Use of reinsurance: results of quantitative research
Issues Paper

Objective

1 The objective of this paper is to provide EFRAG TEG with the results of quantitative research on the use of reinsurance in Europe.

Description of the issue(s)

2 The April EFRAG Board paper noted the following issues around the accounting for reinsurance held under IFRS 17 *Insurance Contracts*. These issues were summarised as follows:

(a) For primary insurers:

(i) Reinsurance is currently commonly recognised as underlying insurance contracts (that are reinsured) are written (and not when the reinsurance contract that covers these contracts is issued);

(ii) Losses are recognised upfront for primary insurance contracts that are onerous at inception but any net gains on related reinsurance contracts held are recognised over the life of the reinsurance contract held (except when the net cost relates to events that occurred before the purchase of reinsurance);

(iii) In some cases where there is a difference in premium paid/received on the reinsurance contract and the underlying contracts, the measurement of the reinsurance asset does not equal the reinsured portion of the liability associated with the underlying contracts. This difference may arise because reinsurers are more diversified than insurers.

(b) For both primary insurers and reinsurers, reinsurance contracts are not eligible for the Variable Fee Approach even where the reinsurer covers both insurance and investment risk.

(c) For insurers that apply IFRS 17 for individual entities within a group and enter into 'internal' reinsurance arrangements, the change in the accounting brought about by IFRS 17 may affect the capacity to pay intragroup dividends. The difference in accounting between insurance contracts in accordance with the Variable Fee Approach and reinsurance contracts in accordance with the General Model may affect the results of the subsidiaries of an insurance group.

(d) The contract boundary from the underlying insurance contracts may differ from the contract boundary of the relating reinsurance contracts.

EFRAG Secretariat analysis for EFRAG IAWG meeting

3 As part of the analysis of the possible impact of the accounting for reinsurance contracts, the EFRAG Secretariat undertook quantitative research to understand the extent of reinsurance used in Europe.

Analysis for the EFRAG IAWG May 2018 meeting

4 For the May EFRAG IAWG meeting, the EFRAG Secretariat prepared analysis on reinsurance in the EU based on the following sources:

(a) Milliman's research report on the 2016 Solvency and Financial Condition Reports of European and Life Insurers[1]. This includes analysis of cession rates based on the difference in the BEL ('Best Estimate Liability') gross and net of reinsurance recoverables.

(b) Premiums and Premiums Ceded for the 8 largest insurers (ignoring reinsurers) extracted from their 2017 annual financial statements.

(c) S&P CapitalIQ research comparing Premiums ceded to Gross Written Premiums for all insurers in Europe who have equity listed on European exchanges and therefore use IFRS Standards.

2 Milliman found that about 5% of the BEL is reinsured across Europe with companies in Luxembourg and Poland relying the most on reinsurance. They also indicated the impact of reinsurance on the BEL may not always provide the full picture of reinsurance. Please refer to Appendix 2 for further details.

3 Based on the financial statements of the 8 largest European insurers, premiums ceded as a percentage of Gross Premiums (either earned or written) varied between 2% and 12% (one firm is an outlier with 23%) and averaged around 6% for the total population. The percentage of claims paid by reinsurers varied between 3% and 10% (with the outlier at 21%) and averaged 5.7% for the total population.

4 Based on the S&P CapitalIQ research, the EFRAG Secretariat observed that, for the EU as a whole, 7.3% of gross written premiums were ceded in 2017 and 8.7% in 2016. The IAWG was also presented with research from CapitalIQ on ceded and gross losses. This was not further pursued afterwards given the IAWG's focus on cession rates, but the information is reproduced in Appendix 3.

Comments from IAWG members

5 EFRAG IAWG members suggested undertaking the analysis on business line level but acknowledged that data collection would be required on an individual company basis.

6 They also suggested that the EFRAG Secretariat:

(a) Focus on the income statement information rather than balance sheet or Solvency II information;

(b) Include the Lloyds of London reinsurance market and consider the availability of information in local databases and by local regulators;

(c) Include a longer time series as the reinsurance premiums for 2016 and 2017 were relatively low given the lack of catastrophes in the previous years;

(d) Consider EIOPA statistics on non-life reinsurance; and

(e) Consider medians rather than averages.

[1] For further information, please refer to http://www.milliman.com/insight/2018/Analysis-of-life-insurers-first-set-of-Solvency-and-Financial-Condition-Reports-European-and-UK-life-insurers/

7 EFRAG IAWG members noted that the overall averages provided by the paper underestimated the importance of reinsurance. This was because reinsurance for life insurance was minimal as investment risk is generally not reinsured.

8 EFRAG IAWG members noted that reinsurance is more significant for non-life insurance and/or smaller players in the market. Members mentioned that the ratio could vary over time due to reinsurance practices related to business combinations. It was also noted that reinsurance may be more important at intra-group level for Solvency II purposes, but it may be difficult to find reliable data.

EFRAG Secretariat analysis since EFRAG IAWG meeting

Reinsurance information from EIOPA

9 As suggested by members of the EFRAG IAWG, the Solvency II statistics published by EIOPA on non-life insurance for undertakings and groups in the European Union and the European Economic Area for 2016[2] are as follows (amounts in millions of euros):

Premiums written	**Groups[3]**	**Solo**
Gross - Direct Business	406,691	441,330
Gross - Proportional reinsurance accepted	48,621	100,979
Gross - Non-proportional reinsurance accepted	14,402	27,957
Reinsurers' share	*50,476*	*120,601*
Net	**419,238**	**449,665**
Premiums ceded as % of total gross premiums	10.8%	21.2%
Premiums ceded as % of direct business premiums	12.4%	27.3%

5 Premiums for non-proportional reinsurance accepted is about 30% of total reinsurance accepted premiums and in total more reinsurance is accepted in the EEA than is ceded.

