insurance matters

Focusing on the non-life industry

Autumn 2009

GIRO 2009 Edinburgh

Current issues in the UK insurance market

The 'winner's curse' in insurance

Effects of the global downturn

Lloyd's and London Market benchmark pricing

Data talk

Getting to grips with Part VII transfers

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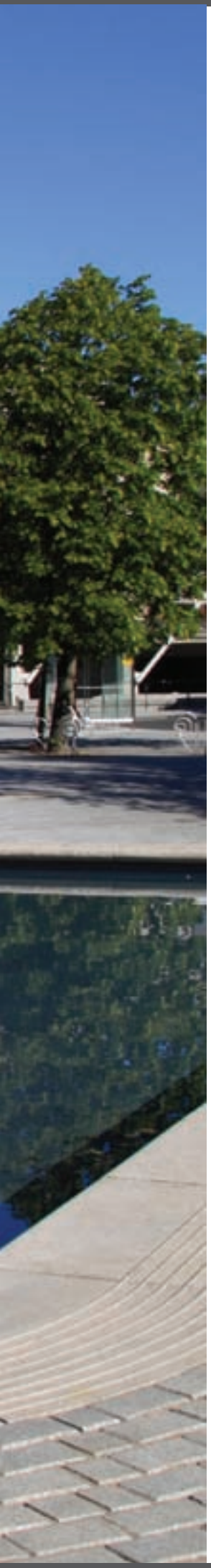

Welcome to insurance matters

Welcome to the sixth edition of 'insurance matters'. This edition focuses on a range of issues affecting non-life (re)insurance companies.

For this 2009 GIRO edition we have asked some of our associates who are conducting workshops at GIRO or participating in working parties to give us an insight into developments in their specialist areas of expertise. Kirsty Gray also gives some brief facts and figures about Edinburgh, the host city for GIRO 2009.

The credit crunch has been a major theme throughout 2009. In this edition, Ryan Warren considers recent developments surrounding the profitability of the UK non-life insurance market, whilst the phenomenon of the 'winners curse' is explored by Michael Garner, Yves Colomb and Graham Fulcher. Graham Fulcher and Naomi Couchman then go on to discuss the wider impact of the global economic recession on the non-life insurance industry.

With companies' focus now turned to profitability, Hannes Janse van Rensburg and Sanjiv Chandaria examine how benchmarking can be used to improve pricing. How Part VII transfers can be used as an effective tool for the management of insurance business is explained by Kate Angell and Richard Bulmer.

On a slightly different note, Richard Bland explains how a clued up actuary can make all of his/her applications and programs talk to each other.

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

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GIRO 2009 Edinburgh

Kirsty Gray takes a look at some interesting facts and figures about Edinburgh.

Edinburgh, Scotland's capital city, has been chosen to host the 2009 GIRO Convention. Many of you may already be familiar with Edinburgh from student days studying actuarial mathematics and statistics at Heriot-Watt University or as tourists to the capital. Whether you are new to the city or revisiting an old friend, I hope you find some of the following facts and figures of interest.

Brief history

Around 340 million years BC the rock on which the castle stands was created by volcanic activity, however, it was not until around 600 AD that there was a historical reference to a fortress on the rock.

Edinburgh was given its name by the Angles who captured the city in 638 AD. The city was granted a Royal Charter by Robert the Bruce in 1329 and became the capital of Scotland in 1437. When James VI of Scotland inherited the throne of England in 1603, Edinburgh continued to have its own parliament until the Act of Union in 1707.

In 1977 the Scots voted in a referendum for Devolution and in 1999 the Scottish Parliament was opened by the Queen. The Scottish Parliament can pass laws affecting Scotland on a range of domestic issues such as health, education and prisons and can raise or lower the basic rate of income tax by up to three pence in the pound.

Financial services

Edinburgh is a key centre for financial services. The headquarters of many banks and insurance companies are located there including the Royal Bank of Scotland (which was founded in 1695), AEGON UK, Standard Life, Scottish Widows, Intelligent Finance and many others. It is also a major centre for business process outsourcing activities.

Universities

There are more than 40,000 undergraduates at the three main Universities in Edinburgh: the University of Edinburgh (which was founded in 1583 and is one of the most prestigious Universities in the UK), Heriot-Watt University (which started as the School of Arts of Edinburgh in 1821, became a University by Royal Charter in 1966 and is renowned for having the first department of Actuarial Mathematics and Statistics in the UK) and Napier University (which has evolved from a technical college into a major university with three faculties: Health, Life & Social Sciences; Engineering, Computing & Creative Industries; and Napier University Business School).

Tourism

During the festival season in the summer, Edinburgh's population almost doubles from around half a million to one million people as visitors and performers from all over the world descend on the city. Whether you are interested in jazz, film, theatre, comedy, art, books, politics or the Military Tattoo, Edinburgh has something to offer.

Edinburgh castle is the most visited tourist attraction and sits at one end of the Royal Mile. At the other end sits the Palace of Holyroodhouse, the Queen's official residence in Scotland, which is close to the Scottish Parliament Buildings.

Found on the Royal Mile, the Heart of Midlothian is a heart-shaped mosaic built into the pavement. It marks the site of the 15th century Tollbooth of Edinburgh, demolished in 1817, which was the administrative centre of the city and also the site of public executions.

Each year crowds of around 100,000 gather in Princes Street to welcome in the New Year with music and dancing taking place. At the stroke of midnight fireworks are launched from Edinburgh Castle and the city's surrounding hills, and the traditional New Year song, 'Auld Lang Syne' (originating from the lyrics of Robert Burns, Scotland's national poet), can be heard all along the street.

There are a wide range of other interesting places to visit including Princes Street Gardens, the Scott Monument, the National Gallery, Camera Obscura, Arthur's Seat and the Edinburgh Vaults.

A new tram route is currently under construction which will run between Edinburgh airport and the city, however, this means that currently Princes Street is being dug up and works there are not expected to be completed until November 2009.

Sport

If you are interested in sport then you can see rugby or athletics at Murrayfield Stadium, or if football is more to your liking then both Hibernian and Heart of Midlothian are based in Edinburgh.

Scotland is the home of golf and has been played there since the 14th century. Around Edinburgh there are several world renowned courses including Gullane, the Open Championship course at Muirfield and the Open Qualifying course at Dunbar.

Famous faces

A number of famous people were born or raised in Edinburgh and include:

Sciences

Alexander Graham Bell, famous for his pioneering work with the telephone.

John Napier, the mathematician remembered for the invention of logarithms.

Actors

Sean Connery, famous for playing James Bond.

Ken Stott, a film and television actor.

Rory Bremner, an impressionist and comedian.

Ronnie Corbett, the comedian famous for being in 'The Two Ronnies'.

TV presenters

Nicky Campbell, presenter of 'Watchdog'.

Kirsty Gallagher, presenter of Sky sports news.

Magnus Magnusson, famous for hosting Mastermind.

Musicians

KT Tunstall, singer and songwriter who also won the Ivor Novello Best Song award for writing 'Suddenly I See'.

Bay City Rollers, 1970's pop group famous for wearing tartan.

Authors

Sir Arthur Conan Doyle, creator of Sherlock Holmes.

Sir Walter Scott, author of Waverley.

Ian Rankin, author of Inspector Rebus crime thrillers.

Irvine Welsh, author of Trainspotting.

Sports

Gavin Hastings, former Scottish Rugby captain.

Chris Hoy, Scottish track cyclist and Olympic medal winner.

Graeme Souness, football player and manager.

Gordon Strachan, football player and manager.

Miscellaneous

William Burke and William Hare, the serial killers who sold the bodies of their victims to the medical college for dissection.

John Knox, the protestant reformer.

Adam Smith, the economist and author of the Wealth of Nations.

Tony Blair, British Prime Minister 1997–2007 born in Edinburgh in 1953.

Weather

The weather in Edinburgh is renowned for being windy but not nearly as wet as the west coast, however, October is usually the wettest month with approximately 12 inches of rainfall and a temperature of around 10 degrees celsius.

The advice, therefore, is to wrap up and take a strong umbrella with you when you explore the city.

