COST OF INSURANCE WORKING GROUP

SECOND MOTOR INSURANCE KEY INFORMATION REPORT

MAY 2018

An Roinn Airgeadais
Department of Finance

Contents

Executive Summary

All of the data and conclusions referred to in this Report were produced by independent consultants, Verisk, on behalf of Insurance Ireland. The data and conclusions provided have not been subject to further actuarial analysis by the Department of Finance or the Central Bank of Ireland, other than for clarifications.

General Overview

- Pending the establishment of the National Claims Information Database, the Cost of Insurance Working Group recommended that the Department of Finance publish key aggregated metrics on a quarterly basis from Q2 2017. The Department of Finance established a Data Sub-Group to oversee this project comprising of representatives from the Central Bank, the Personal Injuries Assessment Board, the State Claims Agency, the Central Statistics Office, and the Department itself.
- This is the second report of key aggregated metrics focusing on premium income and the projected ultimate cost of motor claims over the period 2011 to 2016.

Background on Request

- A first request for key aggregated metrics issued to Insurance Ireland at the end of March 2017. A return was received on 13 June 2017, which included data with regard to income, expenditure, claims trends, settlement channels and delivery costs. The Department of Finance published a report on the basis of this data in July 2017.
- Part of the request issued in March 2017 sought certain metrics that provide more detailed information on specific types of claims, including how insurers expect claims to develop over the period covered.
- Because of the detailed nature of these metrics, Insurance Ireland informed the Data Sub-group that it would employ independent consultants, Verisk, to carry out this exercise on their behalf.
- A return, in the form of a report by Verisk outlining certain data and conclusions, was submitted to the Department by Insurance Ireland. That report forms the broad basis for this second report of key aggregated metrics.
- The Department while accepting that the process to collate the data was rigorous, emphasises that any conclusions reached on the data are Verisk's and have not been subject to any further actuarial analysis by it or the Central Bank. This is because, from a practical and cost perspective, the subgroup saw little to be gained from procuring a further actuarial analysis to verify the return, where it was satisfied that a robust process was evidenced by the detailed approach to the gathering of this data by Verisk. However, some clarifications in relation to the data and conclusions arrived at were sought and received from Insurance Ireland and Verisk.
- The Data Sub-group believes that this exercise continues to lay the groundwork for the effective establishment of the National Claims Information Database as it helps get insurers into the right frame of mind preparation wise for this next step. However, the significant scale of the exercise also demonstrates how complex this whole area is and reinforces the importance of having a National Claims Information Database type framework arrangement in place sooner rather than later.

Key Findings

CPI Inflation

- The CSO Consumer Price Index to March 2018 shows that motor insurance inflation has stabilised since the third quarter of 2016. On a year-on-year basis, motor insurance consumer prices in March 2018 are 13.8% lower since the corresponding month last year, and are 19% lower than they were at the peak in July 2016.

Projected Ultimate Costs for All Claims

- Total claims costs per policy, for all claims types, based on projected ultimate costs, increased by about 2.7% per year, or 14% over the period from 2011 to 2016. These costs include both the general and special damages elements of compensation as well as associated costs such as legal, medical and other fees.

Projected Ultimate Costs for Injury Claims Costs

- The increase in the ultimate cost of Third Party Injury claims per policy is greater than the reduction in the ultimate cost of non-Injury claims per policy over the period from 2011 to 2016.
- Claim costs related to all Third Party Injury claims are projected to exceed 75% of the total claim cost per policy.
- The average cost per policy attributable to Capped Third Party Injury claims (where the Incurred Cost was always less than or equal to €250,000) is projected to exceed 50% of the total claim cost per policy.
- The average cost of a Capped Third Party Injury claim, based on ultimate cost projections, has been growing by an average of 6.2% per year over the period. This is evident for both the claims that have already been closed and within the case by case estimates of claims not yet settled.
- The frequency of Capped Third Party Injury claims has increased by 1.1% per annum over the period.
- The frequency of Third Party Injury claims is lower than that experienced in the UK but the cost per claim is higher.

Projected Ultimate Costs for Non-Injury Claims Costs

- The average cost of a Non-Injury claim (excluding Windscreen claims) has been rising faster than CPI inflation, while Non-Injury claim frequency[1] has been decreasing.
- However, the number of claims has decreased, leading to an overall reduction in the Non-Injury cost per policy.
- Projected ultimate costs on Non-Injury claims have remained level in Ireland over the period, whereas they have increased in the UK.

Earned Premium Levels and Exposure

- Average earned premium per policy for the insurance companies included in the data return declined by 12% between 2011 and 2013 and then rose 11% in 2015 to about 2011 levels before increasing by 22% in 2016.
- Earned premium inflation was less than the inflation in claims cost per policy over the start of the period, with some catching up during the most recent two years of the study.
- Over the full period 2011 to 2016, the increase in the average earned premium per policy was 22%.
- It should be noted that due to differences in methodology and dataset composition, no direct comparison is able to be made between the CSO CPI Motor Insurance price index and the Earned Premium index provided by Insurance Ireland and Verisk.

[1] Claims frequency is the average number of claims per policy, expressed as a percentage

Methodology - Data Risks and Sensitivities

- There are inherent uncertainties in projecting claims, and the Verisk analysis suggests a range of +6% to -6% of the projected ultimate cost of Third Party Injury claims per policy for 2016.
- Non-Injury claim costs projections were generally insensitive to alternative assumptions, so this range is almost entirely due to uncertainty around the projection of Third Party Injury claim cost.
- The projections do not contemplate fundamental process or legal changes within the claims settlement environment. In particular, the impending Periodic Payment Order (PPO) legislation is not a feature of the projections.
- The data call did not include exposure risk characteristics, such as age or other demographics, or coverage characteristics, such as deductibles (excesses). To the extent that unknown shifts in the exposure or coverage mixes may have impacted the data and distorted projections, Verisk was unable to assess this possibility or make adjustments.
- Additionally, to the extent that knowledge about the exposure or coverage mixes may have contributed to useful insights about the projections and trends, Verisk was unable to include these in analysis.

Introduction

Data Transparency

Pricing in the non-life insurance sector has been subject to volatility in recent years, from unsustainably low premiums to the large price increases experienced, particularly since 2014. As a result of this and other developments in the insurance sector, the Minister for Finance, Michael Noonan TD established the Cost of Insurance Working Group (the Working Group) in July 2016. Minister of State at the Department of Finance, Eoghan Murphy TD was appointed Chair and the Working Group published its Report and Action Plan on the Cost of Motor Insurance on 10 January 2017.

Discussions with stakeholders during the deliberations of the Working Group highlighted that an improvement in transparency, facilitated by additional collection and publication of data, was essential. Recommendation 11 of the Cost of Insurance Report recommended the establishment of a National Claims Information Database. In light of the time it would take to establish the Database, Recommendation 12 recommended that in the interim the Department of Finance should publish key aggregated metrics on claims costs and trends within the market on a quarterly basis. The Department of Finance established a Sub-group in January 2017 to implement this recommendation.

The First Report – Overview

The Department of Finance produced its first report in July 2017, which provided information based on key aggregate metrics identified in the Cost of Motor Insurance Report. This report was the first report to attempt to show the relevant data that is linked to those factors that affect the cost of motor insurance to customers, including financial information on the sector, and information on claims trends, settlement channels and legal costs.

This Report represented the start of a process of increasing the amount of publically available data in the insurance sector, specific to insurance claims and their associated costs. The first Key Information Report is available at:

http://www.finance.gov.ie/wp-content/uploads/2017/07/1st-Motor-Insurance-Key-Information-Report.pdf

Due to the detail of the data being requested and the time taken to review it, the Sub-group decided that publishing reports on a quarterly basis was not a realistic option.

The Second Report - Overview

This second report is a continuation of this data collection process. It seeks to act as a complement to the first Report in that it has asked insurers to provide more detailed information on specific types of claims, including how they expect claims to develop over the period covered.

The key difference with the first report is that the claim costs presented in this report are ultimate claim costs. Ultimate claim costs are made up of paid claims (which include partial payments), plus reserves/estimates of the amount yet to be paid. An actuary then calculates a further provision to allow for claims and information not yet reported at the valuation date. These provisions are usually

estimated by actuaries, typically using a number of statistical methods and the expert judgement of the actuary. The sum of these three components is an estimate of what will ultimately be paid out by the company. It is important to note that the actuarial calculation can result in either a positive or negative provision (e.g. when there is statistical evidence that the reserves held are too high, even allowing for unreported claims and unreported information). Insurers use ultimate costs to calculate the actual costs of a policy, and the final costs associated with different types of claims. The ultimate claim costs presented here are the results of actuarial projections by Verisk who have taken the latest costs for both open and closed claims from the contributing undertakings, combined them into a single view for the industry, and projected this out to a future point when all claims are expected to be closed. This actuarial projection is intended to provide an opinion on what the final cost of claims will be for the contributing undertakings as a whole, which should provide insight into how the contributing insurers set premiums and treat other factors (including the current legal environment) when assessing the full costs associated with claims.

To that end, the data report returned to the Department provides information with regard to:

- the projected ultimate frequency (i.e. the number of claims per policy) and average cost per claim for Third Party Injury claims, split into Capped Third Party Injury claims where the Incurred Cost was always less than or equal to €250,000, and claims where the Incurred Cost was ever greater than €250,000, as well as total Third Party Injury claims;
- the projected ultimate frequency and average cost per claim for non-Injury claims, split into Third Party Damage, Own Damage (i.e. claims made by an insured party for accidental damage to their own vehicle), other property-related claims (such as Fire and Theft), and Windscreen claims;
- the projected ultimate claim cost per policy for each claim type;

This Report is mainly focussed on the projected ultimate frequency, cost per claim and cost per policy of each of the category of claims above. In addition, the Report provides some updated figures with regard to premiums and exposures and includes some benchmarking against UK data.

Overview of the Data Return

Process to Request and Compile Data

As indicated above, the key difference between the data in this Report and the first Report is that this report provides data relating to the ultimate costs associated with certain types of claims. Because of the detailed nature of the data requested, Insurance Ireland informed the Data Sub-group that it would employ independent consultants to carry out this exercise on their behalf. It selected Verisk to be this independent consultant. When the request was issued originally in March 2017, it was initially expected that this data would be collated and analysed by September 2017. However, it soon became clear that because of the complexity and time consuming nature of the process, that this deadline would not be met. The difficulties with this deadline reinforced the view of the Sub-group that reporting data on a quarterly basis was not a realistic one.

Insurance Ireland responded to the data request with a Motor Data Report prepared by its independent actuarial consultant, Verisk on 18 December 2018. The Sub-group met with Insurance Ireland and Verisk shortly afterwards and a presentation of their key findings was provided including the process used in order to compile the data as set out below. Subsequent clarifications were also provided. Engagements with Insurance Ireland and Verisk in the preparation of this Report have been constructive.

Scope of the Data Return

The scope of the request relates to private motor insurance for the period 2011 to 2016 and was directed to eight member companies of Insurance Ireland that provided data to the Cost of Insurance Working Group in 2016. During this time the market share of these eight companies fluctuated slightly however in general they represent between 89% and 92% of the Irish motor market in Gross Written Premium terms over the period[2]. In total, the eight companies contributed data representing €5.2 billion of the Irish Motor Insurance market earned premium from 2011 to 2016.

The data return rates for the companies vary and are dependent on the data sought, however most returns were subject to an 80% to 91% return rate (see Appendix 4 for detailed data return rates). Windscreen claims had a return rate of 65%, as windscreen claims management is generally outsourced to other companies, leading to less availability of granular claims data. The Sub-group is satisfied that these returns represent a significant portion of the market. Where relevant, these return rates are indicated in the report.

Methodology to Compile and Analyse the Return

One of the key issues for the Data Sub-group was the need to satisfy itself that a robust and independent process took place to compile and analyse the data. In this regard, Verisk stated that it had implemented a rigorous process to validate the quality of the data and to ensure consistency across contributors. In all, it stated that there were 34 data drops between 29 June and 8 December. Companies were asked to provide a signed Data Sign-off to attest to the quality of the data provided, including reconciliations to regulatory returns.

[2] Based on market information collected by Motor Insurer's Bureau of Ireland

In terms of the quality of the data provided, Verisk stated that some data was excluded from the analysis due to material issues. In addition, they noted that there were a small number of residual issues with the included data that were assessed as not material. Verisk also stated that the amount of data included in the analysis is comparable with international studies and is sufficient to be materially representative of the market.

Verisk indicated that the review process during the analysis phase included carrying out a range of sensitivity analyses to the projected ultimate claims in order to challenge the selections made and to test the changes observed under alternative assumptions. They have estimated that their injury projections of ultimate claims cost per policy for 2016 may be over-or under-stated by approximately 6%. The results relied on undertakings to provide data that was materially accurate and complete. Insurance Ireland indicated that they challenged any judgements made by Verisk as part of their own internal review process. Key judgements in the Verisk actuarial projection methodology would include (but are not limited to) the selection of tail factors and the weightings given to different actuarial methods for different types of claim and for different time periods. Further details on the key judgments made are given in Appendix 6.

The more significant final method selections relied at least in part upon case reserve estimates. These estimates have been produced by expert claims handlers or solicitors employed or commissioned by the contributing undertakings. Verisk relied upon the case reserve estimate data without reviewing the reasonableness of individual case reserve estimates, and assumed that full consideration was given to the nature and potential quantum of claims when establishing such case reserve estimates. In particular, for the older accident periods it was assumed by Verisk that the case reserve estimates were materially correct for large Third Party Injury claims where significant levels of case estimates are still outstanding. It is noted that the projections were carried out under the legal environment operating at the time; in particular, the recent legislative introduction of Periodic Payment Orders (PPOs) has not been factored into the projections.

Verification of the Return

The Sub-group, following this interaction, was satisfied that the process used to compile the report was sufficiently robust for the purpose of this interim exercise. This acknowledgement took account of the fact that certain assumptions had to be made in order to aggregate the overall data due to the different ways that companies recorded such underlying data. The Sub-group concluded that from a practical and cost perspective there was little to be gained from procuring further actuarial analysis to verify the return, where it was satisfied that a robust process was evidenced by the detailed approach to the gathering of this data by Verisk. However, some clarifications in relation to the data and conclusions arrived at were sought and received from Insurance Ireland and Verisk.

In addition, it was acknowledged that this is an interim exercise and that future data returns by companies direct to the Central Bank of Ireland as part of the National Claims Information Database will be subject to actuarial analysis and verification by the Bank at that point.

Conclusions of the Exercise

The Sub-Group believes that this Second Motor Insurance Key Information Report represents a more detailed breakdown of claims costs compared with the first report and is another important step towards the establishment of the National Claims Information Database. The work that has happened both at a policy level and technical level to collate this data and to analyse it has provided important

insights into the potential complexities of the collation of such data. For example, an observation by Insurance Ireland has been that the data/metrics sought are not always available in a consistent fashion from companies. Therefore, while this exercise is by is by no means a perfect representation of the overall situation, the request for the more complex level of data for this second report has provided an opportunity for insurers to prepare for what will be required under the National Claims Information Database framework once it is up and running.

Finally, this project has highlighted the time consuming nature of such an information gathering exercise as well as reinforcing the importance of getting the foundations and structure of the National Claims Information Database right from the outset.

PART 1 - General Information on the Motor Insurance Sector

Overview of the Motor Insurance Market in Ireland

As of November 2017, there were 44 insurers and 5 Lloyd's Syndicates registered with the Motor Insurers' Bureau of Ireland (MIBI) for the purpose of writing motor insurance in Ireland either from a head office located in Ireland, on a Freedom of Establishment (FOE) or Freedom of Services (FOS) basis. However, the market is dominated by eight insurers, six of which are prudentially regulated by the Central Bank of Ireland; the remaining two currently operate in Ireland on a Freedom of Establishment basis. All of these insurers are covered within the scope of this report.

All insurance undertakings underwriting motor insurance in Ireland must, by law, be members of the MIBI and contribute to funding for claims against uninsured or untraced drivers in proportion to their market share. This includes those operating in Ireland on an FOE or FOS basis.[3]

In the first report, data provided by Insurance Ireland showed that its members insured 1.84 million vehicles in 2016, representing 89.2% of taxed private cars and motor cycles in Ireland in 2016.

CSO Data on the Cost of Motor Insurance

The CSO Consumer Price Index to March 2018 shows that motor insurance inflation has stabilised since the third quarter of 2016. On a year-on-year basis, motor insurance consumer prices in March 2018 are 13.8% lower since the corresponding month last year, and are 19% lower than they were at the peak in July 2016. This peak followed three years of almost continuous price inflation of approximately 70%, rising from an index point of 62.7 in July 2013 to 106.5 in July 2016.

The trajectory of the cost of insurance and motor insurance since 2003, as at March 2018 is shown below.

