MILLIMAN RESEARCH REPORT

Analysis of Luxembourg insurers' Solvency and Financial Condition Reports

Year-end 2017

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Management Summary

In May 2018 European insurers have reported the Solvency and Financial Condition Reports (SFCRs) for the second year since introduction of Solvency II at the beginning of 2016. The SFCRs contain a significant amount of information, including details of a company's performance over the reporting period, systems of governance, risk profile, valuation basis and capital requirements.

This report provides a summary of the key solvency information of the main life and non-life insurance entities in Luxembourg, based on these SFCRs as per year-end 2017. This report compares the figures per year-end 2016 and 2017 and focusses on the largest insurance entities in Luxembourg.

This report includes an overview of the factors determining the Solvency Capital Requirement (SCR) ratio, providing an overview of the composition of both the SCR and the own funds of these insurance entities, as well as an analysis of the SCR ratio. For life insurers 83% of the Luxembourg market is covered in terms of gross written premiums reported in 2017; and for non-life insurers 66% of the market is covered. This report mainly focusses on the comparison between year-end 2016 and 2017 and the financial state the Luxembourg insurance market is in.

Our sample of Luxembourg life insurers is shown to be equally capitalised as to the previous year, having an average solvency ratio[1] of 193%, as opposed to 194% in 2016, with no life insurer having a solvency ratio below 100%. On an aggregate level, the sample of life insurers has €4.2 billion eligible own funds in 2017 to cover €2.4 billion of Solvency II required capital. In comparison, at year-end 2016 the life insurance entities in our analyses had €3.6 billion eligible own funds to cover €2.1 billion of Solvency II required capital.

The Luxembourg non-life insurers in our sample are also well capitalised, with an average solvency ratio of 248% in 2017, as opposed to 231% in 2016. On aggregate, our sample of non-life insurance entities has €1.83 billion of eligible own funds covering €741 million of Solvency II required capital, compared to €1.89 billion eligible own funds to cover €797 million of Solvency II required capital in 2016.

The assets, liabilities and underwriting for life and non-life business in Luxembourg are also considered in this report, providing further insight into the solvency positions and stability of the Luxembourg insurance entities considered.

We hope you enjoy reading this report.

[1] The solvency ratio refers to the Solvency II coverage ratio.

Introduction

BACKGROUND

Solvency II (SII) 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. The SFCRs contain a significant amount of information on the insurance companies, including details of their business performances, risk profiles, balance sheets and capital positions, amongst other topics. Insurers are also required to publish a great deal of quantitative information in the public Quantitative Reporting Templates (QRTs) included within the SFCRs.

One year later, the majority of the European insurers have published their SFCRs for year-end 2017. That enables us to have more detailed comparisons among insurers over the last two years.

The main basis for this analysis has been the information included in the QRTs. However, we also reviewed the SFCRs to supplement the quantitative analysis. The objective of this analysis is to compare the information provided in the QRTs and SFCRs to see whether we can draw any conclusions about the balance sheets and risk exposures of Luxembourg insurers. We will focus on the differences between 2016 and 2017.

LUXEMBOURG MARKET COVERAGE

In selecting the companies included in this analysis, we focussed on a subset of insurers in the Luxembourg market. Our focus was on life and non-life solo entities: in total, 13 life solo entities and eight non-life solo entities were selected. We made a selection of the largest insurers available on the Solvency II Wire database.[2] In Appendix 1 a table is provided with an overview of the companies included in our analysis. Note that this sample might deviate slightly from the ones shown in the European comparison sections. The entities were selected to ensure that all of the most significant insurers in the Luxembourg life and non-life market were included as far as available. Our sample of solo entities operating in the life business represents circa 83% of the total gross written premiums (GWP) of the Luxembourg life market in 2017, compared to 79% for 2016. For non-life, our sample represents circa 66% of the GWP of the Luxembourg non-life market in 2017, while it represented 72% of the non-life market in 2016.

UNDERLYING DATA

For this report, we use the data that is available via the Solvency II Wire license data. For the analysis of market share within the Luxembourg insurance market we use the data that had been made available by the Luxembourg authority responsible for the supervision of the insurance sector (the Commissariat aux assurances or CAA). The analysis underlying this report focusses on the quantitative information contained in the public QRTs. Where relevant we have also studied the SFCRs to gain additional insights into some companies, in particular if they displayed characteristics that differed from market norms. The focus of this report is the Luxembourg insurance market, the main life insurance entities, non-life insurance entities and the differences between 2016 and 2017.

[2] See https://solvencyiiwiredata.com. Registration required.

Analysis of Luxembourg life and non-life insurance market

MAIN DESCRIPTIVES OF UNDERTAKINGS IN OUR SAMPLE

In Luxembourg, life and non-life business are written in different legal entities. It is useful to realise that the Luxembourg insurance market is dominated by cross-border activities. According to the annual report of 2017 of the CAA, 91% of gross written premiums (GWP) refer to cross-border activities.

In our sample, we have covered 13 life companies and eight non-life companies. An overview of the solo insurance entities and the groups is provided in Appendix 1. A business is defined as a life insurer if and only if the sole purpose of the business is to sell life insurances. However, by European Insurance and Occupational Pensions Authority (EIOPA) regulations, long-term insurance contracts such as income insurance are to be assumed as being life insurance contracts. This leads to an unjustified rise of the gross written premiums for life insurers and an unjustified fall of the premiums for non-life insurers. In order to counter the effect of these kinds of contracts we denote them as being similar to life. These contracts are then assumed to be non-life. In this report we mostly use the gross values, thus they are not adjusted to reflect the net premiums without reinsurance.

In Figure 1 and Figure 2, an overview is given of the GWP for the life and non-life insurers. We see that Lombard International Assurance is the largest life insurer in our sample with a GWP of €4.0 billion, which represents 17.3% of the total GWP in 2017. It is followed by Cardif Lux Vie (11.7%) and Swiss Life (Luxembourg) (7.8%). Lombard International Assurance, Cardif Lux Vie, Swiss Life (Luxembourg) and WEALINS show increases in GWP in 2017 compared to 2016. Note that the WEALINS results come from the merger of Foyer International and IWI International Wealth Insurer, as part of Foyer Group. The reported GWP of 2016 relates only to Foyer International so the increase in 2017 is the combined result from the acquisition of IWI International Wealth Insurer and GWP growth.

On the other side, La Mondiale Europartner, Crédit Agricole Life Insurance Europe and Sogelife show a reduction in their market shares in 2017 compared to 2016.

For non-life insurers we see that Swiss Re International is the largest in our sample with a GWP of €1.0 billion, which represents 28.0% of the total GWP in 2017. It is followed by Foyer Assurances (11.5%). It is clear that there are almost no changes in the GWP of non-life insurers between 2016 and 2017. Note that the performance of CAMCA, part of Crédit Agricole Group and the fourth non-life insurer in Luxembourg, cannot be shown in this report as it was not included in our data source.

FIGURE 1: COMPARISON OF GROSS WRITTEN PREMIUM PER LIFE INSURER, 2016 AND 2017

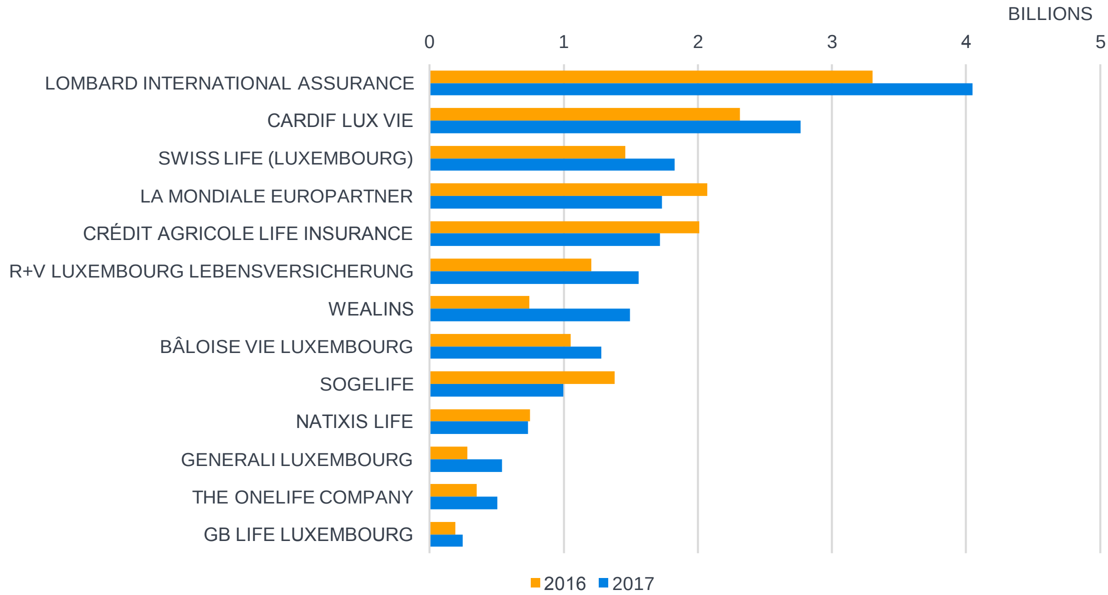
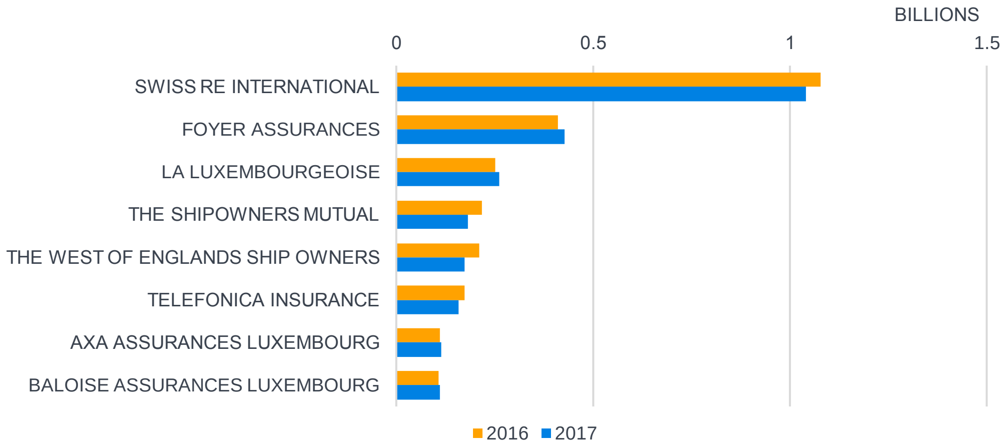


FIGURE 2: COMPARISON OF GROSS WRITTEN PREMIUM PER NON-LIFE INSURER, 2016 AND 2017



In Figure 3 and Figure 4, an overview of the market value of assets compared to the technical provisions in 2017 is given for the life and non-life entities selected in our sample.

