special edition • APRIL 2017
www.matrix-brokers.com

MATRIX RENEWS

your expert insight to insurance and reinsurance facts & figures

- Cyprus MTPL Large Claims 2017 Forecast
- Actuarial, Risk and Capital Solutions

MATRIX
INSURANCE & REINSURANCE BROKERS SA

MATRIX RENEWS

- Cyprus MTPL Large Claims 2017 Forecast
- Actuarial, Risk and Capital Solutions

contents

introduction

purpose and scope

- The purpose of this publication is to analyse the large claims for Motor Third Party Liability for Cyprus and provide a forecast for 2017 year.
- Large Claims in Motor Third Party Liability are considered very important in setting the original rates as well as deciding on the reinsurance structure.
- The analysis considers all types of motor vehicles in aggregate.

data

- The data used for this analysis is taken from 9 Companies with around 400,000 vehicles representing a significant proportion (excess of 70%) of the Cyprus Motor Insurance market.
- The data used is taken from the last 20 years of experience of each Company, where available.
- The data is as at 30/9/16.
- Information for 2016 represents 9 months of data.

definitions

- The threshold for large claims for the purpose of this analysis is the ultimate estimated total cost of claims of €180,000.
- Exposure represents the earned exposure during the period, either as vehicle-years or an estimate of this measure.
- Frequency represents the number of (ultimate) claims over the threshold divided by the exposure.
- Claims incurred represents the total cost of claims (paid + outstanding), either as with or without development to ultimate and application of inflation.
- Severity represents the average cost per claim, as the claims incurred divided by the number of claims.

MATRIX
INSURANCE & REINSURANCE BROKERS SA

MATRIX RENEWS

- Cyprus MTPL Large Claims 2017 Forecast
- Actuarial, Risk and Capital Solutions

modelling approach

The modelling approach has involved the following steps:

Fitting of distributions to data

- Restimator ® software was used to project the open claims to ultimate using actuarial methodologies.
- Ultifit ® software was used to fit 24 theoretical distributions to the derived empirical samples of the loss severity data.
- The Maximum likelihood method was used for curve fitting. Goodness of fit tests like Kolmogorov and Least-squares criteria were performed for the selection of the distribution. The assessment of goodness of fit was supported also by pp-plots.

Stochastic Simulations

- Modelling of alternative reinsurance solutions using Risk Explorer ™ software.
- 100,000 simulations on the selected frequency and severity distributions were performed to simulate the aggregate losses for 2017 and compare the different reinsurance solutions.

Analysis of Results

The results analysis includes the following:

- Full distribution of aggregate gross results.
- Expected loss/recoveries from reinsurance layers for various deductibles.
- VAR @99.5% cost/recoveries from reinsurance layers for various deductibles.

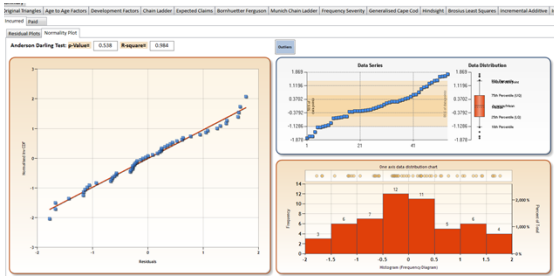
RES-TIMATOR®

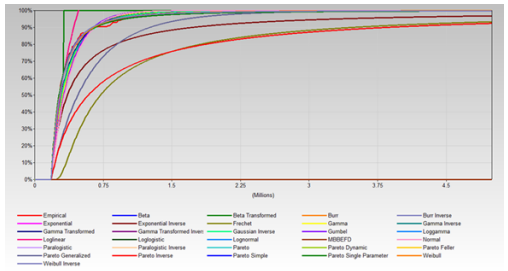
Cass Business School
CITY UNIVERSITY LONDON

