MILLIMAN RESEARCH REPORT

Analysis of insurers' Solvency and Financial Condition Reports

European health insurers

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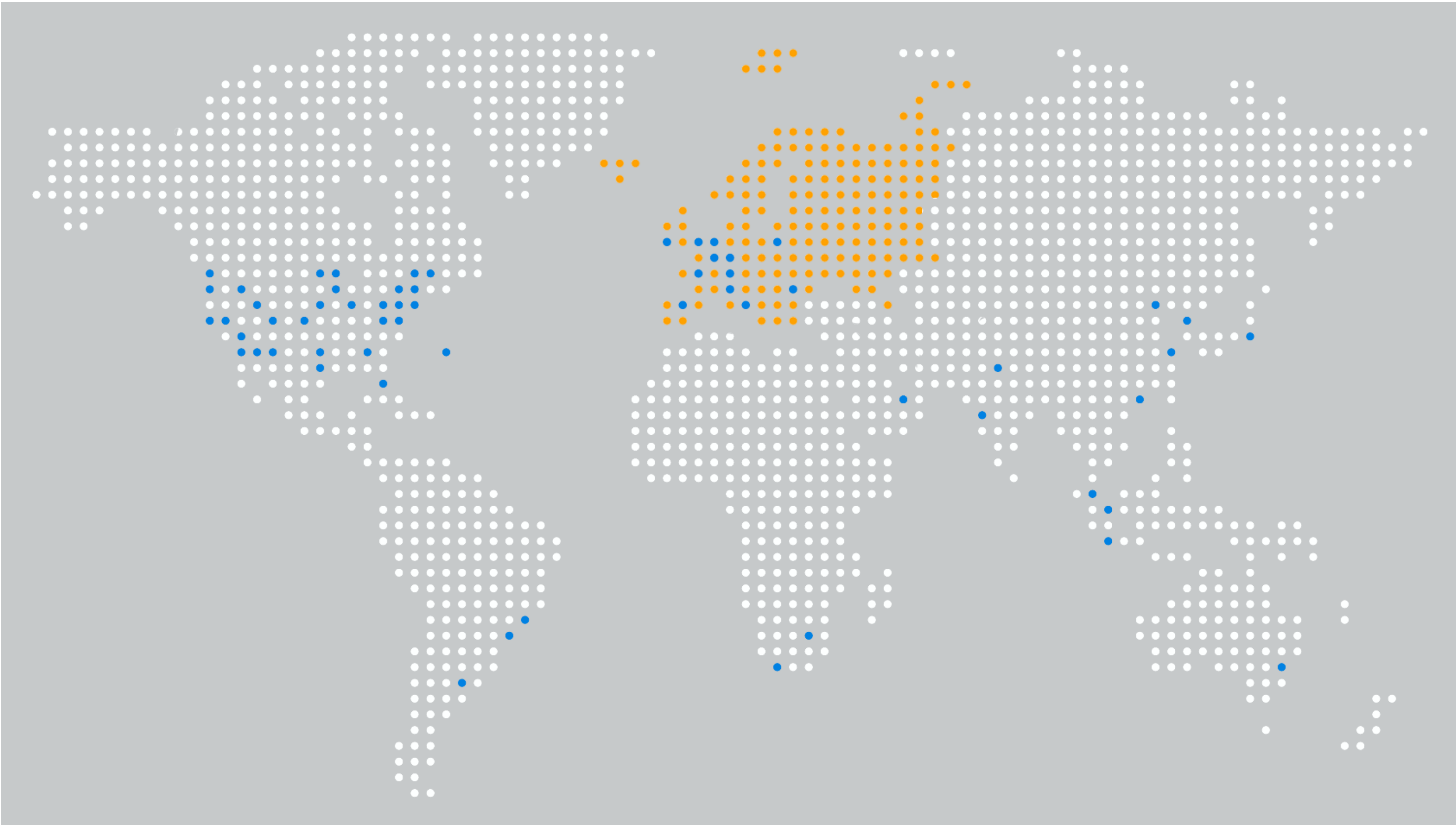

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1. Introduction

BACKGROUND

Under Solvency II, European insurers are required to publish their Solvency and Financial Condition Reports (SFCRs). For the majority of insurance companies with a year-end reporting date of 31 December, the most recent set of SFCRs was published in April 2019 (for solo entities) based on year-end 2018 balance sheets. This represents the third set of SFCRs published since Solvency II was introduced.

An SFCR contains a significant amount of information, including details of the company's performance over the reporting period, system of governance, risk profile, valuation basis and capital requirements. In addition, each SFCR includes a number of Quantitative Reporting Templates (QRTs) providing details of the company's financial position under Solvency II.

This analysis compares information provided in the QRTs and SFCRs and draws conclusions about the balance sheets and risk exposures of European health insurers, including comparisons with previous years.

HEALTHCARE SYSTEMS INCLUDED IN THIS ANALYSIS

Our focus is on health insurers writing business in the following countries:[1]

- France
- Ireland
- The Netherlands
- Spain
- United Kingdom

In addition, we have included European insurers selling International Private Medical Insurance (IPMI) products.

The size of the private health insurance market varies considerably by territory, primarily due to government policy in relation to public health coverage. In Appendix A, we describe the distinct healthcare system features of the included markets. The logic we apply to include markets and companies within our analysis is described in the section below.

In the case of IPMI, the market focuses on private health insurance for expatriates. IPMI coverage provides beneficiaries with private health insurance outside of their home countries and is designed to provide seamless access to comprehensive international healthcare services on a regional or global basis. IPMI policies are typically purchased by employers for employees with long-term travel requirements. The benefits under such policies are generally comprehensive in nature and are not tied to a specific country or healthcare system. The premiums are risk-rated, and a key difference in coverage is whether treatments in the United States (US) are included or excluded.

COMPANIES INCLUDED IN THIS ANALYSIS

For this analysis, we include insurers that primarily sell private medical insurance (PMI). The selection criteria are defined as follows:

- We include companies classified as 'non-life' or 'composite' insurers and exclude those classified as 'life' insurers. This ensures that we remove life insurers selling long-term health-related business.
- We exclude UK insurers primarily selling health cash plan products.
- We include solo companies and remove group entities to avoid double-counting of companies.
- To ensure that the figures we include in our analysis mostly relate to PMI business, we aim to include companies that have at least 90% of their gross written premium (GWP) listed as 'medical' line of business (LOB).[2] Hence, we have excluded insurers that sell high volumes in other lines of businesses such as motor insurance or property and casualty insurance (e.g., Aviva in the UK) because it is not possible to isolate the capital charges for PMI based on the information included in the QRTs.

[1] Italy was included in our analysis last year but has been excluded this year due to a lack of data (only one company was included in the 2017 report).

[2] Note that in some cases we have included companies with lower proportions of medical expense insurance—for example, where they are a material company in the market such as SegurCaixa Adeslas, S.A. de Seguros y Reaseguros in Spain.

In our analysis we have classified the following insurers as IPMI insurers due to the high volume of business in IPMI products: Aetna, Allianz Worldwide Partners Health & Life, Cigna Life Insurance S.A., Globality S.A. and OOM Global Care N.V..

Based on these selection criteria our analysis includes c. 70% of total 2018 GWP for medical expense insurance across Europe based on the countries included in the sample. The graph in Figure 1 shows the split by country.

FIGURE 1: PERCENTAGE OF INCLUDED MEDICAL EXPENSE GWP BY COUNTRY

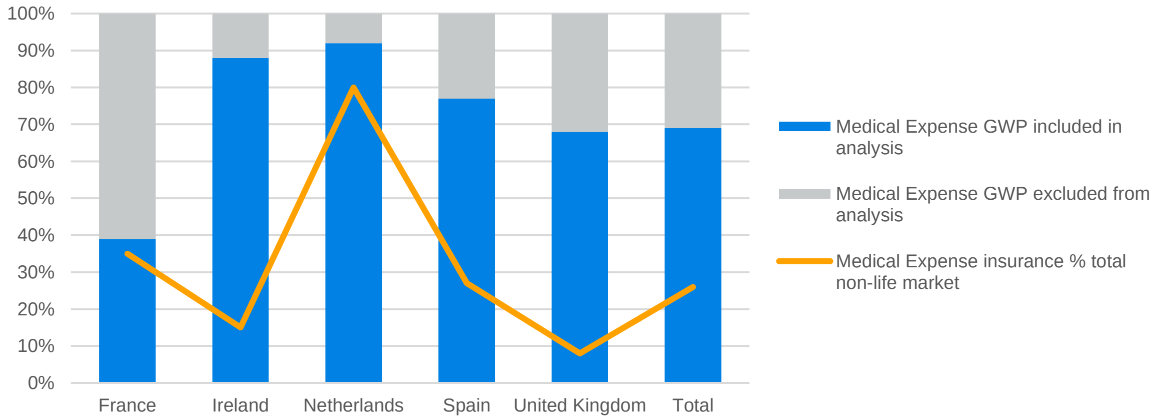


Figure 1 shows the included and excluded medical expense insurance GWP by country. The orange line shows the size of GWP for medical expense insurance relative to the total non-life market by country. Based on the countries included in the sample, medical expense insurance makes up c. 25% of the total GWP sold across Europe in 2018. The medical insurance market varies by country, with the Netherlands having the largest market due to the compulsory nature of private health insurance as part of the country's universal health insurance policy.

