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The views and statements expressed in this publication are the sole responsibility of the authors.

I. Introduction: Scope and purpose of the study

This study provides a quantitative overview of European captives owned by large industrial and commercial companies and is designed to serve as a benchmark and a reference for captive professionals.

Through extensive research based on the registers of national regulators and on corporates' financial reports, SCOR has been able to identify over 300 licensed European insurance or reinsurance companies acting as captives. Of these, 175 meet our selection criteria, i.e. they belong to an industrial or commercial company¹ that can be identified, they write P&C risk², and they have released a recent "Solvency and Financial Condition Report" (SFCR) including all the regulatory quantitative reports³.

The study provides a statistical analysis of this sample of 175 captives on the following topics: captive and parent company domicile, breakdown of premium, assets and reserves by line of business or category, solvency ratios and capitalization.

| Overview | of | the | « | typical | >> | European | corporate | captive |
|----------|----|-----|----------|---------|-----------------|----------|-----------|---------|
| | | | | | | | | |

| Amounts in EUR millions | 25% quantile | 50% quantile (median) | 75% quantile |
|-------------------------|--------------|--------------------------|--------------|
| Gross Written Premium | 2.5 | 9.3 | 29.2 |
| Net Written Premium | 1.8 | 6.0 | 16.4 |
| Balance sheet | 25.3 | 57.4 | 134.2 |
| Technical provisions | 2.3 | 12.1 | 45.7 |
| Own funds | 16.8 | 34.5 | 73.1 |
| Solvency | 154% | 197% | 276% |

While we believe our selected sample is large enough to be representative of the European captive landscape, it is by no means exhaustive. The study also provides statistics at the industrial sector level.

Data presented hereafter is extracted from the collected SFCRs⁴. All amounts are "Solvency II" values.

For this second wave of the study, the considered sample has been refreshed. Some companies have been excluded where updated data could not be found, while others have been added after in-depth research. This may explain some differences in some of the results.

Furthermore, we introduce this year the notion of the "median" captive, which better captures the variety of the captives, without the outliers. The median value for a measure is the "middle" value, separating the higher half from the lower half. For example, the median premium is EUR 9.2 million, meaning that 50% of the captives write less and 50% of the captives write more than this amount.

¹ Captives of insurance groups have been excluded; captives of banking groups have been included when they manage only the bank's operational risk exposure

² Run-off captives excluded,

³ Comprehensive and consistent data as of 31/12/2020 or more recent, made available to our data provider

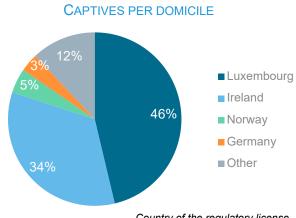
⁴ Data source: Solvency II Wire Data, http://solvencyIlwiredata.com

II. Statistical overview of European captives

A. Geographical overview

Most of the European captives are based in Luxembourg and Ireland

Luxembourg and Ireland are the domiciles for 80% of the captives in our sample. These two countries account for 71% of reported gross written premium and 66% of reported assets. The captives based in Norway, despite their small number (4%), account for 11% of the GWP and 16% of the assets. The other captives considered in this study are registered in Denmark, Gibraltar, Malta, the Netherlands and Sweden



Country of the regulatory license. By number of captives.

European captives mostly belong to groups based in France, Germany and Belgium

The headquarters of the captive owners are mostly based in western European countries, primarily France, Germany and Belgium.

Some statistical behaviors:

- Captives based in Denmark, Germany, Norway and Sweden mostly belong to domestic groups;
- Groups based in Luxembourg, Denmark, Ireland and Norway mostly domicile their captives in the same country;
- US-based groups locate their European captives in Ireland (100%)
- Groups based in Belgium (100%),
 Spain (89%) and France (69%)
 mostly base their captives in Luxembourg.

PARENT COMPANY HQ Prance Germany Belgium USA Norway Sweden Luxembourg OTHER

Headquarters of the ultimate parent company of the captive.

By number of captives.

B. Premium

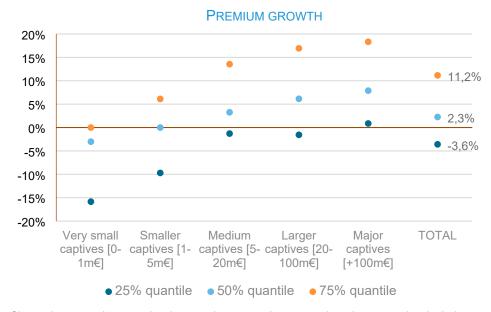
The median captive writes premium of around EUR 9.3 million

The gross annual P&C premium written by the captives in the sample amounts to a total of EUR 4,661 million. This is largely driven by a few major players:

- The largest captives write over EUR 200 million, while the smallest ones write less than EUR 0.1 million;
- The top 1% of the captives account for more than 10% of the sample premium, which is as much as the bottom 60%:
- 9% of the captives account for half the total premium over the sample, which is as much as the bottom 91%;
- 50% of the captives write less than EUR 9.3 million GWP.

Annual gross written premium (Non-life business QRT S.05.01.02, C0200, R0110 + R0120 + R0130, latest reported year, gross of retrocession.

For the median captive, premium has grown by 2.3% since last year

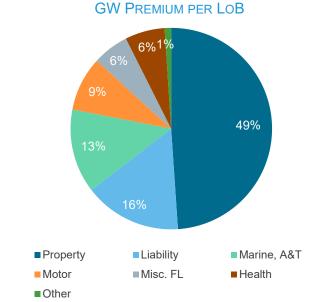


Change in gross written premium between latest reporting year and previous one, when both data available.

Sample size: 167

Half of the business written by captives is Property

Captives report on their premium according to the lines of business defined by the Solvency II framework

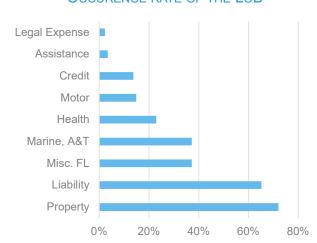


Average gross written premium per "Solvency II" line of business. "NP casualty" line included in" "Liability". "Other" includes "Credit & Surety", "Legal Expense" and "Assistance".

Property business is the most frequent, with 72% of the captives writing some, amounting to an average of 49% of the premium. Liability business is the second most frequent line, written by 65% of the captives, amounting to 16% of the premium on average. Many captives (51%) write both Property and Liability business. Very few captives write Legal expense or Assistance business.

The business mix does not change much with size except for the very small captives, for which "Misc. financial loss" makes up most of the business

OCCURENCE RATE OF THE LOB



Frequency of a positive gross written premium for the LoB.

The median captive manages two or three different Lines of Business

The larger captives tend to be present on a wider range of risks.

A quarter of the captives (25%) write only one line of business. These monoliner captives are mostly dedicated to writing Property (7%), Liability (7%) or MFL business (5%). Their average size is EUR 8 million in gross written premium, the largest being EUR 37 million, and their cumulated share is 7% of the overall sample premium.

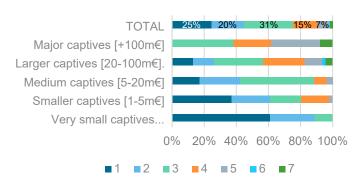


Gross written premium can be further differentiated between the premium written directly and premium assumed via reinsurance.

