

insurance matters

Focusing on the non-life industry

Taking reserving into
the 21st century

The impact of
aggregators on
personal lines pricing

Commercial lines
pricing – developing
a framework to
maximise value


Investment strategy
for insurers

Advances in
flood modelling

Current issues in
UK asbestos



If you would like to discuss any issues raised in this publication please contact Nick Hall – nick.hall@watsonwyatt.com
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Welcome to insurance matters

Welcome to the third edition of 'insurance matters'. This edition follows hot on the heels of the second edition, reflecting the wide range of issues currently facing our non-life Insurance and Financial Services clients and the breadth of expertise in our team.

More traditional actuarial issues such as the reserving cycle, reserve uncertainty, and the impact of Solvency II are discussed in our article on 21st century reserving along with the latest developments in mesothelioma claims which are highlighted in our 'Current issues in UK asbestos' article on page 24.

Over the last 15 years, actuaries have become involved in a wide range of non-life activities: advances in flood modelling techniques and commercial lines pricing to give companies a competitive advantage are two areas which are highlighted here.

Our Strategy team within Insurance and Financial Services can deliver practical, hard-edged strategic advice to clients dealing with some of the other issues addressed in this publication – such as the impact of aggregators on the personal lines market.

In addition, by combining our non-life insurance expertise with other practice areas such as Investment consulting, we feel that we are uniquely placed to help non-life insurers deal with some of the impacts of the recent financial crisis, and in particular to develop best practice approaches to the challenges of developing a professional investment strategy.

We hope you enjoy reading this edition of 'insurance matters' and would welcome your comments on any subjects you would like us to address in future issues.

Contents

- | | | | |
|-----------|--|-----------|---|
| 6 | Taking reserving into the 21st century | 17 | Investment strategy for insurers |
| 10 | The impact of aggregators on personal lines pricing | 20 | Advances in flood modelling |
| 14 | Commercial lines pricing – developing a framework to maximise value | 24 | Current issues in UK asbestos |

Preparing for the challenges of Solvency II

Graham Fulcher offers some selected highlights from a recent Watson Wyatt survey

Prior to the release of the latest round of Consultation Papers from CEIOPS, Watson Wyatt conducted a survey of non-life insurance practitioners to gauge how companies are preparing for Solvency II. Some selected high-level insights from the survey are as follows:

Risks in the implementation of Solvency II

91 per cent of respondents felt that supervisory authorities being inadequately staffed or trained was a likely risk to the implementation of Solvency II while 89 per cent were concerned that politics (and perhaps the impact of recent financial market events) would interfere with the setting of appropriate standards. Another key concern for our respondents was the public disclosure requirements of Pillar 3 with 88 per cent believing it likely

that the public would not understand the information disclosed.

Preparation for Solvency II

A significant majority of 89 per cent of responding firms have made some progress towards estimating the financial impact of Solvency II under the QIS4 proposals (with just under half of these having completed the process altogether).

34 per cent of respondents have already established a dedicated Solvency II team with a further 41 per cent having made some or significant progress towards establishing such a team.

Perhaps surprisingly 63 per cent of firms reported that they had made some progress in building data warehouses to prepare for Solvency II with more than 35 per cent of respondents having made significant progress (or even completed the process).

By contrast only 9 per cent of companies have made significant progress on developing detailed Solvency II implementation plans, with more than 68 per cent not having begun to develop detailed plans

despite having identified the need to do so. 43 per cent of companies have not yet developed high level plans.

Obstacles for gaining internal model approval

We asked our respondents which of the six internal model tests and standards they considered would be obstacles to obtaining internal model approval.

Our respondents viewed producing the required level of documentation as the most difficult obstacle, with 45 per cent reporting it as very difficult and 39 per cent as difficult.

All of the tests represent some form of challenge with none of our respondents describing any of the six tests as very easy and with only one of the standards (the requirements for profit and loss attribution) viewed as quite easy by more than 25 per cent of respondents.

The statistical quality test most divided opinion among our respondents, with 30 per cent describing it as very difficult (second only to the documentation test) but

23 per cent as quite easy (second only to the profit and loss attribution standard).

By contrast opinions on the difficulties of the 'use' test and calibration test were much less divided (and in fact identical) with 65 per cent of respondents expressing the view that these requirements were quite difficult and only 11 per cent as very difficult.

Other key challenges of Solvency II

Of other identified challenges likely to be faced, the most difficult challenge, identified by 77 per cent of survey respondents, was in using ORSA to drive strategic business decisions. This was followed by integration of the risk management function and public disclosure of the solvency and financial condition report; 64 per cent and 55 per cent, respectively.

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Unravel the complexity

insurance matters in the numbers

60%

A recent Lloyd's analysis showed initial reserve estimates for casualty business in underwriting years 1998 to 2001 deteriorated by as much as 60 percentage points.

See page 8

3-5%

A conversion rate for an individual insurer [on an aggregator website] may be less than 1 per cent overall, although it may be 3 to 5 per cent in the more competitive segments.

See page 11

4-5 years

It might take a few years before there are sufficiently credible volumes [of data] to perform an in-depth analysis, but the bottom line is that the same problem will persist in four to five years time if the process is not started.

See page 15

£5 million

On a £1 billion asset base, adding 0.5 per cent to annual performance is worth £5 million each year, which would justify adding quite a lot of resource to help achieve it.

See page 18

A new capital modelling tool designed specifically for the non-life insurance industry

Watson Wyatt has called on its extensive experience in strategic capital modelling to create a completely new version of Simulum, a practical, cost-effective solution for the management and analysis of risk. Fast to implement and intuitive to use, Simulum will efficiently and rapidly deliver capital modelling reports that support vital business decisions and enable compliance. Complexity suddenly became simpler.

Simulum

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Taking reserving into the 21st century

Sanjiv Chandaria and Graham Fulcher
discuss developments in reserving practices.



Graham Fulcher

The presence of actuaries in the many and varied aspects of non-life insurance has grown exponentially over the last 15 years. Non-life actuaries are now involved in reserving, capital modelling, pricing, reinsurance modelling and independent expert projects across the London, commercial lines and personal lines markets.

Much of that growth has been rooted in reserving, which is still the 'bread and butter' for non-life actuaries. The use of actuaries in either setting reserves or reviewing management estimates is now considered best practice and is 'embedded' into the industry. At Lloyd's, managing agencies have been required to obtain Statements of Actuarial Opinion (SAOs) for each managed syndicate since 1996, with signing actuaries opining that the agency best estimates are at least as high as their own best estimate. Solvency II envisages reserving as one of the key responsibilities of the new Actuarial Function (AF).

