Full year 2011 £m
<b>Net assets on a statutory IFRS net basis</b>	<b>14,605</b>	15,205	15,363
Adjusting for general business and other net assets on a statutory IFRS net basis	291	350	301
<b>Life and related businesses net assets on a statutory IFRS net basis</b>	<b>14,896</b>	15,555	15,664
Goodwill and other intangibles	(1,234)	(2,378)	(2,117)
Acquired value of in-force business	(830)	(1,285)	(960)
Adjustment for share of joint ventures and associates	(11)	(5)	(7)
Adjustment for assets to regulatory value net of tax	(2,238)	(1,005)	(1,880)
Adjustment for DAC and DIR net of tax	(2,499)	(2,899)	(2,622)
Adjustment for differences in technical provisions	3,065	2,806	2,904
Other accounting and tax differences	(827)	(616)	(507)
<b>MCEV net worth</b>	<b>10,322</b>	10,173	10,475
MCEV value of in-force <sup>1</sup>	3,732	6,977	2,619
<b>MCEV<sup>2</sup></b>	<b>14,054</b>	17,150	13,094

1. Comprises PVFP of £6,721 million (30 June 2011: £9,649 million; 31 December 2011: £5,847 million), FC of £(579) million (30 June 2011: £(760) million; 31 December 2011: £(642) million), CNHR of £(1,063) million (30 June 2011: £(942) million; 31 December 2011: £(1,046) million), and TVOG of £(1,347) million (30 June 2011: £(970) million; 31 December 2011: £(1,540) million).

2. Comprises embedded value of £12,902 million (30 June 2011: £15,300 million; 31 December 2011: £12,274 million) and non-controlling interest in long-term business assets of £ 1,152 million (30 June 2011: £1,850 million; 31 December 2011: £820 million).

The adjustment for assets to regulatory value and differences in technical provisions relate mainly to the US, reflecting differences between the IFRS and local solvency reserving basis. The DAC and DIR adjustment relates mainly to the UK and US.

## Group MCEV analysis of earnings

	Covered business <sup>1</sup> £m A	Non-covered but related to life business <sup>2</sup> £m B	Total life business <sup>3</sup> £m A+B	Non-covered relating to non-life £m C	Total non-covered business £m B+C	Total £m A+B+C
<b>30 June 2012</b>						
Opening Group MCEV	12,274	2,533	14,807	(788)	1,745	14,019
Operating MCEV earnings	744	—	744	(19)	(19)	725
Non-operating MCEV earnings	483	(873)	(390)	(377)	(1,250)	(767)
<b>Total MCEV earnings</b>	<b>1,227</b>	<b>(873)</b>	<b>354</b>	<b>(396)</b>	<b>(1,269)</b>	<b>(42)</b>
Other movements in IFRS net equity	—	87	87	(12)	75	75
Capital and dividend flows	(508)	—	(508)	484	484	(24)
Foreign exchange variances	(108)	(34)	(142)	(25)	(59)	(167)
Acquired/divested businesses	17	31	48	(48)	(17)	—
<b>Closing Group MCEV</b>	<b>12,902</b>	<b>1,744</b>	<b>14,646</b>	<b>(785)</b>	<b>959</b>	<b>13,861</b>
Preference share capital, direct capital instruments and fixed rate tier 1 notes						(1,582)
<b>Equity attributable to ordinary shareholders of Aviva plc on an MCEV basis</b>						<b>12,279</b>

- Covered business represents the business that the MCEV calculations cover, as detailed in the Basis of preparation note. The embedded value is presented net of non-controlling interests and tax.
- Non-covered but related to life business represents the adjustments to the MCEV, including goodwill, to calculate the long-term business net assets on an MCEV basis. An analysis of net assets on an MCEV basis gross of non-controlling interests is provided in E6.
- Net assets for the total life businesses on an MCEV basis presented net of non-controlling interests.

	Covered business <sup>1</sup> £m A	Non-covered but related to life business <sup>2</sup> £m B	Total life business <sup>3</sup> £m A+B	Non-covered relating to non-life £m C	Total non-covered business £m B+C	Total £m A+B+C
<b>Restated 30 June 2011</b>						
Opening Group MCEV	15,874	2,339	18,213	(1,985)	354	16,228
Operating MCEV earnings	990	—	990	(67)	(67)	923
Non-operating MCEV earnings	50	(41)	9	(74)	(115)	(65)
<b>Total MCEV earnings</b>	<b>1,040</b>	<b>(41)</b>	<b>999</b>	<b>(141)</b>	<b>(182)</b>	<b>858</b>
Other movements in IFRS net equity	—	23	23	(92)	(69)	(69)
Capital and dividend flows	(417)	—	(417)	(156)	(156)	(573)
Foreign exchange variances	322	23	345	5	28	350
Acquired/divested businesses	(1,519)	34	(1,485)	1,485	1,519	—
<b>Closing Group MCEV</b>	<b>15,300</b>	<b>2,378</b>	<b>17,678</b>	<b>(884)</b>	<b>1,494</b>	<b>16,794</b>
Preference share capital and direct capital instruments						(1,190)
<b>Equity attributable to ordinary shareholders of Aviva plc on an MCEV basis</b>						<b>15,604</b>

- Covered business represents the business that the MCEV calculations cover, as detailed in the Basis of preparation note. The embedded value is presented net of non-controlling interests and tax.
- Non-covered but related to life business represents the adjustments to the MCEV, including goodwill, to calculate the long-term business net assets on an MCEV basis. An analysis of net assets on an MCEV basis gross of non-controlling interests is provided in E6.
- Net assets for the total life businesses on an MCEV basis presented net of non-controlling interests.

	Covered business <sup>1</sup> £m A	Non-covered but related to life business <sup>2</sup> £m B	Total life business <sup>3</sup> £m A+B	Non-covered relating to non-life £m C	Total non-covered business £m B+C	Total £m A+B+C
<b>Full year 2011</b>						
Opening Group MCEV	15,874	2,339	18,213	(1,985)	354	16,228
Operating MCEV earnings	2,193	—	2,193	4	4	2,197
Non-operating MCEV earnings	(3,530)	(218)	(3,748)	(189)	(407)	(3,937)
<b>Total MCEV earnings</b>	<b>(1,337)</b>	<b>(218)</b>	<b>(1,555)</b>	<b>(185)</b>	<b>(403)</b>	<b>(1,740)</b>
Other movements in IFRS net equity	—	412	412	270	682	682
Capital and dividend flows	(493)	—	(493)	(297)	(297)	(790)
Foreign exchange variances	(251)	(30)	(281)	(80)	(110)	(361)
Acquired/divested businesses	(1,519)	30	(1,489)	1,489	1,519	—
<b>Closing Group MCEV</b>	<b>12,274</b>	<b>2,533</b>	<b>14,807</b>	<b>(788)</b>	<b>1,745</b>	<b>14,019</b>
Preference share capital and direct capital instruments						(1,190)
<b>Equity attributable to ordinary shareholders of Aviva plc on an MCEV basis</b>						<b>12,829</b>

- Covered business represents the business that the MCEV calculations cover, as detailed in the Basis of preparation note. The embedded value is presented net of non-controlling interests and tax.
- Non-covered but related to life business represents the adjustments to the MCEV, including goodwill, to calculate the long-term business net assets on an MCEV basis. An analysis of net assets on an MCEV basis gross of non-controlling interests is provided in E6.
- Net assets for the total life businesses on an MCEV basis presented net of non-controlling interests.

## E1 – Basis of preparation

The condensed consolidated income statement and condensed consolidated statement of financial position on pages 2 to 5 present the Group's results and financial position for the covered life and related businesses on the Market Consistent Embedded Value (MCEV) basis and for its non-covered businesses and non-covered but related to life businesses on the International Financial Reporting Standards (IFRS) basis. The MCEV methodology adopted is in accordance with the MCEV Principles published by the CFO Forum in October 2009. The CFO Forum MCEV principles (17.3.29) indicate that changes to models to reflect improvements or rectify errors should be included in the 'other operating variances' line. Where possible, such model refinements have been reported in the analysis of earnings on the line where the impact would have occurred in order to provide better information when considering assumption changes / experience variances over multiple reporting periods.

The directors consider that the MCEV methodology gives useful insight into the drivers of financial performance of the Group's life and related businesses. This basis values future cash flows from assets consistently with market prices, including more explicit allowance for the impact of uncertainty in future investment returns and other risks. Embedded value is also consistent with the way pricing is assessed and the business is managed.

The results for our half year report have been reviewed by our auditors, PricewaterhouseCoopers LLP. Their report in respect of the half-year can be found on page 40.

### Covered business

The MCEV calculations cover the following lines of business: life insurance, long-term health and accident insurance, savings, pensions and annuity business written by our life insurance subsidiaries, including managed pension fund business and our share of certain life and related business written in our associated undertakings and joint ventures, as well as the equity release business written in the UK.

Covered business includes the Group's share of our joint ventures including our associated undertakings in India, China, Turkey, Malaysia, Taiwan and South Korea. In addition, the results of Group companies providing significant administration, fund management and other services and of Group holding companies have been included to the extent that they relate to covered business. Together these businesses are referred to as "Life and related businesses".

Aviva's associate holding of Delta Lloyd is not included within covered business as MCEV is not used to manage Delta Lloyd. For 'Group' MCEV reporting, which includes general insurance and other non-covered business, Delta Lloyd is included on an IFRS basis.

### New business premiums

New business premiums include:

- premiums arising from the sale of new contracts during the period;
- non-contractual additional premiums; and
- expected renewals on new contracts and expected future contractual alterations to new contracts.

The Group's definition of new business under MCEV includes contracts that meet the definition of "non-participating investment" contracts under IFRS.

For products sold to individuals, premiums are considered to represent new business where a new contract has been signed, or where underwriting has been performed. Renewal premiums include contractual renewals, non-contractual variations that are reasonably predictable and recurrent single premiums that are pre-defined and reasonably predictable.

For group products, new business includes new contracts and increases to aggregate premiums under existing contracts. Renewal premiums are based on the level of premium received during the reporting period and allow for premiums expected to be received beyond the expiry of any guaranteed premium rates.

### Life and pensions operating earnings

For life and pensions operating earnings, Aviva uses normalised investment returns. The use of asset risk premia reflects management's long-term expectations of asset returns in excess of the swap yield from investing in different asset classes.

The normalised investment return on equities and property has been calculated by reference to the ten-year swap rate in the relevant currency plus an appropriate risk premium. The expected return on bonds has been calculated by reference to the swap rate consistent with the duration of the backing assets in the relevant currency plus an appropriate risk margin (expected return is equivalent to the gross redemption yield less an allowance for defaults).

The expected existing business contribution (in excess of reference rate) is calculated using the implied discount rate (IDR), which itself is based on the normalised investment returns. The methodology applies the IDR to the Value of In Force (VIF) and Required Capital (RC) components of the MCEV and adds to this the total expected return for Free Surplus (FS) to derive the total expected return, in a manner consistent with that previously used under European Embedded Value reporting. This total is presented as the expected existing business contribution (reference rate), expected existing business contribution (in excess of reference rate) and expected return on shareholders' net worth (grossed up for tax for pre-tax presentation), with only the excess contribution being impacted by the approach. For businesses where the IDR is unpublished, the expected return in excess of the reference rate is calculated as the excess of the real world equivalent embedded value (EqEV) over the MCEV amortised over the average duration of the portfolio. The approach to expected return has no impact on total return or on the closing balance sheet.



## E1 – Basis of preparation continued

### MCEV methodology

#### Overview

Under the MCEV methodology, profit is recognised as it is earned over the life of products defined within covered business. The total profit recognised over the lifetime of a policy is the same as under the IFRS basis of reporting, but the timing of recognition is different.

#### Calculation of the embedded value

The shareholders' interest in the life and related businesses is represented by the embedded value. The embedded value is the total of the net worth of the life and related businesses and the value of in-force covered business. Calculations are performed separately for each business and are based on the cash flows of that business, after allowing for both external and intra-Group reinsurance. Where one life business has an interest in another, the net worth of that business excludes the interest in the dependent company.

The embedded value is calculated on an after-tax basis applying current legislation and practice together with future known changes. Consistent with CFO Forum guidance issued in 2011, no explicit allowance has been made for the developing European regulation regime (Solvency II) and associated consequences. Where gross results are presented, these have been calculated by grossing up post-tax results at the full rate of corporation tax for each country based on opening period tax rates, apart from the UK, where a 24% tax rate was used for 2012 for grossing up.

#### Net worth

The net worth is the market value of the shareholders' funds and the shareholders' interest in the surplus held in the non-profit component of the long-term business funds, determined on a statutory solvency basis and adjusted to add back any non-admissible assets, and consists of the required capital and free surplus.

Required capital is the market value of assets attributed to the covered business over and above that required to back liabilities for covered business, for which distribution to shareholders is restricted. Required capital is reported net of implicit items permitted on a local regulatory basis to cover minimum solvency margins which are assessed at a local entity level. The level of required capital for each business unit is generally set equal to the higher of:

- The level of capital at which the local regulator is empowered to take action;
- The capital requirement of the business unit under the Group's economic capital requirements; and
- The target capital level of the business unit.

For Aviva US, the required capital is set at 325% of the NAIC Company Action Level in line with management targets and target credit ratings.

This methodology reflects the level of capital considered by the directors to be appropriate to manage the business, and includes any additional shareholder funds not available for distribution, such as the reattributed inherited estate in the UK. The same definition of required capital is used for both existing and new business except in Italy where new business reflects the targeted capital level which better reflects the capital requirements of the new business.

The free surplus is the market value of any assets allocated to, but not required to support, the in-force covered business at the valuation date. The level of required capital across the business units expressed as a percentage of the EU minimum solvency margin (or equivalent) can be found in E15.

#### Value of in-force covered business (VIF)

The value of in-force covered business consists of the following components:

- present value of future profits;
- time value of financial options and guarantees;
- frictional costs of required capital; and
- cost of residual non-hedgeable risks.

#### Present value of future profits (PVFP)

This is the present value of the distributable profits to shareholders arising from the in-force covered business projected on a best estimate basis.

Distributable profits generally arise when they are released following actuarial valuations. These valuations are carried out in accordance with any local statutory requirements designed to ensure and demonstrate solvency in long-term business funds. Future distributable profits will depend on experience in a number of areas such as investment return, discontinuance rates, mortality, administration costs, as well as management and policyholder actions. Releases to shareholders arising in future years from the in-force covered business and associated required capital can be projected using assumptions of future experience.

Future profits are projected using best estimate non-economic assumptions and market consistent economic assumptions. In principle, each cash flow is discounted at a rate that appropriately reflects the riskiness of that cash flow, so higher risk cash flows are discounted at higher rates. In practice, the PVFP is calculated using the "certainty equivalent" approach, under which the reference rate is used for both the investment return and the discount rate. This approach ensures that asset cash flows are valued consistently with the market prices of assets without options and guarantees. Further information on the risk-free rates is given in note E15.

The PVFP includes the capitalised value of profits and losses arising from subsidiary companies providing administration, investment management and other services to the extent that they relate to covered business. This is referred to as the "look through" into service company expenses. In addition, expenses arising in holding companies that relate directly to acquiring or maintaining covered business have been allowed for. Where external companies provide services to the life and related businesses, their charges have been allowed for in the underlying projected cost base.

## E1 – Basis of preparation continued

### Time value of financial options and guarantees (TVOG)

The PVFP calculation is based on a single (base) economic scenario; however, a single scenario cannot appropriately allow for the effect of certain product features. If an option or guarantee affects shareholder cash flows in the base scenario, the impact is included in the PVFP and is referred to as the intrinsic value of the option guarantee; however, future investment returns are uncertain and the actual impact on shareholder profits may be higher or lower. The value of in-force business needs to be adjusted for the impact of the range of potential future outcomes. Stochastic modelling techniques can be used to assess the impact of potential future outcomes, and the difference between the intrinsic value and the total stochastic value is referred to as the time value of the option or guarantee.

Stochastic modelling typically involves projecting the future cash flows of the business under thousands of economic scenarios that are representative of the possible future outcomes for market variables such as interest rates and equity returns. Under a market consistent approach, the economic scenarios generated reflect the market's tendency towards risk aversion. Allowance is made, where appropriate, for the effect of management and/or policyholder actions in different economic conditions on future assumptions such as asset mix, bonus rates and surrender rates.

Stochastic models are calibrated to market yield curves and volatility levels at the valuation date. Tests are performed to confirm that the scenarios used produce results that replicate the market price of traded instruments.

Where evidence exists that persistency rates are linked to economic scenarios, dynamic lapse assumptions are set that vary depending on the individual scenarios. This cost is included in the TVOG. Dynamic lapses are modelled for parts of the UK, US and French businesses. Asymmetries in non-economic assumptions that are linked to economic scenarios, but that have insufficient evidence for credible dynamic assumptions, are allowed for within mean best estimate assumptions.