6 On a solo basis, reinsurance premiums in both categories almost double, reducing the net amount of reinsurance provided to entities outside the EEA. This reflects the beneficial consequences of internal reinsurance for Solvency II purposes. The numbers here reflect the details for all entities under Solvency II, whether or not they are IFRS preparers.

Updates to the S&P Capital IQ research

7 The financial statements of Lloyds of London reinsurance market (i.e. Lloyds and its members) was investigated. However, the pro-forma information provided is based on UK GAAP rather than IFRS Standards. The work did identify that issuers of listed debt (such as Lloyds of London) were inadvertently excluded from the original research and so further work was done to include these preparers as well. Furthermore, the research was extended to include the financial results from 2005 (i.e. from the introduction of IFRS to Europe). Numbers for entities using premiums earned rather than premiums written were also extracted and included. Financial conglomerates were excluded.

8 The extracted information was stratified as follows:

- Entities with a market capitalisation in excess of EUR 10bn;

[2] https://eiopa.europa.eu/Pages/Financial-stability-and-crisis-prevention/Insurance-Statistics.aspx At this stage only premiums in the non-life segment have been included in the EIOPA reporting as life premiums are not available on a consistent basis. EIOPA reported that there is an on-going process to eliminate some national differences in reporting of life premiums.

[3] On a Solvency II consolidation basis.

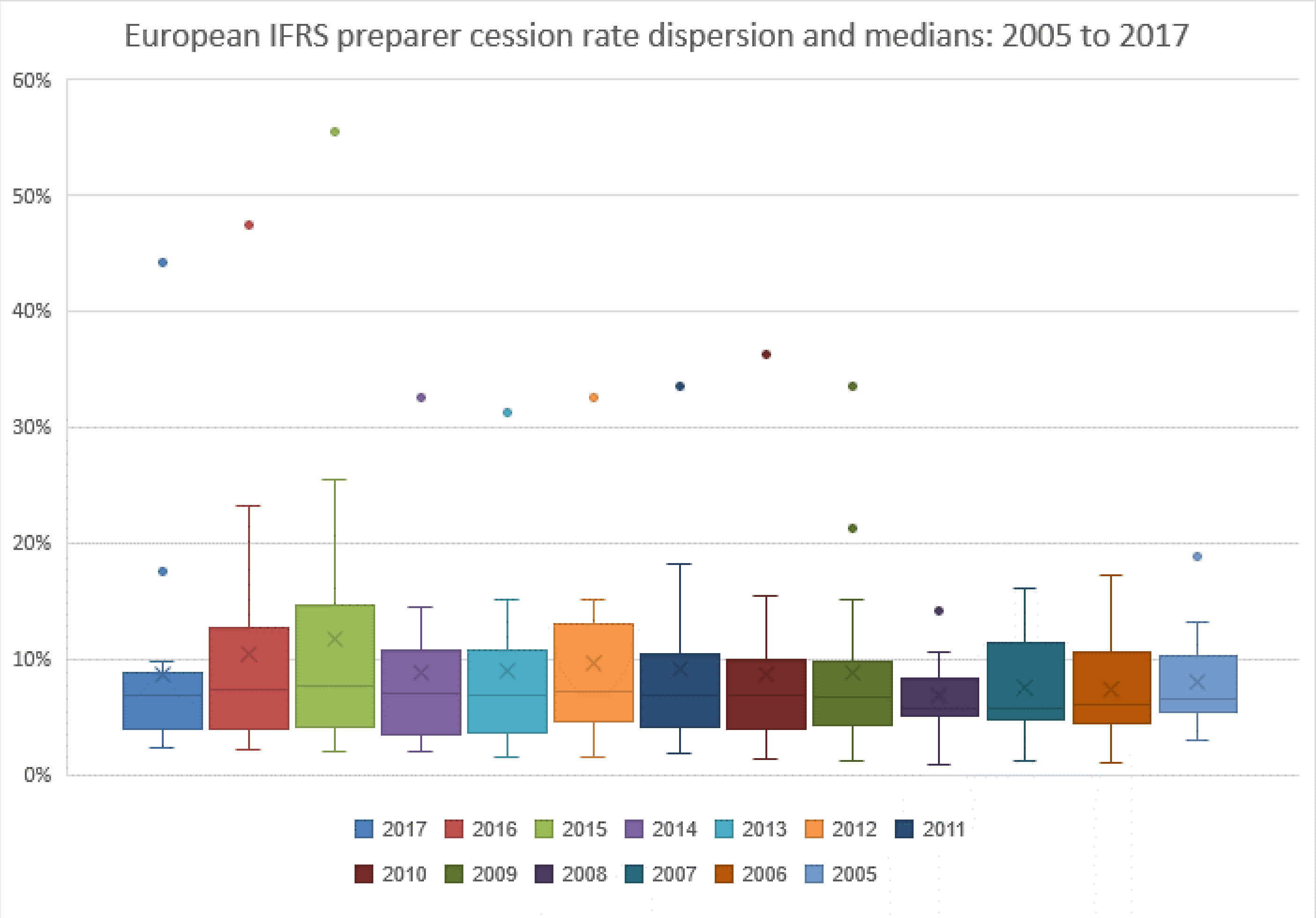
- Entities with a market capitalisation between EUR 5 and 10bn;
- Entities with a market capitalisation below EUR 5bn; and
- Entities with listed debt only.

