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impact

Actionable insight for business leaders

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Fit for the future

Can Europe's insurers keep pace with customer demand?

SOLVING EUROPE'S PENSIONS CRISIS P.04

GETTING TO GRIPS WITH BIG DATA P.10

FACING UP TO LOW INTEREST RATES P.20

WELCOME

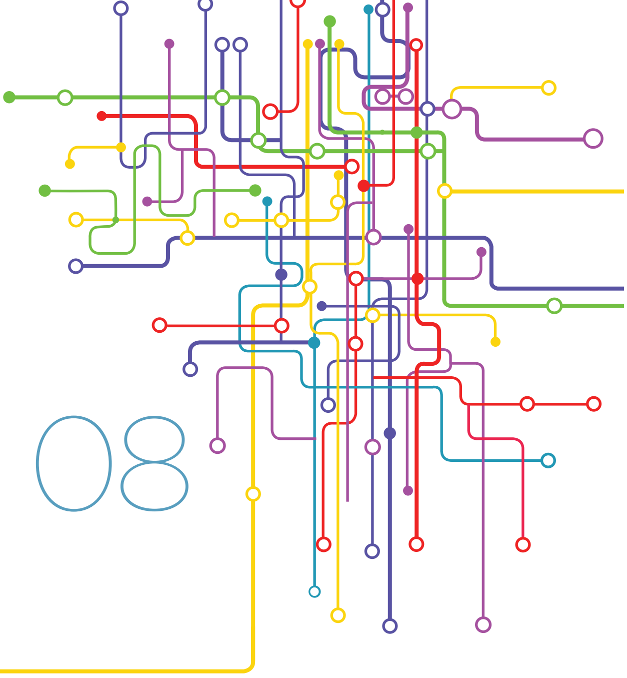
As an insurance executive, I'm sure you're well aware of the strong industry headwinds in Europe. The economy remains sluggish, with interest rates persistently low. Globalisation makes our business increasingly diverse and complex. Emerging risks require ever-more-vigilant risk management.

The promises of sophisticated technological innovation are intriguing – just consider the innovations in cloud computing and predictive modelling as the most prominent examples – and yet the challenges of effective implementation are daunting. And the crawl towards Solvency II continues, with many false summits behind us and probably more to come.

At Milliman, we understand the global insurance marketplace, and we also understand that your time is at a premium. We've created this publication, *Milliman impact*, to provide European insurance executives with a go-to resource for thoughtful perspective on your industry, with attention to the characteristics you expect from a Milliman consultant: independence; precision; quality; integrity.

Milliman impact tackles topics of value to insurance company leaders. We hope you find this publication insightful, and welcome your suggestions for what you'd like to see in future issues.

Steve White
President and CEO, Milliman



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> *Retirement is unlikely to be regarded as a once-in-a-lifetime deal.*
> Chris Lewis

THE COST OF LIVING

The growing proportion of elderly people is triggering a pensions crisis across Europe and forcing a reassessment of what retirement will mean in future. For insurers hoping to offer innovative solutions for the greying populations, the picture is far from black and white.

By Simon Challis

More than 1.1 billion people, 13% of the world's population, will be above the age of 65 by 2035, according to the UN's population projections. Europe's ageing populations have created a pensions time bomb that governments have sought to defuse by raising retirement ages and cutting pension benefits. But the message that living longer means working longer is taking time to get through.

Europeans are living longer than ever: 2012 EU mortality statistics show life expectancy of 82.6 years for women and 76.7 years for men. And the trend of growing longevity looks set to continue.

Pay-as-you-go pension schemes are being thrown out of kilter. Falling birth rates mean there will be fewer workers to pay the pensions of baby boomers when they retire. The problem is especially acute in countries with the fastest-ageing populations such as Italy and Germany, where the old-age dependency ratio – the proportion of over-65s to workers – is already high and set to almost double by 2050 (see 'Longevity by numbers', page 7).

Breaking the culture of early retirement

In most European countries, many people effectively retire long before they can draw their official state pensions. Portugal and Sweden are two rare exceptions in the EU where men tend to work beyond the state pension age. Some workers are able to retire early and draw pensions from their former employers, but others rely on unemployment benefits until they are eligible for the state pension.

Austerity measures aimed at reducing bulging public debts in the wake of the global recession have forced several European governments to raise retirement ages and cut their pension promises. Several countries, including Italy, Spain and the Netherlands, have linked the statutory retirement age to life expectancy.

Several factors – including reduced values of retirement savings post-crash and low interest rates, employers cutting pension benefits, the abolition of fixed retirement ages and anti-ageist legislation – have led to a rise of around two years in average effective retirement ages for men in Germany, Italy and the UK between 1996 and 2012. In the Netherlands, it has risen by nearly three and a half years during that period. In France, however, it has barely moved: 59.7 in 2012, compared to 59.5 in 1996.

Not only are people living longer; they are enjoying a healthier old age. The International Longevity Centre's Healthy Working Life Expectancy model found that on average in Europe, between the ages of 50 and 70, men spend 14.1 years in good health, of which about half is spent at work, while women enjoy 13.5 years, of which about one third is spent at work. So it is perfectly possible for healthy old people to continue working later into their lives, and many more will have to do so. Not only have governments changed pension rules to reflect increasing life expectancy, businesses have increasingly moved workers from defined benefit to defined contribution workplace pensions schemes, shifting much of the investment and longevity risk onto the individual.

Mixed messages

Despite the mixed messages coming from some governments (see box 'The growth of grey power') the news that workers will have to make more provision for their old age is slowly getting through. That is not to say workers are happy about it – strikes and protests have become a common feature across the continent.

The situation is more mixed in some countries. In Italy, pension rule changes, political wrangling and major errors have left workers unclear and disillusioned, says Paola Luraschi, principal of Milliman's Milan practice. "The rules are complex and change frequently, so it's confusing and easy for mistakes to be made."

Luraschi cites a recent case where a major error by the pensions regulator meant some people who were without work were left without a pension too. "The complexity is one of the main reasons why people fail to engage and why the Italian private pensions market is underdeveloped."

The same argument rages in countries across Europe: whose responsibility is it to provide for a person's old age – the state or the individual? The simple economic fact is that, in many countries with ageing populations, the government, regardless of its political hue, simply cannot afford to pay more generous pensions benefits.

So, in future, people will have to become accustomed to being healthier, but not wealthier, in their old age.

The growing acknowledgement that living longer means working longer is leading to a changing perception of retirement, says Chris Lewis, a consulting actuary with Milliman in London. "In the future, retirement is unlikely to be regarded as a once-in-a-lifetime deal, where you stop working and that is that until you die. Increasing life expectancy means retirees may take on part-time work, or perhaps set up a business. They might draw down a little money in their sixties, to supplement their part-time earnings. But it's only when people reach their seventies or even their eighties that they might scale back work and rely fully on the pension pots they've accumulated."

> *"The rules are complex and change frequently, so it's confusing and easy for mistakes to be made."*
> Paola Luraschi

While longevity patterns are becoming clearer, insurers will need to be flexible and innovative to meet the needs of ageing populations. Markets across Europe differ widely, and longevity risk is just one part of the equation, with factors such as taxation and regulation determining the scope of potential solutions in different countries.