### Frictional costs of required capital

The additional costs to a shareholder of holding the assets backing required capital within an insurance company rather than directly in the market are called frictional costs. They are explicitly deducted from the PVFP. The additional costs allowed for are the taxation costs and any additional investment expenses on the assets backing the required capital. The level of required capital has been set out above in the net worth section.

Frictional costs are calculated by projecting forwards the future levels of required capital in line with drivers of the capital requirement. Tax on investment return and investment expenses are payable on the assets backing required capital, up until the point that they are released to shareholders.

### Cost of residual non-hedgeable risks (CNHR)

The cost of residual non-hedgeable risks (CNHR) covers risks not already allowed for in the time value of options and guarantees or the PVFP. The allowance includes the impact of both non-hedgeable financial and non-financial risks. The most significant risk not included in the PVFP or TVOG is operational risk.

Asymmetric risks allowed for in the TVOG or PVFP are described earlier in the basis of preparation. No allowance has been made within the cost of non-hedgeable risk for symmetrical risks as these are diversifiable by investors.

### US capital solutions

Credit has been taken within the US embedded value, and value of new business, for the anticipated reduction in capital requirements based on management's intention to enact transactions which allow recognition of additional assets that can be held against certain reserves, reducing shareholder capital requirements. These 'AXXX/XXX' transactions are fixed-term and are assumed to renew at current market rates. Enacting such transactions is common practice within the US market, and at 30 June 2012, transactions have been enacted for all business written from 2006 to 2011.

### New business tax

New business for the US and Italy has been valued on a basis with tax applied at the full corporation rate and consequential movements in the value of the Deferred Tax Asset included as a variance within existing business operating return.

### Participating business

Future regular bonuses on participating business are projected in a manner consistent with current bonus rates and expected future market-consistent returns on assets deemed to back the policies.

For with-profit funds in the UK and Ireland, for the purpose of recognising the value of the estate, it is assumed that terminal bonuses are increased to exhaust all of the assets in the fund over the future lifetime of the in-force with-profit policies. However, under stochastic modelling there may be some extreme economic scenarios when the total assets in the Group's with-profit funds are not sufficient to pay all policyholder claims. The average additional shareholder cost arising from this shortfall has been included in the TVOG.

For profit-sharing business in continental Europe, where policy benefits and shareholder value depend on the timing of realising gains, the apportionment of unrealised gains between policyholders and shareholders reflect contractual requirements as well as existing practice. Under certain economic scenarios where additional shareholder injections are required to meet policyholder payments, the average additional cost has been included in the TVOG.

## E1 – Basis of preparation continued

### Participating business continued

The embedded value of the US spread-based products anticipates the application of management discretion allowed for contractually within the policies, subject to contractual guarantees. This includes the ability to change the crediting rates and indexed strategies available within the policy. Consideration is taken of the economic environment assumed in future projections and returns in excess of the reference rate are not assumed. Anticipated market and policyholder reaction to management action has been considered.

### Consolidation adjustments

The effect of transactions between group life companies such as loans and reinsurance arrangements have been included in the results split by territory in a consistent manner. No elimination is required on consolidation.

As the MCEV methodology incorporates the impact of profits and losses arising from subsidiary companies providing administration, investment management and other services to the Group's life companies, the equivalent profits and losses have been removed from the relevant segment (other operations or fund management) and are instead included within the results of life and related businesses. In addition, the underlying basis of calculation for these profits has changed from the IFRS basis to the MCEV basis.

The capitalised value of the future profits and losses from such service companies are included in the embedded value and value of new business calculations for the relevant business, but the net assets (representing historical profits and other amounts) remain under other operations or fund management. In order to reconcile the profits arising in the financial period within each segment with the assets on the opening and closing statement of financial positions, a transfer of IFRS profits from life and related business to the appropriate segment is deemed to occur. An equivalent approach has been adopted for expenses within our holding companies. The assessments of goodwill, intangibles and pension schemes relating to life insurance business utilise the IFRS measurement basis.

### Exchange rates

The Group's principal overseas operations during the period were located within the Eurozone and the United States.

The results and cash flows of these operations have been translated at the average rates for that period and the assets and liabilities have been translated at the period end rates. Please refer to note A2 of the IFRS financial statements.

### Restatement

The 2010 and half year 2011 closing embedded values have been restated for the US, primarily reflecting modelling corrections to the valuation of certain life contracts and an overstatement of asset income identified in the second half of 2011. The resulting impact of the restatement was that the closing 2010 embedded value reduced by £257 million and the closing half year 2011 embedded value reduced by £257 million. Restated operating profit for period ending 30 June 2011 increased £52 million gross tax and minority interest as a result of increased expected return.

### Impact of Delta Lloyd disposal

On 6 May 2011, the Group sold 25 million shares in Delta Lloyd N.V. ("Delta Lloyd") (the Group's Dutch long-term insurance, general insurance and fund management subsidiary), reducing our holding to approximately 43% of Delta Lloyd's ordinary share capital.

In line with IFRS, up to the date of partial disposal, Delta Lloyd has been presented as a discontinued operation. Following the partial disposal, when Delta Lloyd became an associate of Aviva, Delta Lloyd has been removed from covered business as it is not managed by either Aviva or Delta Lloyd on an MCEV basis. The impact on MCEV as at 6 May 2011 was a reduction of £1,519 million.

## E2 – Geographical analysis of life MCEV operating earnings

	6 months 2012						
	United Kingdom & Ireland £m	France £m	United States £m	Italy, Spain and Other £m	Developed markets £m	Higher Growth markets £m	Continuing operations £m
Gross of tax and non-controlling interest							
Value of new business	176	62	(138)	35	135	70	205
Earnings from existing business:							
– expected returns at the reference rate	109	49	33	22	213	59	272
– expected returns in excess of the reference rate	207	99	253	246	805	8	813
– expected returns	316	148	286	268	1,018	67	1,085
– experience variances	(37)	(13)	(96)	34	(112)	(2)	(114)
– operating assumption changes	(20)	—	—	(9)	(29)	8	(21)
Expected return on shareholders' net worth	63	28	31	43	165	16	181
Other operating variances	(27)	(25)	(2)	(48)	(102)	(6)	(108)
<b>Operating earnings before tax</b>	<b>471</b>	<b>200</b>	<b>81</b>	<b>323</b>	<b>1,075</b>	<b>153</b>	<b>1,228</b>

	Restated 6 months 2011								
	United Kingdom & Ireland £m	France £m	United States £m	Italy, Spain and Other £m	Developed markets £m	Higher Growth markets £m	Continuing operations £m	Discontinued operations £m	Total £m
Gross of tax and non-controlling interest									
Value of new business	192	97	(86)	102	305	64	369	1	370
Earnings from existing business:									
– expected returns at the reference rate	87	57	33	31	208	53	261	19	280
– expected returns in excess of the reference rate	202	71	250	72	595	19	614	109	723
– expected returns	289	128	283	103	803	72	875	128	1,003
– experience variances	(29)	29	(55)	6	(49)	10	(39)	3	(36)
– operating assumption changes	(25)	—	(14)	(8)	(47)	22	(25)	99	74
Expected return on shareholders' net worth	94	40	40	40	214	15	229	41	270
Other operating variances	(12)	1	20	5	14	(21)	(7)	(2)	(9)
<b>Operating earnings before tax</b>	<b>509</b>	<b>295</b>	<b>188</b>	<b>248</b>	<b>1,240</b>	<b>162</b>	<b>1,402</b>	<b>270</b>	<b>1,672</b>

	Full year 2011								
	United Kingdom & Ireland £m	France £m	United States £m	Italy, Spain and Other £m	Developed markets £m	Higher Growth markets £m	Continuing operations £m	Discontinued operations £m	Total £m
Gross of tax and non-controlling interest									
Value of new business	376	142	(131)	166	553	136	689	1	690
Earnings from existing business:									
– expected returns at the reference rate	228	113	62	64	467	99	566	19	585
– expected returns in excess of the reference rate	366	140	515	145	1,166	33	1,199	109	1,308
– expected returns	594	253	577	209	1,633	132	1,765	128	1,893
– experience variances	93	26	(98)	11	32	14	46	3	49
– operating assumption changes	(133)	244	(115)	(176)	(180)	221	41	99	140
Expected return on shareholders' net worth	177	60	64	81	382	29	411	41	452
Other operating variances	(5)	352	(56)	(94)	197	(20)	177	(2)	175
<b>Operating earnings before tax</b>	<b>1,102</b>	<b>1,077</b>	<b>241</b>	<b>197</b>	<b>2,617</b>	<b>512</b>	<b>3,129</b>	<b>270</b>	<b>3,399</b>

**United Kingdom & Ireland**

**MCEV operating earnings** were 7% lower at £471 million (HY11: £509 million) mainly due to lower value of new business and adverse experience variances.

**Value of new business** reduced by 8% to £176 million (HY11: £192 million), reflecting reduced volumes in Ireland due to the closing of Ark Life to new business and a reduction in bulk purchase annuities sales in the UK as the business continues to manage new business mix and pricing discipline.

**Total expected return** was broadly similar at £379 million (HY11: £383 million).

**Operating experience variances, other operating variances and assumption changes** decreased to £84 million adverse (HY11: £66 million adverse) including higher expenditures from increased level of regulatory change and revisions to asset management profit margins.

## E2 – Geographical analysis of life MCEV operating earnings continued

### France

**MCEV operating earnings** decreased 32% to £200 million (*HY11: £295 million*) driven by a reduction in the value of new business and lower experience variances than the prior period.

**Value of new business** decreased 36% to £62 million (*HY11: £97 million*) following lower sales volumes of primarily unit-linked business and reduced margins on with-profits business as a result of the adverse economic climate in Europe in the first half of the year.

**Total expected return** increased 5% to £176 million (*HY11: £168 million*) resulting from a higher opening implied discount rate, albeit on a lower embedded value.

**Experience variances** were lower at £13 million adverse (*HY11: £29 million*) reflecting the assumption revisions in 2011 and an increase in lapse due to economic circumstances.

**Other operating variances** were lower at £25 million adverse (*HY11: £1 million*) relate to modelling refinements during the first half of the year.

### United States

**MCEV operating earnings** decreased to £81 million (*HY11: £188 million*) driven by a reduction in the value of new business and unfavourable experience variances.

**Value of new business** of negative £138 million (*HY11: £86 million negative*) reflecting the adverse economic movements from lower risk-free rates.

**Total expected return** of £317 million (*HY11: £323 million*) is broadly in line with prior period.

**Operating experience variances, other operating variances and assumption changes** of £98 million adverse (*HY11: £49 million adverse*) primarily reflecting the marginal impact of new business on the value of deferred tax losses and non-recurrence of benefits from modelling refinements in the prior period.

### Italy, Spain and Other Developed Markets

**MCEV operating earnings** increased by 30% to £323 million (*HY11: £248 million*) reflecting increases in expected return, partly offset by a reduction in the value of new business.

**Value of new business** decreased to £35 million (*HY11: £102 million*) driven by a reduction in volumes and margins in Italy and Spain reflecting the adverse economic climate in Europe in the first half of the year.

**Total expected return** increased to £311 million (*HY11: £143 million*) reflecting in Italy the expected release of the allowance for guarantees in the opening embedded value.

**Experience variances** increased to £34 million (*HY11: £6 million*) largely in Italy reflecting the benefit of the marginal impact of new business on the value of deferred tax losses and benefit of increased lapse due the negative value of in force business.

**Assumption changes** of £9 million adverse (*HY11: £8 million adverse*) relating to additional lapse provisions on unit linked business in Italy due to the adverse economic climate.

**Other operating variances** of £48 million adverse (*HY11: £5 million*) primarily from modelling improvements in Italy.

### Higher Growth Markets

**MCEV operating earnings** decreased by 6% to £153 million (*HY11: £162 million*) as higher value of new business was more than offset by a decrease in experience variances and assumption change from the prior period.

**Value of new business** increased by 9% to £70 million (*HY11: £64 million*) due to an improvement in the margin reflecting product mix.

**Total expected return** of £83 million (*HY11: £87 million*) broadly in line with prior period.

**Operating experience variances, other operating variances and assumption changes** of nil (*HY11: £11 million*) primarily reflecting the non-recurrence of positive assumption changes in the prior period.

## E2 – Geographical analysis of life MCEV operating earnings continued

Gross of tax and non-controlling interests 30 June 2012	UK £m	Ireland £m	UK & Ireland £m	France £m	United States £m	Spain £m	Italy £m	Other £m	Developed markets £m	Poland £m	Asia £m	Other £m	Higher Growth markets £m	Continuing operations £m
Value of new business	182	(6)	176	62	(138)	21	14	—	135	18	37	15	70	205
Earnings from existing business														
– expected existing business contribution (reference rate)	101	8	109	49	33	14	4	4	213	41	11	7	59	272
– expected existing business contribution (in excess of reference rate)	196	11	207	99	253	50	196	—	805	5	3	—	8	813
Experience variances														
– maintenance expense	7	1	8	(7)	6	(3)	(2)	5	7	1	(1)	1	1	8
– project and other related expenses <sup>1</sup>	(33)	(1)	(34)	(4)	(10)	—	—	—	(48)	—	(4)	—	(4)	(52)
– mortality/morbidity	(2)	(7)	(9)	9	(9)	(1)	—	2	(8)	4	6	—	10	2
– lapses <sup>2</sup>	(3)	(11)	(14)	(15)	3	1	14	(4)	(15)	—	(8)	—	(8)	(23)
– other <sup>3</sup>	12	—	12	4	(86)	—	24	(2)	(48)	2	(3)	—	(1)	(49)
	(19)	(18)	(37)	(13)	(96)	(3)	36	1	(112)	7	(10)	1	(2)	(114)
Operating assumption changes:														
– maintenance expense	10	(6)	4	—	—	—	—	—	4	—	1	—	1	5
– project and other related expenses	—	—	—	—	—	—	—	—	—	—	—	—	—	—
– mortality/morbidity	(4)	—	(4)	—	—	—	—	—	(4)	—	4	—	4	—
– lapses <sup>4</sup>	7	—	7	—	—	—	(15)	—	(8)	—	3	—	3	(5)
– other <sup>5</sup>	(22)	(5)	(27)	—	—	—	—	6	(21)	—	—	—	—	(21)
	(9)	(11)	(20)	—	—	—	(15)	6	(29)	—	8	—	8	(21)
Expected return on shareholders' net worth	56	7	63	28	31	13	30	—	165	5	9	2	16	181
Other operating variances <sup>6</sup>	(30)	3	(27)	(25)	(2)	(8)	(34)	(6)	(102)	—	(2)	(4)	(6)	(108)
<b>Earnings before tax and non-controlling interests</b>	<b>477</b>	<b>(6)</b>	<b>471</b>	<b>200</b>	<b>81</b>	<b>87</b>	<b>231</b>	<b>5</b>	<b>1,075</b>	<b>76</b>	<b>56</b>	<b>21</b>	<b>153</b>	<b>1,228</b>

1. Project and other related expenses includes higher expenditures related to increased level of regulatory change in the UK.

2. Persistency experience remains volatile across most of our businesses, in part reflecting the wider economic circumstances. Asia reflects an accumulation of small adverse experience across businesses.

3. Other experience includes the marginal impact of new business on value of deferred tax losses in the US and Italy as well as other tax variances in the US.

4. Persistency assumptions include an additional short term provision in Italy reflecting economic circumstances.

5. Other assumption changes include a revision to profit margins on asset management in the UK.

6. Other operating variances include the impacts of modelling refinements in France and Italy and the cost of capital management initiatives in the UK.