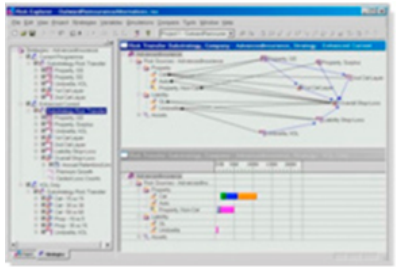
URS Ultimate Risk Solutions

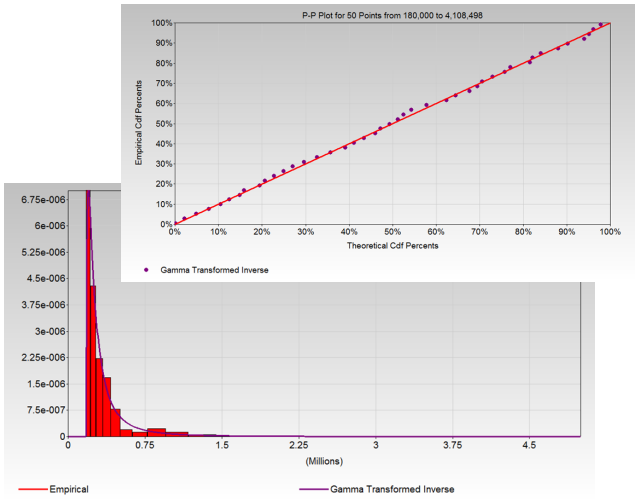
Uf UltiFit

Re RiskExplorer
Dynamic • Financial • Analysis









Broker at LLOYD'S

MATRIX
INSURANCE & REINSURANCE BROKERS SA

MATRIX RENEWS

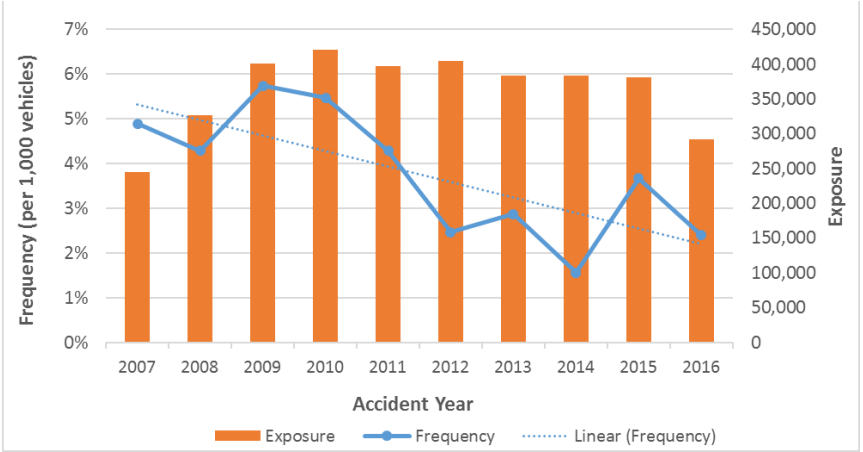
- Cyprus MTPL Large Claims 2017 Forecast
- Actuarial, Risk and Capital Solutions

historic analysis of large MTPL claims

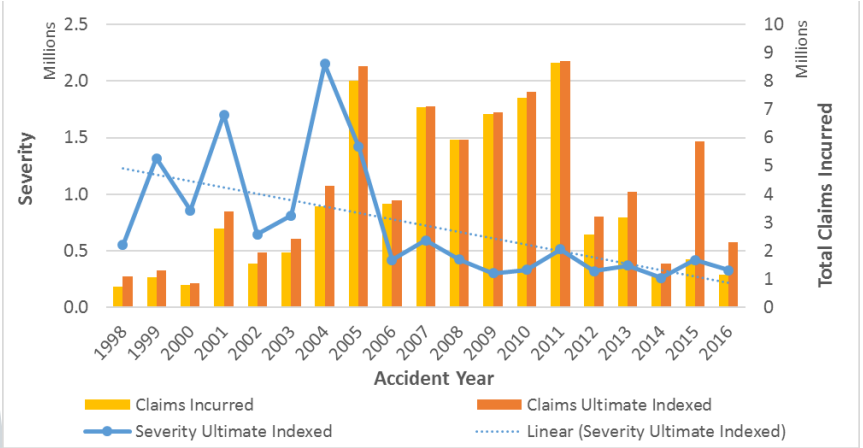
The historic frequency and severity of large MTPL claims (over €180,000) is illustrated in the graphs below:

- The frequency is calculated per 1,000 vehicles.
- The exposure for 2016 represents 9 months of data.
- The weighted average historic frequency is estimated as around 4 large claims per 1,000 vehicles. However, there is evidence that the frequency has been decreasing over the years.
- The severity is calculated as the average cost per claim. The open claims are developed to ultimate using actuarial methodologies which depend on the circumstances of each Company.
- The average historic cost of claims over €180,000 is estimated as around €0.5m (€0.4m over the last 10 years). However, there is evidence that the severity has been decreasing over the years.

Frequency per Accident Year



Severity per Accident Year



Broker at LLOYD'S

MATRIX
INSURANCE & REINSURANCE BROKERS SA

MATRIX RENEWS

• Cyprus MTPL Large Claims 2017 Forecast
• Actuarial, Risk and Capital Solutions

gross results

The projected gross aggregate claims experience for MTPL large claims in 2017 is analysed below:

- The aggregate distributions of gross MTPL large claims describes the overall experience per 50k vehicles.