Indeed, insurers already take a conservative approach to life expectancy. "Our estimate for the average life expectancy of a healthy 60-year-old is 90. The Office for National Statistics (ONS) life expectancy forecast for a healthy 65-year-old is around 86," says Tim Gosden, Legal & General's head of strategy for its individual annuity business. "Some insurers are even more conservative than us. One insurer forecasts life expectancy to be 93."

In the absence of positive tax and regulatory reform, longer life expectancy makes existing insurance products look increasingly unattractive. Insurers have responded to people living longer by cutting the returns on their guaranteed-income retirement products.

It was growing disenchantment with annuities that prompted the UK government's recent proposed reforms,

THE GROWTH OF GREY POWER

The economic effects of demographic trends depend on the response of policymakers. But politicians' decisions are increasingly being influenced by those demographics: in most western European countries older people are making up more of the population and are more likely to vote than their younger counterparts.

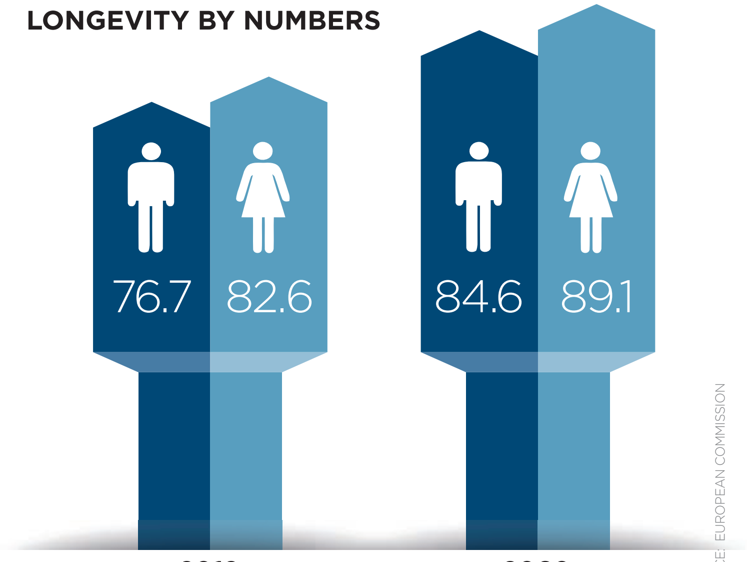
The growing power of the 'grey vote' can be seen in the UK government's reform of annuities to give people greater freedom over how to spend their pension savings, as well as in controversial pension reforms in France and Germany.

President Hollande has acknowledged that growing life expectancy will mean that French workers will have to work for longer but has ruled out increasing the retirement age beyond 62. Some public sector workers are eligible for generous pensions from as young as 50 or 52.

In Germany, Chancellor Merkel has proposed a plan to cut the retirement age for those who have been in full-time work for 45 years to 63, from 65, and has stated she will reverse a planned further increase in the retirement age to 67 from 65.

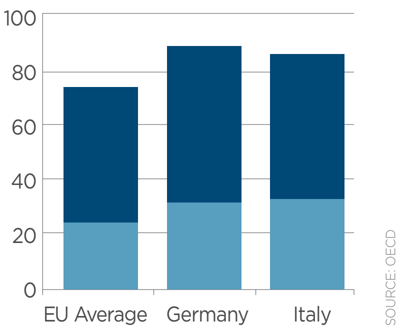
Although both governments have justified the reforms on the grounds of social justice, business groups and economists have condemned the reforms for undermining the message that longer life expectancy means workers need to work for longer. They also fear it will put an added burden on younger generations of workers to pay for generous pension benefits for older people that they themselves are unlikely to enjoy. Instead of defusing the pensions time bomb, the moves will speed up the countdown, critics argue.

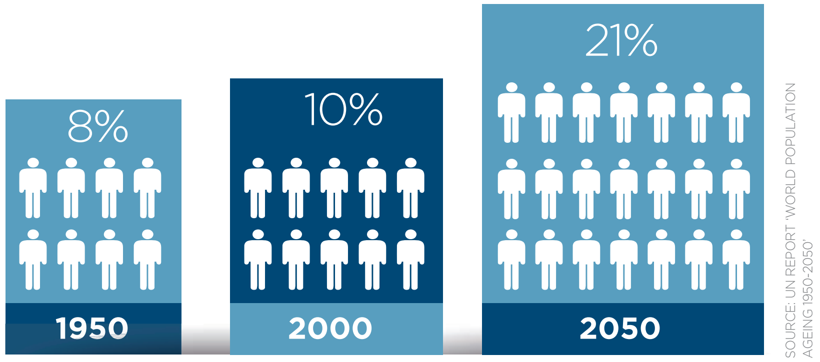
LONGEVITY BY NUMBERS



AVERAGE LIFE EXPECTANCY IN EUROPE

OLD AGE DEPENDENCY RATIO
(PROPORTION OF OVER-65s TO WORKERS)





PROPORTION OF THE WORLD'S POPULATION
OVER 60 YEARS OF AGE

1.1BN Estimated number of **over-65s** worldwide by 2035

3M Estimated **centenarians** worldwide by 2050, a 10-fold increase in 40 years

SOURCE: UN REPORT 'WORLD POPULATION AGEING 1950-2050'

enabling people to simply draw down their pension pots as lump sums, rather than put them into annuities.

But with the average pension pot in the UK totalling less than £30,000, critics warn that many people will simply spend their retirement nest egg and then be forced to rely on the meagre state pension.

"As people live longer, you could say that the guaranteed income provided by annuities becomes even more important," says Gosden.

Cultural differences

Perception and culture play an important role. In Italy, Luraschi says, older people tend to be cared for within the family. "But growing life expectancy will mean that people will find it harder to do this in future. Italians are starting to recognise there is a problem, but they don't know how to solve it."

In Italy, insurers simply aren't seen as being part of the solution – it is broadly the same across the EU: people are only dimly aware they will live longer than their parents and grandparents and the implications for finances have not been thought through.

Gosden remains confident that insurers will play an increasingly prominent role. "As people come to terms with their longer life expectancy, I think it will bring about a resurgence of saving for retirement, as well as the desire to plan properly."

There are some signs of innovation: in the UK there is a growing acceptance that people will have to pay towards their care in a home, but the issue of how much has so far been unclear.

Milliman's Lewis says that the recent Care Bill and pension changes have helped. "There could now be scope for a two-step annuity, which pays a guaranteed income while you're healthy but could then pay out an increased income to go towards care fees if you need to enter a care home."

Further innovation will be needed to avoid economies buckling under the increasing weight of age demographics, and to do so insurers will need a detailed understanding of the factors at play.