The three largest life insurers in terms of total assets are Lombard International Assurance, Cardif Lux Vie and La Mondiale Europartner. The largest non-life insurer in terms of total assets is by far Swiss Re International, followed by Foyer Assurances and La Luxembourgeoise. Swiss Re set up its European headquarters in Luxembourg so that the business shown is not primarily business that covers activities in Luxembourg.

Looking at the ratio of technical provisions relative to GWP shows the main difference between life and non-life insurers. Life insurers have technical provisions and assets that are about eight times higher than their GWP, while non-life insurers have at most three times their GWP as technical provisions and assets. Where life business is long-term and potentially leads to several years of benefit payments, non-life claims are short-term and usually settled by one single payment.

FIGURE 3: TOTAL TECHNICAL PROVISIONS AND TOTAL ASSETS PER LIFE INSURER

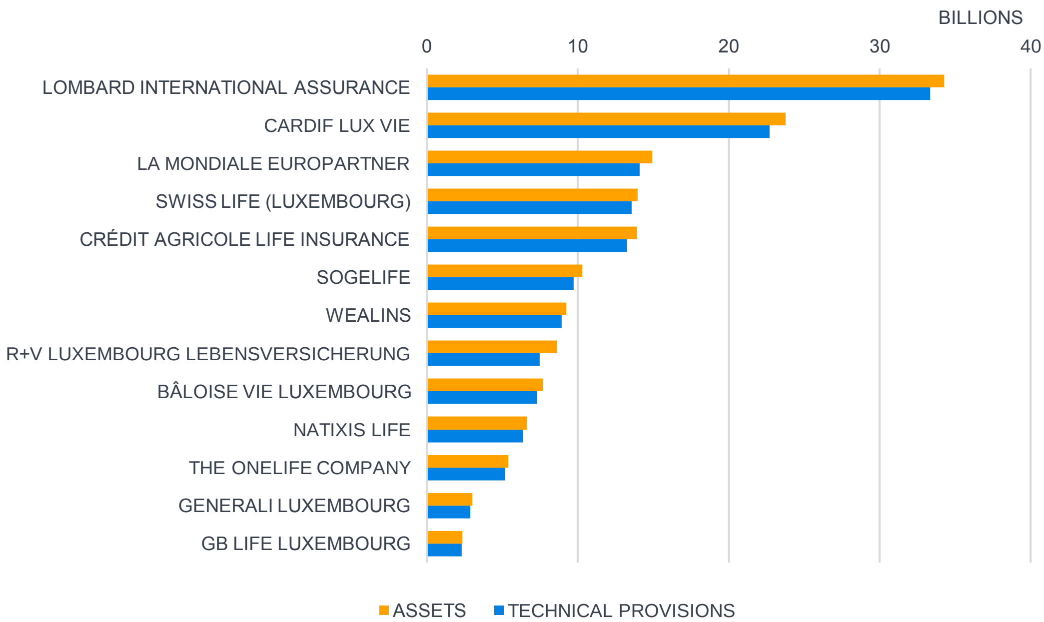
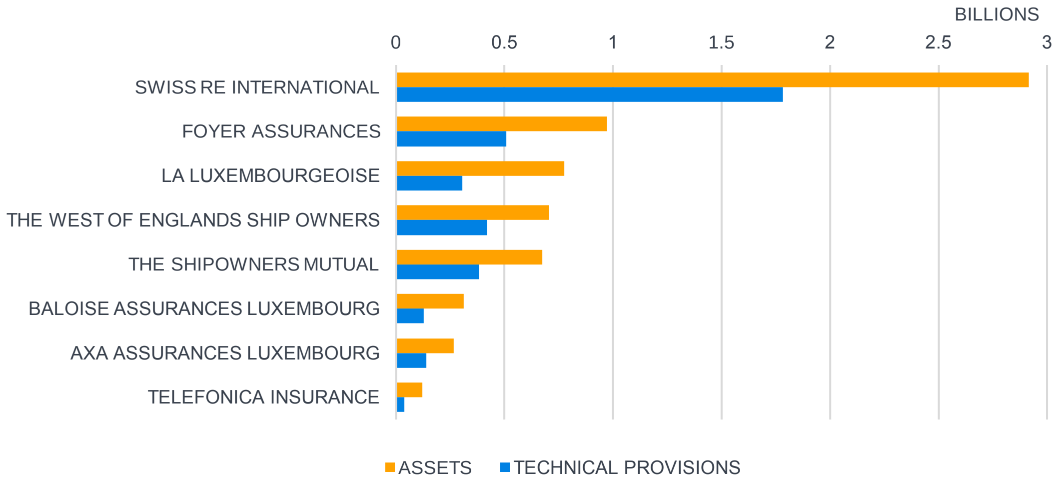


FIGURE 4: TOTAL TECHNICAL PROVISIONS AND TOTAL ASSETS PER NON-LIFE INSURER



SCR RATIOS: HOW SOLVENT IS THE LUXEMBOURG MARKET?

Life insurance entities

On an aggregate level, life insurance undertakings from our sample are well capitalised, with an average Solvency Capital Requirement (SCR) ratio (Eligible Own Funds / Solvency Capital Requirement) equal to 193% and an average Minimum Capital Requirement (MCR) ratio of 565% (3). None of the life insurers has a solvency ratio below 100%. Based on these numbers, Generali Luxembourg (325%), Crédit Agricole Life Insurance (243%) and Natixis Life (219%) have the highest solvency ratios among the life insurers, compared to Cardif Lux Vie (147%), Swiss Life Luxembourg (140%) and Lombard Assurance (131%), which have the lowest solvency ratios.

We observe that all life insurers in our sample use the standard formula (SF) to calculate their solvency capital positions, hence facilitating their mutual comparability

FIGURE 3: SOLVENCY II FIGURES, LUXEMBOURG LIFE INSURERS AT YEAR-END 2017 (€ MILLIONS)

NAME UNDERTAKING	ELIGIBLE OWN FUNDS TO SCR	SCR	SCR RATIO	MCR RATIO	RANK SCR RATIO	CAPITAL MODEL
BÂLOISE VIE LUXEMBOURG	146	90	162%	360%	9	SF
CARDIF LUX VIE	599	408	147%	307%	11	SF
CRÉDIT AGRICOLE LIFE INSURANCE	385	160	241%	838%	2	SF
GB LIFE LUXEMBOURG	33	16	201%	446%	6	SF
GENERALI LUXEMBOURG	110	34	325%	1299%	1	SF
LA MONDIALE EUROPARTNER	528	297	178%	657%	7	SF
LOMBARD INTERNATIONAL ASSURANCE	523	400	131%	291%	13	SF
NATIXIS LIFE	143	65	219%	472%	3	SF
R+V LUXEMBOURG LEBENSVERSICHERUNG	744	350	213%	852%	5	SF
SOGELIFE	380	174	219%	734%	3	SF
SWISS LIFE (LUXEMBOURG)	255	182	140%	304%	12	SF
THE ONELIFE COMPANY	155	96	161%	397%	10	SF
WEALINS	221	125	176%	385%	8	SF
ALL	4,224	2,398	193%	565%		

Non-life insurance entities

The average solvency ratio of the non-life insurers in our sample (Figure 4) is 237%, which is higher than the average SCR ratio for the life insurers. The average MCR ratio is 624%. Of the non-life insurers, Swiss Re International (403%), Baloise Assurances Luxembourg (295%) and The West of Englands Ship Owners (294%) have the highest solvency ratios. La Luxembourgeoise (187%), Foyer Assurances (178%) and Telefonica Insurance (144%) have the lowest solvency ratios. In our sample, only Swiss Re International uses a full internal model (FIM).