This article considers the key issues affecting the generally accepted actuarial approaches to reserving at the current time and how these may be addressed over the coming years.

Current, generally accepted actuarial approach to reserving

Over the years, a more or less standard approach to reserving has developed in the non-life actuarial profession involving:

- chain ladder and Bornhuetter-Ferguson approaches for each class, with the latter requiring information on ultimate loss ratios for older years and subsequent rating and claims inflation changes to the current time
- claims frequency and average cost per claims methods for some high-frequency personal lines classes
- exposure-based approach for new, catastrophic, very large or latent claim types
- benchmarking – particularly for classes where data may be sparse or volatile.

Reserving in the 21st century

As we shall see in this article, a number of challenges to this standard approach have arisen in recent years and, in particular, to its ability to assist companies in managing the insurance cycle. In addition, the 21st century gives both opportunities and requirements for new reserving methods to be developed: opportunities from better data capture and greater computing

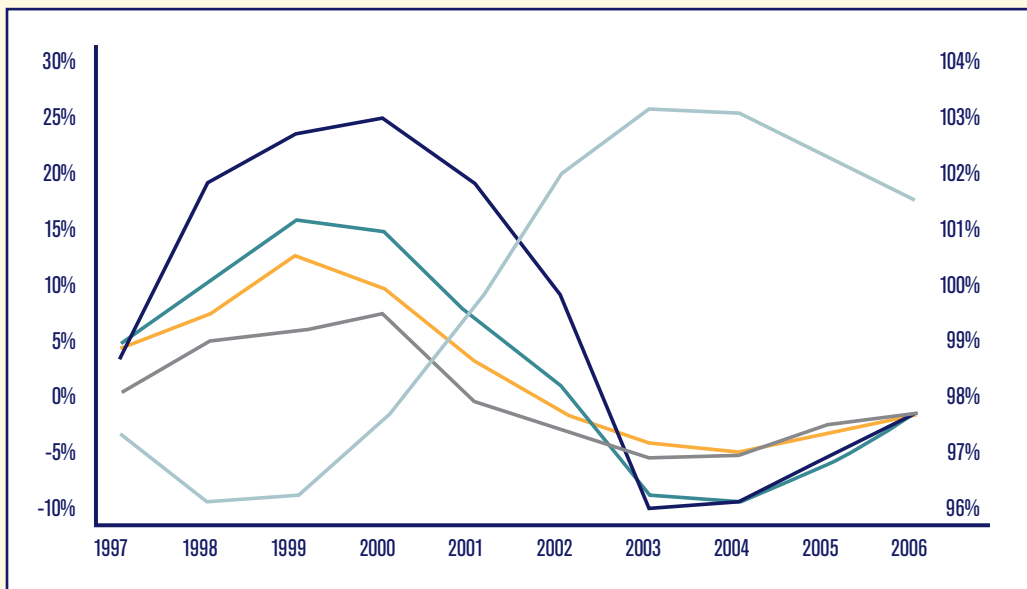
power and challenges, not least from the requirements of Solvency II and eventually IFRS.

One of these challenges has been material adverse reserve run-offs for which the business consequences are potentially immense. Assuming booked reserves bear some relation to actuarially estimated reserves, this could potentially lead to, for example, material misstatement of accounts (although this is really the responsibility of management and auditors), incorrect pricing decisions, insufficient capitalisation under ICAS/Solvency II and senior management bonuses being overpaid.

So, what could be done to improve the reserving process and achieve more reliable best estimates earlier? In the UK, much valuable research work has been undertaken by the General Insurance Reserving Taskforce (GRIT) which published its report in March 2006, and since then by the Reserving Oversight Committee (ROC) and its various working parties. The ROC work is still ongoing and it could be some time before concrete conclusions are reached (if that is possible).

This article briefly describes a few key issues and some personal thoughts as to how existing actuarial methods may be improved in the future to address them.

Figure 1 | Changes in claims incurred between initial and last (2006) estimate, as a percentage of net premiums earned



- Medical malpractice
- Worker's compensation
- Insurance price¹ (right hand scale)
- Commercial auto
- Commercial multiple peril

¹ Price for US average commercial insurance, source Goldman Sachs, 1995 basis
Source: Best's Aggregates & Averages, Property/Casualty, 2007 edition

Reserving cycle

This is the feature where initial reserve estimates set at the end of a given year tend to deteriorate during the soft part of the underwriting cycle and vice versa during the hard part. One of the most recent public analyses of this feature was undertaken by AM Best and is illustrated in Figure 1.

Reserve deteriorations during the soft market can be quite significant. For example, a recent Lloyd's analysis showed initial reserve estimates for casualty business in underwriting years 1998 to 2001 deteriorated by as much as 60 percentage points. Reserving cycles are particularly important at the current time where we are towards the bottom of the cycle.

The analogous adverse run-off of US long tail reserves from the last soft market led to significant bad publicity for the actuarial industry. For example, S&P produced the report 'Insurance actuaries – A Crisis in Credibility' in November 2003 and stated, "actuaries are signing off on reserves

that turn out to be wildly inaccurate. It's an abysmal track record."

Reserve cycles have been partly attributed to development tails being underestimated in soft markets and vice versa in hard markets. A pragmatic solution, therefore, might be to select development assumptions for the current soft market based on previous soft markets. However, this will require many years of data (which may not exist) in order to produce credible results.

An alternative, longer-term solution could be to adjust the initial reserve estimate using a bespoke reserving index. This index would:

- start with existing rating indices
- next, address some of the known issues there with underestimating the amplitude of the cycle (for example, due to not considering terms and conditions and the effect of new business)
- then, address issues specific to reserving – such as the effects of changes in limits and deductibles

and in terms and conditions as well as claims handling practices on tail length.


This index could then be used to adjust prior loss ratios and development factors from their through cycle average levels.

Reserve uncertainty

More attention has been paid to reserve uncertainty in recent years due to the need to:

- estimate reserve risk for ICAs
- estimate reserve ranges for year-end accounts
- communicate its impact more clearly as per new actuarial guidance (GN 50).