## E2 – Geographical analysis of life MCEV operating earnings continued

Restated Gross of tax and non-controlling interests 30 June 2011	UK £m	Ireland £m	UK & Ireland £m	France £m	United States £m	Spain £m	Italy £m	Other £m	Developed markets £m	Poland £m	Asia £m	Other £m	Higher Growth markets £m	Continuing operations £m
Value of new business	190	2	192	97	(86)	49	50	3	305	20	34	10	64	369
Earnings from existing business														
– expected existing business contribution (reference rate)	79	8	87	57	33	16	12	3	208	36	11	6	53	261
– expected existing business contribution (in excess of reference rate)	190	12	202	71	250	37	35	—	595	12	4	3	19	614
Experience variances														
– maintenance expense	11	(4)	7	(3)	1	—	(1)	1	5	3	—	3	6	11
– project and other related expenses	(10)	—	(10)	(4)	(5)	—	—	—	(19)	—	(1)	(2)	(3)	(22)
– mortality/morbidity <sup>1</sup>	4	(3)	1	19	(18)	(7)	5	2	2	5	6	1	12	14
– lapses <sup>2</sup>	(14)	(5)	(19)	3	(5)	—	(3)	(1)	(25)	—	(10)	1	(9)	(34)
– other <sup>3</sup>	(4)	(4)	(8)	14	(28)	—	5	5	(12)	6	(2)	—	4	(8)
	(13)	(16)	(29)	29	(55)	(7)	6	7	(49)	14	(7)	3	10	(39)
Operating assumption changes:														
– maintenance expense <sup>4</sup>	—	(26)	(26)	—	—	—	—	1	(25)	11	5	1	17	(8)
– project and other related expenses	—	—	—	—	—	—	—	—	—	—	—	—	—	—
– mortality/morbidity	—	—	—	—	—	—	—	—	—	—	1	—	1	1
– lapses <sup>5</sup>	—	—	—	—	(14)	—	—	(9)	(23)	—	(1)	5	4	(19)
– other	1	—	1	—	—	—	—	—	1	—	—	—	—	1
	1	(26)	(25)	—	(14)	—	—	(8)	(47)	11	5	6	22	(25)
Expected return on shareholders' net worth	80	14	94	40	40	16	23	1	214	6	7	2	15	229
Other operating variances <sup>6</sup>	(9)	(3)	(12)	1	20	—	4	1	14	(1)	(6)	(14)	(21)	(7)
<b>Earnings before tax and non-controlling interests</b>	<b>518</b>	<b>(9)</b>	<b>509</b>	<b>295</b>	<b>188</b>	<b>111</b>	<b>130</b>	<b>7</b>	<b>1,240</b>	<b>98</b>	<b>48</b>	<b>16</b>	<b>162</b>	<b>1,402</b>

1. Mortality experience continues to be better than the assumption set across a number of our businesses, most notably in France. Adverse experience reflects normal volatility in mortality and increased retention limits in the US.

2. Persistency experience remains volatile across most of our businesses, in part reflecting the wider economic circumstances. Asia reflects an accumulation of small adverse experience across businesses.

3. Other experience includes positive tax variances in France and adverse spread variance in the US.

4. Maintenance expense assumptions reflect the adverse impact of reallocating expenses from acquisition to maintenance in Ireland and provision release in Poland.

5. Persistency assumptions have been updated in a number of businesses, including refinement of 2010 assumptions in the US.

6. Other operating variances for the US relate to modelling enhancements offset by the marginal impact of new business on the value of deferred tax losses, and in Other Higher Growth markets, management action to improve persistency.

## E2 – Geographical analysis of life MCEV operating earnings continued

Gross of tax and non-controlling interests Full year 2011	UK £m	Ireland £m	UK & Ireland £m	France £m	United States £m	Spain £m	Italy £m	Other £m	Developed markets £m	Poland £m	Asia £m	Other £m	Higher Growth markets £m	Continuing operations £m
Value of new business	380	(4)	376	142	(131)	86	75	5	553	45	71	20	136	689
Earnings from existing business														
– expected existing business contribution (reference rate)	214	14	228	113	62	34	23	7	467	72	16	11	99	566
– expected existing business contribution (in excess of reference rate)	340	26	366	140	515	72	72	1	1,166	20	10	3	33	1,199
Experience variances														
– maintenance expense <sup>1</sup>	2	(8)	(6)	(14)	(46)	2	(7)	5	(66)	6	—	(3)	3	(63)
– project and other related expenses <sup>1</sup>	(30)	(1)	(31)	(15)	(16)	(1)	—	—	(63)	—	(4)	(1)	(5)	(68)
– mortality/morbidity <sup>2</sup>	2	2	4	33	(28)	(5)	11	2	17	12	7	—	19	36
– lapses <sup>3</sup>	(11)	(12)	(23)	9	5	—	2	(5)	(12)	4	(14)	—	(10)	(22)
– other <sup>4</sup>	153	(4)	149	13	(13)	—	7	—	156	9	(2)	—	7	163
	116	(23)	93	26	(98)	(4)	13	2	32	31	(13)	(4)	14	46
Operating assumption changes:														
– maintenance expense <sup>5</sup>	63	(65)	(2)	11	(54)	(4)	(28)	(2)	(79)	51	19	—	70	(9)
– project and other related expenses <sup>5</sup>	(65)	—	(65)	(4)	—	—	—	—	(69)	—	—	—	—	(69)
– mortality/morbidity <sup>6</sup>	(18)	—	(18)	163	—	(16)	—	6	135	22	(6)	—	16	151
– lapses <sup>7</sup>	(1)	(57)	(58)	107	(136)	(65)	(5)	(33)	(190)	37	(24)	3	16	(174)
– other <sup>8</sup>	10	—	10	(33)	75	—	(28)	(1)	23	117	—	2	119	142
	(11)	(122)	(133)	244	(115)	(85)	(61)	(30)	(180)	227	(11)	5	221	41
Expected return on shareholders' net worth	147	30	177	60	64	32	47	2	382	10	16	3	29	411
Other operating variances <sup>9</sup>	7	(12)	(5)	352	(56)	2	(95)	(1)	197	5	(11)	(14)	(20)	177
<b>Earnings before tax and non-controlling interests</b>	<b>1,193</b>	<b>(91)</b>	<b>1,102</b>	<b>1,077</b>	<b>241</b>	<b>137</b>	<b>74</b>	<b>(14)</b>	<b>2,617</b>	<b>410</b>	<b>78</b>	<b>24</b>	<b>512</b>	<b>3,129</b>

1 Adverse expense experience occurred across a number of businesses.

2 Mortality experience continues to be better than the assumption set across a number of our businesses, most notably in France. Adverse experience reflects normal volatility in mortality and increased retention limits in the US.

3 Persistency experience continues to be somewhat volatile across our businesses. Asia reflects an accumulation of small adverse experience across businesses.

4 Other experience includes tax benefits from the transfer of former RBS joint venture business into the long-term fund in the UK.

5 Maintenance and project expense assumptions have been revised in many regions with a broadly neutral impact on continuing business.

6 Mortality assumptions have been updated in France reflecting experience.

7 Persistency assumptions have been updated in a number of businesses reflecting lower expected lapses in France (AFER), increases due to the economic environment in Ireland and Spain, and, in the US, revisions to dynamic policyholder lapse behaviour.

8 Other operating assumption changes in Poland relate to a change to assumed management actions in relation to product charges, and, in the US, revisions to policyholder utilisation of rider benefits offset by revisions to annuity spread assumptions.

9 Other operating variances relate to modelling changes and the release of a modelling provision in France, and modelling refinements in Italy, and, in the US, the marginal impact of new business on the value of deferred tax losses, with cost of capital transactions and model refinements broadly offsetting.



## E2 – Geographical analysis of life MCEV operating earnings continued

Net of tax and non-controlling interests 30 June 2012	UK £m	Ireland £m	UK & Ireland £m	France £m	United States £m	Spain £m	Italy £m	Other £m	Developed markets £m	Poland £m	Asia £m	Other £m	Higher Growth markets £m	Continuing operations £m
Value of new business	138	(3)	135	35	(90)	4	4	(1)	87	13	29	12	54	141
Earnings from existing business														
– expected existing business contribution (reference rate)	77	5	82	31	21	6	1	3	144	30	8	5	43	187
– expected existing business contribution (in excess of reference rate)	149	7	156	61	165	17	56	—	455	3	2	—	5	460
Experience variances														
– maintenance expense	5	1	6	(5)	4	(2)	(1)	4	6	—	—	1	1	7
– project and other related expenses <sup>1</sup>	(25)	—	(25)	(3)	(7)	—	—	—	(35)	—	(3)	—	(3)	(38)
– mortality/morbidity	(1)	(5)	(6)	6	(6)	(1)	—	1	(6)	3	5	—	8	2
– lapses <sup>2</sup>	(3)	(7)	(10)	(9)	2	1	3	(2)	(15)	—	(5)	—	(5)	(20)
– other <sup>3</sup>	9	—	9	4	(55)	—	7	(2)	(37)	2	(2)	—	—	(37)
	(15)	(11)	(26)	(7)	(62)	(2)	9	1	(87)	5	(5)	1	1	(86)
Operating assumption changes:														
– maintenance expense	7	(4)	3	—	—	—	—	—	3	—	—	—	—	3
– project and other related expenses	—	—	—	—	—	—	—	—	—	—	—	—	—	—
– mortality/morbidity	(3)	—	(3)	—	—	—	—	—	(3)	—	3	—	3	—
– lapses <sup>4</sup>	6	—	6	—	—	—	(5)	—	1	—	1	—	1	2
– other <sup>5</sup>	(17)	(2)	(19)	—	—	—	—	4	(15)	—	—	—	—	(15)
	(7)	(6)	(13)	—	—	—	(5)	4	(14)	—	4	—	4	(10)
Expected return on shareholders' net worth	43	4	47	17	20	5	9	—	98	4	7	2	13	111
Other operating variances <sup>6</sup>	(22)	2	(20)	(13)	(1)	(4)	(10)	(5)	(53)	—	(3)	(3)	(6)	(59)
<b>Earnings after tax and non-controlling interests</b>	<b>363</b>	<b>(2)</b>	<b>361</b>	<b>124</b>	<b>53</b>	<b>26</b>	<b>64</b>	<b>2</b>	<b>630</b>	<b>55</b>	<b>42</b>	<b>17</b>	<b>114</b>	<b>744</b>

1. Project and other related expenses includes higher expenditures related to increased level of regulatory change in the UK.

2. Persistency experience remains volatile across most of our businesses, in part reflecting the wider economic circumstances. Asia reflects an accumulation of small adverse experience across businesses.

3. Other experience includes the marginal impact of new business on value of deferred tax losses in the US and Italy as well as other tax variances in the US.

4. Persistency assumptions include an additional short term provision in Italy reflecting economic circumstances.

5. Other assumption changes include a revision to profit margins on asset management in the UK.

6. Other operating variances include the impacts of modelling refinements in France and Italy and the cost of capital management initiatives in the UK.

## E2 – Geographical analysis of life MCEV operating earnings continued

Restated Net of tax and non-controlling interests 30 June 2011	UK £m	Ireland £m	UK & Ireland £m	France £m	United States £m	Spain £m	Italy £m	Other £m	Developed markets £m	Poland £m	Asia £m	Other £m	Higher Growth markets £m	Continuing operations £m
Value of new business	140	1	141	53	(55)	17	15	2	173	14	27	9	50	223
Earnings from existing business														
– expected existing business contribution (reference rate)	58	5	63	36	21	6	4	4	134	26	8	4	38	172
– expected existing business contribution (in excess of reference rate)	141	9	150	43	162	13	11	—	379	8	3	3	14	393
Experience variances														
– maintenance expense	8	(3)	5	(2)	1	—	(1)	2	5	3	—	1	4	9
– project and other related expenses	(7)	—	(7)	(2)	(3)	—	—	—	(12)	—	(1)	(2)	(3)	(15)
– mortality/morbidity <sup>1</sup>	3	(2)	1	11	(12)	(3)	2	1	—	4	5	2	11	11
– lapses <sup>2</sup>	(10)	(3)	(13)	3	(4)	(2)	(1)	(1)	(18)	—	(8)	1	(7)	(25)
– other <sup>3</sup>	(3)	(3)	(6)	8	(18)	—	2	3	(11)	4	(1)	—	3	(8)
	(9)	(11)	(20)	18	(36)	(5)	2	5	(36)	11	(5)	2	8	(28)
Operating assumption changes:														
– maintenance expense <sup>4</sup>	—	(17)	(17)	—	—	—	—	—	(17)	8	3	1	12	(5)
– project and other related expenses	—	—	—	—	—	—	—	—	—	—	—	—	—	—
– mortality/morbidity	—	—	—	—	—	—	—	—	—	—	—	—	—	—
– lapses <sup>5</sup>	—	—	—	—	(9)	—	—	(8)	(17)	—	2	4	6	(11)
– other	1	—	1	—	—	—	—	—	1	—	—	—	—	1
	1	(17)	(16)	—	(9)	—	—	(8)	(33)	8	5	5	18	(15)
Expected return on shareholders' net worth	60	9	69	24	26	7	8	1	135	4	5	1	10	145
Other operating variances <sup>6</sup>	(6)	(2)	(8)	4	13	—	1	1	11	(1)	(5)	(11)	(17)	(6)
<b>Earnings after tax and non-controlling interests</b>	<b>385</b>	<b>(6)</b>	<b>379</b>	<b>178</b>	<b>122</b>	<b>38</b>	<b>41</b>	<b>5</b>	<b>763</b>	<b>70</b>	<b>38</b>	<b>13</b>	<b>121</b>	<b>884</b>

1. Mortality experience continues to be better than the assumption set across a number of our businesses, most notably in France. Adverse experience reflects normal volatility in mortality and increased retention limits in the US.

2. Persistency experience remains volatile across most of our businesses, in part reflecting the wider economic circumstances. Asia reflects an accumulation of small adverse experience across businesses.

3. Other experience includes positive tax variances in France and adverse spread variance in the US.

4. Maintenance expense assumptions reflect the adverse impact of reallocating expenses from acquisition to maintenance in Ireland and provision release in Poland.

5. Persistency assumptions have been updated in a number of businesses, including refinement of 2010 assumptions in the US.

6. Other operating variances for the US relate to modelling enhancements offset by the marginal impact of new business on the value of deferred tax losses, and in Other Higher Growth markets, management action to improve persistency.

## E2 – Geographical analysis of life MCEV operating earnings continued

Net of tax and non-controlling interests Full year 2011	UK £m	Ireland £m	UK & Ireland £m	France £m	United States £m	Spain £m	Italy £m	Other £m	Developed markets £m	Poland £m	Asia £m	Other £m	Higher Growth markets £m	Continuing operations £m
Value of new business	281	(3)	278	79	(85)	28	23	4	327	34	55	16	105	432
Earnings from existing business														
– expected existing business contribution (reference rate)	158	9	167	71	40	13	7	7	305	51	12	9	72	377
– expected existing business contribution (in excess of reference rate)	252	17	269	84	334	26	22	1	736	15	7	3	25	761
Experience variances														
– maintenance expense <sup>1</sup>	2	(6)	(4)	(9)	(30)	1	(4)	4	(42)	4	—	(2)	2	(40)
– project and other related expenses <sup>1</sup>	(22)	—	(22)	(10)	(11)	(1)	—	—	(44)	—	(3)	(1)	(4)	(48)
– mortality/morbidity <sup>2</sup>	1	1	2	21	(18)	(2)	4	1	8	8	6	—	14	22
– lapses <sup>3</sup>	(7)	(8)	(15)	8	3	(3)	—	(5)	(12)	3	(11)	1	(7)	(19)
– other <sup>4</sup>	113	(2)	111	6	(9)	—	2	1	111	7	(2)	(1)	4	115
	87	(15)	72	16	(65)	(5)	2	1	21	22	(10)	(3)	9	30
Operating assumption changes:														
– maintenance expense <sup>5</sup>	47	(45)	2	7	(35)	(2)	(10)	(1)	(39)	36	14	(1)	49	10
– project and other related expenses <sup>5</sup>	(49)	—	(49)	(2)	—	—	—	—	(51)	—	—	—	—	(51)
– mortality/morbidity <sup>6</sup>	(14)	—	(14)	101	—	(5)	—	4	86	16	(6)	1	11	97
– lapses <sup>7</sup>	—	(38)	(38)	73	(88)	(23)	(1)	(29)	(106)	26	(18)	4	12	(94)
– other <sup>8</sup>	7	—	7	(21)	49	—	(8)	(2)	25	84	—	3	87	112
	(9)	(83)	(92)	158	(74)	(30)	(19)	(28)	(85)	162	(10)	7	159	74
Expected return on shareholders' net worth	109	20	129	36	42	13	16	1	237	7	12	2	21	258
Other operating variances <sup>9</sup>	6	(9)	(3)	237	(36)	1	(29)	2	172	4	(7)	(14)	(17)	155
<b>Earnings after tax and non-controlling interests</b>	<b>884</b>	<b>(64)</b>	<b>820</b>	<b>681</b>	<b>156</b>	<b>46</b>	<b>22</b>	<b>(12)</b>	<b>1,713</b>	<b>295</b>	<b>59</b>	<b>20</b>	<b>374</b>	<b>2,087</b>

1 Adverse expense experience occurred across a number of businesses.

2 Mortality experience continues to be better than the assumption set across a number of our businesses, most notably in France. Adverse experience reflects normal volatility in mortality and increased retention limits in the US.

3 Persistency experience continues to be somewhat volatile across our businesses. Asia reflects an accumulation of small adverse experience across businesses.

4 Other experience includes tax benefits from the transfer of former RBS joint venture business into the long-term fund in the UK.

5 Maintenance and project expense assumptions have been revised in many regions with a broadly neutral impact on continuing business.

6 Mortality assumptions have been updated in France reflecting experience.

7 Persistency assumptions have been updated in a number of businesses reflecting lower expected lapses in France (AFER), increases due to the economic environment in Ireland and Spain, and, in the US, revisions to dynamic policyholder lapse behaviour.

8 Other operating assumption changes in Poland relate to a change to assumed management actions in relation to product charges, and, in the US, revisions to policyholder utilisation of rider benefits offset by revisions to annuity spread assumptions.