The total medical expense GWP included in Figure 1 represents all GWP sold from non-life insurers domiciled in each of the countries included in the sample. For example, in Ireland, it includes companies selling medical expense insurance on a cross-border bases to other European markets. We have only included companies selling medical expenses insurance in the domestic market in this report.[3]

UNDERLYING DATA

The analysis underlying this report focuses on the quantitative information contained in the public QRTs. The Solvency II Wire Tool,[4] which contains comprehensive information from the QRTs, is used to produce the results included in this report. We have only included companies available in the Solvency II Wire database in the analysis for 2018. In previous years we supplemented this with additional information in respect of some missing companies.

Where relevant, we study the SFCRs to gain some additional insights into certain companies, in particular if they display characteristics that differ from the market average.

In carrying out our analysis and producing this research report, we rely on the data and information provided in the SFCRs and QRTs of our sample companies, as obtained from the Solvency II Wire Tool. 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.

[3] In the case of Ireland, we have also included Elips Versicherungen AG in our analysis of Irish insurers elsewhere in this report, even though it is based in Liechtenstein. This is because the insurer operates primarily in the Irish health insurance market. This will not be captured in Figure 1.

[4] The Solvency II Wire Tool is available at https://solvencyiiwiredata.com. The extraction date of data was 1 November 2018.

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, where obvious errors were spotted in the underlying data, we made minor adjustments to the data and calculated certain parameters to make the information consistent across all the insurers. 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 readers should consult qualified professionals before taking specific actions.

Note that all the figures published in this report are converted into euros, by the Solvency II Wire Tool, using exchange rates as at each SFCR's report date.

2. Premiums, claims and expenses

This section focuses on premiums, claims and expenses of health insurers based on the information reported in the relevant section of the SFCR.[5]

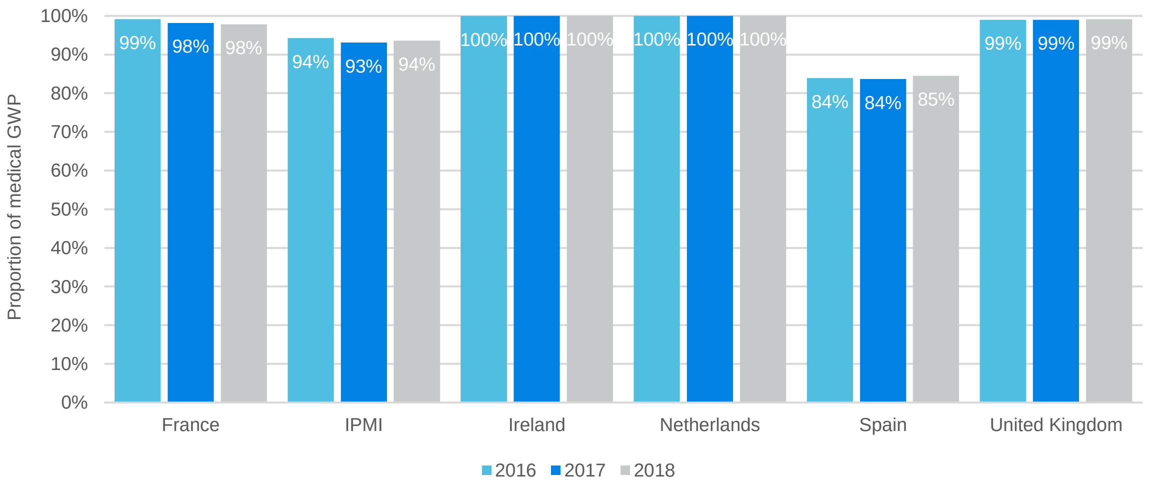
GROSS WRITTEN PREMIUM BY COUNTRY

The sample includes total PMI GWP of EUR 64.5 million for 2018, compared to EUR 61.4 million for 2017. The PMI GWP by country varies significantly depending on market size. For example, the PMI GWP for the Netherlands makes up more than 50% of the GWP in our sample, reflecting the compulsory PMI coverage in the Netherlands. Conversely, PMI GWP in the UK is relatively low, reflecting the public healthcare system in the UK, where PMI is generally only used to cover limited benefits and is only purchased by a relatively small proportion of the population.

Figure 2 shows medical GWP as a proportion of total GWP, split by country, for the companies included in our sample. It is not surprising that medical expense insurance makes up the bulk of GWP based on the selection criteria used to pick the sample companies. The large proportion of non-medical GWP for Spain is due to the inclusion of SegurCaixa Adeslas, S.A. de Seguros y Reaseguros, which has a significant proportion of GWP in non-medical lines of business.

The proportion of non-medical business relates mainly to income protection insurance, with a small proportion relating to assistance business (accident and travel insurance), general liability and property insurance.

FIGURE 2: PROPORTION OF MEDICAL GWP BY COUNTRY IN 2016, 2017 AND 2018



USE OF REINSURANCE

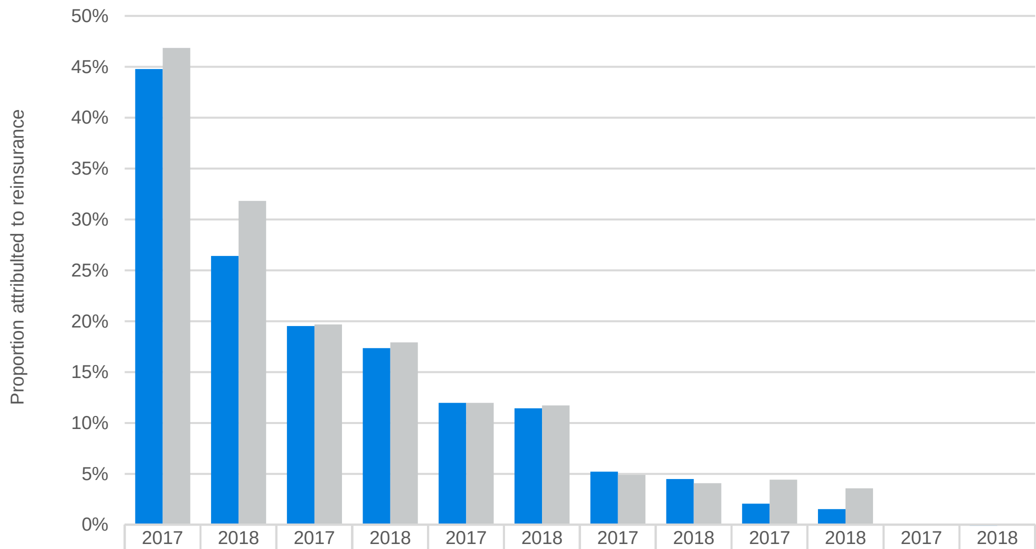
Reinsurance, whether measured by the proportion of premiums ceded or claims ceded, varies by country. We observe the following with regard to the usage of reinsurance:

- Irish and IPMI insurers are high users of reinsurance. For IPMI insurers, Cigna Life Insurance Company of Europe and Globality S.A. avail heavily of reinsurance.
- France and the UK make lower use of reinsurance. Within the UK, we observe that Vitality uses a high level of reinsurance.
- Other countries such as the Netherlands and Spain use little or no reinsurance to conduct their health business. In the Netherlands, the use of reinsurance is not prohibited, but the risk equalisation system compensates insurers for large claims, expensive drugs and members with chronic diseases, so there is less need for reinsurance as a form of risk mitigation.

Note that the reinsurance coverage in Figure 3 may include reinsurance to a subsidiary or to other organisations of a group, in addition to any reinsurance to external parties.

[5] QRT S.05.02.01 consists of the information on premiums, claims and expenses by line of business.

FIGURE 3: USE OF REINSURANCE (PREMIUMS AND CLAIMS) BY COUNTRY



	Ireland 2017	Ireland 2018	IPMI 2017	IPMI 2018	France 2017	France 2018	United Kingdom 2017	United Kingdom 2018	Spain 2017	Spain 2018	Netherlands 2017	Netherlands 2018
Reinsurance claims	45%	26%	20%	17%	12%	11%	5%	4%	2%	2%	0%	0%
Reinsurance premiums	47%	32%	20%	18%	12%	12%	5%	4%	4%	4%	0%	0%

In Ireland, there was a drop in reinsurance claims and premiums in 2018. This reflects the expiration of VHI Healthcare's reinsurance contract on 31 December 2017 as noted in the company's SFCR. In the other markets, reinsurance usage is broadly similar to 2017 levels.