Most actuaries use the Bootstrapping and/or Mack methods to quantify reserve uncertainty. This tends to be because they are the easiest to implement and communicate. However, it is questionable to what extent they properly capture all the potential sources of uncertainty in the categories of process, parameter, and model risk, as well as the risk of



systemic claims emergence. Plenty of research has been undertaken but more reliable methods need to be developed as 'actuarial technology' improves.

Solvency II will place greater emphasis on understanding uncertainty, not least as the current framework directive requires technical provisions to be a best estimate, defined as a probability weighted average of future cashflows (however remote and therefore including extreme events such as latent claims emergence).

This may require that reserving starts to follow the same kind of approach used for projecting future underwriting results including a frequency/severity approach for simulating extreme events. Arguably, current reserving uncertainty methods are more analogous to a simulation of attritional claims only (or at least only of extreme uncertainty to the limited extent it is captured in observed data).

Additionally, Solvency II requires a discounted value of these future cashflows. This, particularly in the London market, will require greater attention to be paid to projections of paid claims. In addition, this is likely to require greater liaison between actuarial and claims departments as the uncertainty in the timing (even more so than the quantum) of claims payments will be largely driven by a small number of large claims.

Use of benchmarks

New classes of business or classes with little credible data are often reserved using benchmarks in the form of loss ratios, factors to ultimate or IBNR to outstanding ratios. The benchmarks may be derived from a consultant's experience on similar projects or market data sources (for example, FSA returns, Lloyd's risk code data or Reinsurance Association of America tables).

Benchmarks are valuable but should be used very carefully. The use of benchmarks can be improved by gaining a better understanding of the nature of the business underlying the benchmark and comparing that to the class of business being reserved. Actual versus expected comparisons should also be undertaken and will highlight any shortfalls in the benchmarks and enable adjustments to be made in the future. Of course over time, as more data becomes available for the class itself, the actuary should consider moving over to the use of the class data. Reliance on benchmarks could go on for too long; in particular, Lloyd's commented recently that signing actuaries rely too much on benchmarks when reserving for the US Surplus Lines Trust Funds even though there is now over 12 years claims experience available.

Summary

Reserving has been the 'bread and butter' of non-life actuaries for many years. Whilst actuaries are increasingly involved in other areas, actuarial involvement in reserving will continue to be substantial in the future. However, issues such as the reserving cycle, reserve uncertainty and Solvency II mean that 'actuarial technology' will need to improve reserving methods and data collection procedures and there will need to be consequential changes to systems in order to meet the needs of the 21st century.

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The impact of aggregators on personal lines pricing

Michael Garner looks at the rise of aggregators in recent years and how insurers should be adjusting their pricing processes to allow for this new environment.

The first insurance aggregator or price-comparison site, confused.com, was launched in 2002. Aggregators have since gone on to revolutionise the sale of insurance products, with the impact being most keenly felt in motor insurance. This is having an impact on the pricing and business strategy for insurers. Moreover, it is vital for all insurers operating in the market to consider the changes brought about by aggregators in order to compete in this new environment.

Current aggregator models

Aggregators allow individuals to obtain a large number of insurance quotes from different insurers by entering their requirements only once. As such, aggregators are essentially a new type of intermediary for insurers.

For many personal lines insurers, this means that the rise of aggregators represents a step back towards the broker model common before the growth in direct sales in the 1980s. While a broker would traditionally have shouldered some of the policy processing and claims management, an aggregator is simply charging a fee for introducing the insurer to the customer. Many insurers have naturally been left wondering whether the potential pool of customers that can be attracted through an

aggregator is worth the cost of sourcing this business.

Interestingly, this means that there may even be an opportunity for traditional brokers to compete with the aggregators. They may be able to search for a range of quotes for their clients, and offer the insurer some additional value (relieving some of the expense of policy writing or claims management, for example). Alternatively, existing aggregators may grow more into the role of traditional brokers, offering more than just an introduction to a new client, or with profit-based rather than fixed commissions.

Unlike traditional broker sales, it is hard for insurers to load the premiums of only those policies sold through aggregators for the aggregator cost. This may be due to IT limitations, or requirements that the aggregator price be the same as the usual web price. This means that a general loading must be made across all policies sold by the insurer to cover the expected cost of aggregator sales. Getting this wrong could have a big impact on an insurer who sells a lot of business through aggregators. This makes it more important than ever to model and monitor these costs as accurately and frequently as reasonably possible.

Data issues

Aggregator websites ask a standard series of questions designed to capture the maximum information from the customer, with a minimum number of questions. This can lead to some loss of control for an insurer

wishing to introduce a new or modified rating factor who may find it difficult to persuade an aggregator to increase the number of questions asked.

Although price is a key feature of purchasing decisions on aggregator sites, the lowest quote does not always gain the policy. Insurance companies with a strong brand can convert policies even if they are not the cheapest. This effect is potentially magnified by the trend for aggregator sites to give more details on coverage and excess on the results page. However, in order for a policyholder to make this decision they need to see the quotation – and this means that the ranking of a quote is a key influence on the ultimate conversion rate. The rank of a quotation is not reported to insurers in real time, and is usually only available at all at a price.

Aggregator conversion rates

The conversion rate for a typical aggregator website is usually similar to that of an insurer's usual direct sales website. This means that for an aggregator with a panel of around 100 insurers, any one insurer could expect a conversion rate perhaps only a hundredth of that from its own website. A conversion rate for an individual insurer may be less than 1 per cent overall, although it may be 3 to 5 per cent in the more competitive segments.

All of this also has a direct impact on the insurer's cost of sales. The insurer still needs to meet the same systems,

A comment from our Strategy team



Mike Williams

Mike Williams is a senior strategy consultant in Watson Wyatt's Insurance and Financial Services practice. He advises clients on a range of strategy and marketing issues including strategy development, market assessment and entry and distribution.

The rise of aggregators presents yet another strategic challenge to insurers. In many respects it takes the industry back to the broker model, albeit without the personal advice and relationship. We are in a situation where the needs of the channel drive the product configuration, fuelling the need for apparently, and in some respects artificially, cheaper offerings to gain position on the price 'leader board'.

How should insurers respond? Tactically, by manipulating their offering? Or strategically, by considering their broader options. Or both? Lead or be led?

It is not a 'one size fits all' situation. Finding the right strategy and tactics for your business is fundamental, so it is worth standing back, taking in the big picture and then mapping and evaluating the options at each level.

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IT and maintenance expenses to provide quotes through the aggregator website as for those which came direct, even though far fewer will result in sales. As ever, these expenses must be well-estimated and continually monitored to avoid problems in the future.