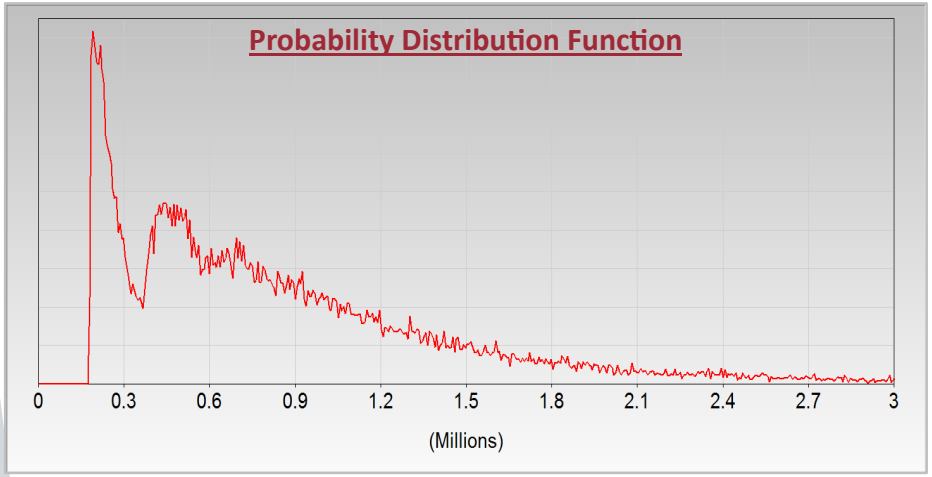
- The Exceedance Probability Distribution of gross MTPL large claims (per 50k vehicles) describes the probability of total large claims experience exceeding various amounts in 2017.

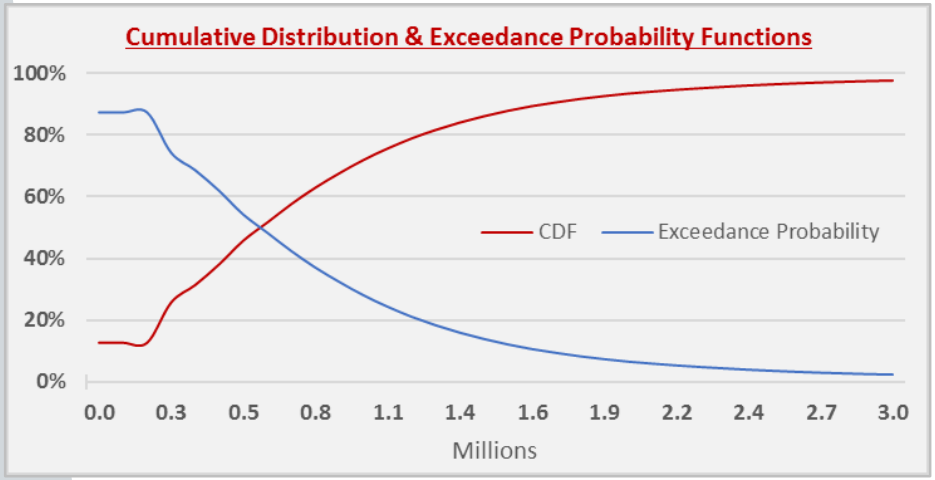
Example 1:

- There is 87% probability for claims over €180,000 per 50k vehicles and 13% probability for no such claims.

Example 2:

- There is 28% probability for total claims over €1m per 50k vehicles.