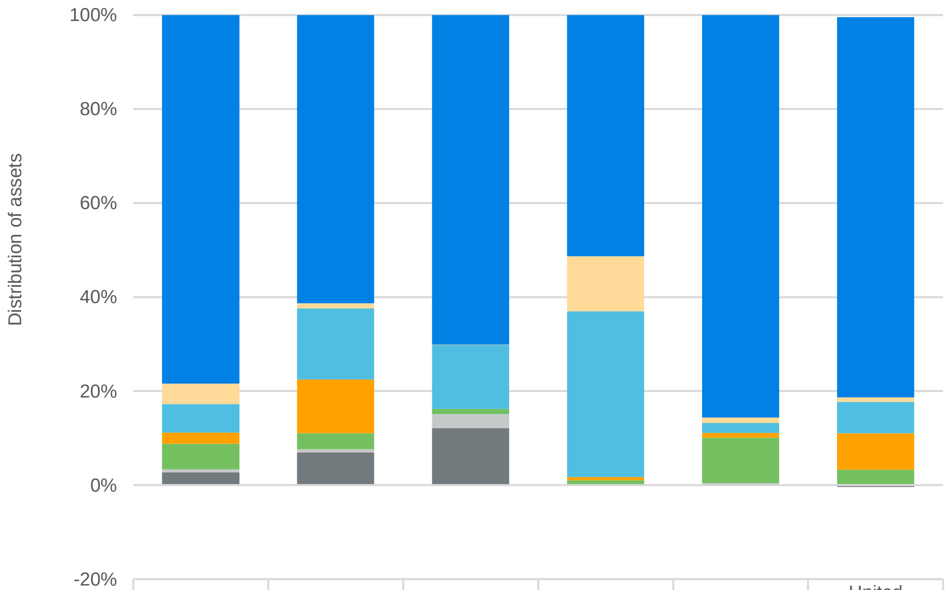
3. Assets and liabilities

This section focuses on the main types of assets and liabilities of health insurers reporting under Solvency II. Given the importance of investments and technical provisions within the balance sheet, both items are analysed in greater detail, yet a discussion of other smaller balance sheet items is also included, where relevant.

DISTRIBUTION OF ASSETS

Investments form the majority of total assets across all markets. Spain, France, the UK and Ireland have more than 70% of total assets in investments. Insurance and intermediary receivables appear to be the second-largest asset type across most of the markets, in the Netherlands specifically the high level of receivables reflects the receivables due from the Dutch risk equalisation system. The high proportion of reinsurance recoverables for Ireland and IPMI is expected, given the use of reinsurance in these countries. The distribution of assets is broadly unchanged compared to year-end 2017.

FIGURE 4: DISTRIBUTION OF ASSETS BY TYPE IN 2018



	France	IPMI	Ireland	Netherlands	Spain	United Kingdom
Investment	78%	61%	70%	51%	86%	82%
Receivables [trade not insurance]	4%	1%	0%	12%	1%	1%
Insurance and intermediary receivables	6%	15%	14%	35%	2%	7%
Loans and mortgages	2%	11%	0%	1%	1%	8%
Other asset types	5%	3%	1%	1%	10%	3%
Reinsurance receivables	1%	1%	3%	0%	0%	0%
Reinsurance recoverables	3%	7%	12%	0%	0%	0%

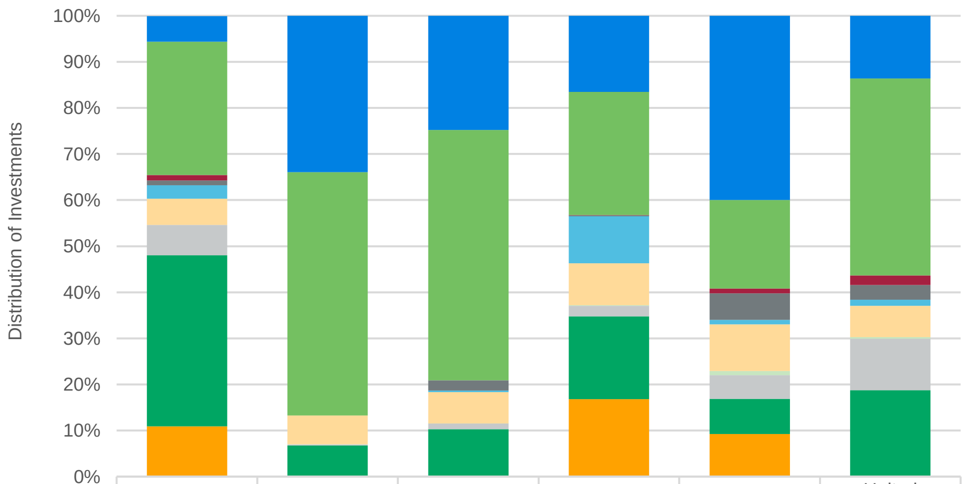
DISTRIBUTION OF INVESTMENTS

An analysis of the distribution of investment by asset classes reveals significant differences across the sample considered. Bonds (government and corporate bonds) make up the majority of the investment portfolio for most markets. The bond portfolio varies by country, with insurers in some countries, such as Spain, having a much larger proportion of government bond investment, and insurers in other countries, such as Ireland, investing more heavily in corporate bonds.

Both France and the Netherlands have higher proportions of assets invested in collective investments undertakings, holdings in related undertakings and equity. For the Netherlands in particular, the holdings in related undertakings is larger than other territories due to the fact that the Dutch insurance market consists of a number of groups of health insurers.

Overall, at a total level, the split of investments is broadly similar to last year; however, there have been some movements at a country level. For example, in Ireland, investment in corporate bonds and collective investment undertakings has increased at the expense of investment in government bonds and deposits. In the UK, investment in corporate bonds has also increased, while investment in collective vehicle undertakings and holdings in deposit accounts has decreased. In Spain, investment in government bonds has increased, resulting in a drop in investment in corporate bonds and holdings in deposit accounts. However, it is worth noting that the product mix varies considerably across the different markets due to the different structures of health insurers, including product offerings and lines of business, and therefore, asset liability matching techniques will vary across markets, reflecting the specific liabilities of the insurers in the sample.

FIGURE 5: DISTRIBUTION OF INVESTMENTS BY ASSET CLASS, YEAR-END 2018



	France	IPMI	Ireland	Netherlands	Spain	United Kingdom
Government bonds	6%	34%	25%	17%	40%	14%
Corporate bonds	29%	53%	54%	27%	19%	43%
Other bonds	1%	0%	0%	0%	1%	2%
Property	1%	0%	2%	0%	6%	3%
Equity	3%	0%	0%	10%	1%	1%
Cash and cash equivalents	6%	6%	7%	9%	10%	7%
Derivatives	0%	0%	0%	0%	1%	0%
Deposits other than cash equivalents	7%	0%	1%	2%	5%	11%
Collective investment undertakings	37%	7%	10%	18%	8%	19%
Holdings in related undertakings	11%	0%	0%	17%	9%	0%
Other investments	0%	0%	0%	0%	0%	0%

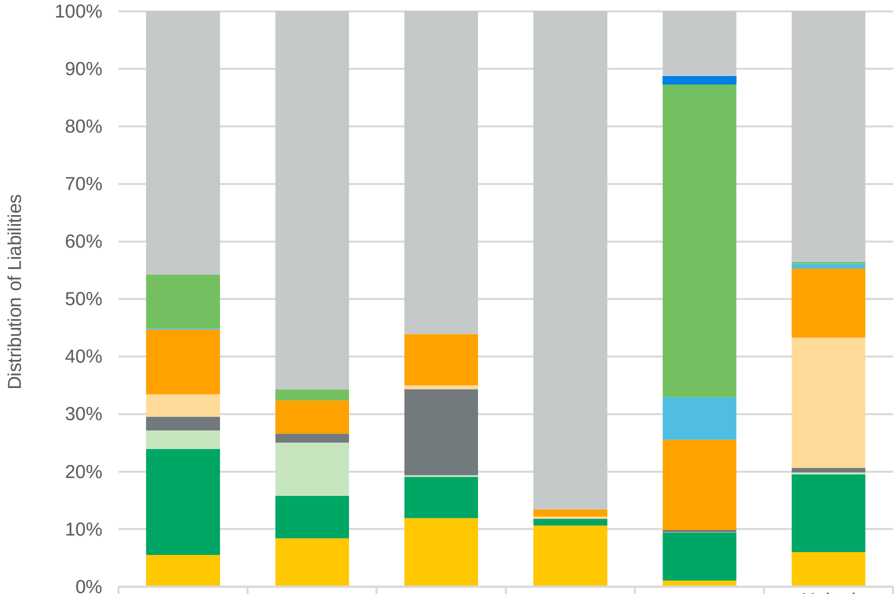
DISTRIBUTION OF LIABILITIES

Technical provisions make up the largest liability on health insurers' balance sheets, but their relative proportion varies considerably among the markets considered. As expected, medical expense is the dominant line of business in terms of technical provisions across the markets, apart from Spain. The Spanish technical provisions include a large portion of technical provisions for life insurance, as a number of the health insurers are composite insurers.

The Irish insurers have a significant proportion of technical provisions in reinsurance payables, non-life business and other liabilities. The IPMI insurers have a significant portion of creditors or total 'payables' (such as insurance and intermediaries payables or reinsurance deposits). This may be due to the business model of IPMI insurers, where policies are sometimes distributed or administered by third-party providers.

