REINSURERS' FINANCIAL COMMUNICATION

BENCHMARK STUDY (PART 1)

At 31 December 2018

MAZARS

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INTRODUCTION

Reinsurance, also known as the "insurers' insurance", plays a key role in the global market economy today. Several factors, such as the strengthening of capital requirements, the increasing level of significant NAT CAT events or the need for optimal coverage is increasing the need for reinsurance.

Initially, insurance companies sought partnerships with reinsurers to obtain protection or financing for the risks they were underwriting. However, the role of reinsurance is continuously expanding and, in the current market circumstances, reinsurers propose a growing range of products that not only cover risks, but also offer financial solutions (especially for life business). It is also common to sell specific packages to improve the capital management of ceding companies.

This year, we decided to publish our study in two parts. Part I of our 2018 benchmark study focuses on the analysis of intangible assets and deferred acquisition costs, provides an overview on the tax environment and deferred taxes, and gives insight on the performance measurements indicators.

Part II is scheduled for publication later this year. It will focus on the companies' risk universe. After analysing risk management disclosures, we will focus on Solvency II metrics and provide an overview of Insurance Linked Securities, such as CAT/Mortality bonds, that are sponsored by reinsurance companies.

EXECUTIVE SUMMARY

As highlighted in our previous edition, we note that, overall, reinsurance companies are transparent when it comes to financial disclosures. Compared to 2017, the granularity of information provided remains stable and is in line with IFRS or US GAAP requirements. However, IFRS disclosures seem more comprehensive for intangible assets and deferred taxes.

Information is overall homogenous, enhancing the comparability of benchmarked companies. The most significant discrepancies were noticed on the recoverability of tax losses carried forward where few reinsurers disclose the full set of information.

Given that the US Tax reform was enacted on December 22, 2017, most benchmarked companies mentioned in their 2017 annual report that they are working on strategies to mitigate potential significant future tax effects. Thus, we followed up on this topic in this year's study. Surprisingly, the 2018 annual reports do not provide much information. Although most benchmarked companies mention the impact of the US Tax reform in their 2018 disclosures, only two of them disclose precise figures in respect of the impacts in the financial statements.

In 2018, the P&C business continued to be hit by significant natural catastrophes such as hurricane Florence & Michael, typhoon Jebi, Trami & Mangkhut, the two Californian Wild Fires and storm Friederike. These events maintained a high level of loss-ratio at 70%[1] in 2018 vs. 73.3% and 60%[2] in 2017 and 2016, respectively.

Moreover, communication in respect of significant natural catastrophic events is still inconsistent. Some companies provide impacts either on a gross or net of retrocession basis. Also, some companies provide an impact per individual event while others provide a global cumulated impact for all events.

When it comes to Life reinsurance performance measurements they are differently disclosed as the performance indicators are not standardised across the industry. They vary from the operating result/margin, EBIT margin, life technical margin to event loss-ratio. Most benchmarked companies also disclose information in respect of new business.

Overall, we consider that this benchmark study allows a better understanding of the risk profile and strategy of each reinsurer via the different metrics and analysis disclosed.

We expect the introduction of IFRS 17 in 2022 to dramatically change the key performance indicators used by the industry and is an opportunity to reach a more harmonised approach in financial communication.

[1] Panel overage excluding RGA (almost 100% of life business) & Hannover Re (which does not disclose a global P&C loss-ratio, but provides the level of the combined ratio).

[2] Year 2017 & 2016 are panel averages excluding RGA, Hannover Re & XL-Catlin (merged with AXA as of 2018) but include China Re. Thus, figures are not comparable to our 2017 benchmark.

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The panel of reinsurers

In line with the benchmark study published last year, we have focused our attention on several companies whose core business is reinsurance. The companies targeted were selected based on the top 15 reinsurers in the world (based on gross written premiums), from which we excluded one Asian and one Indian company (Korean Re and the General Insurance Corporation of India) and two holding companies (Great West Lifeco and Transatlantic Holdings) due to comparability issues. Compared to last year, we excluded XL + Catlin due to its absorption by AXA and we included in the panel China Re. It should also be mentioned that some reinsurers have also direct insurance business, like Munich Re (via ERGO Group), which were not excluded from this study as we present consolidated group figures.

From a pure information perspective, we have also included AXA and Allianz, later called "selected insurers", as we considered this information would allow a better understanding of the way reinsurers compare to regular insurers.

The benchmark study includes financial statements published in 2017 and 2018. Some figures are also disclosed for 2016. Below we present the key information in respect of their origins, the quotation market place, the share price for December 31st 2018 & 2017 and the accounting standards used for financial reporting purposes.

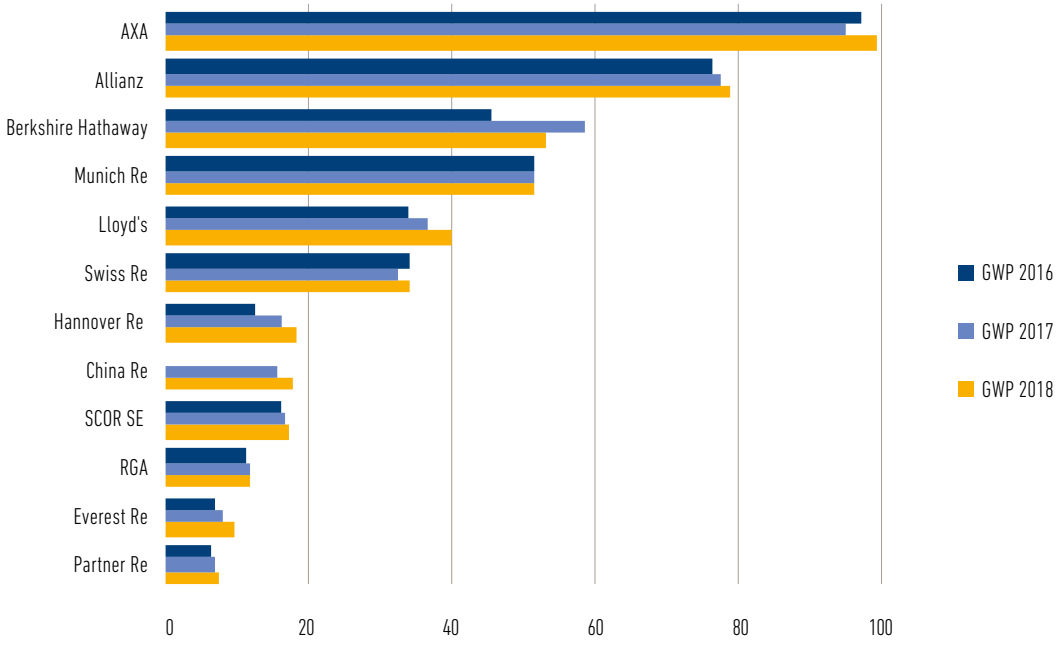
TABLE 1 - OVERVIEW AS AT 31/12/2018

	Munich Re	Hannover Re	Swiss Re	Berkshire Hathaway	RGA	Partner Re	Everest Re	Lloyd's	China Re	SCOR	AXA	Allianz
Country of origin:	Germany	Germany	Switzerland	USA	USA	USA	USA	UK	China	France	France	Deutschland
Listed company / Market	Xetra	Xetra	SIX Swiss Exchange	NYSE	NYSE	NYSE	NYSE	N/A	HKEX	Euronext	Euronext Paris	Xetra/NYSE
Accounting Standards	IFRS	IFRS	US GAAP	US GAAP	US GAAP	US GAAP	US GAAP	IFRS	IFRS	IFRS	IFRS	IFRS
Currency of the FS	EUR	EUR	USD	USD	USD	USD	USD	GBP	CNY	EUR	EUR	EUR
Share price 31/12/2018	190,55 €	117,70 €	CHF 90.12	A : $306k B : $202.08k	$140,23	$25,19	$214,90	N/A	HKD 1,6	39,40 €	18,86 €	175,14 €
Share price 31/12/2017	180,75 €	104,90 €	$93,63	A : $ 299.9k : $ 197.57k	$155,93	$28.67	$221.26	N/A	N/A	33,55 €	24,74 €	191,50 €

Furthermore, to provide an overall picture of the size of the companies in the panel and to better understand the nature of the business underwritten, we present below the evolution of the GWP between 2016, 2017, and 2018, and the split between life and non-life activities.

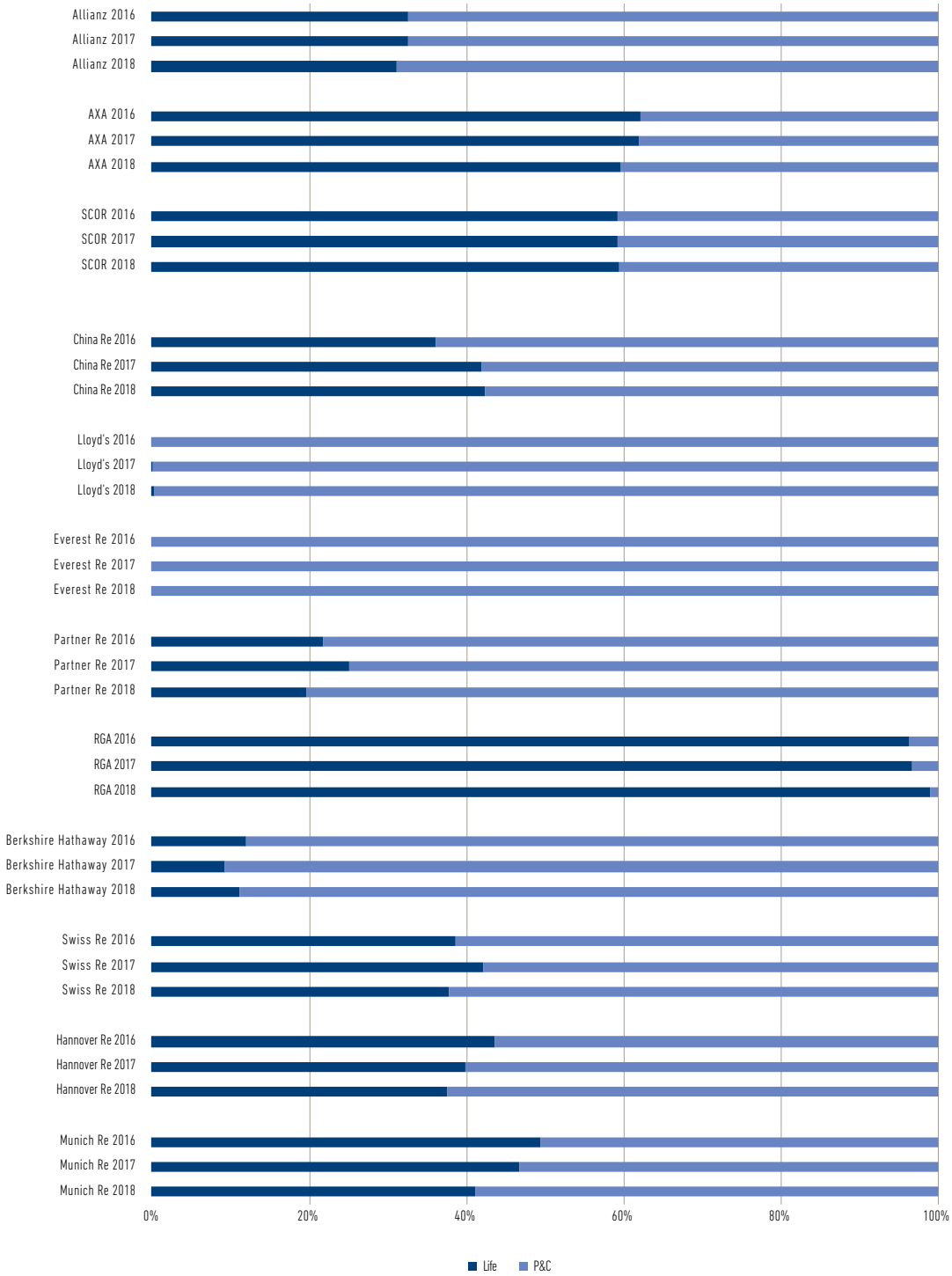
As can be seen from the analysis in Figure 1, the level of GWP remains fairly stable over the three last years. However, we note that all companies in our panel have seen their amount of GWP rise or remain stable, with Berkshire Hathaway (-10% at current FX) as the only exception. The main increases come from Everest Re (+24%), Partner Re (+18%) and China Re (+18%).