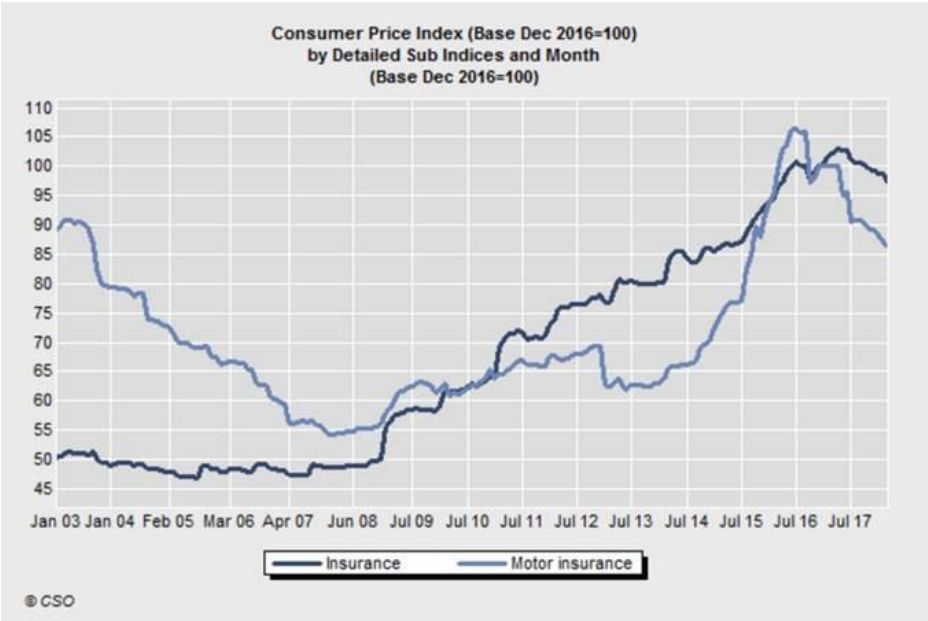


Figure 1: CSO Insurance Inflation Data, March 2018

[3] MIBI, *Members list*, https://www.mibi.ie/_fileupload/Member%20list/8%20MIBI%20Members%20List%20-%20November%202017.pdf

Motor Insurance in the Consumer Price Index – Note on CSO Methodology[4]

- The Consumer Price Index (CPI) is the official measure of inflation in Ireland. It is compiled and published every month by the Central Statistics Office (CSO). The CPI consists of a basket of goods and services which are representative of what households' consume. There are currently 615 items in the basket and the prices of these items are monitored on a monthly basis. One of the items in the basket is motor car insurance.
- A sample of motor insurance companies is selected based on market share information. The aim is to cover at least 50% of the motor insurance market. This proportion is monitored over time and new insurance companies are canvassed as required.
- Contributing companies provide quotations for total annual net premiums for the following types of insurance policy: (1) Comprehensive, (2) Third Party Fire and Theft and (3) Third Party Only.
- Participating companies are requested to supply quotations for defined representative profiles for both new and existing customers (including car model and age, person's age, sex, occupation etc.). The representative profiles were agreed following consultation with the motor insurance industry, and each company provides quotations for between 6 and 12 profiles on a monthly basis.
- A price relative is calculated for each profile whereby the quotation for the current month is compared with the corresponding quotation for the previous month. The price relatives are combined to compute a (1) Comprehensive motor car insurance index (2) Third Party Fire and Theft motor car insurance index and (3) Third Party Only motor car insurance index where each profile by type of insurance is weighted based on the market share of the associated company.
- Finally, the three indices for the three types of motor car insurance are combined to compute an overall motor car insurance index, where each type of motor car insurance is weighted based on market share.

[4] Note provided by the Central Statistics Office (CSO)

PART 2 – Overall Ultimate Claims Costs Trends

Introduction

This Part[5] provides an overview of overall projected ultimate claims costs trends. These are broken down by their constituent parts in further chapters.

Overall Projected Ultimate Claims Costs from 2011 to 2016

Across the period 2011 to 2016 projected ultimate claim costs per policy are up 14%, representing an annual increase of 2.7% per annum. Figure 2 below shows trends in ultimate average claims cost per policy. It indicates that the increase in the ultimate cost of Third Party Injury claims per policy is greater than the reduction in the ultimate cost of non-Injury claims per policy over the same period.

Claim Type	2011	2012	2013	2014	2015	2016	CAGR
Projected Ultimate Average Cost per Policy (€)	*Accident Year*						
TPI capped at €250k	170	204	194	222	236	241	7.3%
TPI in excess of €250k	82	69	85	80	75	83	0.4%
Third-Party Damage	38	39	37	39	39	38	0.0%
Own Damage	56	48	49	53	51	43	-5.2%
Other except Windscreen	14	12	13	13	12	9	-7.8%
Windscreen	12	10	9	9	8	9	-5.9%
Total	***371***	***381***	***388***	***416***	***422***	***423***	***2.7%***

Figure 2: Projected Ultimate Average Cost per Policy, by Claim Type[6]

This increase comprises a number of underlying trends, shown in Figure 3 below.

Metric	2011	2012	2013	2014	2015	2016	CAGR
Projected Ultimate Average Cost per Claim (€)	*Accident Year*						
C1 - TPI capped at €250k	32,024	34,657	35,712	38,169	41,517	43,179	6.2%
C2 - TPI in excess of €250k	535,180	485,031	457,607	431,860	410,188	427,528	-4.4%
C3 - Third-Party Damage	2,087	2,124	2,124	2,208	2,311	2,503	3.7%
C4 - Own Damage	2,024	1,877	1,955	2,150	2,309	2,500	4.3%
C5 - Other except Windscreen	1,290	1,155	1,294	1,473	1,812	1,793	6.8%
C6 - Windscreen	233	237	233	230	227	230	-0.3%
Projected Ultimate Average Claim Frequency	*Accident Year*						
C7 - TPI capped at €250k	0.531%	0.588%	0.545%	0.581%	0.568%	0.559%	1.1%
C8 - TPI in excess of €250k	0.015%	0.014%	0.019%	0.019%	0.018%	0.020%	5.0%
C9 - Third-Party Damage	1.815%	1.851%	1.754%	1.777%	1.679%	1.512%	-3.6%
C10 - Own Damage	2.773%	2.559%	2.491%	2.466%	2.214%	1.722%	-9.1%
C11 - Other except Windscreen	1.049%	1.032%	0.966%	0.869%	0.679%	0.502%	-13.7%
C12 - Windscreen	5.014%	4.018%	4.039%	3.903%	3.711%	3.754%	-5.6%

Figure 3: Projected Ultimate Average Cost per Claim and Ultimate Frequency, by Claim Type

[5] All of the data and conclusions referred to in this Report were produced by independent consultants, Verisk, on behalf of Insurance Ireland. The data and conclusions provided have not been subject to further actuarial analysis by the Department of Finance or the Central Bank of Ireland, other than for clarifications of elements of the data and conclusions.

[6] Figures 2 to 25 provided by Verisk.

These trends indicate:

- the average cost per claim of Capped Third Party Injury claims (claims with an Incurred Cost that was always less than or equal to €250,000) has risen from €32,024 in 2011, to €43,179 in 2016, an average annual inflation of 6.2%, while the frequency has stayed relatively level, increasing by an average of 1.1% per year;
- the average cost per claim of larger Third Party Injury claims (claims with an Incurred Cost that was ever greater than €250,000) has decreased by an average of 4.4% per year from 2011 to 2016, however the frequency of these claims has increased by 5% per year over the same period;
- the average cost per claim for non-Injury claims has increased, by 3.7%, 4.3% and 6.8% per year, for Third Party Damage, Own Damage, and Other excluding Windscreen claims respectively; and
- in contrast, the frequency of non-Injury claims has decreased considerably over the period, with annual decreases of 3.6%, 9.1% and 13.7% for Third Party Damage, Own Damage, and Other excluding Windscreen claims respectively.

Finally, Figure 4 below indicates that:

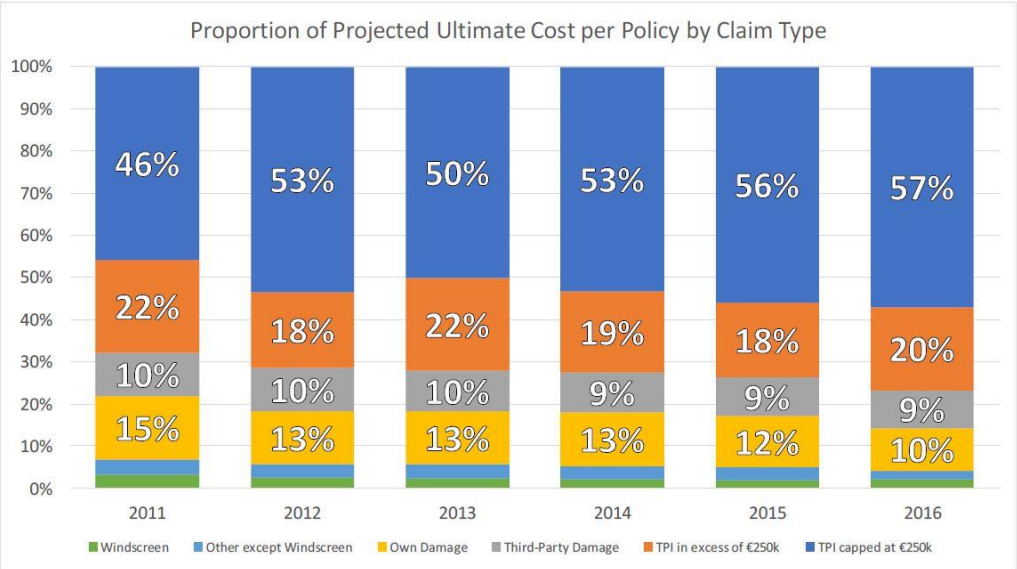


Figure 4: Proportion of Projected Ultimate Cost per Policy, by Claim Type

- Capped Third Party Injury claims (for less than or equal to €250,000) has grown from 46% in 2011 to 57% of the total ultimate claims cost per policy for 2016;
- the proportion of total ultimate claim cost per policy arising from all Third Party Injury claims was 68% in 2011, rising to 77% in 2016; and
- the proportion of total ultimate claim cost per policy arising from all non-Injury claims (except Windscreen claims) was 29% in 2011, falling to 21% in 2016.

PART 3 – Third Party Injury Ultimate Claims Costs trends

Introduction

This Part[7] provides an overview of trends for Third Party Injury claims. Such claims arise from bodily injury caused to others (including passengers) by a policyholder's actions. Generally, these claims would represent a significant part of the overall cost of claims.

General observations provided

- Capped Third Party Injury claims (for less than or equal to €250,000) in 2016 make up 57% of the total ultimate claims cost per policy.
- The proportion of total ultimate claim cost per policy arising from all Third Party Injury claims was 68% in 2011, rising to 77% in 2016.
- Average claim cost inflation on Capped Third Party Injury claims has been running at 6.2% per year, while frequency has increased at a flatter 1.1% per year.
- Over the period 2011 to 2016, the increase in the ultimate cost of Third Party Injury claims per policy is greater than the reduction in the ultimate cost of non-Injury claims per policy (see Part 4 of Report).

Total Ultimate Third Party Injury Costs

Over the period 2011 to 2016, the ultimate Third Party Injury cost per claim increased from approximately €37,000 in respect of claims that occurred in the first quarter of 2011 to approximately €57,000 in respect of claims that occurred in in the final quarter of 2016, an annualised growth rate of 4% per year (see figure 5).

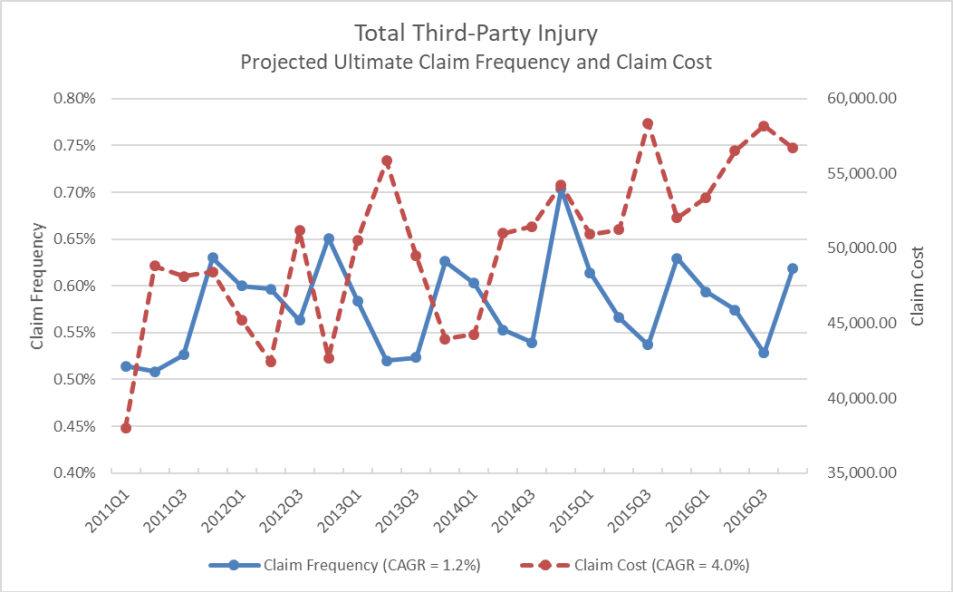


Figure 5: Projected ultimate Third Party Injury frequency and cost per claim

[7] All of the data and conclusions referred to in this Report were produced by independent consultants, Verisk, on behalf of Insurance Ireland. The data and conclusions provided have not been subject to further actuarial analysis by the Department of Finance or the Central Bank of Ireland.

Over the same period, the projected ultimate Third Party Injury frequency while volatile, remained relatively level, showing average growth of 1.2% per year.

On a per policy basis, the projected ultimate Third Party Injury cost per policy increased by 5.2% per year over the period, from €252 in 2011 to €324 in 2016 (see figure 6).

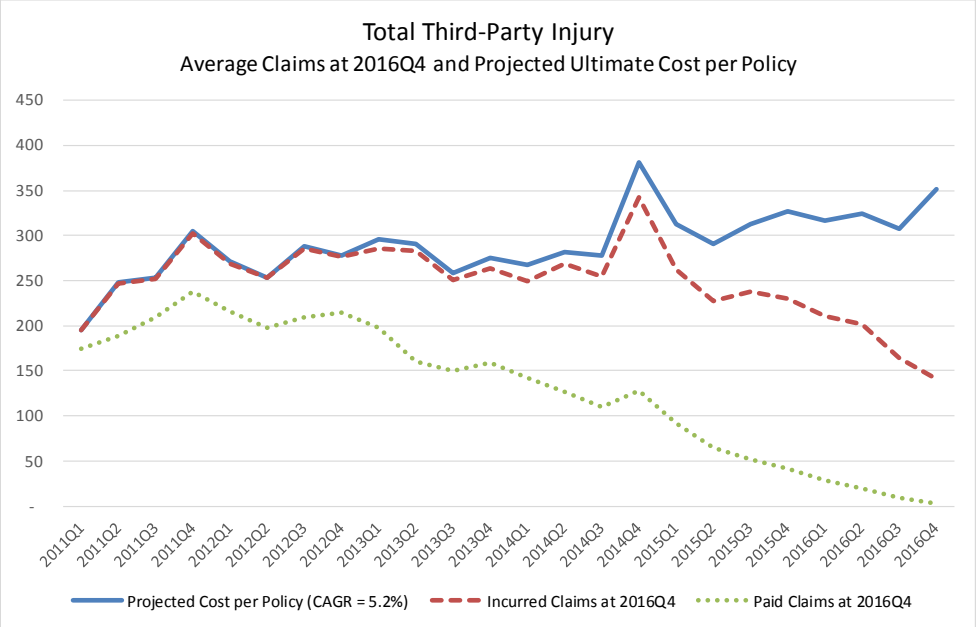


Figure 6: Third Party Injury paid cost, incurred cost and projected ultimate cost per policy

Figure 6 shows trends for 3 metrics:

- paid costs – the amount paid to date on claims;
- incurred costs – paid costs plus an estimated case reserve, usually set by a claims handler;
- ultimate costs – incurred costs, plus any additional reserve for future developments, set by the actuary carrying out the projection.

Generally, for more recent years, a higher proportion of Injury claims remain open, leading to a higher level of outstanding case reserves, and as there is a greater possibility of new claimants coming forward and/or new information becoming available, this leads to a higher level of actuarial reserves. This can be seen in relation to 2016, where the difference between paid and incurred costs is made up of outstanding case reserves, and the difference between incurred and ultimate costs is made up of actuarial reserves.

In contrast, claims from earlier years would be mostly closed by now. Little or no outstanding case reserves remain (as most claims payments have already been paid out) and little or no actuarial reserves remain (as no new claimants or information is expected).

The further back we look, the more we would expect paid, incurred and ultimate costs to converge to a single amount. However, Third Party Injury claims often involve disputed liability, are frequently litigated and are generally more complex than property damage claims, so it can take a number of years before all Third Party Injury claims from a given year finally close and all associated reserves reduce to zero.

This increase in overall ultimate cost per policy is a product of the growth in both the size of the average Third Party Injury cost per claim, and the (somewhat smaller) growth in Third Party Injury claim frequency.

Capped and Uncapped Third Party Injury Ultimate Claims Costs

To provide more insight into the nature of injury claims, the Third Party Injury dataset was divided into two datasets:

- Capped Third Party Injury claims where the incurred cost always remained less than or equal to €250,000; and
- Uncapped minus Capped Third Party Injury claims which is made up of all Third Party Injury claims with the Capped claims removed. This leaves all Third Party Injury claims where the incurred cost was **ever** greater than €250,000.

Capped Third Party Injury Claims (<=€250k) Ultimate Claims Costs

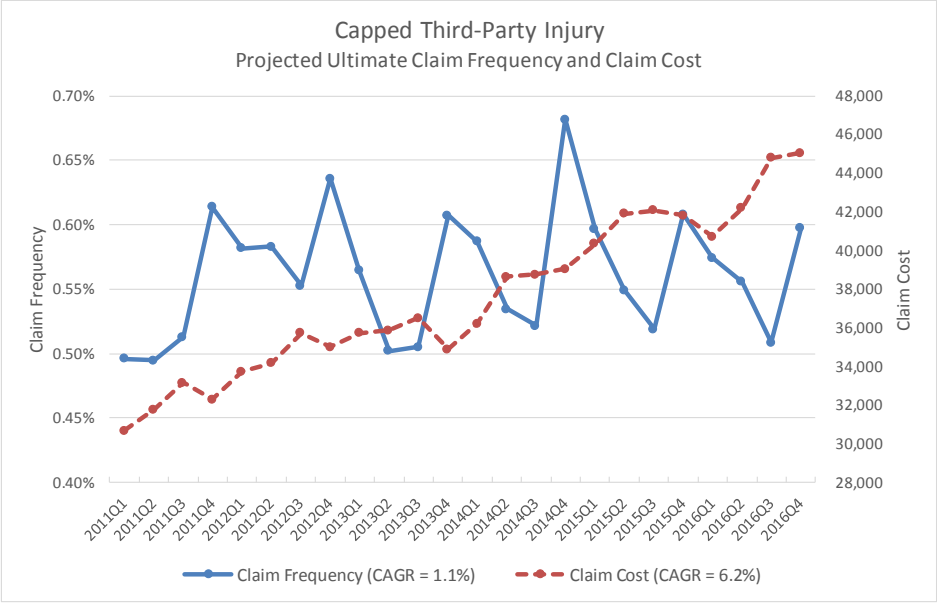


Figure 7: Projected ultimate Capped Third Party Injury frequency and cost per claim

The projected ultimate Capped Third Party Injury cost per claim increased from €32,024 in respect of claims that occurred in 2011 to €43,179 in respect of claims that occurred in 2016, an annualised growth rate of 6.2% per year (see figure 7).

Over the same period, the projected ultimate Third Party Injury claims frequency increased slightly, showing annualised growth of 1.1%. The chart shows a very pronounced seasonal effect, with more claims being made in the last 3 months of each year, mainly due to worsening driving conditions in winter months.

