MILLIMAN RESEARCH REPORT

Analysis of life insurers' first set of Solvency and Financial Condition Reports

European and Irish life insurers

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Introduction

Solvency II came into effect on 1 January 2016 and introduced a number of disclosure requirements for European insurers. Under the new requirements, the majority of European insurers were required to publish detailed Solvency and Financial Condition Reports (SFCRs) for the first time in May 2017.[1] The SFCRs contain a significant amount of information on insurance companies, including details on their business performances, risk profiles, balance sheets and capital positions amongst other things. Insurers are also required to publish a great deal of quantitative information in the public Quantitative Reporting Templates (QRTs) included within the SFCRs.

EUROPEAN MARKET COVERAGE

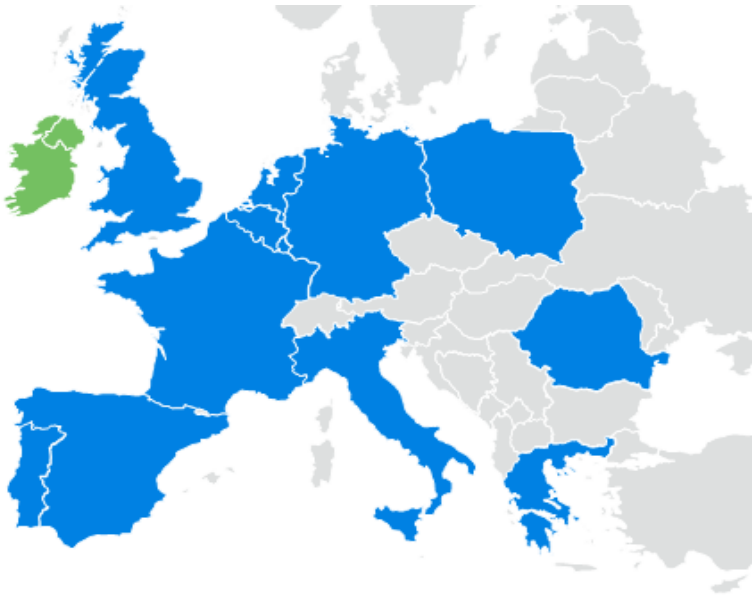
Our analysis of the European life insurance market covers 200 companies from 13 countries, representing approximately €475 billion of Gross Written Premium (GWP) and approximately €4,700 billion of gross technical provisions. The countries included in the analysis are:

- Belgium (BE)
- France (FR)
- Germany (DE)
- Greece (GR)
- Ireland (IE)
- Italy (IT)
- Luxembourg (LU)
- Netherlands (NL)
- Poland (PL)
- Portugal (PT)
- Spain (ES)
- Romania (RO)
- United Kingdom (GB)

The coverage in terms of market share varies by country. For some countries, such as Ireland, the UK and Luxembourg, the companies included in our sample represent over 90% of the market. For others, such as the Netherlands, Belgium and Romania, the coverage is slightly less, at 70% to 80% of the market. Our analysis is based on insurers that are primarily focused on selling life insurance business and as a result some composite companies were excluded from the analysis. For this reason, market share is lower in some territories such as Italy. In some other territories, such as Portugal, market share is again lower due to delays in the publication of the SFCRs.

[1] Group SFCRs were published in July 2017 and some insurers were required to publish their SFCRs earlier where they had a yearend reporting date between 30 June 2016 and 31 December 2016.

FIGURE 1: EUROPEAN COUNTRIES INCLUDED IN THE ANALYSIS



IRISH MARKET COVERAGE

Our analysis is based on 27 life insurance companies authorised in Ireland. This sample includes domestic companies selling into the Irish market and cross-border Irish companies selling into Europe and beyond. The companies were selected to ensure that all of the most significant insurers in the Irish market were included. This represents over 90% of the Irish market based on 2015 premium volumes.

Our analysis of the Irish life insurance market includes direct writers only; we have not included any reinsurers in this analysis. Appendix 1 contains a list of all Irish life companies included in our analysis.

UNDERLYING DATA

The analysis underlying this report focuses on the quantitative information contained in the public QRTs. Where relevant we have also studied the SFCRs to gain some additional insights into some companies, in particular if they displayed characteristics that differed from the market average. Our focus is on solo entities rather than groups.

In carrying out our analysis and producing this research report, we relied on the data and information provided in the SFCRs and QRTs of our sample companies. We have not audited or verified this data or other information. If the underlying data or information is inaccurate or incomplete, the results of our analysis may likewise be inaccurate or incomplete.

We performed a limited review of the data used directly in our analysis for reasonableness and consistency and have not found material defects in the data. It should be noted that in some cases errors were spotted in the underlying data. We made minor adjustments to the data to correct known errors such as inconsistencies across QRTs in order to better inform our analysis. However, we have not made any material changes to the underlying data. We have not made any changes to the data to reflect additional information or changes following the reporting date.

This research report is intended solely for educational purposes and presents information of a general nature. The underlying data and analysis have been reviewed on this basis. This report is not intended to guide or determine any specific individual situation and persons should consult qualified professionals before taking specific actions.

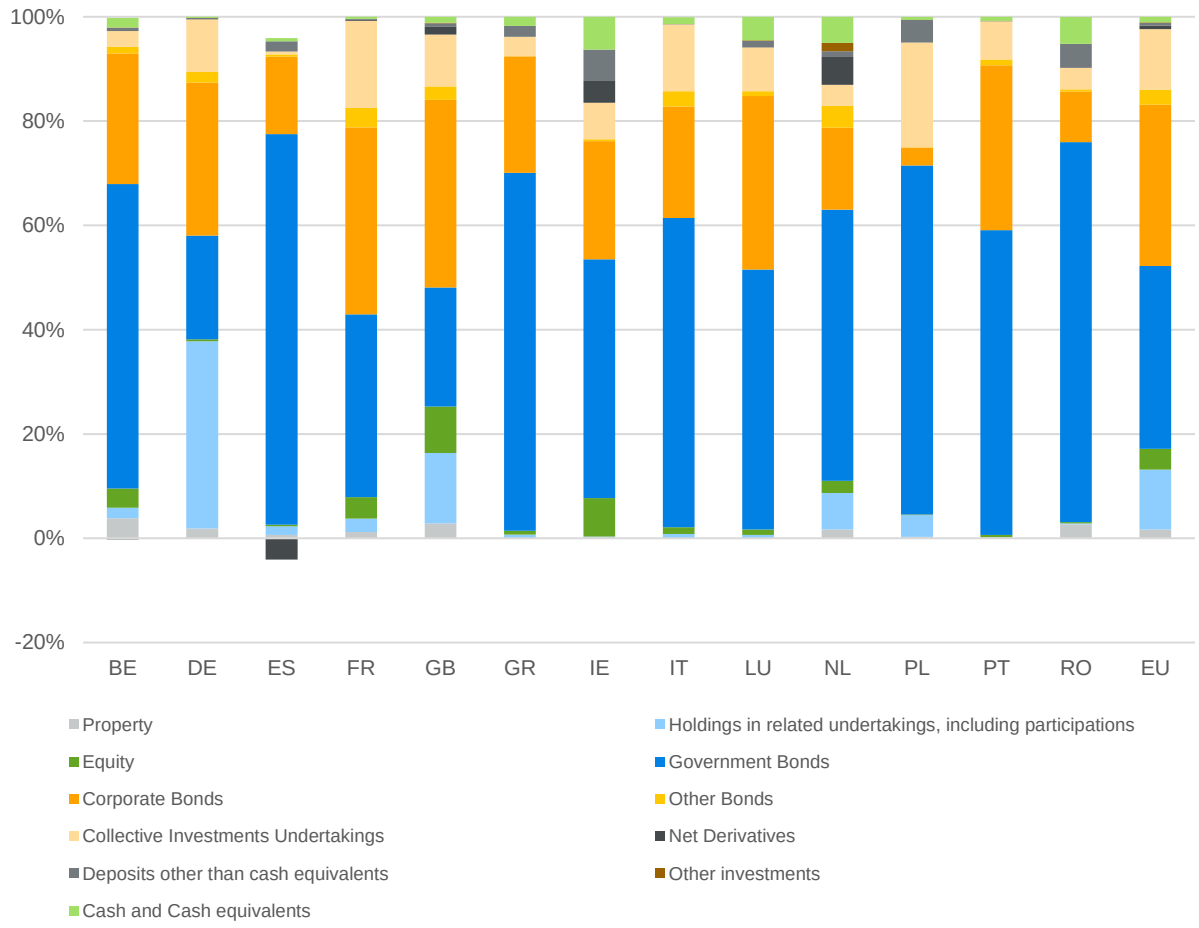
Analysis of European life insurers

Analysis of balance sheet

ASSETS

The graph in Figure 2 shows the split of financial investments held by life insurers across European countries, with the EU average represented in the last bar on the chart, labelled as 'EU.' This includes financial investments classified as 'Investments (other than assets held for index-linked and unit-linked contracts)' and 'Cash and cash equivalents' on the Solvency II balance sheet.

FIGURE 2: SPLIT OF FINANCIAL INVESTMENTS ACROSS EUROPE



In general, investments in government bonds and corporate bonds make up the majority of financial investments on European life insurers' balance sheet. On average, government bonds and corporate bonds make up 35% and 31% of total financial investments, respectively.

Holdings in related undertakings, including participations, make up over 11% of total financial investments, primarily due to large holdings in Germany (where this asset class makes up about 35% of total financial investments) and the UK (where holdings in related undertakings account for 13.5% of total financial investments).

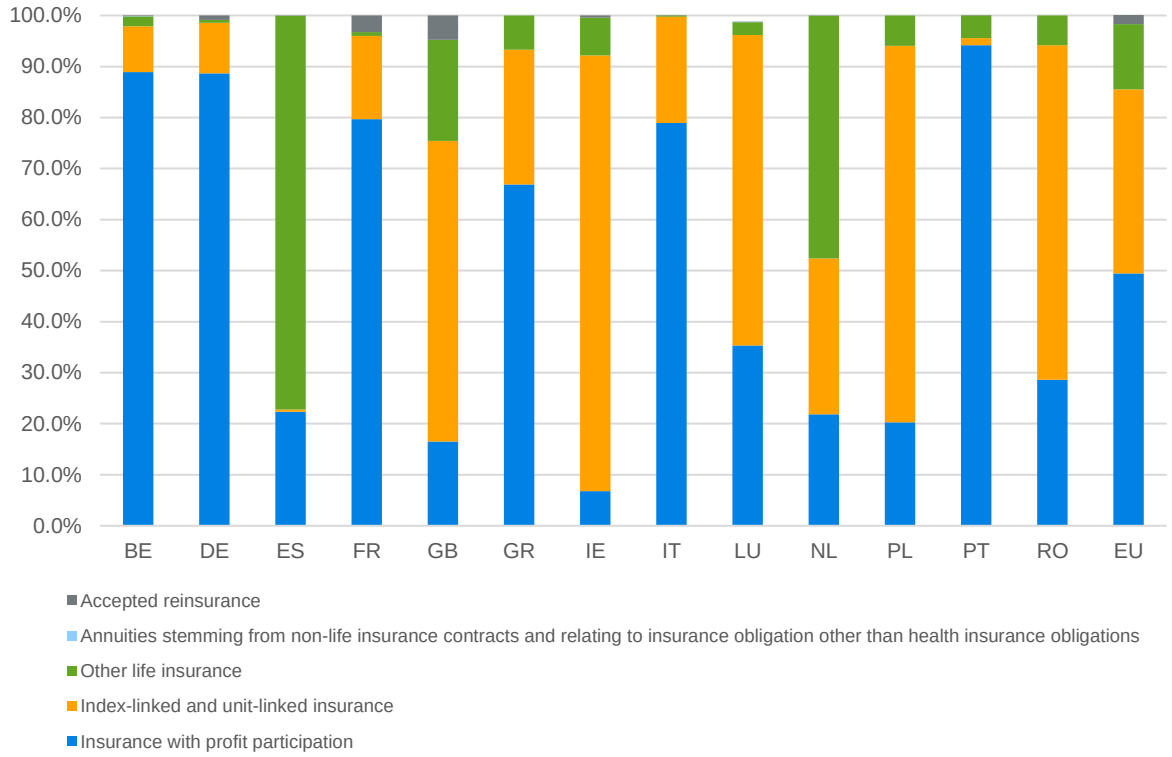
Investments in collective investment schemes make up a further 11% of total financial investments. This is due to large holdings of collective investment schemes by Polish (20%), French (17%), Italian (12.8%), UK (10%) and German (10%) life insurers.