Overall, the split of liabilities has not changed significantly since year-end 2017.

FIGURE 6: DISTRIBUTION OF LIABILITIES BY COUNTRY, YEAR-END 2018



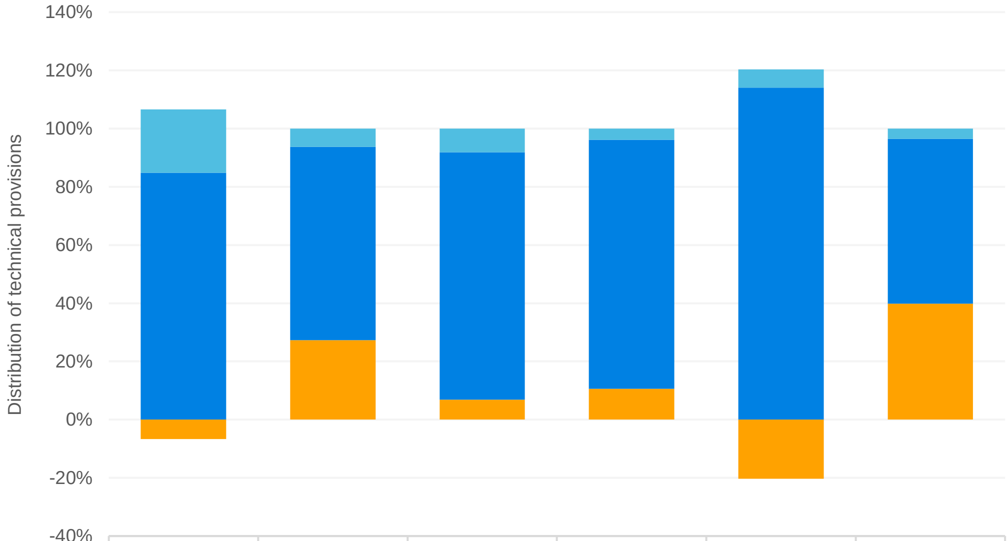
	France	IPMI	Ireland	Netherlands	Spain	United Kingdom
Technical provisions – health	46%	66%	56%	87%	11%	44%
Technical provisions – index & unit linked	0%	0%	0%	0%	1%	0%
Technical provisions – life	9%	2%	0%	0%	54%	0%
Technical provisions - Non Life (excl. health)	0%	0%	0%	0%	7%	1%
Other liabilities	11%	6%	9%	1%	16%	12%
Subordinated liabilities	4%	0%	1%	0%	0%	23%
Reinsurance payables	2%	2%	15%	0%	0%	1%
Deposits from reinsurers	3%	9%	0%	0%	0%	0%
Payables (trade, not insurance)	18%	7%	7%	1%	8%	14%
Insurance & intermediaries payables	6%	8%	12%	11%	1%	6%

TECHNICAL PROVISIONS: COMPOSITION

The split of technical provisions among premium provisions (PP), claims provisions (CP) and risk margin (RM) also varies across all markets included in the sample.

The claims provision is the largest component of the technical provisions for all groups, representing the liabilities associated with claims that have already occurred, whether reported or not reported.

FIGURE 7: BREAKDOWN OF TECHNICAL PROVISIONS BY COUNTRY, YEAR-END 2018



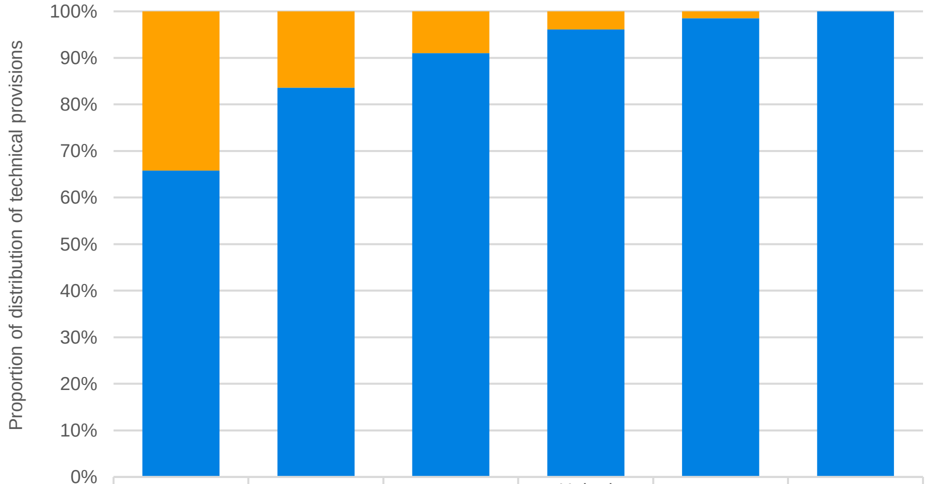
	France	IPMI	Ireland	Netherlands	Spain	United Kingdom
Risk margin	22%	6%	8%	4%	6%	4%
Claim provision	85%	66%	85%	86%	114%	57%
Premium provision	-7%	27%	7%	11%	-20%	40%

The split of technical provisions is broadly the same as last year. However, it is worth noting that the premium provision for the Spanish market has now become negative (i.e., it is an asset), whereas previously it was positive. The premium provision reflects amounts set aside to cover claims that have not yet occurred. It is common for premium provisions to be negative where future premiums are expected to be higher than the associated claims and expenses. By contrast, if an insurer has already received premiums in respect of future cover, the premium provision will typically be positive, reflecting the amounts that must be set aside to meet future claims and expenses, with no corresponding offset for future premiums. The change in the Spanish market reflects a change in the premium provision for SegurCaixa Adeslas, S.A. de Seguros y Reaseguros, which is a dominant company in the Spanish market.

TECHNICAL PROVISIONS: DIRECT AND CEDED BUSINESS

The split of technical provisions between direct and ceded technical provisions is consistent with the use of reinsurance seen elsewhere in this analysis. Irish, IPMI and French insurers are much more reliant on reinsurance than other insurers. Spain and the UK have little reliance on reinsurance, hence the technical provisions ceded to reinsurers is small. The Netherlands has no ceded technical provisions, which is in line with the ceded premium business.

FIGURE 8: DIRECT AND CEDED BUSINESS BY COUNTRY, YEAR-END 2018



	Ireland	IPMI	France	United Kingdom	Spain	Netherlands
Ceded technical provisions	34%	16%	9%	4%	1%	0%
Net technical provisions	66%	84%	91%	96%	99%	100%

4. Solvency Capital Requirement and own funds

This section of the paper focuses on the Solvency Capital Requirement (SCR) and own funds of health insurers, based on the information reported in the Own Funds QRT (S.23.01.01) and SCR QRTs (S.25.01, S.25.02 and S.25.03).

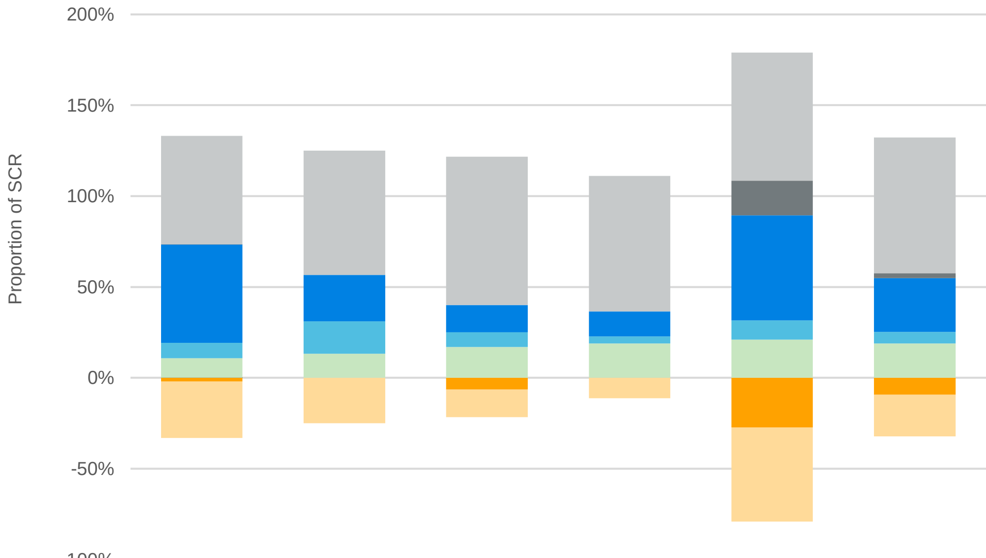
SOLVENCY CAPITAL REQUIREMENT

The SCR for health insurers primarily consists of the capital charge for health underwriting risk, with market risk, operational risk and counterparty default risk also making up large portions of the SCR.

In Figure 9, everything above the line represents a capital charge such as health underwriting risk, market risk or operational risk. Everything below the dashed blue line represents a reduction to the SCR, e.g., for diversification benefits or the loss-absorbing capacity of deferred tax. The loss-absorbing capacity of technical provisions is not relevant for health insurance and therefore has no impact on the SCR.

We observe that the breakdown of SCR by risk type is broadly consistent compared to year-end 2016 and 2017 for all six markets included in our sample. The observations for each of the risks are in the subsections below.