Find out more

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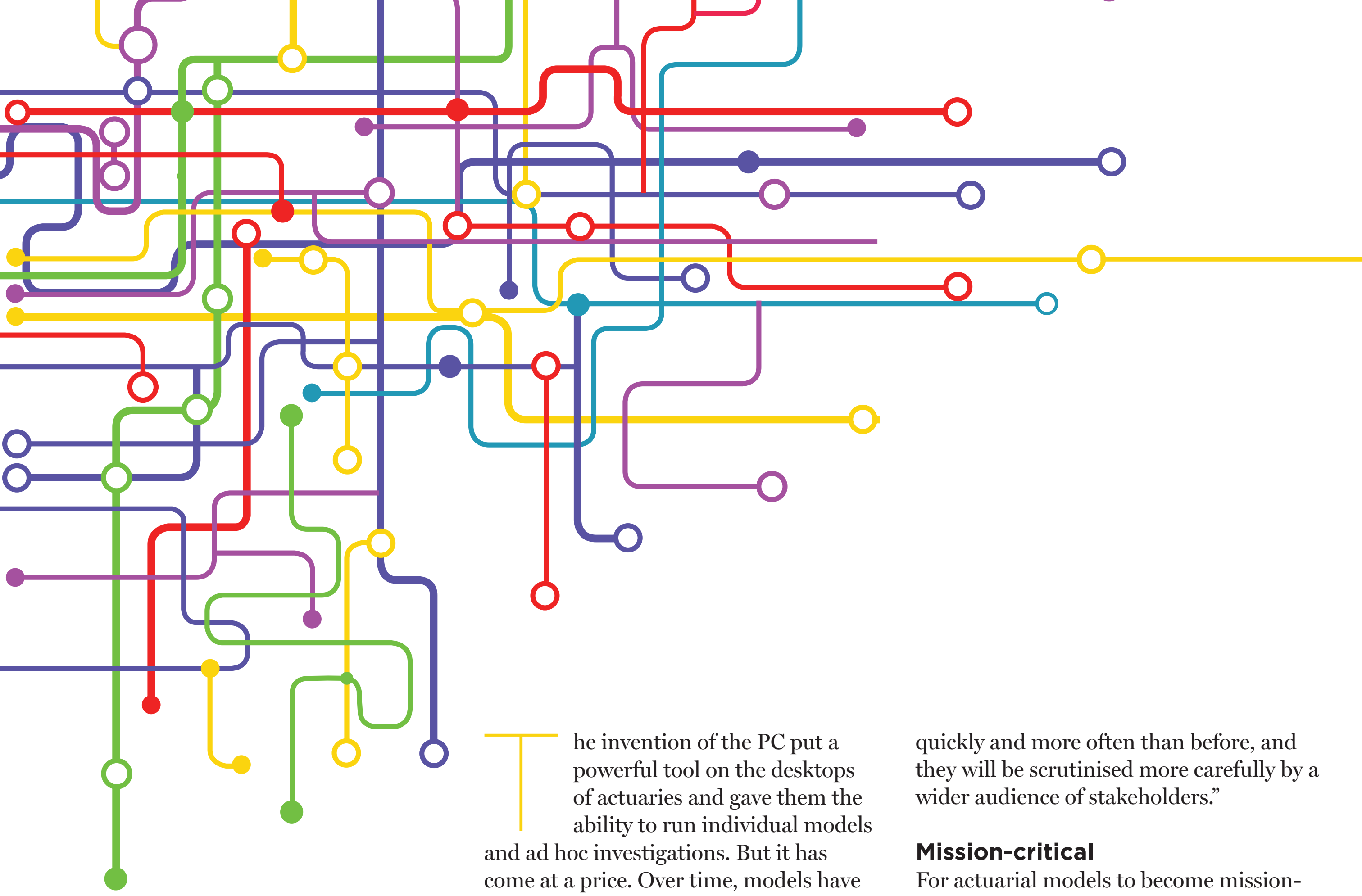

The invention of the PC put a powerful tool on the desktops of actuaries and gave them the ability to run individual models and ad hoc investigations. But it has come at a price. Over time, models have proliferated, leading to issues around consistency, controls and efficiency. The era in which insurers can effectively handle the manually intensive processes to meet external reporting to regulators and analysts is coming to an end.

New regulation, such as Solvency II and IFRS 4 Phase 2, demands more frequent and rigorous analysis and reporting in a more controlled and transparent environment. This can only be achieved by 'industrialising' infrastructure and processes. The challenge may seem daunting, but the benefits go far beyond compliance.

"Actuaries running individual models on their desktops is great for pricing products, looking at investment strategies or doing 'what-if' analysis, but it is a different story when it comes to reporting," says Pat Renzi, MG-ALFA global practice leader at Milliman. Many companies have ended up with dozens of models with different methodologies, data and assumptions. This hampers aggregation of calculations for risk and capital reporting, and undermines confidence in results.

Michael Leitschkis, principal and consulting actuary at Milliman, agrees: "Numbers have to be produced more quickly and more often than before, and they will be scrutinised more carefully by a wider audience of stakeholders."

Mission-critical

For actuarial models to become mission-critical applications requires streamlining of processes and consolidation of models. An appropriate place to start is with input data. This must be gathered from policy administration and investment management systems, formatted appropriately and fed into the model. Although actuaries are often involved in these tasks, they can be more efficiently and consistently handled by technology. Renzi calls this a "quick and easy win", freeing up resource to focus on more strategic analysis to support better business decisions.

A similar approach can be taken with the output from the models, with an automated process that collects data from disparate models and imposes consistency of format and manipulation of the information in a controlled and audited environment.

The biggest potential win, but also the most challenging to achieve, is the harmonisation of models across the organisation, Renzi says. An enterprise modelling platform can replace a disparate collection with a single centralised model that can be used for all applications across all business lines. In addition to the advantages of consistency in methodology, assumptions and data

Phoenix industrialisation by numbers

18 months post-project to achieve return on investment

95% reduction in man-hours required for quarterly reporting

77 legacy modelling systems replaced by 1 Milliman MG-ALFA system

20/20 VISION

Regulatory reporting is a persistent headache for insurers across Europe, with demand for more complex and timely information placing unprecedented strain on budgets and resources. As legacy systems creak, 'industrialisation' offers a clearer view of business-critical data and a means to sweep away inefficiency, redundancy and cost.

By Clive Davidson

format, the single set of code can be tightly controlled with a clear audit trail of all changes. Furthermore, amendments to methodologies or assumptions need to be applied only once instead of across multiple models, so enhancements and maintenance are more efficient.

Investing in the future

Insurers with an eye on the future are investing in strategic actuarial systems and business transformation projects. UK closed fund consolidator Phoenix Group has taken the industrialised approach, reducing over 70 modelling platforms it had accumulated in building its business to a single unified platform.

Phoenix CEO Clive Bannister admits that he was initially "a gloomy sceptic", concerned at the price tag and suspicious of terms like 'systems transformation'.

200M

Estimated cost (£) of Solvency II reporting requirements for the average insurance company

Source: Clear Path Analysis report *Technology for Solvency II*

The outcome has been undeniably positive, however: more than 900 manual processes reduced to 44; fund-specific methodologies slashed from hundreds to one; the time to produce quarterly ICAS data cut from four months to three days.