The derivatives shown in Figure 2 represent the net derivative position. Based on the companies in our sample, the Spanish life insurers have a net negative position, meaning that on average the value of derivative liabilities is greater than the value of derivative assets on the Solvency II balance sheet for Spanish insurers included in our sample.

LIABILITES

The graph in Figure 3 shows the split of technical provisions by line of business held by life insurers across European countries.

FIGURE 3: SPLIT OF TECHNICAL PROVISIONS BY LINE OF BUSINESS ACROSS EUROPE



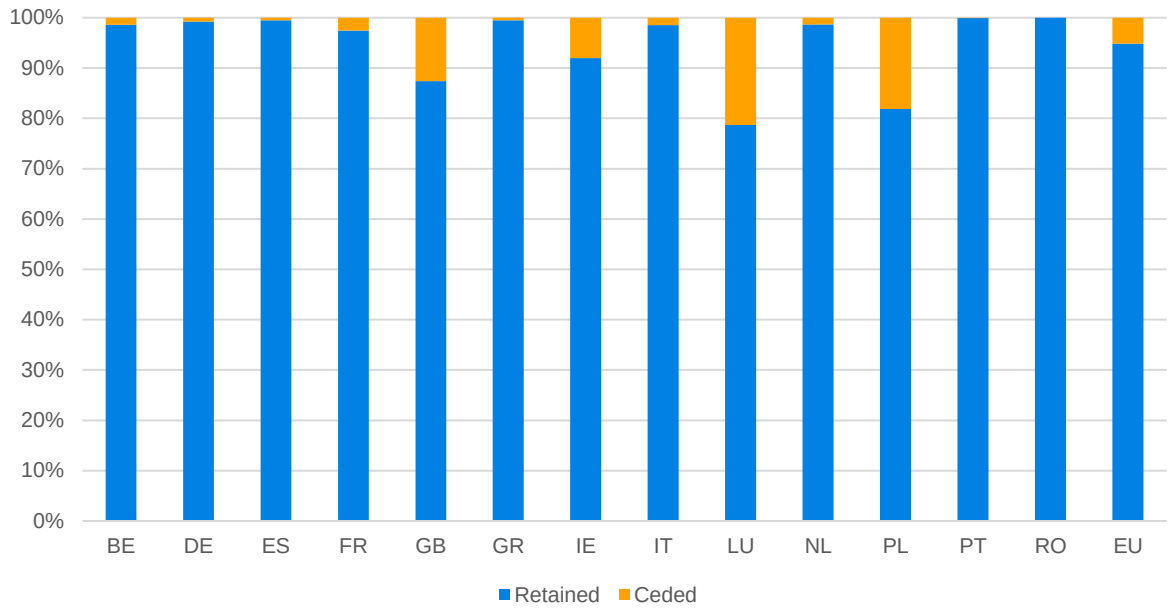
On average across the EU, insurance with profit participation makes up almost half of the total technical provisions for life insurers. Index-linked and unit-linked insurance make up the second-largest portion of technical provisions at 36%. The technical provisions for the Belgian, French, German and Italian markets are dominated by insurance with profit participation, whereas the technical provisions for the Irish, Polish, Luxembourger and UK markets are predominately in respect of unit-linked business. As a result, these two lines of business represent the largest portion of technical provisions across Europe on average.

Other life insurance (16%), which includes predominately traditional protection business (13%) and accepted reinsurance (3%), make up the bulk of the remaining technical provisions. Belgium, Luxembourg, Italy and the UK are the only countries that show a very small amount of technical provisions for annuities stemming from non-life insurance contacts (less than 1%).

The technical provisions in respect of Health Similar to Life Techniques business (Health SLT business) has been excluded from Figure 3 as this line of business makes up only 0.5% of total technical provisions on average across Europe.

The graph in Figure 4 shows the split of net and gross technical provisions across European countries. The ceded rates represent the difference in the net and gross technical provisions.

FIGURE 4: ANALYSIS OF USE OF REINSURANCE ACROSS EUROPE



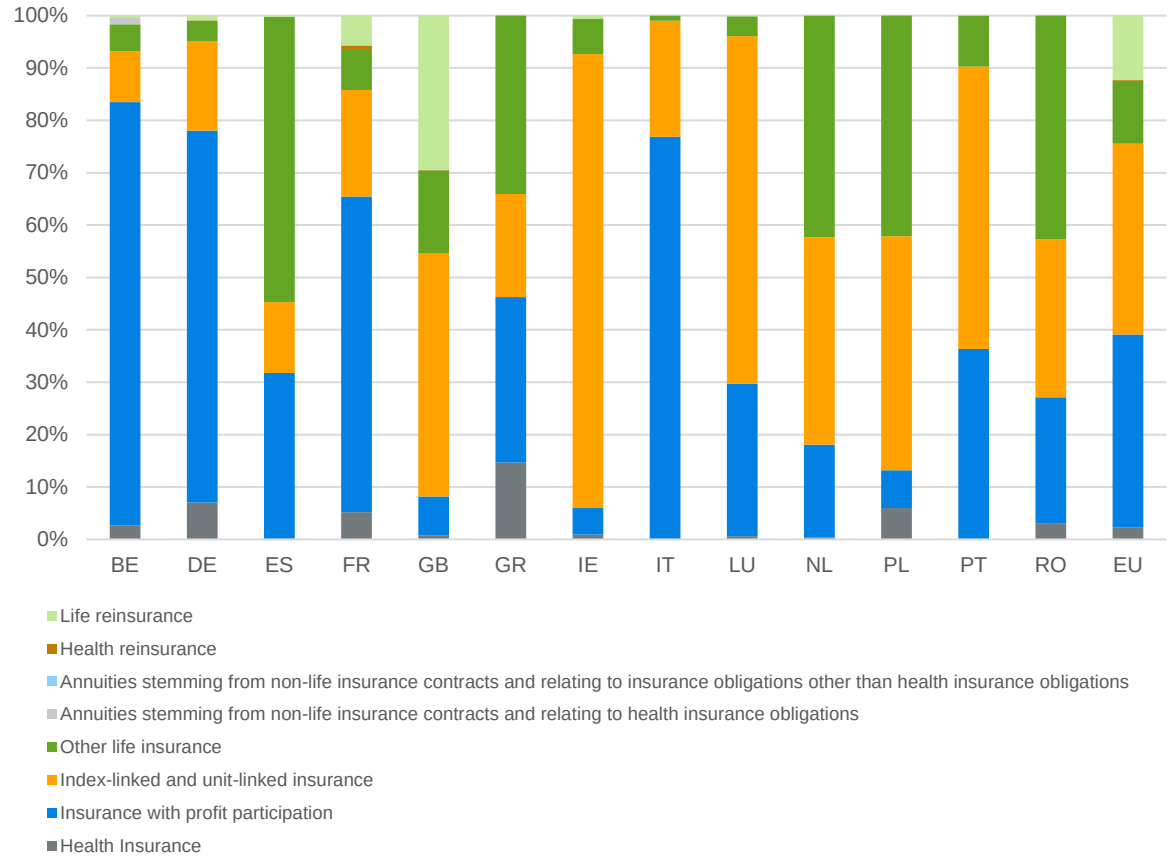
On average about 5% of total technical provisions are reinsured across Europe. This varies by country, with Luxembourg and Poland being the highest users of reinsurance.

While the average European rate of ceded technical provisions is 5%, this varies by line of business. On average about 17% of technical provisions for traditional life insurance products (‘Other life insurance’) are reinsured. For unit-linked business about 8% of technical provisions are reinsured on average. This is primarily driven by the UK and Polish markets. Only about 3% of the technical provisions for insurance with profit participation is reinsured on average.

Analysis of premiums

The graph in Figure 5 shows the split of Gross Written Premiums (GWP) by line of business held by life insurers across European countries.

FIGURE 5: SPLIT OF GROSS WRITTEN PREMIUMS BY LINE OF BUSINESS ACROSS EUROPE

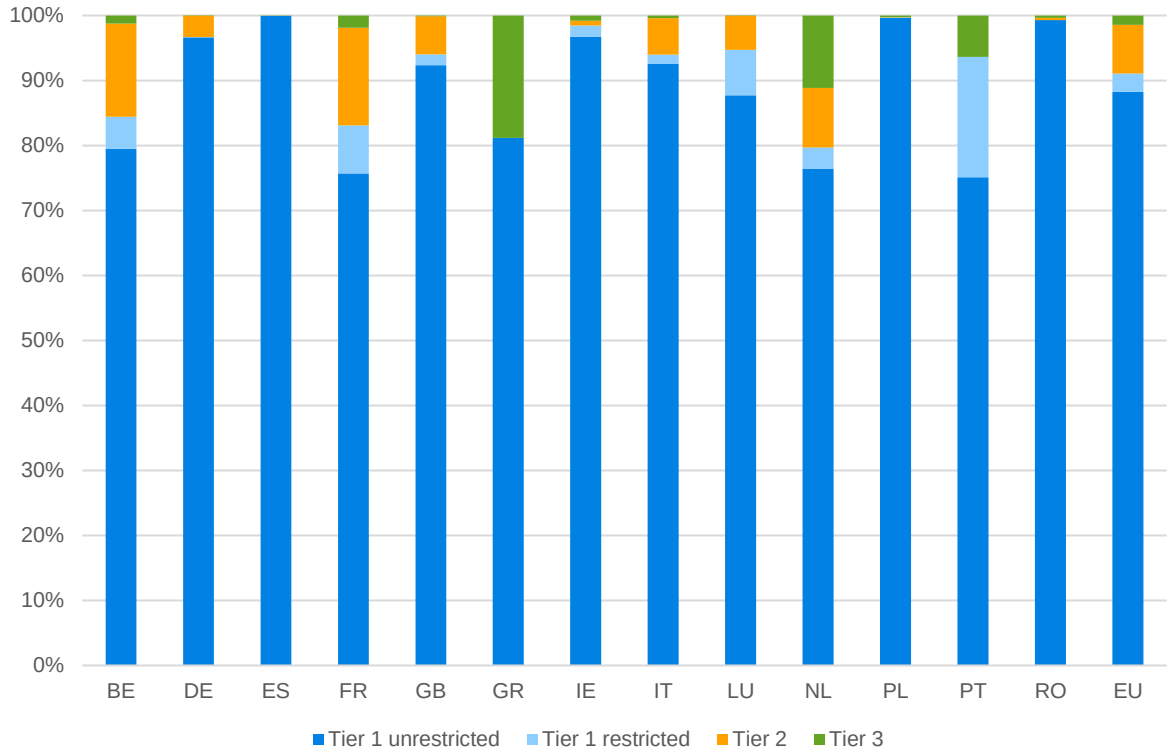


The split of premium volumes by line of business is broadly consistent with the split of technical provisions by line of business shown in Figure 3 above. On average across the EU, insurance with profit participation (36%) and index-linked and unit-linked insurance (36%) make up the largest portion of premium volumes.