Also importantly, an insurer may struggle to distinguish between new business and renewal quotations when operating through an aggregator. Without additional care, an insurer may end up competing with themselves in terms of the prices they offer. This brand cannibalism can be very damaging for the insurer.

Key pricing issues

One clear way that an insurer can ensure their quotations appear in the cheapest four or five offered is to offer a 'no-frills', high excess, cheaper product. Add-on extras and lower excesses can then be offered further down the sales process. Aggregators may be countering this trend by enhancing the amount of information given about each quote, making this a less effective option.

Some insurers operate several brands, and could dedicate one of these to the aggregator channel. This allows premiums to be loaded for the aggregator costs without having two sets of pricing (aggregator and non-aggregator) under the same brand. A drawback of this approach is that the aggregator brand can lack a strong, established market presence, which may reduce its potential for success.

Whatever approach is adopted, it is more important than ever that an insurer has accurate pricing and

expense models. A 'back-to-basics', thorough review of pricing methodology can help. Selling via an aggregator means any selection can happen very quickly and in large volumes, with any mistake in the pricing structure being ruthlessly exploited. More focus on the underlying risks and costs involved, as well as constant monitoring of volumes and trends is critical. Attention should also be paid to getting the expenses correct, particularly since the volume of business from the aggregator channel may be very volatile.

Of course, insurers may decide aggregator commissions are too high for the business gained, and opt out altogether. Some insurers have even used the fact they do not need to pay aggregator commissions as a selling point. This approach only makes sense if the company is committed to high levels of advertising spend to maintain their brand, regardless of the sales channel used. But an insurance group with a few strong brands could quite successfully have some participating, and others opting out of aggregators. They can hope to pick up the business to be gained through the aggregator channel, and still have a selling point of avoiding aggregator sales through another brand.

Many brokers are selling via their own websites, and some of these are now appearing on aggregators. This means that all market participants can find themselves exposed to the same dangers of adverse selection, even without directly participating in aggregators.

Summary

It remains to be seen if aggregators will be judged to have had a positive or a negative impact on the insurance industry and on consumers. The obvious benefits to consumers include more competitive pressure – which should reduce their premiums, increasing the affordability of the insurance products they purchase. However, if left unchecked and prices are driven too low, insurers may find themselves forced to sacrifice capital and long-term stability to retain market share in the new marketplace. The policyholder may eventually be disadvantaged by a reduction in the relative security and stability of insurers.


It seems that the main difficulties will be felt by those insurers who fail to adapt to the new environment. The nature of the aggregator channel means that the most successful insurers are likely to be those who can keep claims and expense costs low. However, this is not the only consideration for success to be assured; good systems for calculating and monitoring pricing, volumes and expenses and a clear understanding of how the aggregator operates is critical. Armed with these tools, insurers can mitigate some of the potential pitfalls that aggregators can present, and thrive in the new marketplace.

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Commercial lines pricing — developing a framework to maximise value

Hannes Janse Van Rensburg and Ryan Warren explain how pricing actuaries can become more influential and add competitive advantage to commercial lines insurers.

Pricing appeals to the technical actuary. The use of statistics and the flexible, creative application of mathematics can be appealing and interesting when compared to other actuarial positions. However, interest should not preside over business need; neither should a technical ‘black-box’ preside over the application of common sense.

The worth of a pricing actuary is not measured in technical brilliance, but in the ability to communicate the application of technical methods, winning the hearts of underwriters and being influential in the context of business profitability. It is all well and good having a strong technical base, but management will want to understand how the cost of having a pricing actuary can be justified.

One of the biggest challenges for the pricing actuary is developing a pricing framework where sound, relevant data feeds the pricing process, pricing is based on consistent techniques and benchmarks and management can monitor underwriting performance in a consistent way across years and portfolios. This framework should include:

- **Data** – the development of systems to capture claims and exposure data and also all relevant rating factors for the portfolios being priced. This process should include having meaningful discussions with your underwriters

to think of new factors not currently used in the rating structure that might have an influence on risk, and hence the cost of claims.

- **Benchmarks** – the derivation of accurate, up-to-date benchmarks from the data captured, also allowing for external influences and trends not present in the data. This could be as simple as setting up systems that help underwriters measure rating strength relative to a consistent benchmark (as opposed to only comparing new versus renewal price), or as complex as setting up underwriting tools that differentiate between risks in a more complex way allowing for various objective rating factors, but also including softer underwriting factors driven by the expertise of a specialist underwriter. This is an area where many commercial lines insurers are currently making inroads using predictive modelling techniques such as generalised linear models (GLMs) similar to that used in personal lines insurance. Having these objective benchmarks will provide comfort to management that the reported profitability is consistent from year to year. It will also remove the problem of not being able to assess new business versus renewal adequacy and hence under- or overstating the portfolio rate change information. The biggest limitation and excuse for not using GLMs in the commercial lines underwriting environment is inadequate data.



Ryan Warren

There is a difference between poor data systems not capturing relevant data and portfolios with limited claims experience where there is little or no data to capture. In the former case, the actuary can challenge current systems and start with a proper data capturing process. It might take a few years before there are sufficiently credible volumes to perform an in-depth analysis, but the bottom line is that the same problem will persist in four to five years time if the process is not started.

- **Management information** – you can only manage what you can measure. In addition to monitoring the portfolio performance as a whole, an easy way to prove worth is by producing a report showing the cases with actuarial involvement in the pricing process, whether bound or not (showing the actuarial price, the price it bound at as well as the loss experience as this emerges). This information should be readily available from broker presentations at the next renewal of the account. There is no better way to prove your worth than showing that your presence reduces the company's exposure to losses and that the bottom



line is increased! This would unfortunately also leave you exposed to the possibility that the accounts you price, or the portfolios that you manage perform poorly. This would also address one of the biggest criticisms of pricing actuaries: that they do not have enough responsibility relative to their remuneration and can hide behind the statement: 'the underwriter has the ultimate responsibility'.

Closeness to the business

Apart from contributing to a sound underwriting/pricing framework, it is also crucial to have 'a closeness' to the business. Arrange frequent informal meetings with your underwriters to discuss changes in the policy wordings or the coverage their policies provide. Be aware of legal changes and trends in the external environment that might cause the future loss experience of a portfolio to be different from that experienced in the past. In this context, a good pricing actuary should also be a good underwriter.