On a per policy basis, the projected ultimate Capped Third Party Injury cost per policy increased by 7.3% per year over the period, from €170 in 2011 to €241 in 2016 (see figure 8 below). As for total Third Party Injury claims shown in figure 4, the differences between paid, incurred and ultimate costs in more recent years reflect the fact that fewer recent claims have settled, leading to higher

outstanding case reserves and actuarial reserves. It can be observed that the difference between paid and incurred costs is larger than the difference between incurred and ultimate costs. This reflects that the actuarial reserves for new information and/or new claimants coming forward are reduced relatively quickly, as claims for less than €250,000 are generally less complex and involve less severe injuries (in comparison to claims for more than €250,000).

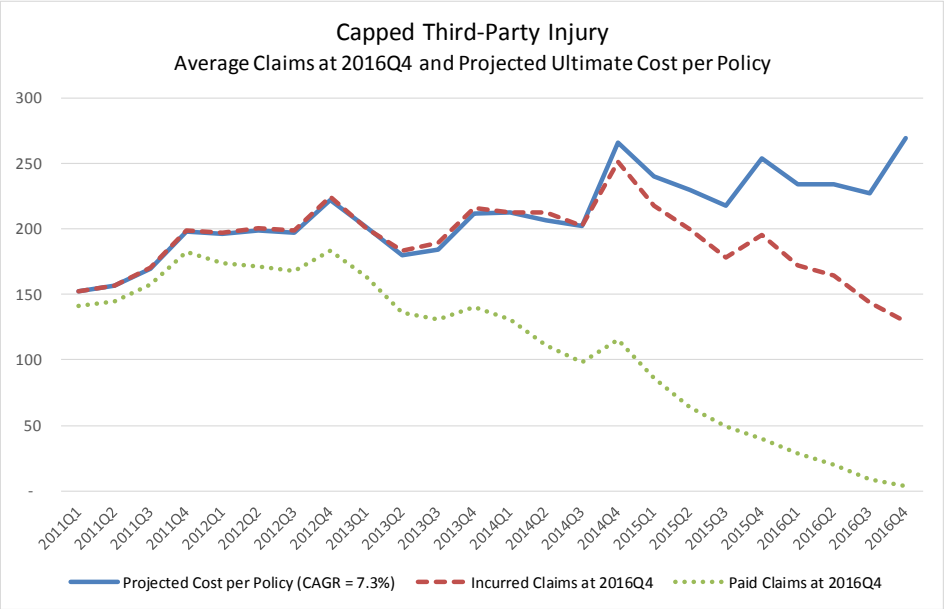


Figure 8: Capped Third Party Injury paid cost, incurred cost and projected ultimate cost per policy

The proportion of the ultimate claims cost per policy attributable to Capped Third Party Injury claims rose from 46% in respect of 2011 to 57% in respect of 2016. Capped Third Party Injury ultimate costs per policy are the fastest increasing of all claims types over 2011 to 2016 (see figure 4).

Uncapped minus Capped Third Party Injury (>€250k) Ultimate Claims Costs

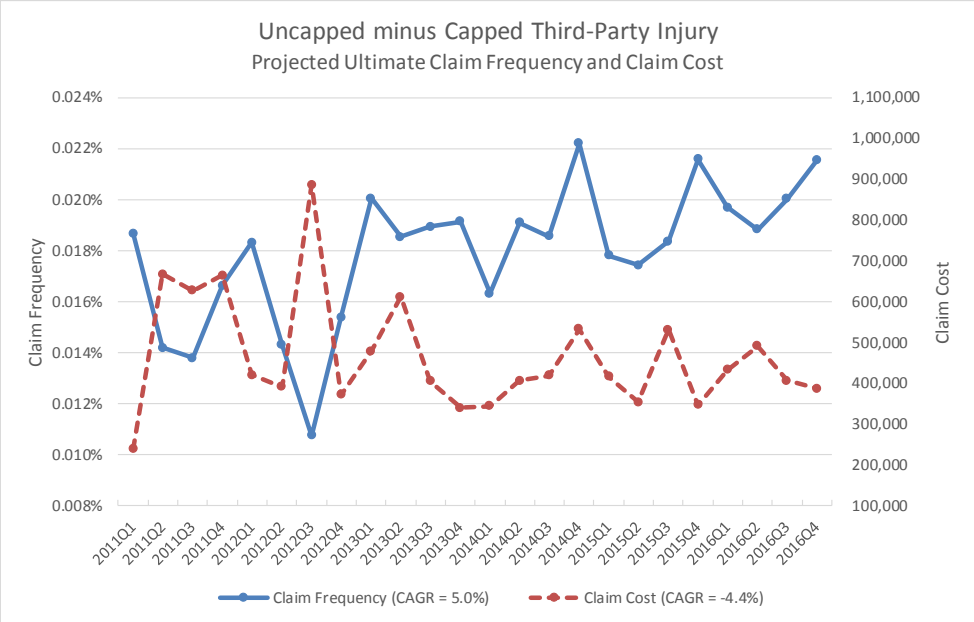


Figure 9: Projected ultimate Uncapped minus Capped Third Party Injury frequency and cost per claim

The average Uncapped minus Capped Third Party Injury ultimate claim cost reduced from €535,180 in respect of claims that occurred in 2011 to €427,528 in respect of claims that occurred in 2016, an annualised reduction of 4.4% per year (see figure 9). Over the same period, the corresponding projected ultimate frequency increased by an average of 5% per year. However the observed data is quite volatile: by their very nature, larger Third Party Injury claims happen infrequently. This makes it difficult to come to any definitive conclusions about trends in larger Third Party Injury claims.

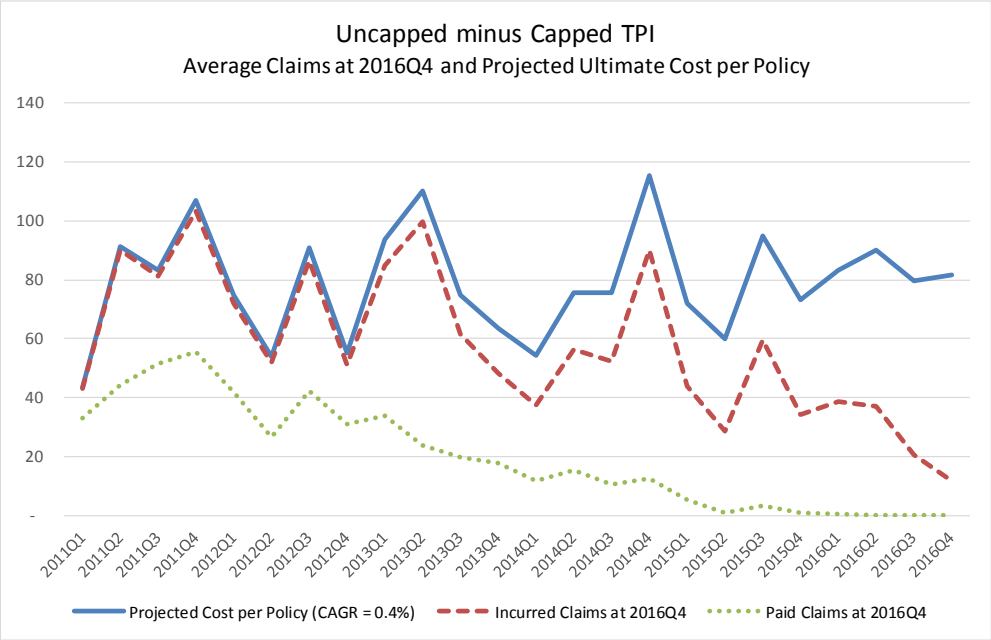


Figure 10: Uncapped minus Capped Third Party Injury paid cost, incurred cost and projected ultimate cost per policy

On a per policy basis, the projected ultimate Uncapped minus Capped Third Party Injury cost per policy increased by 1% per year over the period, from €80 in 2011 to €86 in 2016 (see figure 10). The difference between incurred and ultimate costs is more pronounced than for Capped Third Party claims, especially for recent years. This is due to the higher levels of uncertainty around these larger claims; medical conditions can take years to manifest and to be diagnosed, requiring higher levels of actuarial reserves to allow for new medical information, and for new claimants to come forward. The difference in paid and incurred costs will also persist for longer, as these claims may be disputed and/or litigated for more years (in comparison to smaller Injury claims).

The proportion of the total projected ultimate claims cost per policy attributable to larger Third Party Injury claims reduced slightly from 22% in respect of 2011 to 20% in respect of 2016 (see figure 4). In general any decreases in larger Third Party Injury costs seems to be offset by the increase in the number of claims.

Sensitivity of projected ultimate costs

The independent actuarial consultants performed sensitivity analysis, to see how the projected ultimate costs varied under alternative assumptions around the future development of claims.

They considered various scenarios individually and combined, and arrived at a “best case” (i.e. the selected projections are over-estimated) and “worst case” (i.e. the selected projections are under-estimated) for comparison.

Based on the analysis and the upper and lower estimates resulting from the worst and best cases, respectively, Verisk estimates that it is possible that their projections of ultimate Third Party Injury claims cost per policy for 2016 are over-or under-stated by approximately 6%[8] (see figure 11).

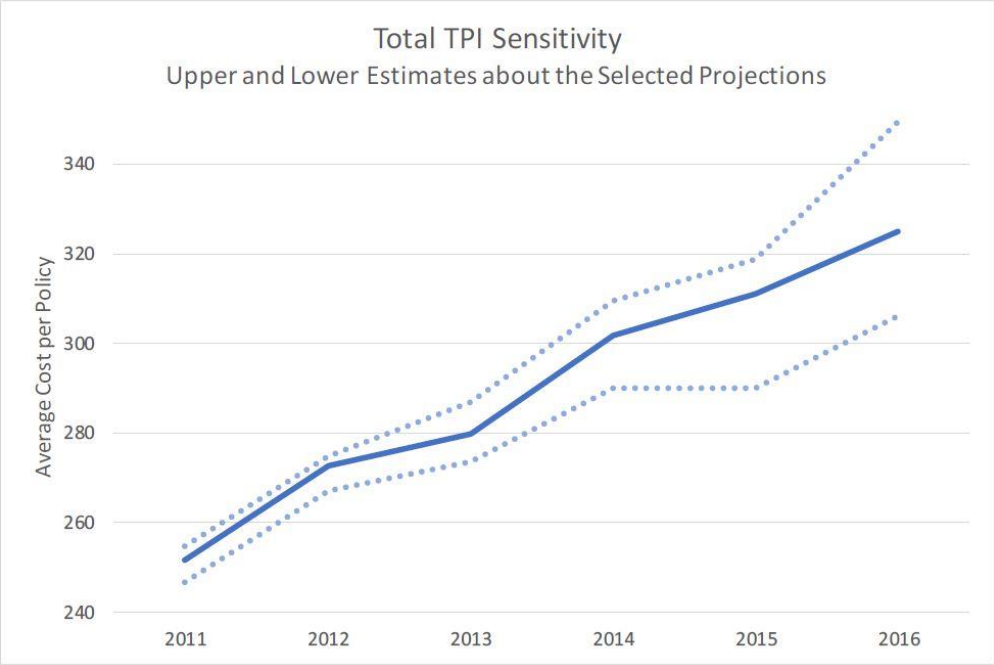


Figure 11: Sensitivity of the projected ultimate Third Party Injury claims cost per policy, with upper and lower estimates

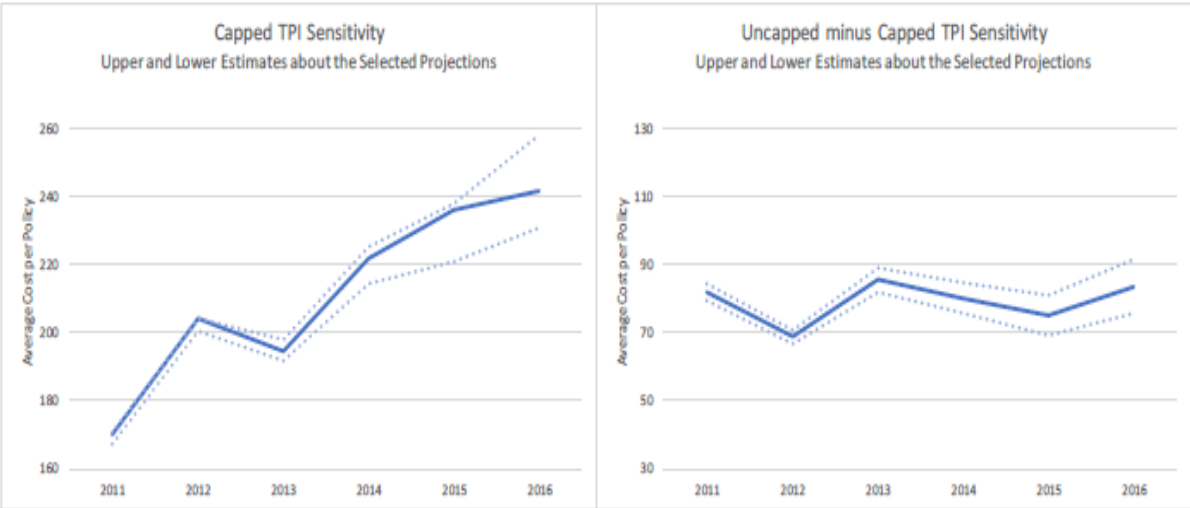


Figure 12: Sensitivity of the projected ultimate claims cost per policy, with upper and lower estimates, for Capped and Uncapped minus Capped Third Party Injury

[8] No probability was supplied, as part of the sensitivity analysis, to the possibility of under- or over-statement.

UK Third Party Injury Data Comparison[9]

Between 2011 and 2016, the projected ultimate average cost per policy for Third Party Injury claims decreased by about 1.5% per year in the UK. The biggest change occurred in 2013 because of a sharp drop in claim frequency, while cost per claim was steady. Subsequent to 2013, projected ultimate cost per claim increased steadily while projected ultimate frequency decreased slightly. In Ireland, the projected ultimate Third Party Injury claim frequency and cost increased by 1.2% per year and 4% per year respectively. Both of these are greater than the comparable figures per year for the UK: -3.2% and 1.8%. The level of projected ultimate Third Party Injury claim frequency in Ireland is significantly lower than in the UK but the projected ultimate cost per claim is higher. Finally, it should be noted that projected ultimate Third Party Injury cost per claim in the UK ranges from £11,000-13,000 compared to €40,000-€60,000 in Ireland.

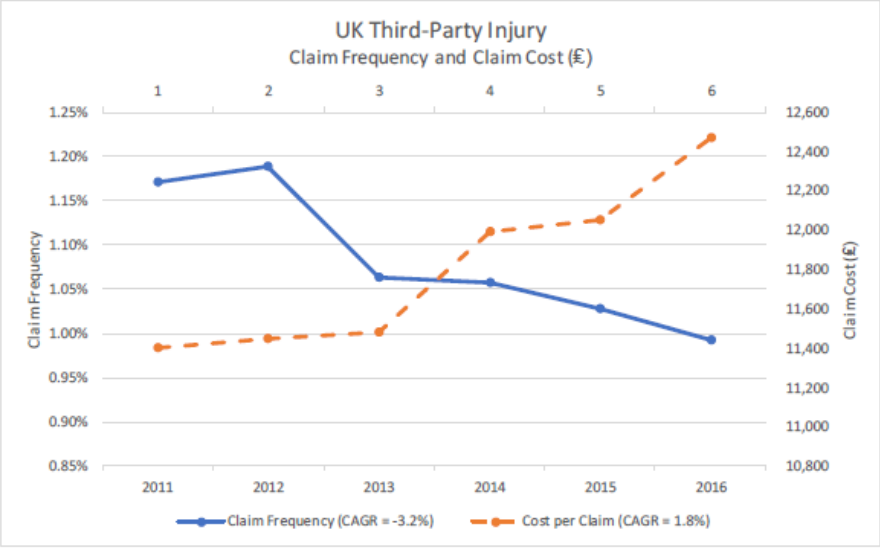


Figure 13: UK projected ultimate TPI Average Claim Cost and Frequency, 2011 -2016

[9] The Institute and Faculty of Actuaries in the UK established a Third Party Working Party in 2009 to investigate the cost of Third Party Injury and Damage motor claims. The scope of the investigation is focussed on Private Car Comprehensive policies, and the Third Party claims that arise from those policies. The eighth iteration of the Working Party produced research in 2017, based on data as at the end of 2016. Verisk provided an analysis of the UK TPWP research, to compare the Irish market against the UK market.

PART 4 – Non-Injury Ultimate Claims Costs Trends

Introduction

This Part[10] provides an overview of trends for Non-Injury, or Damage, claims. Such claims might include Third Party Damage claims arising from damage to a third party's vehicle, Accidental Damage claims arising from damage to a policyholder's vehicle, Fire & Theft claims arising from fire damage or theft of a policyholder's vehicle, or Windscreen claims. Damage claims generally make up a significantly smaller proportion of the total claims cost per policy for Private Motor policies compared with third party injury claims.

General observations provided

- The average non-Injury cost per claim is generally rising, but this is more than offset by a reduction in the number of non-Injury claims per policy, leading to an overall decrease in the cost per policy for non-Injury claims.
- A number of potential factors may be influencing this trend, such as:
    - Driver assistance technology in newer cars may lead to a lower level of accident numbers, however, because of this technology, vehicle parts can be more expensive and hence the average cost of repair may be higher. This feature has been observed in other jurisdictions.
    - Differences in economic activity and fuel prices across the period will lead to different levels of mileage driven (which will impact frequency) and changes in levels of cover and in excesses will affect claim rates and average costs.

Projected Third Party Damage Claims

As for other Non-Injury claims, projected ultimate Third Party Damage claim costs are increasing, while the projected ultimate Third Party Damage claims frequency is decreasing (see figure 14).