FIGURE 1: EVOLUTION OF GWP BETWEEN 2016, 2017 AND 2018 (IN €BN)



With respect to the type of business underwritten, no major shifts are noted. Concerning mixed reinsurers, we see that they mainly concentrate on non-life business except for SCOR (60% life reinsurance), AXA (60% of life direct/assumed business) and RGA which almost exclusively focuses on life products.

FIGURE 2: SPLIT OF GWP BETWEEN LIFE & P&C



A key factor when choosing a reinsurer is the agencies rating. This is driven by the importance ceding companies put on the financial strength of the other party. Furthermore, the credit risk of a reinsurer can also play a significant role for the ceding company in terms of the level of capital required for solvency purposes (SCR) imposed by local regulations such as Solvency II in Europe. In brief, a higher rated reinsurer, e.g. A+, will reduce the amount of capital required due to a lower counterparty default risk compared to a B+ rated reinsurer. However, the ceding company will generally agree to pay a higher level of premium if it chooses a top ranked reinsurer.

For this reason, the Table 2 presents a summary of the main ratings as of 2018:

TABLE 2 - FINANCIAL STRENGTH RATES 2018

	Munich Re	Hannover Re	Swiss Re	Berkshire Hathaway	RGA	Partner Re	Everest Re	Lloyd's	China Re	SCOR	AXA	Allianz
A.M. Best	A+ (Superior)	A+ (Superior)	A+ (Superior)	A++ (Excellent)	A+ (Superior)	A (Excellent)	A+ (Superior)	A (Excellent)	A (Excellent)	A+ (Superior)		A+ (Superior)
Fitch	AA (Very strong)					A+ (Upper medium)		AA- (Very strong)		AA- (Very strong)	AA- (Very strong)	
Moody's	Aa3 (Excellent)		Aa3 (Excellent)	Aa2 (Stable)	A1 (Upper medium)	A1 (*) (Upper medium)	A1 (Upper medium)			Aa3 (Excellent)	Aa3 (Excellent)	Aa3 (Excellent)
S&P	AA- (Very Strong)	AA- (Very strong)	AA- (Very strong)	AA+ (Excellent)	AA- (Very strong)	A+ (Strong)	A+ (Strong)	A+ (Strong)	A (Upper medium)	AA- (Very strong)	AA- (Very strong)	AA (Very strong)

(*) Applies to Partner Reinsurance Company Ltd. And Partner Reinsurance Company of the U.S. Source: Annual reports 2018

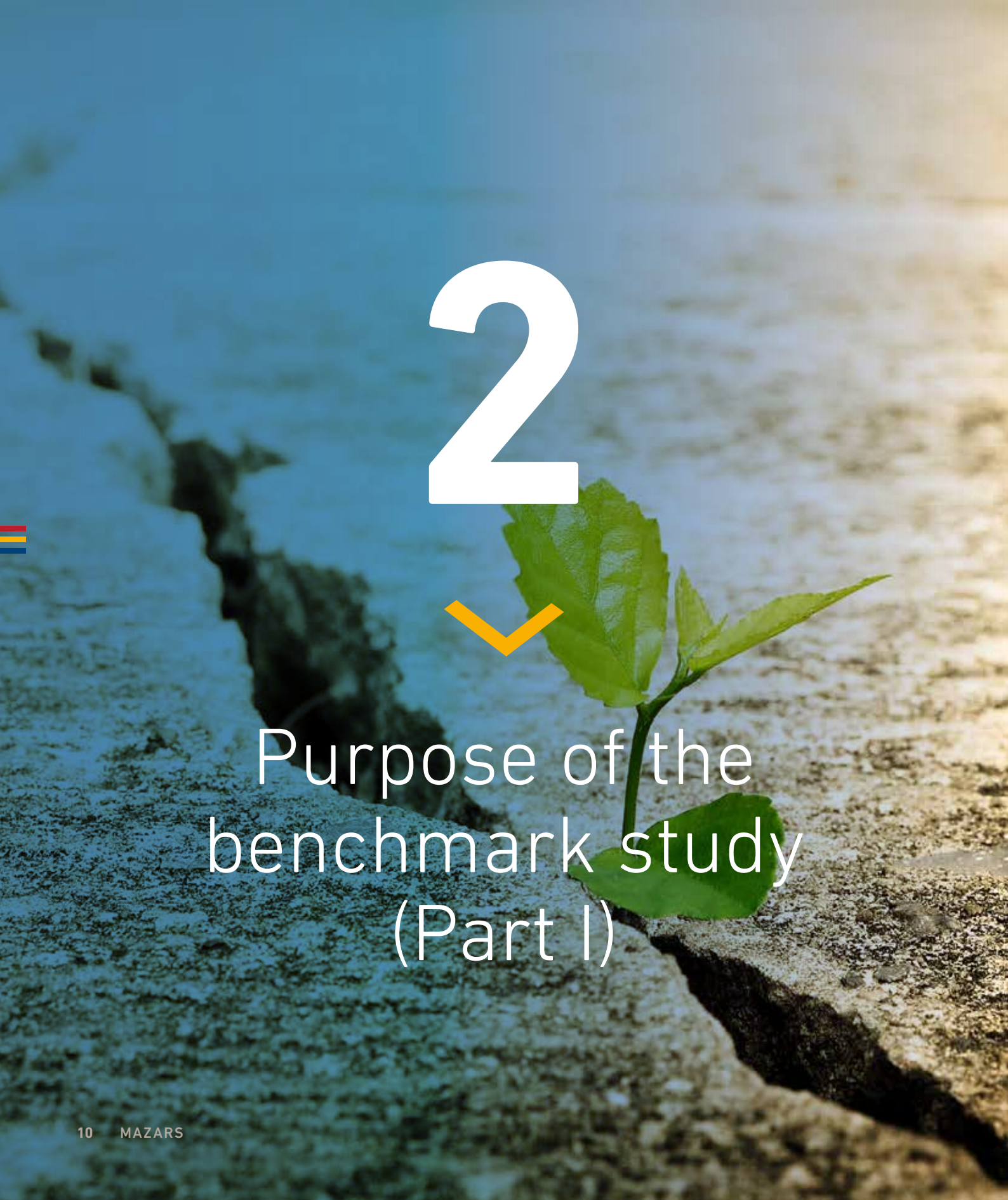
As a reminder, for our panel, the ratings in the annual reports 2017 were as follows:

TABLE 3 - FINANCIAL STRENGTH RATES 2017

	Munich Re	Hannover Re	Swiss Re	Berkshire Hathaway	RGA	Partner Re	Everest Re	Lloyd's	China Re	SCOR	AXA	Allianz
A.M. Best	A+ (Superior)	A+ (Superior)	A+ (Superior)	A++ (Excellent)	A+ (Superior)	A (Excellent)	A+ (Superior)	A (Excellent)	N/A	A+ (Superior)		A+ (Superior)
Fitch	AA (Very strong)					A+ (Upper medium)		AA- (Very strong)	N/A	AA- (Very strong)	AA- (Very strong)	
Moody's	Aa3 (Excellent)		Aa3 (Excellent)	Aa2 (Stable)	A1 (Upper medium)	A1 (*) (Upper medium)	A1 (Upper medium)		N/A	Aa3 (Excellent)	Aa3 (Excellent)	Aa3 (Excellent)
S&P	AA- (Very Strong)	AA- (Very strong)	AA- (Very strong)	AA+ (Excellent)	AA- (Very strong)	A+ (Strong)	A+ (Strong)	A+ (Strong)	N/A	AA- (Very strong)	AA- (Very strong)	AA (Very strong)

(*) Applies to Partner Reinsurance Company Ltd. And Partner Reinsurance Company of the U.S. Source: Annual reports 2017

We note that ratings are consistent in the panel. The ratings strengthen the idea that these companies are comparable and can be analysed via this benchmark study. We also note that the ratings did not evolve from last year.



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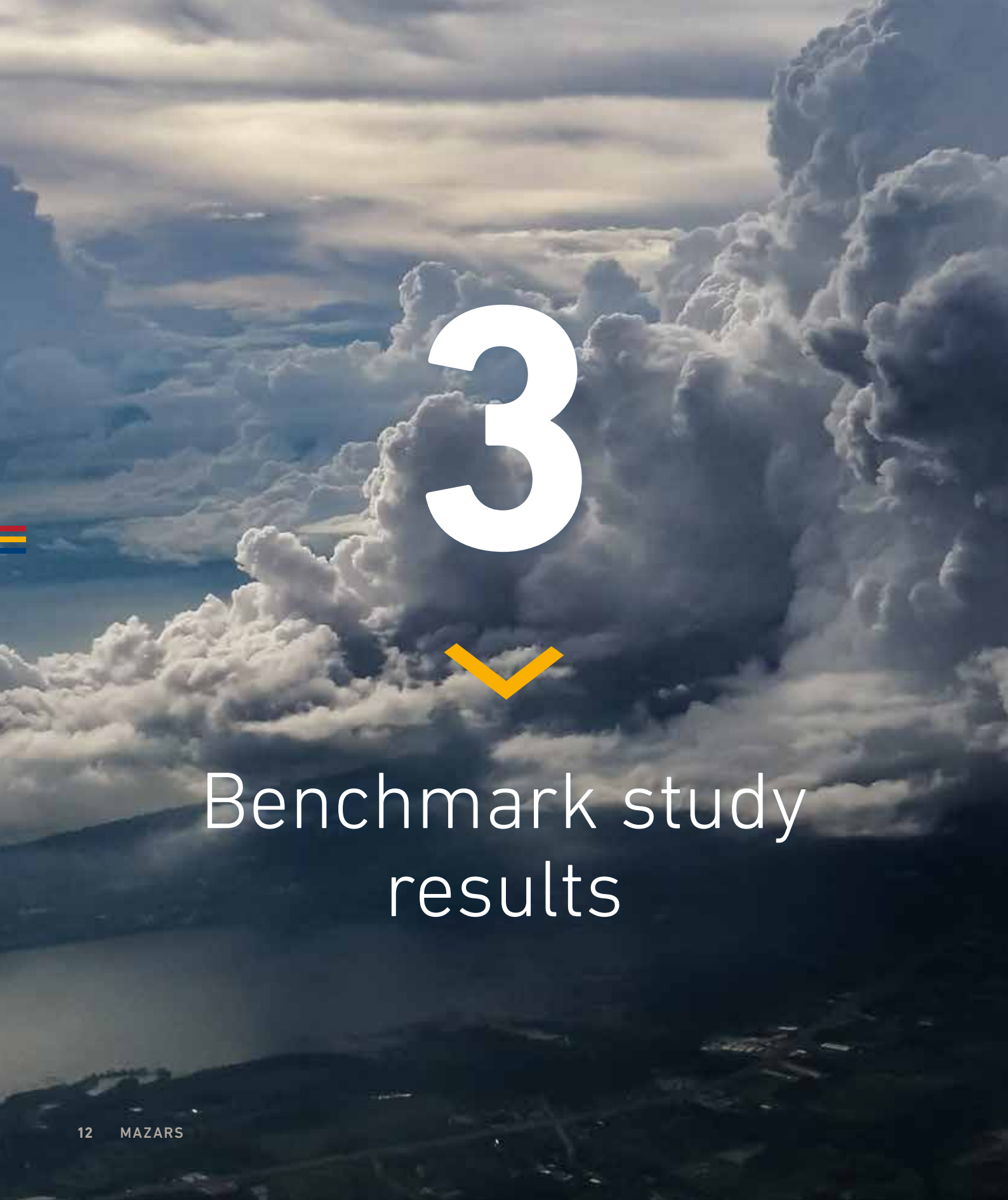
Purpose of the benchmark study (Part I)

The purpose of this first part of our benchmark study is to provide a comparative view on disclosures undertaken on specific matters of attention or specific events of the year. For this reason, we will limit the study scope to the following areas:

- disclosures on intangible assets (with a specific focus on goodwill and value of business acquired) and deferred acquisition costs;
- communication around deferred tax assets with a specific focus on the disclosures done in respect of tax losses carried forward;
- key business performance indicators disclosed in the annual reports and analysis of the GWP/ number of employee's ratio;
- we have also included in the benchmark the follow-up of two significant topics in last year's study which directly impacted reinsurance business:
  - disclosures in respect of significant natural catastrophes; and
  - reporting on the impact of the US tax reform.



