Analysis of the Austrian insurance market concerning accidents and damages (2002-2019)

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Introduction

Insurances can be broadly separated in 3 areas: "Life-insurance", "health insurance" and "Non-life insurance other than health".

This is an analysis of the austrian market for "Non-life insurance other than health", which comprises all kinds of insurances regarding damages, e.g. from hail, aircraft or accidents.

Here I give a broad overview how the Austrian insurance market evolved over the years 2002-2019.

In particular: which insurances had the largest market shares and what is noticeable about the claims made and the claim/premium-ratios.

The data originates from the website of the Austrian Financial Market Authority [2], downloaded via "github" [1] (Tables 18-53 to be more precisely.)

In the following the analysis is only regarding (direct) gross data concerning premiums and claims, i.e. it's excluding all kind of reinsurance data.

Analysis

The market for "non-life insurance other than health" is usually being subdivided into 36 categories. But first, let's have a look at the overall market development.:
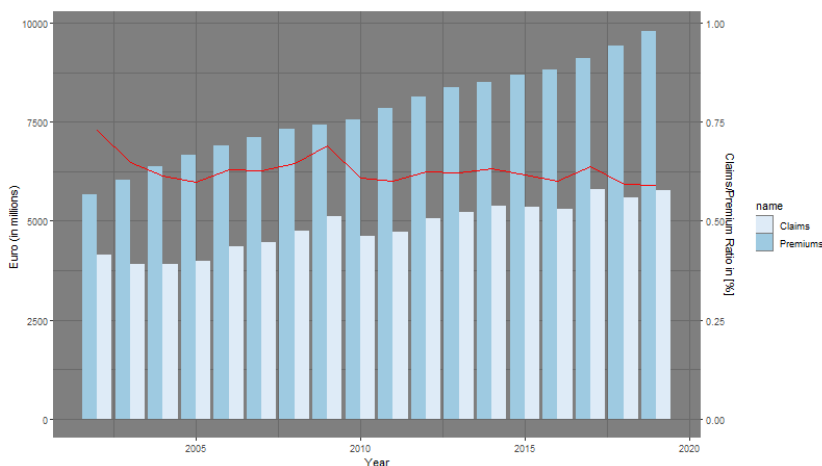

Figure 1: Overall premiums and claims concerning accidents and damage

From 2002 to 2019 there has been a constant growth in the total amount of premiums year by year. From 5.6 billion euro in 2002 to 9.8 billion in 2019. Apparent is, that the amount of claims has not been growing as steep and constant as premiums did.

The red line shows the claim-premium-ratio and we can even see a slightly downward trend (from 72.9% in 2002 to 59% in 2019).

Let's have a look, which categories take up the largest junks in the analyzed market.
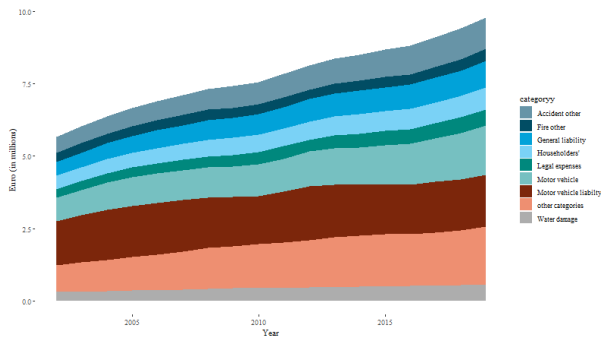

We see the 8 largest subareas in regard of insurance premiums (2002-2019). Not surprisingly, "motor vehicle" and "motor vehicle liability" took up a major role, 35.6% of all premiums between 2002 and 2019 belong into these two classes.

Not visible in the graph, but "Nuclear liability" is the category with the smallest market share.

Figure 2: Largest categories

In what areas could we see the largest increase or decrease over the years?

Looking at the absolute sum of premiums, a decrease can only be observed in the areas "nuclear liability" and insurances concerning aircraft. On the other side, "motor vehicles", "householder", "liability", "fire industrial" and "Accidents" have seen the largest increases in absolute numbers.
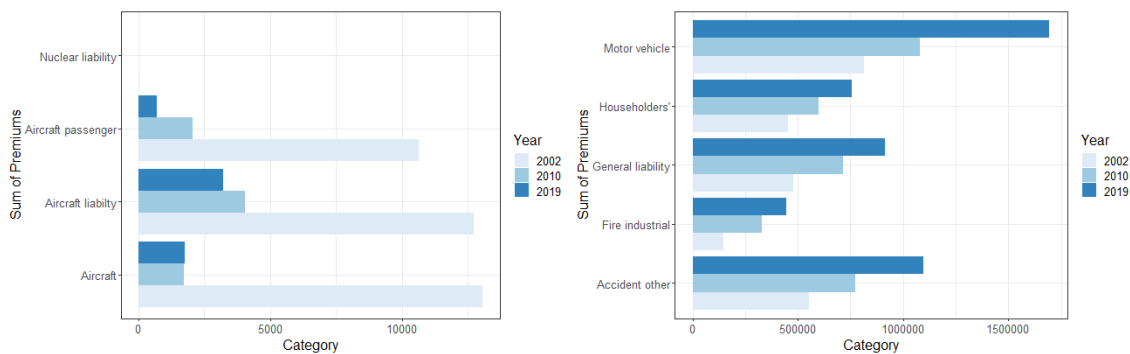