9 For further information about the methodology followed, please refer to Appendix 4.

Results from updated research

All IFRS preparers

10 The following graph[4] shows the first and third quartiles of country rates of ceding premiums as well as median and mean data per year for all IFRS preparers in Europe over the period.



Notes:

- For the detailed information by country, please see Table 2 in Appendix 1.

[4] A box and whisker plot (sometimes called a boxplot) is a graph that presents upper and lower quartiles (represented by the box) as well as the median (represented by the line in the middle of the box). Generally, the whiskers reflect the highest and lowest observations, but in Excel, the whiskers above the box represent the largest data element that is less than or equal to 1.5 times the interquartile range and from the bottom of the box to the smallest data element that is larger than 1.5 times the interquartile range. Values outside this range are considered to be outliers and are represented by dots. The mean is shown as an ×. This type of graph is used to show the shape of the distribution, its central value, and its variability.

- For the EU as a whole, the percentage of ceded insurance remains relatively constant around 7%. Countries such as Cyprus, Ireland, Malta, Spain and Portugal report numbers above 14%. Further analysis was performed below on the stratified populations.
- In various cases, a new treaty in a specific year, can cause a significant increase for that year with a marginal or no increase in the following years (e.g. France in 2016 and the UK in 2012 and 2015). It seems that in some cases, a reinsurance treaty may cover underlying contracts written in prior years and so a 'catch-up' payment is made to the reinsurer, thereby potentially skewing the information trend. Under IFRS 17, this type of transaction will not impact insurance revenue in the same way given the mechanics of the CSM.

IFRS preparers with a market capitalisation greater than EUR 10 billion

11 For the 14 entities with a market capitalisation in excess of EUR 10 billion, the results by country are as follows:

	2017	**2016**	**2015**	**2014**	**2013**	**2012**	**2011**	**2010**	**2009**	**2008**	**2007**	**2006**	**2005**	**Median**
Finland	3%	3%	3%	3%	4%	5%	4%	4%	5%	5%	5%	5%	5%	**4%**
France	5%	16%	5%	4%	6%	5%	4%	4%	4%	4%	4%	4%	4%	**4%**
Germany	6%	6%	7%	6%	6%	6%	6%	6%	6%	7%	8%	9%	9%	**6%**
Italy	3%	3%	3%	3%	3%	3%	4%	4%	4%		4%	4%	4%	**4%**
Netherlands	11%	10%	10%	11%	11%	13%	12%	9%	7%	5%	5%	6%	6%	**10%**
UK	8%	8%	9%	6%	5%	5%	5%	5%	6%	4%	4%	4%	4%	**5%**
Total	**6%**	**9%**	**6%**	**5%**	**6%**	**6%**	**5%**	**5%**	**5%**	**5%**	**5%**	**6%**	**6%**	**6%**
Median	**5%**	**7%**	**6%**	**5%**	**6%**	**5%**	**5%**	**4%**	**5%**	**5%**	**5%**	**5%**	**5%**	

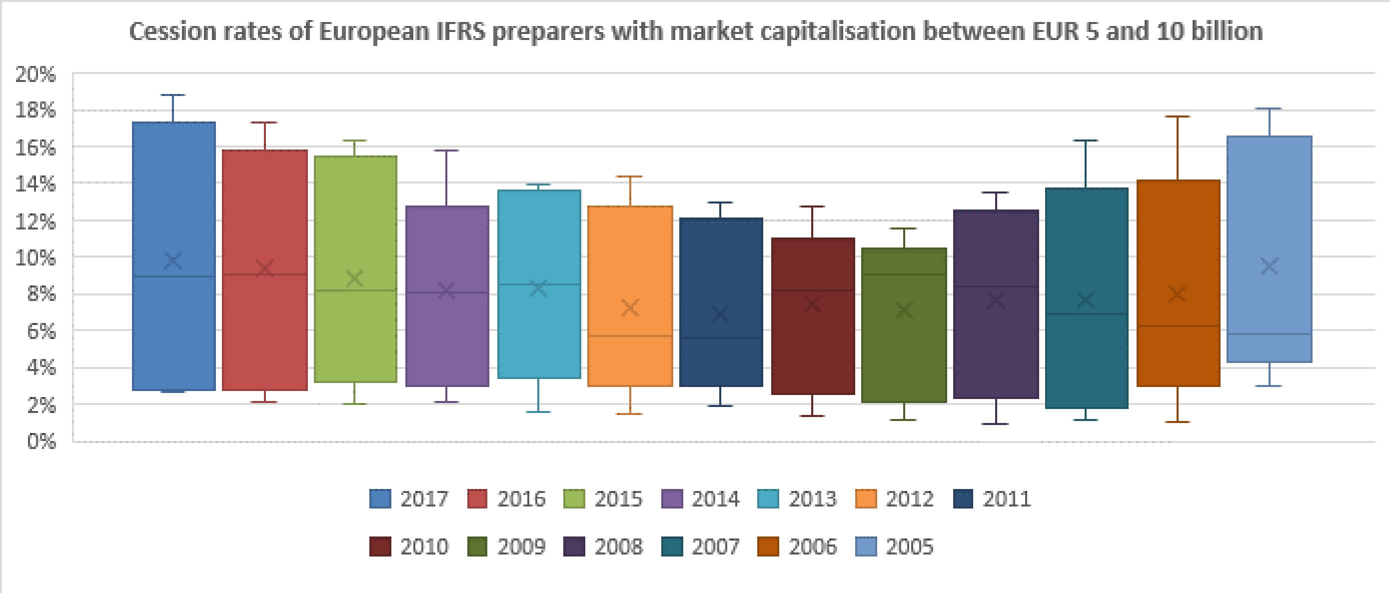
Table 1 Ceded premiums for entities with a market capitalisation greater than EUR 10bn

Notes:

- For this group the percentage of ceded premiums remain relatively constant around 6%.
- The significant increase in 2016 in France is due to one insurer entering into a new treaty and similarly in 2015 for the UK, two entities reported a significant increase, presumably for the same reason.
- The Netherlands reports the highest percentage of ceded premiums in recent years reflecting a significant increase in the use of reinsurance since 2011.