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Benchmark study results

3.1. INTANGIBLE ASSETS & DEFERRED ACQUISITION COSTS (DAC)

Similar to last year, the purpose of this section is to provide a global overview on the intangible assets and deferred acquisition cost disclosures made in the 2018 and 2017 financial statements. In Table 4 and Table 5, DAC is presented gross of UPR.

TABLE 4 - INTANGIBLE ASSETS & DAC IN 2018

€Bn	Munich Re	Hannover Re	Swiss Re	Berkshire Hathaway[1]	RGA	Partner Re	Everest Re	Lloyd's	China Re	SCOR	AXA	Allianz
Goodwill	2,9	0,1	3,6	49,2	0,0	0,4	-	-	0,2	0,8	16,8	12,3
Deferred Acquisition Costs (DAC)	9,2	2,2	7,2	12,3	3,0	0,6	0,4	5,2	-	1,5	26,4	27,7
VOBA	0,4	0,0	1,6	-	0,0	0,1	-	-	0,0	1,5	2,1	0,6
Other intangibles assets	0,8	0,1	2,9	27,5	0,1	0,1	-	-	0,2	0,3	5,0	0,8
Total intangible assets & DAC	**13,3**	**2,4**	**15,2**	**89,0**	**3,1**	**1,2**	**0,4**	**5,2**	**0,5**	**4,1**	**50,3**	**41,5**

(1) The total balance sheet presented here corresponds to the insurance business only (USD 532bn out of a total group balance sheet of USD 708bn)

KPIs												
GWP	49,1	19,2	32,0	50,4	10,0	5,5	7,4	39,6	15,6	15,3	96,3	77,8
Technical Result	3,7	1,6	1,0	6,6	0,7	(0,1)	(0,2)	(0,8)	0,6	0,7	1,8	9,9
Technical Reserves	212,5	41,7	131,6	135,1	42,7	12,4	13,7	87,6	21,4	29,9	583,1	741,0
Total balance sheet	270,2	64,5	181,3	464,9	56,4	19,9	21,7	131,9	43,3	44,4	930,7	897,6
Employees	12 340	3 317	14 943	48 874	2 767	958	1 415	1 044	57 463	2 887	104 065	142 460
% intangible assets & DAC in BS	4,9%	3,7%	8,4%	19,1%	5,4%	5,9%	2,1%	4,0%	1,1%	9,2%	5,4%	4,6%
% goodwill in BS	1,1%	0,1%	2,0%	10,6%	0,0%	2,0%	0,0%	0,0%	0,5%	1,8%	1,8%	1,4%
% DAC in BS	3,4%	3,3%	4,0%	2,6%	5,3%	3,3%	2,1%	4,0%	0,0%	3,4%	2,8%	3,1%
% VOBA in BS	0,1%	0,1%	0,9%	0,0%	0,0%	0,3%	0,0%	0,0%	0,1%	3,3%	0,2%	0,1%

TABLE 5 - INTANGIBLE ASSETS & DAC IN 2017

€Bn	Munich Re	Hannover Re	Swiss Re	Berkshire Hathaway[1]	RGA	Partner Re	Everest Re	Lloyd's	China Re	SCOR	AXA	Allianz
Goodwill	2,6	0,1	3,5	46,3	0,0	0,4	-	-	0,2	0,8	15,4	11,8
Deferred Acquisition Costs (DAC)	9,4	2,2	5,8	12,9	2,7	0,6	0,3	4,9	-	1,4	22,9	23,2
VOBA	0,4	0,1	1,7	-	0,0	0,1	-	-	0,0	1,4	1,9	0,5
Other intangibles assets	0,7	0,1	3,0	27,4	0,0	0,1	-	-	0,2	0,3	3,2	0,9
Total intangible assets & DAC	**13,1**	**2,5**	**14,0**	**86,6**	**2,8**	**1,1**	**0,3**	**4,9**	**0,4**	**3,9**	**43,3**	**36,5**

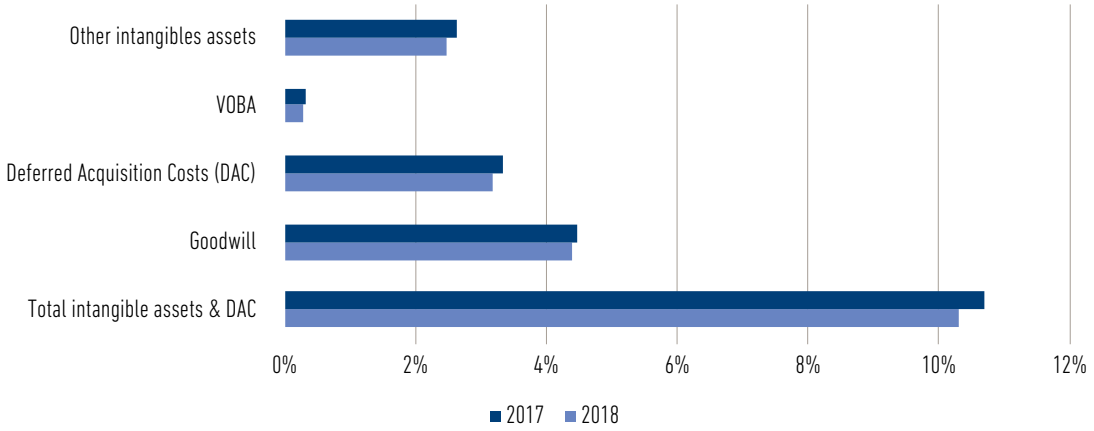
(1) The total balance sheet presented here corresponds to the insurance business only (USD 486bn out of a total group balance sheet of USD 702bn)

KPIs												
GWP	49,1	17,8	31,0	56,1	9,5	5,0	6,4	38,3	13,5	14,7	92,1	77,3
Technical Result	1,2	1,4	1,0	1,5	1,0	0,2	0,4	(3,1)	0,9	0,5	7,7	9,5
Technical Reserves	209,9	41,3	133,6	122,4	36,7	11,8	11,7	85,4	13,7	29,0	560,8	727,9
Total balance sheet	265,7	61,2	187,4	409,2	51,0	19,4	19,9	122,5	30,8	43,2	870,1	901,3
Employees	12 129	3 251	14 485	47 108	2 460	978	1 276	994	49 431	2 801	95 728	140 553
% intangible assets & DAC in BS	4,9%	4,1%	7,5%	21,2%	5,4%	5,6%	1,7%	4,0%	1,4%	9,1%	5,0%	4,0%
% goodwill in BS	1,0%	0,1%	1,9%	11,3%	0,0%	2,0%	0,0%	0,0%	0,5%	1,9%	1,8%	1,3%
% DAC in BS	3,5%	3,6%	3,1%	3,1%	5,4%	2,9%	1,7%	4,0%	0,0%	3,2%	2,6%	2,6%
% VOBA in BS	0,2%	0,1%	0,9%	0,0%	0,0%	0,3%	0,0%	0,0%	0,0%	3,2%	0,2%	0,1%

On average, considering the reinsurers only, the weight of intangible assets & DAC in the balance sheet stands at 10.3% in 2018 (vs. 11% in 2017), with DAC levelling out at 3.2 % in 2018 (vs. 3.4% in 2017) and goodwill for 4.4% in 2018 (vs. 4.6% in 2017). This average panel ratio is driven up by the significant amount of intangibles & DAC from Berkshire Hathaway. Without this company, the pro-forma[3] ratio would have been 5.4% in 2018 (vs. 5.6% in 2017).

As shown by the graph in Figure 3, between 2017 and 2018 we note a slight decrease regarding the weight of intangibles assets & DAC in the total Balance Sheet (all items being affected).

FIGURE 3: AVERAGE WEIGHT IN THE TOTAL BALANCE SHEET 2018 VS. 2017



Looking at the breakdown by company in Figure 4, we note that most of them disclose values in line with the pro-forma[4] average (5.4% in 2018 and 2017) with China Re and Everest Re showing the lowest ratio with respectively 1.1% and 2.1% in 2018 (vs. 1.4% and 1.7% in 2017). SCOR has the highest ratio (9.2% in 2018 and 9.1% in 2017) followed by Swiss Re (8.4% in 2018 and 7.5% in 2017). For SCOR, the main contributors in the balance sheet are the DAC representing 3.4% (vs. an average DAC from the panel of 3.3%) and the VOBA representing 3.3% (vs. an average VOBA from panel of 0.5%).

NB: the weight of VOBA is an indication of growth done in the past from reinsurance portfolio acquisitions.

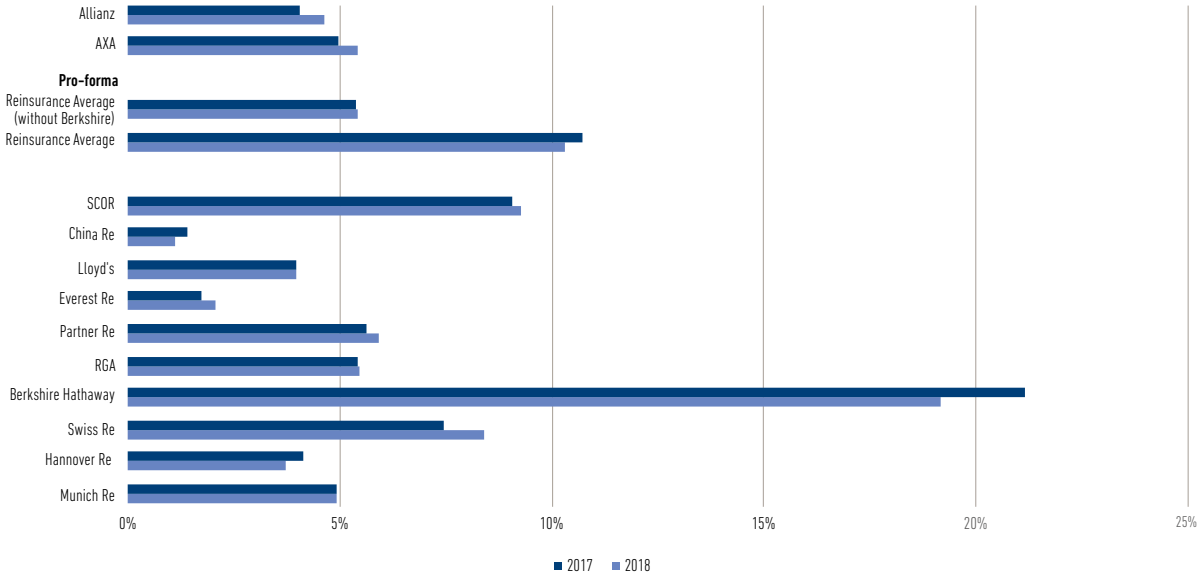
[3] This ratio does not include Berkshire Hathaway

[4] This ratio does not include Berkshire Hathaway

In the panel, the highest ratio is presented by Berkshire Hathaway (19.1% in 2018 vs. 21.2% in 2017) of which more than half is accounted for by goodwill. This is partially explained by the fact that figures presented here are related to the whole company, including non-insurance activities.

For the selected insurers, the ratios are in line with the panel average.

FIGURE 4: WEIGHT OF INTANGIBLES ASSETS & DAC IN THE BALANCE SHEET 2018 VS. 2017



3.1.1. Goodwill

Generally, goodwill is defined in the same way by all companies in the panel. Overall, it is the difference between the acquisition price and the fair value of the net identifiable assets. This difference can either be positive (goodwill) or negative (badwill). Compared to last year, no significant changes are noted in respect of the disclosures in the notes to the financial statements.