The effort of coordinating many teams running different models with varying output to meet a consolidated reporting deadline has been eliminated, says Matt Bridson, actuarial production manager at Phoenix. "There is a simplified, consistent process run by a single expert team, which is far more efficient."

Another objective for Phoenix was to find an alternative to having to maintain a large-scale computing facility to meet peak demand for end-of-period valuations, but which was used to only a fraction of its capacity the rest of the year. The answer was cloud computing, where processing facilities are rented from a third-party provider on a pay-as-you-go basis.

In 2010, when Phoenix embarked on its platform consolidation, Milliman's MG-ALFA was unique in its capability of providing access to the cloud – in this case, Microsoft's Azure platform. As Leitschkis points out: "Running a big hardware installation is not a core competency for insurers – the cloud offers a viable, cost-efficient alternative."

Phoenix would add flexibility to that list of benefits. "Now we can mobilise the resources to calculate results in a few days that might have taken us weeks in the past," says Bridson.

The industrialisation of reporting has several benefits beyond efficiency and cost savings. First, it can lead to greater trust in the information that will be used in business decision-making. "Having a common understanding of what our modelling platform is doing, we have more confidence in the numbers that are coming out," says Mark Hutton, head of financial infrastructure at Phoenix.

Furthermore, because the information is coming from a consistent harmonised process it is easier to meet Solvency II governance requirements, and potentially helps reduce capital set aside for operational risk. Phoenix has already made significant progress in this respect, says Hutton.

Finally, industrialisation frees up "high-value resources for high-value work," says Renzi. Instead of being distracted by manual chores, actuaries can apply their professional skills to business analysis and adding real value and insight to the company.

What is certain is that change is necessary for insurance companies operating in a highly regulated market. The benefits of investing in solutions that deliver cost, time and labour savings, and give companies greater confidence in financial reporting results, are immeasurable.

Find out more

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GETTING

Trying to understand cause-and-effect and make predictions has occupied the human race for millennia and it is not unrealistic to suggest that the era of 'big data' is heralding a major new phase in that quest.

Ever-cheaper computing power and data storage is making it possible for researchers to turn the trivia of life – our likes, dislikes, what we do and what we say – into valuable information.

Insurers have a long history of data innovations. In seventeenth century London, John Graunt studied 'bills of mortality' – death data produced by each parish – and produced tables of life expectancy: an idea that still helps insurers price annuity contracts in the twenty-first century.

But taking advantage of today's revolution requires a careful strategy. One of the risks with big data is becoming intoxicated by the sheer size of the pool of information and losing your way.

Neil Cantle, principal and consulting actuary at Milliman, explains that insurers previously would have to decide that they wanted to study something, collect the data over a period of time and then analyse it.

"Now, you can query stuff without having thought about it in advance. You can use unstructured data: analyse telephone discussions with policyholders or what they filled out on their claim form. It's digitised but you don't have to make any pre-judgements about the relationships between things, and that can be massively helpful.

However, the very lack of forethought required can lead to some woolly thinking.

TO GRIPS WITH BIG DATA

‘Big data’ is the buzzphrase of the moment. While the bounty of information promises much for the insurance sector, insights can get lost in an avalanche of numbers. The real revolution will come from combining effective strategy with robust analysis.

By Chris Cundy

Cantle continues: “Sometimes it feels like people are just looking for easy ways to answer questions. They are getting lots of data together, running some maths with varying degrees of sophistication and taking whatever that says as gospel.

“That worries me a bit. It feels like you’re abdicating any thinking. You can always find correlations between things if you look at enough data and do some clever calculations, but it doesn’t necessarily advance your understanding of why.”

The danger is that big data becomes a big ‘black box’ – the answers coming out of the analysis seem correct, but the reasons why are unclear.

“Big data doesn’t always help us understand the cause of a certain phenomenon or process,” says Amit Phansalkar, vice president and chief data scientist at US insurer MassMutual. “If you start seeing correlations, you have to ask ‘What is the context?’ Without context, you end up in a rabbit hole.”

MassMutual is using big data techniques to develop a more consumer-centric approach to business.

Phansalkar advocates a series of data science experiments, whereby “a number of failed efforts leads us to success”. Part of the skill is to identify the failures early enough and move on, rather than waste time seeking more data to prove a futile point.

“Context is important: it depends on the question I want to try to answer,” he adds. “But I almost always err on the side of having a large number of data points, albeit incomplete, and then trust my algorithms to be able to connect those dots.”

> *You can always find correlations between things if you look at enough data.*
>
> Neil Cantle

ISTOCKIMAGES

But insurers are not always carrying out their big data analysis in-house – many are successfully subcontracting the work to third parties.

Tele-addicts

Octo Telematics is part of a new wave of 'end to end' telematics service providers (TSPs). The international firm has connected to more than 2.5 million vehicles globally (a figure rising by 100,000 every month) and has gathered 33 terabytes of data on billions of kilometres driven, as well as 400,000 crashes. Octo analyses the behaviour data and presents a 'driver score' to its insurer clients for use in their pricing models.

Octo's group chief marketing officer, Jonathan Hewett, says this approach is in line with the broader move away from static, historical proxy rating factors to being able to utilise more dynamic and fact-based data.

Andy Goldby, chief product manager at telematics provider The Floow, says some insurers use TSPs as 'black boxes' to provide driver scores, but others are more participative. "Most insurers that work with us do so because they don't want to be limited to using the same score as all of their competitors. They want something unique to give them a competitive advantage. This results in us offering a number of variants of each component of the possible scores and allowing them to decide which components of the score are most appropriate and which tweaks are required."

As well as pricing, telematics is useful for claims management. The cost of crash damage, for example, can be estimated from impact data, and fraud can be uncovered. In a recent case, a telematics device supplied evidence to a court demonstrating that a claimed whiplash injury was impossible.

Improving the connection with the customer is a key facet of telematics. Via smartphones, drivers can be given feedback on their behaviour behind the wheel. "This improves their driving performance and encourages safer driving but also opens up a communication channel for the insurer. You move from a once-a-year arm wrestle on price to a much more engaging weekly dialogue," Hewett says.

A more frequent dialogue can be used, probably in combination with other data sets, to up-sell or cross-sell other products. However, if a driver disagrees with a driving assessment, for example, the relationship could be damaged.

On the 'software' side, behavioural analytics is also increasingly popular. Featurespace, for instance, produces fraud-detection and customer-retention software that operates in real time and, through the application of Bayesian statistical algorithms, teaches itself to spot new trends.

The UK firm has installed its system at insurers and online gambling companies such as Betfair. The fraud-prevention software works by monitoring the behaviour of users – such as how quickly they complete online forms and whether they enter information right first time – and builds up profiles for each user and groups of users.

Any deviation from 'normal' is flagged up and users are scored on how likely they are to commit fraud. Similarly, on the customer retention side, the software analyses and learns behavioural trends in order to score clients on how likely they are to renew their contracts.

Matt Mills, Featurespace's commercial director, says the system is quicker than conventional analysis and is better able to spot nuances that may indicate a new type of fraud.