Current issues in the UK insurance market

Ryan Warren briefly explores the position and recent developments surrounding the profitability of the UK non-life insurance market.

Financial institutions are currently battling against significant challenges following the recent financial crisis. While non-life insurers are suffering from the recession, their previously strong solvency position and their reactions to reflect the higher risks (which include increasing premiums and tightening terms and conditions) have meant that insurers have helped stabilise the financial services sector.

Insurers, however, still face their own challenges as they try to survive the financial market turbulence and weaker economic environment, whilst at the same time trying to improve their underlying profitability from the low point of the 5 per cent return on capital achieved in 2008.

The crisis in financial markets has resulted in an almost unprecedented global destruction of equity values. However, non-life insurers typically follow relatively conservative investment strategies to match the short-term nature of their liabilities, and therefore, they appear to have suffered much smaller reductions in asset values than other financial services institutions. While the global financial crisis may not have had a marked impact on the industry, there has been a general trend of weakening solvency positions over the past 10 years as total liabilities have been increasing at a faster rate than total assets. This trend was exacerbated by the large losses during 2005, which were largely driven by a severe hurricane season. Total net assets in excess of total liabilities have therefore reduced from £68.4 billion in 1999 to £14.6 billion in 2008.

Total capital decreased from £47.3 billion in 1999 to £26.2 billion in 2002, and then increased to £53.3 billion in 2008. Only £3 billion of this increase in capital is in respect of new entrants since 2002. This implies that the majority of the new capital raised has been in respect of existing players either raising capital to support business growth strategies or to improve otherwise worsening balance sheet positions.

Considering the post tax returns as a percentage of capital provides another interesting perspective. Returns on capital increased from 0.4 per cent per annum in 2002 to a high of 24.5 per cent per annum in 2005, which is during the same period that available capital increased significantly. The increasing profitability, together with a hardening of premium rates, attracted further capital to the market. Premium rates eventually softened and returns then decreased each year from 2006 to 2008, with the market achieving a return on capital of 5.0 per cent in 2008. It is interesting to note that the amount of capital continued to increase until 2007, with a small decrease seen in 2008.

Figure 1 | Historical net asset and liability position of the UK insurance market

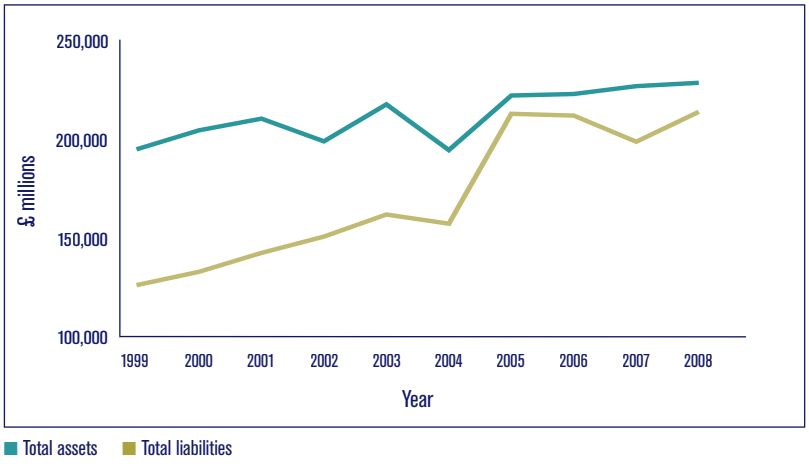


Figure 2 | Historical capital and solvency position of the UK insurance market

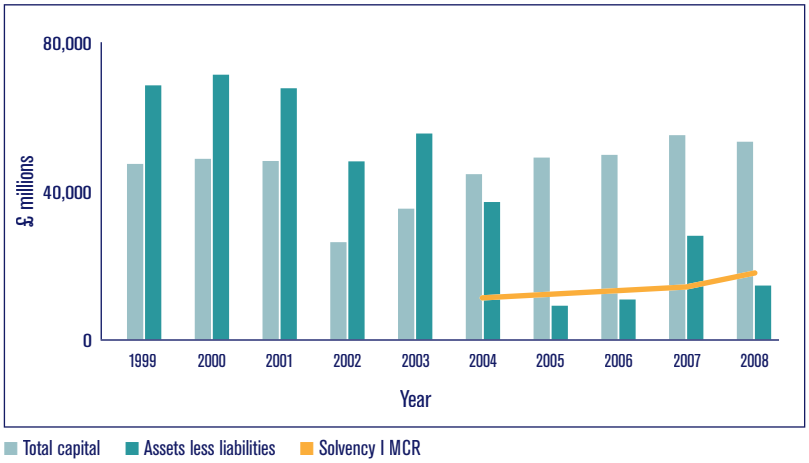


Figure 3 | Historical returns on capital of the UK insurance market

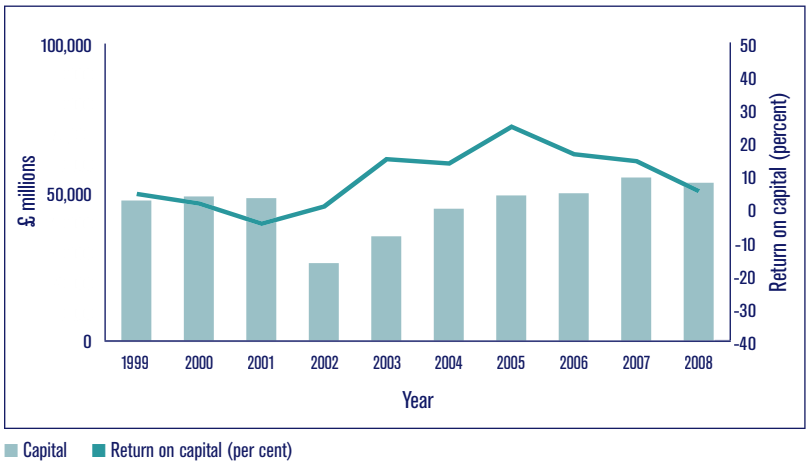
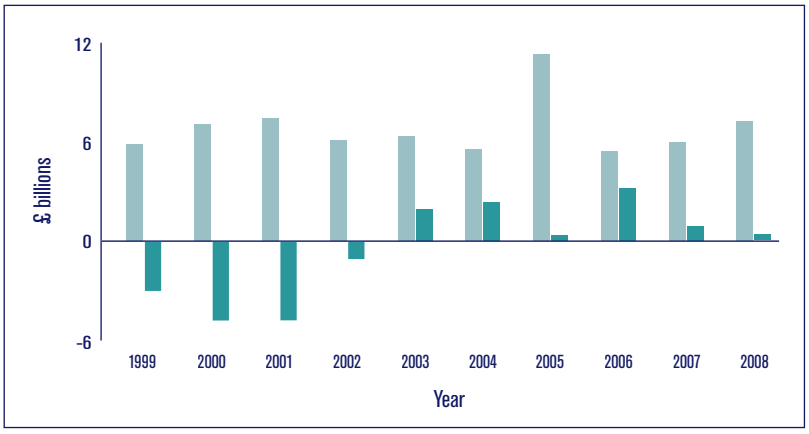


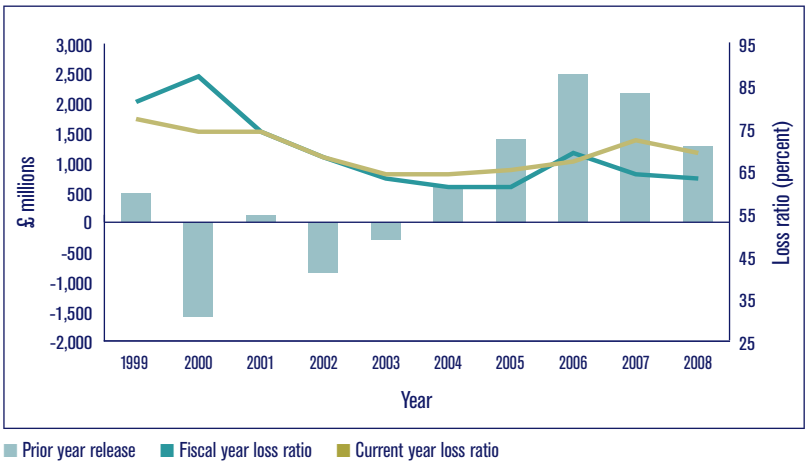
Figure 4 | Historic UK insurance market net investment income and underwriting result



Insurers have also relied historically on investment income to provide healthy returns to their shareholders. For instance, the total UK non-life insurance market returned cumulative net investment income of £68.4 billion between 1999 and 2008, compared to an underwriting loss (claims exceeding premiums) of £4.4 billion over the same period. The stresses in the financial markets and the weaker economy now threaten the stability of insurers' future investment income. This, together with a weakening solvency position, increases the pressure on insurers to grow underwriting profits and not rely so heavily on investment returns.