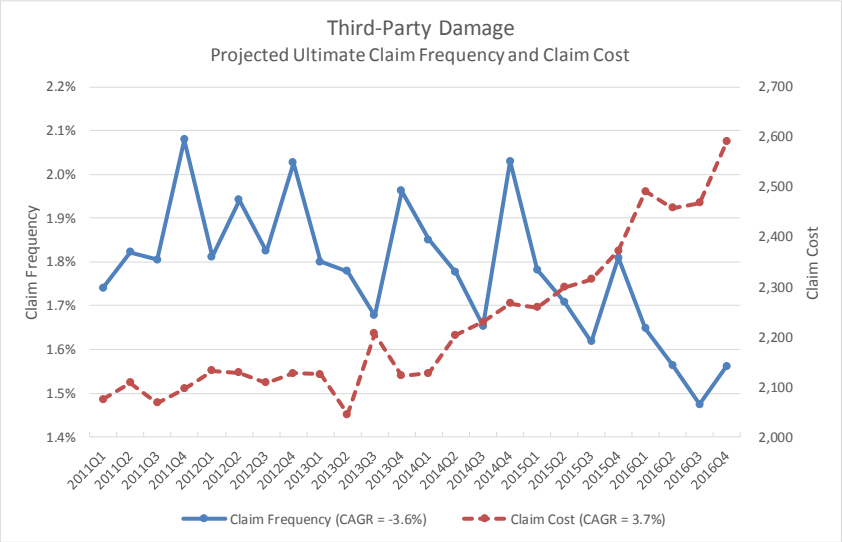


Figure 14: Projected ultimate Third Party Damage frequency and cost per claim

[10] All of the data and conclusions referred to in this Report were produced by independent consultants, Verisk, on behalf of Insurance Ireland. The data and conclusions provided have not been subject to further actuarial analysis by the Department of Finance or the Central Bank of Ireland, other than for clarifications of elements of the data and conclusions.

However, the trends in ultimate cost per claim and frequency offset each other, such that the trend in projected ultimate Third Party Damage cost per policy has been relatively level, which can be seen in figure 15.

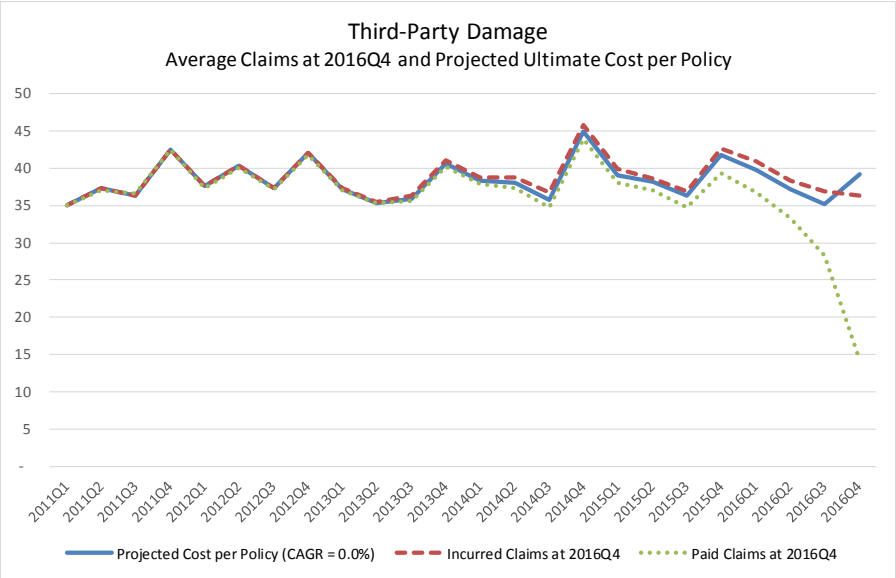


Figure 15: Third Party Damage paid cost, incurred cost and projected ultimate cost per policy

The difference between paid, incurred and ultimate costs is much less pronounced for Third Party Damage claims than for Third Party Injury claims. It can be observed that all three costs converge within 12 months or so. Outstanding case reserves are paid down quite quickly, and almost no actuarial reserves are set up, as claims are straightforward, liability is settled quickly, and generally without litigation.

On a relative basis, Third Party Damage costs as a proportion of the projected ultimate cost per policy is shrinking as a component of overall costs, while the Third Party Injury proportion has been increasing steadily (see figure 4).

Projected Third Party Injury to Third Party Damage Ratio

The ratio of projected ultimate Third Party Injury to Third Party Damage frequency increased by roughly one-third from 0.3 to 0.4 during the period (see figure 16).

As a general observation, a road traffic accident that gives rise to a Third Party Injury claim would generally have a Third Party Damage claim attached also (the exception would be where the policyholder has injured a pedestrian, as opposed to a third party driver). However, not all road traffic accidents that give rise to a Third Party Damage claim would involve a Third Party Injury claim, e.g. bumper-to-bumper collisions. The trend shown in figure 16 may indicate that the number of road traffic accidents giving rise to Injury claims is on the increase. However, as the data received does not include any classification of injury (and does not split Third Party Injury claims into pedestrians, drivers and passengers), it is difficult to draw firm conclusions from this trend.

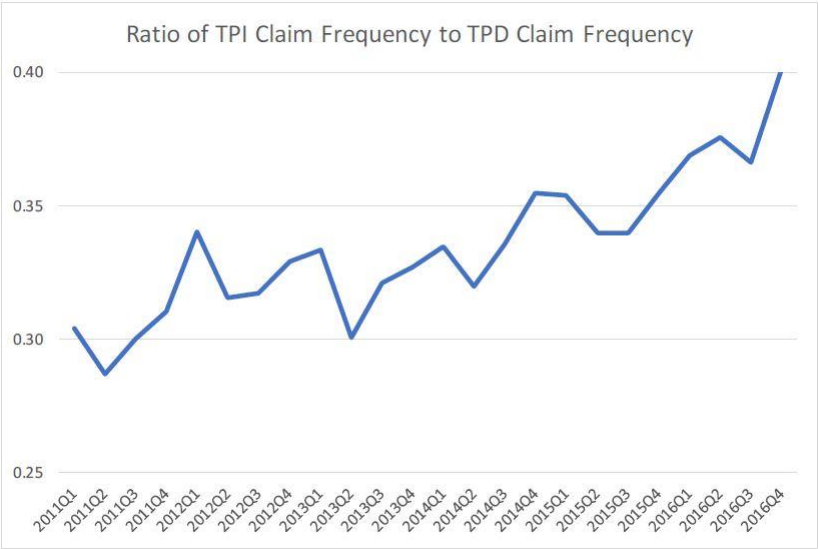


Figure 16: Projected ultimate Third Party Injury to Third Party Damage frequency ratios

Sensitivity of projected ultimate costs

Non-injury claim projections were relatively insensitive to alternative assumptions and were not provided by Verisk therefore.

UK Third Party Damage Data Comparison[11]

For Third Party Damage, projected ultimate claim frequency and cost inflation rates in Ireland were -3.6% and 3.7%, respectively. Projected ultimate Third Party Damage costs in Ireland were level during the period, while UK costs increased by 2.4% per year, on average. Claim frequency however fell in the UK, particularly up to 2013.

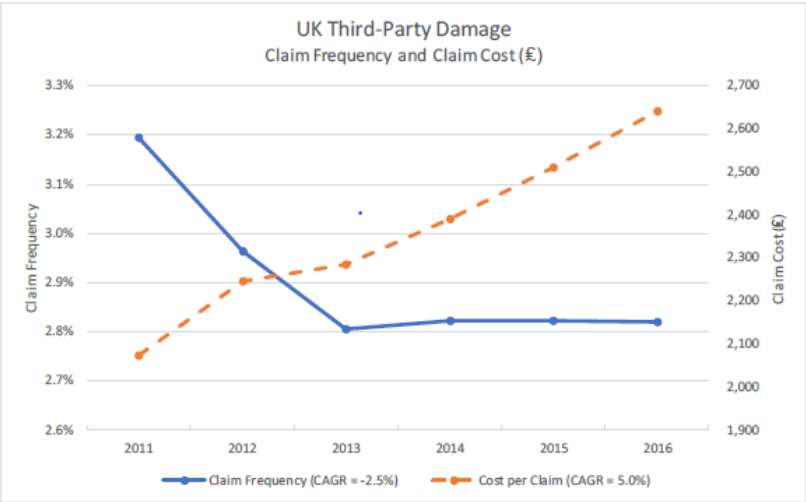


Figure 17: UK TPD Average Claims Cost and Frequency, 2011 - 2016

In summary, therefore while there is a significant difference between UK and Irish projected ultimate Third Party Injury cost per claim (UK ranges from £11,000-13,000 compared to €40,000-€60,000 in Ireland), projected ultimate Third Party Damage costs per claim are closer to each other.

[11] See footnote 8.

Projected Own Damage Claims Costs

Own Damage claims are claims made by a policyholder in relation to damage to the policyholder's own vehicle or property in an accident, where the policyholder is responsible for the accident. This type of claim is covered under a fully comprehensive insurance policy.

The projected ultimate Own Damage cost per claim increased by 4.3% per year, while projected ultimate frequency decreased by 9.1% per year (see figure 18).

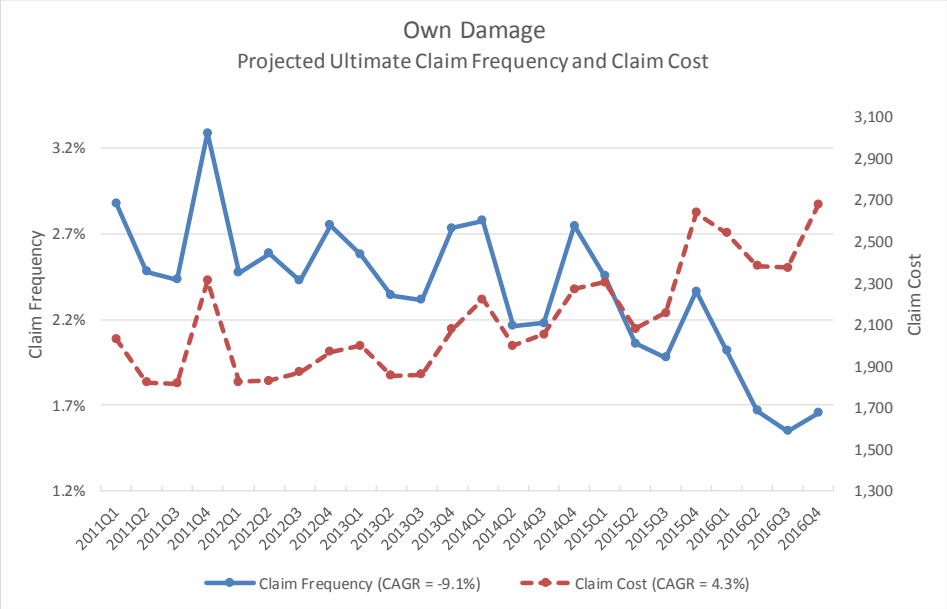


Figure 18: Projected ultimate Own Damage frequency and cost per claim

As for Third Party Damage, the difference between paid, incurred and ultimate costs is much less pronounced for than for Third Party Injury claims, and even more so than for Third Party Damage. It can be observed that all three costs converge within approximately 6 months (see figure 19). Outstanding case reserves are paid down almost immediately, with no actuarial reserves set up, as claims are straightforward and liability is undisputed.

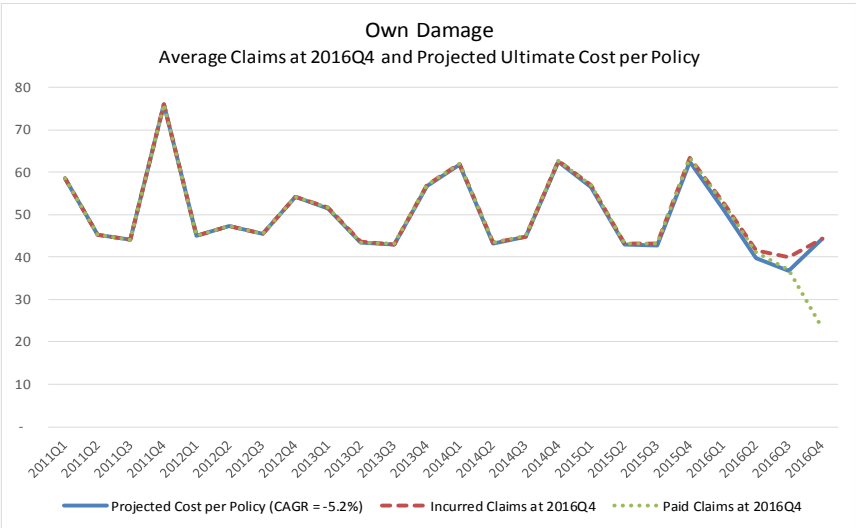


Figure 19: Own Damage paid cost, incurred cost and projected ultimate cost per policy

While Own Damage claim costs are rising at a rate comparable to Third Party Damage, claim frequency is falling about twice as fast. Own Damage costs made up 15% of the total projected ultimate cost per policy in 2011, while Third Party Damage contributed 10%. By 2016, Third Party Damage costs per policy almost equalled Own Damage costs at 10% (see figure 4). This may reflect a trend that policy holders are less inclined to make a claim against their own policy for damage to their own property.

Projected Other Damage Claims costs (excluding Windscreen)

Other Damage claims arise from fire damage or theft of policyholder's vehicles, and are generally covered by insurers, both by Comprehensive policies and Third Party, Fire and Theft policies. Projected ultimate claim costs for Other Damage excluding Windscreen are rising slightly more quickly than Third Party Damage, at an average rate of 6.8% per annum (see figure 20).

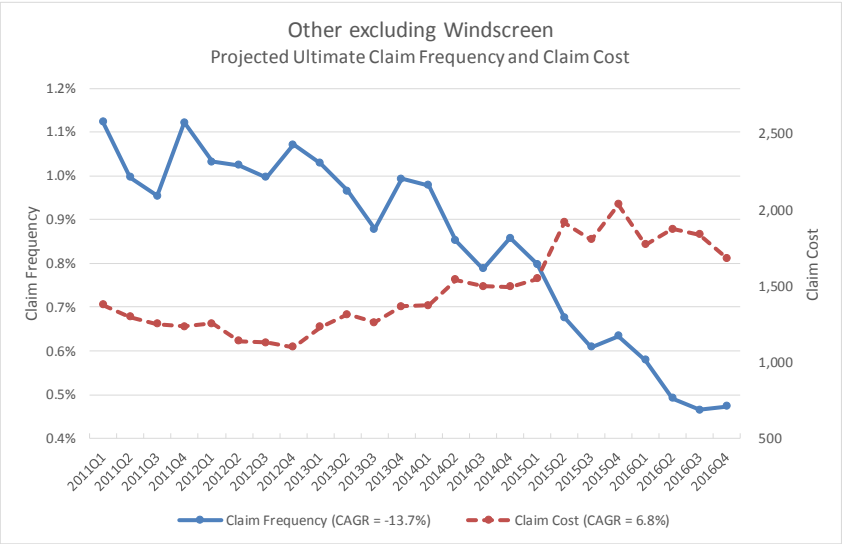


Figure 20: Projected ultimate Other Damage (excluding WS) frequency and cost per claim

However, claim frequency is decreasing more quickly, so overall the cost per policy of Other Damage excluding Windscreen claims is the fastest shrinking proportion of the total claims cost per policy (see figure 4).

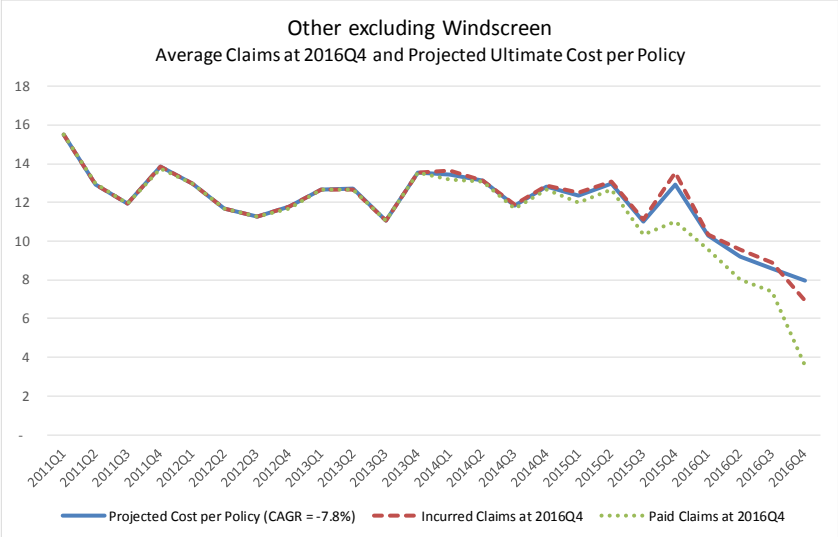


Figure 21: Other Damage (excluding WS) paid cost, incurred cost and projected ultimate cost per policy

As for Third Party Damage and Own Damage, the difference between paid, incurred and ultimate costs is much less pronounced for than for Third Party Injury claims. Outstanding case reserves are paid down almost immediately, with no actuarial reserves set up, as claims are straightforward and liability is not an issue.

Projected Windscreen Claim Costs

Windscreen claim costs are stable from 2012 onwards and constitute a small portion of overall policy costs. Windscreen claim frequency has decreased since 2011, and is highly seasonal. Most decreases resulted from a steep decline from 2011 to 2012, but frequency has continued to fall year-to-year.