> *"There are two worlds clashing. Modern technology is bringing in far more data than current systems can cope with."*
>
> Thomas Guidon

People power

There is still a role for human judgement in checking whether suspicious actions really are attempted frauds – and of course the system can fail to spot frauds (in which case the operator can teach it new tricks).

If you start seeing correlations, you have to ask 'What is the context?' Without context, you end up in a rabbit hole.

Amit Phansalkar

"In that environment the system is still important," Mills says. "It's responsible for taking millions of events and weighting them in terms of severity rather than necessarily saying 'this is a risk'."

Whether the use of third-party analysis and scoring means insurers are abdicating their thinking may be a moot point. Octo's Hewett says that, while the firm does not get to see the business case for insurers to use telematics, it does get to see the increase in business.

UK insurer Aviva reportedly saw a 30% reduction in claims in an early telematics programme. Telematics is becoming a common strategy for marketing car insurance to younger drivers and other high-risk groups; those sensible behind the wheel earn discounts.

Goldby notes that no-one has quantified how much of the claims reduction is the selection effect, how much is down to risk differentiation and how much is the educational improvement effect. "That's something we're working on with clients, to see how things are likely to change in the future when the selection effect dies away," he says.

The high degree of data aggregation performed by the service providers is inevitable, given the general lack of tools and expertise that insurers have for dealing with big data, says Thomas Guidon, global chief pricing actuary at Zurich Insurance.

But that should not be the strategy in the future, he suggests. "There are two worlds clashing. Modern technology is bringing in far more data than current systems can cope with."

Aggregation is needed as it is the only way to use the information in insurers' current systems, he says, but the detail gets lost. "You get used to what you get, so it's a vicious circle."

Guidon compares the situation to fracking for natural gas: "We have known for decades that there is gas trapped in shale rock, but new technology was needed to liberate it. Similarly, insurers need to invest in new technology to liberate the value in their big data."

Goldby at The Floow says that some of his clients already understand the medium- to long-term need to bring some of the data analysis in-house. But many are put off by the large-scale data-handling requirements and lack the academic expertise to cleanse the raw telematics data and create the necessary algorithms.

Room for improvement

MassMutual's Phansalkar identifies four priority areas for investment in big data technology: first, better systems are needed to ingest the growing number of data sources.

Second, the infrastructure in which data is captured needs to improve, in such a way that "if I take one consumer, I should be able to know all the various data points I have about that consumer within my system".

Third, the algorithms and statistical techniques need to keep up. "I cannot take more than 24 hours to process data that takes 24 hours to collect. That's a losing battle. We need to do things fast and smart," Phansalkar says.

Finally, the end-level tools that are presented to internal teams or clients need addressing. "Anyone should be able to leverage all that information," he adds.

Predicting the future

Where all this innovation leads is an interesting question. There are, of course, the ethical concerns. Insurers could have access to a wealth of 'big brother' information about their customers, presenting various privacy and data security issues.

Regulations around big data have inevitably lagged but governments are fast waking up. A recent White House report into big data says that the 'notice and consent' framework for dealing with privacy issues, which has stood for more than four decades, may have to be revisited.

Insurers would do well to take the initiative on privacy, lest they lose the powers of insight they have worked so hard to win.

The real prize for big data is to help anticipate customer needs early enough to provide an appropriate solution, and to combine those analytics with an understanding of what these solutions might be.

Simply crunching numbers to continuously refine the rating factors is rather missing an opportunity for everyone to win.

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> *Insurers are looking at ways to squeeze more value out of what they already have.*
>
> Ed Morgan

As a wide range of regulatory, financial and social changes across Europe take hold, life insurers are striving to find efficiencies and consider new ways of extracting value from their existing business.

Historically, insurers could rely on selling new profitable business in an expanding European life insurance market, and not overly concern themselves with the management of their back books. But the current economic climate makes it much harder to sell new business, explains Ed Morgan of Milliman. “Insurers are looking at ways to squeeze more value out of what they already have, finding the scope to increase embedded value in existing business or release it by converting it sooner into distributable profits.”

Another driver of renewed interest is insurers’ desire to manage their capital more efficiently, in part due to pressure from shareholders and regulators, says Milliman’s Scott Mitchell. Portfolios in runoff can be capital-intensive, but Europe’s proposed new risk-based capital regime Solvency II encourages insurers to look at new ways of managing their risks and capital.

“As insurers find that some products are no longer attractive to consumers or insurers, and as Solvency II bites in Europe, back book management and runoff has been climbing up the agenda,” says Mitchell.

In the UK, where many companies closed all or part of their life business in recent years, consolidation has been the answer. Indeed, a number of specialist consolidators have been acquiring closed books in the UK. In Spain, several banks have used reinsurance to free up much needed capital and value from their life insurance subsidiaries.

External solutions make great sense for some companies, Mitchell says, “but if you scratch beneath the surface you will find that there are many more options other than disposal”. A sliding scale of options can enhance, protect or extract value, he adds. Value can be enhanced by identifying capital or expense synergies, while reinsurance, securitisation or financial hedges can remove volatility or transfer risk. There are also mechanisms to extract capital, including reinsurance and securitisation.

Some solutions will be able to tick more than one of these boxes. For example, value-in-force (VIF) monetisation deals can help to enhance liquidity or be used as part of an active capital management programme. “This solution can be adapted to fit different objectives, and is something that we have seen increasing interest in,” says Mitchell.

In-house

External solutions could become more attractive for life insurers under Solvency II, but a transactional approach will not be for everyone. Some companies would rather realise

HIDDEN TREASURES

In today's fast-changing and competitive landscape, life insurers are under pressure to adopt more innovative ways of managing back books. With so many available options, a formal framework can help unearth the solutions that best fit the business and add most value.

By Stuart Collins

embedded value in their back books themselves.

There are also in-house options that can improve efficiencies and protect value, according to Morgan. For example, reinsurance can reduce risk and release capital or value, but without resorting to an outright sale.

Often, relatively simple actions can have a significant impact. "Many insurers manage their portfolio as one big homogeneous book of business, but there may be benefits from taking a more segmented approach," Morgan says. "By splitting out parts of the business it may be possible to manage different sub-portfolios more precisely. For example, more recent policies with less onerous guarantees could adopt a more aggressive investment strategy."

Also, conducting more sophisticated retention analysis can focus efforts on the most promising business and let less desirable business run off naturally.

And optimisation of management rules and how they are modelled can be effective for participating (with-profits) business. "Companies can do a lot around dynamic management actions," says Morgan. For example, some insurers are using 'high level and simplistic' management rules in their stochastic models. "More sophisticated modelling can help to release value and enhance risk mitigation during times of stress, freeing up available capital," he says.

Finding momentum

Despite the relatively straightforward nature of some of these changes, reticence is all too evident. "It is easy to fall into the trap of believing that there is little that can be done with back books, and the way in which they have been managed over the years must be the best way," says Morgan.

But with social and demographic shifts, the low interest rate environment and the regulatory constraints of Solvency II making new business harder to come by, this attitude may have to change.