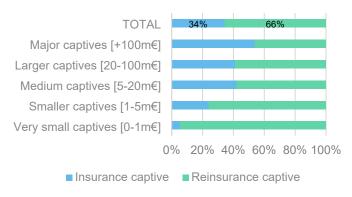
A third (34%) of the captives in the sample write direct business, the proportion being lower for the smaller captives. This requires the captives to be granted an insurance license by their national authorities for each of the lines of business in which they operate. When they have an insurance license to operate in one branch, captives can provide reinsurance services and take on any business from other insurance companies, provided their articles of incorporation permit it. More than half (55%) of the insurance captives in the sample write such reinsurance business.

The other captives (66%) in the sample write only accepted business. To do so, they need only one general "reinsurance" license. There is no regulatory restriction as to the branches in which captives can provide reinsurance services. However, they need to have a partnership with a licensed insurance company (the "fronter"), from which they accept the business.

NUMBER OF LOB

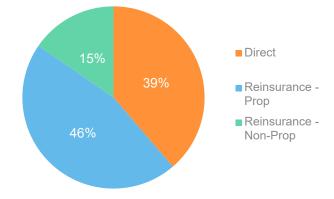


NATURE OF THE CAPTIVE



Nb of captives reporting some "direct business" gross written premium.

GW PREMIUM PER CHANNEL



Total premium volume reported as direct business / reinsurance business

With regard to volumes, premium is mostly accepted through proportional reinsurance (e.g. quota share). Non-proportional reinsurance contracts (e.g. excess of loss) make up for 15% of the total.

The median captive retrocedes 5% of its premium

One third of the total premium written by the captives is retroceded. In the sample, this amounts to EUR 1,550 million.

Behaviors are very different. Many captives retain all their risks (43% of the captives don't report any ceded premium, and the median premium cession rate is 5%), while some retrocede most of it (8% of the captives retrocede more than 80% of their GWP).

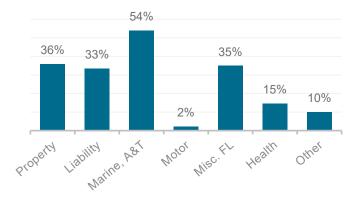
As illustrated on this chart, the bigger captives tend to retrocede a higher share of their premium.

The average cession rate is different for the different lines of business. Motor premium is almost fully retained, whereas half of Marine premium is ceded or retroceded

PREMIUM CESSION RATIO 100% 80% 60% 40% 20% 0% Ver Varial Captives Labines to Jorne Labines Labore Labines Labore Labines Labines Labines Labines Labore Lab

Distribution of cession rate, based on gross written premium and ceded reported premium, QRT S.05.01, latest reported year

PREMIUM CESSION RATE PER LOB

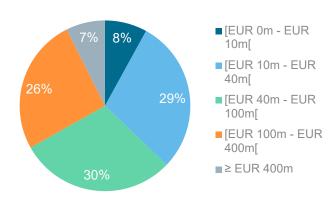


Average cession rate, based on gross written premium latest reported year

The median captuves accounts for EUR 57 million

The total assets held by captives within our sample amount to EUR 25,000 million. The average balance sheet size is EUR 144 million, and the median EUR 57 million. Again, this is very heterogeneous, with certain captives exceeding EUR 3,000 million and others standing at less than EUR 5 million.

SIZE OF THE BALANCE SHEET



Total size of the Solvency II balance sheet, QRT S.02.01.02, C0010, R0500, latest reporting year

Half of the assets are made up of financial investments and cash

Almost all the captives (95%) report some cash or cash equivalent assets. Most (70%) also report some financial investments. Together, these two accounting items represent over half (58%) of the total assets on the balance sheet.

Half of the captives (52%) hold loans.

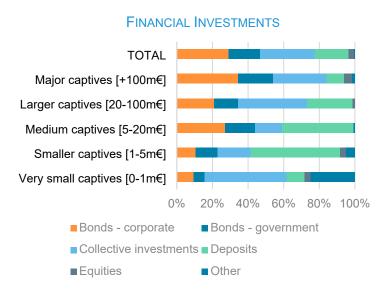
Less than half of the captives (42%) hold reinsurance recoverable. Other assets are made up of deposits to cedants, insurance and reinsurance and other receivables.

ASSET ALLOCATION TOTAL Major captives [+100m€] Larger captives [20-100m€] Medium captives [5-20m€] Smaller captives [1-5m€] Very small captives [0-1m€] 0% 20% 40% 60% 80% 100% ■ Financial investments ■ Cash ■ Loans ■ Reinsurance ■ Other

Average asset allocation, per captive size category

Investments are directed towards corporate and government bonds (47%)

Financial investments are made up of deposits, collective investment undertakings, corporate and sovereign bonds. Equities and participations account for a very limited share of the total, and there are hardly any investments in real estate, collateralized securities or derivatives.



Average financial investments allocation (non-cash), per captive size category

Loans are material (26% of total assets)

The second largest item on the asset side of the balance sheet is loans and mortgages (26% of the sample amount, reported by 52% of the captives in the sample). There is limited information available here: "loans on policies" account for 0%, "loans and mortgages to individuals" make up 2% and the remaining 24% is reported as "other". This category is expected to include loans to related companies.

D. Technical Provisions

The median captives hold EUR 12 million of reserves

Technical provisions (gross of reinsurance and net of recoveries) amount to EUR 8,570 million in the sample. On average this is EUR 49 million per captive, ranging from –EUR 59 million to + EUR 657 million.

Under Solvency II rules, technical provisions are split between Life and Non-Life, then further split between Health and Other

No captive in the sample reports any technical provision related to unit-linked liabilities. Overall, technical provisions related to Life guarantees are below 6% of the total. "P&C" technical provisions account for 90% of the total technical provisions in our sample.

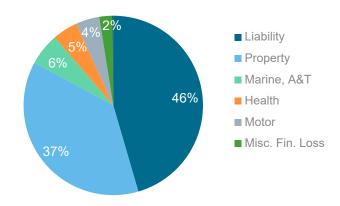
| | Non- technical p | | Life technical provisions | | | |
|------------|---------------------|-------|------------------------------|-------|----|--|
| | Health NSLT | Other | Health SLT | Other | UL | |
| Occurrence | 24% | 98% | 5% | 7% | 0% | |
| Share | 4% | 90% | 1% | 5% | 0% | |

Gross total technical provisions, QRT S.02.01.02, C0010, R0520, R0560, R0610 and R0690, latest reporting year

Liability business makes up 46% of the P & C technical provisions

Long-tail liability business generates the largest share of the provisions. This is due to the delay between the occurrence of a risk and its full settlement. The second largest share is generated by Property business.

GROSS TECHNICAL PROVISIONS

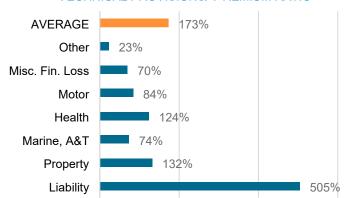


Average split of technical provisions, QRT S.17, latest reporting year. Gross of reinsurance. Includes risk margin

The "technical provisions over premium" ratio tells you how many years there are between the inception of the policy and the average settlement of the claims (5 years for Liability, 1.3 years for Property).

Outstanding claims are the main component of the technical provisions (94%). The "best estimate of claims" consists of discounted values of all future claims payments for reported claims and incurred but not yet reported claim (IBNR).

TECHNICAL PROVISIONS/ PREMIUM RATIO



Average reserving ratio (gross technical provisions divided by gross written premium)

Benchmark of premium reserves and risk margin

In the Solvency II balance sheet, Technical Provisions (TP) also include a best estimate amount for premiums (liability value of unpaid premium within the contract boundaries) and a risk margin (cost of the capital required to bear the risk).