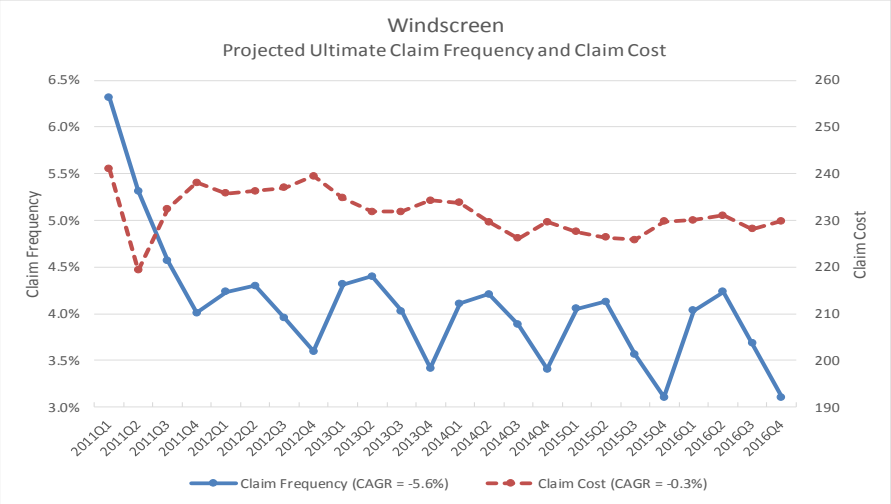


Figure 22: Projected ultimate Windscreen frequency and cost per claim

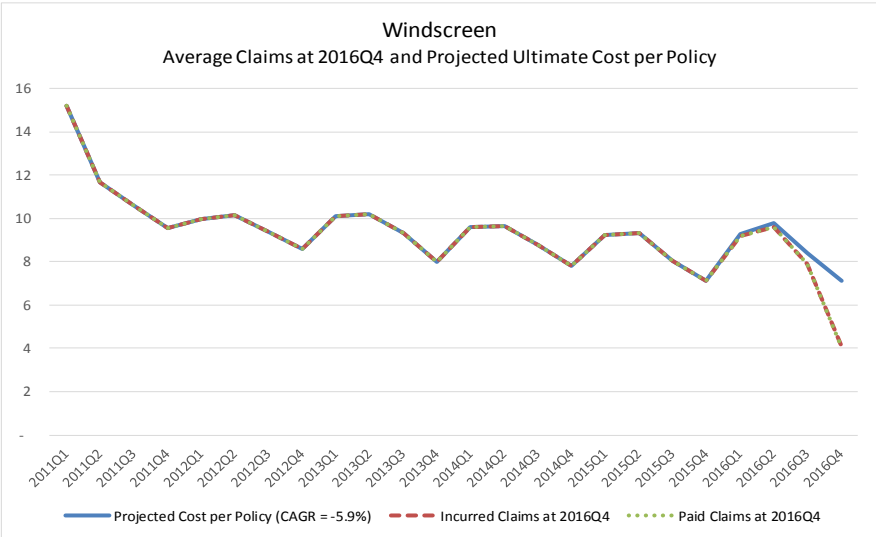


Figure 23: Windscreen paid cost, incurred cost and projected ultimate cost per policy

PART 5 – Earned Premium and Exposure

Introduction

This Part[12] provides a brief overview of average earned premiums over the period 2011 – 2016. The Department notes that this information was provided by Verisk and Insurance Ireland voluntarily and had not formed part of the data request. Some of the voluntary information provided was not used in this Report because of concerns about comparability. As for the claims data, eight companies contributed data representing €5.2 billion of the Irish Motor Insurance market earned premium from 2011 to 2016.

Average Earned Premium Index

Insurance Ireland and Verisk provided an earned premium index, based to (2011 = 100), which puts earned premiums about 22% higher at the end of 2016 than levels at the beginning of 2011. This data is made up from actual premiums from new business and renewal business, and with regard to renewal business, would reflect various discounts provided to customers (see figure 24).

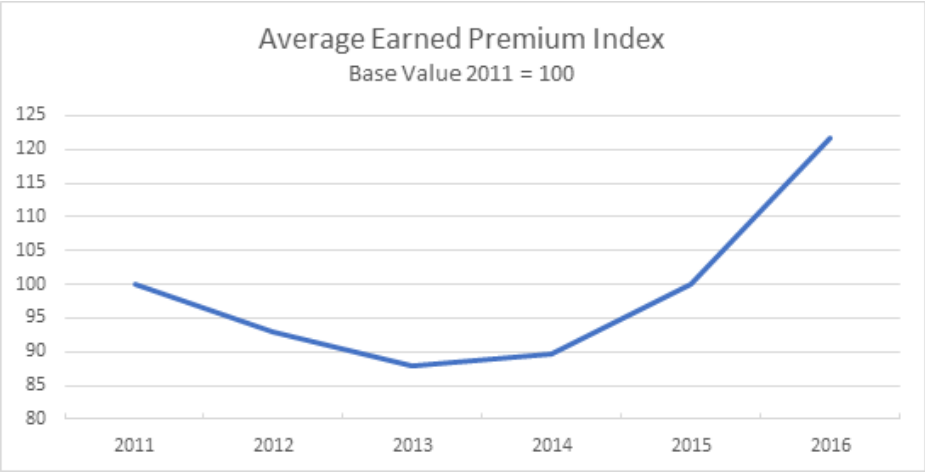


Figure 24: Average Earned Premium Index

A breakdown of premium into new business and renewals was not provided as part of the report. While the index cover the period from 2011 to 2016 only, rate increases were reported in the market in the second half of 2016 and 2017, so it is expected that the index would continue to increase in 2017.

[12] All of the data and conclusions referred to in this Report were produced by independent consultants, Verisk, on behalf of Insurance Ireland. The data and conclusions provided have not been subject to further actuarial analysis by the Department of Finance or the Central Bank of Ireland, other than for clarifications of elements of the data and conclusions.

Earned Premium – Methodology

- When performing actuarial projections for non-life insurance (including motor classes of business) actuaries generally use claims and policy data that is accounted for on an earned basis.
- This means that the data is divided into years (or calendar quarters), with claims accounted for in the year (or quarter) when the accident causing the claim actually occurred.
- To ensure that the premium and exposure data corresponds to the claims data, policies are accounted for in the year(s) that they are in-force.
- A policy can be in force over more than one year: for example a typical motor policy will provide cover for 12 months. If a policy comes into force on July 1st 2018, with a premium of €800, that policy will be in-force from 1/7/2018 to 31/12/2018 and from 1/1/2019 to 30/6/2019.
- 50% of the premium for that policy will be accounted for ("earned") in 2018, and the other 50% will be accounted for ("earned") in 2019.
- Premium and policy count data can also be allocated to years on a written basis, where the premium and policies are accounted for in the year (or quarter) that the policy was sold.

Comparability to CSO Price Data

While Insurance Ireland and Verisk included average annual earned premium data in the report provided to the Department, this is not directly comparable with the CSO CPI Motor Car Insurance index for a number of reasons, including:

- The CSO index is constructed from sample quotes received on a monthly basis – in actuarial terminology, the index is constructed on a written basis. The data provided by Insurance Ireland and Verisk is on an earned basis;
- The CSO index holds constant the price-determining specifications (e.g. car model and age, person's age, sex, occupation etc.) of the insurance policy over time, whereas the specifications would vary over time in the data supplied by Insurance Ireland and Verisk; and
- The data provided by Insurance Ireland and Verisk includes data on policies sold via brokers and other intermediaries, while the CSO index is based on sample quotes provided directly by insurers only. Differences may arise due to difference prices being quoted by insurers and brokers.

In common with other jurisdictions, official figures are showing a consistent increase in registered vehicles over the analysis period. However the vehicle exposure within the Insurance Ireland dataset has remained essentially level over the period.

Earned Exposure

Exposure typically refers to the number of policies that are in-force in a particular year, and which can give rise to claims in relation to that year. Another common measure of exposure is earned vehicle year, this is the exposure to risk measured in vehicle years (i.e. one vehicle year of exposure equals one vehicle on full cover for one year or two vehicles for six months). The sub-group did not receive exposure data from Insurance Ireland or Verisk as part of their report, apart from some information on earned vehicle exposure (see figure 25).

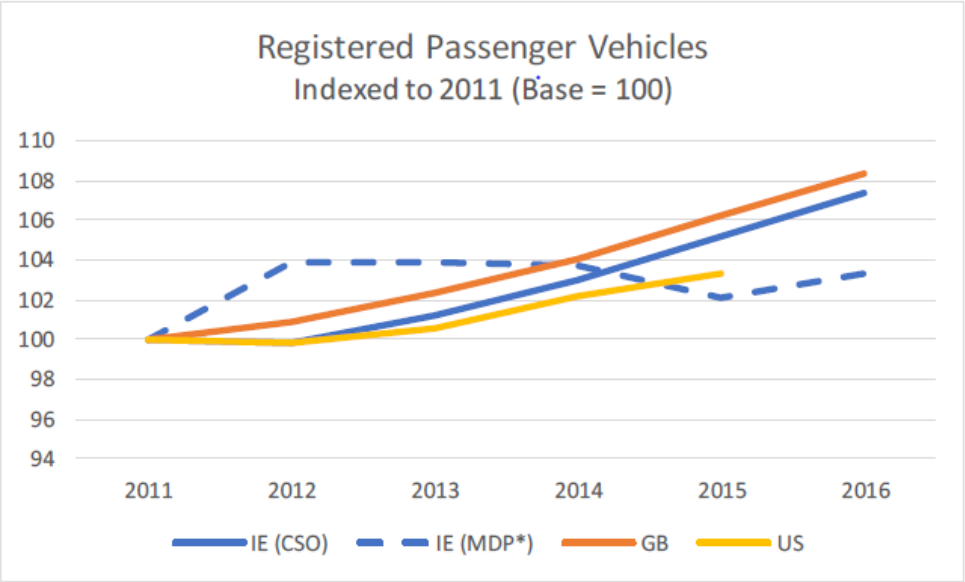


Figure 25: Passenger vehicle registrations 2011 – 2016 vs earned vehicle exposure

It should be noted that, according to the Department of Transport, Tourism and Sport, the private vehicle population grew by 7% since 2011 (indicated on Figure 25 by "IE CSO") although the private vehicle population in the Insurance Ireland sample grew by just 2% over this time period (indicated on Figure 25 by "IE MDP"). There are two possible reasons for this divergence. The first possibility is that the divergence reflects a possible decrease in market share for companies surveyed since 2014. The second possible reason is that there has been an increase in the number of uninsured vehicles[13]. The likely overall scenario is that a combination of both of the factors above has played a role in this divergence.

[13] MIBI reported in August 2016 they had seen a 17% year-on-year increase in the number of claims relating to uninsured or untraced drivers in the first half of 2016

Appendices

Appendix 1 - Coverage of the Market[14]

	2011	2012	2013	2014	2015	2016
Combined Motor Market Share (by GWP) of AIG, Allianz, Aviva, AXA, FBD, Liberty, RSA and Zurich	90%	91%	92%	90%	89%	89%

Appendix 2 - Summary Tables[15]

Third Party Injury Capped (≤€ 250k)

Projected Results

Accident Period	Ultimate TPI Capped (≤€ 250k)			Year on Year Change In		
	Frequency	Severity	Burning Cost	Frequency	Severity	Burning Cost
2011	0.00531	32,024	170.05			
2012	0.00588	34,657	203.78	10.7%	8.2%	19.8%
2013	0.00545	35,712	194.63	-7.3%	3.0%	-4.5%
2014	0.00581	38,169	221.76	6.6%	6.9%	13.9%
2015	0.00568	41,517	235.82	-2.2%	8.8%	6.3%
2016	0.00559	43,179	241.37	-1.6%	4.0%	2.4%
Average 2011-2013	0.00555	34,131	189.49	1.7%	5.6%	7.7%
Average 2014-2016	0.00569	40,955	232.98	0.9%	6.6%	7.5%
Average 2011-2016	0.00562	37,543	211.24	1.2%	6.2%	7.6%

[14] Provided by Insurance Ireland

[15] Provided by Verisk

Third Party Injury Uncapped - Capped (≤€ 250k)

Projected Results

Accident Period	Ultimate TPI Uncapped - Capped (≤€ 250k)			Year on Year Change In		
	Frequency	Severity	Burning Cost	Frequency	Severity	Burning Cost
2011	0.00015	535,180	80.28			
2012	0.00014	485,031	67.90	-6.7%	-9.4%	-15.4%
2013	0.00019	457,607	86.95	35.7%	-5.7%	28.0%
2014	0.00019	431,860	82.05	0.0%	-5.6%	-5.6%
2015	0.00018	410,188	73.83	-5.3%	-5.0%	-10.0%
2016	0.00020	427,528	85.51	11.1%	4.2%	15.8%
Average 2011-2013	0.00016	492,606	78.38	14.5%	-7.5%	6.3%
Average 2014-2016	0.00019	423,192	80.46	1.9%	-2.1%	0.1%
Average 2011-2016	0.00018	457,899	79.42	7.0%	-4.3%	2.6%

Third Party Damage

Projected Results

Accident Period	Ultimate TPD			Year on Year Change In		
	Frequency	Severity	Burning Cost	Frequency	Severity	Burning Cost
2011	0.01815	2,087	37.88			
2012	0.01851	2,124	39.33	2.0%	1.8%	3.8%
2013	0.01754	2,124	37.26	-5.2%	0.0%	-5.3%
2014	0.01777	2,208	39.22	1.3%	4.0%	5.3%
2015	0.01679	2,311	38.82	-5.5%	4.7%	-1.0%
2016	0.01512	2,503	37.83	-10.0%	8.3%	-2.5%
Average 2011-2013	0.01807	2,112	38.16	-1.6%	0.9%	-0.7%
Average 2014-2016	0.01656	2,341	38.62	-4.7%	5.6%	0.6%
Average 2011-2016	0.01731	2,226	38.39	-3.5%	3.7%	0.1%

Own Damage

Projected Results

Accident Period	Ultimate OD			Year on Year Change In		
	Frequency	Severity	Burning Cost	Frequency	Severity	Burning Cost
2011	0.02773	2,024	56.13			
2012	0.02559	1,877	48.03	-7.7%	-7.3%	-14.4%
2013	0.02491	1,955	48.70	-2.7%	4.2%	1.4%
2014	0.02466	2,150	53.02	-1.0%	10.0%	8.9%
2015	0.02214	2,309	51.12	-10.2%	7.4%	-3.6%
2016	0.01722	2,500	43.05	-22.2%	8.3%	-15.8%
Average 2011-2013	0.02608	1,952	50.95	-5.2%	-1.6%	-6.5%
Average 2014-2016	0.02134	2,320	49.06	-11.1%	8.5%	-3.5%
Average 2011-2016	0.02371	2,136	50.01	-8.8%	4.5%	-4.7%

Fire/Theft/Other except Windscreen

Projected Results

Accident Period	Ultimate Fire/Theft/Other except Windscreen			Year on Year Change In		
	Frequency	Severity	Burning Cost	Frequency	Severity	Burning Cost
2011	0.01049	1,290	13.53			
2012	0.01032	1,155	11.92	-1.6%	-10.5%	-11.9%
2013	0.00966	1,294	12.50	-6.4%	12.0%	4.9%
2014	0.00869	1,473	12.80	-10.0%	13.8%	2.4%
2015	0.00679	1,812	12.30	-21.9%	23.0%	-3.9%
2016	0.00502	1,793	9.00	-26.1%	-1.0%	-26.8%
Average 2011-2013	0.01016	1,246	12.65	-4.0%	0.8%	-3.5%
Average 2014-2016	0.00683	1,693	11.37	-19.3%	11.9%	-9.4%
Average 2011-2016	0.00850	1,470	12.01	-13.2%	7.5%	-7.1%

Windscreen

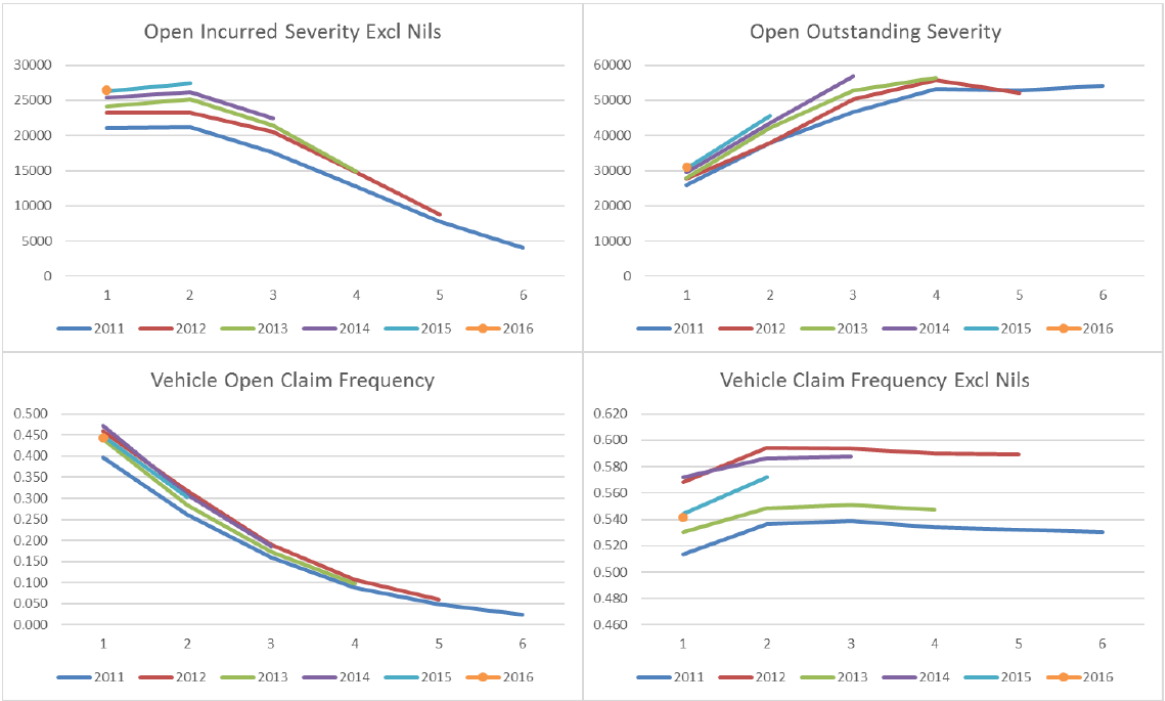
Projected Results

Accident Period	Ultimate Windscreen			Year on Year Change In		
	Frequency	Severity	Burning Cost	Frequency	Severity	Burning Cost
2011	0.05014	233	11.68			
2012	0.04018	237	9.52	-19.9%	1.7%	-18.5%
2013	0.04039	233	9.41	0.5%	-1.7%	-1.2%
2014	0.03903	230	8.98	-3.4%	-1.3%	-4.6%
2015	0.03711	227	8.42	-4.9%	-1.3%	-6.2%
2016	0.03754	230	8.63	1.2%	1.3%	2.5%
Average 2011-2013	0.04357	234	10.21	-9.7%	0.0%	-9.8%
Average 2014-2016	0.03789	229	8.68	-2.4%	-0.4%	-2.8%
Average 2011-2016	0.04073	232	9.44	-5.3%	-0.2%	-5.6%

Appendix 3 - Development Charts by Claim Type[16]

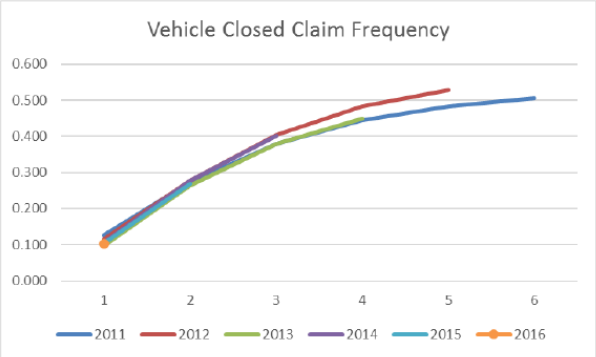
This appendix present development charts that were provided by Verisk and Insurance Ireland. These charts measure the development over time of key data such as claims costs and number of claims, up to the end of 2016. Each line on the chart represents the claims that occurred in a particular year. For example, the dark blue lines in each chart show how the claims that occurred in 2011 have developed up to the end of 2016, i.e. there are five annual data points so far for that set of claims. In contrast, the orange lines show only one annual data point so far for the set of claims that occurred in 2016.