"Companies will need to be more sophisticated and proactive with back books," says Mitchell. "And as the industry landscape changes, different solutions will emerge as being optimal."

With myriad options on offer, insurers should consider adopting a formal approach to weigh up the pros and cons. "It is important to understand the benefits of different strategies for the business, such as how much capital it will save or how much value it will protect," says Mitchell. "A formal framework can identify the optimal strategy for your company and help to prioritise actions." ■

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ISTOCKIMAGES

Customers' understanding of financial and investment issues is pretty low.
Ian Woods

FIT FOR THE FUTURE

Within a decade, demographic change, increasingly prescriptive regulation and technological development could render many existing products and once core skills redundant. But the insurance industry seems poorly positioned to rise to the challenges, with limited appreciation of the enormity of the potential changes.

By David Worsfold

The insurance industry needs to transform. But the perennial dichotomy between what consumers say they want and what they actually need looms large.

Ian Woods, director of product pricing at Legal & General, believes that coherence can be a problem. "Customers' understanding of financial and investment issues is pretty low. A minority do understand but the majority need to be directed."

Russell Ward, senior consultant, life insurance with Milliman in London, adds that consumers often have particular expectations of a level of income or return, "but there is a genuine lack of understanding of the investment and product dynamics needed to achieve that".

These frequent contradictions in consumer attitudes to insurance, savings and protection products mean many seek guarantees that are unaffordable or which they aren't prepared to pay for, or think they can find a single solution to multiple needs.

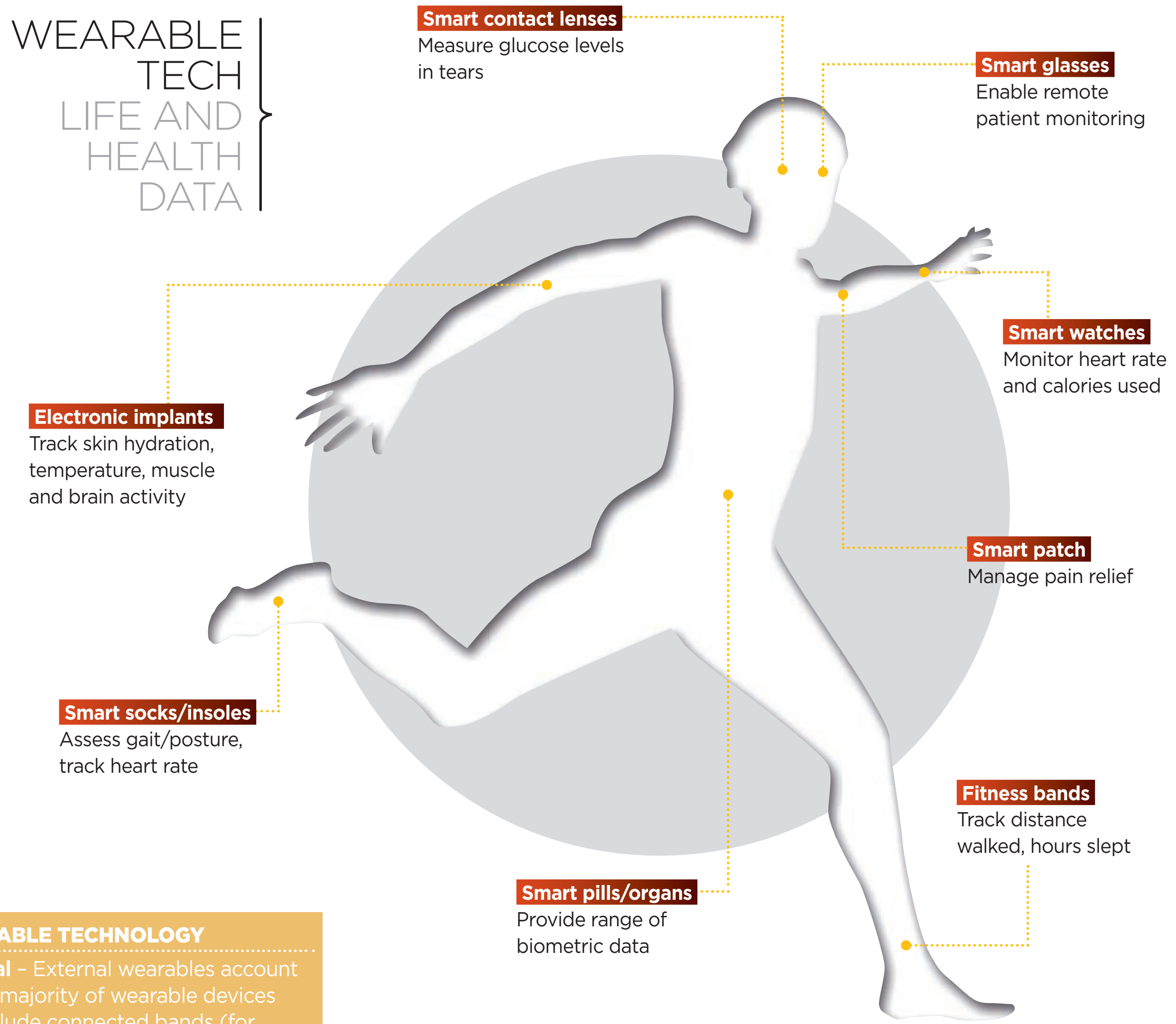
Responding to change

Flexibility has also been a problem as consumers become frustrated with products that cannot respond to unexpected changes in circumstances.

Woods notes that, in the past, providers developed flexible products with options to allow financial advisers to tailor the solution for their customers, but now simpler products are required for consumers unwilling to pay for advice.

Kevin Manning, consulting actuary with Milliman's Dublin office, agrees. "The insurance industry needs to develop products that can meet different needs and offer downside protection that doesn't have the disadvantages of expensive guarantees," he says.

Regulatory reform could prompt some rethinking, according to Michael Culligan, principal and consulting actuary at Milliman. "Solvency II requires companies to assess their liabilities to policyholders on a more realistic basis and so will lay bare the huge underlying costs of some of the guaranteed products



WEARABLE TECHNOLOGY

External – External wearables account for the majority of wearable devices and include connected bands (for example, fitbands, anklets), connected eyewear (smart contact lenses or smart glasses such as Google Glass), smart accessories (clip-on monitors, headphones, smart gloves) and smart clothes, especially sportswear. They can collect a wide range of information about the wearer's body and also external data sources they might be in contact with.

Internal – The next generation of wearables are internal and are already with us. Tiny tracking mechanisms can be inserted or ingested. Internal wearables embed sensors into the body's natural structures or processes to collect data in extreme environments (like a heart valve, for example). Examples include smart pills or smart organs, both of which are equipped with tiny cameras and sensors detecting specifically programmed biometrics and biochemical events.

favoured by the continental European insurers".

This approach has to be tempered with a more nuanced understanding of wider demographic and societal changes. Not only are populations throughout the developed world getting older, but they are also becoming more complex, warns Mick McAteer, founder and director of the Financial Inclusion Centre.