IFRS preparers with a market capitalisation between EUR 5 and 10 billion

12 For the 10 entities with a market capitalisation between EUR 5 and 10 billion, the results by country are as follows:

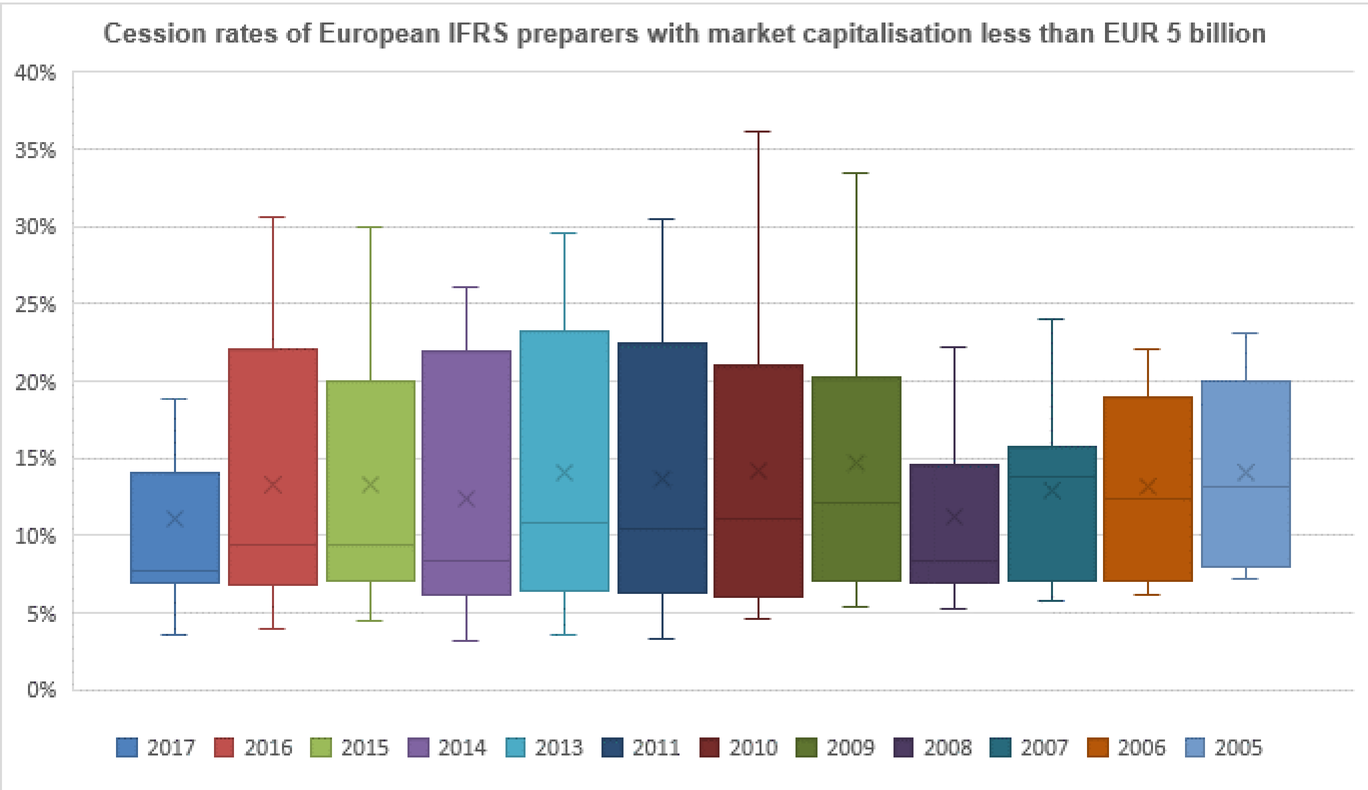


Notes:

- For this population, the percentage of premiums ceded have varied between 9 and 12% over the period with 2005 being an outlier reflecting 14%.
- Spain and the UK reflecting the higher rates in the population between 16 and 19%. The UK had a new entrant during the period and another entity has significantly increased gross premiums written from a relatively low base. The Spanish entity has also significantly increased its gross premiums over the period and also performs reinsurance.
- For the detailed information by country, please see Table 3 in Appendix 1.