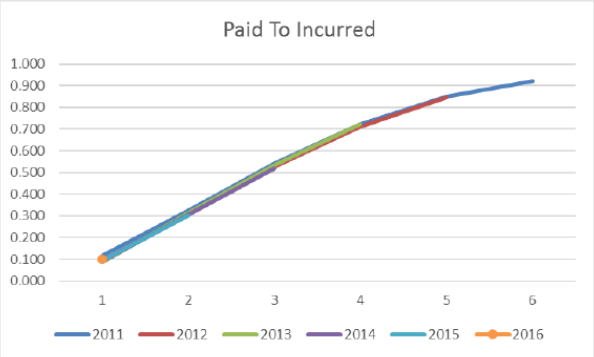
Capped Third Party Injury (<=€250k)



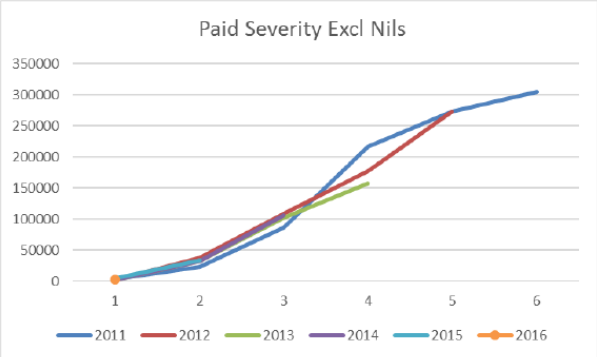
[16] Provided by Verisk

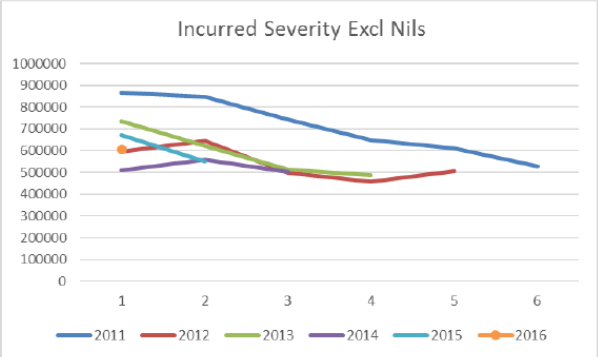
Capped Third Party Injury (<=€250k) (contd.)

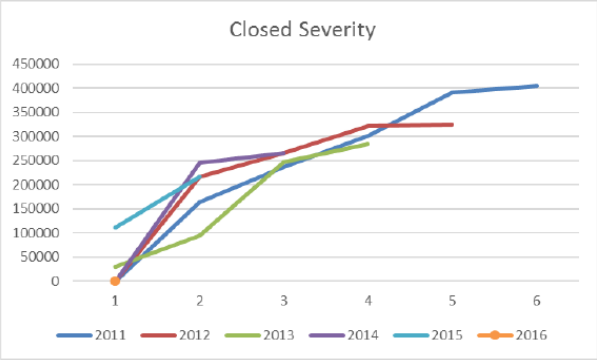


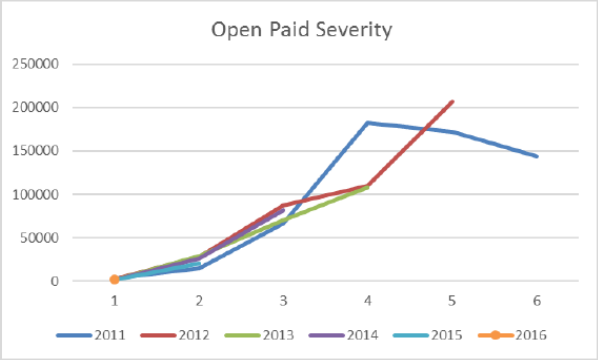


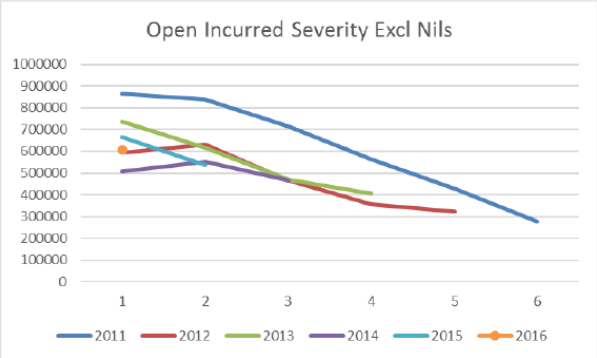
UnCapped minus Capped Third Party Injury (>€250k)

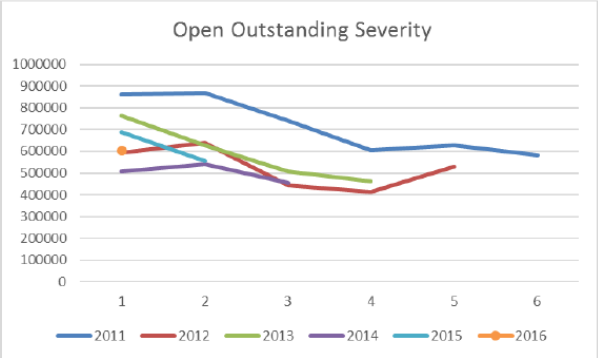


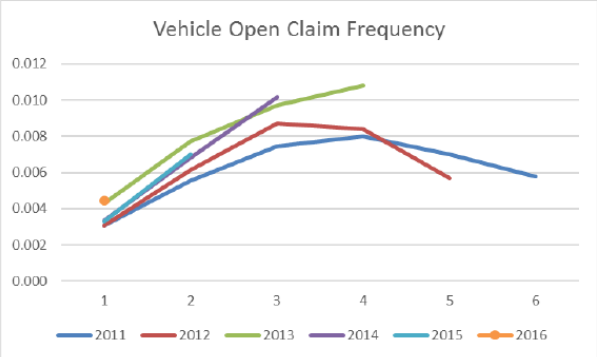


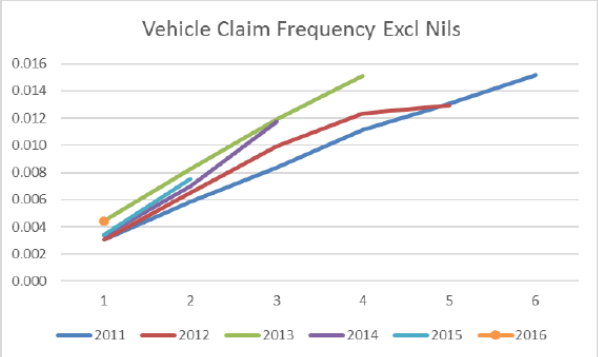




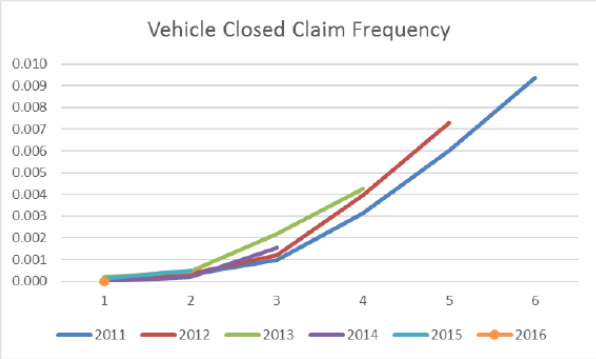


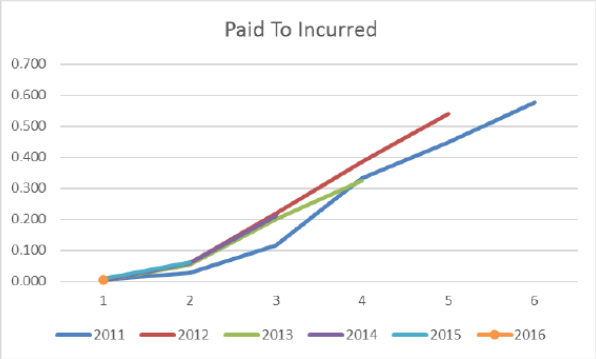




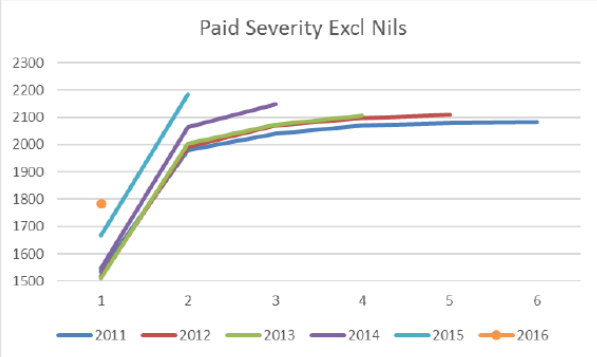


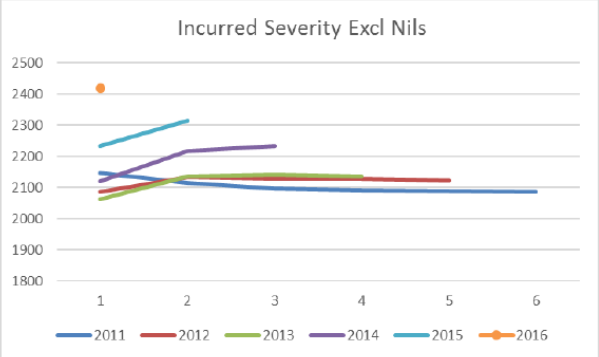
UnCapped minus Capped Third Party Injury (>€250k) (contd.)

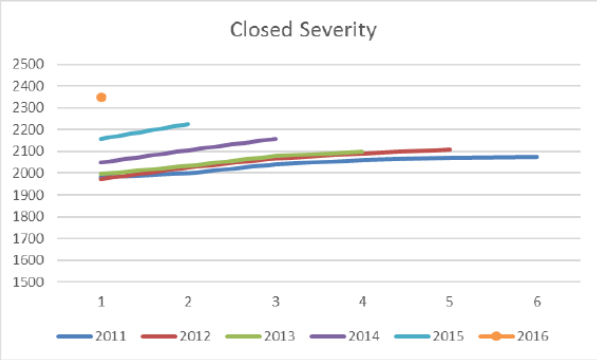


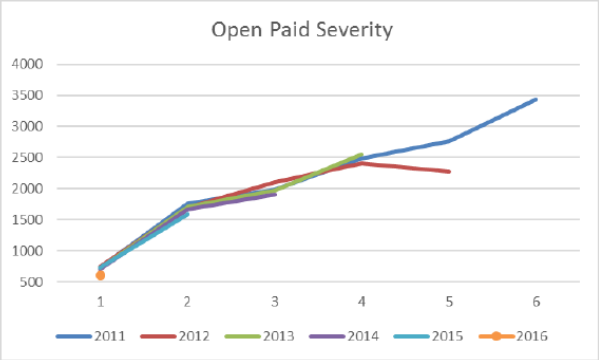


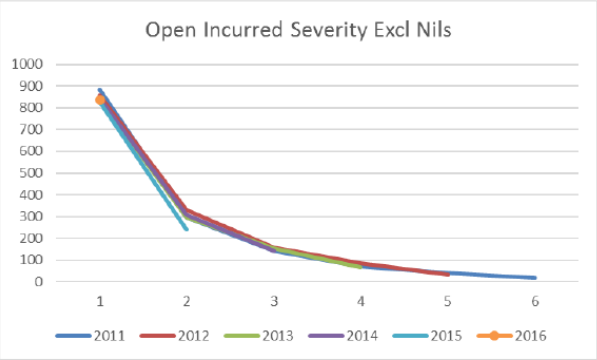
Third Party Damage

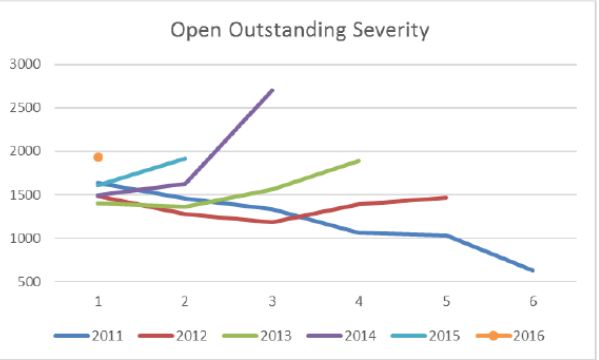


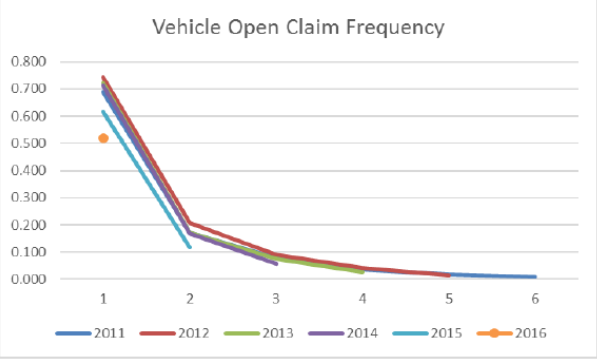


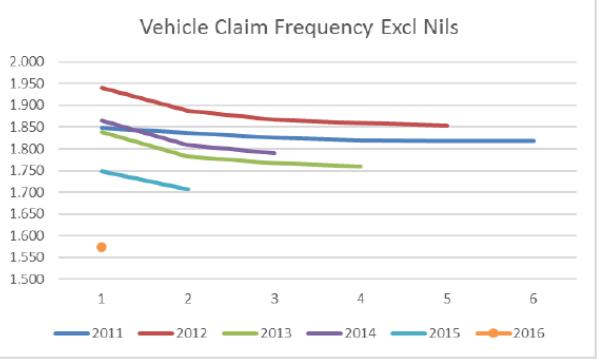




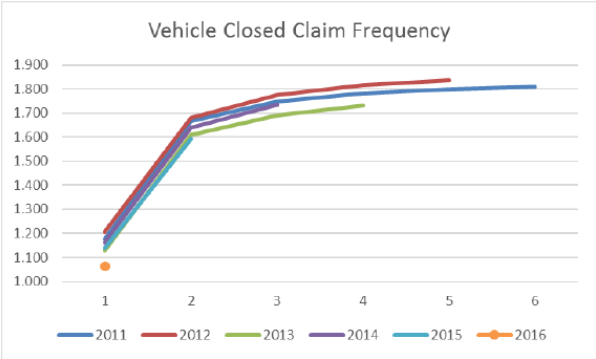


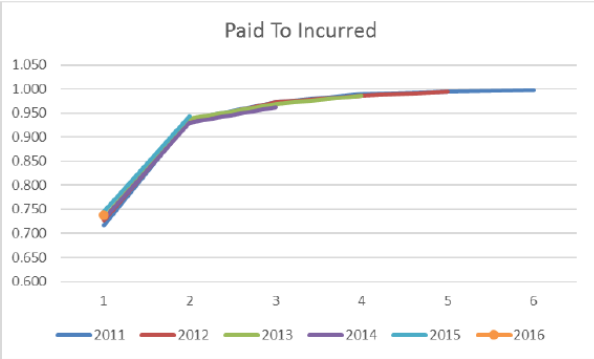




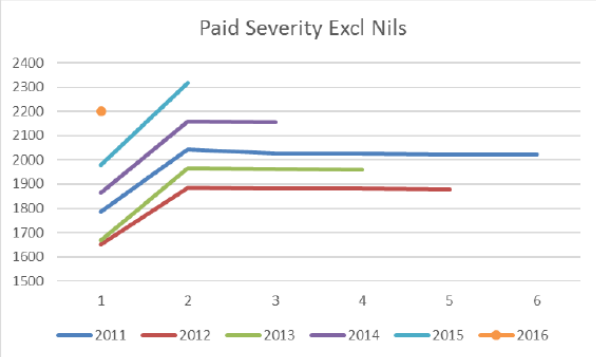


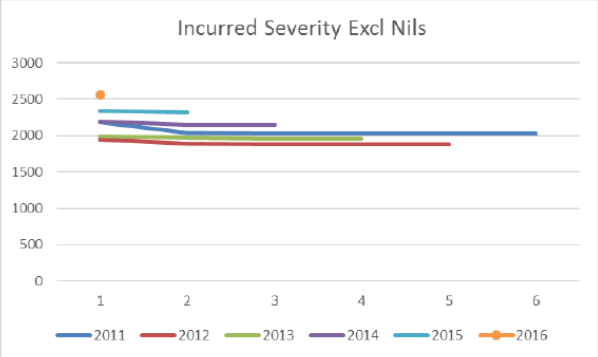
Third Party Damage (contd.)