9 Other operating variances relate to modelling changes and the release of a modelling provision in France, and modelling refinements in Italy, and, in the US, the marginal impact of new business on the value of deferred tax losses, with cost of capital transactions and model refinements broadly offsetting.

### E3 – Geographical analysis of fund management operating earnings

The summarised consolidated income statement – MCEV basis, includes earnings from the Group's fund management operations as analysed below. This excludes the proportion of the results of Aviva Investors fund management businesses and other fund management operations within the Group that arise from the provision of fund management services to our Life businesses. These results are included within the Life MCEV operating earnings.

	6 months 2012 £m	6 months 2011 £m	Full year 2011 £m
Aviva Investors	3	6	21
United Kingdom	4	3	11
Higher Growth markets	—	—	—
<b>Total – continuing operations</b>	<b>7</b>	<b>9</b>	<b>32</b>
<b>Total – discontinued operations</b>	<b>—</b>	<b>9</b>	<b>9</b>
<b>Total</b>	<b>7</b>	<b>18</b>	<b>41</b>

### E4 – Other operations

Where subsidiaries provide services to our life business, that proportion has been excluded. These results are included within the Life MCEV operating return.

	6 months 2012 £m	6 months 2011 £m	Full year 2011 £m
Developed markets	(19)	(13)	(41)
Higher Growth markets	(8)	(17)	(30)
Other operations	(69)	(50)	(133)
<b>Total – continuing operations</b>	<b>(96)</b>	<b>(80)</b>	<b>(204)</b>
<b>Total – discontinued operations</b>	<b>—</b>	<b>7</b>	<b>7</b>
<b>Total</b>	<b>(96)</b>	<b>(73)</b>	<b>(197)</b>

### E5 – Exceptional items and Integration and restructuring costs

There were no exceptional items in the first half of 2012 (*HY11: nil*).

Integration and restructuring costs are £188 million (*HY11: £60 million*). This includes costs associated with preparing the businesses for Solvency II implementation of £74 million, a £44 million charge relating to the merging of the UK and Ireland businesses and a £17 million expense associated with the transformation of Aviva Investors. Expenditure relating to other restructuring exercises across the Group are £53 million.

## E6 – Segmentation of condensed consolidated statement of financial position

	30 June 2012			Restated 30 June 2011			Full year 2011		
	Life and related businesses £m	General business and other £m	Group £m	Life and related businesses £m	General business and other £m	Group £m	Life and related businesses £m	General business and other £m	Group £m
<b>Total assets before acquired value of in-force long-term business</b>	<b>282,274</b>	<b>29,717</b>	<b>311,991</b>	291,631	29,880	321,511	281,471	30,090	311,561
Acquired additional value of in-force long-term business	618	—	618	1,095	—	1,095	815	—	815
<b>Total assets included in the IFRS statement of financial position</b>	<b>282,892</b>	<b>29,717</b>	<b>312,609</b>	292,726	29,880	322,606	282,286	30,090	312,376
Liabilities of the long-term business	(267,996)	—	(267,996)	(277,171)	—	(277,171)	(266,622)	—	(266,622)
Liabilities of the general insurance and other businesses	—	(30,008)	(30,008)	—	(30,230)	(30,230)	—	(30,391)	(30,391)
<b>Net assets on a statutory IFRS basis</b>	<b>14,896</b>	<b>(291)</b>	<b>14,605</b>	15,555	(350)	15,205	15,664	(301)	15,363
Additional value of in-force long-term business <sup>1</sup>	1,064	—	1,064	4,169	—	4,169	132	—	132
<b>Net assets on an MCEV basis<sup>2</sup></b>	<b>15,960</b>	<b>(291)</b>	<b>15,669</b>	19,724	(350)	19,374	15,796	(301)	15,495
Equity capital, capital reserves, shares held by employee trusts and other reserves			6,222			6,773			6,389
IFRS basis retained earnings			4,854			5,303			5,954
Additional MCEV basis retained earnings			1,203			3,528			486
<b>Equity attributable to ordinary shareholders of Aviva plc on an MCEV basis</b>			<b>12,279</b>			15,604			12,829
Preference share capital, direct capital instruments and fixed rate tier 1 notes			1,582			1,190			1,190
Non-controlling interests			1,808			2,580			1,476
<b>MCEV basis total equity</b>			<b>15,669</b>			19,374			15,495

1. The analysis between the Group's and non-controlling interests' share of the additional value of in-force long-term business is as follows:

	30 June 2012 £m	Full year 2011 £m	Movement in period £m
Group's share included in shareholders' funds	1,203	486	717
Non-controlling interests' share	309	(54)	363
Movements in AFS securities	(448)	(300)	(148)
<b>Additional value of in-force long-term business</b>	<b>1,064</b>	132	932

2. Analysis of net assets on an MCEV basis is made up as follows:

	30 June 2012 £m	Restated 30 June 2011 £m	Full year 2011 £m
Embedded value	12,902	15,300	12,274
Non-controlling interests	1,152	1,850	820
	<b>14,054</b>	17,150	13,094
Goodwill and intangible assets allocated to long-term business <sup>3</sup>	1,234	2,378	2,117
Notional allocation of IAS19 pension fund surplus/(deficit) to long-term business <sup>4</sup>	672	196	585
<b>Long-term business net assets on an MCEV basis</b>	<b>15,960</b>	19,724	15,796

3. Goodwill and intangible assets includes amounts related to associated undertakings and joint ventures.

4. The value of the Aviva Staff Pension Scheme surplus has been notionally allocated between segments, based on current funding and, within the long-term business net assets on an MCEV basis, the Life proportion has been included. The pension fund surplus notionally allocated to long-term business is net of the agreed funding borne by the UK with-profit funds.

## E7 – Analysis of life and pension earnings

The following table provides an analysis of the movement in embedded value for covered business. The analysis is shown separately for free surplus, required capital and the value of in-force covered business, and includes amounts transferred between these categories. All figures are shown net of tax and non-controlling interests.

Net of tax and non-controlling interests 30 June 2012	Continuing operations			Total MCEV £m
	Free surplus £m	Required capital <sup>1</sup> £m	VIF £m	
<b>Opening Group MCEV</b>	<b>1,344</b>	<b>7,965</b>	<b>2,965</b>	<b>12,274</b>
New business value	(449)	249	341	141
Expected existing business contribution (reference rate)	—	—	187	187
Expected existing business contribution (in excess of reference rate)	—	—	460	460
Transfers from VIF and required capital to the free surplus	922	(345)	(577)	—
Experience variances	(77)	8	(17)	(86)
Assumption changes	(28)	22	(4)	(10)
Expected return on shareholders' net worth	27	84	—	111
Other operating variances	135	3	(197)	(59)
<b>Operating MCEV earnings</b>	<b>530</b>	<b>21</b>	<b>193</b>	<b>744</b>
Economic variances	(248)	196	546	494
Other non-operating variances <sup>2</sup>	(13)	—	2	(11)
Total MCEV earnings	269	217	741	1,227
Capital and dividend flows <sup>3</sup>	(508)	—	—	(508)
Foreign exchange variances	3	(116)	5	(108)
Acquired/divested business <sup>4</sup>	5	(4)	16	17
<b>Closing MCEV</b>	<b>1,113</b>	<b>8,062</b>	<b>3,727</b>	<b>12,902</b>

1. Required capital is shown net of implicit items permitted by local regulators to cover minimum solvency margins.

2. Other non-operating variances relate to costs for Solvency II implementation and other restructuring exercises.

3. Included within capital and dividend flows is the transfer to Life and related businesses from other segments consisting of service company profits and losses during the reported period that have emerged from the value of in-force. Since the "look through" into service companies includes only future profits and losses, these amounts must be eliminated from the closing embedded value.

4. Acquired/divested business includes the acquisition of Pelayo Vida on 17 January 2012.

Restated Net of tax and non-controlling interests 30 June 2011	Continuing operations				Discontinued operations				Total MCEV £m
	Free surplus £m	Required capital <sup>1</sup> £m	VIF £m	Total MCEV £m	Free surplus £m	Required capital <sup>1</sup> £m	VIF £m	Total MCEV £m	
<b>Opening Group MCEV</b>	<b>1,247</b>	<b>7,398</b>	<b>5,733</b>	<b>14,378</b>	<b>356</b>	<b>944</b>	<b>196</b>	<b>1,496</b>	<b>15,874</b>
New business value	(488)	319	392	223	(29)	14	15	—	223
Expected existing business contribution (reference rate)	—	—	172	172	—	—	7	7	179
Expected existing business contribution (in excess of reference rate)	—	—	393	393	—	—	41	41	434
Transfers from VIF and required capital to the free surplus	897	(309)	(588)	—	85	(25)	(60)	—	—
Experience variances	25	50	(103)	(28)	2	—	—	2	(26)
Assumption changes	68	(126)	43	(15)	—	—	42	42	27
Expected return on shareholders' net worth	48	97	—	145	5	12	—	17	162
Other operating variances	(134)	23	105	(6)	(2)	3	(4)	(3)	(9)
Operating MCEV earnings	416	54	414	884	61	4	41	106	990
Economic variances	119	23	31	173	212	(83)	(255)	(126)	47
Other non-operating variances <sup>2</sup>	7	(19)	15	3	—	—	—	—	3
<b>Total MCEV earnings</b>	<b>542</b>	<b>58</b>	<b>460</b>	<b>1,060</b>	<b>273</b>	<b>(79)</b>	<b>(214)</b>	<b>(20)</b>	<b>1,040</b>
Capital and dividend flows <sup>3</sup>	(414)	—	—	(414)	(3)	—	—	(3)	(417)
Foreign exchange variances	18	110	148	276	16	28	2	46	322
Acquired/divested business <sup>4</sup>	—	—	—	—	(642)	(893)	16	(1,519)	(1,519)
<b>Closing MCEV</b>	<b>1,393</b>	<b>7,566</b>	<b>6,341</b>	<b>15,300</b>	<b>—</b>	<b>—</b>	<b>—</b>	<b>—</b>	<b>15,300</b>

1. Required capital is shown net of implicit items permitted by local regulators to cover minimum solvency margins.

2. Other non-operating variances relate to costs for Solvency II implementation and other restructuring exercises offset by minor benefits of regulatory changes in Spain and Poland.

3. Included within capital and dividend flows is the transfer to Life and related businesses from other segments consisting of service company profits and losses during the reported period that have emerged from the value of in-force. Since the "look through" into service companies includes only future profits and losses, these amounts must be eliminated from the closing embedded value.

4. Divested business is the removal of Delta Lloyd from covered business subsequent to the reduction of our holding to 42% on 6 May 2011.

## E7 – Analysis of life and pension earnings continued

Net of tax and non-controlling interests Full year 2011	Continuing operations				Discontinued operations				Total
	Free surplus £m	Required capital <sup>1</sup> £m	VIF £m	Total MCEV £m	Free surplus £m	Required capital <sup>1</sup> £m	VIF £m	Total MCEV £m	Total MCEV £m
<b>Opening Group MCEV</b>	1,247	7,398	5,733	14,378	356	944	196	1,496	15,874
New business value	(905)	559	778	432	(29)	14	15	—	432
Expected existing business contribution (reference rate)	—	—	377	377	—	—	7	7	384
Expected existing business contribution (in excess of reference rate)	—	—	761	761	—	—	41	41	802
Transfers from VIF and required capital to the free surplus	1,822	(583)	(1,239)	—	85	(25)	(60)	—	—
Experience variances	45	161	(176)	30	2	—	—	2	32
Assumption changes	96	(92)	70	74	—	—	42	42	116
Expected return on shareholders' net worth	91	167	—	258	5	12	—	17	275
Other operating variances	118	15	22	155	(2)	3	(4)	(3)	152
Operating MCEV earnings	1,267	227	593	2,087	61	4	41	106	2,193
Economic variances	(704)	452	(3,132)	(3,384)	212	(83)	(255)	(126)	(3,510)
Other non-operating variances <sup>2</sup>	(51)	(18)	49	(20)	—	—	—	—	(20)
<b>Total MCEV earnings</b>	512	661	(2,490)	(1,317)	273	(79)	(214)	(20)	(1,337)
Capital and dividend flows <sup>3,4</sup>	(398)	—	(92)	(490)	(3)	—	—	(3)	(493)
Foreign exchange variances	(17)	(94)	(186)	(297)	16	28	2	46	(251)
Acquired/divested business <sup>5</sup>	—	—	—	—	(642)	(893)	16	(1,519)	(1,519)
<b>Closing MCEV</b>	1,344	7,965	2,965	12,274	—	—	—	—	12,274

1 Required capital is shown net of implicit items permitted by local regulators to cover minimum solvency margins.

2 Other non-operating variances primarily relate to costs for Solvency II implementation and other restructuring exercises.

3 Included within capital and dividend flows is the transfer to Life and related businesses from other segments consisting of service company profits and losses during the reported period that have emerged from the value of in-force. Since the 'look through' into service companies includes only future profits and losses, these amounts must be eliminated from the closing embedded value.

4 As a result of the January 2012 announced disposal of the Czech, Hungarian, and Romanian businesses, the VIF movement reflects the write-down of this business to the IFRS carrying value.

5 Divested business is the removal of Delta Lloyd from covered business subsequent to the reduction of our holding to 42% on 6 May 2011.

## E8 – Life MCEV operating earnings

The table below presents the life and pensions MCEV earnings broken down into constituent parts. The life and pensions MCEV operating earnings comprise: the value of new business written during the year; the earnings from existing business including other operating variances; and the expected investment return on the shareholders' net worth.

These components are calculated using economic assumptions as at the start of the year (in-force business) or start of the quarter (new business) and operating (demographic and expenses) assumptions as at the end of the year.

	6 months 2012 £m	Restated 6 months 2011 £m	Full year 2011 £m
<b>Gross of tax and non-controlling interests</b>			
Value of new business	205	369	689
Earnings from existing business			
– expected returns at the reference rate	272	261	566
– expected returns in excess of the reference rate	813	614	1,199
– expected returns	1,085	875	1,765
– experience variances	(114)	(39)	46
– operating assumption changes	(21)	(25)	41
Other operating variance	(108)	(7)	177
Expected return on shareholders' net worth	181	229	411
<b>Life and Pensions operating earnings before tax</b>	<b>1,228</b>	1,402	3,129
Economic Variances	1,173	81	(6,541)
Other non-operating variances	(14)	6	(32)
<b>Life and Pensions earnings before tax</b>	<b>2,387</b>	1,489	(3,444)
Tax on operating earnings	(348)	(408)	(908)
Tax on other activities	(398)	(26)	2,098
<b>Life and Pensions earnings after tax – continuing operations</b>	<b>1,641</b>	1,055	(2,254)
<b>Life and Pensions earnings after tax – discontinued operations</b>	<b>—</b>	(33)	(33)
<b>Total Life and Pensions earnings after tax</b>	<b>1,641</b>	1,022	(2,287)

There were no separate development costs reported in these years.

Other non-operating variances are described under Exceptional items in note E5.

The table above presents a summarised breakdown of the life and pensions MCEV earnings on a gross of non-controlling interests basis and gross of tax with tax shown separately. The Group favours the gross presentation for consistency with the IFRS results. The table below compares the key items on the different bases as the subsequent analysis is provided predominantly on a net of tax and non-controlling interests basis as preferred by the CFO Forum Principles.