FIGURE 4: SOLVENCY II FIGURES, LUXEMBOURG NON-LIFE INSURERS AT YEAR-END 2017 (€ MILLIONS)

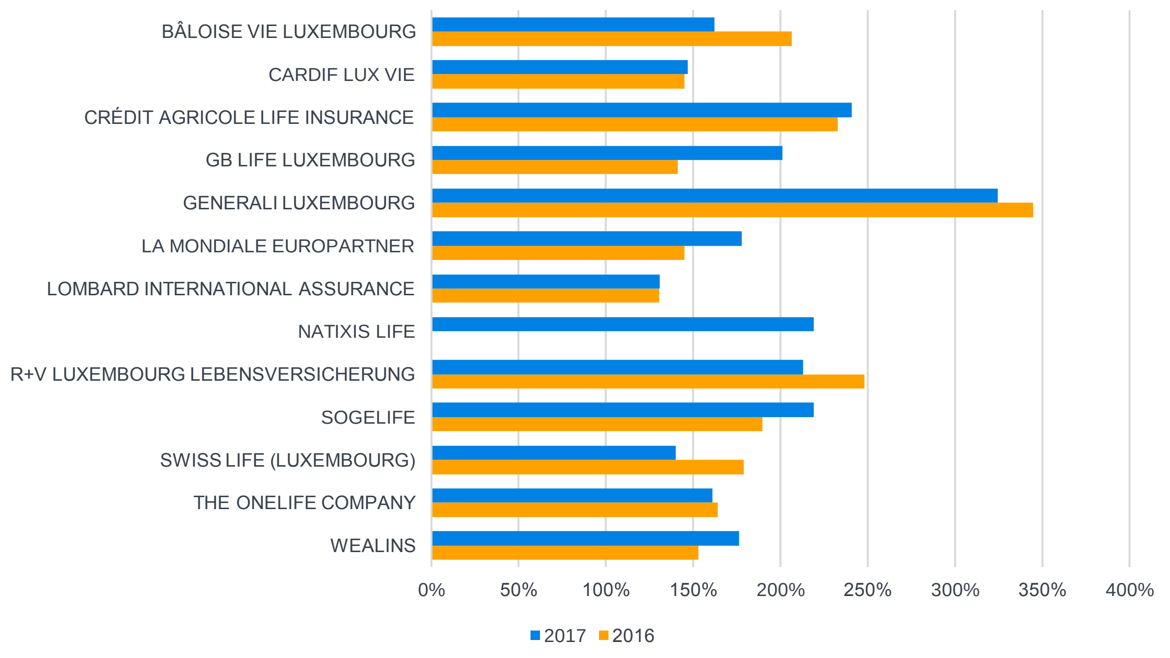
NAME UNDERTAKING	ELIGIBLE OWN FUNDS TO SCR	SCR	SCR RATIO	MCR RATIO	RANK SCR RATIO	CAPITAL MODEL
AXA ASSURANCES LUXEMBOURG	80	38	208%	463%	5	SF
BALOISE ASSURANCES LUXEMBOURG	97	33	295%	656%	2	SF
FOYER ASSURANCES	256	144	178%	449%	7	SF
LA LUXEMBOURGEOISE	310	166	187%	748%	6	SF
SWISS RE INTERNATIONAL	398	99	403%	894%	1	FIM
TELEFONICA INSURANCE	50	35	144%	533%	8	SF
THE SHIPOWNERS MUTUAL	344	127	270%	881%	3	SF
THE WEST OF ENGLANDS SHIP OWNERS	293	100	294%	976%	4	SF
ALL	**1,827**	**741**	**248%**	**700%**		

COMPARISON SCR 2016 AND 2017

Life insurance entities

The comparison of the SCR ratio between 2016 and 2017 is shown in Figure 5. The SCR values for Natixis Life in 2016 is missing. The figures shows that WEALINS, Sogelife, GB Life Luxembourg and La Mondiale Europartner have increased their SCR ratios significantly. This results from either a change in the product mix, shifting from products with financial guarantees options to unit-linked products, or from a capital increase as main drivers of the change. On the other hand we see that Baloise Vie Luxembourg, R+V Luxembourg Lebensversicherung and Swiss Life Luxembourg report lower SCR ratios in 2017 compared to 2016.

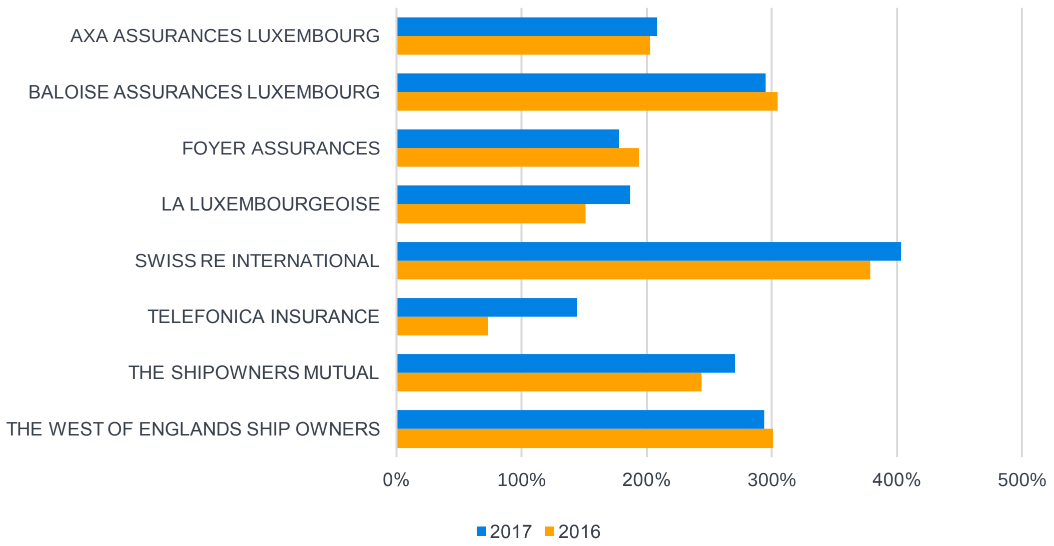
FIGURE 5: SCR RATIOS FOR THE LIFE INSURERS IN OUR SAMPLE FOR 2016 AND 2017



Non-life insurance entities

The SCR ratios for the non-life insurers can be seen in Figure 6. The SCR ratio of Telefonica in 2017 has been brought above the 100% threshold, partly due to a capital injection of 15 million in December 2017. Axa Assurances, La Luxembourgeoise, Swiss Re International and the Shipowners Mutual have also increased their SCR ratios in 2017, while the SCR ratios of Foyer Assurances and The West of Englands Ship Owners have decreased over a year.

FIGURE 6: SCR RATIOS FOR THE NON-LIFE INSURERS IN OUR SAMPLE FOR 2016 AND 2017

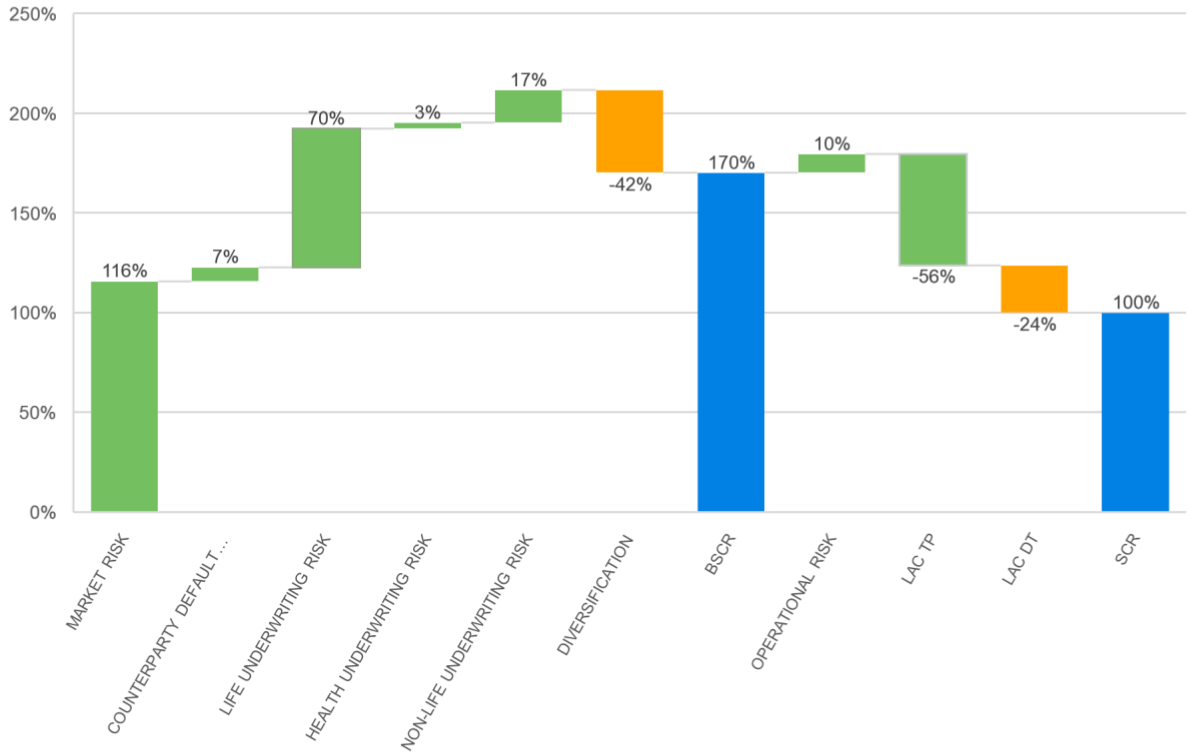


ANALYSIS OF SCR: WHERE IS THE RISK?

Luxembourg

Undertakings are required to cover all risks affecting their balance sheets, i.e., their solvency positions. In Figure 7 the breakdown of the SCR on an aggregate basis is shown for Luxembourgish insurers that make use of the standard formula in our sample. Market risk is by far the largest risk with the SCR for Luxembourgish insurers, accounting for 116% of the overall risk associated with the SCR calculation. The second-largest risk is life underwriting, which accounts for 70% prior to diversification, followed by non-life underwriting risk (17%). Diversification benefit accounts for 42% of total SCR and the loss-absorbing capacity of technical provisions (LAC TP) benefit accounts for 56% of the total SCR. Cardif Lux Vie, Natixis Life and Sogelife show LAC TP benefit accounting for more than 100% of the total SCR.