Over-prudence in your assumptions is not helpful to underwriters. It is important to allow for the downward and not just for the upward trends observable in the data. Allow for the views of underwriters not seen in the

data. Even if you decide not to use the information they provide, it is important to show how you have considered their opinion and why it did not have an impact on the pricing. This information flow will build relationships and confidence with underwriters in the numbers you give them.

Consistent message

Often, consistency in assumptions is more important to management than complexity of models used and parameters fitted. Consistency does not mean identical, however, changing assumptions need to be communicated and the impact on results explained before implementation – for example, capital loadings used in pricing.

Consistency with other functions

The confidence placed in the view of the actuary should not be undermined by having conflicting views with other actuarial functions. Having regular meetings with the reserving and capital functions and keeping them informed of changes to the underlying risk, size of limits, cover provided, business mix and so on can help them refine their estimates and win confidence with management.

Summary

Pricing actuaries have become a vital part of the commercial lines underwriting floor as insurers have seen the value their skill set can bring to the business.

Developing a sound pricing framework and being commercially minded will not only support your company in its quest for profitable growth, but also maintain and increase your level of influence within the business environment.

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Investment strategy for insurers: learning lessons from 2008?

Roger Boulton, a senior consultant in the Investment practice, gives some thoughts on how to face the investment challenges of 2009.



Few insurers emerged from 2008 feeling good about their investment performance. Most institutional investors (unless holding principally gilts and cash) suffered negative returns as equities, corporate bonds, property and hedge funds fell in value, substantially and together.

Diversification benefits were limited as, in times of market crisis, there are only two types of asset: safe and risky. Even within safe assets, some – Treasury bills – were seen as safer than others. The factors contributing to 2008 being one of the worst years ever for investment returns are well known but what can we learn from the consequent turmoil? Three lessons seem to stand out.

1) Focus on risk

Unless liabilities are known or very predictable, even gilts and cash instruments involve risk for most insurers. This is because changes in their value do not automatically match changes in liability values – that is investment risk for an institution, and some risk is unavoidable. If investment risk is unavoidable, it should be appropriately harnessed, recognising its double-edged potential. Investment risk offers both a route to loss and a source of opportunity and so merits significant attention. The good news is that investment risk can be identified and controlled, not perfectly but to a significant extent, just as underwriting and most other financial risks already are in a modern insurer. This requires appropriate measurement, taking liabilities into account, as 'what gets measured gets managed'.

For many insurers, measuring and monitoring the risk in their investment strategies within a suitable framework and using consistent, forward-looking assumptions is not yet a reality. However, our clients have ready access to investment risk monitoring tools and to objective risk and return assumptions for a full range of asset classes, as well as comprehensive views on the skill of their investment managers.

It was clear in 2008, not least from raised volatility levels, that investment risk had increased long before equity markets fell dramatically. This was reflected in our equity risk assumptions and enabled clients focused on controlling investment risk (for example, managing to a budget for risk) to take action to cut equity exposure in advance of the steepest falls. Our RiskBudgetWatch™ reports are designed to highlight changes in prospective risk levels.

2) Invest in governance

As insurers have to invest, they should seek to do so as professionally as possible. This requires strong governance – having sufficient skills and resources to do the best possible job (consistent with the financial significance of the asset base). On a £1 billion asset base, adding 0.5 per cent to annual performance is worth £5 million each year, which would justify adding quite a lot of resource to help achieve it.

It is worth noting that millions are typically already spent on investment representing direct and indirect costs

to investment managers, custodians and in transaction costs. Best practice governance involves allocating sufficient resource to management of the investment process itself to ensure that all costs are appropriate and correspond reasonably well with risk-reducing or value-adding activity. Investing in stronger governance can pay for itself many times over.

Although investing may not be thought of as an insurer's core business, it is a core responsibility and should be managed accordingly. Often the approach taken is too limited, focused on measuring the performance of investment managers when what really matters is totally outside those managers' control. The crucial questions are how much investment risk should the institution take, how best to allocate it to asset classes and managers and how to revisit those questions in a very dynamic investment environment.

These are questions that company boards, supported by expert investment resources, should address because their impact on the bottom line can be very large indeed. We are active with many insurers, supplementing internal governance resources as required to ensure continuous monitoring of managers and asset class changes, facilitating more effective management of their investment risk. Our involvement ranges from providing asset class and manager support to investment committees through to outsourcing of the chief investment officer (CIO) function, a robust alternative to hiring a small internal team.



“ Best practice governance involves allocating sufficient resource to management of the investment process itself. ”

Research shows that professional governance is linked to strong performance and insurers' 2008 results provide further evidence of this.

3) Always look forward

That the past is a poor guide to the future is an investment cliché but, perhaps because the past is (now) certain, our human nature is inclined to focus too much on it and to draw flawed conclusions. As Nassim Nicholas Taleb points out in 'Fooled By Randomness' and 'The Black Swan', we only observe one history and so fail to recognise how different it could easily have been. We can, however, see that history is subject to step changes, often caused by developments that would have seemed improbable before happening.

Just as it is risk not return that can be managed directly, it is obviously only future results that can be influenced and so that is where focus must be. As unknowable uncertainty is the only thing about the future we can be certain about, this is highly challenging. (Not only do we not know which one from a set of possibilities will occur, we have no certainty what the set of possibilities will be.)

Recognising that unknowable uncertainty leads naturally to diversification in investing, as we cannot know from where the best returns will come. In most conditions, diversifying sources of risk and return will lead to smoother, more predictable returns and, in 2008, limited diversification benefits were still more welcome than none.

What then, of 2009 and beyond?

At some point, risky assets will look attractive again and investors looking ahead will buy and probably reap the benefits. Other investors will sell, often crystallising large losses, and some have already done so, forced to sell by weakened solvency positions. Those insurers still holding principally gilts and cash appear less likely to outperform their peers from here on. In our opinion, the changes in both prospective risks and returns have been so substantial over the last 12–18 months that a review of investment strategy is now required either for insurers who:

- are concerned to assess the overall risk levels in their investment strategies, to check that these remain acceptable; or
- want to review the efficiency of their strategies, for example, where the most attractive return opportunities are for a given level of risk.