Globally, most companies disclose goodwill on a separate line in the consolidated balance sheet except for the following companies:

- RGA, Everest Re and Lloyd's for which no mention is made in the balance sheet given the absence (for Lloyd's and Everest Re) or the low materiality (for RGA) of this item;
- Allianz includes goodwill in the "Intangible Assets", where it accounts for 30% of this item and approximately 1.4% of the total balance sheet.

The goodwill weight evolution in the total balance sheet between 2017 and 2018 did not change significantly. The average panel ratio stands at 5.2% in 2018 (vs. 5.3% in 2017) whereas the pro-forma[5] ratio is 1.3% (vs. 1.2% in 2017).

However, when comparing the average ratio with the individual company ratio, one can note significant discrepancies. On the one side, Hannover Re shows a 0.1% ratio in 2018 (stable compared with 2017), whereas other companies (Swiss Re, Partner Re, and SCOR) present a ratio close to 2%. As is also the case for the global analysis on intangible assets, Berkshire Hathaway has the highest level of goodwill in the balance sheet, the ratio being 10.6% in 2018 (vs. 11.3% in 2017).

The change between 2017 and 2018 for the Gross Values and Net Values are not systematically detailed, even though opening and closing positions are disclosed by each company in the panel.

When it comes to impairment methods, all reinsurers, except Swiss Re, Partner Re, Everest Re and Lloyd's provide this in a separate note to financial statements. For instance, for Swiss Re, there is no specific explanatory note on this topic, but the company mentions in the accounting principles section general concepts on goodwill and the impairment methodology by quoting applicable accounting standards, without any description about their own specificities.

3.1.2. Value of business acquired (VOBA)

VOBA is linked to life insurance portfolios acquired generally following insurance company mergers. Globally, it is valued as the discounted estimation of future profits, which includes life technical and investment results decreased by the expected future administrative expenses. The current value is computed based on assumptions and risk discount factors relevant at the date of acquisition. VOBA is then amortised over the lifetime of the underlying reinsurance portfolio and is subject to impairment testing as part of the LAT.

Out of ten reinsurers, seven booked VOBA for a total € 3.6bn, out of which € 3.1bn related to Swiss RE (€ 1.6bn) and SCOR (€ 1.5bn). We also note that the "selected insurers" (Axa and Alliance; see section 1, Panel of Insurers) also book VOBA for a total amount of € 2.7bn, of which 77% is linked to AXA.

As last year, we note quite heterogeneous disclosures in respect of VOBA. Globally, the information granularity is in line with the weight of this item in the company balance sheet.

We also note that, even though VOBA doesn't have a dedicated note in the explanatory notes, this item is mentioned either in the goodwill note or in the other intangible assets section. Three companies in the panel indicate the amortisation methods for VOBA and six indicate the impairment methodology.

[5] This ratio does not include Berkshire Hathaway

3.1.3. Deferred acquisition costs (DAC)

Deferred acquisitions costs are defined as commissions and other direct costs linked to the acquisition of new contracts and booked as assets to the extent that these contracts will generate future profits. Further on, DAC is amortised:

- over the lifetime of the contract for non-life contracts as it follows the UPR consumption pattern;
- consistently with the future margin recognition for life contracts.

Almost all companies present DAC on a separate line in the balance sheet, except for China Re given the fact that they do not disclose any in their accounts.

Of note for the reinsurance panel, the DAC total weighting in the 2018 "Total assets" is 3.2% (vs. 3.4% in 2017).

Globally, from one year to another there are no material changes in the weight of DAC in the total balance sheet, except for Swiss Re for which the ratio amounts to 4% in 2018 vs 3.1% in 2017. This is mainly due to the increase of DAC on life capital business.

Consistent with last year, we note that RGA is still the company which presents the biggest weight of DAC in its balance sheet with 5.3% (vs. 5.4% in 2017), which could be considered normal as the company underwrites life policies almost exclusively. Whereas the lowest level of DAC in the total assets is still linked to Everest Re (2.1% in 2018 vs. 1.7% in 2017).

The selected insurers present comparable levels of DAC, with AXA and Allianz showing respectively ratios of 2.8% and 3.1% in 2018.

3.2. DEFERRED TAX ASSETS (DTA)

The purpose of this section is to provide an overview of the financial information published by reinsurance companies on deferred tax assets, with a specific focus on the tax losses carried forward and the maturity date of the associated losses.

Outside the benchmark study analysis, we notice that each reinsurer provides a detailed note in the consolidated financial statements in respect of income tax, including information on deferred tax. However, Lloyd's is the reinsurer disclosing almost no information on deferred taxes. Berkshire Hathaway and China Re do not disclose further details other than the gross amount of DTA.

We highlight some accounting standard differences in respect of the balance of what we are calling in our study "gross deferred tax assets". Two main streams are identified:

- European reinsurers and insurers account for and disclose in the financial statements the gross DTA for which the temporary difference position can be offset by future profits. Thus, the amounts disclosed in the notes to the financial statements concern only a portion of the recognised DTA. As an exception, Hannover Re, even though using IFRS as a basis of reporting, provides information on gross DTA and "valuation allowance";
- other reinsurers applying US GAAP present separately the gross DTA and the "valuation allowance". This generally corresponds to the part of DTA that is deemed not recoverable and is "impaired". This valuation allowance is subject to a yearly review depending on the evolution of the taxable future profits of the company.

In respect of the granularity of the financial information provided in the notes to the consolidated financial statements, we note the following:

- all reinsurers, except Lloyd's, provide information on the gross and net DTA (according to applicable reporting standards). Berkshire Hathaway and China Re only disclose gross DTA information;
- the nature of DTA is also disclosed by all the companies in the panel, except Lloyd's. However, the granularity of the information is very heterogeneous as the item "other DTA" includes miscellaneous items;
- in respect of tax losses carried forward, detailed information is provided by only five reinsurers and the selected insurers. However, the information is not homogenous, as we will see further on in our benchmark study;
- besides TLCF, we also note that some companies provide, if applicable and material, information on the capital losses carried forward and tax credits; and
- all companies, except Everest Re and China Re, disclose the effective tax rate in their explanatory notes.

In Table 6 we focus on general information on DTA based on 2017 and 2018 annual reports.

TABLE 6 - SPECIFIC DISCLOSURES ON DTA												
in € Bn	Munich Re	Hannover Re	Swiss Re	Berkshire Hathaway[1]	RGA	Partner Re	Everest Re	Lloyd's	China Re	SCOR	AXA	Allianz
Effective tax rate 2018	20,2 %	24,6 %	12,5 %	21,4 %	15,4 %	9,4 %	×	19,3 %	×	34,7 %	118,6 %	25,9 %
Effective tax rate 2017	(315,0)%	19,2 %	25,1 %	32,0 %	(59,4)%	3,8 %	×	16,6 %	×	16,3 %	14,6 %	29,0 %
Effective tax rate 2016	22,7 %	24,2 %	17,1 %	34,8 %	32,8 %	5,5 %	×	18,6 %	×	21,7 %	27,5 %	29,6 %
DTA information 2018												
Deferred Tax Asset (gross)	7,2	2,0	5,1	7,8	0,8	0,3	0,4	×	0,2	1,3	15,9	48,0
Valuation allowance booked	(0,1)	(0,1)	(0,3)	×	(0,2)	(0,2)	(0,0)	×	×	×	×	(0,7)
Net DTA reported in the BS	0,5	0,5	4,7	×	0,6	0,1	0,3	×	×	0,6	0,9	1,0
Gross DTA/BS (%)	2,7 %	3,0 %	2,8 %	1,3 %	1,3 %	1,4 %	1,9 %	×	0,5 %	3,0 %	1,7 %	5,3 %
DTA on Tax Loss Carried Forward (TLCF)	0,5	0,6	2,3	×	0,4	0,0	0,1	×	×	0,4	1,0	1,8
DTA on TLCF/Gross DTA (%)	7,3%	31,1%	46,1%	×	47,2%	15,9%	22,7%	×	×	33,0%	6,3%	3,7%
DTA information 2017												
Deferred Tax Asset (gross)	8,4	0,8	4,5	7,1	0,8	0,2	0,2	×	0,1	0,9	16,8	56,6
Valuation allowance booked	(0,0)	(0,1)	(0,4)	×	(0,2)	(0,2)	(0,0)	×	×	×	×	×
Net DTA reported in the BS	0,5	0,5	4,1	×	0,6	0,1	0,0	×	×	0,5	0,8	0,9
Gross DTA/BS (%)	3,1 %	1,3 %	2,4 %	1,2 %	1,6 %	1,2 %	0,8 %	×	0,5 %	2,1 %	1,9 %	6,3 %
DTA on Tax Loss Carried Forward (TLCF)	0,6	0,1	1,9	×	0,5	0,0	0,0	×	×	0,4	0,9	1,9
DTA on TLCF/Gross DTA (%)	7,4%	17,0%	43,2%	×	56,4%	13,0%	5,3%	×	×	45,6%	5,5%	3,4%
BS 2018	270,2	64,5	181,3	618,2	56,4	19,9	21,7	131,9	43,3	44,4	930,7	897,6
BS 2017	265,7	61,2	187,4	591,4	51,0	19,4	19,9	122,5	30,8	43,2	870,1	901,3

(1) As the information for the DTA was not separately disclosed for the insurance figures, the BS amounts are for the group
(2) The AXA's ETR is particulary high due to exceptional €6,328 million impairment of the United States Goodwill (excluding this goodwill impairment, the efective tax rate would have stood at 22%)

In respect of the effective tax rate, based on YE 2018, the reinsurance panel average tax rate levels out at around 19.7% with two extreme rates, Partner Re having a 9.5% ETR (the lowest of the panel) and SCOR having a 34.7% ETR (the highest rate). In 2017, the panel average ETR amounts to -32.7% and 18.8%, without Munich Re and RGA which have exceptional negative ETRs.

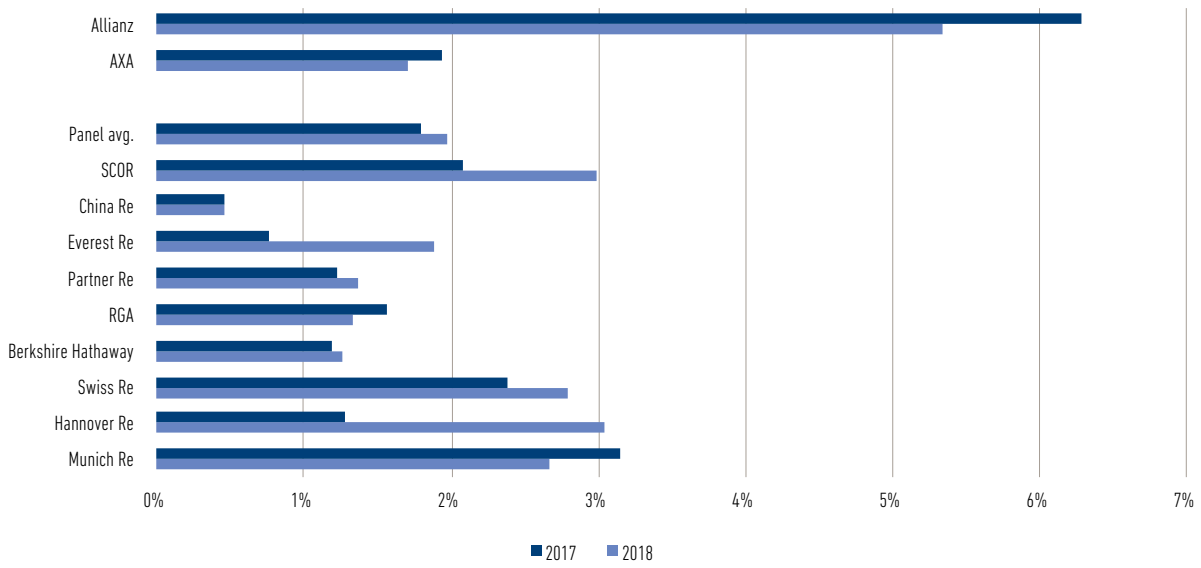
NB: The 2017 ETR presented some negative rates for Munich RE (-315%) and RGA (-59.4%) which were explained by positive one-off impacts following the US federal rate reduction from 35% to 21% applied to the balance of net deferred tax liability, whereas the 2018 ETR of our panel are all positive rates.