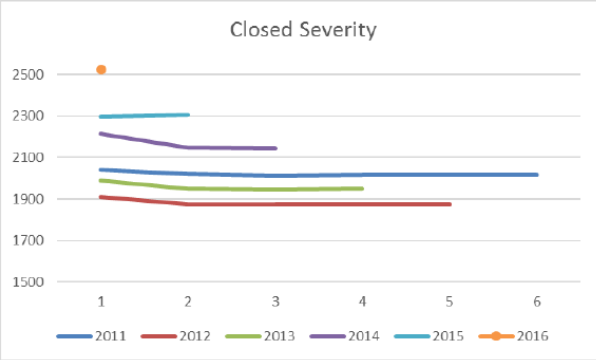


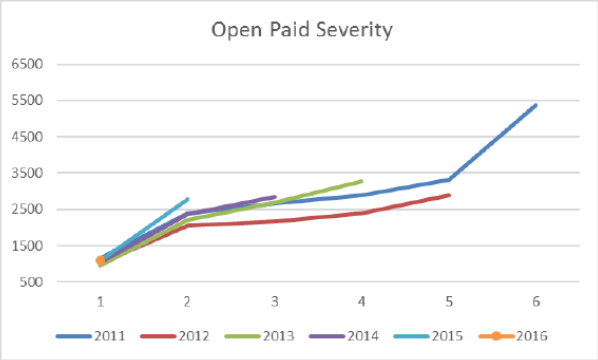


Own Damage


Paid Severity Excl Nils
2400
2300
2200
2100
2000
1900
1800
1700
1600
1500
1 2 3 4 5 6
2011 2012 2013 2014 2015 2016


Incurred Severity Excl Nils
3000
2500
2000
1500
1000
500
0
1 2 3 4 5 6
2011 2012 2013 2014 2015 2016


Closed Severity
2500
2300
2100
1900
1700
1500
1 2 3 4 5 6
2011 2012 2013 2014 2015 2016


Open Paid Severity
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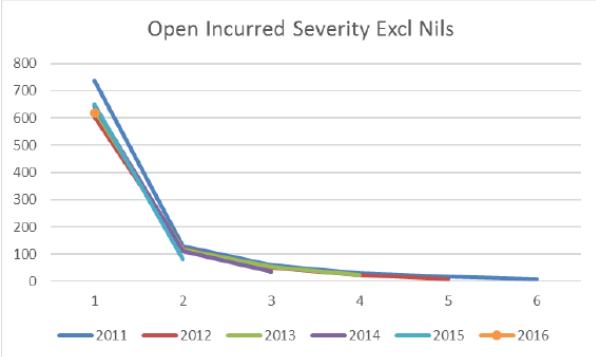
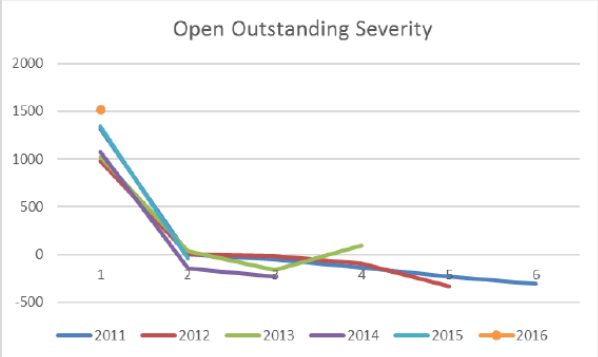
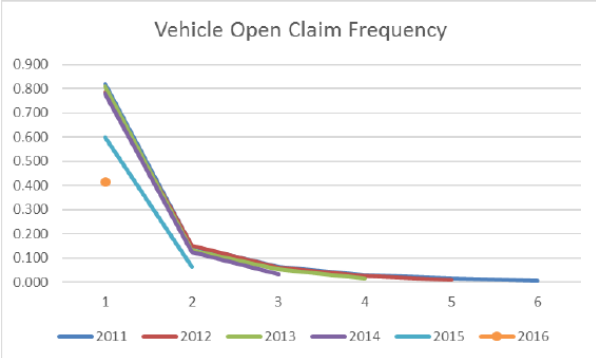
5500
4500
3500
2500
1500
500
1 2 3 4 5 6
2011 2012 2013 2014 2015 2016


Open Incurred Severity Excl Nils
800
700
600
500
400
300
200
100
0
1 2 3 4 5 6
2011 2012 2013 2014 2015 2016


Open Outstanding Severity
2000
1500
1000
500
0
-500
1 2 3 4 5 6
2011 2012 2013 2014 2015 2016


Vehicle Open Claim Frequency
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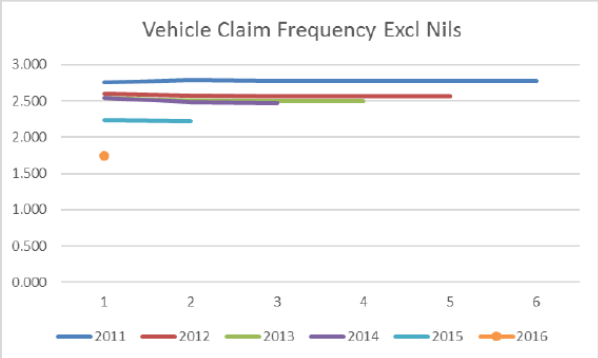
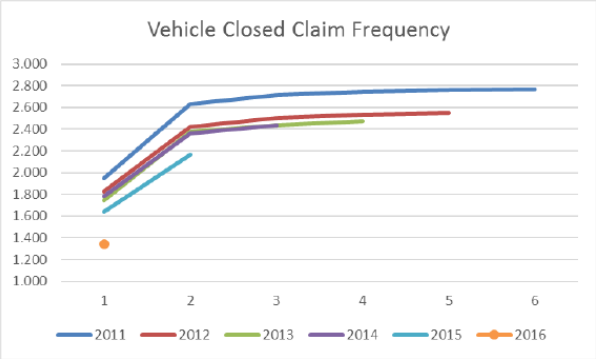
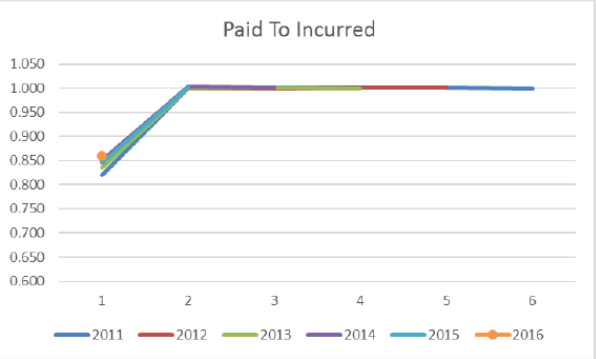
0.800
0.700
0.600
0.500
0.400
0.300
0.200
0.100
0.000
1 2 3 4 5 6
2011 2012 2013 2014 2015 2016

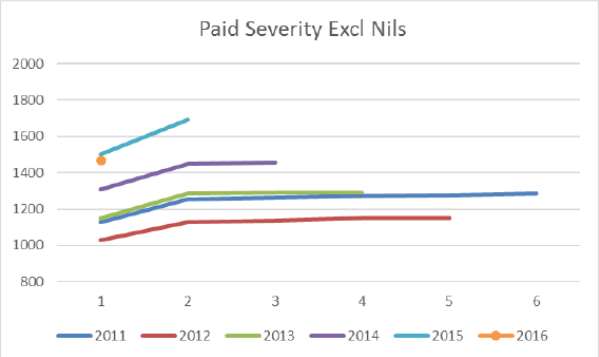

Vehicle Claim Frequency Excl Nils
3.000
2.500
2.000
1.500
1.000
0.500
0.000
1 2 3 4 5 6
2011 2012 2013 2014 2015 2016

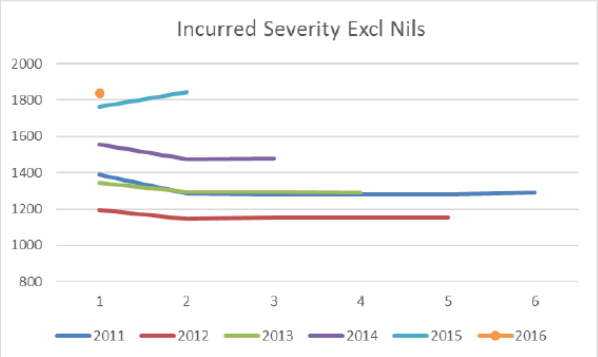
Own Damage (contd.)

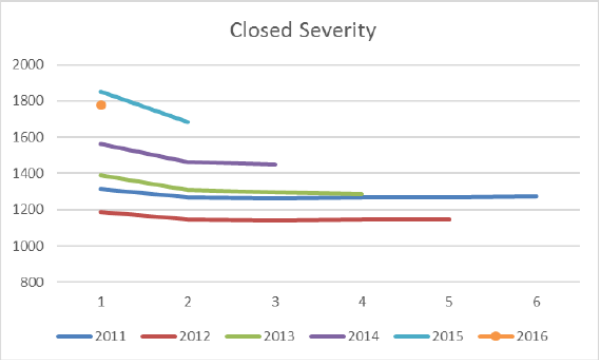


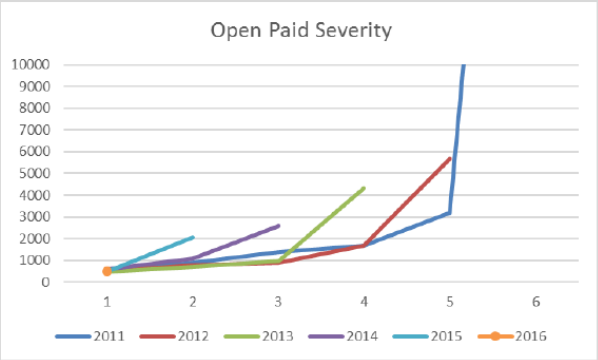


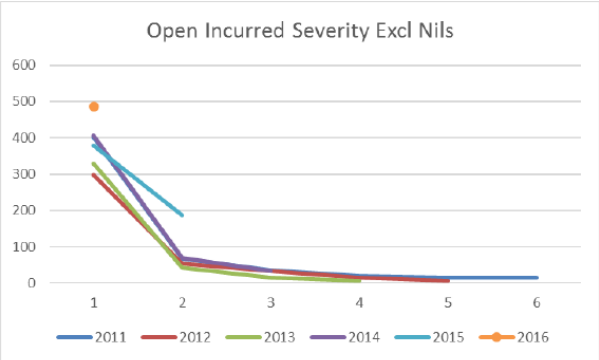
Other Damage/Fire/Theft (excl. Windscreen)

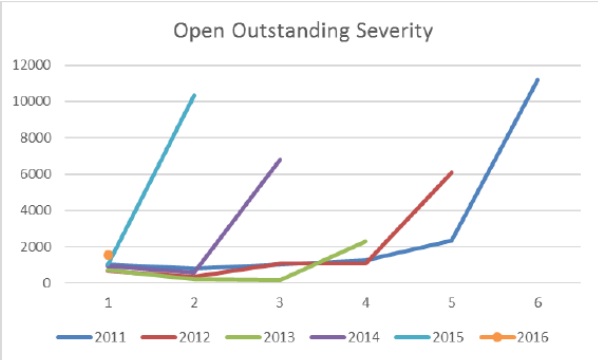


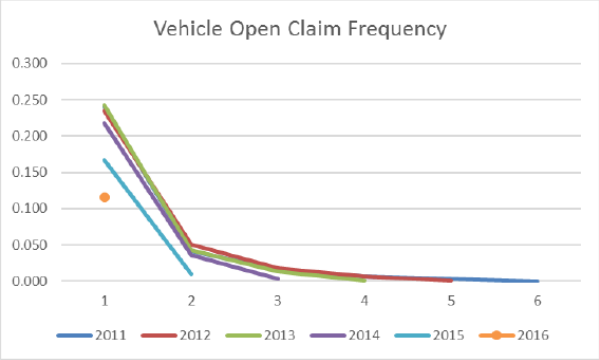


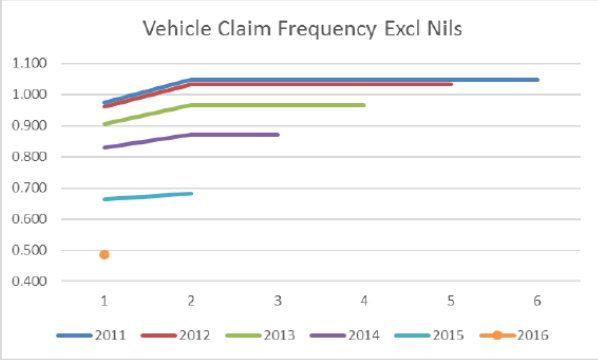




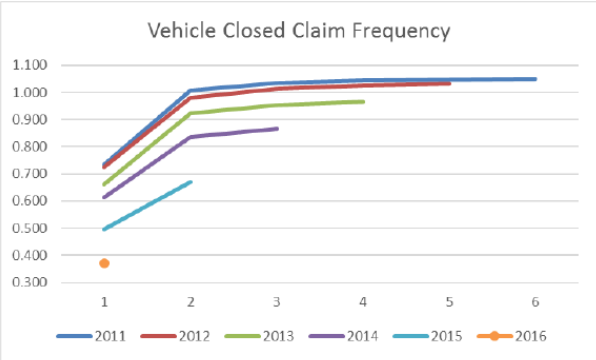


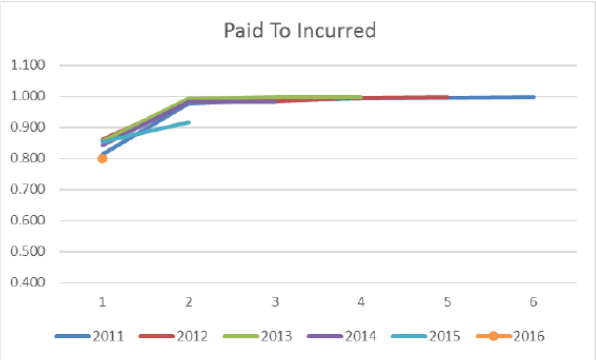




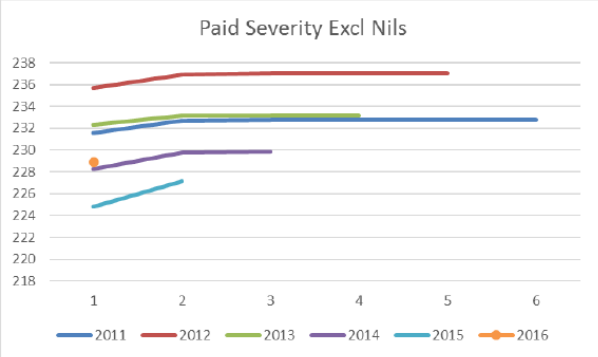


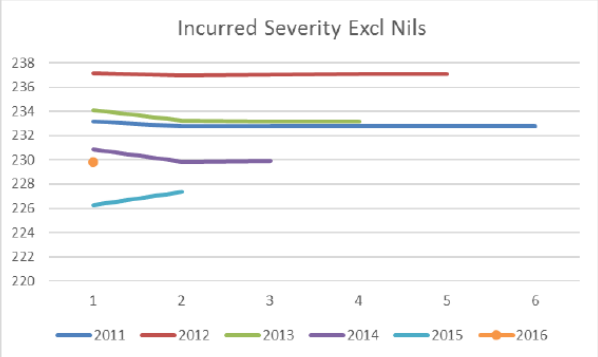
Other Damage/Fire/Theft (excl. Windscreen) (contd.)

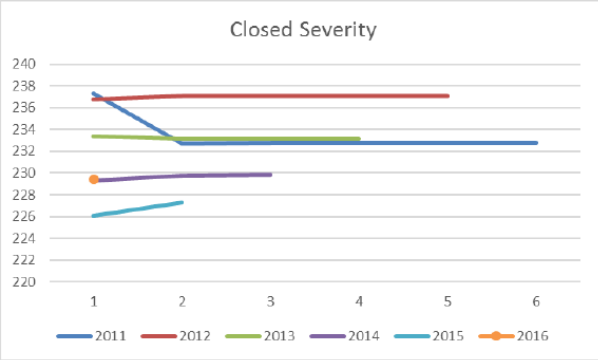


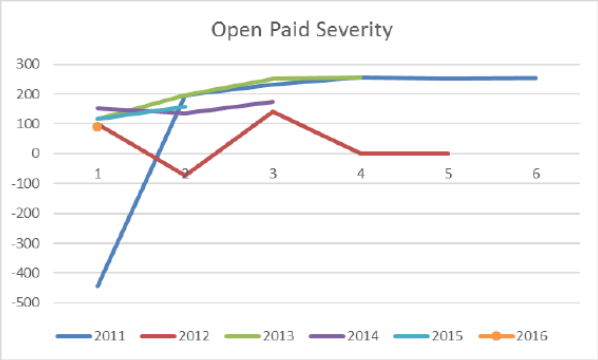


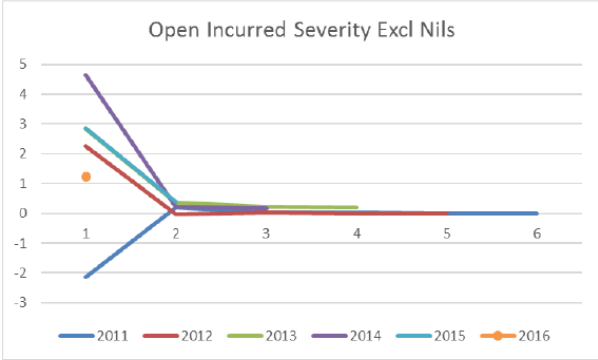
Windscreen

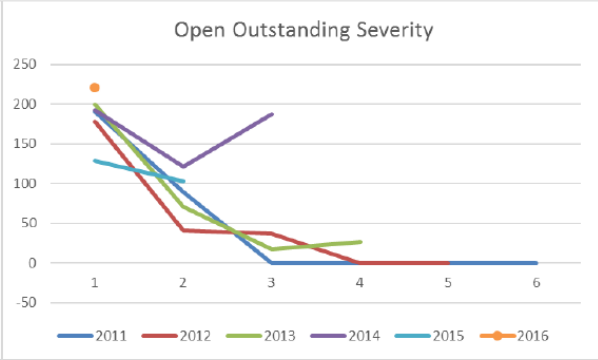

Paid Severity Excl Nils
238
236
234
232
230
228
226
224
222
220
218
1 2 3 4 5 6
2011 2012 2013 2014 2015 2016

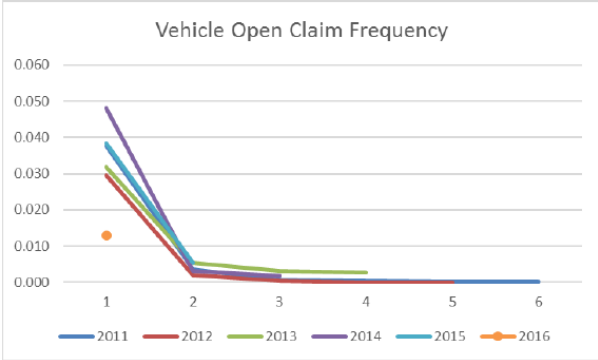

Incurred Severity Excl Nils
238
236
234
232
230
228
226
224
222
220
1 2 3 4 5 6
2011 2012 2013 2014 2015 2016

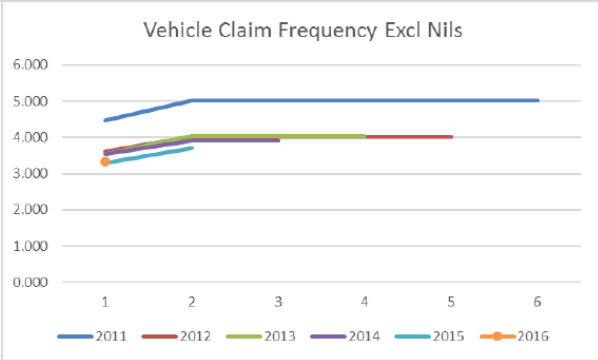

Closed Severity
240
238
236
234
232
230
228
226
224
222
220
1 2 3 4 5 6
2011 2012 2013 2014 2015 2016