Summary

Looking ahead is the only way to navigate, even in normal conditions, and successful navigation requires a destination. Having clear investment objectives and a plan for meeting them is essential to avoid vulnerability to drifting when encountering volatile markets – whether as extreme as those seen in 2008 or not. Insurers with a measurable investment risk budget and a forward-looking plan for applying it, professionally implemented, should have handled 2008 relatively well. How did your business do, and what will it do differently in 2009?

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A photograph of a man with short brown hair, smiling broadly. He is wearing a dark pinstriped suit jacket, a white shirt, and a light-colored striped tie. He is seated in a room with a warm, yellowish light. A lamp with a white shade is visible behind him to the right. The background is slightly blurred.

Advances in flood modelling

Flood risk is an issue of increasing importance to all European insurers. In this article, Richard Bretton and James Tanser consider the latest developments.

It is now widely accepted that climate change is increasing the uncertainty around both the frequency and the severity of extreme weather events. Recent years have seen a series of significant flood events across much of Europe, which have caused major associated insurance losses. Many predict that this increased incidence of flooding will continue, and even worsen, in the coming years.

There are many approaches to load premium for the expected future flood risk. Typically, these are based on an insurer's own past claims experience. Traditional geographical classifications are based on regions that were not designed to reflect flood risk. For example, postcodes are derived for the use of the postal service, and differ widely in terms of their area and the range of terrain they contain. Existing pricing structures can therefore contain a significant degree of cross-subsidy between properties.

The amount of data available to the insurance industry has increased in recent years, as has the ability to use this data. In this article, we consider the opportunities this presents to capture risk features in both personal lines and commercial property premium rates. We also consider some of the important practical issues that require consideration

when developing a robust solution to the challenges of flood modelling.

Opportunities for model improvements

Recent technological advances, combined with governmental and scientific initiatives, provide a range of tools that can be used by the insurance industry to assess flood risk. One such advancement provides insurers with previously unavailable risk location information. It is now possible, using only the postal address, to pinpoint on a map the exact geographical location of a property with an accuracy of a few metres. Combining the location with data from flood assessment models allows a range of risk information to be used by insurers. We are no longer reliant upon postcode as the most granular subdivision of geographical categorisation, as we can now treat properties on their own merits rather than as an average among their neighbours.

Model features

Models are developed in a number of ways. Some models are based on past floods, together with an analysis of the probability of repetition. Other models analyse flooding risk by simulating rainfall, and then modelling the resulting flow of water. Yet more consider specific events and combinations of events (for example, flood defence or dam failure). The type of flooding considered also differs, with river, pluvial and coastal floods given different weighting under different approaches.



James Tanser

Only time will show which of these models proves to be the most predictive. Most models have not been created exclusively for the insurance industry. While some models are tailored to the needs of insurers, most fall short of being an off-the-shelf solution to the insurance industry's challenges. Careful consideration of the merits of the models on offer is needed. This should include consideration of the robustness and suitability of the model, and also the experience a vendor has in building successful partnerships with insurance companies.

Applications

How the model is used will depend on the information that the geographical risk tool returns. Typical outputs may range from a simple red, amber or green indicator, to more

detailed measures, such as specific expected flood frequency (for example, 1 in 25 years). Multiple or blended measures may also be used. These may combine the property's own features with distance from the nearest high-risk location to enable the creation of a continuous flood risk scale.

Flood models may be good at predicting the frequency of floods, but the severity of insured losses is still likely to require reference to an insurer's own past loss experience. This element is likely to include well-proven solutions, such as smoothing algorithms based on past experience. In addition, for commercial lines where underwriter judgement is key, or for quotations that are referred to an underwriter, some tools can provide an aerial photograph (as seen in Figure 1) of

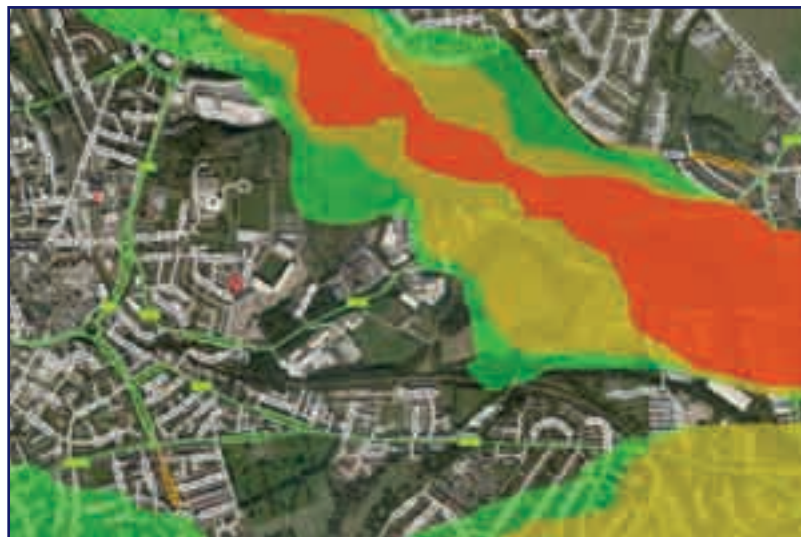
the risk location, to assist in the final assessment of the premium.

In this process, careful consideration of industry agreements is needed as well as any TCF implications arising as a result of applying new methods. This is particularly important where information returned from the geo-data system triggers a declining of cover.

While this technology has clear benefits to the industry in assessing the flood risk faced, uncertainty remains about the specific incidence of flooding. Insurers should therefore avoid concentrations of risk in particular geographical pockets unless accompanied by a suitable risk premium. The ability to identify and store precise locations of insured properties allows an insurer to consider any other risks which may already be covered in that area. It is then possible to add an increasing risk loading when requested to quote for further nearby risks. This ensures that diversification is encouraged (by an initially lower premium) and accumulations of risk are minimised. Distances are simple to calculate within tools, based on the latitude and longitude.

The amount claimed for a loss will differ depending upon a number of factors, such as the type of building. For example, a flooded bungalow is likely to suffer more complete damage than a three-storey property. The depth of water associated with modelled flood events can be a useful additional consideration.

Figure 1 | Illustrative example of flood map





Challenges

The adoption of detailed flood assessment and the associated premium changes is likely to disturb the existing portfolio. This requires careful preparation of appropriate communications to both customers and to regional distributors who are affected. It is possible to update the pricing for new business and phase changes gradually over time (for example, by the use of premium moderators) for existing business. However, there is a danger with this gradual approach that the insurer may be selected against as lower-risk policies are attracted away to other insurers that have already fully moved to a new approach.