Broker at LLOYD'S

MATRIX
INSURANCE & REINSURANCE BROKERS SA

MATRIX RENEWS

- Cyprus MTPL Large Claims 2017 Forecast
- Actuarial, Risk and Capital Solutions

reinsurance results

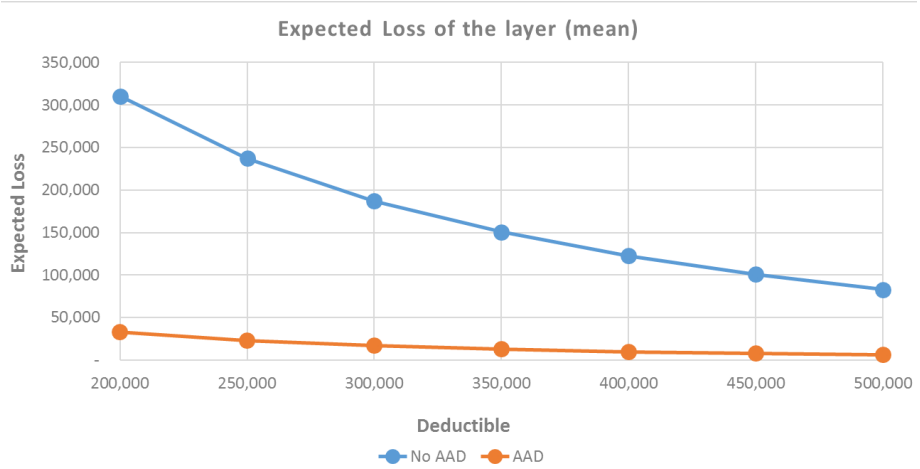
The projected claims experience to the 1st XL Layer for various options per 50k vehicles is analysed below:

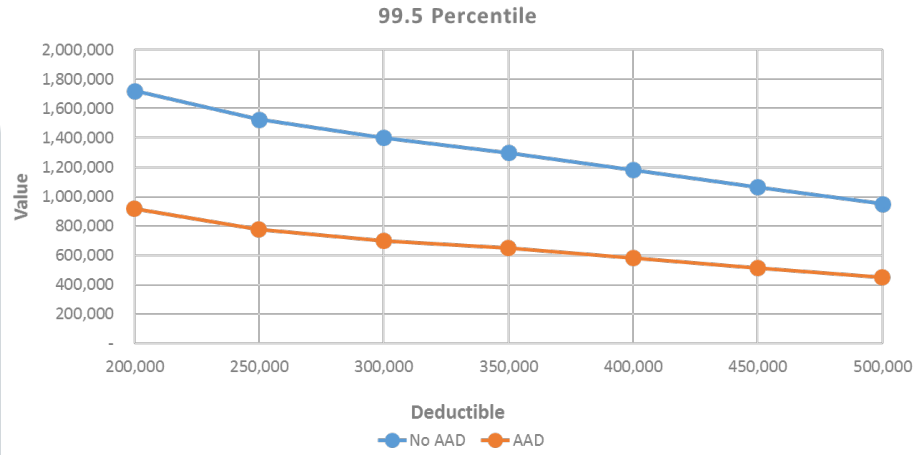
- The 1st set of Reinsurance curves describe the expected loss / recoveries from reinsurance layers for various deductibles.
  The upper limit is €1m for all deductibles. AAL = 4 x line.

- Two sets of reinsurance curves are provided. One without AAD and one with AAD. The AAD amount is equal to the amount of the deductible.

- The 2nd set of Reinsurance curves describe the VAR @ 99.5% cost / recoveries from reinsurance layers for various deductibles.

- The Reinsurance curves (with and without AAD) describe the VAR @ 99.5% cost / recoveries from reinsurance layers for various deductibles. The upper limit is €1m for all deductibles. AAL = 4 x line.





Broker at LLOYD'S

MATRIX
INSURANCE & REINSURANCE BROKERS SA

MATRIX RENEWS

• Cyprus MTPL Large Claims 2017 Forecast
• Actuarial, Risk and Capital Solutions

Recommendations

Based on the analysis performed we recommend the following:

1. There is significant probability and volatility for large losses and thus Companies should ensure that they have adequate reinsurance protection.

2. Claims experience varies significantly between Companies and thus Companies should perform an analysis based on their own results in conjunction with the market experience.

3. There is evidence of an improvement in large loss claims experience, so Companies who can produce an analysis which justifies this improvement could benefit from reduced reinsurance rates.

4. Companies should optimize their reinsurance structures by considering indicators of profitability, risk, cost, economic capital and Solvency II Capital.

Broker at LLOYD'S

Disclaimer

MATRIX
INSURANCE & REINSURANCE BROKERS SA

MATRIX RENEWS

www.matrix-brokers.com

UK | 34 Lime Street, EC3M 7AT, London, T +44 20 3544 4800

GREECE | 61 Akadimias Street, 106 79, Athens-Greece, T +30 210 3390 354

CYPRUS | 178 Athalassas Avenue, Strovolos, Nicosia, T +357 22516751

TURKEY | Uphill Court Towers, B Block, Floor 23, Office 133, 34746 Istanbul Bati Atasehir, T +90 216 6885300

SOUTH AFRICA | 24 Peter Place, Lyme Park, Bryanston/Johannesburg, T +27 (11) 2442020

IRAN | Alai St. No 7, Andarzgou Blv, Tehran, T: + 98 (21) 26655002

Broker at LLOYD'S