Analysis of Own Funds

The graph in Figure 6 shows the split of Own Funds across European countries.

FIGURE 6: SPLIT OF OWN FUNDS BY TIER ACROSS EUROPE



The majority of Own Funds held by EU insurers (88%) are classified as Tier 1 unrestricted Own Funds. This is the highest form of capital in terms of quality and loss absorbency as defined under Solvency II. While the split of Own Funds varies by country, in general the majority of European insurers have a very high portion of Tier 1 unrestricted Own Funds.

Tier 1 restricted Own Funds make up 3% of Own Funds on average across Europe. Tier 2 Own Funds make up 7% of total Own Funds and Tier 3 Own Funds make up just 1% of total Own Funds on average.

Analysis of solvency coverage

SOLVENCY COVERAGE RATIOS

The table in Figure 7 shows the weighted average solvency coverage ratios[2] for the Solvency Capital Requirement (SCR) and the Minimum Capital Requirement (MCR) across European countries.

FIGURE 7: SOLVENCY COVERAGE RATIOS BY COUNTRY

	BE	DE	ES	FR	GB	GR	IE	IT	LU	NL	PL	PT	RO	EU
Ratio of Eligible Own Funds to SCR	188%	328%	206%	172%	153%	228%	184%	215%	178%	163%	327%	226%	289%	187%
Ratio of Eligible Own Funds to MCR	385%	759%	458%	331%	562%	533%	515%	471%	485%	349%	1165%	473%	513%	488%

Overall the average solvency coverage ratios for European life insurers are very healthy, with the weighted averages significantly in excess of the required solvency coverage ratio of 100%. The European average SCR coverage ratio is 187% based on the companies included in our sample and the average MCR coverage ratio is 486%.

The graph in Figure 8 shows the distribution of the SCR coverage ratio by country. Note that the distribution shows the median SCR coverage ratio as a white line in the middle of the distribution. The weighted average SCR coverage ratio is also shown, which is comparable to the numbers shown in Figure 7 above.

FIGURE 8: DISTRIBUTION OF SCR COVERAGE RATIO BY COUNTRY[3]

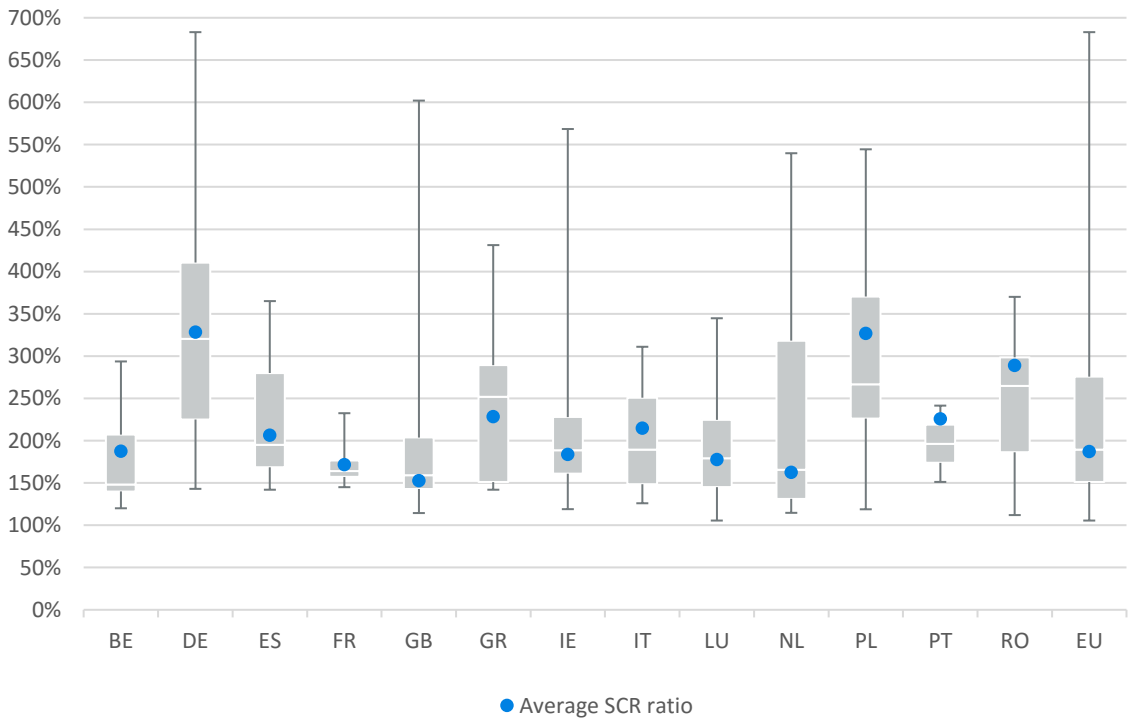


Figure 8 shows that for most countries the distribution of SCR coverage ratios is quite wide, although this does depend on the number of life insurers included in the analysis for each country. German, Greek, Polish and Romanian insurers have the highest median solvency coverage ratios across Europe.

[2] The weighted average solvency coverage ratios have been calculated as the sum of the Own Funds of the life insurers in each country divided by the sum of the SCR or MCR of the life insurers in each country.

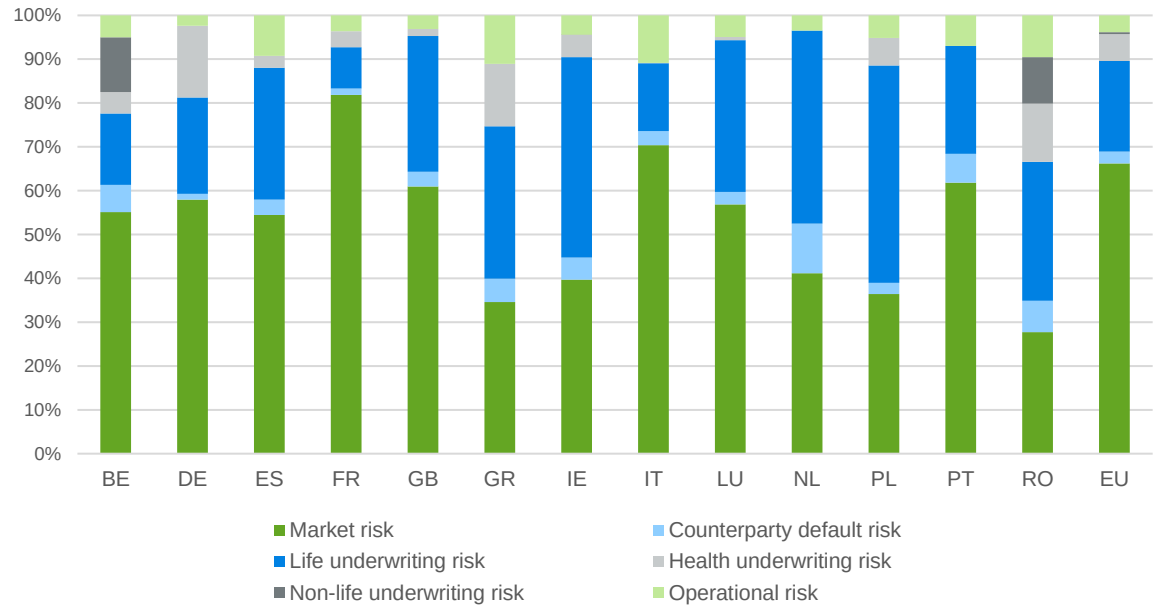
[3] Note that we excluded one UK company (UBS Asset Management Life Limited) from the data underlying Figure 8, as it was an outlier with an SCR coverage ratio of 1,256%.

Based on the life insurers included in our analysis, there were no European life insurers with an SCR coverage ratio below 100% at 31 December 2016. The average distribution at a European level shows a minimum SCR coverage ratio of life insurers of 106% (Luxembourg). Figure 8 shows a maximum SCR coverage ratio of 683% (Germany) but as noted this excludes one UK company (UBS Asset Management Life Limited) that reported an SCR coverage ratio of 1,256%.

SCR: STANDARD FORMULA COMPANIES

The graph in Figure 9 shows the breakdown of the SCR by risk module for standard formula companies across Europe,[4] with the EU average represented in the last bar on the chart, labelled as 'EU'. Figure 9 excludes deductions to the SCR such as diversification, the loss-absorbing capacity of technical provisions (LACTPs) and loss-absorbing capacity of deferred taxes (LACDTs).

FIGURE 9: BREAKDOWN OF SCR BY RISK MODULE BY COUNTRY



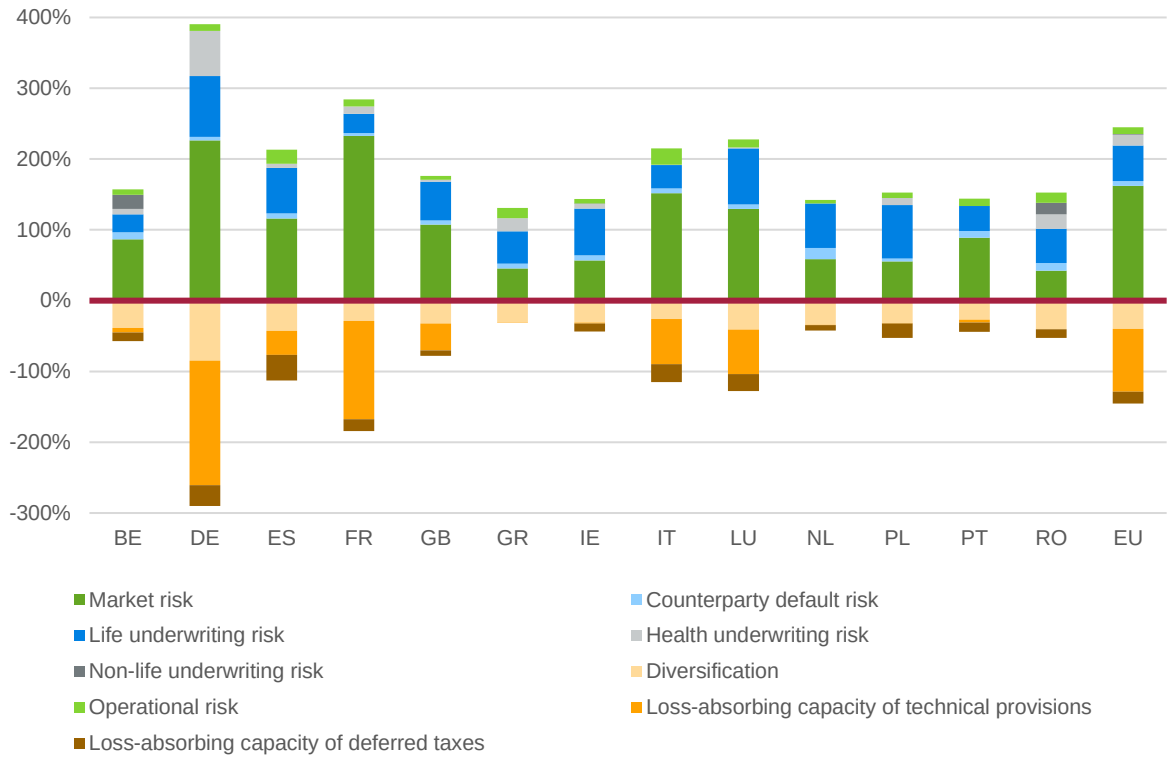
On average across the EU, market risk makes up the highest capital charge (66%) for life insurers. Life underwriting risk makes up the second-largest portion (about 20%). The remainder of the capital requirements are split across health underwriting risk (6%), operational risk (4%), counterparty default risk (3%) and non-life underwriting risk (0.5%). There is little or no intangible asset risk on European life insurers' balance sheets on average.