FIGURE 7: BREAKDOWN OF SCR BY RISK MODULE ON AN AGGREGATE BASIS

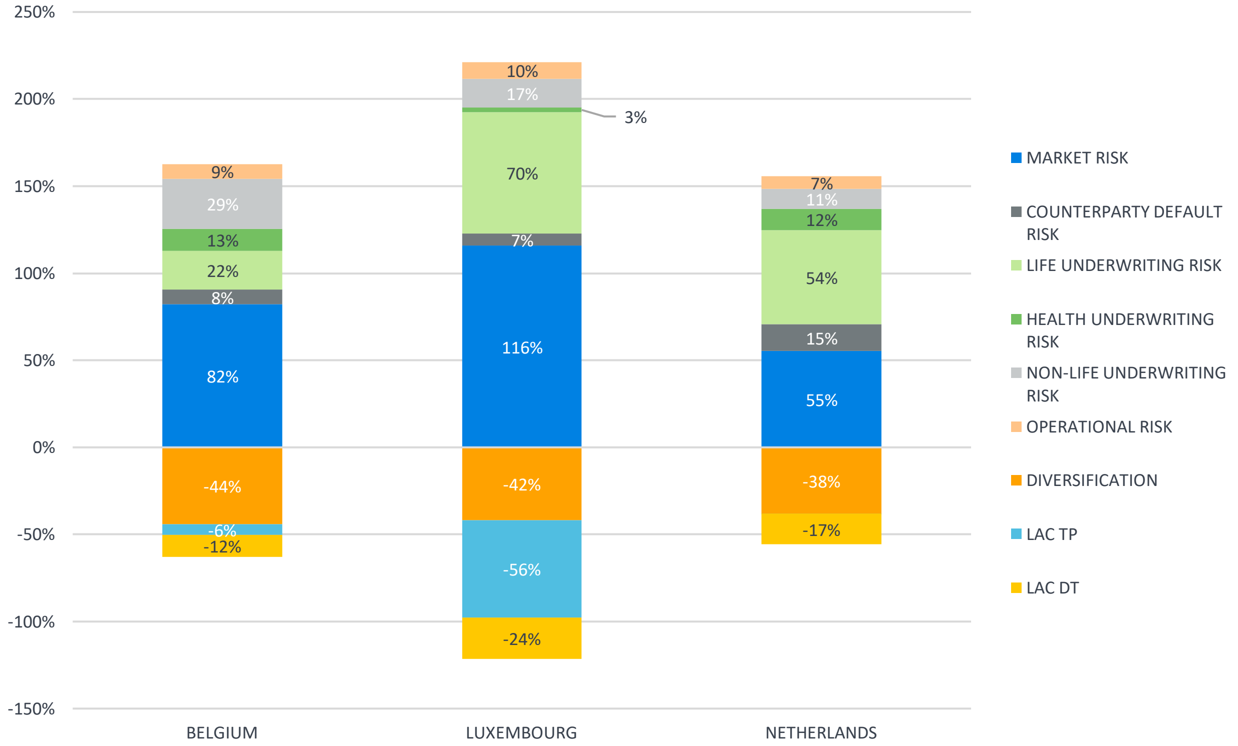


Comparison to Belgium and the Netherlands

Comparing the breakdown of the different risk modules between Luxembourg, Belgium and the Netherlands (Benelux) for the sample of insurers used in each country (see Figure 8), we can draw the following conclusions regarding the different modules of risk for Luxembourg:

- Market risk is the highest risk of the SCR for all countries. Luxembourg shows specific characteristics as its market risk represents more than 100% of the SCR (considering market risk prior to diversification). Market risk for Luxembourg insurers (116%) and Belgian insurers (80%) is far higher than for insurers in the Netherlands (55%). The SFCRs do not provide a breakdown of market risks so it is difficult to draw any conclusions as to the reasons behind these differences. However, it is noteworthy that a higher market risk may be an indicator of a riskier investment portfolio with more upward potential. We see this confirmed in Figure 13 and Figure 15 below with the distribution of investments by asset class for insurers, which has a relatively large proportion of corporate bonds (44% at market level) with a more risky profile than the government bonds we see more of in Belgium and the Netherlands.
- In Luxembourg (and the Netherlands), we observe that the non-life underwriting risk is significantly lower than the life underwriting risk. The life underwriting risks are relatively large in both the Netherlands and Luxembourg due to the large portion of savings business in these countries.
- Diversification represents approximately 40% of the SCR for Belgium and Luxembourg while it is approximately 10% lower in the Netherlands. Because most of the Belgian undertakings pursue both life and non-life activities, we would expect diversification to be significantly higher in Belgium compared to Luxembourg. However, the Luxembourg insurers benefit from relatively higher diversification between market and total underwriting risk compared to Belgium.
- The high loss-absorbing capacity of deferred taxes (LAC DT) in Luxembourg is caused by a higher deferred tax liability (DTL) position compared to Belgium and the Netherlands. The LAC TP in Luxembourg is quite high, expectedly, due to a large amount of discretionary profit sharing partly offsetting the high market risk exposure.

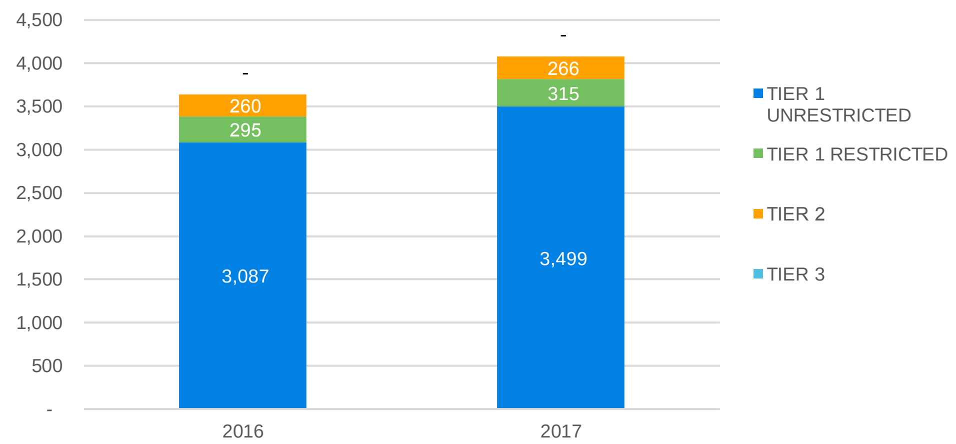
FIGURE 8: SCR BREAKDOWN BY RISK MODULE FOR UNDERTAKINGS USING SF IN THE BENELUX[3]



ANALYSIS OF OWN FUNDS AND TIERING

Own funds are divided into three tiers based on their quality. Tier 1 capital is the highest ranking with the greatest loss-absorbing capacity, such as equity or bonds. Tier 2 own funds are composed of hybrid debt and Tier 3 of other capital. As shown in Figure 9 and Figure 10, insurers' own funds are considered of good quality, with over 85% classified in Tier 1 (non-life insurers slightly higher). For a good comparison between 2016 and 2017, we excluded one insurer in the analysis of this section.4 We see almost no difference in the tiering for non-life insurers, while we see an increase of almost 10% in the total funds for life insurers. However, this increase does not lead to a different distribution of the tiering.

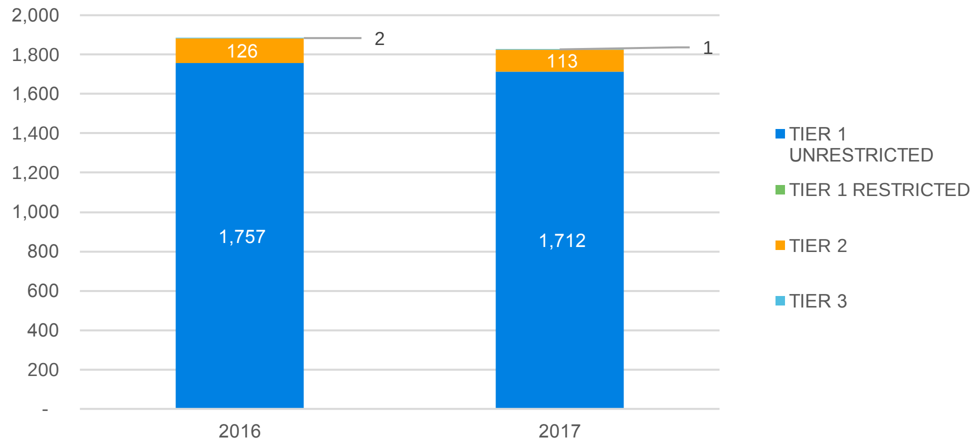
FIGURE 9: TIERING OF ELIGIBLE OWN FUNDS TO MEET THE SCR FOR LIFE INSURERS (€ MILLIONS)



[3] The comparison between the three countries in the Benelux is based on a subset of the largest life and non-life insurers in the Dutch and Belgian markets. For the Netherlands, the selection covers the main insurance entities of the largest insurance groups (excluding their health business). For Belgium, the sample includes the 12 largest insurance entities.