### Key indicators

	6 months 2012		Restated 6 months 2011		Full year 2011	
	Net of non-controlling interests and tax £m	Gross of non-controlling interests and tax £m	Net of non-controlling interests and tax £m	Gross of non-controlling interests and tax £m	Net of non-controlling interests and tax £m	Gross of non-controlling interests and tax £m
Value of new business – continuing operations	141	205	223	369	432	689
Value of new business – discontinued operations	—	—	—	1	—	1
<b>Total value of new business</b>	<b>141</b>	<b>205</b>	223	370	432	690
Life and pensions operating return – continuing operations	744	1,228	884	1,402	2,087	3,129
Life and pensions operating return – discontinued operations	—	—	106	270	106	270
<b>Life and pensions operating return</b>	<b>744</b>	<b>1,228</b>	990	1,672	2,193	3,399
Life and pensions earnings – continuing operations	1,227	2,387	1,060	1,489	(1,317)	(3,444)
Life and pensions earnings – discontinued operations	—	—	(20)	(46)	(20)	(46)
<b>Life and pensions earnings</b>	<b>1,227</b>	<b>2,387</b>	1,040	1,443	(1,337)	(3,490)



## E9 – Free surplus emergence

	Existing business					New business			Total business
	Transfer from VIF to net worth £m	Return on net worth £m	Impact of experience variances and assumption changes on net worth £m	Release of required capital to free surplus £m	Total existing business surplus generation £m	Impact on net worth £m	Reduction in free surplus from required capital £m	Total new business surplus generation £m	Total free surplus generation £m
Net of tax and non-controlling interests 30 June 2012									
United Kingdom & Ireland	183	47	196	(13)	413	(70)	19	(51)	362
Developed markets excluding United Kingdom & Ireland	293	51	(137)	223	430	(89)	(241)	(330)	100
<b>Developed markets</b>	<b>476</b>	<b>98</b>	<b>59</b>	<b>210</b>	<b>843</b>	<b>(159)</b>	<b>(222)</b>	<b>(381)</b>	<b>462</b>
<b>Higher Growth markets</b>	<b>101</b>	<b>13</b>	<b>4</b>	<b>18</b>	<b>136</b>	<b>(41)</b>	<b>(27)</b>	<b>(68)</b>	<b>68</b>
<b>Total</b>	<b>577</b>	<b>111</b>	<b>63</b>	<b>228</b>	<b>979</b>	<b>(200)</b>	<b>(249)</b>	<b>(449)</b>	<b>530</b>

	Existing business					New business			Total business
	Transfer from VIF to net worth £m	Return on net worth £m	Impact of experience variances and assumption changes on net worth £m	Release of required capital to free surplus £m	Total existing business surplus generation £m	Impact on net worth £m	Reduction in free surplus from required capital £m	Total new business surplus generation £m	Total free surplus generation £m
Net of tax and non-controlling interests 30 June 2011									
United Kingdom & Ireland	179	69	(86)	97	259	(34)	(47)	(81)	178
Developed markets excluding United Kingdom & Ireland	313	66	(23)	164	520	(90)	(243)	(333)	187
<b>Developed markets</b>	<b>492</b>	<b>135</b>	<b>(109)</b>	<b>261</b>	<b>779</b>	<b>(124)</b>	<b>(290)</b>	<b>(414)</b>	<b>365</b>
<b>Higher Growth markets</b>	<b>96</b>	<b>10</b>	<b>15</b>	<b>4</b>	<b>125</b>	<b>(45)</b>	<b>(29)</b>	<b>(74)</b>	<b>51</b>
<b>Total – continuing operations</b>	<b>588</b>	<b>145</b>	<b>(94)</b>	<b>265</b>	<b>904</b>	<b>(169)</b>	<b>(319)</b>	<b>(488)</b>	<b>416</b>
<b>Total – discontinued operations</b>	<b>60</b>	<b>17</b>	<b>3</b>	<b>10</b>	<b>90</b>	<b>(15)</b>	<b>(14)</b>	<b>(29)</b>	<b>61</b>
<b>Total</b>	<b>648</b>	<b>162</b>	<b>(91)</b>	<b>275</b>	<b>994</b>	<b>(184)</b>	<b>(333)</b>	<b>(517)</b>	<b>477</b>

	Existing business					New business			Total business
	Transfer from VIF to net worth £m	Return on net worth £m	Impact of experience variances and assumption changes on net worth £m	Release of required capital to free surplus £m	Total existing business surplus generation £m	Impact on net worth £m	Reduction in free surplus from required capital £m	Total new business surplus generation £m	Total free surplus generation £m
Net of tax and non-controlling interests Full year 2011									
United Kingdom & Ireland	420	129	204	(72)	681	(121)	(6)	(127)	554
Developed markets excluding United Kingdom & Ireland	627	108	102	397	1,234	(139)	(502)	(641)	593
<b>Developed markets</b>	<b>1,047</b>	<b>237</b>	<b>306</b>	<b>325</b>	<b>1,915</b>	<b>(260)</b>	<b>(508)</b>	<b>(768)</b>	<b>1,147</b>
<b>Higher Growth markets</b>	<b>192</b>	<b>21</b>	<b>37</b>	<b>7</b>	<b>257</b>	<b>(86)</b>	<b>(51)</b>	<b>(137)</b>	<b>120</b>
<b>Total – continuing operations</b>	<b>1,239</b>	<b>258</b>	<b>343</b>	<b>332</b>	<b>2,172</b>	<b>(346)</b>	<b>(559)</b>	<b>(905)</b>	<b>1,267</b>
<b>Total – discontinued operations</b>	<b>60</b>	<b>17</b>	<b>3</b>	<b>10</b>	<b>90</b>	<b>(15)</b>	<b>(14)</b>	<b>(29)</b>	<b>61</b>
<b>Total</b>	<b>1,299</b>	<b>275</b>	<b>346</b>	<b>342</b>	<b>2,262</b>	<b>(361)</b>	<b>(573)</b>	<b>(934)</b>	<b>1,328</b>

## E10 – Maturity profile of business

### (a) Total in-force business

To show the profile of the VIF emergence, the value of VIF in the statements of financial position has been split into five year tranches depending on the date when the profit is expected to emerge.

Net of non-controlling interest 30 June 2012 £m	0-5	6-10	11-15	16-20	20+	Total
United Kingdom & Ireland	319	780	709	355	768	2,931
Developed markets excluding United Kingdom & Ireland	255	(306)	(213)	(66)	(234)	(564)
<b>Developed markets</b>	<b>574</b>	<b>474</b>	<b>496</b>	<b>289</b>	<b>534</b>	<b>2,367</b>
<b>Higher Growth markets</b>	<b>624</b>	<b>338</b>	<b>179</b>	<b>111</b>	<b>108</b>	<b>1,360</b>
<b>Total</b>	<b>1,198</b>	<b>812</b>	<b>675</b>	<b>400</b>	<b>642</b>	<b>3,727</b>

Net of non-controlling interest Full year 2011 £m	0-5	6-10	11-15	16-20	20+	Total
United Kingdom & Ireland	177	866	704	312	663	2,722
Developed markets excluding United Kingdom & Ireland	(34)	(499)	(205)	(68)	(272)	(1,078)
<b>Developed markets</b>	<b>143</b>	<b>367</b>	<b>499</b>	<b>244</b>	<b>391</b>	<b>1,644</b>
<b>Higher Growth markets</b>	<b>600</b>	<b>332</b>	<b>177</b>	<b>106</b>	<b>106</b>	<b>1,321</b>
<b>Total</b>	<b>743</b>	<b>699</b>	<b>676</b>	<b>350</b>	<b>497</b>	<b>2,965</b>

### (b) New business

To show the profile of the VIF emergence, the value of new business has been split into five year tranches depending on the date when the profit is expected to emerge.

Net of non-controlling interest 30 June 2012 £m	0-5	6-10	11-15	16-20	20+	Total
United Kingdom & Ireland	50	45	31	22	57	205
Developed markets excluding United Kingdom & Ireland	45	4	10	0	(18)	41
<b>Developed markets</b>	<b>95</b>	<b>49</b>	<b>41</b>	<b>22</b>	<b>39</b>	<b>246</b>
<b>Higher Growth markets</b>	<b>48</b>	<b>20</b>	<b>10</b>	<b>8</b>	<b>9</b>	<b>95</b>
<b>Total</b>	<b>143</b>	<b>69</b>	<b>51</b>	<b>30</b>	<b>48</b>	<b>341</b>

Net of non-controlling interest Full year 2011 £m	0-5	6-10	11-15	16-20	20+	Total
United Kingdom & Ireland	104	61	36	26	172	399
Developed markets excluding United Kingdom & Ireland	143	(39)	59	23	2	188
<b>Developed markets</b>	<b>247</b>	<b>22</b>	<b>95</b>	<b>49</b>	<b>174</b>	<b>587</b>
<b>Higher Growth markets</b>	<b>101</b>	<b>46</b>	<b>22</b>	<b>13</b>	<b>9</b>	<b>191</b>
<b>Total – continuing operations</b>	<b>348</b>	<b>68</b>	<b>117</b>	<b>62</b>	<b>183</b>	<b>778</b>
<b>Total – discontinued operations<sup>1</sup></b>	<b>(8)</b>	<b>11</b>	<b>10</b>	<b>(1)</b>	<b>3</b>	<b>15</b>
<b>Total</b>	<b>340</b>	<b>79</b>	<b>127</b>	<b>61</b>	<b>186</b>	<b>793</b>

<sup>1</sup> Current period discontinued operations represent the results of Delta Lloyd up to 6 May 2011 only.

## E11 – Segmental analysis of life and related business embedded value

Net of non-controlling interests 30 June 2012	Free surplus £m	Required capital <sup>1</sup> £m	VIF £m	Total MCEV £m
United Kingdom	1,093	2,797	2,496	6,386
Ireland	21	310	435	766
United Kingdom & Ireland	1,114	3,107	2,931	7,152
France <sup>2</sup>	(199)	1,971	992	2,764
United States <sup>3</sup>	3	1,634	(1,311)	326
Spain	109	219	32	360
Italy <sup>4</sup>	(216)	727	(314)	197
Other	38	22	37	97
<b>Developed markets</b>	<b>849</b>	<b>7,680</b>	<b>2,367</b>	<b>10,896</b>
Poland	91	104	951	1,146
Asia	146	256	297	699
Other	27	22	112	161
<b>Higher Growth markets</b>	<b>264</b>	<b>382</b>	<b>1,360</b>	<b>2,006</b>
<b>Total</b>	<b>1,113</b>	<b>8,062</b>	<b>3,727</b>	<b>12,902</b>

1. Required capital is shown net of implicit items permitted by local regulators to cover minimum solvency margins.

2. France has a positive surplus on a statutory basis.

3. Aviva USA's holding company debt amounting to £738 million at 30 June 2012 has been included within non-covered business.

4. Required capital in Italy reflects the current economic environment and is in excess of regulatory requirements. The increase from full year 2011 results from a true-up of prior estimates.

Restated Net of non-controlling interests 30 June 2011	Free surplus £m	Required capital <sup>1</sup> £m	VIF £m	Total MCEV £m
United Kingdom	1,099	2,919	2,621	6,639
Ireland	10	353	454	817
United Kingdom & Ireland	1,109	3,272	3,075	7,456
France <sup>2</sup>	(110)	1,854	1,537	3,281
United States <sup>2,3</sup>	(188)	1,433	(76)	1,169
Spain	119	265	250	634
Italy	176	340	32	548
Other	64	23	143	230
<b>Developed markets</b>	<b>1,170</b>	<b>7,187</b>	<b>4,961</b>	<b>13,318</b>
Poland	95	120	920	1,135
Asia	117	226	364	707
Other	11	33	96	140
<b>Higher Growth markets</b>	<b>223</b>	<b>379</b>	<b>1,380</b>	<b>1,982</b>
<b>Total</b>	<b>1,393</b>	<b>7,566</b>	<b>6,341</b>	<b>15,300</b>

1. Required capital is shown net of implicit items permitted by local regulators to cover minimum solvency margins.

2. France and Aviva USA have a positive surplus on a statutory basis.

3. Aviva USA's holding company debt amounting to £709 million at 30 June 2011 has been included within non-covered business.

Net of non-controlling interests Full year 2011	Free surplus £m	Required capital <sup>1</sup> £m	VIF £m	Total MCEV £m
United Kingdom	1,036	2,859	2,320	6,215
Ireland	40	343	400	783
United Kingdom & Ireland	1,076	3,202	2,720	6,998
France <sup>2</sup>	(145)	2,048	800	2,703
United States <sup>2,3</sup>	(11)	1,575	(1,362)	202
Spain	118	227	105	450
Italy <sup>4</sup>	8	499	(658)	(151)
Other	39	21	38	98
<b>Developed markets</b>	<b>1,085</b>	<b>7,572</b>	<b>1,643</b>	<b>10,300</b>
Poland	131	102	929	1,162
Asia	98	270	300	668
Other	30	21	93	144
<b>Higher Growth markets</b>	<b>259</b>	<b>393</b>	<b>1,322</b>	<b>1,974</b>
<b>Total</b>	<b>1,344</b>	<b>7,965</b>	<b>2,965</b>	<b>12,274</b>

1. Required capital is shown net of implicit items permitted by local regulators to cover minimum solvency margins.

2. France and Aviva USA have a positive surplus on a statutory basis.

3. Aviva USA's holding company debt amounting to £736 million at 31 December 2011 has been included within non-covered business.

4. Negative MCEV in Italy results from widening of spreads on sovereign debt over the year.

The required capital across our life businesses varies between 100% and 325% of EU minimum or equivalent. The weighted average level of required capital for our life business expressed as a percentage of the EU minimum (or equivalent) solvency margin has increased to 138% (FY2011: 135%). These levels of required capital are used in the calculation of the Group's embedded value to evaluate the cost of locked in capital. At 30 June 2012 the aggregate regulatory requirements based on the EU minimum test amounted to £5.8 billion (FY2011: £5.9 billion). At this date, the actual net worth held in our long-term business was £9.1 billion (FY2011: £9.3 billion) which represents 157% (FY2011: 158%) of these minimum requirements.

**E12 – Risk allowance within present value of in-force (VIF)**

Within the VIF in the tables, there are additional allowances for risks not included within the basic present value of future profits calculation.

Net of non-controlling interests 30 June 2012	PVFP £m	Frictional costs £m	Non-hedgeable risks £m	Time value of financial options and guarantees £m	VIF £m
United Kingdom	3,176	(238)	(386)	(56)	2,496
Ireland	473	(10)	(27)	(1)	435
United Kingdom & Ireland	3,649	(248)	(413)	(57)	2,931
France	1,838	(115)	(190)	(541)	992
United States	(567)	(145)	(70)	(529)	(1,311)
Spain	97	(9)	(43)	(13)	32
Italy	(246)	(1)	(17)	(50)	(314)
Other	46	(1)	(6)	(2)	37
<b>Developed markets</b>	<b>4,817</b>	<b>(519)</b>	<b>(739)</b>	<b>(1,192)</b>	<b>2,367</b>
Poland	1,114	(11)	(149)	(3)	951
Asia	448	(27)	(72)	(52)	297
Other	115	(1)	(2)	—	112
<b>Higher Growth markets</b>	<b>1,677</b>	<b>(39)</b>	<b>(223)</b>	<b>(55)</b>	<b>1,360</b>
<b>Total</b>	<b>6,494</b>	<b>(558)</b>	<b>(962)</b>	<b>(1,247)</b>	<b>3,727</b>

The Time Value of Options and Guarantees has become more negative by £379 million to £(1,247) million, reflecting adverse impacts from economic movements; in particular, increases in swaption volatility and decreases in risk-free rates.

Restated Net of non-controlling interests 30 June 2011	PVFP £m	Frictional costs £m	Non-hedgeable risks £m	Time value of financial options and guarantees £m	VIF £m
United Kingdom	3,287	(297)	(332)	(37)	2,621
Ireland	499	(16)	(26)	(3)	454
United Kingdom & Ireland	3,786	(313)	(358)	(40)	3,075
France	2,287	(172)	(187)	(391)	1,537
United States	441	(135)	(53)	(329)	(76)
Spain	324	(18)	(43)	(13)	250
Italy	133	(21)	(12)	(68)	32
Other	155	(1)	(9)	(2)	143
<b>Developed markets</b>	<b>7,126</b>	<b>(660)</b>	<b>(662)</b>	<b>(843)</b>	<b>4,961</b>
Poland	1,062	(15)	(122)	(5)	920
Asia	469	(25)	(60)	(20)	364
Other	100	(2)	(2)	—	96
<b>Higher Growth markets</b>	<b>1,631</b>	<b>(42)</b>	<b>(184)</b>	<b>(25)</b>	<b>1,380</b>
<b>Total</b>	<b>8,757</b>	<b>(702)</b>	<b>(846)</b>	<b>(868)</b>	<b>6,341</b>

Net of non-controlling interests Full year 2011	PVFP £m	Frictional costs £m	Non-hedgeable risks £m	Time value of financial options and guarantees £m	VIF £m
United Kingdom	2,977	(241)	(389)	(27)	2,320
Ireland	439	(14)	(22)	(3)	400
United Kingdom & Ireland	3,416	(255)	(411)	(30)	2,720
France	1,721	(147)	(182)	(592)	800
United States	(513)	(160)	(67)	(622)	(1,362)
Spain	176	(12)	(45)	(14)	105
Italy	(550)	(3)	(20)	(85)	(658)
Other	47	(1)	(6)	(2)	38
<b>Developed markets</b>	<b>4,297</b>	<b>(578)</b>	<b>(731)</b>	<b>(1,345)</b>	<b>1,643</b>
Poland	1,088	(11)	(145)	(3)	929
Asia	455	(26)	(67)	(62)	300
Other	96	(1)	(2)	—	93
<b>Higher Growth markets</b>	<b>1,639</b>	<b>(38)</b>	<b>(214)</b>	<b>(65)</b>	<b>1,322</b>
<b>Total</b>	<b>5,936</b>	<b>(616)</b>	<b>(945)</b>	<b>(1,410)</b>	<b>2,965</b>

### E13 – Implied discount rates (IDR)

In the valuation of a block of business, the implied discount rate is the rate of discount such that a traditional embedded value calculation for the covered business equates to the MCEV.

The cash flows projected are the expected future cash flows including expected investment cash flows from equities, bonds and properties earning a risk premium in excess of risk free, statutory reserves and required capital. The risk premiums used are consistent with those used in the expected existing business contribution within operating earnings. As the risk premiums are positive, a discount rate higher than risk-free is required to give a value equal to the market-consistent embedded value.