Both Belgium and Romania show some non-life underwriting risk in the overall SCR. For the Belgian market, this is due to the fact that all of the major players sell a mixture of life and non-life insurance. Our analysis includes Belgian insurers that are primarily focused on life insurance, but non-life underwriting still accounts for 20% of the SCR for these companies. Our analysis of the Romanian market also includes insurers selling a mix of life and non-life insurance.

The split of SCR across risk modules varies widely by country depending on the risk exposures of the companies in each country. This is highlighted even further in the graph in Figure 10, which looks at the breakdown of the total SCR, allowing for the risk module capital requirements and the reductions to the SCR such as diversification, the LACTP and the LACDT.

[4] Of the companies included in our analysis, 80% were using the standard formula, with 2% using the standard formula combined with an undertaking-specific parameter (USP). The companies using USPs are included in the analysis of standard formula companies.

FIGURE 10: BREAKDOWN OF TOTAL SCR BY COUNTRY



The distribution of SCR components shown in Figure 10 is much wider than the distribution shown is Figure 9 as Figure 10 reflects both capital charges and reductions to the SRC. Everything above the red line represents a capital charge such as life underwriting risk, market risk, operational risk etc. Everything below the line represents a reduction to the SCR, for diversification benefits, the LACDT or LACTPs. The capital charges net of reductions should sum to 100% of the SCR.

Diversification benefits result in a reduction in SCR of 40% on average across Europe, but vary widely by country, with diversification benefits highest where there is a wider spread of risk exposure. For example, Germany has the highest diversification benefit, reflecting the fact that insurers in Germany have a wide range of risk exposures across market risk, life underwriting and health underwriting.

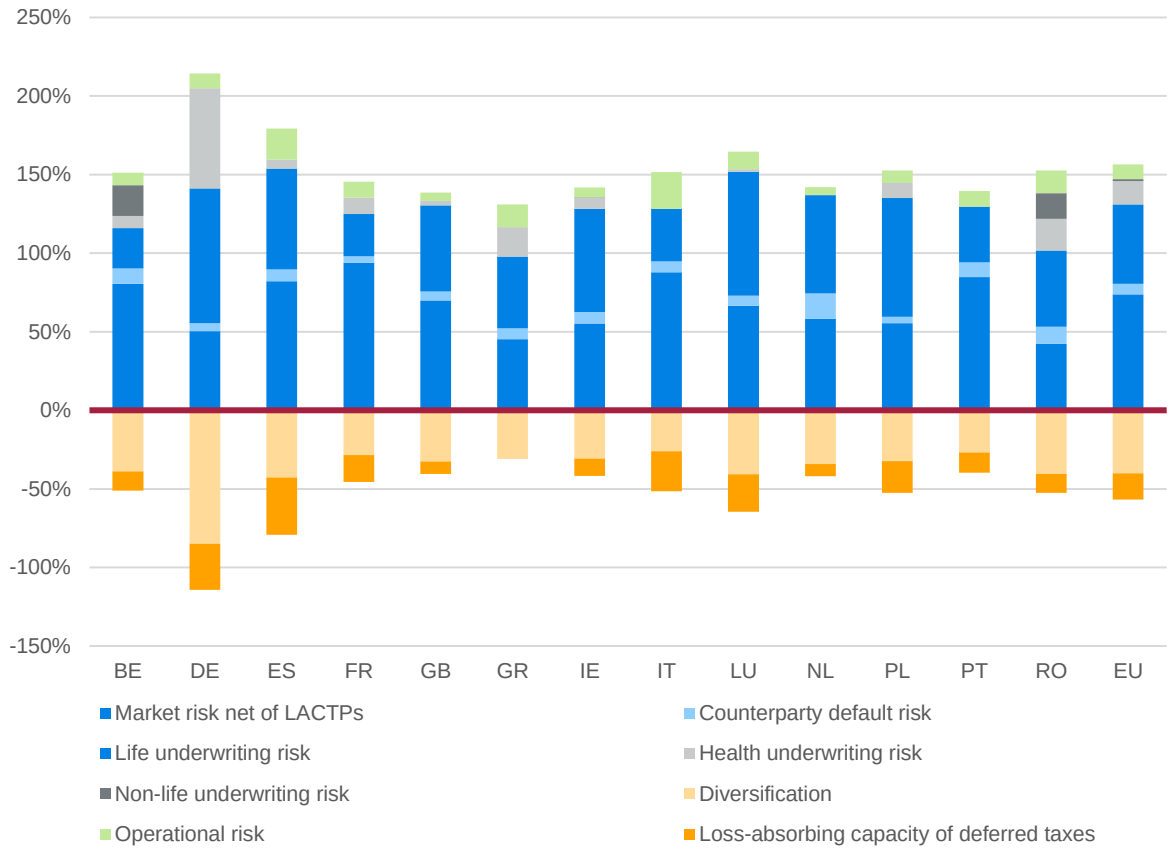
The loss-absorbing capacity of technical provisions and deferred taxes result in further reductions of 88% and 17%, respectively.

As noted above, the split of SCR across risk modules varies widely by country depending on the risk exposures of the companies in each country. It's not surprising that the countries most exposed to market risk (Germany, France, Italy) are some of the countries with the largest portion of technical provisions in respect of insurance with profit participation. The investment guarantees associated with these contracts result in a high exposure to market risk. These countries also benefit from high reductions to the SCR reflecting the LACTPs associated with profit participation business.

If the LACTP is netted off against the market risk SCR, it results in a much tighter distribution of risk exposures across Europe, as shown in the graph in Figure 11.[5]

[5] In reality, some of the LACTPs may be attributable to other risks such as underwriting risk. However the split of LACTPs across risk exposures is not available, so for simplicity we have assumed that it is all attributable to market risk.

FIGURE 11: BREAKDOWN OF SCR BY RISK MODULE BY COUNTRY ADJUSTED TO SHOW MARKET RISK NET OF LACTPS



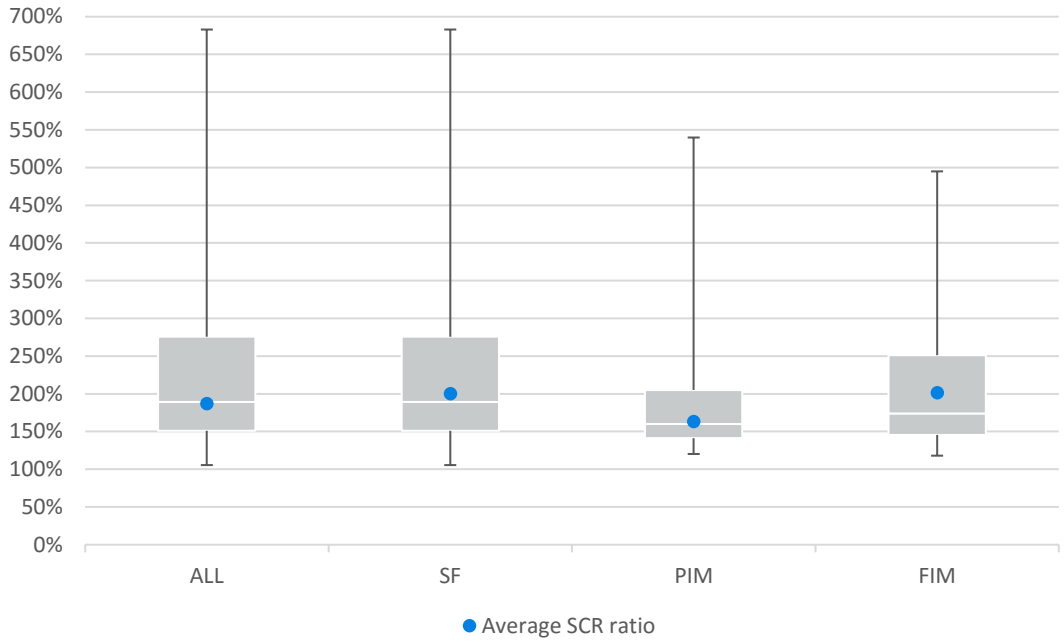
SCR: INTERNAL MODEL COMPANIES

The majority of companies included in our analysis are standard formula companies (80%). Of the remaining 20%, 2% were standard formula companies using Undertaking Specific Parameters (USPs), 12% were using Partial Internal Models (PIM) and 8% were using Full Internal Models (FIMs).

Unfortunately, due to the nature of partial internal models and full internal models, it is not easy to analyse the SCR breakdown by risk type as the risk exposures captured in the internal models, and the reporting of capital requirements by risk exposure, vary by company.

The chart in Figure 12 shows a split of the SCR coverage ratio distribution by SCR calculation type (with the USP companies included with the standard formula companies). Note that the distribution shows the median SCR coverage ratio as a white line in the middle of the distribution. The weighted average SCR coverage ratio is also shown.

FIGURE 12: DISTRIBUTION OF SCR COVERAGE RATIOS BY SCR CALCULATION METHOD[6]



In general the distributions are broadly similar, with the PIM and FIM companies having slightly tighter distributions and slightly lower median SCR coverage ratios than the standard formula companies. It is difficult to draw any inferences from this but Figure 12 suggests that capital is more closely managed in internal model companies than standard formula companies. This may be because internal model companies tend to be part of large insurance groups.

Conclusion

The mix of life insurance business varies across Europe, with some markets (Belgium, France, Germany and Italy) dominated by insurance with profit participation while the insurance market in other countries (such as Ireland, Poland, Luxembourg and the UK) is predominately in respect of unit-linked business.

However, despite the different business mixes, overall European life insurers were in a very strong position at year end 2016, with an average SCR coverage ratio of 187%. Of the companies included in our analysis, there were no life insurers with an SCR coverage ratio lower than 100%.

Own Funds are predominately invested in Tier 1 unrestricted Own Funds (88%), which is the highest form of capital in terms of quality and loss absorbency as defined under Solvency II. This further emphasises the strong financial position of European life insurers.

[6] As per Figure 8, we excluded one UK company (UBS Asset Management Life Limited) from the data underlying Figure 8, as it was an outlier with an SCR coverage ratio of 1,256%.

Analysis of Irish life insurers

As noted in the introduction, our analysis covers the most significant insurers in the Irish market, representing over 90% of premium volumes based on 2015 figures. Our analysis of the Irish life insurance market includes direct writers only. We have not included any reinsurers in this analysis, although there are some reinsurers included in the analysis of other European countries.