There are other trends which have largely escaped attention whilst the media has focused on the financial crisis. 2008 was a poor year for insurers from an underwriting perspective. With the possible exception of motor insurance, premium rates have fallen while claims costs have increased. One reason for higher claims is that 2008 was the second worst year for catastrophe losses behind 2005. Other driving factors include an increasing litigation culture, a significant increase in the number of fraudulent claims, and aggressive additional third parties getting involved in the accident management process.

Figure 5 | Historic prior year reserve releases for UK insurance market



These trends were not obvious from insurers' headline reporting because of the significant releases of prior-year claims reserves over recent years. In particular, since 2004 there has been a total of £7.9 billion released in respect of prior year reserves compared to a strengthening of £2.1 billion across the preceding five years. This significant release in prior year provisions has offset the deterioration in the current accident year loss ratios since 2004. These accident year loss ratios increased from 64 per cent in 2004 to 69 per cent in 2009. This is quite different from the fiscal year loss ratios which increased from 61 per cent to 63 per cent over the same period. There has been a reduction in the level of releases during 2008, which raises a question of whether this might be because companies now believe that the surplus in prior year reserves is nearing exhaustion.

Traditionally during times of decreasing premiums and increasing claims, insurers have focused on reducing their expense costs. This time, that is proving harder to achieve as there have been additional developments that are causing insurers to spend more. For instance, insurers have already begun investing in preparations to comply with the Solvency II directives when they take effect in 2012. The increased focus on risk management and the more formal, stringent and intrusive regulation which is likely to follow has a significant impact on insurers' expense budgets. This is potentially money well spent, of course, as insurers who do not invest sufficiently in their regulatory capital management capabilities may find themselves facing higher capital requirements.

Profitability and scale are crucial to an insurer's success. To meet shareholders' expectations, companies now need to concentrate on reducing costs and, most importantly, grow underwriting profits. To achieve this, insurers will need to improve their underwriting and pricing policies and leverage distribution channels. The main challenge for insurers will be to ensure that their Solvency II preparations do not distract them from this task.

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The ‘winner’s curse’ in insurance

Graham Fulcher, Yves Colomb and Michael Garner discuss the concept of the ‘winner’s curse’ – whereby in an auction with bids based on imperfect information, the winners will tend to overpay. They examine how this phenomenon displays itself in insurance, and how insurers can act to avoid falling victim to the curse.

Emergence of a 'winner's curse'

The phenomenon of the winner's curse was first identified by economists in the early 1970s, who were investigating oil companies bidding in auctions for off-shore drilling rights in the Gulf of Mexico.

Each company bidding for drilling rights bid at levels they thought would give an adequate rate of return on their capital. This was based on their own experts' assessment of the likely risks and returns from the project. However, over time it became clear that the actual returns to the companies successfully winning the auctions were much lower than projected.

The economists realised that the reason for this was that, despite their best efforts to estimate the correct amount to bid, each oil company had different information on which to base their bids, and was still developing methods of analysis, as well as using information subject to error.

They further realised that when bidders have imperfect information, all make errors in estimating the 'true' value, and so the highest bidder will necessarily be offering too much, in other words, there is a 'curse' involved in winning any such auction.

In even more extreme cases, some companies that made errors which led them to significantly overbid in the auctions, won the drilling rights and went on to incur significant future losses.

The study of auctions has attracted renewed interest in recent years from economists as a topic of academic focus. Recent types of auction that have been studied include:

- The auctions for mobile telecommunication spectrums such as third generation (3G) mobiles. These fiercely competitive auctions generated huge revenues for governments, but proved a significant curse to the telecommunications companies winning them. As their investors realised the extent to which the companies had overbid, they suffered steep falls in their share price which resulted in D&O claims to their insurers.
- The phenomenal success of eBay, re-invigorating the auction as a way of carrying out individual consumer purchases.

However, despite some clear parallels, this is a topic which has had only limited focus in the insurance literature, and particularly from UK actuaries.

Winner's curse in insurance

Successfully being selected as an insurance provider by a buyer is in many ways similar to the oil field auctions in which the winner's curse phenomenon was first identified, albeit in this case the lowest bidder (the insurer offering the lowest price) usually wins the auction.

There are some key similarities which make insurance particularly vulnerable to the winner's curse:

- Each insurer (like each oil company) is attempting to estimate future cashflows uncertain in both timing and amount. Each will make use of its

own imperfect information and its own developing expertise in assessing the likely returns and risks from writing the contract (which may in some cases even include similar risks to oil drilling such as hurricanes and seismic risks).

- Just as the US Department of the Interior was required by statute to accept the highest bid for oil rights from a large number of oil firms, many insurance buyers will automatically accept the lowest quote offered from a range of potential insurers.
- Different oil extraction companies may have been able to improve returns through superior operational performance. However, the economists observed that the variation in bids for the different oil fields (and the fact that different companies were low bidders for some fields and high bidders for other fields) were much wider than could be explained by different operational performance. Instead, these differences reflected the imperfections of their estimation process. In a similar way, although insurers can manage their outflows (by better claims handling, expense management or by accessing cheaper capital), the variation in insurance quotes is much wider than can be justified by operational efficiencies.
- Both cases are much closer to what economists describe as a 'common value' auction, where the item being bid for ultimately will broadly have the same value regardless of the winning bidder. This is in contrast to an antiques auction, say, where each item may genuinely have a significantly different value to different bidders reflecting subjective values (such as personal taste or how the item fits into their existing collection).

Our view is that the phenomenon of the winner's curse is growing in relevance for insurers for a number of reasons.

Personal lines insurance

Within personal lines insurance, the rise of eBay has been mirrored by the rise of aggregators within personal lines insurance. Although personal lines insurance has often been sold via high-street brokers offering the best or near-best price from a panel of competing insurers, the aggregators have taken competition to a whole new level.

Potential purchasers of, say, motor or household insurance can now choose from 50 or more potential providers of insurance, and view first-hand the cheapest quotes and the full range of quotes available.

Previously, the time and effort involved in seeking alternative quotes meant that many individuals would renew with existing providers if the provider had a trusted brand (especially if badged via some form of affinity scheme); had proved competitive when the individual had last rung around for alternative quotes (at, say, three-yearly intervals); and the quote offered was not a large increase on the renewal rates.

Today, the ubiquity of aggregator site advertising and the ease of access to a huge range of quotes means that behaviour is changing and most policyholders are tempted to check the competiveness of their renewal quotes each year. As a result, even insurers who seek to avoid exposure to aggregator sites are effectively exposed to an auction, as they may only win the business if they effectively underbid the aggregator (and all of the companies competing on it).

Aggregators have also hugely increased potential exposure to the extreme form of winner's curse that was observed in the oil drilling auctions. A company making a significant error in its pricing (but only when that error leads to them underpricing) can very quickly pick up large volumes of unprofitable and undesirable business.

The winner's curse also explains the phenomenon currently observed by many insurers whereby their headline rate increases are not translating into equivalent loss ratio improvements (even after allowing for upward trends in claims). This same effect can be seen in statistical modelling of bidding processes. Unless rate increases are applied in the same pattern and at the same time by competing insurers, then their effect is significantly blunted as insurers will lose the business where they are applying the greatest increases.

London Market insurance

The greater uncertainty and greater information imperfections in London Market insurance has had the potential to make this market even more vulnerable to the winner's curse.