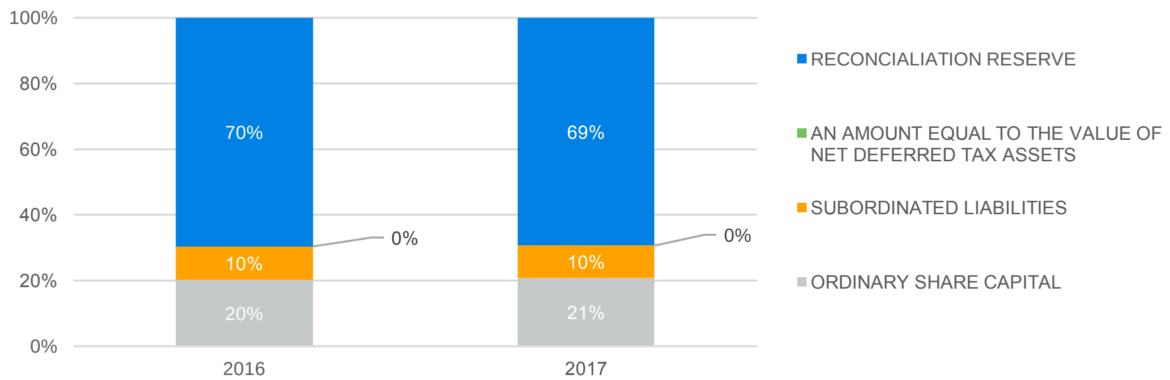
[4] We exclude Natixis Life because the specific data was not available for 2016.

FIGURE 10: TIERING OF ELIGIBLE OWN FUNDS TO MEET THE SCR FOR NON-LIFE INSURERS (€ MILLIONS)



In Figure 11 the distribution of basic own funds is given. It appears that the basic funds mainly consist of reconciliation reserves (68%) for both years. Reconciliation reserves are made of statutory reserves, profit brought forward, profit/loss for the financial year and present value of future profits. The latest term depends on the methodologies and assumptions selected as well as on market conditions, hence embedding potential volatility in the amounts from one period to the other. The remaining capital consists of ordinary share capital and subordinated liabilities.

FIGURE 11: DISTRIBUTION OF OWN FUNDS TIERING, LIFE AND NON-LIFE (%)



Analysis of assets

LIFE MARKET

In Figure 12 the allocation of investments for life insurers is shown. There are large differences in allocation of investments into different asset classes among the different life insurers in our sample. This is also visible in Figure 13, where we can see the distribution of investments for all life insurers in our sample using box-plots. The black lines in Figure 13 represent the allocation ranges within the insurers analysed, with the grey box representing the 25th to 75th percentiles of the range and the green dot the median. The asset class government bonds ranges from 10% to 90% and the corporate bonds range from 0% to 80%. The general investment strategy of life undertakings in Luxembourg is marked by a preference for corporate bonds, which account for 46% of the total investments. Government bonds account for only 35% of the total investments. This is remarkable because in the same sample in 2016 government bonds accounted for 57% of the total investments, while corporate bonds accounted for only 34% of the total investments. Nevertheless, corporate and government bonds together account for 81% of the total investments within our sample of life insurers, reinforcing the attractiveness of bonds as investment opportunities for insurers. Next to their attractive structures—regular payments allowing insurers to match the future claims payments—they are also less expensive in terms of capital than more volatile assets such as equities. Collective investments undertakings account also for 14% of the total investments. Under the Solvency II legislation, investment funds are referred to as collective investments undertakings.

FIGURE 12: ALLOCATION OF INVESTMENTS BY ASSET CLASS FOR LIFE INSURERS

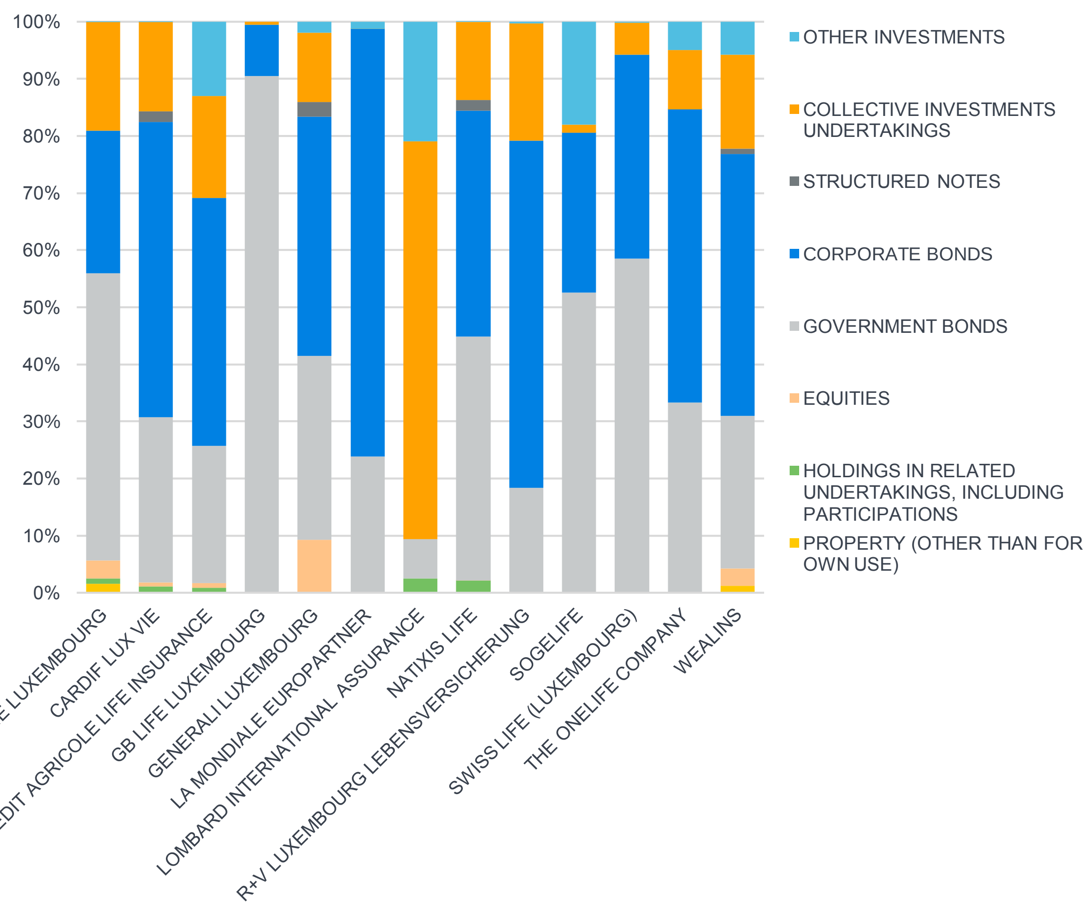
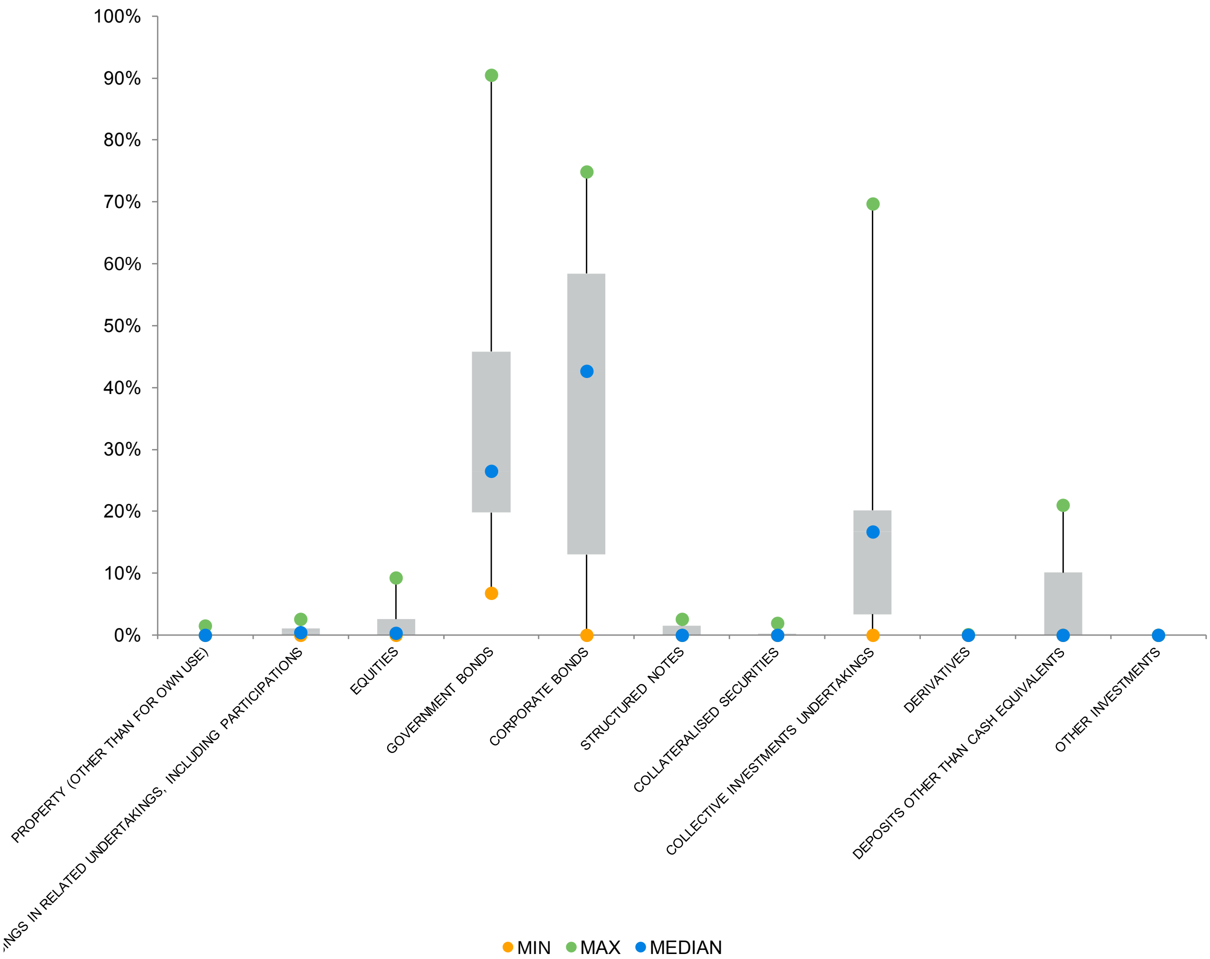