Fewer people nowadays have a single career, or even a single family during their lifetimes but many of the current product propositions don't address this. "People face complicated lives," says McAteer. "Too many of the business models are based on people in a nuclear household with a progressive career, steady earnings growth and a mortgage, who reach equilibrium in their mid- to late-fifties when assets overtake debts."

The industry's narrow understanding of demographic change (see page 4) could pull product development expertise away from developing products for these more fluid, complex lives of the upcoming generation to developing products for well-off retirees.

Simpler solutions

Previous attempts to deal with some of these issues led to complex product propositions. "If you go back 30 years to the zenith of the unit-linked market, actuaries thought they had designed the perfect product with flexible whole-of-life cover but it turned out to be far too complex", says Peter Le Beau, managing director of consultants Le Beau Visage. "Unbundling is part of the zeitgeist now.

Unbundling is part of the zeitgeist now. People prefer to see simple products that meet specific needs.

Peter le Beau

People prefer to see simple products that meet specific needs."

Specificity is the key to clearer products that better serve both consumer desire and need, says Milliman's Manning: "If you tried to develop a product that meets every financial need over a lifetime then it would be very complex. But if you start to identify the key needs at different stages in people's lives then you can meet them with relatively simple, focused products."

Culligan describes three 'stages of needs': first, to protect future earnings, then to accumulate and manage assets, and finally to draw down those assets over time.

"The primary concern is to build a sufficient nest egg, especially as defined benefit pensions are on the way out and state support is limited," he says. "But people also need to recognise that, until late in their career, future earnings are their biggest asset and can be protected against illness, incapacity and loss of life."

Competitive difference

Even with this drive to reduce complexity and introduce differentiated products, McAteer is critical of a lack of choice for consumers: "There might be a lot of products but they are all the same. If the market was working you would see far fewer, much simpler and more transparent products."

Most of the competitive dynamics have been driven by distribution rather than by the end consumer, he says. "Economists struggle with this sector because there are a lot of products and a proliferation of intermediated distribution and they mistake that for effective competition. But there is no effective competition."

These competitive dynamics could change suddenly, warns Le Beau. "Someone will come in from outside with a big distribution network – a Google, a Microsoft or an Apple – and turn the market on its head. Nobody knew they needed an iPad until they saw one."

Kevin Carr, chief executive of the Protection Review, agrees that a limited product range based on traditional models has left the sector vulnerable. "The HMV or Kodak moment is coming and the danger is that the industry won't know how to adapt."

So far, new entrants, first banks and then retail giants, have turned to existing providers and established products when they have entered the life assurance and protection market. This pattern might not repeat itself, says Carr. "A large distributor with a very large presence could go direct to a reinsurer and build its own products. This would put them in charge of their own destiny and not restrict them to the products of the existing providers."

These new distributors could also streamline the underwriting process by building systems that offered underwriting decisions online with a simple set of questions, addressing some of the other concerns consumers have about buying protection-based products and positioning themselves for the mobile revolution at the same time, perhaps collecting underwriting data direct from wearable technology.

Power to the people

As one of a number of technology-related drivers helping to empower consumers, wearable tech has moved from the realms of science fiction to fact (see graphic opposite).

Both external and internal devices collecting a wide range of data about people's health and lifestyles could revolutionise the market. The need for medical reports and examinations, an issue for consumers in many countries, could be reduced or even eliminated.

Insurers are increasingly aware of the potential for technology to act as the catalyst for product development, says Woods. "By helping to identify people in a poor state of health, tech could have a significant impact on underwriting, especially in the protection market. As a consequence, there would be much more individual underwriting. The annuity market has already gone that way."

Technology could allow the collection of a lot of data in real time with very little cost. "It could completely redesign the business model. Linking that data into the back office is often the challenge for established players," he says (see related story on page 10).

Culligan agrees. "Insurers will need a clear strategy in how they harness this information effectively."

This technology-led revolution isn't without its dangers, Carr says: "There is a flip-side – the emergence of an insurance underclass. Like car telematics, it will be a choice. Those who want to opt out will be able to do so but will have to pay more".

As the full impact of technology is felt within and outside the industry, perhaps driven by new and hugely disruptive entrants to the market, Ward concludes that insurers must keep a focus on what they are good at if they want to compete and survive. ■

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> *Guarantees sound nice but no-one thinks about the implications.*
>
> Marcus Karlsson

A CHANGE OF COURSE

Europe's life insurers continue to ride a wave of volatile and exceptional market conditions caused by monetary intervention. Building resilience to changes in monetary policy may be painful but time to adapt is running out.

By Lee Coppack

Six years on from the financial crisis of 2007/2008, the impact of large-scale monetary intervention continues to send shockwaves through the European life insurance sector. The resulting era of ultra-low interest rates has created a perfect storm for firms seeking high-yielding investments to cover long-term customer guarantees, and whose options are limited by solvency regulation.

As insurers struggle in the face of such inclement conditions, new products that are more resilient to changes in monetary policy will be crucial, says Tigran Kalberer, managing principal for Switzerland, Austria, Germany and the Nordics at Milliman.

Otherwise, the habit of policyholders in expecting high guarantees on long-term contracts – something Kalberer describes as "almost like a drug addiction" – will threaten not only firms' survival but also the interests of those same policyholders.

Kalberer is concerned about the consequences of the European Central Bank's current course in keeping risk-free interest rates very low, possibly even into negative levels. "The policy has the effect of expropriating from savers," he says.

Profits under pressure

The gap between guarantee and interest levels has not escaped the attention of the rating agencies. The Netherlands and Germany are considered the two countries with the greatest problem of mismatch between high guarantees and returns from low risk investments.

In the Netherlands, competition is actually driving insurers to continue to offer products with guaranteed returns, which can exceed the available yields on acceptable assets. And in autumn 2013 Moody's warned that the German life insurance industry could ultimately face losses if interest rates remained at the same level. While noting that not all German life insurers face the same level of risk, Moody's says that their vulnerability is firstly a function of high historic guarantees – now an average of 3.3% on in-force business in Europe – and secondly a high duration gap between assets and liabilities, the highest among the main EU insurance markets. The resulting reinvestment risk is significant.

The impact of low interest rates has spread outside the Eurozone to other European countries, especially Switzerland and

THE IMPACT OF INTEREST

A reduction of one percentage point in interest rates results in lost investment income of about $250 billion a year for the global insurance industry or about 6% of global premium income.

The negative impact on insurers, however, emerges gradually because only the current premium income, a fraction of total investments and the assets which have to be reinvested, for example bonds reaching maturity, have to be invested at market yields.

Source: *Swiss Re* sigma (4/2012)

THE GREAT WAVE OFF KANAGAWA BY KATSUSHIKA HOKUSAI, 1830-1833

JAPAN: ZERO INTEREST

Interest rates in Japan fell throughout the 1990s and have remained at historic lows for nearly 20 years. Deposit rates are near zero, unchanged so far at least by 'Abenomics', the policy of fiscal stimulus, monetary easing and structural reform launched by Premier Shinzō Abe following the December 2012 general election.