Actuaries may, perhaps, be most familiar with winner's curse from companies that believe that they are writing large amounts of (apparently) profitable new business, or moving into new areas of business, while at the same time decrying the aggressive attitude of their

competitors in undercutting their own business at clearly unprofitable rates. Many actuaries now allow for this issue by assuming (unless there is clear evidence to the contrary) that new business is intrinsically less profitable than renewal business when estimating loss ratios for the latest underwriting year.

There are, however, also mitigating effects. Superior security ratings can allow some (re)insurers to charge higher prices than their competitors. Additionally, the existence of a subscription market and implicit consensual pricing, with a number of insurers required to place the risk, act as significant mitigants on the winner's curse. The more extreme form of the winner's curse is particularly mitigated, as a broker receiving erroneously low terms from an insurer will often not find a following market to complete the slip.

A common view of best practice in London market pricing is for the underwriters and actuaries to work in partnership on each risk. The premium is initially assessed on each risk using some form of actuarially operated (or at least actuarially sanctioned) pricing tool. The underwriter then makes the final call on whether to write a risk and what rate to charge based on an expected loss ratio. In the most integrated actuarial teams, these loss ratios (aggregated at the reserving class level) are then used as an input to reserving (as prior loss ratios) and the capital modelling process (as the mean loss ratio).

In practice, the operation of the winner's curse means that this logic can be flawed. If the pricing tool is using prior expectations of loss ratios, it will ignore the competitive market in which the insurer is operating. The analysis should actually be based on posterior loss ratios which calculate the loss ratio that must apply to the business in the knowledge that the insurer has won that business in a competitive auction. In other words, the fact that the insurer has won the business will mean it is more likely that the insurer has underestimated the true costs of claims. Hence, the expected loss ratio for business actually written will be systematically higher than the output of the pricing model would suggest.

In our view, it is critical for actuaries to understand and appropriately consider how these competitive factors could impact the parameters in their pricing models. Ignoring these factors could otherwise mean that an increased reliance on these models for London market pricing increases the risks involved with the winner's curse.

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Effects of the global downturn

Graham Fulcher and Naomi Couchman concentrate on some of the broader and medium-term possible effects on insurance business

The global economic recession which followed the crisis in the US sub-prime market and the resulting credit crunch are likely to have some direct and immediate effects on the non-life insurance industry:

- An increase in claims (which is likely to be greatest in classes such as trade credit, payment protection, mortgage indemnity, D&O and E&O).
- A downturn in premium volumes (which is likely to be greatest in classes such as construction, marine cargo and workers compensation).

In this article, we concentrate on some of the broader and medium-term possible effects.

Medium-term economic effects

Whatever the short-term path for interest rates and inflation as governments attempt to use fiscal and monetary policies to avoid a profound slump, there are likely to be medium-term impacts on economic variables. Fundamentally, the crisis stemmed from a high level of indebtedness of Western consumers and companies, and to reverse this will require a period of one or all of: high inflation rates, high debt defaults and low consumption (hence low economic growth).

After a long period (until around two years ago) of low and stable inflation, non-life insurers and non-life actuaries are having to rediscover the skills needed to navigate through a world of unpredictable inflation with its resulting effect on an industry which takes premium up-front in exchange for guaranteeing against uncertain future payouts.

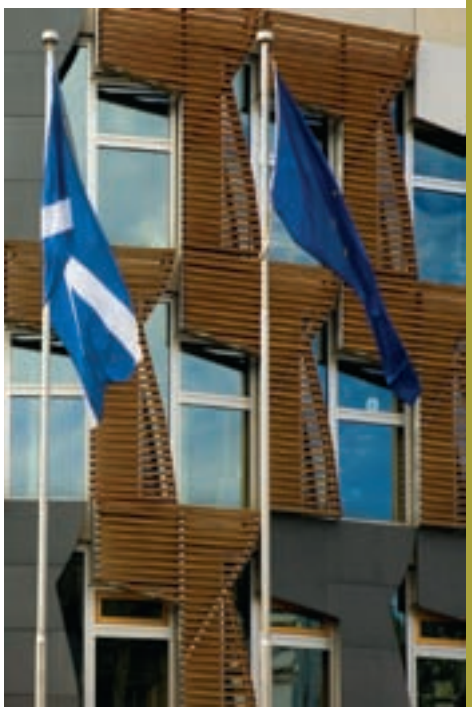
Global power

Many commentators are predicting that the economic crisis will cause a long-term fall in the power of the West (and particularly the Anglo-Saxon economic model) and a transfer of economic power to China or the Middle East. What will this mean for the non-life industry which has traditionally been dominated by the West? Will we see Sino and Sovereign Wealth Fund investment in the insurance industry or have the losses they have suffered in some of their existing investments during the recent crisis dented their appetite for Western financial services?

Foreign exchange

Foreign exchange rates are also likely to continue their volatility as the global economy attempts to readjust to a new equilibrium (for example, the potential rise of the Renminbi as a reserve currency at the expense of the dollar). For many non-life insurers, classic foreign exchange mismatch risk between assets and liabilities is less of an issue as claims reserves are commonly closely matched to the underlying liabilities. However, many insurers writing business globally (for example, at Lloyd's) have already found themselves with a mismatch between:

- Capital (commonly held in local currency for the head office) and capital drivers (principally based on potential claims liabilities and premium levels).
- Expense levels (based on the currency of domicile of staff) and premium levels.



Counterparty risk

Some key lessons for financial institutions from the financial crisis are that:

- Companies accepting and transferring risk should assess the impact on their business if they are no longer able to transfer this risk.
- Simply repackaging and renaming a risk does not remove the risk altogether.
- Rating agency assessments are as fallible as any other long-term financial assessments and should not be used to abdicate risk management responsibilities.

For non-life insurers this is likely to lead to:

- Greater focus on counterparty risk and a likely resurgence in the syndication of risk among a pool of (re)insurers at the expense of its transfer to a smaller number of highly rated players.
- Greater focus on the business model of trading risk via facultative reinsurance.
- Greater management focus on mismatches between losses-occurring reinsurance and risk-attaching insurance (especially when written on a multi-year basis in classes like construction and political risk).

Regulatory responses

The perceived regulatory failures that failed to prevent the crisis in the banking industry have led to a wide range of proposals for future regulatory reforms. Many of these proposals as currently drafted apply across the financial services industry including insurance. Insurance trade bodies such as the ABI and CEA have already warned publicly against the risk of a 'one size fits all' approach to financial service regulation, but it seems inevitable that part of the regulatory backlash will impact on the insurance industry.

Likely medium-term effects include:

- A greater focus on modelling of risk, but with added conservatism in solvency regulation, greater scrutiny of the output of complex models and a requirement to test this output using stress and scenario type testing.
- A focus on any insurers considered intrinsic to the financial system.
- An attempt to move regulatory regimes to anti-cyclicality.
- A focus on remuneration policies and their alignment with sound risk management.
- A backlash against jurisdictions perceived either as tax havens or weakly regulated.

Supervisory coordination

In the short-term, the Group Support (but not Group Supervision) regime in Solvency II has been a casualty of the failures of national supervisors and authorities to fully coordinate and cooperate in their efforts to deal with failing financial institutions.

However, the medium-term impact of the financial crisis on insurance regulation will be a move towards greater coordination among national (in the EU) and state (in the US) supervisors and a move towards European and US Federal supervision of insurance.

In the EU, the de Larosière report recommended a move towards the harmonisation of insurance guarantee schemes. Furthermore, it suggested that CEIOPS should be transformed into a European Insurance Association with additional powers including: legally binding mediation powers in disputes between supervisors; formal oversight of the college of supervisors for cross-border groups; and assessment of pan-EU mergers and acquisitions. For Solvency II, the suggested powers of the European Insurance Association to develop a legally binding interpretation of how supervisors should interpret regulation would mean that Level 3 guidance from CEIOPS to national supervisors could have the same legal force as the Level 1 Directive and Level 2 Implementing measures.

In the US, the Treasury has recommended the formation of an Office of National Insurance as a first step toward greater national uniformity.