The IT impact of implementing solutions is not a trivial one, and requires a significant investment in one's own models and data. In our experience, vendors are keen to retain ownership of their solutions, and so link their host system to an insurer's rating engine, or allow underwriters access via a portal. This linkage needs thorough testing, as well as strong performance to avoid delays in the quotation process. Commercial considerations are likely to mean that an alternative premium structure may be required for cases where an address cannot be found or if the geographical risk engine fails. In addition, where distribution partners use their own rating engine it may not be possible to link their systems to the same data sources, which may raise challenges where agreements are in place to have equal premium rates.

The use of new information can have a knock-on effect on traditional rating variables. Some insurers use a single set of postcode groupings for all types of cover. By removing the flood risk for individual treatment, it may be necessary to re-rate the postcodes to reflect only non-flood effects. In addition, the blending of the new information with existing knowledge about a property can raise questions about which source is more reliable. For example, how do you deal with a model that says there is a very low risk of flood for a property that flooded last year?

Benefits and risks

There is clearly a cost to implementing the solutions discussed above, but the value of addressing the flood challenge will provide dividends far into the future. Properly implemented projects should represent a very worthwhile investment and could deliver benefits in addition to the obvious ones. For example, if properly communicated, the reduction in risk should bring benefits in terms of reinsurance structuring and, indeed, involvement of a company's reinsurers at an early stage of a project can be very valuable. The reduced risk that is achievable by avoiding concentrations of risk could also be reflected in reduced capital requirements for companies. Strong communication of insurers' analysis to the wider industry may even influence future planning approval processes.

Summary

Several major insurers are already well advanced in implementing these techniques. The risks of implementing such approaches are mainly related to the practical challenges and appropriate parameterisation. These risks are outweighed by the risks of not implementing the techniques. In the modern market, the popularity of aggregators combined with individual property pricing by competitors amplify selective behaviour of customers. These effects could lead to a worsening portfolio risk profile for insurers that do not adopt pricing methods to meet these challenges.

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Current issues in UK asbestos

Sarah MacDonnell and Richard Bulmer discuss the latest developments in mesothelioma claims.

Insurers are seeing higher than expected increases in reported numbers of mesothelioma claims. At the same time, continuing changes in the legal and statutory environment make the job of estimating asbestos-related liabilities even more uncertain.

Increases in mesothelioma claims

Mesothelioma is the most serious type of asbestos-related disease. It is a type of cancer affecting the chest or abdomen. Mesothelioma is caused by (what can be very low) exposure to asbestos, and claimants are usually those who have worked with asbestos. After exposure, the onset of the disease takes around 30 to 50 years. This long latency period contributed to the late recognition of the link between asbestos and mesothelioma. The use of asbestos in

the UK began in the late 1800s, however the link between cancer and asbestos was only made in the 1940s and 1950s and asbestos continued to be used until the 1980s.

Future estimates of the number of mesothelioma claims are made by reference to the Peto and Health and Safety Executive (HSE) models. Put simply, these models analyse the number of deaths due to mesothelioma each year and look at how these relate to exposure to asbestos (taking into account certain factors such as those influencing the latency of the disease and the age of the claimant) in an attempt to enable the future pattern of deaths to be predicted.

As highlighted in Figure 1, the latest published models suggest that the asbestos peak is nearing (that is, that the number of deaths each year should be starting to level off, before decreasing sometime during the period 2011 to 2015). However,

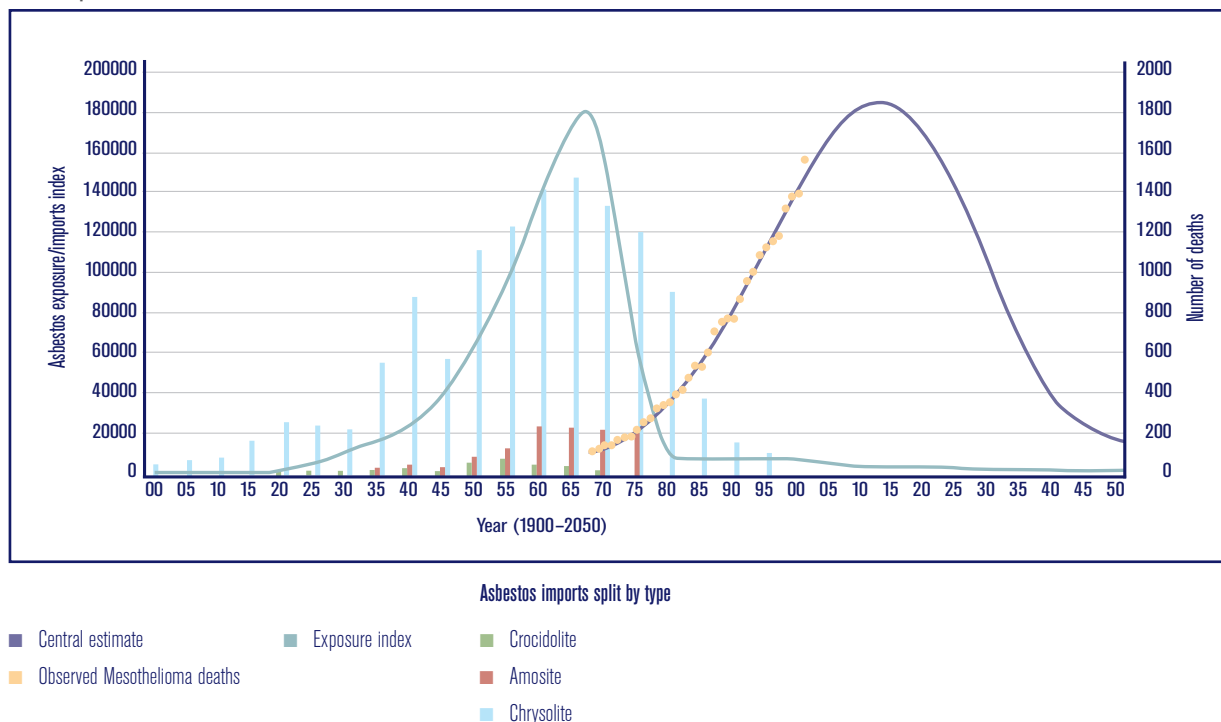
insurers are continuing to see numbers of mesothelioma claims increase at an alarming rate.