IFRS preparers with a market capitalisation below EUR 5 billion

13 For the 39 entities with a market capitalisation below EUR 5, the results by country are as follows:

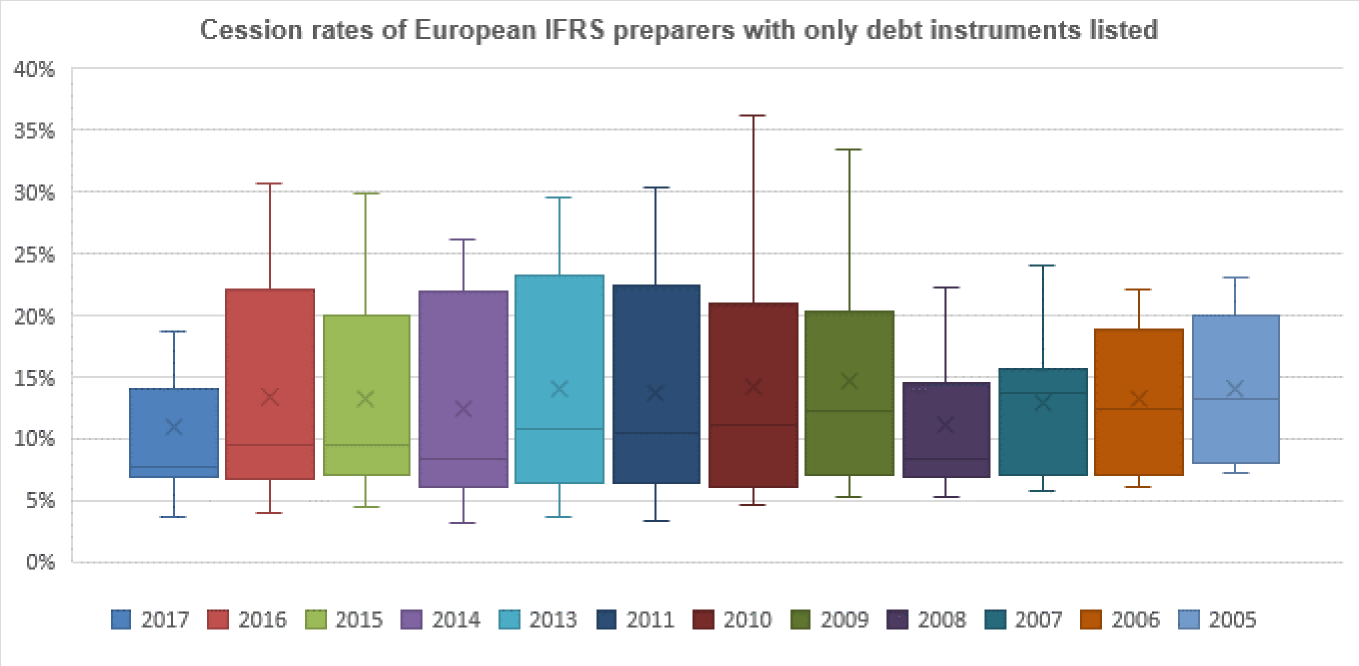


Notes:

- For this population, the percentage of premiums ceded was around 12% for 2005-2007 then dropped to around 9% till 2012 when it increased to around 14 %.
- The UK has outlier results for 2011, 2012, 2014 and 2016 due to new entrants and new treaties. For France, the session rates exceeded 25 % since 2010 with one of the two entities a high growth new entrant.
- For the detailed information by country, please see Table 4 in Appendix 1.

IFRS preparers with listed debt

14 the 26 entities with listed debt, the results by country are as follows:



Notes:

- For this population, the percentage of premiums ceded varies significantly between 3 and almost 10%, however, information is incomplete.
- There is one Portuguese entity (a new entrant) with relatively low premiums giving rise to significant variability in the rates of ceded premiums. Information for Sweden is irregular with high cession rates for the entity with less than EUR 1bn a year that varies significantly over the observation period.
- For the detailed information by country, please see Table 5 in Appendix 1.

EFRAG Secretariat observations

15 Based on the above, the EFRAG Secretariat notes that:

(a) Specific entities appear to use reinsurance to navigate the capital impacts of fast expansion or capital pressure as a new entrant;

(b) European entities use internal reinsurance extensively for Solvency II purposes;

(c) Disclosures of reinsurance by line of business are generally not provided as part of annual financial disclosure;

(d) There is no clear correlation between reinsurance pricing and catastrophe events as set out in Appendix 5; and

(e) Accounting mismatches would have to be significant in size to have a pervasive impact on the financial statements of insurers.

Questions for EFRAG TEG

16 Does EFRAG TEG have comments on the analysis and observations above?

Appendix 1: Tables underlying graphs

Introduction

10 The detailed country information used for the graphs in the text are presented below.

	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005	Median
Austria	7%	7%	7%	7%	7%	6%	7%	7%	7%	8%	12%	11%	12%	**7%**
Belgium	2%	3%	3%	3%	4%	4%	3%	3%	2%	2%	2%	4%		**3%**
Croatia	9%	9%	9%	10%		10%	10%	11%	9%	8%	8%	9%	8%	**9%**
Cyprus	10%	23%	25%						21%		16%		9%	**19%**
Denmark	4%	4%	4%	3%	6%	6%	6%	5%	5%	5%	6%	6%	7%	**5%**
Finland	3%	3%	3%	3%	4%	5%	4%	4%	5%	5%	5%	5%	5%	**4%**
France	5%	12%	5%	5%	7%	7%	5%	4%	4%	5%	5%	4%	4%	**5%**
Germany	7%	7%	8%	7%	7%	7%	7%	7%	7%	6%	9%	11%	10%	**7%**
Ireland	7%	14%	14%	14%	14%	14%	14%	15%	15%	15%	14%	14%	13%	**14%**
Italy	4%	3%	4%	3%	3%	3%	4%	4%	4%	7%	4%	4%	4%	**4%**
Malta	4%	4%	5%	7%	11%	15%	18%	36%	33%	14%	15%	17%	19%	**15%**
Netherlands	8%	7%	8%	9%	9%	10%	10%	8%	6%	5%	6%	6%	6%	**8%**
Poland	3%	2%	2%	2%	2%	1%	2%	1%	1%	1%	1%	1%	3%	**2%**
Portugal	44%	47%	55%	33%										**46%**
Slovenia	9%	8%	8%	9%	9%	10%	7%	8%	7%	6%	6%	6%	8%	**8%**
Spain	18%	16%	17%	13%	15%			11%	10%	11%				**14%**
Sweden	6%	6%	23%	12%	31%	33%	33%	8%	5%	6%	6%	6%	6%	**6%**
UK	9%	9%	10%	9%	8%	13%	7%	6%	7%	5%	5%	5%	6%	**7%**
EU	**7%**	**8%**	**7%**	**7%**	**7%**	**8%**	**6%**	**6%**	**6%**	**5%**	**6%**	**6%**	**6%**	
Median	**7%**	**7%**	**8%**	**7%**	**7%**	**7%**	**7%**	**7%**	**7%**	**6%**	**6%**	**6%**	**7%**	**7%**