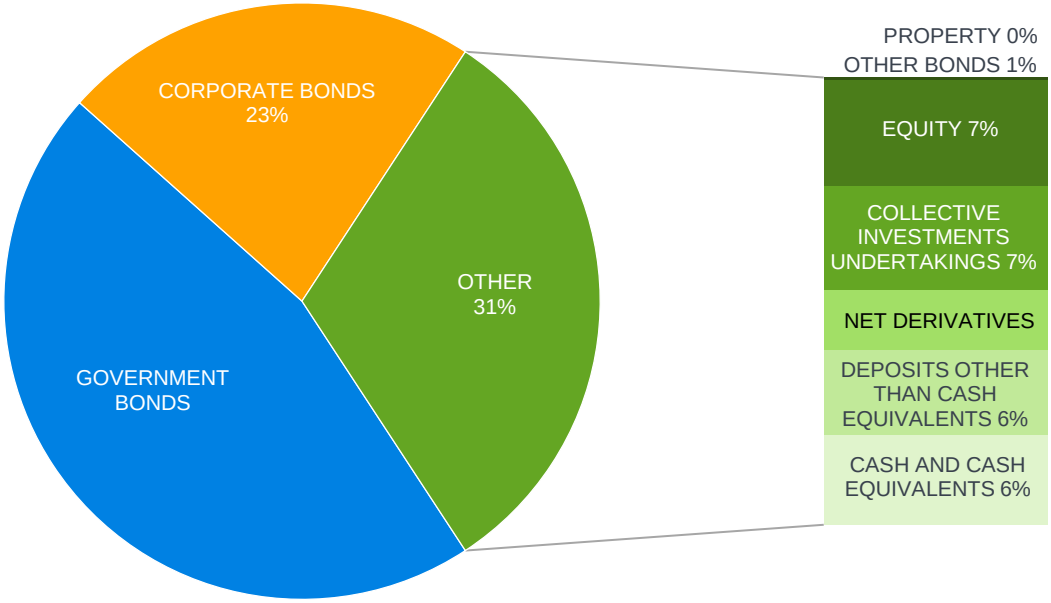
Appendix 1 contains a list of all Irish life companies included in our analysis.

Analysis of balance sheet

ASSETS

The assets side of the balance sheet for the average Irish life insurer is primarily composed of financial investments. The breakdown of financial investments for the Irish life insurance market is shown in Figure 13.

FIGURE 13: SPLIT OF FINANCIAL INVESTMENTS BY ASSET CLASS



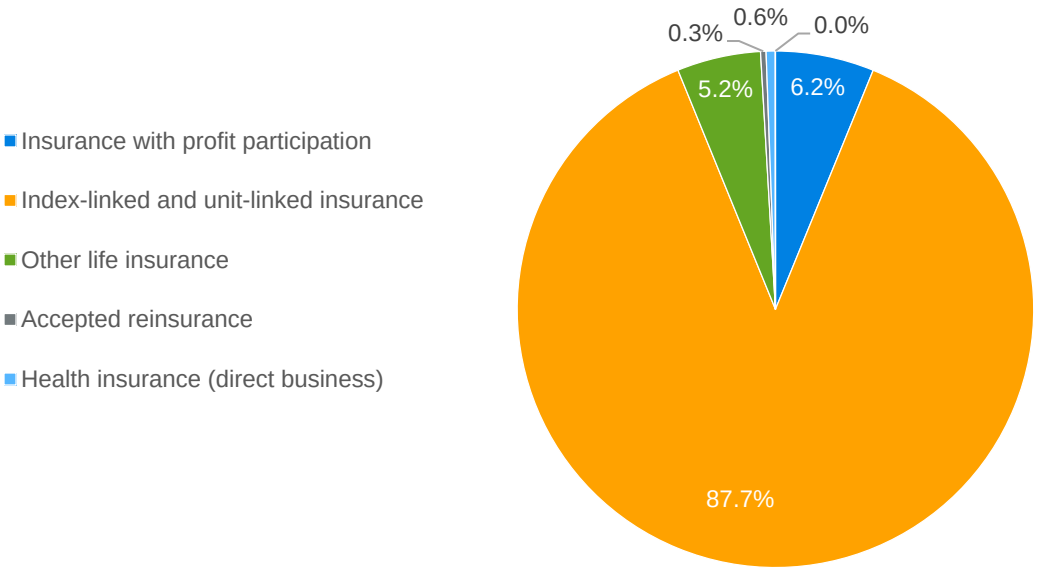
The majority of Irish life insurers are heavily invested in bonds, with 46% of total investments in government bonds and 23% of investments in corporate bonds. This is broadly consistent with the European averages although Irish insurers have a higher portion invested in government bonds.

The remainder of investments are well diversified between equity (7%), cash (6%), collective investments undertakings (7%), deposits other than cash equivalents (6%) and derivatives (4%).

LIABILITIES

On the liabilities side of the balance sheet, our analysis focuses on the technical provisions. A breakdown of the technical provisions by line of business is shown in Figure 14.

FIGURE 14: SPLIT OF TECHNICAL PROVISIONS BY LINE OF BUSINESS



Unit-linked business makes up the majority of technical provisions on Irish life insurers' balance sheets. Unit-linked business has dominated the Irish market for a number of years now (both in the domestic market and cross-border), therefore it is not surprising that this represents the bulk of technical provisions on Irish life insurers' balance sheets.

The technical provisions (TPs) can be split out further into technical provisions as a whole, the Best Estimate Liability (BEL) and the risk margin, as outlined in the table in Figure 15.

FIGURE 15: SPLIT OF TECHNICAL PROVISIONS BY SOLVENCY II LINES OF BUSINESS

	TP AS A WHOLE	BEL	RISK MARGIN	TOTAL TECHNICAL PROVISIONS
INSURANCE WITH PROFIT PARTICIPATION	5.1%	6.7%	6.5%	6.2%
INDEX-LINKED AND UNIT-LINKED INSURANCE	94.9%	84.7%	41.3%	87.7%
OTHER LIFE INSURANCE	0.0%	7.3%	41.9%	5.2%
ACCEPTED REINSURANCE	0.0%	0.4%	4.9%	0.3%
HEALTH INSURANCE (DIRECT BUSINESS)	0.0%	0.8%	5.4%	0.6%
HEALTH REINSURANCE (REINSURANCE ACCEPTED)	0.0%	0.0%	0.0%	0.0%

Index-linked and unit-linked insurance technical provisions as a whole make up 95% of the total technical provisions as a whole figure. Unit-linked liabilities can be calculated as technical provisions as a whole because the unit liability can be directly replicated using market instruments. However, it should be noted that reporting of unit-linked liabilities is not consistent across all life insurers, with some insurers reporting unit-linked liabilities in the BEL figure on the Solvency II balance sheet. The remaining 5% of technical provisions as a whole relates to with-profits business.

Despite the fact that some unit-linked insurers are excluding the unit liability from the BEL (including it instead in technical provisions as a whole), the overall BEL for the Irish life insurance market is dominated by index-linked and unit-linked insurance. A small proportion of the remaining BEL is attributable to other life insurance (7.3%), insurance with profit participation (6.7%) and accepted reinsurance (0.4%).

Interestingly, the distribution of the risk margin across the various lines of business is quite different from the distribution of the BEL. For example, unit-linked business makes up a much lower portion of the risk margin than

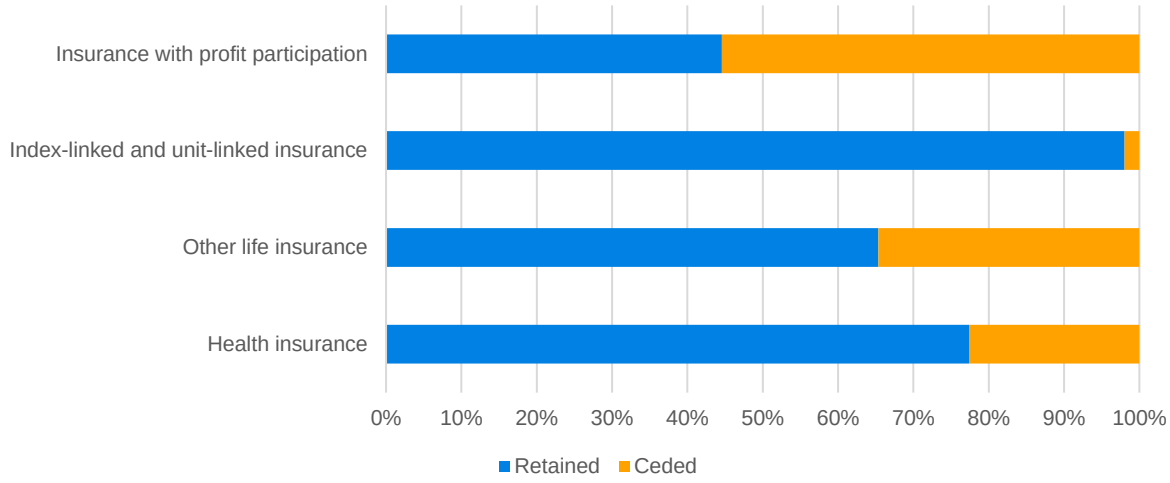
the BEL. As the risk margin represents the cost of capital associated with the business (excluding hedgeable market risk), this indicates the unit-linked business is not a capital-intensive line of business (ignoring hedgeable market risk). Traditional insurance such as protection and annuity business ('Other life insurance') makes up a much higher portion of the risk margin compared to TPs, indicating that this business is more capital-intensive on a Solvency II basis. Annuities tend to have a particularly high risk margin as they generally have a longer tail than other insurance products.

Health insurance and health reinsurance make up a small portion of total technical provisions. This is business that is defined as Health Similar to Life Techniques (Health SLT) under Solvency II. This includes long-term health insurance such as critical illness and long-term care insurance, rather than short-term private health insurance (which would be considered as technically similar to non-life insurance).

Under Solvency II, the technical provisions are calculated without any allowance for reinsurance. The impact of reinsurance is calculated separately, and a reinsurance asset is held on the balance sheet. Approximately two-thirds of the Irish insurers included in in our sample were using reinsurance at 31 December 2016.

We calculated ceded rates based on the size of the net technical provisions compared to the gross technical provisions. This varied significantly by line of business, as outlined in Figure 16 below.

FIGURE 16: CEDED RATES FOR INSURERS BY LINE OF BUSINESS BASED ON TECHNICAL PROVISIONS7



In the Irish market, reinsurance is most commonly used on insurance contracts with profit participation, given the material investment guarantees associated with this business, with over 50% of technical provisions for this business ceded to reinsurers. This is much higher than the European average of about 3% of with-profit participation business ceded. This may be due to specific reinsurance structures where Irish insurers use reinsurance to access with-profit funds of other group companies.

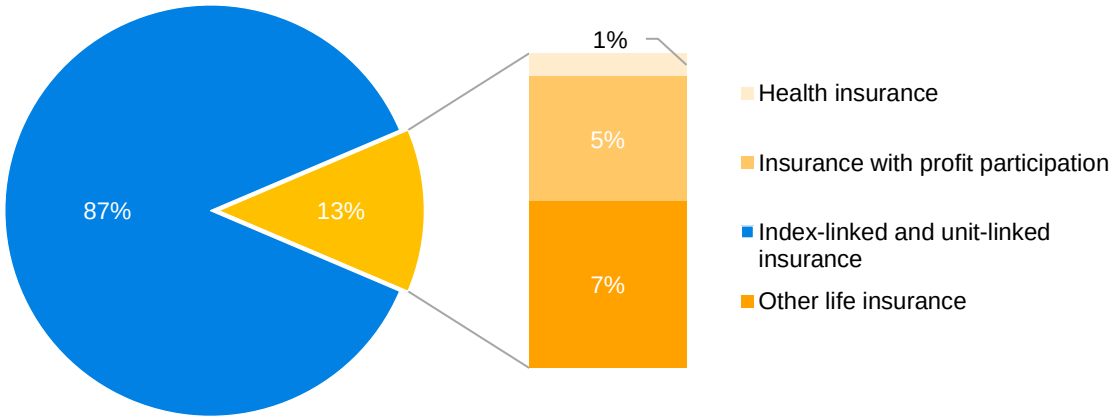
'Other life insurance' represents the second most popular line of business in terms of reinsurance, which includes traditional reinsurance such as mortality and longevity risk transfer. Only 2% of the gross technical provisions for index-linked and unit-linked insurance are reinsured and this generally tends to be reinsurance in respect of any additional death benefits or critical illness benefits associated with unit-linked contacts.