FIGURE 9: SCR BREAKDOWN BY COUNTRY AND RISK IN 2018



	France	IPMI	Ireland	Netherlands	Spain	United Kingdom
Health underwriting risk	60%	68%	82%	75%	71%	75%
Non Life underwriting risk	0%	0%	0%	0%	19%	3%
Market risk	54%	26%	15%	14%	58%	30%
Counterparty default risk	8%	18%	8%	4%	11%	6%
Operational risk	11%	13%	17%	19%	21%	19%
Intangible asset risk	0%	0%	0%	0%	0%	0%
Diversification	-31%	-25%	-15%	-11%	-52%	-23%
Loss absorbing - Deferred taxes	-2%	0%	-6%	0%	-27%	-9%

Health underwriting risk

Figure 9 above shows that health underwriting risk makes up a significant proportion of the SCR for all markets.

It is worth noting that health underwriting risk makes up a lower proportion of the SCR for Dutch health insurers than health insurers in Ireland, Spain or the UK. This may be due to a specific allowance in the calculation of premium and reserve risk for companies operating within health risk equalisation systems (HRES). The Solvency II text allows companies operating within HRES to reduce the standard deviation for premium risk and the standard deviation for reserve risk relative to the normal factors set out in the standard formula. This applies to Dutch insurers offering basic health insurance. It does not apply to supplementary health insurance. On average, it results in a reduction to the factor applied to premium risk, from 5.0% to 2.7%. It has been estimated that, in some cases, this can reduce the capital charge for premium risk for Dutch health insurers selling basic insurance by about 30% relative to the standard formula, with no HRES adjustment. However, the impact varies by company. It should be noted that HRES adjustment does not apply to Irish health insurance companies, as the Solvency II Directive states that, for this adjustment to apply, the health insurance within the HRES must be compulsory. In Ireland, take-up of private health insurance is voluntary.

There is no lapse risk capital charge for the Dutch health insurance, as lapse risk is not a feature of these insurance contracts. In Ireland, however, the lapse risk component of the health underwriting risk capital charge is particularly onerous due to the mechanics of the Irish risk equalisation system.

Non-life underwriting risk

The non-life underwriting risk is close to 0% for most of the markets because the health insurers have little exposure to general insurance business. However, for Spain, the high non-life underwriting risk is due to inclusion of SegurCaixa Adeslas, S.A. de Seguros y Reaseguros, which has a significant proportion of general insurance business.

Market risk

Market risk is another large risk for health insurers. It is a substantial proportion of total risk for all markets.

The French, UK and Dutch insurers have much higher portions invested in collective investment schemes and holdings in related undertakings, which may be the reason for the higher market risk in these countries. In 2018, over 20% of total investment for Spanish insurers was held in collective investment undertakings, property and holdings in related undertakings. These investments are less conservative in nature and could possibly explain the high market risk for Spanish health insurers. In the case of the UK, apart from large proportions of investment in bonds, the insurers have significant proportions of investment in collective investment undertakings (close to 20% of total investment in 2018). This could potentially be a reason for high market risk for UK insurers.

The analysis of investments shows that IPMI insurers are generally investing more conservatively than domestic health insurers in Europe, with the majority of their investments in bonds and cash. Therefore, it is unusual for this group to have such a high proportion of market risk, but this is likely due to currency risk. The IPMI insurers cover lives across various markets such as the Eurozone, UK, Switzerland, Singapore, United Arab Emirates, Thailand and Hong Kong, amongst others, and their liabilities are generally denominated in many different currencies. While matching assets and liabilities by currency can be used to reduce currency risk, in reality it is not always possible to match the assets and liabilities exactly by currency, and some residual risk may remain on the balance sheet.

The Irish insurers have a larger portion of assets invested in government bonds and corporate bonds. Government bonds do not give rise to large capital charges under the standard formula. This may be the reason why market risk is a lower portion of the overall risk for Irish insurers.

Counterparty default risk

Counterparty default risk is associated with multiple types of contracts such as reinsurance arrangements, securitisations and derivatives, receivables from intermediaries, policyholder debtors, cash at bank, deposits with ceding institutions, capital, initial funds and letters of credit.

For Ireland and IPMI, there is counterparty default risk because of high usage of reinsurance. In the case of Spain, the default risk is due to the high value of counterparty default risk for the general insurance company, SegurCaixa Adeslas, S.A. de Seguros y Reaseguros. Similarly, for the UK, the counterparty default risk is high for the largest health insurer, Bupa Insurance Limited.

Operational risk

For most markets, operational risk forms a significant proportion of total SCR. For standard formula companies, this is calculated in a formulaic approach and so may not represent the actual underlying operational risk of the companies. The proportion of operational risk SCR is relatively unchanged at a total level compared to last year.

Diversification and loss-absorbing capacity of deferred tax (LACDT)

Diversification and LACDT are broadly consistent with previous years and vary depending on the market. Diversification varies with overall risk exposures. Companies with more diversified risk exposures will gain from higher diversification benefits. LACDT varies depending on a number of factors, including the tax treatment of health insurers in each market.

SOLVENCY CAPITAL REQUIREMENT: INTERNAL MODEL

The majority of the health insurers included in our analysis use the standard formula to calculate the SCR. A small number of companies in our sample use partial or full internal models. The list of companies using internal models is provided in Figure 10.

FIGURE 10: COMPANIES IN SAMPLE WITH AN INTERNAL CAPITAL MODEL

COUNTRY	COMPANY	CAPITAL MODEL	SOLVENCY COVERAGE RATIO (2018)
IPMI	Cigna Life Insurance Company of Europe	Partial Internal Model	180%
United Kingdom	AXA PPP Healthcare Limited	Full Internal Model	150%

SOLVENCY COVERAGE RATIO AND MINIMUM COVERAGE RATIO

The average coverage ratio for each health insurance country is given in the table in Figure 11. The solvency coverage ratio is calculated using the total sum of own eligible funds required to cover SCR divided by the total SCR. Similarly, the minimum coverage ratio is calculated using the total sum of own eligible funds required to cover MCR divided by the total MCR.

The weighted average solvency coverage ratio for all health insurers included in our sample was 197% at year-end 2018. The solvency coverage ratio has fallen in a number of markets, including France, IPMI and Ireland. The weighted average solvency coverage ratio for health insurers is relatively comparable to the weighted average solvency coverage ratio for non-life insurers of 258% for year-end 2018.[6]

FIGURE 11: SOLVENCY COVERAGE RATIO AND MINIMUM COVERAGE RATIO*

COUNTRY	SOLVENCY COVERAGE RATIO (2017)	SOLVENCY COVERAGE RATIO (2018)	MINIMUM COVERAGE RATIO (2017)	MINIMUM COVERAGE RATIO (2018)
France	367%	274%	787%	1015%
IPMI	162%	155%	564%	541%
Ireland	236%	209%	945%	776%
Netherlands[7]	152%	153%	392%	390%
Spain	189%	192%	492%	499%
United Kingdom	172%	174%	409%	432%
Average across all	252%	197%	605%	570%

* We excluded the following French insurer because the data shows 0% solvency coverage ratio for this insurer: Harmonie Mutuelle.

[6] Newton, D., Smillie, M., & Thery, F. (November 2019). Analysis of Non-Life Insurers' Solvency and Financial Condition Reports: Year-End 2018. Milliman Research Report. Retrieved 3 March 2020 from http://assets.milliman.com/ektron/Analysis_of_non-life_insurers_Solvency_and_Financial_Condition_Reports_20191202.pdf.

[7] Note that, for the Dutch health insurers, the average SCR calculated in this report has historically been different from figures quoted by the Dutch regulator. This seems to be because our analysis aggregates figures published by solo entities, whereas the figures by the Dutch regulator are based on consolidated group figures. The reason for this difference seems to be the leveraging effect of intragroup transactions on a consolidated basis. At a solo level, these transactions can be taken into account when calculating the own funds of a solo entity, but when the transactions are consolidated at a group level, they are netted off against one another. This means that the sum of own funds for the solo entities within a group is often higher than the consolidated group own funds, resulting in a higher solvency coverage ratio. This is something that affects all European insurance groups across all territories, but the impact is particularly material in the Dutch health insurance market due to the prevalence of a number of large Dutch groups focusing primarily on that market.

Overall, the solvency coverage ratios for the health insurers included in our analysis are very healthy, with the averages significantly in excess of the required solvency coverage ratio of 100%. We draw the following broad conclusions:

- Insurers in France have higher solvency coverage ratios as compared to other countries.
- IPMI insurers have low solvency coverage ratios as compared to other markets. Out of the IPMI insurers, Allianz has historically held a solvency coverage ratio below 150%, and this remained the case at year-end 2018.
- Similar conclusions can be drawn for minimum coverage ratios of each group.

DISTRIBUTION OF SOLVENCY COVERAGE RATIO

We analysed the distribution of solvency coverage ratios to understand the different boundaries of solvency coverage ratios such as minimum, maximum and median values.

Figure 12 shows the distribution of the solvency coverage ratios in 2018 by country.