Average derived risk discount rates are shown below for the embedded value.

	30 June 2012 %	Full year 2011 %
United Kingdom	8.5%	9.3%
Ireland	2.6%	4.1%
United Kingdom & Ireland	7.6%	8.5%
France	6.8%	7.9%
United States <sup>1</sup>	n/a	n/a
Spain	16.5%	15.0%
Italy <sup>1</sup>	32.0%	n/a
Other	3.8%	4.3%
<b>Developed markets</b>	<b>n/a</b>	<b>n/a</b>
Poland	6.4%	6.5%
Asia	4.5%	5.2%
Other	8.8%	9.1%
<b>Higher Growth markets</b>	<b>6.0%</b>	<b>6.3%</b>
<b>Total</b>	<b>n/a</b>	<b>n/a</b>

<sup>1</sup>. Where there is significant difference in projected real world and risk neutral profits and the value of the in force business plus required capital is negative or close to zero, the IDR is not well defined and consequently IDR is not meaningful.

## E14 – Summary of non-controlling interest in life and related businesses' MCEV results

	Ireland £m	France £m	Spain £m	Italy £m	Developed markets £m	Higher Growth markets £m	Total £m	Share- holders' interest £m	Group £m
<b>30 June 2012</b>									
Value of new business after tax	(1)	6	10	6	21	2	23	141	164
Life MCEV operating earnings after tax	(1)	7	34	88	128	9	137	744	881
Life MCEV earnings/(loss) after tax	1	18	(20)	405	404	10	414	1,227	1,641
Closing covered businesses' embedded value	256	209	346	165	976	176	1,152	12,902	14,054
<b>Restated 30 June 2011</b>									
Value of new business after tax	—	11	18	19	48	2	50	223	273
Life MCEV operating earnings after tax	(2)	15	40	47	100	9	94	203	1,193
Life MCEV (loss)/earnings after tax	(12)	11	55	(70)	(16)	11	(13)	1,040	1,022
Closing covered businesses' embedded value	266	260	541	608	1,675	175	1,850	15,300	17,150
<b>Full year 2011</b>									
Value of new business after tax	(1)	15	32	27	73	5	78	432	510
Life MCEV operating (loss)/earnings after tax	(10)	25	49	28	92	40	94	2,193	2,419
Life MCEV (loss)/earnings after tax	(29)	(16)	(8)	(928)	(981)	44	(13)	(950)	(2,287)
Closing covered businesses' embedded value	266	214	405	(244)	641	179	820	12,274	13,094

There are no non-controlling interests in the United Kingdom or the United States.

## E15 – Principal assumptions

### (a) Economic assumptions – Deterministic calculations

Economic assumptions are derived actively, based on market yields on risk-free fixed interest assets at the end of each reporting period.

In setting the risk-free rate we have, wherever possible, used the mid-price swap yield curve for an AA-rated bank. The curve is extrapolated beyond the last available market data point to an ultimate forward rate using the Nelson-Siegel functional form if necessary. For markets in which there is no reliable swap yield curve, the relevant government bond yields are used. For certain business, swap rates are adjusted for a 'liquidity premium' in deriving the risk free rates, and these adjustments are shown below the reference rate table.

Required capital is shown as a multiple of the EU statutory minimum solvency margin or equivalent.

The principal economic assumptions used are as follows:

### Reference rate (spot, swap rates) and expense inflation

	United Kingdom			
	30 June 2012 %	30 June 2011 %	Full year 2011 %	Full year 2010 %
Reference rate				
1 year	<b>0.9%</b>	1.1%	1.2%	1.0%
5 years	<b>1.3%</b>	2.5%	1.6%	2.7%
10 years	<b>2.2%</b>	3.6%	2.3%	3.7%
15 years	<b>2.7%</b>	4.1%	2.8%	4.1%
20 years	<b>3.0%</b>	4.3%	3.0%	4.2%
Expense inflation	<b>2.6%</b>	3.4%	2.8%	3.3%

**E15 – Principal assumptions continued****(a) Economic assumptions – Deterministic calculations continued**

	Eurozone			
	30 June 2012 %	30 June 2011 %	Full year 2011 %	Full year 2010 %
Reference rate				
1 year	<b>0.8%</b>	2.0%	1.4%	1.3%
5 years	<b>1.3%</b>	2.9%	1.7%	2.5%
10 years	<b>2.0%</b>	3.5%	2.4%	3.4%
15 years	<b>2.3%</b>	3.9%	2.8%	3.8%
20 years	<b>2.4%</b>	4.0%	2.8%	3.8%
Expense inflation	<b>1.9%</b>	2.1%	1.9%	2.1%

  

	Poland			
	30 June 2012 %	30 June 2011 %	Full year 2011 %	Full year 2010 %
Reference rate				
1 year	<b>5.0%</b>	5.0%	4.9%	4.4%
5 years	<b>4.6%</b>	5.3%	4.8%	5.5%
10 years	<b>4.7%</b>	5.4%	5.0%	5.7%
15 years	<b>4.4%</b>	5.2%	4.7%	5.4%
20 years	<b>4.1%</b>	5.1%	4.3%	5.1%
Expense inflation	<b>3.3%</b>	3.1%	2.9%	3.0%

  

	United States			
	30 June 2012 %	30 June 2011 %	Full year 2011 %	Full year 2010 %
Reference rate				
1 year	<b>0.5%</b>	0.4%	0.7%	0.4%
5 years	<b>1.0%</b>	2.1%	1.2%	2.2%
10 years	<b>1.8%</b>	3.4%	2.1%	3.5%
15 years	<b>2.3%</b>	4.0%	2.5%	4.0%
20 years	<b>2.5%</b>	4.2%	2.6%	4.2%
Expense inflation	<b>2.0%</b>	3.0%	2.0%	3.0%

For service companies, expense inflation relates to the underlying expenses rather than the fees charged to the life company.

The following adjustments are made to the swap rate for immediate annuity type contracts and for all contracts for Aviva USA. The risk-free rate is taken as the swap yield curve for the currency of the liability, adjusted by adding the following to each swap rate:

	New business						Embedded value		
	1Q 2012	2Q 2012	1Q 2011	2Q 2011	3Q 2011	4Q 2011	30 June 2012	30 June 2011	Full year 2011
UK Immediate annuities	<b>1.34%</b>	<b>1.46%</b>	1.14%	1.00%	1.20%	1.27%	<b>1.43%</b>	1.06%	1.30%
UK bulk purchase annuities	<b>1.34%</b>	<b>1.46%</b>	0.72%	0.65%	1.38%	1.36%	<b>1.43%</b>	1.06%	1.30%
France	<b>n/a</b>	<b>n/a</b>	n/a	n/a	n/a	n/a	<b>0.87%</b>	0.33%	1.18%
Spain	<b>0.32%</b>	<b>0.69%</b>	0.36%	0.31%	0.33%	0.96%	<b>0.64%</b>	0.33%	0.88%
US immediate annuities	<b>1.26%</b>	<b>1.00%</b>	0.66%	0.57%	0.59%	1.28%	<b>1.17%</b>	0.59%	1.33%
US deferred annuities and all other contracts	<b>1.07%</b>	<b>0.84%</b>	0.56%	0.49%	0.51%	1.09%	<b>0.99%</b>	0.51%	1.13%

The approach to estimating the market level of liquidity premium in corporate bond assets is consistent with the formula structure proposed by CFO/CRO Forum working party.

The formula is:

UK/Europe: 50% of (iBoxx Corporate bond spread – 40bp)  
USA: 60% of (iBoxx Corporate bond spread – 40bp)

For assets valued on a marked to model basis (e.g., commercial mortgages), the liquidity premium is consistent with the underlying model valuation.

Adjustments are made where liabilities are not fully backed by assets earning a liquidity premium and for contracts that are exposed to some lapse risk. There has been no change to the types of contracts to which a liquidity premium is applied.

## E15 – Principal assumptions continued

### (a) Economic assumptions – Deterministic calculations continued

#### Risk premium – used for operating profit, Implied Discount Rates (IDR), Internal Rates of Return (IRR) and payback period

For life and pensions operating earnings, Aviva uses normalised investment returns. The normalised investment returns are expressed as a swap rate based on the typical duration of the assets held plus an asset risk premium. More detail is given in note E1 – Basis of Preparation.

The use of asset risk premia only impacts operating earnings as expected returns reflect management's long-term expectations of asset returns in excess of the reference rate from investing in different asset classes. This assumption does not impact the embedded value or value of new business as asset risk premia are not recognised until earned. The asset risk premia set out in the table below are added to the ten year swap rate to calculate expected returns.

	All territories			
	30 June 2012	30 June 2011	Full year 2011	Full year 2010
Equity risk premium	3.5%	3.5%	3.5%	3.5%
Property risk premium	2.0%	2.0%	2.0%	2.0%

Future returns on fixed interest investments are calculated from prospective yields less an adjustment for credit risk.

#### Required capital and tax

	Tax rates <sup>5</sup>				Required capital (% EU minimum or equivalent)		
	30 June 2012	30 June 2011	Full year 2011	Full year 2010	30 June 2012	30 June 2011	Full year 2011
United Kingdom <sup>1</sup>	23.0%	26.0%	25.0%	27.0%	100%/200%	100%/200%	100%/200%
Ireland <sup>2</sup>	12.5%	12.5%	12.5%	12.5%	174%/180%	174%/180%	174%/180%
France	34.4%	34.4%	34.4%	34.4%	107.5%	107.5%	107.5%
United States	35.0%	35.0%	35.0%	35.0%	325%	325%	325%
Spain <sup>3</sup>	30.0%	30.0%	30.0%	30.0%	122%-130%/156%	130%-134%/175%	122%-130%/156%
Italy <sup>4</sup>	34.3%	32.4%	34.3%	32.4%	305%	115%/165%	195%
Poland	19.0%	19.0%	19.0%	19.0%	125.5%	125.5%	125.5%

<sup>1</sup> The required capital in the United Kingdom under MCEV is 100% for unit-linked and other non-participating business and annuity business with 200% for BPA business. In addition, the reattribution of the inherited estate has led to additional capital being locked in to support the with-profit business, and this has been included within required capital.

<sup>2</sup> Required capital in Ireland under MCEV is 174% for bancassurance and 180% for retail business.

<sup>3</sup> Required capital in Spain is 156% of the EU minimum for Aviva Vida y Pensiones and 122% – 130% for bancassurance companies.

<sup>4</sup> This is the aggregate required capital level for in force business in Italy and reflects the current economic environment. It has increased from 2011 due to a true up of prior estimates. New business metrics continue to use management target levels of required capital (115%-165% of EU minimum), which better reflects the capital requirements of the new business.

<sup>5</sup> Current tax legislation and rates have been assumed to continue unaltered except in UK where changes in future tax rates have been considered on a best estimate basis as a known future change.

The UK Finance Act 2012 included a reduction in the UK corporation tax rate from 24% to 23% with effect from 1 April 2013. This is considered a known future change for MCEV purposes and has been reflected in the Group's MCEV net assets as at 30 June 2012. As announced in the 2012 Budget, the rate is expected to reduce further to 22% from 1 April 2014. The benefit to the Group's MCEV net assets from the further 1% reduction in the rate from 23% to 22% is estimated at approximately £60 million and is not reflected in the Group's MCEV net assets as at 30 June 2012.

The UK Finance Act 2012 also included initial legislation introducing considerable changes to the regime for taxing UK life insurance companies applicable from 1 January 2013. These changes are considered to be a known future change for MCEV purposes and have resulted in a reduction in deferred tax liabilities, increasing the Group's MCEV net assets at 30 June 2012 by £15 million.

#### Other economic assumptions

Required capital relating to with-profit business is generally assumed to be covered by the surplus within the with-profit funds and no effect has been attributed to shareholders. Where the fund is insufficient and additional shareholder support is required, this is included within required capital, including the RIEESA in the UK. Bonus rates on participating business have been set at levels consistent with the economic assumptions. The distribution of profit between policyholders and shareholders within the with-profit funds assumes that the shareholder interest in conventional with-profit business in the UK and Ireland continues at the current rate of one-ninth of the cost of bonus.

### (b) Economic Assumptions – Stochastic calculations

The calculation of time value of options and guarantees allows for expected management and policyholder actions in response to varying future investment conditions. The management actions modelled include changes to asset mix, bonus rates and rates of interest and other guarantees granted to policyholders. Modelled policyholder actions are described under 'Other assumptions'.



## E15 – Principal assumptions continued

### Model – United States and United Kingdom

Swap rates are generated by a model, the LIBOR Market Model Plus (LMM+), which projects a full swap curve at monthly intervals. At half year 2011, the LMM model was used in the UK to generate scenarios. Forward rates are assumed to have a distribution that lies between the log-normal and normal distributions. Although this no longer guarantees non-negative interest rates, it maintains interest rates within a more plausible range than the standard Libor Market Model, and gives a better fit to certain swaption volatility surfaces. The model is calibrated to volatilities for swaptions for ten year swaps for a range of option terms and strike rates. Swaption volatilities are taken from SuperDerivatives. Tests have been performed to ensure that sufficient scenarios have been used that the result converges to the stochastic value of the business being valued.

The total annual return on equities is calculated as the return on one-year swaps plus an excess return. For the US, this excess return is modelled using a log-normal model where volatility varies by time horizon. This allows the model to capture the term structure of implied volatilities. The model is calibrated to at-the-money options of a variety of terms. For the UK, a stochastic volatility jump defusion model is used, which allows for varying levels of volatility over time and across strike prices. Option volatilities are taken from Markit.

Assumptions for correlations between asset classes have been set based on historic data.

### Model – Other Developed and Higher Growth markets

Swap rates are generated by a model, the LIBOR Market Model (LMM) that projects a full swap curve at monthly intervals. Forward rates are assumed to have a log-normal distribution which guarantees non-negative interest rates. The model is calibrated to at-the-money swaptions of a variety of terms and tenors. Swaption volatilities are taken from SuperDerivatives. Tests have been performed to ensure that sufficient scenarios have been used that the result converges to the stochastic value of the business being valued.

The total annual return on equities is calculated as the return on one-year swaps plus an excess return. This excess return is generally modelled using a log-normal model where volatility varies by time horizon. This allows the model to capture the term structure of implied volatilities. The model is calibrated to at-the-money options of a variety of terms. Option volatilities are taken from Markit.

The model also generates property total returns and real yield curves, although these are not significant asset classes for Aviva outside the UK. In the absence of liquid market data, the volatilities of these asset classes are based on historic data.

Assumptions for correlations between asset classes have been set based on historic data.

### Asset classes

The significant asset classes for UK participating business are equities, property and long-term fixed rate bonds. The most significant assumptions are the distribution of future long-term interest rates (nominal and real) and swaption implied volatilities.

For many businesses, including US and France, the most important assets are fixed rate bonds of various durations.

### Summary statistics

#### Swaption implied volatilities

The implied volatility is that determined by Black-Scholes' formula to reproduce the market price of the option. The following table sets out the swaption implied volatilities.

Option length	30 June 2012 Swap length				30 June 2011 Swap length				Full year 2011 Swap length			
	10 years	15 years	20 years	25 years	10 years	15 years	20 years	25 years	10 years	15 years	20 years	25 years
<b>UK sterling</b>												
10 years	17.7%	16.9%	16.2%	15.7%	13.3%	12.8%	12.5%	n/a	18.0%	16.8%	16.1%	15.6%
15 years	16.0%	15.4%	14.5%	14.0%	13.3%	12.7%	12.3%	n/a	16.2%	15.4%	14.8%	14.1%
20 years	15.5%	14.5%	13.6%	13.2%	13.0%	12.3%	11.8%	n/a	15.3%	14.5%	13.8%	13.1%
25 years	15.2%	14.3%	13.5%	13.1%	13.4%	12.5%	11.6%	n/a	15.4%	14.3%	13.5%	12.8%
<b>Euro</b>												
10 years	29.7%	28.8%	28.4%	27.9%	16.9%	16.4%	15.9%	15.5%	27.3%	28.1%	28.7%	28.4%
15 years	32.7%	30.0%	28.0%	26.8%	15.6%	15.0%	14.5%	14.0%	31.6%	30.9%	29.3%	28.1%
20 years	31.7%	27.9%	25.4%	24.3%	14.7%	14.0%	13.4%	12.9%	38.2%	32.6%	29.2%	27.7%
25 years	29.2%	24.9%	22.9%	21.8%	13.6%	13.0%	12.4%	11.8%	35.0%	29.1%	26.3%	25.2%
<b>US dollar</b>												
10 years	27.2%	25.9%	25.4%	25.6%	18.9%	19.0%	18.9%	18.6%	30.4%	29.3%	28.4%	28.3%
15 years	26.1%	24.4%	24.0%	24.3%	17.8%	17.6%	17.3%	16.8%	30.1%	28.1%	27.4%	27.7%
20 years	24.0%	22.5%	22.0%	22.3%	16.5%	16.1%	15.6%	15.0%	27.5%	26.5%	26.9%	27.6%
25 years	24.0%	23.1%	23.9%	24.1%	15.0%	14.5%	13.9%	13.4%	28.0%	27.9%	29.5%	30.4%

## E15 – Principal assumptions continued

### Equity implied volatilities

The implied volatility is that determined by the Black-Scholes' formula to reproduce the market price of the option. The following tables set out the equity implied volatilities.