As shown in Figure 5, the average reinsurance panel[6] ratio of gross DTA over the total balance sheet is 1.9% in 2018 (vs. 1.8% in 2017), with Hannover Re and SCOR both showing the highest level of DTA (3.0%) in 2018. Whereas, China Re presents the lowest ratio with 0.5% (stable compared to 2017).

Regarding the selected insurers, AXA has comparable figures to the reinsurance panel (1.7% in 2018 vs. 1.9% in 2017), whereas Allianz stands at 3.7% (vs. 6.3% in 2017) which is the highest ratio all companies included.

A low ETR can procure important advantages for a company such as a reduction in the cost of capital, and investments that were not feasible at the previously higher cost of capital can now be undertaken which could lead to an increase of productivity.

FIGURE 5: EVOLUTION 2017 VS. 2018 OF GROSS DTA/BS (%)



If we focus on TLCF (gross of any valuation allowances) as shown in Figure 6, the global reinsurance panel's average[7] weight of activated DTA on TLCF in the total DTA stands at 25.9% in 2018 (vs. 22.6% in 2017).

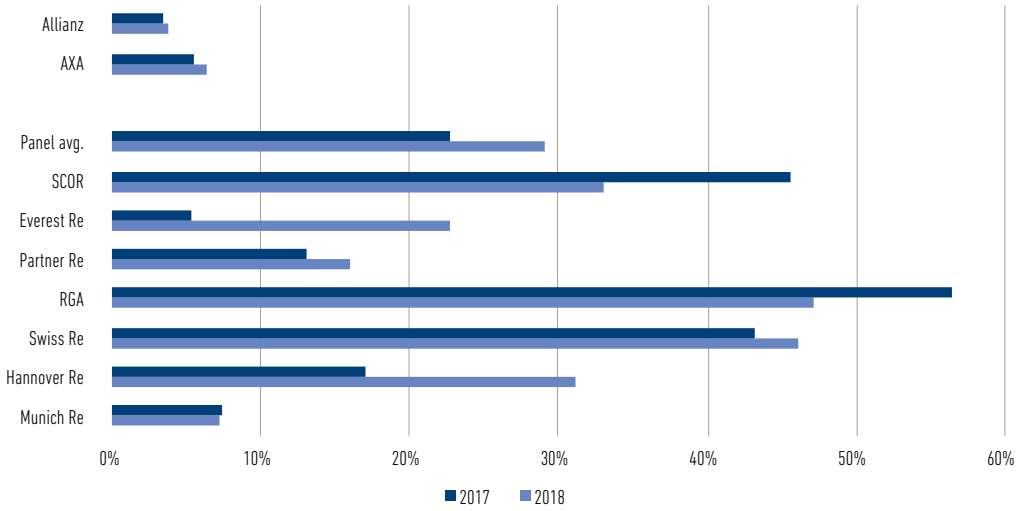
It is worth mentioning that some reinsurers show ratios exceeding 40% in both 2018 and 2017 including RGA (47.2% in 2018 vs. 56.4% in 2017) and Swiss Re (46.1% in 2018 vs. 43.2% in 2017). On the other hand, for other companies the ratio is largely below the average panel rate: Partner Re (15.9% in 2018 vs. 13.0% in 2017) and Munich Re (7.3% in 2018 vs. 7.4% in 2017).

[6] The average does not include Lloyd's as the information was not available.

[7] The average excludes Berkshire Hathaway, China Re and Lloyd's as the information was not disclosed.

We also note that for the selected insurers the ratio in 2018 stands at 3.7% for Allianz (vs. 3.4% in 2017) and 6.3% for AXA (vs. 5.5% in 2017).

FIGURE 6: EVOLUTION 2017 VS. 2018 OF DTA ON TLCF/GROSS DTA (%)



Furthermore, in 2018 five reinsurance companies disclose relevant information in respect of the total inventory of their TLCF, sometimes providing a full split between the expiring/non-expiring and recognised/unrecognised parts (SCOR, RGA and Munich Re) as shown in Table 7:

TABLE 7 - 2018 - SPECIFIC DISCLOSURE ON TLCF

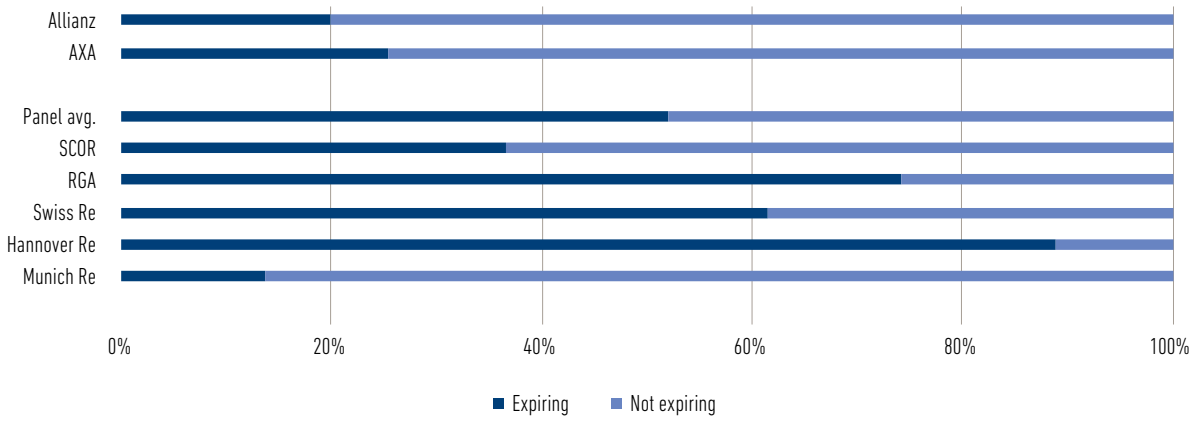
in € Bn	Munich Re	Hannover Re	Swiss Re	Berkshire Hathaway[1]	RGA	Partner Re	Everest Re	Lloyd's	China Re	SCOR	AXA	Allianz
Total inventory of TLCF	5,4	2,9	10,2	×	1,5	×	×	×	×	2,0	4,1	7,5
Recognized TLCF	**2,7**	**2,6**	**10,2**	×	**1,0**	×	×	×	×	**1,8**	**4,1**	**7,5**
Unrecognized TLCF	**2,7**	**0,3**	×	×	**0,5**	×	×	×	×	**0,1**	×	×
Total inventory of TLCF	5,4	2,9	10,2	×	1,5	×	×	×	×	2,0	4,1	7,5
Expiring	**0,7**	**2,6**	**6,3**	×	**1,1**	×	×	×	×	**0,7**	**1,1**	**1,5**
Recognized	0,5	2,6	×	×	1,0	×	×	×	×	0,7	✓	✓
Unrecognized	0,2	×	×	×	0,1	×	×	×	×	0,0	×	×
Not expiring	**4,7**	**0,3**	**3,9**	×	**0,4**	×	×	×	×	**1,2**	**3,1**	**6,0**
Recognized	2,1	×	×	×	0,0	×	×	×	×	1,1	✓	✓
Unrecognized	2,5	0,3	×	×	0,3	×	×	×	×	0,1	×	×

As we can see in Figure 7, Hannover Re clearly provides information for the total amount of TLCF mentioning the absence of expiration dates attached to the non-capitalised tax losses. Consequently, without any further indications, we considered that the recognised part has a maturity date in the range of 1 to 20 years.

As we will also see in Figure 7 based on the 2018 panel average rate[8], 48% of TLCF have no expiration date. However, there are some interesting disparities if we look at individual company level:

- Two companies have more than 70% of their TLCF with an expiration date: Hannover Re (89%) and RGA (74%);
- One company shows more than 70% of TLCF with no expiration date: Munich RE (86%);
- The selected insurers show both a major part of not expiring TLCF with 75% for AXA and 80% for Allianz. Interestingly, AXA indicates in its Registration document that 99% of its TLCF has an expected date of use inferior to 11 years.

FIGURE 7: EXPIRATION OF TLCF IN 2018



The five reinsurance companies presented above also provide information in respect of the maturity of their TLCF; some giving explicit duration tables and others using narratives in the tax income notes to address this topic. The breakdown of our analysis focused on four main areas: 1 to 5 years, 6 to 10 years, 11 to 20 years and no expiration period (or above 20 years maturity). It is worth mentioning that some companies use different analyses:

- Munich Re groups TLCF on a 10 years period reporting: 1 to 10 years, 11 to 20 years, no expiration period;
- Hannover RE only provides explicit information on TLCF with no expiration date;
- Swiss Re provides information on expiration date by year for the next four years, global information for the remaining TLCF with an expiration date and finally the amount of TLCF which will never expire; and
- SCOR and RGA provide a more detailed breakdown which we regrouped for the purpose of our analysis.

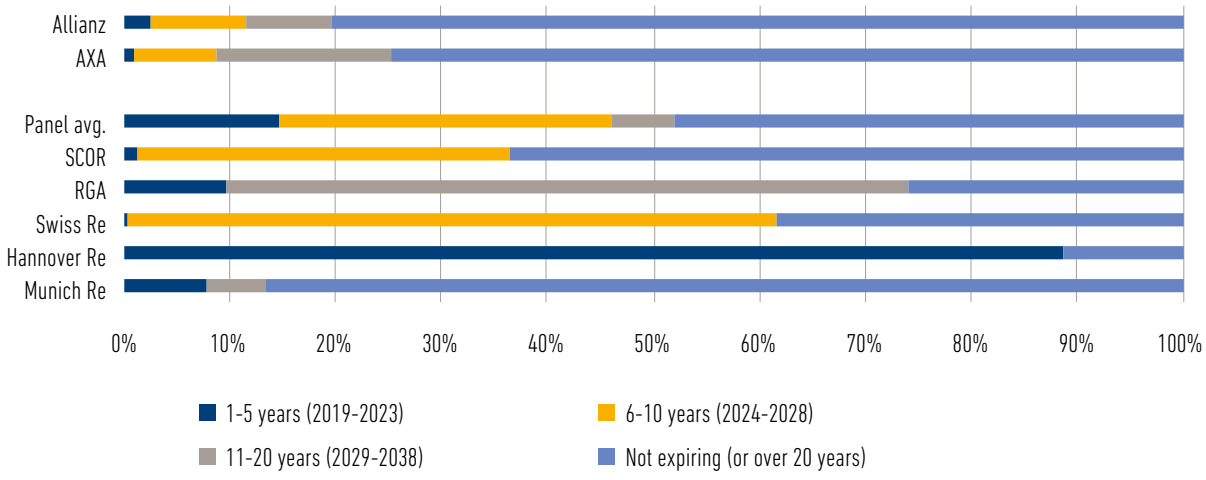
[8] The average excludes Lloyd's, Berkshire Hathaway, Partner Re, China Re and Everest Re for which the information was not available.