Government financing

Many Western governments are going to emerge from the financial crisis with significant budget deficits. This could have a number of effects on insurers. One trend may be to increase the shift from public to private sector provisioning of protection (albeit, the US healthcare regime is moving in the opposite direction). This could give opportunities to the non-life insurance industry on areas of overlap with life insurance such as medical and unemployment protections. Further opportunities could arise for insurers and reinsurers in areas where countries or US states currently provide catastrophe cover and may be looking to transfer the risk and cost to individuals who will then need private cover from insurers.

There is, however, also a risk to non-life insurers that government increasingly look for ways to recoup costs from the insurance industry via additional taxes (including clamping down on perceived tax havens), and by recouping the costs of emergency services from the insurers of liable parties.

Capital raising and industry trends

The capital needs of Lloyd's insurers (partly driven by exchange rate fluctuations) has proved one of the few areas where institutional investors have been willing to respond. Although individually beneficial to those companies, the net effect of this availability of

capital has been to mitigate some of the hardening expected in the commercial lines market. After all, it was the availability of cheap and easy credit to both individuals and banks that fundamentally drove the behaviour that eventually led to the credit crunch.

By contrast, the reinsurance market has been firmer in some classes, leaving some direct insurers in a classical squeeze between hardening reinsurance rates and softer direct rates. Many commentators predicted the death of the reinsurance cycle due to mechanisms such as sidecars and catastrophe bonds. However, unlike post 2004/5, these structures have not formed a ready source of capital in the credit crunch.

The sidecar class of 2006/7 relied on heavy gearing to bridge the gap between the insurance returns available and the return on equity required by the sponsoring hedge-funds. The drying up of credit has severely dampened the formation of sidecars in 2009.

As for catastrophe bonds, the recent crisis should in the longer-term be the proof of their 'zero-beta' and true diversification from standard credit risk. However, the crisis has revealed some flaws in the structuring to date of these bonds around collateral issues for the principal on the bond and the counterparty risk associated with guaranteeing the interest on that principal. Furthermore, the 'hardening' of the bond market (beyond reinsurance hardening) has at present led to a disconnect between reinsurance and catastrophe bond prices.

Recruitment

There are reports of the banking industry already reverting to the payment of high bonuses. However, current and future legislative or regulatory intervention (at the UK, US, EU or global level) is likely to place a limit on the remunerative attractiveness of the investment banking and hedge-fund industries to mathematically qualified graduates. Further public anger at the activities of these companies and their affect on the 'real' economy is likely to make employment in these sectors less socially attractive. Could the credit crunch represent a one-off opportunity for the non-life insurance industry to increase the calibre of its recruits?

Company strategy

Company strategies will also need to evolve. The requirements of Solvency II were expected to favour larger more diversified entities, but the recent crisis has shown that:

- Dispersion of risk should not be confused with true diversification, especially when there is a common driver to risk and especially when that common driver is particularly key in the tail. Banks found that supposedly hugely diversified books were all subject to the same mortgage default and liquidity risks. As another example, some motor insurers allow for diversification between different target markets and different distribution channels, but in the tail they are all likely to be driven by the risk of retrospective legislation with a severely adverse effect on motor claims.
- The risks of getting into business that you do not understand have been underestimated, as a number of insurers with financial services operations learn to their cost.

Furthermore, insurers will need to join up strategic thinking with their risk management and understand the defensibility and adaptability of their strategy if there is a sudden quantum change in economic conditions, institutional arrangement and legislative conditions.

Conclusion

The global financial crisis will in our view have a permanent legacy effect on a wide range of areas in the non-life insurance industry.

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Lloyd's and London Market benchmark pricing

Hannes Janse Van Rensburg and Sanjiv Chandaria explain how benchmarking can work for you.

Lloyd's Franchise Performance Directorate recently introduced a new requirement for managing agents to report, for each risk written by a syndicate, the written rate as a ratio of a benchmark. Such a benchmark pricing process could actually present an opportunity to add value to the syndicates and companies in the London Market to gain a competitive advantage over the medium-term.

Rate monitoring in the Lloyd's market, introduced in 2002, was initially seen by many as an intrusive compliance exercise, but it is now an essential part of the planning process for estimating loss ratios at a class of business level.

In this article, we have given some thought to the challenges facing Lloyd's syndicates in developing benchmarks that will be useful to the business from day one and that will also continue to add value over the medium to long-term. We believe that the same approach could equally be used by London Market companies ensuring that they also benefit from best practice developments at Lloyd's.

Watson Wyatt recently carried out a survey of practitioners operating within the Lloyd's and the London market to assess the various challenges and benefits that the introduction of pricing benchmarks have had on companies' operations. We will share some of the results throughout this article.

The benchmarking process

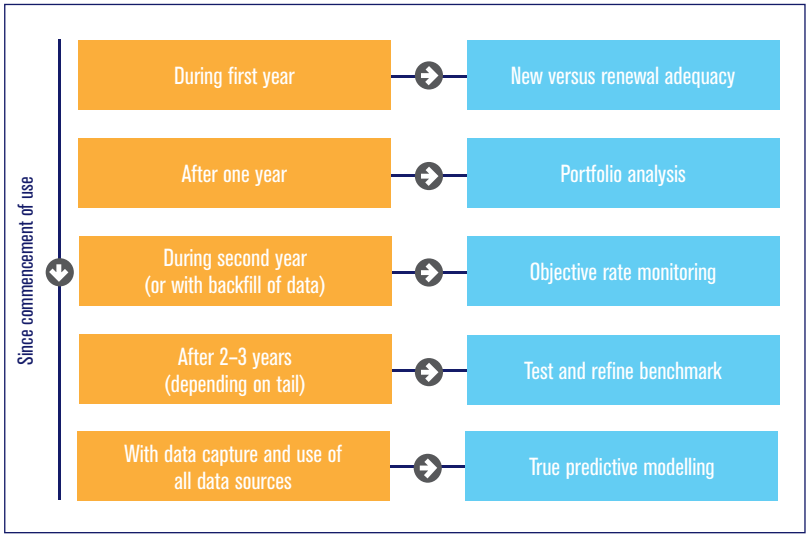
Considering the cost associated with setting up the systems and procedures, it is important to ensure that the benchmarking process does not only 'tick the box', but also adds value to the business. The development of a benchmarking process can increase the underwriter's ability to manage the insurance cycle and maximise the profitability of the business.

By developing a benchmarking tool, value can be added to the business by helping underwriters differentiate between risks and write a well-balanced portfolio of risks. If this process is more robust and accurate than that of your competitors, it can lead to a competitive advantage through superior risk selection.

It can take some time before the full value of the approach feeds through to the bottom line. However, the use of such a model can deliver value to the business from day one, with that value continually growing over time (as illustrated in Figure 1).

Sanjiv Chandaria

Figure 1 | Using benchmarks to deliver value



From first use, a benchmark tool can give an objective measure of rate adequacy by comparing the ratio of price charged to benchmark rate for all risks, both new and renewed. This can be key at points of cycle inflexion when the differential between new business rates and renewal business rates can be large and is not captured by renewal rate monitoring.

After only one year of use the model can give valuable insight into the portfolio, showing areas where rates achieved in the market are much greater or much less than the benchmark and which might, therefore, represent areas for expansion or contraction.

Once risks have been run through the model for a second year, the model can give a good measure of rate monitoring. For example, if a risk which was priced at the benchmark in year one comes in at 10 per cent below benchmark in year two, this would be taken as a 10 per cent rate decrease. This could also be achieved from day one by backfilling the previous year's renewal information into the model.

After a number of years (depending on the time taken for claims to develop to a reasonable level of certainty), the performance of the benchmark model compared to actual claims outcome can be used to tweak the output of the model, and provide data for the underwriters, enabling them to revise their pricing models.

Returning to the time taken to deliver bottom line impact, our view is that the quicker this process is started, the quicker it will not only deliver value but be seen as part of business as usual. We reflect again on the similarities with the Lloyd's rate monitoring exercise that has evolved and become an integral part of the business in only a couple of years. It is our strong belief that benchmarking, if introduced now, will provide valuable insight into risk selection and pricing at a portfolio or even individual risk level within a few years.