FIGURE 13: DISTRIBUTION OF INVESTMENTS BY ASSET CLASS FOR LIFE INSURERS



NON-LIFE MARKET

The allocation of investments for non-life insurers is shown in

Figure 14. We see major differences among the different non-life insurers. This is also visible in Figure 15, where we can see the distribution for all non-life insurers. The asset mix percentages for government and corporate bonds range from, respectively, 0% to 65% and 0% to 55%. The general investment strategy of non-life undertakings in Luxembourg does not show a real preference between government and corporate bonds. Both account for just over 30% of the total investments on a market level. This is in line with the investment distribution of last year. The third-largest asset class for non-life insurers contains holdings in related undertakings, including participations, and accounts for 22% of total investments. Especially the Shipowners Mutual, The West of Englands Ship Owners and La Luxembourgeoise invest significant amounts of their capital in this asset class. The solo entities of the Shipowners Mutual and The West of Englands Ship Owners invest most of their assets in their respective parent groups of same names.

FIGURE 14: ALLOCATION OF INVESTMENTS BY ASSET CLASS FOR NON-LIFE INSURERS

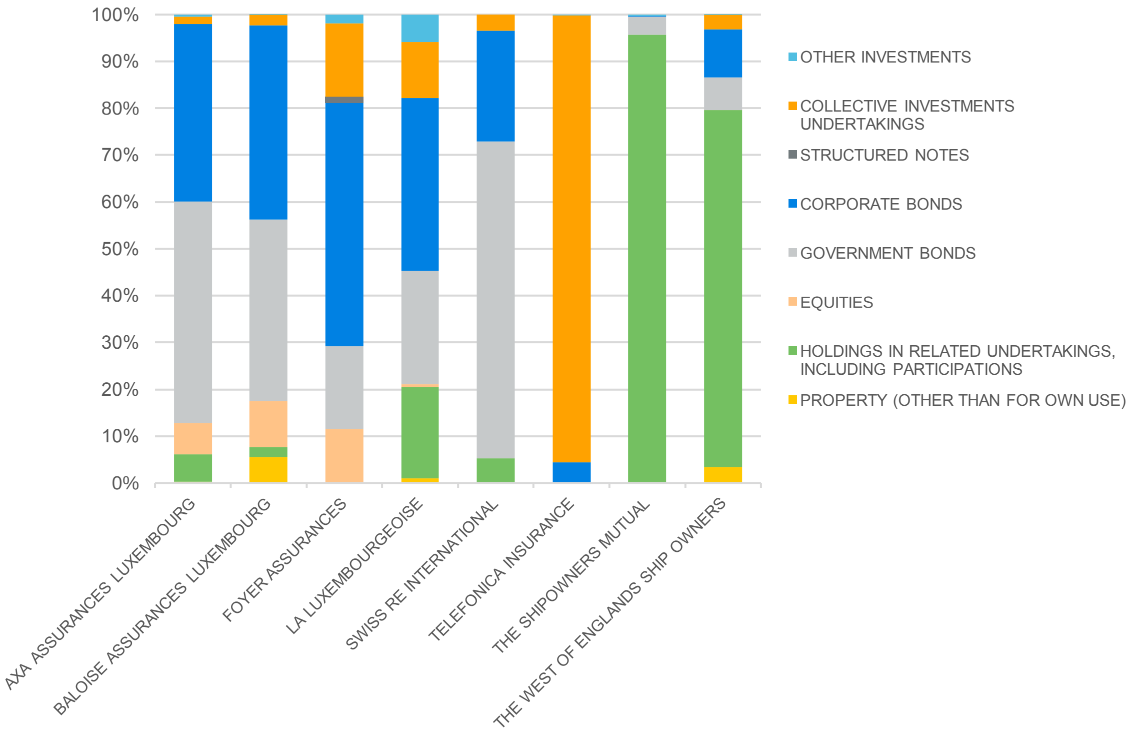
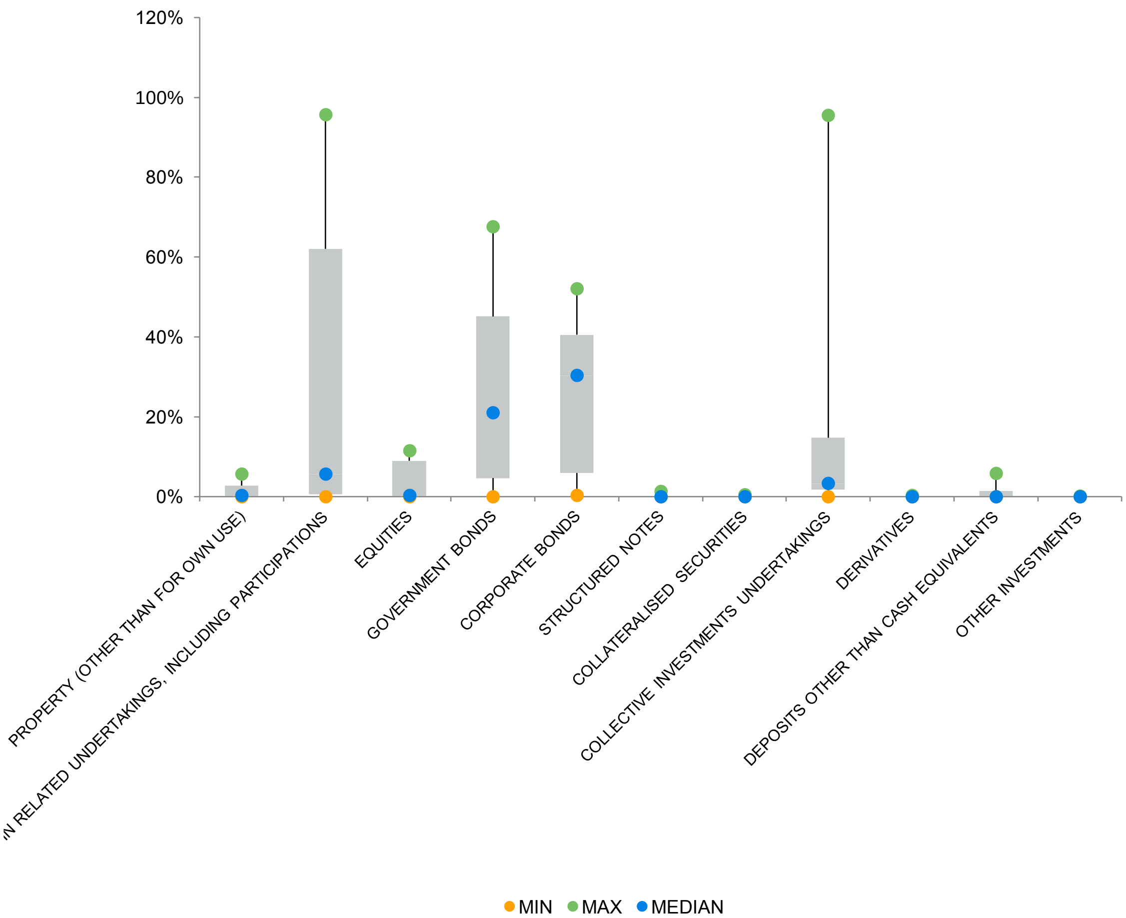


FIGURE 15: DISTRIBUTION OF INVESTMENTS BY ASSET CLASS FOR NON-LIFE COMPANIES



Non-life analysis of liabilities and underwriting

In this section we perform analysis on the liabilities and underwriting of the non-life insurers in our sample. We look at the technical provisions and gross written premiums, the loss ratios and the technical result per line of business.

TECHNICAL PROVISIONS AND GROSS WRITTEN PREMIUMS

In Figure 16, we compare the GWP per line of business for 2017 with 2016. In Figure 17, we show the comparison of technical provisions between 2017 and 2016 for the different lines of business. We note that the technical provisions for the credit and surety insurance line of business is negative. We only have Swiss Re in our sample with products in this line of business. The negative technical provisions for this line of business can be caused in the valuation when, on a cash flow basis, future premium inflows are expected to exceed the expected claims related to existing contracts.

Most lines of business show a limited change in 2017 in terms of GWP. Only the lines of business 'General liability insurance' (+10%) and 'Marine, aviation and transport insurance' (-18%) changed by more than 10%. In terms of technical provisions, we see the same trends as in Figure 16 but with larger differences.

Comparing GWP and technical provisions, the different durations of each line of business are clearly visible. So is the case for the 'General liability insurance' line of business, where the technical provisions are five times higher than the GWP. This is in contrast to the 'Other motor insurance' line of business, where the technical provisions are two time lower than the GWP.