Table 2 Cession rates as a percentage of gross premiums per country

	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005	Median
Belgium	3%	3%	3%	4%	4%	3%	3%	3%	2%	2%	2%	4%		**3%**
Denmark	7%	7%	6%	6%	6%	6%	6%	5%	5%	5%	5%	6%	6%	**6%**
France	9%	9%	10%	10%	11%	10%	10%	8%	9%	8%	9%	7%	6%	**9%**
Germany	12%	12%	13%	13%	13%	13%	12%	13%	12%	13%	16%	18%	18%	**13%**
Italy			3%	3%	3%	3%	3%							**3%**
Poland	3%	2%	2%	2%	2%	1%	2%	1%	1%	1%	1%	1%	3%	**2%**
Spain	17%	16%	16%	12%	14%			11%	10%	11%				**13%**
UK	19%	17%	16%	16%	14%	14%	13%	11%	10%	13%	13%	13%	15%	**14%**
Total	**12%**	**12%**	**11%**	**10%**	**11%**	**10%**	**9%**	**9%**	**9%**	**10%**	**10%**	**11%**	**14%**	**10%**
Median	**9%**	**9%**	**8%**	**8%**	**9%**	**6%**	**6%**	**8%**	**9%**	**8%**	**7%**	**6%**	**6%**	

Table 3 Cession rates for entities with a market capitalisation between EUR 5 and 10bn

	2017	**2016**	**2015**	**2014**	**2013**	**2012**	**2011**	**2010**	**2009**	**2008**	**2007**	**2006**	**2005**	**Median**
Austria	7%	7%	7%	7%	7%	6%	7%	7%	7%	8%	12%	11%	12%	**7%**
Croatia	9%	9%	9%	10%		10%	10%	11%	9%	8%	8%	9%	8%	**9%**
Cyprus	10%	23%	25%								16%		15%	**16%**
Denmark	4%	4%	4%	5%	6%	6%	6%	5%	5%	5%	6%	6%	7%	**5%**
France	35%	31%	30%	26%	30%	31%	30%	27%	21%	22%	24%	22%	21%	**27%**
Germany	7%	7%	7%	7%										**7%**
Greece	7%													**7%**
Ireland	7%	14%	14%	14%	14%	14%	14%	15%	15%	15%	14%	14%	13%	**14%**
Italy	8%	7%	8%	3%	4%	4%	3%	5%		7%				**5%**
Malta	4%	4%	5%	7%	11%	15%	18%	36%	33%	14%	15%	17%	19%	**15%**
Slovenia					9%	10%	7%	8%	7%	6%	6%	6%	8%	**7%**
Spain	19%	18%	20%	21%	23%									**20%**
UK	15%	22%	16%	24%	24%	28%	27%	13%	20%	13%	15%	20%	23%	**20%**
Total	**14%**	**14%**	**14%**	**12%**	**13%**	14%	9%	9%	9%	8%	12%	12%	12%	**12%**
Median	**8%**	**9%**	**9%**	**8%**	**11%**	**10%**	**10%**	**11%**	**12%**	**8%**	**14%**	**12%**	**13%**	

Table 4 Cession rates for entities with a market capitalisation below EUR 5bn.

	2017	**2016**	**2015**	**2014**	**2013**	**2012**	**2011**	**2010**	**2009**	**2008**	**2007**	**2006**	**2005**	**Median**
Belgium	1%	2%	2%	2%	3%	5%								**2%**
Denmark	3%	3%	3%	0%						5%	6%	6%	7%	**4%**
France	3%	3%	4%	5%	7%	19%	9%	4%	4%	23%	26%			**5%**
Germany	2%	2%	2%	4%									2%	**2%**
Netherlands	4%	4%	5%	8%	6%	7%	7%	6%	3%	5%	7%	7%	6%	**6%**
Portugal	44%	47%	55%	33%										**46%**
Sweden	6%	6%	23%	12%	31%	33%	33%	8%	5%	6%	6%	6%	6%	**6%**
UK	5%	4%	4%	5%	6%	7%	5%	5%	5%	3%	3%	3%	6%	**5%**
EU	**4%**	**3%**	**4%**	**6%**	**7%**	**10%**	**7%**	**6%**	**4%**	**5%**	**6%**	**5%**	**4%**	**5%**
Median	**4%**	**3%**	**4%**	**5%**	**6%**	**7%**	**8%**	**6%**	**5%**	**5%**	**6%**	**6%**	**6%**	