Figure 2 | What are the benchmarks used for?

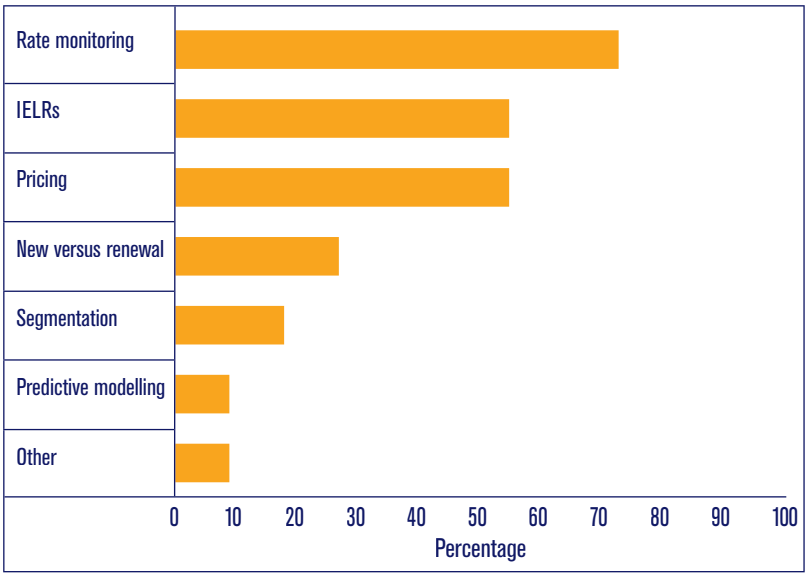


Figure 2 shows how benchmarks are currently used within Lloyds and the London Market. The majority of survey respondents responded that benchmarks are used for rate monitoring, with about half of the companies using pricing benchmarks for renewal pricing and as an IELR input for reserving purposes. Some companies have made inroads into using benchmark data for segmentation and predictive modelling purposes. We expect this to increase as more companies focus their energies on collecting the relevant information and developing sound pricing frameworks.

Benchmarking in practice – defining consistent and objective benchmarks

Our survey indicated that the majority of respondents could produce benchmark loss ratios for the classes listed. This is a very encouraging response, but it is also important that the benchmark is of a high quality to be of value in the business. Some very important questions need to be considered before undertaking a benchmarking exercise, including: "How should a benchmark be defined?" "What information needs to be captured in order to be useful, but not be too onerous?" "How will the captured information be used in practice to realise value in the day-to-day business operations?"

There is a real danger that by selecting a 'quick-win to compliance' benchmark and not capturing the underlying data that is needed to derive this, you can end up with information that provides no meaningful insight into underwriting performance or ways of improving the quality of future business written.

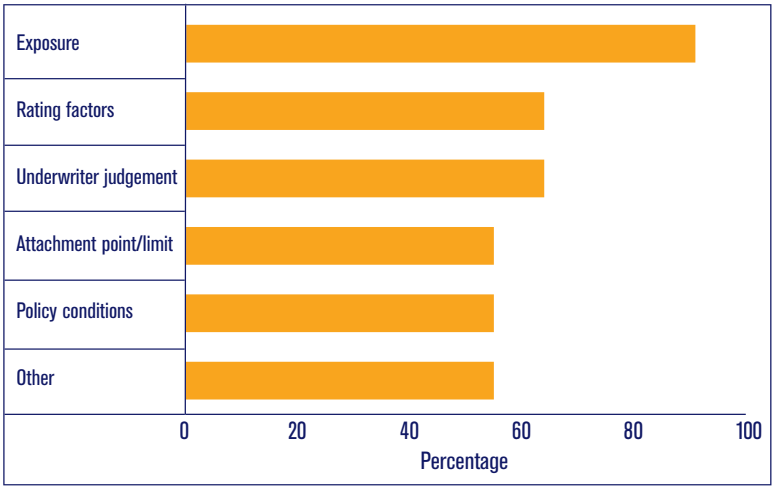
The actual market premium might move, but the benchmark should be consistent and objective. It is very difficult to measure performance (and explain deviances) relative to moving goal posts. In our experience, a simple benchmark price based on an objective exposure measure, allowing separately for objective rating factors and an explicit underwriting adjustment, is a more effective way of monitoring rate changes over time than an estimated rate change or loss ratio. Even if this benchmark is not accurately calibrated to a target loss ratio, it is at least consistent from year-to-year and can be calculated for both new and renewal business. As the process develops it will be possible to ensure that the calibration process is consistent with that of the business plan.

For example, a benchmark price for a property account can be calculated as a function of total insured value (property and loss of profit value) and then adjusted for verifiable factors (such as trade, location, construction type or number of sites), before finally being adjusted by a subjective underwriting adjustment capturing softer factors such as risk management quality. Capturing these different pricing components separately can give valuable insights into the separate trends in exposure, experience and perceived risk quality (as measured by the subjective underwriting adjustment).

The precise definition of your benchmark might vary by class of business. For some classes, where data permits, the benchmark could be derived using statistical techniques such as predictive modelling. For other classes, it might be derived by capturing the expert opinion of a team of underwriters and setting a consistent benchmark allowing for the crucial factors considered in the underwriting process. It is important to work closely with the underwriting teams to ensure that the benchmarks leverage maximum benefit to the business and also incorporate qualitative underwriting adjustments, as long as this is recorded on a consistent basis.

Figure 3 shows the major sources of information currently used to derive pricing benchmarks.

Figure 3 | What information is used to produce benchmark?



Most respondents suggested that benchmark rates are quite useful, even for lines of business with limited available claims information such as political risk. More than a quarter of respondents found benchmarks very useful for lines such as marine, property, energy and aviation (see Figure 4).

Data source identification and capturing

Figure 5 shows the potential data sources available which go beyond data used in typical benchmark rating systems. For some classes, external data sources mean that detailed pricing techniques can be applied immediately without the need for additional internal data capture.

One of the most challenging components companies face is the capture of accurate, up-to-date reliable information that can be used to produce meaningful benchmarks.

For example, if at renewal, changes in the attachment point, deductable, rate and change in coverage are not captured correctly, the benchmark model will produce output that distorts results and can lead to incorrect conclusions. Working alongside underwriting teams would help to ensure that they understand exactly what needs to be captured and also automate the process as much as possible.

Another key part of the process will be an analysis of the different lines of business you write to identify those areas which are most susceptible to benchmarking, based on issues such as the tail of business, the distribution of claim sizes or the homogeneity of risks. This will include an assessment of which classes will be susceptible if the necessary processes were put in place to capture the required data.

Conclusion

We believe that it should be easier to introduce this process in a hard market, where the results of the analysis will support the underwriters in their views on the opportunities in the market. This has the benefit that the process will be delivering value by the time you hit the soft market. Introducing such a process in a softening market can be more challenging, as it might be difficult to obtain buy-in from underwriters already placed under increased scrutiny.

Figure 4 | How useful are these benchmarks for each class of business?

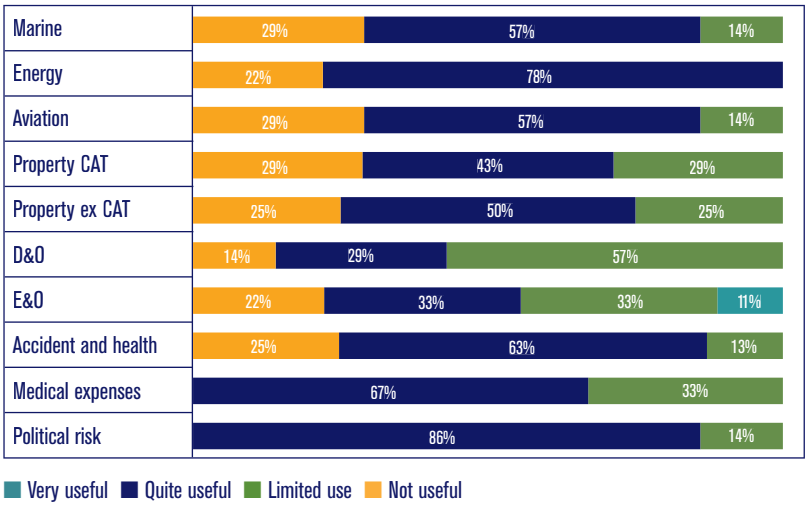


Figure 5 | Potential data sources

Underwriting data

- Data used in basic benchmarking model

Survey data

- Engineering data
- Data on risk management
- Captured systematically

Underwriter judgement

- Systematic capture of underwriter adjustements not in basic model

Catastrophe modelling

- Location data
- Building type data
- Construction data

Submission data

- Backfill historical exposure and claims data
- Capture data on all submissions including when not quoted

External data

- Econometric data leading indicators
- Market loss databases

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Data talk

Your desktop PC has useful, data-hungry applications. Richard Bland studies the tools which help them talk to each other.