FIGURE 16: GROSS WRITTEN PREMIUM FOR THE NON-LIFE BRANCHES OF THE ENTITIES IN OUR SAMPLE

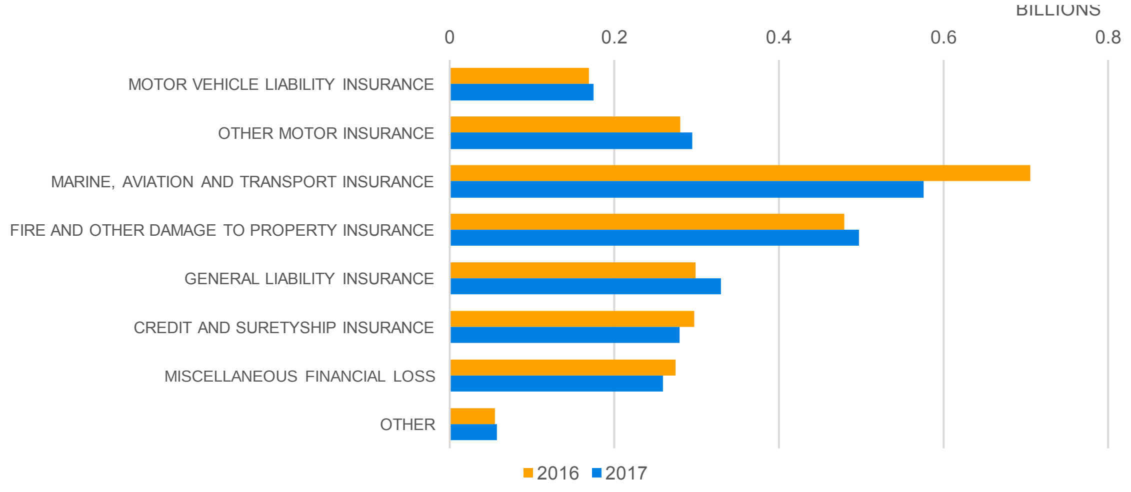
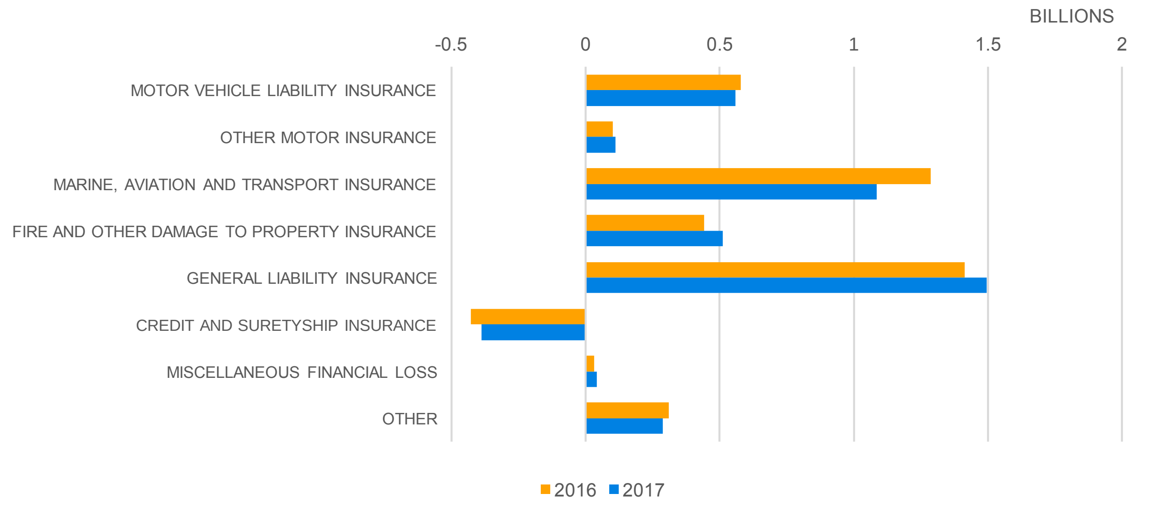


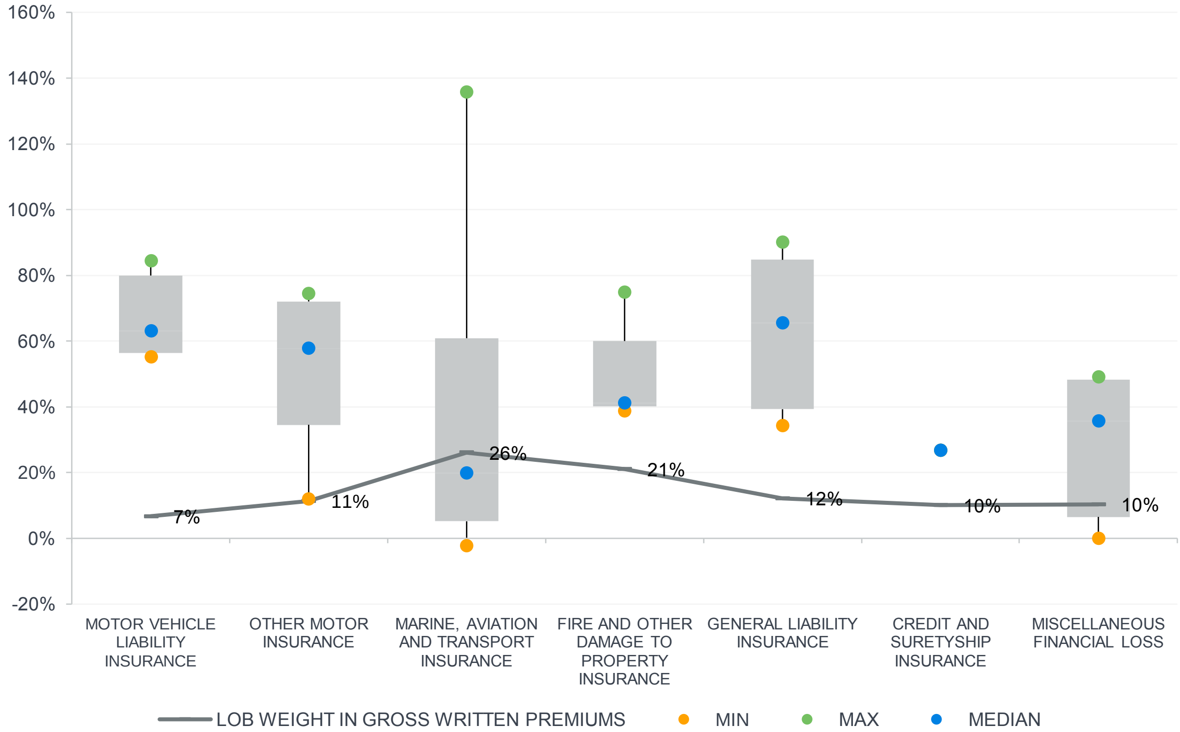
FIGURE 17: TECHNICAL PROVISIONS OF NON-LIFE ENTITIES BY LINE OF BUSINESS



LOSS RATIOS BY LINE OF BUSINESS[5]

In Figure 18, statistics of the seven largest lines of business (LOBs), in terms of net premium earned and volatility in loss ratio by line of business, are shown. The line of business 'Marine, aviation and transport' represents 26% of the total gross written premium in our sample. Together with 'Fire and other damages to property' (21%) and 'General liability' (12%), the second- and third-largest in net premium earned, they make up the three largest lines of business for Luxembourg's non-life insurers. Figure 18 shows large differences among the different lines of business. The 'Marine, aviation and transport' line of business has the largest range and the lowest median of all lines of business, showing the large volatility in this line of business in combination with limited correlation in loss ratios among insurers. 'Motor vehicle liability,' 'Other motor' and 'General liability' show the highest loss ratios of around 60%. Also, these lines of business show relatively large differences among the insurers in our sample.