Table 5 Cession rates for entities with listed debt

Appendix 2: External research on life insurers using Solvency II data

Introduction

1 This appendix contains details from the Milliman report that was provided to the EFRAG IAWG.

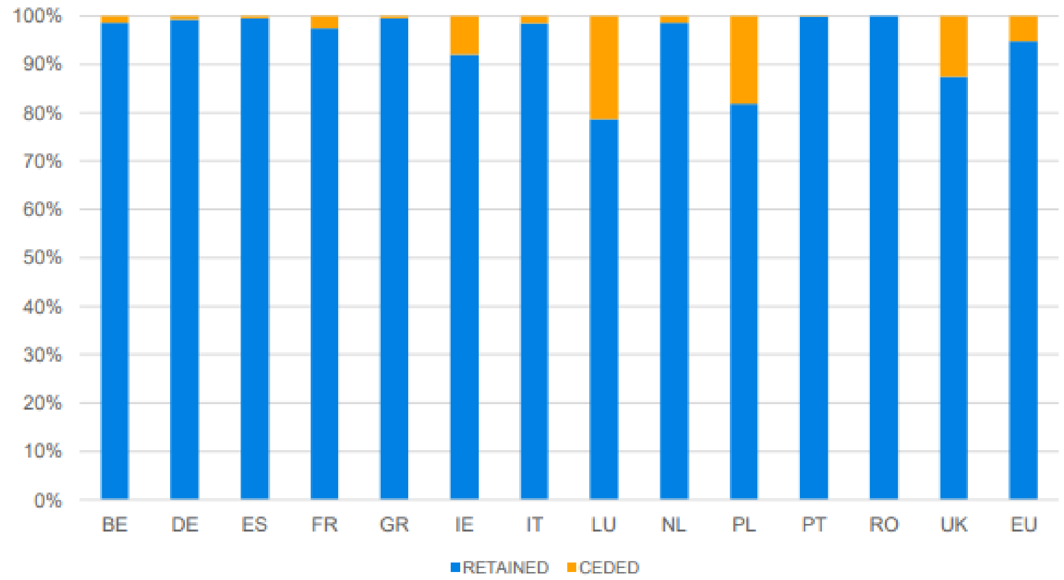
The details

External research on life insurers including impact of reinsurance

2 In January 2018, Milliman released a research report “Analysis of Life Insurers’ Solvency and Financial Condition Reports – European and UK life insurers” based on the 2016 Solvency and Financial Condition Reports of insurers[5].

3 Their analysis of ceded rates is based on the difference in the Best Estimate Liability gross and net of reinsurance recoverables.

FIGURE 4: ANALYSIS OF USE OF REINSURANCE ACROSS EUROPE



On average about 5% of the BEL is reinsured across Europe. This varies by country, with Luxembourg and Poland being the most reliant on reinsurance.

While the average European rate of ceded BEL is 5%, this varies by line of business. On average about 17% of the BEL for traditional life insurance products (Other Life Insurance) is reinsured. For IL and UL Insurance about 8% of the BEL is reinsured on average. This is primarily driven by the UK, German and Polish markets. Overall only about 3% of the BEL for Insurance With Profit Participation is reinsured on average, although it is notable that approximately 60% and 55% of Insurance With Profit Participation is ceded in Luxembourg and Ireland, respectively.

The impact of reinsurance on BEL may not always give the full impact of reinsurance. For example, a longevity swap could potentially lead to a slight increase in the BEL, but will be offset by a larger impact on the Solvency Capital Requirement (SCR) and Risk Margin.

Milliman 2018, page 6

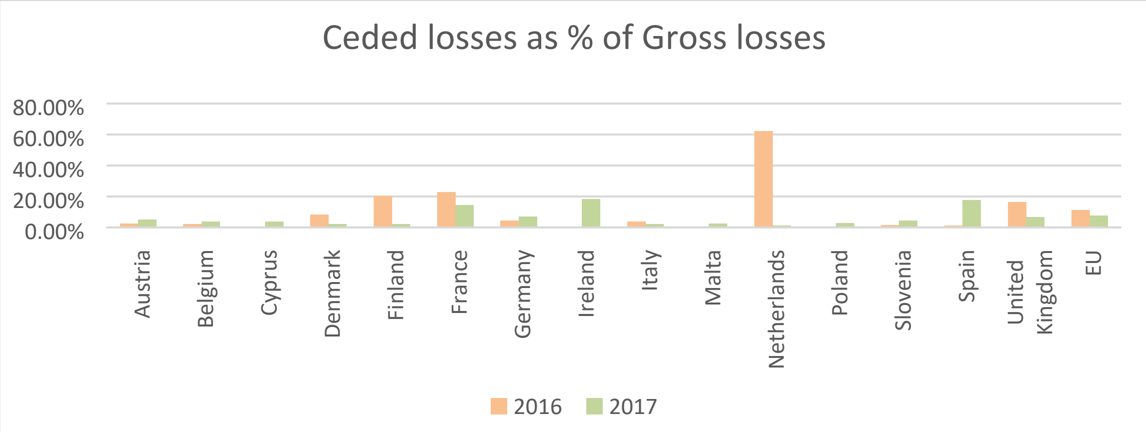
[5] For further information, please refer to http://www.milliman.com/insight/2018/Analysis-of-life-insurers-first-set-of-Solvency-and-Financial-Condition-Reports-European-and-UK-life-insurers/

Appendix 3: S&P CapitalIQ information about Ceded and Gross losses

Introduction

1 S&P CapitalIQ provides information about "Ceded Losses[6]" and "Gross losses[7]" and this information was also provided to the EFRAG IAWG.