The perennial problem which many actuaries face is that they have a desktop full of useful applications. These applications all use vital data, and store them in their own incompatible file formats. How do you get them to share their data efficiently?

Terrible text

The old answer to this is 'text'. The Comma Separated Values (CSV) file is much loved by desktop users because most of the applications which they use are capable of understanding this text format, but it has some serious drawbacks:

- **Loss of precision** – real numbers may lose some of their significant digits in text form, and some packages deliberately truncate decimals when writing text.
- **Loss of typing and allocation** – the text format does not specify whether values are supposed to be integers, real numbers or character strings – and the consistency of type is not enforced throughout a column. It is also not evident how much storage you need just by inspecting a few rows of data.
- **Missing values** – there is no consistency between packages over how missing values are handled, and this can result in misreads when transferring data.

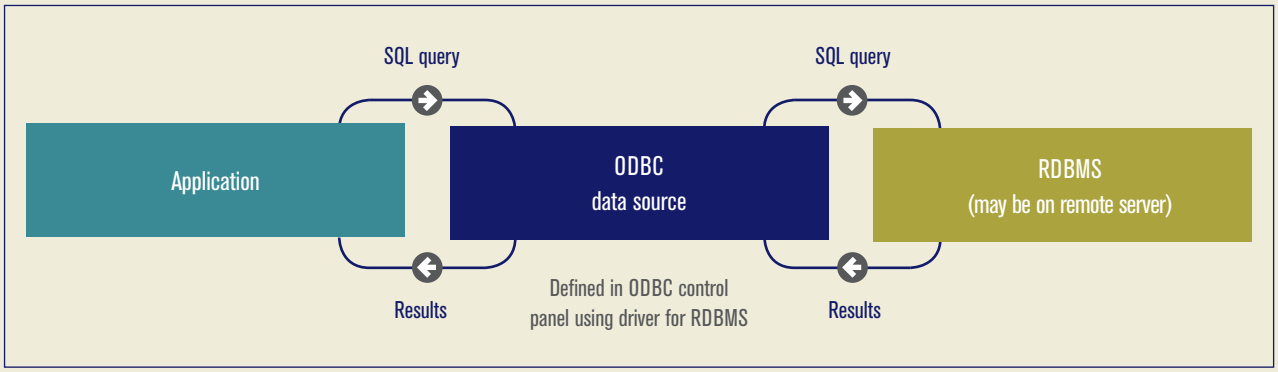
How much more satisfactory it would be if you could get your software packages to transfer data directly to each other, retaining the table schema information so that the data arrives in the target application guaranteed to have the same values and attributes as in the source. Fortunately, there are several data exchange standards available to Windows users.

ODBC

The first of these standards to emerge was Open Database Connectivity (ODBC). Manufacturers provide drivers for this standard which enables users to define data sources using the Windows ODBC administration tool. It was originally implemented in 16-bit and 32-bit form to support earlier versions of Windows. A data source would typically be an Access database file, or a directory containing SAS datasets. Many database providers, such as SAS or Oracle, produced ODBC drivers enabling users to access remote database servers. Office products such as Excel or Access have data query or import options to allow users to read data from ODBC sources, and other manufacturers such as SAS have produced specific modules to access ODBC sources. ODBC supports ANSI standard SQL queries, and these are passed to the driver and resolved by the source database, with the query results returned to the client – a powerful capability if the source is a large database server. Typing and allocation of data columns is preserved, within the SQL standard.

The advantage of ODBC is that users can transfer data from one application to another without any coding; the disadvantage is that sources must be set up manually within the ODBC control panel. It is difficult (but not impossible) to fully automate the process.

Figure 1 | ODBC diagram



OLE DB

The next generation was OLE DB, based on the Component Object Model (COM) standard. This is a faster and more automated standard where manufacturers create 'providers' which are registered within Windows. A client can access data from a provider by supplying a connection string which contains the provider name plus any additional properties which a provider may need, (for example, the name of a server or user id and password). It is faster than ODBC and can be handled programmatically by applications with no need for the user to use any control panel objects to set up sources. This means that many applications have OLE DB capability built in and can automatically access data from a range of source applications. For developers, a slight disadvantage of OLE DB is that the connection strings and their required properties can be rather obscure, but the range of available providers and their capabilities certainly makes up for this.

Some providers are worthy of special mention. The Microsoft Jet provider is especially powerful, enabling users to directly read and write to .mdb databases without any need for Access to be installed. It can also treat Excel files as data sources – if you have a workbook containing worksheets formatted with data in rows with a row of column headings across the top, it can treat that worksheet as a table and run SQL queries on it.

Microsoft also offers a SQL Server provider, giving remote access to database servers running SQL Server.

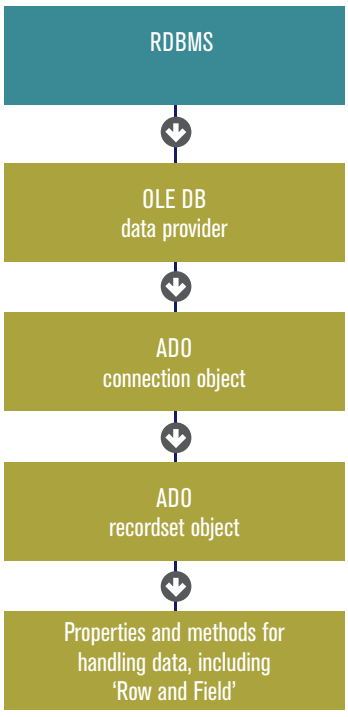
SAS offer some interesting data providers. The Local provider enables direct read-only access to SAS tables without having SAS installed, while the IOM provider provides full SQL processing of tables and views using either a local copy of SAS or a remote copy on a SAS/Integration Technologies server.

ADO

For those who like coding, ActiveX Data Objects (contained within Microsoft Data Access Components) (MDAC) allow a very convenient way for Visual Basic programmers to play with data. ADO components can be used with Excel VBA, for example. The first step is to define a Connection object which uses a connection string to connect to an OLE DB provider. Then, a RecordSet object can be opened which has the rows and columns of a data table. It can either directly access a table in the database or be the result of a SQL query. Some providers allow update access.

The use of ADO recordsets offers a convenient and remarkably high performance way to enable true data linkage in, say, an Excel application. It brings proper data integrity within reach of the desktop actuarial programmer. In fact, one can quite easily envisage an effective management information system being built with no more than Excel on the desktop and a data warehouse on a SQL Server.

Figure 2 | ADO diagram



LINQ to the future

There is more to come with Language Integrated Queries (LINQ) and other new techniques, but this article must end here. The more advanced methods discussed above are used in many of Watson Wyatt's software products – VIP*itech*, Pretium and Simulum all use these features to manage and secure data exchange.

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> **"...one can quite easily envisage an effective management information system built with no more than Excel on the desktop and data on a SQL server."**

Getting to grips with Part VII transfers

In this article, Kate Angell and Richard Bulmer explore how Part VII transfers can be used as an effective tool for the management and restructuring of insurance business.