[7] We have excluded reinsurers from this graph although accepted reinsurance is also retroceded in some cases in Ireland.

Analysis of premiums

Our analysis of gross premiums of the companies in our sample shows that unit-linked business represents 87% of new life insurance premiums sold in the Irish market in 2016. This is consistent with our analysis of technical provisions. Unit-linked business has dominated the Irish market for a number of years now, with pure protection business making up a much smaller portion of total premium volumes.

FIGURE 17: SPLIT OF GROSS WRITTEN PREMIUMS BY LINE OF BUSINESS



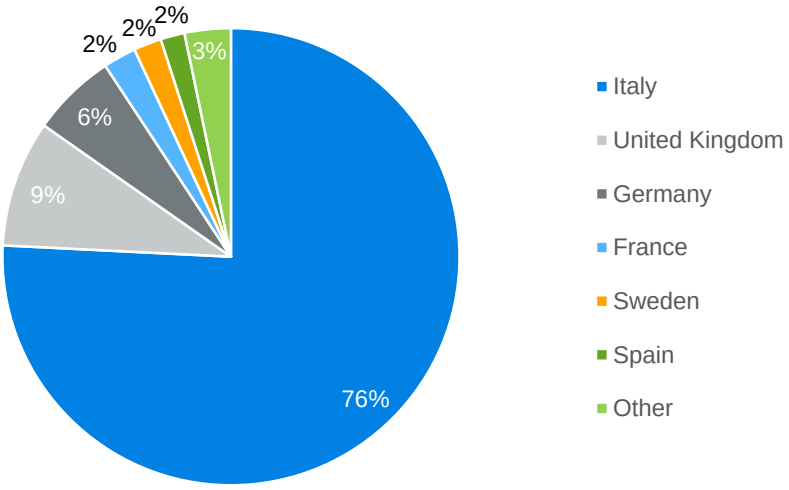
The remaining premiums represent other life insurance (7%), which is generally traditional protection and annuity business), and insurance with profit participation (5%). A very small amount of premiums (less than 1%) relate to Health SLT insurance.

Within the Irish insurance industry, there are a significant number of companies selling cross-border life insurance, generally into the EU on a freedom to provide services or freedom of establishment basis. Of the premiums sold by Irish insurers in 2016, about 70% were sold into Europe (Italy and the UK in particular) and beyond. The majority of companies in our sample are active in the cross-border market.

The graph in Figure 18 shows the split of premium volumes included in the Premium, Claims and Expenses by country QRT (S.05.02)[8], excluding the home country (in this case Ireland).

[8] It should be noted that in some cases insurers populated this QRT with premium volumes for business that is classified as insurance business based on the International Financial Reporting Standards (IFRS) classification only. This means that in some cases investment business has been excluded from the figures above. Therefore the information in Figure 18 should only be considered as an estimate of the actual split of premium volumes by country.

FIGURE 18: ESTIMATE OF CROSS-BORDER PREMIUM VOLUMES BY COUNTRY (GROSS WRITTEN PREMIUMS)



The largest cross-border market in Ireland is Italy, which is estimated to account for over 75% of total cross-border written premiums in 2016. This includes large insurers such as Intesa Sanpaolo Life, Darta Savings Life Insurance, AZ Life, AXA MPS and Generali Pan Europe among others which are part of large Italian groups.

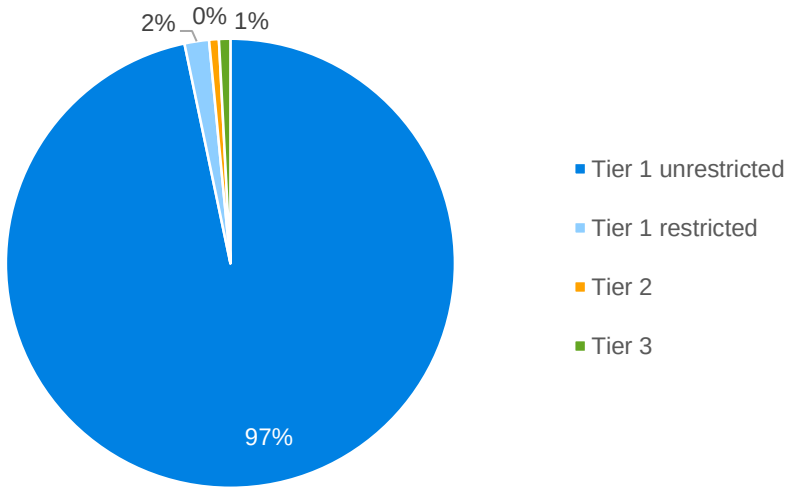
The UK is the second most popular destination for premium sales, with insurers including St James Place International, Standard Life International and Prudential International Insurance selling cross-border into the UK.

Other countries where large volumes of cross-border business were sold in 2016 include Germany, France, Sweden and Spain.

Analysis of Own Funds

The graph in Figure 19 shows the split of Own Funds by tier for Irish life insurers included in our sample.

FIGURE 19: SPLIT OF ELIGIBLE OWN FUNDS BY TIER



The majority of Irish life insurers are holding the highest quality Tier 1 unrestricted capital to cover their capital requirements. Over 97% of the Own Funds of Irish life insurers are made up of Tier 1 capital, which includes items such as ordinary share capital and the reconciliation reserve. This is higher than the European average of 88%, indicating that Irish life insurers have very high-quality capital. This may be in part due to the fact that a lot of Irish companies are fully owned subsidiaries rather than listed companies (which are more likely to have a mix of equity and debt). However, there may be scope for Irish life insurers to improve capital efficiency by restructuring their Own Funds to a hold a higher proportion of lower tiered capital.

Of the Own Funds held by the companies in our sample, 1.3% was Tier 1 restricted capital. This is attributable to one company, Irish Life Assurance plc, holding Tier 1 restricted capital, which relates to subordinated debt that was subsequently repaid in February 2017.

Tier 2 Own Funds make up about 0.5% of total Own Funds, which is predominately due to one company, New Ireland Assurance company plc, holding Tier 2 subordinated debt.

Tier 3 capital represents 0.6% of the total Own Funds for the companies in our sample. This generally relates to net deferred tax assets.

Analysis of solvency coverage

SOLVENCY COVERAGE RATIOS

The average SCR coverage ratio for Irish life insurers was 184% as at 31 December 2016, based on figures reported in the public QRTs. This is significantly in excess of the required 100% coverage ratio, indicating that Irish life insurers were in very healthy solvency positions at 31 December 2016. However, this is broadly consistent with the European average of 187%.

The average MCR coverage ratio for Irish life companies was 515% as at 31 December 2016.

The average MCR as a percentage of the SCR was 35%. This indicates that for the average company the linear MCR is calculated within the limits of 25% to 45% of the SCR, i.e. the cap or floor is not biting.

The table in Figure 20 summarises the solvency coverage ratios of Irish insurers relative to the European average.

FIGURE 20: AVERAGE SCR AND MCR COVERAGE RATIOS

	IRISH AVERAGE	EUROPEAN AVERAGE
RATIO OF ELIGIBLE OWN FUNDS TO SCR	184%	187%
RATIO OF ELIGIBLE OWN FUNDS TO MCR	515%	488%
MCR AS A % OF THE SCR	35%	36%

The distribution of the SCR and MCR ratios is shown in the graph in Figure 21.

FIGURE 21: DISTRIBUTION OF AVERAGE IRISH SCR AND MCR COVERAGE RATIOS

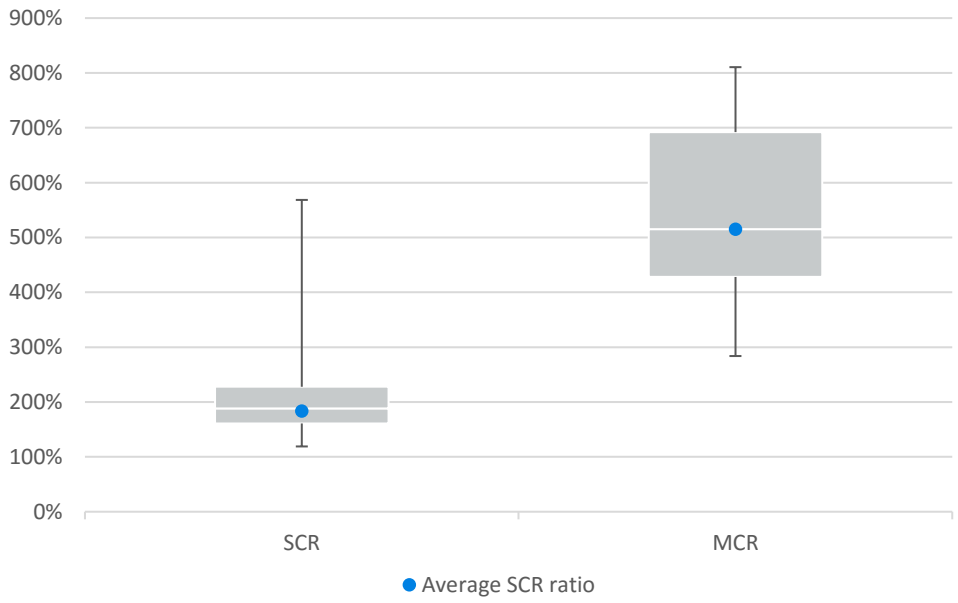
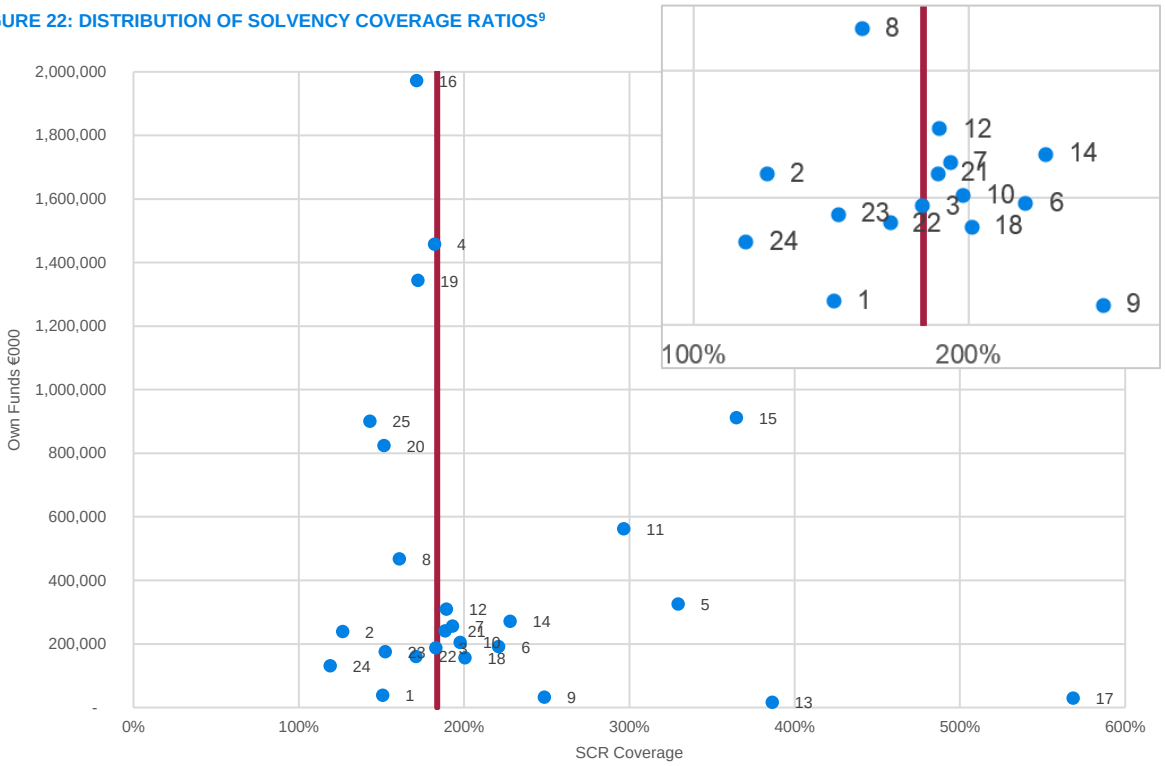


Figure 21 above shows that the solvency coverage of Irish life insurers has a wide distribution, with SCR coverage ratios ranging from 119% to 568% for companies in our sample. The distribution of SCR coverage ratios is heavily concentrated around the median, indicating that 50% of companies have coverage ratios between approximately 160% and 230%. Our analysis of SCRs by company (see Figure 22 below) indicates that the majority of companies are holding Own Funds of between 150% and 250% of the SCR.

