

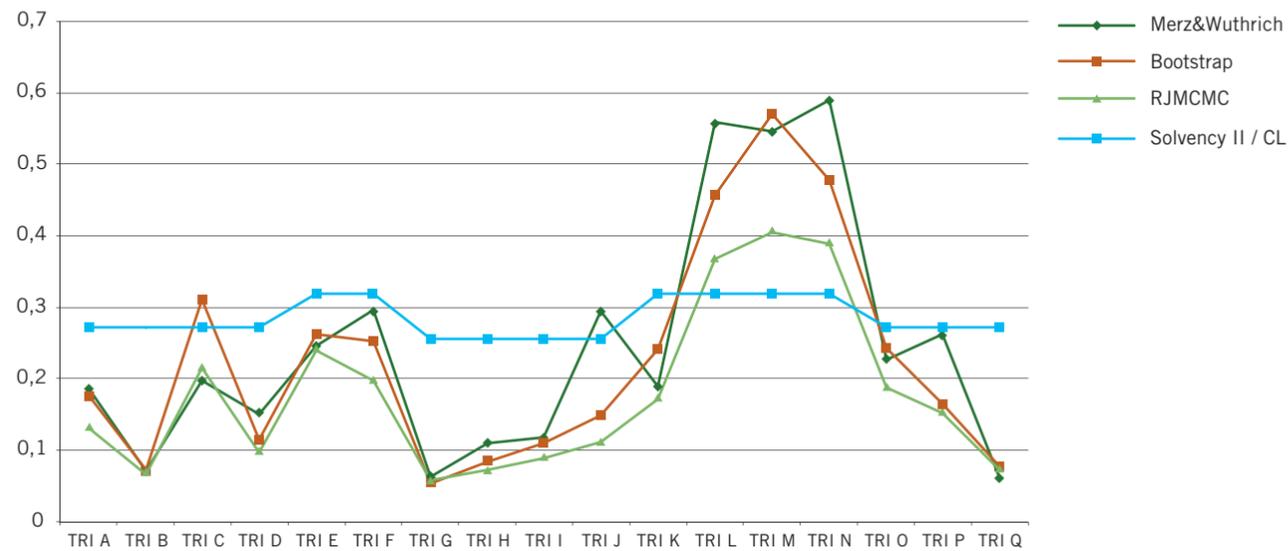
Solvency II has set the one year volatility as the new valuation standard. How can you deal with it?

'I have simply applied the "Actuary in the box" method to the RJMCMC algorithm as exposed in the paper from D DIERS (2010): Stochastic re-reserving in multi-year models. This is the method also traditionally used for getting Bootstrapping results.'

Have you applied RJMCMC to the "real world"? Does it help save capital for companies?

'I have applied the 1 year RJMCMC to a set of 17 market triangles kindly provided by the Belgium Supervisor, and then compared it to the commonly used methods for the estimate of the reserving risk: Solvency II standard formula, Chain Ladder/ Merz & Wüthrich, and Bootstrap/Actuary in the box.'

The graph below shows the comparison of the capital requirements calculated with these methodologies applied to the seventeen triangles (listed from A to Q):



Graph representing capital as a percentage of the reserves for the different triangles

The table below represents the capital (as percentage of the mean of the reserves) obtained over the seventeen triangles and for each method. On the second row, a comparison is done with the results obtained with Solvency II.

	Mack	Bootstrap	RJMCMC	Solvency II
Capital Mean of reserves	23 %	20 %	16 %	28 %
Differences with Solvency II	- 20 %	- 29 %	- 42 %	-

Table summarizing the mean of capital obtained over the 17 triangles for the different methods

The capital saved with the RJMCMC method is quite significant: 42% capital saved in comparison to the application of the Solvency II standard calibration, or 29% capital saved compared to the Bootstrap/Actuary in the box method, and again 20% capital saved compared to the Chain Ladder/Merz & Wüthrich method.

As a conclusion, would you say RJMCMC will revolutionize the science of reserving?

'It is perhaps too early to state that it will supersede the well-established chain ladder or bootstrap methods. There are different limitations that have to be overcome:

- The high number of iterations which makes it sometimes difficult to interpret;
- Not all data are fitting an over dispersed Poisson;
- The difficulties for non-actuaries to understand part of the method.

But all insurers understand well that applying different methods depending on the amount of data available, namely on the left or right part of the triangle, makes sense and should return better results. However explaining in simple terms such a complex methodology will be key to its adoption in companies. And it will require efforts of actuaries to make the methodology accessible to all concerned parties.'

Vehicle telematics will change the world of motor insurance pricing

By Peter Franken and Niels van der Laan

Without a doubt vehicle telematics will have a big effect on the insurance industry. Actually, it already has. But before we go further into details, let us first explain what we mean by telematics. Wikipedia defines telematics as typically being any integrated use of telecommunications and informatics: "The technology of sending, receiving and storing information via telecommunication devices in conjunction with affecting control on remote objects". Strictly stated, the term has evolved to refer to the use of such systems within road vehicles, in which case the term vehicle telematics may be used.

So how do telematics already affect our daily lives? In the broadest definition of tracking remote objects, receiving and storing information, the use of social media like Facebook/Twitter and also the use of a cell phone is already well established in our daily routines. Many people are willing to tell the world where they are and what they do. Even if people don't share it deliberately, information is collected and used for all kind of commercial purposes (think for instance of the advertisements on Google which are based on your search history).

Open to sharing

Although privacy is a hot topic, people share more and more of their personal life to the outside world. We believe this is a trend that will continue. Within 10 years many of us will probably be sharing information even more easily than today. And even though there is also a lot of resistance to these developments, in general we are getting more used to the fact that we can be followed and

tracked anywhere. With sufficient guarantees that our information is not 'misused', we think that many of us will be open to sharing certain personal information such as our location at any moment in time.

Back to vehicle telematics: what does this trend mean in relation to insurance, and more specifically, motor insurance? Are people willing to share information about their driving behaviour in return for a lower price? How rapidly will telematics be used to influence current motor insurance pricing?

Trust

In our view, the market will move in the direction that telematics becomes commonly used in non-life pricing. However the question is how rapidly people are willing to embrace vehicle telematics. It's not the technical side that is the critical factor for the speed at which this evolves. We are already technically capable of implementing it. If policyholders are willing to share more detailed

information on where, when and how they drive, insurers will be able to take that into account in their tariffs resulting in more differentiation with reduced prices for the better drivers and increased prices for the malicious ones. In our view the critical factor for success of vehicle telematics will first of all depend on the trust people have in insurance companies not misusing the data and secondly the difference in price (partly as a trade-off for the risk that the insurer will actually misuse this trust).

Common practice

As a result of the financial crisis, trust in the financial industry

including insurers is low, which takes time to overcome. Although in the US and UK the market for telematics is slowly developing, especially for specific groups of insured such as younger drivers, we don't expect telematics to take off significantly before trust is restored. In the meantime each insurer will need to form a view on how and when to start using the existing potential of vehicle telematics in their day to day business. In our view it is not so much a question of whether telematics will become common practice in motor insurance pricing, but when.



Peter Franken is Principal & Consulting Actuary at Milliman and Niels van der Laan is Consulting Actuary at Milliman