Figure 3: Where premiums decreased and where they increased most (in euros)

If we look at it from a different angle and compare the market shares in 2002 and 2019, we see some smaller categories on the rise, especially "Hail", "Windstorm" and "financial loss"-insurances could improve their market share.
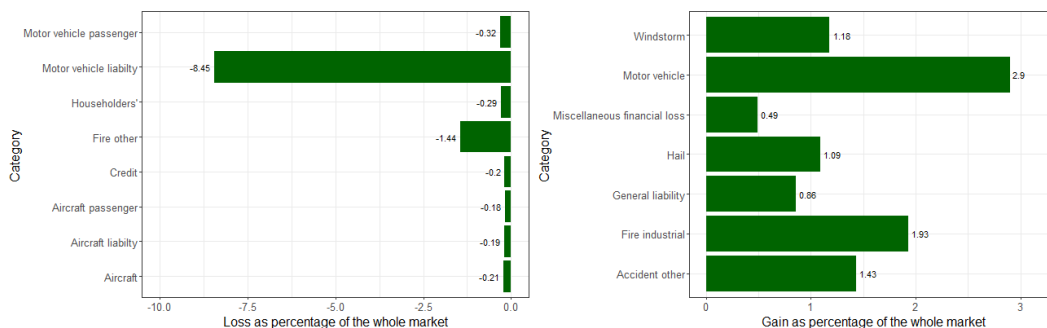

Figure 4: Left: Categories that lost significant market shares since 2002 till 2019,
Right: Categories that gained significant market shares (in %)

Next, let's have a look how the claim-premium ratios compare in each category.

The next figure shows us the distribution of ratios among insurances concerning the different categories. More precisely, which claim/premium-ratios does an insurance has to expect at the end of a year for insurances in a category. The extreme cases where insurances received ratios above 100% are excluded and analysed separately below. The left figure showsd the 8 categories with the least variance. On the right, we have those with the largest variance (within companies and years).
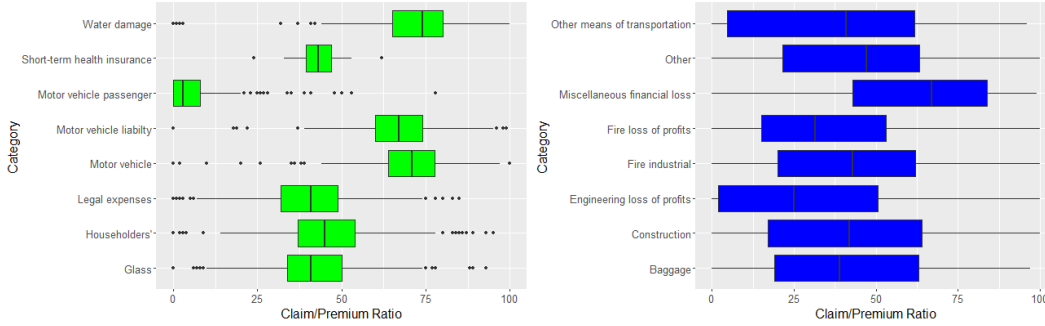

Figure 5: Claim/Premium ratios among insurances

In the previous figures the extreme values were filtered out, so let's now have a look at these. There are some clear categories of insurance with which companies are likely to end up with claims higher in sum than premiums. The Top 10 can be found in the left plot beneath. These are mostly insurances for very unlikely events, but also insurance which have a small overall market share. The right figure shows the categories with the least extreme claim/premium-ratios among the insurances in the past years. Some like "motor vehicle"-insurance profit from their large market and that there are less very extreme claims. On the other side "nuclear liability" is simply here because there has not been any claim at all.
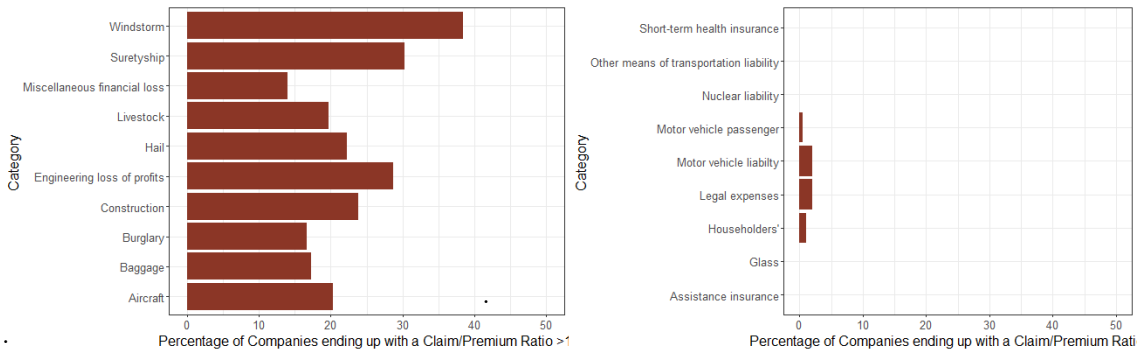

Figure 6: Categories most and least likely to cause extreme claims.

References

[1] *Github Page- with Data used in Analysis.* URL: https://github.com/smalldatascience/Versicherungsstatistik. (accessed: 16.05.2021).

[2] *website of the Austrian Financial Market.* URL: https://www.fma.gv.at/en/insurance/queries/insurance-statistics/. (accessed: 15.05.2021).