We draw the following conclusions from Figure 12:

- Ireland, IPMI, the Netherlands and Spain have a narrow distribution of solvency coverage ratios.
- The remaining two markets, France and the UK, have a wider distribution of solvency coverage ratios.

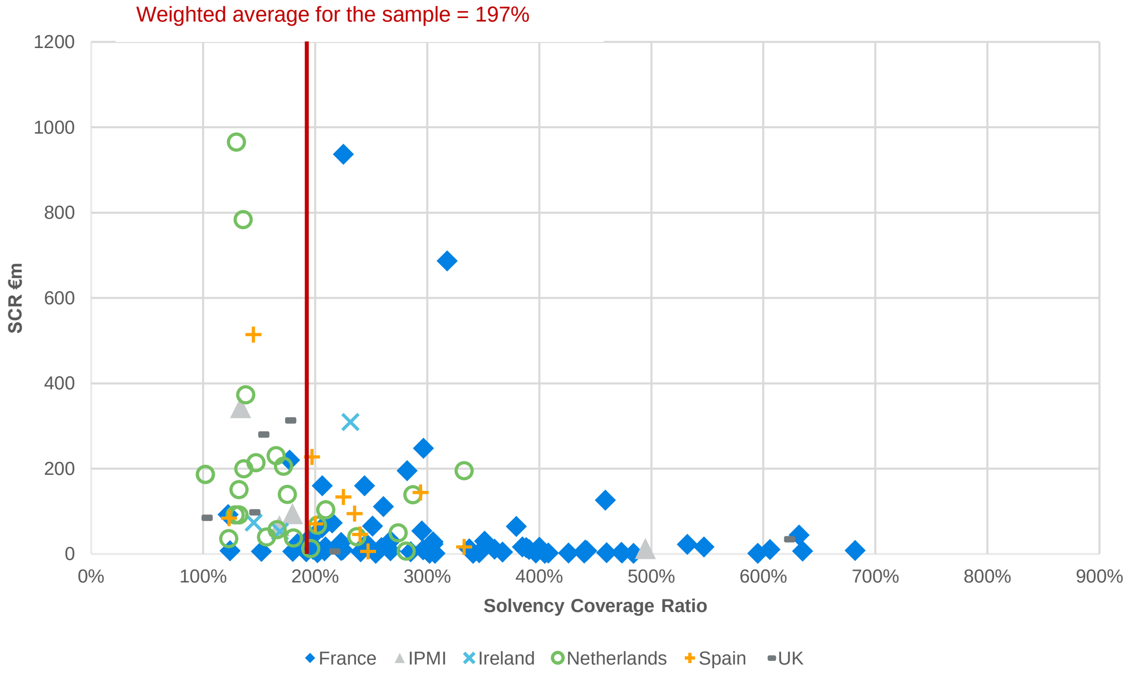
FIGURE 12: DISTRIBUTION OF SOLVENCY COVERAGE RATIO BY COUNTRY IN 2018 (MIN, Q1, MEDIAN, Q3, MAX AND WEIGHTED AVERAGE SOLVENCY RATIO)*

* We excluded the following French insurer because the data shows 0% solvency coverage ratio for this insurer: Harmonie Mutuelle.

SOLVENCY COVERAGE RATIO BY COMPANY

The scatter plot in Figure 13 shows the solvency coverage ratios of each company included in our analysis, plotted relative to the size of the company's SCR. The solvency coverage ratio range is quite wide, with the majority of companies in the analysis having a solvency coverage ratio between 150% and 450%. We also observe that the majority of insurers have an SCR of less than EUR 200 million.

FIGURE 13: SOLVENCY COVERAGE RATIO BY COMPANY IN 2018[8]



OWN FUNDS BY TIER AND COUNTRY

Own funds consist of the capital items backing a company's SCR and Minimum Capital Requirement (MCR). They include equity, debt and other items such as retained earnings and the present value of future profits (both included within the reconciliation reserve).

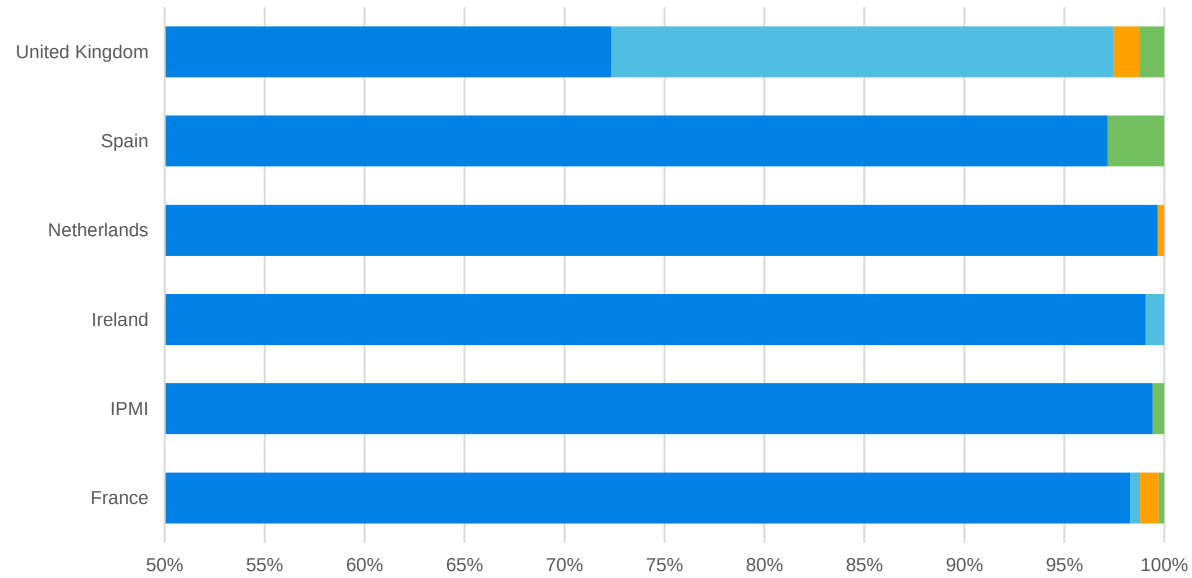
Under Solvency II, own funds are tiered based on their quality and availability to absorb losses. Tier 1 capital is the highest ranking, with the greatest loss-absorbing capacity, such as equity and heavily subordinated debt. It is further subdivided into restricted and unrestricted tier 1 capital. While equity, retained earnings and future profits are fully loss-absorbing without restriction, any subordinated debt that meets the criteria for inclusion in tier 1 capital would be classified as restricted tier 1. Tier 2 own funds are composed of hybrid debt and tier 3 can consist of less subordinated debt as well as deferred tax assets.

[8] We excluded the following insurer from the above analysis due to an outlier SCR of higher than EUR 1,200 million: Zilveren Kruis Zorgverzekeringen N.V. of the Netherlands. We excluded the following French insurer as its SCR values were unavailable: Harmonie Fonction Publique.

Note that for one UK insurer, Exeter Friendly Society, the insurer has two separate ring-fenced funds: one for long-term business and one for short-term general business. In accordance with the Solvency II regulations, each sub-fund is treated as ring-fenced from a capital point of view, and a surplus from one fund cannot be added to another. Ring-fenced fund restrictions mean that own funds at an overall society level are restricted to the total SCR across both funds, giving rise to the results above showing zero excess own funds. Therefore, the reported solvency coverage ratio is shown as 100% in 2018 in Figure 13.

Figure 14 shows the own funds of the health insurers included in our sample, split by country. Note that the tiering is done on the basis of eligible own funds.

FIGURE 14: TIERING OF SCR-ELIGIBLE OWN FUNDS BY COUNTRY IN 2018



	France	IPMI	Ireland	Netherlands	Spain	United Kingdom
Tier 1 unrestricted	98.3%	99.4%	99.1%	99.7%	97.2%	72.3%
Tier 1 restricted	0.5%	0.0%	0.9%	0.0%	0.0%	25.1%
Tier 2	0.9%	0.0%	0.0%	0.3%	0.0%	1.3%
Tier 3	0.3%	0.6%	0.0%	0.0%	2.8%	1.2%

Figure 14 shows that the majority of health insurers are backing their SCRs with capital of the highest quality—unrestricted tier 1 basis own funds.

For Spain, SegurCaixa Adeslas, S.A. de Seguros y Reaseguros has 19% of own funds invested in tier 3 (relating to the deferred tax asset). Because of its large size, that results in overall tier 3 own funds of 2.8% for Spanish entities at year-end 2018.

The UK has the highest portion of lower-quality own funds. The restricted tier 1, tier 2 and tier 3 own funds represent subordinated liabilities held by Bupa and Vitality Health.

Conclusion

As in previous years, the Netherlands has the largest proportion of medical expense insurance in Europe,[9] due to the compulsory nature of medical insurance within the Dutch healthcare system.

Health insurers' assets are predominantly made up of financial investments, which constitute 69% of assets in 2018. Within investments, the three major components of assets in Europe are the following: corporate bonds (29% of investments in 2018), collective investment undertakings (22% of investments in 2018) and government bonds (18% of investments in 2018).