TABLE 8 - 2018 - SPECIFIC DISCLOSURE ON TLCF RECOVRABILITY AND CAPITAL LOSS CARRY FORWARD AND TAX CREDIT												
in € Bn	Munich Re	Hannover Re	Swiss Re	Berkshire Hathaway[1]	RGA	Partner Re	Everest Re	Lloyd's	China Re	SCOR	AXA	Allianz
Capital loss and tax credit	0,1	×	0,9	×	0,0	×	0,1	×	×	×	×	×
Attached DTA	×	×	×	×	0,0	×	0,1	×	×	×	×	×
Expiring	0,1	×	0,0	×	×	×	0,1	×	×	×	×	×
Not Expiring	-	×	0,9	×	×	×	-	×	×	×	×	×
2018 TLCF expiration period	5,4	2,9	10,2	×	1,5	×	×	×	×	2,0	4,1	7,5
1-5 years (2019-2023)	0,4	2,6	0,0	×	0,1	×	×	×	×	0,0	0,0	0,2
6-10 years (2024-2028)			6,2	×		×	×	×	×	0,7	0,3	0,7
11-20 years (2029-2038)	0,3			×	1,0	×	×	×	×		0,7	0,6
Not expiring (or over 20 years)	4,7	0,3	3,9	×	0,4	×	×	×	×	1,2	3,1	6,0
TLCF & Capital loss, tax credit used in 2018	×	0,0	0,5	×	×	×	×	×	×	×	×	×

In respect of the maturity of TLCF, as shown in Figure 8[9], the majority of reinsurers in the panel have TLCF with no expiration period. One company, Hannover RE, shows that 89% of their TLCF has an expiration period of 1 to 5 years. RGA has 74% of their TLCF expiring, out of which 65% between 11 to 20 years. Lastly, Swiss Re shows that 62% of their TLCF has an expiration period of 6-10 years.

As a reminder, the percentage of DTA on TLCF in the total amount of DTA for 2018 stands at 31% for Hannover Re, 47% for RGA and 46% for Swiss Re.

FIGURE 8 : 2018 TLCF EXPIRATION PERIOD



[9] For the purpose of the presentation of Figure 8 the following shortcuts were made:
for Munich Re, the € 0.4bn disclosed as the sum of the lines 1-5 years and 6-10 years are fully presented in Figure 10 under the line 1-5 years
for Hannover Re, the € 2.6bn presented as expiring TLCF are fully presented in Figure 10 under the line 1-5 years
for Swiss Re, the € 6.2bn presented as expiring TLCF in 2023 and beyond are fully presented in Figure 10 under the line 6-10 years
for RGA, the € 0.1bn presented as expiring before 2029 are fully presented in Figure 10 under the line 1-5 years
for SCOR, the € 0.7bn presented as the sum of the lines 6-10 years and 11-20 years are fully presented in Figure 10 under the line 6-10 years

In respect of capital losses carried forward and tax credits, not all companies provide the information directly in the notes to the financial statements, either because they are not concerned or because the information is not material.

Also, another interesting point is that only two companies (Swiss Re and Hannover Re) clearly indicate the amounts of TLCF/capital losses/tax credits used during the current year.

3.3. SIGNIFICANT NAT CAT EVENTS

Given the extent of significant NAT CAT events in 2018, although lower than 2017, we decided to compare the information provided by the companies included in the panel when it comes to the impact of these events. As a reminder, the main events impacting reinsurance companies are:

- Hurricane Florence, September 2018, that caused estimated market damages above USD 45bn;
- Hurricane Michael, October 2018, with estimated overall damages of USD 25bn;
- Typhoon Jebi (August – September 2018), typhoon Trami (September – October 2018) and typhoon Mangkhut (September 2018) that hit Asia and caused estimated overall damages of USD 3.4bn, USD 1bn and respectively USD 3.8bn;
- The two Californian wild fires occurred in August and November that caused overall estimated damages of USD 20bn; and
- Storm Friederike that hit Europe and caused estimated overall damages between €1bn to €2.6bn.

Overall, each company was impacted at least by one of the above-mentioned events, except China Re, which does not disclose information in respect of large claims, and RGA, which has very limited non-life activity. Looking at the annual reports we note that eight reinsurance companies indicated that they were impacted by the Atlantic hurricanes (Florence and Michael), typhoons in Asia (Jebi, Trami and Mangkhut) and California wildfires, and five companies stated they were impacted by windstorm Friederike. When it comes to the selected insurers, AXA indicates an impact by the Atlantic hurricanes and California wildfires whereas Allianz by European windstorm (Friederike).

In terms of disclosing the impacts of these events on the net income, five companies presented the overall gross impact with only four companies (Munich Re, Hannover Re, Everest Re and SCOR) presenting gross individual impacts.

The overall net amounts are presented by five companies. Only two reinsurers, SCOR and Hannover Re, disclose the individual amounts/event net of retrocession.

Table 9 gives a better overview on the disclosures made by the companies in the panel:

TABLE 9 - NATURAL CATASTROPHE DISCLOSURE IN ANNUAL REPORTS 2018												
	Munich Re	Hannover Re	Swiss Re	Berkshire Hathaway	RGA	Partner Re	Everest Re	Lloyd's	China Re	SCOR	AXA	Allianz
Mention of following impacts:												
Atlantic Hurricanes (Florence & Micheal)	✓	✓	✓	✓	×	✓	✓	✓	×	✓	✓	×
Typhoon in Asia (Jebi, Trami & Mangkhut)	✓	✓	✓	✓	×	✓	✓	✓	×	✓	×	×
Friederike Storm	✓	✓	✓	×	×	✓	×	×	×	✓	×	✓
Californian wildfires in 2018	✓	✓	✓	✓	×	✓	✓	✓	×	✓	✓	×
Quantified impact by natural catastrophes (gross of retro)	✓	✓	×	×	×	×	✓	×	×	×	×	×
Quantified impact by natural catastrophes (net)	×	✓	×	×	×	✓	✓	✓	×	✓	×	×
Impact analysis in performance reviews	✓	✓	✓	×	×	✓	✓	✓	×	✓	×	×
Dedicated note or paragraph	×	✓	×	×	×	×	✓	✓	×	✓	×	×
Historical combined ratio with Nat Cat impact	✓	✓	✓	×	×	✓	×	✓	×	✓	×	×

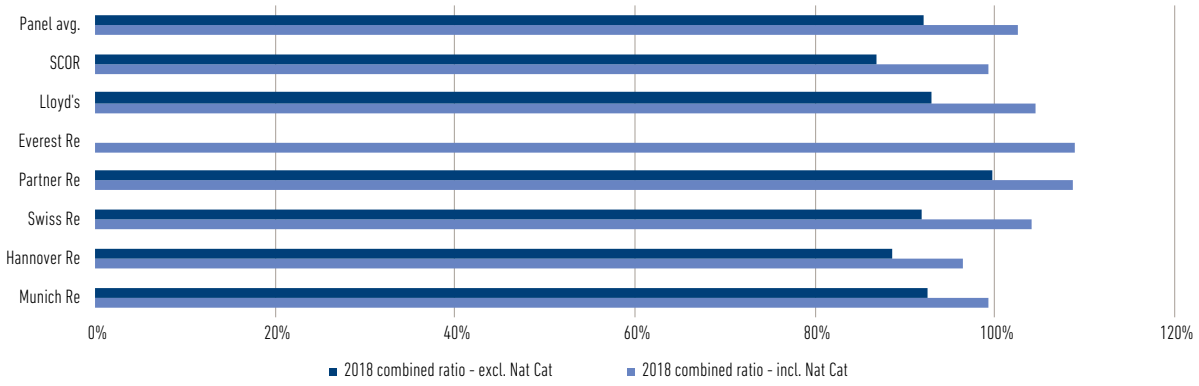
TABLE 10 - NATURAL CATASTROPHE QUANTIFIED IMPACT IN ANNUAL REPORTS 2018												
In Billions of Original Currency	Munich Re	Hannover Re	Swiss Re	Berkshire Hathaway	RGA	Partner Re	Everest Re	Lloyd's	China Re	SCOR	AXA	Allianz
2018 combined ratio - incl. Nat Cat	99,4 %	96,5 %	104,0 %	×	×	108,7 %	108,8 %	104,5 %	99,6 %	99,4 %	97,0 %	94,0 %
2018 combined ratio - excl. Nat Cat	92,6 %	88,6 %	91,9 %	×	×	99,7 %	×	92,9 %	×	86,8 %	×	×
(Pro-forma) Impact by key natural catastrophe (gross)												
Atlantic Hurricanes (Florence & Micheal)	(0,6)	(0,2)	×	×	×	×	(0,5)	×	×	(0,2)	×	×
Typhoon in Asia (Jebi, Trami & Mangkhut)	(0,5)	(0,5)	×	×	×	×	(0,1)	×	×	(0,2)	×	×
Friederike Storm	×	(0,1)	×	×	×	×	×	×	×	(0,0)	×	×
Californian wildfires	(0,4)	(0,5)	×	×	×	×	(0,5)	×	×	(0,1)	×	×
Other	0,3	(0,5)	×	×	×	×	(0,1)	×	×	(0,1)	×	×
P&L impact gross of retrocession*	(1,3)	(1,7)	×	(1,3)	×	×	(1,2)	×	×	(0,7)	×	×

(1) Except for SCOR which shows impact net of retrocession

In respect of the combined ratio, we note that six companies disclose a pro-forma combined ratio of the significant events of the year. For the panel, the average combined ratio stands at 102.6% (vs. 108.5% in 2017) whereas the pro-forma one levels out at 92.1% (vs 92.8% in 2017). By looking at the disclosed figures, Lloyd's (combined ratio of 104.5% vs. a pro-forma ratio of 92.9%), SCOR (combined ratio of 99.4% vs. a pro-forma one of 86.8%) and Swiss Re (combined ratio of 104% vs. a pro-forma one of 91.9%) were the companies impacted the most by NAT CAT. The companies from the panel less impacted are Hannover Re (combined ratio of 97% vs. a pro-forma one of 89%) and Munich Re (combined ratio of 99% vs. a pro-forma one of 93%). The selected insurers show lower levels of combined ratios with AXA standing at 97% and Allianz at 94%.

Figure 9 presents for the seven companies the difference between the two combined ratios:

FIGURE 9: IMPACT OF NAT CAT EVENTS ON THE 2018 COMBINED RATIO



3.4. FOLLOW-UP ON US TAX REFORM TOPIC

As a reminder, and quoting from RGAs' 2018 annual report which offers a full view on the main impacts, we would highlight that the Tax Cuts and Jobs Act of 2017 ("US Tax reform"), signed into law on December 22, 2017, makes broad and complex changes to the US tax code, including, but not limited to:

- reducing the US federal corporate tax rate from 35% to 21%;
- imposing a one-time transition tax on certain unrepatriated earnings of foreign subsidiaries;
- eliminating US federal income taxes on dividends from foreign subsidiaries;
- eliminating the corporate alternative minimum tax ("AMT") and changing how existing AMT credits can be realised;
- creating the base erosion anti-abuse tax ("BEAT"), a new minimum tax;
- establishing a new provision designed to tax global intangible low-taxed income ("GILTI"), which allows for the possibility of using foreign tax credits and a deduction of up to 50 percent to offset the income tax liability (subject to some limitations); and
- modifying rules related to uses and limitations of net operating loss carry forwards created in tax years beginning after December 31, 2017.

Given the significant nature of these changes, which also impact the organisation (branches, subsidiaries) of the companies in the panel, we considered that this event would have a significant impact on the accounts and the business itself. Thus, we decided to follow-up on the disclosures done in the 2017 annual reports given the application date of the US Tax Reform, which was very late in 2017, and considering that all impacts could not be taken into account in the 2017 annual reports.

As an introduction, we note that all companies in the panel except China Re and Lloyd's mention the US Tax reform in their disclosures with six companies quoting it as a significant event of the year. Last year, all companies in our panel disclosed the reform in their annual reports. From the panel, six reinsurance companies still have a dedicated note in their financial statements on this topic. When it comes to the quantified impacts of this reform in the accounts, only SCOR discloses specific information.