Open Paid Severity
300
200
100
0
-100
-200
-300
-400
-500
1 2 3 4 5 6
2011 2012 2013 2014 2015 2016

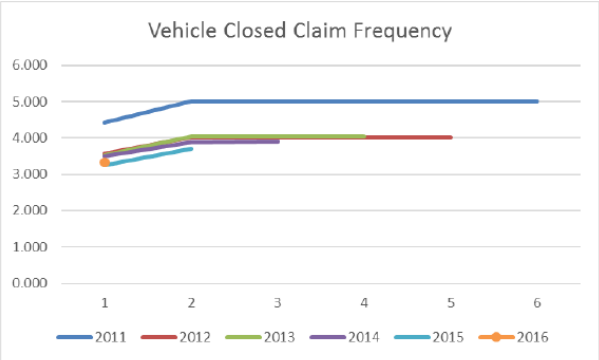

Open Incurred Severity Excl Nils
5
4
3
2
1
0
-1
-2
-3
1 2 3 4 5 6
2011 2012 2013 2014 2015 2016

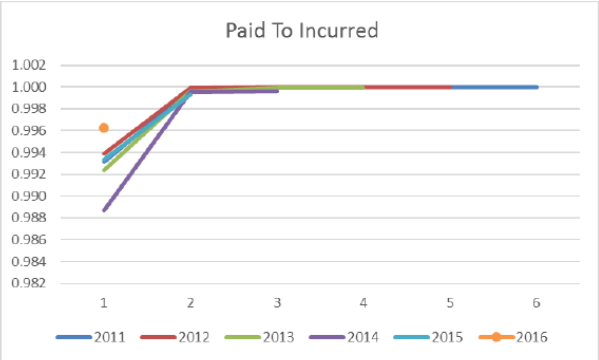

Open Outstanding Severity
250
200
150
100
50
0
-50
1 2 3 4 5 6
2011 2012 2013 2014 2015 2016

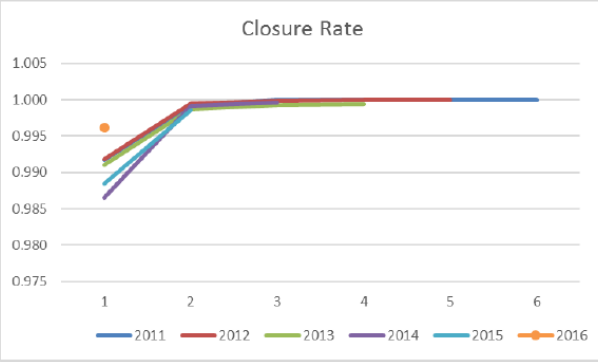

Vehicle Open Claim Frequency
0.060
0.050
0.040
0.030
0.020
0.010
0.000
1 2 3 4 5 6
2011 2012 2013 2014 2015 2016


Vehicle Claim Frequency Excl Nils
6.000
5.000
4.000
3.000
2.000
1.000
0.000
1 2 3 4 5 6
2011 2012 2013 2014 2015 2016

Windscreen (contd.)







Appendix 4 – Data Return Rates[17]

Third Party Injury (Uncapped)

Item	Description	Weighted Score
History	Accident Years (2011 to 2016)	91%
Dimensions	Quarterly Origin/Quarterly Development	91%
Triangulation	Paid Claims	91%
Triangulation	Incurred Claims	91%
Triangulation	Paid amounts on Closed Claims (excl. Nils)	91%
Triangulation	Paid amounts on Open Claims	91%
Triangulation	Incurred amounts on Open Claims	91%
Triangulation	Number of Claims Reported (incl. Nils)	80%
Triangulation	Nil Claims Numbers	80%
Triangulation	Number of Claims Reported (excl. Nils)	91%
Triangulation	Closed Claim Numbers (excl. Nils)	91%
Triangulation	Open Claims Numbers	91%

Third Party Injury (Capped at <=€250,000)

Item	Description	Weighted Score
History	Accident Years (2011 to 2016)	91%
Dimensions	Quarterly Origin/Quarterly Development	91%
Triangulation	Paid Claims	91%
Triangulation	Incurred Claims	91%
Triangulation	Paid amounts on Closed Claims (excl. Nils)	91%
Triangulation	Paid amounts on Open Claims	91%
Triangulation	Incurred amounts on Open Claims	91%
Triangulation	Number of Claims Reported (incl. Nils)	80%
Triangulation	Nil Claims Numbers	80%
Triangulation	Number of Claims Reported (excl. Nils)	91%
Triangulation	Closed Claim Numbers (excl. Nils)	91%
Triangulation	Open Claims Numbers	91%

Third Party Injury (Uncapped minus Capped at <=€250,000)

Item	Description	Weighted Score
History	Accident Years (2011 to 2016)	91%
Dimensions	Quarterly Origin/Quarterly Development	91%
Triangulation	Paid Claims	91%
Triangulation	Incurred Claims	91%
Triangulation	Paid amounts on Closed Claims (excl. Nils)	91%
Triangulation	Paid amounts on Open Claims	91%
Triangulation	Incurred amounts on Open Claims	91%

[17] Provided by Verisk

Triangulation	Number of Claims Reported (incl. Nils)	80%
Triangulation	Nil Claims Numbers	80%
Triangulation	Number of Claims Reported (excl. Nils)	91%
Triangulation	Closed Claim Numbers (excl. Nils)	91%
Triangulation	Open Claims Numbers	91%

Third Party Damage

Item	Description	Weighted Score
History	Accident Years (2011 to 2016)	91%
Dimensions	Quarterly Origin/Quarterly Development	91%
Triangulation	Paid Claims	91%
Triangulation	Incurred Claims	91%
Triangulation	Paid amounts on Closed Claims (excl. Nils)	80%
Triangulation	Paid amounts on Open Claims	80%
Triangulation	Incurred amounts on Open Claims	80%
Triangulation	Number of Claims Reported (incl. Nils)	80%
Triangulation	Nil Claims Numbers	80%
Triangulation	Number of Claims Reported (excl. Nils)	91%
Triangulation	Closed Claim Numbers (excl. Nils)	80%
Triangulation	Open Claims Numbers	80%

Own Damage

Item	Description	Weighted Score
History	Accident Years (2011 to 2016)	91%
Dimensions	Quarterly Origin/Quarterly Development	91%
Triangulation	Paid Claims	91%
Triangulation	Incurred Claims	91%
Triangulation	Paid amounts on Closed Claims (excl. Nils)	80%
Triangulation	Paid amounts on Open Claims	80%
Triangulation	Incurred amounts on Open Claims	80%
Triangulation	Number of Claims Reported (incl. Nils)	80%
Triangulation	Nil Claims Numbers	80%
Triangulation	Number of Claims Reported (excl. Nils)	91%
Triangulation	Closed Claim Numbers (excl. Nils)	80%
Triangulation	Open Claims Numbers	80%

Fire and Theft (excl. Windscreen)

Item	Description	Weighted Score
History	Accident Years (2011 to 2016)	91%
Dimensions	Quarterly Origin/Quarterly Development	91%
Triangulation	Paid Claims	91%
Triangulation	Incurred Claims	91%
Triangulation	Paid amounts on Closed Claims (excl. Nils)	80%
Triangulation	Paid amounts on Open Claims	80%
Triangulation	Incurred amounts on Open Claims	80%
Triangulation	Number of Claims Reported (incl. Nils)	80%
Triangulation	Nil Claims Numbers	80%
Triangulation	Number of Claims Reported (excl. Nils)	91%
Triangulation	Closed Claim Numbers (excl. Nils)	80%
Triangulation	Open Claims Numbers	80%

Windscreen

Item	Description	Weighted Score
History	Accident Years (2011 to 2016)	65%
Dimensions	Quarterly Origin/Quarterly Development	65%
Triangulation	Paid Claims	65%
Triangulation	Incurred Claims	65%
Triangulation	Paid amounts on Closed Claims (excl. Nils)	65%
Triangulation	Paid amounts on Open Claims	65%
Triangulation	Incurred amounts on Open Claims	65%
Triangulation	Number of Claims Reported (incl. Nils)	65%
Triangulation	Nil Claims Numbers	65%
Triangulation	Number of Claims Reported (excl. Nils)	65%
Triangulation	Closed Claim Numbers (excl. Nils)	65%
Triangulation	Open Claims Numbers	65%

Appendix 5 - Actuarial Methodology by Verisk

According to Verisk, the goal of the actuarial projections carried out is to provide a Best Estimate of the ultimate (i.e. final) cost of claims per policy (i.e. burning cost), ultimate number of claims per policy (i.e. claim frequency) and ultimate average cost per claim (i.e. claim severity).The Best Estimate is defined here as an expected value over the range of reasonably possible outcomes of future expected payments arising out of current incurred claims liabilities and claims handling expenses, both reported and unreported, subject to the following points:

The Best Estimate does:

- Not take account of the time value of money;
- Not include precautionary risk margins either explicit or implicit;
- Not incorporate unreasonable, unduly optimistic or pessimistic, or unrepresentative past development experience;
- Not include the emergence of events that may occur in the future but cannot reasonably be foreseen and are not reflected in historical company or available market data;
- Include an allowance for legislation enacted as of 31 December 2016;
- Not include an allowance for legislation not yet enacted as of 31 December 2016; and
- Where practicable include an allowance for known operational changes and recently enacted legislation that is not yet reflected in historical data though this is severely constrained because the aggregated data is sourced from a range of companies.

Classic chain ladder development triangles were constructed for the following metrics:

- –Incurred Loss
- –Paid Loss
- –Incurred Severity
- –Paid Severity
- –Claim Count Incurred
- –Claim Count Closed
- –Claim Frequency

The following Link Ratio Selection methods were considered:

- –Average Latest ‘X’ data points
- –Weighted Latest ‘X’ data points
- –Best X of Y (i.e. average of Y points excluding X highest and lowest values)
- –Seasonal Selections
- –Adjustment/ exclusion of extreme data points

The segmentation of the claims data into claims type was as follows:

- Third Party Injury Capped
- Third Party Injury Uncapped –Third Party Injury Capped
- Third Party Damage
- OD
- Fire/ Theft/ Other excluding Windscreen
- Windscreen

Grouping

As the purpose of the actuarial projection was to calculate best estimates of ultimate burning cost, frequency and severity for the 8 contributing undertaking as a whole, the simplest approach would have been to combine all claims data into a single large dataset. While the credibility of any analysis is increased by increased data, accuracy is increased by the homogeneity of the data.

In practical terms, while combining all undertakings' claims data into a single dataset would have provided the largest possible dataset, individual characteristics of specific undertakings around business mix and exposure would have been lost. Thus a balance between the two was sought by consolidating company data where this did not overly impact the perceived best estimate.

Incurred Losses (as the most stable metric) was used to group undertakings, while paid losses were also viewed for contrast. Two methods were considered:

- Link Ratio comparison to Industry at each evaluation data point;
- Severity comparison to Industry at each evaluation data point.

For each comparison method each company was evaluated whether they were above or below the industry average, companies with similar numbers of evaluation points above/below the industry were grouped. Where grouping did not significantly impact the estimates (using paid and incurred development methods) the industry was considered collectively. Subsequent to groupings being made the development triangles were reanalysed with respect to the groups.

Appendix 6 - Projection Methods and Assumptions

Tail Factor Selection

Methods based on historical development of prior periods are limited to the duration of that history, six years in the case of this scheme at inception. Changes in Paid amounts may extend beyond that limit, for example Third Party Injury claims typically extend beyond six years. Tail factors can be applied to adjust for what happens beyond the history. Curve fitting may be used to spread the tail factor among link ratios over an extended period that more realistically reflects the duration until all of the Ultimate value paid. While Exponential Decay or other statistical distributions may be useful our preference was to use a manual 'hand-smoothing' approach. The size and distribution of the tail factor is a judgement in any event.

Expected Claims

- Projected Claims using Development Method
- Initial Selected: weights of paid / incurred, based on the stability of the development factors
- The initial selected creates estimated: Burn Costs, Loss Ratios, Severity
- The selected estimate is then used as the model basis

Modelled Prior

- Least squares approach of the natural log of the target estimate
- Seasonality Allowance
- Experience selection allows for the exclusion of immature/unstable data points

Bornhuetter-Ferguson Method

- Losses are added to the a priori modelled losses multiplied by an estimated percent unreported based on the development triangles
- Separate paid & reported estimates

Frequency / Severity Method

- Projected claims based on development triangles
- Initial Selected : weights of reported / closed claim counts
- Initial Selected : weights of paid / incurred severities
- Creates estimated: Frequencies, Loss Ratios, Severity

Modelled Severity/ Frequency

- Least squares approach of the natural log of the target estimate
- Seasonality Allowance
- Experience selection allows for the exclusion of immature/unstable data points
- Ultimate Claim Count based on weighted initial selected and modelled.

Final Selection

- Weighted selection of:
    - Latest Incurred
    - Developed Incurred

- Developed Paid
- Initial Selected
- Bornhuetter-Ferguson Paid/Incurred
- Frequency/Severity

	Third Party Injury Capped	Third Party Injury Uncapped - Capped	Third Party Damage
Projection Basis	Quarterly/ Quarterly	Quarterly/ Quarterly	Quarterly/ Quarterly
Averaging Period	Volume Weighted Latest 12	Volume Weighted Latest 24	Volume Weighted Latest 8
Grouping	3x Groups, each Group >1 company, based on Incurred development link ratio method	1x Group Due to low volume of data, to preserve credibility	1x Group Immaterial effect with groups
Tail (Years 6+)	Incurred 0%; Paid 3%, 5%, 5%	Incurred 1%; Paid 0% (Paid not used)	Incurred 0% Paid 0%
Initial Selected	Incurred/Paid CL 2011-14 Inc 2015-16	Incurred CL 2011-16	50:50 Incurred/Paid 2011-2016Q3, Inc 2016Q4
BF Prior Basis	Modelled Burning Cost Experience Base 2012Q1-2016Q2 Q4 seasonality	Modelled Burning Cost Experience Base 2011Q2-2014Q4 Q4 seasonality	Modeled Severity Experience Base : 2014Q1-2016Q2 Q4 seasonality
Final Method Selection			
2011	Incurred Chain Ladder	Incurred Chain Ladder	Incurred Chain Ladder
2012	Incurred Chain Ladder	Incurred Chain Ladder	Incurred Chain Ladder
2013	50:50 Incurred/Paid CL	Incurred BF	50:50 Incurred/Paid CL
2014	50:50 Incurred/Paid CL	Incurred BF	50:50 Incurred/Paid CL
2015	Incurred Chain Ladder	Incurred BF	50:50 Incurred/Paid CL
2016	Incurred BF	Incurred BF	Q1-Q3 50:50 Incurred/Paid CL Q4 BF Incurred
Claim Count - Initial Selected	Reported Claims	Reported Claims	50:50 Reported:Closed 2011-2012 Reported 2013-2016
Modelled Claim Count	Experience Base 2012Q1-2016Q2 Q1 seasonality	Experience Base2013-14 Q4 seasonality	Experience Base: 2014Q1-2016Q2 Q4 & Q1 Seasonality
Claim numbers	Incurred Chain Ladder reported except 2016Q4 weighting to modelled for 2 groups	2011-12 Inc CL reported, 2013-14 50:50 Inc CL: Modeled 2015-16 Modeled	2011-12 50:50 Reported:Closed CL 2013-2016Q2 Reported CL 2016 Q3 19:1 Reported CL:Modeled 2016 Q4 9:1 Reported CL:Modeled

	Own Damage	Fire/Theft/Other except Windscreen	Windscreen
Projection Basis	Quarterly/ Quarterly	Quarterly/ Quarterly	Quarterly/ Quarterly
Averaging Period	Volume Weighted Latest 8 3:6 Link Ratio Seasonal Adjusted	Volume Weighted Latest 8	Volume Weighted Latest 8
Grouping	1x Group Immaterial effect with groups	1x Group Immaterial effect with groups	1x Group Immaterial effect with groups
Tail (Years 6+)	Incurred 0% Paid 0%	Incurred 0% Paid 0%	Incurred 0% Paid 0%
Initial Selected	50:50 Incurred/Paid CL	2011-2014 50:50 Incurred:Paid CL 2015-2016Q3 67:33 Incurred:Paid CL 2016Q4 Incurred CL	50:50 Incurred/Paid CL
BF Prior Basis	Modelled Severity Experience Base 2014Q1-2016Q2 Q4 & Q1 seasonality	Modelled Severity Experience Base 2014Q1-2016Q2 Q4 seasonality	Modelled Severity Experience Base 2013Q3-2015 Q4 seasonality
Final Method Selection			
2011	Incurred Chain Ladder	Incurred Chain Ladder	Incurred Chain Ladder
2012	Incurred Chain Ladder	Incurred Chain Ladder	Incurred Chain Ladder
2013	50:50 Incurred:Paid CL	50:50 Incurred/Paid CL	50:50 Incurred:Paid CL
2014	50:50 Incurred:Paid CL	50:50 Incurred/Paid CL	50:50 Incurred:Paid CL
2015	50:50 Incurred:Paid CL	50:50 Incurred/Paid CL	50:50 Incurred:Paid CL
2016	Q1-Q3 50:50 Incurred/Paid CL Q4 BF Paid	Q1-Q3 50:50 Incurred/Paid CL Q4 BF Incurred	Q1-Q3 50:50 Incurred/Paid CL Q4 BF Paid
Claim Count - Initial Selected	2011-2013 50:50 Reported:Closed CL 2014-2016 Reported CL	Incurred Claims CL	2011-14 50:50 Reported:Closed CL 2015-2016 Reported CL
Modelled Claim Count	Experience Base: 2014Q1-2016Q2 Q4 & Q1 Seasonality	Experience Base: 2014Q1-2016Q2 Q4 & Q1 Seasonality	Experience Base: 2014-2016 Q4 Seasonality
Claim numbers	2011-2013 50:50 Reported:Closed CL 2014-2016Q2 Reported CL 2016 Q3 19:1 Reported CL:Modeled 2016 Q4 9:1 Reported CL:Modeled	2011-2016Q2 Reported CL 2016 Q3 19:1 Reported CL:Modeled 2016 Q4 9:1 Reported CL:Modeled	2011-14 50:50 Reported:Closed CL 2015-2016 Initial Selected:Modeled