Option length	30 June 2012					
	UK	Ireland	France	US	Spain	Italy
5 years	25.8%	25.7%	25.7%	26.6%	32.8%	25.7%
10 years	27.2%	25.8%	25.8%	29.5%	32.6%	25.8%
15 years	27.6%	27.1%	27.1%	30.5%	33.7%	27.1%

Option length	30 June 2011					
	UK	Ireland	France	US	Spain	Italy
5 years	22.6%	24.3%	22.8%	24.1%	25.2%	24.5%
10 years	23.4%	24.8%	23.9%	25.0%	26.7%	24.5%
15 years	24.2%	24.9%	24.6%	25.1%	25.9%	24.9%

Option length	Full year 2011					
	UK	Ireland	France	US	Spain	Italy
5 years	25.8%	27.5%	27.5%	28.9%	30.4%	31.9%
10 years	27.2%	27.9%	27.9%	31.0%	30.1%	31.5%
15 years	27.1%	29.4%	29.4%	31.2%	31.6%	33.0%

### Property implied volatilities

Best estimate levels of volatility have been used in the absence of meaningful option prices from which implied levels of volatility can be derived.

For the UK, model property implied volatility is 15% for 30 June 2012 (30 June 2011: 15%).

### Demographic assumptions

Assumed future mortality, morbidity and lapse rates have been derived from an analysis of Aviva's recent operating experience with a view to giving a best estimate of future experience. We have anticipated future changes in experience where that is appropriate, e.g. we have allowed for improvements in future policyholder longevity.

We have set the assumptions based on a best estimate of shareholder outcomes. In particular, where the policyholder behaviour varies with economic experience, we have set assumptions which are dynamic, i.e. vary depending on the economic assumptions. For example, surrender and option take up rate assumptions that vary according to the investment scenario under consideration have been used in the calculation of the time value of options and guarantees, based on our assessment of likely policyholder behaviour in different investment scenarios.

Additionally, where demographic experience is not driven by economic scenarios but is asymmetric on a stand-alone basis, the best estimate assumption considers the weighted-average expected experience, not simply the median or most likely outcome.

Notwithstanding the notification on 15 December 2011 that the bancassurance distribution agreement with Allied Irish Bank was not being renewed, the Aviva Ireland demographic and expense assumptions have been set assuming the business remains open to new business and does not incur diseconomies of scale or other operating impacts.

### Expense assumptions

Management expenses and operating expenses of holding companies attributed to life and related businesses have been included in the MCEV calculations and split between expenses relating to the acquisition of new business, the maintenance of business in-force and project expenses. Future expense assumptions include an allowance for maintenance expenses and a proportion of recurring project expenses. Certain expenses of an exceptional nature, when they occur, are identified separately and are generally charged as incurred. No future productivity gains have been anticipated.

Where subsidiary companies provide administration, investment management or other services to our life businesses, the value of profits or losses arising from these services have been included in the embedded value and value of new business.

### Non-hedgeable risk

For the balance sheet and operating profit, a charge of 3.3% has been applied to the group-diversified capital required on a 1-in-200 one-year basis over the remaining lifetime of in-force business. The charge is set so as to give an aggregate allowance that is in excess of the expected operational risk costs arising from the in-force covered business over its remaining lifetime.

The capital levels used are projected to be sufficient to cover non-hedgeable risks at the 99.5% confidence level one-year after the valuation date. The capital is equal to the capital from the ICA results for those risks considered. Diversification benefits are included between non-hedgeable risks of the covered business. No diversification benefit is assumed with hedgeable risks of the covered business or with non-covered business in general. The capital has been projected as running off over the remaining life of the in-force portfolio in line with the drivers of the capital requirement.

In addition to the operational risk allowance, financial non-hedgeable risks and other product level asymmetries have been allowed for. These allowances are not material as significant financial non-hedgeable risks and product level asymmetries are either modelled explicitly and included in the TVOG or are included in the PVFP through the use of appropriate best estimate assumptions.

**E15 – Principal assumptions continued****(c) Other assumptions****Valuation of debt**

Borrowings in the MCEV consolidated statement of financial position are valued on an IFRS basis, consistent with the primary financial statements. At 30 June 2012 the market value of the group's external debt, subordinated debt, preference shares including General Accident plc preference shares of £250 million (classified as non-controlling interests), direct capital instrument and fixed rate tier 1 notes was £5,901 million (30 June 2011: £7,104 million; 31 December 2011: £5,782 million).

	30 June 2012 £m	30 June 2011 £m	Full year 2011 £m
<b>Borrowings per summarised consolidated statement of financial position – MCEV basis</b>	<b>8,071</b>	8,882	8,450
Less: Securitised mortgage funding	<b>(1,209)</b>	(1,259)	(1,306)
Borrowings excluding non-recourse funding – MCEV basis	<b>6,862</b>	7,623	7,144
Less: Operational financing by businesses	<b>(1,820)</b>	(1,790)	(1,889)
External debt and subordinated debt – MCEV basis	<b>5,042</b>	5,833	5,255
Add: Preference shares (including General Accident plc), direct capital instrument and fixed rate tier 1 notes	<b>1,832</b>	1,440	1,440
External debt, subordinated debt, preference shares and direct capital instrument – MCEV basis	<b>6,874</b>	7,273	6,695
Effect of marking these instruments to market	<b>(973)</b>	(169)	(913)
<b>Market value of external debt, subordinated debt, preference shares, and fixed rate tier 1 notes and direct capital instrument</b>	<b>5,901</b>	7,104	5,782

**Other**

It has been assumed that there will be no changes to the methods and bases used to calculate the statutory technical provisions and current surrender values, except where driven by varying future investment conditions under stochastic economic scenarios.

## E16 – Sensitivity analysis

### (a) Economic assumptions

The following tables show the sensitivity of the embedded value and the value of new business to:

- 10 basis point increase in the liquidity premium adjustment, where applicable;
- one percentage point increase and decrease in the risk-free rate, including all consequential changes (including assumed investment returns for all asset classes, market values of fixed interest assets, risk discount rates);
- 10% increase and decrease in market values of equity and property assets;
- 25% increase in equity and swaption volatilities;
- 50 basis point increase and decrease in credit spreads with no change to liquidity premium; and
- decrease in the level of required capital to 100% EU minimum (or equivalent).

In each sensitivity calculation, all other assumptions remain unchanged except where they are directly affected by the revised economic conditions. For example, future bonus rates are automatically adjusted to reflect sensitivity changes to future investment returns. Some of the sensitivity scenarios may have consequential effects on valuation bases, where the basis for certain blocks of business is actively updated to reflect current economic circumstances. Consequential valuation impacts on the sensitivities are allowed for where an active valuation basis is used. Where businesses have a target asset mix, the portfolio is re-balanced after a significant market movement otherwise no re-balancing is assumed.

For new business, the sensitivities reflect the impact of a change immediately after inception of the policy.

In general, the magnitude of the sensitivities will reflect the size of the embedded values, though this will vary as the sensitivities have different impacts on the different components of the embedded value. In addition, other factors can have a material impact, such as the nature of the options and guarantees, as well as the types of investments held.

The credit spread sensitivities assume that the change relates to credit risk and not liquidity risk; in practice, credit spread movements may be partially offset due to changes in liquidity risk.

Sensitivities will also vary according to the current economic assumptions, mainly due to the impact of changes to both the intrinsic cost and time value of options and guarantees. Options and guarantees are the main reason for the asymmetry of the sensitivities where the guarantee impacts to different extents under the different scenarios.

### Life and related business embedded value

30 June 2012 Embedded value (net of non-controlling interest)	As reported in E11 £m	10bp increase in adjustment to risk-free rates £m	Interest rates		Swaption implied volatilities 25% increase £m
			1% increase £m	1% decrease £m	
United Kingdom & Ireland	7,152	205	(160)	185	(5)
France	2,764	5	(75)	(10)	(135)
United States	326	300	320	(575)	(215)
Italy, Spain and Other	654	10	35	(155)	—
<b>Developed markets</b>	<b>10,896</b>	<b>520</b>	<b>120</b>	<b>(555)</b>	<b>(355)</b>
<b>Higher Growth markets</b>	<b>2,006</b>	<b>—</b>	<b>70</b>	<b>(125)</b>	<b>(5)</b>
<b>Total</b>	<b>12,902</b>	<b>520</b>	<b>190</b>	<b>(680)</b>	<b>(360)</b>

30 June 2012 Embedded value (net of non-controlling interest)	As reported in E11 £m	Equity/Property						EU minimum capital or equivalent £m
		Market values			Credit Spread			
		10% increase £m	10% decrease £m	Volatility 25% increase £m	50bps increase £m	50bps decrease £m		
United Kingdom & Ireland	7,152	300	(320)	(210)	(945)	1,025	10	
France	2,764	195	(195)	(140)	(215)	185	10	
United States	326	80	(80)	—	(1,105)	1,140	100	
Italy, Spain and Other	654	40	(40)	(5)	(60)	55	0	
<b>Developed markets</b>	<b>10,896</b>	<b>615</b>	<b>(635)</b>	<b>(355)</b>	<b>(2,325)</b>	<b>2,405</b>	<b>120</b>	
<b>Higher Growth markets</b>	<b>2,006</b>	<b>25</b>	<b>(25)</b>	<b>(5)</b>	<b>(15)</b>	<b>15</b>	<b>45</b>	
<b>Total</b>	<b>12,902</b>	<b>640</b>	<b>(660)</b>	<b>(360)</b>	<b>(2,340)</b>	<b>2,420</b>	<b>165</b>	

## E16 – Sensitivity analysis continued

## New business

30 June 2012 Value of new business (net of tax and non-controlling interest)	As reported in E2 £m	10bp increase in adjustment to risk-free rates £m	Interest rates		Swaption implied volatilities 25% increase £m
			1% increase £m	1% decrease £m	
United Kingdom & Ireland	135	6	1	(1)	—
France	35	—	4	(4)	(6)
United States	(90)	5	41	(63)	(10)
Italy, Spain and Other	7	—	(1)	(9)	—
<b>Developed markets</b>	<b>87</b>	<b>11</b>	<b>45</b>	<b>(77)</b>	<b>(16)</b>
<b>Higher Growth markets</b>	<b>54</b>	<b>—</b>	<b>7</b>	<b>(8)</b>	<b>—</b>
<b>Total</b>	<b>141</b>	<b>11</b>	<b>52</b>	<b>(85)</b>	<b>(16)</b>

30 June 2012 Value of new business (net of tax and non-controlling interest)	Equity/Property							EU minimum capital or equivalent £m
	As reported in E2 £m	Market values			Credit Spread		Volatility 25% increase £m	
		10% increase £m	10% decrease £m	50bps increase £m	50bps decrease £m			
United Kingdom & Ireland	135	—	—	—	(28)	30	—	
France	35	1	(1)	(2)	—	1	—	
United States	(90)	—	—	—	(36)	40	8	
Italy, Spain and Other	7	—	—	—	(1)	1	—	
<b>Developed markets</b>	<b>87</b>	<b>1</b>	<b>(1)</b>	<b>(2)</b>	<b>(65)</b>	<b>72</b>	<b>8</b>	
<b>Higher Growth markets</b>	<b>54</b>	<b>—</b>	<b>—</b>	<b>—</b>	<b>—</b>	<b>—</b>	<b>3</b>	
<b>Total</b>	<b>141</b>	<b>1</b>	<b>(1)</b>	<b>(2)</b>	<b>(65)</b>	<b>72</b>	<b>11</b>	

## E16 – Sensitivity analysis continued

### (b) Non-economic assumptions

The following tables below show the sensitivity of the embedded value and the value of new business to the following changes in non-economic assumptions:

- 10% decrease in maintenance expenses (a 10% sensitivity on a base expense assumption of £10 pa would represent an expense assumption of £9 pa). Where there is a “look through” into service company expenses the fee charged by the service company is unchanged while the underlying expense decreases;
- 10% decrease in lapse rates (a 10% sensitivity on a base assumption of 5% pa would represent a lapse rate of 4.5% pa); and
- 5% decrease in both mortality and morbidity rates disclosed separately for life assurance and annuity business.

No future management actions are modelled in reaction to the changing non-economic assumptions. In each sensitivity calculation all other assumptions remain unchanged. No changes to valuation bases have been included.

### Life and related business embedded value

30 June 2012 Embedded value (net of non-controlling interest)	As reported in E11 £m	10% decrease in maintenance expenses £m	10% decrease in lapse rates £m	5% decrease in mortality/ morbidity rates – life assurance £m	5% decrease in mortality/ morbidity rates – annuity business £m
United Kingdom & Ireland	7,152	180	55	70	(375)
France	2,764	50	55	35	(5)
United States	326	75	(140)	40	(30)
Italy, Spain and Other	654	25	10	15	(5)
<b>Developed markets</b>	<b>10,896</b>	<b>330</b>	<b>(20)</b>	<b>160</b>	<b>(415)</b>
<b>Higher Growth markets</b>	<b>2,006</b>	<b>50</b>	<b>70</b>	<b>20</b>	<b>—</b>
<b>Total</b>	<b>12,902</b>	<b>380</b>	<b>50</b>	<b>180</b>	<b>(415)</b>

### New business

30 June 2012 Value of new business (net of tax and non-controlling interest)	As reported in E2 £m	10% decrease in maintenance expenses £m	10% decrease in lapse rates £m	5% decrease in mortality/ morbidity rates – life assurance £m	5% decrease in mortality/ morbidity rates – annuity business £m
United Kingdom & Ireland	135	9	3	2	(6)
France	35	1	2	—	—
United States	(90)	4	(12)	2	—
Italy, Spain and Other	7	1	3	2	—
<b>Developed markets</b>	<b>87</b>	<b>15</b>	<b>(4)</b>	<b>6</b>	<b>(6)</b>
<b>Higher Growth markets</b>	<b>54</b>	<b>3</b>	<b>5</b>	<b>2</b>	<b>—</b>
<b>Total</b>	<b>141</b>	<b>18</b>	<b>1</b>	<b>8</b>	<b>(6)</b>

## Statement of directors' responsibilities in respect of the Market Consistent Embedded Value (MCEV) basis

When compliance with the European Insurance CFO Forum Market Consistent Embedded Value Principles (MCEV Principles), published in October 2009, is stated, those principles require the directors to prepare supplementary information in accordance with the methodology contained in the MCEV Principles and to disclose and explain any non-compliance with the guidance included in the MCEV Principles.

In preparing this supplementary information, the directors have done so in accordance with these MCEV Principles and have also complied with the guidance as set out in the Basis of Preparation. Specifically, the directors have:

- determined assumptions on a realistic basis, having regard to past, current and expected future experience and to relevant external data, and then applied them consistently;
- made estimates that are reasonable and consistent; and,
- provided additional disclosures when compliance with the specific requirements of the MCEV Principles is insufficient to enable users to understand the impact of particular transactions, other events and conditions and the Group's financial position and financial performance.

Information on the current directors responsible for providing this statement can be found below.

By order of the Board

### Patrick Regan

Chief financial officer  
8 August 2012

### Directors

The following persons served as directors of the company during the year and, unless otherwise indicated, up to the date of this report:

John McFarlane OBE  
Andrew Moss (resigned – 8 May 2012)  
Euleen Goh  
Gay Huey Evans  
Glyn Barker (appointed 27 February 2012)  
Igal Mayer (resigned – 19 April 2012)  
Leslie Van de Walle (resigned – 2 May 2012)  
Lord Sharman of Redlynch OBE (resigned – 30 June 2012)  
Mary Francis CBE  
Michael Hawker AM  
Patrick Regan  
Richard Karl Goeltz  
Russell Walls  
Scott Wheway  
Trevor Matthews

The biography details of persons currently serving as directors appears on the company's website.

# Independent review report to Aviva Plc

## INDEPENDENT REVIEW REPORT TO THE DIRECTORS OF AVIVA plc – MCEV

### Introduction

We have been engaged by the company to review the Condensed consolidated set of MCEV financial statements in the half year report – Supplement 2 for the six months ended 30 June 2012, which comprises the Condensed consolidated income statement – MCEV basis, Earnings per share – MCEV basis, the Condensed consolidated statement of comprehensive income – MCEV Basis, the Condensed consolidated statement of changes in equity – MCEV Basis, the Condensed consolidated statement of financial position – MCEV basis, the Reconciliation of shareholders' equity on IFRS and MCEV bases, the Reconciliation of IFRS total equity to MCEV net worth, the Group MCEV analysis of earnings and the related notes E1 to E16 on pages 8 to 38. We have read the other information contained in the half year report - Supplement 2 and considered whether it contains any apparent misstatements or material inconsistencies with the information in the Condensed consolidated set of MCEV financial statements.