Table 11 summarises the key points on the topic:

TABLE 11 - DISCLOSURE ON US TAX CUTS AND JOB ACTS (TCJA) REFORM

	Munich Re	Hannover Re	Swiss Re	Berkshire Hattaway	RGA	Partner Re	Everest Re	Lloyd's	China Re	SCOR SE		AXA	Allianz
Mention of the US Tax reform in the annual report	✓	✓	✓	✓	✓	✓	✓	×	×	✓		✓	✓
Disclosure as significant event	×	✓	×	✓	✓	✓	✓	×	×	✓		×	×
Dedicated note / paragraph	×	✓	×	✓	✓	✓	✓	×	×	✓		✓	×
Specific mention of the BEAT and potential impacts	×	✓	×	×	✓	✓	✓	×	×	✓		×	×
Quantified impacts for the 2018 accounts	×	×	×	×	×	×	✓	×	×	✓		×	×

We then looked at the main impacts for each company, highlighting the key information provided in the annual reports:

TABLE 12 - DISCLOSURES OF THE IMPACT OF US TAX REFORM

Munich RE	Short mention of US Tax reform regarding last year result. No mention of the BEAT
Hannover RE	Hannover RE provides little information on the US TAX reform and does not quantify the impacts at group level for the YE18. The reinsurer sticks to a brief presentation of the reform. In respect of BEAT, Hannover RE mentions that it undertook some restructuring activities in order to avert this burden in taxation.
Swiss RE	Swiss RE states that the new US TAX reform may imply modifications in the operating model for the US business as there could be higher cost for doing business. No quantified impacts for 2018 The company does not mention any direct BEAT impacts.
Berkshire Hathaway	Berkshire Hattaway provides detailed information on the provisions of the US TAX reform and the various impacts at group level. Reminder of 2017 impacts No mentions are made in respect of the BEAT.
RGA	RGA provides a large array of information in respect of the tax reform, firstly evocating the different provisions and afterwards disclosing the impacts at group level. RGA also inidcates that the US Tax reform creates additionnal complexity due to various provisions that require management judgement and assumpions which are subject to change Reminder of 2017 impacts RGA is not subject to the BEAT
Partner Re	Partner Re explains globally the impact of the tax reform and provides information on the cumulated impacts on group level resulting from TCJA reform and the tax reform in France (income tax rate reduction). Reminder of 2017 impacts Partner Re mentions BEAT changes but does not mention the potential impact.
Everest Re	Everest Re presents the global impacts of the US tax reform and provides information on the potential changes on the business and the organisation of the group. Reminder of 2017 impacts Everest Re mentions BEAT changes but does not mention the potential impact.
Lloyd's	Lloyd's does not mention any US Tax reform info or impact
China Re	China Re does not disclose any information about the US Tax Reform.
SCOR	SCOR discloses all relevant information in respect of the booked and potential impacts of the US TAX reform at group level. Reminder of 2017 and 2018 impacts, especially the TJCA resulted in an expense of €68 million which has been recognised in SCOR's 2018 result In respect of the BEAT, SCOR clearly explains the mechanisms attached and mention that the company is currently exploring alternate business structures to adapt to the new environment. Therefore, SCOR has implemented an alternate business structure to adapt the new environment by establishing a new irish entity, Scor Life Ireland Dac, which is treated as a US tax payer
AXA	Based on first indications, AXA still states that the US TAX reform will have a positive impact at group level, with some offsetting impacts given the negative impact following the TCJA implementation; Reminder of 2017 impacts No mention of the BEAT
Allianz	Allianz gives very little information on the overall impacts of the US TAX reform. Allianz indicates that Income taxes decreased by € 245 million due to US Tax Reform + increase of net income of € 376 million mostly due to the US tax reform In respect of BEAT, no mentions are made

3.5. MAIN PERFORMANCE INDICATORS

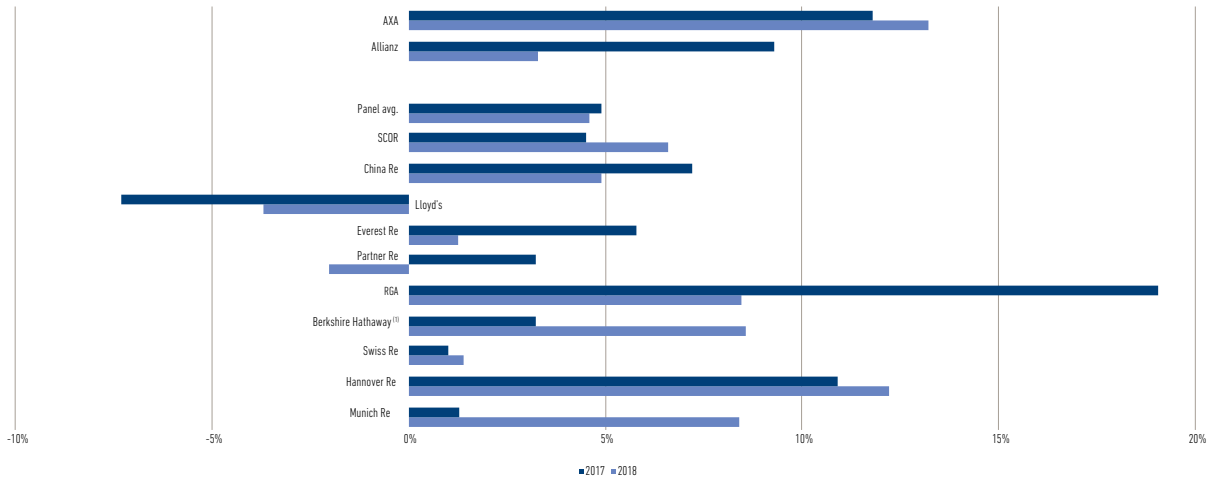
The purpose of this section is to present the key business performance indicators companies in our panel publish in order to measure their performance.

3.5.1. Return on equity (ROE)

All companies, except for Berkshire Hathaway, RGA and Partner Re communicate in their annual reports on their ROE ratio, as they are listed on the stock exchange (except Lloyd's). Nevertheless, for those three companies, the ROE can be easily calculated by considering that ROE is equal to net result divided by shareholder's equity. Globally, we note that the average ROE for the reinsurers panel in 2018 and 2017 is 4.6% and 4.9% respectively. The level of ROE remains stable compared to last year. The main variations come from RGA (-10.6 points) and from Munich Re (+7.1 points).

- We also notice that for the second consecutive year, the ROE of Lloyd's is negative, which is also the case for Partner Re in 2018;
- Finally, we note that the ROE of RGA is closer to the average ratio than last year (8.5% in 2018 vs. 19% in 2017) which is explained by the positive one-off impacts of the US Tax reform and the absence of NAT CAT impacts in 2017.

FIGURE 10: ROE ANALYSIS 2018 VS .2017

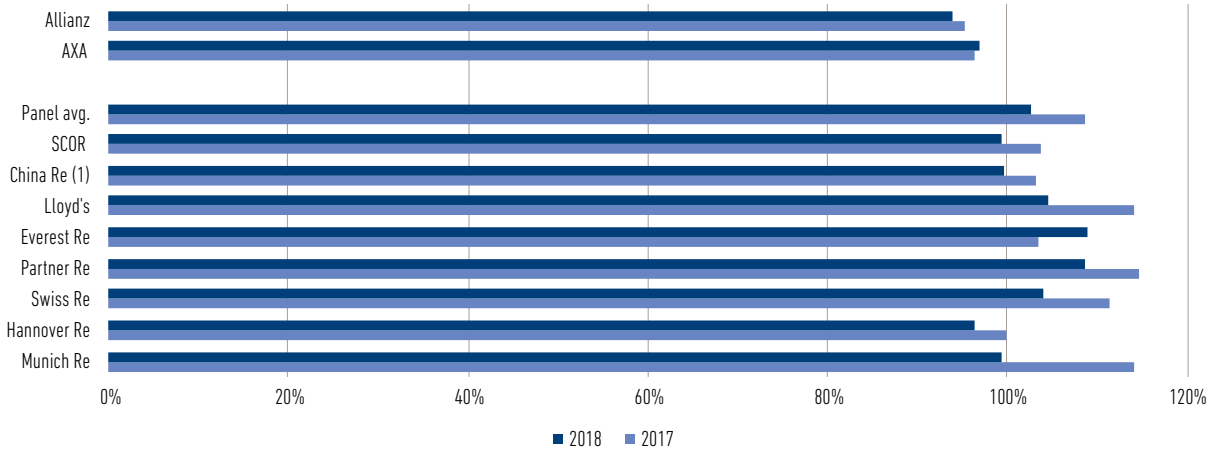


(1) The ROE of Berkshire Hathaway, which has been recomputed, considered the whole business of the company given that information was not disclosed for the insurance business only.

3.5.2. Combined ratio (P&C business)

For the non-life business, the main performance indicator is the combined ratio. Only two companies from our reinsurers panel do not publish this information: Berkshire Hathaway and RGA. For the eight remaining companies, the average combined ratio stands at 102.6% in 2018 vs. 108.8% in 2017. The deterioration we observed in the past two years is mainly linked to the significant NAT CAT events. Figure 11 presents the comparison between this ratio for 2017 and 2018:

FIGURE 11: COMBINED RATIO 2017 VS. 2018



(1) China Re's combined ratio, is only linked to P&C reinsurance business and not all P&C business.

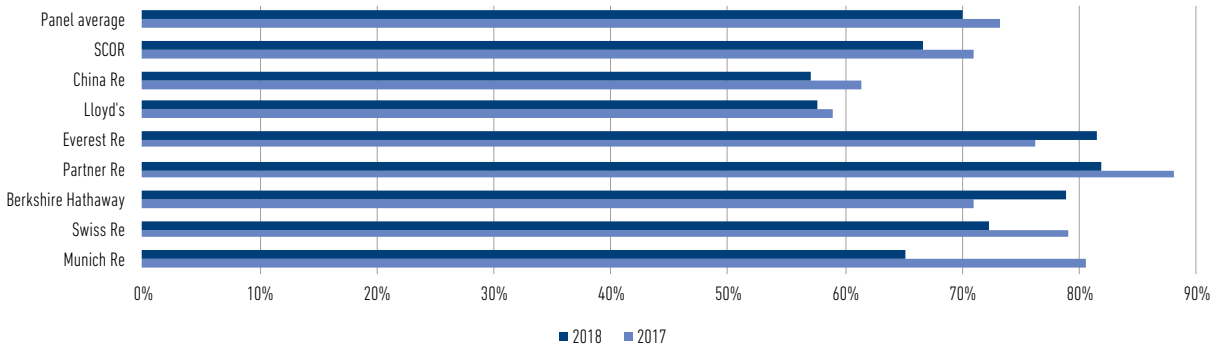
3.5.3. Loss Ratio (P&C business)

For non-life business, another indicator on which the companies in the panel communicate on is the loss ratio. We note one exception with Hannover Re which does not disclose a global P&C loss ratio but provides information on this indicator at a line of business level (fire, accident and so on...). Another interesting aspect is that RGA, although it is a life reinsurer, does provide the loss ratio which may be atypical for the life business. RGA will be thus excluded from the analysis performed below, as this section refers to P&C business. Overall, the panel average loss ratio in 2018 stands at 70% vs. 73.3% in 2017. As shown in Figure 12, companies present comparable loss ratios.

Lastly, we observe that China Re and Lloyd's show low loss ratios compared to the other companies. Regarding Lloyd's, this is explained by the fact that the loss ratio is computed by considering only the current year claims, which is not the case for the other companies in our panel. Regarding China Re, no explanation is given.

NB: Swiss Re uses the same ratio, but calls it claims ratio.

FIGURE 12: LOSS RATIO 2017 VS. 2018



3.5.4. Performance indicators for LIFE business

Looking at the performance indicators for the life business, we will note that the presentation is not as straight forward as this may be for the P&C part. Generally, the indicators are named differently, are computed based on various methods and can be expressed either as a percentage of the premiums or in absolute values. However, each annual report clearly discloses the way the indicator was computed and provides explanations in respect of the changes from one year to another. For three companies (Berkshire Hathaway, Everest Re, Lloyd's), no performance indicators are given as either there is no life business underwritten, or its weight in the total GWP is not material. There is another exception with China Re, which does not present any specific indicator for its life business. Indeed, China Re only discloses an income statement every quarter, but without any communication on a specific aggregate.

For RGA, the performance is measured via the loss ratio. Nevertheless, RGA does not show a global loss ratio but a loss ratio for each geographical segment and only for the traditional reinsurance business. RGA's Financial Solutions LoB is analysed via several indicators such as the income before tax, net premiums, net investment income, other revenues, claims & other policy benefits and operating expenses.