Notably, the distribution of MCR coverage ratios is much less heavily concentrated around the mean. In some ways this is to be expected given that the average MCR coverage ratio is far higher than the average SCR coverage ratio, and thus there is much more room for variances across individual companies. This could in part be due to the formulaic approach by which the MCR is calculated, which can vary depending on the nature of an individual company's business.

The graph in Figure 22 shows the individual solvency coverage ratios by company (for all companies in our sample, whether using standard formula or an internal model). The horizontal axis shows the corresponding Own Funds by company. The vertical line indicates the average solvency coverage ratio for the Irish market, 184%.

FIGURE 22: DISTRIBUTION OF SOLVENCY COVERAGE RATIOS[9]



LEGEND

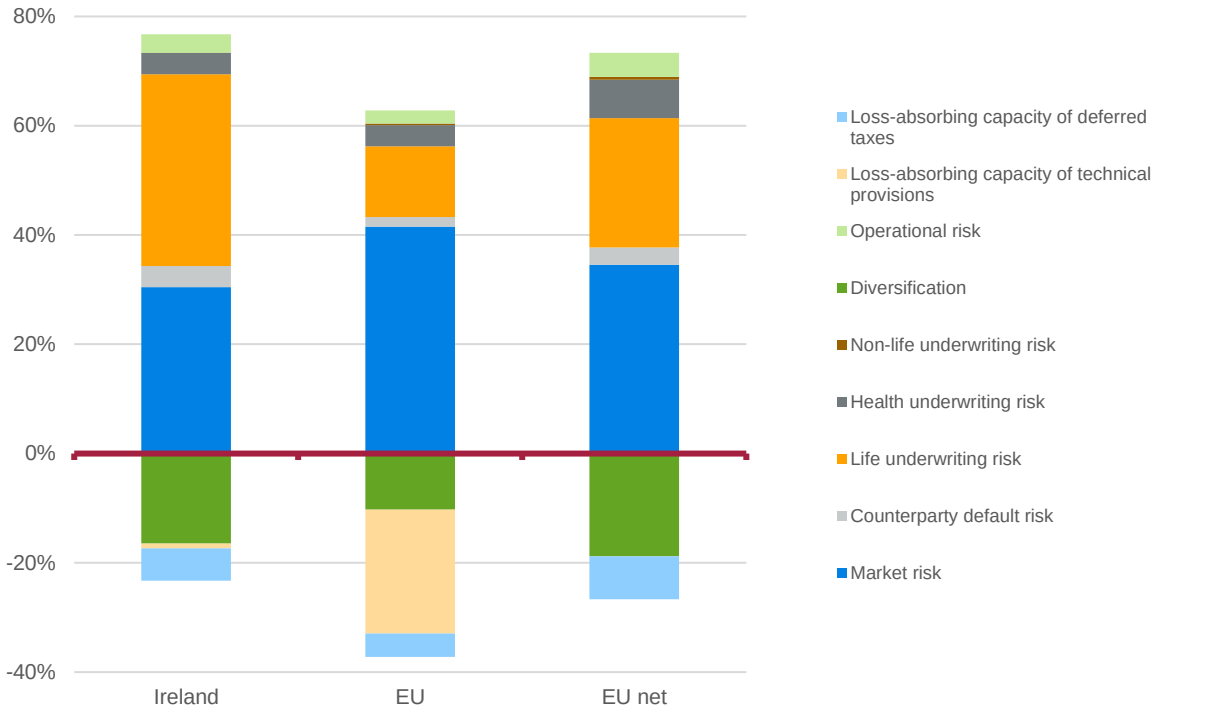
1. Acorn Life
2. Aegon Ireland
3. Allianz Global Life
4. AXA Life Europe
5. AXA MPS Financial Limited
6. AZ Life
7. CACI Life
8. Canada Life Assurance Europe Limited
9. Cattolica Life
10. CNP Santander Insurance Life
11. Darta Saving Life Assurance
12. Friends First Life Assurance Co.
13. Friends First Managed Pension Fund
14. Generali PanEurope Limited
15. Intesa San Paolo Life
16. Irish Life Assurance plc
17. Laguna Life
18. Mediolanum International Life
19. Metlife Europe Limited
20. New Ireland Assurance Company plc
21. Prudential International Assurance plc
22. Seb Life International Assurance Company Limited
23. St. James' Place International
24. Standard Life International
25. Zurich Life Assurance plc

[9] Note that the Irish Life Assurance Plc SCR coverage ratio shown in Figure 22 is the ratio reported in the company's public QRTs. This does not take into account the temporary increase in Own Funds over the reporting period in advance of a repayment of subordinated debt by the company in February 2017. In its SFCR, Irish Life disclosed an SCR coverage ratio of 154% after allowing for the repayment of this debt.

SCR: STANDARD FORMULA COMPANIES

We analysed the various SCR components of standard formula companies[10] in order to calculate the average contribution to the SCR for each sub-module. The results of this analysis are shown in Figure 23.

FIGURE 23: AVERAGE BREAKDOWN OF SCR: IRELAND VERSUS EU



In Figure 23, everything above the red line represents a capital charge such as life underwriting risk, market risk, operational risk etc. Everything below the line represents a reduction to the SCR, for example for diversification benefits or the loss-absorbing capacity of deferred taxes.

Figure 23 shows that Irish life insurers are mostly exposed to underwriting risks. As expected, the main risk exposure is life underwriting risk, making up 67% of the total SCR. Market risk is the second-largest risk exposure for Irish life companies, making up 58% of the SCR.

Compared to other European life insurers, Irish life insurers have a much lower proportion of market risk than the European average. This is due to asset mix and business mix. In terms of asset mix, Irish insurers have a higher proportion of assets invested in government bonds than the European average, which results in a lower standard formula SCR for market risk. In terms of business mix, Irish insurers predominately sell unit-linked business, whereas in some European countries insurance with profit participation is the main line of business. This business has significant investment guarantees and therefore a much higher market risk exposure than unit-linked business. However, it also results in a reduction to the SCR through the LACTPs, which only makes up a small part of the SCR for Irish insurers.

Looking at the 'EU net' position, where the market risk and LACTPs have been netted off against one another, the general split of risks at an Irish level is much more comparable to the risk exposure of European life insurers on average.

Irish life companies are not particularly exposed to counterparty risk, as this makes up only 7% of the SCR for the average company in the market. This is generally consistent with the position across Europe.

Diversification benefits for Irish life insurance companies result in an average reduction in the standard formula SCR of 31% at the sub-module level (i.e. between market, counterparty and underwriting risks). This is slightly lower than the EU average of 40%.

[10] This analysis also includes one internal model company, Axa Life Europe, that had included its notional standard formula capital charge in S.25.01 QRT, the QRT for the standard formula SCR.

Operational risk is only 6% of SCR for the average Irish life company, indicating that it is not a material risk on a standard formula basis. This is broadly consistent with the European average of 9%. However, it is worth noting that under the standard formula operational risk is calculated using a factor-based approach. As a result, this figure may not be a true indicator of the operational risk Irish life companies are exposed to. This is generally considered by insurers in their Own Risk and Solvency Assessments (ORSAs), in particular in the assessment of standard formula appropriateness.

In addition to diversification benefits, there are two additional adjustments available to standard formula companies — the adjustments due to the loss-absorbing capacity of technical provisions (LACTP) and to the loss-absorbing capacity of deferred taxes (LACDT).

The LACDT adjustment results in a reduction in SCR of 11% on average for Irish life insurers, which is broadly consistent with the European average of 16%. The majority of Irish companies included in our sample (over 75%) are allowing for this adjustment. For many companies, the existence of a net deferred tax liability on the balance sheet is providing the necessary justification for the use of the LACDT adjustment. However, there are still companies that could increase the size of their LACDT adjustments by considering potential tax recoveries from other sources.

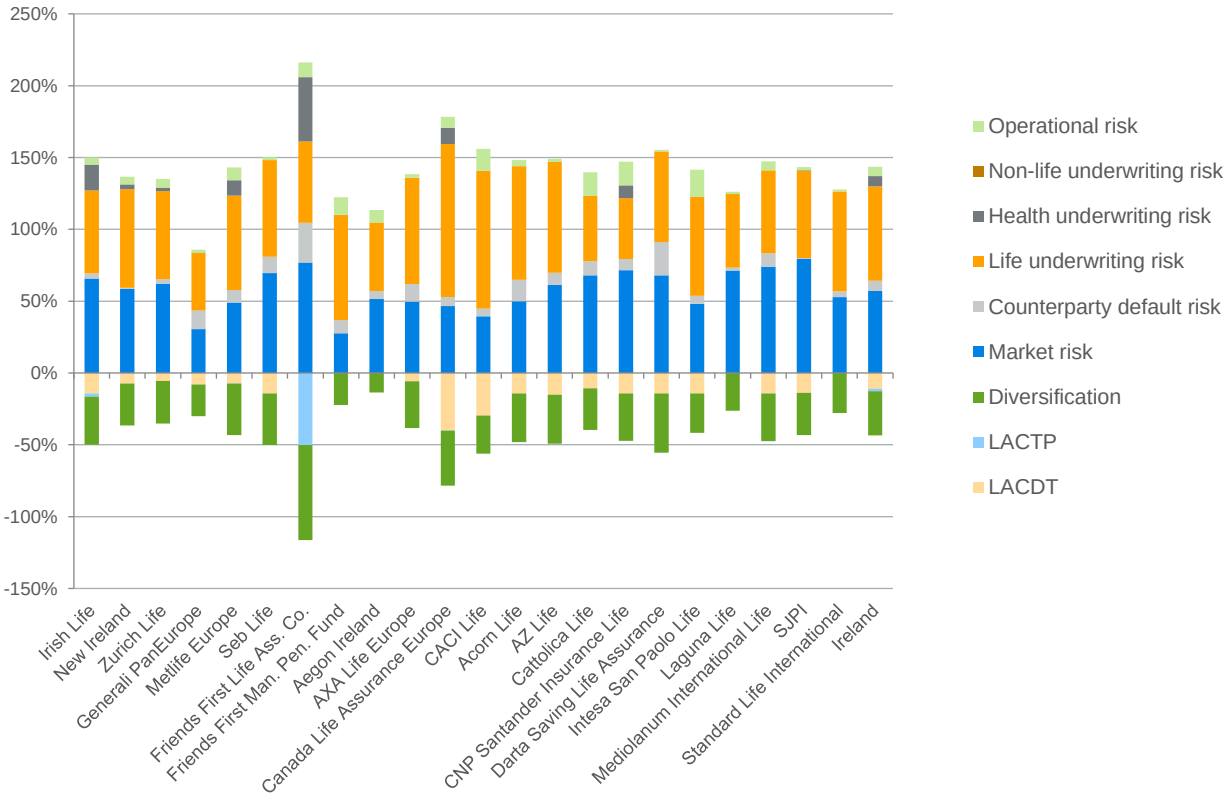
The LACTP is much less commonly used by Irish insurers. As mentioned above, this is primarily due to business mix. Therefore, the impact of using this adjustment on average is much lower than across Europe, with a reduction in SCR of only 1% across the Irish life insurance market as a whole.