Except for Motor business, the Best Estimate of Premium (BEP) is often negative, meaning that the future premium is expected to generate a profit for the company that is immediately recognized in the Solvency II own funds. It amounts to minus EUR 150 million in the sample. This is around 2% of the total technical provisions. This amount can also be seen as 3% of the total written premium.

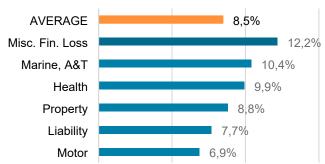
The risk margin usually depends on the volatility of the line of business and the length of the risk.

NON-LIFE TECHNICAL PROVISIONS



Average share of the best estimate of claims, best estimate of premium and risk margin in the economic technical provisions

RISK MARGIN / BE RATIO



Average ratio of the risk margin on top of the best estimate of claims and premium

Other financial liabilities are not material in the balance sheet

On the liabilities side of the balance sheet, own funds and technical provisions are the main components, making up respectively 54% and 34% of the total.

Most captives (72%) also report some deferred tax liabilities, amounting to 6% of the balance sheet size. Payables account for 4%. Financial debts, subordinated debt and other debts are not material.

E. Own funds and solvency

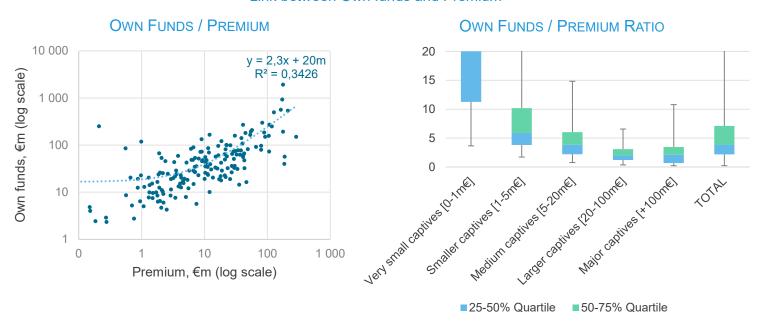
The median captive holds EUR 34 million of own funds

In the sample, total available own funds (OF, i.e. the net value of the captives on the economic balance sheet) amount to EUR 13,700 million, i.e. EUR 78 million per captive on average. Own funds range from EUR 2 million for the smallest captives up to EUR 1,924 million for the largest.

Own funds are about twice the premium plus EUR 20 million

There is some obvious correlation between own funds and gross written premium. Statistical analysis of the sample shows that the own funds are about twice the premium plus EUR 20 million, or about four times the premium amount Yet the amount of own funds also depends on the risk written, the diversification between risks, the reinsurance in place, the growth perspectives, the risk appetite of the captive, etc.

Link between Own funds and Premium



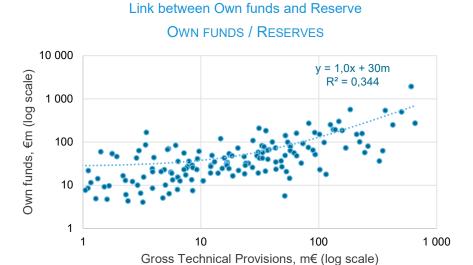
Linear correlation between own funds and gross written premium

Distribution of the Own funds divided by Gros written premium ratio, per captive size category

For larger captives, this own-funds ratio tends to be lower. This can be explained by the minimal regulatory capital amounts that all (re)insurance companies must hold, which are quite prejudicial for the very small companies, and by the "diversification benefits" that materialize for the larger companies.

Own funds are about the amount of the technical provisions plus EUR 30 million

Likewise, own funds can be compared with the technical provisions on the economic balance sheet.

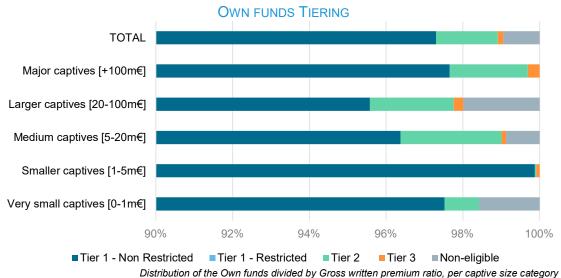


Linear correlation between available own funds and gross technical provisions

The own funds are predominantly composed of "non-restricted Tier 1" items (97%)

Only 4% of the captives subtract some "non-eligible" items from their "available" own funds, either by removing some non-admitted funding items or capping the share of lower-Tier items, as per Solvency II rules.

In the sample, total eligible own funds (EOF, the "regulatory capital") amount to EUR 13,540 million, i.e. EUR 77 million per captive on average. The chart below demonstrates no specific financing plans according to captive size.



Eligible own funds (EOF) include over 98% of "Tier 1 non-restricted" amounts (shares and accumulated profit).

No captive reports any "Tier 1 restricted" amounts (subordinated debt issued before Solvency II went live in 2016).

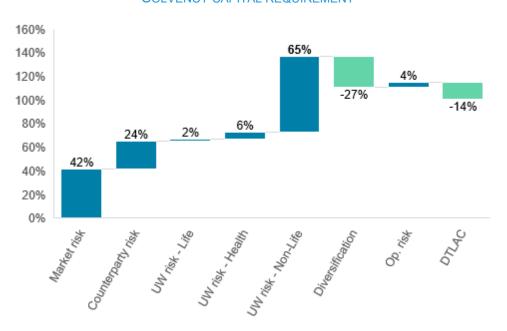
Few captives (11%) report some "Tier 2" amounts. This most often includes subordinated loans but can also include some ancillary own funds such as a letter of credit. Amounts range from EUR 0.3 million to EUR 49 million (conditional median of EUR 5.4 million).

Few captives (17%) report some "Tier 3" own funds, which are made up of the net deferred tax assets on their balance sheet. The amount is usually small (conditional median of EUR 0.2 million).

Non-Life underwriting risk generates 65% of the capital requirement

Non-Life underwriting risk is the main risk for the captives. It encompasses premium risk (if the premiums charged are not sufficient to face future claims, due to adverse frequency or severity), reserve risk (if the booked reserves are not sufficient to face the settlement of past claims, due to adverse deviation) and CAT risk (exposure to the most severe natural or man-made catastrophes), as well as the diversification between those risks. Non-Life underwriting risk is measured on the basis of net premium and reserve amounts and net exposures, and thus can be reduced by reinsurance.

SOLVENCY CAPITAL REQUIREMENT



Average split of the capital requirement between the contributing risks UW = underwriting; Op. risk = operational risk; DTLAC = loss absorbing capacity of deferred tax

Almost all the captives in the sample (95%) report a capital requirement for market risk. As a general rule, market risk is driven by the more volatile investments (equities), a mismatch between assets and liabilities, or a concentration on a single counterparty.

Counterparty risk is assessed by 99% of the captives. This reflects the default risk of a counterparty (bond issuer, creditor, account keeper reinsurer), based on its credit rating. The

level of counterparty risk appears to be higher than is seen with commercial (re)insurance companies. This might be a consequence of intra-group loans and cash pooling schemes.

Diversification between the five main risks is recognized for an average of 27%. The more balanced the risk profile, the higher the diversification benefit.

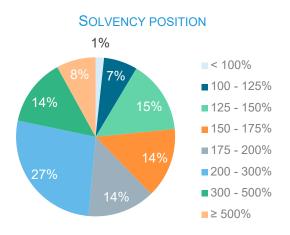
Operational risk is usually not material.