Table 13 summarises the main indicators as described in the annual reports:

TABLE 13 - LIFE PERFORMANCE INDICATORS

Company	Life Performance indicator	Definition of the indicator	YE 18	YE17
Munich RE	Life & Health operating result (expressed in currency)	The operating result is defined as the sum of the technical result (NEP plus the income from technical interest less the net expenses for claims and benefits and net operating expenses) and the non-technical result (investment result, insurance related investment result net of income from technical interest, other operating result)	€ 930m	€ 708m
Hannover RE	EBIT margin for Life & Health reinsurance	Is defined as the ratio between the EBIT (NEP less claims & claims expenses, change in reserves, commissions, own administrative expenses and other income/expenses) and NEP.	4,3%	3,8%
Swiss RE	Life & Health reinsurance net operating margin	Operating result divided by total operating revenues. The operating result is before interest expenses, taxes and net realised gains/losses.	9,4%	13,1%
RGA	Loss Ratio/Geographical area (for traditional reinsurance)	Claims and other policy benefits as a percentage of net premiums for traditional reinsurance only (to be noted that the ratio is presented by geographical segment and not a global ratio for the whole company)	US & LA: 91.2% Canada: 82.8% EMEA: 86.7% APAC: 82.1%	US & LA: 88.9% Canada: 84% EMEA: 84.2% APAC: 79.7%
Partner Re	Allocated underwriting result (expressed in USD)	The allocated underwriting result is defined as the sum of : - Technical result (net earned premiums minus losses, expenses and acquisition costs) - Net investment income - Other income (fee income on deposit accounted contract and longevity swap) and other expenses.	86 USD	68 USD
SCOR	Life Technical margin	It is calculated as a percentage of the net technical result plus income from funds held by ceding companies and the net of gross and ceded earned premiums.	7,0%	7,1%

Company	Life Performance indicator	Definition of the indicator	YE 18	YE17
AXA	Life & Savings Net inflows (expressed in currency)	Defined as the collected premiums (including risk premiums, fees and revenues), net of surrenders, maturities, claims paid and other benfits.	€ 1,3bn	€ 3.9bn
Allianz	Life /Health operating profit (expressed in currency)	The opertaing profit is defined as the sum of the loading and fees, investment margin, expenses, technical margin, impact of changes in DAC and the losses arrising from the South Korean business.	€ 4,2bn	€ 4.4bn

For the life business another key performance indicator is given by the value of new business. In this respect, as compared to the six reinsurers presented above, all companies provide this information, except for SCOR. In addition, China Re also presents information regarding this specific topic by disclosing annually the value of one year's new business.

Table 14 presents the key information given around new business:

TABLE 14 - LIFE NEW BUSINESS DISCLOSURES

Company	Indicator name	Comment	YE 2018	YE17
Munich RE	New Business Value	The indicator is disclosed in the "Analysts' and investors' call 2018". No clear definition is given.	€ 1.1bn	€ 1.1bn
Hannover RE	Value of New Business (VNB)	The ratio is based on Solvency 2 principles and pre-tax reporting	€ 290m	€ 364m
Swiss RE	Life&Health EVM profit - new business Life&Health Profit margin - new business	Economic Value Management (EVM) is Swiss Re Group's proprietary integrated economic valuation and accounting framework for planning, pricing, reserving and steering. The new business profit margin is computed as the ratio between the new business profit/ loss EVM capital allocated to the new business over the lifetime of the business.	$ 980m 8.2 %	$ 987m 8.6 %
RGA	Reinsurance new business	The term "new business" refers to insurance policy face amounts or net amounts at risk.	$ 406.7bn	$ 395.4bn
China Re	Value of one year's new business	This value is expressed either before and after Cost of Capital (the value presented on the right are after CoC).	RMB 1,341m	RMB 1,470m
Partner Re	Life value in force (Life VIF)	The life value in force (Life VIF) is the present value of the profits that will emerge from life policies over time and is comprised of the present value of future after-tax profits and the cost of capital. The Company's Life VIF is calculated on a going concern basis and is the sum of (i) present value of future profits on a U.S. GAAP basis which represents the net present value of projected after-tax cash flows based on Life reserves, net of deferred acquisition costs and gross of value of business acquired; (ii) cost of non-hedgeable risks; (iii) frictional costs; (iv) time value of options and guarantees; and (v) cost of non-economic excess encumbered capital.	$ 283.5m	$ 308.2m

Company	Indicator name	Definition of the indicator	YE 18	YE17
AXA	New business value New business value margin Annual Premium Equivalent (APE)	The value of newly issued contracts during the current year. It consists of the present value of future profits after the costs of acquiring business, less (i) an allowance for the time value of financial option and guarantees, (ii) cost of capital and nonfinancial risks. AXA calculates this value net of tax. New Business Value Margin is the ratio of the New Business Value representing the value of newly issued contracts during the current year; to Annual Premium Equivalent. APE represents 100% of new regular premiums plus 10% of single premiums, in line with EEV methodology. APE is Group share.	€ 2.7bn 39.3% € 6.6bn	€ 2.8bn 43.1% € 6.5bn
Allianz	Present value of new business premiums	Present value of new business premiums, correspond to the present value of total sales (premiums) confirmed to receive from present to future.	€ 63.0bn	€ 59.5bn

3.5.5. Premiums / employee performance

Our panel was built based on the level of gross written premiums by reinsurer. As we were interested to analyse the potential revenue generated per employee, in Table 15 and Table 16 we disclose the amount of GWP per employee for 2018 and 2017:

TABLE 15 - GWP PER EMPLOYEE (2018)

	Munich Re	Hannover Re	Swiss Re	Berkshire Hathaway [1]	RGA	Partner Re	Everest Re	Lloyd's	China Re	SCOR	AXA	Allianz
GWP (in €Mn)	49 064	19 176	31 980	50 437	10 017	5 533	7 443	39 576	15 594	15 258	96 309	77 824
Employees	12 340	3 317	14 943	48 874	2 767	958	1 415	1 044	57 463	2 887	104 065	142 460
% GWP per employee (in €Mn)	4,0	5,8	2,1	1,0	3,6	5,8	5,3	37,9	0,3	5,3	0,9	0,5

(1) Only in insurance business

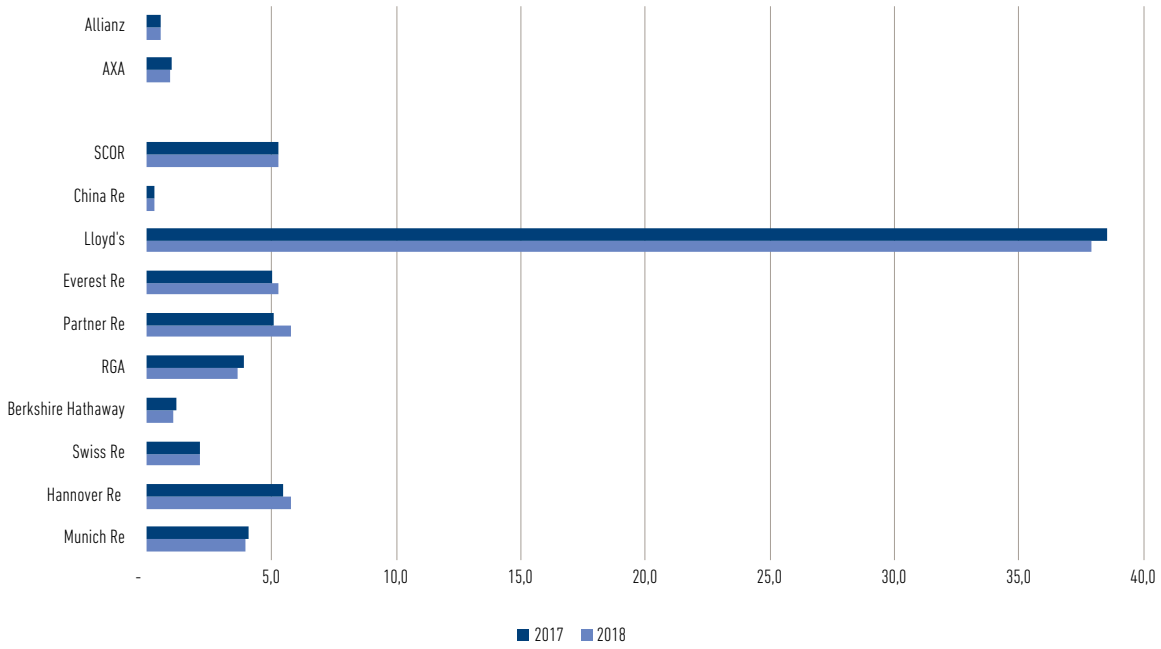
TABLE 16 - GWP PER EMPLOYEE (2017)												
	Munich Re	Hannover Re	Swiss Re	Berkshire Hathaway (1)	RGA	Partner Re	Everest Re	Lloyd's	China Re	SCOR	AXA	Allianz
GWP (in €Mn)	49 115	17 791	30 997	56 089	9 534	4 977	6 390	38 294	13 497	14 700	92 050	77 300
Employees	12 129	3 251	14 485	47 108	2 460	978	1 276	994	49 431	2 801	95 728	140 553
% GWP per employee (in €Mn)	4,0	5,5	2,1	1,2	3,9	5,1	5,0	38,5	0,3	5,2	1,0	0,5

(1) Only in insurance business

The ratio GWP per employee might show also the nature of the underwriting business. As it is shown in Figure 13, we note that AXA, Allianz and Berkshire Hathaway are also underwriting significant direct insurance which needs more resources compared to reinsurers. We also note that Lloyds are much more above the average than the other reinsurers with a ratio of € 37.9m GWP per employee (vs. an average of reinsurers at € 1.7m) given its specific business model. The remaining classic reinsurers are comprised in the same range of € 2-6m per employee.

China Re is the only exception with a rate of € 0.3m whereas its business model is mostly based on reinsurance.

FIGURE 13: GWP PER EMPLOYEE 2018 VS. 2017



Appendix

APPENDIX 1: FX RATES USED

EUR exchange rates 2018		
in EUR	Closing 31/12/2018	Average 2018
USD	0,87	0,88
GBP	1,12	1,11
CHF	0,89	0,89
CNY	0,13	0,13

Source : the Banque de France – as of 31/12/2018

APPENDIX 2: GLOSSARY

Abbreviation	Explanation
APAC	Asia, Pacific, Asutralia namely: Australia, China, Hong Kong, India, Japan, Malaysia, New Zealand, Singapore, South Korea, Taiwan
BEAT	Base Erosion Anti-abuse Tax
BN	Billion
BS	Balance sheet
CSCR	Central SCR
DAC	Deferred Acquisition Cost
DTA	Deferred Tax Assets
EMEA	Europe, Middle East and Africa
ETR	Effective Tax Rate
EU	European Union
FX	Foreign Exchange
GAAP	General Accepted Accounting Principles
Geo.	Geographical
GW	Goodwill
GWP	Gross Written Premiums
IFRS	International Financial Reporting Standards
ILS	Insurance Linked Securities
LAT	Liability Adequacy Test
LoB	Line of business
MWSCR	Market Wide SCR

Abbreviation	Explanation
NAT CAT	Natural Catastrophe
ROE	Return on Equity
SCR	Solvency Capital Requirement
SFCR	Solvency and Financial Condition Report
SII	Solvency I I
SPV	Special Purpose Vehicle
TLCF	Tax losses carried forward
UPR	Unearned Premium Reserve
US	United States of America
US & LA	United States of America and Latin America
VOBA	Value of business acquired
YE	Year end

NB : Please note that due to rounding of figures presented in some tables, the totals might not perfectly match the sum of the different lines.

CONTACTS

Jean-Claude PAULY
Partner, Global Head of Insurance
+33 1 49 97 68 53
jean-claude.pauly@mazars.fr

Maxime SIMOEN
Partner, Insurance
+ 33 1 49 97 67 85
maxime.simoen@mazars.fr

Guillaume WADOUX
Partner, Insurance
+33 1 49 97 66 62
guillaume.wadoux@mazars.fr

Otto STRASSZER
Senior Manager, Insurance
+33 6 65 07 43 54
otto.strasszer@mazars.fr

MAZARS