So what is causing this unexpected increase in the number of mesothelioma claims – have Professor Peto and the HSE got it wrong? It appears that the primary cause is likely to be due to the fact that more individuals diagnosed with



Richard Bulmer

Figure 1 | HSE model of mesothelioma in Britain



Source: HSE, Mesothelioma mortality in Great Britain: Estimating the future burden, December 2003



the disease are now claiming. The Institute of Actuaries UK Asbestos Working Party has estimated that the proportion of mesothelioma sufferers who are making claims has increased by over 50 per cent (from 36 per cent to 56 per cent between 2003 and 2007).

The major reason for this increase in the claim rate is most likely that an individual is now more likely to take legal action due to a greater awareness of the ability to obtain compensation and better access to information, though there are other factors which may have contributed to an increase in the rate. These include:

- Improved diagnostic techniques mean more claimants are being diagnosed whilst still alive (it is not uncommon for diagnosis to be made after death or even after a death certificate has been issued). The success rate of claimants is seen to be higher when the diagnosis occurs before death.
- An increase in the insurance industry's exposure to asbestos over time. Employers' Liability cover became compulsory in 1972 and many nationalised industries have been privatised, meaning a larger proportion of the population are increasingly covered by the insurance industry.
- Individual claims are being shared amongst more insurers (in other words, one death may appear as numerous claims).

The HSE is understood to be updating and revising its projections, which may include changes to its methodologies. In addition, Professor Peto is in the process of publishing his latest study. One theory he is said to be considering is that brown (amosite) asbestos has a greater influence on mesothelioma than previously assumed. The effect of this would be for the model to predict a significantly higher and later peak of notifications (the Institute of Actuaries UK Asbestos Working Party Update 2008 paper suggests Professor Peto is looking at a peak 20 per cent higher and five years later than the current HSE projections). This would imply that substantial increases in mesothelioma reserves could be necessary for some insurers.

Uncertainties in the legal and statutory environments

Mesothelioma

A test case was ordered by the English High Court in 2008 which sought to clarify the trigger point for mesothelioma claims on employer's liability policies. Historically, insurance market practice has been for policies to be triggered by the period of exposure to asbestos. The test case questioned whether the trigger should instead be the injury (defined as the first malignant cell mutation). In mesothelioma sufferers, the injury tends to occur approximately 10 years prior to the onset of symptoms. This contrasts with the 30 to 50 year latency period between initial exposure to asbestos and manifestation of the disease.

The impact on the industry would be that mesothelioma claims would start to be linked back to employers' liability policies in force approximately 10 years before the claim is reported, as opposed to the typically 40 years prior as is current practice. This change could leave gaps in coverage for some claimants, not to mention upheaval as insurers examine specific policy wordings, revisit individual's employment histories, and reassess thousands of claims as decades of accepted practice are turned on their head.

This is the latest in a string of litigation surrounding mesothelioma liabilities, and the Government has intervened to legislate on this issue in the past. In the 'Fairchild' case of 2002, the House of Lords ruled that mesothelioma victims were able to seek full compensation without proving which employer caused the illness. This was overturned in 2006 when the Law Lords further ruled that workers exposed to asbestos with several employers must seek a proportionate share of compensation from each employer. In response to this, the UK Government introduced an amendment to the Compensation Act 2006 to class all former employers as sharing overall responsibility, as the fear was that there would be gaps in cover due to insolvent, untraceable or uninsured employers.

The test case was decided in November 2008 in favour of the status quo; the trigger for mesothelioma claims is the period

Peto and HSE mesothelioma model publications

- 1995: 'Continuing increase in mesothelioma mortality in Britain.' Peto et al – produced by the HSE and the institute of Cancer Research and co-authored by John Hodgson of the HSE.
- 1999: 'The European mesothelioma epidemic.' Peto et al.
- 2003: 'Mesothelioma mortality in Great Britain: Estimating the future burden.' HSE paper.
- 2009: New research expected to be published by Professor Peto. Updated projection model from the HSE anticipated.

of exposure to asbestos. However, it is likely that the decision will be appealed and it remains possible that the Government will intervene in the future, so the outcome remains uncertain.

Asymptomatic diseases as admissible claims

Pleural plaques is a condition that can be diagnosed by X-ray or CT scan. It is, in fact, symptomless. However, pleural plaques are thought to develop only from exposure to asbestos, and so in the past, claimants have been compensated for the anxiety of potentially developing a more serious asbestos-related disease in the future.

The ability to claim for pleural plaques has been placed into question. In October 2007, the House of Lords upheld the 2006 ruling of the Court of Appeal which found that pleural plaques are not an 'actionable damage' and therefore should not result in a claim payment.

The Scottish and UK Governments have since become involved. The Scottish Assembly passed the Damages (Asbestos related conditions) (Scotland) Bill in March 2009. This overturns the House of Lords ruling, meaning that pleural plaques claims are again liable in Scotland. However, there have been objections to the Bill; some insurers are seeking a judicial review on the basis that it would breach European Law.

It also remains possible that the UK Parliament will legislate to overturn this ruling. The Ministry of Justice published a consultation paper in July 2008 which proposes a number of alternative actions and assesses their costs and benefits:

- Option 1 – do nothing.
- Option 2 – increase support, help and information for people with pleural plaques.
- Option 3 – change the law of negligence so that those diagnosed with pleural plaques as a result of negligent exposure to asbestos would be able to claim compensation through the civil courts in the same way as was the case prior to the Court of Appeal decision.
- Option 4 – a statutory no fault scheme to provide a payment to those who could show that they had been diagnosed with pleural plaques within a fixed period before the date of the House of Lords decision in October 2007 and had not already received compensation. (The no fault element would mean that an applicant to the scheme would not have to prove negligence.)
- Option 5 – a statutory no fault scheme to provide a payment to those people as in Option 4 and also to those diagnosed with pleural plaques following the judgment or in the future.

The closing date for the consultation was 1 October 2008 and the Government is expected to announce its decision imminently.

On the back of the House of Lords decision that pleural plaques should not result in a claim payment, a series of court cases have started in January 2009 which will determine if cases of asbestosis, for which there are no symptoms, are compensable.

Summary

2009 will see a number of outcomes that could alter approaches to, and the quantum of, UK asbestos liability reserving. The HSE and Peto model updates, the ongoing question of the mesothelioma trigger, decisions of the UK and Scottish Governments on pleural plaques and further developments in asymptomatic claims all mean that it is an area that those with an interest in asbestos liabilities will be watching closely.

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