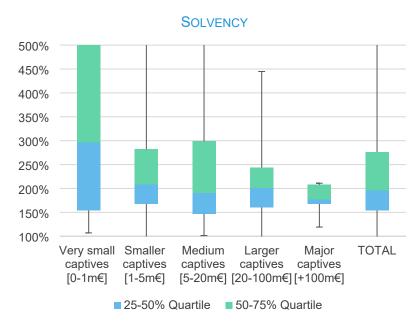
Half of the captives (59%) take into account the loss-absorbing capacity of deferred tax (LAC DT), when a large loss scenario would give rise to a tax credit or offset an existing tax liability.

The median captive holds twice the solvency capital requirement

The solvency ratio is calculated as the eligible own funds amount divided by the solvency capital requirement⁵. The captives in the sample show a solvency ratio between 84% and +2,500%. The median ratio is 197%.

Solvency position





Distribution of the solvency ratio of the captives

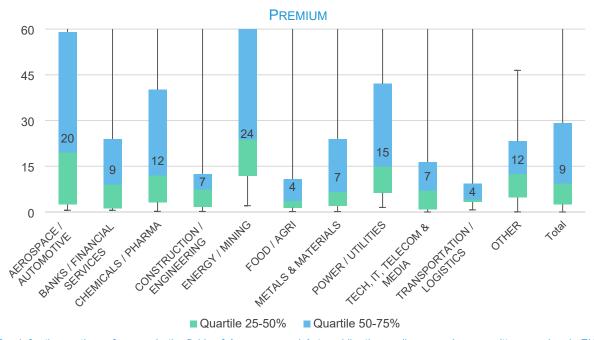
Distribution of the solvency ratio of the captives per size category

⁵ The minimum capital requirement MCR position has not been studied here.

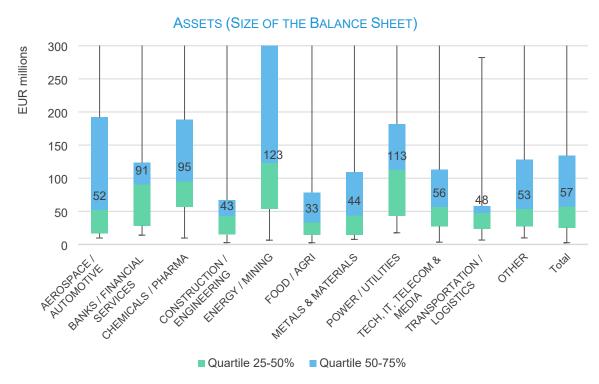
III. Focus on industrial sectors

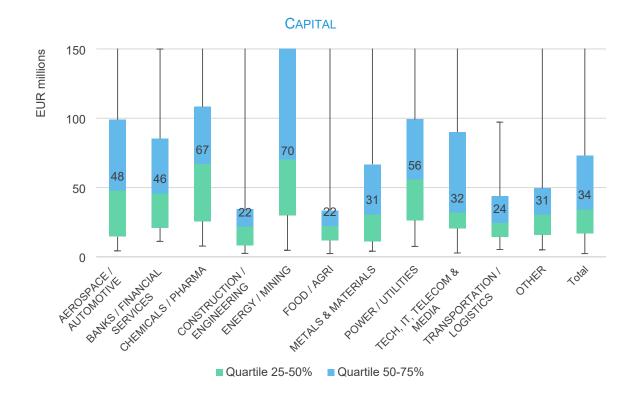
To provide some benchmarks by peer groups, the 175 captives in the study have been further categorized by industrial sector. The 10 considered sectors each contain between 11 and 21 captives. The "other" category includes 30 captives for groups in the fields of consulting and audit, retail, consumer goods, medical supplies, hospitality, leisure, public authorities and miscellaneous.

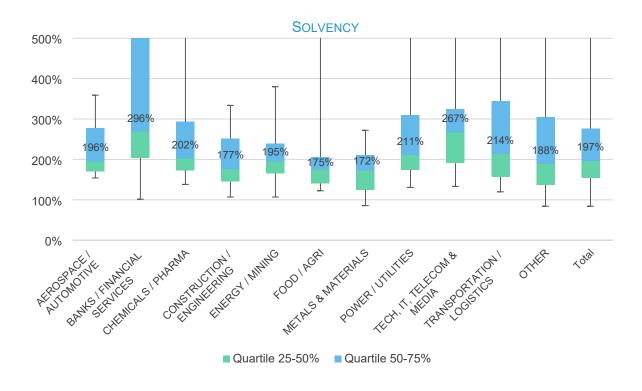
This first chart shows the average gross premium written by the captives for each industrial sector, as well as the distribution per quartile.



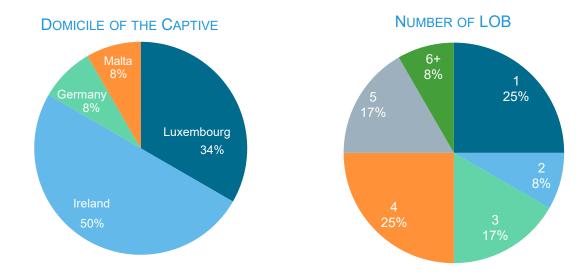
Read: for the captives of groups in the fields of Aerospace and Automobile, the median annual gross written premium is EUR 20 million. The smallest captive writes EUR 0.6 million; the smallest 25% of the captives write between EUR 0.6 million and EUR 2.4 million; the second quartile between 2.4 and 20, etc. The largest captive in this group writes premium of EUR 186 million.