FIGURE 18: DISTRIBUTION OF LOSS RATIOS BY LINE OF BUSINESS

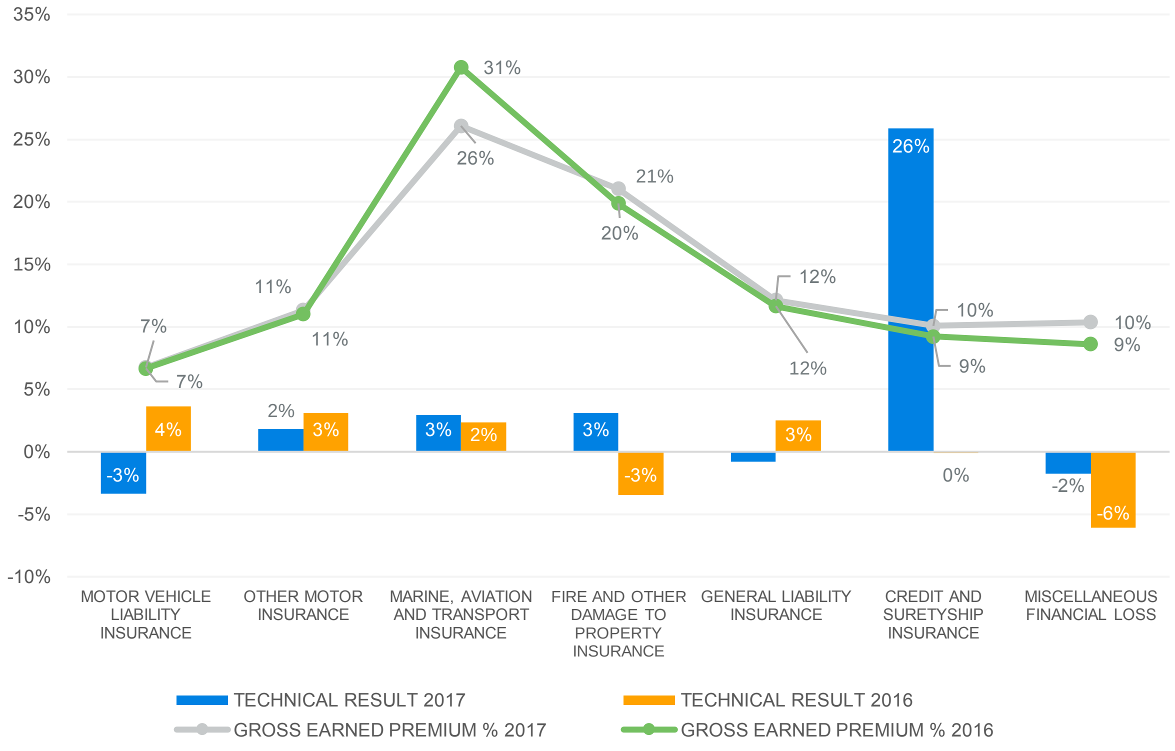


TECHNICAL RESULT BY LINE OF BUSINESS

In Figure 19, the technical results per line of business described in the section above are shown on an aggregate basis for the non-life entities included in the sample. The technical result is defined (and derived) as: (Net Earned Premium – Net Incurred – Expenses Incurred) / (Gross Earned Premium). The technical result, as defined, includes movements in prior year reserves (part of the net incurred) but does not include investment income. Figure 19 indicates that, for the year-end 2017, three lines of business exhibit a negative technical result, namely 'Motor vehicle liability,' 'General liability' and 'Miscellaneous financial loss.' In contrast, two of these lines of business had positive technical results for 2016. In 2016 only the lines of business 'Fire and other damage to property' and 'Miscellaneous financial loss' had negative technical results, which turned into a positive result for the 'Fire' business in 2017. The technical result for the 'Credit and suretyship' line of business has increased the most, from around zero in 2016 to 26% in 2017. This line of business in our sample is only offered by Swiss Re, which has seen a decrease in incurred claims while the earned premium increased.

[5] The smaller LOBs of Telefonica ('General liability' and 'Motor vehicle liability') are excluded from Figure 18 due to unrealistic results.

FIGURE 19: TECHNICAL RESULT PER LINE OF BUSINESS



Life analysis of liabilities and underwriting

In this section we perform analysis on the liabilities and underwriting of the life insurers in our sample. We look at the technical provisions and gross written premiums per line of business.

TECHNICAL PROVISIONS AND GROSS WRITTEN PREMIUMS

Figure 20**Error! Reference source not found.** shows the allocation of life technical provisions by line of business for year-end 2017 compared to 2016. Overall, the life technical provisions for the entities in our sample have increased 9.9%, from €134 billion to €147 billion. The increase in technical provisions is mainly caused by 'Index-linked and unit-linked insurance,' which is by far the largest life business for Luxembourg insurers, with an increase of 13.6% to €109 billion. This line of business accounts for 74.2% of the total life technical provisions in Luxembourg in 2017. The line of business 'Insurance with profit participation' shows no real changes in absolute value, while the market share of this line of business is reduced to 25.8% in 2017.

Figure 21 shows the allocation of life gross written premiums by line of business for year-end 2017 compared to 2016. The gross written premium of the life business of the insurers in our sample was €19.3 billion compared to €17.0 billion in 2016, an increase of 13.5%. This increase is mainly caused by the line of business 'Index-linked and unit-linked insurance,' which increased by 30.9% to €15.1 billion. This line of business accounts for 78.4% of the total GWP for Luxembourg in 2017. The line of business 'Insurance with profit participation' decreased in the same year by 25.1% to €3.7 billion, reducing its market share to 19.4%. This shift from insurances with profit participation to index and unit-linked insurances can be seen as a market development because most insurers in our sample contribute to it.

FIGURE 20: LIFE BUSINESS TECHNICAL PROVISIONS IN 2016 AND 2017 BY TYPE OF PRODUCT OF THE ENTITIES IN OUR SAMPLE

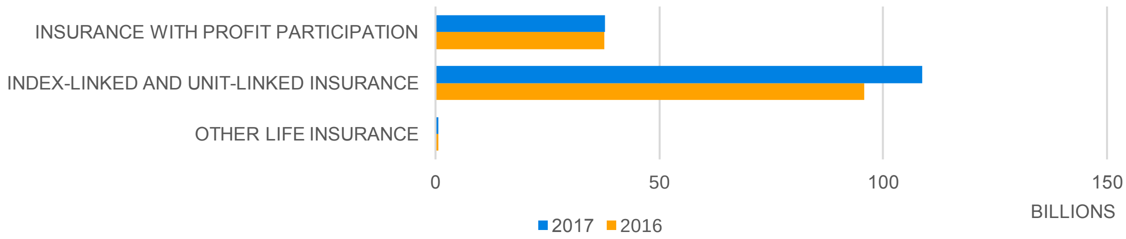
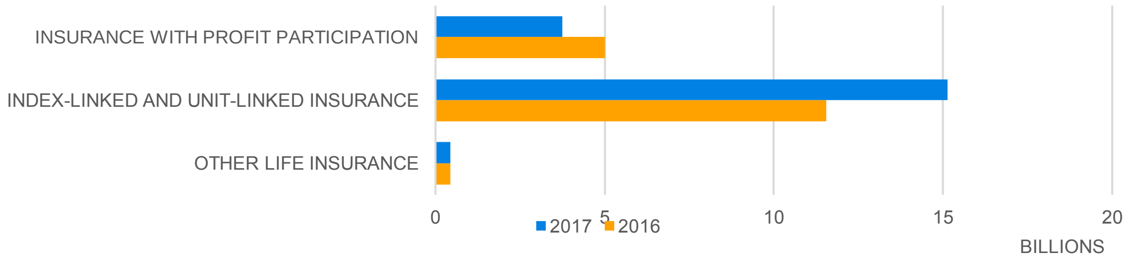


FIGURE 21: LIFE BUSINESS GROSS WRITTEN PREMIUMS IN 2016 AND 2017 OF THE ENTITIES IN OUR SAMPLE



Reliances and limitations

For those who have read our 2016 SFCR report concerning the Luxembourg insurance market, the figures that we have presented in this report are in some cases different from those presented in the previous report. The reason relates to some differences in the selection of insurers for our analyses.

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 (compiled through Solvency II Wire data). We have not audited nor verified this data or other information. However, we added some missing data to complement the research. The missing data was extracted from the insurers' SFCRs. 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.

Appendix A: List of the Luxembourg undertakings analysed

The table in Figure 22 provides an overview of the insurers we have included in our analysis. Twenty-one insurers are included in total, of which 13 are life insurers and eight are non-life insurers.

FIGURE 22: LUXEMBOURG UNDERTAKINGS ANALYSED

FORMAL NAME	NAME IN REPORT	LIFE OR NON-LIFE	SCR RATIO
LOMBARD INTERNATIONAL ASSURANCE	LOMBARD INTERNATIONAL ASSURANCE	LIFE	131%
CARDIF LUX VIE	CARDIF LUX VIE	LIFE	147%
SWISS RE INTERNATIONAL	SWISS RE INTERNATIONAL	NON-LIFE	403%
LA MONDIALE EUROPARTNER	LA MONDIALE EUROPARTNER	LIFE	178%
CREDIT AGRICOLE LIFE ASSURANCE	CREDIT AGRICOLE LIFE ASSURANCE	LIFE	241%
SWISS LIFE (LUXEMBOURG) SA	SWISS LIFE (LUXEMBOURG)	LIFE	140%
SOGELIFE SA	SOGELIFE	LIFE	219%
R+V LUXEMBOURG LEBENSVERSICHERUNG S.A.	R+V LUXEMBOURG LEBENSVERSICHERUNG	LIFE	213%
BALOISE VIE LUXEMBOURG	BALOISE VIE LUXEMBOURG	LIFE	162%
FOYER ASSURANCES	FOYER ASSURANCES	NON-LIFE	178%
LA LUXEMBOURGEOISE SA	LA LUXEMBOURGEOISE	NON-LIFE	187%
THE SHIPOWNERS MUTUAL PROTECTION AND INDEMNITY ASSOCIATION (LUXEMBOURG)	THE SHIPOWNERS MUTUAL	NON-LIFE	270%
THE WEST OF ENGLANDS SHIP OWNERS MUTUAL INSURANCE ASSOCIATION (LUXEMBOURG)	THE WEST OF ENGLANDS SHIP OWNERS	NON-LIFE	294%
THE ONE LIFE COMPANY S.A.	THE ONE LIFE COMPANY	LIFE	161%
TELEFONICA INSURANCE S.A.	TELEFONICA INSURANCE	NON-LIFE	144%
GENERALI LUXEMBOURG	GENERALI LUXEMBOURG	LIFE	325%
AXA ASSURANCES LUXEMBOURG SA	AXA ASSURANCES LUXEMBOURG	NON-LIFE	208%
BALOISE ASSURANCES LUXEMBOURG SA	BALOISE ASSURANCES LUXEMBOURG	NON-LIFE	295%
GB LIFE LUXEMBOURG	GB LIFE LUXEMBOURG	LIFE	201%
WEALINS SA	WEALINS	LIFE	176%
NATIXIS LIFE	NATIXIS LIFE[6]	LIFE	219%

[6] Natixis Life is excluded in some parts of the analysis because some values in its 2016 QRT are missing, which would lead to inaccurate results.

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