Not surprisingly, the liabilities of Europe health insurers consist primarily of technical provisions for health insurance business. The distribution of assets and liabilities has remained stable relative to last year.

The claims provision is a major component of the technical provisions for European insurers, remaining constant at c. 86% for 2017 and 2018. The allocation of technical provisions in direct and ceded business is in line with the reinsurance usage of the markets included in this report, with Irish and IPMI insurers relying more heavily on reinsurance than other European insurers.

Health underwriting risks (70% of total SCR in 2018) and market risks (23% of total SCR in 2018) are the largest risk exposures of health insurers, based on the split of the SCR components. However, there are some differences in the risk exposure across the various markets, generally depending on the nuances of the healthcare systems in which the insurers operate. Operational risks and counterparty default risks are also significant risk exposures for the health insurers. Diversification forms a significant negative exposure to risk for the health insurers.

Overall, the European health insurers included in the sample were still in a very strong position at year-end 2018, with an average SCR coverage ratio of 197%. Of the companies included in our analysis, the majority had an SCR coverage ratio of more than 150% at year-end 2018.

Own funds of European health insurers are predominantly invested in tier 1 unrestricted own funds (97% of own funds in 2018), which is the highest form of capital in terms of quality and loss absorbency as defined under Solvency II. This is consistent with the investment proportions in 2017.

[9] Here Europe refers to the health insurance market for the selected insurers in this report.

Appendix A: Health systems by country*

FIGURE 15: HEALTH SYSTEMS BY COUNTRY

COUNTRY	HEALTHCARE FUNDING MECHANISMS	PRICING AND RATING METHODS FOR PMI	PMI POLICY TYPE AND PURPOSE OF PMI	TYPICAL BENEFIT COVERAGE IN PMI
France	Primary funding system is SHI. Other dominant systems are PMI and OOP.	Premiums are risk-rated.	PMI undertaking is sometimes compulsory through the employer. However, it is voluntary for individual policies. Purpose of PMI is supplementary.	Comprehensive coverage for most services, including long-term care. Coverage for chronic conditions is excluded.
Ireland	Primary funding system is tax-based and/or NHI. Other dominant systems are PMI and OOP.	Premiums are mostly community-rated, but there is some capacity for age band adjustments. There is a risk equalisation system in place with open enrolment.	PMI undertaking is voluntary and individual-based. Purpose of PMI is complementary, duplicative and supplementary.	Fairly comprehensive benefits. Provision of primary care and emergency services varies by product. Generally, coverage for prescriptions, dental and optical services is excluded.
Spain	Primary funding system is tax-based and/or NHI. Other dominant systems are PMI and OOP.	Premiums are risk-rated	PMI undertaking is voluntary and individual-based. Purpose of PMI is duplicative and supplementary.	Fairly comprehensive coverage. Coverage for preexisting chronic conditions, prescriptions and optical is excluded. Dental cover is optional.
The Netherlands: Basic health insurers	Primary funding system is PMI (50% funded by tax and 50% via premiums). Other dominant system is OOP.	Premiums are community-rated. There is a risk equalisation system in place with open enrolment.	PMI undertaking is compulsory for individuals and PMI is the primary source of health insurance.	Comprehensive benefit coverage.
The Netherlands: Supplementary health insurers	Primary funding system is PMI. Other dominant system is OOP.	Premiums are risk-rated with open enrolment.	PMI undertaking is voluntary and individual-based. Purpose of PMI is both complementary and supplementary.	Covers services such as dental, physiotherapy, optical, contraceptives and medicine copayments to supplement the services available through the basic system.
United Kingdom	Primary funding system is tax-based and/or NHI. Other dominant systems are PMI and OOP.	Premiums are risk-rated.	PMI undertaking is voluntary. Policies can be employer-sponsored or individual but are mostly employer-sponsored. Purpose of PMI is duplicative and supplementary.	Mostly covers inpatient elective and outpatient diagnostic services. Coverage for emergency services, chronic conditions and maternity services is excluded and primary care coverage is limited.

*** Descriptions of health system indicators**

Healthcare funding systems

- Tax-based/NHI: Tax-based/national health insurance
- PMI: Private medical insurance
- SHI: Social health insurance
- OOP: Out-of-pocket expenditure

Pricing and rating methods for PMI

- Risk-rated: Insurers able to differentiate premiums based on policyholders' risk profiles
- Community-rated: Insurers obliged to charge single premium rate to all policyholders—no differentiation by risk profile
- Risk equalisation: Insurers with higher-/lower-risk members receive/contribute funds to equalise risk amongst insurers
- Open enrolment: Insurers obliged to accept every member who wishes to enrol as a policyholder

Purpose of PMI

- Duplicative: Services available in PMI system are also in public sector
- Supplementary: PMI covers gaps in payment or access to services from public sector
- Complementary: PMI covers gaps in services from public sector
- Substitutive: PMI used when policyholders opt out of SHI or other schemes
- Primary source: PMI is primary source of funding for healthcare service provision

Description of benefits

- This gives an indication of the richness of benefits provided in PMI. We considered whether primary care, emergency, maternity, chronic condition, outpatient, inpatient elective, prescription, dental, optical and long-term care services are provided in each system.

Appendix B: List of selected companies in 2018 and corresponding solvency coverage ratio

Note that certain companies do not have a populated model type or solvency coverage ratio.

FIGURE 16: SELECTED COMPANIES AND SOLVENCY COVERAGE RATIO IN 2018

COUNTRY	COMPANY NAME	CAPITAL MODEL TYPE	SOLVENCY COVERAGE RATIO (2018)
France	Adrea Mutuelle	Standard Formula	282%
France	Apivia Mutuelle	Standard Formula	251%
France	Apréva mutuelle	Standard Formula	261%
France	AUBEANE Mutuelle de France	Standard Formula	474%
France	BPCE Mutuelle	Standard Formula	532%
France	CAISSE NATIONALE MUTUALISTE PREVOYANCE SANTE	Standard Formula	682%
France	CCMO Mutuelle	Standard Formula	184%
France	Centre Mutualiste Interprofessionnel (C.M.I.P.)	Standard Formula	267%
France	CHORALIS Mutuelle Le Libre Choix	Standard Formula	223%
France	EMOA Mutuelle du Var	Standard Formula	360%
France	ENTRENOUS	Standard Formula	203%
France	Eovi-mcd	Standard Formula	297%
France	Grand Est Mutuelle dite Radiance Groupe Humanis Grand Est	Standard Formula	305%
France	GROUPE DES MUTUELLES INDEPENDANTES	Standard Formula	341%
France	Harmonie Fonction Publique	Standard Formula	0%
France	Harmonie Mutuelle	Standard Formula	318%
France	Identites Mutuelle	Standard Formula	223%
France	La Prévoyance	Standard Formula	595%
France	M COMME MUTUELLE	Standard Formula	194%
France	Macif Mutualité	Standard Formula	177%
France	MGCorse	Standard Formula	198%
France	MGEFI	Standard Formula	215%
France	Miag	Standard Formula	405%
France	MILTIS	Standard Formula	208%
France	MTRL UNE MUTUELLE POUR TOUS	Standard Formula	635%
France	MUTAERO	Standard Formula	180%
France	Mutame Normandie	Standard Formula	442%
France	Mutami	Standard Formula	225%
France	Mutlor	Standard Formula	408%
France	Mutualp	Standard Formula	302%
France	Mutuelle 403	Standard Formula	388%
France	Mutuelle Bleue	Standard Formula	206%
France	Mutuelle Complémentaire d'Alsace (MCA)	Standard Formula	209%
France	Mutuelle Complémentaire VILLE PARIS	Standard Formula	400%
France	Mutuelle de l’Industrie du Pétrole	Standard Formula	632%
France	Mutuelle de l’Oise des Agents Territoriaux	Standard Formula	202%
France	Mutuelle des Chambres de Commerce et d'Industrie (MCCI)	Standard Formula	152%
France	Mutuelle des Sapeurs-Pompiers de Paris	Standard Formula	346%
France	Mutuelle du personnel IBM	Standard Formula	259%