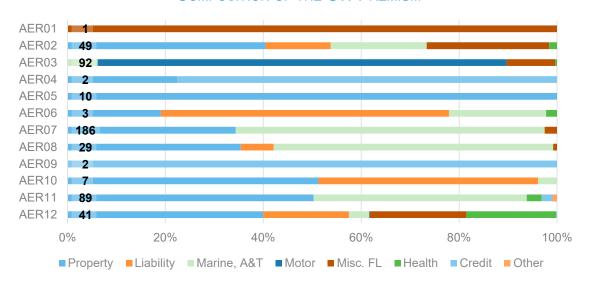




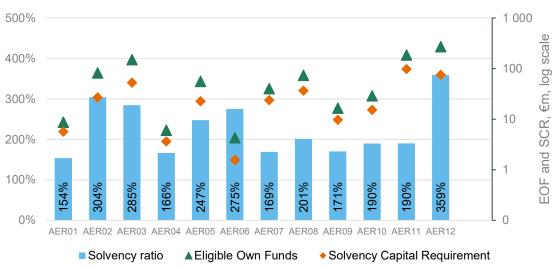


A. AEROSPACE / AUTOMOTIVE (12 captives, named AER01 to AER12)

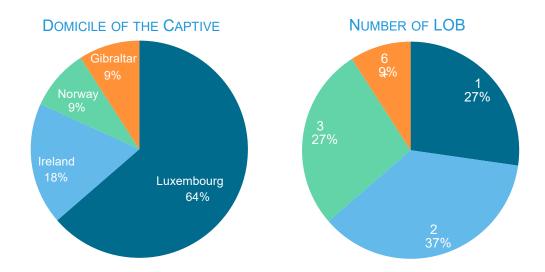


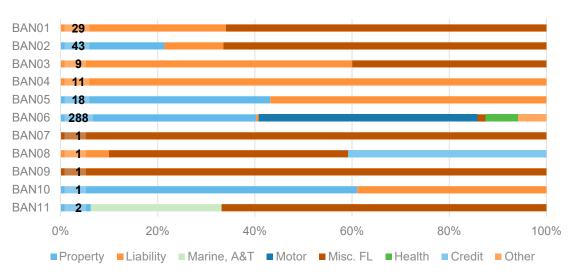


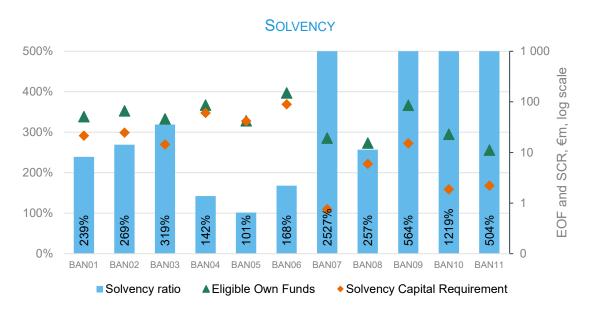




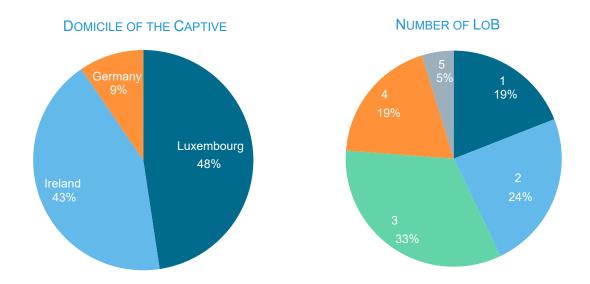
B. Banks / Financial services (11 captives)

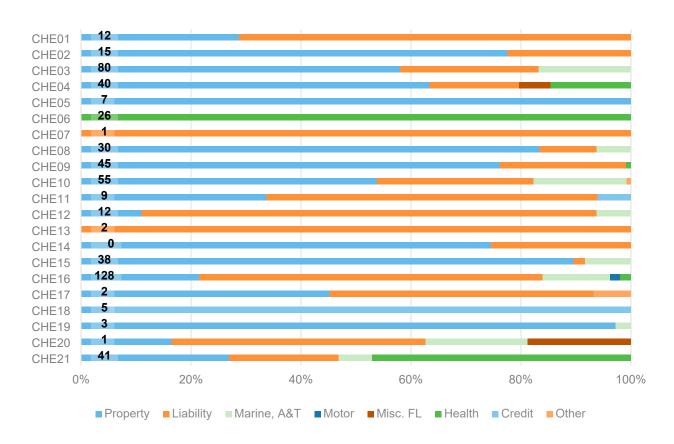


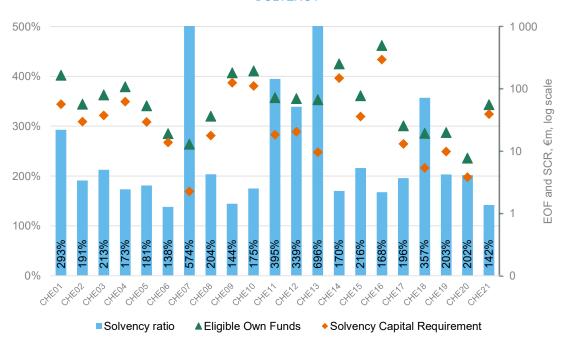




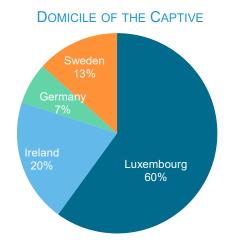
C. Chemical / Pharma (21 captives)



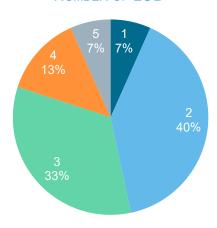




D. Construction / Engineering (15 captives)



Number of LOB



COMPOSITION OF THE GW PREMIUM

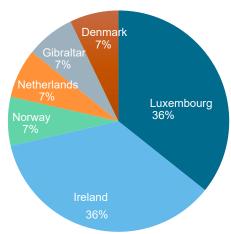


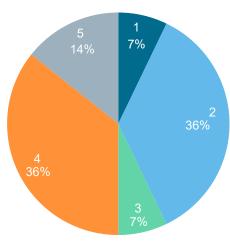


E. Energy / Mining (14 captives)

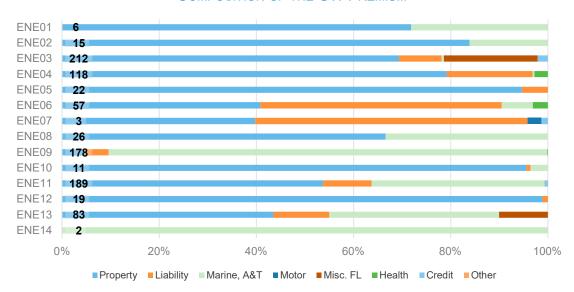


Number of LOB



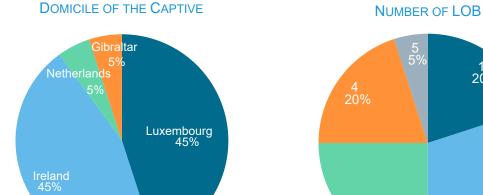


COMPOSITION OF THE GW PREMIUM



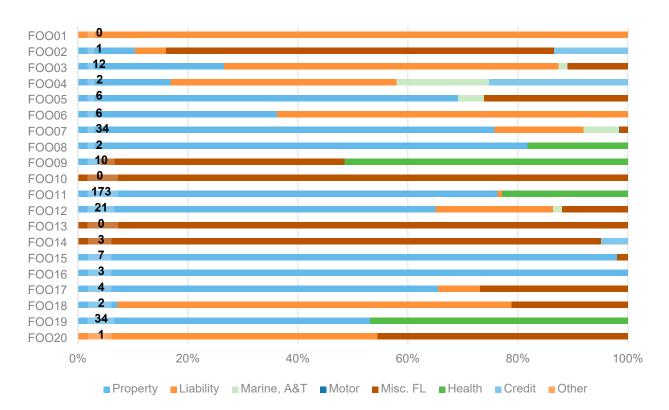


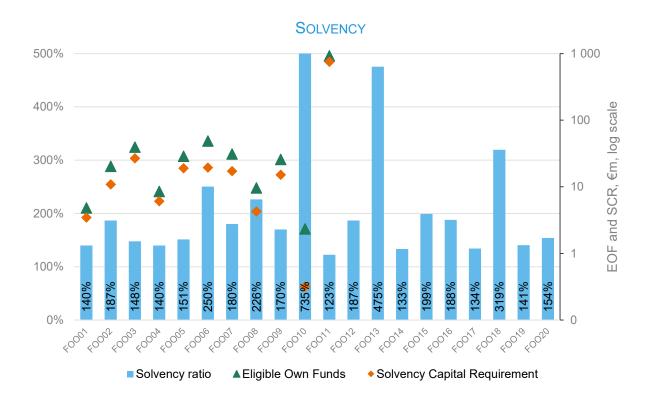
F. Food / Agri (20 captives)