A capital add-on was not disclosed by any of the Irish life insurers included in our sample as at 31 December 2016. However, the Aggregate Statistical Data[11] published by the Central Bank of Ireland (CBI) indicates there was one Irish company holding a capital add-on in addition to the calculated SCR at 31 December 2017. It is not clear from the CBI's disclosures whether this was a life insurer.

The graph in Figure 24 shows the total SCR breakdown for the life insurers included in our sample that use the standard formula to calculate the SCR under Solvency II, with the average for the Irish market as a whole included in the last bar on the chart labelled as 'Ireland.'

[11] Available at: https://www.centralbank.ie/docs/default-source/Regulation/industry-market-sectors/insurance-reinsurance/solvency-ii/supervisory-disclosures/aggregate-statistical-data.pdf?sfvrsn=2.

FIGURE 24: TOTAL SCR COMPONENTS BY STANDARD FORMULA COMPANIES



Market risk and life underwriting risk are the primary drivers of the SCR for most companies. Relatively few companies are exposed to health underwriting risks, but those that are appear to have slightly higher than average diversification benefits as a result.

The impact of counterparty risk on the SCR varies by company, with three companies reporting that counterparty risk makes up more than 20% of the SCR.

Operational risk typically varies in line with the size of the company. The percentage of the SCR attributable to operational risk for each company varies from only 1% of SCR to 19% of SCR.

Similarly, the impact of LACDT varies quite significantly by company, from -5% to -40%.

SCR: INTERNAL MODEL COMPANIES

There are three Irish life insurers included in our sample using either partial internal models (PIMs) or full internal models (FIMs). The majority of these companies are using group internal models to calculate their Irish subsidiaries' SCR.

The average SCR coverage ratio for companies using partial or full internal models (169%) is slightly lower than the overall average SCR coverage ratio for Irish life insurers (184%). This means that on average internal model companies are holding slightly less capital to cover their SCRs. However given that these companies are calculating their SCRs in a manner that should better reflect their individual risk profiles, they are still choosing to hold a significant capital buffer in excess of the SCR.

Long-term guarantee and transitional measures

Under Solvency II, there are a number of measures available to insurers both in terms of transitioning to the new regime and in terms of allowing for the impact of long-term guarantees. The measures include the use of the volatility adjustment or the matching adjustment (long-term guarantee measures) or transitional measures on technical provisions or the interest rate.

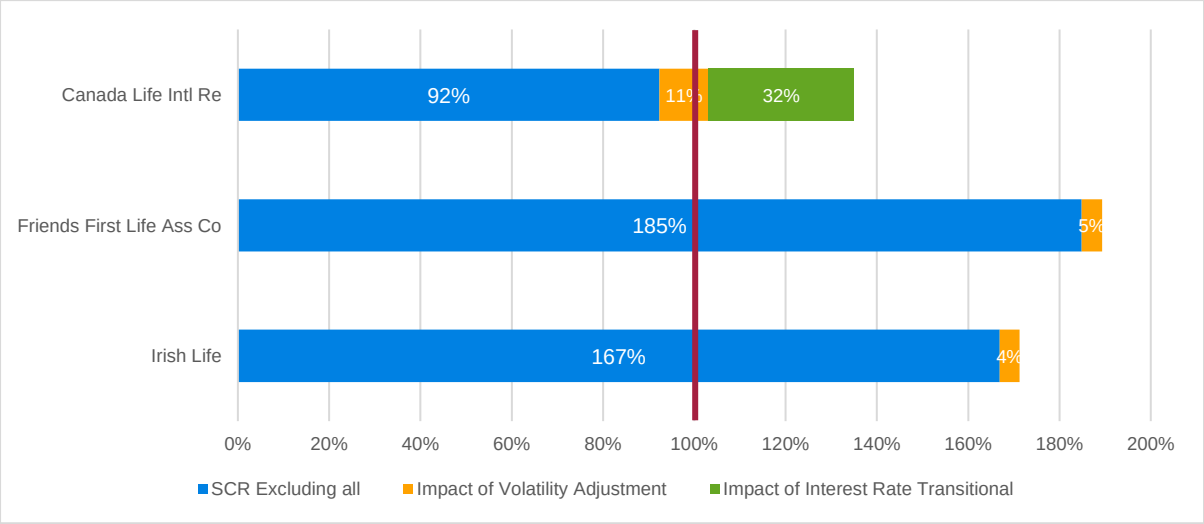
The Irish life insurers shown in the table in Figure 25 were using long-term guarantee or transitional measures as at 31 December 2016.

FIGURE 25: USE OF TRANSITIONAL MEASURES

COMPANY NAME	VOLATILITY ADJUSTMENT	MATCHING ADJUSTMENT	TRANSITIONAL MEASURE ON TECHNICAL PROVISIONS	TRANSITIONAL MEASURE ON THE INTEREST RATE
FRIENDS FIRST LIFE ASSURANCE CO.	Y	-	-	-
FRIENDS FIRST MANAGED PENSION FUNDS	Y	-	-	-
IRISH LIFE ASSURANCE PLC	Y	-	-	-
CANADA LIFE INTERNATIONAL REINSURANCE[12]	Y	-	-	Y

The graph in Figure 26 shows the impact of the long-term guarantee and transitional measures on these insurers as reported in their public QRTs. Note that Friends First Managed Pension Fund has been excluded from Figure 26 as this business was subsequently transferred into Friends First Life Assurance Company in early 2017.

FIGURE 26: IMPACT OF LONG-TERM GUARANTEE AND TRANSITIONAL MEASURES ON SCR COVERAGE[13]



[12] Note that we have not included reinsurers in the analysis of Irish life insurers in general. We have however included Canada Life International Reinsurance in the analysis of long-term guarantee and transitional measures, as this company is using both the volatility adjustment and the transitional measure on the interest rate.

[13] Note that the numbers quoted in Figure 26 for Irish Life Assurance Plc are the numbers reported in the public QRTs. This does not take into account the temporary increase in Own Funds over the period including 31 December 2016 in advance of the repayment of subordinated debt by the company in February 2017. Irish Life disclosed an SCR coverage ratio of 154% in the SFCR after allowing for the repayment of this debt.

Each of the insurers included in Figure 26 use the volatility adjustment. The impact of using the volatility adjustment on the solvency position was an increase in SCR coverage between 4% and 11%, with the impact varying by company.

Canada Life International Reinsurance is the only insurer using the transitional measure on interest rates. This has a significant impact on the solvency coverage ratio of this company (32%).

There are no life insurers in the Irish market using the matching adjustment. This is in contrast to the UK where there are a significant number of life insurers benefiting from the matching adjustment (which increases SCR coverage by around 60% to 70% on average in the UK). Take-up in Ireland may be lower for a number of reasons, including that the spread on European bonds is not as wide as the spread on UK bonds so the matching adjustment is not as attractive outside of the UK.

There are no Irish insurers using the technical provisions transitional. However, this transitional measure is very popular in the UK, in particular for companies writing annuity business. This may be because the risk margin is particularly high for annuity business and this transitional measure allows companies to make some allowance for the reserves under the old solvency regime (which didn't include the risk margin) when calculating their technical provisions.

Conclusion

Overall Irish life insurers were in a very strong position at year end 2016, with an average SCR coverage ratio of 184%, which is comparable with the EU average of 187%. Of the companies included in our analysis, there were no life insurers in Ireland with an SCR coverage ratio lower than 100%.

Underwriting and market risk are the largest risk exposures of Irish insurers, based on the split of the SCR components for standard formula companies. Across Europe, market risk is the largest exposure due to the investment guarantees associated with insurance with profit participation. The split of risk exposure across Europe is much more comparable to the Irish risk exposure if the LACTPs is netted off against market risk.

Own Funds of Irish insurers are predominately invested in Tier 1 unrestricted Own Funds (97%), which is the highest form of capital in terms of quality and loss absorbency as defined under Solvency II. This is higher than the European average of 88%, indicating that Irish life insurers have very high-quality capital. This may be in part due to the fact that a lot of Irish companies are fully owned subsidiaries rather than listed companies (which are more likely to have a mix of equity and debt). However, there may be scope for Irish life insurers to improve capital efficiency by restructuring their Own Funds to a hold a higher proportion of lower tiered capital.

Appendix 1: Irish Life Insurers Included in the Analysis

COMPANY	OWN FUNDS €M	SCR €M	SOLVENCY COVERAGE RATIO
ACORN LIFE	38.4	25.5	151%
AEGON IRELAND	239.0	189.0	127%
ALLIANZ GLOBAL LIFE	187.7	102.6	183%
AXA LIFE EUROPE	1,458.0	800.8	182%
AXA MPS FINANCIAL LIMITED	325.7	98.9	330%
AZ LIFE	191.6	86.7	221%
CACI LIFE	255.7	132.7	193%
CANADA LIFE ASSURANCE EUROPE LIMITED	467.2	290.3	161%
CATTOLICA LIFE	32.7	13.2	249%
CNP SANTANDER INSURANCE LIFE	204.8	103.5	198%
DARTA SAVING LIFE ASSURANCE	561.8	212.2	265%
FRIENDS FIRST LIFE ASSURANCE CO.	309.4	163.4	189%
FRIENDS FIRST MANAGED PENSION FUNDS	15.8	4.1	386%
GENERALI PANEUROPE LIMITED	270.9	118.9	228%
INTESA SAN PAOLO LIFE	911.8	250.0	365%
IRISH LIFE ASSURANCE PLC[14]	1,972.1	1,151.6	171%
LAGUNA LIFE	29.3	5.1	568%
MEDIOLANUM INTERNATIONAL LIFE	155.8	77.7	201%
METLIFE EUROPE LIMITED	1,343.4	780.9	172%
NEW IRELAND ASSURANCE COMPANY PLC	824.2	543.7	152%
PRUDENTIAL INTERNATIONAL ASSURANCE PLC	240.9	127.8	189%
SEB LIFE INTERNATIONAL ASSURANCE COMPANY LIMITED	160.5	94.0	171%
ST. JAMES' PLACE INTERNATIONAL	175.4	115.2	152%
STANDARD LIFE INTERNATIONAL	131.3	110.3	119%
ZURICH LIFE ASSURANCE PLC	898.0	629.5	143%

[14] Note that the Irish Life Assurance Plc SCR coverage ratio shown in the Appendix is the ratio reported in the company's public QRTs. This does not take into account the temporary increase in Own Funds over the reporting period in advance of a repayment of subordinated debt by the company in February 2017. In its SFCR, Irish Life disclosed an SCR coverage ratio of 154% after allowing for the repayment of this debt.

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In carrying out our analysis and producing this research report, we relied on the data and other provided in the SFCRs and public QRTs of our sample companies. We have not audited or verified this data and other information. If the underlying data or information is inaccurate or incomplete, the results of our analysis may likewise be inaccurate or incomplete. We have made minor adjustments to the data to correct known errors such as inconsistencies between QRTs in order to better inform our analysis, however we have not made any material changes to the underlying data. We have not made any changes to the data to reflect additional information or changes following the reporting date.

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