Insurance business transfers have been permitted in the UK for a number of years, originally under the regime set out in Schedule 2C of the Insurance Companies Act 1982 and currently under Part VII of the Financial Services and Markets Act 2000. Regimes also exist for the transfer of both direct and reinsurance business across Europe under the Third Non Life Insurance Directive (which was implemented in 1994) and the EU Reinsurance Directive (which was implemented in 2007), although these Directives only prescribe minimum standards. As a result, the procedures in place for effecting insurance business transfers vary between countries.

Insurance business transfers, or Part VII transfers as they are commonly known in the UK, enable the complete transfer of business from one insurer to another, with no contractual liability remaining with the original insurer. They are accomplished without the permission of the policyholders and without any voting mechanism required, although Court sanction of the transfer is required in the UK, and policyholders (and other parties such as the FSA) have the right to be heard by the Court. Part VII transfers also require an 'Independent Expert' to be appointed. The Independent Expert is required to consider the effect of the proposed transfer on each of the groups of policyholders who may be impacted, and to produce a report setting out his/her opinion. When forming his opinion, the Independent Expert needs to consider the effect of the transfer on both the security of policyholders' contractual rights and the levels of service provided to policyholders. The Independent Expert's report is relied on by the Court and also made available to policyholders and the FSA.

Historically, there have been around 15 non-life Part VII transfers each year, with the profile of such transfers increasing recently with the Part VII transfer of the insurance business of Lloyd's Names for 1992 and prior years of account from Equitas to a company within the Berkshire Hathaway group. In this article, we consider some of the reasons for effecting such transfers and recent developments in the area.

Part VII transfers are a useful tool for insurance companies and are carried out for a variety of reasons. We explore below some of the most common reasons:

- **Achieving finality** – Part VII transfers are often undertaken to achieve true finality for the transferor company, for example, for the Lloyd's Names in the recent Equitas transfer. Reinsurance does not achieve this finality – with the reinsured always maintaining exposure to the underlying business. After a Part VII transfer has been completed, the transferor has no remaining exposure to the transferred business, while at the same time cover for policyholders is maintained.
- **Cost savings and capital releases** – many Part VII transfers are effected between companies within the same group so that companies can be deregulated and wound up, resulting in both cost savings (for example, via a reduction in both management time and administration costs) and capital releases.
- **Mergers and acquisitions** – Part VII transfers are effected in connection with mergers and acquisitions for a number of reasons. For example, to transfer similar portfolios of business into one entity to be sold (or to enable a sale of the remaining business to progress) or as an alternative way of acquiring a portfolio (or a combination of portfolios at the same time) rather than purchasing the entire company.
- **Schemes of arrangement** – Part VII transfers are also used in preparation for a scheme of arrangement. For example, where the insurance company currently contains business which cannot be included in a scheme of arrangement, such as compulsory insurance policies (for example, employers' liability insurance). This business can be removed from the company via a Part VII transfer prior to effecting a scheme of arrangement.
- **Restructuring overseas business** – Part VII transfers are also effected in order to restructure overseas business. For example, companies have transferred portfolios of business written through a European branch of a UK insurance company to a (sometimes newly established) insurance company in the European country instead. Another example is where companies have transferred a portfolio of business written through a UK branch of a non-EU insurance company to an EU insurance company, for example, to take advantage of passporting rights in Europe.

Figure 1 | Historical Part VII transfers

Internal restructuring	Within the RSA group, inwards reinsurance was previously written across 16 subsidiary companies. A transfer was effected to move all of this business into another subsidiary company, British Engine Insurance Limited. The aim of the transfer was to simplify the administration of the inwards reinsurance business of RSA and to help facilitate an exit from this business, should an appropriate opportunity arise. A transfer was effected of the business within Munich Re America's remaining UK branch, which was in run-off, to Great Lakes (also part of the Munich Re group) to allow the UK branch to be closed. The business of several Zurich operations was transferred into a single company, the UK Branch of Zurich Insurance Ireland Limited, to improve capital efficiency and to simplify the structure in Europe, with the aim of improving operational efficiency and risk management capabilities.
Restructuring overseas business	RSA combined all of its current Irish operations into its existing local insurance company, Europa General Insurance Company Limited, which has now been renamed as RSA Insurance Ireland Limited.
Achieving finality for the insurer, without terminating policyholders' cover	The transfer of the insurance business of Lloyd's Names for 1992 and prior years of account from Equitas to Equitas Insurance Limited, another subsidiary in the Equitas Group of companies.
Separating out long-tail casualty exposures from core operations	In 2007, discontinued London market business with exposure to North American asbestos and environmental liabilities was transferred from St. Paul Travelers Insurance Company Limited to Unionamerica Insurance Company Limited (which was then a fellow group company). Unionamerica was subsequently sold off in December 2008.
Combining multiple subsidiaries	Following the merger of Nissan Fire & Marine and Yasuda Fire & Marine in 2002 to form Sompo Japan Insurance, the European subsidiary of Nissan (NICEL) went into run-off while the Yasuda European subsidiary continued to write business (including renewals from NICEL). A Part VII transfer was then carried out in 2007 to combine the two European subsidiaries.
Restructuring between countries	A transfer was effected of the treaty reinsurance business of SCOR UK to the UK branch of SCOR Global P&C SE following the integration of Revios and Converium into the SCOR group. The transfer formed part of the restructuring of SCOR SE as a hub company with six geographical divisions.
Transfers involving Lloyds syndicates	Syndicates 37 and 2037 historically provided capital to the Highway motor insurance business. The transfer of these syndicates' business into the Highway Insurance Company Limited enabled Highway to exit from Lloyd's. The aim of the transfer was to simplify the group structure, accounting and regulatory processes and to streamline their capital position.
Transfer of compulsory insurances in preparation for a solvent scheme of arrangement	Minster, The Contingency and Malvern insurance companies transferred their compulsory insurances to Groupama in 2008 in advance of proposing a solvent scheme of arrangement.

Richard Bulmer

Figure 1 sets out some historical Part VII transfers to illustrate some of the reasons for effecting such transfers.

Since the first insurance business transfers in the UK were sanctioned, the process by which such transfers are effected has evolved and changed over time. Some of these changes have been gradual in nature while others have been more sudden, such as the changes to the Financial Services & Markets Act 2000 (FSMA) last year. We consider some of the recent changes below:

- **Amendments to the FSMA –** three amendments were made which came into force on 30 June 2008. These amendments were:
  - Power to transfer reinsurance protections – to put beyond all doubt that accompanying reinsurance and other contracts, which are related to the main business being transferred, may be transferred as part of a Part VII transfer.
  - Notification of reinsurers – an additional requirement to give notice of the transfer application to all reinsurers whose contracts of reinsurance are proposed to be transferred as part of the Part VII process, in the same way that policyholders need to be notified. This requirement is to a large extent simply the extension of what was typically already regarded as good practice.
  - Lloyd's Names – the final amendment removed the restriction on the ability of certain former names of Lloyd's to transfer their insurance business, enabling the Equitas Part VII transfer to proceed.
- **The FSA's involvement** – the FSA now levies fees for Part VII transfers (currently £10,000 for non-life transfers) and issues two reports to the Court: the first in advance of the Directions Hearing (when the Court considers the proposed transfer and the plans for publicising it), and a further report in advance of the Final Hearing (when the proposed transfer is sanctioned by the Court). Previously, only one report was provided by the FSA in advance of the Final Hearing, and prior to that the FSA did not produce any reports at all. The purpose of the FSA's reports is to provide the Court with information on the FSA's views in relation to the proposed Part VII transfer, in particular, the basis on which the FSA does or does not object to the proposed transfer going ahead.
- **Supplementary reports** – all Part VII transfers require a report from an Independent Expert, and there has been a gradual trend for supplementary reports to be produced for the final Court hearing. These have generally been produced for one of two reasons: to respond directly to an objection which has been raised, or to consider the effects of events subsequent to the original report. The latter of these has become more relevant where significant changes to the economy have occurred during the period since the original report was produced, or the companies involved have published new financial information. The Independent Expert considers whether changes subsequent to the original report affect the conclusions and opinions reached.

Conclusion

While the process surrounding Part VII transfers has developed and evolved over time (and we expect it will continue to do so), such transfers remain an effective and useful tool for the management of insurance business.

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