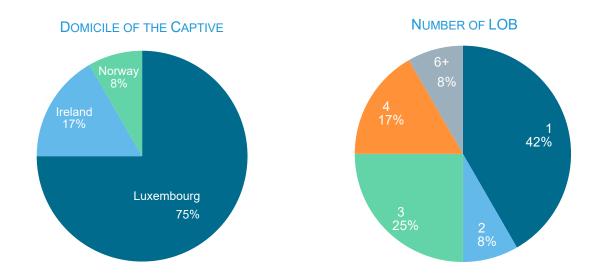
COMPOSITION OF THE GW PREMIUM

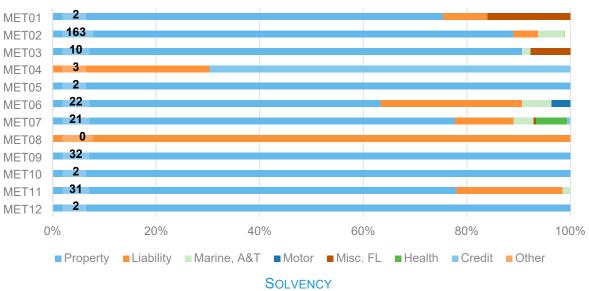
1 20%





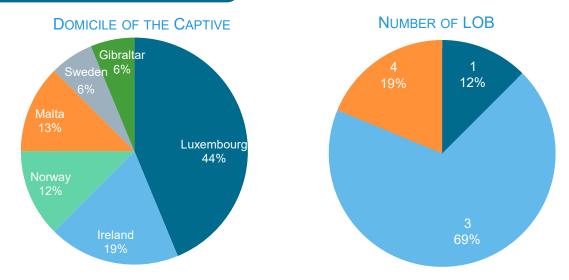
G. Metals & Materials (12 captives)

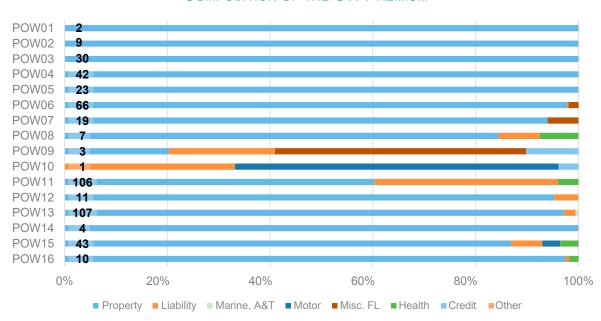






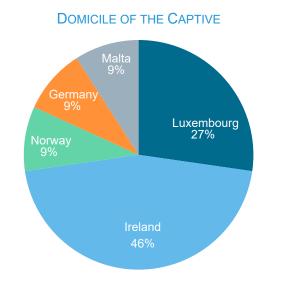
H. Power / Utilities (16 captives)

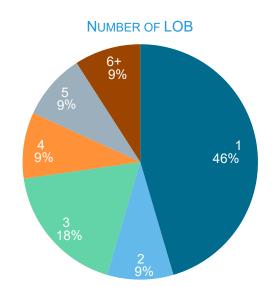


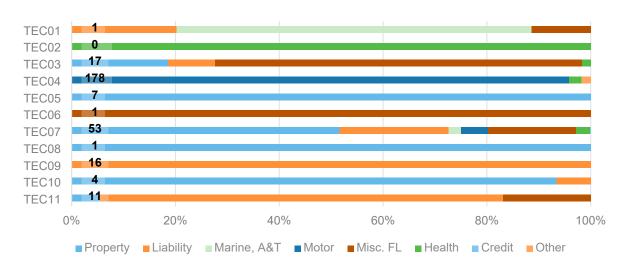


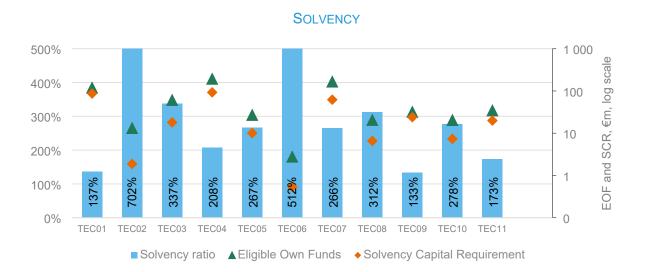


I. Tech, IT, Telecom & Media (11 captives)

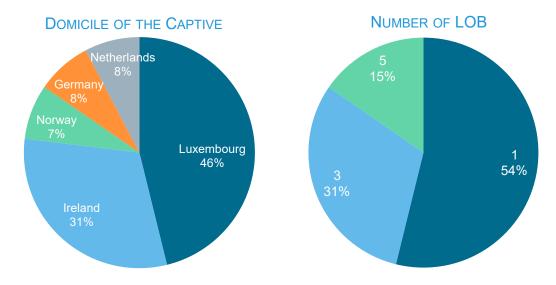


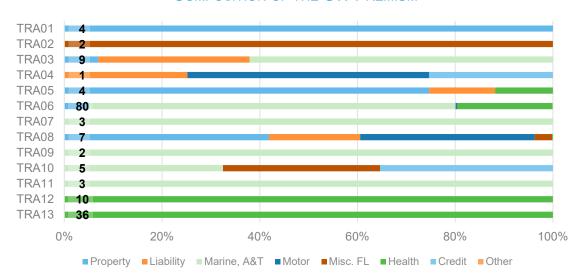


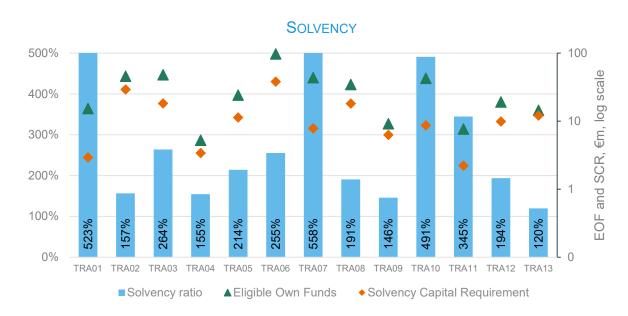




J. Transportation / Logistic (13 captives)



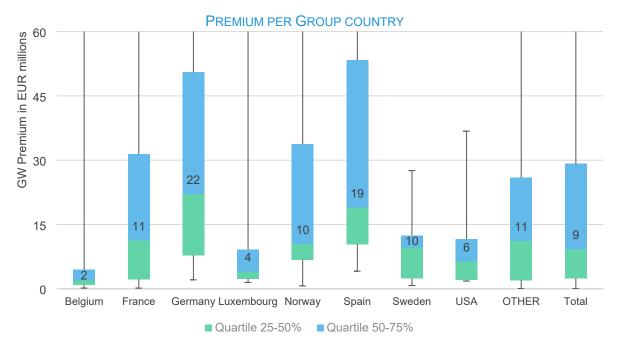




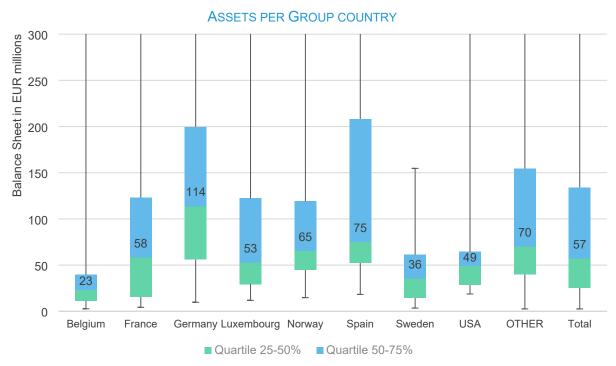
IV. Focus on corporate group headquarters

To provide some benchmarks by peer groups, the captives in the study have been considered by the geography of the group. The eight considered countries each own between 8 and 35 captives. The "other" countries own 45 captives for groups based in the Netherlands, the UK, Italy, Switzerland, South Africa, Ireland, Portugal, Austria, etc.