Milliman's Stephen Conwill says, however, that growing macroeconomic pressures are creating a serious risk of rising rates. Many Japanese life companies are not prepared. Inflation without real economic growth would be a further challenge to the industry.

Nevertheless, Conwill believes this impeding crisis could be seen as a potential opportunity. Better prepared insurance companies could emerge larger, stronger and more profitable. However, they need to revise product strategies, approaches to asset liability matching and overall risk management protocols. As in Europe, Japanese insurers need to make themselves more resilient to changes in monetary policy.

"They must innovate now," he says. "The first line of defence is an assessment of product strategies. Insurers must be ready with products that will respond to policyholder demands in an environment of rising rates."

Most of all, warns Conwill, they need to act with a sense of urgency. "Inaction may have serious consequences."

Sweden, because the flow of funds into their safe haven environment has pushed down yields. Switzerland already requires long-term liabilities to be discounted at very low or negative interest rates.

Insurers in Sweden traditionally offered low levels of guarantee so they do not have a big exposure on their legacy books. Instead, taking on new business is a challenge, according to Marcus Karlsson of Milliman's office in Stockholm. "Guarantees sound nice but no-one thinks about the implications."

"It is the same environment for everyone," Kalberer says. "If they hold guarantees, there is no alternative. They are obliged to invest in long-term, fixed income securities by solvency regulation."

While it is understandable that regulators require investment in bonds to match long-term guarantees, product designs that try to give very high guarantees in a time of low interest rates can encounter problems.

Changing policy

Clearly, this problematic state of affairs cannot continue indefinitely.

Life insurers instead need to make themselves more resilient to changes in monetary policy, argues Kalberer. While insurers currently struggle with low interest rates, a rise would create other problems: life insurers could find a jump in their lapse rates and loss of new business as customers shifted their funds to higher-yielding investments, putting pressure on already strained cash flow.

Looking for an easy fix is not realistic. As noted by Swiss Re's sigma study, the life industry will need to address the relationship between the economic costs of guarantees it offers and policyholders' willingness to pay for them. "Since future interest rate developments cannot be predicted with reasonable accuracy, insurers need to be prepared to cope with any interest rate scenario," it warns.

Kalberer is confident that life insurance companies can get themselves out of their current predicament but he says that they need time. "Life insurers need to create new products which do not have guarantees, or they keep the guarantees to a low level, typically less than return of premium."

Both insurers and policyholders would be better off. Life insurers will have more freedom to invest in assets not subject to expropriation. These assets can generate higher returns for policyholders and can actually protect them from inflation, which would undermine the monetary value of a guarantee.

There is a range of products that insurers could choose (see box, 'Product options') but all require sophisticated asset management, taking the nature of the insurance liabilities well into account. However, this is no excuse for inaction, says Kalberer, as these skills are available in the market to support insurers.

PRODUCT OPTIONS

New life insurance products could include:

- unit-linked products with some sort of guarantee, such as variable annuities
- structured products
- hybrid products
- smart traditional products.

Moving forward

Swiss Re advises an understanding of how interest rates affect demand for and pricing of different lines of insurance business as a crucial first step.

Guarantees that are difficult to hedge yet create little value for customers at the point of sale must be eliminated. "The current low interest rate environment provides the opportunity to address these issues and create a win-win situation for both insurers and policyholders, ensuring that all parties are better prepared for any interest rate scenario in the future."

Ed Morgan, managing director for Italy and Central & Eastern Europe at Milliman, thinks that the habit of expecting high guarantees can be broken. "In some countries insurers have been quite successful in bringing down the guarantees both in level and duration whilst still maintaining high production of participating business. For example, some Italian companies are selling significant new business volumes with only a capital guarantee."

A Swiss example is instructive. In Switzerland, low interest rates and a strict regulatory regime forced companies to react earlier. The companies that fully accepted the reality of low interest rates and then took informed and decisive action coped best.

Portfolios were financially re-engineered, product design adjusted, assets de-risked and costs cut. The Swiss companies survived the crisis better than their peers. While it might be painful, the lesson is not to shy from harsh measures. ■

Find out more

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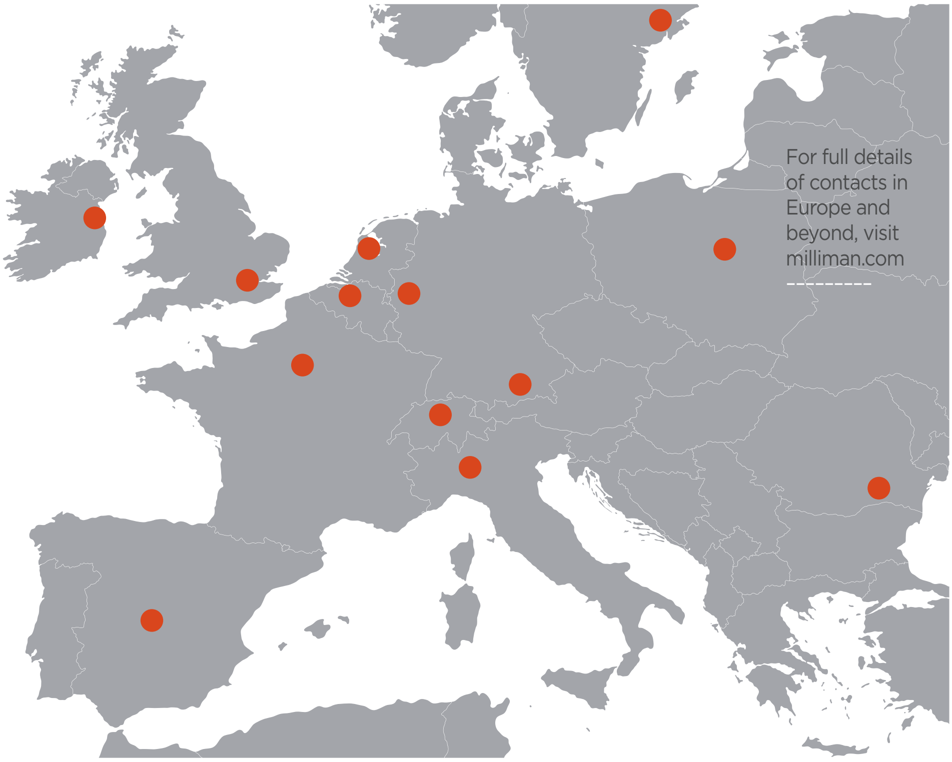
MILLIMAN IN EUROPE

Milliman is among the world's largest providers of actuarial and related products and services. The firm has consulting practices in life insurance and financial services, property & casualty insurance, healthcare and employee benefits. Founded in 1947, Milliman is an independent firm with offices in major cities around the globe.



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As people come to terms with their longer life expectancy, I think it will bring about a resurgence of saving for retirement, as well as the desire to plan properly.

Tim Gosden, Legal & General *(page 4)*

Modern technology is bringing in far more data than current systems can cope with.

Thomas Guidon, Zurich Insurance *(page 10)*

Unbundling is part of the zeitgeist now. People prefer to see simple products that meet specific needs.

Peter le Beau, Le Beau Visage *(page 16)*