We have reported separately on the Condensed consolidated financial statements of Aviva plc prepared on an IFRS basis for the six months ended 30 June 2012. The information contained in the Condensed consolidated set of MCEV financial statements should be read in conjunction with the Condensed consolidated financial statements prepared on an IFRS basis.

### Directors' responsibilities

The Condensed consolidated set of MCEV financial statements in the half year report – Supplement 2 is the responsibility of, and has been approved by, the directors. The directors are responsible for preparing the Condensed consolidated set of MCEV financial statements in the half year report – Supplement 2 in accordance with the CFO Forum Principles and the Basis of Preparation set out on pages 8 to 11.

### Our responsibility

Our responsibility is to express to the company a conclusion on the Condensed consolidated set of MCEV financial statements in the half year report - Supplement 2 based on our review. This report, including the conclusion, has been prepared for and only for the company and for no other purpose. We do not, in producing this report, accept or assume responsibility for any other purpose or to any other person to whom this report is shown or into whose hands it may come save where expressly agreed by our prior consent in writing.

### Scope of review

We conducted our review in accordance with International Standard on Review Engagements (UK and Ireland) 2410, 'Review of Interim Financial Information Performed by the Independent Auditor of the Entity' issued by the Auditing Practices Board for use in the United Kingdom. A review of interim financial information consists of making enquiries, primarily of persons responsible for financial and accounting matters, and applying analytical and other review procedures. A review is substantially less in scope than an audit conducted in accordance with International Standards on Auditing (UK and Ireland) and consequently does not enable us to obtain assurance that we would become aware of all significant matters that might be identified in an audit. Accordingly, we do not express an audit opinion.

### Conclusion

Based on our review, nothing has come to our attention that causes us to believe that the Condensed consolidated set of MCEV financial statements in the half year report – Supplement 2 for the six months ended 30 June 2012 is not prepared, in all material respects, in accordance with the CFO Forum Principles and the Basis of Preparation set out on pages 8 to 11.

PricewaterhouseCoopers LLP  
Chartered Accountants  
London  
8 August 2012

- 1) The maintenance and integrity of the Aviva plc website is the responsibility of the directors; the work carried out by the auditors does not involve consideration of these matters and, accordingly, the auditors accept no responsibility for any changes that may have occurred to the Condensed consolidated financial statements since they were initially presented on the website.
- 2) Legislation in the United Kingdom governing the preparation and dissemination of financial information may differ from legislation in other jurisdictions.



# Glossary

## Product definitions

### Annuities

A type of policy that pays out regular amounts of benefit, either immediately and for the remainder of a person's lifetime, or deferred to commence from a future date. Immediate annuities may be purchased for an individual and his or her dependants or on a bulk purchase basis for groups of people. Deferred annuities are accumulation contracts, which may be used to provide benefits in retirement, and may be guaranteed, unit-linked or index-linked.

### Bonds and savings

These are accumulation products with single or regular premiums and unit-linked or guaranteed investment returns. Our product ranges include single premium investment bonds, regular premium savings plans and mortgage endowment products.

### Critical illness cover

Critical illness cover pays out a lump sum if the insured person is diagnosed with a serious illness that meets the plan definition. The cover is often provided in conjunction with other benefits under a protection contract.

### Deferred annuities

An annuity (or pension) due to be paid from a future date or when the policyholder reaches a specified age. A deferred annuity may be funded by a policyholder by payment of a series of regular contributions or by a capital sum (the latter often provided from a pension fund).

### Group pensions

A pension plan that covers a group of people, which is typically purchased by a company and offered to their employees.

### Guaranteed annuities

A policy that pays out a fixed regular amount of benefit for a defined period.

### Income drawdown

The policyholder can transfer money from any pension fund to an income drawdown plan from which they receive an income. The remainder of the pension fund continues to be invested, giving it the potential for growth.

### Index linked annuities

An index linked annuity is a type of deferred annuity whose credited interest is linked to an equity index. It guarantees a minimum interest rate and protects against a loss of principal.

### Investment sales

Comprise retail sales of mutual fund-type products such as unit trusts, individual savings accounts (ISAs) and open ended investment companies (OEICs).

### ISAs

Individual savings accounts – Tax-efficient plans for investing in stocks and shares, cash deposits or life insurance investment funds, subject to certain limits. Introduced in the UK in 1999.

### Monolines

Financial companies specialising in a single line of products such as credit cards, mortgages or home equity loans.

### Mortgage endowment

An insurance contract combining savings and protection elements which is designed to repay the principal of a loan or mortgage.

### Mortgage life insurance

A protection contract designed to pay off the outstanding amount of a mortgage or loan in the event of death of the insured.

### Non profits

Long-term savings and insurance products sold in the UK other than "With profits" (see definition below) products.

### OEIC

An Open Ended Investment Company is a collective investment fund structured as a limited company in which investors can buy and sell shares.

### Pensions

A means of providing income in retirement for an individual and possibly his/her dependants. Our pensions products include personal and group pensions, stakeholder pensions and income drawdown.

### Personal pensions

A pension plan tailored to the individual policyholder, which includes the options to stop, start or change their payments.

### Protection

An insurance contract that protects the policyholder or his/her dependants against financial loss on death or ill-health. Our product ranges include term assurance, mortgage life insurance, flexible whole life and critical illness cover.

### Regular premium

A series of payments are made by the policyholder, typically monthly or annually, for part of or all of the duration of the contract.

### SICAVs

*Société d'investissement à capital variable* (variable capital investment company). This is an open-ended investment fund, structured as a legally independent joint stock company, whose units are issued in the form of shares.

**Product definitions cont.****Single premium**

A single lump sum is paid by the policyholder at commencement of the contract.

**Stakeholder pensions**

Low cost and flexible pension plans available in the UK, governed by specific regulations.

**Takaful**

Insurance products that observe the rules and regulations of Islamic law.

**Term assurance**

A simple form of life insurance, offering cover over a fixed number of years during which a lump sum will be paid out if the life insured dies.

**Unit trusts**

A form of open ended collective investment constituted under a trust deed, in which investors can buy and sell units.

**Unit-linked annuities**

A unit-linked annuity is a type of deferred annuity which is invested in units of investment funds, whose value depends directly on the market value of assets in those funds.

**Whole life**

Whole life insurance is a protection policy that remains in force for the insured's whole life. Traditional whole life contracts have fixed premium payments that typically cannot be missed without lapsing the policy. Flexible whole life contracts allow the policyholder to vary the premium and/or amount of life cover, within certain limits.

**With-profits**

A type of long-term savings and insurance product sold in the UK under with profits policies premiums are paid into a separate fund. Policyholders receive a return on their policies through bonuses, which "smooth" the investment return from the assets which premiums are invested in. Bonuses are declared on an annual and terminal basis. Shareholders have a participating interest in the with-profit funds and any declared bonuses. Generally, policyholder and shareholder participation in with-profit funds in the UK is split 90:10.

**Wrap investments**

An account in which a broker or fund manager executes investment decisions on behalf of a client in exchange for a single quarterly or annual fee, usually based on the total assets in the account rather than the number of transactions.

**General terms****Available for sale (AFS)**

Securities that have been acquired neither for short-term sale nor to be held to maturity. These are shown at fair value on the statement of financial position and changes in value are taken straight to equity instead of the income statement.

**Association of British Insurers (ABI)**

Association of British Insurers – A major trade association for UK insurance companies, established in July 1985.

**Acquired value of in force (AVIF)**

An estimate of future profits that will emerge over the remaining term of all existing life and pensions policies for which premiums are being paid or have been paid at the statement of financial position date.

**Bancassurance**

An arrangement whereby banks and building societies sell insurance and investment products to their customers on behalf of other financial providers.

**UK Corporate Governance Code**

The UK Corporate Governance Code sets out guidance in the form of principles and provisions on how companies should be directed and controlled to follow good governance practice. The Financial Services Authority (FSA) requires companies with a UK Premium listing to disclose, in relation to the UK Corporate Governance Code, how they have applied its principles and whether they have complied with its provisions throughout the accounting year. Where the provisions have not been complied with, companies must provide an explanation for this.

**Deferred acquisition costs (DAC)**

The costs directly attributable to the acquisition of new business for insurance and investment contracts may be deferred to the extent that they are expected to be recoverable out of future margins in revenue on these contracts.

**Fair value**

The price that a reasonable buyer would be willing to pay and a reasonable seller would be willing to accept for a product on the open market.

**FSA**

The UK's Financial Services Authority – Main regulatory body appointed by the government to oversee the financial services industry in the UK. Since December 2001 it has been the single statutory regulator responsible for the savings, insurance and investment business.

### General terms cont.

#### Funds under management

Represents all assets actively managed or administered by or on behalf of the Group including those funds managed by third parties.

#### Funds under management by Aviva

Represents all assets actively managed or administered by the fund management operations of the Group.

#### General insurance

Also known as non-life or property and casualty insurance. Property insurance covers loss or damage through fire, theft, flood, storms and other specified risks. Casualty insurance primarily covers losses arising from accidents that cause injury to other people or damage the property of others.

#### Gross written premiums

The total earnings or revenue generated by sales of insurance products, before any reinsurance is taken into account. Not all premiums written will necessarily be treated as income in the current financial year, because some of them could relate to insurance cover for a subsequent period.

#### 'Hard' insurance market

A term used to describe the state of the general insurance market. A "hard" insurance market is characterised by high levels of underwriting profits and the ability of insurers to charge high premium rates. Hard insurance markets generally occur when capital is scarce and are the opposite of "soft" insurance markets.

#### Independent Financial Advisers (IFAs)

A person or organisation authorised to give advice on financial matters and to sell the products of all financial service providers. In the UK they are legally obliged to offer the product that best suits their clients' needs. Outside the UK IFAs may be referred to by other names.

#### IFRS

International Financial Reporting Standards. These are accounting regulations designed to ensure comparable statement of financial position preparation and disclosure, and are the standards that all publicly listed companies in the European Union are required to use.

#### Operating profit

From operations on an IFRS basis, stated before tax attributable to shareholders' profits, impairment of goodwill and exceptional items.

#### Inherited estate

In the UK, the assets of the long-term with-profit funds less the realistic reserves for non-profit policies written within the with-profit funds, less asset shares aggregated across the with-profit policies and any additional amounts expected at the valuation date to be paid to in-force policyholders in the future in respect of smoothing costs and guarantees.

#### Long-term and savings business

Collective term for life insurance, pensions, savings, investments and related business.

#### Market Consistent Embedded Value

Aviva's Market Consistent Embedded Value (MCEV) methodology which is in accordance with the MCEV Principles published by the CFO Forum in June 2008 as amended in October 2009.

#### Net written premiums

Total gross written premiums for the given period, minus premiums paid over or 'ceded' to reinsurers.

#### Net asset value per ordinary share

Net asset value divided by the number of ordinary shares in issue. Net asset value is based on equity shareholders' funds.

#### Present value of new business (PVNBP)

Present value of new regular premiums plus 100% of single premiums, calculated using assumptions consistent with those used to determine the value of new business under Market Consistent Embedded Value (MCEV) principles published by the CFO Forum.

#### 'Soft' insurance market

A term used to describe the state of the general insurance market. A "soft" insurance market is characterised by low levels of profitability and market competition driving premium rates lower. Soft insurance markets generally occur when there is excess capital and are the opposite of "hard" insurance markets.

#### Turnbull Guidance on Internal Control

The Turnbull Guidance sets out best practice on internal controls for UK listed companies, and provides additional guidance in applying certain sections of the UK Corporate Governance.

## Market Consistent Embedded Value (MCEV) terms

### Asymmetric risk

Risks that will cause shareholder profits to vary where the variation above and below the average are not equal in distribution.

### CFO Forum

The CFO Forum ([www.cfoforum.nl](http://www.cfoforum.nl)) is a high-level group formed by the chief financial officers of major European listed and non-listed insurance companies. Its aim is to discuss issues relating to proposed new accounting regulations for their businesses and how they can create greater transparency for investors.

The forum was created in 2002, the Market Consistent Embedded Value Principles were launched in June 2008. The principles are a further development of the European Embedded Value Principles first launched in May 2004.

### Cost of non-hedgeable risks

This is the cost of undertaking those risks for which a deep and liquid market in which to hedge that risk does not exist. This can include both financial risks and non-financial risks such as mortality, persistency and expense.

### Covered business

The contracts to which the MCEV methodology has been applied.

### EU solvency

The excess of assets over liabilities and the worldwide minimum solvency margins, excluding goodwill and the additional value of in-force long-term business, and excluding the surplus held in the Group's life funds. The Group solvency calculation is determined according to the UK Financial Services Authority application of EU Insurance Groups Directive rules.

### Financial options and guarantees

Features of the covered business conferring potentially valuable guarantees underlying, or options to change, the level or nature of policyholder benefits and exercisable at the discretion of the policyholder, whose potential value is impacted by the behaviour of financial variables.

### Free surplus

The amount of any capital and surplus allocated to, but not required to support, the in-force covered business.

### Frictional costs

The additional taxation and investment costs incurred by shareholders through investing the Required Capital in the Company rather than directly.

### Group MCEV

A measure of the total consolidated value of the Group with covered life business included on an MCEV basis and non-covered business (including pension schemes and goodwill) included on an IFRS basis.

### Gross risk-free yields

Gross of tax yields on risk-free fixed interest investments, generally swap rates under MCEV.

### Implicit items

Amounts allowed by local regulators to be deducted from capital amounts when determining the EU required minimum margin.

### Life business

Subsidiaries selling life and pensions contracts that are classified as covered business under MCEV.

### Life MCEV

The MCEV balance sheet value of covered business as at the reporting date. Excludes non-covered business including pension schemes and goodwill.

### Life MCEV operating earnings

Operating earnings on the MCEV basis relating to the lines of business included in the embedded value calculations. From continuing operations and is stated before tax, impairment of goodwill and exceptional items.

### Life MCEV earnings

Total earnings on the MCEV basis relating to the lines of business included in the embedded value calculations. From continuing operations.

### Look-through basis

Inclusion of the capitalised value of profits and losses arising from subsidiary companies providing administration, investment management and other services to the extent that they relate to covered business.

### Long-term savings

Includes life and pension sales calculated under MCEV and retail investment sales.

### Market consistent

A measurement approach where economic assumptions are such that projected asset cash flows are valued consistently with current market prices for traded assets.

### Net worth

The market value of the shareholders' funds and the shareholders' interest in the surplus held in the non-profit component of the long-term business funds, determined on a statutory solvency basis and adjusted to add back any non-admissible assets, and consists of the required capital and free surplus.

## Market Consistent Embedded Value (MCEV) terms cont.

### New business margin

New business margins are calculated as the value of new business divided by the present value of new business premiums (PVNBP), and expressed as a percentage.

### Present value of new business premiums (PVNBP)

The present value of new regular premiums plus 100% of single premiums, calculated using assumptions consistent with those used to determine the value of new business.

### Required capital

The amount of assets, over and above the value placed on liabilities in respect of covered business, whose distribution to shareholders is restricted.

### Risk-free rate (reference rate in CFO Forum terminology)

The risk-free rate is taken as swaps except for all contracts that contain features similar to immediate annuities and are backed by appropriate assets, including paid up group deferred annuities and deferred annuities and all other contracts in the US. The adjusted risk-free rate is taken as swaps plus the additional return available for products and where backing asset portfolios can be held to maturity.

### Service companies

Companies providing administration or fund management services to the covered business.

### Solvency cover

The excess of the regulatory value of total assets over total liabilities, divided by the regulatory value of the required minimum solvency margin.

### Spread business

Contracts where a significant source of shareholder profits is the taking of credit spread risk that is not passed on to policyholders. The most significant spread business in Aviva are immediate annuities and US deferred annuities and life business.

### Statutory basis

The valuation basis and approach used for reporting financial statements to local regulators.

### Stochastic techniques

Techniques that incorporate the potential future variability in assumptions.

### Symmetric risks

Risks that will cause shareholder profits to vary where the variation above and below the average are equal and opposite. Financial theory says that investors do not require compensation for non-market risks that are symmetrical as the risks can be diversified away by investors.

### Time value and intrinsic value

A financial option or guarantee has two elements of value, the time value and intrinsic value. The intrinsic value is the discounted value of the option or guarantee at expiry, assuming that future economic conditions follow best estimate assumptions. The time value is the additional value arising from uncertainty about future economic conditions.

### Value of new business

Is calculated using economic assumptions set at the start of each quarter and the same operating assumptions as those used to determine the embedded values at the end of the reporting period and is stated after the effect of any frictional costs. Unless otherwise stated, it is also quoted net of tax and minority interests.