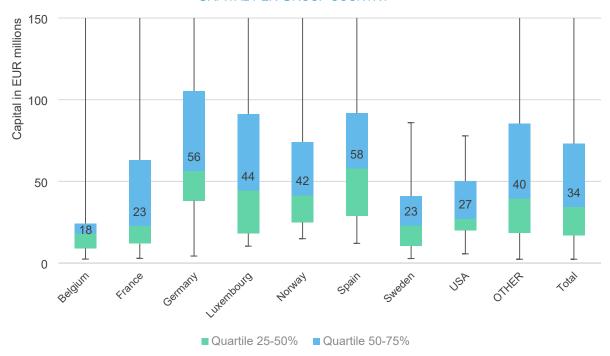
This first chart shows the average gross premium written by the captives for each country, as well as the distribution per quartile.



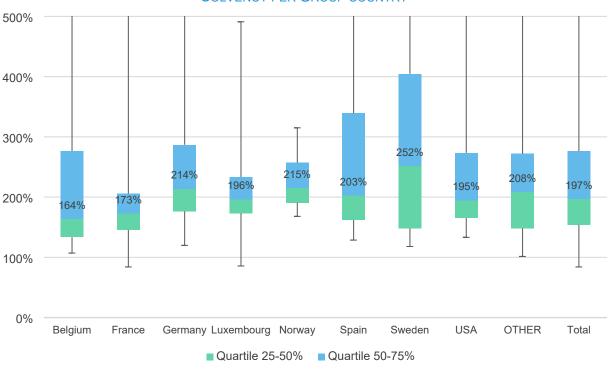
Read: for the captives of groups headquartered in France, the median annual premium is EUR 11.2 million. The smallest captive writes EUR 0.2 million; the smallest 25% of the captives write between EUR 0.2 million and EUR 2.2 million; the second quartile between 2.2 and 11.2, etc. The largest captive in this group writes premium of EUR 189 million.



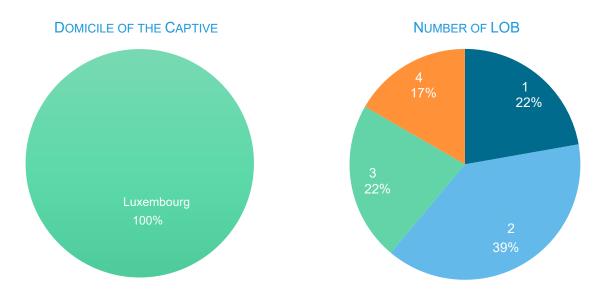
CAPITAL PER GROUP COUNTRY



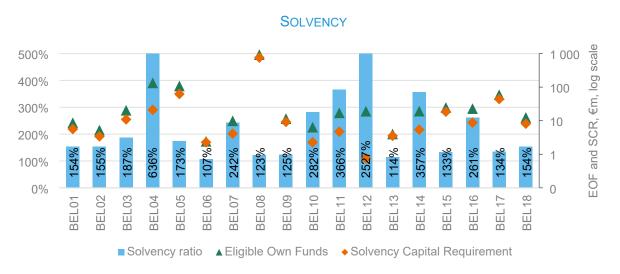
SOLVENCY PER GROUP COUNTRY



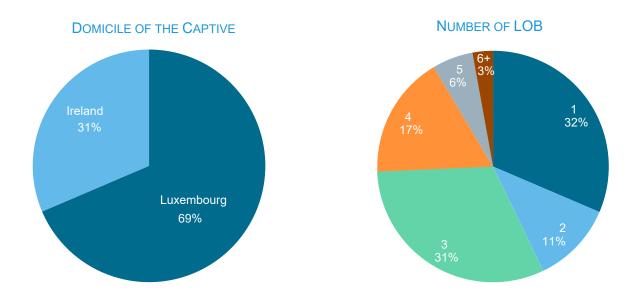
A. Captives of groups based in Belgium (18 captives, named BEL01 to BEL18)

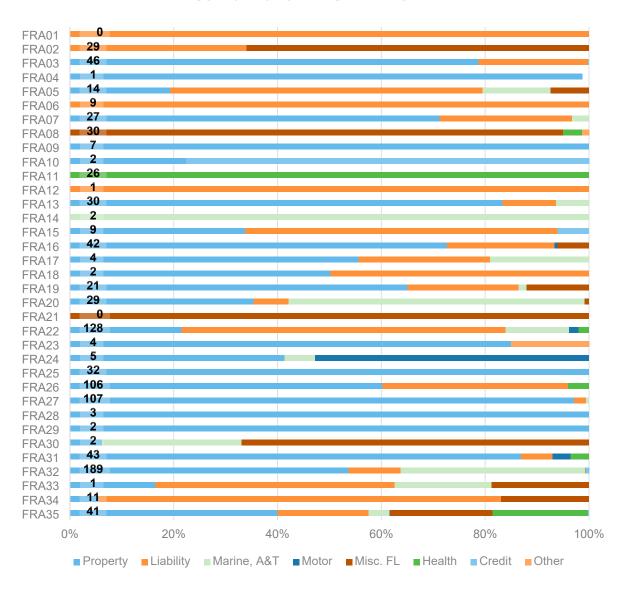


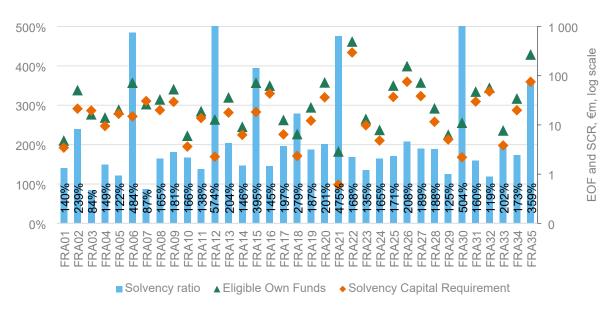




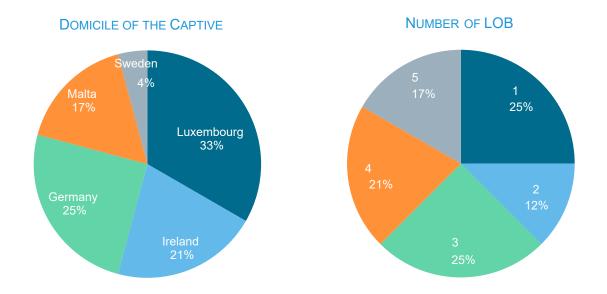
B. Captives of groups based in France (35 captives)

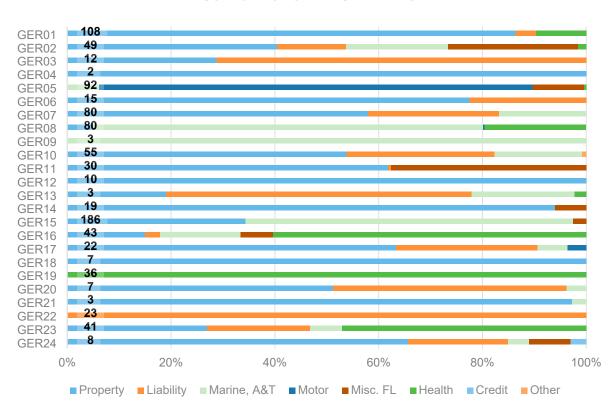


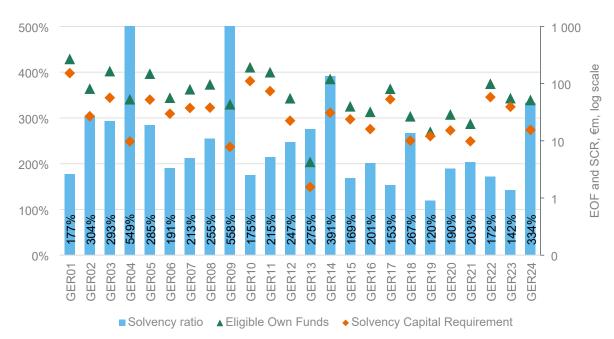




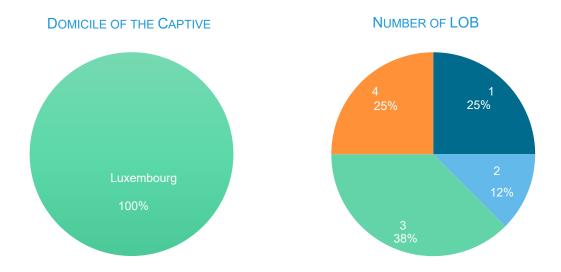
C. Captives of German groups (24 captives)