COUNTRY	COMPANY NAME	CAPITAL MODEL TYPE	SOLVENCY COVERAGE RATIO (2018)
France	Mutuelle Familiale de la Corse	Standard Formula	198%
France	Mutuelle Familiale de l'Ile de France - (MFIF)	Standard Formula	307%
France	Mutuelle Générale des Cheminots	Standard Formula	351%
France	Mutuelle Générale des Etudiants de l’Est	Standard Formula	460%
France	Mutuelle Humanis Nationale	Standard Formula	196%
France	MUTUELLE INTERPROFESSIONELLE SMI	Standard Formula	295%
France	Mutuelle MGEN	Standard Formula	225%
France	Mutuelle MGEN Filia	Standard Formula	285%
France	Mutuelle Mieux-Etre	Standard Formula	337%
France	Mutuelle MOS	Standard Formula	397%
France	Mutuelle Nationale des Fonctionnaires des Collectivités Territoriales (MNFCT)	Standard Formula	124%
France	Mutuelle Nationale des Hospitaliers et des professionnels de la santé et du social (MNH)	Standard Formula	206%
France	Mutuelle Nationale des Personnels D'air France (MNPAF)	Standard Formula	305%
France	Mutuelle Nationale du Personnel des Etablissements Michelin	Standard Formula	606%
France	Mutuelle PREVIFRANCE	Standard Formula	379%
France	Mutuelle Renault	Standard Formula	385%
France	Mutuelle Saint-Martin	Standard Formula	391%
France	Mutuelle Santé Eiffage Energie (MSEE)	Standard Formula	440%
France	Mutuelle SMH	Standard Formula	240%
France	Mutuelle Solimut Centre Ocean	Standard Formula	192%
France	Mutuelle Uneo	Standard Formula	244%
France	Mutuelle Victor Hugo	Standard Formula	473%
France	Mutuelles du Pays-Haut	Standard Formula	426%
France	MUTUELLES DU SOLEIL	Standard Formula	246%
France	RCBF	Standard Formula	441%
France	So’Lyon Mutuelle	Standard Formula	367%
France	Solimut Mutuelle de France	Standard Formula	122%
France	Unimutuelles	Standard Formula	254%
France	Union des Travailleurs (UDT)	Standard Formula	484%
France	ViaSanté Mutuelle	Standard Formula	459%
France	Avenir Mutuelle	Standard Formula	547%
France	La Mutuelle Familiale	Standard Formula	267%
France	Mutuelle d'enterprises Schneider Electric	Standard Formula	296%
IPMI	Aetna Insurance Company Limited	Standard Formula	168%
IPMI	Allianz Worldwide Partners Health & Life	Standard Formula	133%
IPMI	Cigna Life Insurance Company of Europe	Partial Internal Model	180%
IPMI	OOM Global Care N.V.	Standard Formula	495%
Ireland	Elips Versicherungen AG	Standard Formula	145%
Ireland	Irish Life Health Designated Activity Company	Standard Formula	168%
Ireland	Vhi Insurance DAC	Standard Formula	232%
Netherlands	ASR Aanvullende Ziektekostenverzekeringen N.V.	Standard Formula	196%
Netherlands	ASR Basis Ziektekostenverzekeringen N.V.	Standard Formula	129%
Netherlands	Avéro Achmea Zorgverzekeringen N.V.	Standard Formula	175%

COUNTRY	COMPANY NAME	CAPITAL MODEL TYPE	SOLVENCY COVERAGE RATIO (2018)
Netherlands	De Friesland Zorgverzekeraar N.V.	Standard Formula	147%
Netherlands	Delta Lloyd Zorgverzekering N.V.	Standard Formula	287%
Netherlands	DSW Ziektekostenverzekeringen N.V.	Standard Formula	237%
Netherlands	Eno Aanvullende Verzekeringen N.V.	Standard Formula	281%
Netherlands	Eno Zorgverzekeraar N.V.	Standard Formula	166%
Netherlands	FBTO Zorgverzekeringen N.V.	Standard Formula	132%
Netherlands	Interpolis Zorgverzekeringen N.V.	Standard Formula	202%
Netherlands	IZA Zorgverzekeraar N.V.	Standard Formula	172%
Netherlands	Menzis N.V.	Standard Formula	209%
Netherlands	Menzis Zorgverzekeraar N.V.	Standard Formula	136%
Netherlands	N.V. Zorgverzekeraar UMC	Standard Formula	156%
Netherlands	O.W.M. Zorgverz. Zorg en Zekerheid UA	Standard Formula	165%
Netherlands	OHRA Ziektekostenverzekeringen N.V.	Standard Formula	102%
Netherlands	OHRA Zorgverzekeringen N.V.	Standard Formula	274%
Netherlands	ONVZ Aanvullende Verzekering N.V.	Standard Formula	181%
Netherlands	ONVZ Ziektekostenverzekeraar N.V.	Standard Formula	132%
Netherlands	OWM CZ groep Aanvullende verzekering Zorgverzekeraar U.A.	Standard Formula	333%
Netherlands	OWM DSW Zorgverzekeraar U.A.	Standard Formula	136%
Netherlands	Stad Holland Zorgverzekeraar Onderlinge Waarborgmaatschappij U.A.	Standard Formula	123%
Netherlands	Univé Zorg, N.V.	Standard Formula	138%
Netherlands	VGZ Zorgverzekeraar N.V.	Standard Formula	130%
Netherlands	Zilveren Kruis Zorgverzekeringen N.V.	Standard Formula	138%
Spain	Aegon España S.A.U. de Seguros y Reaseguros	Standard Formula	123%
Spain	Agrupació AMCI Seguros y Reaseguros, S.A.	Standard Formula	235%
Spain	ASISA, Asistencia Sanitaria Interprovincial de Seguros S.A.U.	Standard Formula	197%
Spain	Asistencia Sanitaria Colegial SA de Seguros	Standard Formula	240%
Spain	DVK Seguros y Reaseguros S.A.E.	Standard Formula	225%
Spain	Hermandad Nacional de Arquitectos Superiores y Químicos, Mutualidad de Previsión Social	Standard Formula	200%
Spain	Igualatorio Médico Quirúrgico y de Especialidades de Navarra, S.A.	Standard Formula	247%
Spain	Mutua General de Cataluña,	Standard Formula	333%
Spain	Sanitas Sociedad Anónima de Seguros	Standard Formula	294%
Spain	SegurCaixa Adeslas, S.A. de Seguros y Reaseguros	Standard Formula	145%
United Kingdom	AXA PPP Healthcare Limited	Full Internal Model	150%
United Kingdom	Bupa Insurance Limited	Standard Formula	175%
United Kingdom	Civil Service Healthcare Society Limited	Standard Formula	214%
United Kingdom	Exeter Friendly Society Limited (solo)	Standard Formula	100%
United Kingdom	Vitality Health Limited	Standard Formula	142%
United Kingdom	Western Provident Association Limited	Standard Formula	620%

Appendix C: List of exceptions in company selection process

Using our market knowledge and judgement, we make the following exceptions to the logic that we apply in our category and company selection.

Ireland

- We classify the health insurer Elips Versicherungen AG, which is based in Liechtenstein, as an Irish insurer because the insurer operates primarily in the Irish health insurance market.

The Netherlands

- We exclude the insurer Achmea Zorgverzekeringen N.V. (Consolidated) because it is a group entity and our analysis focuses only on sole entities. In addition, we exclude the sole entity Achmea Zorgverzekeringen NV because the entities within this insurer are explicitly included in the analysis except for supplementary business that was transferred to Achmea in 2017, which we are excluding from the analysis.
- The following insurers were also excluded from our analysis due to their size relative to the market as a whole:
  - AnderZorg N.V.
  - Anker Verzekeringen N.V.
  - Goudse Schadeverzekeringen N.V.
  - Mella Holdings B.V.
  - N.V. Schadeverzekering-Maatschappij Bovemij
  - N.V. Univé Schade
  - UVM Verzekeringsmaatschappij N.V.
  - VGZ voor de Zorg N.V.
  - VIVAT Schadeverzekeringen N.V.
- The statutory name of the insurer IZZ Zorgverzekeraar nv has been changed to VGZ voor de zorg in 2017 and as a result was not picked up as part of this analysis. We will endeavour to include this company in future analysis.
- OOM Global Care N.V. is included in the IPMI category rather than the Netherlands category.

Spain

- SegurCaixa Adeslas, S.A. de Seguros y Reaseguros, a Spanish general insurance company, is included in the analysis despite medical expense insurance only making up c. 70% of total GWP. This is because the insurer makes up a significant portion of medical expense insurance in Spain.
- The following Spanish insurers are excluded from the analysis due to their relatively small size:
  - Agrupación Sanitaria de Seguros, SA
  - AMSYR Agrupació Seguros y Reaseguros, S.A.U.
  - Asistencia Clinica Universitaria de Navarra, S.A. de Seguros y Reaseguros
  - Bankia Mapfre Vida, S.A. de Seguros y Reaseguros
  - CCM Vida y Pensiones de Seguros y Reaseguros, S.A.
  - Divina Pastora, Seguros Generales, S.A.
  - La Unión Madrileña de Seguros, S.A.
  - MUTUALIDAD GENERAL DE PREVISION DEL HOGAR DIVINA PASTORA
  - Nueva Mutua Sanitaria del Servicio Médico, Mutua de Segguros a Prima Fija
  - Salus Asistencia Sanitaria, S.A. de Seguros
  - Unión Médica La Fuencisla S.A. Compañía de Seguros

United Kingdom

- We exclude the following UK insurers as they primarily sell health cash plans, or accident and health policies:
  - ACE Europe Life Limited
  - BHSF Limited
  - HSF Health Plan limited
  - Independent Order of Odd Fellows Manchester Unity Friendly Society Limited
  - Medicash Health Benefits Limited
  - Personal Assurance Plc
  - Paycare
  - Simplyhealth Access
    - Sovereign Health Care
    - The Exeter Cash Plan
    - The Ancient Order of Foresters Friendly Society Limited
    - Unum Limited
    - Westfield Contributory Health Scheme

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