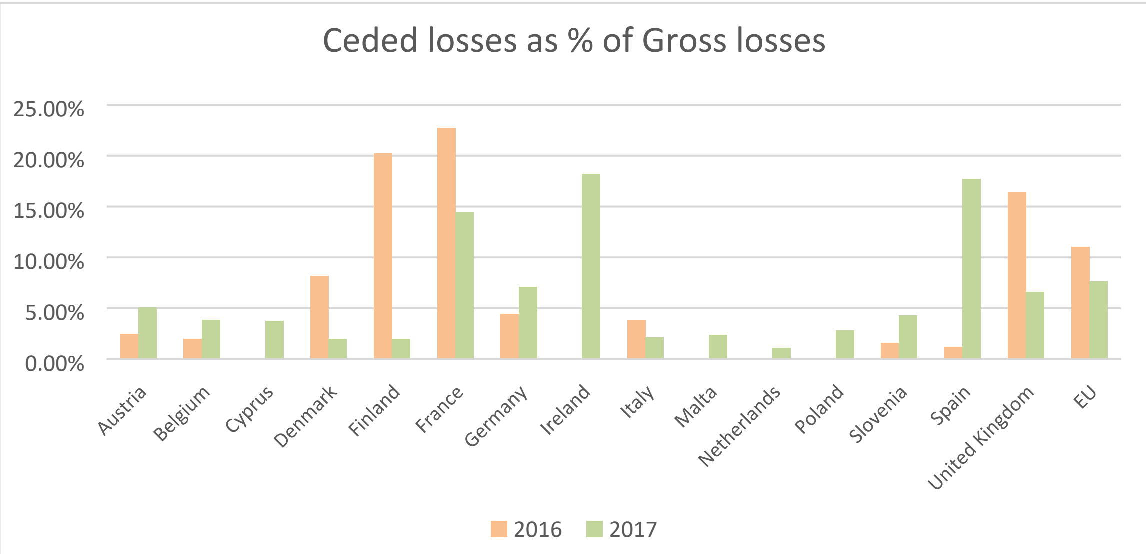
The details



Notes:

- There were no amounts for Croatia, Greece and Hungary for both years, so these countries were removed. For Cyprus, Ireland, Malta, Poland the information was only reported for one year and for Spain it seems that the information may be incomplete for 2016.
- The percentage for the Netherlands for 2016 is anomalous but the absolute amounts reported are both less than EUR 300million.
- For the EU, ceded losses as a percentage of gross losses were 11% in 2016 and 7.6% in 2017.

2 Given the outlier of the Netherlands in 2016, the results are repeated excluding that information:



[6] Defined as the losses, loss adjustment expense and benefits recovered from reinsurers on policies ceded to reinsurance companies.

[7] Defined as the losses, loss adjustment expense, and benefits that are incurred on the policies which are directly written by the company plus assumed from other companies.

Appendix 4: Research methodology

Introduction

1 The appendix provides details of the methodology followed as part of the quantitative research.

Methodology

2 The S&P Capital IQ database was screened based on the following criteria:
- Industry classification – Insurance
- Geographic location – Europe
- Financial accounting standards – IFRS or IAS

3 Furthermore, using ISIN identifiers, listed debt instruments were identified and these issuers added to the equity listed insurers identified in 2 above.

4 Formulas were built to extract the following additional data:
(a) Company name
(b) Country name
(c) Short business description
(d) Gross Written Premiums[8] (GWP) and Net Written Premiums[9] (NWP) for 2005 to 2017 financial years or Gross Earned Premiums and Insurance revenue if these were not available
(e) Market capitalisation for entities with listed equities
(f) Ceded losses for 2017 and 2016 financial years
(g) Gross losses for 2017 and 2016 financial years

5 The resulting data was reviewed for anomalies around country and business description and resulted in the following exclusions:

- 21 companies from outside the European Union (e.g. from countries such as Serbia and Switzerland) (20 in 2016) and 2 companies listed in the US;
- 11 companies that were brokers or provided solutions to insurance companies;
- One company had the same data for both 2016 and 2017 and was deleted.

6 This resulted in a sample of 89 entities although not all of them had information for the whole period.

[8] Represents the sum of direct and assumed written premiums.
[9] Represents gross written premiums less ceded written premiums.

Appendix 5: Major claim events since 2005

Introduction

1 The EFRAG IAWG pointed out that catastrophe events impact prices for reinsurance and the income statement. Based on disclosures provided by Lloyds of London, the following major claim events were identified.

Major claim events per relevant year

2017	Hurricanes Irma, Harvey and Maria Significant wildfires in California Mexican earthquakes Cyclone Debbie in Australia Wildfires in Chile.
2011	Queensland floods in Australia Christchurch earthquake Tohoku earthquake and ensuing tsunami in Japan Tornadoes in the US Thailand floods Man-made events included oil damage in the North Sea as well as other events in a number of Middle East and North African states.
2010	Deep Horizon oil spill in the Gulf of Mexico
2008	Hurricanes Ike and Gustav A series of single event losses significant in size and frequency Number of man-made and technological catastrophes.
2005	Hurricanes Katrina, Rita and Wilma Northern Europe’s winter storm Erwin Earthquake in Pakistan.
2004	Hurricanes Charley, Frances, Ivan and Jeanne