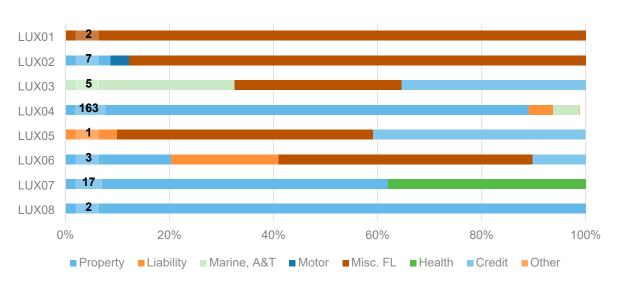




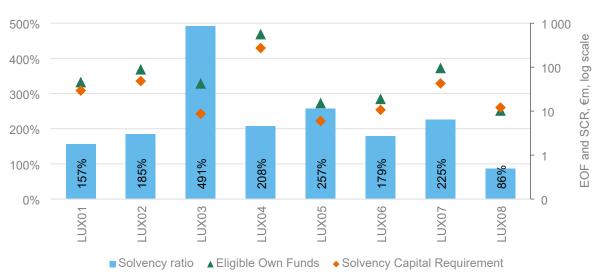


D. Captives of Luxembourgish groups (8 captives)

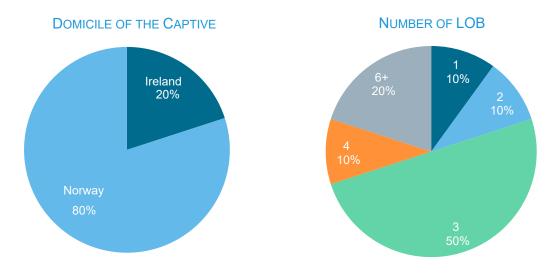


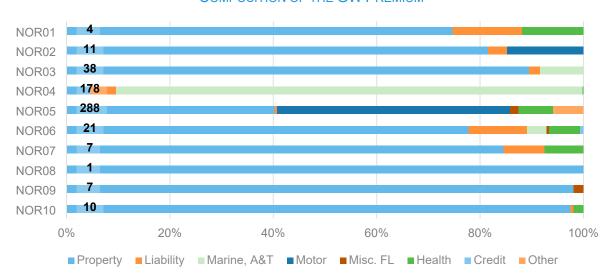




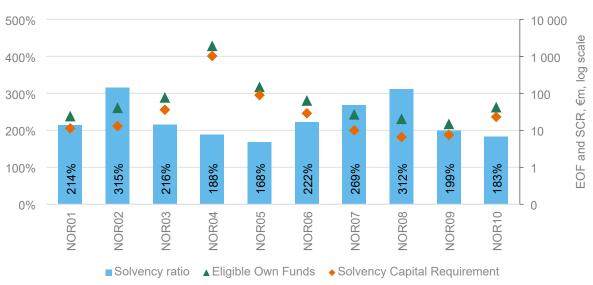


E. Captives of Norwegian groups (10 captives)

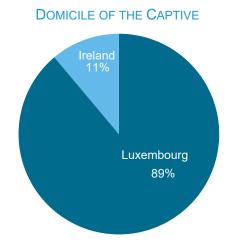




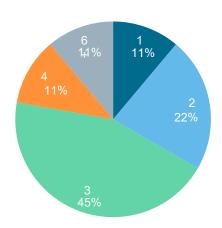




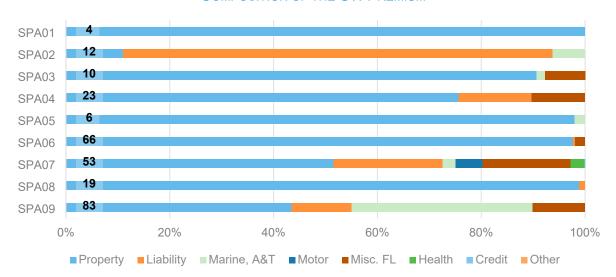
F. Captives of Spanish groups (9 captives)

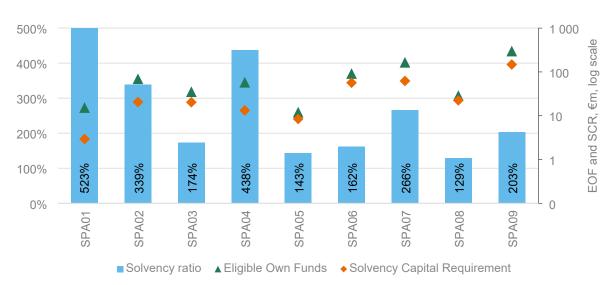


NUMBER OF LOB

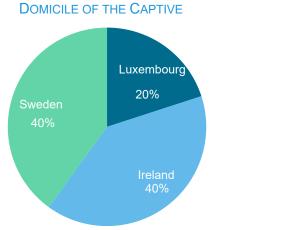


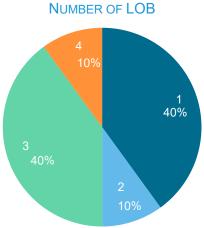
COMPOSITION OF THE GW PREMIUM

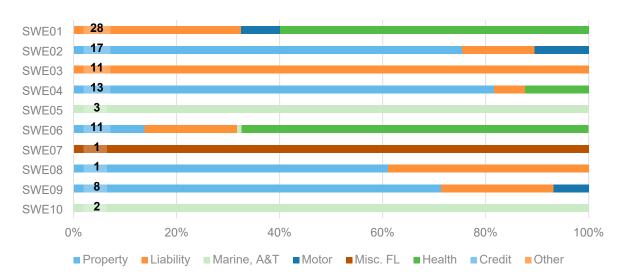




G. Captives of Swedish groups (10 captives)



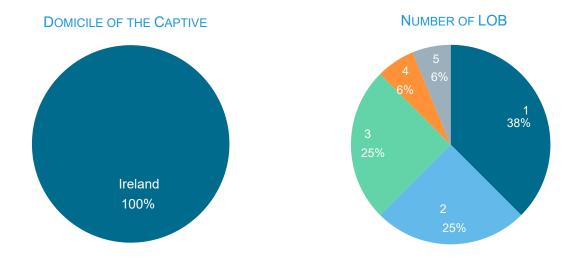






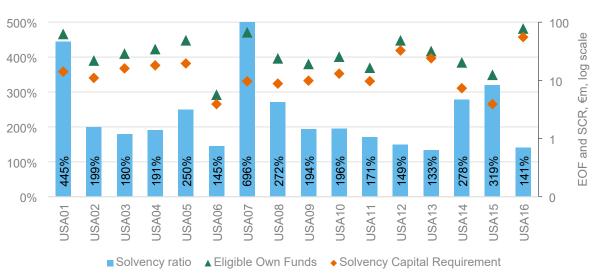


H. Captives of groups headquartered in the USA (16 captives)











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